# Traffic Impact Study

# STAMP

## Town of Alabama, New York

**CME Project No. 110-021d**

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*March 8, 2010*

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## EXECUTIVE SUMMARY

The *Western New York Science & Technology Advanced Manufacturing Park* (*STAMP*), located in the Town of Alabama, Genesee County, New York consists of a mixed use development that includes technology manufacturing uses and ancillary development totaling 6,130,000 SF of floor space with over 9,000 employees. Not all of the employees will be on site at once, as there are various work schedules and shifts.

The development will be constructed in phases over a 20-year planning horizon with Phase 1 consisting of the construction of 1,000,000 SF of floor space with 1,282 employees for a technology manufacturing use. Phase 1 of the development is assumed to be completed by 2015 while it is assumed that full build-out will be completed by 2035. A threshold analysis equal to 70 percent of the site's trip generation was also evaluated to facilitate the phasing of transportation improvements.

The typical AM and PM commuter hours represent the worst-case time periods for the proposed *STAMP* project. The trip generation evaluation indicates that Phase 1 of the project will generate 403 and 402 new AM and PM peak hour trips, respectively, while Full Build-Out of the development will generate 2,034 and 2,749 new AM and PM peak hour trips, respectively. The 70 percent threshold will generate 1,424 and 1,924 new AM and PM peak hour trips.

Various improvements are identified to mitigate the project's potential transportation impacts. It is noted that the improvements typically include traffic signals and turn lanes at intersections. Based on conversations with the New York State Department of Transportation (NYSDOT), alternative traffic control such as roundabouts should be considered, and the intersections should be monitored to determine when the improvements should be installed.

Access to the site will be provided via Crosby Road during Phase 1. It is recommended that the NY Route 77/NY Route 63/Judge Road intersection and at the NY Route 77/Ledge Road intersection be monitored for the potential installation of traffic signals during this phase of development.

After Phase 1 and before the 70 percent threshold, it is recommended that a bypass road be constructed through the site from NY Route 77/63 Overlap just north of Ham Road to NY Route 77 at the existing location of the intersection of Crosby Road. This connector road will provide access to the development and will allow through traffic on NY Route 77 to bypass the Hamlet of Alabama, reducing potential traffic impacts in the Hamlet. Designating the bypass road as Route 77 and de-designating existing NY Route 77 though the Hamlet of Alabama should be considered. In addition to the connector road, several new site driveways will be constructed as needed and in correlation to the development on the site. These site access improvements include two driveways on NY Route 77, two driveways on Judge Road, and two driveways on NY Route 77/63 Overlap (in addition to the bypass road curb cut).

Capacity improvements may be needed at several off-site intersections including:

a) NY Route 77/NY Route 63/Judge Road
b) NY Route 77/Bloomingdale Road
c) NY Route 77/Ledge Road
d) NY Route 77/Akron Road
e) NY Route 77/I-90 Exit 48A

The timing and necessity of these improvements will be confirmed after completion of Phase 1 pf the site's development based on future monitoring of the specific traffic needs for future phases of the site's development.

The Full Build-Out analysis indicates that a majority of the study area intersections will continue to operate adequately. A two-lane capacity analysis of NY Route 77 shows that only the Judge Road to Bloomingdale Road segment could become congested during Full Build-Out conditions. Since additional mitigation above and beyond the improvements identified for the 70 percent threshold may be necessary to provide adequate operations at a few locations, it is recommended that a supplemental traffic analysis be conducted after the 70 percent threshold is reached, or when the site generates 1,925 trips during the PM peak hour.

An evaluation of the available capacity at the I-90 Exit 48A interchange and the queuing at the adjacent signal indicates that the interchange is capable of accommodating the build-out of the STAMP project by managing the existing lanes or constructing an additional toll lane.

There are a number of potential level-of-service degradations (increases in delay at area intersections) that may not be mitigated as part of the project and, in order to view the potential impacts in a conservative manner, are considered potential unavoidable adverse impacts associated with the site's traffic generation.

Nevertheless, the above analysis indicates that the proposed improvements for the *STAMP* project will provide adequate operations at the study area intersections and existing road network for the levels of traffic anticipated.

# CHAPTER I
# INTRODUCTION

This report summarizes the results of a *Traffic Impact Study* (TIS) conducted for a proposed multi-use development referred to as the *Western New York Science & Technology Advanced Manufacturing Park* (*STAMP*), located in the Town of Alabama, Genesee County, New York. The project site is located west of the NY Route 77/63 Overlap between NY Route 77 to the north and Judge Road to the south (see Figure 1.1 and Figure 1.2).

## A. Planned Project

The project consists of a mixed-use development that includes technology manufacturing uses that will provide and support approximately 6,130,000 square-feet (SF) of floor space with over 9,000 employees. In addition to the manufacturing facility and support buildings, the development will consist of numerous land uses such as industrial flex, office, retail, and research and development space (See Table 1.1).

**Table 1.1 – Full Build-Out Development Plan**

| Land Use | | Employees | Size |
|---|---|---|---|
| Technology Manufacturing Uses | Tech Manufacturing | 4,400 (1,100 per shift) | 4,000,000 SF |
| | Tech Management | 300 | |
| | Sustainable Construction | 400 | |
| Industrial Flex Space | | 2,333 | 1,400,000 SF |
| Office | | 1,667 | 500,000 SF |
| Retail | | 180 | 180,000 SF |
| Research and Development | | 50 | 50,000 SF |
| **Total** | | **9,330** | **6,130,000 SF** |

The development will be constructed in numerous phases over a 20-year planning horizon. Phase 1 will consist of the construction of approximately 1,000,000 SF of floor space with 1,282 employees for the Manufacturing Facility and is assumed to be completed

by 2015. A development scenario consisting of 70 percent of the full build-out traffic has been evaluated as a threshold for roadway improvements while it is assumed that full build-out will completed by 2035.

Access to Phase 1 of the development will be provided via Crosby Road. It is proposed that a bypass road (possibly designated as NY Route 77) be constructed through the site from NY Route 77/63 Overlap just north of Ham Road to NY Route 77 at the existing location of the intersection of Crosby Road (see the conceptual site plan included under Appendix A). This connector road will provide access to the development and allow through traffic on NY Route 77 to bypass the Hamlet of Alabama, minimizing potential traffic impacts in the Hamlet. In addition to the connector road, site access would also be provided at two new NY Route 77 intersections, two new intersections on Judge Road, and two new intersections on NY Route 77/63 Overlap (in addition to the bypass road curb cut).

## B. Study Area and Methodology

The following study area intersections were evaluated in accordance with the Final Scoping Document for the Draft Generic Environmental Impact Statement prepared for the project:

1) NY Route 63/NY Route 31/NY Route 31A
2) NY Route 63/Blair Road/Main Street
3) NY Route 77/NY Route 63/Lewiston Road
4) NY Route 77/63 Overlap/Ham Road
5) NY Route 77/NY Route 63/Judge Road
6) NY Route 77/Bloomingdale Road
7) NY Route 77/Ledge Road
8) NY Route 77/Akron Road
9) NY Route 77/I-90 Exit 48A
10) NY Route 77/NY Route 5
11) NY Route 77/Royalton Center Road
12) NY Route 98/Lockport Road
13) NY Route 63/Lewiston Road/Park Avenue

The potential traffic impacts of the proposed development were determined by comparing the operating condition of the study area intersections before and after full development of the proposed project. This multi-step process included measuring the existing traffic conditions in the area, projecting future background traffic volumes, and determining trip generation of the proposed development.




MAP SOURCE : CH2MHILL

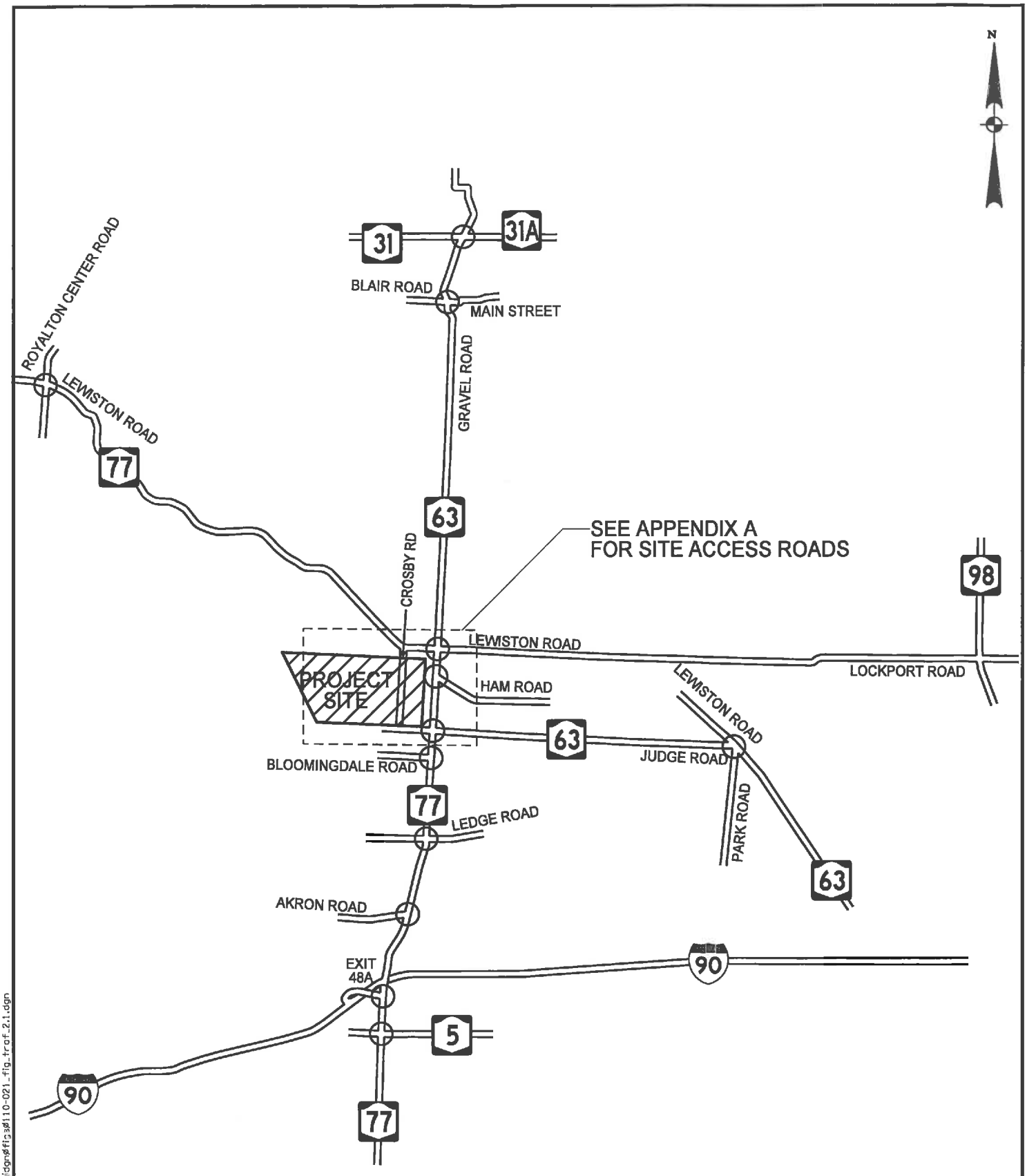
PROJECT LOCATION

STAMP GEIS
TOWN OF ALABAMA, NEW YORK

Creighton Manning

| PROJECT: 110-021 | DATE: 2/2011 | FIGURE: 1.1 |
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STUDY AREA
INTERSECTIONS

STAMP GEIS
TOWN OF ALABAMA, NEW YORK

Creighton Manning

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## CHAPTER II
## EXISTING CONDITIONS

### A. Roadways Serving the Site

The *STAMP* project is bounded by three roads with NY Route 77 to the north, NY Route 77/63 Overlap to the east, and Judge Road to the south.

The roadway classification used to describe the study area roadways is a method of grouping highways by the character of service they provide (i.e. volumes, density, roadway networks, etc.). The functional classifications for the State roadways were obtained from information provided in the New York State Department of Transportation (NYSDOT) *2009 Pavement Data Report*. NY Route 77 and NY Route 63 are both designated as qualifying or access highways for larger dimension vehicles in the State of New York. Information provided in NYSDOT's *2009 Pavement Data Report* also indicates that there is an average of eight percent heavy vehicles on NY Route 77 and NY Route 63.

1) NY Route 77 – NY Route 77 extends in a north-south direction through the study area and will serve as the primary means of access to the site as it intersects the New York State Thruway at Exit 48A. NY Route 77 is a state-maintained roadway classified as a rural minor arterial/major collector. In the project area, NY Route 77 typically provides one eleven-foot wide travel lane in each direction with eight-foot wide paved shoulders. Data published by the NYSDOT in the *2009 Pavement Data Report* indicates that the pavement on NY Route 77 ranges from fair to excellent condition depending on the location. The speed limit is 55-mph south of the site and 40-mph north of the project site

2) NY Route 77/63 Overlap – NY Route 77/63 Overlap is a state-maintained roadway classified as a rural minor arterial. NY Route 63 overlaps NY Route 77 in the project vicinity from Judge Road in the south to Lewiston Road in the north. In the project area, NY Route 77/63 Overlap provides one eleven-foot wide travel lane in each direction with eight-foot wide paved shoulders. Data published by the NYSDOT in the *2009 Pavement Data Report* indicates that the pavement on NY Route 77/63 Overlap ranges from fair to excellent condition depending on the location. The posted speed limit in the vicinity of the project is 55-mph.

3) Judge Road – Judge Road is a local street adjacent to the project site that provides east-west travel from Poodry Road to NY Route 77 and provides access to the Tonawanda Indian Reservation. Judge Road turns into NY Route 63 east of NY Route 77 where it intersects Lewiston Road. Judge Road has a total pavement width of approximately 20-feet west of NY Route 77 and provides one travel lane in

each direction. No sidewalks are provided on Judge Road and the speed limit is not posted. Land uses along Judge Road are primarily residential and agricultural.

4) Crosby Road – Crosby Road is a local street that runs through the project site and provides north-south travel from NY Route 77 to Judge Road. Crosby Road has a total pavement width of approximately 20-feet and provides one travel lane in each direction. No sidewalks are provided on Crosby Road and the speed limit is not posted. Land uses along Crosby Road are primarily residential and agricultural.

## B. Study Area Intersections

1) NY Route 63/NY Route 31/NY Route 31A – This four-leg intersection operates under actuated traffic signal control with a two phase cycle averaging 70 seconds. No pedestrian crosswalks or push buttons are provided. The westbound NY Route 31A approach and the northbound and southbound NY Route 63 approaches provide a single lane for shared travel movements while the eastbound NY Route 31 approach provides a shared left-turn/through lane and a separate right-turn lane.

2) NY Route 63/Blair Road/Main Street – This intersection is a four-way intersection operating under stop sign control on the eastbound Blair Road approach and on the westbound Main Street approach. All approaches to this intersection consist of a single lane for shared travel movements. Sidewalks are not provided on any of the intersection approaches.

3) NY Route 77/NY Route 63/Lewiston Road – This intersection is a four-way intersection operating under all-way stop sign control. All approaches to this intersection consist of a single lane for shared travel movements.

4) NY Route 77/63 Overlap/Ham Road – This intersection is a three-leg intersection operating under stop sign control on the westbound Ham Road approach. All approaches to this intersection consist of a single lane for shared travel movements.

5) NY Route 77/NY Route 63/Judge Road – This intersection is a four-way intersection operating under stop sign control on the eastbound Judge Road approach and on the westbound NY Route 63 approach. The northbound and southbound NY Route 77 approaches consist of an exclusive left-turn lane and a shared through/right-turn lane. The westbound NY Route 63 approach consists of a shared left-turn/through lane with a separate right-turn lane while the westbound Judge Road approach consists of a single lane for shared travel movements.

6) NY Route 77/Bloomingdale Road – This intersection is a three-way intersection operating under stop sign control on the eastbound Bloomingdale Road approach. All approaches to this intersection consist of a single lane for shared travel movements.

7) NY Route 77/Ledge Road – This intersection is a four-way intersection operating under stop sign control on the eastbound and westbound Ledge Road approaches. All approaches to this intersection consist of a single lane for shared travel movements.

8) NY Route 77/Akron Road – This intersection is a three-leg intersection operating under stop sign control on the eastbound Akron Road approach. All approaches to this intersection consist of a single lane for shared travel movements.

9) NY Route 77/I-90 Exit 48A – This three-leg intersection operates under traffic signal control with an actuated three phase cycle averaging 100 seconds. No pedestrian crosswalks or push buttons are provided. The northbound NY Route 77 approach provides an exclusive left-turn lane and a through lane while the southbound NY Route 77 approach provides two through lanes with a shared right-turn lane. The eastbound I-90 Exit 48A approach provides separate left and right turn lanes.

10) NY Route 77/NY Route 5 – This four-leg intersection operates under traffic signal control with an actuated two phase cycle averaging 125 seconds. No pedestrian crosswalks or push buttons are provided. The northbound and southbound NY Route 77 approaches and the eastbound and westbound NY Route 5 approaches provide an exclusive left-turn lane and a shared through/right-turn lane. It is noted that the construction of a separate southbound right-turn lane and the installation of protected eastbound and northbound left-turn phases to the traffic signal are recommended for the development of the *Buffalo East Technology Park* and are therefore included in future conditions for this study.

11) NY Route 77 /Royalton Center Road – This intersection is a four-way intersection operating under stop sign control on the northbound and southbound Royalton Center Road approaches. All approaches to this intersection consist of a single lane for shared travel movements.

12) NY Route 98/Lockport Road – This intersection is a four-way intersection operating under stop sign control on the eastbound and westbound Lockport Road approaches. All approaches to this intersection consist of a single lane for shared travel movements.

13) NY Route 63/Lewiston Road/Park Avenue – This intersection is a four-way intersection operating under stop sign control on the northbound Park Avenue approach and southbound Lewiston Road approach. The eastbound NY Route 63 approach and the southbound Lewiston Road approach each consist of an exclusive left-turn lane and a shared through/right-turn lane while the westbound NY Route 63 approach consists of a shared left-turn/through lane and a separate right-turn lane. The northbound Park Avenue approach to this intersection consists of a single lane for shared travel movements.

## C. Existing Conditions

Intersection turning movement traffic counts were conducted at the study area intersections during February 2010 and during November 2010. The traffic counts were done during the AM commuter peak from 7:00 to 9:00 AM and during the PM commuter peak from 4:00 to 6:00 PM. These time periods represent the peak morning and afternoon commuter periods for adjacent street traffic, the peak shift changes for the manufacturing land uses, and the peak commuter periods for the office and retail land uses. A review of the seasonal variations of traffic in the area indicates that there are generally higher traffic volumes during the summer months due primarily to the proximity to recreation centers such as the Darien Lake Amusement Park located south of NY Route 5. Therefore, the AM and PM peak hour turning movement counts conducted in February and November were factored to represent average August conditions. A seasonal factor technical memorandum is included under Appendix B. The resulting peak hour traffic volumes shown on Figure 2.1 form the basis for all traffic forecasts. The raw traffic volumes are included in Appendix C.

An automatic traffic recorder (ATR) was installed by the NYSDOT on NY Route77 just south of the NY Route 77/NY Route 63/Judge Road intersection to record hourly traffic volumes from Tuesday, August 10, 2010 through Wednesday, August 18, 2010. The raw ATR data is also included in Appendix C.

The following observations are evident based on the existing traffic volume data:

- The AM peak hour generally occurred from 7:00 to 8:00 a.m. while the PM peak hour generally occurred from 4:00 to 5:00 p.m.

- The two-way traffic volume on NY Route 77 adjacent to the project site is approximately 150 vehicles during the AM peak hour and 200 vehicles during the PM peak hour. The two-way traffic volume on the NY Route 77/63 Overlap adjacent to the project site is approximately 360 vehicles during the AM peak hour and 530 vehicles during the PM peak hour. The two-way traffic volume on Judge Road adjacent to the project site is approximately 45 vehicles during the AM peak hour and 105 vehicles during the PM peak hour.

- Heavy vehicle percentages on the NY Route 77/63 Overlap generally range from five percent to thirteen percent by approach during the AM and PM peak hours. Buses account for less than one percent of the traffic.

## D. Transit

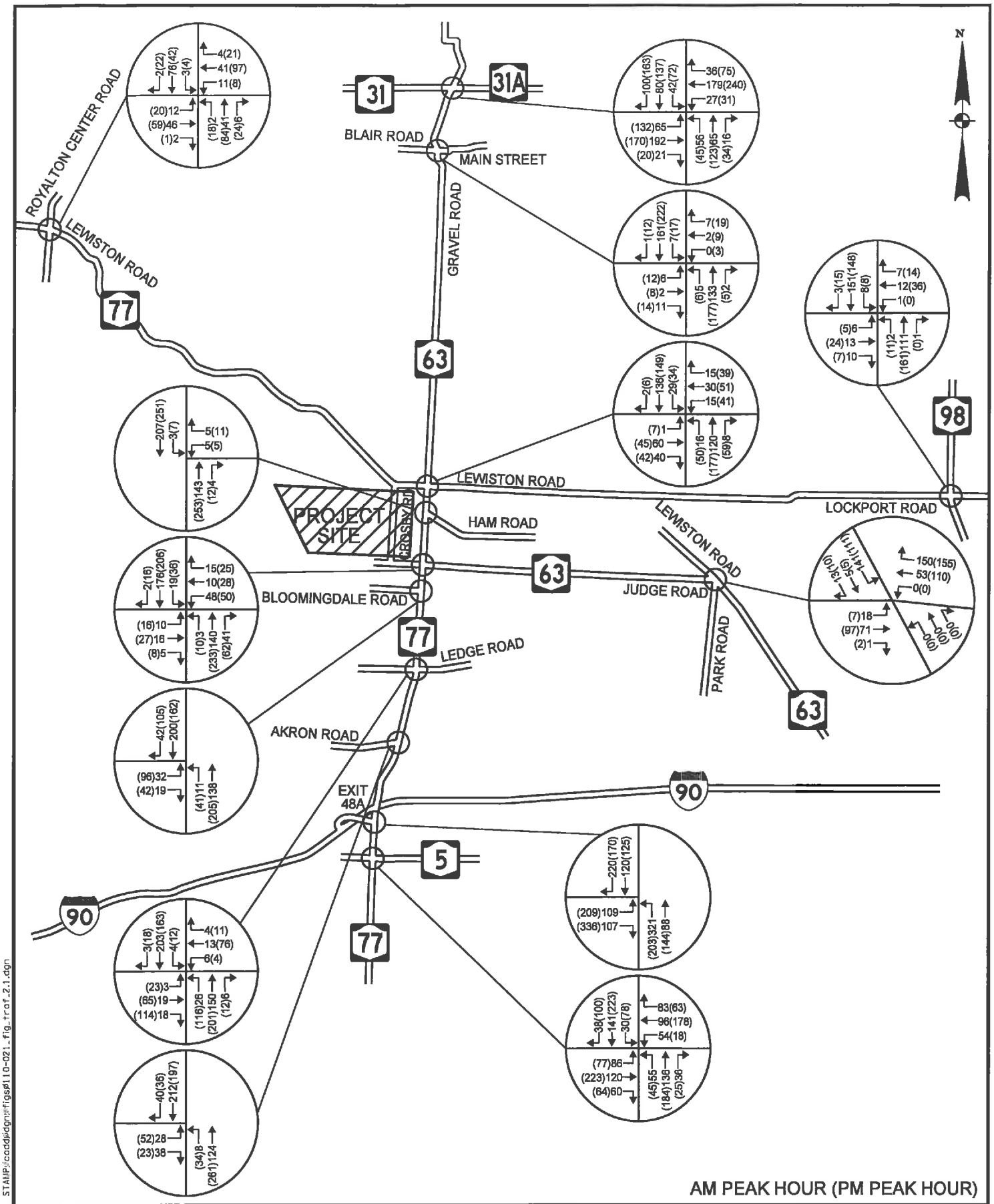
Regional transit service available in the project vicinity is provided by *B-Line – Batavia Bus Service* (BBS) which is an operating subsidiary of the *Rochester Genesee Regional Transit Authority* (RGRTA). BBS provides curb-to-curb service within Genesee County but it is limited to a three day a week schedule with each day restricted to a specific regional area. For example, service is only provided to the Town of Alabama on Tuesdays and a rider can only travel to the Towns of Oakfield, Darien, Pembroke, and Corfu or back to the City of Batavia. Several daily bus routes are also provided in the City of Batavia.

## E. Pedestrian/Bicycle Accommodations and Environment

A review of the existing road network indicates that sidewalks and crosswalks are not provided at any of the study area intersections and that the pedestrians observed during the turning movement counts used the available shoulders. Bicycles either share the road with vehicles or utilize the shoulders. Table 2.1 shows a summary of the peak hour pedestrian activity observed during the turning movement counts.

**Table 2.1 – Pedestrian Activity Summary**

| Intersection | Pedestrians | |
|---|---|---|
| | AM Peak Hour | PM Peak Hour |
| 1) NY Route 63/NY Route 31/NY Route 31A | 0 | 2 |
| 2) NY Route 63/Blair Road/Main Road | 0 | 4 |
| 3) NY Route 77/NY Route 63/Lewiston Road | 0 | 1 |
| 4) NY Route 77/63 Overlap/Ham Road | 0 | 0 |
| 5) NY Route 77/NY Route 63/Judge Road | 0 | 0 |
| 6) NY Route 77/Ledge Road | 0 | 0 |
| 7) NY Route 77/Bloomingdale Road | 1 | 0 |
| 8) NY Route 77/Akron Road | 1 | 1 |
| 9) NY Route 77/I-90 Exit 48A | 0 | 0 |
| 10) NY Route 77/NY Route 5 | 2 | 2 |
| 11) NY Route 77/Royalton Center Road | 1 | 0 |
| 12) NY Route 98/Lockport Road | 1 | 0 |
| 13) NY Route 63/Lewiston Road/Park Avenue | 0 | 0 |




AM PEAK HOUR (PM PEAK HOUR)

2010 EXISTING
TRAFFIC VOLUMES

STAMP GEIS
TOWN OF ALABAMA, NEW YORK

Creighton Manning

| PROJECT: 110-021 | DATE: 2/2011 | FIGURE: 2.1 |
|---|---|---|

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# CHAPTER III
# TRAFFIC FORECASTS

To evaluate the potential traffic impact of the development, traffic projections were prepared for the 2015 and 2035 design years and a comparison was made between the future traffic volumes with and without the project for three separate development scenarios (see Table 3.1).

**Table 3.1 – Summary of Peak Hour Traffic Projections**

| Figure Description | Figure Number |
|---|---|
| 2015 No-Build Traffic Volumes | Figure 3.1 |
| 2035 No-Build Traffic Volumes | Figure 3.2 |
| Trip Distribution (Phase 1) – Study Area Intersections | Figure 3.3 |
| Trip Distribution (70 Percent Threshold and Full Build-Out) – Study Area Intersections | Figure 3.4 |
| Trip Distribution (70 Percent Threshold and Full Build-Out) – Site Access Intersections | Figure 3.5 |
| Trip Assignment – Phase 1 Study Area Intersections | Figure 3.6 |
| Trip Assignment – 70 Percent Threshold Study Area Intersections | Figure 3.7 |
| Trip Assignment – 70 Percent Threshold Site Access Intersections | Figure 3.8 |
| Trip Assignment – Full Build-Out Study Area Intersections | Figure 3.9 |
| Trip Assignment – Full Build-Out Site Access Intersections | Figure 3.10 |
| 2015 Build – Phase 1 Study Area Intersections | Figure 3.11 |
| 2035 Build – 70 Percent Threshold Study Area Intersections | Figure 3.12 |
| 2035 Build – 70 Percent Threshold Site Access Intersections | Figure 3.13 |
| 2035 Build – Full Build-Out Study Area Intersections | Figure 3.14 |
| 2035 Build – Full Build-Out Site Access Intersections | Figure 3.15 |

## A. No-Build Traffic Volumes

The 2015 and 2035 No-Build traffic volumes are based on an analysis of existing traffic growth trends and other developments in the project area. Historical traffic volume data found in the 2009 *Traffic Data Reports,* published by the NYSDOT, indicates that traffic volumes in the vicinity of the site have been increasing by approximately one percent per year over the last several years. Therefore, a growth rate of one percent per year was applied to estimate the 2015 and 2035 background traffic volumes.

In addition to background traffic growth, vehicle trips associated with other developments in the project area were considered when developing the No-Build traffic volumes. The Town of Alabama was contacted to determine which other developments

should be included in the No-Build traffic volumes. It was determined that Phase 1 of the *Buffalo East Technology Park* development should be included in the No-Build traffic volumes. The 2015 and 2035 No-Build traffic volumes illustrated on Figure 3.1 and Figure 3.2 represent the traffic conditions expected at the study area intersections before development of the proposed project.

## B. Trip Generation

Trip generation determines the quantity of traffic expected to travel to/from a given site. Trip generation estimates were prepared for the following development phases to facilitate the timing of transportation improvements.

- Full Build-Out trip generation
- 70 percent trip generation
- Phase 1 trip generation (1,000,000 SF)

*Full Build-Out Development Summary*

The development of the 6,130,000 SF *STAMP* project will be anchored by the development of 4,000,000 SF of technology manufacturing facilities that will attract an additional 2,130,000 SF of ancillary development to the remainder of the *STAMP* site. These two land uses have different peaking characteristics based on shift length and work schedules. Table 3.2 summarizes the different work schedules for each of the land uses.

**Table 3.2 – Technology Manufacturing and Ancillary Development Size and Schedule**

| Land Use | | Shift/Time | Work Week | Size (SF) | Employees |
|---|---|---|---|---|---|
| Technology Manufacturing | Tech Manufacturing | Shift 1 – 6 am to 6 pm | Sun – Tues/Wed | 1,000,000 | 1,100 |
| | | Shift 2 – 6 pm to 6 am | Sun – Tues/Wed | 1,000,000 | 1,100 |
| | | Shift 3 – 6 am to 6 pm | Wed/Thurs – Sat | 1,000,000 | 1,100 |
| | | Shift 4 – 6 pm to 6 am | Wed/Thurs – Sun | 1,000,000 | 1,100 |
| | Tech Management (Services/Support) | Shift 0 – 8 am to 5 pm | Mon – Fri | | 300 |
| | Sustainable Construction | 7 am to 4 pm | Mon – Fri | | 400 |
| | **Total Technology Manufacturing Facilities** | | | **4,000,000** | **5,100** |
| Ancillary Development | Industrial Flex Space | Flexible / Typical | Mon – Fri | 1,400,000 | 2,333 |
| | Office | Flexible / Typical | Mon – Fri | 500,000 | 1,667 |
| | Retail | Flexible / Typical | Mon – Sun | 180,000 | 180 |
| | Research & Development | Flexible / Typical | Mon – Fri | 50,000 | 50 |
| | **Total Ancillary Development** | | | **2,130,000** | **4,230** |
| **Total STAMP Development** | | | | **6,130,000** | **9,330** |

*Technology Manufacturing Facilities*

The table shows that there are four (4) 12-hour shifts at the technology manufacturing facility and that each shift will employ 1,100 employees. Two of the shifts operate 3 days a week; and two of the shifts operate 4-days a week. It is assumed that there would be an average attendance of 100 percent each day (worst-case) with 10 percent arriving before and after the shift and 1.2 employees per vehicle. Shift changes are expected to occur at the off-peak times of 6:00 a.m. and 6:00 p.m. In addition to the manufacturing employees, there will be approximately 300 total service/support employees that will work Monday to Friday between 8:00 a.m. to 5:00 p.m. and approximately 400 total sustaining construction employees that will work Monday to Friday between 7:00 a.m. to 4:00 p.m. The percentage of service/support and construction employees arriving during the peak hour of the generator was determined based on traffic observed at existing technology manufacturing and general office sites. Table 3.3 summarizes the trip generation of the technology manufacturing development.

**Table 3.3 – Technology Manufacturing Facility Trip Generation Summary**

| Land Use | Employees | AM Peak Hour | | | | | | PM Peak Hour | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Peak of Generator 5:30 to 6:30 a.m. | | | Adjacent Street Peak 7:30 to 8:30 a.m. | | | Adjacent Street Peak 4:30 to 5:30 p.m. | | | Peak of Generator 5:30 to 6:30 p.m. | | |
| | | Enter | Exit | Total | Enter | Exit | Total | Enter | Exit | Total | Enter | Exit | Total |
| Tech Manufacturing | 4,400 (1,100/shift) | 733 (Shift 1 or 3) | 733 (Shift 2 or 4) | 1,466 | 0 (Shift 1 or 3) | 0 (Shift 2 or 4) | 0 | 92 (Shift 1 or 3) | 92 (Shift 2 or 4) | 184 | 733 (Shift 1 or 3) | 733 (Shift 2 or 4) | 1,466 |
| Tech Management | 300 | 39 | 14 | 53 | 100 | 37 | 137 | 61 | 77 | 138 | 20 | 25 | 45 |
| Sustainable Construction | 400 | 50 | 18 | 68 | 128 | 47 | 175 | 76 | 97 | 173 | 25 | 32 | 57 |
| **Nanotechnology Development** | | **822** | **765** | **1,587** | **228** | **84** | **312** | **229** | **266** | **495** | **778** | **790** | **1,568** |

The cumulative trip generation during the peak hours of the generator is estimated to be approximately a total of 1,587 vehicle trips during the AM peak and 1,568 during the PM peak. However, the trip generation during the peak hour of adjacent street traffic is estimated to be approximately a total of 312 vehicle trips during the AM peak and 495 vehicles during the PM peak. This trip generation estimate does not include trip reducing credits such as public transit, internal capture, pass-by credits, or other Transportation Demand Management (TDM) strategies.

*Ancillary Development*

The Master Plan includes space for ancillary development which will support the technology manufacturing operations. The ancillary development will consist of 2,130,000 SF of mixed-use developments which include manufacturing flex space, office, retail, and research and development space. The Institute of Transportation Engineers (ITE) *Trip Generation, 8th edition*, provides trip generation data for various land uses based on studies of similar existing developments located across the country. Therefore, the trips for the ancillary development were estimated using ITE land use code (LUC) 140 for Manufacturing, LUC 710 for General Office, LUC 820 for Shopping Center, and LUC 760 for Research and Development Center. The percentage of employees arriving during the peak hour of the generator was determined based on traffic observed at existing technology manufacturing and general office sites. The peak hour trip generation estimate for the ancillary development is summarized in Table 3.4.

## Table 3.4 – Ancillary Development Trip Generation Summary

| Land Use | Employees | AM Peak Hour | | | | | | PM Peak Hour | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Peak of Generator 5:30 to 6:30 a.m. | | | Adjacent Street Peak 7:30 to 8:30 a.m. | | | Adjacent Street Peak 4:30 to 5:30 p.m. | | | Peak of Generator 5:30 to 6:30 p.m. | | |
| | | Enter | Exit | Total | Enter | Exit | Total | Enter | Exit | Total | Enter | Exit | Total |
| Industrial Flex Space | 2,333 | 223 | 82 | 305 | 571 | 211 | 782 | 301 | 384 | 685 | 99 | 127 | 226 |
| Office | 1,667 | 257 | 35 | 292 | 660 | 90 | 750 | 115 | 562 | 677 | 38 | 185 | 223 |
| Retail | 180 | 62 | 40 | 102 | 133 | 85 | 218 | 462 | 481 | 943 | 346 | 361 | 707 |
| Research & Development | 50 | 11 | 2 | 13 | 29 | 5 | 34 | 3 | 32 | 35 | 1 | 11 | 12 |
| Total | | 553 | 159 | 712 | 1,393 | 391 | 1,784 | 881 | 1,459 | 2,340 | 484 | 684 | 1,168 |

The cumulative trip generation during the peak hours of the generator is estimated to be approximately a total of 712 vehicle trips during the AM peak and 1,168 during the PM peak. However, the trip generation during the peak hour of adjacent street traffic is estimated to be approximately a total of 1,784 vehicle trips during the AM peak and 1,168 vehicles during the PM peak. This trip generation estimate does not include trip reducing credits such as public transit, internal capture, pass-by credits, or other TDM strategies.

*Full Build-Out Trip Generation*

The trip generation summaries for the technology manufacturing and ancillary developments of the *STAMP* project indicate that these land uses peak during different times of the day. The trip generation estimates for both uses were combined to determine the overall trip generation for the project.

It can be expected that some of the traffic coming to the proposed *STAMP* development will stop at more than one location. These trips are referred to as multi-use trips and are described as trips that use one or more land uses in the same area. For example, an employee of one of the manufacturing facilities could go to a retail store after work before heading home. The *Multi-Use Development Trip Generation and Internal Capture Summary* table provided by ITE (located under Appendix D) shows the potential internal capture rate for the PM peak hour for all land uses. Based on this table, an overall three percent internal capture rate was applied to account for these multi-use trips. The full build-out peak hour trip generation estimate is summarized in Table 3.5.

## Table 3.5 – Full Build-Out Trip Generation Summary

| Land Use | | Employees | AM Peak Hour | | | | | | PM Peak Hour | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Peak of Generator 5:30 to 6:30 a.m. | | | Adjacent Street Peak 7:30 to 8:30 a.m. | | | Adjacent Street Peak 4:30 to 5:30 p.m. | | | Peak of Generator 5:30 to 6:30 p.m. | | |
| | | | Enter | Exit | Total | Enter | Exit | Total | Enter | Exit | Total | Enter | Exit | Total |
| Technology Manufacturing | Tech Manufacturing | 4,400 (1,100/shift) | 733 | 733 | 1,466 | 0 | 0 | 0 | 92 | 92 | 184 | 733 | 733 | 1,466 |
| | Tech Management | 300 | 39 | 14 | 53 | 100 | 37 | 137 | 61 | 77 | 138 | 20 | 25 | 45 |
| | Sustainable Construction | 400 | 50 | 18 | 68 | 128 | 47 | 175 | 76 | 97 | 173 | 25 | 32 | 57 |
| Ancillary Development | Industrial Flex Space | 2,333 | 223 | 82 | 305 | 571 | 211 | 782 | 301 | 384 | 685 | 99 | 127 | 226 |
| | Office | 1,667 | 257 | 35 | 292 | 660 | 90 | 750 | 115 | 562 | 677 | 38 | 185 | 223 |
| | Retail | 180 | 62 | 40 | 102 | 133 | 85 | 218 | 462 | 481 | 943 | 346 | 361 | 707 |
| | Research & Development | 50 | 11 | 2 | 13 | 29 | 5 | 34 | 3 | 32 | 35 | 1 | 11 | 12 |
| Total | | | 1,375 | 924 | 2,299 | 1,621 | 475 | 2,096 | 1,110 | 1,725 | 2,835 | 1,262 | 1,474 | 2,736 |
| Internal Capture – 3% | | | -34 | -34 | -68 | -1 | -31 | -62 | -43 | -43 | -86 | -41 | -41 | -82 |
| **Total New Trips** | | | **1,341** | **890** | **2,231** | **1,590** | **444** | **2,034** | **1,067** | **1,682** | **2,749** | **1,221** | **1,433** | **2,654** |

The full build-out trip generation estimate indicates that the highest trip generation time periods will occur during the AM peak hour of the generator (5:30 to 6:30 a.m.) and during the PM peak hour of adjacent street traffic (4:30 to 5:30 p.m.). However, a review of ATR data on NY Route 77 indicates that background traffic is 145 percent higher (233 vehicles) during the AM peak hour of adjacent street traffic, than traffic during the AM peak hour of the generator. The site will only generate 197 vehicles more during the AM peak hour of the generator. Therefore, the adjacent street hour is the appropriate design hour for the AM and PM conditions. The *STAMP* development is estimated to generate 2,034 new trips during the AM peak hour of adjacent street traffic with 1,590 trips entering and 444 trips exiting and 2,749 new trips during the PM peak hour of adjacent street traffic with 1,067 trips entering and 1,682 trips exiting.

### *70 Percent Trip Generation*

A development scenario consisting of 70 percent of the full build-out trip generation is included to facilitate the phasing of roadway improvements. Table 3.6 summarizes the 70 percent trip generation for the AM and PM peak hour of adjacent street traffic.

**Table 3.6 – 70 Percent Trip Generation Summary**

| Land Use | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|
| | Peak of Adjacent Street 7:30 to 8:30 a.m. | | | Peak of Adjacent Street 4:30 to 5:30 p.m. | | |
| | Enter | Exit | Total | Enter | Exit | Total |
| Full Build-Out Trips | 1,590 | 444 | 2,034 | 1,067 | 1,682 | 2,749 |
| 70 Percent Trips | 1,113 | 311 | 1,424 | 747 | 1,177 | 1,924 |

The 70 percent threshold shows that the *STAMP* development will generate 1,424 new trips during the AM peak hour of adjacent street traffic with 1,113 trips entering and 311 trips exiting and 1,924 new trips during the PM peak hour of adjacent street traffic with 747 trips entering and 1,177 trips exiting.

*Phase 1 Trip Generation*

The development of Phase 1 of the 6,130,000 SF *STAMP* project consists of the construction of approximately 1,000,000 SF of floor space with 1,282 employees for the first Technology Manufacturing Facility and no ancillary development. Phase 1 is expected to employ 1,096 manufacturing employees, 86 total service/support employees, and 100 total sustaining construction employees. It is assumed that there will be an average attendance of 100 percent each day (worst-case) with 10 percent arriving before and leaving after the shift and 1.2 employees per vehicle. The percentage of service/support and construction employees arriving during the peak hour of the generator was determined based on traffic observed at existing technology manufacturing and general office sites. Table 3.7 summarizes the trip generation of Phase 1 of the *STAMP* project.

## Table 3.7 – Phase 1 Trip Generation Summary

| Land Use | | Employees | AM Peak Hour | | | | | | PM Peak Hour | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Off Peak 5:30 to 6:30 a.m. | | | Peak 7:30 to 8:30 a.m. | | | Peak 4:30 to 5:30 p.m. | | | Off Peak 5:30 to 6:30 p.m. | | |
| | | | Enter | Exit | Total | Enter | Exit | Total | Enter | Exit | Total | Enter | Exit | Total |
| Manufacturing Facility | Tech Manufacturing | 1,096 (274/shift) | 182 | 182 | 364 | 0 | 0 | 0 | 23 | 23 | 46 | 182 | 182 | 364 |
| | Tech Management | 86 | 13 | 5 | 18 | 34 | 13 | 47 | 23 | 29 | 52 | 8 | 10 | 18 |
| | Sustainable Construction | 100 | 15 | 6 | 21 | 39 | 15 | 54 | 26 | 33 | 59 | 9 | 11 | 20 |
| Industrial Flex Space | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Office | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Retail | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Research & Development | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Phase 1 Total | | | 210 | 193 | 403 | 73 | 28 | 101 | 72 | 85 | 157 | 199 | 203 | 402 |

The Phase 1 trip generation estimate for the site indicates that since ancillary development is not included in this phase of construction, the worst-case trip generation scenario for the *STAMP* project occurs during the AM and PM peak hours of the generator (5:30 to 6:30 a.m. and 5:30 to 6:30 p.m.). This does not coincide with the Full Build-Out and 70 percent threshold analysis or the peak hour turning movement counts conducted at the study area intersections. However, in order to provide a worst-case analysis, the peak hour of the generator trip generation estimates for Phase 1 conditions were added to the turning movement counts conducted during the peak hours of adjacent street traffic. The *STAMP* development is estimated to generate 403 new trips during the AM peak hour of the generator with 210 trips entering and 193 trips exiting and 402 new trips during the PM peak hour of the generator with 199 trips entering and 203 trips exiting.

### C. Trip Distribution

Trip distribution describes where traffic originates or where traffic is destined. Traffic generated by the proposed project was distributed based on existing travel patterns, the layout of the site and the locations of the proposed site access roads, and the locations of population centers and major travel routes in the region. Regionally it is expected that approximately 65 percent of the site traffic will travel to/from the south on NY Route 77 while five percent will travel to/from the north on NY Route 63. It is noted that approximately 10 percent of the site generated traffic will travel to and from the west on Judge Road and NY Route 77 while the remaining 20 percent will travel to and from the

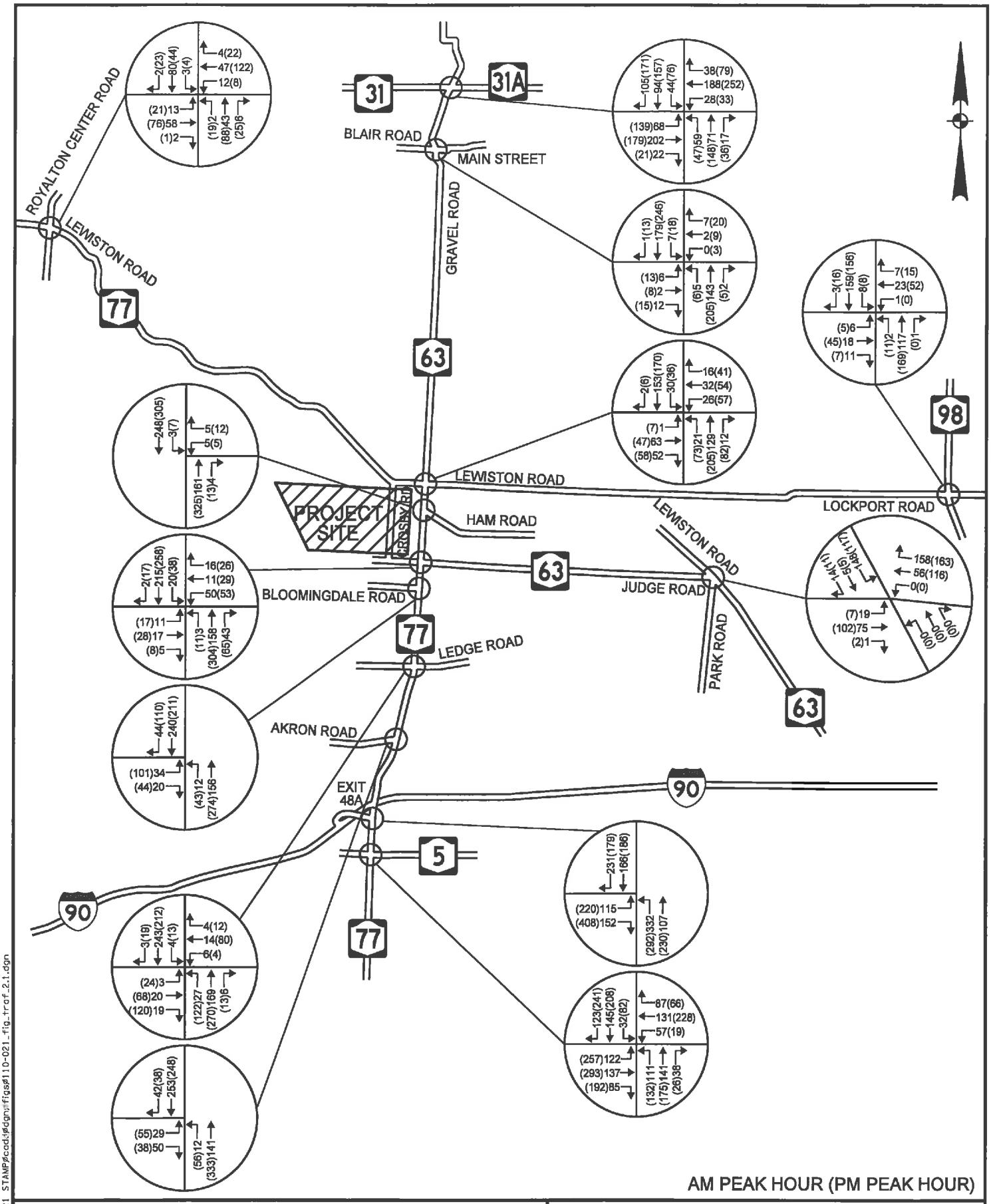
east on Lewiston Road and NY Route 63. The trip distribution for the study area intersections is shown on Figure 3.3 and Figure 3.4 while the trip distribution for the site access intersections is shown on Figure 3.5. It is noted that traffic was only assigned to one site access intersection on Judge Road and one site access intersection on the bypass road in order to provide worst-case operating conditions at these locations.

### D. Trip Assignment

Trip assignment combines the results of the trip generation and trip distribution and determines the specific paths and roadways that will be used between various origin/destination pairs. The Phase 1, 70 percent, and Full Build-Out trip assignment for the study area intersections and the site access intersections are shown on Figure 3.6 through Figure 3.10.

### E. Build Traffic Volumes

The results of the site generated traffic assignment were added to the No-Build traffic volumes to develop the Build traffic volumes. The 2015 and 2035 Build traffic volumes represent the future potential traffic conditions with the completion of the project. The Build traffic volumes for Phase 1, 70 percent, and Full Build-Out for the study area intersections and the site access intersections are shown on Figure 3.11 through Figure 3.15.




AM PEAK HOUR (PM PEAK HOUR)

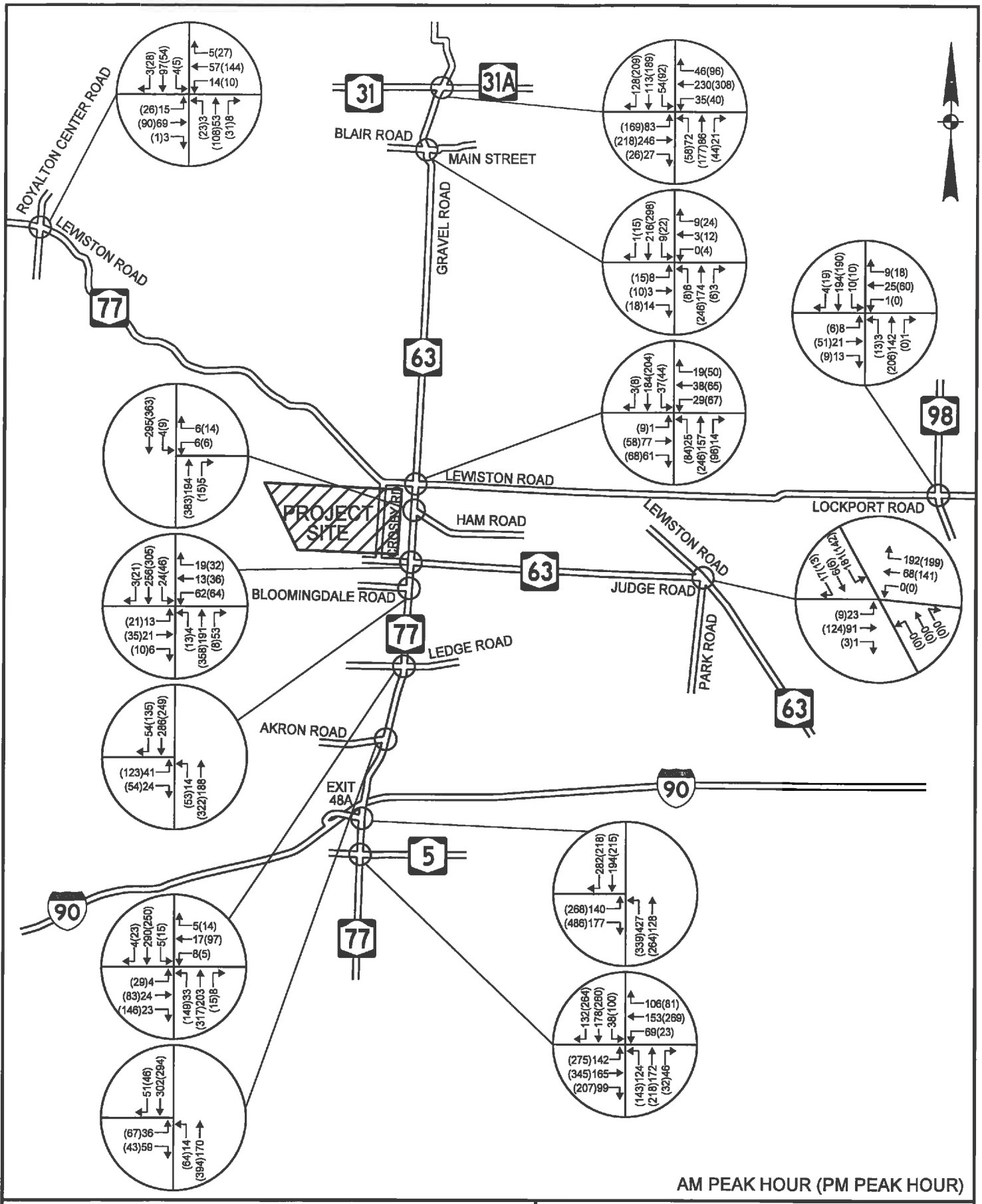
2015 NO-BUILD
TRAFFIC VOLUMES

STAMP GEIS
TOWN OF ALABAMA, NEW YORK

Creighton Manning

| PROJECT: 110-021 | DATE: 2/2011 | FIGURE: 3.1 |
|---|---|---|

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AM PEAK HOUR (PM PEAK HOUR)

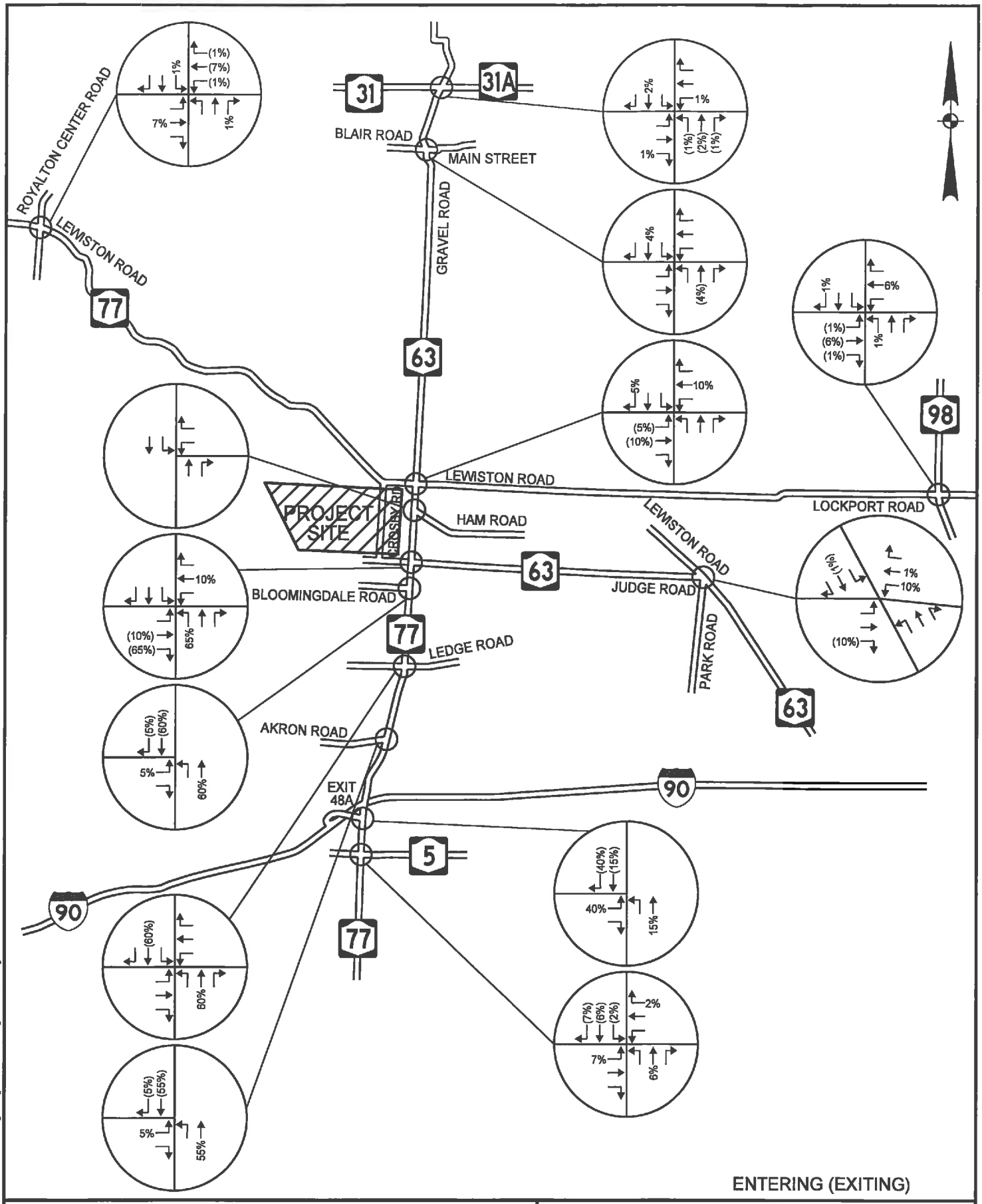
2035 NO-BUILD
TRAFFIC VOLUMES

STAMP GEIS
TOWN OF ALABAMA, NEW YORK

Creighton Manning

| PROJECT: 110-021 | DATE: 2/2011 | FIGURE: 3.2 |
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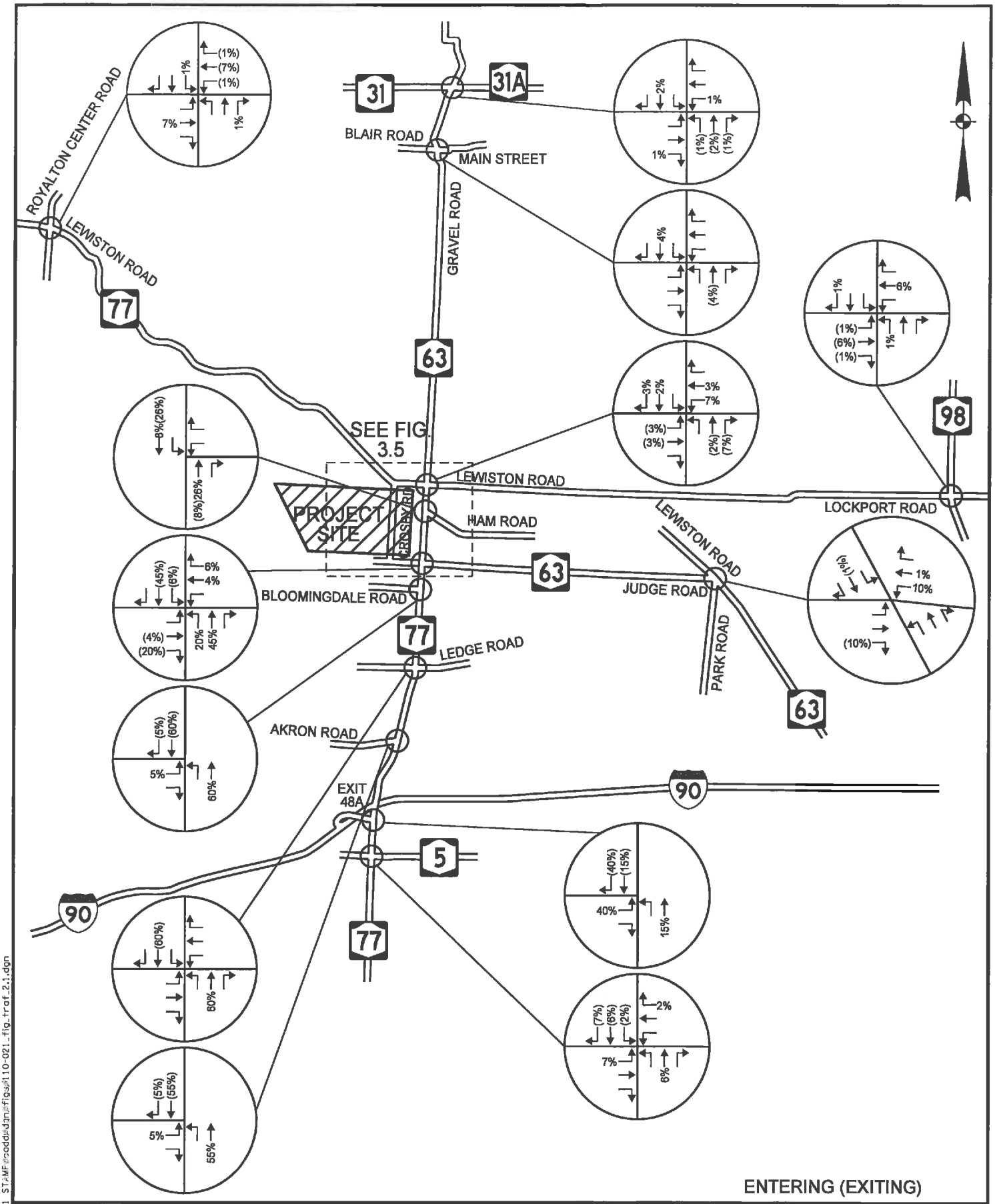

PHASE I
TRIP DISTRIBUTION

STAMP GEIS
TOWN OF ALABAMA, NEW YORK

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| PROJECT: 110-021 | DATE: 2/2011 | FIGURE: 3.3 |
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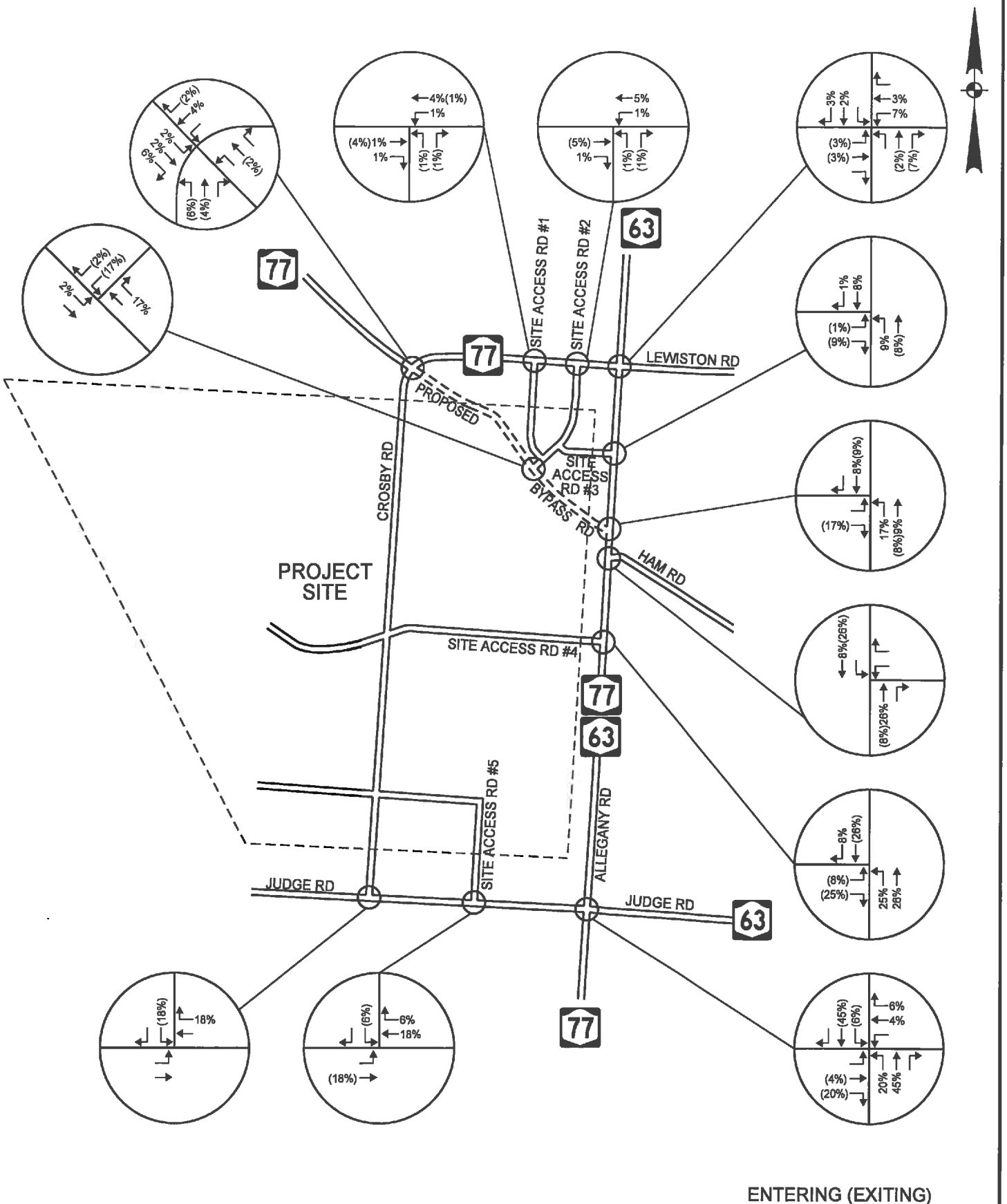

TRIP DISTRIBUTION
70% THRESHOLD AND FULL BUILD-OUT
STUDY AREA INTERSECTIONS

STAMP GEIS
TOWN OF ALABAMA, NEW YORK

Creighton Manning

| PROJECT: 110-021 | DATE: 2/2011 | FIGURE: 3.4 |
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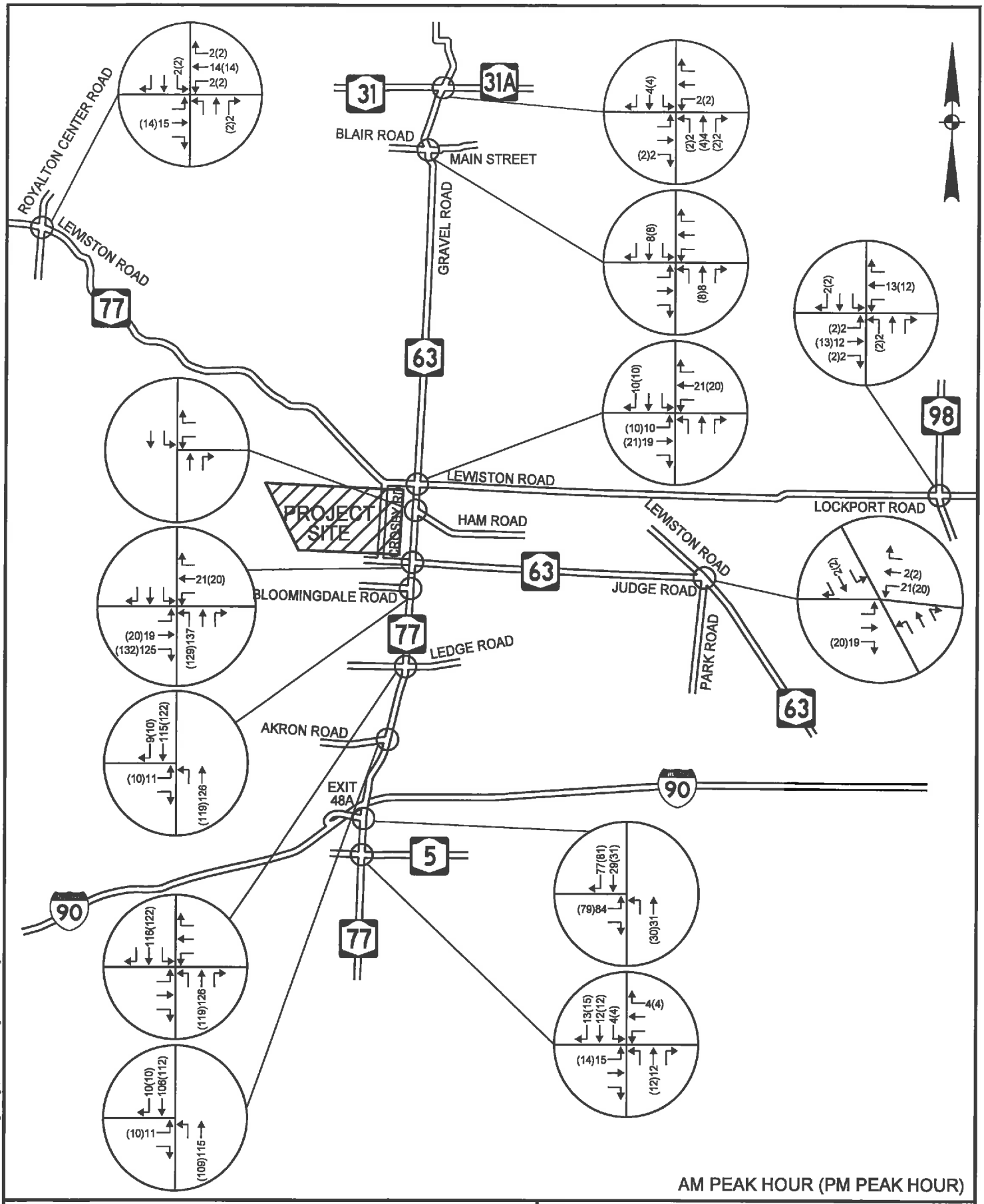

TRIP DISTRIBUTION
70% THRESHOLD AND FULL BUILD-OUT
SITE ACCESS INTERSECTIONS

STAMP GEIS
TOWN OF ALABAMA, NEW YORK

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| PROJECT: 110-021 | DATE: 2/2011 | FIGURE: 3.5 |
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AM PEAK HOUR (PM PEAK HOUR)

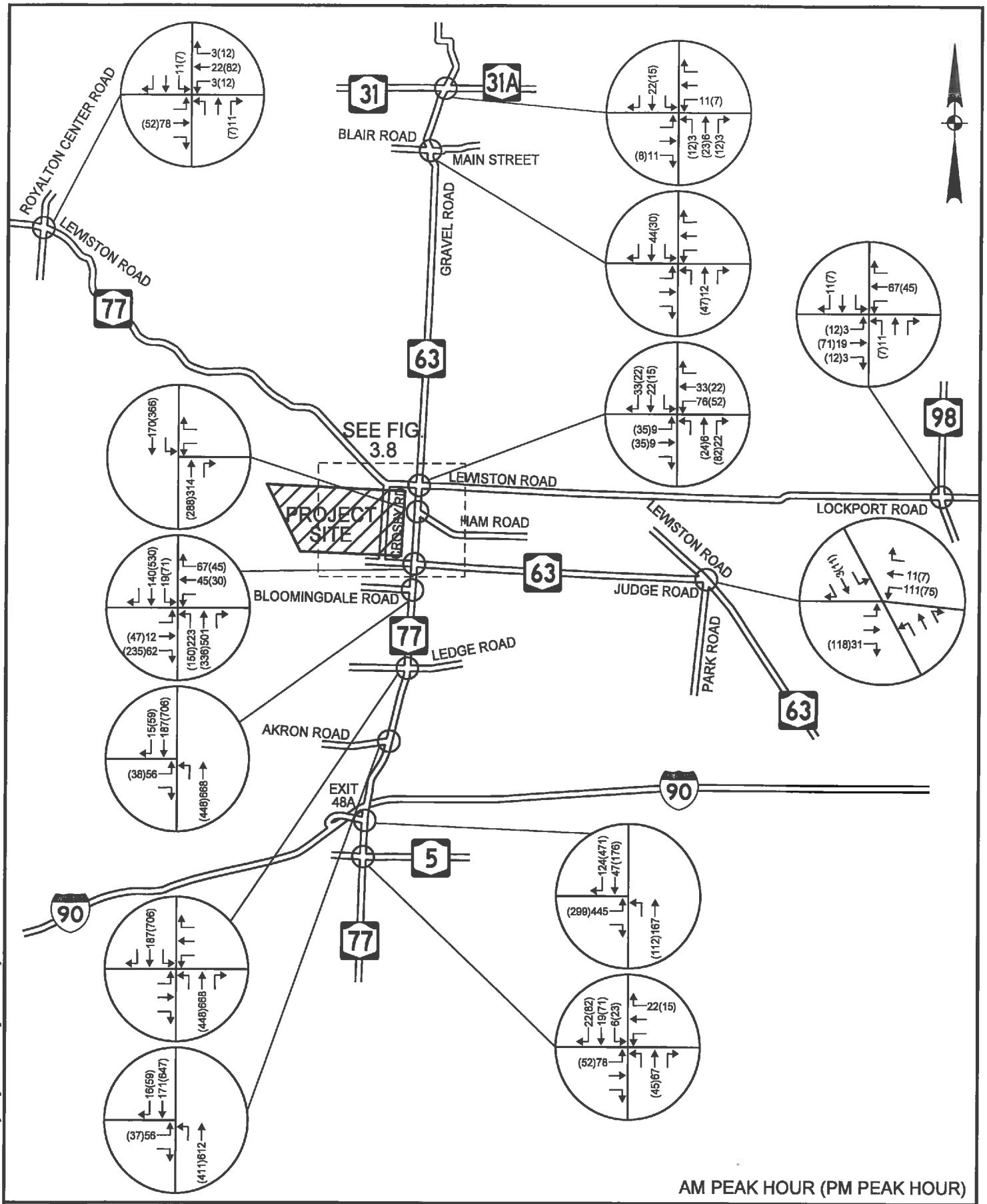
PHASE I
TRIP ASSIGNMENT
STUDY AREA INTERSECTIONS

STAMP GEIS
TOWN OF ALABAMA, NEW YORK

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| PROJECT: 110-021 | DATE: 2/2011 | FIGURE: 3.6 |
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AM PEAK HOUR (PM PEAK HOUR)

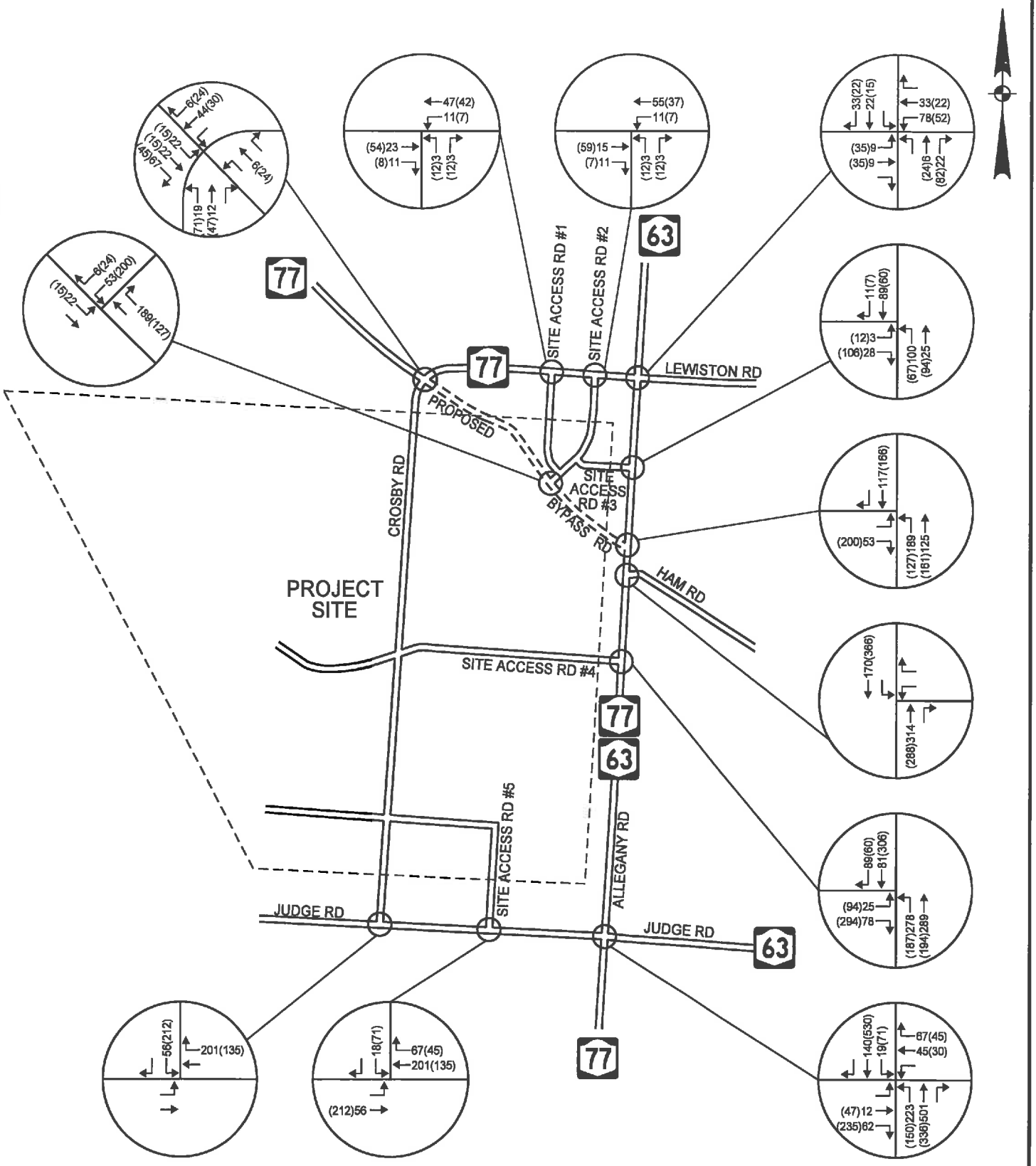
TRIP ASSIGNMENT
70% THRESHOLD
STUDY AREA INTERSECTIONS

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TOWN OF ALABAMA, NEW YORK

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| PROJECT: 110-021 | DATE: 2/2011 | FIGURE: 3.7 |
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AM PEAK HOUR (PM PEAK HOUR)

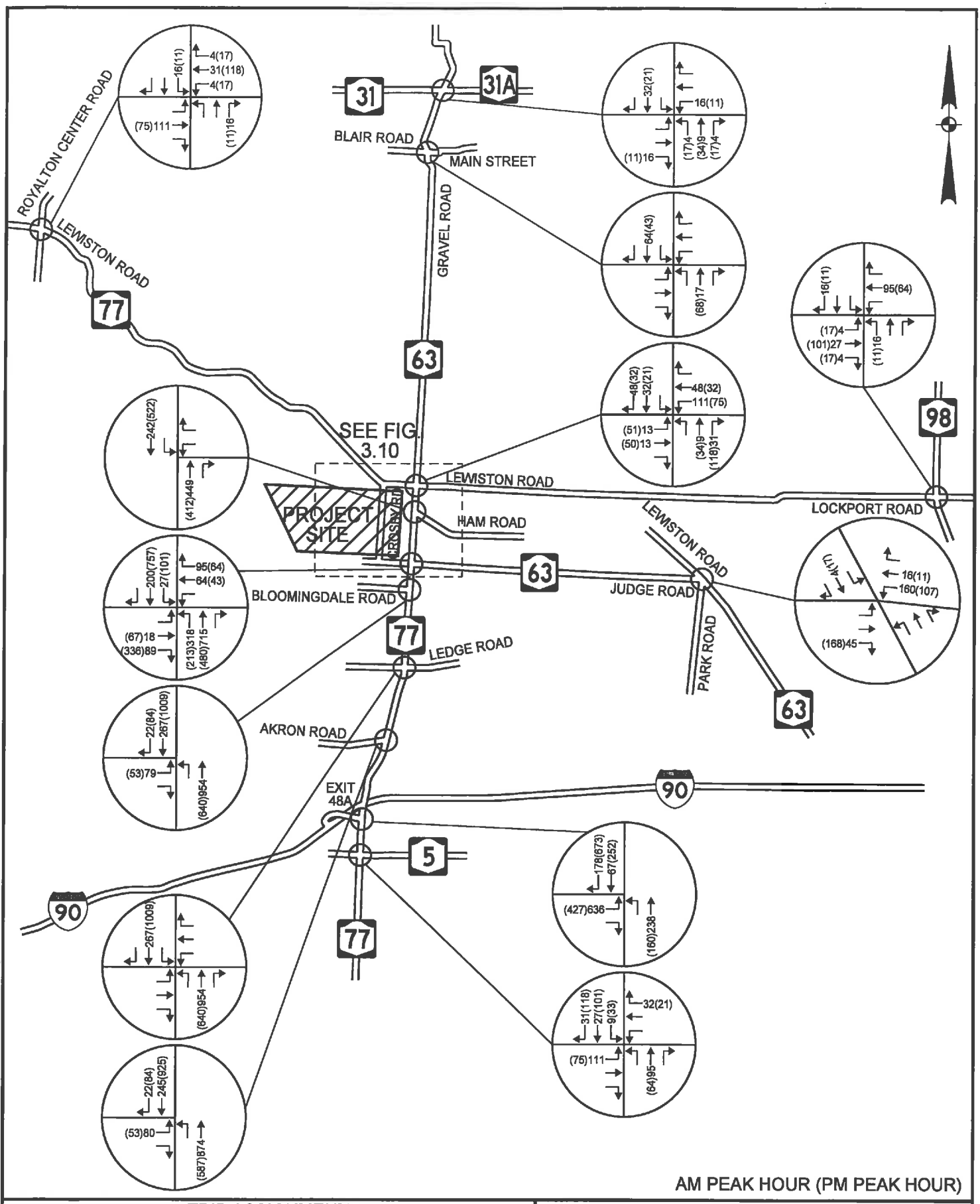
TRIP ASSIGNMENT
70% THRESHOLD
SITE ACCESS INTERSECTIONS

STAMP GEIS
TOWN OF ALABAMA, NEW YORK

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| PROJECT: 110-021 | DATE: 2/2011 | FIGURE: 3.8 |
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AM PEAK HOUR (PM PEAK HOUR)

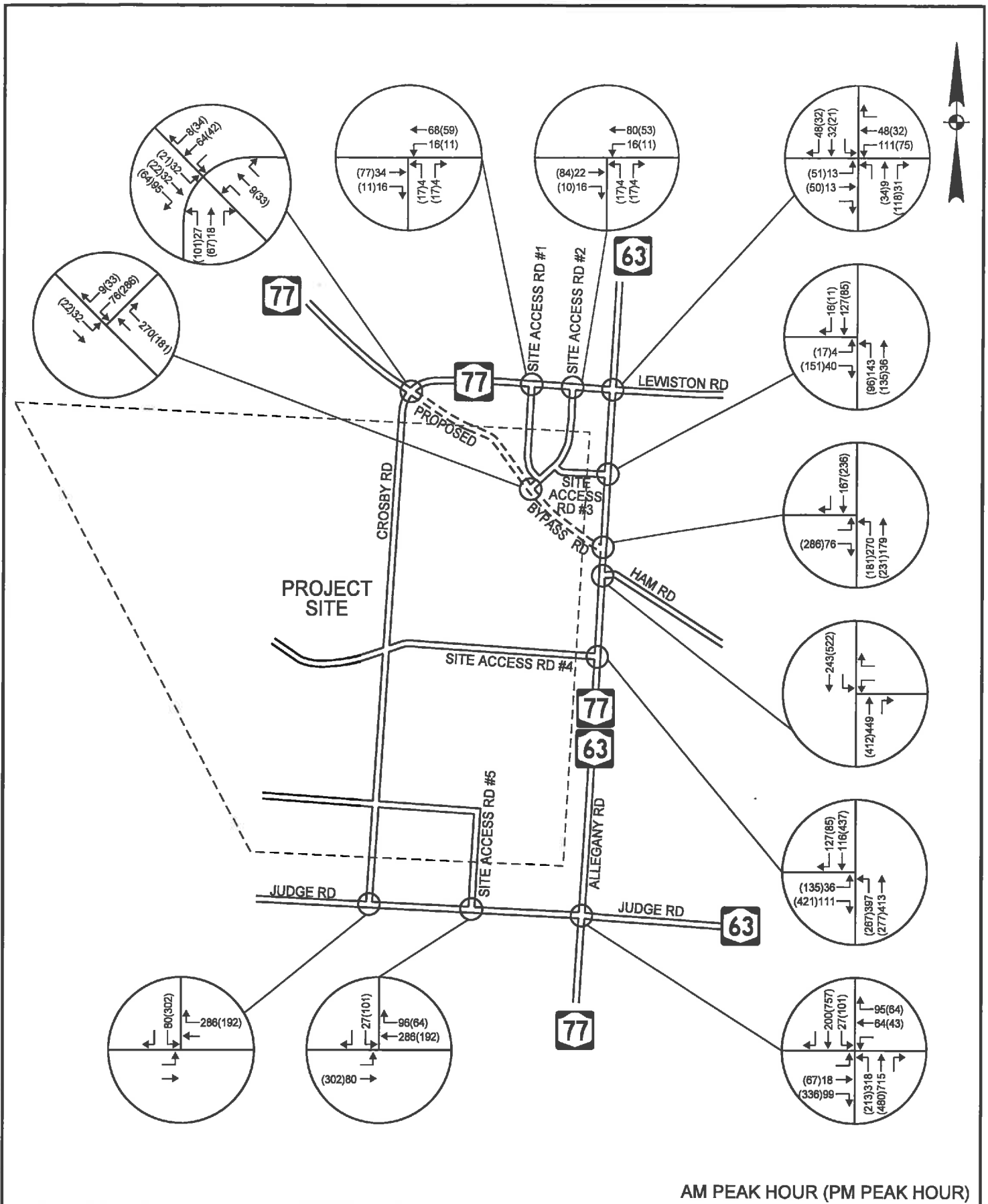
TRIP ASSIGNMENT
FULL BUILD-OUT
STUDY AREA INTERSECTIONS

STAMP GEIS
TOWN OF ALABAMA, NEW YORK

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| PROJECT: 110-021 | DATE: 2/2011 | FIGURE: 3.9 |
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AM PEAK HOUR (PM PEAK HOUR)

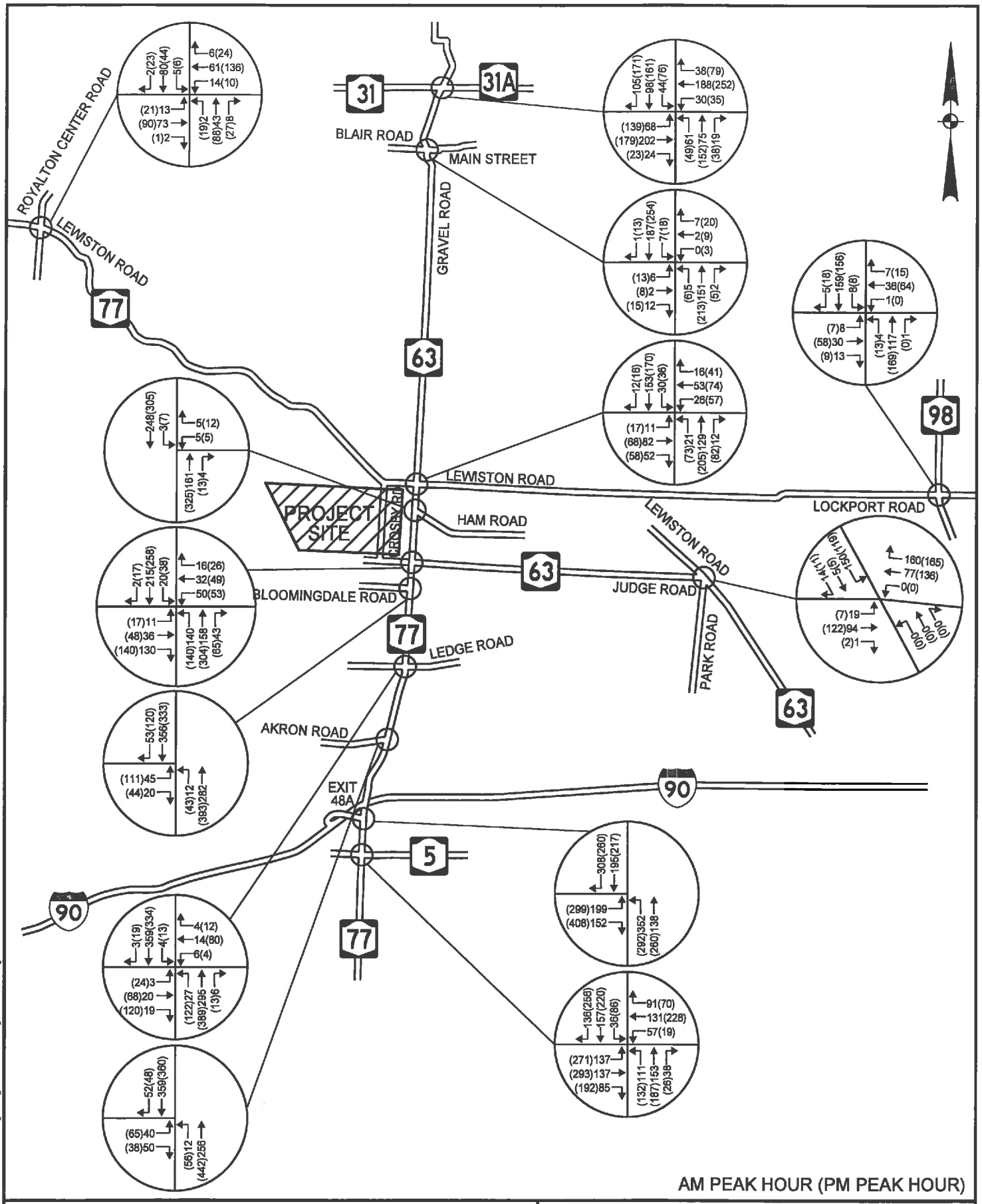
TRIP ASSIGNMENT
FULL BUILD-OUT
SITE ACCESS INTERSECTIONS

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| PROJECT: 110-021 | DATE: 2/2011 | FIGURE: 3.10 |
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AM PEAK HOUR (PM PEAK HOUR)

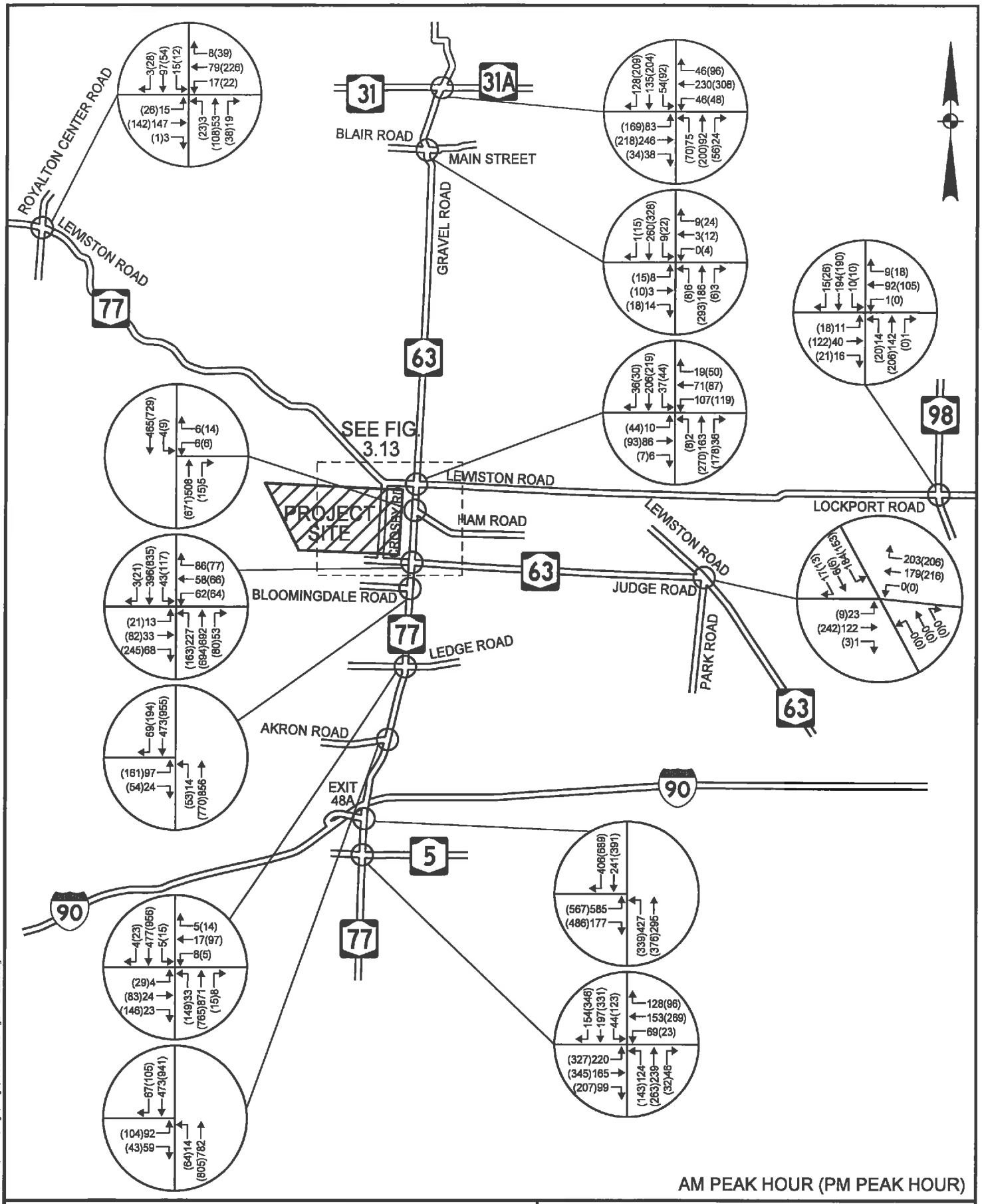
2015 BUILD
PHASE I
STUDY AREA INTERSECTIONS

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| PROJECT: 110-021 | DATE: 2/2011 | FIGURE: 3.11 |
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AM PEAK HOUR (PM PEAK HOUR)

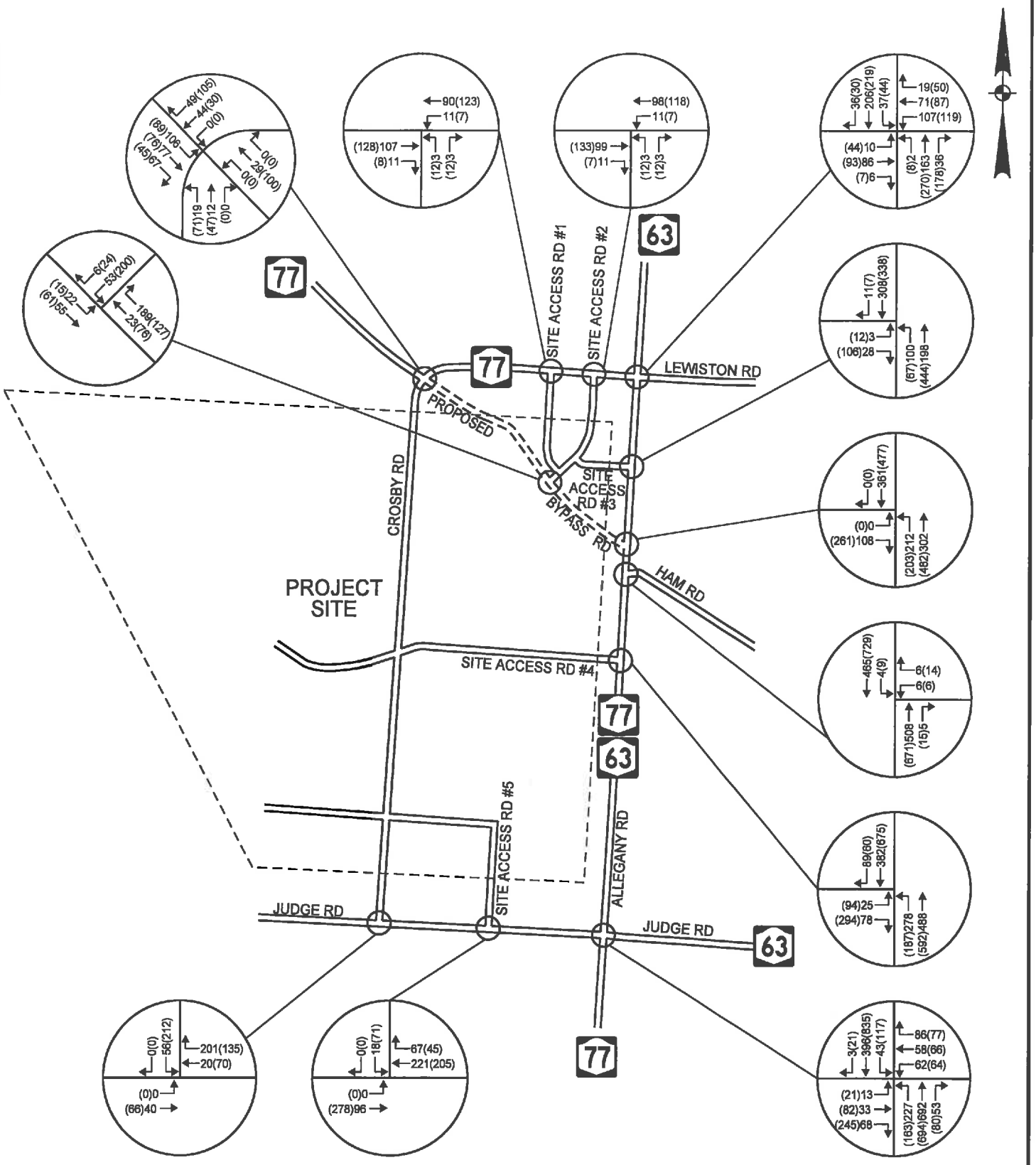
2035 BUILD
70% THRESHOLD
STUDY AREA INTERSECTIONS

STAMP GEIS
TOWN OF ALABAMA, NEW YORK

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| PROJECT: 110-021 | DATE: 2/2011 | FIGURE: 3.12 |
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AM PEAK HOUR (PM PEAK HOUR)

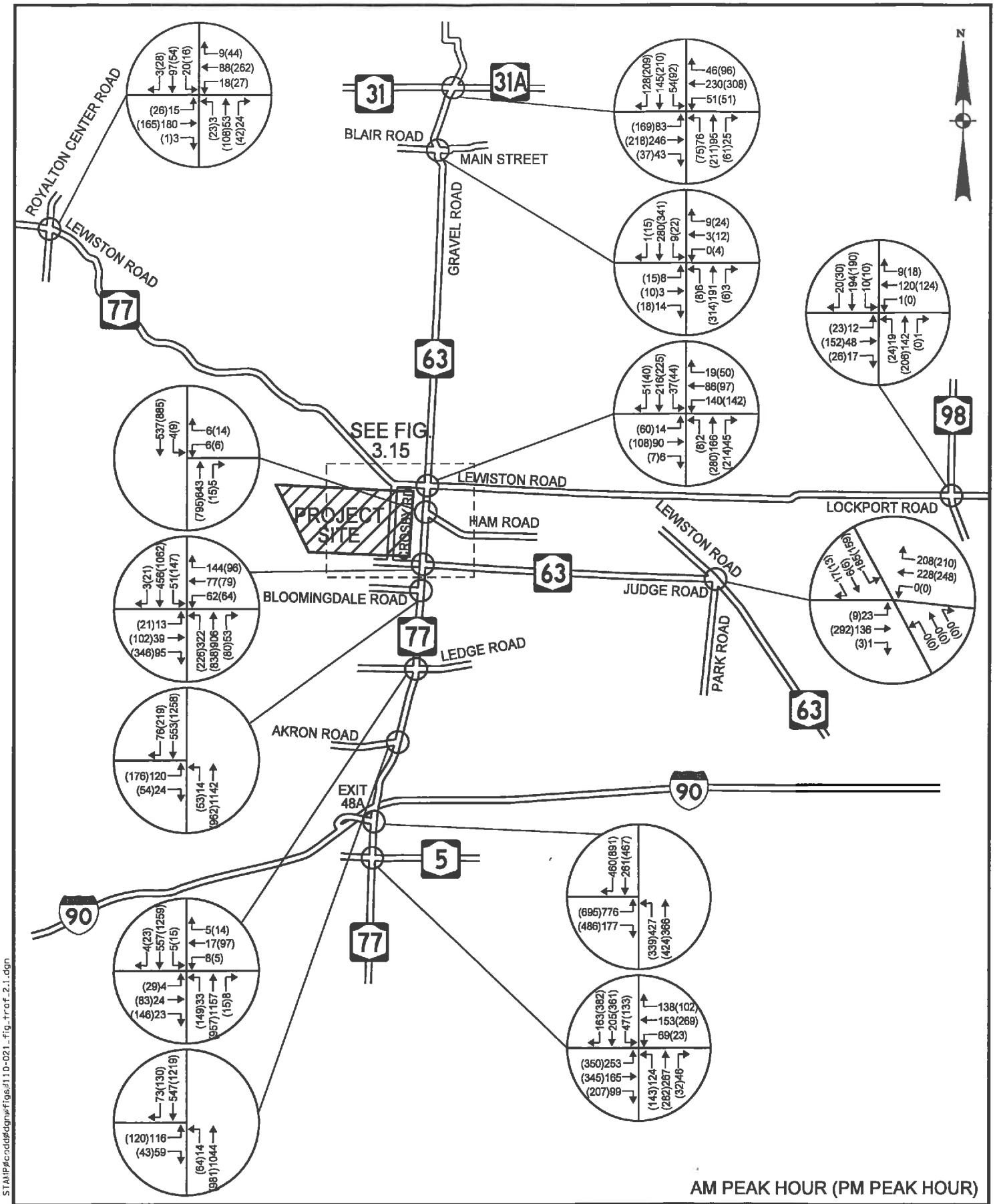
2035 BUILD
70% THRESHOLD
SITE ACCESS INTERSECTIONS

STAMP GEIS
TOWN OF ALABAMA, NEW YORK

Creighton Manning

| PROJECT: 110-021 | DATE: 2/2011 | FIGURE: 3.13 |
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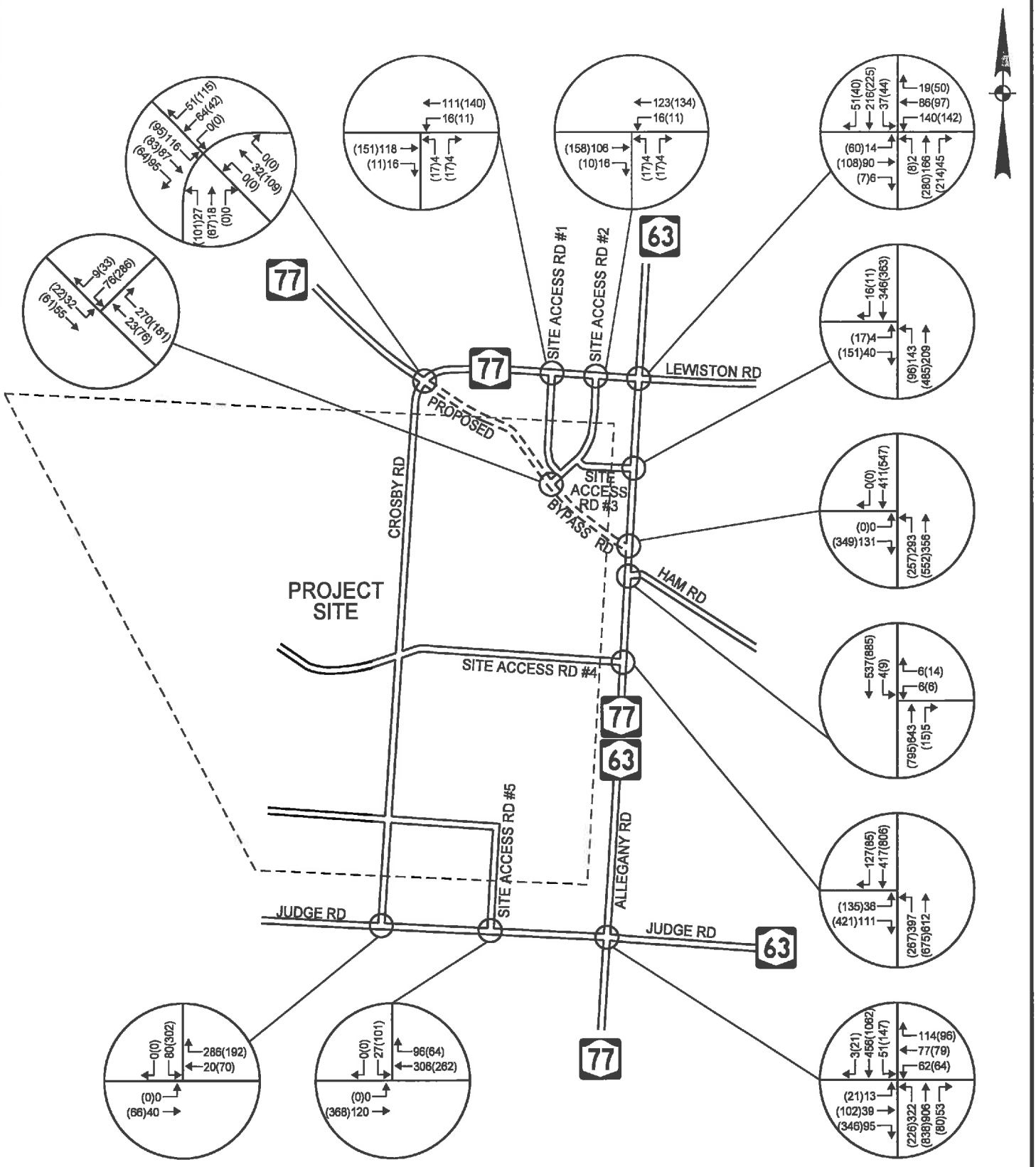

2035 BUILD
FULL BUILD-OUT
STUDY AREA INTERSECTIONS

STAMP GEIS
TOWN OF ALABAMA, NEW YORK

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PROJECT: 110-021 | DATE: 2/2011 | FIGURE: 3.14

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AM PEAK HOUR (PM PEAK HOUR)

2035 BUILD
FULL BUILD-OUT
SITE ACCESS INTERSECTIONS

STAMP GEIS
TOWN OF ALABAMA, NEW YORK

Creighton Manning

| PROJECT: 110-021 | DATE: 2/2011 | FIGURE: 3.15 |
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# CHAPTER IV
# ANALYSIS

## A. Two-Lane Road Capacity/Level of Service Analysis

A two-lane capacity analysis was conducted to determine if NY Route 77 can accommodate potential site traffic generated by the *STAMP* project. Level of Service (LOS) and capacity analysis of a two-lane road closely relate to their function which is primarily determined based on a motorist's expectations of the facility/road as it relates to time spent following and average travel speed. Segment evaluations were made using the Highway Capacity Software (HCS+ version 5.3) which automates the procedures contained in the *2000 Highway Capacity Manual*. Levels of service range from A to F with LOS A considered free-flow conditions constrained only by geometric features while LOS F generally represents forced or breakdown conditions. Appendix E contains copies of the detailed HCS level of service reports. Table 4.1 show the results of the Level of Service calculations for the AM and PM peak hours for each development scenario.

**Table 4.1 – Segment Level of Service Summary**

| Route 77 Segment | AM Peak Hour | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No-Build 2015 | | Build 2015 Phase 1 | | No-Build 2035 | | Build 2035 70 Percent | | Build 2035 Full Build-Out | |
| | LOS | V/C | LOS | V/C | LOS | V/C | LOS | V/C | LOS | V/C |
| Ham Rd to Judge Rd | B | 0.16 | B | 0.16 | B | 0.18 | D | 0.43 | D | 0.55 |
| Judge Rd to Bloomingdale Rd | B | 0.18 | C | 0.26 | B | 0.20 | D | 0.52 | E | 0.66 |
| Bloomingdale Rd to Ledge Rd | B | 0.16 | C | 0.24 | B | 0.18 | D | 0.48 | E | 0.61 |
| Ledge Rd to Akron Rd | B | 0.17 | C | 0.26 | B | 0.20 | D | 0.50 | E | 0.62 |
| Akron Rd to I-90 Exit 48A | B | 0.22 | C | 0.30 | C | 0.26 | D | 0.54 | E | 0.65 |
| I-90 Exit 48A to Route 5 | B | 0.23 | C | 0.25 | C | 0.27 | C | 0.35 | C | 0.38 |
| **Route 77 Segment** | **PM Peak Hour** | | | | | | | | | |
| | No-Build 2015 | | Build 2015 Phase 1 | | No-Build 2035 | | Build 2035 70 Percent | | Build 2035 Full Build-Out | |
| | LOS | V/C | LOS | V/C | LOS | V/C | LOS | V/C | LOS | V/C |
| Ham Rd to Judge Rd | B | 0.23 | B | 0.23 | C | 0.28 | E | 0.62 | E | 0.76 |
| Judge Rd to Bloomingdale Rd | B | 0.25 | C | 0.34 | C | 0.29 | E | 0.73 | E | 0.91 |
| Bloomingdale Rd to Ledge Rd | B | 0.19 | C | 0.28 | B | 0.23 | E | 0.63 | E | 0.80 |
| Ledge Rd to Akron Rd | C | 0.24 | C | 0.32 | C | 0.28 | E | 0.68 | E | 0.86 |
| Akron Rd to I-90 Exit 48A | C | 0.29 | C | 0.36 | C | 0.34 | E | 0.71 | E | 0.87 |
| I-90 Exit 48A to Route 5 | C | 0.36 | D | 0.38 | D | 0.42 | D | 0.52 | D | 0.56 |

The Genesee Transportation Council (GTC) indicates that congested roadway segments are defined as having a volume-to-capacity (v/c) ratio of 0.9 or greater. A review of the capacity on NY Route 77 indicates that only the Judge Road to Bloomingdale Road segment has a v/c ratio just over 0.9 during Full Build-Out conditions while all of the segments will operate at a LOS E or better during both peak hours through Full Build-Out of the development. The table also shows that at 70 percent of development, there will be ample reserve capacity on NY Route 77. Therefore, the roadway segment analysis indicates that NY Route 77 can accommodate future traffic from the proposed *STAMP* project. This analysis does not account for the interruptions at intersections which is discussed in the following section.

## B. Intersection Capacity/Level of Service Analysis

Intersection LOS and capacity analysis relate traffic volumes to the physical characteristics of an intersection. Intersection evaluations were made using the Synchro Software (version 6.14) which automates the procedures contained in the *2000 Highway Capacity Manual*. Levels of service range from A to F with LOS A conditions considered excellent with very little delay while LOS F represents conditions with very long delays. Appendix F contains further detailed descriptions of LOS criteria for signalized and unsignalized intersections and copies of the detailed HCM level of service reports.

It should be noted that the relatively low traffic volumes observed at the study area intersections resulted in high heavy vehicle percentages and low peak hour factors. As traffic volumes increase, peak hour factors will also increase. Accordingly, the peak hour factors on the movements that experience an increase in traffic from the *STAMP* project were increased to a minimum of 0.9 under the Build conditions. In addition, heavy vehicle percentages on movements that experience an increase in traffic from the STAMP project were recalculated assuming that heavy vehicles would make up two percent of site generated traffic. In addition, the recommendation for improvements is based on the following criteria found in the New York State Highway Design Manual (HDM):

- Intersections should provide an overall LOS D or better with all individual lane groups operating at a LOS D or better during both peak hours.

- It may be necessary to accept a LOS E or F on individual lane groups due to unreasonable costs or impacts associated with improving the level of service.

The relative impact of the proposed project can be determined by comparing the level of service during the 2015 and 2035 design years for the No-Build and Build traffic volume conditions. Table 4.2 and Table 4.3 show the results of the Level of Service analysis for the AM and PM peak hours.

## Table 4.2 – Intersection Level of Service Summary – AM Peak Hour

| Intersection | | Control | 2010 Existing | 2015 | | | 2035 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | No-Build | Phase 1 | | No-Build | 70 Percent | | Full Build | |
| | | | | | Build | Build w/Imp | | Build | Build w/Imp | Build | Build w/Imp |
| Route 63/Route 31/Route 31A | | S | | | | | | | | | |
| Route 31 EB | LT | | B (13.4) | B (14.7) | B (14.9) | -- | B (12.3) | B (13.0) | -- | B (13.4) | -- |
| | R | | A (7.4) | A (7.6) | A (7.6) | -- | A (6.9) | A (7.3) | -- | A (7.4) | -- |
| Route 31A WB | LTR | | B (11.7) | B (12.6) | B (12.7) | -- | B (10.8) | B (12.1) | -- | B (12.8) | -- |
| Route 63 NB | LTR | | A (6.3) | A (6.6) | A (6.6) | -- | B (10.8) | B (11.3) | -- | B (11.6) | -- |
| Route 31 SB | LTR | | A (6.5) | A (6.8) | A (6.8) | -- | B (12.1) | B (12.8) | -- | B (13.3) | -- |
| Overall | | | A (9.8) | B (10.4) | B (10.5) | -- | B (11.5) | B (12.3) | -- | B (12.7) | -- |
| Route 63/Blair Road/Main St | | TW | | | | | | | | | |
| Route 63 NB | L | | A (0.3) | A (0.3) | A (0.3) | -- | A (0.3) | A (0.3) | -- | A (0.3) | -- |
| Route 63 SB | L | | A (0.4) | A (0.3) | A (0.3) | -- | A (0.4) | A (0.3) | -- | A (0.3) | -- |
| Blair Rd EB | LTR | | B (10.6) | B (10.7) | B (10.9) | -- | B (11.7) | B (12.4) | -- | B (12.7) | -- |
| Main St WB | LTR | | A (9.8) | A (9.9) | A (10.0) | -- | B (10.4) | B (10.7) | -- | B (10.8) | -- |
| Route 77/Route 63/Lewiston Rd | | AW | | | | | | | | | |
| Route 77 EB | LTR | | A (9.0) | A (9.4) | A (9.7) | -- | B (11.4) | B (10.6) | -- | B (11.5) | -- |
| Lewiston Rd WB | LTR | | A (9.2) | A (9.7) | A (9.4) | -- | B (13.5) | B (12.1) | -- | B (14.5) | -- |
| Route 63 NB | LTR | | A (9.8) | B (10.4) | B (10.4) | -- | B (13.5) | B (12.2) | -- | B (13.7) | -- |
| Route 63 SB | LTR | | A (9.9) | B (10.6) | B (10.2) | -- | B (14.3) | B (13.1) | -- | C (15.3) | -- |
| Overall | | | A (9.6) | B (10.2) | B (10.0) | -- | B (13.4) | B (12.3) | -- | B (14.1) | -- |
| Route 77/63 Overlap 63/Ham Rd | | TW | | | | | | | | | |
| Route 77/63 SB | L | | A (0.1) | A (0.1) | A (0.1) | -- | A (0.2) | A (0.2) | -- | A (0.2) | -- |
| Ham Rd WB | LR | | B (10.7) | B (11.1) | B (10.9) | -- | B (11.8) | C (18.0) | -- | C (22.9) | -- |
| Route 77/Route 63/Judge Rd | | TW | | | | | | | | | |
| Route 77 NB | L | | A (7.7) | A (7.8) | A (8.1) | -- | A (8.0) | A (9.1) | -- | B (10.1) | -- |
| Route 77/63 SB | L | | A (7.8) | A (7.8) | A (7.8) | -- | A (8.0) | A (9.8) | -- | B (11.0) | -- |
| Judge Rd EB | LTR | | B (12.7) | B (13.7) | C (15.9) | -- | C (15.7) | F (>999) | -- | F (>999) | -- |
| Judge Rd WB | LT | | B (13.4) | B (14.7) | D (32.5) | -- | C (17.9) | F (>999) | -- | F (>999) | -- |
| | R | | | | | -- | | | -- | | -- |
| Judge Rd EB | LTR | S | -- | -- | -- | B (11.6) | -- | -- | -- | -- | -- |
| | LT | | -- | -- | -- | -- | -- | -- | C (25.8) | -- | C (31.0) |
| | R | | -- | -- | -- | -- | -- | -- | C (24.7) | -- | C (29.8) |
| Judge Rd WB | LT | | -- | -- | -- | B (11.7) | -- | -- | C (33.1) | -- | D (47.9) |
| | R | | -- | -- | -- | B (10.7) | -- | -- | C (24.8) | -- | C (29.8) |
| Route 77 NB | L | | -- | -- | -- | A (4.9) | -- | -- | A (4.7) | -- | A (6.3) |
| | TR | | -- | -- | -- | A (4.7) | -- | -- | B (12.2) | -- | C (23.7) |
| Route 77/63 SB | L | | -- | -- | -- | A (4.2) | -- | -- | A (6.6) | -- | B (12.6) |
| | TR | | -- | -- | -- | A (4.8) | -- | -- | A (7.8) | -- | A (8.3) |
| Overall | | | -- | -- | -- | A (7.0) | -- | -- | B (13.0) | -- | B (20.0) |
| Route 77/Bloomingdale Rd | | TW | | | | | | | | | |
| Route 77 NB | L | | A (0.7) | A (0.7) | A (0.5) | -- | A (0.8) | A (0.5) | -- | A (0.9) | -- |
| Bloomingdale Rd EB | LR | | B (11.6) | B (12.4) | C (15.4) | -- | B (13.8) | F (112) | -- | F (563) | -- |
| Bloomingdale Rd EB | LR | S | -- | -- | -- | -- | -- | -- | C (29.0) | -- | D (39.3) |
| Route 77 NB | L | | -- | -- | -- | -- | -- | -- | A (2.4) | -- | A (2.4) |
| | T | | -- | -- | -- | -- | -- | -- | A (6.5) | -- | B (16.5) |
| Route 77 SB | TR | | -- | -- | -- | -- | -- | -- | A (3.8) | -- | A (4.3) |
| Overall | | | -- | -- | -- | -- | -- | -- | A (7.2) | -- | B (14.0) |
| Route 77/Ledge Rd | | TW | | | | | | | | | |
| Route 77 NB | L | | A (1.3) | A (1.3) | A (0.9) | -- | A (1.4) | A (1.0) | -- | A (1.7) | -- |
| Route 77 SB | L | | A (0.2) | A (0.2) | A (0.1) | -- | A (0.2) | A (0.2) | -- | A (0.3) | -- |
| Ledge Rd EB | LTR | | B (12.4) | B (13.2) | C (16.3) | -- | C (15.1) | F (60.1) | -- | F (220) | -- |
| Ledge Rd WB | LTR | | B (12.9) | B (13.8) | C (17.7) | -- | C (16.0) | F (79.5) | -- | F (381) | -- |
| Ledge Rd EB | LTR | S | -- | -- | -- | C (23.3) | -- | -- | C (34.3) | -- | D (42.1) |
| Ledge Rd WB | LTR | | -- | -- | -- | C (22.8) | -- | -- | C (33.4) | -- | D (41.1) |
| Route 77 NB | LTR | | -- | -- | -- | A (2.4) | -- | -- | -- | -- | -- |
| | L | | -- | -- | -- | -- | -- | -- | A (2.2) | -- | A (2.5) |
| | TR | | -- | -- | -- | -- | -- | -- | A (4.8) | -- | B (12.9) |
| Route 77 SB | LTR | | -- | -- | -- | A (2.5) | -- | -- | -- | -- | -- |
| | L | | -- | -- | -- | -- | -- | -- | A (3.3) | -- | A (3.5) |
| | TR | | -- | -- | -- | -- | -- | -- | A (4.8) | -- | A (5.4) |
| Overall | | | -- | -- | -- | A (4.9) | -- | -- | A (6.9) | -- | B (12.2) |

## Table 4.2 – Intersection Level of Service Summary – AM Peak Hour (Cont'd)

| Intersection | | Control | 2010 Existing | 2015 | | | 2035 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | No-Build | Phase 1 | | No-Build | 70 Percent | | Full Build | |
| | | | | | Build | Build w/Imp | | Build | Build w/Imp | Build | Build w/Imp |
| Route 77/Akron Rd | | TW | | | | | | | TWLTL | | TWLTL |
| Route 77 NB | L | | A (0.5) | A (0.7) | A (0.5) | -- | A (0.8) | A (0.4) | A (8.7) | A (0.6) | A (9.0) |
| Akron Rd EB | LR | | B (11.4) | B (12.3) | B (14.4) | -- | B (13.9) | F (82.0) | -- | F (429) | -- |
| | [L] | | -- | -- | -- | -- | -- | -- | C (20.3) | -- | D (33.5) |
| | [R] | | -- | -- | -- | -- | -- | -- | B (12.9) | -- | B (14.0) |
| Route 77/I-90 Exit 48A | | S | | | | | | | | | |
| I-90 Exit 48A EB | L | | C (20.4) | C (21.5) | C (24.6) | -- | C (26.9) | F (91.1) | -- | F (259) | -- |
| | [L,L] | | -- | -- | -- | -- | -- | -- | C (20.8) | -- | C (25.6) |
| | R | | A (5.8) | A (6.0) | A (6.1) | -- | A (6.0) | A (5.6) | A (7.0) | A (6.2) | A (7.0) |
| Route 77 NB | L | | A (6.5) | A (7.6) | A (9.9) | -- | B (10.9) | D (38.0) | B (18.4) | D (39.6) | C (23.0) |
| | T | | A (3.3) | A (3.5) | A (4.0) | -- | A (3.6) | B (11.3) | A (7.7) | B (11.6) | A (9.2) |
| Route 77 SB | T,TR | | B (17.2) | B (18.2) | B (19.8) | -- | C (21.8) | D (36.0) | -- | D (38.0) | -- |
| | [T] | | -- | -- | -- | -- | -- | -- | C (22.5) | -- | C (25.1) |
| | [R] | | -- | -- | -- | -- | -- | -- | A (7.9) | -- | A (8.3) |
| Overall | | | B (11.3) | B (12.1) | B (14.7) | -- | B (15.0) | D (45.4) | C (15.1) | F (101) | B (18.1) |
| Route 77/Route 5 | | S | | | | | | | | | |
| Route 5 EB | L | | A (5.5) | A (6.7) | A (6.8) | -- | A (7.4) | A (8.4) | -- | B (12.3) | -- |
| | TR | | A (5.6) | A (6.4) | A (6.4) | -- | A (6.9) | A (6.8) | -- | A (8.7) | -- |
| Route 5 WB | L | | A (5.3) | B (13.6) | B (13.6) | -- | B (14.3) | B (14.9) | -- | C (20.1) | -- |
| | TR | | A (5.8) | B (15.2) | B (15.3) | -- | B (16.5) | B (18.2) | -- | C (30.8) | -- |
| Route 77 NB | L | | A (9.4) | B (19.9) | B (19.0) | -- | C (23.2) | C (21.8) | -- | B (17.9) | -- |
| | TR | | B (10.4) | B (19.4) | B (19.0) | -- | B (19.7) | C (21.2) | -- | B (19.3) | -- |
| Route 77 SB | L | | A (9.1) | C (23.6) | C (23.4) | -- | C (23.0) | C (22.9) | -- | C (21.2) | -- |
| | TR | | B (10.3) | -- | -- | -- | -- | -- | -- | -- | -- |
| | [T] | | -- | C (26.9) | C (27.0) | -- | C (29.0) | C (29.7) | -- | C (23.8) | -- |
| | [R] | | -- | C (22.7) | C (22.5) | -- | C (21.8) | C (21.5) | -- | C (20.2) | -- |
| Overall | | | A (7.6) | B (16.0) | B (16.0) | -- | B (16.9) | B (17.5) | -- | B (19.7) | -- |
| Route 77/Royalton Center Rd | | TW | | | | | | | | | |
| Route 77 EB | L | | A (1.5) | A (1.4) | A (1.2) | -- | A (1.4) | A (0.8) | -- | A (0.7) | -- |
| Route 77 WB | L | | A (1.5) | A (1.5) | A (1.4) | -- | A (1.5) | A (1.4) | -- | A (1.4) | -- |
| Royalton Ctr Rd NB | LTR | | B (10.8) | B (11.1) | B (11.4) | -- | B (11.7) | B (13.0) | -- | B (13.4) | -- |
| Royalton Ctr Rd SB | LTR | | B (11.0) | B (11.3) | B (11.9) | -- | B (12.1) | B (14.4) | -- | C (15.8) | -- |
| Route 98/Lockport Rd | | TW | | | | | | | | | |
| Route 98 NB | L | | A (0.2) | A (0.1) | A (0.3) | -- | A (0.2) | A (0.9) | -- | A (1.1) | -- |
| Route 98 SB | L | | A (0.5) | A (0.4) | A (0.4) | -- | A (0.5) | A (0.5) | -- | A (0.5) | -- |
| Lockport Rd EB | LTR | | B (12.0) | B (12.5) | B (13.5) | -- | B (14.2) | C (17.8) | -- | C (20.1) | -- |
| Lockport Rd WB | LTR | | B (11.7) | B (12.5) | B (13.0) | -- | B (13.6) | C (17.5) | -- | C (20.0) | -- |
| Route 63/Lewiston Rd/Park Rd | | TW | | | | | | | | | |
| Route 63 EB | L | | A (7.8) | A (7.8) | A (7.9) | -- | A (7.9) | A (8.3) | -- | A (8.5) | -- |
| Route 63 WB | L | | A (0.0) | A (0.0) | A (0.0) | -- | A (0.0) | A (0.0) | -- | A (0.0) | -- |
| Park Rd NB | LTR | | A (0.0) | A (0.0) | A (0.0) | -- | A (0.0) | A (0.0) | -- | A (0.0) | -- |
| Lewiston Rd SB | L | | B (11.2) | B (11.4) | B (12.1) | -- | B (12.5) | C (16.0) | -- | C (18.3) | -- |
| | TR | | A (9.2) | A (9.2) | A (9.4) | -- | A (9.3) | B (10.2) | -- | B (10.7) | -- |
| Route 77/Crosby Rd/Bypass Rd | | TW | | | | | | | | | |
| Route 77 EB | L | | -- | -- | -- | -- | -- | A (3.5) | -- | A (3.3) | -- |
| Bypass Rd WB | L | | -- | -- | -- | -- | -- | A (0.0) | -- | A (0.0) | -- |
| Crosby Rd NB | LTR | | -- | -- | -- | -- | -- | B (13.7) | -- | C (15.6) | -- |
| Route 77 SB | LTR | | -- | -- | -- | -- | -- | B (11.5) | -- | B (13.0) | -- |
| Route 77/63 Overlap/Bypass Rd | | TW | | | | | | | | | |
| Route 77/63 NB | L | | -- | -- | -- | -- | -- | A (9.0) | -- | A (9.7) | -- |
| Bypass Rd EB | TR | | -- | -- | -- | -- | -- | B (11.9) | -- | B (12.9) | -- |
| Route 77/Site Drwy #1 | | TW | | | | | | | | | |
| Route 77 WB | L | | -- | -- | -- | -- | -- | A (0.9) | -- | A (1.0) | -- |
| Site Drwy #1 NB | LR | | -- | -- | -- | -- | -- | A (9.5) | -- | A (9.8) | -- |
| Route 77/Site Drwy #2 | | TW | | | | | | | | | |
| Route 77 WB | L | | -- | -- | -- | -- | -- | A (0.8) | -- | A (1.0) | -- |
| Site Drwy #2 NB | LR | | -- | -- | -- | -- | -- | A (9.5) | -- | A (9.7) | -- |
| Route 77/63/Site Drwy #3 | | TW | | | | | | | | | |
| Route 77/63 NB | L | | -- | -- | -- | -- | -- | A (3.5) | -- | A (4.5) | -- |
| Site Drwy #3 EB | LR | | -- | -- | -- | -- | -- | B (11.2) | -- | B (12.1) | -- |

## Table 4.2 – Intersection Level of Service Summary – AM Peak Hour (Cont'd)

| Intersection | | Control | 2010 Existing | 2015 | | | 2035 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | No-Build | Phase 1 | | No-Build | 70 Percent | | Full Build | |
| | | | | | Build | Build w/Imp | | Build | Build w/Imp | Build | Build w/Imp |
| Bypass Rd/Site Drwy#2 | | TW | | | | | | | | | |
| Bypass Rd EB | L | | -- | -- | -- | -- | -- | A (2.3) | -- | A (3.1) | -- |
| Site Drwy #2 SB | LR | | -- | -- | -- | -- | -- | B (10.3) | -- | B (11.1) | -- |
| Route 77/63/Site Drwy #4 | | S | | | | | | | | | |
| Site Drwy #4 EB | L | | -- | -- | -- | -- | -- | C (21.7) | -- | C (22.0) | -- |
| | R | | -- | -- | -- | -- | -- | B (12.7) | -- | B (12.1) | -- |
| Route 77/63 NB | L | | -- | -- | -- | -- | -- | A (3.4) | -- | B (11.1) | -- |
| | T | | -- | -- | -- | -- | -- | A (1.9) | -- | A (2.5) | -- |
| Route 77/63 SB | TR | | -- | -- | -- | -- | -- | A (8.8) | -- | B (13.6) | -- |
| Overall | | | -- | -- | -- | -- | -- | A (5.6) | -- | A (9.1) | -- |
| Judge Rd/Site Drwy #5 | | TW | | | | | | | | | |
| Judge Road WB | L | | -- | -- | -- | -- | -- | A (0.0) | -- | A (0.0) | -- |
| Site Drwy #5 SB | LR | | -- | -- | -- | -- | -- | B (11.1) | -- | B (12.5) | -- |
| Judge Rd/Crosby Rd | | TW | | | | | | | | | |
| Judge Road WB | L | | -- | -- | -- | -- | -- | A (0.0) | -- | A (0.0) | -- |
| Crosby Road SB | LR | | -- | -- | -- | -- | -- | A (9.8) | -- | B (10.3) | -- |

Key: TW, AW, S, R = Two-way stop, All-way stop, Signal, or Roundabout controlled intersection
NB, SB, EB, WB = Northbound, Southbound, Eastbound, Westbound intersection approaches
L, T, R = Left-turn, through, and/or right-turn movements, -- = Not applicable
L[T]R = LR represents the existing geometry, LTR represents the future geometry
X (Y.Y) = Level of Service (Average delay in seconds per vehicle)

## Table 4.3 – Intersection Level of Service Summary – PM Peak Hour

| Intersection | | Control | 2010 Existing | 2015 | | | 2035 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | No-Build | Phase 1 | | No-Build | 70 Percent | | Full Build | |
| | | | | | Build | Build w/Imp | | Build | Build w/Imp | Build | Build w/Imp |
| Route 63/Route 31/Route 31A | | S | | | | | | | | | |
| Route 31 EB | LT | | B (11.6) | B (13.5) | B (13.6) | -- | C (22.0) | C (23.7) | -- | C (26.9) | -- |
| | R | | A (6.9) | A (7.3) | A (7.3) | -- | A (8.0) | A (8.5) | -- | A (8.7) | -- |
| Route 31A WB | LTR | | A (9.2) | A (10.0) | B (10.1) | -- | B (11.9) | B (13.0) | -- | B (13.4) | -- |
| Route 63 NB | LTR | | A (9.6) | B (10.5) | B (10.6) | -- | B (17.6) | C (20.7) | -- | C (22.7) | -- |
| Route 31 SB | LTR | | B (11.9) | B (13.7) | B (13.9) | -- | C (30.9) | C (33.2) | -- | C (34.3) | -- |
| Overall | | | B (10.6) | B (12.0) | B (12.1) | -- | C (20.9) | C (23.0) | -- | C (24.3) | -- |
| Route 63/Blair Rd/Main St | | TW | | | | | | | | | |
| Route 63 NB | L | | A (0.3) | A (0.3) | A (0.3) | -- | A (0.3) | A (0.3) | -- | A (0.3) | -- |
| Route 63 SB | L | | A (0.6) | A (0.3) | A (0.6) | -- | A (0.7) | A (0.7) | -- | A (0.7) | -- |
| Blair Rd EB | LTR | | B (12.3) | B (13.0) | B (13.2) | -- | B (14.8) | C (16.2) | -- | C (16.8) | -- |
| Main St WB | LTR | | B (11.1) | B (11.5) | B (11.6) | -- | B (12.7) | B (13.6) | -- | B (14.0) | -- |
| Route 77/Route 63/Lewiston Rd | | AW | | | | | | | | | |
| Route 77 EB | LTR | | A (9.6) | B (10.6) | B (11.4) | -- | B (12.4) | C (15.5) | -- | C (18.9) | -- |
| Lewiston Road WB | LTR | | B (10.1) | B (11.4) | B (12.2) | -- | B (13.8) | C (20.7) | -- | D (28.3) | -- |
| Route 63 NB | LTR | | B (12.0) | C (15.8) | C (17.2) | -- | D (26.0) | E (46.2) | -- | F (101) | -- |
| Route 63 SB | LTR | | B (10.7) | B (12.1) | B (12.9) | -- | C (15.5) | C (22.2) | -- | D (29.2) | -- |
| Overall | | | B (11.0) | B (13.4) | B (14.2) | -- | C (19.2) | D (30.5) | -- | F (55.8) | -- |
| Route 77/63 Overlap /Ham Rd | | TW | | | | | | | | | |
| Route 77/63 SB | L | | A (0.3) | A (0.2) | A (0.2) | -- | A (0.3) | A (0.3) | -- | A (0.4) | -- |
| Ham Road WB | LR | | B (11.6) | B (12.7) | B (12.6) | -- | B (14.3) | D (28.2) | -- | E (44.7) | -- |
| Route 77/Route 63/Judge Rd | | TW | | | | | | | | | |
| Route 77 NB | L | | A (7.9) | A (8.1) | A (8.3) | -- | A (8.2) | B (11.8) | -- | C (16.3) | -- |
| Route 77/63 SB | L | | A (8.5) | A (8.8) | A (8.4) | -- | A (9.2) | B (10.8) | -- | B (12.3) | -- |
| Judge Rd EB | LTR | | C (16.4) | C (20.2) | E (35.5) | -- | D (28.5) | F (>999) | -- | F (>999) | -- |
| Judge Rd WB | LT | | C (18.5) | D (25.0) | F (248) | -- | E (49.7) | F (>999) | -- | F (>999) | -- |
| | R | | | | | | | | | | |
| Judge Rd EB | LTR | S | -- | -- | -- | B (11.8) | -- | -- | -- | -- | -- |
| | LT | | -- | -- | -- | -- | -- | -- | C (30.5) | -- | C (32.8) |
| | R | | -- | -- | -- | -- | -- | -- | C (30.2) | -- | E (58.1) |
| Judge Rd WB | LT | | -- | -- | -- | B (13.1) | -- | -- | D (49.2) | -- | E (71.0) |
| | R | | -- | -- | -- | B (10.7) | -- | -- | C (28.0) | -- | C (29.5) |
| Route 77 NB | L | | -- | -- | -- | A (5.2) | -- | -- | D (45.4) | -- | F (193) |
| | TR | | -- | -- | -- | A (5.7) | -- | -- | B (15.8) | -- | C ()29.8) |
| Route 77/63 SB | L | | -- | -- | -- | A (4.6) | -- | -- | B (11.2) | -- | E (66.0) |
| | TR | | -- | -- | -- | A (5.4) | -- | -- | C (30.1) | -- | F (102) |
| Overall | | | -- | -- | -- | A (7.6) | -- | -- | C (27.3) | -- | E (74.0) |
| Route 77/Bloomingdale Rd | | TW | | | | | | | | | |
| Route 77 NB | L | | A (1.7) | A (1.5) | A (1.3) | -- | A (1.7) | A (3.6) | -- | A (7.7) | -- |
| Bloomingdale Rd EB | LR | | B (14.9) | C (18.2) | D (29.2) | -- | D (26.3) | F (>999) | -- | F (>999) | -- |
| Bloomingdale Rd EB | LR | S | -- | -- | -- | -- | -- | -- | D (53.2) | -- | E (60.4) |
| Route 77 NB | L | | -- | -- | -- | -- | -- | -- | C (25.1) | -- | C (25.2) |
| | T | | -- | -- | -- | -- | -- | -- | A (6.2) | -- | B (10.4) |
| Route 77 SB | TR | | -- | -- | -- | -- | -- | -- | C (28.7) | -- | F (133) |
| Overall | | | -- | -- | -- | -- | -- | -- | C (22.8) | -- | F (80.4) |
| Route 77/Ledge Rd | | TW | | | | | | | | | |
| Route 77 NB | L | | A (3.3) | A (3.1) | A (2.9) | -- | A (3.4) | A (6.5) | -- | B (12.3) | -- |
| Route 77 SB | L | | A (0.6) | A (0.5) | A (0.4) | -- | A (0.6) | A (0.7) | -- | A (1.5) | -- |
| Ledge Rd EB | LTR | | C (18.7) | D (26.0) | F (66.8) | -- | F (81.5) | F (>999) | -- | F (>999) | -- |
| Ledge Rd WB | LTR | | C (20.9) | D (27.9) | F (54.2) | -- | F (56.9) | F (>999) | -- | F (>999) | -- |
| Ledge Rd EB | LTR | S | -- | -- | -- | B (17.3) | -- | -- | D (52.3) | -- | D (54.8) |
| Ledge Rd WB | LTR | | -- | -- | -- | B (16.4) | -- | -- | C (33.7) | -- | C (34.9) |
| Route 77 NB | LTR | | -- | -- | -- | A (6.6) | -- | -- | -- | -- | -- |
| | L | | -- | -- | -- | -- | -- | -- | D (39.5) | -- | E (62.2) |
| | TR | | -- | -- | -- | -- | -- | -- | A (6.9) | -- | B (10.3) |
| Route 77 SB | LTR | | -- | -- | -- | A (4.8) | -- | -- | -- | -- | -- |
| | L | | -- | -- | -- | -- | -- | -- | A (6.8) | -- | A (6.9) |
| | TR | | -- | -- | -- | -- | -- | -- | D (36.1) | -- | F (137) |
| Overall | | | -- | -- | -- | -- | -- | -- | C (28.3) | -- | E (77.6) |

## Table 4.3 – Intersection Level of Service Summary – PM Peak Hour (Cont'd)

| Intersection | | Control | 2010 Existing | 2015 | | | 2035 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | No-Build | Phase 1 | | No-Build | 70 Percent | | Full Build | |
| | | | | | Build | Build w/Imp | | Build | Build w/Imp | Build | Build w/Imp |
| Route 77/Akron Rd | | TW | | | | | | | TWLTL | | TWLTL |
| Route 77 NB | L | | A (1.1) | A (1.6) | A (1.5) | -- | A (1.7) | A (3.4) | B (11.7) | A (6.3) | B (14.4) |
| Akron Rd EB | LR | | B (13.6) | C (16.3) | C (22.6) | -- | C (20.8) | F (812) | -- | F (>999) | -- |
| | [L] | | -- | -- | -- | -- | -- | -- | E (37.5) | -- | F (90.6) |
| | [R] | | -- | -- | -- | -- | -- | -- | C (22.6) | -- | E (36.0) |
| Route 77/I-90 Exit 48A | | S | | | | | | | | | |
| I-90 Exit 48A EB | L | | B (14.7) | C (25.1) | C (23.4) | -- | C (26.5) | F (146) | -- | F (263) | -- |
| | [L,L] | | -- | -- | -- | -- | -- | -- | C (24.6) | -- | C (31.3) |
| | R | | A (5.8) | A (7.2) | A (6.8) | -- | A (7.4) | B (12.3) | B (12.3) | B (12.7) | B (13.7) |
| Route 77 NB | L | | A (7.1) | A (9.4) | B (14.5) | -- | B (15.3) | D (40.9) | C (27.2) | D (41.1) | D (43.0) |
| | T | | A (5.4) | A (5.3) | A (7.3) | -- | A (7.3) | B (10.9) | A (8.3) | B (11.4) | A (9.2) |
| Route 77 SB | T,TR | | B (14.7) | B (19.0) | C (22.7) | -- | C (24.5) | F (84.8) | -- | F (223) | -- |
| | [T] | | -- | -- | -- | -- | -- | -- | C (31.3) | -- | D (46.5) |
| | [R] | | -- | -- | -- | -- | -- | -- | B (11.6) | -- | C (24.6) |
| Overall | | | A (9.7) | B (12.7) | B (15.3) | -- | B (15.8) | E (69.1) | B (18.4) | F (153) | C (27.4) |
| Route 77/Route 5 | | S | | | | | | | | | |
| Route 5 EB | L | | A (8.6) | B (13.6) | B (12.1) | -- | B (19.5) | C (24.1) | -- | C (33.7) | -- |
| | TR | | A (9.9) | B (13.2) | B (12.0) | -- | B (16.2) | B (15.2) | -- | B (16.6) | -- |
| Route 5 WB | L | | A (7.7) | B (19.2) | B (18.6) | -- | C (20.1) | C (20.6) | -- | C (21.9) | -- |
| | TR | | A (9.2) | C (27.4) | C (26.3) | -- | D (35.6) | D (37.8) | -- | D (43.7) | -- |
| Route 77 NB | L | | A (7.3) | B (18.5) | B (17.5) | -- | C (26.1) | C (30.1) | -- | C (29.8) | -- |
| | TR | | A (8.0) | B (16.1) | B (16.1) | -- | B (17.6) | B (18.3) | -- | B (18.5) | -- |
| Route 77 SB | L | | A (7.6) | C (21.6) | C (21.4) | -- | C (23.2) | C (23.9) | -- | C (25.6) | -- |
| | TR | | B (10.2) | -- | -- | -- | -- | -- | -- | -- | -- |
| | T | | -- | C (24.8) | C (23.8) | -- | C (30.4) | C (33.9) | -- | D (38.6) | -- |
| | R | | | B (19.9) | B (19.8) | -- | C (20.6) | C (21.0) | -- | C (21.7) | -- |
| Overall | | | A (9.2) | B (18.6) | B (17.7) | -- | C (23.0) | C (24.6) | -- | C (27.9) | -- |
| Route 77/Royalton Center Rd | | TW | | | | | | | | | |
| Route 77 EB | L | | A (2.0) | A (1.8) | A (1.6) | -- | A (1.9) | A (1.5) | -- | A (1.3) | -- |
| Route 77 WB | L | | A (0.5) | A (0.4) | A (0.5) | -- | A (0.5) | A (0.7) | -- | A (0.8) | -- |
| Royalton Ctr Rd NB | LTR | | B (13.1) | B (14.3) | B (14.4) | -- | C (17.4) | C (23.9) | -- | D (30.0) | -- |
| Royalton Ctr Rd SB | LTR | | B (11.5) | B (12.2) | B (12.4) | -- | B (13.6) | C (18.1) | -- | C (22.6) | -- |
| Route 98/Lockport Rd | | TW | | | | | | | | | |
| Route 98 NB | L | | A (0.5) | A (0.5) | A (0.6) | -- | A (0.6) | A (0.8) | -- | A (1.0) | -- |
| Route 98 SB | L | | A (0.4) | A (0.4) | A (0.4) | -- | A (0.4) | A (0.4) | -- | A (0.4) | -- |
| Lockport Rd EB | LTR | | B (12.2) | B (13.1) | B (13.3) | -- | B (14.8) | C (19.0) | -- | C (22.9) | -- |
| Lockport Rd WB | LTR | | B (11.9) | B (12.6) | B (13.0) | -- | B (14.0) | C (16.3) | -- | C (17.7) | -- |
| Route 63/Lewiston Rd/Park Rd | | TW | | | | | | | | | |
| Route 63 EB | L | | A (8.0) | A (8.1) | A (8.1) | -- | A (8.2) | A (8.5) | -- | A (8.6) | -- |
| Route 63 WB | L | | A (0.0) | A (0.0) | A (0.0) | -- | A (0.0) | A (0.0) | -- | A (0.0) | -- |
| Park Rd NB | LTR | | A (0.0) | A (0.0) | A (0.0) | -- | A (0.0) | A (0.0) | -- | A (0.0) | -- |
| Lewiston Rd SB | L | | B (11.3) | B (11.8) | B (12.1) | -- | B (13.2) | C (18.0) | -- | C (21.9) | -- |
| | TR | | A (9.5) | A (9.6) | A (9.7) | -- | A (9.9) | B (10.8) | -- | B (11.3) | -- |
| Rt 77/Crosby Rd/Bypass Rd | | TW | | | | | | | | | |
| Route 77 EB | L | | -- | -- | -- | -- | -- | A (3.6) | -- | A (3.4) | -- |
| Bypass Rd WB | L | | -- | -- | -- | -- | -- | A (0.0) | -- | A (0.0) | -- |
| Crosby Rd NB | LTR | | -- | -- | -- | -- | -- | C (19.5) | -- | D (28.9) | -- |
| Route 77 Rd SB | LTR | | -- | -- | -- | -- | -- | B (10.9) | -- | B (11.8) | -- |
| Route 77/63 Overlap/Bypass Rd | | TW | | | | | | | | | |
| Route 77/63 NB | L | | -- | -- | -- | -- | -- | A (2.8) | -- | B (10.3) | -- |
| Bypass Rd EB | LR | | -- | -- | -- | -- | -- | C (19.3) | -- | E (35.6) | -- |
| Route 77/Site Drwy #1 | | TW | | | | | | | | | |
| Route 77 WB | L | | -- | -- | -- | -- | -- | A (0.5) | -- | A (0.6) | -- |
| Site Drwy #1 NB | LR | | -- | -- | -- | -- | -- | A (9.8) | -- | B (10.2) | -- |
| Route 77/Site Drwy #2 | | TW | | | | | | | | | |
| Route 77 WB | L | | -- | -- | -- | -- | -- | A (0.5) | -- | A (0.7) | -- |
| Site Drwy #2 NB | LR | | -- | -- | -- | -- | -- | A (9.9) | -- | B (10.3) | -- |
| Route 77/63/Site Drwy #3 | | TW | | | | | | | | | |
| Route 77/63 NB | L | | -- | -- | -- | -- | -- | A (1.8) | -- | A (2.4) | -- |
| Site Drwy #3 EB | LR | | -- | -- | -- | -- | -- | B (13.3) | -- | C (15.8) | -- |

## Table 4.3 – Intersection Level of Service Summary – PM Peak Hour (Cont'd)

| Intersection | | Control | 2010 Existing | 2015 | | | 2035 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | No-Build | Phase 1 | | No-Build | 70 Percent | | Full Build | |
| | | | | | Build | Build w/Imp | | Build | Build w/Imp | Build | Build w/Imp |
| Bypass Rd/Site Drwy#2 | | TW | | | | | | | | | |
| Bypass Rd EB | L | | -- | -- | -- | -- | -- | A (1.6) | -- | A (2.2) | -- |
| Site Drwy #2 SB | LR | | -- | -- | -- | -- | -- | B (12.3) | -- | C (15.3) | -- |
| Route 77/63/Site Drwy #4 | | S | | | | | | | | | |
| Site Drwy #4 EB | L | | -- | -- | -- | -- | -- | C (27.3) | -- | C (33.1) | -- |
| | R | | -- | -- | -- | -- | -- | B (19.5) | -- | C (29.0) | -- |
| Route 77/63 NB | L | | -- | -- | -- | -- | -- | B (10.2) | -- | D (43.3) | -- |
| | T | | -- | -- | -- | -- | -- | A (3.5) | -- | A (4.4) | -- |
| Route 77/63 SB | TR | | -- | -- | -- | -- | -- | B (19.1) | -- | D (42.8) | -- |
| Overall | | | -- | -- | -- | -- | -- | B (13.8) | -- | C (29.0) | -- |
| Judge Rd/Site Drwy #5 | | | | | | | | | | | |
| Judge Road WB | L | | -- | -- | -- | -- | -- | A (0.0) | -- | A (0.0) | -- |
| Site Drwy #5 SB | LR | | -- | -- | -- | -- | -- | B (13.7) | -- | C (18.0) | -- |
| Judge Rd/Crosby Rd | | | | | | | | | | | |
| Judge Road WB | L | | -- | -- | -- | -- | -- | A (0.0) | -- | A (0.0) | -- |
| Crosby Road SB | LR | | -- | -- | -- | -- | -- | B (11.8) | -- | B (13.9) | -- |

Key: TW, AW, S, R = Two-way stop, All-way stop, Signal, or Roundabout controlled intersection
NB, SB, EB, WB = Northbound, Southbound, Eastbound, Westbound intersection approaches
L, T, R = Left-turn, through, and/or right-turn movements, -- = Not applicable
L(T)R = LR represents the existing geometry, LTR represents the future geometry
X (Y.Y) = Level of Service (Average delay in seconds per vehicle)

*Existing and No-Build Conditions Summary*

The level of service analysis indicates that the study area intersections operate at a LOS C or better on all approaches during the AM and PM peak hours of adjacent street traffic. It is noted that the operating conditions observed in the field adequately reflect the LOS summary shown above.

The level of service analysis for the 2015 and 2035 No-Build conditions indicates that some of the study area intersections will experience an increase in delay and a drop in level of service from Existing conditions. A review of the 2035 No-Build condition indicates that without development of the proposed project, the westbound approach of the NY Route 77/NY Route 63/Judge Road intersection will drop from a LOS C to a LOS E while the eastbound and westbound approaches of the NY Route 77/Ledge Road intersection will drop from a LOS C to a LOS F during the PM peak hour.

*Phase 1 Summary – 2015 Design Year*

The Phase 1 Build condition includes 1,000,000 SF of floor space for a technology manufacturing facility at the *STAMP* site. The level of service analysis indicates that installation of a traffic signal should be considered at the NY Route 77/NY Route 63/Judge

Road intersection and at the NY Route 77/Ledge Road intersection. It is noted that the improvements identified at the study area intersections include signalized alternatives. However, as per NYSDOT policy, alternative traffic control such as roundabouts at these intersections should be reviewed during final design to improve traffic operations. Based on conversations with the NYSDOT, these locations should be monitored to determine when the traffic signal or roundabout should be installed. During Phase 1, site access will be provided via Crosby Road. Figure 4.1 shows the Phase 1 recommendations.

*70 Percent Summary – 2035 Design Year*

The 70 percent condition is the amount of development that generates 70 percent of site traffic, or 1,424 AM peak hour trips and 1,924 PM peak hour trips. The level of service analysis indicates that several improvements should be considered in order to provide adequate operating conditions. It is noted that the improvements identified at the study area and site access intersections assume completion of the Bypass Road and typically include geometric and signalized alternatives. However, as per NYSDOT policy, alternative traffic control such as roundabouts at these intersections should be reviewed during final design to improve traffic operations. The following list summarizes the recommended improvements at the study area and site access intersections (also see Figure 4.2):

*Study Area Intersections*:

- NY Route 77/NY Route 63/Judge Road –
  - Construct eastbound right-turn lane.
  - Install traffic signal.
- NY Route 77/Bloomingdale Road –
  - Construct northbound left-turn lane.
  - Extend two-way left-turn lane opposite the northbound left-turn lane to the NY Route 77/NY Route 63/Judge Road intersection.
  - Install traffic signal.
- NY Route 77/Ledge Road –
  - Construct northbound and southbound left-turn lanes.
  - Install traffic signal.
- NY Route 77/Akron Road –
  - Construct eastbound right-turn lane.
  - Construct northbound left-turn lane.
  - Extend two-way left-turn lane through the Hamlet of Indian Falls.
- NY Route 77/I-90 Exit 48A –
  - Construct eastbound left-turn lane.

- Change shared southbound through/right-turn lane to a right-turn only lane.
- Add a protected southbound right-turn overlap phase to the traffic signal.

*Site Access Intersections*

- New Bypass Road –
  - Construct a new, two-lane road through the site from NY Route 77/63 Overlap (north of Ham Road) that connects to NY Route 77 in the vicinity of the Crosby Road intersection. The new road will bypass the Hamlet of Alabama and could be designated as NY Route 77 and the portion of NY Route 77 that extends through the Hamlet of Alabama could be de-designated.
- NY Route 77/63 Overlap/Bypass Road –
  - Construct northbound left-turn lane on NY Route 77/63 Overlap.
  - Eastbound Bypass Road approach operates under stop-sign control.
- NY Route 77/63 Overlap/Site Access Road #4 (Main Site Access)–
  - Construct northbound left-turn lane on NY Route 77/63 Overlap.
  - Provide separate eastbound left and right turn lanes.
  - Install traffic signal.
- Unsignalized Site Access Road Intersections:
  - Provide a single lane for shared travel movements
  - Minor street approaches operate under stop-sign control.
    - NY Route 77/63 Overlap/Site Access Road #3,
    - NY Route 77/Site Access Roads #1 & #2,
    - Judge Road/Crosby Road,
    - Judge Road/Site Access Road #5,
    - NY Route 77/Crosby Road/Bypass Road,
    - Bypass Road/Site Access Road #2

It is noted that the timing of these improvements is contingent upon how the site is built after Phase 1. Accordingly, it is recommended that the phasing of these site access and off-site improvements be re-evaluated after completion of the Phase 1 development.

*Full Build-Out Summary – 2035 Design Year*

Full Build-Out operating conditions are representative of the traffic conditions that can be expected after total construction of the 6,130,000 SF of floor space for technology manufacturing and ancillary development related to the *STAMP* project. The analysis indicates that most of the study area and site access intersections will continue to operate adequately. Since additional mitigation above and beyond the improvements identified for

the 70 percent threshold may be necessary to provide adequate operations at a few study area and site access intersections for full-build, it is recommended that a supplemental impact assessment be conducted after completion of 70 percent or the site generates 1,925 trips during the PM peak hour. The supplemental impact assessment will confirm actual site trip generation and operating conditions and be able to better evaluate future intersection operations to determine if additional mitigation is necessary for continued expansion of the project. Based on the analysis herein, it is recommended that the supplemental analysis only focus on the intersections listed below:

- NY Route 77/NY Route 63/Judge Road
- NY Route 77/Bloomingdale Road
- NY Route 77/Ledge Road
- Route 77/Route 63/Lewiston Road

*Level of Service Degradations*

The level of service analysis also indicates that as a result of the potential increased traffic from the *STAMP* project, some of the study area intersections will experience level of service degradations from no-build to build conditions. However, since the increase in delay and associated drop in level of service is generally small, it is recommended that NYSDOT grant an exception to their policy of requiring mitigation to maintain the same levels of service from no-build to build conditions and that the Town of Alabama acknowledge and accept the level of service degradations at the following intersections as an unavoidable adverse impact of the project:

*Phase 1 Condition –*

- NY Route 63/NY Route 31/NY Route 31A –
  PM Peak Hour
  - Westbound approach drops from LOS A to LOS B.
- NY Route 77/Bloomingdale Road –
  AM Peak Hour
  - Eastbound approach drops from LOS B to LOS C.

  PM Peak Hour
  - Eastbound approach drops from LOS C to LOS D.
- NY Route 77/I-90 Exit 48A –
  PM Peak Hour

- Northbound left-turn movement drops from LOS A to LOS B. Southbound approach drops from LOS B to LOS C.

*70 Percent Threshold Conditions (Only includes changes from Phase 1)* –

- NY Route 63/NY Route 31/NY Route 31A –
  PM Peak Hour
  - Northbound approach drops from LOS B to LOS C.
- NY Route 63/Blair Road/Main Street –
  PM Peak Hour
  - Eastbound approach drops from LOS B to LOS C.
- NY Route 77/NY Route 63/Lewiston Road –
  PM Peak Hour
  - Eastbound approach drops from LOS B to LOS C.
  - Westbound approach drops from LOS B to LOS C.
  - Northbound approach drops from LOS D to LOS E.
  - Overall intersection drops from LOS C to LOS D.
- NY Route 77/63 Overlap/Ham Road –
  AM Peak Hour
  - Westbound approach drops from LOS B to LOS C.

  PM Peak Hour
  - Westbound approach drops from LOS B to LOS D.
- NY Route 77/NY Route 5 –
  AM Peak Hour
  - Northbound shared through/right-turn movement drops from LOS B to LOS C.

  PM Peak Hour
  - Eastbound left-turn movement drops from LOS B to LOS C.
- NY Route 77/Royalton Center Road –
  PM Peak Hour
  - Southbound approach drops from LOS B to LOS C.
- NY Route 98/Lockport Road –
  AM Peak Hour
  - Eastbound approach drops from LOS B to LOS C.
  - Westbound approach drops from LOS B to LOSC.

  PM Peak Hour
  - Eastbound approach drops from LOS B to LOS C.
  - Westbound approach drops from LOS B to LOS C.
- NY Route 63/Lewiston Road/Park Road –
  AM Peak Hour
  - Southbound left-turn movement drops from LOS B to LOS C.
  - Southbound shared through/right-turn movement drops from LOS A to LOS B.

  PM Peak Hour
  - Southbound left-turn movement drops from LOS B to LOS C.
  - Southbound shared through/right-turn movement drops from LOS A to LOS B.

## C. I-90 Exit 48A Interchange Capacity

An evaluation of the available capacity of the I-90 Exit 48A interchange was conducted to determine if the existing toll plaza will be able to accommodate traffic associated with the various phases of the *STAMP* project. The existing toll plaza has three available toll lanes for entering and exiting traffic. These lanes can be configured to provide one EZ-Pass lane with two staffed/ticketed lanes (Toll Configuration 1) or two EZ-Pass lanes with 1 staffed/ticketed lane (Toll Configuration 2). Information provided by the New York State Thruway Authority (NYSTA) indicates that the capacity of a staffed lane is approximately 200 vehicles per hour (vph) exiting and 500 vph entering. Capacity of an EZ-Pass lane is approximately 800 vph exiting and 1,200 vph entering. Table 4.4 provides a summary of available capacity of the I-90 Exit 48A for both toll plaza configurations.

**Table 4.4 – Exit 48A Toll Capacity Summary**

| Exit 48A | Toll Configuration 1 | | | Toll Configuration 2 | | |
|---|---|---|---|---|---|---|
| | Number of Lanes | Capacity per Lane | Total Capacity | Number of Lanes | Capacity per Lane | Total Capacity |
| Existing Toll Capacity | | | | | | |
| Exiting | | | | | | |
| Staffed Lane | 2 | 200 | 400 | 1 | 200 | 200 |
| EZ-Pass Lane | 1 | 800 | 1,600 | 2 | 800 | 1,600 |
| **Total Toll Capacity** | | | **1,200** | | | **1,800** |
| Entering | | | | | | |
| Staffed Lane | 2 | 500 | 1,000 | 1 | 500 | 500 |
| EZ-Pass Lane | 1 | 1,200 | 1,200 | 2 | 1,200 | 2,400 |
| **Total Toll Capacity** | | | **2,200** | | | **2,900** |

The table indicates that exiting capacity ranges from 1,200 vph to 1,800 vph while entering capacity ranges from 2,200 vph to 2,900 vph. Table 4.5 summarizes the anticipated traffic exiting and entering the I-90 Exit 48A toll during the AM and PM peak hours of the *STAMP* project.

**Table 4.5 – Exit 48A Toll Capacity Summary**

| Exit 48A | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|
| | Build 2015 | Build 2035 | | Build 2015 | Build 2035 | |
| | Phase 1 | 70% Threshold | Full Build-Out | Phase 1 | 70% Threshold | Full Build-Out |
| Exiting | 341 | 749 | 940 | 720 | 1,068 | 1,196 |
| Entering | 628 | 793 | 847 | 560 | 1,037 | 1,239 |

The tables show that there is sufficient capacity at the toll plaza to accommodate the Build-out of the STAMP project. However, this is based on the assumption that traffic exiting and entering the toll plaza will use the staffed/ticketed and EZ-Pass lanes in proportion to the available capacity. There is the potential that capacity at the toll plaza could be exceeded depending on the proportion of motorists with EZ-Pass. A review of a typical week in August 2009 at this interchange indicates that there is currently an approximate 50/50 split in "Staffed" versus "EZ-Pass" vehicles.

The NYSTA has indicated that while it is unknown what the distribution of staffed/ticketed versus EZ-Pass trips will be in the future, the existing interchange can accommodate Full build traffic associated with the *STAMP* project by managing the lanes, or constructing an additional toll lane, or through an employer incentive that encourages EZ-Pass use. No additional mitigation is required

## D. I-90 Exit 48A Interchange Queue Evaluation

An evaluation of the available storage between the existing I-90 Exit 48A interchange and the signalized ramp intersection at NY Route 77 was conducted to determine if the eastbound queue from the traffic signal will extend back and interfere with operations at the toll plaza. The distance between the toll plaza and the intersection is approximately 450-feet as shown on Aerial Photograph #1. Table 4.6 provides a summary of the 95$^{th}$ percentile queue on the eastbound I-90 Exit 48A Ramp approach.

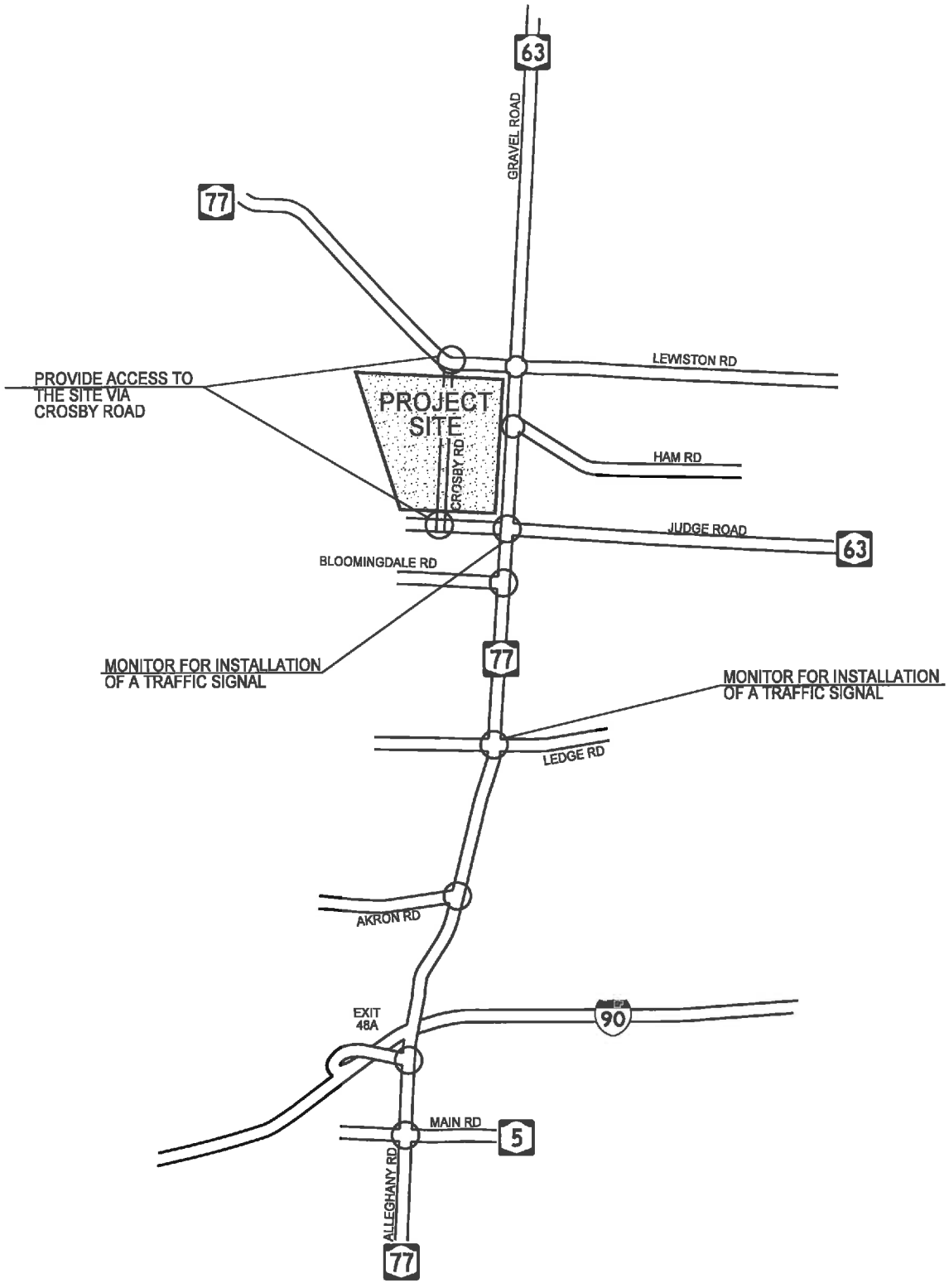



**Aerial Photograph #1 – Available Storage on I-90 Exit 48A Interchange Eastbound Approach**

## Table 4.6 – 95th% Queue Summary

| Intersection | Control | 2010 Existing | 2015 | | 2035 | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | No-Build | Phase 1 Build | No-Build | 70% Threshold | | Full Build | |
| | | | | | | Build | Build w/Imp | Build | Build w/Imp |
| **AM Peak Hour** | | | | | | | | | |
| Route 77/I-90 Ext 48A | S | | | | | | | | |
| Exit 48A EB L | | 90 | 104 | 172 | 130 | *739* | -- | *1,042* | -- |
| [L,L] | | -- | -- | -- | -- | -- | 197 | -- | 309 |
| R | | 13 | 17 | 18 | 20 | 22 | 24 | 22 | 25 |
| **PM Peak Hour** | | | | | | | | | |
| Route 77/I-90 Ext 48A | S | | | | | | | | |
| Exit 48A EB L | | 141 | 194 | 270 | 250 | *730* | -- | *937* | -- |
| [L,L] | | -- | -- | -- | -- | -- | 195 | -- | 270 |
| R | | 23 | 36 | 54 | 93 | 218 | 195 | 240 | 222 |

The table shows that the 95th percentile queue on the eastbound left-turn lane will extend back through the existing toll plaza without improvement. However, the analysis also indicates that the construction of a second eastbound left-turn lane will enable this approach to provide adequate operations at the toll plaza as the maximum queue experienced during Full Build-Out conditions will be 309-feet and 270-feet during the AM and PM peak hours, respectively. It is noted that there are two existing northbound receiving lanes that extend for approximately 450-feet on the northern leg of the NY Route 77/I-90 Exit 48A Ramp intersection which indicates that this approach would not need to be widened to accommodate the additional eastbound left-turn lane.




EXISTING TRAVEL LANE
PROPOSED TRAVEL LANE
POSSIBLE ROADWAY REALIGNMENT

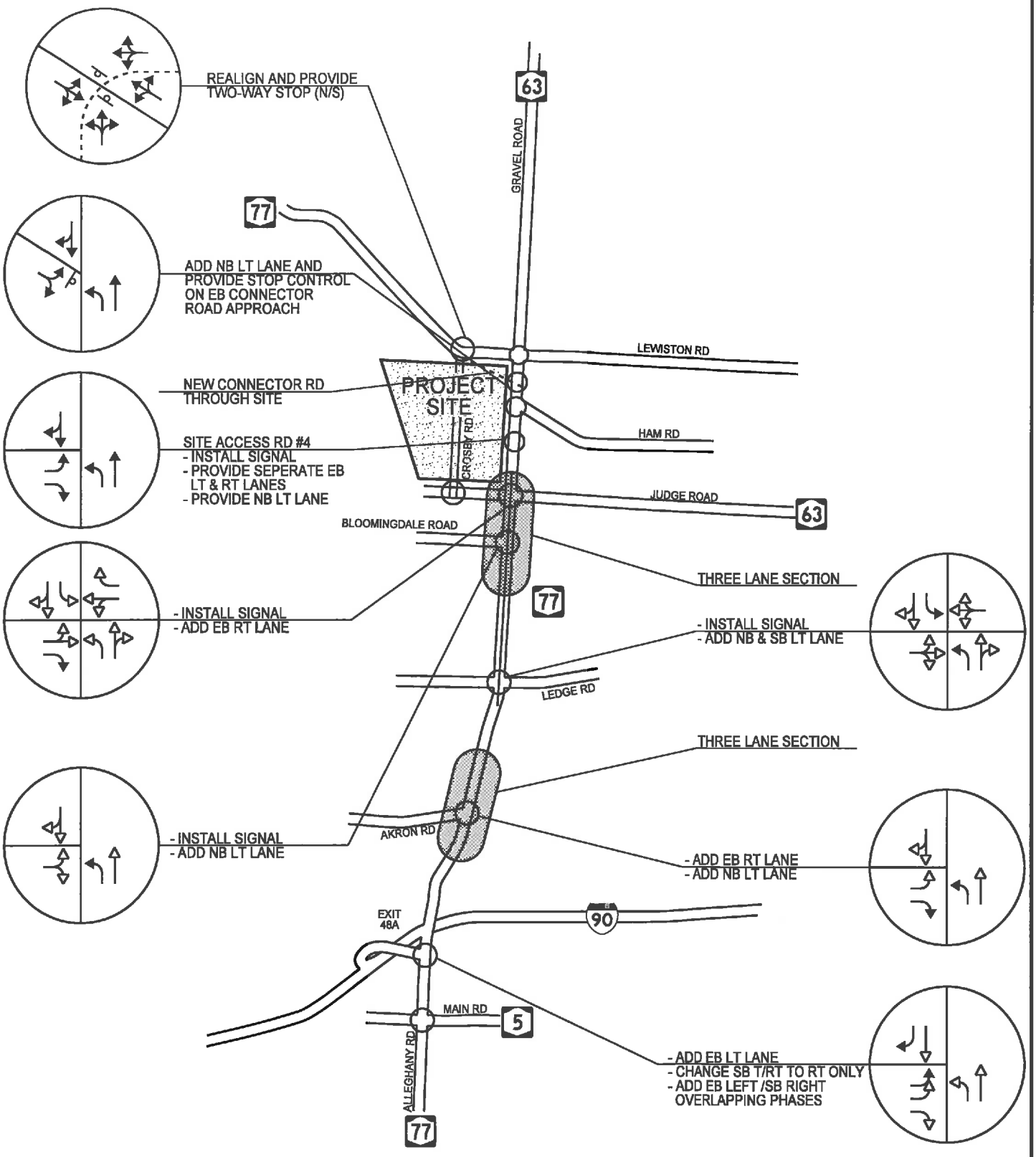
PHASE I
DEVELOPMENT IMPROVEMENTS
(2015)

STAMP GEIS
TOWN OF ALABAMA, NY

Creighton Manning

| PROJECT: 110-021 | DATE: 2/2011 | FIGURE: 4.1 |
|---|---|---|

F:\Projects\2010\110-021 STAMP\cadd\dgn\figs\110-021_fig_trof_3.dgn




F:\Projects\2010\110-021 STAMP\cadd\dgn\figs\110-021_fig_trof_3.dgn

70% THRESHOLD
DEVELOPMENT IMPROVEMENTS
(2035)

STAMP GEIS
TOWN OF ALABAMA, NY

Creighton Manning

| PROJECT: 110-021 | DATE: 2/2011 | FIGURE: 4.2 |
|---|---|---|

## CHAPTER V
## CONCLUSIONS AND RECOMMENDATIONS

Based on the results of this *Traffic Impact Study* completed for the proposed *STAMP* project, the following conclusions and recommendations are provided:

1. The traffic analysis indicates that the study area and site access intersections will operate adequately and the potential impacts presented for the STAMP project appropriately mitigated, with the improvements summarized on Figure 4.1 for Phase 1, and on Figure 4.2 for the 70 percent threshold. It is noted that the improvements identified at the study area and site access intersections for this evaluation typically include geometric and signalized alternatives at these locations. However, pursuant to NYSDOT policy, alternative traffic control such as roundabouts at these intersections should also be considered during design phases. The recommendations and findings for each intersection are cited below for the 70 percent threshold (except where noted for Phase 1):

   *Study Area Intersections*:

   f) NY Route 77/NY Route 63/Judge Road –
      - Construct eastbound right-turn lane.
      - Install traffic signal (Phase 1 - Monitor and install if necessary).

   g) NY Route 77/Bloomingdale Road –
      - Construct northbound left-turn lane.
      - Extend two-way left-turn lane opposite the northbound left-turn lane to the NY Route 77/NY Route 63/Judge Road intersection.
      - Install traffic signal.

   h) NY Route 77/Ledge Road –
      - Construct northbound and southbound left-turn lanes.
      - Install traffic signal (Phase 1 - Monitor and install if necessary).

   i) NY Route 77/Akron Road –
      - Construct eastbound right-turn lane.
      - Construct northbound left-turn lane.
      - Extend two-way left-turn lane through the Hamlet of Indian Falls.

   j) NY Route 77/I-90 Exit 48A –
      - Construct eastbound left-turn lane.
      - Change shared southbound through/right-turn lane to a right-turn only lane.
      - Add a protected southbound right-turn overlap phase to the traffic signal.

   *Site Access Intersections*:

   - New Bypass Road –
      - Construct a new, two-lane road through the site from NY Route 77/63 Overlap (north of Ham Road) that connects to NY Route 77 in the vicinity of the Crosby Road intersection. The new road will bypass the Hamlet of Alabama and could be designated as NY Route 77 and the

portion of NY Route 77 that extends through the Hamlet of Alabama could be de-designated.

- NY Route 77/63 Overlap/Bypass Road –
  - Construct northbound left-turn lane on NY Route 77/63 Overlap.
  - Eastbound Bypass Road approach operates under stop-sign control.
- NY Route 77/63 Overlap/Site Access Road #4 (Main Site Access)–
  - Construct northbound left-turn lane on NY Route 77/63 Overlap.
  - Provide separate eastbound left and right turn lanes.
  - Install traffic signal.
- Unsignalized Site Access Road Intersections:
  - Provide a single lane for shared travel movements
  - Minor street approaches operate under stop-sign control.
    - NY Route 77/63 Overlap/Site Access Road #3,
    - NY Route 77/Site Access Roads #1 & #2,
    - Judge Road/Crosby Road,
    - Judge Road/Site Access Road #5,
    - NY Route 77/Crosby Road/Bypass Road,
    - Bypass Road/Site Access Road #2

It is noted that the timing of these improvements is contingent upon how the site is built after Phase 1. Accordingly, it is recommended that the phasing of these site access and off-site improvements be re-evaluated after completion of Phase 1 based on future study of the specific proposed to be constructed in later stages at the site.

2. The Full Build-Out analysis indicates that most of the study area and site access intersections will continue to operate adequately. Since additional mitigation above and beyond the improvements identified for the 70 percent threshold may be necessary to provide adequate operations at a few locations, it is recommended that a supplemental impact assessment be conducted after the 70 percent threshold, or when the site generates 1,925 trips during the PM peak hour. The supplemental analysis will confirm actual site trip generation and operating conditions, and better evaluate future intersection operations to determine if additional mitigation is necessary for continued expansion of the project. Based on the analysis herein, it is recommended that the supplemental analysis focus on the intersections listed below:
   - NY Route 77/NY Route 63/Judge Road
   - NY Route 77/Bloomingdale Road
   - NY Route 77/Ledge Road
   - Route 77/Route 63/Lewiston Road

3. An evaluation of the available capacity at the I-90 Exit 48A interchange and the queuing at the adjacent signal indicates that the interchange is capable of accommodating the Build-out of the STAMP project. This finding includes an additional eastbound left turn lane at the traffic signal and is dependent on the overall use of EZ-Pass. The NYSTA has indicated that while it is unknown what the

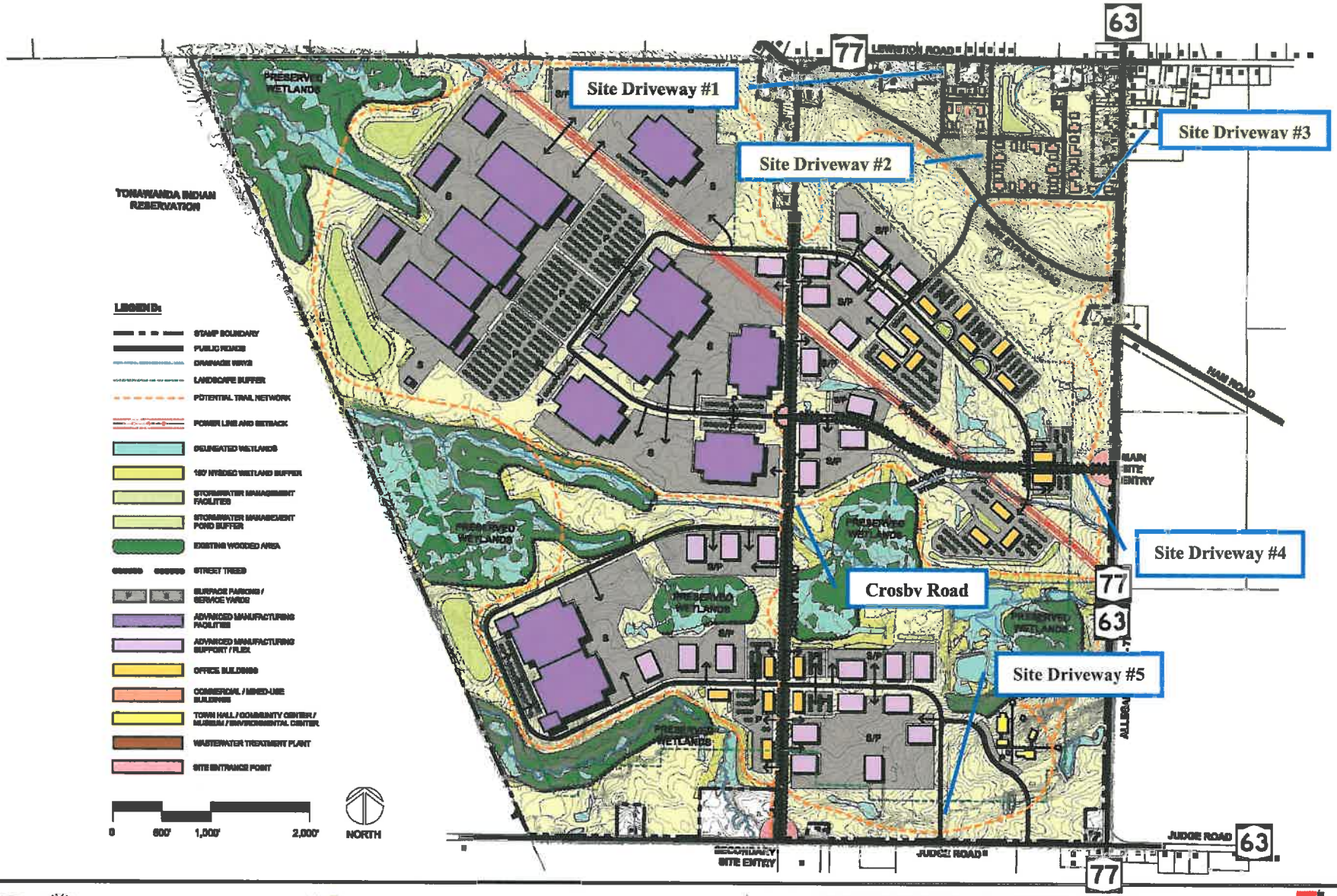
distribution of staffed/ticketed versus EZ-Pass trips will be in the future, the existing interchange can accommodate traffic associated with the *STAMP* project, by managing the existing lanes, or constructing an additional toll lane, or an employer incentive that encourages employees to have EZ-Pass.

4. There are a number of level-of-service degradations (increases in delay at area intersections) that will not be mitigated as part of the project and are indicated at unavoidable adverse impacts (see page 47).

The above analysis indicates that the proposed improvements for the *STAMP* project will provide adequate operations at the study area intersections and existing road network for the levels of traffic anticipated.

# Appendix A – Conceptual Site Plan

**Traffic Impact Study**
**STAMP**
**Town of Alabama, New York**




PREFERRED MASTER PLAN

WNY SCIENCE AND TECHNOLOGY ADVANCED MANUFACTURING PARK

FEBRUARY 2011

IDC ARCHITECTS

CH2MHILL

# Appendix B – Seasonal Factor Memorandum

**Traffic Impact Study**
**STAMP**
**Town of Alabama, New York**

2 Winners Circle ❖ ALBANY, NY 12205
PHONE 518-446-0396 ❖ FAX 518-446-0397

# Memo

**To:** Project File

**From:** Mark Sargent and Mark Nadolny

**Date:** March 1, 2011

**Re:** STAMP Seasonal Adjustment

**Project:** 110-021

## 1.0 Introduction

Traffic volumes in the project area are moderately to highly seasonal due to the Darien Lake Amusement Park located south of Interstate 90 (I-90). Information provided by the New York State Department of Transportation (NYSDOT) and the New York State Thruway Authority (NYSTA) indicates that the peak season occurs during the summer months (August). The purpose of this memo is to document the seasonal characteristics of the area and the seasonal factors so that the Transportation Impact Study (TIS) reflects peak summer operating conditions.

## 2.0 Seasonal Factoring

A review of NYSDOT information indicates that NY Route 77 is characterized as factor group (FG) 60 (highly seasonal) south of I-90 Exit 48A and FG 40 (moderately seasonal) north of the interchange. Therefore, it was determined that separate seasonal factors should be applied in these areas.

An automatic traffic recorder (ATR) was installed by the NYSDOT on NY Route 77 between NY Route 63 and Bloomingdale Road, during the month of August (Attachment A). Turning movement counts were conducted at the NY Route 77/NY Route 63/Judge Road intersection and at the NY Route 77/Bloomingdale Road intersection in February 2010 and November 2010, respectively. Table 1 summarizes the peak hour traffic volumes from these counts, and the resulting seasonal factors.

**Table 1 – Seasonal Factors North of Exit 48A**

| | February Seasonal Factor | | |
|---|---|---|---|
| | NY Route 77 Traffic Volumes Between Judge Rd and Bloomingdale Rd | | Seasonal Factor |
| | February 2010 | August 2010 | |
| AM Peak Hour | 377 | 394 | 1.045 |
| PM Peak Hour | 470 | 568 | 1.209 |
| | November Seasonal Factor | | |
| | NY Route 77 Traffic Volumes Between Judge Rd and Bloomingdale Rd | | Seasonal Factor |
| | November 2010 | August 2010 | |
| AM Peak Hour | 412 | 394 | 0.956 say 1.0 |
| PM Peak Hour | 546 | 568 | 1.040 |

As shown on Table 1, peak hour traffic volumes on NY Route 77 are typically higher during August, with seasonal factors ranging from 1.0 to 1.209, depending on the hour and month of the traffic count. The turning movement counts conducted at the study area intersections located north of Exit 48A were seasonally adjusted using these factors. It is noted that no seasonal adjustment factor was applied to the November AM peak hour counts since traffic was marginally higher during this month.

Turning movements at the NY Route 77/I-90 Exit 48A intersection were seasonally adjusted by the factors shown in Table 1 with the exception of the northbound left-turn movement and the eastbound right-turn movement. Hourly toll plaza information provided by the NYSTA for the Exit 48A interchange was used to determine specific seasonal adjustments for these two movements (counted in February) and for traffic at the NY Route 77/NY Route 5 intersection ((counted in November) See Attachment B) Traffic associated with the highly seasonal Darien Lake Amusement Park would have a greater impact at these locations since they provide regional access to and from the Thruway. Table 2 summarizes the seasonal factors calculated from the 2009 volumes at the Exit 48A toll plaza.

**Table 2 – Seasonal Factors South of Exit 48A**

| | February Seasonal Factor | | |
|---|---|---|---|
| | Average Exit 48A Traffic Volumes | | Seasonal Factor |
| | February 2009 | August 2009 | |
| AM Peak Hour | 614 | 691 | 1.13 |
| PM Peak Hour | 658 | 955 | 1.45 |
| | November Seasonal Factor | | |
| | Average Exit 48A Traffic Volumes | | Seasonal Factor |
| | November 2009 | August 2009 | |
| AM Peak Hour | 678 | 691 | 1.02 |
| PM Peak Hour | 757 | 955 | 1.26 |

The table shows that seasonal factors for traffic south of Exit 48A range from 1.02 to 1.45 depending on the hour and month of the count. The northbound left-turn movement and the eastbound right-turn movement at the NY Route 77/I-90 Exit 48A intersection were adjusted by the February seasonal factors while the traffic at the NY Route 77/NY Route 5 intersection was adjusted by the November seasonal factors shown in Table 2.

During discussions with the NYSDOT and the NYSTA it was noted that during worst-case conditions when a large concert or event is held at Darien Lake, traffic can back up from the Thruway toll plaza onto I-90. It was also determined that the seasonal factors should reflect average conditions during the peak hour in August. Therefore, they do not include traffic

# Attachment A

STATION: **410161**

# New York State Department of Transportation

## Traffic Count Hourly Report

ROUTE #: **NY 77** ROAD NAME:
DIRECTION: Northbound FACTOR GROUP: 40
STATE DIR CODE: 1 WK OF YR: 32
DATE OF COUNT: 08/06/2010
NOTES LANE 1: NB Approach(1 Lane)

COUNT TAKEN BY: ORG CODE: R04 INITIALS: RHC

FROM: **BLOOMINGDALE RD**
REC. SERIAL #: BN30
PLACEMENT: ^@Reference Marker
@ REF MARKER: 77 41021144
ADDL DATA:
COUNT TYPE: AXLE PAIRS
PROCESSED BY: ORG CODE: DOT INITIALS: RHC

TO: **START 63 OLAP**
FUNC. CLASS: 06
NHS: no
JURIS: NYSDOT
CC Stn:
BATCH ID: DOT-RO4BBWW34

COUNTY: **Genesee**
TOWN: **ALABAMA**
BIN: 1030100
RR CROSSING:
HPMS SAMPLE:

| DATE | DAY | 12 TO 1 AM | 1 TO 2 AM | 2 TO 3 AM | 3 TO 4 AM | 4 TO 5 AM | 5 TO 6 AM | 6 TO 7 AM | 7 TO 8 AM | 8 TO 9 AM | 9 TO 10 AM | 10 TO 11 AM | 11 TO 12 AM | 12 TO 1 PM | 1 TO 2 PM | 2 TO 3 PM | 3 TO 4 PM | 4 TO 5 PM | 5 TO 6 PM | 6 TO 7 PM | 7 TO 8 PM | 8 TO 9 PM | 9 TO 10 PM | 10 TO 11 PM | 11 TO 12 PM | DAILY TOTAL | DAILY HIGH COUNT | DAILY HIGH HOUR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | M | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | W | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | F | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | M | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | T | | | | | | | | | | | 103 | 223 | 196 | 252 | 260 | 305 | 308 | 325 | 242 | 180 | 190 | 119 | 122 | 93 | | | |
| 11 | W | 61 | 13 | 16 | 19 | 33 | 56 | 132 | 178 | 148 | 158 | 209 | 239 | 209 | 255 | 260 | 280 | 304 | 332 | 218 | 158 | 175 | 119 | 113 | 63 | 3748 | 332 | 17 |
| 12 | T | 36 | 24 | 16 | 13 | 13 | 53 | 138 | 150 | 136 | 158 | 207 | 215 | 211 | 242 | 258 | 292 | 335 | 311 | 260 | 197 | 149 | 146 | 108 | 64 | 3732 | 335 | 16 |
| 13 | F | 34 | 16 | 20 | 19 | 23 | 53 | 116 | 165 | 145 | 195 | 171 | 286 | 272 | 288 | 324 | 356 | 395 | 421 | 305 | 250 | 217 | 148 | 143 | 140 | 4502 | 421 | 17 |
| 14 | S | 158 | 35 | 20 | 10 | 13 | 26 | 81 | 78 | 138 | 185 | 249 | 272 | 297 | 274 | 299 | 279 | 281 | 232 | 205 | 189 | 177 | 155 | 157 | 144 | 3954 | 299 | 14 |
| 15 | S | 131 | 64 | 26 | 8 | 18 | 19 | 35 | 48 | 90 | 139 | 319 | 248 | 283 | 300 | 278 | 278 | 265 | 252 | 217 | 223 | 159 | 121 | 96 | 47 | 3664 | 319 | 10 |
| 16 | M | 28 | 11 | 14 | 10 | 12 | 47 | 125 | 155 | 130 | 150 | 178 | 217 | 199 | 249 | 236 | 264 | 313 | 323 | 216 | 175 | 151 | 92 | 92 | 54 | 3441 | 323 | 17 |
| 17 | T | 38 | 15 | 6 | 20 | 28 | 43 | 144 | 164 | 127 | 154 | 210 | 215 | 228 | 250 | 241 | 265 | 328 | 291 | 206 | 202 | 153 | 113 | 99 | 63 | 3603 | 328 | 16 |
| 18 | W | 24 | 19 | 14 | 6 | 17 | 59 | 143 | 172 | 165 | 165 | 188 | 195 | 231 | 240 | 210 | | | | | | | | | | | | |
| 19 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | F | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | M | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | W | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | F | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 29 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | M | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)**

| 37 | 16 | 13 | 14 | 22 | 51 | 127 | 157 | 136 | 156 | 173 | 217 | 203 | 237 | 234 | 269 | 304 | 302 | 218 | 174 | 157 | 113 | 102 | 64 | ADT 3496 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| DAYS Counted | HOURS Counted | WEEKDAYS Counted | WEEKDAY Hours | AVERAGE WEEKDAY High Hour | AVERAGE WEEKDAY % of day | Axle Adj. Factor | Seasonal/Weekday Adjustment Factor |
|---|---|---|---|---|---|---|---|
| 9 | 197 | 6 | 131 | 304 | 9% | 0.957 | 1.197 |

**ESTIMATED (one way)**

**AADT**
**2921**

# New York State Department of Transportation

## Traffic Count Hourly Report

ROUTE #: **NY 77** ROAD NAME:
DIRECTION: Southbound FACTOR GROUP: 40
STATE DIR CODE: 2 WK OF YR: 32
DATE OF COUNT: 08/06/2010
NOTES LANE 1: SB Approach(1 Lane)

COUNT TAKEN BY: ORG CODE: R04 INITIALS: RHC

FROM: **BLOOMINGDALE RD**
REC. SERIAL #: BN75
PLACEMENT: ^@Reference Marker
@ REF MARKER: 77 41021144
ADDL DATA:
COUNT TYPE: AXLE PAIRS

PROCESSED BY: ORG CODE: DOT INITIALS: RHC

TO: **START 63 OLAP**
FUNC. CLASS: 06
NHS: no
JURIS: NYSDOT
CC Stn:
BATCH ID: DOT-RO4BBWW34

COUNTY: **Genesee**
TOWN: **ALABAMA**
BIN: 1030100
RR CROSSING:
HPMS SAMPLE:

| DATE | DAY | 12 TO 1 AM | 1 TO 2 AM | 2 TO 3 AM | 3 TO 4 AM | 4 TO 5 AM | 5 TO 6 AM | 6 TO 7 AM | 7 TO 8 AM | 8 TO 9 AM | 9 TO 10 AM | 10 TO 11 AM | 11 TO 12 AM | 12 TO 1 PM | 1 TO 2 PM | 2 TO 3 PM | 3 TO 4 PM | 4 TO 5 PM | 5 TO 6 PM | 6 TO 7 PM | 7 TO 8 PM | 8 TO 9 PM | 9 TO 10 PM | 10 TO 11 PM | 11 TO 12 PM | DAILY TOTAL | DAILY HIGH COUNT | DAILY HIGH HOUR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | M | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | W | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | F | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | M | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | T | | | | | | | | | | | 261 | 269 | 231 | 247 | 246 | 261 | 268 | 276 | 249 | 169 | 95 | 107 | 49 | 39 | | | |
| 11 | W | 18 | 5 | 8 | 16 | 38 | 117 | 151 | 253 | 226 | 255 | 304 | 231 | 263 | 283 | 269 | 290 | 258 | 261 | 179 | 155 | 125 | 86 | 46 | 33 | 3870 | 304 | 10 |
| 12 | T | 13 | 18 | 12 | 13 | 42 | 117 | 158 | 253 | 223 | 239 | 284 | 260 | 231 | 239 | 258 | 294 | 281 | 278 | 217 | 174 | 138 | 103 | 59 | 49 | 3953 | 294 | 15 |
| 13 | F | 12 | 12 | 10 | 24 | 32 | 101 | 154 | 234 | 223 | 269 | 284 | 375 | 323 | 325 | 327 | 336 | 400 | 395 | 303 | 220 | 158 | 97 | 70 | 78 | 4762 | 400 | 16 |
| 14 | S | 26 | 28 | 10 | 11 | 27 | 51 | 78 | 160 | 192 | 239 | 323 | 340 | 391 | 320 | 299 | 331 | 299 | 296 | 218 | 161 | 127 | 114 | 71 | 56 | 4168 | 391 | 12 |
| 15 | S | 30 | 12 | 9 | 8 | 16 | 31 | 38 | 99 | 122 | 189 | 324 | 277 | 333 | 287 | 280 | 256 | 203 | 183 | 163 | 160 | 117 | 84 | 37 | 40 | 3298 | 333 | 12 |
| 16 | M | 8 | 17 | 11 | 13 | 34 | 113 | 151 | 247 | 208 | 233 | 224 | 263 | 222 | 244 | 255 | 282 | 260 | 238 | 188 | 139 | 93 | 69 | 53 | 46 | 3611 | 282 | 15 |
| 17 | T | 18 | 3 | 7 | 19 | 33 | 121 | 137 | 260 | 195 | 236 | 264 | 226 | 246 | 236 | 214 | 267 | 312 | 268 | 213 | 153 | 126 | 110 | 52 | 39 | 3755 | 312 | 16 |
| 18 | W | 19 | 16 | 18 | 8 | 40 | 119 | 177 | 241 | 238 | 276 | 322 | 328 | 336 | 275 | 267 | | | | | | | | | | | | |
| 19 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | F | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | M | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | W | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | F | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 29 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | M | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)**

| 12 TO 1 AM | 1 TO 2 AM | 2 TO 3 AM | 3 TO 4 AM | 4 TO 5 AM | 5 TO 6 AM | 6 TO 7 AM | 7 TO 8 AM | 8 TO 9 AM | 9 TO 10 AM | 10 TO 11 AM | 11 TO 12 AM | 12 TO 1 PM | 1 TO 2 PM | 2 TO 3 PM | 3 TO 4 PM | 4 TO 5 PM | 5 TO 6 PM | 6 TO 7 PM | 7 TO 8 PM | 8 TO 9 PM | 9 TO 10 PM | 10 TO 11 PM | 11 TO 12 PM | ADT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15 | 11 | 11 | 15 | 35 | 110 | 148 | 237 | 210 | 240 | 266 | 267 | 244 | 243 | 241 | 267 | 264 | 253 | 200 | 151 | 110 | 91 | 50 | 39 | 3718 |

| DAYS Counted | HOURS Counted | WEEKDAYS WEEKDAY Counted | WEEKDAYS WEEKDAY Hours | AVERAGE WEEKDAY High Hour | AVERAGE WEEKDAY % of day | Axle Adj. Factor | Seasonal/Weekday Adjustment Factor |
|---|---|---|---|---|---|---|---|
| 9 | 197 | 6 | 131 | 267 | 7% | 0.957 | 1.197 |

**ESTIMATED (one way)**

**AADT**
**3106**

# Attachment B

## I-90 Interchange 48A - AM Peak Hour

### February Factor

**August 2009 Summary**

| Date | | 7 to 8 AM Enter | Exit | Total |
|---|---|---|---|---|
| 3-Aug-09 | Monday | 430 | 204 | 634 |
| 4-Aug-09 | Tuesday | 488 | 244 | 732 |
| 5-Aug-09 | Wednesday | 484 | 207 | 691 |
| 6-Aug-09 | Thursday | 510 | 217 | 727 |
| 7-Aug-09 | Friday | 443 | 214 | 657 |
| 10-Aug-09 | Monday | 509 | 185 | 694 |
| 11-Aug-09 | Tuesday | 491 | 205 | 696 |
| 12-Aug-09 | Wednesday | 513 | 203 | 716 |
| 13-Aug-09 | Thursday | 479 | 191 | 670 |
| 14-Aug-09 | Friday | 463 | 230 | 693 |
| 17-Aug-09 | Monday | 467 | 204 | 671 |
| 18-Aug-09 | Tuesday | 497 | 204 | 701 |
| 19-Aug-09 | Wednesday | 461 | 199 | 660 |
| 20-Aug-09 | Thursday | 517 | 201 | 718 |
| 21-Aug-09 | Friday | 477 | 218 | 695 |
| 24-Aug-09 | Monday | 460 | 183 | 643 |
| 25-Aug-09 | Tuesday | 511 | 229 | 740 |
| 26-Aug-09 | Wednesday | 479 | 212 | 691 |
| 27-Aug-09 | Thursday | 504 | 199 | 703 |
| 28-Aug-09 | Friday | 436 | 213 | 649 |
| 31-Aug-09 | Monday | 507 | 226 | 733 |
| | **Total** | **10126** | **4388** | **14514** |
| | **Average** | **482** | **209** | **691** |

**February 2009 Summary**

| Date | | 7 to 8 AM Enter | Exit | Total |
|---|---|---|---|---|
| 2-Feb-09 | Monday | 464 | 181 | 645 |
| 3-Feb-09 | Tuesday | 460 | 193 | 653 |
| 4-Feb-09 | Wednesday | 452 | 183 | 635 |
| 5-Feb-09 | Thursday | 448 | 170 | 618 |
| 6-Feb-09 | Friday | 451 | 163 | 614 |
| 9-Feb-09 | Monday | 456 | 160 | 616 |
| 10-Feb-09 | Tuesday | 477 | 172 | 649 |
| 11-Feb-09 | Wednesday | 483 | 196 | 679 |
| 12-Feb-09 | Thursday | 401 | 189 | 590 |
| 13-Feb-09 | Friday | 396 | 193 | 589 |
| 16-Feb-09 | Monday | 329 | 117 | 446 |
| 17-Feb-09 | Tuesday | 458 | 137 | 595 |
| 18-Feb-09 | Wednesday | 421 | 161 | 582 |
| 19-Feb-09 | Thursday | 426 | 162 | 588 |
| 20-Feb-09 | Friday | 391 | 151 | 542 |
| 23-Feb-09 | Monday | 472 | 156 | 628 |
| 24-Feb-09 | Tuesday | 490 | 187 | 677 |
| 25-Feb-09 | Wednesday | 478 | 178 | 656 |
| 26-Feb-09 | Thursday | 501 | 193 | 694 |
| 27-Feb-09 | Friday | 432 | 159 | 591 |
| | **Total** | **8886** | **3401** | **12287** |
| | **Average** | **444** | **170** | **614** |

| **Seasonal Factor** | **1.08528** | **1.22877** | **1.125** |
|---|---|---|---|

### November Factor

**August 2009 Summary**

| Date | | 7 to 8 AM Enter | Exit | Total |
|---|---|---|---|---|
| 3-Aug-09 | Monday | 430 | 204 | 634 |
| 4-Aug-09 | Tuesday | 488 | 244 | 732 |
| 5-Aug-09 | Wednesday | 484 | 207 | 691 |
| 6-Aug-09 | Thursday | 510 | 217 | 727 |
| 7-Aug-09 | Friday | 443 | 214 | 657 |
| 10-Aug-09 | Monday | 509 | 185 | 694 |
| 11-Aug-09 | Tuesday | 491 | 205 | 696 |
| 12-Aug-09 | Wednesday | 513 | 203 | 716 |
| 13-Aug-09 | Thursday | 479 | 191 | 670 |
| 14-Aug-09 | Friday | 463 | 230 | 693 |
| 17-Aug-09 | Monday | 467 | 204 | 671 |
| 18-Aug-09 | Tuesday | 497 | 204 | 701 |
| 19-Aug-09 | Wednesday | 461 | 199 | 660 |
| 20-Aug-09 | Thursday | 517 | 201 | 718 |
| 21-Aug-09 | Friday | 477 | 218 | 695 |
| 24-Aug-09 | Monday | 460 | 183 | 643 |
| 25-Aug-09 | Tuesday | 511 | 229 | 740 |
| 26-Aug-09 | Wednesday | 479 | 212 | 691 |
| 27-Aug-09 | Thursday | 504 | 199 | 703 |
| 28-Aug-09 | Friday | 436 | 213 | 649 |
| 31-Aug-09 | Monday | 507 | 226 | 733 |
| | **Total** | **10126** | **4388** | **14514** |
| | **Average** | **482** | **209** | **691** |

**November 2009 Summary**

| Date | | 7 to 8 AM Enter | Exit | Total |
|---|---|---|---|---|
| 2-Nov-09 | Monday | 522 | 226 | 748 |
| 3-Nov-09 | Tuesday | 524 | 193 | 717 |
| 4-Nov-09 | Wednesday | 499 | 225 | 724 |
| 5-Nov-09 | Thursday | 526 | 188 | 714 |
| 6-Nov-09 | Friday | 448 | 183 | 631 |
| 9-Nov-09 | Monday | 486 | 192 | 678 |
| 10-Nov-09 | Tuesday | 513 | 208 | 721 |
| 11-Nov-09 | Wednesday | 414 | 148 | 562 |
| 12-Nov-09 | Thursday | 501 | 210 | 711 |
| 13-Nov-09 | Friday | 456 | 194 | 650 |
| 16-Nov-09 | Monday | 485 | 189 | 674 |
| 17-Nov-09 | Tuesday | 501 | 208 | 709 |
| 18-Nov-09 | Wednesday | 479 | 197 | 676 |
| 19-Nov-09 | Thursday | 478 | 199 | 677 |
| 20-Nov-09 | Friday | 457 | 206 | 663 |
| 23-Nov-09 | Monday | 496 | 203 | 699 |
| 24-Nov-09 | Tuesday | 481 | 198 | 679 |
| 25-Nov-09 | Wednesday | 406 | 175 | 581 |
| 30-Nov-09 | Monday | 469 | 200 | 669 |
| | **Total** | **9141** | **3742** | **12883** |
| | **Average** | **481** | **197** | **678** |

| **Seasonal Factor** | **1.002256** | **1.060955** | **1.019306** |
|---|---|---|---|

## I-90 Interchange 48A - PM Peak Hour

### February Factor

**August 2009 (Without Special Event Traffic)**

| Date | | 4 to 5 PM | | |
|---|---|---|---|---|
| | | Enter | Exit | Total |
| 6-Aug-09 | Thursday | 480 | 587 | 1067 |
| 7-Aug-09 | Friday | 542 | 570 | 1112 |
| 10-Aug-09 | Monday | 354 | 568 | 922 |
| 11-Aug-09 | Tuesday | 368 | 538 | 906 |
| 12-Aug-09 | Wednesday | 463 | 632 | 1095 |
| 17-Aug-09 | Monday | 443 | 531 | 974 |
| 18-Aug-09 | Tuesday | 398 | 507 | 905 |
| 19-Aug-09 | Wednesday | 437 | 491 | 928 |
| 20-Aug-09 | Thursday | 411 | 564 | 975 |
| 24-Aug-09 | Monday | 376 | 464 | 840 |
| 25-Aug-09 | Tuesday | 439 | 540 | 979 |
| 26-Aug-09 | Wednesday | 374 | 524 | 898 |
| 31-Aug-09 | Monday | 359 | 450 | 809 |
| | **Total** | **5444** | **6966** | **12410** |
| | **Average** | **419** | **536** | **955** |

**February 2009 Summary**

| Date | | 4 to 5 PM | | |
|---|---|---|---|---|
| | | Enter | Exit | Total |
| 2-Feb-09 | Monday | 240 | 358 | 598 |
| 3-Feb-09 | Tuesday | 234 | 382 | 616 |
| 4-Feb-09 | Wednesday | 262 | 396 | 658 |
| 5-Feb-09 | Thursday | 260 | 403 | 663 |
| 6-Feb-09 | Friday | 311 | 442 | 753 |
| 9-Feb-09 | Monday | 244 | 367 | 611 |
| 10-Feb-09 | Tuesday | 262 | 387 | 649 |
| 11-Feb-09 | Wednesday | 274 | 387 | 661 |
| 12-Feb-09 | Thursday | 200 | 302 | 502 |
| 13-Feb-09 | Friday | 335 | 409 | 744 |
| 16-Feb-09 | Monday | 266 | 340 | 606 |
| 17-Feb-09 | Tuesday | 289 | 454 | 743 |
| 18-Feb-09 | Wednesday | 283 | 369 | 652 |
| 19-Feb-09 | Thursday | 266 | 387 | 653 |
| 20-Feb-09 | Friday | 281 | 358 | 639 |
| 23-Feb-09 | Monday | 221 | 385 | 606 |
| 24-Feb-09 | Tuesday | 270 | 398 | 668 |
| 25-Feb-09 | Wednesday | 292 | 393 | 685 |
| 26-Feb-09 | Thursday | 269 | 420 | 689 |
| 27-Feb-09 | Friday | 347 | 421 | 768 |
| | **Total** | **5406** | **7758** | **13164** |
| | **Average** | **270** | **388** | **658** |
| **Seasonal Factor** | | **1.54928** | **1.3814** | **1.45034** |

### November Factor

**August 2009 (Without Special Event Traffic)**

| Date | | 4 to 5 PM | | |
|---|---|---|---|---|
| | | Enter | Exit | Total |
| 6-Aug-09 | Thursday | 480 | 587 | 1067 |
| 7-Aug-09 | Friday | 542 | 570 | 1112 |
| 10-Aug-09 | Monday | 354 | 568 | 922 |
| 11-Aug-09 | Tuesday | 368 | 538 | 906 |
| 12-Aug-09 | Wednesday | 463 | 632 | 1095 |
| 17-Aug-09 | Monday | 443 | 531 | 974 |
| 18-Aug-09 | Tuesday | 398 | 507 | 905 |
| 19-Aug-09 | Wednesday | 437 | 491 | 928 |
| 20-Aug-09 | Thursday | 411 | 564 | 975 |
| 24-Aug-09 | Monday | 376 | 464 | 840 |
| 25-Aug-09 | Tuesday | 439 | 540 | 979 |
| 26-Aug-09 | Wednesday | 374 | 524 | 898 |
| 31-Aug-09 | Monday | 359 | 450 | 809 |
| | **Total** | **5444** | **6966** | **12410** |
| | **Average** | **419** | **536** | **955** |

**November 2009 Summary**

| Date | | 4 to 5 PM | | |
|---|---|---|---|---|
| | | Enter | Exit | Total |
| 2-Nov-09 | Monday | 281 | 439 | 720 |
| 3-Nov-09 | Tuesday | 315 | 407 | 722 |
| 4-Nov-09 | Wednesday | 303 | 419 | 722 |
| 5-Nov-09 | Thursday | 294 | 439 | 733 |
| 6-Nov-09 | Friday | 408 | 464 | 872 |
| 9-Nov-09 | Monday | 290 | 420 | 710 |
| 10-Nov-09 | Tuesday | 322 | 426 | 748 |
| 11-Nov-09 | Wednesday | 318 | 440 | 758 |
| 12-Nov-09 | Thursday | 311 | 420 | 731 |
| 13-Nov-09 | Friday | 362 | 488 | 850 |
| 16-Nov-09 | Monday | 305 | 444 | 749 |
| 17-Nov-09 | Tuesday | 310 | 412 | 722 |
| 18-Nov-09 | Wednesday | 318 | 451 | 769 |
| 19-Nov-09 | Thursday | 278 | 424 | 702 |
| 20-Nov-09 | Friday | 370 | 482 | 852 |
| 23-Nov-09 | Monday | 281 | 395 | 676 |
| 24-Nov-09 | Tuesday | 326 | 458 | 784 |
| 25-Nov-09 | Wednesday | 356 | 499 | 855 |
| 30-Nov-09 | Monday | 296 | 403 | 699 |
| | **Total** | **6044** | **8330** | **14374** |
| | **Average** | **318** | **438** | **757** |
| **Seasonal Factor** | | **1.316449** | **1.222218** | **1.26184** |

# Appendix C – Raw Turning Movement and ATR Data

**Traffic Impact Study**
**STAMP**
**Town of Alabama, New York**

Project: 110-021
Counted By: HMM
Location: Medina, NY
Other:

File Name : 0005 am
Site Code : 00000005
Start Date : 3/24/2010
Page No : 1

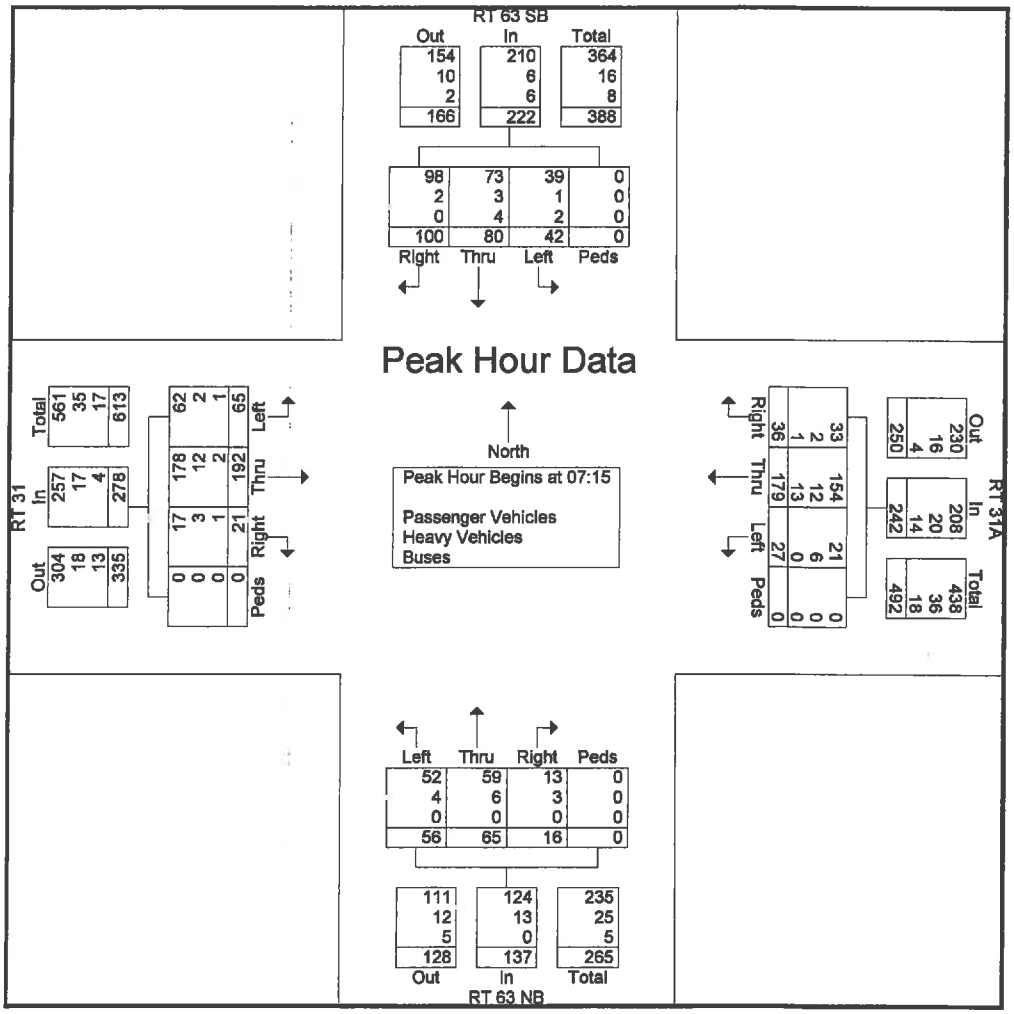
Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

| | RT 31 Eastbound | | | | | RT 31A Westbound | | | | | RT 63 NB Northbound | | | | | RT 63 SB Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Int. Total |
| Factor | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | |
| 07:00 | 11 | 2 | 4 | 0 | 17 | 12 | 0 | 6 | 0 | 18 | 2 | 23 | 2 | 0 | 27 | 5 | 21 | 2 | 0 | 28 | 90 |
| 07:15 | 17 | 63 | 6 | 0 | 86 | 9 | 56 | 13 | 0 | 78 | 30 | 19 | 2 | 0 | 51 | 8 | 18 | 30 | 0 | 56 | 271 |
| 07:30 | 17 | 68 | 2 | 0 | 87 | 4 | 54 | 6 | 0 | 64 | 13 | 15 | 2 | 0 | 30 | 12 | 29 | 34 | 0 | 75 | 256 |
| 07:45 | 18 | 37 | 6 | 0 | 61 | 6 | 41 | 14 | 0 | 61 | 6 | 17 | 6 | 0 | 29 | 12 | 22 | 18 | 0 | 52 | 203 |
| Total | 63 | 170 | 18 | 0 | 251 | 31 | 151 | 39 | 0 | 221 | 51 | 74 | 12 | 0 | 137 | 37 | 90 | 84 | 0 | 211 | 820 |
| 08:00 | 13 | 24 | 7 | 0 | 44 | 8 | 28 | 3 | 0 | 39 | 7 | 14 | 6 | 0 | 27 | 10 | 11 | 18 | 0 | 39 | 149 |
| 08:15 | 17 | 23 | 2 | 0 | 42 | 7 | 21 | 8 | 0 | 36 | 4 | 14 | 6 | 0 | 24 | 4 | 21 | 13 | 0 | 38 | 140 |
| 08:30 | 21 | 33 | 1 | 0 | 55 | 5 | 37 | 7 | 0 | 49 | 6 | 19 | 3 | 0 | 28 | 6 | 12 | 22 | 0 | 40 | 172 |
| 08:45 | 18 | 37 | 4 | 0 | 59 | 1 | 19 | 13 | 0 | 33 | 2 | 17 | 5 | 0 | 24 | 4 | 14 | 25 | 0 | 43 | 159 |
| Total | 69 | 117 | 14 | 0 | 200 | 21 | 105 | 31 | 0 | 157 | 19 | 64 | 20 | 0 | 103 | 24 | 58 | 78 | 0 | 160 | 620 |
| 09:00 | 24 | 41 | 2 | 0 | 67 | 8 | 32 | 12 | 0 | 52 | 9 | 17 | 5 | 0 | 31 | 15 | 17 | 42 | 0 | 74 | 224 |
| Grand Total | 156 | 328 | 34 | 0 | 518 | 60 | 288 | 82 | 0 | 430 | 79 | 155 | 37 | 0 | 271 | 76 | 165 | 204 | 0 | 445 | 1664 |
| Apprch % | 30.1 | 63.3 | 6.6 | 0 | | 14 | 67 | 19.1 | 0 | | 29.2 | 57.2 | 13.7 | 0 | | 17.1 | 37.1 | 45.8 | 0 | | |
| Total % | 9.4 | 19.7 | 2 | 0 | 31.1 | 3.6 | 17.3 | 4.9 | 0 | 25.8 | 4.7 | 9.3 | 2.2 | 0 | 16.3 | 4.6 | 9.9 | 12.3 | 0 | 26.7 | |
| Passenger Vehicles | 150 | 295 | 25 | 0 | 470 | 47 | 250 | 72 | 0 | 369 | 70 | 143 | 31 | 0 | 244 | 72 | 151 | 198 | 0 | 421 | 1504 |
| % Passenger Vehicles | 96.2 | 89.9 | 73.5 | 0 | 90.7 | 78.3 | 86.8 | 87.8 | 0 | 85.8 | 88.6 | 92.3 | 83.8 | 0 | 90 | 94.7 | 91.5 | 97.1 | 0 | 94.6 | 90.4 |
| Heavy Vehicles | 3 | 27 | 8 | 0 | 38 | 13 | 21 | 4 | 0 | 38 | 8 | 11 | 6 | 0 | 25 | 1 | 10 | 5 | 0 | 16 | 117 |
| % Heavy Vehicles | 1.9 | 8.2 | 23.5 | 0 | 7.3 | 21.7 | 7.3 | 4.9 | 0 | 8.8 | 10.1 | 7.1 | 16.2 | 0 | 9.2 | 1.3 | 6.1 | 2.5 | 0 | 3.6 | 7 |
| Buses | 3 | 6 | 1 | 0 | 10 | 0 | 17 | 6 | 0 | 23 | 1 | 1 | 0 | 0 | 2 | 3 | 4 | 1 | 0 | 8 | 43 |
| % Buses | 1.9 | 1.8 | 2.9 | 0 | 1.9 | 0 | 5.9 | 7.3 | 0 | 5.3 | 1.3 | 0.6 | 0 | 0 | 0.7 | 3.9 | 2.4 | 0.5 | 0 | 1.8 | 2.6 |

Project: 110-021
Counted By: HMM
Location: Medina, NY
Other:

File Name : 0005 am
Site Code : 00000005
Start Date : 3/24/2010
Page No : 2

| | RT 31 Eastbound | | | | | RT 31A Westbound | | | | | RT 63 NB Northbound | | | | | RT 63 SB Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 to 09:00 - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:15 | | | | | | | | | | | | | | | | | | | | | |
| 07:15 | 17 | 63 | 6 | 0 | 86 | **9** | **56** | 13 | 0 | **78** | **30** | **19** | 2 | 0 | **51** | 8 | 18 | 30 | 0 | 56 | **271** |
| 07:30 | 17 | **68** | 2 | 0 | **87** | 4 | 54 | 6 | 0 | 64 | 13 | 15 | 2 | 0 | 30 | **12** | **29** | **34** | 0 | **75** | 256 |
| 07:45 | **18** | 37 | 6 | 0 | 61 | 6 | 41 | **14** | 0 | 61 | 6 | 17 | **6** | 0 | 29 | 12 | 22 | 18 | 0 | 52 | 203 |
| 08:00 | 13 | 24 | **7** | 0 | 44 | 8 | 28 | 3 | 0 | 39 | 7 | 14 | 6 | 0 | 27 | 10 | 11 | 18 | 0 | 39 | 149 |
| Total Volume | 65 | 192 | 21 | 0 | 278 | 27 | 179 | 36 | 0 | 242 | 56 | 65 | 16 | 0 | 137 | 42 | 80 | 100 | 0 | 222 | 879 |
| % App. Total | 23.4 | 69.1 | 7.6 | 0 | | 11.2 | 74 | 14.9 | 0 | | 40.9 | 47.4 | 11.7 | 0 | | 18.9 | 36 | 45 | 0 | | |
| PHF | .903 | .706 | .750 | .000 | .799 | .750 | .799 | .643 | .000 | .776 | .467 | .855 | .667 | .000 | .672 | .875 | .690 | .735 | .000 | .740 | .811 |
| Passenger Vehicles | 62 | 178 | 17 | 0 | 257 | 21 | 154 | 33 | 0 | 208 | 52 | 59 | 13 | 0 | 124 | 39 | 73 | 98 | 0 | 210 | 799 |
| % Passenger Vehicles | 95.4 | 92.7 | 81.0 | 0 | 92.4 | 77.8 | 86.0 | 91.7 | 0 | 86.0 | 92.9 | 90.8 | 81.3 | 0 | 90.5 | 92.9 | 91.3 | 98.0 | 0 | 94.6 | 90.9 |
| Heavy Vehicles | 2 | 12 | 3 | 0 | 17 | 6 | 12 | 2 | 0 | 20 | 4 | 6 | 3 | 0 | 13 | 1 | 3 | 2 | 0 | 6 | 56 |
| % Heavy Vehicles | 3.1 | 6.3 | 14.3 | 0 | 6.1 | 22.2 | 6.7 | 5.6 | 0 | 8.3 | 7.1 | 9.2 | 18.8 | 0 | 9.5 | 2.4 | 3.8 | 2.0 | 0 | 2.7 | 6.4 |
| Buses | 1 | 2 | 1 | 0 | 4 | 0 | 13 | 1 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 2 | 4 | 0 | 0 | 6 | 24 |
| % Buses | 1.5 | 1.0 | 4.8 | 0 | 1.4 | 0 | 7.3 | 2.8 | 0 | 5.8 | 0 | 0 | 0 | 0 | 0 | 4.8 | 5.0 | 0 | 0 | 2.7 | 2.7 |



Project: 110-021
Counted By: HMM
Location: Medina, NY
Other:

File Name : 0005 pm
Site Code : 00000005
Start Date : 11/16/2010
Page No : 1

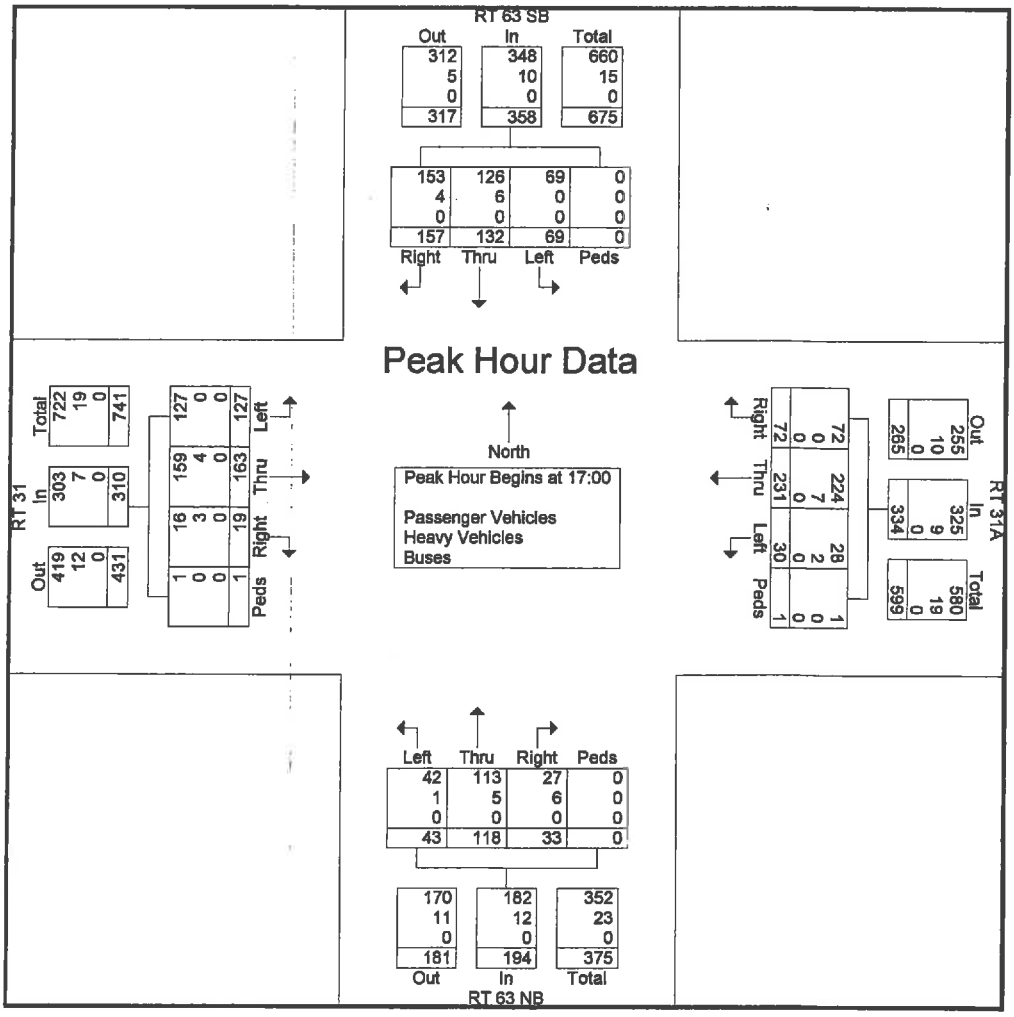
Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

| | RT 31 Eastbound | | | | | RT 31A Westbound | | | | | RT 63 NB Northbound | | | | | RT 63 SB Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Int. Total |
| Factor | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | |
| 17:00 | 29 | 50 | 4 | 1 | 84 | 5 | 49 | 17 | 1 | 72 | 15 | 35 | 8 | 0 | 58 | 19 | 36 | 40 | 0 | 95 | 309 |
| 17:15 | 31 | 30 | 4 | 0 | 65 | 9 | 65 | 14 | 0 | 88 | 7 | 27 | 9 | 0 | 43 | 20 | 41 | 34 | 0 | 95 | 291 |
| 17:30 | 37 | 48 | 5 | 0 | 90 | 6 | 63 | 23 | 0 | 92 | 13 | 32 | 11 | 0 | 56 | 13 | 27 | 32 | 0 | 72 | 310 |
| 17:45 | 30 | 35 | 6 | 0 | 71 | 10 | 54 | 18 | 0 | 82 | 8 | 24 | 5 | 0 | 37 | 17 | 28 | 51 | 0 | 96 | 286 |
| Total | 127 | 163 | 19 | 1 | 310 | 30 | 231 | 72 | 1 | 334 | 43 | 118 | 33 | 0 | 194 | 69 | 132 | 157 | 0 | 358 | 1196 |
| 18:00 | 37 | 48 | 3 | 0 | 88 | 3 | 42 | 9 | 0 | 54 | 14 | 29 | 2 | 0 | 45 | 19 | 29 | 45 | 0 | 93 | 280 |
| 18:15 | 31 | 38 | 11 | 0 | 80 | 7 | 41 | 18 | 0 | 66 | 7 | 36 | 6 | 0 | 49 | 16 | 30 | 27 | 0 | 73 | 268 |
| 18:30 | 30 | 35 | 7 | 0 | 72 | 8 | 38 | 14 | 0 | 60 | 5 | 25 | 3 | 0 | 33 | 5 | 22 | 28 | 0 | 55 | 220 |
| 18:45 | 31 | 24 | 1 | 0 | 56 | 5 | 32 | 14 | 0 | 51 | 9 | 37 | 5 | 0 | 51 | 12 | 17 | 18 | 0 | 47 | 205 |
| Total | 129 | 145 | 22 | 0 | 296 | 23 | 153 | 55 | 0 | 231 | 35 | 127 | 16 | 0 | 178 | 52 | 98 | 118 | 0 | 268 | 973 |
| Grand Total | 256 | 308 | 41 | 1 | 606 | 53 | 384 | 127 | 1 | 565 | 78 | 245 | 49 | 0 | 372 | 121 | 230 | 275 | 0 | 626 | 2169 |
| Apprch % | 42.2 | 50.8 | 6.8 | 0.2 | | 9.4 | 68 | 22.5 | 0.2 | | 21 | 65.9 | 13.2 | 0 | | 19.3 | 36.7 | 43.9 | 0 | | |
| Total % | 11.8 | 14.2 | 1.9 | 0 | 27.9 | 2.4 | 17.7 | 5.9 | 0 | 26 | 3.6 | 11.3 | 2.3 | 0 | 17.2 | 5.6 | 10.6 | 12.7 | 0 | 28.9 | |
| Passenger Vehicles | 255 | 303 | 37 | 1 | 596 | 46 | 375 | 127 | 1 | 549 | 77 | 237 | 43 | 0 | 357 | 121 | 221 | 271 | 0 | 613 | 2115 |
| % Passenger Vehicles | 99.6 | 98.4 | 90.2 | 100 | 98.3 | 86.8 | 97.7 | 100 | 100 | 97.2 | 98.7 | 96.7 | 87.8 | 0 | 96 | 100 | 96.1 | 98.5 | 0 | 97.9 | 97.5 |
| Heavy Vehicles | 1 | 5 | 4 | 0 | 10 | 7 | 9 | 0 | 0 | 16 | 1 | 8 | 6 | 0 | 15 | 0 | 9 | 4 | 0 | 13 | 54 |
| % Heavy Vehicles | 0.4 | 1.6 | 9.8 | 0 | 1.7 | 13.2 | 2.3 | 0 | 0 | 2.8 | 1.3 | 3.3 | 12.2 | 0 | 4 | 0 | 3.9 | 1.5 | 0 | 2.1 | 2.5 |
| Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Project: 110-021
Counted By: HMM
Location: Medina, NY
Other:

File Name : 0005 pm
Site Code : 00000005
Start Date : 11/16/2010
Page No : 2

| | RT 31 Eastbound | | | | | RT 31A Westbound | | | | | RT 63 NB Northbound | | | | | RT 63 SB Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 17:00 to 18:45 - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 17:00 | | | | | | | | | | | | | | | | | | | | | |
| 17:00 | 29 | **50** | 4 | **1** | 84 | 5 | 49 | 17 | **1** | 72 | **15** | **35** | 8 | 0 | **58** | 19 | 36 | 40 | 0 | 95 | 309 |
| 17:15 | 31 | 30 | 4 | 0 | 65 | 9 | **65** | 14 | 0 | 88 | 7 | 27 | 9 | 0 | 43 | **20** | **41** | 34 | 0 | 95 | 291 |
| 17:30 | **37** | 48 | 5 | 0 | **90** | 6 | 63 | **23** | 0 | **92** | 13 | 32 | **11** | 0 | 56 | 13 | 27 | 32 | 0 | 72 | **310** |
| 17:45 | 30 | 35 | **6** | 0 | 71 | **10** | 54 | 18 | 0 | 82 | 8 | 24 | 5 | 0 | 37 | 17 | 28 | **51** | 0 | **96** | 286 |
| Total Volume | 127 | 163 | 19 | 1 | 310 | 30 | 231 | 72 | 1 | 334 | 43 | 118 | 33 | 0 | 194 | 69 | 132 | 157 | 0 | 358 | 1196 |
| % App. Total | 41 | 52.6 | 6.1 | 0.3 | | 9 | 69.2 | 21.6 | 0.3 | | 22.2 | 60.8 | 17 | 0 | | 19.3 | 36.9 | 43.9 | 0 | | |
| PHF | .858 | .815 | .792 | .250 | .861 | .750 | .888 | .783 | .250 | .908 | .717 | .843 | .750 | .000 | .836 | .863 | .805 | .770 | .000 | .932 | .965 |
| Passenger Vehicles | 127 | 159 | 16 | 1 | 303 | 28 | 224 | 72 | 1 | 325 | 42 | 113 | 27 | 0 | 182 | 69 | 126 | 153 | 0 | 348 | 1158 |
| % Passenger Vehicles | 100 | 97.5 | 84.2 | 100 | 97.7 | 93.3 | 97.0 | 100 | 100 | 97.3 | 97.7 | 95.8 | 81.8 | 0 | 93.8 | 100 | 95.5 | 97.5 | 0 | 97.2 | 96.8 |
| Heavy Vehicles | 0 | 4 | 3 | 0 | 7 | 2 | 7 | 0 | 0 | 9 | 1 | 5 | 6 | 0 | 12 | 0 | 6 | 4 | 0 | 10 | 38 |
| % Heavy Vehicles | 0 | 2.5 | 15.8 | 0 | 2.3 | 6.7 | 3.0 | 0 | 0 | 2.7 | 2.3 | 4.2 | 18.2 | 0 | 6.2 | 0 | 4.5 | 2.5 | 0 | 2.8 | 3.2 |
| Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



Project: 110-021
Counted By: HMM
Location: Medina, NY
Other:

File Name : 0004am
Site Code : 00000004
Start Date : 11/10/2010
Page No : 1

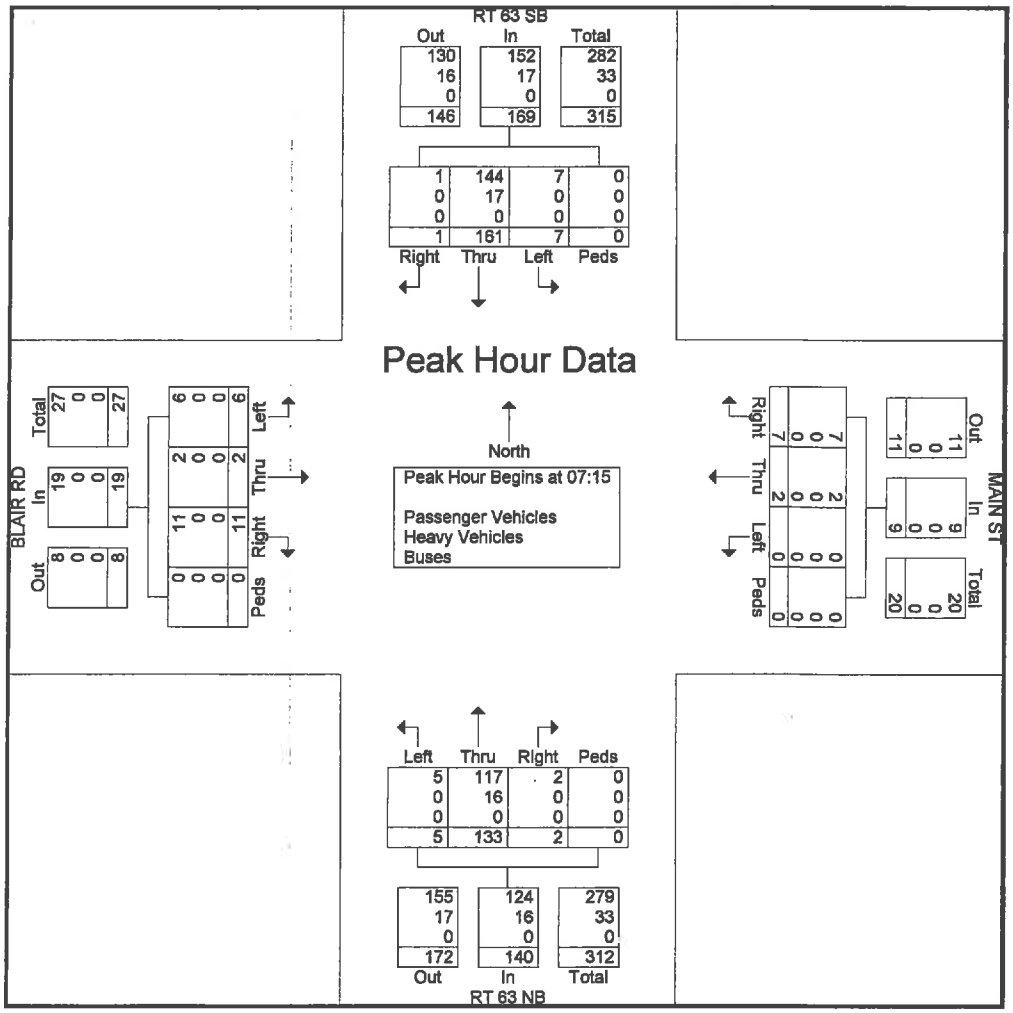
Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

| | BLAIR RD Eastbound | | | | | MAIN ST Westbound | | | | | RT 63 NB Northbound | | | | | RT 63 SB Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Int. Total |
| Factor | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | |
| 07:15 | 4 | 0 | 8 | 0 | 12 | 0 | 0 | 2 | 0 | 2 | 0 | 34 | 1 | 0 | 35 | 0 | 42 | 0 | 0 | 42 | 91 |
| 07:30 | 1 | 1 | 2 | 0 | 4 | 0 | 1 | 0 | 0 | 1 | 4 | 31 | 1 | 0 | 36 | 1 | 47 | 0 | 0 | 48 | 89 |
| 07:45 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 44 | 0 | 0 | 44 | 6 | 40 | 0 | 0 | 46 | 92 |
| Total | 5 | 2 | 10 | 0 | 17 | 0 | 1 | 3 | 0 | 4 | 4 | 109 | 2 | 0 | 115 | 7 | 129 | 0 | 0 | 136 | 272 |
| 08:00 | 1 | 0 | 1 | 0 | 2 | 0 | 1 | 4 | 0 | 5 | 1 | 24 | 0 | 0 | 25 | 0 | 32 | 1 | 0 | 33 | 65 |
| 08:15 | 1 | 1 | 2 | 0 | 4 | 0 | 0 | 2 | 0 | 2 | 0 | 45 | 0 | 0 | 45 | 2 | 37 | 0 | 0 | 39 | 90 |
| 08:30 | 2 | 2 | 1 | 0 | 5 | 0 | 0 | 1 | 0 | 1 | 0 | 25 | 0 | 0 | 25 | 1 | 26 | 0 | 0 | 27 | 58 |
| 08:45 | 2 | 1 | 2 | 0 | 5 | 0 | 1 | 3 | 0 | 4 | 0 | 30 | 0 | 0 | 30 | 1 | 35 | 1 | 0 | 37 | 76 |
| Total | 6 | 4 | 6 | 0 | 16 | 0 | 2 | 10 | 0 | 12 | 1 | 124 | 0 | 0 | 125 | 4 | 130 | 2 | 0 | 136 | 289 |
| 09:00 | 1 | 1 | 3 | 0 | 5 | 3 | 1 | 4 | 0 | 8 | 1 | 28 | 2 | 0 | 31 | 2 | 26 | 2 | 0 | 30 | 74 |
| Grand Total | 12 | 7 | 19 | 0 | 38 | 3 | 4 | 17 | 0 | 24 | 6 | 261 | 4 | 0 | 271 | 13 | 285 | 4 | 0 | 302 | 635 |
| Apprch % | 31.6 | 18.4 | 50 | 0 | | 12.5 | 16.7 | 70.8 | 0 | | 2.2 | 96.3 | 1.5 | 0 | | 4.3 | 94.4 | 1.3 | 0 | | |
| Total % | 1.9 | 1.1 | 3 | 0 | 6 | 0.5 | 0.6 | 2.7 | 0 | 3.8 | 0.9 | 41.1 | 0.6 | 0 | 42.7 | 2 | 44.9 | 0.6 | 0 | 47.6 | |
| Passenger Vehicles | 12 | 7 | 19 | 0 | 38 | 3 | 4 | 17 | 0 | 24 | 6 | 225 | 4 | 0 | 235 | 13 | 247 | 4 | 0 | 264 | 561 |
| % Passenger Vehicles | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 86.2 | 100 | 0 | 86.7 | 100 | 86.7 | 100 | 0 | 87.4 | 88.3 |
| Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36 | 0 | 0 | 36 | 0 | 38 | 0 | 0 | 38 | 74 |
| % Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13.8 | 0 | 0 | 13.3 | 0 | 13.3 | 0 | 0 | 12.6 | 11.7 |
| Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Project: 110-021
Counted By: HMM
Location: Medina, NY
Other:

File Name : 0004am
Site Code : 00000004
Start Date : 11/10/2010
Page No : 2

| | BLAIR RD Eastbound | | | | | MAIN ST Westbound | | | | | RT 63 NB Northbound | | | | | RT 63 SB Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:15 to 09:00 - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:15 | | | | | | | | | | | | | | | | | | | | | |
| 07:15 | 4 | 0 | 8 | 0 | 12 | 0 | 0 | 2 | 0 | 2 | 0 | 34 | 1 | 0 | 35 | 0 | 42 | 0 | 0 | 42 | 91 |
| 07:30 | 1 | 1 | 2 | 0 | 4 | 0 | 1 | 0 | 0 | 1 | 4 | 31 | 1 | 0 | 36 | 1 | 47 | 0 | 0 | 48 | 89 |
| 07:45 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 44 | 0 | 0 | 44 | 6 | 40 | 0 | 0 | 46 | 92 |
| 08:00 | 1 | 0 | 1 | 0 | 2 | 0 | 1 | 4 | 0 | 5 | 1 | 24 | 0 | 0 | 25 | 0 | 32 | 1 | 0 | 33 | 65 |
| Total Volume | 6 | 2 | 11 | 0 | 19 | 0 | 2 | 7 | 0 | 9 | 5 | 133 | 2 | 0 | 140 | 7 | 161 | 1 | 0 | 169 | 337 |
| % App. Total | 31.6 | 10.5 | 57.9 | 0 | | 0 | 22.2 | 77.8 | 0 | | 3.6 | 95 | 1.4 | 0 | | 4.1 | 95.3 | 0.6 | 0 | | |
| PHF | .375 | .500 | .344 | .000 | .396 | .000 | .500 | .438 | .000 | .450 | .313 | .756 | .500 | .000 | .795 | .292 | .856 | .250 | .000 | .880 | .916 |
| Passenger Vehicles | 6 | 2 | 11 | 0 | 19 | 0 | 2 | 7 | 0 | 9 | 5 | 117 | 2 | 0 | 124 | 7 | 144 | 1 | 0 | 152 | 304 |
| % Passenger Vehicles | 100 | 100 | 100 | 0 | 100 | 0 | 100 | 100 | 0 | 100 | 100 | 88.0 | 100 | 0 | 88.6 | 100 | 89.4 | 100 | 0 | 89.9 | 90.2 |
| Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 0 | 16 | 0 | 17 | 0 | 0 | 17 | 33 |
| % Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12.0 | 0 | 0 | 11.4 | 0 | 10.6 | 0 | 0 | 10.1 | 9.8 |
| Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



Project: 110-021
Counted By: HMM
Location: Medina, NY
Other:

File Name : 0004pm
Site Code : 00000004
Start Date : 11/10/2010
Page No : 1

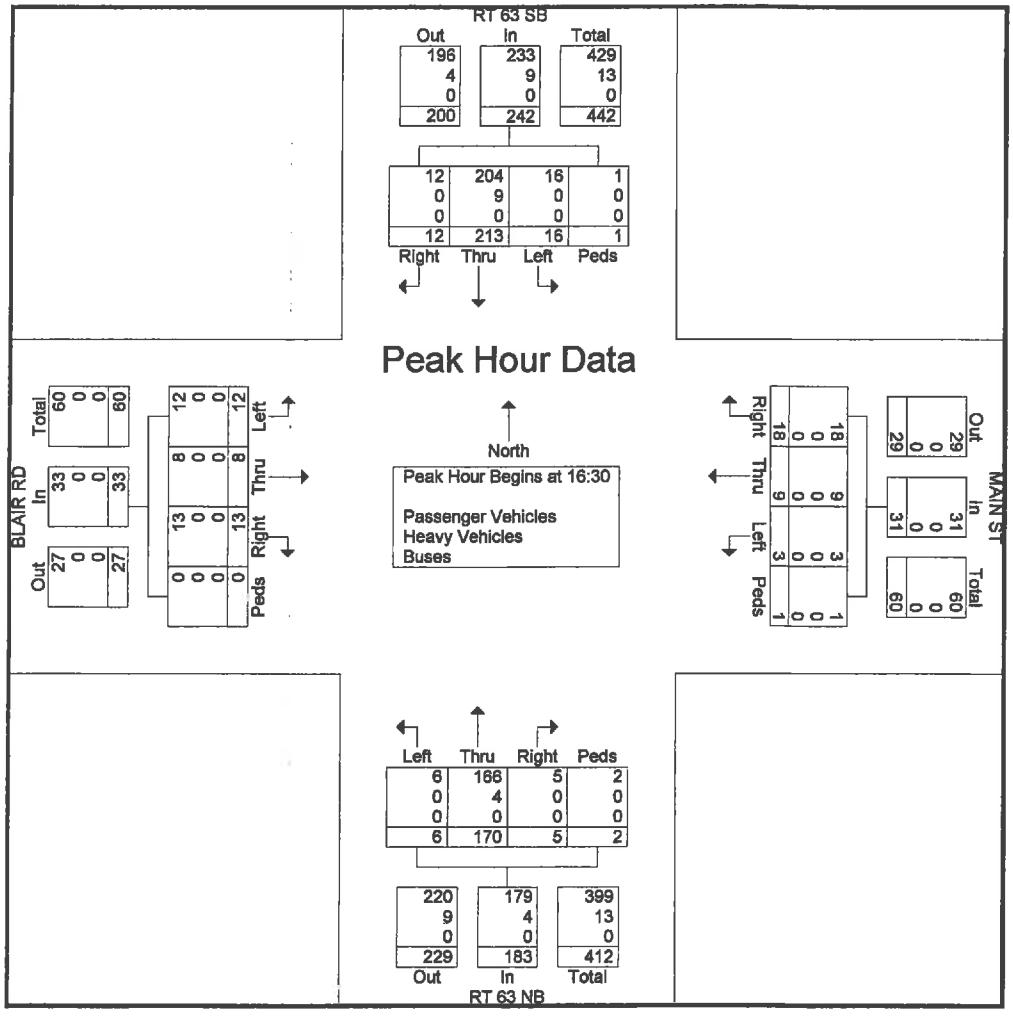
Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

| | BLAIR RD Eastbound | | | | | MAIN ST Westbound | | | | | RT 63 NB Northbound | | | | | RT 63 SB Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Int. Total |
| Factor | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | |
| 16:15 | 1 | 1 | 5 | 0 | 7 | 0 | 2 | 4 | 0 | 6 | 2 | 38 | 0 | 0 | 40 | 3 | 51 | 0 | 0 | 54 | 107 |
| 16:30 | 3 | 2 | 4 | 0 | 9 | 1 | 3 | 4 | 0 | 8 | 1 | 45 | 1 | 1 | 48 | 6 | 52 | 3 | 0 | 61 | 126 |
| 16:45 | 5 | 3 | 4 | 0 | 12 | 0 | 5 | 6 | 1 | 12 | 2 | 43 | 0 | 0 | 45 | 4 | 56 | 1 | 0 | 61 | 130 |
| Total | 9 | 6 | 13 | 0 | 28 | 1 | 10 | 14 | 1 | 26 | 5 | 126 | 1 | 1 | 133 | 13 | 159 | 4 | 0 | 176 | 363 |
| 17:00 | 2 | 2 | 4 | 0 | 8 | 1 | 1 | 3 | 0 | 5 | 2 | 42 | 2 | 0 | 46 | 3 | 47 | 3 | 0 | 53 | 112 |
| 17:15 | 2 | 1 | 1 | 0 | 4 | 1 | 0 | 5 | 0 | 6 | 1 | 40 | 2 | 1 | 44 | 3 | 58 | 5 | 1 | 67 | 121 |
| 17:30 | 2 | 0 | 2 | 1 | 5 | 0 | 0 | 6 | 0 | 6 | 3 | 50 | 1 | 0 | 54 | 6 | 51 | 3 | 0 | 60 | 125 |
| 17:45 | 1 | 0 | 3 | 0 | 4 | 1 | 0 | 4 | 0 | 5 | 2 | 36 | 2 | 0 | 40 | 7 | 49 | 1 | 0 | 57 | 106 |
| Total | 7 | 3 | 10 | 1 | 21 | 3 | 1 | 18 | 0 | 22 | 8 | 168 | 7 | 1 | 184 | 19 | 205 | 12 | 1 | 237 | 464 |
| 18:00 | 0 | 0 | 2 | 0 | 2 | 1 | 2 | 2 | 0 | 5 | 0 | 38 | 0 | 0 | 38 | 2 | 29 | 0 | 0 | 31 | 76 |
| Grand Total | 16 | 9 | 25 | 1 | 51 | 5 | 13 | 34 | 1 | 53 | 13 | 332 | 8 | 2 | 355 | 34 | 393 | 16 | 1 | 444 | 903 |
| Apprch % | 31.4 | 17.6 | 49 | 2 | | 9.4 | 24.5 | 64.2 | 1.9 | | 3.7 | 93.5 | 2.3 | 0.6 | | 7.7 | 88.5 | 3.6 | 0.2 | | |
| Total % | 1.8 | 1 | 2.8 | 0.1 | 5.6 | 0.6 | 1.4 | 3.8 | 0.1 | 5.9 | 1.4 | 36.8 | 0.9 | 0.2 | 39.3 | 3.8 | 43.5 | 1.8 | 0.1 | 49.2 | |
| Passenger Vehicles | 16 | 9 | 25 | 1 | 51 | 5 | 13 | 34 | 1 | 53 | 13 | 321 | 8 | 2 | 344 | 34 | 368 | 16 | 1 | 419 | 867 |
| % Passenger Vehicles | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 96.7 | 100 | 100 | 96.9 | 100 | 93.6 | 100 | 100 | 94.4 | 96 |
| Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 11 | 0 | 25 | 0 | 0 | 25 | 36 |
| % Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3.3 | 0 | 0 | 3.1 | 0 | 6.4 | 0 | 0 | 5.6 | 4 |
| Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Project: 110-021
Counted By: HMM
Location: Medina, NY
Other:

File Name : 0004pm
Site Code : 00000004
Start Date : 11/10/2010
Page No : 2

| | BLAIR RD Eastbound | | | | | MAIN ST Westbound | | | | | RT 63 NB Northbound | | | | | RT 63 SB Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 16:15 to 18:00 - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 16:30 | | | | | | | | | | | | | | | | | | | | | |
| 16:30 | 3 | 2 | 4 | 0 | 9 | 1 | 3 | 4 | 0 | 8 | 1 | 45 | 1 | 1 | 48 | 6 | 52 | 3 | 0 | 61 | 126 |
| 16:45 | 5 | 3 | 4 | 0 | 12 | 0 | 5 | 6 | 1 | 12 | 2 | 43 | 0 | 0 | 45 | 4 | 56 | 1 | 0 | 61 | 130 |
| 17:00 | 2 | 2 | 4 | 0 | 8 | 1 | 1 | 3 | 0 | 5 | 2 | 42 | 2 | 0 | 46 | 3 | 47 | 3 | 0 | 53 | 112 |
| 17:15 | 2 | 1 | 1 | 0 | 4 | 1 | 0 | 5 | 0 | 6 | 1 | 40 | 2 | 1 | 44 | 3 | 58 | 5 | 1 | 67 | 121 |
| Total Volume | 12 | 8 | 13 | 0 | 33 | 3 | 9 | 18 | 1 | 31 | 6 | 170 | 5 | 2 | 183 | 16 | 213 | 12 | 1 | 242 | 489 |
| % App. Total | 36.4 | 24.2 | 39.4 | 0 | | 9.7 | 29 | 58.1 | 3.2 | | 3.3 | 92.9 | 2.7 | 1.1 | | 6.6 | 88 | 5 | 0.4 | | |
| PHF | .600 | .667 | .813 | .000 | .688 | .750 | .450 | .750 | .250 | .646 | .750 | .944 | .625 | .500 | .953 | .667 | .918 | .600 | .250 | .903 | .940 |
| Passenger Vehicles | 12 | 8 | 13 | 0 | 33 | 3 | 9 | 18 | 1 | 31 | 6 | 166 | 5 | 2 | 179 | 16 | 204 | 12 | 1 | 233 | 476 |
| % Passenger Vehicles | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 97.6 | 100 | 100 | 97.8 | 100 | 95.8 | 100 | 100 | 96.3 | 97.3 |
| Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 4 | 0 | 9 | 0 | 0 | 9 | 13 |
| % Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2.4 | 0 | 0 | 2.2 | 0 | 4.2 | 0 | 0 | 3.7 | 2.7 |
| Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



# Genesee County Traffic Counts
# Turning Movement Count
# Weekday Morning Period

Fisher Associates P.E., L.S., P.C.
135 Calkins Road
Rochester, NY 14623
Phone: (585) 334-1310

File Name : #6 Rt 77 & Lewiston - AM
Site Code : 00000666
Start Date : 2/3/2010
Page No : 1

**Groups Printed- Cars - Buses - Trucks**

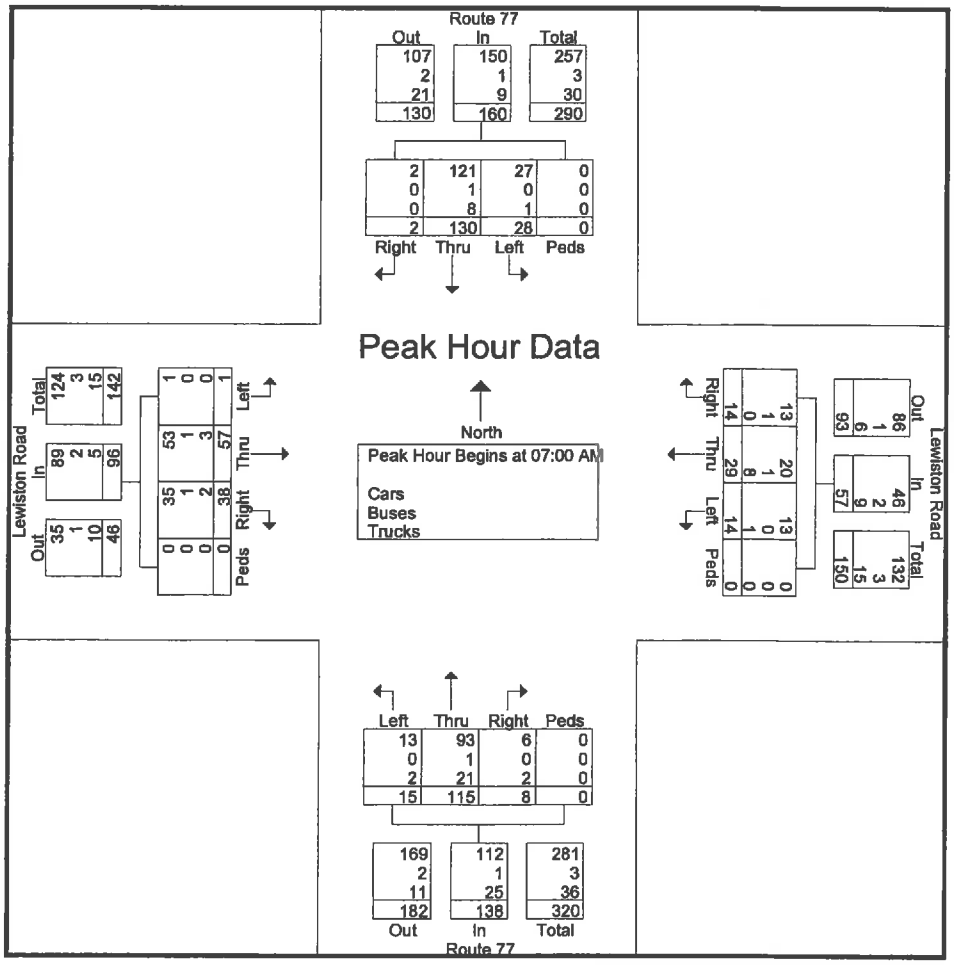
| | Route 77 Southbound Approach | | | | | Lewiston Road Westbound Approach | | | | | Route 77 Northbound Approach | | | | | Lewiston Road Eastbound Approach | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 1 | 31 | 7 | 0 | 39 | 5 | 7 | 2 | 0 | 14 | 2 | 31 | 6 | 0 | 39 | 8 | 13 | 0 | 0 | 21 | 113 |
| 07:15 AM | 1 | 37 | 6 | 0 | 44 | 4 | 13 | 5 | 0 | 22 | 3 | 35 | 5 | 0 | 43 | 14 | 16 | 0 | 0 | 30 | 139 |
| 07:30 AM | 0 | 40 | 13 | 0 | 53 | 4 | 3 | 6 | 0 | 13 | 0 | 28 | 4 | 0 | 32 | 10 | 14 | 0 | 0 | 24 | 122 |
| 07:45 AM | 0 | 22 | 2 | 0 | 24 | 1 | 6 | 1 | 0 | 8 | 3 | 21 | 0 | 0 | 24 | 6 | 14 | 1 | 0 | 21 | 77 |
| Total | 2 | 130 | 28 | 0 | 160 | 14 | 29 | 14 | 0 | 57 | 8 | 115 | 15 | 0 | 138 | 38 | 57 | 1 | 0 | 96 | 451 |
| 08:00 AM | 0 | 12 | 2 | 0 | 14 | 3 | 3 | 1 | 0 | 7 | 5 | 22 | 3 | 0 | 30 | 9 | 11 | 1 | 0 | 21 | 72 |
| 08:15 AM | 0 | 28 | 5 | 0 | 33 | 1 | 6 | 4 | 0 | 11 | 2 | 20 | 0 | 0 | 22 | 11 | 16 | 0 | 0 | 27 | 93 |
| 08:30 AM | 0 | 13 | 5 | 0 | 18 | 0 | 6 | 1 | 0 | 7 | 2 | 10 | 0 | 3 | 15 | 5 | 8 | 1 | 0 | 14 | 54 |
| 08:45 AM | 3 | 14 | 1 | 0 | 18 | 4 | 8 | 2 | 0 | 14 | 5 | 11 | 0 | 0 | 16 | 0 | 2 | 0 | 0 | 2 | 50 |
| Total | 3 | 67 | 13 | 0 | 83 | 8 | 23 | 8 | 0 | 39 | 14 | 63 | 3 | 3 | 83 | 25 | 37 | 2 | 0 | 64 | 269 |
| Grand Total | 5 | 197 | 41 | 0 | 243 | 22 | 52 | 22 | 0 | 96 | 22 | 178 | 18 | 3 | 221 | 63 | 94 | 3 | 0 | 160 | 720 |
| Apprch % | 2.1 | 81.1 | 16.9 | 0 | | 22.9 | 54.2 | 22.9 | 0 | | 10 | 80.5 | 8.1 | 1.4 | | 39.4 | 58.8 | 1.9 | 0 | | |
| Total % | 0.7 | 27.4 | 5.7 | 0 | 33.8 | 3.1 | 7.2 | 3.1 | 0 | 13.3 | 3.1 | 24.7 | 2.5 | 0.4 | 30.7 | 8.8 | 13.1 | 0.4 | 0 | 22.2 | |
| Cars | 5 | 175 | 40 | 0 | 220 | 21 | 37 | 17 | 0 | 75 | 16 | 143 | 16 | 3 | 178 | 55 | 86 | 3 | 0 | 144 | 617 |
| % Cars | 100 | 88.8 | 97.6 | 0 | 90.5 | 95.5 | 71.2 | 77.3 | 0 | 78.1 | 72.7 | 80.3 | 88.9 | 100 | 80.5 | 87.3 | 91.5 | 100 | 0 | 90 | 85.7 |
| Buses | 0 | 2 | 0 | 0 | 2 | 1 | 3 | 0 | 0 | 4 | 2 | 3 | 0 | 0 | 5 | 1 | 2 | 0 | 0 | 3 | 14 |
| % Buses | 0 | 1 | 0 | 0 | 0.8 | 4.5 | 5.8 | 0 | 0 | 4.2 | 9.1 | 1.7 | 0 | 0 | 2.3 | 1.6 | 2.1 | 0 | 0 | 1.9 | 1.9 |
| Trucks | 0 | 20 | 1 | 0 | 21 | 0 | 12 | 5 | 0 | 17 | 4 | 32 | 2 | 0 | 38 | 7 | 6 | 0 | 0 | 13 | 89 |
| % Trucks | 0 | 10.2 | 2.4 | 0 | 8.6 | 0 | 23.1 | 22.7 | 0 | 17.7 | 18.2 | 18 | 11.1 | 0 | 17.2 | 11.1 | 6.4 | 0 | 0 | 8.1 | 12.4 |

# Genesee County Traffic Counts
# Turning Movement Count
# Weekday Morning Period

Fisher Associates P.E., L.S., P.C.
135 Calkins Road
Rochester, NY 14623
Phone: (585) 334-1310

File Name : #6 Rt 77 & Lewiston - AM
Site Code : 00000666
Start Date : 2/3/2010
Page No : 2

| | Route 77 Southbound Approach | | | | | Lewiston Road Westbound Approach | | | | | Route 77 Northbound Approach | | | | | Lewiston Road Eastbound Approach | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:00 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:00 AM | 1 | 31 | 7 | 0 | 39 | 5 | 7 | 2 | 0 | 14 | 2 | 31 | 6 | 0 | 39 | 8 | 13 | 0 | 0 | 21 | 113 |
| 07:15 AM | 1 | 37 | 6 | 0 | 44 | 4 | 13 | 5 | 0 | 22 | 3 | 35 | 5 | 0 | 43 | 14 | 16 | 0 | 0 | 30 | 139 |
| 07:30 AM | 0 | 40 | 13 | 0 | 53 | 4 | 3 | 6 | 0 | 13 | 0 | 28 | 4 | 0 | 32 | 10 | 14 | 0 | 0 | 24 | 122 |
| 07:45 AM | 0 | 22 | 2 | 0 | 24 | 1 | 6 | 1 | 0 | 8 | 3 | 21 | 0 | 0 | 24 | 6 | 14 | 1 | 0 | 21 | 77 |
| Total Volume | 2 | 130 | 28 | 0 | 160 | 14 | 29 | 14 | 0 | 57 | 8 | 115 | 15 | 0 | 138 | 38 | 57 | 1 | 0 | 96 | 451 |
| % App. Total | 1.2 | 81.2 | 17.5 | 0 | | 24.6 | 50.9 | 24.6 | 0 | | 5.8 | 83.3 | 10.9 | 0 | | 39.6 | 59.4 | 1 | 0 | | |
| PHF | .500 | .813 | .538 | .000 | .755 | .700 | .558 | .583 | .000 | .648 | .667 | .821 | .625 | .000 | .802 | .679 | .891 | .250 | .000 | .800 | .811 |
| Cars | 2 | 121 | 27 | 0 | 150 | 13 | 20 | 13 | 0 | 46 | 6 | 93 | 13 | 0 | 112 | 35 | 53 | 1 | 0 | 89 | 397 |
| % Cars | 100 | 93.1 | 96.4 | 0 | 93.8 | 92.9 | 69.0 | 92.9 | 0 | 80.7 | 75.0 | 80.9 | 86.7 | 0 | 81.2 | 92.1 | 93.0 | 100 | 0 | 92.7 | 88.0 |
| Buses | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 2 | 6 |
| % Buses | 0 | 0.8 | 0 | 0 | 0.6 | 7.1 | 3.4 | 0 | 0 | 3.5 | 0 | 0.9 | 0 | 0 | 0.7 | 2.6 | 1.8 | 0 | 0 | 2.1 | 1.3 |
| Trucks | 0 | 8 | 1 | 0 | 9 | 0 | 8 | 1 | 0 | 9 | 2 | 21 | 2 | 0 | 25 | 2 | 3 | 0 | 0 | 5 | 48 |
| % Trucks | 0 | 6.2 | 3.6 | 0 | 5.6 | 0 | 27.6 | 7.1 | 0 | 15.8 | 25.0 | 18.3 | 13.3 | 0 | 18.1 | 5.3 | 5.3 | 0 | 0 | 5.2 | 10.6 |



# Genesee County Traffic Counts
# Turning Movement Count
# Weekday Evening Period

Fisher Associates P.E., L.S., P.C.
135 Calkins Road
Rochester, NY 14623
Phone: (585) 334-1310

File Name : #6 Rt 77 & Lewiston - PM
Site Code : 00066666
Start Date : 2/2/2010
Page No : 1

**Groups Printed- Cars - Buses - Trucks**

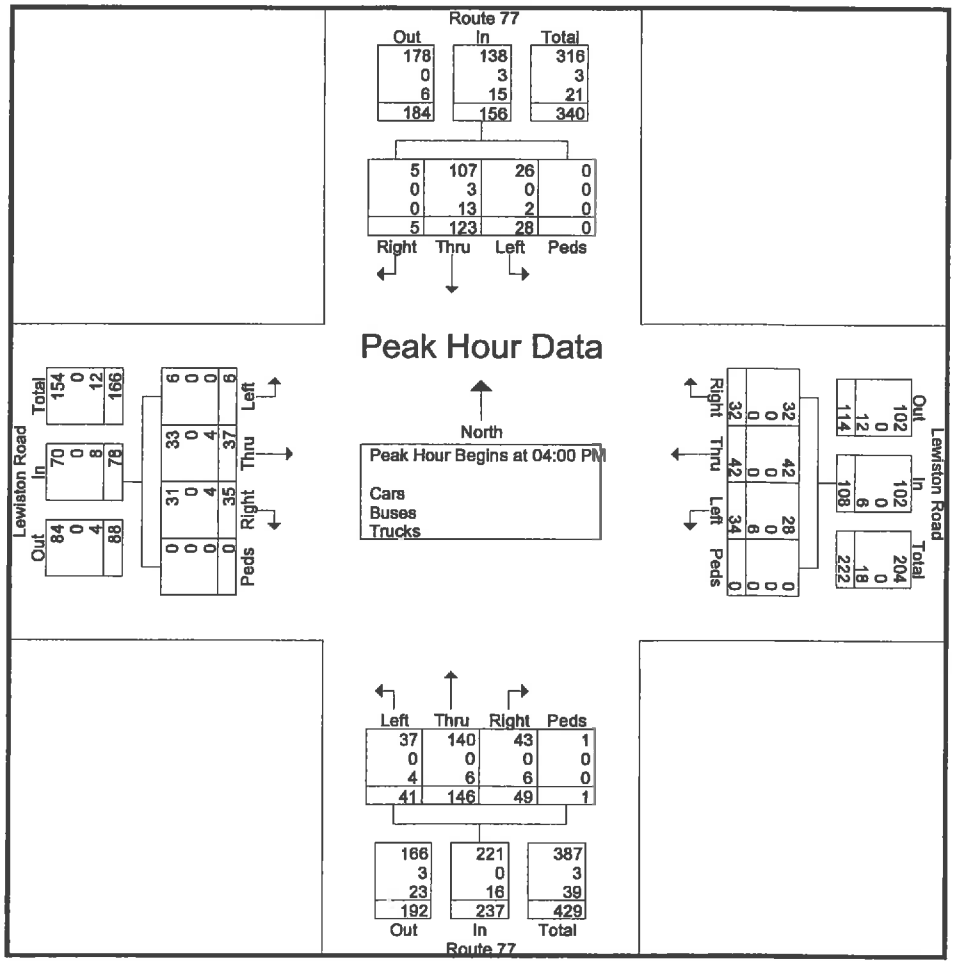
| | Route 77 Southbound Approach | | | | | Lewiston Road Westbound Approach | | | | | Route 77 Northbound Approach | | | | | Lewiston Road Eastbound Approach | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 04:00 PM | 1 | 31 | 8 | 0 | 40 | 7 | 11 | 13 | 0 | 31 | 10 | 29 | 7 | 0 | 46 | 11 | 5 | 1 | 0 | 17 | 134 |
| 04:15 PM | 0 | 26 | 7 | 0 | 33 | 7 | 11 | 7 | 0 | 25 | 10 | 35 | 16 | 0 | 61 | 10 | 9 | 1 | 0 | 20 | 139 |
| 04:30 PM | 2 | 32 | 10 | 0 | 44 | 10 | 11 | 10 | 0 | 31 | 18 | 39 | 9 | 1 | 67 | 9 | 13 | 1 | 0 | 23 | 165 |
| 04:45 PM | 2 | 34 | 3 | 0 | 39 | 8 | 9 | 4 | 0 | 21 | 11 | 43 | 9 | 0 | 63 | 5 | 10 | 3 | 0 | 18 | 141 |
| Total | 5 | 123 | 28 | 0 | 156 | 32 | 42 | 34 | 0 | 108 | 49 | 146 | 41 | 1 | 237 | 35 | 37 | 6 | 0 | 78 | 579 |
| 05:00 PM | 0 | 28 | 7 | 0 | 35 | 8 | 9 | 9 | 0 | 26 | 6 | 39 | 11 | 0 | 56 | 12 | 9 | 4 | 0 | 25 | 142 |
| 05:15 PM | 0 | 41 | 7 | 0 | 48 | 9 | 12 | 5 | 0 | 26 | 7 | 19 | 12 | 0 | 38 | 6 | 13 | 2 | 0 | 21 | 133 |
| 05:30 PM | 0 | 26 | 8 | 0 | 34 | 6 | 12 | 5 | 0 | 23 | 7 | 37 | 10 | 0 | 54 | 7 | 10 | 2 | 0 | 19 | 130 |
| 05:45 PM | 1 | 21 | 8 | 0 | 30 | 7 | 5 | 9 | 1 | 22 | 13 | 35 | 7 | 0 | 55 | 8 | 14 | 0 | 0 | 22 | 129 |
| Total | 1 | 116 | 30 | 0 | 147 | 30 | 38 | 28 | 1 | 97 | 33 | 130 | 40 | 0 | 203 | 33 | 46 | 8 | 0 | 87 | 534 |
| Grand Total | 6 | 239 | 58 | 0 | 303 | 62 | 80 | 62 | 1 | 205 | 82 | 276 | 81 | 1 | 440 | 68 | 83 | 14 | 0 | 165 | 1113 |
| Apprch % | 2 | 78.9 | 19.1 | 0 | | 30.2 | 39 | 30.2 | 0.5 | | 18.6 | 62.7 | 18.4 | 0.2 | | 41.2 | 50.3 | 8.5 | 0 | | |
| Total % | 0.5 | 21.5 | 5.2 | 0 | 27.2 | 5.6 | 7.2 | 5.6 | 0.1 | 18.4 | 7.4 | 24.8 | 7.3 | 0.1 | 39.5 | 6.1 | 7.5 | 1.3 | 0 | 14.8 | |
| Cars | 6 | 216 | 55 | 0 | 277 | 62 | 80 | 55 | 1 | 198 | 74 | 262 | 74 | 1 | 411 | 61 | 77 | 14 | 0 | 152 | 1038 |
| % Cars | 100 | 90.4 | 94.8 | 0 | 91.4 | 100 | 100 | 88.7 | 100 | 96.6 | 90.2 | 94.9 | 91.4 | 100 | 93.4 | 89.7 | 92.8 | 100 | 0 | 92.1 | 93.3 |
| Buses | 0 | 3 | 1 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| % Buses | 0 | 1.3 | 1.7 | 0 | 1.3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.4 |
| Trucks | 0 | 20 | 2 | 0 | 22 | 0 | 0 | 7 | 0 | 7 | 8 | 14 | 7 | 0 | 29 | 7 | 6 | 0 | 0 | 13 | 71 |
| % Trucks | 0 | 8.4 | 3.4 | 0 | 7.3 | 0 | 0 | 11.3 | 0 | 3.4 | 9.8 | 5.1 | 8.6 | 0 | 6.6 | 10.3 | 7.2 | 0 | 0 | 7.9 | 6.4 |

# Genesee County Traffic Counts
# Turning Movement Count
# Weekday Evening Period

Fisher Associates P.E., L.S., P.C.
135 Calkins Road
Rochester, NY 14623
Phone: (585) 334-1310

File Name : #6 Rt 77 & Lewiston - PM
Site Code : 00066666
Start Date : 2/2/2010
Page No : 2

| | Route 77 Southbound Approach | | | | | Lewiston Road Westbound Approach | | | | | Route 77 Northbound Approach | | | | | Lewiston Road Eastbound Approach | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:00 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:00 PM | 1 | 31 | 8 | 0 | 40 | 7 | 11 | 13 | 0 | 31 | 10 | 29 | 7 | 0 | 46 | 11 | 5 | 1 | 0 | 17 | 134 |
| 04:15 PM | 0 | 26 | 7 | 0 | 33 | 7 | 11 | 7 | 0 | 25 | 10 | 35 | 16 | 0 | 61 | 10 | 9 | 1 | 0 | 20 | 139 |
| 04:30 PM | 2 | 32 | 10 | 0 | 44 | 10 | 11 | 10 | 0 | 31 | 18 | 39 | 9 | 1 | 67 | 9 | 13 | 1 | 0 | 23 | 165 |
| 04:45 PM | 2 | 34 | 3 | 0 | 39 | 8 | 9 | 4 | 0 | 21 | 11 | 43 | 9 | 0 | 63 | 5 | 10 | 3 | 0 | 18 | 141 |
| Total Volume | 5 | 123 | 28 | 0 | 156 | 32 | 42 | 34 | 0 | 108 | 49 | 146 | 41 | 1 | 237 | 35 | 37 | 6 | 0 | 78 | 579 |
| % App. Total | 3.2 | 78.8 | 17.9 | 0 | | 29.6 | 38.9 | 31.5 | 0 | | 20.7 | 61.6 | 17.3 | 0.4 | | 44.9 | 47.4 | 7.7 | 0 | | |
| PHF | .625 | .904 | .700 | .000 | .886 | .800 | .955 | .654 | .000 | .871 | .681 | .849 | .641 | .250 | .884 | .795 | .712 | .500 | .000 | .848 | .877 |
| Cars | 5 | 107 | 26 | 0 | 138 | 32 | 42 | 28 | 0 | 102 | 43 | 140 | 37 | 1 | 221 | 31 | 33 | 6 | 0 | 70 | 531 |
| % Cars | 100 | 87.0 | 92.9 | 0 | 88.5 | 100 | 100 | 82.4 | 0 | 94.4 | 87.8 | 95.9 | 90.2 | 100 | 93.2 | 88.6 | 89.2 | 100 | 0 | 89.7 | 91.7 |
| Buses | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| % Buses | 0 | 2.4 | 0 | 0 | 1.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.5 |
| Trucks | 0 | 13 | 2 | 0 | 15 | 0 | 0 | 6 | 0 | 6 | 6 | 6 | 4 | 0 | 16 | 4 | 4 | 0 | 0 | 8 | 45 |
| % Trucks | 0 | 10.6 | 7.1 | 0 | 9.6 | 0 | 0 | 17.6 | 0 | 5.6 | 12.2 | 4.1 | 9.8 | 0 | 6.8 | 11.4 | 10.8 | 0 | 0 | 10.3 | 7.8 |



# Genesee County Traffic Counts
# Turning Movement Count
# Weekday Morning Period

Fisher Associates P.E., L.S., P.C.
135 Calkins Road
Rochester, NY 14623
Phone: (585) 334-1310

File Name : #5 Rt 77 & Ham - AM
Site Code : 00333333
Start Date : 2/3/2010
Page No : 1

**Groups Printed- Cars - Buses - Trucks**

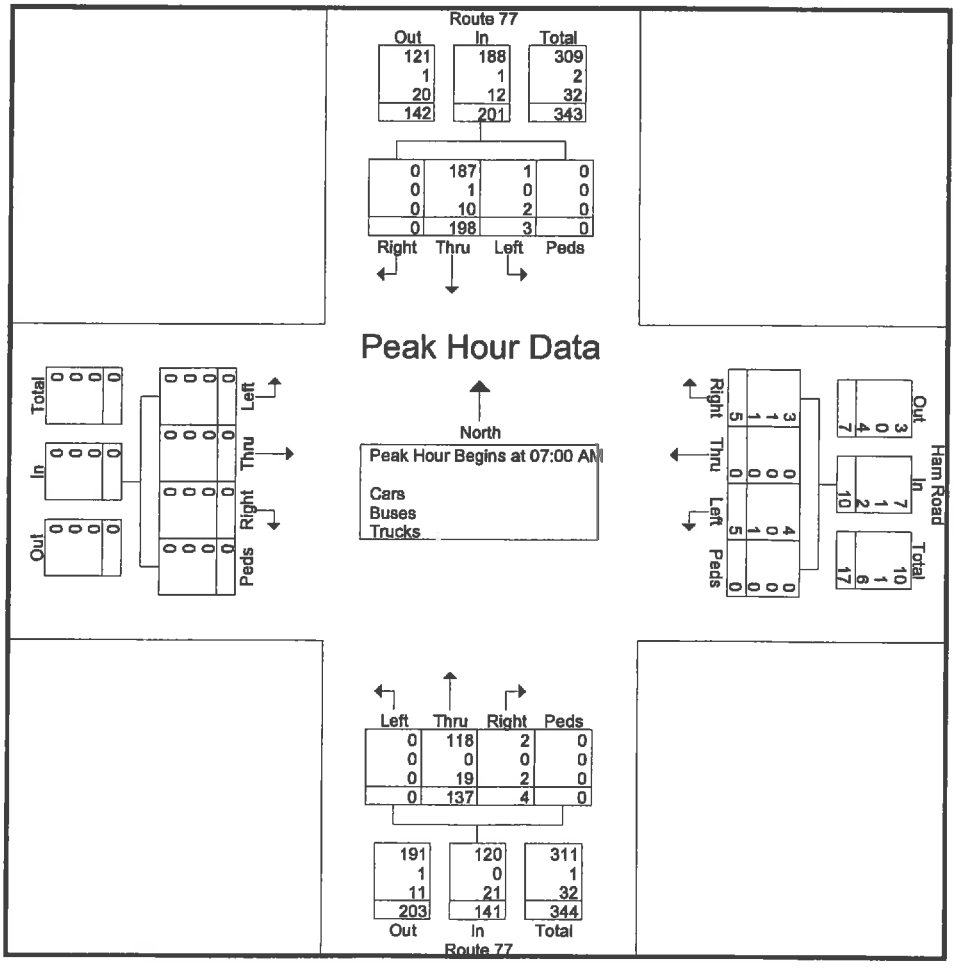
| | Route 77 Southbound Approach | | | | | Ham Road Westbound Approach | | | | | Route 77 Northbound Approach | | | | | Eastbound Approach | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 0 | 45 | 1 | 0 | 46 | 3 | 0 | 1 | 0 | 4 | 0 | 35 | 0 | 0 | 35 | 0 | 0 | 0 | 0 | 0 | 85 |
| 07:15 AM | 0 | 56 | 0 | 0 | 56 | 1 | 0 | 2 | 0 | 3 | 1 | 42 | 0 | 0 | 43 | 0 | 0 | 0 | 0 | 0 | 102 |
| 07:30 AM | 0 | 56 | 1 | 0 | 57 | 1 | 0 | 2 | 0 | 3 | 2 | 28 | 0 | 0 | 30 | 0 | 0 | 0 | 0 | 0 | 90 |
| 07:45 AM | 0 | 41 | 1 | 0 | 42 | 0 | 0 | 0 | 0 | 0 | 1 | 32 | 0 | 0 | 33 | 0 | 0 | 0 | 0 | 0 | 75 |
| Total | 0 | 198 | 3 | 0 | 201 | 5 | 0 | 5 | 0 | 10 | 4 | 137 | 0 | 0 | 141 | 0 | 0 | 0 | 0 | 0 | 352 |
| 08:00 AM | 0 | 37 | 0 | 0 | 37 | 1 | 0 | 0 | 0 | 1 | 1 | 29 | 0 | 0 | 30 | 0 | 0 | 0 | 0 | 0 | 68 |
| 08:15 AM | 0 | 44 | 0 | 0 | 44 | 0 | 0 | 1 | 0 | 1 | 1 | 24 | 0 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 70 |
| 08:30 AM | 0 | 30 | 1 | 0 | 31 | 1 | 0 | 1 | 0 | 2 | 0 | 20 | 0 | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 53 |
| 08:45 AM | 0 | 38 | 0 | 0 | 38 | 0 | 0 | 0 | 0 | 0 | 1 | 20 | 0 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 59 |
| Total | 0 | 149 | 1 | 0 | 150 | 2 | 0 | 2 | 0 | 4 | 3 | 93 | 0 | 0 | 96 | 0 | 0 | 0 | 0 | 0 | 250 |
| Grand Total | 0 | 347 | 4 | 0 | 351 | 7 | 0 | 7 | 0 | 14 | 7 | 230 | 0 | 0 | 237 | 0 | 0 | 0 | 0 | 0 | 602 |
| Apprch % | 0 | 98.9 | 1.1 | 0 | | 50 | 0 | 50 | 0 | | 3 | 97 | 0 | 0 | | 0 | 0 | 0 | 0 | | |
| Total % | 0 | 57.6 | 0.7 | 0 | 58.3 | 1.2 | 0 | 1.2 | 0 | 2.3 | 1.2 | 38.2 | 0 | 0 | 39.4 | 0 | 0 | 0 | 0 | 0 | |
| Cars | 0 | 309 | 2 | 0 | 311 | 3 | 0 | 6 | 0 | 9 | 4 | 192 | 0 | 0 | 196 | 0 | 0 | 0 | 0 | 0 | 516 |
| % Cars | 0 | 89 | 50 | 0 | 88.6 | 42.9 | 0 | 85.7 | 0 | 64.3 | 57.1 | 83.5 | 0 | 0 | 82.7 | 0 | 0 | 0 | 0 | 0 | 85.7 |
| Buses | 0 | 2 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 5 |
| % Buses | 0 | 0.6 | 0 | 0 | 0.6 | 28.6 | 0 | 0 | 0 | 14.3 | 0 | 0.4 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0.8 |
| Trucks | 0 | 36 | 2 | 0 | 38 | 2 | 0 | 1 | 0 | 3 | 3 | 37 | 0 | 0 | 40 | 0 | 0 | 0 | 0 | 0 | 81 |
| % Trucks | 0 | 10.4 | 50 | 0 | 10.8 | 28.6 | 0 | 14.3 | 0 | 21.4 | 42.9 | 16.1 | 0 | 0 | 16.9 | 0 | 0 | 0 | 0 | 0 | 13.5 |

# Genesee County Traffic Counts
# Turning Movement Count
# Weekday Morning Period

Fisher Associates P.E., L.S., P.C.
135 Calkins Road
Rochester, NY 14623
Phone: (585) 334-1310

File Name : #5 Rt 77 & Ham - AM
Site Code : 00333333
Start Date : 2/3/2010
Page No : 2

| | Route 77 Southbound Approach | | | | | Ham Road Westbound Approach | | | | | Route 77 Northbound Approach | | | | | Eastbound Approach | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:00 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:00 AM | 0 | 45 | 1 | 0 | 46 | 3 | 0 | 1 | 0 | 4 | 0 | 35 | 0 | 0 | 35 | 0 | 0 | 0 | 0 | 0 | 85 |
| 07:15 AM | 0 | 56 | 0 | 0 | 56 | 1 | 0 | 2 | 0 | 3 | 1 | 42 | 0 | 0 | 43 | 0 | 0 | 0 | 0 | 0 | 102 |
| 07:30 AM | 0 | 56 | 1 | 0 | 57 | 1 | 0 | 2 | 0 | 3 | 2 | 28 | 0 | 0 | 30 | 0 | 0 | 0 | 0 | 0 | 90 |
| 07:45 AM | 0 | 41 | 1 | 0 | 42 | 0 | 0 | 0 | 0 | 0 | 1 | 32 | 0 | 0 | 33 | 0 | 0 | 0 | 0 | 0 | 75 |
| Total Volume | 0 | 198 | 3 | 0 | 201 | 5 | 0 | 5 | 0 | 10 | 4 | 137 | 0 | 0 | 141 | 0 | 0 | 0 | 0 | 0 | 352 |
| % App. Total | 0 | 98.5 | 1.5 | 0 | | 50 | 0 | 50 | 0 | | 2.8 | 97.2 | 0 | 0 | | 0 | 0 | 0 | 0 | | |
| PHF | .000 | .884 | .750 | .000 | .882 | .417 | .000 | .625 | .000 | .625 | .500 | .815 | .000 | .000 | .820 | .000 | .000 | .000 | .000 | .000 | .863 |
| Cars | 0 | 187 | 1 | 0 | 188 | 3 | 0 | 4 | 0 | 7 | 2 | 118 | 0 | 0 | 120 | 0 | 0 | 0 | 0 | 0 | 315 |
| % Cars | 0 | 94.4 | 33.3 | 0 | 93.5 | 60.0 | 0 | 80.0 | 0 | 70.0 | 50.0 | 86.1 | 0 | 0 | 85.1 | 0 | 0 | 0 | 0 | 0 | 89.5 |
| Buses | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| % Buses | 0 | 0.5 | 0 | 0 | 0.5 | 20.0 | 0 | 0 | 0 | 10.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 |
| Trucks | 0 | 10 | 2 | 0 | 12 | 1 | 0 | 1 | 0 | 2 | 2 | 19 | 0 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 35 |
| % Trucks | 0 | 5.1 | 66.7 | 0 | 6.0 | 20.0 | 0 | 20.0 | 0 | 20.0 | 50.0 | 13.9 | 0 | 0 | 14.9 | 0 | 0 | 0 | 0 | 0 | 9.9 |



# Genesee County Traffic Counts
# Turning Movement Count
# Weekday Evening Period

Fisher Associates P.E., L.S., P.C.
135 Calkins Road
Rochester, NY 14623
Phone: (585) 334-1310

File Name : #5 Rt 77 & Ham - PM
Site Code : 03333331
Start Date : 2/3/2010
Page No : 1

**Groups Printed- Cars - Buses - Trucks**

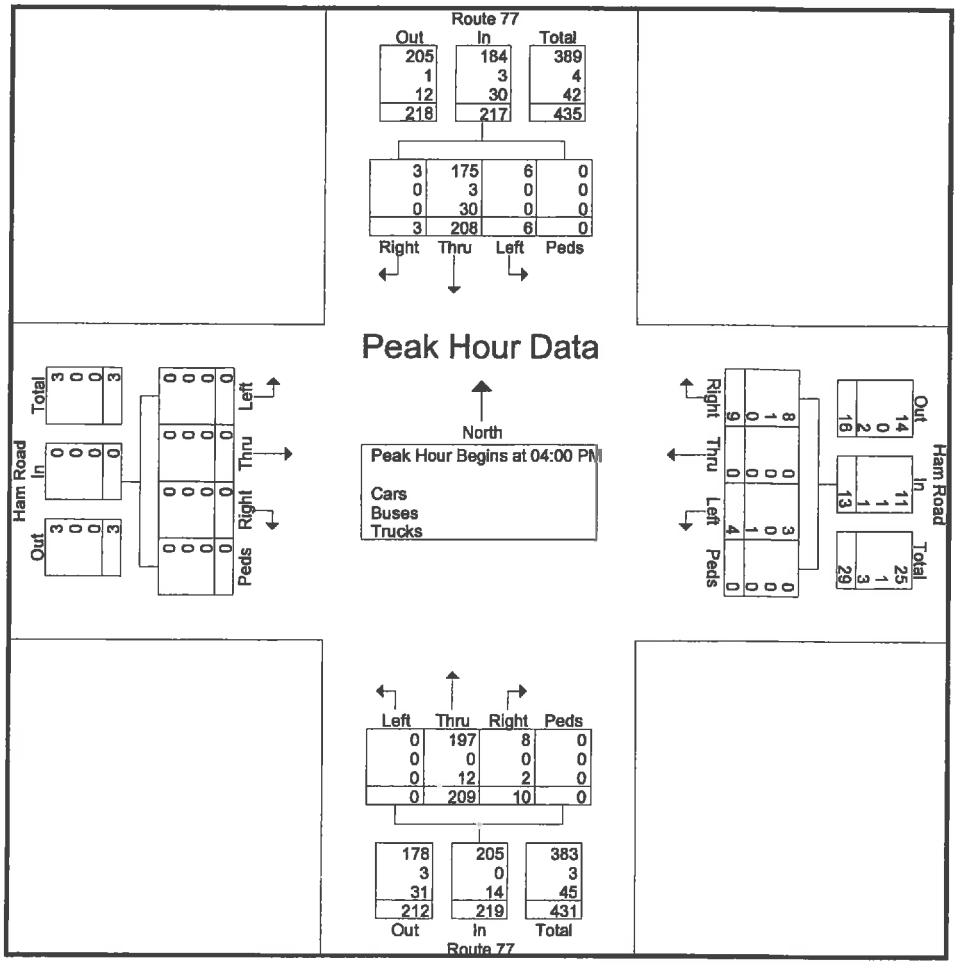
| | Route 77 Southbound Approach | | | | | Ham Road Westbound Approach | | | | | Route 77 Northbound Approach | | | | | Ham Road Eastbound Approach | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 04:00 PM | 3 | 58 | 2 | 0 | 63 | 6 | 0 | 4 | 0 | 10 | 2 | 46 | 0 | 0 | 48 | 0 | 0 | 0 | 0 | 0 | 121 |
| 04:15 PM | 0 | 46 | 1 | 0 | 47 | 1 | 0 | 0 | 0 | 1 | 6 | 56 | 0 | 0 | 62 | 0 | 0 | 0 | 0 | 0 | 110 |
| 04:30 PM | 0 | 63 | 0 | 0 | 63 | 1 | 0 | 0 | 0 | 1 | 1 | 59 | 0 | 0 | 60 | 0 | 0 | 0 | 0 | 0 | 124 |
| 04:45 PM | 0 | 41 | 3 | 0 | 44 | 1 | 0 | 0 | 0 | 1 | 1 | 48 | 0 | 0 | 49 | 0 | 0 | 0 | 0 | 0 | 94 |
| Total | 3 | 208 | 6 | 0 | 217 | 9 | 0 | 4 | 0 | 13 | 10 | 209 | 0 | 0 | 219 | 0 | 0 | 0 | 0 | 0 | 449 |
| 05:00 PM | 0 | 54 | 1 | 0 | 55 | 0 | 0 | 1 | 0 | 1 | 1 | 49 | 0 | 0 | 50 | 0 | 0 | 0 | 0 | 0 | 106 |
| 05:15 PM | 0 | 41 | 1 | 0 | 42 | 1 | 0 | 1 | 0 | 2 | 0 | 54 | 0 | 0 | 54 | 0 | 0 | 0 | 0 | 0 | 98 |
| 05:30 PM | 0 | 47 | 1 | 0 | 48 | 1 | 0 | 0 | 0 | 1 | 2 | 50 | 0 | 0 | 52 | 0 | 0 | 0 | 0 | 0 | 101 |
| 05:45 PM | 0 | 40 | 0 | 0 | 40 | 1 | 0 | 0 | 0 | 1 | 1 | 41 | 0 | 0 | 42 | 0 | 0 | 0 | 0 | 0 | 83 |
| Total | 0 | 182 | 3 | 0 | 185 | 3 | 0 | 2 | 0 | 5 | 4 | 194 | 0 | 0 | 198 | 0 | 0 | 0 | 0 | 0 | 388 |
| Grand Total | 3 | 390 | 9 | 0 | 402 | 12 | 0 | 6 | 0 | 18 | 14 | 403 | 0 | 0 | 417 | 0 | 0 | 0 | 0 | 0 | 837 |
| Apprch % | 0.7 | 97 | 2.2 | 0 | | 66.7 | 0 | 33.3 | 0 | | 3.4 | 96.6 | 0 | 0 | | 0 | 0 | 0 | 0 | | |
| Total % | 0.4 | 46.6 | 1.1 | 0 | 48 | 1.4 | 0 | 0.7 | 0 | 2.2 | 1.7 | 48.1 | 0 | 0 | 49.8 | 0 | 0 | 0 | 0 | 0 | |
| Cars | 3 | 341 | 9 | 0 | 353 | 11 | 0 | 5 | 0 | 16 | 11 | 376 | 0 | 0 | 387 | 0 | 0 | 0 | 0 | 0 | 756 |
| % Cars | 100 | 87.4 | 100 | 0 | 87.8 | 91.7 | 0 | 83.3 | 0 | 88.9 | 78.6 | 93.3 | 0 | 0 | 92.8 | 0 | 0 | 0 | 0 | 0 | 90.3 |
| Buses | 0 | 3 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| % Buses | 0 | 0.8 | 0 | 0 | 0.7 | 8.3 | 0 | 0 | 0 | 5.6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.5 |
| Trucks | 0 | 46 | 0 | 0 | 46 | 0 | 0 | 1 | 0 | 1 | 3 | 27 | 0 | 0 | 30 | 0 | 0 | 0 | 0 | 0 | 77 |
| % Trucks | 0 | 11.8 | 0 | 0 | 11.4 | 0 | 0 | 16.7 | 0 | 5.6 | 21.4 | 6.7 | 0 | 0 | 7.2 | 0 | 0 | 0 | 0 | 0 | 9.2 |

# Genesee County Traffic Counts
# Turning Movement Count
# Weekday Evening Period

Fisher Associates P.E., L.S., P.C.
135 Calkins Road
Rochester, NY 14623
Phone: (585) 334-1310

File Name : #5 Rt 77 & Ham - PM
Site Code : 03333331
Start Date : 2/3/2010


| | Route 77 Southbound Approach | | | | | Ham Road Westbound Approach | | | | | Route 77 Northbound Approach | | | | | Ham Road Eastbound Approach | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:00 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:00 PM | 3 | 58 | 2 | 0 | 63 | 6 | 0 | 4 | 0 | 10 | 2 | 46 | 0 | 0 | 48 | 0 | 0 | 0 | 0 | 0 | 121 |
| 04:15 PM | 0 | 46 | 1 | 0 | 47 | 1 | 0 | 0 | 0 | 1 | 6 | 56 | 0 | 0 | 62 | 0 | 0 | 0 | 0 | 0 | 110 |
| 04:30 PM | 0 | 63 | 0 | 0 | 63 | 1 | 0 | 0 | 0 | 1 | 1 | 59 | 0 | 0 | 60 | 0 | 0 | 0 | 0 | 0 | 124 |
| 04:45 PM | 0 | 41 | 3 | 0 | 44 | 1 | 0 | 0 | 0 | 1 | 1 | 48 | 0 | 0 | 49 | 0 | 0 | 0 | 0 | 0 | 94 |
| Total Volume | 3 | 208 | 6 | 0 | 217 | 9 | 0 | 4 | 0 | 13 | 10 | 209 | 0 | 0 | 219 | 0 | 0 | 0 | 0 | 0 | 449 |
| % App. Total | 1.4 | 95.9 | 2.8 | 0 | | 69.2 | 0 | 30.8 | 0 | | 4.6 | 95.4 | 0 | 0 | | 0 | 0 | 0 | 0 | | |
| PHF | .250 | .825 | .500 | .000 | .861 | .375 | .000 | .250 | .000 | .325 | .417 | .886 | .000 | .000 | .883 | .000 | .000 | .000 | .000 | .000 | .905 |
| Cars | 3 | 175 | 6 | 0 | 184 | 8 | 0 | 3 | 0 | 11 | 8 | 197 | 0 | 0 | 205 | 0 | 0 | 0 | 0 | 0 | 400 |
| % Cars | 100 | 84.1 | 100 | 0 | 84.8 | 88.9 | 0 | 75.0 | 0 | 84.6 | 80.0 | 94.3 | 0 | 0 | 93.6 | 0 | 0 | 0 | 0 | 0 | 89.1 |
| Buses | 0 | 3 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| % Buses | 0 | 1.4 | 0 | 0 | 1.4 | 11.1 | 0 | 0 | 0 | 7.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.9 |
| Trucks | 0 | 30 | 0 | 0 | 30 | 0 | 0 | 1 | 0 | 1 | 2 | 12 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 45 |
| % Trucks | 0 | 14.4 | 0 | 0 | 13.8 | 0 | 0 | 25.0 | 0 | 7.7 | 20.0 | 5.7 | 0 | 0 | 6.4 | 0 | 0 | 0 | 0 | 0 | 10.0 |



# Genesee County Traffic Counts
# Turning Movement Count
# Weekday Morning Period

Fisher Associates P.E., L.S., P.C.
135 Calkins Road
Rochester, NY 14623
Phone: (585) 334-1310

File Name : #4 Rt 77 & Judge - AM
Site Code : 00044444
Start Date : 2/4/2010
Page No : 1

Groups Printed- Cars - Buses - Trucks

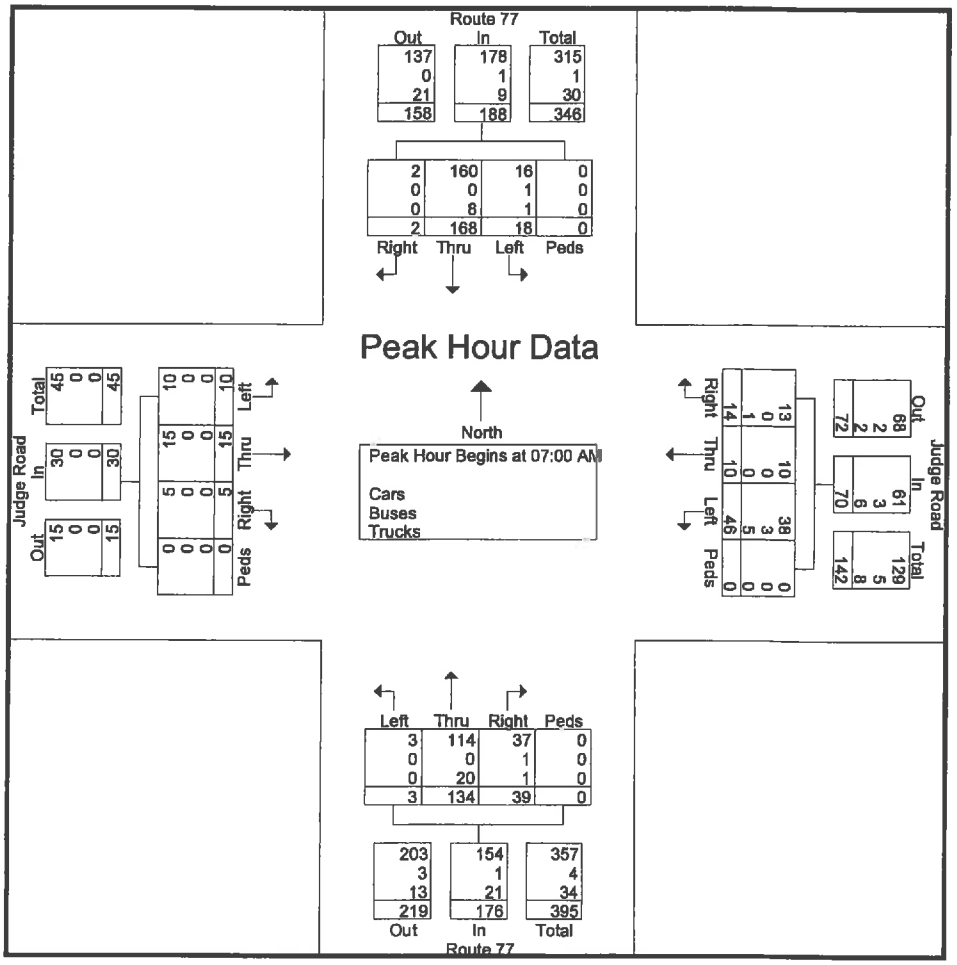
| | Route 77 Southbound Approach | | | | | Judge Road Westbound Approach | | | | | Route 77 Northbound Approach | | | | | Judge Road Eastbound Approach | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 0 | 26 | 3 | 0 | 29 | 1 | 1 | 10 | 0 | 12 | 7 | 34 | 1 | 0 | 42 | 2 | 3 | 4 | 0 | 9 | 92 |
| 07:15 AM | 0 | 54 | 10 | 0 | 64 | 4 | 4 | 12 | 0 | 20 | 12 | 36 | 0 | 0 | 48 | 2 | 3 | 3 | 0 | 8 | 140 |
| 07:30 AM | 1 | 41 | 3 | 0 | 45 | 3 | 2 | 13 | 0 | 18 | 11 | 36 | 1 | 0 | 48 | 1 | 6 | 2 | 0 | 9 | 120 |
| 07:45 AM | 1 | 47 | 2 | 0 | 50 | 6 | 3 | 11 | 0 | 20 | 9 | 28 | 1 | 0 | 38 | 0 | 3 | 1 | 0 | 4 | 112 |
| Total | 2 | 168 | 18 | 0 | 188 | 14 | 10 | 46 | 0 | 70 | 39 | 134 | 3 | 0 | 176 | 5 | 15 | 10 | 0 | 30 | 464 |
| 08:00 AM | 0 | 27 | 2 | 0 | 29 | 5 | 3 | 1 | 0 | 9 | 4 | 23 | 0 | 0 | 27 | 0 | 1 | 1 | 0 | 2 | 67 |
| 08:15 AM | 3 | 28 | 5 | 0 | 36 | 3 | 1 | 2 | 0 | 6 | 4 | 24 | 0 | 0 | 28 | 2 | 2 | 1 | 0 | 5 | 75 |
| 08:30 AM | 2 | 34 | 4 | 0 | 40 | 0 | 4 | 6 | 0 | 10 | 6 | 18 | 0 | 0 | 24 | 0 | 6 | 1 | 0 | 7 | 81 |
| 08:45 AM | 0 | 32 | 6 | 0 | 38 | 3 | 6 | 7 | 0 | 16 | 2 | 14 | 0 | 0 | 16 | 0 | 4 | 0 | 0 | 4 | 74 |
| Total | 5 | 121 | 17 | 0 | 143 | 11 | 14 | 16 | 0 | 41 | 16 | 79 | 0 | 0 | 95 | 2 | 13 | 3 | 0 | 18 | 297 |
| Grand Total | 7 | 289 | 35 | 0 | 331 | 25 | 24 | 62 | 0 | 111 | 55 | 213 | 3 | 0 | 271 | 7 | 28 | 13 | 0 | 48 | 761 |
| Apprch % | 2.1 | 87.3 | 10.6 | 0 | | 22.5 | 21.6 | 55.9 | 0 | | 20.3 | 78.6 | 1.1 | 0 | | 14.6 | 58.3 | 27.1 | 0 | | |
| Total % | 0.9 | 38 | 4.6 | 0 | 43.5 | 3.3 | 3.2 | 8.1 | 0 | 14.6 | 7.2 | 28 | 0.4 | 0 | 35.6 | 0.9 | 3.7 | 1.7 | 0 | 6.3 | |
| Cars | 7 | 264 | 27 | 0 | 298 | 19 | 23 | 53 | 0 | 95 | 53 | 175 | 3 | 0 | 231 | 7 | 28 | 13 | 0 | 48 | 672 |
| % Cars | 100 | 91.3 | 77.1 | 0 | 90 | 76 | 95.8 | 85.5 | 0 | 85.6 | 96.4 | 82.2 | 100 | 0 | 85.2 | 100 | 100 | 100 | 0 | 100 | 88.3 |
| Buses | 0 | 1 | 2 | 0 | 3 | 0 | 1 | 3 | 0 | 4 | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 9 |
| % Buses | 0 | 0.3 | 5.7 | 0 | 0.9 | 0 | 4.2 | 4.8 | 0 | 3.6 | 1.8 | 0.5 | 0 | 0 | 0.7 | 0 | 0 | 0 | 0 | 0 | 1.2 |
| Trucks | 0 | 24 | 6 | 0 | 30 | 6 | 0 | 6 | 0 | 12 | 1 | 37 | 0 | 0 | 38 | 0 | 0 | 0 | 0 | 0 | 80 |
| % Trucks | 0 | 8.3 | 17.1 | 0 | 9.1 | 24 | 0 | 9.7 | 0 | 10.8 | 1.8 | 17.4 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 10.5 |

# Genesee County Traffic Counts
# Turning Movement Count
# Weekday Morning Period

Fisher Associates P.E., L.S., P.C.
135 Calkins Road
Rochester, NY 14623
Phone: (585) 334-1310

File Name : #4 Rt 77 & Judge - AM
Site Code : 00044444
Start Date : 2/4/2010
Page No : 2

| | Route 77 Southbound Approach | | | | | Judge Road Westbound Approach | | | | | Route 77 Northbound Approach | | | | | Judge Road Eastbound Approach | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:00 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:00 AM | 0 | 26 | 3 | 0 | 29 | 1 | 1 | 10 | 0 | 12 | 7 | 34 | 1 | 0 | 42 | 2 | 3 | 4 | 0 | 9 | 92 |
| 07:15 AM | 0 | 54 | 10 | 0 | 64 | 4 | 4 | 12 | 0 | 20 | 12 | 36 | 0 | 0 | 48 | 2 | 3 | 3 | 0 | 8 | 140 |
| 07:30 AM | 1 | 41 | 3 | 0 | 45 | 3 | 2 | 13 | 0 | 18 | 11 | 36 | 1 | 0 | 48 | 1 | 6 | 2 | 0 | 9 | 120 |
| 07:45 AM | 1 | 47 | 2 | 0 | 50 | 6 | 3 | 11 | 0 | 20 | 9 | 28 | 1 | 0 | 38 | 0 | 3 | 1 | 0 | 4 | 112 |
| Total Volume | 2 | 168 | 18 | 0 | 188 | 14 | 10 | 46 | 0 | 70 | 39 | 134 | 3 | 0 | 176 | 5 | 15 | 10 | 0 | 30 | 464 |
| % App. Total | 1.1 | 89.4 | 9.6 | 0 | | 20 | 14.3 | 65.7 | 0 | | 22.2 | 76.1 | 1.7 | 0 | | 16.7 | 50 | 33.3 | 0 | | |
| PHF | .500 | .778 | .450 | .000 | .734 | .583 | .625 | .885 | .000 | .875 | .813 | .931 | .750 | .000 | .917 | .625 | .625 | .625 | .000 | .833 | .829 |
| Cars | 2 | 160 | 16 | 0 | 178 | 13 | 10 | 38 | 0 | 61 | 37 | 114 | 3 | 0 | 154 | 5 | 15 | 10 | 0 | 30 | 423 |
| % Cars | 100 | 95.2 | 88.9 | 0 | 94.7 | 92.9 | 100 | 82.6 | 0 | 87.1 | 94.9 | 85.1 | 100 | 0 | 87.5 | 100 | 100 | 100 | 0 | 100 | 91.2 |
| Buses | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 3 | 0 | 3 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 5 |
| % Buses | 0 | 0 | 5.6 | 0 | 0.5 | 0 | 0 | 6.5 | 0 | 4.3 | 2.6 | 0 | 0 | 0 | 0.6 | 0 | 0 | 0 | 0 | 0 | 1.1 |
| Trucks | 0 | 8 | 1 | 0 | 9 | 1 | 0 | 5 | 0 | 6 | 1 | 20 | 0 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 36 |
| % Trucks | 0 | 4.8 | 5.6 | 0 | 4.8 | 7.1 | 0 | 10.9 | 0 | 8.6 | 2.6 | 14.9 | 0 | 0 | 11.9 | 0 | 0 | 0 | 0 | 0 | 7.8 |



# Genesee County Traffic Counts
# Turning Movement Count
# Weekday Evening Period

Fisher Associates P.E., L.S., P.C.
135 Calkins Road
Rochester, NY 14623
Phone: (585) 334-1310

File Name : #4 Rt 77 & Judge - PM
Site Code : 00000444
Start Date : 2/4/2010
Page No : 1

**Groups Printed- Cars - Buses - Trucks**

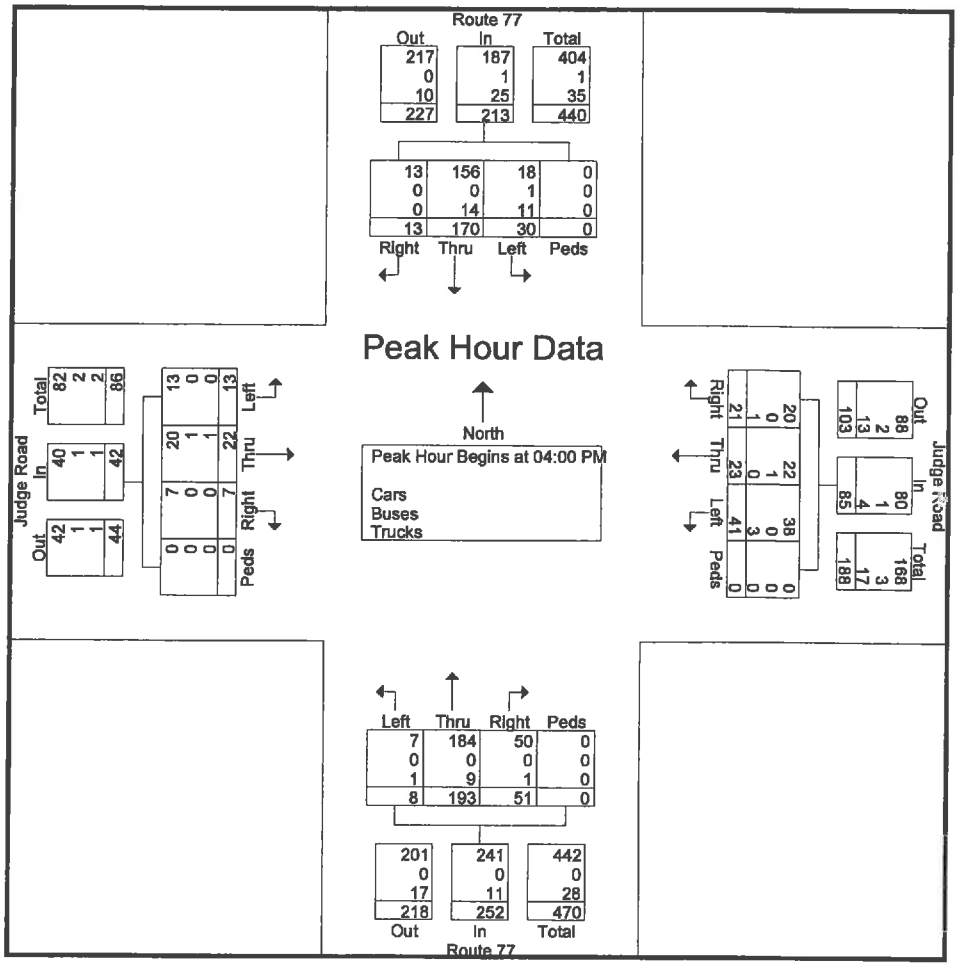
| | Route 77 Southbound Approach | | | | | Judge Road Westbound Approach | | | | | Route 77 Northbound Approach | | | | | Judge Road Eastbound Approach | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 04:00 PM | 2 | 46 | 8 | 0 | 56 | 8 | 11 | 15 | 0 | 34 | 17 | 43 | 1 | 0 | 61 | 3 | 6 | 4 | 0 | 13 | 164 |
| 04:15 PM | 3 | 38 | 9 | 0 | 50 | 5 | 3 | 10 | 0 | 18 | 11 | 50 | 5 | 0 | 66 | 0 | 7 | 6 | 0 | 13 | 147 |
| 04:30 PM | 4 | 46 | 11 | 0 | 61 | 5 | 4 | 7 | 0 | 16 | 17 | 50 | 1 | 0 | 68 | 3 | 3 | 0 | 0 | 6 | 151 |
| 04:45 PM | 4 | 40 | 2 | 0 | 46 | 3 | 5 | 9 | 0 | 17 | 6 | 50 | 1 | 0 | 57 | 1 | 6 | 3 | 0 | 10 | 130 |
| Total | 13 | 170 | 30 | 0 | 213 | 21 | 23 | 41 | 0 | 85 | 51 | 193 | 8 | 0 | 252 | 7 | 22 | 13 | 0 | 42 | 592 |
| 05:00 PM | 4 | 35 | 4 | 0 | 43 | 4 | 2 | 15 | 0 | 21 | 14 | 54 | 2 | 0 | 70 | 0 | 3 | 1 | 0 | 4 | 138 |
| 05:15 PM | 2 | 36 | 7 | 0 | 45 | 9 | 6 | 11 | 0 | 26 | 14 | 36 | 0 | 0 | 50 | 0 | 5 | 2 | 0 | 7 | 128 |
| 05:30 PM | 5 | 31 | 5 | 0 | 41 | 7 | 2 | 10 | 0 | 19 | 18 | 48 | 3 | 0 | 69 | 1 | 1 | 4 | 0 | 6 | 135 |
| 05:45 PM | 1 | 34 | 5 | 0 | 40 | 5 | 0 | 12 | 0 | 17 | 9 | 42 | 0 | 0 | 51 | 1 | 3 | 1 | 0 | 5 | 113 |
| Total | 12 | 136 | 21 | 0 | 169 | 25 | 10 | 48 | 0 | 83 | 55 | 180 | 5 | 0 | 240 | 2 | 12 | 8 | 0 | 22 | 514 |
| Grand Total | 25 | 306 | 51 | 0 | 382 | 46 | 33 | 89 | 0 | 168 | 106 | 373 | 13 | 0 | 492 | 9 | 34 | 21 | 0 | 64 | 1106 |
| Apprch % | 6.5 | 80.1 | 13.4 | 0 | | 27.4 | 19.6 | 53 | 0 | | 21.5 | 75.8 | 2.6 | 0 | | 14.1 | 53.1 | 32.8 | 0 | | |
| Total % | 2.3 | 27.7 | 4.6 | 0 | 34.5 | 4.2 | 3 | 8 | 0 | 15.2 | 9.6 | 33.7 | 1.2 | 0 | 44.5 | 0.8 | 3.1 | 1.9 | 0 | 5.8 | |
| Cars | 25 | 281 | 36 | 0 | 342 | 43 | 32 | 84 | 0 | 159 | 103 | 356 | 12 | 0 | 471 | 9 | 32 | 21 | 0 | 62 | 1034 |
| % Cars | 100 | 91.8 | 70.6 | 0 | 89.5 | 93.5 | 97 | 94.4 | 0 | 94.6 | 97.2 | 95.4 | 92.3 | 0 | 95.7 | 100 | 94.1 | 100 | 0 | 96.9 | 93.5 |
| Buses | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 3 |
| % Buses | 0 | 0 | 2 | 0 | 0.3 | 0 | 3 | 0 | 0 | 0.6 | 0 | 0 | 0 | 0 | 0 | 0 | 2.9 | 0 | 0 | 1.6 | 0.3 |
| Trucks | 0 | 25 | 14 | 0 | 39 | 3 | 0 | 5 | 0 | 8 | 3 | 17 | 1 | 0 | 21 | 0 | 1 | 0 | 0 | 1 | 69 |
| % Trucks | 0 | 8.2 | 27.5 | 0 | 10.2 | 6.5 | 0 | 5.6 | 0 | 4.8 | 2.8 | 4.6 | 7.7 | 0 | 4.3 | 0 | 2.9 | 0 | 0 | 1.6 | 6.2 |

# Genesee County Traffic Counts
# Turning Movement Count
# Weekday Evening Period

Fisher Associates P.E., L.S., P.C.
135 Calkins Road
Rochester, NY 14623
Phone: (585) 334-1310

File Name : #4 Rt 77 & Judge - PM
Site Code : 00000444
Start Date : 2/4/2010
Page No : 2

| | Route 77 Southbound Approach | | | | | Judge Road Westbound Approach | | | | | Route 77 Northbound Approach | | | | | Judge Road Eastbound Approach | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:00 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:00 PM | 2 | 46 | 8 | 0 | 56 | 8 | 11 | 15 | 0 | 34 | 17 | 43 | 1 | 0 | 61 | 3 | 6 | 4 | 0 | 13 | 164 |
| 04:15 PM | 3 | 38 | 9 | 0 | 50 | 5 | 3 | 10 | 0 | 18 | 11 | 50 | 5 | 0 | 66 | 0 | 7 | 6 | 0 | 13 | 147 |
| 04:30 PM | 4 | 46 | 11 | 0 | 61 | 5 | 4 | 7 | 0 | 16 | 17 | 50 | 1 | 0 | 68 | 3 | 3 | 0 | 0 | 6 | 151 |
| 04:45 PM | 4 | 40 | 2 | 0 | 46 | 3 | 5 | 9 | 0 | 17 | 6 | 50 | 1 | 0 | 57 | 1 | 6 | 3 | 0 | 10 | 130 |
| Total Volume | 13 | 170 | 30 | 0 | 213 | 21 | 23 | 41 | 0 | 85 | 51 | 193 | 8 | 0 | 252 | 7 | 22 | 13 | 0 | 42 | 592 |
| % App. Total | 6.1 | 79.8 | 14.1 | 0 | | 24.7 | 27.1 | 48.2 | 0 | | 20.2 | 76.6 | 3.2 | 0 | | 16.7 | 52.4 | 31 | 0 | | |
| PHF | .813 | .924 | .682 | .000 | .873 | .656 | .523 | .683 | .000 | .625 | .750 | .965 | .400 | .000 | .926 | .583 | .786 | .542 | .000 | .808 | .902 |
| Cars | 13 | 156 | 18 | 0 | 187 | 20 | 22 | 38 | 0 | 80 | 50 | 184 | 7 | 0 | 241 | 7 | 20 | 13 | 0 | 40 | 548 |
| % Cars | 100 | 91.8 | 60.0 | 0 | 87.8 | 95.2 | 95.7 | 92.7 | 0 | 94.1 | 98.0 | 95.3 | 87.5 | 0 | 95.6 | 100 | 90.9 | 100 | 0 | 95.2 | 92.6 |
| Buses | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 3 |
| % Buses | 0 | 0 | 3.3 | 0 | 0.5 | 0 | 4.3 | 0 | 0 | 1.2 | 0 | 0 | 0 | 0 | 0 | 0 | 4.5 | 0 | 0 | 2.4 | 0.5 |
| Trucks | 0 | 14 | 11 | 0 | 25 | 1 | 0 | 3 | 0 | 4 | 1 | 9 | 1 | 0 | 11 | 0 | 1 | 0 | 0 | 1 | 41 |
| % Trucks | 0 | 8.2 | 36.7 | 0 | 11.7 | 4.8 | 0 | 7.3 | 0 | 4.7 | 2.0 | 4.7 | 12.5 | 0 | 4.4 | 0 | 4.5 | 0 | 0 | 2.4 | 6.9 |



Project: 110-021
Counted By: HMM
Location: Medina, NY
Other:

File Name : 0002 am
Site Code : 00000002
Start Date : 11/10/2010
Page No : 1

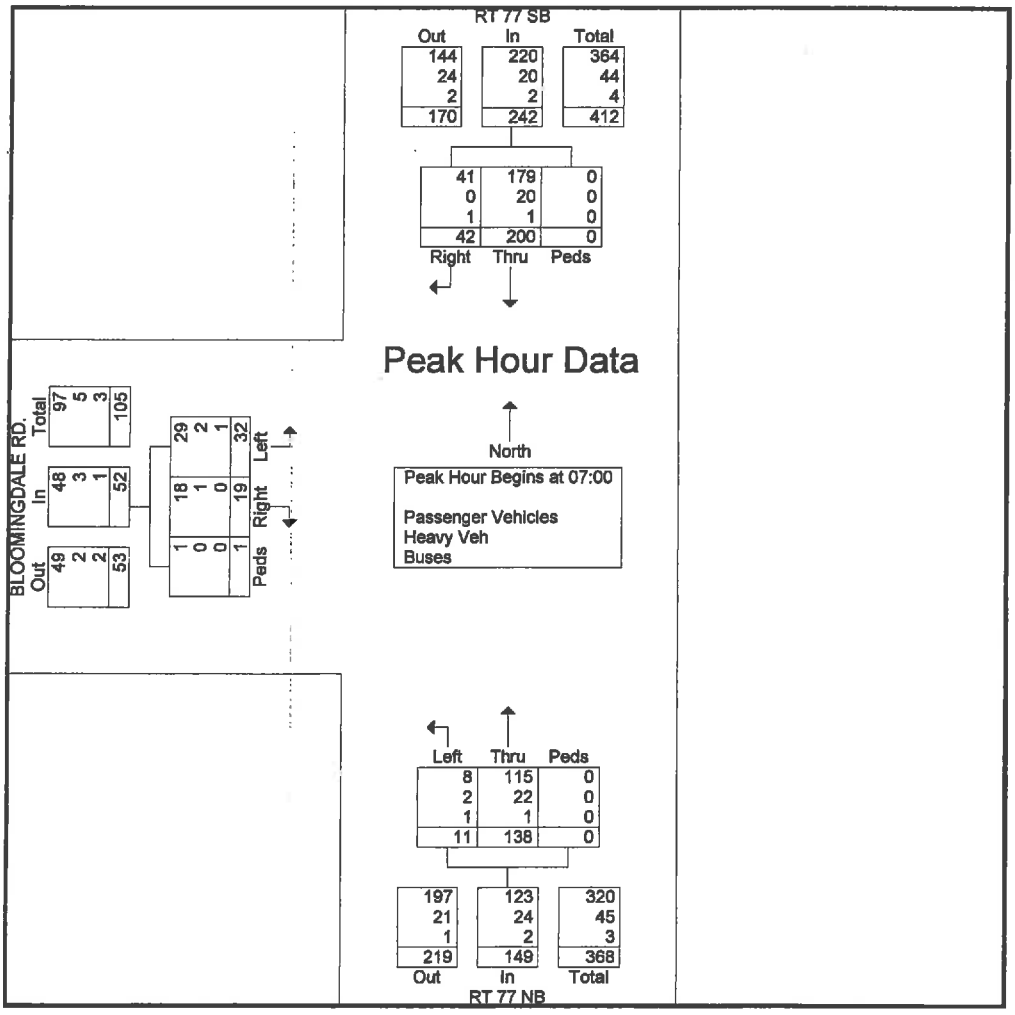
Groups Printed- Passenger Vehicles - Heavy Veh - Buses

| | BLOOMINGDALE RD. Eastbound | | | | RT 77 NB Northbound | | | | RT 77 SB Southbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Right | Peds | App. Total | Left | Thru | Peds | App. Total | Thru | Right | Peds | App. Total | Int. Total |
| Factor | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | | |
| 07:00 | 7 | 5 | 0 | 12 | 2 | 38 | 0 | 40 | 40 | 10 | 0 | 50 | 102 |
| 07:15 | 9 | 4 | 1 | 14 | 2 | 28 | 0 | 30 | 48 | 9 | 0 | 57 | 101 |
| 07:30 | 8 | 6 | 0 | 14 | 6 | 41 | 0 | 47 | 64 | 10 | 0 | 74 | 135 |
| 07:45 | 8 | 4 | 0 | 12 | 1 | 31 | 0 | 32 | 48 | 13 | 0 | 61 | 105 |
| Total | 32 | 19 | 1 | 52 | 11 | 138 | 0 | 149 | 200 | 42 | 0 | 242 | 443 |
| 08:00 | 13 | 4 | 0 | 17 | 6 | 30 | 0 | 36 | 29 | 13 | 0 | 42 | 95 |
| 08:15 | 12 | 5 | 1 | 18 | 2 | 18 | 0 | 20 | 37 | 16 | 0 | 53 | 91 |
| 08:30 | 17 | 2 | 0 | 19 | 2 | 21 | 0 | 23 | 21 | 10 | 0 | 31 | 73 |
| 08:45 | 7 | 2 | 0 | 9 | 4 | 37 | 0 | 41 | 32 | 20 | 0 | 52 | 102 |
| Total | 49 | 13 | 1 | 63 | 14 | 106 | 0 | 120 | 119 | 59 | 0 | 178 | 361 |
| Grand Total | 81 | 32 | 2 | 115 | 25 | 244 | 0 | 269 | 319 | 101 | 0 | 420 | 804 |
| Apprch % | 70.4 | 27.8 | 1.7 | | 9.3 | 90.7 | 0 | | 76 | 24 | 0 | | |
| Total % | 10.1 | 4 | 0.2 | 14.3 | 3.1 | 30.3 | 0 | 33.5 | 39.7 | 12.6 | 0 | 52.2 | |
| Passenger Vehicles | 75 | 29 | 2 | 106 | 20 | 201 | 0 | 221 | 271 | 97 | 0 | 368 | 695 |
| % Passenger Vehicles | 92.6 | 90.6 | 100 | 92.2 | 80 | 82.4 | 0 | 82.2 | 85 | 96 | 0 | 87.6 | 86.4 |
| Heavy Veh | 4 | 3 | 0 | 7 | 3 | 41 | 0 | 44 | 47 | 2 | 0 | 49 | 100 |
| % Heavy Veh | 4.9 | 9.4 | 0 | 6.1 | 12 | 16.8 | 0 | 16.4 | 14.7 | 2 | 0 | 11.7 | 12.4 |
| Buses | 2 | 0 | 0 | 2 | 2 | 2 | 0 | 4 | 1 | 2 | 0 | 3 | 9 |
| % Buses | 2.5 | 0 | 0 | 1.7 | 8 | 0.8 | 0 | 1.5 | 0.3 | 2 | 0 | 0.7 | 1.1 |

Project: 110-021
Counted By: HMM
Location: Medina, NY
Other:

File Name : 0002 am
Site Code : 00000002
Start Date : 11/10/2010
Page No : 2

| | BLOOMINGDALE RD. Eastbound | | | | RT 77 NB Northbound | | | | RT 77 SB Southbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Right | Peds | App. Total | Left | Thru | Peds | App. Total | Thru | Right | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1 | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:00 | | | | | | | | | | | | | |
| 07:00 | 7 | 5 | 0 | 12 | 2 | 38 | 0 | 40 | 40 | 10 | 0 | 50 | 102 |
| 07:15 | 9 | 4 | 1 | 14 | 2 | 28 | 0 | 30 | 48 | 9 | 0 | 57 | 101 |
| 07:30 | 8 | 6 | 0 | 14 | 6 | 41 | 0 | 47 | 64 | 10 | 0 | 74 | 135 |
| 07:45 | 8 | 4 | 0 | 12 | 1 | 31 | 0 | 32 | 48 | 13 | 0 | 61 | 105 |
| Total Volume | 32 | 19 | 1 | 52 | 11 | 138 | 0 | 149 | 200 | 42 | 0 | 242 | 443 |
| % App. Total | 61.5 | 36.5 | 1.9 | | 7.4 | 92.6 | 0 | | 82.6 | 17.4 | 0 | | |
| PHF | .889 | .792 | .250 | .929 | .458 | .841 | .000 | .793 | .781 | .808 | .000 | .818 | .820 |
| Passenger Vehicles | 29 | 18 | 1 | 48 | 8 | 115 | 0 | 123 | 179 | 41 | 0 | 220 | 391 |
| % Passenger Vehicles | 90.6 | 94.7 | 100 | 92.3 | 72.7 | 83.3 | 0 | 82.6 | 89.5 | 97.6 | 0 | 90.9 | 88.3 |
| Heavy Veh | 2 | 1 | 0 | 3 | 2 | 22 | 0 | 24 | 20 | 0 | 0 | 20 | 47 |
| % Heavy Veh | 6.3 | 5.3 | 0 | 5.8 | 18.2 | 15.9 | 0 | 16.1 | 10.0 | 0 | 0 | 8.3 | 10.6 |
| Buses | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 2 | 1 | 1 | 0 | 2 | 5 |
| % Buses | 3.1 | 0 | 0 | 1.9 | 9.1 | 0.7 | 0 | 1.3 | 0.5 | 2.4 | 0 | 0.8 | 1.1 |



Project: 110-021
Counted By: HMM
Location: Medina, NY
Other:

File Name : 0002 pm
Site Code : 00000002
Start Date : 11/10/2010
Page No : 1

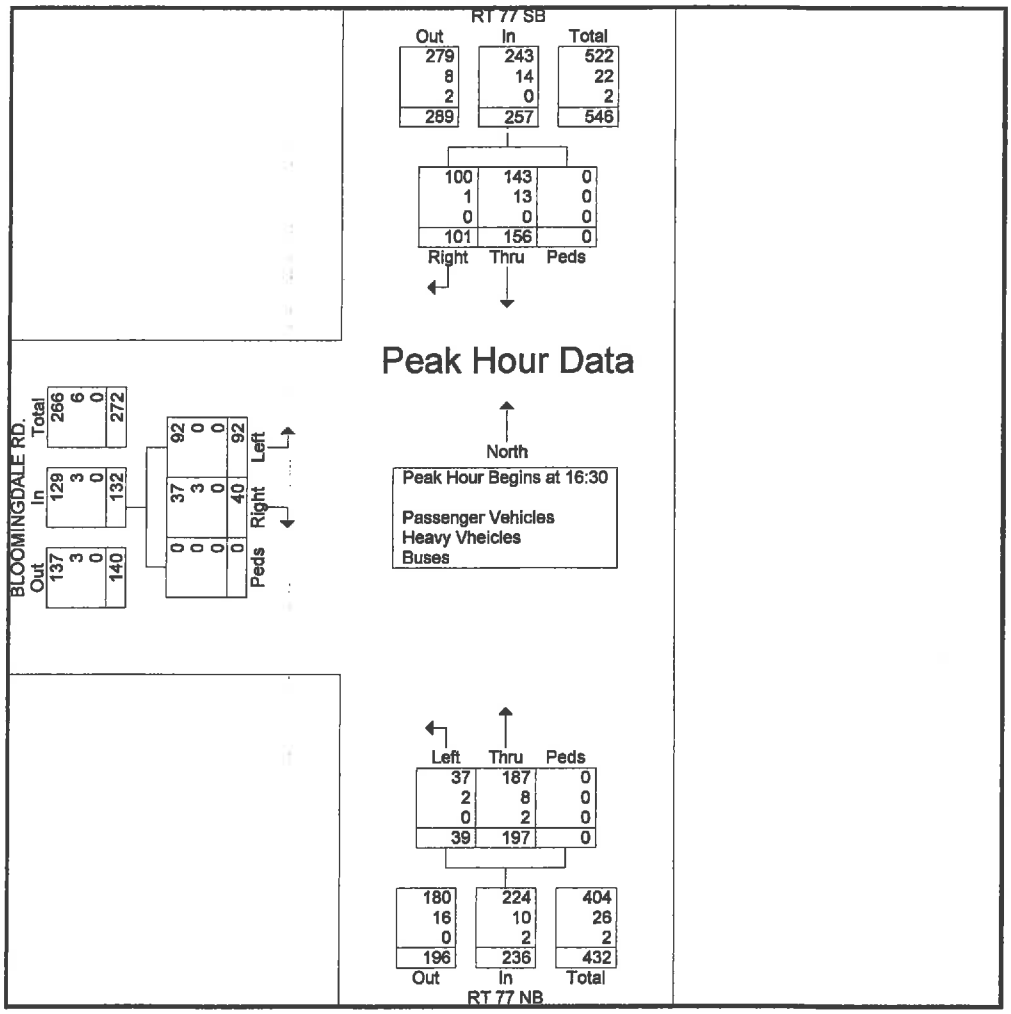
Groups Printed- Passenger Vehicles - Heavy Vheicles - Buses

| | BLOOMINGDALE RD. Eastbound | | | | RT 77 NB Northbound | | | | RT 77 SB Southbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Right | Peds | App. Total | Left | Thru | Peds | App. Total | Thru | Right | Peds | App. Total | Int. Total |
| Factor | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | | |
| 16:00 | 21 | 8 | 0 | 29 | 10 | 48 | 0 | 58 | 37 | 28 | 0 | 65 | 152 |
| 16:15 | 26 | 8 | 0 | 34 | 10 | 30 | 0 | 40 | 37 | 23 | 0 | 60 | 134 |
| 16:30 | 23 | 11 | 0 | 34 | 12 | 56 | 0 | 68 | 30 | 16 | 0 | 46 | 148 |
| 16:45 | 16 | 10 | 0 | 26 | 12 | 41 | 0 | 53 | 45 | 20 | 0 | 65 | 144 |
| Total | 86 | 37 | 0 | 123 | 44 | 175 | 0 | 219 | 149 | 87 | 0 | 236 | 578 |
| 17:00 | 24 | 12 | 0 | 36 | 6 | 43 | 0 | 49 | 33 | 33 | 0 | 66 | 151 |
| 17:15 | 29 | 7 | 0 | 36 | 9 | 57 | 0 | 66 | 48 | 32 | 0 | 80 | 182 |
| 17:30 | 27 | 10 | 0 | 37 | 9 | 26 | 0 | 35 | 23 | 22 | 0 | 45 | 117 |
| 17:45 | 25 | 5 | 0 | 30 | 11 | 40 | 0 | 51 | 28 | 16 | 0 | 44 | 125 |
| Total | 105 | 34 | 0 | 139 | 35 | 166 | 0 | 201 | 132 | 103 | 0 | 235 | 575 |
| Grand Total | 191 | 71 | 0 | 262 | 79 | 341 | 0 | 420 | 281 | 190 | 0 | 471 | 1153 |
| Apprch % | 72.9 | 27.1 | 0 | | 18.8 | 81.2 | 0 | | 59.7 | 40.3 | 0 | | |
| Total % | 16.6 | 6.2 | 0 | 22.7 | 6.9 | 29.6 | 0 | 36.4 | 24.4 | 16.5 | 0 | 40.8 | |
| Passenger Vehicles | 190 | 68 | 0 | 258 | 77 | 323 | 0 | 400 | 254 | 186 | 0 | 440 | 1098 |
| % Passenger Vehicles | 99.5 | 95.8 | 0 | 98.5 | 97.5 | 94.7 | 0 | 95.2 | 90.4 | 97.9 | 0 | 93.4 | 95.2 |
| Heavy Vheicles | 1 | 3 | 0 | 4 | 2 | 15 | 0 | 17 | 26 | 3 | 0 | 29 | 50 |
| % Heavy Vheicles | 0.5 | 4.2 | 0 | 1.5 | 2.5 | 4.4 | 0 | 4 | 9.3 | 1.6 | 0 | 6.2 | 4.3 |
| Buses | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 1 | 1 | 0 | 2 | 5 |
| % Buses | 0 | 0 | 0 | 0 | 0 | 0.9 | 0 | 0.7 | 0.4 | 0.5 | 0 | 0.4 | 0.4 |

Project: 110-021
Counted By: HMM
Location: Medina, NY
Other:

File Name : 0002 pm
Site Code : 00000002
Start Date : 11/10/2010
Page No : 2

| | BLOOMINGDALE RD. Eastbound | | | | RT 77 NB Northbound | | | | RT 77 SB Southbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Right | Peds | App. Total | Left | Thru | Peds | App. Total | Thru | Right | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1 | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 16:30 | | | | | | | | | | | | | |
| 16:30 | 23 | 11 | 0 | 34 | **12** | 56 | 0 | **68** | 30 | 16 | 0 | 46 | 148 |
| 16:45 | 16 | 10 | 0 | 26 | 12 | 41 | 0 | 53 | 45 | 20 | 0 | 65 | 144 |
| 17:00 | 24 | **12** | 0 | **36** | 6 | 43 | 0 | 49 | 33 | **33** | 0 | 66 | 151 |
| 17:15 | **29** | 7 | 0 | 36 | 9 | **57** | 0 | 66 | **48** | 32 | 0 | **80** | **182** |
| Total Volume | 92 | 40 | 0 | 132 | 39 | 197 | 0 | 236 | 156 | 101 | 0 | 257 | 625 |
| % App. Total | 69.7 | 30.3 | 0 | | 16.5 | 83.5 | 0 | | 60.7 | 39.3 | 0 | | |
| PHF | .793 | .833 | .000 | .917 | .813 | .864 | .000 | .868 | .813 | .765 | .000 | .803 | .859 |
| Passenger Vehicles | 92 | 37 | 0 | 129 | 37 | 187 | 0 | 224 | 143 | 100 | 0 | 243 | 596 |
| % Passenger Vehicles | 100 | 92.5 | 0 | 97.7 | 94.9 | 94.9 | 0 | 94.9 | 91.7 | 99.0 | 0 | 94.6 | 95.4 |
| Heavy Vheicles | 0 | 3 | 0 | 3 | 2 | 8 | 0 | 10 | 13 | 1 | 0 | 14 | 27 |
| % Heavy Vheicles | 0 | 7.5 | 0 | 2.3 | 5.1 | 4.1 | 0 | 4.2 | 8.3 | 1.0 | 0 | 5.4 | 4.3 |
| Buses | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 2 |
| % Buses | 0 | 0 | 0 | 0 | 0 | 1.0 | 0 | 0.8 | 0 | 0 | 0 | 0 | 0.3 |



# Genesee County Traffic Counts
# Turning Movement Count
# Weekday Morning Period

Fisher Associates P.E., L.S., P.C.
135 Calkins Road
Rochester, NY 14623
Phone: (585) 334-1310

File Name : #3 Rt 77 & Ledge - AM
Site Code : 00666666
Start Date : 2/4/2010
Page No : 1

Groups Printed- Cars - Buses - Trucks

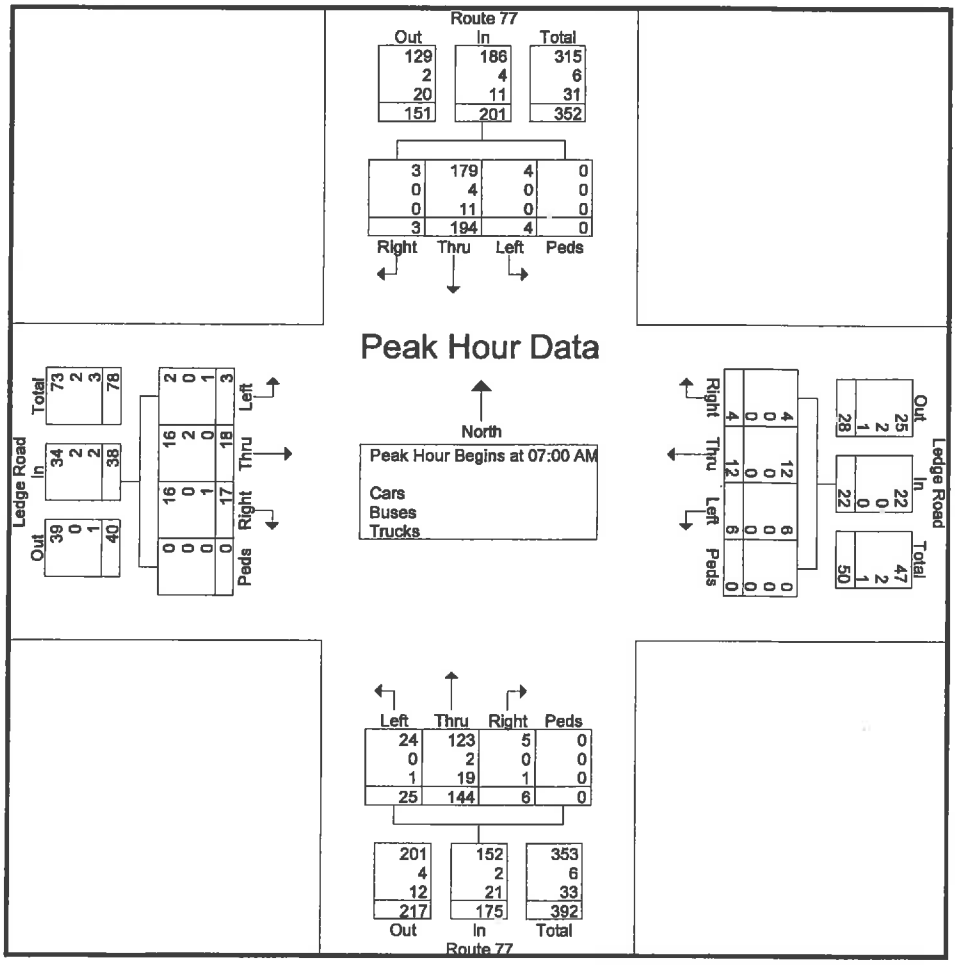
| | Route 77 Southbound Approach | | | | | Ledge Road Westbound Approach | | | | | Route 77 Northbound Approach | | | | | Ledge Road Eastbound Approach | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 1 | 36 | 1 | 0 | 38 | 0 | 2 | 1 | 0 | 3 | 0 | 32 | 4 | 0 | 36 | 3 | 4 | 2 | 0 | 9 | 86 |
| 07:15 AM | 2 | 56 | 1 | 0 | 59 | 1 | 6 | 1 | 0 | 8 | 1 | 45 | 5 | 0 | 51 | 5 | 1 | 0 | 0 | 6 | 124 |
| 07:30 AM | 0 | 59 | 1 | 0 | 60 | 2 | 2 | 3 | 0 | 7 | 2 | 32 | 8 | 0 | 42 | 4 | 10 | 1 | 0 | 15 | 124 |
| 07:45 AM | 0 | 43 | 1 | 0 | 44 | 1 | 2 | 1 | 0 | 4 | 3 | 35 | 8 | 0 | 46 | 5 | 3 | 0 | 0 | 8 | 102 |
| Total | 3 | 194 | 4 | 0 | 201 | 4 | 12 | 6 | 0 | 22 | 6 | 144 | 25 | 0 | 175 | 17 | 18 | 3 | 0 | 38 | 436 |
| 08:00 AM | 0 | 32 | 1 | 0 | 33 | 0 | 4 | 0 | 0 | 4 | 0 | 23 | 10 | 0 | 33 | 6 | 2 | 1 | 0 | 9 | 79 |
| 08:15 AM | 1 | 27 | 2 | 0 | 30 | 2 | 3 | 3 | 0 | 8 | 0 | 23 | 5 | 0 | 28 | 9 | 5 | 0 | 0 | 14 | 80 |
| 08:30 AM | 2 | 43 | 0 | 0 | 45 | 0 | 3 | 1 | 0 | 4 | 1 | 23 | 7 | 0 | 31 | 10 | 2 | 1 | 0 | 13 | 93 |
| 08:45 AM | 1 | 35 | 1 | 0 | 37 | 1 | 1 | 0 | 0 | 2 | 0 | 12 | 9 | 0 | 21 | 6 | 4 | 2 | 0 | 12 | 72 |
| Total | 4 | 137 | 4 | 0 | 145 | 3 | 11 | 4 | 0 | 18 | 1 | 81 | 31 | 0 | 113 | 31 | 13 | 4 | 0 | 48 | 324 |
| Grand Total | 7 | 331 | 8 | 0 | 346 | 7 | 23 | 10 | 0 | 40 | 7 | 225 | 56 | 0 | 288 | 48 | 31 | 7 | 0 | 86 | 760 |
| Apprch % | 2 | 95.7 | 2.3 | 0 | | 17.5 | 57.5 | 25 | 0 | | 2.4 | 78.1 | 19.4 | 0 | | 55.8 | 36 | 8.1 | 0 | | |
| Total % | 0.9 | 43.6 | 1.1 | 0 | 45.5 | 0.9 | 3 | 1.3 | 0 | 5.3 | 0.9 | 29.6 | 7.4 | 0 | 37.9 | 6.3 | 4.1 | 0.9 | 0 | 11.3 | |
| Cars | 7 | 298 | 8 | 0 | 313 | 7 | 23 | 10 | 0 | 40 | 6 | 181 | 53 | 0 | 240 | 47 | 28 | 6 | 0 | 81 | 674 |
| % Cars | 100 | 90 | 100 | 0 | 90.5 | 100 | 100 | 100 | 0 | 100 | 85.7 | 80.4 | 94.6 | 0 | 83.3 | 97.9 | 90.3 | 85.7 | 0 | 94.2 | 88.7 |
| Buses | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 3 | 0 | 0 | 3 | 10 |
| % Buses | 0 | 1.2 | 0 | 0 | 1.2 | 0 | 0 | 0 | 0 | 0 | 0 | 1.3 | 0 | 0 | 1 | 0 | 9.7 | 0 | 0 | 3.5 | 1.3 |
| Trucks | 0 | 29 | 0 | 0 | 29 | 0 | 0 | 0 | 0 | 0 | 1 | 41 | 3 | 0 | 45 | 1 | 0 | 1 | 0 | 2 | 76 |
| % Trucks | 0 | 8.8 | 0 | 0 | 8.4 | 0 | 0 | 0 | 0 | 0 | 14.3 | 18.2 | 5.4 | 0 | 15.6 | 2.1 | 0 | 14.3 | 0 | 2.3 | 10 |

# Genesee County Traffic Counts
# Turning Movement Count
# Weekday Morning Period

Fisher Associates P.E., L.S., P.C.
135 Calkins Road
Rochester, NY 14623
Phone: (585) 334-1310

File Name : #3 Rt 77 & Ledge - AM
Site Code : 00666666
Start Date : 2/4/2010


| | Route 77 Southbound Approach | | | | | Ledge Road Westbound Approach | | | | | Route 77 Northbound Approach | | | | | Ledge Road Eastbound Approach | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:00 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:00 AM | 1 | 36 | 1 | 0 | 38 | 0 | 2 | 1 | 0 | 3 | 0 | 32 | 4 | 0 | 36 | 3 | 4 | 2 | 0 | 9 | 86 |
| 07:15 AM | 2 | 56 | 1 | 0 | 59 | 1 | 6 | 1 | 0 | 8 | 1 | 45 | 5 | 0 | 51 | 5 | 1 | 0 | 0 | 6 | 124 |
| 07:30 AM | 0 | 59 | 1 | 0 | 60 | 2 | 2 | 3 | 0 | 7 | 2 | 32 | 8 | 0 | 42 | 4 | 10 | 1 | 0 | 15 | 124 |
| 07:45 AM | 0 | 43 | 1 | 0 | 44 | 1 | 2 | 1 | 0 | 4 | 3 | 35 | 8 | 0 | 46 | 5 | 3 | 0 | 0 | 8 | 102 |
| Total Volume | 3 | 194 | 4 | 0 | 201 | 4 | 12 | 6 | 0 | 22 | 6 | 144 | 25 | 0 | 175 | 17 | 18 | 3 | 0 | 38 | 436 |
| % App. Total | 1.5 | 96.5 | 2 | 0 | | 18.2 | 54.5 | 27.3 | 0 | | 3.4 | 82.3 | 14.3 | 0 | | 44.7 | 47.4 | 7.9 | 0 | | |
| PHF | .375 | .822 | 1.000 | | .89 | | | | | .69 | | | | | .85 | | | | | .63 | |
| Cars | 3 | 179 | 4 | 0 | 186 | 4 | 12 | 6 | 0 | 22 | 5 | 123 | 24 | 0 | 152 | 16 | 16 | 2 | 0 | 34 | 394 |
| % Cars | 100 | 92.3 | 100 | 0 | 92.5 | 100 | 100 | 100 | 0 | 100 | 83.3 | 85.4 | 96.0 | 0 | 86.9 | 94.1 | 88.9 | 66.7 | 0 | 89.5 | 90.4 |
| Buses | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 2 | 8 |
| % Buses | 0 | 2.1 | 0 | 0 | 2.0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.4 | 0 | 0 | 1.1 | 0 | 11.1 | 0 | 0 | 5.3 | 1.8 |
| Trucks | 0 | 11 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 1 | 19 | 1 | 0 | 21 | 1 | 0 | 1 | 0 | 2 | 34 |
| % Trucks | 0 | 5.7 | 0 | 0 | 5.5 | 0 | 0 | 0 | 0 | 0 | 16.7 | 13.2 | 4.0 | 0 | 12.0 | 5.9 | 0 | 33.3 | 0 | 5.3 | 7.8 |



# Genesee County Traffic Counts
# Turning Movement Count
# Weekday Evening Period

Fisher Associates P.E., L.S., P.C.
135 Calkins Road
Rochester, NY 14623
Phone: (585) 334-1310

File Name : #3 Rt 77 & Ledge - PM
Site Code : 06666662
Start Date : 2/4/2010
Page No : 1

Groups Printed- Cars - Buses - Trucks

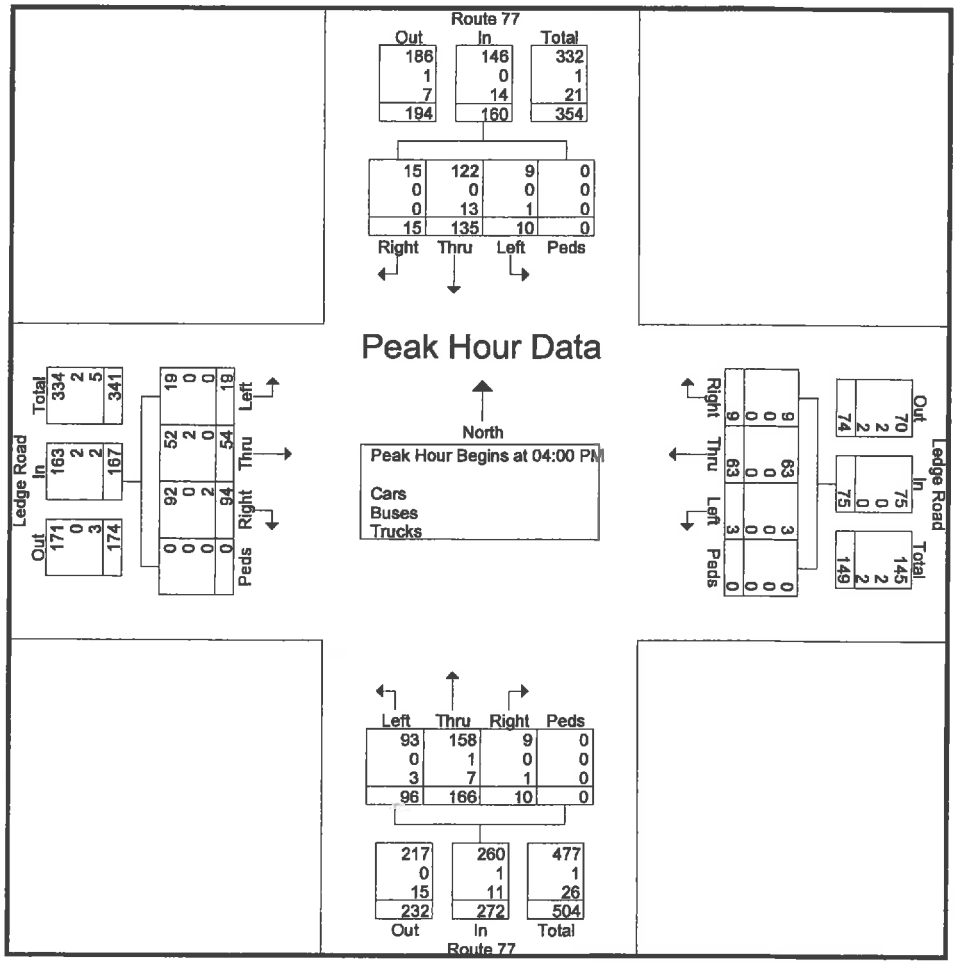
| | Route 77 Southbound Approach | | | | | Ledge Road Westbound Approach | | | | | Route 77 Northbound Approach | | | | | Ledge Road Eastbound Approach | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 04:00 PM | 4 | 34 | 2 | 0 | 40 | 5 | 20 | 2 | 0 | 27 | 3 | 41 | 20 | 0 | 64 | 27 | 9 | 1 | 0 | 37 | 168 |
| 04:15 PM | 4 | 34 | 5 | 0 | 43 | 1 | 12 | 0 | 0 | 13 | 2 | 41 | 27 | 0 | 70 | 25 | 13 | 7 | 0 | 45 | 171 |
| 04:30 PM | 3 | 33 | 2 | 0 | 38 | 2 | 15 | 1 | 0 | 18 | 2 | 49 | 19 | 0 | 70 | 20 | 19 | 5 | 0 | 44 | 170 |
| 04:45 PM | 4 | 34 | 1 | 0 | 39 | 1 | 16 | 0 | 0 | 17 | 3 | 35 | 30 | 0 | 68 | 22 | 13 | 6 | 0 | 41 | 165 |
| Total | 15 | 135 | 10 | 0 | 160 | 9 | 63 | 3 | 0 | 75 | 10 | 166 | 96 | 0 | 272 | 94 | 54 | 19 | 0 | 167 | 674 |
| 05:00 PM | 4 | 26 | 3 | 0 | 33 | 2 | 15 | 2 | 0 | 19 | 2 | 52 | 18 | 0 | 72 | 28 | 15 | 5 | 0 | 48 | 172 |
| 05:15 PM | 7 | 30 | 1 | 0 | 38 | 3 | 23 | 1 | 0 | 27 | 2 | 50 | 15 | 0 | 67 | 27 | 8 | 1 | 0 | 36 | 168 |
| 05:30 PM | 3 | 34 | 1 | 0 | 38 | 3 | 8 | 0 | 0 | 11 | 4 | 41 | 18 | 0 | 63 | 22 | 11 | 6 | 0 | 39 | 151 |
| 05:45 PM | 2 | 36 | 2 | 0 | 40 | 1 | 14 | 0 | 0 | 15 | 1 | 34 | 16 | 0 | 51 | 17 | 12 | 5 | 0 | 34 | 140 |
| Total | 16 | 126 | 7 | 0 | 149 | 9 | 60 | 3 | 0 | 72 | 9 | 177 | 67 | 0 | 253 | 94 | 46 | 17 | 0 | 157 | 631 |
| Grand Total | 31 | 261 | 17 | 0 | 309 | 18 | 123 | 6 | 0 | 147 | 19 | 343 | 163 | 0 | 525 | 188 | 100 | 36 | 0 | 324 | 1305 |
| Apprch % | 10 | 84.5 | 5.5 | 0 | | 12.2 | 83.7 | 4.1 | 0 | | 3.6 | 65.3 | 31 | 0 | | 58 | 30.9 | 11.1 | 0 | | |
| Total % | 2.4 | 20 | 1.3 | 0 | 23.7 | 1.4 | 9.4 | 0.5 | 0 | 11.3 | 1.5 | 26.3 | 12.5 | 0 | 40.2 | 14.4 | 7.7 | 2.8 | 0 | 24.8 | |
| Cars | 31 | 240 | 16 | 0 | 287 | 18 | 123 | 6 | 0 | 147 | 18 | 329 | 158 | 0 | 505 | 184 | 98 | 36 | 0 | 318 | 1257 |
| % Cars | 100 | 92 | 94.1 | 0 | 92.9 | 100 | 100 | 100 | 0 | 100 | 94.7 | 95.9 | 96.9 | 0 | 96.2 | 97.9 | 98 | 100 | 0 | 98.1 | 96.3 |
| Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 2 | 3 |
| % Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.3 | 0 | 0 | 0.2 | 0 | 2 | 0 | 0 | 0.6 | 0.2 |
| Trucks | 0 | 21 | 1 | 0 | 22 | 0 | 0 | 0 | 0 | 0 | 1 | 13 | 5 | 0 | 19 | 4 | 0 | 0 | 0 | 4 | 45 |
| % Trucks | 0 | 8 | 5.9 | 0 | 7.1 | 0 | 0 | 0 | 0 | 0 | 5.3 | 3.8 | 3.1 | 0 | 3.6 | 2.1 | 0 | 0 | 0 | 1.2 | 3.4 |

# Genesee County Traffic Counts
# Turning Movement Count
# Weekday Evening Period

Fisher Associates P.E., L.S., P.C.
135 Calkins Road
Rochester, NY 14623
Phone: (585) 334-1310

File Name : #3 Rt 77 & Ledge - PM
Site Code : 06666662
Start Date : 2/4/2010
Page No : 2

| | Route 77 Southbound Approach | | | | | Ledge Road Westbound Approach | | | | | Route 77 Northbound Approach | | | | | Ledge Road Eastbound Approach | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:00 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:00 PM | 4 | 34 | 2 | 0 | 40 | 5 | 20 | 2 | 0 | 27 | 3 | 41 | 20 | 0 | 64 | 27 | 9 | 1 | 0 | 37 | 168 |
| 04:15 PM | 4 | 34 | 5 | 0 | 43 | 1 | 12 | 0 | 0 | 13 | 2 | 41 | 27 | 0 | 70 | 25 | 13 | 7 | 0 | 45 | 171 |
| 04:30 PM | 3 | 33 | 2 | 0 | 38 | 2 | 15 | 1 | 0 | 18 | 2 | 49 | 19 | 0 | 70 | 20 | 19 | 5 | 0 | 44 | 170 |
| 04:45 PM | 4 | 34 | 1 | 0 | 39 | 1 | 16 | 0 | 0 | 17 | 3 | 35 | 30 | 0 | 68 | 22 | 13 | 6 | 0 | 41 | 165 |
| Total Volume | 15 | 135 | 10 | 0 | 160 | 9 | 63 | 3 | 0 | 75 | 10 | 166 | 96 | 0 | 272 | 94 | 54 | 19 | 0 | 167 | 674 |
| % App. Total | 9.4 | 84.4 | 6.2 | 0 | | 12 | 84 | 4 | 0 | | 3.7 | 61 | 35.3 | 0 | | 56.3 | 32.3 | 11.4 | 0 | | |
| PHF | .938 | .993 | .500 | .000 | .930 | .450 | .788 | .375 | .000 | .694 | .833 | .847 | .800 | .000 | .971 | .870 | .711 | .679 | .000 | .928 | .985 |
| Cars | 15 | 122 | 9 | 0 | 146 | 9 | 63 | 3 | 0 | 75 | 9 | 158 | 93 | 0 | 260 | 92 | 52 | 19 | 0 | 163 | 644 |
| % Cars | 100 | 90.4 | 90.0 | 0 | 91.3 | 100 | 100 | 100 | 0 | 100 | 90.0 | 95.2 | 96.9 | 0 | 95.6 | 97.9 | 96.3 | 100 | 0 | 97.6 | 95.5 |
| Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 2 | 3 |
| % Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 | 0 | 0 | 0.4 | 0 | 3.7 | 0 | 0 | 1.2 | 0.4 |
| Trucks | 0 | 13 | 1 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 1 | 7 | 3 | 0 | 11 | 2 | 0 | 0 | 0 | 2 | 27 |
| % Trucks | 0 | 9.6 | 10.0 | 0 | 8.8 | 0 | 0 | 0 | 0 | 0 | 10.0 | 4.2 | 3.1 | 0 | 4.0 | 2.1 | 0 | 0 | 0 | 1.2 | 4.0 |



# Genesee Traffic Counts
# Turning Movement Count
# Weekday Morning Period

Fisher Associates P.E., L.S., P.C.
135 Calkins Road
Rochester, NY 14623
Phone: (585) 334-1310

File Name : #2 - Rt 77 & Akron - AM
Site Code : 00022222
Start Date : 2/10/2010
Page No : 1

**Groups Printed- Cars - Buses - Trucks**

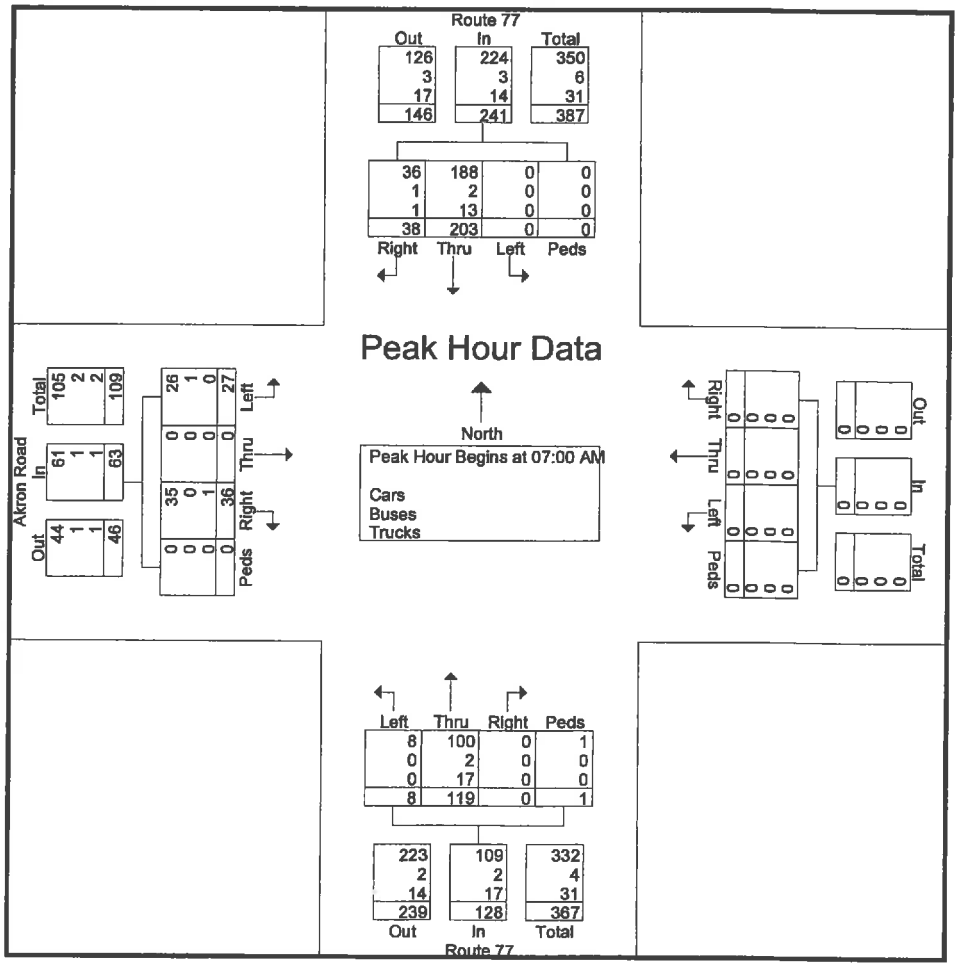
| | Route 77 Southbound Approach | | | | | Westbound Approach | | | | | Route 77 Northbound Approach | | | | | Akron Road Eastbound Approach | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 11 | 35 | 0 | 0 | 46 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 1 | 1 | 19 | 12 | 0 | 10 | 0 | 22 | 87 |
| 07:15 AM | 10 | 57 | 0 | 0 | 67 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 3 | 0 | 33 | 14 | 0 | 6 | 0 | 20 | 120 |
| 07:30 AM | 9 | 45 | 0 | 0 | 54 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 2 | 0 | 37 | 7 | 0 | 5 | 0 | 12 | 103 |
| 07:45 AM | 8 | 66 | 0 | 0 | 74 | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 2 | 0 | 39 | 3 | 0 | 6 | 0 | 9 | 122 |
| Total | 38 | 203 | 0 | 0 | 241 | 0 | 0 | 0 | 0 | 0 | 0 | 119 | 8 | 1 | 128 | 36 | 0 | 27 | 0 | 63 | 432 |
| 08:00 AM | 5 | 39 | 0 | 0 | 44 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 1 | 0 | 25 | 8 | 0 | 5 | 0 | 13 | 82 |
| 08:15 AM | 2 | 39 | 0 | 0 | 41 | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 2 | 0 | 24 | 7 | 0 | 2 | 0 | 9 | 74 |
| 08:30 AM | 2 | 31 | 0 | 1 | 34 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 0 | 0 | 19 | 7 | 0 | 0 | 1 | 8 | 61 |
| 08:45 AM | 2 | 38 | 0 | 0 | 40 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 2 | 0 | 22 | 3 | 0 | 5 | 0 | 8 | 70 |
| Total | 11 | 147 | 0 | 1 | 159 | 0 | 0 | 0 | 0 | 0 | 0 | 85 | 5 | 0 | 90 | 25 | 0 | 12 | 1 | 38 | 287 |
| Grand Total | 49 | 350 | 0 | 1 | 400 | 0 | 0 | 0 | 0 | 0 | 0 | 204 | 13 | 1 | 218 | 61 | 0 | 39 | 1 | 101 | 719 |
| Apprch % | 12.2 | 87.5 | 0 | 0.2 | | 0 | 0 | 0 | 0 | | 0 | 93.6 | 6 | 0.5 | | 60.4 | 0 | 38.6 | 1 | | |
| Total % | 6.8 | 48.7 | 0 | 0.1 | 55.6 | 0 | 0 | 0 | 0 | 0 | 0 | 28.4 | 1.8 | 0.1 | 30.3 | 8.5 | 0 | 5.4 | 0.1 | 14 | |
| Cars | 44 | 310 | 0 | 1 | 355 | 0 | 0 | 0 | 0 | 0 | 0 | 163 | 10 | 1 | 174 | 59 | 0 | 33 | 1 | 93 | 622 |
| % Cars | 89.8 | 88.6 | 0 | 100 | 88.8 | 0 | 0 | 0 | 0 | 0 | 0 | 79.9 | 76.9 | 100 | 79.8 | 96.7 | 0 | 84.6 | 100 | 92.1 | 86.5 |
| Buses | 2 | 5 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 4 | 0 | 0 | 1 | 0 | 1 | 12 |
| % Buses | 4.1 | 1.4 | 0 | 0 | 1.8 | 0 | 0 | 0 | 0 | 0 | 0 | 1.5 | 7.7 | 0 | 1.8 | 0 | 0 | 2.6 | 0 | 1 | 1.7 |
| Trucks | 3 | 35 | 0 | 0 | 38 | 0 | 0 | 0 | 0 | 0 | 0 | 38 | 2 | 0 | 40 | 2 | 0 | 5 | 0 | 7 | 85 |
| % Trucks | 6.1 | 10 | 0 | 0 | 9.5 | 0 | 0 | 0 | 0 | 0 | 0 | 18.6 | 15.4 | 0 | 18.3 | 3.3 | 0 | 12.8 | 0 | 6.9 | 11.8 |

# Genesee Traffic Counts
# Turning Movement Count
# Weekday Morning Period

Fisher Associates P.E., L.S., P.C.
135 Calkins Road
Rochester, NY 14623
Phone: (585) 334-1310

File Name : #2 - Rt 77 & Akron - AM
Site Code : 00022222
Start Date : 2/10/2010
Page No : 2

| | Route 77 Southbound Approach | | | | | Westbound Approach | | | | | Route 77 Northbound Approach | | | | | Akron Road Eastbound Approach | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:00 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:00 AM | 11 | 35 | 0 | 0 | 46 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 1 | 1 | 19 | 12 | 0 | 10 | 0 | 22 | 87 |
| 07:15 AM | 10 | 57 | 0 | 0 | 67 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 3 | 0 | 33 | 14 | 0 | 6 | 0 | 20 | 120 |
| 07:30 AM | 9 | 45 | 0 | 0 | 54 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 2 | 0 | 37 | 7 | 0 | 5 | 0 | 12 | 103 |
| 07:45 AM | 8 | 66 | 0 | 0 | 74 | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 2 | 0 | 39 | 3 | 0 | 6 | 0 | 9 | 122 |
| Total Volume | 38 | 203 | 0 | 0 | 241 | 0 | 0 | 0 | 0 | 0 | 0 | 119 | 8 | 1 | 128 | 36 | 0 | 27 | 0 | 63 | 432 |
| % App. Total | 15.8 | 84.2 | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | 93 | 6.2 | 0.8 | | 57.1 | 0 | 42.9 | 0 | | |
| PHF | .864 | .769 | .000 | .000 | .814 | .000 | .000 | .000 | .000 | .000 | .000 | .804 | .667 | .250 | .821 | .643 | .000 | .675 | .000 | .716 | .885 |
| Cars | 36 | 188 | 0 | 0 | 224 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 8 | 1 | 109 | 35 | 0 | 26 | 0 | 61 | 394 |
| % Cars | 94.7 | 92.6 | 0 | 0 | 92.9 | 0 | 0 | 0 | 0 | 0 | 0 | 84.0 | 100 | 100 | 85.2 | 97.2 | 0 | 96.3 | 0 | 96.8 | 91.2 |
| Buses | 1 | 2 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 1 | 6 |
| % Buses | 2.6 | 1.0 | 0 | 0 | 1.2 | 0 | 0 | 0 | 0 | 0 | 0 | 1.7 | 0 | 0 | 1.6 | 0 | 0 | 3.7 | 0 | 1.6 | 1.4 |
| Trucks | 1 | 13 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 0 | 0 | 17 | 1 | 0 | 0 | 0 | 1 | 32 |
| % Trucks | 2.6 | 6.4 | 0 | 0 | 5.8 | 0 | 0 | 0 | 0 | 0 | 0 | 14.3 | 0 | 0 | 13.3 | 2.8 | 0 | 0 | 0 | 1.6 | 7.4 |



# Genesee Traffic Counts
# Turning Movement Count
# Weekday Evening Period

Fisher Associates P.E., L.S., P.C.
135 Calkins Road
Rochester, NY 14623
Phone: (585) 334-1310

File Name : #2 - Rt 77 & Akron - PM
Site Code : 00000222
Start Date : 2/10/2010
Page No : 1

**Groups Printed- Cars - Buses - Trucks**

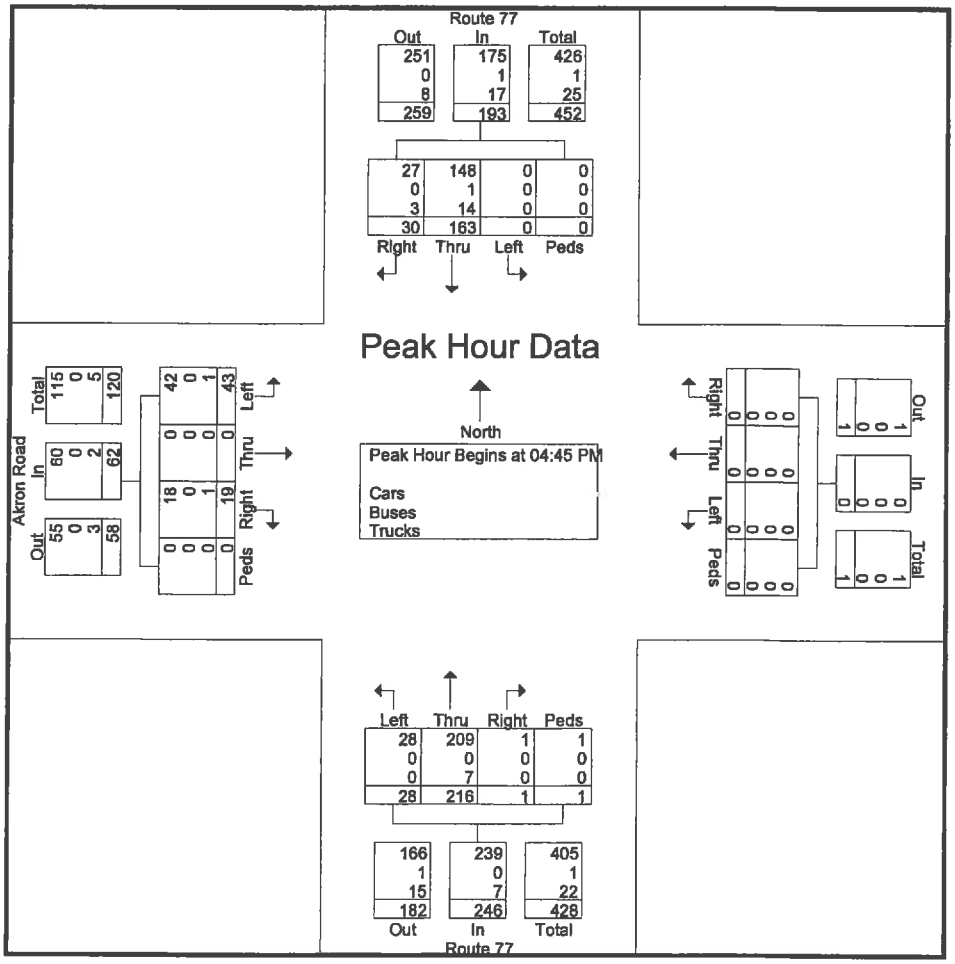
| | Route 77 Southbound Approach | | | | | Westbound Approach | | | | | Route 77 Northbound Approach | | | | | Akron Road Eastbound Approach | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 04:00 PM | 7 | 37 | 0 | 0 | 44 | 0 | 0 | 0 | 0 | 0 | 1 | 45 | 7 | 0 | 53 | 1 | 0 | 9 | 0 | 10 | 107 |
| 04:15 PM | 4 | 48 | 0 | 0 | 52 | 0 | 0 | 0 | 0 | 0 | 0 | 49 | 6 | 0 | 55 | 1 | 0 | 9 | 0 | 10 | 117 |
| 04:30 PM | 7 | 43 | 0 | 0 | 50 | 0 | 0 | 0 | 0 | 0 | 0 | 49 | 5 | 0 | 54 | 1 | 0 | 5 | 0 | 6 | 110 |
| 04:45 PM | 6 | 42 | 0 | 0 | 48 | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 6 | 0 | 56 | 4 | 0 | 13 | 0 | 17 | 121 |
| Total | 24 | 170 | 0 | 0 | 194 | 0 | 0 | 0 | 0 | 0 | 1 | 193 | 24 | 0 | 218 | 7 | 0 | 36 | 0 | 43 | 455 |
| 05:00 PM | 9 | 35 | 0 | 0 | 44 | 0 | 0 | 0 | 0 | 0 | 0 | 59 | 6 | 1 | 66 | 2 | 0 | 12 | 0 | 14 | 124 |
| 05:15 PM | 6 | 54 | 0 | 0 | 60 | 0 | 0 | 0 | 0 | 0 | 1 | 58 | 5 | 0 | 64 | 3 | 0 | 12 | 0 | 15 | 139 |
| 05:30 PM | 9 | 32 | 0 | 0 | 41 | 0 | 0 | 0 | 0 | 0 | 0 | 49 | 11 | 0 | 60 | 10 | 0 | 6 | 0 | 16 | 117 |
| 05:45 PM | 8 | 37 | 0 | 0 | 45 | 0 | 0 | 0 | 0 | 0 | 0 | 42 | 5 | 0 | 47 | 2 | 0 | 4 | 0 | 6 | 98 |
| Total | 32 | 158 | 0 | 0 | 190 | 0 | 0 | 0 | 0 | 0 | 1 | 208 | 27 | 1 | 237 | 17 | 0 | 34 | 0 | 51 | 478 |
| Grand Total | 56 | 328 | 0 | 0 | 384 | 0 | 0 | 0 | 0 | 0 | 2 | 401 | 51 | 1 | 455 | 24 | 0 | 70 | 0 | 94 | 933 |
| Apprch % | 14.6 | 85.4 | 0 | 0 | | 0 | 0 | 0 | 0 | | 0.4 | 88.1 | 11.2 | 0.2 | | 25.5 | 0 | 74.5 | 0 | | |
| Total % | 6 | 35.2 | 0 | 0 | 41.2 | 0 | 0 | 0 | 0 | 0 | 0.2 | 43 | 5.5 | 0.1 | 48.8 | 2.6 | 0 | 7.5 | 0 | 10.1 | |
| Cars | 53 | 299 | 0 | 0 | 352 | 0 | 0 | 0 | 0 | 0 | 2 | 387 | 50 | 1 | 440 | 21 | 0 | 67 | 0 | 88 | 880 |
| % Cars | 94.6 | 91.2 | 0 | 0 | 91.7 | 0 | 0 | 0 | 0 | 0 | 100 | 96.5 | 98 | 100 | 96.7 | 87.5 | 0 | 95.7 | 0 | 93.6 | 94.3 |
| Buses | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| % Buses | 0 | 0.3 | 0 | 0 | 0.3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 |
| Trucks | 3 | 28 | 0 | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 1 | 0 | 15 | 3 | 0 | 3 | 0 | 6 | 52 |
| % Trucks | 5.4 | 8.5 | 0 | 0 | 8.1 | 0 | 0 | 0 | 0 | 0 | 0 | 3.5 | 2 | 0 | 3.3 | 12.5 | 0 | 4.3 | 0 | 6.4 | 5.6 |

# Genesee Traffic Counts
# Turning Movement Count
# Weekday Evening Period

Fisher Associates P.E., L.S., P.C.
135 Calkins Road
Rochester, NY 14623
Phone: (585) 334-1310

File Name : #2 - Rt 77 & Akron - PM
Site Code : 00000222
Start Date : 2/10/2010


| | Route 77 Southbound Approach | | | | | Westbound Approach | | | | | Route 77 Northbound Approach | | | | | Akron Road Eastbound Approach | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:45 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:45 PM | 6 | 42 | 0 | 0 | 48 | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 6 | 0 | 56 | 4 | 0 | 13 | 0 | 17 | 121 |
| 05:00 PM | 9 | 35 | 0 | 0 | 44 | 0 | 0 | 0 | 0 | 0 | 0 | 59 | 6 | 1 | 66 | 2 | 0 | 12 | 0 | 14 | 124 |
| 05:15 PM | 6 | 54 | 0 | 0 | 60 | 0 | 0 | 0 | 0 | 0 | 1 | 58 | 5 | 0 | 64 | 3 | 0 | 12 | 0 | 15 | 139 |
| 05:30 PM | 9 | 32 | 0 | 0 | 41 | 0 | 0 | 0 | 0 | 0 | 0 | 49 | 11 | 0 | 60 | 10 | 0 | 6 | 0 | 16 | 117 |
| Total Volume | 30 | 163 | 0 | 0 | 193 | 0 | 0 | 0 | 0 | 0 | 1 | 216 | 28 | 1 | 246 | 19 | 0 | 43 | 0 | 62 | 501 |
| % App. Total | 15.5 | 84.5 | 0 | 0 | | 0 | 0 | 0 | 0 | | 0.4 | 87.8 | 11.4 | 0.4 | | 30.6 | 0 | 69.4 | 0 | | |
| PHF | .833 | .755 | .000 | .000 | .804 | .000 | .000 | .000 | .000 | .000 | .250 | .915 | .636 | .250 | .932 | .475 | .000 | .827 | .000 | .912 | .901 |
| Cars | 27 | 148 | 0 | 0 | 175 | 0 | 0 | 0 | 0 | 0 | 1 | 209 | 28 | 1 | 239 | 18 | 0 | 42 | 0 | 60 | 474 |
| % Cars | 90.0 | 90.8 | 0 | 0 | 90.7 | 0 | 0 | 0 | 0 | 0 | 100 | 96.8 | 100 | 100 | 97.2 | 94.7 | 0 | 97.7 | 0 | 96.8 | 94.6 |
| Buses | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| % Buses | 0 | 0.6 | 0 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.2 |
| Trucks | 3 | 14 | 0 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 7 | 1 | 0 | 1 | 0 | 2 | 26 |
| % Trucks | 10.0 | 8.6 | 0 | 0 | 8.8 | 0 | 0 | 0 | 0 | 0 | 0 | 3.2 | 0 | 0 | 2.8 | 5.3 | 0 | 2.3 | 0 | 3.2 | 5.2 |



# Genesee Traffic Counts
# Turning Movement Count
# Weekday Morning Period

Fisher Associates P.E., L.S., P.C.
135 Calkins Road
Rochester, NY 14623
Phone: (585) 334-1310

File Name : #1 Rt 77 & Exit 48 Ramp - AM
Site Code : 00165165
Start Date : 2/10/2010
Page No : 1

Groups Printed- Cars - Buses - Trucks

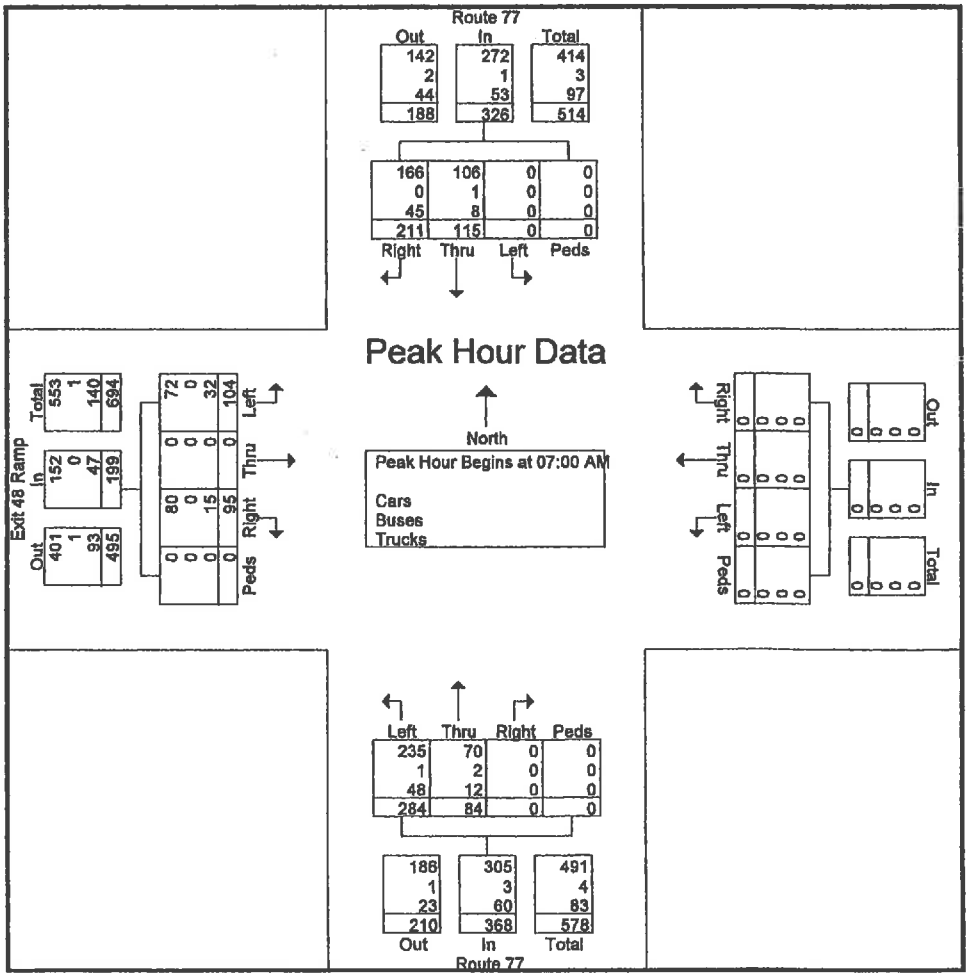
| | Route 77 Southbound Approach | | | | | Westbound Approach | | | | | Route 77 Northbound Approach | | | | | Exit 48 Ramp Eastbound Approach | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 45 | 19 | 0 | 0 | 64 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 60 | 0 | 80 | 21 | 0 | 19 | 0 | 40 | 184 |
| 07:15 AM | 55 | 33 | 0 | 0 | 88 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 77 | 0 | 89 | 24 | 0 | 27 | 0 | 51 | 228 |
| 07:30 AM | 55 | 35 | 0 | 0 | 90 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 82 | 0 | 106 | 24 | 0 | 30 | 0 | 54 | 250 |
| 07:45 AM | 56 | 28 | 0 | 0 | 84 | 0 | 0 | 0 | 0 | 0 | 0 | 28 | 65 | 0 | 93 | 26 | 0 | 28 | 0 | 54 | 231 |
| Total | 211 | 115 | 0 | 0 | 326 | 0 | 0 | 0 | 0 | 0 | 0 | 84 | 284 | 0 | 368 | 95 | 0 | 104 | 0 | 199 | 893 |
| 08:00 AM | 36 | 11 | 0 | 0 | 47 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 62 | 0 | 76 | 27 | 0 | 25 | 0 | 52 | 175 |
| 08:15 AM | 46 | 14 | 0 | 0 | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 55 | 1 | 66 | 24 | 0 | 17 | 0 | 41 | 167 |
| 08:30 AM | 27 | 11 | 0 | 0 | 38 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 44 | 0 | 57 | 23 | 0 | 17 | 0 | 40 | 135 |
| 08:45 AM | 37 | 19 | 1 | 0 | 57 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 29 | 0 | 43 | 27 | 0 | 17 | 0 | 44 | 144 |
| Total | 146 | 55 | 1 | 0 | 202 | 0 | 0 | 0 | 0 | 0 | 0 | 51 | 190 | 1 | 242 | 101 | 0 | 76 | 0 | 177 | 621 |
| Grand Total | 357 | 170 | 1 | 0 | 528 | 0 | 0 | 0 | 0 | 0 | 0 | 135 | 474 | 1 | 610 | 196 | 0 | 180 | 0 | 376 | 1514 |
| Apprch % | 67.6 | 32.2 | 0.2 | 0 | | 0 | 0 | 0 | 0 | | 0 | 22.1 | 77.7 | 0.2 | | 52.1 | 0 | 47.9 | 0 | | |
| Total % | 23.6 | 11.2 | 0.1 | 0 | 34.9 | 0 | 0 | 0 | 0 | 0 | 0 | 8.9 | 31.3 | 0.1 | 40.3 | 12.9 | 0 | 11.9 | 0 | 24.8 | |
| Cars | 276 | 151 | 0 | 0 | 427 | 0 | 0 | 0 | 0 | 0 | 0 | 114 | 388 | 1 | 503 | 155 | 0 | 118 | 0 | 273 | 1203 |
| % Cars | 77.3 | 88.8 | 0 | 0 | 80.9 | 0 | 0 | 0 | 0 | 0 | 0 | 84.4 | 81.9 | 100 | 82.5 | 79.1 | 0 | 65.6 | 0 | 72.6 | 79.5 |
| Buses | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 3 | 0 | 0 | 1 | 0 | 1 | 5 |
| % Buses | 0 | 0.6 | 0 | 0 | 0.2 | 0 | 0 | 0 | 0 | 0 | 0 | 1.5 | 0.2 | 0 | 0.5 | 0 | 0 | 0.6 | 0 | 0.3 | 0.3 |
| Trucks | 81 | 18 | 1 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 85 | 0 | 104 | 41 | 0 | 61 | 0 | 102 | 306 |
| Trucks | 22.7 | 10.6 | 100 | 0 | 18.9 | 0 | 0 | 0 | 0 | 0 | 0 | 14.1 | 17.9 | 0 | 17 | 20.9 | 0 | 33.9 | 0 | 27.1 | 20.2 |

# Genesee Traffic Counts
# Turning Movement Count
# Weekday Morning Period

Fisher Associates P.E., L.S., P.C.
135 Calkins Road
Rochester, NY 14623
Phone: (585) 334-1310

File Name : #1 Rt 77 & Exit 48 Ramp - AM
Site Code : 00165165
Start Date : 2/10/2010
Page No : 2

| | Route 77 Southbound Approach | | | | | Westbound Approach | | | | | Route 77 Northbound Approach | | | | | Exit 48 Ramp Eastbound Approach | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:00 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:00 AM | 45 | 19 | 0 | 0 | 64 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 60 | 0 | 80 | 21 | 0 | 19 | 0 | 40 | 184 |
| 07:15 AM | 55 | 33 | 0 | 0 | 88 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 77 | 0 | 89 | 24 | 0 | 27 | 0 | 51 | 228 |
| 07:30 AM | 55 | 35 | 0 | 0 | 90 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 82 | 0 | 106 | 24 | 0 | 30 | 0 | 54 | 250 |
| 07:45 AM | 56 | 28 | 0 | 0 | 84 | 0 | 0 | 0 | 0 | 0 | 0 | 28 | 65 | 0 | 93 | 26 | 0 | 28 | 0 | 54 | 231 |
| Total Volume | 211 | 115 | 0 | 0 | 326 | 0 | 0 | 0 | 0 | 0 | 0 | 84 | 284 | 0 | 368 | 95 | 0 | 104 | 0 | 199 | 893 |
| % App. Total | 64.7 | 35.3 | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | 22.8 | 77.2 | 0 | | 47.7 | 0 | 52.3 | 0 | | |
| PHF | .942 | .821 | .000 | .000 | .906 | .000 | .000 | .000 | .000 | .000 | .000 | .750 | .866 | .000 | .868 | .913 | .000 | .867 | .000 | .921 | .893 |
| Cars | 166 | 106 | 0 | 0 | 272 | 0 | 0 | 0 | 0 | 0 | 0 | 70 | 235 | 0 | 305 | 80 | 0 | 72 | 0 | 152 | 729 |
| % Cars | 78.7 | 92.2 | 0 | 0 | 83.4 | 0 | 0 | 0 | 0 | 0 | 0 | 83.3 | 82.7 | 0 | 82.9 | 84.2 | 0 | 69.2 | 0 | 76.4 | 81.6 |
| Buses | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 4 |
| % Buses | 0 | 0.9 | 0 | 0 | 0.3 | 0 | 0 | 0 | 0 | 0 | 0 | 2.4 | 0.4 | 0 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0.4 |
| Trucks | 45 | 8 | 0 | 0 | 53 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 48 | 0 | 60 | 15 | 0 | 32 | 0 | 47 | 160 |
| % Trucks | 21.3 | 7.0 | 0 | 0 | 16.3 | 0 | 0 | 0 | 0 | 0 | 0 | 14.3 | 16.9 | 0 | 16.3 | 15.8 | 0 | 30.8 | 0 | 23.6 | 17.9 |



# Genesee Traffic Counts
# Turning Movement Count
# Weekday Evening Period

Fisher Associates P.E., L.S., P.C.
135 Calkins Road
Rochester, NY 14623
Phone: (585) 334-1310

File Name : #1 Rt 77 & Exit 48 Ramp - PM
Site Code : 01651652
Start Date : 2/10/2010
Page No : 1

**Groups Printed- Cars - Buses - Trucks**

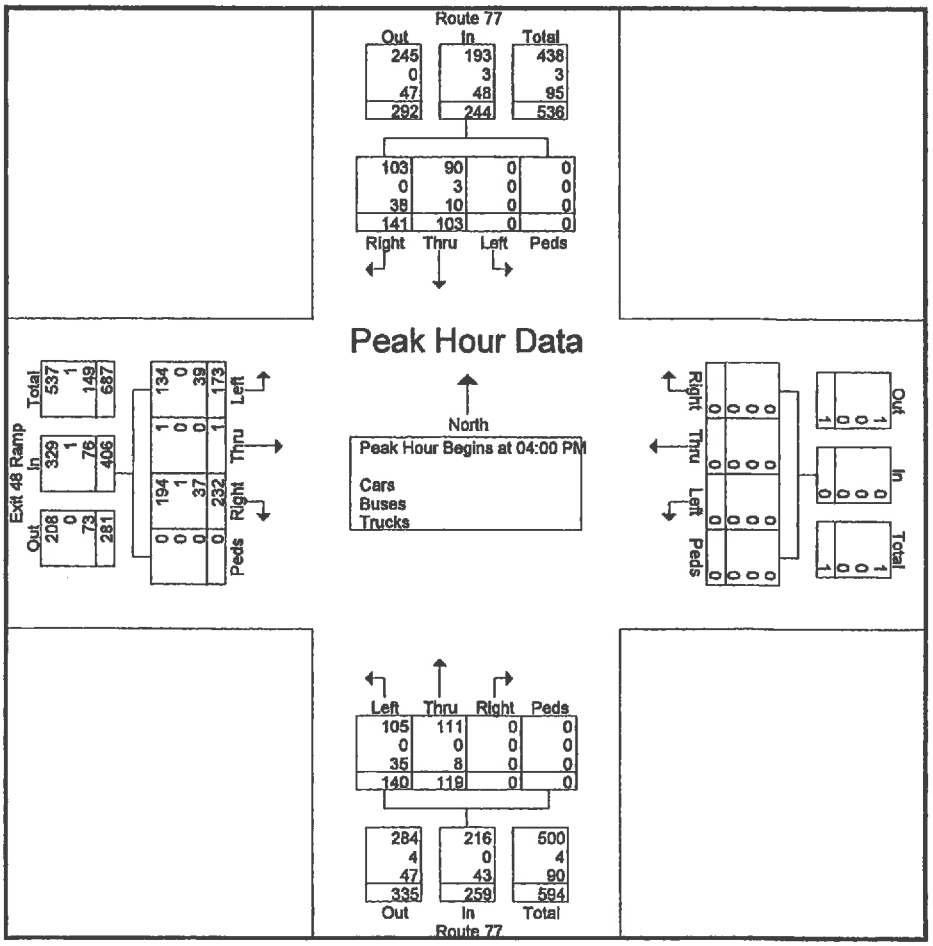
| | Route 77 Southbound Approach | | | | | Westbound Approach | | | | | Route 77 Northbound Approach | | | | | Exit 48 Ramp Eastbound Approach | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 04:00 PM | 33 | 25 | 0 | 0 | 58 | 0 | 0 | 0 | 0 | 0 | 0 | 36 | 32 | 0 | 68 | 61 | 1 | 38 | 0 | 100 | 226 |
| 04:15 PM | 33 | 27 | 0 | 0 | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 32 | 0 | 62 | 62 | 0 | 40 | 0 | 102 | 224 |
| 04:30 PM | 39 | 28 | 0 | 0 | 67 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 30 | 0 | 54 | 54 | 0 | 39 | 0 | 93 | 214 |
| 04:45 PM | 36 | 23 | 0 | 0 | 59 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 46 | 0 | 75 | 55 | 0 | 56 | 0 | 111 | 245 |
| Total | 141 | 103 | 0 | 0 | 244 | 0 | 0 | 0 | 0 | 0 | 0 | 119 | 140 | 0 | 259 | 232 | 1 | 173 | 0 | 406 | 909 |
| 05:00 PM | 24 | 18 | 0 | 0 | 42 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 34 | 1 | 65 | 47 | 0 | 43 | 1 | 91 | 198 |
| 05:15 PM | 32 | 46 | 0 | 0 | 78 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 36 | 0 | 65 | 53 | 0 | 42 | 0 | 95 | 238 |
| 05:30 PM | 23 | 24 | 0 | 0 | 47 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 27 | 0 | 50 | 56 | 0 | 63 | 0 | 119 | 216 |
| 05:45 PM | 34 | 20 | 0 | 0 | 54 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 23 | 0 | 39 | 54 | 0 | 34 | 0 | 88 | 181 |
| Total | 113 | 108 | 0 | 0 | 221 | 0 | 0 | 0 | 0 | 0 | 0 | 98 | 120 | 1 | 219 | 210 | 0 | 182 | 1 | 393 | 833 |
| Grand Total | 254 | 211 | 0 | 0 | 465 | 0 | 0 | 0 | 0 | 0 | 0 | 217 | 260 | 1 | 478 | 442 | 1 | 355 | 1 | 799 | 1742 |
| Apprch % | 54.6 | 45.4 | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | 45.4 | 54.4 | 0.2 | | 55.3 | 0.1 | 44.4 | 0.1 | | |
| Total % | 14.6 | 12.1 | 0 | 0 | 26.7 | 0 | 0 | 0 | 0 | 0 | 0 | 12.5 | 14.9 | 0.1 | 27.4 | 25.4 | 0.1 | 20.4 | 0.1 | 45.9 | |
| Cars | 193 | 192 | 0 | 0 | 385 | 0 | 0 | 0 | 0 | 0 | 0 | 202 | 190 | 1 | 393 | 354 | 1 | 281 | 1 | 637 | 1415 |
| % Cars | 76 | 91 | 0 | 0 | 82.8 | 0 | 0 | 0 | 0 | 0 | 0 | 93.1 | 73.1 | 100 | 82.2 | 80.1 | 100 | 79.2 | 100 | 79.7 | 81.2 |
| Buses | 1 | 3 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 6 |
| % Buses | 0.4 | 1.4 | 0 | 0 | 0.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.5 | 0 | 0 | 0 | 0.3 | 0.3 |
| Trucks | 60 | 16 | 0 | 0 | 76 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 70 | 0 | 85 | 86 | 0 | 74 | 0 | 160 | 321 |
| % Trucks | 23.6 | 7.6 | 0 | 0 | 16.3 | 0 | 0 | 0 | 0 | 0 | 0 | 6.9 | 26.9 | 0 | 17.8 | 19.5 | 0 | 20.8 | 0 | 20 | 18.4 |

# Genesee Traffic Counts
# Turning Movement Count
# Weekday Evening Period

Fisher Associates P.E., L.S., P.C.
135 Calkins Road
Rochester, NY 14623
Phone: (585) 334-1310

File Name : #1 Rt 77 & Exit 48 Ramp - PM
Site Code : 01651652
Start Date : 2/10/2010


| | Route 77 Southbound Approach | | | | | Westbound Approach | | | | | Route 77 Northbound Approach | | | | | Exit 48 Ramp Eastbound Approach | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:00 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:00 PM | 33 | 25 | 0 | 0 | 58 | 0 | 0 | 0 | 0 | 0 | 0 | 36 | 32 | 0 | 68 | 61 | 1 | 38 | 0 | 100 | 226 |
| 04:15 PM | 33 | 27 | 0 | 0 | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 32 | 0 | 62 | 62 | 0 | 40 | 0 | 102 | 224 |
| 04:30 PM | 39 | 28 | 0 | 0 | 67 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 30 | 0 | 54 | 54 | 0 | 39 | 0 | 93 | 214 |
| 04:45 PM | 36 | 23 | 0 | 0 | 59 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 46 | 0 | 75 | 55 | 0 | 56 | 0 | 111 | 245 |
| Total Volume | 141 | 103 | 0 | 0 | 244 | 0 | 0 | 0 | 0 | 0 | 0 | 119 | 140 | 0 | 259 | 232 | 1 | 173 | 0 | 406 | 909 |
| % App. Total | 57.8 | 42.2 | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | 45.9 | 54.1 | 0 | | 57.1 | 0.2 | 42.6 | 0 | | |
| PHF | .904 | .920 | .000 | .000 | .910 | .000 | .000 | .000 | .000 | .000 | .000 | .826 | .761 | .000 | .863 | .935 | .250 | .772 | .000 | .914 | .928 |
| Cars | 103 | 90 | 0 | 0 | 193 | 0 | 0 | 0 | 0 | 0 | 0 | 111 | 105 | 0 | 216 | 194 | 1 | 134 | 0 | 329 | 738 |
| % Cars | 73.0 | 87.4 | 0 | 0 | 79.1 | 0 | 0 | 0 | 0 | 0 | 0 | 93.3 | 75.0 | 0 | 83.4 | 83.6 | 100 | 77.5 | 0 | 81.0 | 81.2 |
| Buses | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 4 |
| % Buses | 0 | 2.9 | 0 | 0 | 1.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0.2 | 0.4 |
| Trucks | 38 | 10 | 0 | 0 | 48 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 35 | 0 | 43 | 37 | 0 | 39 | 0 | 76 | 167 |
| % Trucks | 27.0 | 9.7 | 0 | 0 | 19.7 | 0 | 0 | 0 | 0 | 0 | 0 | 6.7 | 25.0 | 0 | 16.6 | 15.9 | 0 | 22.5 | 0 | 18.7 | 18.4 |



Project: 110-021
Counted By: HMM
Location: Medina, NY
Other:

File Name : 0001 am
Site Code : 00011111
Start Date : 3/24/2010
Page No : 1

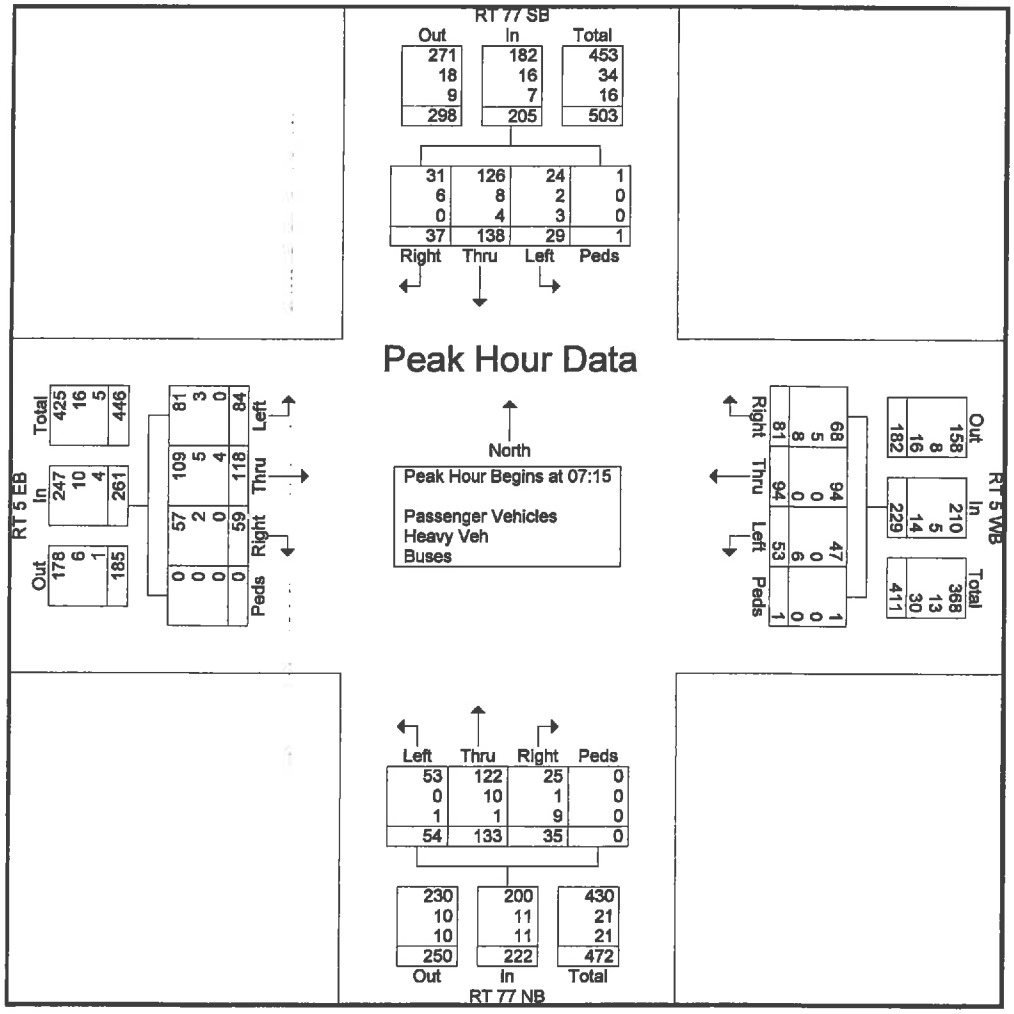
Groups Printed- Passenger Vehicles - Heavy Veh - Buses

| | RT 5 EB Eastbound | | | | | RT 5 WB Westbound | | | | | RT 77 NB Northbound | | | | | RT 77 SB Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Int. Total |
| Factor | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | |
| 07:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 4 | 0 | 34 | 34 |
| 07:15 | 20 | 28 | 7 | 0 | 55 | 13 | 20 | 20 | 1 | 54 | 13 | 24 | 12 | 0 | 49 | 5 | 30 | 5 | 1 | 41 | 199 |
| 07:30 | 20 | 30 | 29 | 0 | 79 | 27 | 24 | 28 | 0 | 79 | 15 | 45 | 8 | 0 | 68 | 4 | 44 | 11 | 0 | 59 | 285 |
| 07:45 | 20 | 24 | 16 | 0 | 60 | 6 | 27 | 20 | 0 | 53 | 13 | 30 | 8 | 0 | 51 | 9 | 32 | 12 | 0 | 53 | 217 |
| Total | 60 | 82 | 52 | 0 | 194 | 46 | 71 | 68 | 1 | 186 | 41 | 99 | 28 | 0 | 168 | 18 | 136 | 32 | 1 | 187 | 735 |
| 08:00 | 24 | 36 | 7 | 0 | 67 | 7 | 23 | 13 | 0 | 43 | 13 | 34 | 7 | 0 | 54 | 11 | 32 | 9 | 0 | 52 | 216 |
| 08:15 | 28 | 26 | 13 | 0 | 67 | 3 | 30 | 14 | 0 | 47 | 11 | 29 | 1 | 0 | 41 | 5 | 22 | 8 | 0 | 35 | 190 |
| 08:30 | 25 | 22 | 14 | 0 | 61 | 4 | 31 | 11 | 0 | 46 | 7 | 30 | 5 | 0 | 42 | 9 | 20 | 11 | 0 | 40 | 189 |
| 08:45 | 18 | 30 | 10 | 0 | 58 | 6 | 24 | 12 | 0 | 42 | 7 | 26 | 9 | 0 | 42 | 6 | 21 | 12 | 0 | 39 | 181 |
| Total | 95 | 114 | 44 | 0 | 253 | 20 | 108 | 50 | 0 | 178 | 38 | 119 | 22 | 0 | 179 | 31 | 95 | 40 | 0 | 166 | 776 |
| 09:00 | 15 | 17 | 7 | 0 | 39 | 7 | 19 | 11 | 0 | 37 | 10 | 29 | 5 | 0 | 44 | 6 | 19 | 7 | 0 | 32 | 152 |
| Grand Total | 170 | 213 | 103 | 0 | 486 | 73 | 198 | 129 | 1 | 401 | 89 | 247 | 55 | 0 | 391 | 55 | 250 | 79 | 1 | 385 | 1663 |
| Apprch % | 35 | 43.8 | 21.2 | 0 | | 18.2 | 49.4 | 32.2 | 0.2 | | 22.8 | 63.2 | 14.1 | 0 | | 14.3 | 64.9 | 20.5 | 0.3 | | |
| Total % | 10.2 | 12.8 | 6.2 | 0 | 29.2 | 4.4 | 11.9 | 7.8 | 0.1 | 24.1 | 5.4 | 14.9 | 3.3 | 0 | 23.5 | 3.3 | 15 | 4.8 | 0.1 | 23.2 | |
| Passenger Vehicles | 165 | 202 | 94 | 0 | 461 | 65 | 193 | 108 | 1 | 367 | 87 | 227 | 43 | 0 | 357 | 49 | 232 | 67 | 1 | 349 | 1534 |
| % Passenger Vehicles | 97.1 | 94.8 | 91.3 | 0 | 94.9 | 89 | 97.5 | 83.7 | 100 | 91.5 | 97.8 | 91.9 | 78.2 | 0 | 91.3 | 89.1 | 92.8 | 84.8 | 100 | 90.6 | 92.2 |
| Heavy Veh | 5 | 6 | 6 | 0 | 17 | 1 | 4 | 13 | 0 | 18 | 1 | 19 | 1 | 0 | 21 | 3 | 14 | 12 | 0 | 29 | 85 |
| % Heavy Veh | 2.9 | 2.8 | 5.8 | 0 | 3.5 | 1.4 | 2 | 10.1 | 0 | 4.5 | 1.1 | 7.7 | 1.8 | 0 | 5.4 | 5.5 | 5.6 | 15.2 | 0 | 7.5 | 5.1 |
| Buses | 0 | 5 | 3 | 0 | 8 | 7 | 1 | 8 | 0 | 16 | 1 | 1 | 11 | 0 | 13 | 3 | 4 | 0 | 0 | 7 | 44 |
| % Buses | 0 | 2.3 | 2.9 | 0 | 1.6 | 9.6 | 0.5 | 6.2 | 0 | 4 | 1.1 | 0.4 | 20 | 0 | 3.3 | 5.5 | 1.6 | 0 | 0 | 1.8 | 2.6 |

Project: 110-021
Counted By: HMM
Location: Medina, NY
Other:

File Name : 0001 am
Site Code : 00011111
Start Date : 3/24/2010
Page No : 2

| | RT 5 EB Eastbound | | | | | RT 5 WB Westbound | | | | | RT 77 NB Northbound | | | | | RT 77 SB Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 to 09:00 - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:15 | | | | | | | | | | | | | | | | | | | | | |
| 07:15 | 20 | 28 | 7 | 0 | 55 | 13 | 20 | 20 | **1** | 54 | 13 | 24 | **12** | 0 | 49 | 5 | 30 | 5 | **1** | 41 | 199 |
| 07:30 | 20 | 30 | **29** | 0 | **79** | **27** | 24 | **28** | 0 | **79** | **15** | **45** | 8 | 0 | **68** | 4 | **44** | 11 | 0 | **59** | **285** |
| 07:45 | 20 | 24 | 16 | 0 | 60 | 6 | **27** | 20 | 0 | 53 | 13 | 30 | 8 | 0 | 51 | 9 | 32 | **12** | 0 | 53 | 217 |
| 08:00 | **24** | **36** | 7 | 0 | 67 | 7 | 23 | 13 | 0 | 43 | 13 | 34 | 7 | 0 | 54 | **11** | 32 | 9 | 0 | 52 | 216 |
| Total Volume | 84 | 118 | 59 | 0 | 261 | 53 | 94 | 81 | 1 | 229 | 54 | 133 | 35 | 0 | 222 | 29 | 138 | 37 | 1 | 205 | 917 |
| % App. Total | 32.2 | 45.2 | 22.6 | 0 | | 23.1 | 41 | 35.4 | 0.4 | | 24.3 | 59.9 | 15.8 | 0 | | 14.1 | 67.3 | 18 | 0.5 | | |
| PHF | .875 | .819 | .509 | .000 | .826 | .491 | .870 | .723 | .250 | .725 | .900 | .739 | .729 | .000 | .816 | .659 | .784 | .771 | .250 | .869 | .804 |
| Passenger Vehicles | 81 | 109 | 57 | 0 | 247 | 47 | 94 | 68 | 1 | 210 | 53 | 122 | 25 | 0 | 200 | 24 | 126 | 31 | 1 | 182 | 839 |
| % Passenger Vehicles | 96.4 | 92.4 | 96.6 | 0 | 94.6 | 88.7 | 100 | 84.0 | 100 | 91.7 | 98.1 | 91.7 | 71.4 | 0 | 90.1 | 82.8 | 91.3 | 83.8 | 100 | 88.8 | 91.5 |
| Heavy Veh | 3 | 5 | 2 | 0 | 10 | 0 | 0 | 5 | 0 | 5 | 0 | 10 | 1 | 0 | 11 | 2 | 8 | 6 | 0 | 16 | 42 |
| % Heavy Veh | 3.6 | 4.2 | 3.4 | 0 | 3.8 | 0 | 0 | 6.2 | 0 | 2.2 | 0 | 7.5 | 2.9 | 0 | 5.0 | 6.9 | 5.8 | 16.2 | 0 | 7.8 | 4.6 |
| Buses | 0 | 4 | 0 | 0 | 4 | 6 | 0 | 8 | 0 | 14 | 1 | 1 | 9 | 0 | 11 | 3 | 4 | 0 | 0 | 7 | 36 |
| % Buses | 0 | 3.4 | 0 | 0 | 1.5 | 11.3 | 0 | 9.9 | 0 | 6.1 | 1.9 | 0.8 | 25.7 | 0 | 5.0 | 10.3 | 2.9 | 0 | 0 | 3.4 | 3.9 |



Project: 110-021
Counted By: HMM
Location: Medina, NY
Other:

File Name : 0001 pm
Site Code : 00000111
Start Date : 11/16/2010
Page No : 1

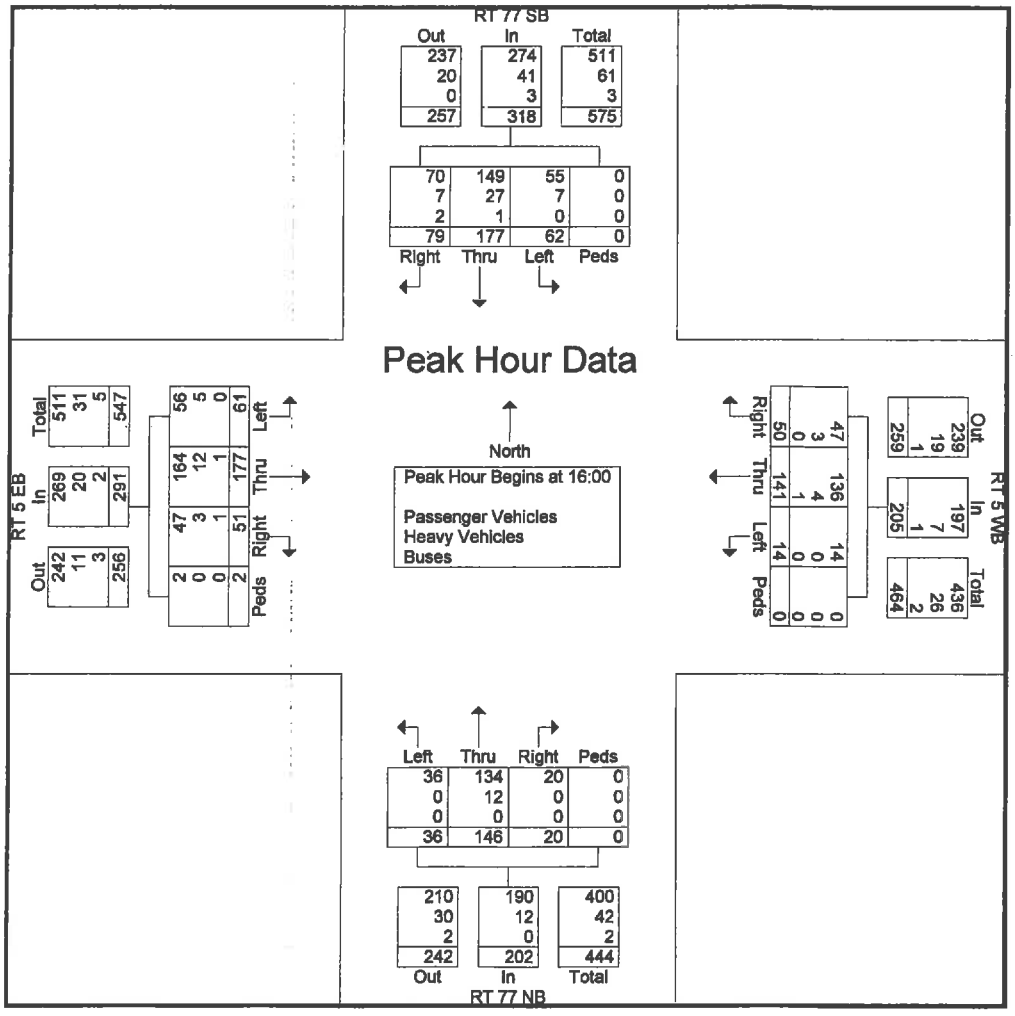
Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

| | RT 5 EB Eastbound | | | | | RT 5 WB Westbound | | | | | RT 77 NB Northbound | | | | | RT 77 SB Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Int. Total |
| Factor | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | |
| 16:00 | 16 | 53 | 15 | 2 | 86 | 0 | 35 | 11 | 0 | 46 | 13 | 41 | 6 | 0 | 60 | 14 | 43 | 12 | 0 | 69 | 261 |
| 16:15 | 19 | 38 | 15 | 0 | 72 | 1 | 36 | 12 | 0 | 49 | 11 | 37 | 7 | 0 | 55 | 17 | 40 | 17 | 0 | 74 | 250 |
| 16:30 | 9 | 46 | 10 | 0 | 65 | 9 | 35 | 14 | 0 | 58 | 8 | 34 | 3 | 0 | 45 | 15 | 52 | 32 | 0 | 99 | 267 |
| 16:45 | 17 | 40 | 11 | 0 | 68 | 4 | 35 | 13 | 0 | 52 | 4 | 34 | 4 | 0 | 42 | 16 | 42 | 18 | 0 | 76 | 238 |
| Total | 61 | 177 | 51 | 2 | 291 | 14 | 141 | 50 | 0 | 205 | 36 | 146 | 20 | 0 | 202 | 62 | 177 | 79 | 0 | 318 | 1016 |
| 17:00 | 17 | 41 | 24 | 0 | 82 | 8 | 28 | 9 | 1 | 46 | 13 | 27 | 6 | 0 | 46 | 22 | 48 | 15 | 0 | 85 | 259 |
| 17:15 | 12 | 32 | 15 | 0 | 59 | 7 | 29 | 7 | 0 | 43 | 11 | 41 | 5 | 0 | 57 | 14 | 36 | 28 | 0 | 78 | 237 |
| 17:30 | 16 | 45 | 12 | 0 | 73 | 5 | 35 | 9 | 0 | 49 | 7 | 36 | 3 | 0 | 46 | 15 | 42 | 17 | 0 | 74 | 242 |
| 17:45 | 9 | 39 | 13 | 0 | 61 | 7 | 23 | 13 | 1 | 44 | 12 | 35 | 5 | 0 | 52 | 14 | 28 | 17 | 0 | 59 | 216 |
| Total | 54 | 157 | 64 | 0 | 275 | 27 | 115 | 38 | 2 | 182 | 43 | 139 | 19 | 0 | 201 | 65 | 154 | 77 | 0 | 296 | 954 |
| Grand Total | 115 | 334 | 115 | 2 | 566 | 41 | 256 | 88 | 2 | 387 | 79 | 285 | 39 | 0 | 403 | 127 | 331 | 156 | 0 | 614 | 1970 |
| Apprch % | 20.3 | 59 | 20.3 | 0.4 | | 10.6 | 66.1 | 22.7 | 0.5 | | 19.6 | 70.7 | 9.7 | 0 | | 20.7 | 53.9 | 25.4 | 0 | | |
| Total % | 5.8 | 17 | 5.8 | 0.1 | 28.7 | 2.1 | 13 | 4.5 | 0.1 | 19.6 | 4 | 14.5 | 2 | 0 | 20.5 | 6.4 | 16.8 | 7.9 | 0 | 31.2 | |
| Passenger Vehicles | 103 | 314 | 108 | 2 | 527 | 40 | 247 | 84 | 2 | 373 | 77 | 251 | 39 | 0 | 367 | 118 | 292 | 144 | 0 | 554 | 1821 |
| % Passenger Vehicles | 89.6 | 94 | 93.9 | 100 | 93.1 | 97.6 | 96.5 | 95.5 | 100 | 96.4 | 97.5 | 88.1 | 100 | 0 | 91.1 | 92.9 | 88.2 | 92.3 | 0 | 90.2 | 92.4 |
| Heavy Vehicles | 11 | 19 | 6 | 0 | 36 | 1 | 8 | 4 | 0 | 13 | 2 | 34 | 0 | 0 | 36 | 9 | 38 | 10 | 0 | 57 | 142 |
| % Heavy Vehicles | 9.6 | 5.7 | 5.2 | 0 | 6.4 | 2.4 | 3.1 | 4.5 | 0 | 3.4 | 2.5 | 11.9 | 0 | 0 | 8.9 | 7.1 | 11.5 | 6.4 | 0 | 9.3 | 7.2 |
| Buses | 1 | 1 | 1 | 0 | 3 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 3 | 7 |
| % Buses | 0.9 | 0.3 | 0.9 | 0 | 0.5 | 0 | 0.4 | 0 | 0 | 0.3 | 0 | 0 | 0 | 0 | 0 | 0 | 0.3 | 1.3 | 0 | 0.5 | 0.4 |

Project: 110-021
Counted By: HMM
Location: Medina, NY
Other:

File Name : 0001 pm
Site Code : 00000111
Start Date : 11/16/2010
Page No : 2

| | RT 5 EB Eastbound | | | | | RT 5 WB Westbound | | | | | RT 77 NB Northbound | | | | | RT 77 SB Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 16:00 | | | | | | | | | | | | | | | | | | | | | |
| 16:00 | 16 | **53** | **15** | **2** | **86** | 0 | 35 | 11 | 0 | 46 | **13** | **41** | 6 | 0 | **60** | 14 | 43 | 12 | 0 | 69 | 261 |
| 16:15 | **19** | 38 | 15 | 0 | 72 | 1 | **36** | 12 | 0 | 49 | 11 | 37 | **7** | 0 | 55 | **17** | 40 | 17 | 0 | 74 | 250 |
| 16:30 | 9 | 46 | 10 | 0 | 65 | **9** | 35 | **14** | 0 | **58** | 8 | 34 | 3 | 0 | 45 | 15 | **52** | **32** | 0 | **99** | **267** |
| 16:45 | 17 | 40 | 11 | 0 | 68 | 4 | 35 | 13 | 0 | 52 | 4 | 34 | 4 | 0 | 42 | 16 | 42 | 18 | 0 | 76 | 238 |
| Total Volume | 61 | 177 | 51 | 2 | 291 | 14 | 141 | 50 | 0 | 205 | 36 | 146 | 20 | 0 | 202 | 62 | 177 | 79 | 0 | 318 | 1016 |
| % App. Total | 21 | 60.8 | 17.5 | 0.7 | | 6.8 | 68.8 | 24.4 | 0 | | 17.8 | 72.3 | 9.9 | 0 | | 19.5 | 55.7 | 24.8 | 0 | | |
| PHF | .803 | .835 | .850 | .250 | .846 | .389 | .979 | .893 | .000 | .884 | .692 | .890 | .714 | .000 | .842 | .912 | .851 | .617 | .000 | .803 | .951 |
| Passenger Vehicles | 56 | 164 | 47 | 2 | 269 | 14 | 136 | 47 | 0 | 197 | 36 | 134 | 20 | 0 | 190 | 55 | 149 | 70 | 0 | 274 | 930 |
| % Passenger Vehicles | 91.8 | 92.7 | 92.2 | 100 | 92.4 | 100 | 96.5 | 94.0 | 0 | 96.1 | 100 | 91.8 | 100 | 0 | 94.1 | 88.7 | 84.2 | 88.6 | 0 | 86.2 | 91.5 |
| Heavy Vehicles | 5 | 12 | 3 | 0 | 20 | 0 | 4 | 3 | 0 | 7 | 0 | 12 | 0 | 0 | 12 | 7 | 27 | 7 | 0 | 41 | 80 |
| % Heavy Vehicles | 8.2 | 6.8 | 5.9 | 0 | 6.9 | 0 | 2.8 | 6.0 | 0 | 3.4 | 0 | 8.2 | 0 | 0 | 5.9 | 11.3 | 15.3 | 8.9 | 0 | 12.9 | 7.9 |
| Buses | 0 | 1 | 1 | 0 | 2 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 3 | 6 |
| % Buses | 0 | 0.6 | 2.0 | 0 | 0.7 | 0 | 0.7 | 0 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 | 2.5 | 0 | 0.9 | 0.6 |



Project: 110-021
Counted By: HMM
Location: Medina, NY
Other:

File Name : 0003 am
Site Code : 00000000
Start Date : 3/24/2010
Page No : 1

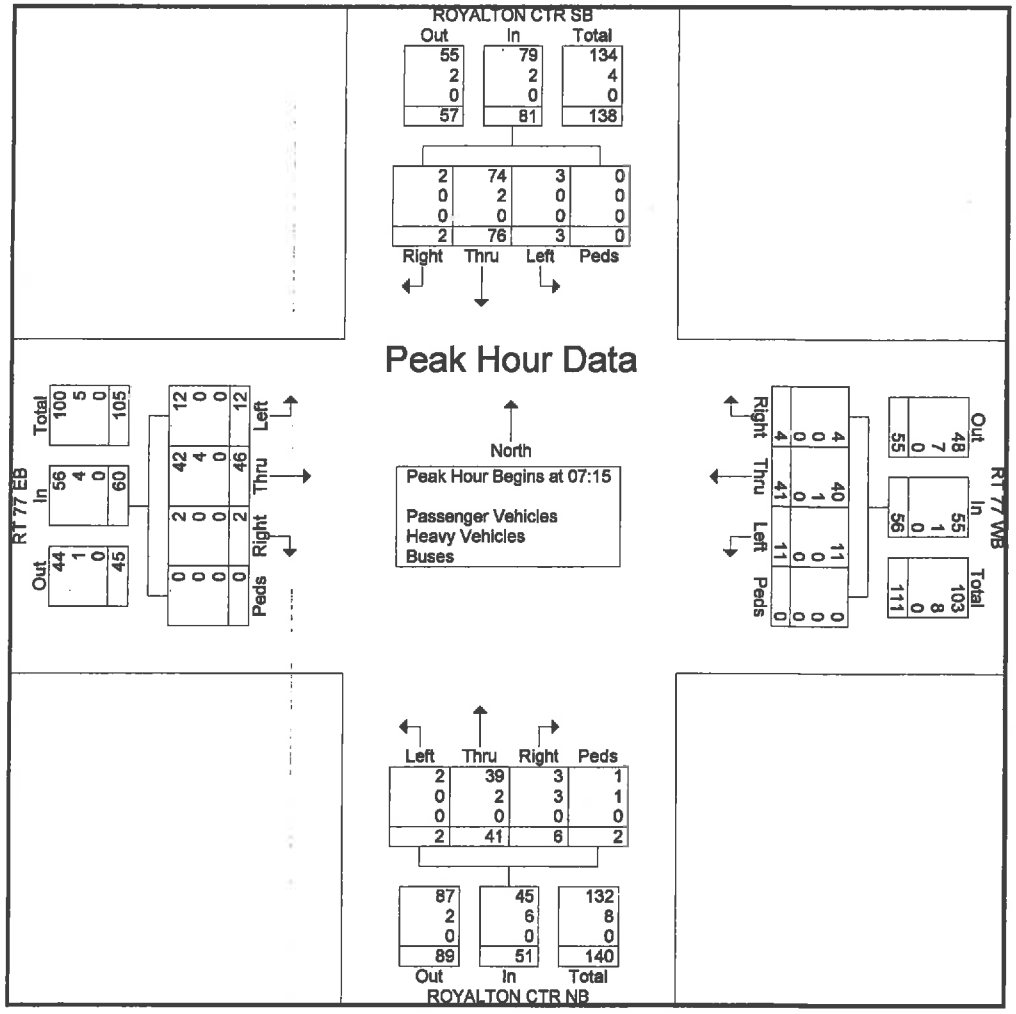
Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

| | RT 77 EB Eastbound | | | | | RT 77 WB Westbound | | | | | ROYALTON CTR NB Northbound | | | | | ROYALTON CTR SB Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Int. Total |
| Factor | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | |
| 07:15 | 4 | 13 | 0 | 0 | 17 | 3 | 7 | 0 | 0 | 10 | 0 | 20 | 0 | 0 | 20 | 0 | 20 | 1 | 0 | 21 | 68 |
| 07:30 | 3 | 8 | 0 | 0 | 11 | 3 | 8 | 0 | 0 | 11 | 1 | 12 | 5 | 1 | 19 | 2 | 15 | 1 | 0 | 18 | 59 |
| 07:45 | 2 | 11 | 2 | 0 | 15 | 5 | 16 | 2 | 0 | 23 | 0 | 6 | 1 | 0 | 7 | 0 | 19 | 0 | 0 | 19 | 64 |
| Total | 9 | 32 | 2 | 0 | 43 | 11 | 31 | 2 | 0 | 44 | 1 | 38 | 6 | 1 | 46 | 2 | 54 | 2 | 0 | 58 | 191 |
| 08:00 | 3 | 14 | 0 | 0 | 17 | 0 | 10 | 2 | 0 | 12 | 1 | 3 | 0 | 1 | 5 | 1 | 22 | 0 | 0 | 23 | 57 |
| 08:15 | 0 | 11 | 2 | 0 | 13 | 2 | 12 | 0 | 0 | 14 | 0 | 4 | 1 | 0 | 5 | 0 | 11 | 1 | 0 | 12 | 44 |
| 08:30 | 1 | 12 | 1 | 0 | 14 | 3 | 18 | 3 | 0 | 24 | 1 | 7 | 0 | 0 | 8 | 1 | 15 | 1 | 0 | 17 | 63 |
| 08:45 | 0 | 10 | 1 | 0 | 11 | 1 | 13 | 1 | 0 | 15 | 1 | 0 | 0 | 0 | 1 | 0 | 11 | 1 | 0 | 12 | 39 |
| Total | 4 | 47 | 4 | 0 | 55 | 6 | 53 | 6 | 0 | 65 | 3 | 14 | 1 | 1 | 19 | 2 | 59 | 3 | 0 | 64 | 203 |
| 09:00 | 1 | 9 | 0 | 0 | 10 | 3 | 10 | 0 | 0 | 13 | 0 | 2 | 1 | 0 | 3 | 0 | 5 | 0 | 0 | 5 | 31 |
| Grand Total | 14 | 88 | 6 | 0 | 108 | 20 | 94 | 8 | 0 | 122 | 4 | 54 | 8 | 2 | 68 | 4 | 118 | 5 | 0 | 127 | 425 |
| Apprch % | 13 | 81.5 | 5.6 | 0 | | 16.4 | 77 | 6.6 | 0 | | 5.9 | 79.4 | 11.8 | 2.9 | | 3.1 | 92.9 | 3.9 | 0 | | |
| Total % | 3.3 | 20.7 | 1.4 | 0 | 25.4 | 4.7 | 22.1 | 1.9 | 0 | 28.7 | 0.9 | 12.7 | 1.9 | 0.5 | 16 | 0.9 | 27.8 | 1.2 | 0 | 29.9 | |
| Passenger Vehicles | 14 | 77 | 6 | 0 | 97 | 19 | 83 | 7 | 0 | 109 | 4 | 51 | 5 | 1 | 61 | 4 | 114 | 4 | 0 | 122 | 389 |
| % Passenger Vehicles | 100 | 87.5 | 100 | 0 | 89.8 | 95 | 88.3 | 87.5 | 0 | 89.3 | 100 | 94.4 | 62.5 | 50 | 89.7 | 100 | 96.6 | 80 | 0 | 96.1 | 91.5 |
| Heavy Vehicles | 0 | 11 | 0 | 0 | 11 | 1 | 11 | 1 | 0 | 13 | 0 | 3 | 3 | 1 | 7 | 0 | 4 | 1 | 0 | 5 | 36 |
| % Heavy Vehicles | 0 | 12.5 | 0 | 0 | 10.2 | 5 | 11.7 | 12.5 | 0 | 10.7 | 0 | 5.6 | 37.5 | 50 | 10.3 | 0 | 3.4 | 20 | 0 | 3.9 | 8.5 |
| Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Project: 110-021
Counted By: HMM
Location: Medina, NY
Other:

File Name : 0003 am
Site Code : 00000000
Start Date : 3/24/2010
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| | RT 77 EB Eastbound | | | | | RT 77 WB Westbound | | | | | ROYALTON CTR NB Northbound | | | | | ROYALTON CTR SB Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:15 to 09:00 - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:15 | | | | | | | | | | | | | | | | | | | | | |
| 07:15 | **4** | 13 | 0 | 0 | **17** | 3 | 7 | 0 | 0 | 10 | 0 | **20** | 0 | 0 | **20** | 0 | 20 | **1** | 0 | 21 | **68** |
| 07:30 | 3 | 8 | 0 | 0 | 11 | 3 | 8 | 0 | 0 | 11 | **1** | 12 | **5** | **1** | 19 | **2** | 15 | 1 | 0 | 18 | 59 |
| 07:45 | 2 | 11 | **2** | 0 | 15 | **5** | **16** | **2** | 0 | **23** | 0 | 6 | 1 | 0 | 7 | 0 | 19 | 0 | 0 | 19 | 64 |
| 08:00 | 3 | **14** | 0 | 0 | 17 | 0 | 10 | 2 | 0 | 12 | 1 | 3 | 0 | 1 | 5 | 1 | **22** | 0 | 0 | **23** | 57 |
| Total Volume | 12 | 46 | 2 | 0 | 60 | 11 | 41 | 4 | 0 | 56 | 2 | 41 | 6 | 2 | 51 | 3 | 76 | 2 | 0 | 81 | 248 |
| % App. Total | 20 | 76.7 | 3.3 | 0 | | 19.6 | 73.2 | 7.1 | 0 | | 3.9 | 80.4 | 11.8 | 3.9 | | 3.7 | 93.8 | 2.5 | 0 | | |
| PHF | .750 | .821 | .250 | .000 | .882 | .550 | .641 | .500 | .000 | .609 | .500 | .513 | .300 | .500 | .638 | .375 | .864 | .500 | .000 | .880 | .912 |
| Passenger Vehicles | 12 | 42 | 2 | 0 | 56 | 11 | 40 | 4 | 0 | 55 | 2 | 39 | 3 | 1 | 45 | 3 | 74 | 2 | 0 | 79 | 235 |
| % Passenger Vehicles | 100 | 91.3 | 100 | 0 | 93.3 | 100 | 97.6 | 100 | 0 | 98.2 | 100 | 95.1 | 50.0 | 50.0 | 88.2 | 100 | 97.4 | 100 | 0 | 97.5 | 94.8 |
| Heavy Vehicles | 0 | 4 | 0 | 0 | 4 | 0 | 1 | 0 | 0 | 1 | 0 | 2 | 3 | 1 | 6 | 0 | 2 | 0 | 0 | 2 | 13 |
| % Heavy Vehicles | 0 | 8.7 | 0 | 0 | 6.7 | 0 | 2.4 | 0 | 0 | 1.8 | 0 | 4.9 | 50.0 | 50.0 | 11.8 | 0 | 2.6 | 0 | 0 | 2.5 | 5.2 |
| Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



Project: 110-021
Counted By: HMM
Location: Medina, NY
Other:

File Name : 0003 pm
Site Code : 00000003
Start Date : 11/10/2010
Page No : 1

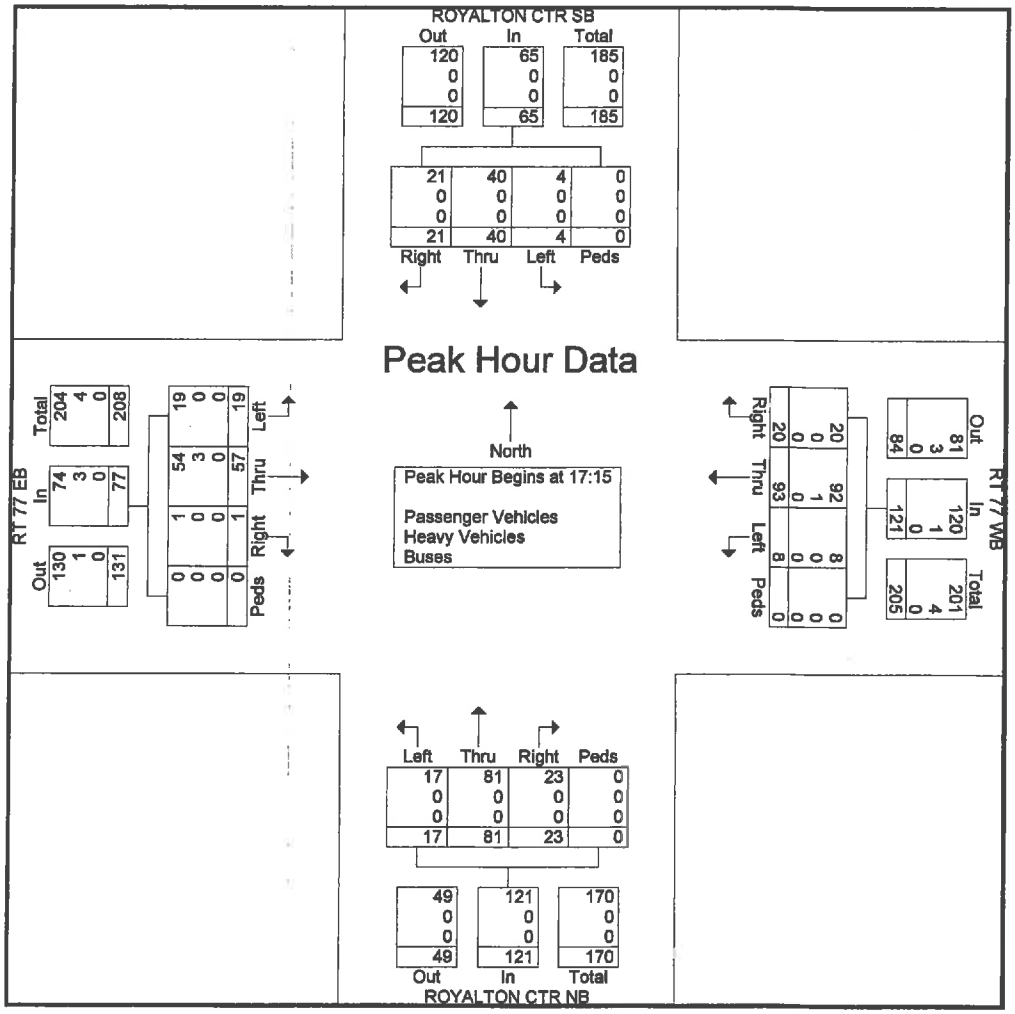
Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

| | RT 77 EB Eastbound | | | | | RT 77 WB Westbound | | | | | ROYALTON CTR NB Northbound | | | | | ROYALTON CTR SB Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Int. Total |
| Factor | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | |
| 16:15 | 5 | 16 | 5 | 0 | 26 | 2 | 20 | 3 | 0 | 25 | 1 | 10 | 0 | 0 | 11 | 2 | 7 | 1 | 0 | 10 | 72 |
| 16:30 | 2 | 23 | 2 | 0 | 27 | 4 | 18 | 0 | 0 | 22 | 3 | 18 | 3 | 0 | 24 | 2 | 14 | 5 | 1 | 22 | 95 |
| 16:45 | 1 | 17 | 2 | 0 | 20 | 0 | 12 | 1 | 0 | 13 | 3 | 16 | 4 | 0 | 23 | 0 | 4 | 3 | 0 | 7 | 63 |
| Total | 8 | 56 | 9 | 0 | 73 | 6 | 50 | 4 | 0 | 60 | 7 | 44 | 7 | 0 | 58 | 4 | 25 | 9 | 1 | 39 | 230 |
| 17:00 | 3 | 22 | 4 | 0 | 29 | 3 | 19 | 1 | 0 | 23 | 2 | 19 | 3 | 0 | 24 | 0 | 10 | 3 | 0 | 13 | 89 |
| 17:15 | 4 | 13 | 0 | 0 | 17 | 2 | 16 | 2 | 0 | 20 | 2 | 13 | 3 | 0 | 18 | 0 | 4 | 3 | 0 | 7 | 62 |
| 17:30 | 3 | 11 | 1 | 0 | 15 | 0 | 21 | 3 | 0 | 24 | 0 | 21 | 2 | 0 | 23 | 0 | 10 | 2 | 0 | 12 | 74 |
| 17:45 | 7 | 22 | 0 | 0 | 29 | 5 | 26 | 5 | 0 | 36 | 5 | 25 | 10 | 0 | 40 | 2 | 13 | 8 | 0 | 23 | 128 |
| Total | 17 | 68 | 5 | 0 | 90 | 10 | 82 | 11 | 0 | 103 | 9 | 78 | 18 | 0 | 105 | 2 | 37 | 16 | 0 | 55 | 353 |
| 18:00 | 5 | 11 | 0 | 0 | 16 | 1 | 30 | 10 | 0 | 41 | 10 | 22 | 8 | 0 | 40 | 2 | 13 | 8 | 0 | 23 | 120 |
| Grand Total | 30 | 135 | 14 | 0 | 179 | 17 | 162 | 25 | 0 | 204 | 26 | 144 | 33 | 0 | 203 | 8 | 75 | 33 | 1 | 117 | 703 |
| Apprch % | 16.8 | 75.4 | 7.8 | 0 | | 8.3 | 79.4 | 12.3 | 0 | | 12.8 | 70.9 | 16.3 | 0 | | 6.8 | 64.1 | 28.2 | 0.9 | | |
| Total % | 4.3 | 19.2 | 2 | 0 | 25.5 | 2.4 | 23 | 3.6 | 0 | 29 | 3.7 | 20.5 | 4.7 | 0 | 28.9 | 1.1 | 10.7 | 4.7 | 0.1 | 16.6 | |
| Passenger Vehicles | 30 | 123 | 12 | 0 | 165 | 16 | 157 | 25 | 0 | 198 | 26 | 144 | 33 | 0 | 203 | 8 | 75 | 33 | 1 | 117 | 683 |
| % Passenger Vehicles | 100 | 91.1 | 85.7 | 0 | 92.2 | 94.1 | 96.9 | 100 | 0 | 97.1 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 100 | 100 | 97.2 |
| Heavy Vehicles | 0 | 12 | 2 | 0 | 14 | 1 | 5 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| % Heavy Vehicles | 0 | 8.9 | 14.3 | 0 | 7.8 | 5.9 | 3.1 | 0 | 0 | 2.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2.8 |
| Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Project: 110-021
Counted By: HMM
Location: Medina, NY
Other:

File Name : 0003 pm
Site Code : 00000003
Start Date : 11/10/2010
Page No : 2

| | RT 77 EB Eastbound | | | | | RT 77 WB Westbound | | | | | ROYALTON CTR NB Northbound | | | | | ROYALTON CTR SB Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 16:15 to 18:00 - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 17:15 | | | | | | | | | | | | | | | | | | | | | |
| 17:15 | 4 | 13 | 0 | 0 | 17 | **2** | 16 | **2** | 0 | 20 | 2 | 13 | 3 | 0 | 18 | 0 | 4 | 3 | 0 | 7 | 62 |
| 17:30 | 3 | 11 | **1** | 0 | 15 | 0 | 21 | 3 | 0 | 24 | 0 | 21 | 2 | 0 | 23 | 0 | 10 | 2 | 0 | 12 | 74 |
| 17:45 | **7** | **22** | 0 | 0 | **29** | **5** | 26 | 5 | 0 | 36 | 5 | **25** | **10** | 0 | **40** | **2** | **13** | **8** | 0 | **23** | **128** |
| 18:00 | 5 | 11 | 0 | 0 | 16 | 1 | **30** | **10** | 0 | **41** | **10** | 22 | 8 | 0 | 40 | 2 | 13 | 8 | 0 | 23 | 120 |
| Total Volume | 19 | 57 | 1 | 0 | 77 | 8 | 93 | 20 | 0 | 121 | 17 | 81 | 23 | 0 | 121 | 4 | 40 | 21 | 0 | 65 | 384 |
| % App. Total | 24.7 | 74 | 1.3 | 0 | | 6.6 | 76.9 | 16.5 | 0 | | 14 | 66.9 | 19 | 0 | | 6.2 | 61.5 | 32.3 | 0 | | |
| PHF | .679 | .648 | .250 | .000 | .664 | .400 | .775 | .500 | .000 | .738 | .425 | .810 | .575 | .000 | .756 | .500 | .769 | .656 | .000 | .707 | .750 |
| Passenger Vehicles | 19 | 54 | 1 | 0 | 74 | 8 | 92 | 20 | 0 | 120 | 17 | 81 | 23 | 0 | 121 | 4 | 40 | 21 | 0 | 65 | 380 |
| % Passenger Vehicles | 100 | 94.7 | 100 | 0 | 96.1 | 100 | 98.9 | 100 | 0 | 99.2 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 0 | 100 | 99.0 |
| Heavy Vehicles | 0 | 3 | 0 | 0 | 3 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| % Heavy Vehicles | 0 | 5.3 | 0 | 0 | 3.9 | 0 | 1.1 | 0 | 0 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.0 |
| Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



Project: 110-021
Counted By: HMM
Location: Medina, NY
Other:

File Name : 0007 am
Site Code : 00000007
Start Date : 11/16/2010
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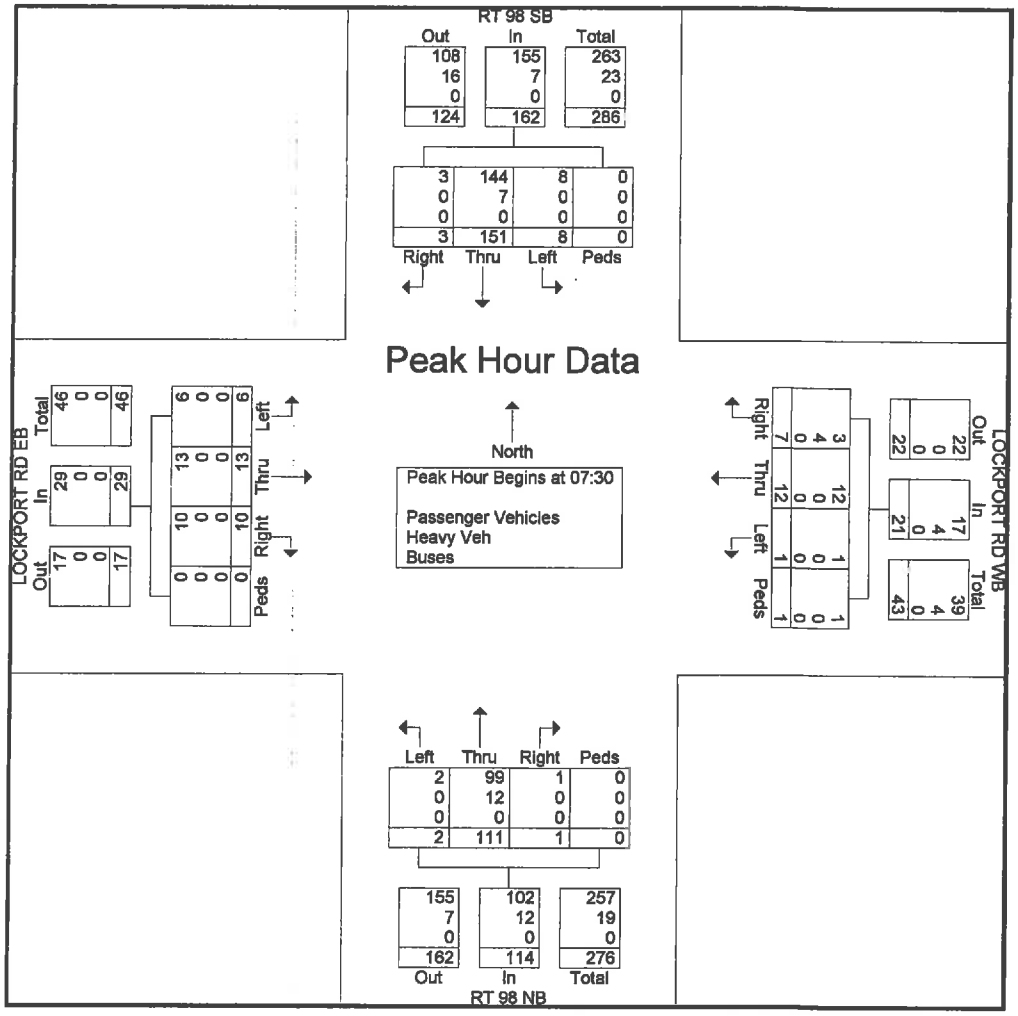
Groups Printed- Passenger Vehicles - Heavy Veh - Buses

| | LOCKPORT RD EB Eastbound | | | | | LOCKPORT RD WB Westbound | | | | | RT 98 NB Northbound | | | | | RT 98 SB Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Int. Total |
| Factor | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | |
| 07:30 | 5 | 5 | 4 | 0 | 14 | 1 | 2 | 3 | 1 | 7 | 1 | 43 | 0 | 0 | 44 | 4 | 60 | 1 | 0 | 65 | 130 |
| 07:45 | 0 | 4 | 3 | 0 | 7 | 0 | 3 | 2 | 0 | 5 | 0 | 21 | 0 | 0 | 21 | 1 | 33 | 0 | 0 | 34 | 67 |
| Total | 5 | 9 | 7 | 0 | 21 | 1 | 5 | 5 | 1 | 12 | 1 | 64 | 0 | 0 | 65 | 5 | 93 | 1 | 0 | 99 | 197 |
| 08:00 | 1 | 2 | 2 | 0 | 5 | 0 | 4 | 1 | 0 | 5 | 0 | 22 | 1 | 0 | 23 | 2 | 25 | 1 | 0 | 28 | 61 |
| 08:15 | 0 | 2 | 1 | 0 | 3 | 0 | 3 | 1 | 0 | 4 | 1 | 25 | 0 | 0 | 26 | 1 | 33 | 1 | 0 | 35 | 68 |
| 08:30 | 0 | 4 | 2 | 0 | 6 | 0 | 8 | 1 | 0 | 9 | 0 | 24 | 0 | 0 | 24 | 2 | 39 | 0 | 0 | 41 | 80 |
| 08:45 | 0 | 1 | 1 | 0 | 2 | 0 | 5 | 0 | 0 | 5 | 0 | 27 | 2 | 0 | 29 | 3 | 39 | 1 | 0 | 43 | 79 |
| Total | 1 | 9 | 6 | 0 | 16 | 0 | 20 | 3 | 0 | 23 | 1 | 98 | 3 | 0 | 102 | 8 | 136 | 3 | 0 | 147 | 288 |
| 09:00 | 1 | 4 | 2 | 0 | 7 | 0 | 4 | 1 | 0 | 5 | 0 | 18 | 0 | 0 | 18 | 1 | 38 | 1 | 0 | 40 | 70 |
| 09:15 | 0 | 3 | 3 | 0 | 6 | 1 | 0 | 2 | 0 | 3 | 0 | 24 | 1 | 0 | 25 | 1 | 29 | 1 | 0 | 31 | 65 |
| Grand Total | 7 | 25 | 18 | 0 | 50 | 2 | 29 | 11 | 1 | 43 | 2 | 204 | 4 | 0 | 210 | 15 | 296 | 6 | 0 | 317 | 620 |
| Apprch % | 14 | 50 | 36 | 0 | | 4.7 | 67.4 | 25.6 | 2.3 | | 1 | 97.1 | 1.9 | 0 | | 4.7 | 93.4 | 1.9 | 0 | | |
| Total % | 1.1 | 4 | 2.9 | 0 | 8.1 | 0.3 | 4.7 | 1.8 | 0.2 | 6.9 | 0.3 | 32.9 | 0.6 | 0 | 33.9 | 2.4 | 47.7 | 1 | 0 | 51.1 | |
| Passenger Vehicles | 7 | 20 | 16 | 0 | 43 | 2 | 26 | 7 | 1 | 36 | 2 | 181 | 4 | 0 | 187 | 14 | 279 | 6 | 0 | 299 | 565 |
| % Passenger Vehicles | 100 | 80 | 88.9 | 0 | 86 | 100 | 89.7 | 63.6 | 100 | 83.7 | 100 | 88.7 | 100 | 0 | 89 | 93.3 | 94.3 | 100 | 0 | 94.3 | 91.1 |
| Heavy Veh | 0 | 5 | 2 | 0 | 7 | 0 | 3 | 4 | 0 | 7 | 0 | 23 | 0 | 0 | 23 | 1 | 17 | 0 | 0 | 18 | 55 |
| % Heavy Veh | 0 | 20 | 11.1 | 0 | 14 | 0 | 10.3 | 36.4 | 0 | 16.3 | 0 | 11.3 | 0 | 0 | 11 | 6.7 | 5.7 | 0 | 0 | 5.7 | 8.9 |
| Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Project: 110-021
Counted By: HMM
Location: Medina, NY
Other:

File Name : 0007 am
Site Code : 00000007
Start Date : 11/16/2010
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| | LOCKPORT RD EB Eastbound | | | | | LOCKPORT RD WB Westbound | | | | | RT 98 NB Northbound | | | | | RT 98 SB Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:30 to 09:15 - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:30 | | | | | | | | | | | | | | | | | | | | | |
| 07:30 | **5** | **5** | **4** | 0 | **14** | **1** | 2 | **3** | **1** | **7** | **1** | **43** | 0 | 0 | **44** | **4** | **60** | **1** | 0 | **65** | **130** |
| 07:45 | 0 | 4 | 3 | 0 | 7 | 0 | 3 | **2** | 0 | 5 | 0 | 21 | 0 | 0 | 21 | 1 | 33 | 0 | 0 | 34 | 67 |
| 08:00 | 1 | 2 | 2 | 0 | 5 | 0 | **4** | 1 | 0 | 5 | 0 | 22 | **1** | 0 | 23 | 2 | 25 | 1 | 0 | 28 | 61 |
| 08:15 | 0 | 2 | 1 | 0 | 3 | 0 | 3 | 1 | 0 | 4 | 1 | 25 | 0 | 0 | 26 | 1 | 33 | 1 | 0 | 35 | 68 |
| Total Volume | 6 | 13 | 10 | 0 | 29 | 1 | 12 | 7 | 1 | 21 | 2 | 111 | 1 | 0 | 114 | 8 | 151 | 3 | 0 | 162 | 326 |
| % App. Total | 20.7 | 44.8 | 34.5 | 0 | | 4.8 | 57.1 | 33.3 | 4.8 | | 1.8 | 97.4 | 0.9 | 0 | | 4.9 | 93.2 | 1.9 | 0 | | |
| PHF | .300 | .650 | .625 | .000 | .518 | .250 | .750 | .583 | .250 | .750 | .500 | .645 | .250 | .000 | .648 | .500 | .629 | .750 | .000 | .623 | .627 |
| Passenger Vehicles | 6 | 13 | 10 | 0 | 29 | 1 | 12 | 3 | 1 | 17 | 2 | 99 | 1 | 0 | 102 | 8 | 144 | 3 | 0 | 155 | 303 |
| % Passenger Vehicles | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 42.9 | 100 | 81.0 | 100 | 89.2 | 100 | 0 | 89.5 | 100 | 95.4 | 100 | 0 | 95.7 | 92.9 |
| Heavy Veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 12 | 0 | 0 | 12 | 0 | 7 | 0 | 0 | 7 | 23 |
| % Heavy Veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 57.1 | 0 | 19.0 | 0 | 10.8 | 0 | 0 | 10.5 | 0 | 4.6 | 0 | 0 | 4.3 | 7.1 |
| Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



Project: 110-021
Counted By: HMM
Location: Medina, NY
Other:

File Name : 0007 pm
Site Code : 00000007
Start Date : 11/16/2010
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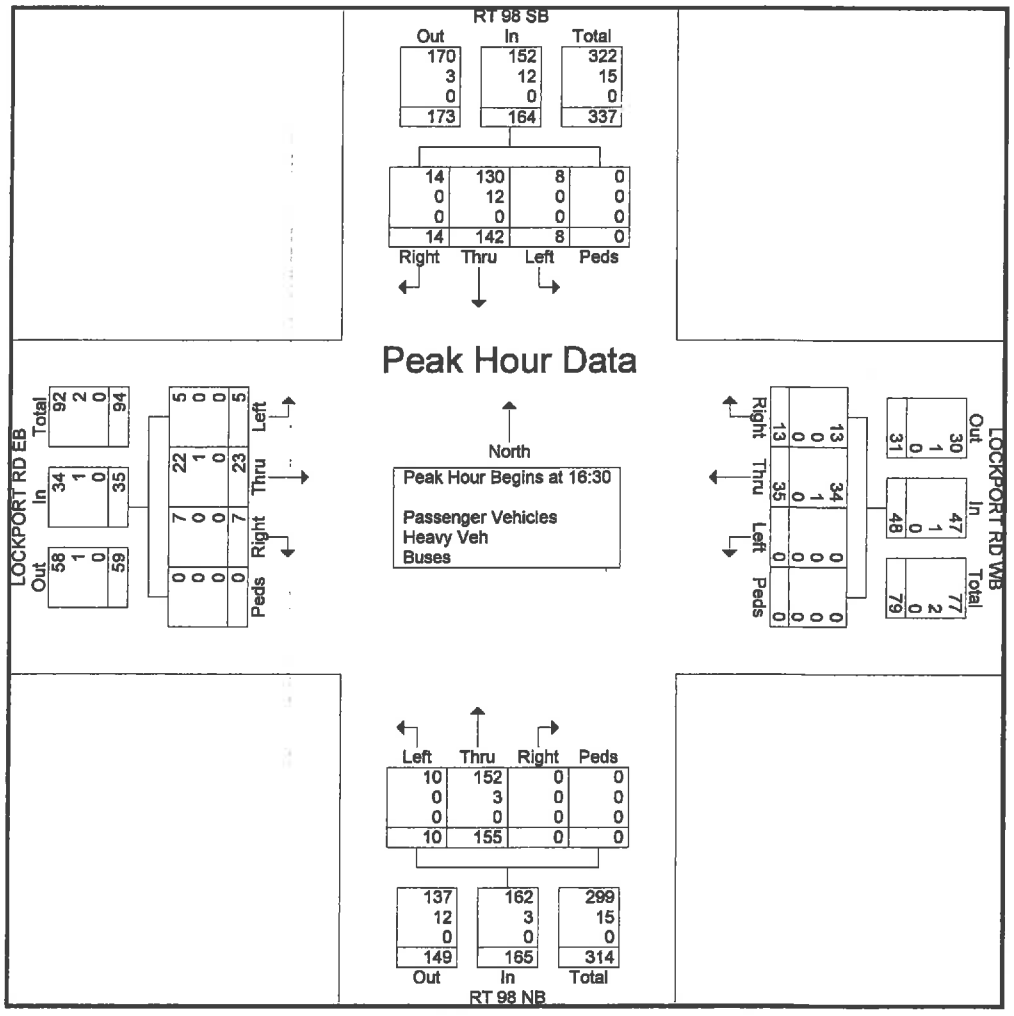
Groups Printed- Passenger Vehicles - Heavy Veh - Buses

| | LOCKPORT RD EB Eastbound | | | | | LOCKPORT RD WB Westbound | | | | | RT 98 NB Northbound | | | | | RT 98 SB Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Int. Total |
| Factor | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | |
| 16:00 | 0 | 1 | 1 | 0 | 2 | 0 | 9 | 0 | 0 | 9 | 0 | 29 | 1 | 0 | 30 | 1 | 32 | 3 | 0 | 36 | 77 |
| 16:15 | 1 | 4 | 1 | 0 | 6 | 0 | 8 | 3 | 0 | 11 | 1 | 39 | 0 | 0 | 40 | 1 | 33 | 1 | 0 | 35 | 92 |
| 16:30 | 1 | 5 | 4 | 0 | 10 | 0 | 5 | 3 | 0 | 8 | 1 | 39 | 0 | 0 | 40 | 0 | 31 | 5 | 0 | 36 | 94 |
| 16:45 | 2 | 10 | 0 | 0 | 12 | 0 | 10 | 3 | 0 | 13 | 3 | 41 | 0 | 0 | 44 | 4 | 38 | 1 | 0 | 43 | 112 |
| Total | 4 | 20 | 6 | 0 | 30 | 0 | 32 | 9 | 0 | 41 | 5 | 148 | 1 | 0 | 154 | 6 | 134 | 10 | 0 | 150 | 375 |
| 17:00 | 1 | 4 | 1 | 0 | 6 | 0 | 7 | 6 | 0 | 13 | 2 | 40 | 0 | 0 | 42 | 0 | 29 | 3 | 0 | 32 | 93 |
| 17:15 | 1 | 4 | 2 | 0 | 7 | 0 | 13 | 1 | 0 | 14 | 4 | 35 | 0 | 0 | 39 | 4 | 44 | 5 | 0 | 53 | 113 |
| 17:30 | 0 | 3 | 3 | 0 | 6 | 0 | 3 | 3 | 0 | 6 | 4 | 26 | 0 | 0 | 30 | 1 | 26 | 0 | 0 | 27 | 69 |
| 17:45 | 0 | 3 | 2 | 0 | 5 | 1 | 6 | 1 | 0 | 8 | 1 | 32 | 2 | 0 | 35 | 1 | 21 | 0 | 0 | 22 | 70 |
| Total | 2 | 14 | 8 | 0 | 24 | 1 | 29 | 11 | 0 | 41 | 11 | 133 | 2 | 0 | 146 | 6 | 120 | 8 | 0 | 134 | 345 |
| Grand Total | 6 | 34 | 14 | 0 | 54 | 1 | 61 | 20 | 0 | 82 | 16 | 281 | 3 | 0 | 300 | 12 | 254 | 18 | 0 | 284 | 720 |
| Apprch % | 11.1 | 63 | 25.9 | 0 | | 1.2 | 74.4 | 24.4 | 0 | | 5.3 | 93.7 | 1 | 0 | | 4.2 | 89.4 | 6.3 | 0 | | |
| Total % | 0.8 | 4.7 | 1.9 | 0 | 7.5 | 0.1 | 8.5 | 2.8 | 0 | 11.4 | 2.2 | 39 | 0.4 | 0 | 41.7 | 1.7 | 35.3 | 2.5 | 0 | 39.4 | |
| Passenger Vehicles | 6 | 32 | 14 | 0 | 52 | 1 | 58 | 20 | 0 | 79 | 16 | 274 | 2 | 0 | 292 | 11 | 236 | 18 | 0 | 265 | 688 |
| % Passenger Vehicles | 100 | 94.1 | 100 | 0 | 96.3 | 100 | 95.1 | 100 | 0 | 96.3 | 100 | 97.5 | 66.7 | 0 | 97.3 | 91.7 | 92.9 | 100 | 0 | 93.3 | 95.6 |
| Heavy Veh | 0 | 2 | 0 | 0 | 2 | 0 | 3 | 0 | 0 | 3 | 0 | 7 | 1 | 0 | 8 | 1 | 18 | 0 | 0 | 19 | 32 |
| % Heavy Veh | 0 | 5.9 | 0 | 0 | 3.7 | 0 | 4.9 | 0 | 0 | 3.7 | 0 | 2.5 | 33.3 | 0 | 2.7 | 8.3 | 7.1 | 0 | 0 | 6.7 | 4.4 |
| Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Project: 110-021
Counted By: HMM
Location: Medina, NY
Other:

File Name : 0007 pm
Site Code : 00000007
Start Date : 11/16/2010
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| | LOCKPORT RD EB Eastbound | | | | | LOCKPORT RD WB Westbound | | | | | RT 98 NB Northbound | | | | | RT 98 SB Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 16:30 | | | | | | | | | | | | | | | | | | | | | |
| 16:30 | 1 | 5 | **4** | 0 | 10 | 0 | 5 | 3 | 0 | 8 | 1 | 39 | 0 | 0 | 40 | 0 | 31 | **5** | 0 | 36 | 94 |
| 16:45 | **2** | **10** | 0 | 0 | **12** | 0 | 10 | 3 | 0 | 13 | 3 | **41** | 0 | 0 | **44** | **4** | 38 | 1 | 0 | 43 | 112 |
| 17:00 | 1 | 4 | 1 | 0 | 6 | 0 | 7 | **6** | 0 | 13 | 2 | 40 | 0 | 0 | 42 | 0 | 29 | 3 | 0 | 32 | 93 |
| 17:15 | 1 | 4 | 2 | 0 | 7 | 0 | **13** | 1 | 0 | **14** | **4** | 35 | 0 | 0 | 39 | **4** | **44** | 5 | 0 | **53** | **113** |
| Total Volume | 5 | 23 | 7 | 0 | 35 | 0 | 35 | 13 | 0 | 48 | 10 | 155 | 0 | 0 | 165 | 8 | 142 | 14 | 0 | 164 | 412 |
| % App. Total | 14.3 | 65.7 | 20 | 0 | | 0 | 72.9 | 27.1 | 0 | | 6.1 | 93.9 | 0 | 0 | | 4.9 | 86.6 | 8.5 | 0 | | |
| PHF | .625 | .575 | .438 | .000 | .729 | .000 | .673 | .542 | .000 | .857 | .625 | .945 | .000 | .000 | .938 | .500 | .807 | .700 | .000 | .774 | .912 |
| Passenger Vehicles | 5 | 22 | 7 | 0 | 34 | 0 | 34 | 13 | 0 | 47 | 10 | 152 | 0 | 0 | 162 | 8 | 130 | 14 | 0 | 152 | 395 |
| % Passenger Vehicles | 100 | 95.7 | 100 | 0 | 97.1 | 0 | 97.1 | 100 | 0 | 97.9 | 100 | 98.1 | 0 | 0 | 98.2 | 100 | 91.5 | 100 | 0 | 92.7 | 95.9 |
| Heavy Veh | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 3 | 0 | 0 | 3 | 0 | 12 | 0 | 0 | 12 | 17 |
| % Heavy Veh | 0 | 4.3 | 0 | 0 | 2.9 | 0 | 2.9 | 0 | 0 | 2.1 | 0 | 1.9 | 0 | 0 | 1.8 | 0 | 8.5 | 0 | 0 | 7.3 | 4.1 |
| Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



Project: 110-021
Counted By: HMM
Location: Medina, NY
Other:

File Name : 0006 am
Site Code : 00000006
Start Date : 11/16/2010
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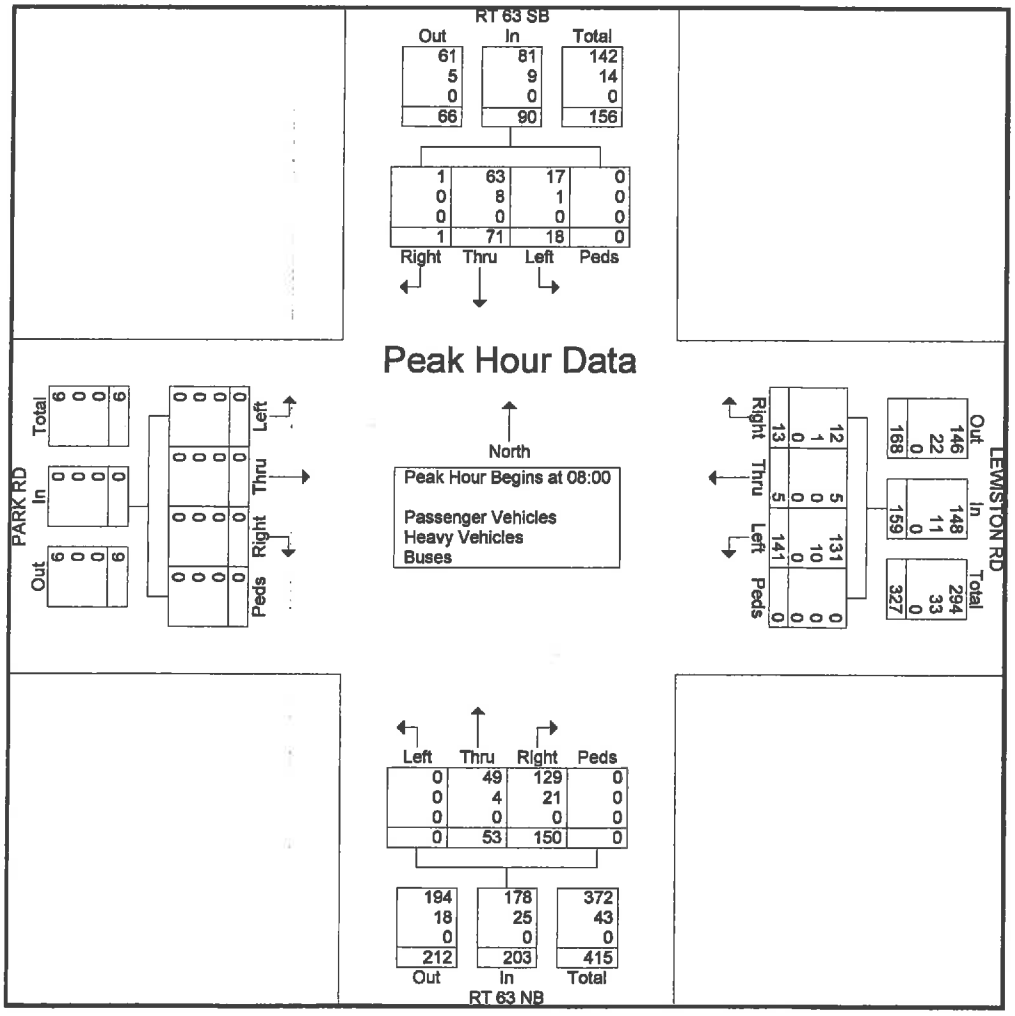
Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

| | PARK RD Eastbound | | | | | LEWISTON RD Westbound | | | | | RT 63 NB Northbound | | | | | RT 63 SB Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Int. Total |
| Factor | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | |
| 07:00 | 2 | 13 | 0 | 0 | 15 | 26 | 5 | 0 | 0 | 31 | 0 | 10 | 15 | 0 | 25 | 5 | 12 | 0 | 0 | 17 | 88 |
| 07:15 | 0 | 1 | 0 | 0 | 1 | 32 | 4 | 3 | 0 | 39 | 0 | 10 | 33 | 0 | 43 | 11 | 27 | 0 | 0 | 38 | 121 |
| 07:30 | 0 | 0 | 0 | 0 | 0 | 40 | 1 | 7 | 0 | 48 | 0 | 15 | 30 | 0 | 45 | 4 | 28 | 0 | 0 | 32 | 125 |
| 07:45 | 0 | 0 | 0 | 0 | 0 | 32 | 0 | 3 | 0 | 35 | 1 | 16 | 26 | 0 | 43 | 3 | 25 | 0 | 0 | 28 | 106 |
| Total | 2 | 14 | 0 | 0 | 16 | 130 | 10 | 13 | 0 | 153 | 1 | 51 | 104 | 0 | 156 | 23 | 92 | 0 | 0 | 115 | 440 |
| 08:00 | 0 | 0 | 0 | 0 | 0 | 31 | 0 | 1 | 0 | 32 | 0 | 16 | 25 | 0 | 41 | 4 | 8 | 1 | 0 | 13 | 86 |
| 08:15 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 2 | 0 | 28 | 0 | 18 | 57 | 0 | 75 | 8 | 18 | 0 | 0 | 26 | 129 |
| 08:30 | 0 | 0 | 0 | 0 | 0 | 38 | 3 | 3 | 0 | 44 | 0 | 9 | 35 | 0 | 44 | 4 | 26 | 0 | 0 | 30 | 118 |
| 08:45 | 0 | 0 | 0 | 0 | 0 | 46 | 2 | 7 | 0 | 55 | 0 | 10 | 33 | 0 | 43 | 2 | 19 | 0 | 0 | 21 | 119 |
| Total | 0 | 0 | 0 | 0 | 0 | 141 | 5 | 13 | 0 | 159 | 0 | 53 | 150 | 0 | 203 | 18 | 71 | 1 | 0 | 90 | 452 |
| Grand Total | 2 | 14 | 0 | 0 | 16 | 271 | 15 | 26 | 0 | 312 | 1 | 104 | 254 | 0 | 359 | 41 | 163 | 1 | 0 | 205 | 892 |
| Apprch % | 12.5 | 87.5 | 0 | 0 | | 86.9 | 4.8 | 8.3 | 0 | | 0.3 | 29 | 70.8 | 0 | | 20 | 79.5 | 0.5 | 0 | | |
| Total % | 0.2 | 1.6 | 0 | 0 | 1.8 | 30.4 | 1.7 | 2.9 | 0 | 35 | 0.1 | 11.7 | 28.5 | 0 | 40.2 | 4.6 | 18.3 | 0.1 | 0 | 23 | |
| Passenger Vehicles | 2 | 13 | 0 | 0 | 15 | 250 | 11 | 21 | 0 | 282 | 1 | 92 | 220 | 0 | 313 | 35 | 151 | 1 | 0 | 187 | 797 |
| % Passenger Vehicles | 100 | 92.9 | 0 | 0 | 93.8 | 92.3 | 73.3 | 80.8 | 0 | 90.4 | 100 | 88.5 | 86.6 | 0 | 87.2 | 85.4 | 92.6 | 100 | 0 | 91.2 | 89.3 |
| Heavy Vehicles | 0 | 1 | 0 | 0 | 1 | 21 | 4 | 5 | 0 | 30 | 0 | 12 | 34 | 0 | 46 | 6 | 12 | 0 | 0 | 18 | 95 |
| % Heavy Vehicles | 0 | 7.1 | 0 | 0 | 6.2 | 7.7 | 26.7 | 19.2 | 0 | 9.6 | 0 | 11.5 | 13.4 | 0 | 12.8 | 14.6 | 7.4 | 0 | 0 | 8.8 | 10.7 |
| Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Project: 110-021
Counted By: HMM
Location: Medina, NY
Other:

File Name : 0006 am
Site Code : 00000006
Start Date : 11/16/2010
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| | PARK RD Eastbound | | | | | LEWISTON RD Westbound | | | | | RT 63 NB Northbound | | | | | RT 63 SB Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 08:00 | | | | | | | | | | | | | | | | | | | | | |
| 08:00 | 0 | 0 | 0 | 0 | 0 | 31 | 0 | 1 | 0 | 32 | 0 | 16 | 25 | 0 | 41 | 4 | 8 | 1 | 0 | 13 | 86 |
| 08:15 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 2 | 0 | 28 | 0 | 18 | 57 | 0 | 75 | 8 | 18 | 0 | 0 | 26 | 129 |
| 08:30 | 0 | 0 | 0 | 0 | 0 | 38 | 3 | 3 | 0 | 44 | 0 | 9 | 35 | 0 | 44 | 4 | 26 | 0 | 0 | 30 | 118 |
| 08:45 | 0 | 0 | 0 | 0 | 0 | 46 | 2 | 7 | 0 | 55 | 0 | 10 | 33 | 0 | 43 | 2 | 19 | 0 | 0 | 21 | 119 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 141 | 5 | 13 | 0 | 159 | 0 | 53 | 150 | 0 | 203 | 18 | 71 | 1 | 0 | 90 | 452 |
| % App. Total | 0 | 0 | 0 | 0 | | 88.7 | 3.1 | 8.2 | 0 | | 0 | 26.1 | 73.9 | 0 | | 20 | 78.9 | 1.1 | 0 | | |
| PHF | .000 | .000 | .000 | .000 | .000 | .766 | .417 | .464 | .000 | .723 | .000 | .736 | .658 | .000 | .677 | .563 | .683 | .250 | .000 | .750 | .876 |
| Passenger Vehicles | 0 | 0 | 0 | 0 | 0 | 131 | 5 | 12 | 0 | 148 | 0 | 49 | 129 | 0 | 178 | 17 | 63 | 1 | 0 | 81 | 407 |
| % Passenger Vehicles | 0 | 0 | 0 | 0 | 0 | 92.9 | 100 | 92.3 | 0 | 93.1 | 0 | 92.5 | 86.0 | 0 | 87.7 | 94.4 | 88.7 | 100 | 0 | 90.0 | 90.0 |
| Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 1 | 0 | 11 | 0 | 4 | 21 | 0 | 25 | 1 | 8 | 0 | 0 | 9 | 45 |
| % Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 7.1 | 0 | 7.7 | 0 | 6.9 | 0 | 7.5 | 14.0 | 0 | 12.3 | 5.6 | 11.3 | 0 | 0 | 10.0 | 10.0 |
| Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



Project: 110-021
Counted By: HMM
Location: Medina, NY
Other:

File Name : 0006 pm
Site Code : 00000006
Start Date : 11/16/2010
Page No : 1

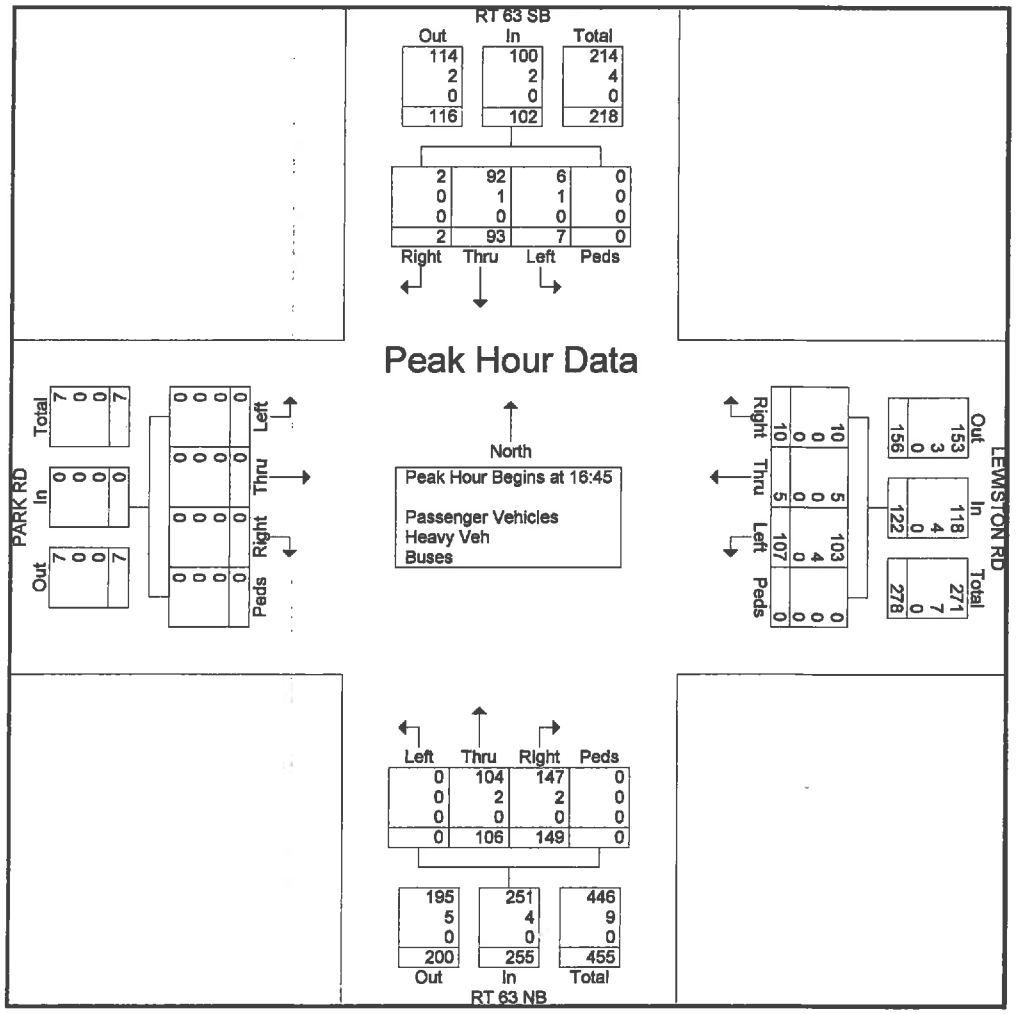
Groups Printed- Passenger Vehicles - Heavy Veh - Buses

| | PARK RD Eastbound | | | | | LEWISTON RD Westbound | | | | | RT 63 NB Northbound | | | | | RT 63 SB Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Int. Total |
| Factor | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | | |
| 16:00 | 0 | 0 | 0 | 0 | 0 | 41 | 3 | 1 | 0 | 45 | 0 | 22 | 34 | 0 | 56 | 1 | 18 | 0 | 0 | 19 | 120 |
| 16:15 | 0 | 0 | 0 | 0 | 0 | 34 | 2 | 0 | 0 | 36 | 0 | 27 | 34 | 0 | 61 | 5 | 20 | 1 | 0 | 26 | 123 |
| 16:30 | 0 | 0 | 0 | 0 | 0 | 27 | 0 | 4 | 0 | 31 | 0 | 20 | 29 | 0 | 49 | 1 | 22 | 0 | 0 | 23 | 103 |
| 16:45 | 0 | 0 | 0 | 0 | 0 | 31 | 4 | 1 | 0 | 36 | 0 | 26 | 44 | 0 | 70 | 1 | 19 | 0 | 0 | 20 | 126 |
| Total | 0 | 0 | 0 | 0 | 0 | 133 | 9 | 6 | 0 | 148 | 0 | 95 | 141 | 0 | 236 | 8 | 79 | 1 | 0 | 88 | 472 |
| 17:00 | 0 | 0 | 0 | 0 | 0 | 26 | 1 | 3 | 0 | 30 | 0 | 26 | 39 | 0 | 65 | 2 | 20 | 2 | 0 | 24 | 119 |
| 17:15 | 0 | 0 | 0 | 0 | 0 | 29 | 0 | 5 | 0 | 34 | 0 | 26 | 33 | 0 | 59 | 3 | 22 | 0 | 0 | 25 | 118 |
| 17:30 | 0 | 0 | 0 | 0 | 0 | 21 | 0 | 1 | 0 | 22 | 0 | 28 | 33 | 0 | 61 | 1 | 32 | 0 | 0 | 33 | 116 |
| 17:45 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 2 | 0 | 20 | 1 | 22 | 33 | 0 | 56 | 0 | 15 | 1 | 0 | 16 | 92 |
| Total | 0 | 0 | 0 | 0 | 0 | 94 | 1 | 11 | 0 | 106 | 1 | 102 | 138 | 0 | 241 | 6 | 89 | 3 | 0 | 98 | 445 |
| Grand Total | 0 | 0 | 0 | 0 | 0 | 227 | 10 | 17 | 0 | 254 | 1 | 197 | 279 | 0 | 477 | 14 | 168 | 4 | 0 | 186 | 917 |
| Apprch % | 0 | 0 | 0 | 0 | | 89.4 | 3.9 | 6.7 | 0 | | 0.2 | 41.3 | 58.5 | 0 | | 7.5 | 90.3 | 2.2 | 0 | | |
| Total % | 0 | 0 | 0 | 0 | 0 | 24.8 | 1.1 | 1.9 | 0 | 27.7 | 0.1 | 21.5 | 30.4 | 0 | 52 | 1.5 | 18.3 | 0.4 | 0 | 20.3 | |
| Passenger Vehicles | 0 | 0 | 0 | 0 | 0 | 216 | 10 | 17 | 0 | 243 | 1 | 194 | 275 | 0 | 470 | 9 | 164 | 4 | 0 | 177 | 890 |
| % Passenger Vehicles | 0 | 0 | 0 | 0 | 0 | 95.2 | 100 | 100 | 0 | 95.7 | 100 | 98.5 | 98.6 | 0 | 98.5 | 64.3 | 97.6 | 100 | 0 | 95.2 | 97.1 |
| Heavy Veh | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 11 | 0 | 3 | 4 | 0 | 7 | 5 | 4 | 0 | 0 | 9 | 27 |
| % Heavy Veh | 0 | 0 | 0 | 0 | 0 | 4.8 | 0 | 0 | 0 | 4.3 | 0 | 1.5 | 1.4 | 0 | 1.5 | 35.7 | 2.4 | 0 | 0 | 4.8 | 2.9 |
| Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Project: 110-021
Counted By: HMM
Location: Medina, NY
Other:

File Name : 0006 pm
Site Code : 00000006
Start Date : 11/16/2010
Page No : 2

| | PARK RD Eastbound | | | | | LEWISTON RD Westbound | | | | | RT 63 NB Northbound | | | | | RT 63 SB Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 16:45 | | | | | | | | | | | | | | | | | | | | | |
| 16:45 | 0 | 0 | 0 | 0 | 0 | **31** | **4** | 1 | 0 | **36** | 0 | 26 | **44** | 0 | **70** | 1 | 19 | 0 | 0 | 20 | **126** |
| 17:00 | 0 | 0 | 0 | 0 | 0 | **26** | 1 | 3 | 0 | 30 | 0 | 26 | 39 | 0 | 65 | 2 | 20 | **2** | 0 | 24 | 119 |
| 17:15 | 0 | 0 | 0 | 0 | 0 | **29** | 0 | **5** | 0 | 34 | 0 | 26 | 33 | 0 | 59 | **3** | 22 | 0 | 0 | 25 | 118 |
| 17:30 | 0 | 0 | 0 | 0 | 0 | 21 | 0 | 1 | 0 | 22 | 0 | **28** | 33 | 0 | 61 | 1 | **32** | 0 | 0 | **33** | 116 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 107 | 5 | 10 | 0 | 122 | 0 | 106 | 149 | 0 | 255 | 7 | 93 | 2 | 0 | 102 | 479 |
| % App. Total | 0 | 0 | 0 | 0 | | 87.7 | 4.1 | 8.2 | 0 | | 0 | 41.6 | 58.4 | 0 | | 6.9 | 91.2 | 2 | 0 | | |
| PHF | .000 | .000 | .000 | .000 | .000 | .863 | .313 | .500 | .000 | .847 | .000 | .946 | .847 | .000 | .911 | .583 | .727 | .250 | .000 | .773 | .950 |
| Passenger Vehicles | 0 | 0 | 0 | 0 | 0 | 103 | 5 | 10 | 0 | 118 | 0 | 104 | 147 | 0 | 251 | 6 | 92 | 2 | 0 | 100 | 469 |
| % Passenger Vehicles | 0 | 0 | 0 | 0 | 0 | 96.3 | 100 | 100 | 0 | 96.7 | 0 | 98.1 | 98.7 | 0 | 98.4 | 85.7 | 98.9 | 100 | 0 | 98.0 | 97.9 |
| Heavy Veh | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 4 | 0 | 2 | 2 | 0 | 4 | 1 | 1 | 0 | 0 | 2 | 10 |
| % Heavy Veh | 0 | 0 | 0 | 0 | 0 | 3.7 | 0 | 0 | 0 | 3.3 | 0 | 1.9 | 1.3 | 0 | 1.6 | 14.3 | 1.1 | 0 | 0 | 2.0 | 2.1 |
| Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



STATION: **410161**

# New York State Department of Transportation

## Traffic Count Hourly Report

ROUTE #: **NY 77** ROAD NAME:
DIRECTION: Northbound FACTOR GROUP: 40
STATE DIR CODE: 1 WK OF YR: 32
DATE OF COUNT: 08/06/2010
NOTES LANE 1: NB Approach(1 Lane)

COUNT TAKEN BY: ORG CODE: R04 INITIALS: RHC

FROM: **BLOOMINGDALE RD**
REC. SERIAL #: BN30
PLACEMENT: ^@Reference Marker
@ REF MARKER: 77 41021144
ADDL DATA:
COUNT TYPE: AXLE PAIRS

PROCESSED BY: ORG CODE: DOT INITIALS: RHC

TO: **START 63 OLAP**
FUNC. CLASS: 06
NHS: no
JURIS: NYSDOT
CC Stn:
BATCH ID: DOT-RO4BBWW34

COUNTY: **Genesee**
TOWN: **ALABAMA**
BIN: 1030100
RR CROSSING:
HPMS SAMPLE:

| DATE | DAY | 12 TO 1 AM | 1 TO 2 AM | 2 TO 3 AM | 3 TO 4 AM | 4 TO 5 AM | 5 TO 6 AM | 6 TO 7 AM | 7 TO 8 AM | 8 TO 9 AM | 9 TO 10 AM | 10 TO 11 AM | 11 TO 12 AM | 12 TO 1 PM | 1 TO 2 PM | 2 TO 3 PM | 3 TO 4 PM | 4 TO 5 PM | 5 TO 6 PM | 6 TO 7 PM | 7 TO 8 PM | 8 TO 9 PM | 9 TO 10 PM | 10 TO 11 PM | 11 TO 12 PM | DAILY TOTAL | DAILY HIGH COUNT | DAILY HIGH HOUR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | M | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | W | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | F | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | M | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | T | | | | | | | | | | | 103 | 223 | 196 | 252 | 260 | 305 | 308 | 325 | 242 | 180 | 190 | 119 | 122 | 93 | | | |
| 11 | W | 61 | 13 | 16 | 19 | 33 | 56 | 132 | 178 | 148 | 158 | 209 | 239 | 209 | 255 | 260 | 280 | 304 | 332 | 218 | 158 | 175 | 119 | 113 | 63 | 3748 | 332 | 17 |
| 12 | T | 36 | 24 | 16 | 13 | 13 | 53 | 138 | 150 | 136 | 158 | 207 | 215 | 211 | 242 | 258 | 292 | 335 | 311 | 260 | 197 | 149 | 146 | 108 | 64 | 3732 | 335 | 16 |
| 13 | F | 34 | 16 | 20 | 19 | 23 | 53 | 116 | 165 | 145 | 195 | 171 | 286 | 272 | 288 | 324 | 356 | 395 | 421 | 305 | 250 | 217 | 148 | 143 | 140 | 4502 | 421 | 17 |
| 14 | S | 158 | 35 | 20 | 10 | 13 | 26 | 81 | 78 | 138 | 185 | 249 | 272 | 297 | 274 | 299 | 279 | 281 | 232 | 205 | 189 | 177 | 155 | 157 | 144 | 3954 | 299 | 14 |
| 15 | S | 131 | 64 | 26 | 8 | 18 | 19 | 35 | 48 | 90 | 139 | 319 | 248 | 283 | 300 | 278 | 278 | 265 | 252 | 217 | 223 | 159 | 121 | 96 | 47 | 3664 | 319 | 10 |
| 16 | M | 28 | 11 | 14 | 10 | 12 | 47 | 125 | 155 | 130 | 150 | 178 | 217 | 199 | 249 | 236 | 264 | 313 | 323 | 216 | 175 | 151 | 92 | 92 | 54 | 3441 | 323 | 17 |
| 17 | T | 38 | 15 | 6 | 20 | 28 | 43 | 144 | 164 | 127 | 154 | 210 | 215 | 228 | 250 | 241 | 265 | 328 | 291 | 206 | 202 | 153 | 113 | 99 | 63 | 3603 | 328 | 16 |
| 18 | W | 24 | 19 | 14 | 6 | 17 | 59 | 143 | 172 | 165 | 165 | 188 | 195 | 231 | 240 | 210 | | | | | | | | | | | | |
| 19 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | F | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | M | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | W | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | F | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 29 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | M | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)**

| 37 | 16 | 13 | 14 | 22 | 51 | 127 | 157 | 136 | 156 | 173 | 217 | 203 | 237 | 234 | 269 | 304 | 302 | 218 | 174 | 157 | 113 | 102 | 64 | ADT 3496 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| DAYS Counted | HOURS Counted | WEEKDAYS Counted | WEEKDAY Hours | AVERAGE WEEKDAY High Hour | AVERAGE WEEKDAY % of day | Axle Adj. Factor | Seasonal/Weekday Adjustment Factor |
|---|---|---|---|---|---|---|---|
| 9 | 197 | 6 | 131 | 304 | 9% | 0.957 | 1.197 |

**ESTIMATED (one way)**

**AADT**

**2921**

# New York State Department of Transportation

## Traffic Count Hourly Report

ROUTE #: **NY 77** ROAD NAME:
DIRECTION: Southbound FACTOR GROUP: 40
STATE DIR CODE: 2 WK OF YR: 32
DATE OF COUNT: 08/06/2010
NOTES LANE 1: SB Approach(1 Lane)

FROM: **BLOOMINGDALE RD**
REC. SERIAL #: BN75
PLACEMENT: ^@Reference Marker
@ REF MARKER: 77 41021144
ADDL DATA:
COUNT TYPE: AXLE PAIRS

TO: **START 63 OLAP**
FUNC. CLASS: 06
NHS: no
JURIS: NYSDOT
CC Stn:
BATCH ID: DOT-RO4BBWW34

COUNTY: **Genesee**
TOWN: **ALABAMA**
BIN: 1030100
RR CROSSING:
HPMS SAMPLE:

COUNT TAKEN BY: ORG CODE: R04 INITIALS: RHC
PROCESSED BY: ORG CODE: DOT INITIALS: RHC

| DATE | DAY | 12 TO 1 AM | 1 TO 2 AM | 2 TO 3 AM | 3 TO 4 AM | 4 TO 5 AM | 5 TO 6 AM | 6 TO 7 AM | 7 TO 8 AM | 8 TO 9 AM | 9 TO 10 AM | 10 TO 11 AM | 11 TO 12 AM | 12 TO 1 PM | 1 TO 2 PM | 2 TO 3 PM | 3 TO 4 PM | 4 TO 5 PM | 5 TO 6 PM | 6 TO 7 PM | 7 TO 8 PM | 8 TO 9 PM | 9 TO 10 PM | 10 TO 11 PM | 11 TO 12 PM | DAILY TOTAL | DAILY HIGH COUNT | DAILY HIGH HOUR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | M | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | W | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | F | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | M | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | T | | | | | | | | | | | 261 | 269 | 231 | 247 | 246 | 261 | 268 | 276 | 249 | 169 | 95 | 107 | 49 | 39 | | | |
| 11 | W | 18 | 5 | 8 | 16 | 38 | 117 | 151 | 253 | 226 | 255 | 304 | 231 | 263 | 283 | 269 | 290 | 258 | 261 | 179 | 155 | 125 | 86 | 46 | 33 | 3870 | 304 | 10 |
| 12 | T | 13 | 18 | 12 | 13 | 42 | 117 | 158 | 253 | 223 | 239 | 284 | 260 | 231 | 239 | 258 | 294 | 281 | 278 | 217 | 174 | 138 | 103 | 59 | 49 | 3953 | 294 | 15 |
| 13 | F | 12 | 12 | 10 | 24 | 32 | 101 | 154 | 234 | 223 | 269 | 284 | 375 | 323 | 325 | 327 | 336 | 400 | 395 | 303 | 220 | 158 | 97 | 70 | 78 | 4762 | 400 | 16 |
| 14 | S | 26 | 28 | 10 | 11 | 27 | 51 | 78 | 160 | 192 | 239 | 323 | 340 | 391 | 320 | 299 | 331 | 299 | 296 | 218 | 161 | 127 | 114 | 71 | 56 | 4168 | 391 | 12 |
| 15 | S | 30 | 12 | 9 | 8 | 16 | 31 | 38 | 99 | 122 | 189 | 324 | 277 | 333 | 287 | 280 | 256 | 203 | 183 | 163 | 160 | 117 | 84 | 37 | 40 | 3298 | 333 | 12 |
| 16 | M | 8 | 17 | 11 | 13 | 34 | 113 | 151 | 247 | 208 | 233 | 224 | 263 | 222 | 244 | 255 | 282 | 260 | 238 | 188 | 139 | 93 | 69 | 53 | 46 | 3611 | 282 | 15 |
| 17 | T | 18 | 3 | 7 | 19 | 33 | 121 | 137 | 260 | 195 | 236 | 264 | 226 | 246 | 236 | 214 | 267 | 312 | 268 | 213 | 153 | 126 | 110 | 52 | 39 | 3755 | 312 | 16 |
| 18 | W | 19 | 16 | 18 | 8 | 40 | 119 | 177 | 241 | 238 | 276 | 322 | 328 | 336 | 275 | 267 | | | | | | | | | | | | |
| 19 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | F | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | M | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | W | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | F | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 29 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | M | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | T | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**AVERAGE WEEKDAY HOURS (Axle Factored, Mon 6AM to Fri Noon)**

| 12 TO 1 AM | 1 TO 2 AM | 2 TO 3 AM | 3 TO 4 AM | 4 TO 5 AM | 5 TO 6 AM | 6 TO 7 AM | 7 TO 8 AM | 8 TO 9 AM | 9 TO 10 AM | 10 TO 11 AM | 11 TO 12 AM | 12 TO 1 PM | 1 TO 2 PM | 2 TO 3 PM | 3 TO 4 PM | 4 TO 5 PM | 5 TO 6 PM | 6 TO 7 PM | 7 TO 8 PM | 8 TO 9 PM | 9 TO 10 PM | 10 TO 11 PM | 11 TO 12 PM | ADT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15 | 11 | 11 | 15 | 35 | 110 | 148 | 237 | 210 | 240 | 266 | 267 | 244 | 243 | 241 | 267 | 264 | 253 | 200 | 151 | 110 | 91 | 50 | 39 | 3718 |

| DAYS Counted | HOURS Counted | WEEKDAYS WEEKDAY Counted | WEEKDAYS WEEKDAY Hours | AVERAGE WEEKDAY High Hour | AVERAGE WEEKDAY % of day | Axle Adj. Factor | Seasonal/Weekday Adjustment Factor | ESTIMATED (one way) |
|---|---|---|---|---|---|---|---|---|
| 9 | 197 | 6 | 131 | 267 | 7% | 0.957 | 1.197 | **AADT 3106** |

# Appendix D – Multi-Use Trip Credit

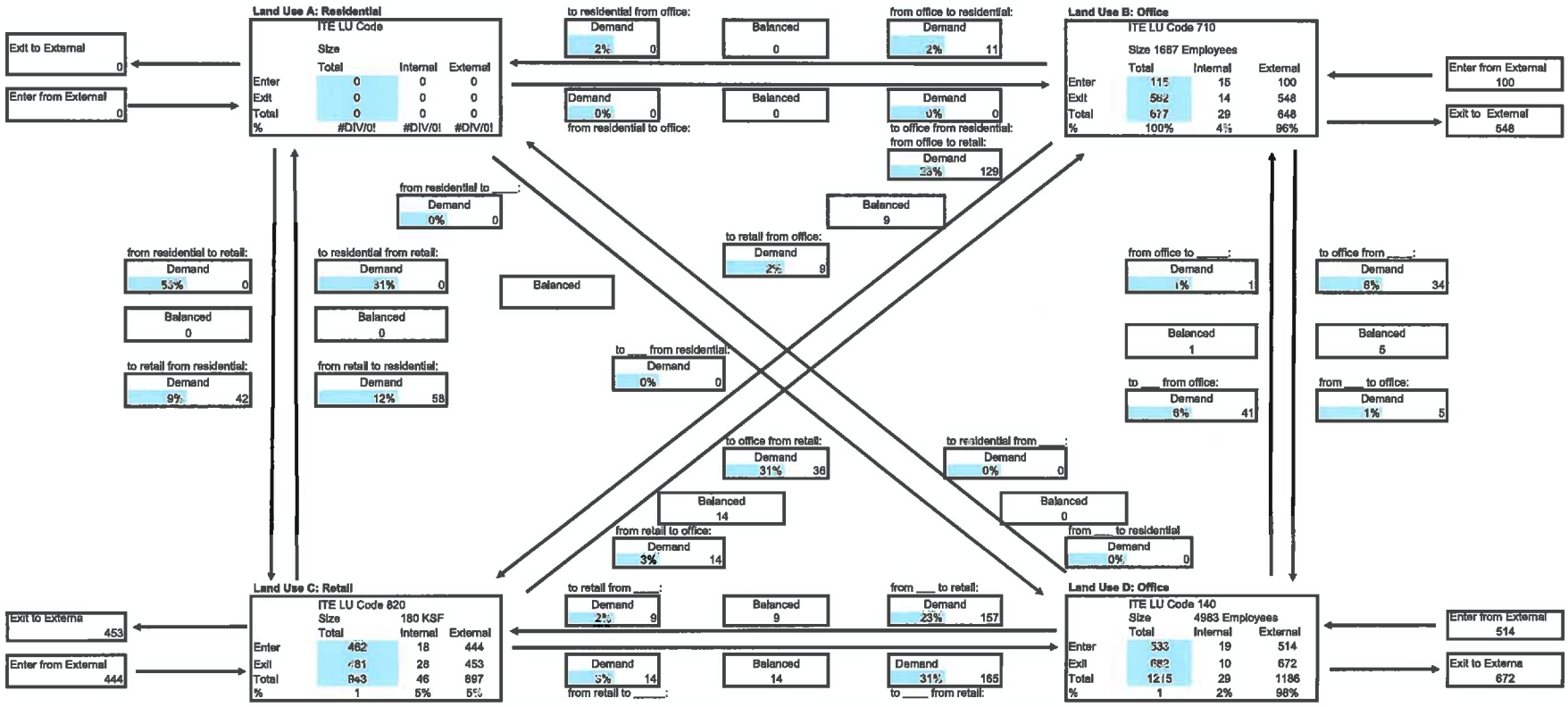
**Traffic Impact Study**
**STAMP**
**Town of Alabama, New York**

Time period: Mid-day, PM, or daily: PM

**MULTI-USE CREDIT WORKSHEET**
**Source: ITE Trip Generation Handbook**

Project: SSTAMP
Calc by: MDN Date: 12/6/2010
Checked by: Date:

How to use this worksheet: 1) Save as this worksheet into your project directory and enter the header information of this sheet. 2) Calculate the total trip gen for each use and enter it in each land use box.
3) Enter the internal capture rates for the land uses based on the time period selected. The default is the PM peak hour. 4) Internal caputure rate will automatically be calculated.




| Net External Trips for Multi-Use Development | | | | | |
|---|---|---|---|---|---|
| | Land Use A | Land Use B | Land Use C | Land Use D | Total |
| Enter | 0 | 100 | 444 | 514 | 1058 |
| Exit | 0 | 548 | 453 | 672 | 1673 |
| Total | 0 | 648 | 897 | 1186 | 2731 |
| Single-Use Trip Gen. Est. | 0 | 677 | 943 | 1215 | 2835 |

**Percent of Internal Capture**
3.668430335

# Appendix E – Two-lane Capacity Analysis

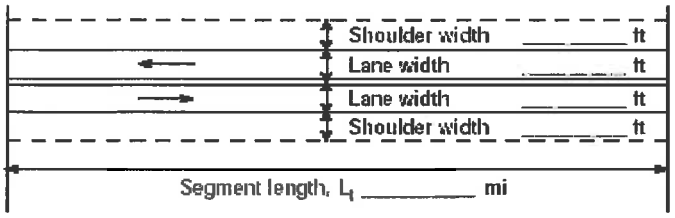
**Traffic Impact Study**
**STAMP**
**Town of Alabama, New York**

# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, HAMJDGnb15am | From/To | Ham Rd to Judge Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | AM Peak Hour | Analysis Year | No-Build 2015 |

Project Description: 110-021, STAMP

**Input Data**







Class I highway ☐ Class II highway ☐

Terrain ☐ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 422 veh/h |
| Directional split | 56 / 44 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 10 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 6 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.7 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.935 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 502 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 281 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.5 mi/h |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 57.2 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 53.3 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.990 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 474 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 265 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 34.1 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.2 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 34.3 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | B |
| Volume to capacity ratio, $v/c=V_p/3,200$ | 0.16 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 117 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 422 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}/ATS$ | 2.2 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

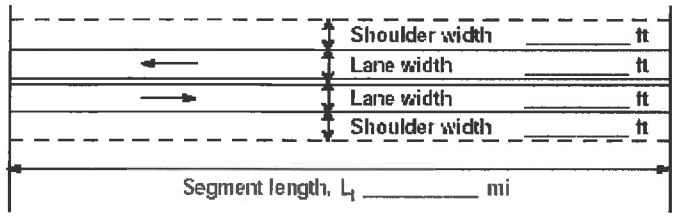
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, JDGBLMnb15am | From/To | Judge Rd to Bloomingdale Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | AM Peak Hour | Analysis Year | No-Build 2015 |

Project Description: 110-021, STAMP

**Input Data**







Class I highway ☐ Class II highway

Terrain ☐ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 474 veh/h |
| Directional split | 60 / 40 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 10 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 4 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.7 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.935 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 564 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 338 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.0 mi/h |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 57.7 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 53.3 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.990 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 532 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 319 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 37.4 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.2 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 37.5 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | B |
| Volume to capacity ratio, v/c=$V_p$/ 3,200 | 0.18 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t$(V/PHF) | 66 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=V*$L_t$ | 237 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 1.2 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

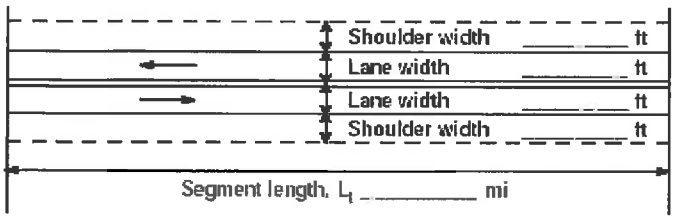
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, BLMLDGnb15am | From/To | Bloomingdale Rd to Ledge Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | AM Peak Hour | Analysis Year | No-Build 2015 |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 426 veh/h |
| Directional split | 59 / 41 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 10 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ *mi* | 12 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.7 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.935 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 506 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 299 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | *mi/h* | Base free-flow speed, $BFFS_{FM}$ | 60.0 *mi/h* |
| Observed volume, $V_f$ | *veh/h* | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 *mi/h* |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | *mi/h* | Adj. for access points, $f_A$ (Exhibit 20-6) | 3.0 *mi/h* |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 55.7 *mi/h* |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( *mi/h*) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( *mi/h*) $ATS=FFS-0.00776v_p-f_{np}$ | 51.8 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.990 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 478 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 282 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 34.3 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.3 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 34.6 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | B |
| Volume to capacity ratio, $v/c=V_p/3{,}200$ | 0.16 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- *mi*)= $0.25L_t(V/PHF)$ | 178 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- *mi*)=$V*L_t$ | 639 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}/ATS$ | 3.4 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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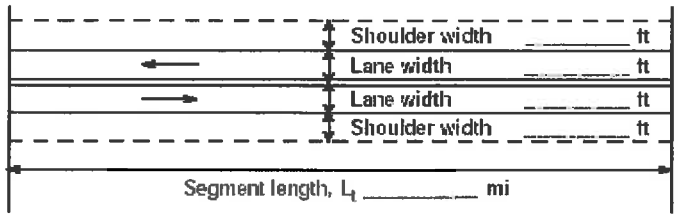
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, LDGAKRnb15am | From/To | Ledge Rd to Akron Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | AM Peak Hour | Analysis Year | No-Build 2015 |

Project Description: 110-021, STAMP

**Input Data**







Class I highway ☑ Class II highway ☐

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 456 veh/h |
| Directional split | 63 / 37 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 10 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 12 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.7 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.935 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 542 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 341 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 3.0 mi/h |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 55.7 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 51.5 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.990 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 512 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 323 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 36.2 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.2 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 36.5 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | B |
| Volume to capacity ratio, $v/c=V_p/3{,}200$ | 0.17 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 177 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 638 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}/ATS$ | 3.4 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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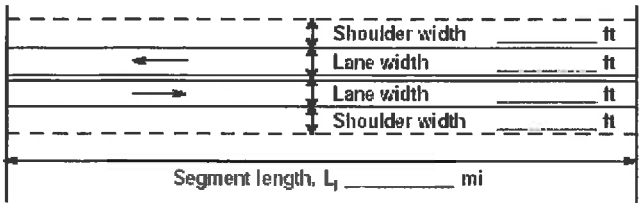
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, AKR48Anb15am | From/To | Akron Rd to I-90 Exit 48A |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | AM Peak Hour | Analysis Year | No-Build 2015 |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 619 veh/h |
| Directional split | 55 / 45 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 10 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 4 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.2 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.980 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 702 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 386 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.0 mi/h |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 57.7 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 52.3 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.990 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 695 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 382 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 45.7 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 45.7 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | B |
| Volume to capacity ratio, $v/c=V_p/3{,}200$ | 0.22 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 258 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 929 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 4.9 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

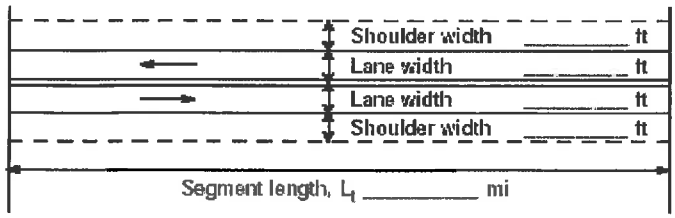
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, 48ART5nb15am | From/To | I-90 Exit 48A to Route 5 |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | AM Peak Hour | Analysis Year | No-Build 2015 |

Project Description: 110-021, STAMP

**Input Data**







☐ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 650 veh/h |
| Directional split | 54 / 46 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 10 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 6 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.2 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.980 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 737 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 398 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.5 mi/h |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 57.2 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 51.5 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.990 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 729 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 394 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 47.3 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 47.3 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | B |
| Volume to capacity ratio, $v/c=V_p/3{,}200$ | 0.23 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 126 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 455 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 2.4 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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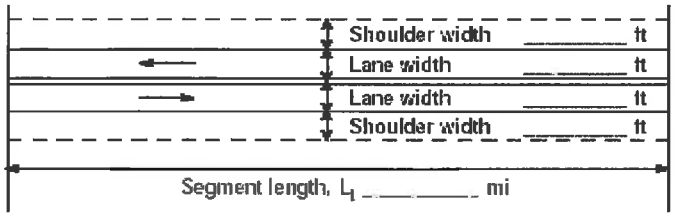
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, HAMJDGnb15pm | From/To | Ham Rd to Judge Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | PM Peak Hour | Analysis Year | No-Build 2015 |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 660 veh/h |
| Directional split | 53 / 47 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 7 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 6 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.2 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.986 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 744 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 394 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.5 mi/h |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 57.2 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 51.4 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.993 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 738 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 391 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 47.7 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 47.7 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | B |
| Volume to capacity ratio, $v/c=V_p/3,200$ | 0.23 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 183 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 660 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}/ATS$ | 3.6 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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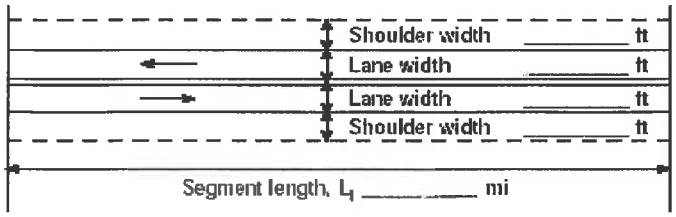
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, JDGBLMnb15pm | From/To | Judge Rd to Bloomingdale Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | PM Peak Hour | Analysis Year | No-Build 2015 |

Project Description: *110-021, STAMP*

**Input Data**







Class I highway ☑ Class II highway ☐

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 696 veh/h |
| Directional split | 54 / 46 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 7 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ *mi* | 4 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.2 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.986 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 784 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 423 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | *mi/h* | Base free-flow speed, $BFFS_{FM}$ | 60.0 *mi/h* |
| Observed volume, $V_f$ | *veh/h* | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 *mi/h* |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | *mi/h* | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.0 *mi/h* |
| | | Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$ | 57.7 *mi/h* |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( *mi/h*) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( *mi/h*) $ATS=FFS-0.00776v_p-f_{np}$ | 51.6 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.993 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 779 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 421 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 49.6 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 49.6 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | B |
| Volume to capacity ratio, $v/c=V_p/3{,}200$ | 0.25 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- *mi*)= $0.25L_t(V/PHF)$ | 97 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- *mi*)=$V*L_t$ | 348 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 1.9 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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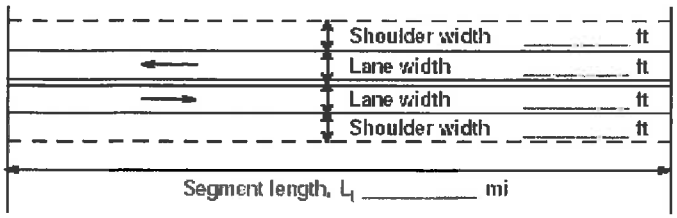
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, BLMLDGnb15pm | From/To | Bloomingdale Rd to Ledge Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | PM Peak Hour | Analysis Year | No-Build 2015 |

Project Description: 110-021, STAMP

**Input Data**







☐ Class I highway ☐ Class II highway

Terrain ☐ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 550 veh/h |
| Directional split | 56 / 44 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 7 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 12 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.2 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.986 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 620 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 347 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f * f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 3.0 mi/h |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 55.7 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 50.9 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.993 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 615 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 344 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 41.8 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 41.8 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | B |
| Volume to capacity ratio, $v/c=V_p/3{,}200$ | 0.19 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 229 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 825 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}/ATS$ | 4.5 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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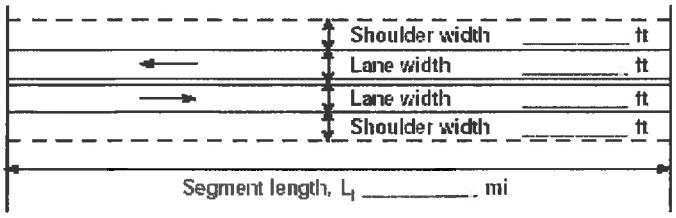
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, LDGAKRnb15pm | From/To | Ledge Rd to Akron Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | PM Peak Hour | Analysis Year | No-Build 2015 |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 674 veh/h |
| Directional split | 58 / 42 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 7 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ *mi* | 12 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.2 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.986 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 759 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 440 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | *mi/h* | Base free-flow speed, $BFFS_{FM}$ | 60.0 *mi/h* |
| Observed volume, $V_f$ | *veh/h* | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 *mi/h* |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | *mi/h* | Adj. for access points, $f_A$ (Exhibit 20-6) | 3.0 *mi/h* |
| | | Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$ | 55.7 *mi/h* |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( *mi/h*) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( *mi/h*) $ATS=FFS-0.00776v_p-f_{np}$ | 49.8 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.993 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 754 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 437 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 48.5 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 48.5 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | C |
| Volume to capacity ratio, v/c=$V_p$/ 3,200 | 0.24 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- *mi*)= $0.25L_t(V/PHF)$ | 262 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- *mi*)=$V*L_t$ | 944 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 5.3 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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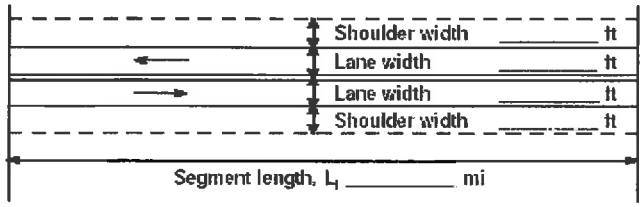
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, AKR48Anb15pm | From/To | Akron Rd to I-90 Exit 48A |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | PM Peak Hour | Analysis Year | No-Build 2015 |

Project Description: 110-021, STAMP

**Input Data**







Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 815 veh/h |
| Directional split | 64 / 36 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 7 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 4 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.2 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.986 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 918 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 588 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.0 mi/h |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 57.7 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 50.6 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.993 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 912 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 584 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 55.1 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 55.1 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | C |
| Volume to capacity ratio, $v/c=V_p/3{,}200$ | 0.29 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 340 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 1223 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 6.7 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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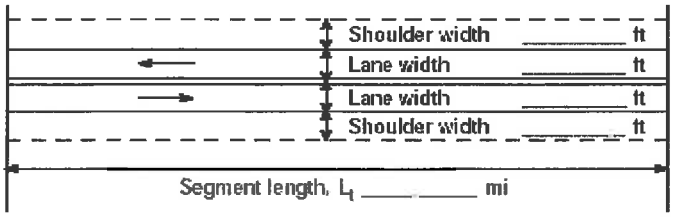
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, 48ART5nb15pm | From/To | I-90 Exit 48A to Route 5 |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | PM Peak Hour | Analysis Year | No-Build 2015 |

Project Description: 110-021, STAMP

**Input Data**




Show North Arrow

☐ Class I highway ☐ Class II highway

Terrain ☐ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 1029 veh/h |
| Directional split | 52 / 48 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 7 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 6 |

| | |
|---|---|
| **Average Travel Speed** | |
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.2 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.986 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1159 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 603 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.5 mi/h |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 57.2 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 48.2 |
| **Percent Time-Spent-Following** | |
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.993 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1151 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 599 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 63.6 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 63.6 |
| **Level of Service and Other Performance Measures** | |
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | C |
| Volume to capacity ratio, $v/c=V_p/3{,}200$ | 0.36 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 200 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 720 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 4.1 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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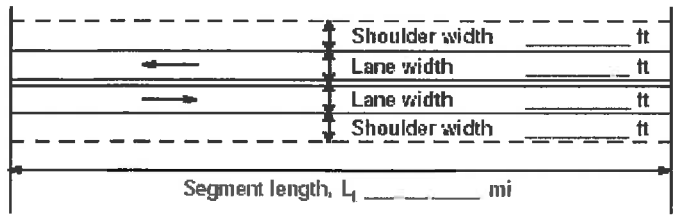
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, HAMJDGnb35am | From/To | Ham Rd to Judge Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | AM Peak Hour | Analysis Year | No-Build 2035 |

Project Description: 110-021, STAMP

**Input Data**







☐ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 506 veh/h |
| Directional split | 56 / 44 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 10 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ *mi* | 6 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.2 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.980 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 573 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 321 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | *mi/h* | Base free-flow speed, $BFFS_{FM}$ | 60.0 *mi/h* |
| Observed volume, $V_f$ | *veh/h* | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 *mi/h* |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | *mi/h* | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.5 *mi/h* |
| | | Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$ | 57.2 *mi/h* |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( *mi/h*) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( *mi/h*) $ATS=FFS-0.00776v_p-f_{np}$ | 52.8 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.990 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 568 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 318 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 39.3 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 39.4 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | B |
| Volume to capacity ratio, v/c=$V_p$/ 3,200 | 0.18 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- *mi*)= $0.25L_t(V/PHF)$ | 141 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- *mi*)=$V*L_t$ | 506 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 2.7 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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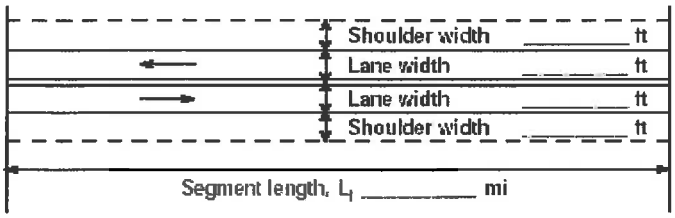
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, JDGBLMnb35am | From/To | Judge Rd to Bloomingdale Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | AM Peak Hour | Analysis Year | No-Build 2035 |

Project Description: 110-021, STAMP

**Input Data**




Show North Arrow

☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 569 veh/h |
| Directional split | 60 / 40 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 10 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 4 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.2 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.980 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 645 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 387 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.0 mi/h |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 57.7 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 52.7 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.990 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 639 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 383 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 43.0 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 43.0 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | B |
| Volume to capacity ratio, $v/c=V_p/3{,}200$ | 0.20 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 79 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V^*L_t$ | 285 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}/ATS$ | 1.5 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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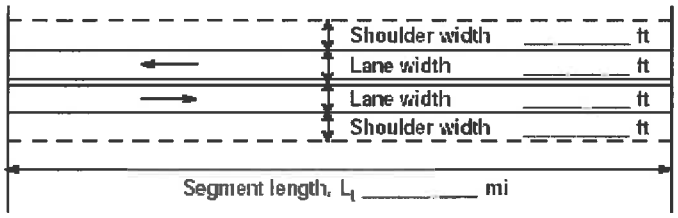
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, BLMLDGnb35am | From/To | Bloomingdale Rd to Ledge Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | AM Peak Hour | Analysis Year | No-Build 2035 |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 511 veh/h |
| Directional split | 59 / 41 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 10 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ *mi* | 12 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.2 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.980 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 579 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 342 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | *mi/h* | Base free-flow speed, $BFFS_{FM}$ | 60.0 *mi/h* |
| Observed volume, $V_f$ | *veh/h* | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 *mi/h* |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | *mi/h* | Adj. for access points, $f_A$ (Exhibit 20-6) | 3.0 *mi/h* |
| | | Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$ | 55.7 *mi/h* |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( *mi/h*) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( *mi/h*) $ATS=FFS-0.00776v_p-f_{np}$ | 51.2 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.990 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 573 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 338 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 39.6 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.1 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 39.6 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | B |
| Volume to capacity ratio, v/c=$V_p$/ 3,200 | 0.18 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- *mi*)= $0.25L_t(V/PHF)$ | 213 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- *mi*)=$V*L_t$ | 767 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 4.2 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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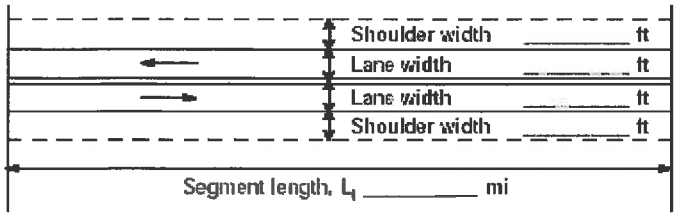
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, LDGAKRnb35am | From/To | Ledge Rd to Akron Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | AM Peak Hour | Analysis Year | No-Build 2035 |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 559 veh/h |
| Directional split | 63 / 37 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 10 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 12 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.2 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.980 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 634 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 399 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 3.0 mi/h |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 55.7 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 50.8 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.990 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 627 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 395 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 42.4 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 42.4 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | B |
| Volume to capacity ratio, v/c=$V_p$/ 3,200 | 0.20 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 217 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 783 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 4.3 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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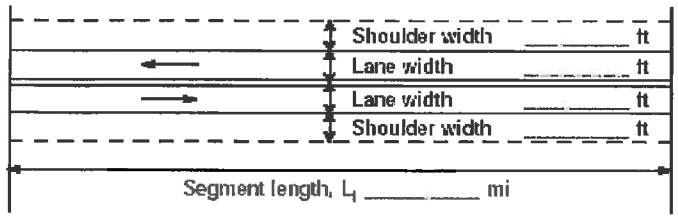
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, AKR48Anb35am | From/To | Akron Rd to I-90 Exit 48A |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | AM Peak Hour | Analysis Year | No-Build 2035 |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 744 veh/h |
| Directional split | 64 / 36 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 10 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 4 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.2 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.980 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 843 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 540 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.0 mi/h |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 57.7 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 51.2 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.990 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 835 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 534 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 52.0 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 52.0 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | C |
| Volume to capacity ratio, $v/c=V_p/3{,}200$ | 0.26 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 310 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 1116 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 6.1 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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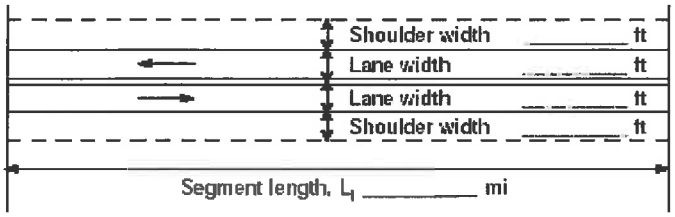
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, 48ART5nb35am | From/To | I-90 Exit 48A to Route 5 |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | AM Peak Hour | Analysis Year | No-Build 2035 |

Project Description: 110-021, STAMP

**Input Data**







☐ Class I highway ☐ Class II highway

Terrain ☐ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 768 veh/h |
| Directional split | 55 / 45 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 10 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 6 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.2 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.980 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 870 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 479 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.5 mi/h |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 57.2 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 50.4 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.990 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 862 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 474 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 53.1 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 53.1 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | C |
| Volume to capacity ratio, $v/c=V_p/3{,}200$ | 0.27 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 149 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 538 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 3.0 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

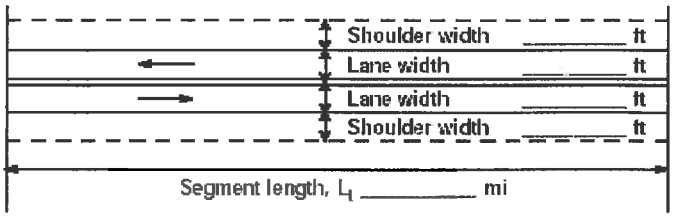
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, HAMJDGnb35pm | From/To | Ham Rd to Judge Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | PM Peak Hour | Analysis Year | No-Build 2035 |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 783 veh/h |
| Directional split | 52 / 48 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 7 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 6 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.2 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.986 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 882 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 459 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS FFS=$S_{FM}$+0.00776($V_f$/ $f_{HV}$) | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.5 mi/h |
| | | Free-flow speed, FFS (FSS=BFFS-$f_{LS}$-$f_A$) | 57.2 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) ATS=FFS-0.00776$v_p$-$f_{np}$ | 50.4 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.993 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 876 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 456 |
| Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$) | 53.7 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$ | 53.7 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | C |
| Volume to capacity ratio, v/c=$V_p$/ 3,200 | 0.28 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= 0.25$L_t$(V/PHF) | 218 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=V*$L_t$ | 783 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 4.3 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

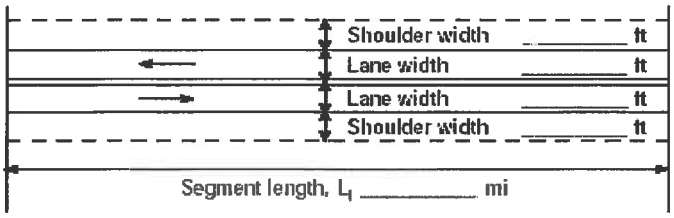
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, JDGBLMnb35pm | From/To | Judge Rd to Bloomingdale Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | PM Peak Hour | Analysis Year | No-Build 2035 |

Project Description: 110-021, STAMP

**Input Data**







☐ Class I highway ☐ Class II highway

Terrain ☐ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 829 veh/h |
| Directional split | 54 / 46 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 7 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 4 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.2 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.986 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 934 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 504 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.0 mi/h |
| | | Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$ | 57.7 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 50.5 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.993 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 928 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 501 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 55.8 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 55.8 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | C |
| Volume to capacity ratio, $v/c=V_p/3{,}200$ | 0.29 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 115 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 415 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}/ATS$ | 2.3 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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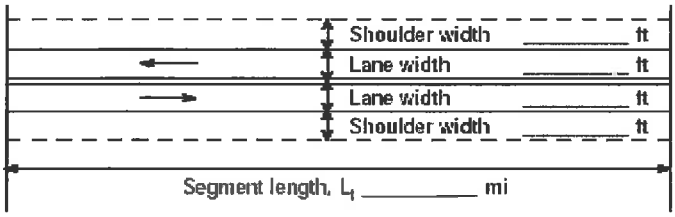
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, BLMLDGnb35pm | From/To | Bloomingdale Rd to Ledge Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | PM Peak Hour | Analysis Year | No-Build 2035 |

Project Description: 110-021, STAMP

**Input Data**







☐ Class I highway ☐ Class II highway

Terrain ☐ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 648 veh/h |
| Directional split | 56 / 44 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 7 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 12 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.2 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.986 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 730 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 409 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 3.0 mi/h |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 55.7 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 50.0 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.993 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 725 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 406 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 47.1 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 47.1 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | B |
| Volume to capacity ratio, $v/c=V_p/3{,}200$ | 0.23 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 270 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 972 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}/ATS$ | 5.4 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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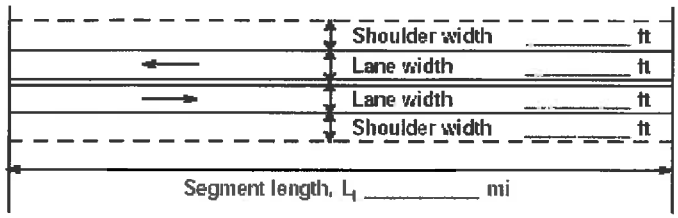
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, LDGAKRnb35pm | From/To | Ledge Rd to Akron Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | PM Peak Hour | Analysis Year | No-Build 2035 |

Project Description: 110-021, STAMP

**Input Data**







Class I highway ☑ Class II highway ☐

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 801 veh/h |
| Directional split | 58 / 42 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 7 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 12 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.2 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.986 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 902 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 523 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 3.0 mi/h |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 55.7 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 48.7 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.993 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 896 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 520 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 54.5 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 54.5 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | C |
| Volume to capacity ratio, v/c=$V_p$/ 3,200 | 0.28 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t$(V/PHF) | 312 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=V*$L_t$ | 1121 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 6.4 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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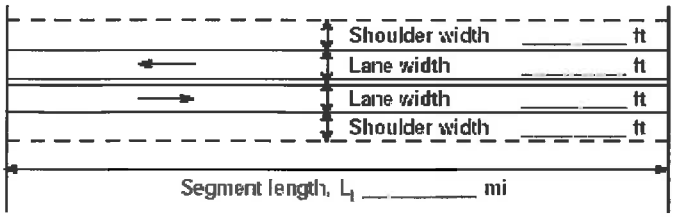
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, AKR48Anb35pm | From/To | Akron Rd to I-90 Exit 48A |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | PM Peak Hour | Analysis Year | No-Build 2035 |

Project Description: 110-021, STAMP

**Input Data**







Class I highway ☑ Class II highway ☐

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 965 veh/h |
| Directional split | 55 / 45 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 7 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 4 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.2 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.986 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1087 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 598 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.0 mi/h |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 57.7 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 49.3 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.993 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1080 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 594 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 61.3 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 61.3 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | C |
| Volume to capacity ratio, v/c=$V_p$/ 3,200 | 0.34 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t$(V/PHF) | 402 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=V*$L_t$ | 1448 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 8.2 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

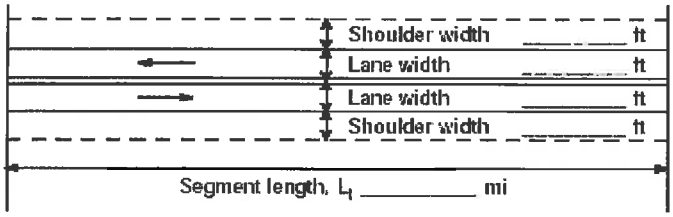
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, 48ART5nb35pm | From/To | I-90 Exit 48A to Route 5 |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | PM Peak Hour | Analysis Year | No-Build 2035 |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 1198 veh/h |
| Directional split | 52 / 48 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 7 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 6 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.993 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1340 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 697 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.5 mi/h |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 57.2 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 46.8 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.0 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 1.000 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1331 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 692 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 69.0 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 69.0 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | D |
| Volume to capacity ratio, $v/c=V_p/3{,}200$ | 0.42 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 233 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 839 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 5.0 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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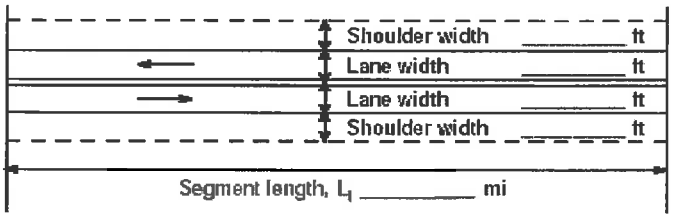
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, HAMJDGbu15amP1 | From/To | Ham Rd to Judge Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | AM Peak Hour | Analysis Year | Build 2015 - Phase 1 |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 422 veh/h |
| Directional split | 56 / 44 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 10 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ *mi* | 6 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.7 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.935 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 502 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 281 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | *mi/h* | Base free-flow speed, $BFFS_{FM}$ | 60.0 *mi/h* |
| Observed volume, $V_f$ | *veh/h* | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 *mi/h* |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | *mi/h* | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.5 *mi/h* |
| | | Free-flow speed, FFS ($FFS=BFFS-f_{LS}-f_A$) | 57.2 *mi/h* |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( *mi/h*) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( *mi/h*) $ATS=FFS-0.00776v_p-f_{np}$ | 53.3 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.990 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 474 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 265 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 34.1 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.2 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 34.3 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | B |
| Volume to capacity ratio, $v/c=V_p/3{,}200$ | 0.16 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- *mi*)= $0.25L_t(V/PHF)$ | 117 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- *mi*)=$V*L_t$ | 422 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}/ATS$ | 2.2 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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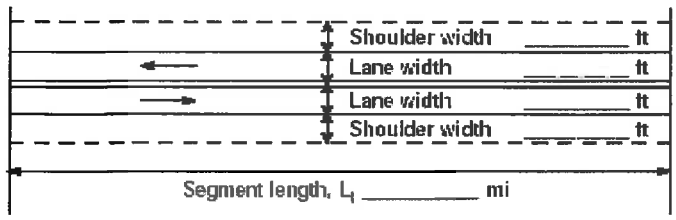
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, JDGBLMbu15amP1 | From/To | Judge Rd to Bloomingdale Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | AM Peak Hour | Analysis Year | Build 2015 - Phase 1 |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 736 veh/h |
| Directional split | 56 / 44 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 10 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 4 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.2 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.980 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 834 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 467 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.0 mi/h |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 57.7 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 51.2 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.990 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 826 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 463 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 51.6 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 51.6 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | C |
| Volume to capacity ratio, v/c=$V_p$/ 3,200 | 0.26 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t$(V/PHF) | 102 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 368 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 2.0 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

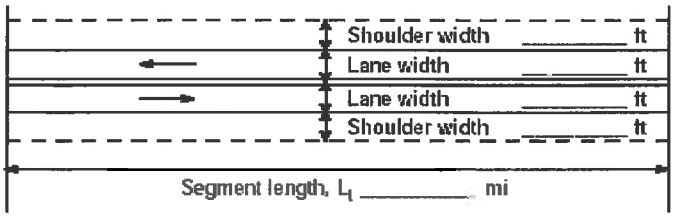
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, BLMLDGbu15amP1 | From/To | Bloomingdale Rd to Ledge Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | AM Peak Hour | Analysis Year | Build 2015 - Phase 1 |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 668 veh/h |
| Directional split | 55 / 45 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 10 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 12 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.2 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.980 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 757 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 416 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 3.0 mi/h |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 55.7 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 49.8 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.990 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 750 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 413 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 48.3 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 48.3 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | C |
| Volume to capacity ratio, v/c=$V_p$/ 3,200 | 0.24 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 278 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 1002 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 5.6 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

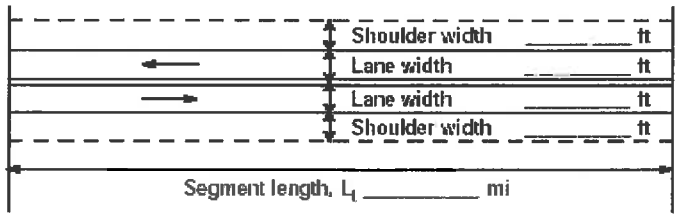
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, LDGAKRbu15amP1 | From/To | Ledge Rd to Akron Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | AM Peak Hour | Analysis Year | Build 2015 - Phase 1 |

Project Description: *110-021, STAMP*

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 738 veh/h |
| Directional split | 56 / 44 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 10 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ *mi* | 12 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.2 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.980 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 836 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 468 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | *mi/h* | Base free-flow speed, $BFFS_{FM}$ | 60.0 *mi/h* |
| Observed volume, $V_f$ | *veh/h* | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 *mi/h* |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | *mi/h* | Adj. for access points, $f_A$ (Exhibit 20-6) | 3.0 *mi/h* |
| | | Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$ | 55.7 *mi/h* |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( *mi/h*) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( *mi/h*) $ATS=FFS-0.00776v_p-f_{np}$ | 49.2 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.990 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 828 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 464 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 51.7 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 51.7 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | C |
| Volume to capacity ratio, $v/c=V_p/3{,}200$ | 0.26 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- *mi*)= $0.25L_t(V/PHF)$ | 287 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- *mi*)=$V*L_t$ | 1033 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}/ATS$ | 5.8 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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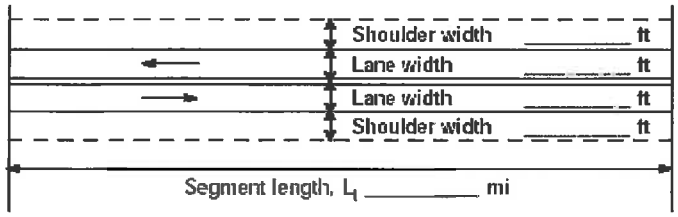
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, AKR48Abu15amP1 | From/To | Akron Rd to I-90 Exit 48A |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | AM Peak Hour | Analysis Year | Build 2015 - Phase 1 |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 840 veh/h |
| Directional split | 60 / 40 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 10 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 4 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.2 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.980 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 952 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 571 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.0 mi/h |
| | | Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$ | 57.7 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 50.3 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.990 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 943 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 566 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 56.3 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 56.3 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | C |
| Volume to capacity ratio, v/c=$V_p$/ 3,200 | 0.30 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 350 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 1260 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 7.0 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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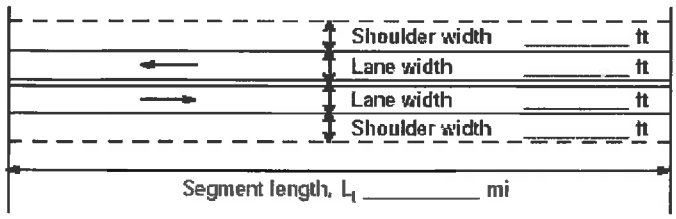
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, 48ART5bu15amP1 | From/To | I-90 Exit 48A to Route 5 |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | AM Peak Hour | Analysis Year | Build 2015 - Phase 1 |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 710 veh/h |
| Directional split | 54 / 46 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 10 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 6 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.2 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.980 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 805 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 435 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.5 mi/h |
| | | Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$ | 57.2 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 51.0 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.990 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 797 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 430 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 50.4 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 50.4 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | C |
| Volume to capacity ratio, v/c=$V_p$/ 3,200 | 0.25 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 138 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 497 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 2.7 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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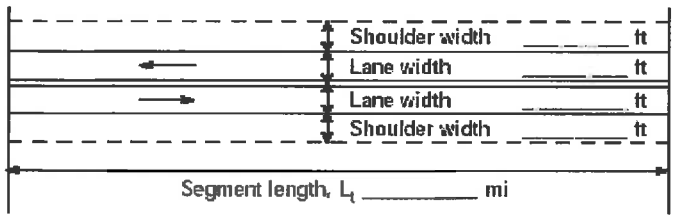
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, HAMJDGbu15pmP1 | From/To | Ham Rd to Judge Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | PM Peak Hour | Analysis Year | Build 2015 - Phase 1 |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 660 veh/h |
| Directional split | 53 / 47 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 7 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 6 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.2 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.986 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 744 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 394 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.5 mi/h |
| | | Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$ | 57.2 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 51.4 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.993 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 738 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 391 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 47.7 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 47.7 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | B |
| Volume to capacity ratio, v/c=$V_p$/ 3,200 | 0.23 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 183 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 660 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 3.6 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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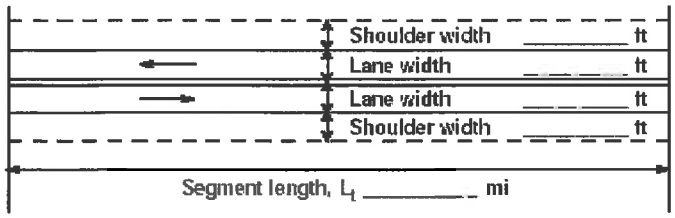
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, JDGBLMbu15pmP1 | From/To | Judge Rd to Bloomingdale Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | PM Peak Hour | Analysis Year | Build 2015 - Phase 1 |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☐ Level ☑ Rolling

| | |
|---|---|
| Two-way hourly volume | 957 veh/h |
| Directional split | 53 / 47 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 7 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 4 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.2 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.986 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1078 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 571 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.0 mi/h |
| | | Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$ | 57.7 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 49.3 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.993 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1071 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 568 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 61.0 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 61.0 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | C |
| Volume to capacity ratio, v/c=$V_p$/ 3,200 | 0.34 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 133 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=V*$L_t$ | 479 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 2.7 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

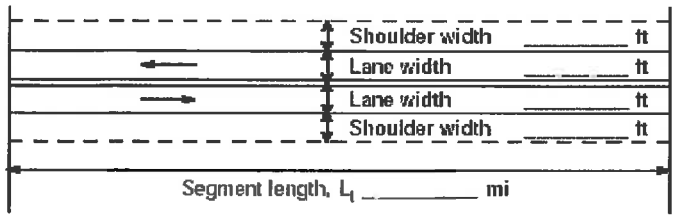
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, BLMLDGbu15pmP1 | From/To | Bloomingdale Rd to Ledge Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | PM Peak Hour | Analysis Year | Build 2015 - Phase 1 |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 791 veh/h |
| Directional split | 54 / 46 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 7 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 12 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.2 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.986 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 891 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 481 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 3.0 mi/h |
| | | Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$ | 55.7 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 48.8 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.993 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 885 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 478 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 54.1 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 54.1 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | C |
| Volume to capacity ratio, $v/c=V_p/3{,}200$ | 0.28 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 330 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 1187 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 6.8 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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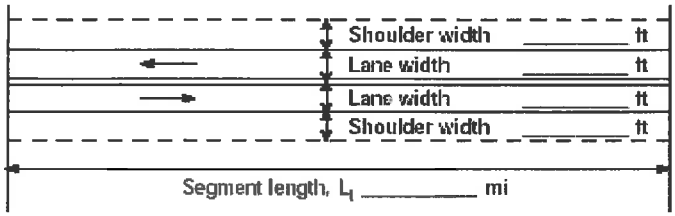
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, LDGAKRbu15pmP1 | From/To | Ledge Rd to Akron Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | PM Peak Hour | Analysis Year | Build 2015 - Phase 1 |

Project Description: 110-021, STAMP

**Input Data**







☐ Class I highway ☐ Class II highway

Terrain ☐ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 915 veh/h |
| Directional split | 55 / 45 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 7 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 12 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.2 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.986 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1031 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 567 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 3.0 mi/h |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 55.7 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 47.7 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.993 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1024 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 563 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 59.3 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 59.3 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | C |
| Volume to capacity ratio, v/c=$V_p$/ 3,200 | 0.32 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 356 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 1281 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 7.5 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

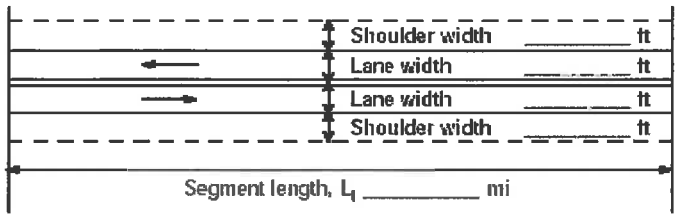
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, AKR48Abu15pmP1 | From/To | Akron Rd to I-90 Exit 48A |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | PM Peak Hour | Analysis Year | Build 2015 - Phase 1 |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 1036 veh/h |
| Directional split | 54 / 46 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 7 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 4 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.2 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.986 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1167 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 630 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.0 mi/h |
| | | Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$ | 57.7 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 48.6 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.993 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1159 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 626 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 63.9 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 63.9 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | C |
| Volume to capacity ratio, v/c=$V_p$/ 3,200 | 0.36 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 432 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=V*$L_t$ | 1554 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 8.9 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

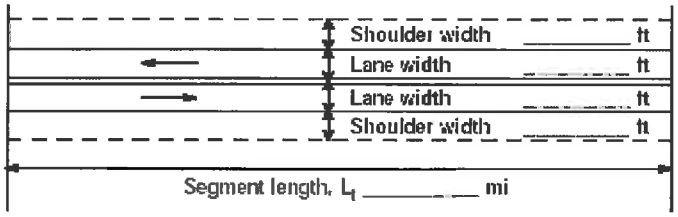
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, 48ART5bu15pmP1 | From/To | I-90 Exit 48A to Route 5 |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | PM Peak Hour | Analysis Year | Build 2015 - Phase 1 |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 1090 veh/h |
| Directional split | 52 / 48 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 7 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 6 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.993 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1220 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 634 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.5 mi/h |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 57.2 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 47.7 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.0 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 1.000 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1211 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 630 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 65.5 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 65.5 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | D |
| Volume to capacity ratio, $v/c=V_p/3{,}200$ | 0.38 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 212 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 763 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 4.4 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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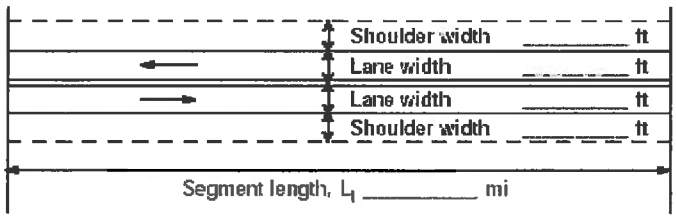
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, HAMJDGbu35am70 | From/To | Ham Rd to Judge Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | AM Peak Hour | Analysis Year | Build 2035 - 70% Threshold |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 1233 veh/h |
| Directional split | 64 / 36 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 10 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 6 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.990 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1384 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 886 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.5 mi/h |
| | | Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$ | 57.2 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 46.5 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.0 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 1.000 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1370 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 877 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 70.0 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 70.0 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | D |
| Volume to capacity ratio, v/c=$V_p$/ 3,200 | 0.43 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t$(V/PHF) | 343 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 1233 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 7.4 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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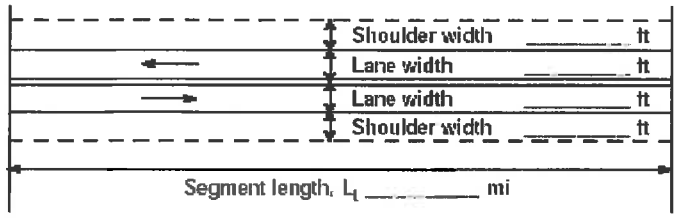
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, JDGBLMbu35am70 | From/To | Judge Rd to Bloomingdale Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | AM Peak Hour | Analysis Year | Build 2035 - 70% Threshold |

Project Description: 110-021, STAMP

**Input Data**







Class I highway ☐ Class II highway ☐

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 1495 veh/h |
| Directional split | 64 / 36 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 10 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 4 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.990 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1678 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 1074 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.0 mi/h |
| | | Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$ | 57.7 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 44.7 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.0 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 1.000 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1661 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 1063 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 76.8 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 76.8 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | D |
| Volume to capacity ratio, $v/c=V_p/3{,}200$ | 0.52 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 208 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 748 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}/ATS$ | 4.7 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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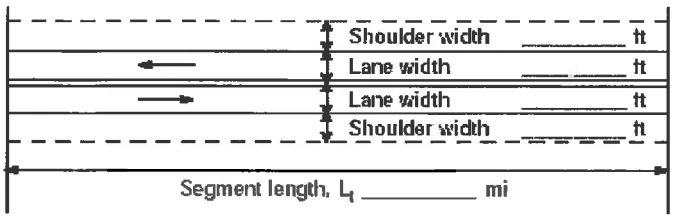
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, BLMLDGbu35am70 | From/To | Bloomingdale Rd to Ledge Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | AM Peak Hour | Analysis Year | Build 2035 - 70% Threshold |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☐ Level ☑ Rolling

| | |
|---|---|
| Two-way hourly volume | 1366 veh/h |
| Directional split | 64 / 36 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 10 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 12 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.990 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1533 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 981 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 3.0 mi/h |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 55.7 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 43.8 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.0 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 1.000 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1518 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 972 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 73.7 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 73.7 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | D |
| Volume to capacity ratio, v/c=$V_p$/ 3,200 | 0.48 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 569 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 2049 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 13.0 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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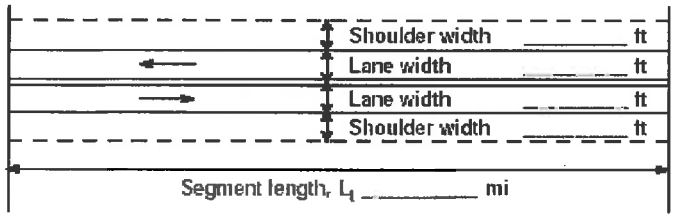
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, LDGAKRbu35am70 | From/To | Ledge Rd to Akron Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | AM Peak Hour | Analysis Year | Build 2035 - 70% Threshold |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 1414 veh/h |
| Directional split | 62 / 38 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 10 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 12 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.990 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1587 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 984 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 3.0 mi/h |
| | | Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$ | 55.7 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 43.4 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.0 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 1.000 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1571 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 974 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 74.9 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 74.9 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | D |
| Volume to capacity ratio, v/c=$V_p$/ 3,200 | 0.50 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 550 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 1980 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 12.7 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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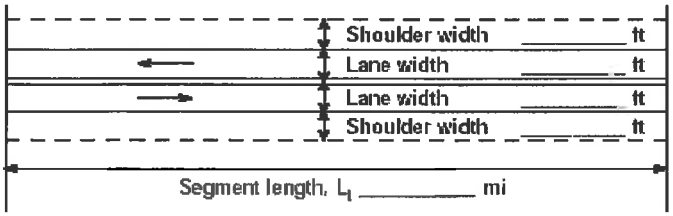
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, AKR48Abu35am70 | From/To | Akron Rd to I-90 Exit 48A |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | AM Peak Hour | Analysis Year | Build 2035 - 70% Threshold |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 1527 veh/h |
| Directional split | 58 / 42 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 10 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 4 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.990 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1714 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 994 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.0 mi/h |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 57.7 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 44.4 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.0 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 1.000 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1697 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 984 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 77.5 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 77.5 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | D |
| Volume to capacity ratio, v/c=$V_p$/ 3,200 | 0.54 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 636 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 2291 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 14.3 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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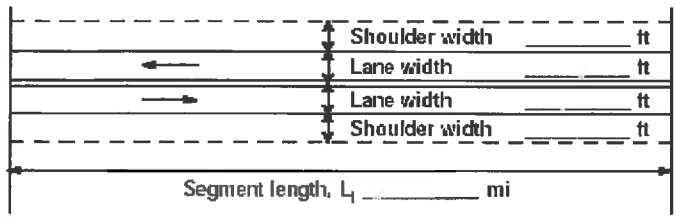
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, 48ART5bu35am70 | From/To | I-90 Exit 48A to Route 5 |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | AM Peak Hour | Analysis Year | Build 2035 - 70% Threshold |

Project Description: 110-021, STAMP

**Input Data**







☐ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 982 veh/h |
| Directional split | 60 / 40 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 10 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ *mi* | 6 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.2 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.980 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1113 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 668 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | *mi/h* | Base free-flow speed, $BFFS_{FM}$ | 60.0 *mi/h* |
| Observed volume, $V_f$ | *veh/h* | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 *mi/h* |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | *mi/h* | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.5 *mi/h* |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 57.2 *mi/h* |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( *mi/h*) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( *mi/h*) $ATS=FFS-0.00776v_p-f_{np}$ | 48.6 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.990 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1102 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 661 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 62.0 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 62.0 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | C |
| Volume to capacity ratio, $v/c=V_p/3{,}200$ | 0.35 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- *mi*)= $0.25L_t(V/PHF)$ | 191 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- *mi*)=$V*L_t$ | 687 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}/ATS$ | 3.9 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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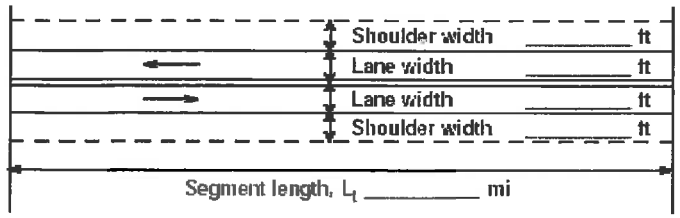
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, HAMJDGbu35pm70 | From/To | Ham Rd to Judge Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | PM Peak Hour | Analysis Year | Build 2035 - 70% Threshold |

Project Description: *110-021, STAMP*

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 1765 veh/h |
| Directional split | 55 / 45 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 7 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ *mi* | 6 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.993 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1975 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 1086 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | *mi/h* | Base free-flow speed, $BFFS_{FM}$ | 60.0 *mi/h* |
| Observed volume, $V_f$ | *veh/h* | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 *mi/h* |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | *mi/h* | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.5 *mi/h* |
| | | Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$ | 57.2 *mi/h* |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( *mi/h*) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( *mi/h*) $ATS=FFS-0.00776v_p-f_{np}$ | 41.9 |

**Percent Time-Spent-Following**

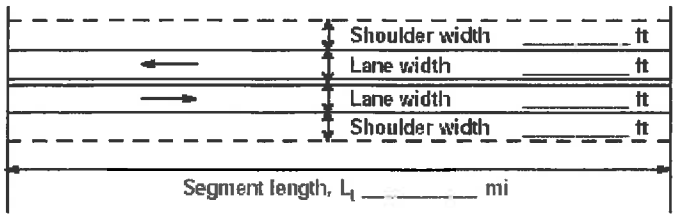
| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.0 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 1.000 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1961 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 1079 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 82.2 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |

# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, JDGBLMbu35pm70 | From/To | Judge Rd to Bloomingdale Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | PM Peak Hour | Analysis Year | Build 2035 - 70% Threshold |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 2080 veh/h |
| Directional split | 55 / 45 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 7 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 4 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.993 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 2327 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 1280 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.0 mi/h |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 57.7 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 39.6 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.0 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 1.000 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 2311 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 1271 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 86.9 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 86.9 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | E |
| Volume to capacity ratio, v/c=$V_p$/ 3,200 | 0.73 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 289 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 1040 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 7.3 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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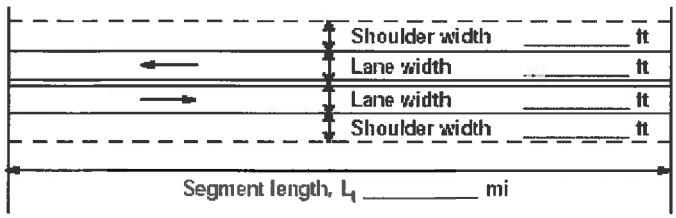
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, BLMLDGbu35pm70 | From/To | Bloomingdale Rd to Ledge Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | PM Peak Hour | Analysis Year | Build 2035 - 70% Threshold |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 1802 veh/h |
| Directional split | 55 / 45 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 7 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ *mi* | 12 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.993 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 2016 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 1109 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | | |
|---|---|---|---|---|
| Field Measured speed, $S_{FM}$ | *mi/h* | Base free-flow speed, $BFFS_{FM}$ | 60.0 | *mi/h* |
| Observed volume, $V_f$ | *veh/h* | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 | *mi/h* |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | *mi/h* | Adj. for access points, $f_A$ (Exhibit 20-6) | 3.0 | *mi/h* |
| | | Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$ | 55.7 | *mi/h* |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( *mi/h*) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( *mi/h*) $ATS=FFS-0.00776v_p-f_{np}$ | 40.1 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.0 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 1.000 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 2002 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 1101 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 82.8 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 82.8 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | E |
| Volume to capacity ratio, $v/c=V_p/3{,}200$ | 0.63 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- *mi*)= $0.25L_t(V/PHF)$ | 751 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- *mi*)=$V*L_t$ | 2703 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}/ATS$ | 18.7 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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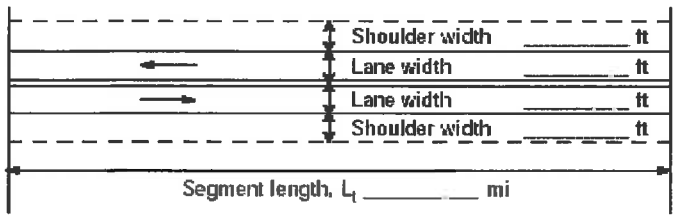
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, LDGAKRbu35pm70 | From/To | Ledge Rd to Akron Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | PM Peak Hour | Analysis Year | Build 2035 - 70% Threshold |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 1955 veh/h |
| Directional split | 54 / 46 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 7 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 12 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.993 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 2187 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 1181 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 3.0 mi/h |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 55.7 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 38.7 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.0 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 1.000 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 2172 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 1173 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 85.2 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 85.2 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | E |
| Volume to capacity ratio, v/c=$V_p$/ 3,200 | 0.68 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t$(V/PHF) | 760 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=V*$L_t$ | 2737 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 19.6 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

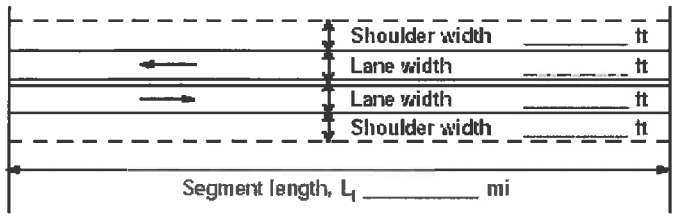
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, AKR48Abu35pm70 | From/To | Akron Rd to I-90 Exit 48A |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | PM Peak Hour | Analysis Year | Build 2035 - 70% Threshold |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 2023 veh/h |
| Directional split | 53 / 47 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 7 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 4 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.993 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 2264 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 1200 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.0 mi/h |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 57.7 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 40.1 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.0 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 1.000 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 2248 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 1191 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 86.1 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 86.1 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | E |
| Volume to capacity ratio, v/c=$V_p$/ 3,200 | 0.71 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 843 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=V*$L_t$ | 3035 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 21.0 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

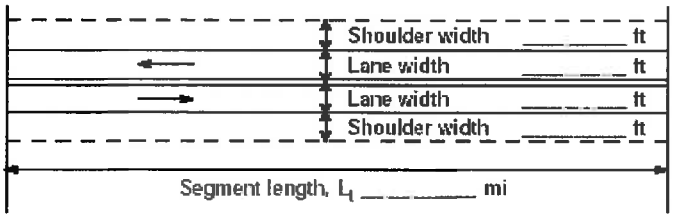
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, 48ART5bu35pm70 | From/To | I-90 Exit 48A to Route 5 |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | PM Peak Hour | Analysis Year | Build 2035 - 70% Threshold |

Project Description: 110-021, STAMP

**Input Data**







☐ Class I highway ☐ Class II highway

Terrain ☐ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 1496 veh/h |
| Directional split | 53 / 47 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 7 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 6 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.993 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1674 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 887 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.5 mi/h |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 57.2 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 44.2 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.0 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 1.000 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1662 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 881 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 76.8 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 76.8 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | D |
| Volume to capacity ratio, $v/c=V_p/3{,}200$ | 0.52 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 291 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 1047 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}/ATS$ | 6.6 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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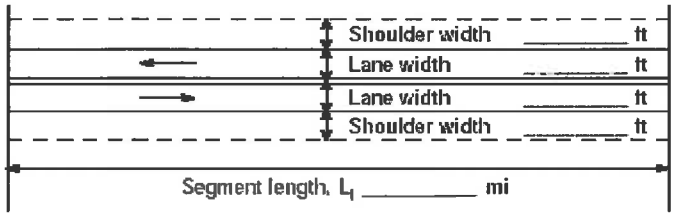
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, HAMJDGbu35am | From/To | Ham Rd to Judge Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | AM Peak Hour | Analysis Year | Build 2035 |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 1573 veh/h |
| Directional split | 68 / 32 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 10 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 6 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.990 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1765 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 1200 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.5 mi/h |
| | | Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$ | 57.2 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 43.5 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.0 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 1.000 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1748 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 1189 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 78.5 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 78.5 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | D |
| Volume to capacity ratio, $v/c=V_p/3{,}200$ | 0.55 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 437 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 1573 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 10.0 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

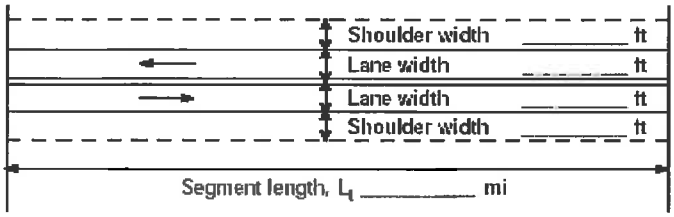
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, JDGBLMbu35am | From/To | Judge Rd to Bloomingdale Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | AM Peak Hour | Analysis Year | Build 2035 |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 1891 veh/h |
| Directional split | 67 / 33 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 10 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 4 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.990 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 2122 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 1422 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.0 mi/h |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 57.7 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 41.2 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.0 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 1.000 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 2101 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 1408 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 84.2 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 84.2 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | E |
| Volume to capacity ratio, v/c=$V_p$/ 3,200 | 0.66 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 263 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 946 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 6.4 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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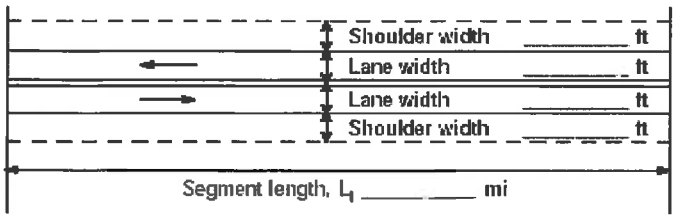
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, BLMLDGbu35am | From/To | Bloomingdale Rd to Ledge Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | AM Peak Hour | Analysis Year | Build 2035 |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 1732 veh/h |
| Directional split | 67 / 33 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 10 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 12 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.990 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1944 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 1302 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS FFS=$S_{FM}$+0.00776($V_f$/ $f_{HV}$) | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 3.0 mi/h |
| | | Free-flow speed, FFS (FSS=BFFS-$f_{LS}$-$f_A$) | 55.7 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) ATS=FFS-0.00776$v_p$-$f_{np}$ | 40.6 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.0 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 1.000 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1924 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 1289 |
| Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$) | 81.6 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$ | 81.6 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | E |
| Volume to capacity ratio, v/c=$V_p$/ 3,200 | 0.61 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= 0.25$L_t$(V/PHF) | 722 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=V*$L_t$ | 2598 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 17.8 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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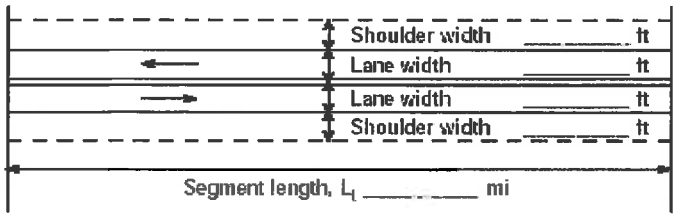
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, LDGAKRbu35am | From/To | Ledge Rd to Akron Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | AM Peak Hour | Analysis Year | Build 2035 |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 1780 veh/h |
| Directional split | 65 / 35 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 10 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 12 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.990 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1998 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 1299 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 3.0 mi/h |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 55.7 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 40.2 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.0 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 1.000 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1978 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 1286 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 82.4 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 82.4 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | E |
| Volume to capacity ratio, $v/c=V_p/3{,}200$ | 0.62 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 692 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 2492 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}/ATS$ | 17.2 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

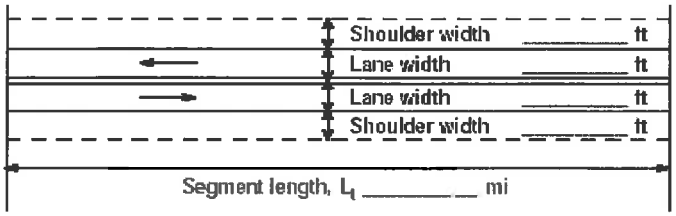
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, AKR48Abu35am | From/To | Akron Rd to I-90 Exit 48A |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | AM Peak Hour | Analysis Year | Build 2035 |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 1863 veh/h |
| Directional split | 61 / 39 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 10 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 4 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.990 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 2091 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 1276 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.0 mi/h |
| | | Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$ | 57.7 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 41.5 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.0 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 1.000 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 2070 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 1263 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 83.8 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 83.8 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | E |
| Volume to capacity ratio, $v/c=V_p/3{,}200$ | 0.65 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 776 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 2795 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 18.7 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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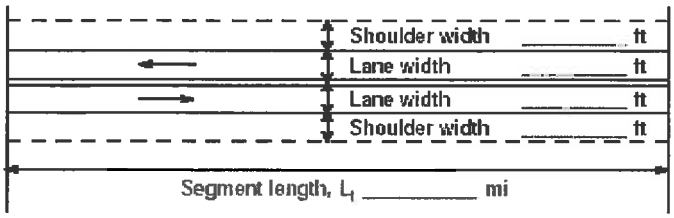
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, 48ART5bu35am | From/To | I-90 Exit 48A to Route 5 |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | AM Peak Hour | Analysis Year | Build 2035 |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 1073 veh/h |
| Directional split | 61 / 39 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 10 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 6 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.990 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1204 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 734 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.5 mi/h |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 57.2 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 47.9 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.0 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 1.000 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1192 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 727 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 64.9 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 64.9 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | C |
| Volume to capacity ratio, $v/c=V_p/3{,}200$ | 0.38 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 209 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 751 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 4.4 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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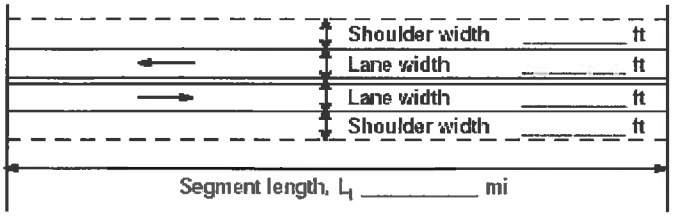
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, HAMJDGbu35pm | From/To | Ham Rd to Judge Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | PM Peak Hour | Analysis Year | Build 2035 |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 2185 veh/h |
| Directional split | 56 / 44 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 7 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 6 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.993 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 2445 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 1369 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.5 mi/h |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 57.2 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 38.2 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.0 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 1.000 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 2428 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 1360 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 88.2 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 88.2 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | E |
| Volume to capacity ratio, $v/c=V_p/3{,}200$ | 0.76 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 607 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 2185 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 15.9 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

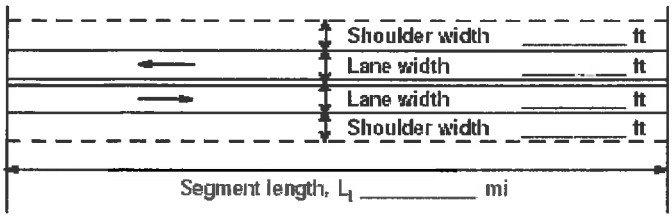
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, JDGBLMbu35pm | From/To | Judge Rd to Bloomingdale Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | PM Peak Hour | Analysis Year | Build 2035 |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 2615 veh/h |
| Directional split | 56 / 44 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 7 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 4 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.993 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 2926 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 1639 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.0 mi/h |
| | | Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$ | 57.7 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 35.0 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.0 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 1.000 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 2906 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 1627 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 92.2 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 92.2 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | E |
| Volume to capacity ratio, $v/c=V_p/3{,}200$ | 0.91 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 363 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 1308 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}/ATS$ | 10.4 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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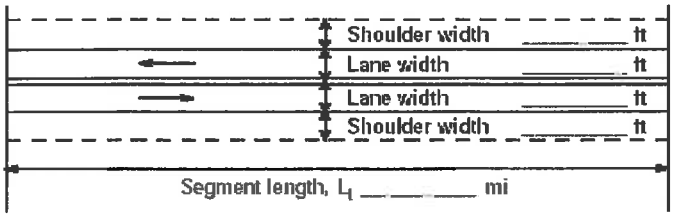
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, BLMLDGbu35pm | From/To | Bloomingdale Rd to Ledge Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | PM Peak Hour | Analysis Year | Build 2035 |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 2297 veh/h |
| Directional split | 56 / 44 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 7 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 12 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.993 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 2570 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 1439 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 3.0 mi/h |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 55.7 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 35.8 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.0 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 1.000 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 2552 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 1429 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 89.4 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 89.4 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | E |
| Volume to capacity ratio, v/c=$V_p$/ 3,200 | 0.80 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 957 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 3446 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 26.8 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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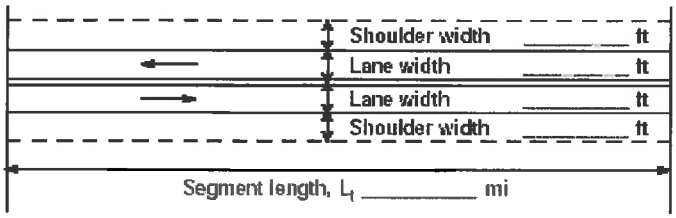
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, LDGAKRbu35pm | From/To | Ledge Rd to Akron Rd |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | PM Peak Hour | Analysis Year | Build 2035 |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 2450 veh/h |
| Directional split | 55 / 45 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 7 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 12 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}$=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$ ) | 0.993 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 2741 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 1508 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS FFS=$S_{FM}$+0.00776($V_f$/ $f_{HV}$ ) | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 3.0 mi/h |
| | | Free-flow speed, FFS (FSS=BFFS-$f_{LS}$-$f_A$) | 55.7 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) ATS=FFS-0.00776$v_p$-$f_{np}$ | 34.4 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.0 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}$=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$ ) | 1.000 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 2722 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 1497 |
| Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$) | 90.9 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$ | 90.9 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | E |
| Volume to capacity ratio, v/c=$V_p$/ 3,200 | 0.86 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= 0.25$L_t$(V/PHF) | 953 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=V*$L_t$ | 3430 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 27.7 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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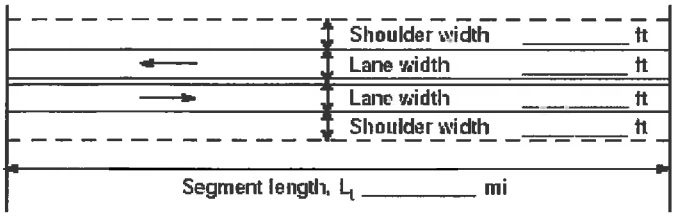
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, AKR48Abu35pm | From/To | Akron Rd to I-90 Exit 48A |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | PM Peak Hour | Analysis Year | Build 2035 |

Project Description: 110-021, STAMP

**Input Data**







☐ Class I highway ☐ Class II highway

Terrain ☐ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 2477 veh/h |
| Directional split | 55 / 45 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 7 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 4 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.993 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 2771 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 1524 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f * f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.0 mi/h |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 57.7 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 36.2 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.0 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 1.000 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 2752 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 1514 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 91.1 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 91.1 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | E |
| Volume to capacity ratio, $v/c=V_p/3{,}200$ | 0.87 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 1032 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 3716 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}/ATS$ | 28.5 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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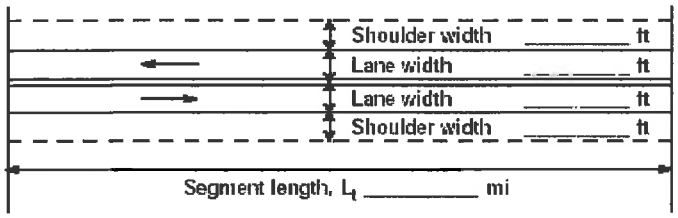
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# TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | MDN | Highway | Route 77 |
| Agency or Company | CME, 48ART5bu35pm | From/To | I-90 Exit 48A to Route 5 |
| Date Performed | 12/17/2010 | Jurisdiction | Town of Alabama |
| Analysis Time Period | PM Peak Hour | Analysis Year | Build 2035 |

Project Description: 110-021, STAMP

**Input Data**







☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Two-way hourly volume | 1610 veh/h |
| Directional split | 54 / 46 |
| Peak-hour factor, PHF | 0.90 |
| No-passing zone | 0 |
| % Trucks and Buses , $P_T$ | 7 % |
| % Recreational vehicles, $P_R$ | 0% |
| Access points/ mi | 6 |

**Average Travel Speed**

| | |
|---|---|
| Grade adjustment factor, $f_G$ (Exhibit 20-7) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-9) | 1.1 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-9) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 0.993 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1801 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 973 |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Field Measured speed, $S_{FM}$ | mi/h | Base free-flow speed, $BFFS_{FM}$ | 60.0 mi/h |
| Observed volume, $V_f$ | veh/h | Adj. for lane width and shoulder width[3], $f_{LS}$ (Exhibit 20-5) | 1.3 mi/h |
| Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$ | mi/h | Adj. for access points, $f_A$ (Exhibit 20-6) | 1.5 mi/h |
| | | Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$) | 57.2 mi/h |

| | |
|---|---|
| Adj. for no-passing zones, $f_{np}$ ( mi/h) (Exhibit 20-11) | 0.0 |
| Average travel speed, ATS ( mi/h) $ATS=FFS-0.00776v_p-f_{np}$ | 43.2 |

**Percent Time-Spent-Following**

| | |
|---|---|
| Grade Adjustment factor, $f_G$ (Exhibit 20-8) | 1.00 |
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 20-10) | 1.0 |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 20-10) | 1.0 |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | 1.000 |
| Two-way flow rate[1], $v_p$ (pc/h)=V/ (PHF * $f_G$ * $f_{HV}$) | 1789 |
| $v_p$ * highest directional split proportion[2] (pc/h) | 966 |
| Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$ | 79.2 |
| Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12) | 0.0 |
| Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$ | 79.2 |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II) | D |
| Volume to capacity ratio, $v/c=V_p/3{,}200$ | 0.56 |
| Peak 15-min veh-miles of travel, $VMT_{15}$ (veh- mi)= $0.25L_t(V/PHF)$ | 313 |
| Peak-hour vehicle-miles of travel, $VMT_{60}$(veh- mi)=$V*L_t$ | 1127 |
| Peak 15-min total travel time, $TT_{15}$(veh-h)= $VMT_{15}$/ATS | 7.2 |

**Notes**

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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# Appendix F – Level of Service Analysis

**Traffic Impact Study**
**STAMP**
**Town of Alabama, New York**

## LOS Definitions

The following is an excerpt from the 2000 Highway Capacity Manual (HCM).

### Level of Service for Signalized Intersections

Level of service for a signalized intersection is defined in terms of control delay, which is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions: in the absence of traffic control, geometric delay, any incidents, and any other vehicles. Specifically, LOS criteria for traffic signals are stated in terms of the average control delay per vehicle, typically for a 15-minute analysis period. Delay is a complex measure and depends on a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group. Levels of service are defined to represent reasonable ranges in control delay.

> ***LOS A*** describes operations with low control delay, up to 10 s/veh. This LOS occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay.
>
> ***LOS B*** describes operations with control delay greater than 10 and up to 20 s/veh. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.
>
> ***LOS C*** describes operations with control delay greater than 20 and up to 35 s/veh. These higher delays may result from only fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles, and overflows occur. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.
>
> ***LOS D*** describes operations with control delay greater than 35 and up to 55 s/veh. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, and high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
>
> ***LOS E*** describes operations with control delay greater than 55 and up to 80 s/veh. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent.
>
> ***LOS F*** describes operations with control delay in excess of 80 s/veh. This level, considered unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of lane groups. It may also occur at high v/c ratios with many individual cycle failures. Poor progression and long cycle lengths may also be contribute significantly to high delay levels.

## Level of Service Criteria for Unsignalized Intersections

Four measures are used to describe the performance of two-way stop controlled intersections: control delay, delay to major street through vehicles, queue length, and v/c ratio. The primary measure that is used to provide an estimate of LOS is control delay. This measure can be estimated for any movement on the minor (i.e., stop-controlled) street. By summing delay estimates for individual movements, a delay estimate for each minor street movement and minor street approach can be achieved. The level of service criteria is given in Exhibit 17-2/22.

For all-way stop controlled (AWSC) intersections, the average control delay (in seconds per vehicle) is used as the primary measure of performance. Control delay is the increased time of travel for a vehicle approaching and passing through an AWSC intersection, compared with a free-flow vehicle if it were not required to slow or stop at the intersection.

**Exhibit 17-2/22: Level-of-Service Criteria for Stop Controlled Intersections**

| Level of Service | Control Delay (sec/veh) |
|---|---|
| A | $\leq$ 10.0 |
| B | >10.0 and $\leq$ 15.0 |
| C | >15.0 and $\leq$ 25.0 |
| D | >25.0 and $\leq$ 35.0 |
| E | >35.0 and $\leq$ 50.0 |
| F | >50.0 |

# 2010 Existing Conditions

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 11 | 11 | 9 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 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 | 0.85 | | 0.98 | | | 0.98 | | | 0.94 | |
| Flt Protected | | 0.99 | 1.00 | | 0.99 | | | 0.98 | | | 0.99 | |
| Satd. Flow (prot) | | 1703 | 1221 | | 1624 | | | 1676 | | | 1676 | |
| Flt Permitted | | 0.87 | 1.00 | | 0.93 | | | 0.79 | | | 0.91 | |
| Satd. Flow (perm) | | 1499 | 1221 | | 1519 | | | 1345 | | | 1547 | |
| Volume (vph) | 65 | 192 | 21 | 27 | 179 | 36 | 56 | 65 | 16 | 42 | 80 | 100 |
| Peak-hour factor, PHF | 0.80 | 0.80 | 0.80 | 0.78 | 0.78 | 0.78 | 0.67 | 0.67 | 0.67 | 0.74 | 0.74 | 0.74 |
| Adj. Flow (vph) | 81 | 240 | 26 | 35 | 229 | 46 | 84 | 97 | 24 | 57 | 108 | 135 |
| RTOR Reduction (vph) | 0 | 0 | 18 | 0 | 11 | 0 | 0 | 7 | 0 | 0 | 43 | 0 |
| Lane Group Flow (vph) | 0 | 321 | 8 | 0 | 299 | 0 | 0 | 198 | 0 | 0 | 257 | 0 |
| Heavy Vehicles (%) | 5% | 7% | 19% | 22% | 14% | 8% | 7% | 9% | 19% | 7% | 9% | 2% |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 9.8 | 9.8 | | 9.8 | | | 13.4 | | | 13.4 | |
| Effective Green, g (s) | | 9.8 | 9.8 | | 9.8 | | | 13.4 | | | 13.4 | |
| Actuated g/C Ratio | | 0.31 | 0.31 | | 0.31 | | | 0.43 | | | 0.43 | |
| 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) | | 471 | 384 | | 477 | | | 578 | | | 664 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | c0.21 | 0.01 | | 0.20 | | | 0.15 | | | c0.17 | |
| v/c Ratio | | 0.68 | 0.02 | | 0.63 | | | 0.34 | | | 0.39 | |
| Uniform Delay, d1 | | 9.3 | 7.4 | | 9.1 | | | 6.0 | | | 6.1 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 4.0 | 0.0 | | 2.6 | | | 0.4 | | | 0.4 | |
| Delay (s) | | 13.4 | 7.4 | | 11.7 | | | 6.3 | | | 6.5 | |
| Level of Service | | B | A | | B | | | A | | | A | |
| Approach Delay (s) | | 12.9 | | | 11.7 | | | 6.3 | | | 6.5 | |
| Approach LOS | | B | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 9.8 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.51 | | |
| Actuated Cycle Length (s) | 31.2 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 51.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 6 | 2 | 11 | 0 | 2 | 7 | 5 | 133 | 2 | 7 | 161 | 1 |
| Peak Hour Factor | 0.40 | 0.40 | 0.40 | 0.45 | 0.45 | 0.45 | 0.80 | 0.80 | 0.80 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 15 | 5 | 28 | 0 | 4 | 16 | 6 | 166 | 2 | 8 | 183 | 1 |
| 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 | 397 | 381 | 184 | 409 | 380 | 168 | 184 | | | 169 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 397 | 381 | 184 | 409 | 380 | 168 | 184 | | | 169 | | |
| 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 % | 97 | 99 | 97 | 100 | 99 | 98 | 100 | | | 99 | | |
| cM capacity (veh/h) | 549 | 550 | 864 | 531 | 550 | 882 | 1403 | | | 1421 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 48 | 20 | 175 | 192 |
| Volume Left | 15 | 0 | 6 | 8 |
| Volume Right | 28 | 16 | 2 | 1 |
| cSH | 696 | 778 | 1403 | 1421 |
| Volume to Capacity | 0.07 | 0.03 | 0.00 | 0.01 |
| Queue Length 95th (ft) | 5 | 2 | 0 | 0 |
| Control Delay (s) | 10.6 | 9.8 | 0.3 | 0.4 |
| Lane LOS | B | A | A | A |
| Approach Delay (s) | 10.6 | 9.8 | 0.3 | 0.4 |
| Approach LOS | B | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.9 | | |
| Intersection Capacity Utilization | 24.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 1 | 60 | 40 | 15 | 30 | 15 | 16 | 120 | 8 | 29 | 136 | 2 |
| Peak Hour Factor | 0.80 | 0.80 | 0.80 | 0.65 | 0.65 | 0.65 | 0.80 | 0.80 | 0.80 | 0.76 | 0.76 | 0.76 |
| Hourly flow rate (vph) | 1 | 75 | 50 | 23 | 46 | 23 | 20 | 150 | 10 | 38 | 179 | 3 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 126 | 92 | 180 | 220 |
| Volume Left (vph) | 1 | 23 | 20 | 38 |
| Volume Right (vph) | 50 | 23 | 10 | 3 |
| Hadj (s) | -0.11 | 0.22 | 0.31 | 0.14 |
| Departure Headway (s) | 4.9 | 5.3 | 5.1 | 4.9 |
| Degree Utilization, x | 0.17 | 0.14 | 0.25 | 0.30 |
| Capacity (veh/h) | 663 | 614 | 672 | 700 |
| Control Delay (s) | 9.0 | 9.2 | 9.8 | 9.9 |
| Approach Delay (s) | 9.0 | 9.2 | 9.8 | 9.9 |
| Approach LOS | A | A | A | A |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 9.6 | | |
| HCM Level of Service | A | | |
| Intersection Capacity Utilization | 30.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Volume (veh/h) | 5 | 5 | 143 | 4 | 3 | 207 |
| Peak Hour Factor | 0.63 | 0.63 | 0.82 | 0.82 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 8 | 8 | 174 | 5 | 3 | 235 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 419 | 177 | | | 179 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 419 | 177 | | | 179 | |
| tC, single (s) | 6.6 | 6.6 | | | 4.8 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.7 | 3.7 | | | 2.8 | |
| p0 queue free % | 99 | 99 | | | 100 | |
| cM capacity (veh/h) | 556 | 777 | | | 1085 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 16 | 179 | 239 |
| Volume Left | 8 | 0 | 3 |
| Volume Right | 8 | 5 | 0 |
| cSH | 648 | 1700 | 1085 |
| Volume to Capacity | 0.02 | 0.11 | 0.00 |
| Queue Length 95th (ft) | 2 | 0 | 0 |
| Control Delay (s) | 10.7 | 0.0 | 0.1 |
| Lane LOS | B | | A |
| Approach Delay (s) | 10.7 | 0.0 | 0.1 |
| Approach LOS | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.5 | | |
| Intersection Capacity Utilization | 23.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 10 | 16 | 5 | 48 | 10 | 15 | 3 | 140 | 41 | 19 | 176 | 2 |
| Peak Hour Factor | 0.83 | 0.83 | 0.83 | 0.88 | 0.88 | 0.88 | 0.92 | 0.92 | 0.92 | 0.73 | 0.73 | 0.73 |
| Hourly flow rate (vph) | 12 | 19 | 6 | 55 | 11 | 17 | 3 | 152 | 45 | 26 | 241 | 3 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | 6 | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 467 | 498 | 242 | 490 | 477 | 174 | 244 | | | 197 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 467 | 498 | 242 | 490 | 477 | 174 | 244 | | | 197 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.3 | 6.5 | 6.3 | 4.1 | | | 4.2 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.7 | 4.0 | 3.4 | 2.2 | | | 2.3 | | |
| p0 queue free % | 97 | 96 | 99 | 88 | 98 | 98 | 100 | | | 98 | | |
| cM capacity (veh/h) | 482 | 466 | 801 | 440 | 479 | 856 | 1334 | | | 1324 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total | 37 | 83 | 3 | 197 | 26 | 244 |
| Volume Left | 12 | 55 | 3 | 0 | 26 | 0 |
| Volume Right | 6 | 17 | 0 | 45 | 0 | 3 |
| cSH | 506 | 562 | 1334 | 1700 | 1324 | 1700 |
| Volume to Capacity | 0.07 | 0.15 | 0.00 | 0.12 | 0.02 | 0.14 |
| Queue Length 95th (ft) | 6 | 13 | 0 | 0 | 2 | 0 |
| Control Delay (s) | 12.7 | 13.4 | 7.7 | 0.0 | 7.8 | 0.0 |
| Lane LOS | B | B | A | | A | |
| Approach Delay (s) | 12.7 | 13.4 | 0.1 | | 0.7 | |
| Approach LOS | B | B | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.1 | | |
| Intersection Capacity Utilization | 30.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 32 | 19 | 11 | 138 | 200 | 42 |
| Peak Hour Factor | 0.93 | 0.93 | 0.79 | 0.79 | 0.82 | 0.82 |
| Hourly flow rate (vph) | 34 | 20 | 14 | 175 | 244 | 51 |
| Pedestrians | 1 | | | | | |
| Lane Width (ft) | 11.0 | | | | | |
| Walking Speed (ft/s) | 4.0 | | | | | |
| Percent Blockage | 0 | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 473 | 271 | 296 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 473 | 271 | 296 | | | |
| tC, single (s) | 6.5 | 6.2 | 4.4 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.6 | 3.3 | 2.4 | | | |
| p0 queue free % | 94 | 97 | 99 | | | |
| cM capacity (veh/h) | 530 | 760 | 1135 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 55 | 189 | 295 |
| Volume Left | 34 | 14 | 0 |
| Volume Right | 20 | 0 | 51 |
| cSH | 598 | 1135 | 1700 |
| Volume to Capacity | 0.09 | 0.01 | 0.17 |
| Queue Length 95th (ft) | 8 | 1 | 0 |
| Control Delay (s) | 11.6 | 0.7 | 0.0 |
| Lane LOS | B | A | |
| Approach Delay (s) | 11.6 | 0.7 | 0.0 |
| Approach LOS | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.4 | | |
| Intersection Capacity Utilization | 26.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 3 | 19 | 18 | 6 | 13 | 4 | 26 | 150 | 6 | 4 | 203 | 3 |
| Peak Hour Factor | 0.63 | 0.63 | 0.63 | 0.69 | 0.69 | 0.69 | 0.86 | 0.86 | 0.86 | 0.84 | 0.84 | 0.84 |
| Hourly flow rate (vph) | 5 | 30 | 29 | 9 | 19 | 6 | 30 | 174 | 7 | 5 | 242 | 4 |
| 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 | 507 | 495 | 243 | 535 | 493 | 178 | 245 | | | 181 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 507 | 495 | 243 | 535 | 493 | 178 | 245 | | | 181 | | |
| tC, single (s) | 7.4 | 6.6 | 6.3 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.8 | 4.1 | 3.4 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 99 | 93 | 96 | 98 | 96 | 99 | 98 | | | 100 | | |
| cM capacity (veh/h) | 406 | 451 | 786 | 412 | 467 | 870 | 1309 | | | 1406 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 63 | 33 | 212 | 250 |
| Volume Left | 5 | 9 | 30 | 5 |
| Volume Right | 29 | 6 | 7 | 4 |
| cSH | 552 | 489 | 1309 | 1406 |
| Volume to Capacity | 0.11 | 0.07 | 0.02 | 0.00 |
| Queue Length 95th (ft) | 10 | 5 | 2 | 0 |
| Control Delay (s) | 12.4 | 12.9 | 1.3 | 0.2 |
| Lane LOS | B | B | A | A |
| Approach Delay (s) | 12.4 | 12.9 | 1.3 | 0.2 |
| Approach LOS | B | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.7 | | |
| Intersection Capacity Utilization | 33.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 3% | | | 0% | 0% | |
| Volume (veh/h) | 28 | 38 | 8 | 124 | 212 | 40 |
| Peak Hour Factor | 0.72 | 0.72 | 0.82 | 0.82 | 0.81 | 0.81 |
| Hourly flow rate (vph) | 39 | 53 | 10 | 151 | 262 | 49 |
| Pedestrians | 1 | | | 1 | | |
| Lane Width (ft) | 10.0 | | | 11.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 458 | 288 | 312 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 458 | 288 | 312 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 93 | 93 | 99 | | | |
| cM capacity (veh/h) | 552 | 747 | 1259 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 92 | 161 | 311 |
| Volume Left | 39 | 10 | 0 |
| Volume Right | 53 | 0 | 49 |
| cSH | 650 | 1259 | 1700 |
| Volume to Capacity | 0.14 | 0.01 | 0.18 |
| Queue Length 95th (ft) | 12 | 1 | 0 |
| Control Delay (s) | 11.4 | 0.5 | 0.0 |
| Lane LOS | B | A | |
| Approach Delay (s) | 11.4 | 0.5 | 0.0 |
| Approach LOS | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.0 | | |
| Intersection Capacity Utilization | 24.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 11 | 11 | 12 | 11 | 12 | 12 |
| 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 | 0.95 | |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 0.90 | |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | |
| Satd. Flow (prot) | 1332 | 1346 | 1543 | 1570 | 2800 | |
| Flt Permitted | 0.95 | 1.00 | 0.50 | 1.00 | 1.00 | |
| Satd. Flow (perm) | 1332 | 1346 | 805 | 1570 | 2800 | |
| Volume (vph) | 109 | 107 | 321 | 88 | 120 | 220 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.87 | 0.87 | 0.91 | 0.91 |
| Adj. Flow (vph) | 118 | 116 | 369 | 101 | 132 | 242 |
| RTOR Reduction (vph) | 0 | 53 | 0 | 0 | 187 | 0 |
| Lane Group Flow (vph) | 118 | 63 | 369 | 101 | 187 | 0 |
| Heavy Vehicles (%) | 31% | 16% | 17% | 17% | 8% | 21% |
| Turn Type | | pm+ov | pm+pt | | | |
| Protected Phases | 4 | 5 | 5 | 2 | 6 | |
| Permitted Phases | | 4 | 2 | | | |
| Actuated Green, G (s) | 8.1 | 24.9 | 32.9 | 32.9 | 10.1 | |
| Effective Green, g (s) | 10.1 | 28.9 | 34.9 | 34.9 | 12.1 | |
| Actuated g/C Ratio | 0.19 | 0.55 | 0.66 | 0.66 | 0.23 | |
| Clearance Time (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 254 | 836 | 792 | 1034 | 639 | |
| v/s Ratio Prot | c0.09 | 0.03 | c0.17 | 0.06 | 0.07 | |
| v/s Ratio Perm | | 0.02 | c0.14 | | | |
| v/c Ratio | 0.46 | 0.08 | 0.47 | 0.10 | 0.29 | |
| Uniform Delay, d1 | 19.0 | 5.7 | 6.0 | 3.3 | 16.9 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.3 | 0.0 | 0.4 | 0.0 | 0.3 | |
| Delay (s) | 20.4 | 5.8 | 6.5 | 3.3 | 17.2 | |
| Level of Service | C | A | A | A | B | |
| Approach Delay (s) | 13.1 | | | 5.8 | 17.2 | |
| Approach LOS | B | | | A | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.45 | | |
| Actuated Cycle Length (s) | 53.0 | 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 | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.95 | | 1.00 | 0.93 | | 1.00 | 0.97 | | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1734 | 1698 | | 1626 | 1630 | | 1770 | 1630 | | 1541 | 1664 | |
| Flt Permitted | 0.61 | 1.00 | | 0.62 | 1.00 | | 0.63 | 1.00 | | 0.63 | 1.00 | |
| Satd. Flow (perm) | 1107 | 1698 | | 1065 | 1630 | | 1171 | 1630 | | 1016 | 1664 | |
| Volume (vph) | 86 | 120 | 60 | 54 | 96 | 83 | 55 | 136 | 36 | 30 | 141 | 38 |
| Peak-hour factor, PHF | 0.83 | 0.83 | 0.83 | 0.73 | 0.73 | 0.73 | 0.82 | 0.82 | 0.82 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 104 | 145 | 72 | 74 | 132 | 114 | 67 | 166 | 44 | 34 | 162 | 44 |
| RTOR Reduction (vph) | 0 | 13 | 0 | 0 | 22 | 0 | 0 | 11 | 0 | 0 | 12 | 0 |
| Lane Group Flow (vph) | 104 | 204 | 0 | 74 | 224 | 0 | 67 | 199 | 0 | 34 | 194 | 0 |
| Confl. Peds. (#/hr) | 1 | | | | | 1 | | | 1 | 1 | | |
| Heavy Vehicles (%) | 4% | 8% | 3% | 11% | 0% | 16% | 2% | 8% | 29% | 17% | 9% | 16% |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 15.4 | 15.4 | | 15.4 | 15.4 | | 9.2 | 9.2 | | 9.2 | 9.2 | |
| Effective Green, g (s) | 16.4 | 16.4 | | 16.4 | 16.4 | | 10.2 | 10.2 | | 10.2 | 10.2 | |
| Actuated g/C Ratio | 0.47 | 0.47 | | 0.47 | 0.47 | | 0.29 | 0.29 | | 0.29 | 0.29 | |
| Clearance Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 525 | 805 | | 505 | 773 | | 345 | 481 | | 300 | 491 | |
| v/s Ratio Prot | | 0.12 | | | c0.14 | | | c0.12 | | | 0.12 | |
| v/s Ratio Perm | 0.09 | | | 0.07 | | | 0.06 | | | 0.03 | | |
| v/c Ratio | 0.20 | 0.25 | | 0.15 | 0.29 | | 0.19 | 0.41 | | 0.11 | 0.40 | |
| Uniform Delay, d1 | 5.3 | 5.4 | | 5.1 | 5.5 | | 9.1 | 9.8 | | 8.9 | 9.7 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.2 | 0.2 | | 0.1 | 0.2 | | 0.3 | 0.6 | | 0.2 | 0.5 | |
| Delay (s) | 5.5 | 5.6 | | 5.3 | 5.8 | | 9.4 | 10.4 | | 9.1 | 10.3 | |
| Level of Service | A | A | | A | A | | A | B | | A | B | |
| Approach Delay (s) | | 5.6 | | | 5.6 | | | 10.1 | | | 10.1 | |
| Approach LOS | | A | | | A | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.6 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.34 | | |
| Actuated Cycle Length (s) | 34.6 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 50.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 12 | 46 | 2 | 11 | 41 | 4 | 2 | 41 | 6 | 3 | 76 | 2 |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.61 | 0.61 | 0.61 | 0.64 | 0.64 | 0.64 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 14 | 52 | 2 | 18 | 67 | 7 | 3 | 64 | 9 | 3 | 86 | 2 |
| Pedestrians | | | | | | | | 2 | | | | |
| Lane Width (ft) | | | | | | | | 12.0 | | | | |
| Walking Speed (ft/s) | | | | | | | | 4.0 | | | | |
| Percent Blockage | | | | | | | | 0 | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 74 | | | 57 | | | 235 | 193 | 55 | 229 | 190 | 70 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 74 | | | 57 | | | 235 | 193 | 55 | 229 | 190 | 70 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.6 | 6.7 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.8 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 99 | | | 99 | | | 100 | 91 | 99 | 99 | 87 | 100 |
| cM capacity (veh/h) | 1539 | | | 1558 | | | 641 | 682 | 890 | 660 | 687 | 998 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 68 | 92 | 77 | 92 |
| Volume Left | 14 | 18 | 3 | 3 |
| Volume Right | 2 | 7 | 9 | 2 |
| cSH | 1539 | 1558 | 700 | 692 |
| Volume to Capacity | 0.01 | 0.01 | 0.11 | 0.13 |
| Queue Length 95th (ft) | 1 | 1 | 9 | 11 |
| Control Delay (s) | 1.5 | 1.5 | 10.8 | 11.0 |
| Lane LOS | A | A | B | B |
| Approach Delay (s) | 1.5 | 1.5 | 10.8 | 11.0 |
| Approach LOS | | | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 6.3 | | |
| Intersection Capacity Utilization | 16.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 6 | 13 | 10 | 1 | 12 | 7 | 2 | 111 | 1 | 8 | 151 | 3 |
| Peak Hour Factor | 0.52 | 0.52 | 0.52 | 0.75 | 0.75 | 0.75 | 0.65 | 0.65 | 0.65 | 0.62 | 0.62 | 0.62 |
| Hourly flow rate (vph) | 12 | 25 | 19 | 1 | 16 | 9 | 3 | 171 | 2 | 13 | 244 | 5 |
| Pedestrians | | 1 | | | | | | | | | | |
| Lane Width (ft) | | 12.0 | | | | | | | | | | |
| Walking Speed (ft/s) | | 4.0 | | | | | | | | | | |
| Percent Blockage | | 0 | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 468 | 451 | 247 | 481 | 453 | 172 | 249 | | | 172 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 468 | 451 | 247 | 481 | 453 | 172 | 249 | | | 172 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.8 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.8 | 2.2 | | | 2.2 | | |
| p0 queue free % | 98 | 95 | 98 | 100 | 97 | 99 | 100 | | | 99 | | |
| cM capacity (veh/h) | 485 | 500 | 796 | 464 | 499 | 748 | 1327 | | | 1417 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 56 | 27 | 175 | 261 |
| Volume Left | 12 | 1 | 3 | 13 |
| Volume Right | 19 | 9 | 2 | 5 |
| cSH | 570 | 563 | 1327 | 1417 |
| Volume to Capacity | 0.10 | 0.05 | 0.00 | 0.01 |
| Queue Length 95th (ft) | 8 | 4 | 0 | 1 |
| Control Delay (s) | 12.0 | 11.7 | 0.2 | 0.5 |
| Lane LOS | B | B | A | A |
| Approach Delay (s) | 12.0 | 11.7 | 0.2 | 0.5 |
| Approach LOS | B | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.2 | | |
| Intersection Capacity Utilization | 22.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 18 | 71 | 1 | 0 | 53 | 150 | 0 | 0 | 0 | 141 | 5 | 13 |
| Peak Hour Factor | 0.75 | 0.75 | 0.75 | 0.92 | 0.92 | 0.92 | 0.25 | 0.25 | 0.25 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 24 | 95 | 1 | 0 | 58 | 163 | 0 | 0 | 0 | 153 | 5 | 14 |
| 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 | 221 | | | 96 | | | 218 | 364 | 95 | 200 | 202 | 58 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 221 | | | 96 | | | 218 | 364 | 95 | 200 | 202 | 58 |
| tC, single (s) | 4.2 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.2 | 6.5 | 6.3 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.3 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.6 | 4.0 | 3.4 |
| p0 queue free % | 98 | | | 100 | | | 100 | 100 | 100 | 79 | 99 | 99 |
| cM capacity (veh/h) | 1325 | | | 1510 | | | 714 | 554 | 961 | 737 | 685 | 992 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total | 24 | 96 | 58 | 163 | 0 | 153 | 20 |
| Volume Left | 24 | 0 | 0 | 0 | 0 | 153 | 0 |
| Volume Right | 0 | 1 | 0 | 163 | 0 | 0 | 14 |
| cSH | 1325 | 1700 | 1510 | 1700 | 1700 | 737 | 882 |
| Volume to Capacity | 0.02 | 0.06 | 0.00 | 0.10 | 0.00 | 0.21 | 0.02 |
| Queue Length 95th (ft) | 1 | 0 | 0 | 0 | 0 | 19 | 2 |
| Control Delay (s) | 7.8 | 0.0 | 0.0 | 0.0 | 0.0 | 11.2 | 9.2 |
| Lane LOS | A | | | | A | B | A |
| Approach Delay (s) | 1.6 | | 0.0 | | 0.0 | 10.9 | |
| Approach LOS | | | | | A | B | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 4.0 | | |
| Intersection Capacity Utilization | 22.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 11 | 11 | 9 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 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 | |
| Frpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.97 | | | 0.98 | | | 0.94 | |
| Flt Protected | | 0.98 | 1.00 | | 1.00 | | | 0.99 | | | 0.99 | |
| Satd. Flow (prot) | | 1768 | 1253 | | 1788 | | | 1728 | | | 1700 | |
| Flt Permitted | | 0.73 | 1.00 | | 0.95 | | | 0.88 | | | 0.90 | |
| Satd. Flow (perm) | | 1316 | 1253 | | 1708 | | | 1537 | | | 1538 | |
| Volume (vph) | 132 | 170 | 20 | 31 | 240 | 75 | 45 | 123 | 34 | 72 | 137 | 163 |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.91 | 0.91 | 0.91 | 0.84 | 0.84 | 0.84 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 153 | 198 | 23 | 34 | 264 | 82 | 54 | 146 | 40 | 77 | 147 | 175 |
| RTOR Reduction (vph) | 0 | 0 | 13 | 0 | 14 | 0 | 0 | 11 | 0 | 0 | 45 | 0 |
| Lane Group Flow (vph) | 0 | 351 | 10 | 0 | 366 | 0 | 0 | 229 | 0 | 0 | 354 | 0 |
| Confl. Peds. (#/hr) | | | | | | | 1 | | 1 | 1 | | 1 |
| Heavy Vehicles (%) | 0% | 3% | 16% | 7% | 3% | 0% | 2% | 4% | 18% | 0% | 5% | 3% |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 17.2 | 17.2 | | 17.2 | | | 15.5 | | | 15.5 | |
| Effective Green, g (s) | | 17.2 | 17.2 | | 17.2 | | | 15.5 | | | 15.5 | |
| Actuated g/C Ratio | | 0.42 | 0.42 | | 0.42 | | | 0.38 | | | 0.38 | |
| 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) | | 556 | 530 | | 722 | | | 585 | | | 586 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | c0.27 | 0.01 | | 0.21 | | | 0.15 | | | c0.23 | |
| v/c Ratio | | 0.63 | 0.02 | | 0.51 | | | 0.39 | | | 0.60 | |
| Uniform Delay, d1 | | 9.3 | 6.8 | | 8.6 | | | 9.2 | | | 10.1 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 2.3 | 0.0 | | 0.6 | | | 0.4 | | | 1.8 | |
| Delay (s) | | 11.6 | 6.9 | | 9.2 | | | 9.6 | | | 11.9 | |
| Level of Service | | B | A | | A | | | A | | | B | |
| Approach Delay (s) | | 11.3 | | | 9.2 | | | 9.6 | | | 11.9 | |
| Approach LOS | | B | | | A | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 40.7 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 72.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 12 | 8 | 14 | 3 | 9 | 19 | 6 | 177 | 5 | 17 | 222 | 12 |
| Peak Hour Factor | 0.69 | 0.69 | 0.69 | 0.65 | 0.65 | 0.65 | 0.95 | 0.95 | 0.95 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 17 | 12 | 20 | 5 | 14 | 29 | 6 | 186 | 5 | 19 | 247 | 13 |
| Pedestrians | | | | | 1 | | | 2 | | | 1 | |
| Lane Width (ft) | | | | | 10.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 530 | 496 | 255 | 522 | 500 | 191 | 260 | | | 193 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 530 | 496 | 255 | 522 | 500 | 191 | 260 | | | 193 | | |
| 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 % | 96 | 98 | 97 | 99 | 97 | 97 | 100 | | | 99 | | |
| cM capacity (veh/h) | 430 | 469 | 787 | 440 | 466 | 855 | 1316 | | | 1392 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 49 | 48 | 198 | 279 |
| Volume Left | 17 | 5 | 6 | 19 |
| Volume Right | 20 | 29 | 5 | 13 |
| cSH | 542 | 641 | 1316 | 1392 |
| Volume to Capacity | 0.09 | 0.07 | 0.00 | 0.01 |
| Queue Length 95th (ft) | 7 | 6 | 0 | 1 |
| Control Delay (s) | 12.3 | 11.1 | 0.3 | 0.6 |
| Lane LOS | B | B | A | A |
| Approach Delay (s) | 12.3 | 11.1 | 0.3 | 0.6 |
| Approach LOS | B | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.4 | | |
| Intersection Capacity Utilization | 32.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 7 | 45 | 42 | 41 | 51 | 39 | 50 | 177 | 59 | 34 | 149 | 6 |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.87 | 0.87 | 0.87 | 0.88 | 0.88 | 0.88 | 0.89 | 0.89 | 0.89 |
| Hourly flow rate (vph) | 8 | 53 | 49 | 47 | 59 | 45 | 57 | 201 | 67 | 38 | 167 | 7 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 111 | 151 | 325 | 212 |
| Volume Left (vph) | 8 | 47 | 57 | 38 |
| Volume Right (vph) | 49 | 45 | 67 | 7 |
| Hadj (s) | -0.08 | -0.02 | 0.03 | 0.21 |
| Departure Headway (s) | 5.5 | 5.5 | 5.0 | 5.3 |
| Degree Utilization, x | 0.17 | 0.23 | 0.45 | 0.31 |
| Capacity (veh/h) | 579 | 592 | 690 | 634 |
| Control Delay (s) | 9.6 | 10.1 | 12.0 | 10.7 |
| Approach Delay (s) | 9.6 | 10.1 | 12.0 | 10.7 |
| Approach LOS | A | B | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 11.0 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 41.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Volume (veh/h) | 5 | 11 | 253 | 12 | 7 | 251 |
| Peak Hour Factor | 0.33 | 0.33 | 0.88 | 0.88 | 0.86 | 0.86 |
| Hourly flow rate (vph) | 15 | 33 | 288 | 14 | 8 | 292 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 602 | 294 | | | 301 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 602 | 294 | | | 301 | |
| tC, single (s) | 6.6 | 6.3 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.7 | 3.4 | | | 2.2 | |
| p0 queue free % | 96 | 95 | | | 99 | |
| cM capacity (veh/h) | 424 | 724 | | | 1271 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 48 | 301 | 300 |
| Volume Left | 15 | 0 | 8 |
| Volume Right | 33 | 14 | 0 |
| cSH | 593 | 1700 | 1271 |
| Volume to Capacity | 0.08 | 0.18 | 0.01 |
| Queue Length 95th (ft) | 7 | 0 | 0 |
| Control Delay (s) | 11.6 | 0.0 | 0.3 |
| Lane LOS | B | | A |
| Approach Delay (s) | 11.6 | 0.0 | 0.3 |
| Approach LOS | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.0 | | |
| Intersection Capacity Utilization | 28.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 16 | 27 | 8 | 50 | 28 | 25 | 10 | 233 | 62 | 36 | 206 | 16 |
| Peak Hour Factor | 0.81 | 0.81 | 0.81 | 0.63 | 0.63 | 0.63 | 0.93 | 0.93 | 0.93 | 0.87 | 0.87 | 0.87 |
| Hourly flow rate (vph) | 20 | 33 | 10 | 79 | 44 | 40 | 11 | 251 | 67 | 41 | 237 | 18 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | 6 | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 643 | 667 | 246 | 651 | 643 | 284 | 255 | | | 317 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 643 | 667 | 246 | 651 | 643 | 284 | 255 | | | 317 | | |
| tC, single (s) | 7.1 | 6.6 | 6.2 | 7.2 | 6.5 | 6.2 | 4.2 | | | 4.5 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.6 | 4.0 | 3.3 | 2.3 | | | 2.6 | | |
| p0 queue free % | 94 | 91 | 99 | 76 | 88 | 95 | 99 | | | 96 | | |
| cM capacity (veh/h) | 323 | 358 | 798 | 331 | 371 | 748 | 1248 | | | 1057 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total | 63 | 163 | 11 | 317 | 41 | 255 |
| Volume Left | 20 | 79 | 11 | 0 | 41 | 0 |
| Volume Right | 10 | 40 | 0 | 67 | 0 | 18 |
| cSH | 378 | 456 | 1248 | 1700 | 1057 | 1700 |
| Volume to Capacity | 0.17 | 0.36 | 0.01 | 0.19 | 0.04 | 0.15 |
| Queue Length 95th (ft) | 15 | 40 | 1 | 0 | 3 | 0 |
| Control Delay (s) | 16.4 | 18.5 | 7.9 | 0.0 | 8.5 | 0.0 |
| Lane LOS | C | C | A | | A | |
| Approach Delay (s) | 16.4 | 18.5 | 0.3 | | 1.2 | |
| Approach LOS | C | C | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 5.3 | | | |
| Intersection Capacity Utilization | 38.8% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 96 | 42 | 41 | 205 | 162 | 105 |
| Peak Hour Factor | 0.92 | 0.92 | 0.87 | 0.87 | 0.80 | 0.80 |
| Hourly flow rate (vph) | 104 | 46 | 47 | 236 | 202 | 131 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 598 | 268 | 334 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 598 | 268 | 334 | | | |
| tC, single (s) | 6.4 | 6.3 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.4 | 2.2 | | | |
| p0 queue free % | 77 | 94 | 96 | | | |
| cM capacity (veh/h) | 450 | 756 | 1209 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 150 | 283 | 334 |
| Volume Left | 104 | 47 | 0 |
| Volume Right | 46 | 0 | 131 |
| cSH | 513 | 1209 | 1700 |
| Volume to Capacity | 0.29 | 0.04 | 0.20 |
| Queue Length 95th (ft) | 30 | 3 | 0 |
| Control Delay (s) | 14.9 | 1.7 | 0.0 |
| Lane LOS | B | A | |
| Approach Delay (s) | 14.9 | 1.7 | 0.0 |
| Approach LOS | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.5 | | |
| Intersection Capacity Utilization | 45.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 23 | 65 | 114 | 4 | 76 | 11 | 116 | 201 | 12 | 12 | 163 | 18 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.69 | 0.69 | 0.69 | 0.97 | 0.97 | 0.97 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 25 | 70 | 123 | 6 | 110 | 16 | 120 | 207 | 12 | 13 | 175 | 19 |
| 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 | 734 | 670 | 185 | 821 | 673 | 213 | 195 | | | 220 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 734 | 670 | 185 | 821 | 673 | 213 | 195 | | | 220 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.2 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.3 | | |
| p0 queue free % | 89 | 79 | 86 | 97 | 68 | 98 | 91 | | | 99 | | |
| cM capacity (veh/h) | 232 | 340 | 857 | 198 | 343 | 832 | 1372 | | | 1304 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 217 | 132 | 339 | 208 |
| Volume Left | 25 | 6 | 120 | 13 |
| Volume Right | 123 | 16 | 12 | 19 |
| cSH | 477 | 357 | 1372 | 1304 |
| Volume to Capacity | 0.46 | 0.37 | 0.09 | 0.01 |
| Queue Length 95th (ft) | 59 | 42 | 7 | 1 |
| Control Delay (s) | 18.7 | 20.9 | 3.3 | 0.6 |
| Lane LOS | C | C | A | A |
| Approach Delay (s) | 18.7 | 20.9 | 3.3 | 0.6 |
| Approach LOS | C | C | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 9.0 | | |
| Intersection Capacity Utilization | 56.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 3% | | | 0% | 0% | |
| Volume (veh/h) | 52 | 23 | 34 | 261 | 197 | 36 |
| Peak Hour Factor | 0.91 | 0.91 | 0.93 | 0.93 | 0.80 | 0.80 |
| Hourly flow rate (vph) | 57 | 25 | 37 | 281 | 246 | 45 |
| Pedestrians | 1 | | | 1 | | |
| Lane Width (ft) | 10.0 | | | 11.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 624 | 271 | 292 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 624 | 271 | 292 | | | |
| tC, single (s) | 6.4 | 6.3 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 87 | 97 | 97 | | | |
| cM capacity (veh/h) | 436 | 759 | 1280 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 82 | 317 | 291 |
| Volume Left | 57 | 37 | 0 |
| Volume Right | 25 | 0 | 45 |
| cSH | 501 | 1280 | 1700 |
| Volume to Capacity | 0.16 | 0.03 | 0.17 |
| Queue Length 95th (ft) | 15 | 2 | 0 |
| Control Delay (s) | 13.6 | 1.1 | 0.0 |
| Lane LOS | B | A | |
| Approach Delay (s) | 13.6 | 1.1 | 0.0 |
| Approach LOS | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.1 | | |
| Intersection Capacity Utilization | 42.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 11 | 11 | 12 | 11 | 12 | 12 |
| 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 | 0.95 | |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 0.91 | |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | |
| Satd. Flow (prot) | 1419 | 1346 | 1444 | 1717 | 2733 | |
| Flt Permitted | 0.95 | 1.00 | 0.56 | 1.00 | 1.00 | |
| Satd. Flow (perm) | 1419 | 1346 | 845 | 1717 | 2733 | |
| Volume (vph) | 209 | 336 | 203 | 144 | 125 | 170 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.86 | 0.86 | 0.91 | 0.91 |
| Adj. Flow (vph) | 230 | 369 | 236 | 167 | 137 | 187 |
| RTOR Reduction (vph) | 0 | 180 | 0 | 0 | 149 | 0 |
| Lane Group Flow (vph) | 230 | 189 | 236 | 167 | 175 | 0 |
| Heavy Vehicles (%) | 23% | 16% | 25% | 7% | 12% | 27% |
| Turn Type | | pm+ov | pm+pt | | | |
| Protected Phases | 4 | 5 | 5 | 2 | 6 | |
| Permitted Phases | | 4 | 2 | | | |
| Actuated Green, G (s) | 10.1 | 17.7 | 20.2 | 20.2 | 6.6 | |
| Effective Green, g (s) | 12.1 | 21.7 | 22.2 | 22.2 | 8.6 | |
| Actuated g/C Ratio | 0.29 | 0.51 | 0.52 | 0.52 | 0.20 | |
| Clearance Time (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 406 | 818 | 579 | 901 | 556 | |
| v/s Ratio Prot | c0.16 | 0.05 | c0.09 | 0.10 | 0.06 | |
| v/s Ratio Perm | | 0.09 | c0.12 | | | |
| v/c Ratio | 0.57 | 0.23 | 0.41 | 0.19 | 0.31 | |
| Uniform Delay, d1 | 12.9 | 5.7 | 6.6 | 5.3 | 14.3 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.8 | 0.1 | 0.5 | 0.1 | 0.3 | |
| Delay (s) | 14.7 | 5.8 | 7.1 | 5.4 | 14.7 | |
| Level of Service | B | A | A | A | B | |
| Approach Delay (s) | 9.2 | | | 6.4 | 14.7 | |
| Approach LOS | A | | | A | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 9.7 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.45 | | |
| Actuated Cycle Length (s) | 42.3 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 41.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.96 | | 1.00 | 0.98 | | 1.00 | 0.95 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1671 | 1709 | | 1805 | 1746 | | 1805 | 1738 | | 1623 | 1587 | |
| Flt Permitted | 0.58 | 1.00 | | 0.50 | 1.00 | | 0.44 | 1.00 | | 0.60 | 1.00 | |
| Satd. Flow (perm) | 1015 | 1709 | | 947 | 1746 | | 837 | 1738 | | 1033 | 1587 | |
| Volume (vph) | 77 | 223 | 64 | 18 | 178 | 63 | 45 | 184 | 25 | 78 | 223 | 100 |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.88 | 0.88 | 0.88 | 0.84 | 0.84 | 0.84 | 0.80 | 0.80 | 0.80 |
| Adj. Flow (vph) | 91 | 262 | 75 | 20 | 202 | 72 | 54 | 219 | 30 | 98 | 279 | 125 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 11 | 0 | 0 | 5 | 0 | 0 | 16 | 0 |
| Lane Group Flow (vph) | 91 | 328 | 0 | 20 | 263 | 0 | 54 | 244 | 0 | 98 | 388 | 0 |
| Confl. Peds. (#/hr) | | | | | | | | | 2 | 2 | | |
| Heavy Vehicles (%) | 8% | 7% | 9% | 0% | 4% | 6% | 0% | 8% | 0% | 11% | 16% | 10% |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 13.8 | 13.8 | | 13.8 | 13.8 | | 15.2 | 15.2 | | 15.2 | 15.2 | |
| Effective Green, g (s) | 14.8 | 14.8 | | 14.8 | 14.8 | | 16.2 | 16.2 | | 16.2 | 16.2 | |
| Actuated g/C Ratio | 0.38 | 0.38 | | 0.38 | 0.38 | | 0.42 | 0.42 | | 0.42 | 0.42 | |
| Clearance Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 385 | 649 | | 359 | 663 | | 348 | 722 | | 429 | 659 | |
| v/s Ratio Prot | | c0.19 | | | 0.15 | | | 0.14 | | | c0.24 | |
| v/s Ratio Perm | 0.09 | | | 0.02 | | | 0.06 | | | 0.09 | | |
| v/c Ratio | 0.24 | 0.51 | | 0.06 | 0.40 | | 0.16 | 0.34 | | 0.23 | 0.59 | |
| Uniform Delay, d1 | 8.2 | 9.3 | | 7.7 | 8.8 | | 7.1 | 7.8 | | 7.4 | 8.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.3 | 0.6 | | 0.1 | 0.4 | | 0.2 | 0.3 | | 0.3 | 1.4 | |
| Delay (s) | 8.6 | 9.9 | | 7.7 | 9.2 | | 7.3 | 8.0 | | 7.6 | 10.2 | |
| Level of Service | A | A | | A | A | | A | A | | A | B | |
| Approach Delay (s) | | 9.6 | | | 9.1 | | | 7.9 | | | 9.7 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 9.2 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 39.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 63.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 20 | 59 | 1 | 8 | 97 | 21 | 18 | 84 | 24 | 4 | 42 | 22 |
| Peak Hour Factor | 0.66 | 0.66 | 0.66 | 0.74 | 0.74 | 0.74 | 0.76 | 0.76 | 0.76 | 0.71 | 0.71 | 0.71 |
| Hourly flow rate (vph) | 30 | 89 | 2 | 11 | 131 | 28 | 24 | 111 | 32 | 6 | 59 | 31 |
| 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 | 159 | | | 91 | | | 378 | 332 | 90 | 404 | 318 | 145 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 159 | | | 91 | | | 378 | 332 | 90 | 404 | 318 | 145 |
| 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 % | 98 | | | 99 | | | 95 | 81 | 97 | 99 | 90 | 97 |
| cM capacity (veh/h) | 1432 | | | 1517 | | | 509 | 574 | 973 | 452 | 584 | 907 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 121 | 170 | 166 | 96 |
| Volume Left | 30 | 11 | 24 | 6 |
| Volume Right | 2 | 28 | 32 | 31 |
| cSH | 1432 | 1517 | 611 | 648 |
| Volume to Capacity | 0.02 | 0.01 | 0.27 | 0.15 |
| Queue Length 95th (ft) | 2 | 1 | 27 | 13 |
| Control Delay (s) | 2.0 | 0.5 | 13.1 | 11.5 |
| Lane LOS | A | A | B | B |
| Approach Delay (s) | 2.0 | 0.5 | 13.1 | 11.5 |
| Approach LOS | | | B | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 6.5 | | | |
| Intersection Capacity Utilization | 28.8% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 5 | 24 | 7 | 0 | 36 | 14 | 10 | 161 | 0 | 8 | 148 | 15 |
| Peak Hour Factor | 0.73 | 0.73 | 0.73 | 0.86 | 0.86 | 0.86 | 0.94 | 0.94 | 0.94 | 0.77 | 0.77 | 0.77 |
| Hourly flow rate (vph) | 7 | 33 | 10 | 0 | 42 | 16 | 11 | 171 | 0 | 10 | 192 | 19 |
| 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 | 452 | 415 | 202 | 441 | 425 | 171 | 212 | | | 171 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 452 | 415 | 202 | 441 | 425 | 171 | 212 | | | 171 | | |
| 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 % | 99 | 94 | 99 | 100 | 92 | 98 | 99 | | | 99 | | |
| cM capacity (veh/h) | 474 | 517 | 844 | 493 | 512 | 878 | 1371 | | | 1418 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 49 | 58 | 182 | 222 |
| Volume Left | 7 | 0 | 11 | 10 |
| Volume Right | 10 | 16 | 0 | 19 |
| cSH | 551 | 579 | 1371 | 1418 |
| Volume to Capacity | 0.09 | 0.10 | 0.01 | 0.01 |
| Queue Length 95th (ft) | 7 | 8 | 1 | 1 |
| Control Delay (s) | 12.2 | 11.9 | 0.5 | 0.4 |
| Lane LOS | B | B | A | A |
| Approach Delay (s) | 12.2 | 11.9 | 0.5 | 0.4 |
| Approach LOS | B | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.9 | | |
| Intersection Capacity Utilization | 24.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 7 | 97 | 2 | 0 | 110 | 155 | 0 | 0 | 0 | 111 | 5 | 10 |
| Peak Hour Factor | 0.77 | 0.77 | 0.77 | 0.91 | 0.91 | 0.91 | 0.25 | 0.25 | 0.25 | 0.85 | 0.85 | 0.85 |
| Hourly flow rate (vph) | 9 | 126 | 3 | 0 | 121 | 170 | 0 | 0 | 0 | 131 | 6 | 12 |
| 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 | 291 | | | 129 | | | 281 | 437 | 127 | 265 | 268 | 121 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 291 | | | 129 | | | 281 | 437 | 127 | 265 | 268 | 121 |
| tC, single (s) | 4.2 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.3 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 99 | | | 100 | | | 100 | 100 | 100 | 81 | 99 | 99 |
| cM capacity (veh/h) | 1205 | | | 1470 | | | 658 | 512 | 928 | 680 | 637 | 936 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total | 9 | 129 | 121 | 170 | 0 | 131 | 18 |
| Volume Left | 9 | 0 | 0 | 0 | 0 | 131 | 0 |
| Volume Right | 0 | 3 | 0 | 170 | 0 | 0 | 12 |
| cSH | 1205 | 1700 | 1470 | 1700 | 1700 | 680 | 809 |
| Volume to Capacity | 0.01 | 0.08 | 0.00 | 0.10 | 0.00 | 0.19 | 0.02 |
| Queue Length 95th (ft) | 1 | 0 | 0 | 0 | 0 | 18 | 2 |
| Control Delay (s) | 8.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.6 | 9.5 |
| Lane LOS | A | | | | A | B | A |
| Approach Delay (s) | 0.5 | | 0.0 | | 0.0 | 11.3 | |
| Approach LOS | | | | | A | B | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.0 | | |
| Intersection Capacity Utilization | 21.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

# 2015 No-Build Conditions

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 11 | 11 | 9 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 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 | 0.85 | | 0.98 | | | 0.98 | | | 0.94 | |
| Flt Protected | | 0.99 | 1.00 | | 0.99 | | | 0.98 | | | 0.99 | |
| Satd. Flow (prot) | | 1703 | 1221 | | 1624 | | | 1677 | | | 1679 | |
| Flt Permitted | | 0.86 | 1.00 | | 0.93 | | | 0.78 | | | 0.92 | |
| Satd. Flow (perm) | | 1485 | 1221 | | 1519 | | | 1333 | | | 1551 | |
| Volume (vph) | 68 | 202 | 22 | 28 | 188 | 38 | 59 | 71 | 17 | 44 | 94 | 105 |
| Peak-hour factor, PHF | 0.80 | 0.80 | 0.80 | 0.78 | 0.78 | 0.78 | 0.67 | 0.67 | 0.67 | 0.74 | 0.74 | 0.74 |
| Adj. Flow (vph) | 85 | 252 | 28 | 36 | 241 | 49 | 88 | 106 | 25 | 59 | 127 | 142 |
| RTOR Reduction (vph) | 0 | 0 | 19 | 0 | 11 | 0 | 0 | 7 | 0 | 0 | 40 | 0 |
| Lane Group Flow (vph) | 0 | 337 | 9 | 0 | 315 | 0 | 0 | 212 | 0 | 0 | 288 | 0 |
| Heavy Vehicles (%) | 5% | 7% | 19% | 22% | 14% | 8% | 7% | 9% | 19% | 7% | 9% | 2% |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 10.3 | 10.3 | | 10.3 | | | 14.0 | | | 14.0 | |
| Effective Green, g (s) | | 10.3 | 10.3 | | 10.3 | | | 14.0 | | | 14.0 | |
| Actuated g/C Ratio | | 0.32 | 0.32 | | 0.32 | | | 0.43 | | | 0.43 | |
| 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) | | 474 | 389 | | 484 | | | 578 | | | 672 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | c0.23 | 0.01 | | 0.21 | | | 0.16 | | | c0.19 | |
| v/c Ratio | | 0.71 | 0.02 | | 0.65 | | | 0.37 | | | 0.43 | |
| Uniform Delay, d1 | | 9.7 | 7.5 | | 9.5 | | | 6.2 | | | 6.4 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 5.0 | 0.0 | | 3.1 | | | 0.4 | | | 0.4 | |
| Delay (s) | | 14.7 | 7.6 | | 12.6 | | | 6.6 | | | 6.8 | |
| Level of Service | | B | A | | B | | | A | | | A | |
| Approach Delay (s) | | 14.1 | | | 12.6 | | | 6.6 | | | 6.8 | |
| Approach LOS | | B | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 32.3 | 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 | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 6 | 2 | 12 | 0 | 2 | 7 | 5 | 143 | 2 | 7 | 179 | 1 |
| Peak Hour Factor | 0.40 | 0.40 | 0.40 | 0.45 | 0.45 | 0.45 | 0.80 | 0.80 | 0.80 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 15 | 5 | 30 | 0 | 4 | 16 | 6 | 179 | 2 | 8 | 203 | 1 |
| 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 | 430 | 414 | 204 | 445 | 413 | 180 | 205 | | | 181 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 430 | 414 | 204 | 445 | 413 | 180 | 205 | | | 181 | | |
| 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 % | 97 | 99 | 96 | 100 | 99 | 98 | 100 | | | 99 | | |
| cM capacity (veh/h) | 522 | 527 | 842 | 501 | 527 | 868 | 1379 | | | 1406 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 50 | 20 | 188 | 212 |
| Volume Left | 15 | 0 | 6 | 8 |
| Volume Right | 30 | 16 | 2 | 1 |
| cSH | 677 | 759 | 1379 | 1406 |
| Volume to Capacity | 0.07 | 0.03 | 0.00 | 0.01 |
| Queue Length 95th (ft) | 6 | 2 | 0 | 0 |
| Control Delay (s) | 10.7 | 9.9 | 0.3 | 0.3 |
| Lane LOS | B | A | A | A |
| Approach Delay (s) | 10.7 | 9.9 | 0.3 | 0.3 |
| Approach LOS | B | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.8 | | |
| Intersection Capacity Utilization | 25.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 1 | 63 | 52 | 26 | 32 | 16 | 21 | 129 | 12 | 30 | 153 | 2 |
| Peak Hour Factor | 0.80 | 0.80 | 0.80 | 0.65 | 0.65 | 0.65 | 0.80 | 0.80 | 0.80 | 0.76 | 0.76 | 0.76 |
| Hourly flow rate (vph) | 1 | 79 | 65 | 40 | 49 | 25 | 26 | 161 | 15 | 39 | 201 | 3 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 145 | 114 | 203 | 243 |
| Volume Left (vph) | 1 | 40 | 26 | 39 |
| Volume Right (vph) | 65 | 25 | 15 | 3 |
| Hadj (s) | -0.14 | 0.24 | 0.30 | 0.14 |
| Departure Headway (s) | 5.1 | 5.5 | 5.2 | 5.0 |
| Degree Utilization, x | 0.21 | 0.17 | 0.30 | 0.34 |
| Capacity (veh/h) | 637 | 588 | 645 | 673 |
| Control Delay (s) | 9.4 | 9.7 | 10.4 | 10.6 |
| Approach Delay (s) | 9.4 | 9.7 | 10.4 | 10.6 |
| Approach LOS | A | A | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 10.2 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 31.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Volume (veh/h) | 5 | 5 | 161 | 4 | 3 | 248 |
| Peak Hour Factor | 0.63 | 0.63 | 0.82 | 0.82 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 8 | 8 | 196 | 5 | 3 | 282 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 487 | 199 | | | 201 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 487 | 199 | | | 201 | |
| tC, single (s) | 6.6 | 6.6 | | | 4.8 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.7 | 3.7 | | | 2.8 | |
| p0 queue free % | 98 | 99 | | | 100 | |
| cM capacity (veh/h) | 507 | 755 | | | 1063 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 16 | 201 | 285 |
| Volume Left | 8 | 0 | 3 |
| Volume Right | 8 | 5 | 0 |
| cSH | 606 | 1700 | 1063 |
| Volume to Capacity | 0.03 | 0.12 | 0.00 |
| Queue Length 95th (ft) | 2 | 0 | 0 |
| Control Delay (s) | 11.1 | 0.0 | 0.1 |
| Lane LOS | B | | A |
| Approach Delay (s) | 11.1 | 0.0 | 0.1 |
| Approach LOS | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.4 | | |
| Intersection Capacity Utilization | 25.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 11 | 17 | 5 | 50 | 11 | 16 | 3 | 158 | 43 | 20 | 215 | 2 |
| Peak Hour Factor | 0.83 | 0.83 | 0.83 | 0.88 | 0.88 | 0.88 | 0.92 | 0.92 | 0.92 | 0.73 | 0.73 | 0.73 |
| Hourly flow rate (vph) | 13 | 20 | 6 | 57 | 12 | 18 | 3 | 172 | 47 | 27 | 295 | 3 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | 6 | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 544 | 576 | 296 | 567 | 554 | 195 | 297 | | | 218 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 544 | 576 | 296 | 567 | 554 | 195 | 297 | | | 218 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.3 | 6.5 | 6.3 | 4.1 | | | 4.2 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.7 | 4.0 | 3.4 | 2.2 | | | 2.3 | | |
| p0 queue free % | 97 | 95 | 99 | 85 | 97 | 98 | 100 | | | 98 | | |
| cM capacity (veh/h) | 425 | 421 | 748 | 387 | 433 | 834 | 1276 | | | 1299 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total | 40 | 88 | 3 | 218 | 27 | 297 |
| Volume Left | 13 | 57 | 3 | 0 | 27 | 0 |
| Volume Right | 6 | 18 | 0 | 47 | 0 | 3 |
| cSH | 452 | 499 | 1276 | 1700 | 1299 | 1700 |
| Volume to Capacity | 0.09 | 0.18 | 0.00 | 0.13 | 0.02 | 0.17 |
| Queue Length 95th (ft) | 7 | 16 | 0 | 0 | 2 | 0 |
| Control Delay (s) | 13.7 | 14.7 | 7.8 | 0.0 | 7.8 | 0.0 |
| Lane LOS | B | B | A | | A | |
| Approach Delay (s) | 13.7 | 14.7 | 0.1 | | 0.7 | |
| Approach LOS | B | B | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.1 | | |
| Intersection Capacity Utilization | 31.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 34 | 20 | 12 | 156 | 240 | 44 |
| Peak Hour Factor | 0.93 | 0.93 | 0.79 | 0.79 | 0.82 | 0.82 |
| Hourly flow rate (vph) | 37 | 22 | 15 | 197 | 293 | 54 |
| Pedestrians | 1 | | | | | |
| Lane Width (ft) | 11.0 | | | | | |
| Walking Speed (ft/s) | 4.0 | | | | | |
| Percent Blockage | 0 | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 548 | 321 | 347 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 548 | 321 | 347 | | | |
| tC, single (s) | 6.5 | 6.2 | 4.4 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.6 | 3.3 | 2.4 | | | |
| p0 queue free % | 92 | 97 | 99 | | | |
| cM capacity (veh/h) | 478 | 713 | 1084 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 58 | 213 | 346 |
| Volume Left | 37 | 15 | 0 |
| Volume Right | 22 | 0 | 54 |
| cSH | 545 | 1084 | 1700 |
| Volume to Capacity | 0.11 | 0.01 | 0.20 |
| Queue Length 95th (ft) | 9 | 1 | 0 |
| Control Delay (s) | 12.4 | 0.7 | 0.0 |
| Lane LOS | B | A | |
| Approach Delay (s) | 12.4 | 0.7 | 0.0 |
| Approach LOS | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.4 | | |
| Intersection Capacity Utilization | 28.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 3 | 20 | 19 | 6 | 14 | 4 | 27 | 169 | 6 | 4 | 243 | 3 |
| Peak Hour Factor | 0.63 | 0.63 | 0.63 | 0.69 | 0.69 | 0.69 | 0.86 | 0.86 | 0.86 | 0.84 | 0.84 | 0.84 |
| Hourly flow rate (vph) | 5 | 32 | 30 | 9 | 20 | 6 | 31 | 197 | 7 | 5 | 289 | 4 |
| 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 | 579 | 567 | 291 | 609 | 565 | 200 | 293 | | | 203 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 579 | 567 | 291 | 609 | 565 | 200 | 293 | | | 203 | | |
| tC, single (s) | 7.4 | 6.6 | 6.3 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.8 | 4.1 | 3.4 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 99 | 92 | 96 | 98 | 95 | 99 | 98 | | | 100 | | |
| cM capacity (veh/h) | 359 | 409 | 739 | 362 | 424 | 846 | 1257 | | | 1380 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 67 | 35 | 235 | 298 |
| Volume Left | 5 | 9 | 31 | 5 |
| Volume Right | 30 | 6 | 7 | 4 |
| cSH | 506 | 442 | 1257 | 1380 |
| Volume to Capacity | 0.13 | 0.08 | 0.02 | 0.00 |
| Queue Length 95th (ft) | 11 | 6 | 2 | 0 |
| Control Delay (s) | 13.2 | 13.8 | 1.3 | 0.2 |
| Lane LOS | B | B | A | A |
| Approach Delay (s) | 13.2 | 13.8 | 1.3 | 0.2 |
| Approach LOS | B | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.7 | | |
| Intersection Capacity Utilization | 35.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 3% | | | 0% | 0% | |
| Volume (veh/h) | 29 | 50 | 12 | 141 | 253 | 42 |
| Peak Hour Factor | 0.72 | 0.72 | 0.82 | 0.82 | 0.81 | 0.81 |
| Hourly flow rate (vph) | 40 | 69 | 15 | 172 | 312 | 52 |
| Pedestrians | 1 | | | 1 | | |
| Lane Width (ft) | 10.0 | | | 11.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 540 | 340 | 365 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 540 | 340 | 365 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 92 | 90 | 99 | | | |
| cM capacity (veh/h) | 492 | 699 | 1204 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 110 | 187 | 364 |
| Volume Left | 40 | 15 | 0 |
| Volume Right | 69 | 0 | 52 |
| cSH | 605 | 1204 | 1700 |
| Volume to Capacity | 0.18 | 0.01 | 0.21 |
| Queue Length 95th (ft) | 16 | 1 | 0 |
| Control Delay (s) | 12.3 | 0.7 | 0.0 |
| Lane LOS | B | A | |
| Approach Delay (s) | 12.3 | 0.7 | 0.0 |
| Approach LOS | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.2 | | |
| Intersection Capacity Utilization | 29.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 11 | 11 | 12 | 11 | 12 | 12 |
| 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 | 0.95 | |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 0.91 | |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | |
| Satd. Flow (prot) | 1332 | 1346 | 1543 | 1570 | 2851 | |
| Flt Permitted | 0.95 | 1.00 | 0.43 | 1.00 | 1.00 | |
| Satd. Flow (perm) | 1332 | 1346 | 703 | 1570 | 2851 | |
| Volume (vph) | 115 | 152 | 352 | 107 | 166 | 231 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.87 | 0.87 | 0.91 | 0.91 |
| Adj. Flow (vph) | 125 | 165 | 405 | 123 | 182 | 254 |
| RTOR Reduction (vph) | 0 | 74 | 0 | 0 | 195 | 0 |
| Lane Group Flow (vph) | 125 | 91 | 405 | 123 | 241 | 0 |
| Heavy Vehicles (%) | 31% | 16% | 17% | 17% | 8% | 21% |
| Turn Type | | pm+ov | pm+pt | | | |
| Protected Phases | 4 | 5 | 5 | 2 | 6 | |
| Permitted Phases | | 4 | 2 | | | |
| Actuated Green, G (s) | 8.7 | 26.7 | 35.0 | 35.0 | 11.0 | |
| Effective Green, g (s) | 10.7 | 30.7 | 37.0 | 37.0 | 13.0 | |
| Actuated g/C Ratio | 0.19 | 0.55 | 0.66 | 0.66 | 0.23 | |
| Clearance Time (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 256 | 839 | 769 | 1043 | 665 | |
| v/s Ratio Prot | c0.09 | 0.04 | c0.19 | 0.08 | 0.08 | |
| v/s Ratio Perm | | 0.03 | c0.16 | | | |
| v/c Ratio | 0.49 | 0.11 | 0.53 | 0.12 | 0.36 | |
| Uniform Delay, d1 | 20.1 | 6.0 | 7.0 | 3.4 | 17.9 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.5 | 0.1 | 0.7 | 0.1 | 0.3 | |
| Delay (s) | 21.5 | 6.0 | 7.6 | 3.5 | 18.2 | |
| Level of Service | C | A | A | A | B | |
| Approach Delay (s) | 12.7 | | | 6.6 | 18.2 | |
| Approach LOS | B | | | A | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.50 | | |
| Actuated Cycle Length (s) | 55.7 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 47.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.94 | | 1.00 | 0.94 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1735 | 1688 | | 1626 | 1665 | | 1770 | 1629 | | 1539 | 1743 | 1392 |
| Flt Permitted | 0.42 | 1.00 | | 0.59 | 1.00 | | 0.41 | 1.00 | | 0.62 | 1.00 | 1.00 |
| Satd. Flow (perm) | 762 | 1688 | | 1018 | 1665 | | 770 | 1629 | | 1008 | 1743 | 1392 |
| Volume (vph) | 122 | 137 | 85 | 57 | 131 | 87 | 111 | 141 | 38 | 32 | 145 | 123 |
| Peak-hour factor, PHF | 0.83 | 0.83 | 0.83 | 0.73 | 0.73 | 0.73 | 0.82 | 0.82 | 0.82 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 147 | 165 | 102 | 78 | 179 | 119 | 135 | 172 | 46 | 37 | 167 | 141 |
| RTOR Reduction (vph) | 0 | 23 | 0 | 0 | 25 | 0 | 0 | 14 | 0 | 0 | 0 | 117 |
| Lane Group Flow (vph) | 147 | 244 | 0 | 78 | 273 | 0 | 135 | 204 | 0 | 37 | 167 | 24 |
| Confl. Peds. (#/hr) | 1 | | | | | 1 | | | 1 | 1 | | |
| Heavy Vehicles (%) | 4% | 8% | 3% | 11% | 0% | 16% | 2% | 8% | 29% | 17% | 9% | 16% |
| Turn Type | pm+pt | | | Perm | | | pm+pt | | | Perm | | Perm |
| Protected Phases | 7 | 4 | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | 36.9 | 36.9 | | 23.4 | 23.4 | | 17.3 | 17.3 | | 9.9 | 9.9 | 9.9 |
| Effective Green, g (s) | 37.9 | 37.9 | | 24.4 | 24.4 | | 18.3 | 18.3 | | 10.9 | 10.9 | 10.9 |
| Actuated g/C Ratio | 0.59 | 0.59 | | 0.38 | 0.38 | | 0.29 | 0.29 | | 0.17 | 0.17 | 0.17 |
| Clearance Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 594 | 996 | | 387 | 633 | | 272 | 464 | | 171 | 296 | 236 |
| v/s Ratio Prot | 0.04 | c0.14 | | | c0.16 | | 0.03 | c0.13 | | | 0.10 | |
| v/s Ratio Perm | 0.11 | | | 0.08 | | | c0.12 | | | 0.04 | | 0.02 |
| v/c Ratio | 0.25 | 0.24 | | 0.20 | 0.43 | | 0.50 | 0.44 | | 0.22 | 0.56 | 0.10 |
| Uniform Delay, d1 | 6.4 | 6.3 | | 13.4 | 14.8 | | 18.5 | 18.8 | | 23.0 | 24.5 | 22.5 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.2 | 0.1 | | 0.3 | 0.5 | | 1.4 | 0.7 | | 0.6 | 2.5 | 0.2 |
| Delay (s) | 6.7 | 6.4 | | 13.6 | 15.2 | | 19.9 | 19.4 | | 23.6 | 26.9 | 22.7 |
| Level of Service | A | A | | B | B | | B | B | | C | C | C |
| Approach Delay (s) | | 6.5 | | | 14.9 | | | 19.6 | | | 24.8 | |
| Approach LOS | | A | | | B | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.42 | | |
| Actuated Cycle Length (s) | 64.2 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 52.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 13 | 58 | 2 | 12 | 47 | 4 | 2 | 43 | 6 | 3 | 80 | 2 |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.61 | 0.61 | 0.61 | 0.64 | 0.64 | 0.64 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 15 | 66 | 2 | 20 | 77 | 7 | 3 | 67 | 9 | 3 | 91 | 2 |
| Pedestrians | | | | | | | | 2 | | | | |
| Lane Width (ft) | | | | | | | | 12.0 | | | | |
| Walking Speed (ft/s) | | | | | | | | 4.0 | | | | |
| Percent Blockage | | | | | | | | 0 | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 84 | | | 70 | | | 266 | 222 | 69 | 259 | 219 | 80 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 84 | | | 70 | | | 266 | 222 | 69 | 259 | 219 | 80 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.6 | 6.7 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.8 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 99 | | | 99 | | | 99 | 90 | 99 | 99 | 86 | 100 |
| cM capacity (veh/h) | 1526 | | | 1541 | | | 604 | 656 | 874 | 625 | 661 | 985 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 83 | 103 | 80 | 97 |
| Volume Left | 15 | 20 | 3 | 3 |
| Volume Right | 2 | 7 | 9 | 2 |
| cSH | 1526 | 1541 | 673 | 665 |
| Volume to Capacity | 0.01 | 0.01 | 0.12 | 0.15 |
| Queue Length 95th (ft) | 1 | 1 | 10 | 13 |
| Control Delay (s) | 1.4 | 1.5 | 11.1 | 11.3 |
| Lane LOS | A | A | B | B |
| Approach Delay (s) | 1.4 | 1.5 | 11.1 | 11.3 |
| Approach LOS | | | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 6.2 | | |
| Intersection Capacity Utilization | 17.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 6 | 18 | 11 | 1 | 23 | 7 | 2 | 117 | 1 | 8 | 159 | 3 |
| Peak Hour Factor | 0.52 | 0.52 | 0.52 | 0.75 | 0.75 | 0.75 | 0.65 | 0.65 | 0.65 | 0.62 | 0.62 | 0.62 |
| Hourly flow rate (vph) | 12 | 35 | 21 | 1 | 31 | 9 | 3 | 180 | 2 | 13 | 256 | 5 |
| Pedestrians | | 1 | | | | | | | | | | |
| Lane Width (ft) | | 12.0 | | | | | | | | | | |
| Walking Speed (ft/s) | | 4.0 | | | | | | | | | | |
| Percent Blockage | | 0 | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 497 | 473 | 260 | 510 | 475 | 181 | 262 | | | 182 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 497 | 473 | 260 | 510 | 475 | 181 | 262 | | | 182 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.8 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.8 | 2.2 | | | 2.2 | | |
| p0 queue free % | 97 | 93 | 97 | 100 | 94 | 99 | 100 | | | 99 | | |
| cM capacity (veh/h) | 453 | 486 | 783 | 435 | 485 | 738 | 1313 | | | 1406 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 67 | 41 | 185 | 274 |
| Volume Left | 12 | 1 | 3 | 13 |
| Volume Right | 21 | 9 | 2 | 5 |
| cSH | 544 | 524 | 1313 | 1406 |
| Volume to Capacity | 0.12 | 0.08 | 0.00 | 0.01 |
| Queue Length 95th (ft) | 11 | 6 | 0 | 1 |
| Control Delay (s) | 12.5 | 12.5 | 0.1 | 0.4 |
| Lane LOS | B | B | A | A |
| Approach Delay (s) | 12.5 | 12.5 | 0.1 | 0.4 |
| Approach LOS | B | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.7 | | |
| Intersection Capacity Utilization | 24.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 19 | 75 | 1 | 0 | 56 | 158 | 0 | 0 | 0 | 148 | 5 | 14 |
| Peak Hour Factor | 0.75 | 0.75 | 0.75 | 0.92 | 0.92 | 0.92 | 0.25 | 0.25 | 0.25 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 25 | 100 | 1 | 0 | 61 | 172 | 0 | 0 | 0 | 161 | 5 | 15 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 233 | | | 101 | | | 230 | 384 | 101 | 212 | 213 | 61 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 233 | | | 101 | | | 230 | 384 | 101 | 212 | 213 | 61 |
| tC, single (s) | 4.2 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.2 | 6.5 | 6.3 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.3 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.6 | 4.0 | 3.4 |
| p0 queue free % | 98 | | | 100 | | | 100 | 100 | 100 | 78 | 99 | 98 |
| cM capacity (veh/h) | 1312 | | | 1504 | | | 699 | 539 | 955 | 724 | 675 | 988 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total | 25 | 101 | 61 | 172 | 0 | 161 | 21 |
| Volume Left | 25 | 0 | 0 | 0 | 0 | 161 | 0 |
| Volume Right | 0 | 1 | 0 | 172 | 0 | 0 | 15 |
| cSH | 1312 | 1700 | 1504 | 1700 | 1700 | 724 | 880 |
| Volume to Capacity | 0.02 | 0.06 | 0.00 | 0.10 | 0.00 | 0.22 | 0.02 |
| Queue Length 95th (ft) | 1 | 0 | 0 | 0 | 0 | 21 | 2 |
| Control Delay (s) | 7.8 | 0.0 | 0.0 | 0.0 | 0.0 | 11.4 | 9.2 |
| Lane LOS | A | | | | A | B | A |
| Approach Delay (s) | 1.6 | | 0.0 | | 0.0 | 11.1 | |
| Approach LOS | | | | | A | B | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 4.1 | | |
| Intersection Capacity Utilization | 22.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 11 | 11 | 9 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 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 | |
| Frpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.97 | | | 0.98 | | | 0.94 | |
| Flt Protected | | 0.98 | 1.00 | | 1.00 | | | 0.99 | | | 0.99 | |
| Satd. Flow (prot) | | 1768 | 1253 | | 1788 | | | 1735 | | | 1704 | |
| Flt Permitted | | 0.70 | 1.00 | | 0.95 | | | 0.88 | | | 0.89 | |
| Satd. Flow (perm) | | 1267 | 1253 | | 1703 | | | 1548 | | | 1536 | |
| Volume (vph) | 139 | 179 | 21 | 33 | 252 | 79 | 47 | 148 | 36 | 76 | 157 | 171 |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.91 | 0.91 | 0.91 | 0.84 | 0.84 | 0.84 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 162 | 208 | 24 | 36 | 277 | 87 | 56 | 176 | 43 | 82 | 169 | 184 |
| RTOR Reduction (vph) | 0 | 0 | 14 | 0 | 15 | 0 | 0 | 10 | 0 | 0 | 42 | 0 |
| Lane Group Flow (vph) | 0 | 370 | 10 | 0 | 385 | 0 | 0 | 265 | 0 | 0 | 393 | 0 |
| Confl. Peds. (#/hr) | | | | | | | 1 | | 1 | 1 | | 1 |
| Heavy Vehicles (%) | 0% | 3% | 16% | 7% | 3% | 0% | 2% | 4% | 18% | 0% | 5% | 3% |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 19.1 | 19.1 | | 19.1 | | | 17.3 | | | 17.3 | |
| Effective Green, g (s) | | 19.1 | 19.1 | | 19.1 | | | 17.3 | | | 17.3 | |
| Actuated g/C Ratio | | 0.43 | 0.43 | | 0.43 | | | 0.39 | | | 0.39 | |
| 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) | | 545 | 539 | | 733 | | | 603 | | | 598 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | c0.29 | 0.01 | | 0.23 | | | 0.17 | | | c0.26 | |
| v/c Ratio | | 0.68 | 0.02 | | 0.53 | | | 0.44 | | | 0.66 | |
| Uniform Delay, d1 | | 10.2 | 7.3 | | 9.3 | | | 10.0 | | | 11.1 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 3.4 | 0.0 | | 0.7 | | | 0.5 | | | 2.6 | |
| Delay (s) | | 13.5 | 7.3 | | 10.0 | | | 10.5 | | | 13.7 | |
| Level of Service | | B | A | | A | | | B | | | B | |
| Approach Delay (s) | | 13.2 | | | 10.0 | | | 10.5 | | | 13.7 | |
| Approach LOS | | B | | | A | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.67 | | |
| Actuated Cycle Length (s) | 44.4 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 77.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 13 | 8 | 15 | 3 | 9 | 20 | 6 | 205 | 5 | 18 | 246 | 13 |
| Peak Hour Factor | 0.69 | 0.69 | 0.69 | 0.65 | 0.65 | 0.65 | 0.95 | 0.95 | 0.95 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 19 | 12 | 22 | 5 | 14 | 31 | 6 | 216 | 5 | 20 | 273 | 14 |
| Pedestrians | | | | | 1 | | | 2 | | | 1 | |
| Lane Width (ft) | | | | | 10.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 590 | 555 | 283 | 582 | 560 | 220 | 288 | | | 222 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 590 | 555 | 283 | 582 | 560 | 220 | 288 | | | 222 | | |
| 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 % | 95 | 97 | 97 | 99 | 97 | 96 | 100 | | | 99 | | |
| cM capacity (veh/h) | 390 | 434 | 760 | 399 | 431 | 823 | 1286 | | | 1358 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 52 | 49 | 227 | 308 |
| Volume Left | 19 | 5 | 6 | 20 |
| Volume Right | 22 | 31 | 5 | 14 |
| cSH | 503 | 607 | 1286 | 1358 |
| Volume to Capacity | 0.10 | 0.08 | 0.00 | 0.01 |
| Queue Length 95th (ft) | 9 | 7 | 0 | 1 |
| Control Delay (s) | 13.0 | 11.5 | 0.3 | 0.6 |
| Lane LOS | B | B | A | A |
| Approach Delay (s) | 13.0 | 11.5 | 0.3 | 0.6 |
| Approach LOS | B | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.3 | | |
| Intersection Capacity Utilization | 34.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 7 | 47 | 58 | 57 | 54 | 41 | 73 | 205 | 82 | 36 | 170 | 6 |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.87 | 0.87 | 0.87 | 0.88 | 0.88 | 0.88 | 0.89 | 0.89 | 0.89 |
| Hourly flow rate (vph) | 8 | 55 | 68 | 66 | 62 | 47 | 83 | 233 | 93 | 40 | 191 | 7 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 132 | 175 | 409 | 238 |
| Volume Left (vph) | 8 | 66 | 83 | 40 |
| Volume Right (vph) | 68 | 47 | 93 | 7 |
| Hadj (s) | -0.12 | 0.03 | 0.02 | 0.21 |
| Departure Headway (s) | 5.9 | 6.0 | 5.3 | 5.7 |
| Degree Utilization, x | 0.22 | 0.29 | 0.60 | 0.38 |
| Capacity (veh/h) | 515 | 535 | 649 | 587 |
| Control Delay (s) | 10.6 | 11.4 | 15.8 | 12.1 |
| Approach Delay (s) | 10.6 | 11.4 | 15.8 | 12.1 |
| Approach LOS | B | B | C | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 13.4 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 50.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Volume (veh/h) | 5 | 12 | 325 | 13 | 7 | 305 |
| Peak Hour Factor | 0.33 | 0.33 | 0.88 | 0.88 | 0.86 | 0.86 |
| Hourly flow rate (vph) | 15 | 36 | 369 | 15 | 8 | 355 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 748 | 377 | | | 384 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 748 | 377 | | | 384 | |
| tC, single (s) | 6.6 | 6.3 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.7 | 3.4 | | | 2.2 | |
| p0 queue free % | 96 | 94 | | | 99 | |
| cM capacity (veh/h) | 346 | 650 | | | 1185 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 52 | 384 | 363 |
| Volume Left | 15 | 0 | 8 |
| Volume Right | 36 | 15 | 0 |
| cSH | 517 | 1700 | 1185 |
| Volume to Capacity | 0.10 | 0.23 | 0.01 |
| Queue Length 95th (ft) | 8 | 0 | 1 |
| Control Delay (s) | 12.7 | 0.0 | 0.2 |
| Lane LOS | B | | A |
| Approach Delay (s) | 12.7 | 0.0 | 0.2 |
| Approach LOS | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.9 | | |
| Intersection Capacity Utilization | 31.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 17 | 28 | 8 | 53 | 29 | 26 | 11 | 304 | 65 | 38 | 258 | 17 |
| Peak Hour Factor | 0.81 | 0.81 | 0.81 | 0.63 | 0.63 | 0.63 | 0.93 | 0.93 | 0.93 | 0.87 | 0.87 | 0.87 |
| Hourly flow rate (vph) | 21 | 35 | 10 | 84 | 46 | 41 | 12 | 327 | 70 | 44 | 297 | 20 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | 6 | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 788 | 814 | 306 | 797 | 789 | 362 | 316 | | | 397 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 788 | 814 | 306 | 797 | 789 | 362 | 316 | | | 397 | | |
| tC, single (s) | 7.1 | 6.6 | 6.2 | 7.2 | 6.5 | 6.2 | 4.2 | | | 4.5 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.6 | 4.0 | 3.3 | 2.3 | | | 2.6 | | |
| p0 queue free % | 92 | 88 | 99 | 67 | 85 | 94 | 99 | | | 96 | | |
| cM capacity (veh/h) | 248 | 292 | 738 | 257 | 303 | 676 | 1184 | | | 983 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total | 65 | 171 | 12 | 397 | 44 | 316 |
| Volume Left | 21 | 84 | 12 | 0 | 44 | 0 |
| Volume Right | 10 | 41 | 0 | 70 | 0 | 20 |
| cSH | 302 | 360 | 1184 | 1700 | 983 | 1700 |
| Volume to Capacity | 0.22 | 0.48 | 0.01 | 0.23 | 0.04 | 0.19 |
| Queue Length 95th (ft) | 20 | 62 | 1 | 0 | 3 | 0 |
| Control Delay (s) | 20.2 | 25.0 | 8.1 | 0.0 | 8.8 | 0.0 |
| Lane LOS | C | D | A | | A | |
| Approach Delay (s) | 20.2 | 25.0 | 0.2 | | 1.1 | |
| Approach LOS | C | D | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 6.1 | | |
| Intersection Capacity Utilization | 42.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 101 | 44 | 43 | 274 | 211 | 110 |
| Peak Hour Factor | 0.92 | 0.92 | 0.87 | 0.87 | 0.80 | 0.80 |
| Hourly flow rate (vph) | 110 | 48 | 49 | 315 | 264 | 138 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 746 | 332 | 401 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 746 | 332 | 401 | | | |
| tC, single (s) | 6.4 | 6.3 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.4 | 2.2 | | | |
| p0 queue free % | 70 | 93 | 96 | | | |
| cM capacity (veh/h) | 367 | 696 | 1141 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 158 | 364 | 401 |
| Volume Left | 110 | 49 | 0 |
| Volume Right | 48 | 0 | 138 |
| cSH | 429 | 1141 | 1700 |
| Volume to Capacity | 0.37 | 0.04 | 0.24 |
| Queue Length 95th (ft) | 42 | 3 | 0 |
| Control Delay (s) | 18.2 | 1.5 | 0.0 |
| Lane LOS | C | A | |
| Approach Delay (s) | 18.2 | 1.5 | 0.0 |
| Approach LOS | C | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.7 | | |
| Intersection Capacity Utilization | 52.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 24 | 68 | 120 | 4 | 80 | 12 | 122 | 270 | 13 | 13 | 212 | 19 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.69 | 0.69 | 0.69 | 0.97 | 0.97 | 0.97 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 26 | 73 | 129 | 6 | 116 | 17 | 126 | 278 | 13 | 14 | 228 | 20 |
| 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 | 878 | 809 | 238 | 968 | 813 | 285 | 248 | | | 292 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 878 | 809 | 238 | 968 | 813 | 285 | 248 | | | 292 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.2 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.3 | | |
| p0 queue free % | 84 | 74 | 84 | 96 | 59 | 98 | 90 | | | 99 | | |
| cM capacity (veh/h) | 166 | 279 | 801 | 145 | 282 | 759 | 1311 | | | 1226 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 228 | 139 | 418 | 262 |
| Volume Left | 26 | 6 | 126 | 14 |
| Volume Right | 129 | 17 | 13 | 20 |
| cSH | 394 | 293 | 1311 | 1226 |
| Volume to Capacity | 0.58 | 0.47 | 0.10 | 0.01 |
| Queue Length 95th (ft) | 88 | 60 | 8 | 1 |
| Control Delay (s) | 26.0 | 27.9 | 3.1 | 0.5 |
| Lane LOS | D | D | A | A |
| Approach Delay (s) | 26.0 | 27.9 | 3.1 | 0.5 |
| Approach LOS | D | D | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 10.7 | | |
| Intersection Capacity Utilization | 63.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 3% | | | 0% | 0% | |
| Volume (veh/h) | 55 | 38 | 56 | 333 | 248 | 38 |
| Peak Hour Factor | 0.91 | 0.91 | 0.93 | 0.93 | 0.80 | 0.80 |
| Hourly flow rate (vph) | 60 | 42 | 60 | 358 | 310 | 48 |
| Pedestrians | 1 | | | 1 | | |
| Lane Width (ft) | 10.0 | | | 11.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 813 | 336 | 358 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 813 | 336 | 358 | | | |
| tC, single (s) | 6.4 | 6.3 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 82 | 94 | 95 | | | |
| cM capacity (veh/h) | 330 | 698 | 1210 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 102 | 418 | 358 |
| Volume Left | 60 | 60 | 0 |
| Volume Right | 42 | 0 | 48 |
| cSH | 420 | 1210 | 1700 |
| Volume to Capacity | 0.24 | 0.05 | 0.21 |
| Queue Length 95th (ft) | 24 | 4 | 0 |
| Control Delay (s) | 16.3 | 1.6 | 0.0 |
| Lane LOS | C | A | |
| Approach Delay (s) | 16.3 | 1.6 | 0.0 |
| Approach LOS | C | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.7 | | |
| Intersection Capacity Utilization | 51.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 11 | 11 | 12 | 11 | 12 | 12 |
| 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 | 0.95 | |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 0.93 | |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | |
| Satd. Flow (prot) | 1419 | 1346 | 1444 | 1717 | 2801 | |
| Flt Permitted | 0.95 | 1.00 | 0.46 | 1.00 | 1.00 | |
| Satd. Flow (perm) | 1419 | 1346 | 700 | 1717 | 2801 | |
| Volume (vph) | 220 | 408 | 292 | 230 | 186 | 179 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.86 | 0.86 | 0.91 | 0.91 |
| Adj. Flow (vph) | 242 | 448 | 340 | 267 | 204 | 197 |
| RTOR Reduction (vph) | 0 | 177 | 0 | 0 | 150 | 0 |
| Lane Group Flow (vph) | 242 | 271 | 340 | 267 | 251 | 0 |
| Heavy Vehicles (%) | 23% | 16% | 25% | 7% | 12% | 27% |
| Turn Type | | pm+ov | pm+pt | | | |
| Protected Phases | 4 | 5 | 5 | 2 | 6 | |
| Permitted Phases | | 4 | 2 | | | |
| Actuated Green, G (s) | 12.6 | 28.5 | 33.8 | 33.8 | 11.9 | |
| Effective Green, g (s) | 14.6 | 32.5 | 35.8 | 35.8 | 13.9 | |
| Actuated g/C Ratio | 0.25 | 0.56 | 0.61 | 0.61 | 0.24 | |
| Clearance Time (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 355 | 841 | 657 | 1053 | 667 | |
| v/s Ratio Prot | c0.17 | 0.10 | c0.16 | 0.16 | 0.09 | |
| v/s Ratio Perm | | 0.10 | c0.16 | | | |
| v/c Ratio | 0.68 | 0.32 | 0.52 | 0.25 | 0.38 | |
| Uniform Delay, d1 | 19.8 | 7.0 | 8.7 | 5.2 | 18.6 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 5.3 | 0.2 | 0.7 | 0.1 | 0.4 | |
| Delay (s) | 25.1 | 7.2 | 9.4 | 5.3 | 19.0 | |
| Level of Service | C | A | A | A | B | |
| Approach Delay (s) | 13.5 | | | 7.6 | 19.0 | |
| Approach LOS | B | | | A | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 58.4 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 49.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.94 | | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1671 | 1658 | | 1805 | 1758 | | 1805 | 1737 | | 1622 | 1638 | 1468 |
| Flt Permitted | 0.26 | 1.00 | | 0.45 | 1.00 | | 0.36 | 1.00 | | 0.61 | 1.00 | 1.00 |
| Satd. Flow (perm) | 465 | 1658 | | 854 | 1758 | | 687 | 1737 | | 1041 | 1638 | 1468 |
| Volume (vph) | 257 | 293 | 192 | 19 | 228 | 66 | 132 | 175 | 26 | 82 | 208 | 241 |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.88 | 0.88 | 0.88 | 0.84 | 0.84 | 0.84 | 0.80 | 0.80 | 0.80 |
| Adj. Flow (vph) | 302 | 345 | 226 | 22 | 259 | 75 | 157 | 208 | 31 | 102 | 260 | 301 |
| RTOR Reduction (vph) | 0 | 29 | 0 | 0 | 13 | 0 | 0 | 7 | 0 | 0 | 0 | 224 |
| Lane Group Flow (vph) | 302 | 542 | 0 | 22 | 321 | 0 | 157 | 232 | 0 | 102 | 260 | 77 |
| Confl. Peds. (#/hr) | | | | | | | | | 2 | 2 | | |
| Heavy Vehicles (%) | 8% | 7% | 9% | 0% | 4% | 6% | 0% | 8% | 0% | 11% | 16% | 10% |
| Turn Type | pm+pt | | | Perm | | | pm+pt | | | Perm | | Perm |
| Protected Phases | 7 | 4 | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | 34.0 | 34.0 | | 16.6 | 16.6 | | 23.6 | 23.6 | | 16.4 | 16.4 | 16.4 |
| Effective Green, g (s) | 35.0 | 35.0 | | 17.6 | 17.6 | | 24.6 | 24.6 | | 17.4 | 17.4 | 17.4 |
| Actuated g/C Ratio | 0.52 | 0.52 | | 0.26 | 0.26 | | 0.36 | 0.36 | | 0.26 | 0.26 | 0.26 |
| Clearance Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 480 | 858 | | 222 | 458 | | 303 | 632 | | 268 | 422 | 378 |
| v/s Ratio Prot | 0.12 | c0.33 | | | 0.18 | | c0.02 | 0.13 | | | c0.16 | |
| v/s Ratio Perm | 0.20 | | | 0.03 | | | 0.16 | | | 0.10 | | 0.05 |
| v/c Ratio | 0.63 | 0.63 | | 0.10 | 0.70 | | 0.52 | 0.37 | | 0.38 | 0.62 | 0.20 |
| Uniform Delay, d1 | 11.0 | 11.7 | | 19.0 | 22.6 | | 17.0 | 15.8 | | 20.7 | 22.2 | 19.7 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.6 | 1.5 | | 0.2 | 4.8 | | 1.5 | 0.4 | | 0.9 | 2.7 | 0.3 |
| Delay (s) | 13.6 | 13.2 | | 19.2 | 27.4 | | 18.5 | 16.1 | | 21.6 | 24.8 | 19.9 |
| Level of Service | B | B | | B | C | | B | B | | C | C | B |
| Approach Delay (s) | | 13.3 | | | 26.9 | | | 17.1 | | | 22.1 | |
| Approach LOS | | B | | | C | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 67.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 68.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 21 | 76 | 1 | 8 | 122 | 22 | 19 | 88 | 25 | 4 | 44 | 23 |
| Peak Hour Factor | 0.66 | 0.66 | 0.66 | 0.74 | 0.74 | 0.74 | 0.76 | 0.76 | 0.76 | 0.71 | 0.71 | 0.71 |
| Hourly flow rate (vph) | 32 | 115 | 2 | 11 | 165 | 30 | 25 | 116 | 33 | 6 | 62 | 32 |
| 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 | 195 | | | 117 | | | 444 | 396 | 116 | 472 | 382 | 180 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 195 | | | 117 | | | 444 | 396 | 116 | 472 | 382 | 180 |
| 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 % | 98 | | | 99 | | | 94 | 78 | 97 | 99 | 88 | 96 |
| cM capacity (veh/h) | 1391 | | | 1484 | | | 452 | 528 | 942 | 397 | 538 | 868 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 148 | 205 | 174 | 100 |
| Volume Left | 32 | 11 | 25 | 6 |
| Volume Right | 2 | 30 | 33 | 32 |
| cSH | 1391 | 1484 | 561 | 600 |
| Volume to Capacity | 0.02 | 0.01 | 0.31 | 0.17 |
| Queue Length 95th (ft) | 2 | 1 | 33 | 15 |
| Control Delay (s) | 1.8 | 0.4 | 14.3 | 12.2 |
| Lane LOS | A | A | B | B |
| Approach Delay (s) | 1.8 | 0.4 | 14.3 | 12.2 |
| Approach LOS | | | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 6.5 | | |
| Intersection Capacity Utilization | 31.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 5 | 45 | 7 | 0 | 52 | 15 | 11 | 169 | 0 | 8 | 156 | 16 |
| Peak Hour Factor | 0.73 | 0.73 | 0.73 | 0.86 | 0.86 | 0.86 | 0.94 | 0.94 | 0.94 | 0.77 | 0.77 | 0.77 |
| Hourly flow rate (vph) | 7 | 62 | 10 | 0 | 60 | 17 | 12 | 180 | 0 | 10 | 203 | 21 |
| 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 | 485 | 437 | 213 | 477 | 447 | 180 | 223 | | | 180 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 485 | 437 | 213 | 477 | 447 | 180 | 223 | | | 180 | | |
| 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 % | 98 | 88 | 99 | 100 | 88 | 98 | 99 | | | 99 | | |
| cM capacity (veh/h) | 435 | 502 | 832 | 444 | 497 | 868 | 1357 | | | 1408 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 78 | 78 | 191 | 234 |
| Volume Left | 7 | 0 | 12 | 10 |
| Volume Right | 10 | 17 | 0 | 21 |
| cSH | 520 | 549 | 1357 | 1408 |
| Volume to Capacity | 0.15 | 0.14 | 0.01 | 0.01 |
| Queue Length 95th (ft) | 13 | 12 | 1 | 1 |
| Control Delay (s) | 13.1 | 12.6 | 0.5 | 0.4 |
| Lane LOS | B | B | A | A |
| Approach Delay (s) | 13.1 | 12.6 | 0.5 | 0.4 |
| Approach LOS | B | B | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 3.8 | | | |
| Intersection Capacity Utilization | 26.6% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 7 | 102 | 2 | 0 | 116 | 163 | 0 | 0 | 0 | 117 | 5 | 11 |
| Peak Hour Factor | 0.77 | 0.77 | 0.77 | 0.91 | 0.91 | 0.91 | 0.25 | 0.25 | 0.25 | 0.85 | 0.85 | 0.85 |
| Hourly flow rate (vph) | 9 | 132 | 3 | 0 | 127 | 179 | 0 | 0 | 0 | 138 | 6 | 13 |
| 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 | 307 | | | 135 | | | 295 | 459 | 134 | 278 | 281 | 127 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 307 | | | 135 | | | 295 | 459 | 134 | 278 | 281 | 127 |
| tC, single (s) | 4.2 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.3 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 99 | | | 100 | | | 100 | 100 | 100 | 79 | 99 | 99 |
| cM capacity (veh/h) | 1189 | | | 1462 | | | 643 | 498 | 921 | 666 | 626 | 928 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total | 9 | 135 | 127 | 179 | 0 | 138 | 19 |
| Volume Left | 9 | 0 | 0 | 0 | 0 | 138 | 0 |
| Volume Right | 0 | 3 | 0 | 179 | 0 | 0 | 13 |
| cSH | 1189 | 1700 | 1462 | 1700 | 1700 | 666 | 807 |
| Volume to Capacity | 0.01 | 0.08 | 0.00 | 0.11 | 0.00 | 0.21 | 0.02 |
| Queue Length 95th (ft) | 1 | 0 | 0 | 0 | 0 | 19 | 2 |
| Control Delay (s) | 8.1 | 0.0 | 0.0 | 0.0 | 0.0 | 11.8 | 9.6 |
| Lane LOS | A | | | | A | B | A |
| Approach Delay (s) | 0.5 | | 0.0 | | 0.0 | 11.5 | |
| Approach LOS | | | | | A | B | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.1 | | |
| Intersection Capacity Utilization | 22.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

# 2035 No-Build Conditions

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 11 | 11 | 9 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 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 | 0.85 | | 0.98 | | | 0.98 | | | 0.94 | |
| Flt Protected | | 0.99 | 1.00 | | 0.99 | | | 0.98 | | | 0.99 | |
| Satd. Flow (prot) | | 1703 | 1221 | | 1624 | | | 1676 | | | 1679 | |
| Flt Permitted | | 0.84 | 1.00 | | 0.93 | | | 0.76 | | | 0.90 | |
| Satd. Flow (perm) | | 1454 | 1221 | | 1513 | | | 1294 | | | 1520 | |
| Volume (vph) | 83 | 246 | 27 | 35 | 230 | 46 | 72 | 86 | 21 | 54 | 113 | 128 |
| Peak-hour factor, PHF | 0.80 | 0.80 | 0.80 | 0.78 | 0.78 | 0.78 | 0.67 | 0.67 | 0.67 | 0.74 | 0.74 | 0.74 |
| Adj. Flow (vph) | 104 | 308 | 34 | 45 | 295 | 59 | 107 | 128 | 31 | 73 | 153 | 173 |
| RTOR Reduction (vph) | 0 | 0 | 20 | 0 | 9 | 0 | 0 | 7 | 0 | 0 | 44 | 0 |
| Lane Group Flow (vph) | 0 | 412 | 14 | 0 | 390 | 0 | 0 | 259 | 0 | 0 | 355 | 0 |
| Heavy Vehicles (%) | 5% | 7% | 19% | 22% | 14% | 8% | 7% | 9% | 19% | 7% | 9% | 2% |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 17.4 | 17.4 | | 17.4 | | | 15.7 | | | 15.7 | |
| Effective Green, g (s) | | 17.4 | 17.4 | | 17.4 | | | 15.7 | | | 15.7 | |
| Actuated g/C Ratio | | 0.42 | 0.42 | | 0.42 | | | 0.38 | | | 0.38 | |
| 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) | | 616 | 517 | | 641 | | | 494 | | | 581 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | c0.28 | 0.01 | | 0.26 | | | 0.20 | | | c0.23 | |
| v/c Ratio | | 0.67 | 0.03 | | 0.61 | | | 0.52 | | | 0.61 | |
| Uniform Delay, d1 | | 9.5 | 6.9 | | 9.2 | | | 9.8 | | | 10.2 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 2.8 | 0.0 | | 1.6 | | | 1.0 | | | 1.9 | |
| Delay (s) | | 12.3 | 6.9 | | 10.8 | | | 10.8 | | | 12.1 | |
| Level of Service | | B | A | | B | | | B | | | B | |
| Approach Delay (s) | | 11.9 | | | 10.8 | | | 10.8 | | | 12.1 | |
| Approach LOS | | B | | | B | | | B | | | B | |

Intersection Summary

| | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 41.1 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 63.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 8 | 3 | 14 | 0 | 3 | 9 | 6 | 174 | 3 | 9 | 216 | 1 |
| Peak Hour Factor | 0.40 | 0.40 | 0.40 | 0.45 | 0.45 | 0.45 | 0.80 | 0.80 | 0.80 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 20 | 8 | 35 | 0 | 7 | 20 | 8 | 218 | 4 | 10 | 245 | 1 |
| 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 | 524 | 503 | 246 | 540 | 501 | 219 | 247 | | | 221 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 524 | 503 | 246 | 540 | 501 | 219 | 247 | | | 221 | | |
| 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 % | 96 | 98 | 96 | 100 | 99 | 98 | 99 | | | 99 | | |
| cM capacity (veh/h) | 446 | 468 | 798 | 426 | 468 | 825 | 1331 | | | 1360 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 62 | 27 | 229 | 257 |
| Volume Left | 20 | 0 | 8 | 10 |
| Volume Right | 35 | 20 | 4 | 1 |
| cSH | 597 | 693 | 1331 | 1360 |
| Volume to Capacity | 0.10 | 0.04 | 0.01 | 0.01 |
| Queue Length 95th (ft) | 9 | 3 | 0 | 1 |
| Control Delay (s) | 11.7 | 10.4 | 0.3 | 0.4 |
| Lane LOS | B | B | A | A |
| Approach Delay (s) | 11.7 | 10.4 | 0.3 | 0.4 |
| Approach LOS | B | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.0 | | |
| Intersection Capacity Utilization | 30.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 1 | 77 | 61 | 29 | 38 | 119 | 25 | 157 | 14 | 37 | 184 | 3 |
| Peak Hour Factor | 0.80 | 0.80 | 0.80 | 0.65 | 0.65 | 0.65 | 0.80 | 0.80 | 0.80 | 0.76 | 0.76 | 0.76 |
| Hourly flow rate (vph) | 1 | 96 | 76 | 45 | 58 | 183 | 31 | 196 | 18 | 49 | 242 | 4 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 174 | 286 | 245 | 295 |
| Volume Left (vph) | 1 | 45 | 31 | 49 |
| Volume Right (vph) | 76 | 183 | 18 | 4 |
| Hadj (s) | -0.14 | -0.15 | 0.30 | 0.13 |
| Departure Headway (s) | 6.0 | 5.7 | 6.2 | 5.9 |
| Degree Utilization, x | 0.29 | 0.46 | 0.42 | 0.48 |
| Capacity (veh/h) | 516 | 573 | 532 | 564 |
| Control Delay (s) | 11.4 | 13.5 | 13.5 | 14.3 |
| Approach Delay (s) | 11.4 | 13.5 | 13.5 | 14.3 |
| Approach LOS | B | B | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 13.4 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 46.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Volume (veh/h) | 6 | 6 | 194 | 5 | 4 | 295 |
| Peak Hour Factor | 0.63 | 0.63 | 0.82 | 0.82 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 10 | 10 | 237 | 6 | 5 | 335 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 584 | 240 | | | 243 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 584 | 240 | | | 243 | |
| tC, single (s) | 6.6 | 6.6 | | | 4.8 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.7 | 3.7 | | | 2.8 | |
| p0 queue free % | 98 | 99 | | | 100 | |
| cM capacity (veh/h) | 443 | 714 | | | 1022 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 19 | 243 | 340 |
| Volume Left | 10 | 0 | 5 |
| Volume Right | 10 | 6 | 0 |
| cSH | 547 | 1700 | 1022 |
| Volume to Capacity | 0.03 | 0.14 | 0.00 |
| Queue Length 95th (ft) | 3 | 0 | 0 |
| Control Delay (s) | 11.8 | 0.0 | 0.2 |
| Lane LOS | B | | A |
| Approach Delay (s) | 11.8 | 0.0 | 0.2 |
| Approach LOS | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.5 | | |
| Intersection Capacity Utilization | 28.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 13 | 21 | 6 | 62 | 13 | 19 | 4 | 191 | 53 | 24 | 256 | 3 |
| Peak Hour Factor | 0.83 | 0.83 | 0.83 | 0.88 | 0.88 | 0.88 | 0.92 | 0.92 | 0.92 | 0.73 | 0.73 | 0.73 |
| Hourly flow rate (vph) | 16 | 25 | 7 | 70 | 15 | 22 | 4 | 208 | 58 | 33 | 351 | 4 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | 6 | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 653 | 692 | 353 | 681 | 666 | 236 | 355 | | | 265 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 653 | 692 | 353 | 681 | 666 | 236 | 355 | | | 265 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.3 | 6.5 | 6.3 | 4.1 | | | 4.2 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.7 | 4.0 | 3.4 | 2.2 | | | 2.3 | | |
| p0 queue free % | 96 | 93 | 99 | 78 | 96 | 97 | 100 | | | 97 | | |
| cM capacity (veh/h) | 353 | 359 | 695 | 316 | 371 | 790 | 1215 | | | 1248 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total | 48 | 107 | 4 | 265 | 33 | 355 |
| Volume Left | 16 | 70 | 4 | 0 | 33 | 0 |
| Volume Right | 7 | 22 | 0 | 58 | 0 | 4 |
| cSH | 385 | 408 | 1215 | 1700 | 1248 | 1700 |
| Volume to Capacity | 0.13 | 0.26 | 0.00 | 0.16 | 0.03 | 0.21 |
| Queue Length 95th (ft) | 11 | 26 | 0 | 0 | 2 | 0 |
| Control Delay (s) | 15.7 | 17.9 | 8.0 | 0.0 | 8.0 | 0.0 |
| Lane LOS | C | C | A | | A | |
| Approach Delay (s) | 15.7 | 17.9 | 0.1 | | 0.7 | |
| Approach LOS | C | C | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 3.6 | | | |
| Intersection Capacity Utilization | 35.8% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 41 | 24 | 14 | 188 | 286 | 54 |
| Peak Hour Factor | 0.93 | 0.93 | 0.79 | 0.79 | 0.82 | 0.82 |
| Hourly flow rate (vph) | 44 | 26 | 18 | 238 | 349 | 66 |
| Pedestrians | 1 | | | | | |
| Lane Width (ft) | 11.0 | | | | | |
| Walking Speed (ft/s) | 4.0 | | | | | |
| Percent Blockage | 0 | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 656 | 383 | 416 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 656 | 383 | 416 | | | |
| tC, single (s) | 6.5 | 6.2 | 4.4 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.6 | 3.3 | 2.4 | | | |
| p0 queue free % | 89 | 96 | 98 | | | |
| cM capacity (veh/h) | 412 | 658 | 1020 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 70 | 256 | 415 |
| Volume Left | 44 | 18 | 0 |
| Volume Right | 26 | 0 | 66 |
| cSH | 478 | 1020 | 1700 |
| Volume to Capacity | 0.15 | 0.02 | 0.24 |
| Queue Length 95th (ft) | 13 | 1 | 0 |
| Control Delay (s) | 13.8 | 0.8 | 0.0 |
| Lane LOS | B | A | |
| Approach Delay (s) | 13.8 | 0.8 | 0.0 |
| Approach LOS | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.6 | | |
| Intersection Capacity Utilization | 31.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 4 | 24 | 23 | 8 | 17 | 5 | 33 | 203 | 8 | 5 | 290 | 4 |
| Peak Hour Factor | 0.63 | 0.63 | 0.63 | 0.69 | 0.69 | 0.69 | 0.86 | 0.86 | 0.86 | 0.84 | 0.84 | 0.84 |
| Hourly flow rate (vph) | 6 | 38 | 37 | 12 | 25 | 7 | 38 | 236 | 9 | 6 | 345 | 5 |
| 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 | 697 | 682 | 348 | 733 | 679 | 241 | 350 | | | 245 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 697 | 682 | 348 | 733 | 679 | 241 | 350 | | | 245 | | |
| tC, single (s) | 7.4 | 6.6 | 6.3 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.8 | 4.1 | 3.4 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 98 | 89 | 95 | 96 | 93 | 99 | 97 | | | 100 | | |
| cM capacity (veh/h) | 290 | 348 | 687 | 286 | 362 | 803 | 1198 | | | 1333 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 81 | 43 | 284 | 356 |
| Volume Left | 6 | 12 | 38 | 6 |
| Volume Right | 37 | 7 | 9 | 5 |
| cSH | 439 | 370 | 1198 | 1333 |
| Volume to Capacity | 0.18 | 0.12 | 0.03 | 0.00 |
| Queue Length 95th (ft) | 17 | 10 | 2 | 0 |
| Control Delay (s) | 15.1 | 16.0 | 1.4 | 0.2 |
| Lane LOS | C | C | A | A |
| Approach Delay (s) | 15.1 | 16.0 | 1.4 | 0.2 |
| Approach LOS | C | C | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.1 | | |
| Intersection Capacity Utilization | 41.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 3% | | | 0% | 0% | |
| Volume (veh/h) | 36 | 59 | 14 | 170 | 302 | 51 |
| Peak Hour Factor | 0.72 | 0.72 | 0.82 | 0.82 | 0.81 | 0.81 |
| Hourly flow rate (vph) | 50 | 82 | 17 | 207 | 373 | 63 |
| Pedestrians | 1 | | | 1 | | |
| Lane Width (ft) | 10.0 | | | 11.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 647 | 406 | 437 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 647 | 406 | 437 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 88 | 87 | 98 | | | |
| cM capacity (veh/h) | 425 | 641 | 1133 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 132 | 224 | 436 |
| Volume Left | 50 | 17 | 0 |
| Volume Right | 82 | 0 | 63 |
| cSH | 538 | 1133 | 1700 |
| Volume to Capacity | 0.25 | 0.02 | 0.26 |
| Queue Length 95th (ft) | 24 | 1 | 0 |
| Control Delay (s) | 13.9 | 0.8 | 0.0 |
| Lane LOS | B | A | |
| Approach Delay (s) | 13.9 | 0.8 | 0.0 |
| Approach LOS | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.5 | | |
| Intersection Capacity Utilization | 33.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 11 | 11 | 12 | 11 | 12 | 12 |
| 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 | 0.95 | |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 0.91 | |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | |
| Satd. Flow (prot) | 1332 | 1346 | 1543 | 1570 | 2843 | |
| Flt Permitted | 0.95 | 1.00 | 0.34 | 1.00 | 1.00 | |
| Satd. Flow (perm) | 1332 | 1346 | 545 | 1570 | 2843 | |
| Volume (vph) | 140 | 177 | 427 | 128 | 194 | 282 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.87 | 0.87 | 0.91 | 0.91 |
| Adj. Flow (vph) | 152 | 192 | 491 | 147 | 213 | 310 |
| RTOR Reduction (vph) | 0 | 79 | 0 | 0 | 240 | 0 |
| Lane Group Flow (vph) | 152 | 113 | 491 | 147 | 283 | 0 |
| Heavy Vehicles (%) | 31% | 16% | 17% | 17% | 8% | 21% |
| Turn Type | | pm+ov | pm+pt | | | |
| Protected Phases | 4 | 5 | 5 | 2 | 6 | |
| Permitted Phases | | 4 | 2 | | | |
| Actuated Green, G (s) | 10.4 | 33.6 | 41.7 | 41.7 | 12.5 | |
| Effective Green, g (s) | 12.4 | 37.6 | 43.7 | 43.7 | 14.5 | |
| Actuated g/C Ratio | 0.19 | 0.59 | 0.68 | 0.68 | 0.23 | |
| Clearance Time (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 258 | 874 | 764 | 1070 | 643 | |
| v/s Ratio Prot | c0.11 | 0.05 | c0.25 | 0.09 | 0.10 | |
| v/s Ratio Perm | | 0.03 | c0.19 | | | |
| v/c Ratio | 0.59 | 0.13 | 0.64 | 0.14 | 0.44 | |
| Uniform Delay, d1 | 23.5 | 5.9 | 9.0 | 3.6 | 21.3 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.4 | 0.1 | 1.9 | 0.1 | 0.5 | |
| Delay (s) | 26.9 | 6.0 | 10.9 | 3.6 | 21.8 | |
| Level of Service | C | A | B | A | C | |
| Approach Delay (s) | 15.3 | | | 9.2 | 21.8 | |
| Approach LOS | B | | | A | C | |

Intersection Summary

| | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 64.1 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 55.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.94 | | 1.00 | 0.94 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1735 | 1690 | | 1626 | 1660 | | 1770 | 1629 | | 1540 | 1743 | 1392 |
| Flt Permitted | 0.35 | 1.00 | | 0.57 | 1.00 | | 0.36 | 1.00 | | 0.60 | 1.00 | 1.00 |
| Satd. Flow (perm) | 642 | 1690 | | 972 | 1660 | | 662 | 1629 | | 965 | 1743 | 1392 |
| Volume (vph) | 142 | 165 | 99 | 69 | 153 | 106 | 124 | 172 | 46 | 38 | 178 | 132 |
| Peak-hour factor, PHF | 0.83 | 0.83 | 0.83 | 0.73 | 0.73 | 0.73 | 0.82 | 0.82 | 0.82 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 171 | 199 | 119 | 95 | 210 | 145 | 151 | 210 | 56 | 44 | 205 | 152 |
| RTOR Reduction (vph) | 0 | 23 | 0 | 0 | 27 | 0 | 0 | 14 | 0 | 0 | 0 | 125 |
| Lane Group Flow (vph) | 171 | 295 | 0 | 95 | 328 | 0 | 151 | 252 | 0 | 44 | 205 | 27 |
| Confl. Peds. (#/hr) | 1 | | | | | 1 | | | 1 | 1 | | |
| Heavy Vehicles (%) | 4% | 8% | 3% | 11% | 0% | 16% | 2% | 8% | 29% | 17% | 9% | 16% |
| Turn Type | pm+pt | | | Perm | | | pm+pt | | | Perm | | Perm |
| Protected Phases | 7 | 4 | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | 35.4 | 35.4 | | 22.1 | 22.1 | | 17.3 | 17.3 | | 10.2 | 10.2 | 10.2 |
| Effective Green, g (s) | 36.4 | 36.4 | | 23.1 | 23.1 | | 18.3 | 18.3 | | 11.2 | 11.2 | 11.2 |
| Actuated g/C Ratio | 0.58 | 0.58 | | 0.37 | 0.37 | | 0.29 | 0.29 | | 0.18 | 0.18 | 0.18 |
| Clearance Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 535 | 981 | | 358 | 612 | | 248 | 475 | | 172 | 311 | 249 |
| v/s Ratio Prot | 0.05 | c0.17 | | | c0.20 | | 0.03 | c0.15 | | | 0.12 | |
| v/s Ratio Perm | 0.14 | | | 0.10 | | | c0.15 | | | 0.05 | | 0.02 |
| v/c Ratio | 0.32 | 0.30 | | 0.27 | 0.54 | | 0.61 | 0.53 | | 0.26 | 0.66 | 0.11 |
| Uniform Delay, d1 | 7.0 | 6.7 | | 13.9 | 15.6 | | 19.0 | 18.6 | | 22.2 | 24.0 | 21.6 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.3 | 0.2 | | 0.4 | 0.9 | | 4.2 | 1.1 | | 0.8 | 5.0 | 0.2 |
| Delay (s) | 7.4 | 6.9 | | 14.3 | 16.5 | | 23.2 | 19.7 | | 23.0 | 29.0 | 21.8 |
| Level of Service | A | A | | B | B | | C | B | | C | C | C |
| Approach Delay (s) | | 7.0 | | | 16.0 | | | 21.0 | | | 25.6 | |
| Approach LOS | | A | | | B | | | C | | | C | |

Intersection Summary

| | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.52 | | |
| Actuated Cycle Length (s) | 62.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 56.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 15 | 69 | 3 | 14 | 57 | 5 | 3 | 53 | 8 | 4 | 97 | 3 |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.61 | 0.61 | 0.61 | 0.64 | 0.64 | 0.64 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 17 | 78 | 3 | 23 | 93 | 8 | 5 | 83 | 12 | 5 | 110 | 3 |
| Pedestrians | | | | | | | | 2 | | | | |
| Lane Width (ft) | | | | | | | | 12.0 | | | | |
| Walking Speed (ft/s) | | | | | | | | 4.0 | | | | |
| Percent Blockage | | | | | | | | 0 | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 102 | | | 84 | | | 318 | 264 | 82 | 312 | 261 | 98 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 102 | | | 84 | | | 318 | 264 | 82 | 312 | 261 | 98 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.6 | 6.7 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.8 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 99 | | | 98 | | | 99 | 87 | 99 | 99 | 82 | 100 |
| cM capacity (veh/h) | 1503 | | | 1523 | | | 538 | 619 | 858 | 558 | 624 | 964 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 99 | 125 | 100 | 118 |
| Volume Left | 17 | 23 | 5 | 5 |
| Volume Right | 3 | 8 | 12 | 3 |
| cSH | 1503 | 1523 | 636 | 627 |
| Volume to Capacity | 0.01 | 0.02 | 0.16 | 0.19 |
| Queue Length 95th (ft) | 1 | 1 | 14 | 17 |
| Control Delay (s) | 1.4 | 1.5 | 11.7 | 12.1 |
| Lane LOS | A | A | B | B |
| Approach Delay (s) | 1.4 | 1.5 | 11.7 | 12.1 |
| Approach LOS | | | B | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 6.6 | | | |
| Intersection Capacity Utilization | 19.9% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 8 | 21 | 13 | 1 | 25 | 9 | 3 | 142 | 1 | 10 | 194 | 4 |
| Peak Hour Factor | 0.52 | 0.52 | 0.52 | 0.75 | 0.75 | 0.75 | 0.65 | 0.65 | 0.65 | 0.62 | 0.62 | 0.62 |
| Hourly flow rate (vph) | 15 | 40 | 25 | 1 | 33 | 12 | 5 | 218 | 2 | 16 | 313 | 6 |
| Pedestrians | | 1 | | | | | | | | | | |
| Lane Width (ft) | | 12.0 | | | | | | | | | | |
| Walking Speed (ft/s) | | 4.0 | | | | | | | | | | |
| Percent Blockage | | 0 | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 607 | 579 | 317 | 622 | 581 | 219 | 320 | | | 220 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 607 | 579 | 317 | 622 | 581 | 219 | 320 | | | 220 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.8 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.8 | 2.2 | | | 2.2 | | |
| p0 queue free % | 96 | 90 | 97 | 100 | 92 | 98 | 100 | | | 99 | | |
| cM capacity (veh/h) | 375 | 422 | 727 | 355 | 421 | 701 | 1250 | | | 1361 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 81 | 47 | 225 | 335 |
| Volume Left | 15 | 1 | 5 | 16 |
| Volume Right | 25 | 12 | 2 | 6 |
| cSH | 472 | 466 | 1250 | 1361 |
| Volume to Capacity | 0.17 | 0.10 | 0.00 | 0.01 |
| Queue Length 95th (ft) | 15 | 8 | 0 | 1 |
| Control Delay (s) | 14.2 | 13.6 | 0.2 | 0.5 |
| Lane LOS | B | B | A | A |
| Approach Delay (s) | 14.2 | 13.6 | 0.2 | 0.5 |
| Approach LOS | B | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.9 | | |
| Intersection Capacity Utilization | 28.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 23 | 91 | 1 | 0 | 68 | 192 | 0 | 0 | 0 | 181 | 6 | 17 |
| Peak Hour Factor | 0.75 | 0.75 | 0.75 | 0.92 | 0.92 | 0.92 | 0.25 | 0.25 | 0.25 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 31 | 121 | 1 | 0 | 74 | 209 | 0 | 0 | 0 | 197 | 7 | 18 |
| 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 | 283 | | | 123 | | | 279 | 466 | 122 | 257 | 258 | 74 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 283 | | | 123 | | | 279 | 466 | 122 | 257 | 258 | 74 |
| tC, single (s) | 4.2 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.2 | 6.5 | 6.3 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.3 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.6 | 4.0 | 3.4 |
| p0 queue free % | 98 | | | 100 | | | 100 | 100 | 100 | 71 | 99 | 98 |
| cM capacity (veh/h) | 1257 | | | 1477 | | | 643 | 482 | 929 | 674 | 634 | 971 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total | 31 | 123 | 74 | 209 | 0 | 197 | 25 |
| Volume Left | 31 | 0 | 0 | 0 | 0 | 197 | 0 |
| Volume Right | 0 | 1 | 0 | 209 | 0 | 0 | 18 |
| cSH | 1257 | 1700 | 1477 | 1700 | 1700 | 674 | 853 |
| Volume to Capacity | 0.02 | 0.07 | 0.00 | 0.12 | 0.00 | 0.29 | 0.03 |
| Queue Length 95th (ft) | 2 | 0 | 0 | 0 | 0 | 30 | 2 |
| Control Delay (s) | 7.9 | 0.0 | 0.0 | 0.0 | 0.0 | 12.5 | 9.3 |
| Lane LOS | A | | | | A | B | A |
| Approach Delay (s) | 1.6 | | 0.0 | | 0.0 | 12.2 | |
| Approach LOS | | | | | A | B | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 4.5 | | |
| Intersection Capacity Utilization | 24.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 11 | 11 | 9 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 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 | |
| Frpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.97 | | | 0.98 | | | 0.94 | |
| Flt Protected | | 0.98 | 1.00 | | 1.00 | | | 0.99 | | | 0.99 | |
| Satd. Flow (prot) | | 1768 | 1253 | | 1788 | | | 1734 | | | 1703 | |
| Flt Permitted | | 0.62 | 1.00 | | 0.94 | | | 0.81 | | | 0.87 | |
| Satd. Flow (perm) | | 1119 | 1253 | | 1684 | | | 1419 | | | 1494 | |
| Volume (vph) | 169 | 218 | 26 | 40 | 308 | 96 | 58 | 177 | 44 | 92 | 189 | 209 |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.91 | 0.91 | 0.91 | 0.84 | 0.84 | 0.84 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 197 | 253 | 30 | 44 | 338 | 105 | 69 | 211 | 52 | 99 | 203 | 225 |
| RTOR Reduction (vph) | 0 | 0 | 15 | 0 | 13 | 0 | 0 | 11 | 0 | 0 | 43 | 0 |
| Lane Group Flow (vph) | 0 | 450 | 15 | 0 | 474 | 0 | 0 | 321 | 0 | 0 | 484 | 0 |
| Confl. Peds. (#/hr) | | | | | | | 1 | | 1 | 1 | | 1 |
| Heavy Vehicles (%) | 0% | 3% | 16% | 7% | 3% | 0% | 2% | 4% | 18% | 0% | 5% | 3% |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 30.9 | 30.9 | | 30.9 | | | 23.4 | | | 23.4 | |
| Effective Green, g (s) | | 30.9 | 30.9 | | 30.9 | | | 23.4 | | | 23.4 | |
| Actuated g/C Ratio | | 0.50 | 0.50 | | 0.50 | | | 0.38 | | | 0.38 | |
| 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) | | 555 | 621 | | 835 | | | 533 | | | 561 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | c0.40 | 0.01 | | 0.28 | | | 0.23 | | | c0.32 | |
| v/c Ratio | | 0.81 | 0.02 | | 0.57 | | | 0.60 | | | 0.86 | |
| Uniform Delay, d1 | | 13.2 | 8.0 | | 11.0 | | | 15.7 | | | 18.0 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 8.8 | 0.0 | | 0.9 | | | 1.9 | | | 12.9 | |
| Delay (s) | | 22.0 | 8.0 | | 11.9 | | | 17.6 | | | 30.9 | |
| Level of Service | | C | A | | B | | | B | | | C | |
| Approach Delay (s) | | 21.1 | | | 11.9 | | | 17.6 | | | 30.9 | |
| Approach LOS | | C | | | B | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 62.3 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 91.2% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 15 | 10 | 18 | 4 | 12 | 24 | 8 | 246 | 6 | 22 | 298 | 15 |
| Peak Hour Factor | 0.69 | 0.69 | 0.69 | 0.65 | 0.65 | 0.65 | 0.95 | 0.95 | 0.95 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 22 | 14 | 26 | 6 | 18 | 37 | 8 | 259 | 6 | 24 | 331 | 17 |
| Pedestrians | | | | | 1 | | | 2 | | | 1 | |
| Lane Width (ft) | | | | | 10.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 714 | 671 | 341 | 704 | 677 | 264 | 348 | | | 266 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 714 | 671 | 341 | 704 | 677 | 264 | 348 | | | 266 | | |
| 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 % | 93 | 96 | 96 | 98 | 95 | 95 | 99 | | | 98 | | |
| cM capacity (veh/h) | 313 | 370 | 704 | 324 | 367 | 778 | 1222 | | | 1308 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 62 | 62 | 274 | 372 |
| Volume Left | 22 | 6 | 8 | 24 |
| Volume Right | 26 | 37 | 6 | 17 |
| cSH | 428 | 527 | 1222 | 1308 |
| Volume to Capacity | 0.15 | 0.12 | 0.01 | 0.02 |
| Queue Length 95th (ft) | 13 | 10 | 1 | 1 |
| Control Delay (s) | 14.8 | 12.7 | 0.3 | 0.7 |
| Lane LOS | B | B | A | A |
| Approach Delay (s) | 14.8 | 12.7 | 0.3 | 0.7 |
| Approach LOS | B | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.7 | | |
| Intersection Capacity Utilization | 39.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 9 | 58 | 68 | 67 | 65 | 50 | 84 | 246 | 96 | 44 | 204 | 8 |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.87 | 0.87 | 0.87 | 0.88 | 0.88 | 0.88 | 0.89 | 0.89 | 0.89 |
| Hourly flow rate (vph) | 11 | 68 | 80 | 77 | 75 | 57 | 95 | 280 | 109 | 49 | 229 | 9 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 159 | 209 | 484 | 288 |
| Volume Left (vph) | 11 | 77 | 95 | 49 |
| Volume Right (vph) | 80 | 57 | 109 | 9 |
| Hadj (s) | -0.11 | 0.02 | 0.02 | 0.21 |
| Departure Headway (s) | 6.7 | 6.7 | 5.8 | 6.3 |
| Degree Utilization, x | 0.29 | 0.39 | 0.78 | 0.50 |
| Capacity (veh/h) | 471 | 470 | 605 | 524 |
| Control Delay (s) | 12.4 | 13.8 | 26.0 | 15.5 |
| Approach Delay (s) | 12.4 | 13.8 | 26.0 | 15.5 |
| Approach LOS | B | B | D | C |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 19.2 | | |
| HCM Level of Service | C | | |
| Intersection Capacity Utilization | 60.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Volume (veh/h) | 6 | 14 | 383 | 15 | 9 | 363 |
| Peak Hour Factor | 0.33 | 0.33 | 0.88 | 0.88 | 0.86 | 0.86 |
| Hourly flow rate (vph) | 18 | 42 | 435 | 17 | 10 | 422 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 887 | 444 | | | 452 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 887 | 444 | | | 452 | |
| tC, single (s) | 6.6 | 6.3 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.7 | 3.4 | | | 2.2 | |
| p0 queue free % | 94 | 93 | | | 99 | |
| cM capacity (veh/h) | 284 | 596 | | | 1119 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 61 | 452 | 433 |
| Volume Left | 18 | 0 | 10 |
| Volume Right | 42 | 17 | 0 |
| cSH | 448 | 1700 | 1119 |
| Volume to Capacity | 0.14 | 0.27 | 0.01 |
| Queue Length 95th (ft) | 12 | 0 | 1 |
| Control Delay (s) | 14.3 | 0.0 | 0.3 |
| Lane LOS | B | | A |
| Approach Delay (s) | 14.3 | 0.0 | 0.3 |
| Approach LOS | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.1 | | |
| Intersection Capacity Utilization | 36.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 21 | 35 | 10 | 64 | 36 | 32 | 13 | 358 | 80 | 46 | 305 | 21 |
| Peak Hour Factor | 0.81 | 0.81 | 0.81 | 0.63 | 0.63 | 0.63 | 0.93 | 0.93 | 0.93 | 0.87 | 0.87 | 0.87 |
| Hourly flow rate (vph) | 26 | 43 | 12 | 102 | 57 | 51 | 14 | 385 | 86 | 53 | 351 | 24 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | 6 | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 935 | 967 | 363 | 946 | 936 | 428 | 375 | | | 471 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 935 | 967 | 363 | 946 | 936 | 428 | 375 | | | 471 | | |
| tC, single (s) | 7.1 | 6.6 | 6.2 | 7.2 | 6.5 | 6.2 | 4.2 | | | 4.5 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.6 | 4.0 | 3.3 | 2.3 | | | 2.6 | | |
| p0 queue free % | 85 | 82 | 98 | 46 | 77 | 92 | 99 | | | 94 | | |
| cM capacity (veh/h) | 177 | 234 | 687 | 189 | 245 | 620 | 1126 | | | 919 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total | 81 | 210 | 14 | 471 | 53 | 375 |
| Volume Left | 26 | 102 | 14 | 0 | 53 | 0 |
| Volume Right | 12 | 51 | 0 | 86 | 0 | 24 |
| cSH | 233 | 276 | 1126 | 1700 | 919 | 1700 |
| Volume to Capacity | 0.35 | 0.76 | 0.01 | 0.28 | 0.06 | 0.22 |
| Queue Length 95th (ft) | 37 | 141 | 1 | 0 | 5 | 0 |
| Control Delay (s) | 28.5 | 49.7 | 8.2 | 0.0 | 9.2 | 0.0 |
| Lane LOS | D | E | A | | A | |
| Approach Delay (s) | 28.5 | 49.7 | 0.2 | | 1.1 | |
| Approach LOS | D | E | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 11.1 | | |
| Intersection Capacity Utilization | 47.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 123 | 54 | 53 | 322 | 249 | 135 |
| Peak Hour Factor | 0.92 | 0.92 | 0.87 | 0.87 | 0.80 | 0.80 |
| Hourly flow rate (vph) | 134 | 59 | 61 | 370 | 311 | 169 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 888 | 396 | 480 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 888 | 396 | 480 | | | |
| tC, single (s) | 6.4 | 6.3 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.4 | 2.2 | | | |
| p0 queue free % | 55 | 91 | 94 | | | |
| cM capacity (veh/h) | 299 | 641 | 1067 | | | |

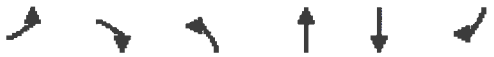
| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 192 | 431 | 480 |
| Volume Left | 134 | 61 | 0 |
| Volume Right | 59 | 0 | 169 |
| cSH | 357 | 1067 | 1700 |
| Volume to Capacity | 0.54 | 0.06 | 0.28 |
| Queue Length 95th (ft) | 76 | 5 | 0 |
| Control Delay (s) | 26.3 | 1.7 | 0.0 |
| Lane LOS | D | A | |
| Approach Delay (s) | 26.3 | 1.7 | 0.0 |
| Approach LOS | D | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 5.3 | | |
| Intersection Capacity Utilization | 61.3% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 29 | 83 | 146 | 5 | 97 | 14 | 149 | 317 | 15 | 15 | 250 | 23 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.69 | 0.69 | 0.69 | 0.97 | 0.97 | 0.97 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 31 | 89 | 157 | 7 | 141 | 20 | 154 | 327 | 15 | 16 | 269 | 25 |
| 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 | 1046 | 963 | 281 | 1157 | 968 | 335 | 294 | | | 342 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1046 | 963 | 281 | 1157 | 968 | 335 | 294 | | | 342 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.2 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.3 | | |
| p0 queue free % | 66 | 59 | 79 | 92 | 37 | 97 | 88 | | | 99 | | |
| cM capacity (veh/h) | 91 | 220 | 758 | 86 | 222 | 712 | 1262 | | | 1173 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 277 | 168 | 496 | 310 |
| Volume Left | 31 | 7 | 154 | 16 |
| Volume Right | 157 | 20 | 15 | 25 |
| cSH | 290 | 225 | 1262 | 1173 |
| Volume to Capacity | 0.96 | 0.75 | 0.12 | 0.01 |
| Queue Length 95th (ft) | 236 | 129 | 10 | 1 |
| Control Delay (s) | 81.5 | 56.9 | 3.4 | 0.6 |
| Lane LOS | F | F | A | A |
| Approach Delay (s) | 81.5 | 56.9 | 3.4 | 0.6 |
| Approach LOS | F | F | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 27.2 | | |
| Intersection Capacity Utilization | 72.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 3% | | | 0% | 0% | |
| Volume (veh/h) | 67 | 43 | 64 | 394 | 294 | 46 |
| Peak Hour Factor | 0.91 | 0.91 | 0.93 | 0.93 | 0.80 | 0.80 |
| Hourly flow rate (vph) | 74 | 47 | 69 | 424 | 368 | 58 |
| Pedestrians | 1 | | | 1 | | |
| Lane Width (ft) | 10.0 | | | 11.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 959 | 398 | 426 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 959 | 398 | 426 | | | |
| tC, single (s) | 6.4 | 6.3 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 72 | 93 | 94 | | | |
| cM capacity (veh/h) | 267 | 644 | 1143 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 121 | 492 | 425 |
| Volume Left | 74 | 69 | 0 |
| Volume Right | 47 | 0 | 58 |
| cSH | 347 | 1143 | 1700 |
| Volume to Capacity | 0.35 | 0.06 | 0.25 |
| Queue Length 95th (ft) | 38 | 5 | 0 |
| Control Delay (s) | 20.8 | 1.7 | 0.0 |
| Lane LOS | C | A | |
| Approach Delay (s) | 20.8 | 1.7 | 0.0 |
| Approach LOS | C | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.3 | | |
| Intersection Capacity Utilization | 59.2% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 11 | 11 | 12 | 11 | 12 | 12 |
| 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 | 0.95 | |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 0.92 | |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | |
| Satd. Flow (prot) | 1419 | 1346 | 1444 | 1717 | 2791 | |
| Flt Permitted | 0.95 | 1.00 | 0.36 | 1.00 | 1.00 | |
| Satd. Flow (perm) | 1419 | 1346 | 541 | 1717 | 2791 | |
| Volume (vph) | 268 | 486 | 339 | 264 | 215 | 218 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.86 | 0.86 | 0.91 | 0.91 |
| Adj. Flow (vph) | 295 | 534 | 394 | 307 | 236 | 240 |
| RTOR Reduction (vph) | 0 | 131 | 0 | 0 | 189 | 0 |
| Lane Group Flow (vph) | 295 | 403 | 394 | 307 | 287 | 0 |
| Heavy Vehicles (%) | 23% | 16% | 25% | 7% | 12% | 27% |
| Turn Type | | pm+ov | pm+pt | | | |
| Protected Phases | 4 | 5 | 5 | 2 | 6 | |
| Permitted Phases | | 4 | 2 | | | |
| Actuated Green, G (s) | 18.5 | 38.4 | 38.5 | 38.5 | 12.6 | |
| Effective Green, g (s) | 20.5 | 42.4 | 40.5 | 40.5 | 14.6 | |
| Actuated g/C Ratio | 0.30 | 0.61 | 0.59 | 0.59 | 0.21 | |
| Clearance Time (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 422 | 905 | 604 | 1008 | 591 | |
| v/s Ratio Prot | c0.21 | 0.14 | c0.21 | 0.18 | 0.10 | |
| v/s Ratio Perm | | 0.16 | c0.18 | | | |
| v/c Ratio | 0.70 | 0.45 | 0.65 | 0.30 | 0.49 | |
| Uniform Delay, d1 | 21.5 | 7.1 | 12.7 | 7.2 | 23.9 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 5.0 | 0.4 | 2.5 | 0.2 | 0.6 | |
| Delay (s) | 26.5 | 7.4 | 15.3 | 7.3 | 24.5 | |
| Level of Service | C | A | B | A | C | |
| Approach Delay (s) | 14.2 | | | 11.8 | 24.5 | |
| Approach LOS | B | | | B | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 69.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 56.6% | 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 | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.94 | | 1.00 | 0.97 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1671 | 1664 | | 1805 | 1756 | | 1805 | 1737 | | 1622 | 1638 | 1468 |
| Flt Permitted | 0.19 | 1.00 | | 0.42 | 1.00 | | 0.28 | 1.00 | | 0.58 | 1.00 | 1.00 |
| Satd. Flow (perm) | 329 | 1664 | | 794 | 1756 | | 538 | 1737 | | 987 | 1638 | 1468 |
| Volume (vph) | 275 | 345 | 207 | 23 | 269 | 81 | 143 | 218 | 32 | 100 | 260 | 264 |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.88 | 0.88 | 0.88 | 0.84 | 0.84 | 0.84 | 0.80 | 0.80 | 0.80 |
| Adj. Flow (vph) | 324 | 406 | 244 | 26 | 306 | 92 | 170 | 260 | 38 | 125 | 325 | 330 |
| RTOR Reduction (vph) | 0 | 26 | 0 | 0 | 14 | 0 | 0 | 7 | 0 | 0 | 0 | 242 |
| Lane Group Flow (vph) | 324 | 624 | 0 | 26 | 384 | 0 | 170 | 291 | 0 | 125 | 325 | 88 |
| Confl. Peds. (#/hr) | | | | | | | | | 2 | 2 | | |
| Heavy Vehicles (%) | 8% | 7% | 9% | 0% | 4% | 6% | 0% | 8% | 0% | 11% | 16% | 10% |
| Turn Type | pm+pt | | | Perm | | | pm+pt | | | Perm | | Perm |
| Protected Phases | 7 | 4 | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | 36.0 | 36.0 | | 18.0 | 18.0 | | 25.3 | 25.3 | | 18.1 | 18.1 | 18.1 |
| Effective Green, g (s) | 37.0 | 37.0 | | 19.0 | 19.0 | | 26.3 | 26.3 | | 19.1 | 19.1 | 19.1 |
| Actuated g/C Ratio | 0.52 | 0.52 | | 0.27 | 0.27 | | 0.37 | 0.37 | | 0.27 | 0.27 | 0.27 |
| Clearance Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 434 | 864 | | 212 | 468 | | 255 | 641 | | 264 | 439 | 393 |
| v/s Ratio Prot | 0.15 | c0.37 | | | 0.22 | | c0.03 | 0.17 | | | 0.20 | |
| v/s Ratio Perm | c0.24 | | | 0.03 | | | c0.22 | | | 0.13 | | 0.06 |
| v/c Ratio | 0.75 | 0.72 | | 0.12 | 0.82 | | 0.67 | 0.45 | | 0.47 | 0.74 | 0.22 |
| Uniform Delay, d1 | 12.6 | 13.2 | | 19.8 | 24.6 | | 19.6 | 17.1 | | 21.9 | 23.8 | 20.3 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 6.9 | 3.0 | | 0.3 | 11.0 | | 6.4 | 0.5 | | 1.3 | 6.6 | 0.3 |
| Delay (s) | 19.5 | 16.2 | | 20.1 | 35.6 | | 26.1 | 17.6 | | 23.2 | 30.4 | 20.6 |
| Level of Service | B | B | | C | D | | C | B | | C | C | C |
| Approach Delay (s) | | 17.3 | | | 34.6 | | | 20.7 | | | 25.1 | |
| Approach LOS | | B | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 71.3 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 74.2% | 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 | | | | | | | | | | | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 26 | 90 | 1 | 10 | 144 | 27 | 23 | 108 | 31 | 5 | 54 | 28 |
| Peak Hour Factor | 0.66 | 0.66 | 0.66 | 0.74 | 0.74 | 0.74 | 0.76 | 0.76 | 0.76 | 0.71 | 0.71 | 0.71 |
| Hourly flow rate (vph) | 39 | 136 | 2 | 14 | 195 | 36 | 30 | 142 | 41 | 7 | 76 | 39 |
| 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 | 231 | | | 138 | | | 533 | 474 | 137 | 568 | 457 | 213 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 231 | | | 138 | | | 533 | 474 | 137 | 568 | 457 | 213 |
| 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 | | | 92 | 70 | 96 | 98 | 84 | 95 |
| cM capacity (veh/h) | 1349 | | | 1458 | | | 375 | 473 | 917 | 312 | 484 | 832 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 177 | 245 | 213 | 123 |
| Volume Left | 39 | 14 | 30 | 7 |
| Volume Right | 2 | 36 | 41 | 39 |
| cSH | 1349 | 1458 | 501 | 540 |
| Volume to Capacity | 0.03 | 0.01 | 0.43 | 0.23 |
| Queue Length 95th (ft) | 2 | 1 | 53 | 22 |
| Control Delay (s) | 1.9 | 0.5 | 17.4 | 13.6 |
| Lane LOS | A | A | C | B |
| Approach Delay (s) | 1.9 | 0.5 | 17.4 | 13.6 |
| Approach LOS | | | C | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 7.7 | | |
| Intersection Capacity Utilization | 36.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 6 | 51 | 9 | 0 | 60 | 18 | 13 | 206 | 0 | 10 | 190 | 19 |
| Peak Hour Factor | 0.73 | 0.73 | 0.73 | 0.86 | 0.86 | 0.86 | 0.94 | 0.94 | 0.94 | 0.77 | 0.77 | 0.77 |
| Hourly flow rate (vph) | 8 | 70 | 12 | 0 | 70 | 21 | 14 | 219 | 0 | 13 | 247 | 25 |
| 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 | 588 | 532 | 259 | 579 | 544 | 219 | 271 | | | 219 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 588 | 532 | 259 | 579 | 544 | 219 | 271 | | | 219 | | |
| 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 % | 98 | 84 | 98 | 100 | 84 | 97 | 99 | | | 99 | | |
| cM capacity (veh/h) | 357 | 442 | 784 | 366 | 436 | 826 | 1304 | | | 1362 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 90 | 91 | 233 | 284 |
| Volume Left | 8 | 0 | 14 | 13 |
| Volume Right | 12 | 21 | 0 | 25 |
| cSH | 459 | 489 | 1304 | 1362 |
| Volume to Capacity | 0.20 | 0.19 | 0.01 | 0.01 |
| Queue Length 95th (ft) | 18 | 17 | 1 | 1 |
| Control Delay (s) | 14.8 | 14.0 | 0.6 | 0.4 |
| Lane LOS | B | B | A | A |
| Approach Delay (s) | 14.8 | 14.0 | 0.6 | 0.4 |
| Approach LOS | B | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 4.1 | | |
| Intersection Capacity Utilization | 30.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 9 | 124 | 3 | 0 | 141 | 199 | 0 | 0 | 0 | 142 | 6 | 13 |
| Peak Hour Factor | 0.77 | 0.77 | 0.77 | 0.91 | 0.91 | 0.91 | 0.25 | 0.25 | 0.25 | 0.85 | 0.85 | 0.85 |
| Hourly flow rate (vph) | 12 | 161 | 4 | 0 | 155 | 219 | 0 | 0 | 0 | 167 | 7 | 15 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 374 | | | 165 | | | 360 | 560 | 163 | 339 | 343 | 155 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 374 | | | 165 | | | 360 | 560 | 163 | 339 | 343 | 155 |
| tC, single (s) | 4.2 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.3 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 99 | | | 100 | | | 100 | 100 | 100 | 72 | 99 | 98 |
| cM capacity (veh/h) | 1122 | | | 1426 | | | 579 | 435 | 887 | 606 | 576 | 896 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total | 12 | 165 | 155 | 219 | 0 | 167 | 22 |
| Volume Left | 12 | 0 | 0 | 0 | 0 | 167 | 0 |
| Volume Right | 0 | 4 | 0 | 219 | 0 | 0 | 15 |
| cSH | 1122 | 1700 | 1426 | 1700 | 1700 | 606 | 763 |
| Volume to Capacity | 0.01 | 0.10 | 0.00 | 0.13 | 0.00 | 0.28 | 0.03 |
| Queue Length 95th (ft) | 1 | 0 | 0 | 0 | 0 | 28 | 2 |
| Control Delay (s) | 8.2 | 0.0 | 0.0 | 0.0 | 0.0 | 13.2 | 9.9 |
| Lane LOS | A | | | | A | B | A |
| Approach Delay (s) | 0.5 | | 0.0 | | 0.0 | 12.8 | |
| Approach LOS | | | | | A | B | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.4 | | |
| Intersection Capacity Utilization | 25.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

# 2015 Build Conditions – Phase 1

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 11 | 11 | 9 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 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 | 0.85 | | 0.98 | | | 0.98 | | | 0.94 | |
| Flt Protected | | 0.99 | 1.00 | | 0.99 | | | 0.98 | | | 0.99 | |
| Satd. Flow (prot) | | 1703 | 1309 | | 1637 | | | 1696 | | | 1699 | |
| Flt Permitted | | 0.86 | 1.00 | | 0.93 | | | 0.78 | | | 0.91 | |
| Satd. Flow (perm) | | 1483 | 1309 | | 1524 | | | 1347 | | | 1568 | |
| Volume (vph) | 68 | 202 | 24 | 30 | 188 | 38 | 61 | 75 | 19 | 44 | 98 | 105 |
| Peak-hour factor, PHF | 0.80 | 0.80 | 0.80 | 0.78 | 0.78 | 0.78 | 0.67 | 0.67 | 0.67 | 0.74 | 0.74 | 0.74 |
| Adj. Flow (vph) | 85 | 252 | 30 | 38 | 241 | 49 | 91 | 112 | 28 | 59 | 132 | 142 |
| RTOR Reduction (vph) | 0 | 0 | 20 | 0 | 11 | 0 | 0 | 7 | 0 | 0 | 39 | 0 |
| Lane Group Flow (vph) | 0 | 337 | 10 | 0 | 317 | 0 | 0 | 224 | 0 | 0 | 294 | 0 |
| Heavy Vehicles (%) | 5% | 7% | 11% | 14% | 14% | 8% | 6% | 8% | 15% | 7% | 6% | 2% |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 10.3 | 10.3 | | 10.3 | | | 14.1 | | | 14.1 | |
| Effective Green, g (s) | | 10.3 | 10.3 | | 10.3 | | | 14.1 | | | 14.1 | |
| Actuated g/C Ratio | | 0.32 | 0.32 | | 0.32 | | | 0.44 | | | 0.44 | |
| 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) | | 471 | 416 | | 484 | | | 586 | | | 682 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | c0.23 | 0.01 | | 0.21 | | | 0.17 | | | c0.19 | |
| v/c Ratio | | 0.72 | 0.02 | | 0.66 | | | 0.38 | | | 0.43 | |
| Uniform Delay, d1 | | 9.8 | 7.6 | | 9.5 | | | 6.2 | | | 6.4 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 5.1 | 0.0 | | 3.2 | | | 0.4 | | | 0.4 | |
| Delay (s) | | 14.9 | 7.6 | | 12.7 | | | 6.6 | | | 6.8 | |
| Level of Service | | B | A | | B | | | A | | | A | |
| Approach Delay (s) | | 14.3 | | | 12.7 | | | 6.6 | | | 6.8 | |
| Approach LOS | | B | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 32.4 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 54.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 6 | 2 | 12 | 0 | 2 | 7 | 5 | 151 | 2 | 7 | 187 | 1 |
| Peak Hour Factor | 0.40 | 0.40 | 0.40 | 0.45 | 0.45 | 0.45 | 0.80 | 0.80 | 0.80 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 15 | 5 | 30 | 0 | 4 | 16 | 6 | 189 | 2 | 8 | 212 | 1 |
| 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 | 449 | 433 | 213 | 464 | 432 | 190 | 214 | | | 191 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 449 | 433 | 213 | 464 | 432 | 190 | 214 | | | 191 | | |
| 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 % | 97 | 99 | 96 | 100 | 99 | 98 | 100 | | | 99 | | |
| cM capacity (veh/h) | 507 | 514 | 832 | 486 | 514 | 857 | 1369 | | | 1394 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 50 | 20 | 198 | 222 |
| Volume Left | 15 | 0 | 6 | 8 |
| Volume Right | 30 | 16 | 2 | 1 |
| cSH | 663 | 746 | 1369 | 1394 |
| Volume to Capacity | 0.08 | 0.03 | 0.00 | 0.01 |
| Queue Length 95th (ft) | 6 | 2 | 0 | 0 |
| Control Delay (s) | 10.9 | 10.0 | 0.3 | 0.3 |
| Lane LOS | B | A | A | A |
| Approach Delay (s) | 10.9 | 10.0 | 0.3 | 0.3 |
| Approach LOS | B | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.8 | | |
| Intersection Capacity Utilization | 26.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 11 | 82 | 52 | 26 | 53 | 16 | 21 | 129 | 12 | 30 | 153 | 12 |
| Peak Hour Factor | 0.80 | 0.80 | 0.80 | 0.90 | 0.90 | 0.90 | 0.80 | 0.80 | 0.80 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 14 | 102 | 65 | 29 | 59 | 18 | 26 | 161 | 15 | 33 | 170 | 13 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 181 | 106 | 203 | 217 |
| Volume Left (vph) | 14 | 29 | 26 | 33 |
| Volume Right (vph) | 65 | 18 | 15 | 13 |
| Hadj (s) | -0.13 | 0.11 | 0.24 | 0.07 |
| Departure Headway (s) | 5.0 | 5.4 | 5.2 | 5.0 |
| Degree Utilization, x | 0.25 | 0.16 | 0.29 | 0.30 |
| Capacity (veh/h) | 654 | 603 | 647 | 667 |
| Control Delay (s) | 9.7 | 9.4 | 10.4 | 10.2 |
| Approach Delay (s) | 9.7 | 9.4 | 10.4 | 10.2 |
| Approach LOS | A | A | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 10.0 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 33.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Volume (veh/h) | 5 | 5 | 161 | 4 | 3 | 248 |
| Peak Hour Factor | 0.63 | 0.63 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 8 | 8 | 179 | 4 | 3 | 276 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 463 | 181 | | | 183 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 463 | 181 | | | 183 | |
| tC, single (s) | 6.6 | 6.6 | | | 4.8 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.7 | 3.7 | | | 2.8 | |
| p0 queue free % | 98 | 99 | | | 100 | |
| cM capacity (veh/h) | 524 | 773 | | | 1081 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 16 | 183 | 279 |
| Volume Left | 8 | 0 | 3 |
| Volume Right | 8 | 4 | 0 |
| cSH | 624 | 1700 | 1081 |
| Volume to Capacity | 0.03 | 0.11 | 0.00 |
| Queue Length 95th (ft) | 2 | 0 | 0 |
| Control Delay (s) | 10.9 | 0.0 | 0.1 |
| Lane LOS | B | | A |
| Approach Delay (s) | 10.9 | 0.0 | 0.1 |
| Approach LOS | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.4 | | |
| Intersection Capacity Utilization | 25.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 11 | 36 | 130 | 50 | 32 | 16 | 140 | 158 | 43 | 20 | 215 | 2 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.92 | 0.92 | 0.92 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 12 | 40 | 144 | 56 | 36 | 18 | 152 | 172 | 47 | 22 | 239 | 2 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | 6 | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 787 | 807 | 240 | 947 | 785 | 195 | 241 | | | 218 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 787 | 807 | 240 | 947 | 785 | 195 | 241 | | | 218 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.3 | 6.5 | 6.2 | 4.1 | | | 4.2 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.7 | 4.0 | 3.3 | 2.2 | | | 2.3 | | |
| p0 queue free % | 95 | 85 | 82 | 63 | 87 | 98 | 89 | | | 98 | | |
| cM capacity (veh/h) | 249 | 275 | 799 | 149 | 282 | 844 | 1325 | | | 1328 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total | 197 | 109 | 152 | 218 | 22 | 241 |
| Volume Left | 12 | 56 | 152 | 0 | 22 | 0 |
| Volume Right | 144 | 18 | 0 | 47 | 0 | 2 |
| cSH | 524 | 240 | 1325 | 1700 | 1328 | 1700 |
| Volume to Capacity | 0.38 | 0.45 | 0.11 | 0.13 | 0.02 | 0.14 |
| Queue Length 95th (ft) | 43 | 55 | 10 | 0 | 1 | 0 |
| Control Delay (s) | 15.9 | 32.5 | 8.1 | 0.0 | 7.8 | 0.0 |
| Lane LOS | C | D | A | | A | |
| Approach Delay (s) | 15.9 | 32.5 | 3.3 | | 0.7 | |
| Approach LOS | C | D | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 8.6 | | |
| Intersection Capacity Utilization | 47.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 11 | 11 | 12 | 11 | 11 | 11 | 11 | 11 | 11 |
| Total Lost time (s) | | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 0.90 | | | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | |
| Flt Protected | | 1.00 | | | 0.97 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1566 | | | 1604 | 1568 | 1711 | 1706 | | 1646 | 1781 | |
| Flt Permitted | | 0.98 | | | 0.79 | 1.00 | 0.61 | 1.00 | | 0.62 | 1.00 | |
| Satd. Flow (perm) | | 1537 | | | 1309 | 1568 | 1097 | 1706 | | 1077 | 1781 | |
| Volume (vph) | 11 | 36 | 130 | 50 | 32 | 16 | 140 | 158 | 43 | 20 | 215 | 2 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.92 | 0.92 | 0.92 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 12 | 40 | 144 | 56 | 36 | 18 | 152 | 172 | 47 | 22 | 239 | 2 |
| RTOR Reduction (vph) | 0 | 108 | 0 | 0 | 0 | 13 | 0 | 13 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 88 | 0 | 0 | 92 | 5 | 152 | 206 | 0 | 22 | 241 | 0 |
| Heavy Vehicles (%) | 0% | 1% | 2% | 17% | 2% | 3% | 2% | 4% | 5% | 6% | 3% | 0% |
| Turn Type | Perm | | | Perm | | Perm | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | | 8.5 | | | 8.5 | 8.5 | 19.4 | 19.4 | | 19.4 | 19.4 | |
| Effective Green, g (s) | | 9.5 | | | 9.5 | 9.5 | 20.4 | 20.4 | | 20.4 | 20.4 | |
| Actuated g/C Ratio | | 0.25 | | | 0.25 | 0.25 | 0.54 | 0.54 | | 0.54 | 0.54 | |
| Clearance Time (s) | | 5.0 | | | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 385 | | | 328 | 393 | 590 | 918 | | 580 | 959 | |
| v/s Ratio Prot | | | | | | | | 0.12 | | | 0.14 | |
| v/s Ratio Perm | | 0.06 | | | c0.07 | 0.00 | c0.14 | | | 0.02 | | |
| v/c Ratio | | 0.23 | | | 0.28 | 0.01 | 0.26 | 0.22 | | 0.04 | 0.25 | |
| Uniform Delay, d1 | | 11.3 | | | 11.4 | 10.7 | 4.7 | 4.6 | | 4.1 | 4.7 | |
| Progression Factor | | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.3 | | | 0.5 | 0.0 | 0.2 | 0.1 | | 0.0 | 0.1 | |
| Delay (s) | | 11.6 | | | 11.9 | 10.7 | 4.9 | 4.7 | | 4.2 | 4.8 | |
| Level of Service | | B | | | B | B | A | A | | A | A | |
| Approach Delay (s) | | 11.6 | | | 11.7 | | | 4.8 | | | 4.8 | |
| Approach LOS | | B | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.0 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.26 | | |
| Actuated Cycle Length (s) | 37.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 48.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 45 | 20 | 12 | 282 | 356 | 53 |
| Peak Hour Factor | 0.93 | 0.93 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 48 | 22 | 13 | 313 | 396 | 59 |
| Pedestrians | 1 | | | | | |
| Lane Width (ft) | 11.0 | | | | | |
| Walking Speed (ft/s) | 4.0 | | | | | |
| Percent Blockage | 0 | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 766 | 426 | 455 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 766 | 426 | 455 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.4 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.4 | | | |
| p0 queue free % | 87 | 97 | 99 | | | |
| cM capacity (veh/h) | 363 | 622 | 985 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 70 | 327 | 454 |
| Volume Left | 48 | 13 | 0 |
| Volume Right | 22 | 0 | 59 |
| cSH | 416 | 985 | 1700 |
| Volume to Capacity | 0.17 | 0.01 | 0.27 |
| Queue Length 95th (ft) | 15 | 1 | 0 |
| Control Delay (s) | 15.4 | 0.5 | 0.0 |
| Lane LOS | C | A | |
| Approach Delay (s) | 15.4 | 0.5 | 0.0 |
| Approach LOS | C | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.5 | | |
| Intersection Capacity Utilization | 35.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 3 | 20 | 19 | 6 | 14 | 4 | 27 | 295 | 6 | 4 | 359 | 3 |
| Peak Hour Factor | 0.63 | 0.63 | 0.63 | 0.69 | 0.69 | 0.69 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 5 | 32 | 30 | 9 | 20 | 6 | 30 | 328 | 7 | 4 | 399 | 3 |
| 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 | 816 | 804 | 401 | 847 | 802 | 331 | 402 | | | 334 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 816 | 804 | 401 | 847 | 802 | 331 | 402 | | | 334 | | |
| tC, single (s) | 7.4 | 6.6 | 6.3 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.8 | 4.1 | 3.4 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 98 | 89 | 95 | 96 | 93 | 99 | 97 | | | 100 | | |
| cM capacity (veh/h) | 242 | 297 | 641 | 243 | 310 | 715 | 1146 | | | 1236 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 67 | 35 | 364 | 407 |
| Volume Left | 5 | 9 | 30 | 4 |
| Volume Right | 30 | 6 | 7 | 3 |
| cSH | 384 | 318 | 1146 | 1236 |
| Volume to Capacity | 0.17 | 0.11 | 0.03 | 0.00 |
| Queue Length 95th (ft) | 16 | 9 | 2 | 0 |
| Control Delay (s) | 16.3 | 17.7 | 0.9 | 0.1 |
| Lane LOS | C | C | A | A |
| Approach Delay (s) | 16.3 | 17.7 | 0.9 | 0.1 |
| Approach LOS | C | C | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.4 | | |
| Intersection Capacity Utilization | 43.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 11 | 11 | 11 | 11 | 11 | 11 |
| 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 | | | 0.98 | | | 1.00 | | | 1.00 | |
| Flt Protected | | 1.00 | | | 0.99 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 1504 | | | 1710 | | | 1750 | | | 1765 | |
| Flt Permitted | | 0.97 | | | 0.92 | | | 0.96 | | | 1.00 | |
| Satd. Flow (perm) | | 1465 | | | 1589 | | | 1682 | | | 1761 | |
| Volume (vph) | 3 | 20 | 19 | 6 | 14 | 4 | 27 | 295 | 6 | 4 | 359 | 3 |
| Peak-hour factor, PHF | 0.63 | 0.63 | 0.63 | 0.69 | 0.69 | 0.69 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 5 | 32 | 30 | 9 | 20 | 6 | 30 | 328 | 7 | 4 | 399 | 3 |
| RTOR Reduction (vph) | 0 | 27 | 0 | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 40 | 0 | 0 | 30 | 0 | 0 | 364 | 0 | 0 | 406 | 0 |
| Heavy Vehicles (%) | 33% | 11% | 6% | 0% | 0% | 0% | 4% | 4% | 17% | 0% | 4% | 0% |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 5.1 | | | 5.1 | | | 40.2 | | | 40.2 | |
| Effective Green, g (s) | | 6.1 | | | 6.1 | | | 41.2 | | | 41.2 | |
| Actuated g/C Ratio | | 0.11 | | | 0.11 | | | 0.75 | | | 0.75 | |
| Clearance Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 162 | | | 175 | | | 1253 | | | 1312 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | c0.03 | | | 0.02 | | | 0.22 | | | c0.23 | |
| v/c Ratio | | 0.25 | | | 0.17 | | | 0.29 | | | 0.31 | |
| Uniform Delay, d1 | | 22.5 | | | 22.3 | | | 2.3 | | | 2.3 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 0.8 | | | 0.5 | | | 0.1 | | | 0.1 | |
| Delay (s) | | 23.3 | | | 22.8 | | | 2.4 | | | 2.5 | |
| Level of Service | | C | | | C | | | A | | | A | |
| Approach Delay (s) | | 23.3 | | | 22.8 | | | 2.4 | | | 2.5 | |
| Approach LOS | | C | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 4.9 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.30 | | |
| Actuated Cycle Length (s) | 55.3 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 43.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 3% | | | 0% | 0% | |
| Volume (veh/h) | 40 | 50 | 12 | 256 | 359 | 52 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 44 | 56 | 13 | 284 | 399 | 58 |
| Pedestrians | 1 | | | 1 | | |
| Lane Width (ft) | 10.0 | | | 11.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 740 | 430 | 458 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 740 | 430 | 458 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 88 | 91 | 99 | | | |
| cM capacity (veh/h) | 379 | 622 | 1113 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 100 | 298 | 457 |
| Volume Left | 44 | 13 | 0 |
| Volume Right | 56 | 0 | 58 |
| cSH | 484 | 1113 | 1700 |
| Volume to Capacity | 0.21 | 0.01 | 0.27 |
| Queue Length 95th (ft) | 19 | 1 | 0 |
| Control Delay (s) | 14.4 | 0.5 | 0.0 |
| Lane LOS | B | A | |
| Approach Delay (s) | 14.4 | 0.5 | 0.0 |
| Approach LOS | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.8 | | |
| Intersection Capacity Utilization | 35.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 11 | 11 | 12 | 11 | 12 | 12 |
| 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 | 0.95 | |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 0.91 | |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | |
| Satd. Flow (prot) | 1646 | 1346 | 1543 | 1733 | 3000 | |
| Flt Permitted | 0.95 | 1.00 | 0.33 | 1.00 | 1.00 | |
| Satd. Flow (perm) | 1646 | 1346 | 532 | 1733 | 3000 | |
| Volume (vph) | 199 | 152 | 352 | 138 | 195 | 308 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.90 | 0.90 | 0.91 | 0.91 |
| Adj. Flow (vph) | 216 | 165 | 391 | 153 | 214 | 338 |
| RTOR Reduction (vph) | 0 | 72 | 0 | 0 | 258 | 0 |
| Lane Group Flow (vph) | 216 | 93 | 391 | 153 | 294 | 0 |
| Heavy Vehicles (%) | 6% | 16% | 17% | 6% | 5% | 12% |
| Turn Type | | pm+ov | pm+pt | | | |
| Protected Phases | 4 | 5 | 5 | 2 | 6 | |
| Permitted Phases | | 4 | 2 | | | |
| Actuated Green, G (s) | 10.7 | 29.7 | 37.1 | 37.1 | 12.1 | |
| Effective Green, g (s) | 12.7 | 33.7 | 39.1 | 39.1 | 14.1 | |
| Actuated g/C Ratio | 0.21 | 0.56 | 0.65 | 0.65 | 0.24 | |
| Clearance Time (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 350 | 849 | 703 | 1133 | 707 | |
| v/s Ratio Prot | c0.13 | 0.04 | c0.20 | 0.09 | 0.10 | |
| v/s Ratio Perm | | 0.03 | c0.17 | | | |
| v/c Ratio | 0.62 | 0.11 | 0.56 | 0.14 | 0.42 | |
| Uniform Delay, d1 | 21.3 | 6.1 | 9.0 | 3.9 | 19.4 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.2 | 0.1 | 1.0 | 0.1 | 0.4 | |
| Delay (s) | 24.6 | 6.1 | 9.9 | 4.0 | 19.8 | |
| Level of Service | C | A | A | A | B | |
| Approach Delay (s) | 16.6 | | | 8.2 | 19.8 | |
| Approach LOS | B | | | A | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 59.8 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 55.8% | 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 | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.94 | | 1.00 | 0.94 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1769 | 1688 | | 1626 | 1684 | | 1770 | 1672 | | 1594 | 1759 | 1553 |
| Flt Permitted | 0.41 | 1.00 | | 0.61 | 1.00 | | 0.40 | 1.00 | | 0.63 | 1.00 | 1.00 |
| Satd. Flow (perm) | 763 | 1688 | | 1038 | 1684 | | 748 | 1672 | | 1049 | 1759 | 1553 |
| Volume (vph) | 137 | 137 | 85 | 57 | 131 | 91 | 111 | 153 | 38 | 36 | 157 | 136 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.73 | 0.73 | 0.73 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 152 | 152 | 94 | 78 | 179 | 125 | 123 | 170 | 42 | 40 | 174 | 151 |
| RTOR Reduction (vph) | 0 | 23 | 0 | 0 | 27 | 0 | 0 | 14 | 0 | 0 | 0 | 125 |
| Lane Group Flow (vph) | 152 | 223 | 0 | 78 | 277 | 0 | 123 | 198 | 0 | 40 | 174 | 26 |
| Confl. Peds. (#/hr) | 1 | | | | | 1 | | | 1 | 1 | | |
| Heavy Vehicles (%) | 2% | 8% | 3% | 11% | 0% | 12% | 2% | 5% | 29% | 13% | 8% | 4% |
| Turn Type | pm+pt | | | Perm | | | pm+pt | | | Perm | | Perm |
| Protected Phases | 7 | 4 | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | 36.5 | 36.5 | | 23.1 | 23.1 | | 17.3 | 17.3 | | 9.9 | 9.9 | 9.9 |
| Effective Green, g (s) | 37.5 | 37.5 | | 24.1 | 24.1 | | 18.3 | 18.3 | | 10.9 | 10.9 | 10.9 |
| Actuated g/C Ratio | 0.59 | 0.59 | | 0.38 | 0.38 | | 0.29 | 0.29 | | 0.17 | 0.17 | 0.17 |
| Clearance Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 597 | 992 | | 392 | 636 | | 269 | 480 | | 179 | 301 | 265 |
| v/s Ratio Prot | c0.04 | 0.13 | | | c0.16 | | 0.02 | c0.12 | | | c0.10 | |
| v/s Ratio Perm | 0.11 | | | 0.08 | | | 0.11 | | | 0.04 | | 0.02 |
| v/c Ratio | 0.25 | 0.22 | | 0.20 | 0.44 | | 0.46 | 0.41 | | 0.22 | 0.58 | 0.10 |
| Uniform Delay, d1 | 6.5 | 6.2 | | 13.4 | 14.8 | | 17.7 | 18.4 | | 22.8 | 24.3 | 22.3 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.2 | 0.1 | | 0.3 | 0.5 | | 1.2 | 0.6 | | 0.6 | 2.7 | 0.2 |
| Delay (s) | 6.8 | 6.4 | | 13.6 | 15.3 | | 19.0 | 19.0 | | 23.4 | 27.0 | 22.5 |
| Level of Service | A | A | | B | B | | B | B | | C | C | C |
| Approach Delay (s) | | 6.5 | | | 14.9 | | | 19.0 | | | 24.7 | |
| Approach LOS | | A | | | B | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.45 | | |
| Actuated Cycle Length (s) | 63.8 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 52.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 13 | 73 | 2 | 14 | 61 | 6 | 2 | 43 | 8 | 5 | 80 | 2 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.61 | 0.61 | 0.61 | 0.64 | 0.64 | 0.64 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 14 | 81 | 2 | 23 | 100 | 10 | 3 | 67 | 12 | 6 | 91 | 2 |
| Pedestrians | | | | | | | | 2 | | | | |
| Lane Width (ft) | | | | | | | | 12.0 | | | | |
| Walking Speed (ft/s) | | | | | | | | 4.0 | | | | |
| Percent Blockage | | | | | | | | 0 | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 110 | | | 85 | | | 312 | 269 | 84 | 308 | 265 | 105 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 110 | | | 85 | | | 312 | 269 | 84 | 308 | 265 | 105 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.6 | 6.4 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.4 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 99 | | | 98 | | | 99 | 89 | 99 | 99 | 85 | 100 |
| cM capacity (veh/h) | 1493 | | | 1515 | | | 559 | 616 | 939 | 571 | 622 | 955 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 98 | 133 | 83 | 99 |
| Volume Left | 14 | 23 | 3 | 6 |
| Volume Right | 2 | 10 | 12 | 2 |
| cSH | 1493 | 1515 | 647 | 624 |
| Volume to Capacity | 0.01 | 0.02 | 0.13 | 0.16 |
| Queue Length 95th (ft) | 1 | 1 | 11 | 14 |
| Control Delay (s) | 1.2 | 1.4 | 11.4 | 11.9 |
| Lane LOS | A | A | B | B |
| Approach Delay (s) | 1.2 | 1.4 | 11.4 | 11.9 |
| Approach LOS | | | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 5.9 | | |
| Intersection Capacity Utilization | 19.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 8 | 30 | 13 | 1 | 36 | 7 | 4 | 117 | 1 | 8 | 159 | 5 |
| Peak Hour Factor | 0.52 | 0.52 | 0.52 | 0.90 | 0.90 | 0.90 | 0.65 | 0.65 | 0.65 | 0.62 | 0.62 | 0.62 |
| Hourly flow rate (vph) | 15 | 58 | 25 | 1 | 40 | 8 | 6 | 180 | 2 | 13 | 256 | 8 |
| Pedestrians | | 1 | | | | | | | | | | |
| Lane Width (ft) | | 12.0 | | | | | | | | | | |
| Walking Speed (ft/s) | | 4.0 | | | | | | | | | | |
| Percent Blockage | | 0 | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 508 | 481 | 261 | 533 | 484 | 181 | 266 | | | 182 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 508 | 481 | 261 | 533 | 484 | 181 | 266 | | | 182 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.8 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.8 | 2.2 | | | 2.2 | | |
| p0 queue free % | 96 | 88 | 97 | 100 | 92 | 99 | 100 | | | 99 | | |
| cM capacity (veh/h) | 436 | 479 | 779 | 400 | 475 | 738 | 1297 | | | 1406 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 98 | 49 | 188 | 277 |
| Volume Left | 15 | 1 | 6 | 13 |
| Volume Right | 25 | 8 | 2 | 8 |
| cSH | 522 | 502 | 1297 | 1406 |
| Volume to Capacity | 0.19 | 0.10 | 0.00 | 0.01 |
| Queue Length 95th (ft) | 17 | 8 | 0 | 1 |
| Control Delay (s) | 13.5 | 13.0 | 0.3 | 0.4 |
| Lane LOS | B | B | A | A |
| Approach Delay (s) | 13.5 | 13.0 | 0.3 | 0.4 |
| Approach LOS | B | B | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 3.5 | | | |
| Intersection Capacity Utilization | 25.6% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 19 | 94 | 1 | 0 | 77 | 160 | 0 | 0 | 0 | 150 | 5 | 14 |
| Peak Hour Factor | 0.75 | 0.75 | 0.75 | 0.92 | 0.92 | 0.92 | 0.25 | 0.25 | 0.25 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 25 | 125 | 1 | 0 | 84 | 174 | 0 | 0 | 0 | 163 | 5 | 15 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 258 | | | 127 | | | 278 | 434 | 126 | 260 | 261 | 84 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 258 | | | 127 | | | 278 | 434 | 126 | 260 | 261 | 84 |
| tC, single (s) | 4.2 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.2 | 6.5 | 6.3 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.3 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.6 | 4.0 | 3.4 |
| p0 queue free % | 98 | | | 100 | | | 100 | 100 | 100 | 76 | 99 | 98 |
| cM capacity (veh/h) | 1284 | | | 1472 | | | 649 | 505 | 924 | 673 | 634 | 959 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total | 25 | 127 | 84 | 174 | 0 | 163 | 21 |
| Volume Left | 25 | 0 | 0 | 0 | 0 | 163 | 0 |
| Volume Right | 0 | 1 | 0 | 174 | 0 | 0 | 15 |
| cSH | 1284 | 1700 | 1472 | 1700 | 1700 | 673 | 845 |
| Volume to Capacity | 0.02 | 0.07 | 0.00 | 0.10 | 0.00 | 0.24 | 0.02 |
| Queue Length 95th (ft) | 2 | 0 | 0 | 0 | 0 | 24 | 2 |
| Control Delay (s) | 7.9 | 0.0 | 0.0 | 0.0 | 0.0 | 12.1 | 9.4 |
| Lane LOS | A | | | | A | B | A |
| Approach Delay (s) | 1.3 | | 0.0 | | 0.0 | 11.8 | |
| Approach LOS | | | | | A | B | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 4.0 | | |
| Intersection Capacity Utilization | 22.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 11 | 11 | 9 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 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 | |
| Frpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.97 | | | 0.98 | | | 0.94 | |
| Flt Protected | | 0.98 | 1.00 | | 1.00 | | | 0.99 | | | 0.99 | |
| Satd. Flow (prot) | | 1768 | 1309 | | 1790 | | | 1760 | | | 1711 | |
| Flt Permitted | | 0.70 | 1.00 | | 0.95 | | | 0.88 | | | 0.89 | |
| Satd. Flow (perm) | | 1265 | 1309 | | 1700 | | | 1567 | | | 1546 | |
| Volume (vph) | 139 | 179 | 23 | 35 | 252 | 79 | 49 | 152 | 38 | 76 | 161 | 171 |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.91 | 0.91 | 0.91 | 0.84 | 0.84 | 0.84 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 162 | 208 | 27 | 38 | 277 | 87 | 58 | 181 | 45 | 82 | 173 | 184 |
| RTOR Reduction (vph) | 0 | 0 | 15 | 0 | 14 | 0 | 0 | 10 | 0 | 0 | 41 | 0 |
| Lane Group Flow (vph) | 0 | 370 | 12 | 0 | 388 | 0 | 0 | 274 | 0 | 0 | 398 | 0 |
| Confl. Peds. (#/hr) | | | | | | | 1 | | 1 | 1 | | 1 |
| Heavy Vehicles (%) | 0% | 3% | 11% | 5% | 3% | 0% | 2% | 3% | 12% | 0% | 4% | 3% |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 19.2 | 19.2 | | 19.2 | | | 17.4 | | | 17.4 | |
| Effective Green, g (s) | | 19.2 | 19.2 | | 19.2 | | | 17.4 | | | 17.4 | |
| Actuated g/C Ratio | | 0.43 | 0.43 | | 0.43 | | | 0.39 | | | 0.39 | |
| 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) | | 545 | 564 | | 732 | | | 611 | | | 603 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | c0.29 | 0.01 | | 0.23 | | | 0.17 | | | c0.26 | |
| v/c Ratio | | 0.68 | 0.02 | | 0.53 | | | 0.45 | | | 0.66 | |
| Uniform Delay, d1 | | 10.2 | 7.3 | | 9.4 | | | 10.1 | | | 11.2 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 3.4 | 0.0 | | 0.7 | | | 0.5 | | | 2.7 | |
| Delay (s) | | 13.6 | 7.3 | | 10.1 | | | 10.6 | | | 13.9 | |
| Level of Service | | B | A | | B | | | B | | | B | |
| Approach Delay (s) | | 13.2 | | | 10.1 | | | 10.6 | | | 13.9 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.67 | | |
| Actuated Cycle Length (s) | 44.6 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 77.2% | 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 | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 13 | 8 | 15 | 3 | 9 | 20 | 6 | 213 | 5 | 18 | 254 | 13 |
| Peak Hour Factor | 0.69 | 0.69 | 0.69 | 0.65 | 0.65 | 0.65 | 0.95 | 0.95 | 0.95 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 19 | 12 | 22 | 5 | 14 | 31 | 6 | 224 | 5 | 20 | 282 | 14 |
| Pedestrians | | | | | 1 | | | 2 | | | 1 | |
| Lane Width (ft) | | | | | 10.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 608 | 573 | 291 | 599 | 577 | 229 | 297 | | | 230 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 608 | 573 | 291 | 599 | 577 | 229 | 297 | | | 230 | | |
| 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 % | 95 | 97 | 97 | 99 | 97 | 96 | 100 | | | 99 | | |
| cM capacity (veh/h) | 379 | 424 | 751 | 389 | 421 | 814 | 1276 | | | 1348 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 52 | 49 | 236 | 317 |
| Volume Left | 19 | 5 | 6 | 20 |
| Volume Right | 22 | 31 | 5 | 14 |
| cSH | 492 | 596 | 1276 | 1348 |
| Volume to Capacity | 0.11 | 0.08 | 0.00 | 0.01 |
| Queue Length 95th (ft) | 9 | 7 | 0 | 1 |
| Control Delay (s) | 13.2 | 11.6 | 0.3 | 0.6 |
| Lane LOS | B | B | A | A |
| Approach Delay (s) | 13.2 | 11.6 | 0.3 | 0.6 |
| Approach LOS | B | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.3 | | |
| Intersection Capacity Utilization | 35.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 17 | 68 | 58 | 57 | 74 | 41 | 73 | 205 | 82 | 36 | 170 | 16 |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.87 | 0.87 | 0.87 | 0.88 | 0.88 | 0.88 | 0.89 | 0.89 | 0.89 |
| Hourly flow rate (vph) | 20 | 80 | 68 | 66 | 85 | 47 | 83 | 233 | 93 | 40 | 191 | 18 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 168 | 198 | 409 | 249 |
| Volume Left (vph) | 20 | 66 | 83 | 40 |
| Volume Right (vph) | 68 | 47 | 93 | 18 |
| Hadj (s) | -0.17 | -0.03 | 0.00 | 0.14 |
| Departure Headway (s) | 6.0 | 6.1 | 5.5 | 5.9 |
| Degree Utilization, x | 0.28 | 0.34 | 0.63 | 0.41 |
| Capacity (veh/h) | 508 | 521 | 621 | 552 |
| Control Delay (s) | 11.4 | 12.2 | 17.2 | 12.9 |
| Approach Delay (s) | 11.4 | 12.2 | 17.2 | 12.9 |
| Approach LOS | B | B | C | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 14.2 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 56.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Volume (veh/h) | 5 | 12 | 325 | 13 | 7 | 305 |
| Peak Hour Factor | 0.33 | 0.33 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 15 | 36 | 361 | 14 | 8 | 339 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 723 | 368 | | | 376 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 723 | 368 | | | 376 | |
| tC, single (s) | 6.6 | 6.3 | | | 4.2 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.7 | 3.4 | | | 2.3 | |
| p0 queue free % | 96 | 94 | | | 99 | |
| cM capacity (veh/h) | 359 | 658 | | | 1161 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 52 | 376 | 347 |
| Volume Left | 15 | 0 | 8 |
| Volume Right | 36 | 14 | 0 |
| cSH | 528 | 1700 | 1161 |
| Volume to Capacity | 0.10 | 0.22 | 0.01 |
| Queue Length 95th (ft) | 8 | 0 | 1 |
| Control Delay (s) | 12.6 | 0.0 | 0.2 |
| Lane LOS | B | | A |
| Approach Delay (s) | 12.6 | 0.0 | 0.2 |
| Approach LOS | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.9 | | |
| Intersection Capacity Utilization | 31.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 17 | 48 | 140 | 53 | 49 | 26 | 140 | 304 | 65 | 38 | 258 | 17 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.63 | 0.63 | 0.63 | 0.93 | 0.93 | 0.93 | 0.87 | 0.87 | 0.87 |
| Hourly flow rate (vph) | 19 | 53 | 156 | 84 | 78 | 41 | 151 | 327 | 70 | 44 | 297 | 20 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | 6 | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1081 | 1092 | 306 | 1229 | 1066 | 362 | 316 | | | 397 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1081 | 1092 | 306 | 1229 | 1066 | 362 | 316 | | | 397 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.2 | 6.5 | 6.2 | 4.1 | | | 4.2 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.6 | 4.0 | 3.3 | 2.2 | | | 2.3 | | |
| p0 queue free % | 83 | 70 | 79 | 0 | 58 | 94 | 88 | | | 96 | | |
| cM capacity (veh/h) | 111 | 181 | 734 | 81 | 187 | 681 | 1244 | | | 1110 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total | 228 | 203 | 151 | 397 | 44 | 316 |
| Volume Left | 19 | 84 | 151 | 0 | 44 | 0 |
| Volume Right | 156 | 41 | 0 | 70 | 0 | 20 |
| cSH | 336 | 152 | 1244 | 1700 | 1110 | 1700 |
| Volume to Capacity | 0.68 | 1.34 | 0.12 | 0.23 | 0.04 | 0.19 |
| Queue Length 95th (ft) | 117 | 313 | 10 | 0 | 3 | 0 |
| Control Delay (s) | 35.5 | 247.7 | 8.3 | 0.0 | 8.4 | 0.0 |
| Lane LOS | E | F | A | | A | |
| Approach Delay (s) | 35.5 | 247.7 | 2.3 | | 1.0 | |
| Approach LOS | E | F | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 44.9 | | |
| Intersection Capacity Utilization | 53.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 11 | 11 | 12 | 11 | 11 | 11 | 11 | 11 | 11 |
| Total Lost time (s) | | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 0.91 | | | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 0.99 | |
| Flt Protected | | 1.00 | | | 0.97 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1570 | | | 1704 | 1568 | 1711 | 1739 | | 1558 | 1770 | |
| Flt Permitted | | 0.96 | | | 0.75 | 1.00 | 0.57 | 1.00 | | 0.50 | 1.00 | |
| Satd. Flow (perm) | | 1519 | | | 1304 | 1568 | 1023 | 1739 | | 819 | 1770 | |
| Volume (vph) | 17 | 48 | 140 | 53 | 49 | 26 | 140 | 304 | 65 | 38 | 258 | 17 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.63 | 0.63 | 0.63 | 0.93 | 0.93 | 0.93 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 19 | 53 | 156 | 84 | 78 | 41 | 151 | 327 | 70 | 44 | 297 | 20 |
| RTOR Reduction (vph) | 0 | 115 | 0 | 0 | 0 | 30 | 0 | 10 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 0 | 113 | 0 | 0 | 162 | 11 | 151 | 387 | 0 | 44 | 314 | 0 |
| Heavy Vehicles (%) | 0% | 3% | 2% | 7% | 3% | 3% | 2% | 3% | 2% | 12% | 3% | 0% |
| Turn Type | Perm | | | Perm | | Perm | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | | 9.1 | | | 9.1 | 9.1 | 19.6 | 19.6 | | 19.6 | 19.6 | |
| Effective Green, g (s) | | 10.1 | | | 10.1 | 10.1 | 20.6 | 20.6 | | 20.6 | 20.6 | |
| Actuated g/C Ratio | | 0.26 | | | 0.26 | 0.26 | 0.53 | 0.53 | | 0.53 | 0.53 | |
| Clearance Time (s) | | 5.0 | | | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 396 | | | 340 | 409 | 545 | 926 | | 436 | 942 | |
| v/s Ratio Prot | | | | | | | | c0.22 | | | 0.18 | |
| v/s Ratio Perm | | 0.07 | | | c0.12 | 0.01 | 0.15 | | | 0.05 | | |
| v/c Ratio | | 0.28 | | | 0.48 | 0.03 | 0.28 | 0.42 | | 0.10 | 0.33 | |
| Uniform Delay, d1 | | 11.4 | | | 12.1 | 10.6 | 5.0 | 5.4 | | 4.5 | 5.1 | |
| Progression Factor | | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.4 | | | 1.1 | 0.0 | 0.3 | 0.3 | | 0.1 | 0.2 | |
| Delay (s) | | 11.8 | | | 13.1 | 10.7 | 5.2 | 5.7 | | 4.6 | 5.4 | |
| Level of Service | | B | | | B | B | A | A | | A | A | |
| Approach Delay (s) | | 11.8 | | | 12.6 | | | 5.6 | | | 5.3 | |
| Approach LOS | | B | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.6 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.44 | | |
| Actuated Cycle Length (s) | 38.7 | 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 | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 111 | 44 | 43 | 393 | 333 | 120 |
| Peak Hour Factor | 0.92 | 0.92 | 0.87 | 0.87 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 121 | 48 | 49 | 452 | 370 | 133 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 987 | 437 | 503 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 987 | 437 | 503 | | | |
| tC, single (s) | 6.4 | 6.3 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.4 | 2.2 | | | |
| p0 queue free % | 54 | 92 | 95 | | | |
| cM capacity (veh/h) | 262 | 607 | 1046 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 168 | 501 | 503 |
| Volume Left | 121 | 49 | 0 |
| Volume Right | 48 | 0 | 133 |
| cSH | 313 | 1046 | 1700 |
| Volume to Capacity | 0.54 | 0.05 | 0.30 |
| Queue Length 95th (ft) | 75 | 4 | 0 |
| Control Delay (s) | 29.2 | 1.3 | 0.0 |
| Lane LOS | D | A | |
| Approach Delay (s) | 29.2 | 1.3 | 0.0 |
| Approach LOS | D | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 4.8 | | |
| Intersection Capacity Utilization | 66.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 24 | 68 | 120 | 4 | 80 | 12 | 122 | 389 | 13 | 13 | 334 | 19 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.69 | 0.69 | 0.69 | 0.97 | 0.97 | 0.97 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 26 | 73 | 129 | 6 | 116 | 17 | 126 | 401 | 13 | 14 | 359 | 20 |
| 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 | 1132 | 1063 | 369 | 1222 | 1067 | 408 | 380 | | | 414 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1132 | 1063 | 369 | 1222 | 1067 | 408 | 380 | | | 414 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.2 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.3 | | |
| p0 queue free % | 70 | 63 | 81 | 93 | 41 | 97 | 89 | | | 99 | | |
| cM capacity (veh/h) | 87 | 195 | 676 | 83 | 197 | 648 | 1173 | | | 1103 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 228 | 139 | 540 | 394 |
| Volume Left | 26 | 6 | 126 | 14 |
| Volume Right | 129 | 17 | 13 | 20 |
| cSH | 264 | 203 | 1173 | 1103 |
| Volume to Capacity | 0.86 | 0.68 | 0.11 | 0.01 |
| Queue Length 95th (ft) | 181 | 106 | 9 | 1 |
| Control Delay (s) | 66.8 | 54.2 | 2.9 | 0.4 |
| Lane LOS | F | F | A | A |
| Approach Delay (s) | 66.8 | 54.2 | 2.9 | 0.4 |
| Approach LOS | F | F | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 18.8 | | |
| Intersection Capacity Utilization | 76.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 11 | 11 | 11 | 11 | 11 | 11 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 0.92 | | | 0.98 | | | 1.00 | | | 0.99 | |
| Flt Protected | | 0.99 | | | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (prot) | | 1590 | | | 1740 | | | 1754 | | | 1766 | |
| Flt Permitted | | 0.95 | | | 0.99 | | | 0.83 | | | 0.98 | |
| Satd. Flow (perm) | | 1520 | | | 1719 | | | 1477 | | | 1734 | |
| Volume (vph) | 24 | 68 | 120 | 4 | 80 | 12 | 122 | 389 | 13 | 13 | 334 | 19 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.69 | 0.69 | 0.69 | 0.97 | 0.97 | 0.97 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 26 | 73 | 129 | 6 | 116 | 17 | 126 | 401 | 13 | 14 | 359 | 20 |
| RTOR Reduction (vph) | 0 | 75 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 0 | 153 | 0 | 0 | 131 | 0 | 0 | 539 | 0 | 0 | 390 | 0 |
| Heavy Vehicles (%) | 0% | 4% | 2% | 0% | 0% | 0% | 3% | 3% | 10% | 10% | 3% | 0% |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 9.3 | | | 9.3 | | | 28.3 | | | 28.3 | |
| Effective Green, g (s) | | 10.3 | | | 10.3 | | | 29.3 | | | 29.3 | |
| Actuated g/C Ratio | | 0.22 | | | 0.22 | | | 0.62 | | | 0.62 | |
| Clearance Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 329 | | | 372 | | | 909 | | | 1067 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | c0.10 | | | 0.08 | | | c0.36 | | | 0.23 | |
| v/c Ratio | | 0.46 | | | 0.35 | | | 0.59 | | | 0.37 | |
| Uniform Delay, d1 | | 16.2 | | | 15.8 | | | 5.5 | | | 4.5 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 1.0 | | | 0.6 | | | 1.0 | | | 0.2 | |
| Delay (s) | | 17.3 | | | 16.4 | | | 6.6 | | | 4.8 | |
| Level of Service | | B | | | B | | | A | | | A | |
| Approach Delay (s) | | 17.3 | | | 16.4 | | | 6.6 | | | 4.8 | |
| Approach LOS | | B | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 9.0 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.56 | | |
| Actuated Cycle Length (s) | 47.6 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 76.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 3% | | | 0% | 0% | |
| Volume (veh/h) | 65 | 38 | 56 | 442 | 360 | 48 |
| Peak Hour Factor | 0.91 | 0.91 | 0.93 | 0.93 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 71 | 42 | 60 | 475 | 400 | 53 |
| Pedestrians | 1 | | | 1 | | |
| Lane Width (ft) | 10.0 | | | 11.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1023 | 429 | 454 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1023 | 429 | 454 | | | |
| tC, single (s) | 6.4 | 6.3 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 71 | 93 | 95 | | | |
| cM capacity (veh/h) | 246 | 619 | 1116 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 113 | 535 | 453 |
| Volume Left | 71 | 60 | 0 |
| Volume Right | 42 | 0 | 53 |
| cSH | 317 | 1116 | 1700 |
| Volume to Capacity | 0.36 | 0.05 | 0.27 |
| Queue Length 95th (ft) | 39 | 4 | 0 |
| Control Delay (s) | 22.6 | 1.5 | 0.0 |
| Lane LOS | C | A | |
| Approach Delay (s) | 22.6 | 1.5 | 0.0 |
| Approach LOS | C | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.0 | | |
| Intersection Capacity Utilization | 64.4% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 11 | 11 | 12 | 11 | 12 | 12 |
| 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 | 0.95 | |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 0.92 | |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | |
| Satd. Flow (prot) | 1601 | 1346 | 1444 | 1783 | 3124 | |
| Flt Permitted | 0.95 | 1.00 | 0.32 | 1.00 | 1.00 | |
| Satd. Flow (perm) | 1601 | 1346 | 492 | 1783 | 3124 | |
| Volume (vph) | 299 | 408 | 292 | 260 | 217 | 260 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.86 | 0.86 | 0.91 | 0.91 |
| Adj. Flow (vph) | 329 | 448 | 340 | 302 | 238 | 286 |
| RTOR Reduction (vph) | 0 | 134 | 0 | 0 | 225 | 0 |
| Lane Group Flow (vph) | 329 | 314 | 340 | 302 | 299 | 0 |
| Heavy Vehicles (%) | 9% | 16% | 25% | 3% | 5% | 7% |
| Turn Type | | pm+ov | pm+pt | | | |
| Protected Phases | 4 | 5 | 5 | 2 | 6 | |
| Permitted Phases | | 4 | 2 | | | |
| Actuated Green, G (s) | 17.8 | 35.1 | 35.2 | 35.2 | 11.9 | |
| Effective Green, g (s) | 19.8 | 39.1 | 37.2 | 37.2 | 13.9 | |
| Actuated g/C Ratio | 0.30 | 0.60 | 0.57 | 0.57 | 0.21 | |
| Clearance Time (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 488 | 893 | 564 | 1020 | 668 | |
| v/s Ratio Prot | c0.21 | 0.10 | c0.18 | 0.17 | 0.10 | |
| v/s Ratio Perm | | 0.13 | c0.17 | | | |
| v/c Ratio | 0.67 | 0.35 | 0.60 | 0.30 | 0.45 | |
| Uniform Delay, d1 | 19.8 | 6.5 | 12.6 | 7.2 | 22.2 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.7 | 0.2 | 1.8 | 0.2 | 0.5 | |
| Delay (s) | 23.4 | 6.8 | 14.5 | 7.3 | 22.7 | |
| Level of Service | C | A | B | A | C | |
| Approach Delay (s) | 13.8 | | | 11.1 | 22.7 | |
| Approach LOS | B | | | B | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 65.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 57.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.94 | | 1.00 | 0.96 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1770 | 1658 | | 1805 | 1758 | | 1805 | 1752 | | 1666 | 1696 | 1553 |
| Flt Permitted | 0.27 | 1.00 | | 0.46 | 1.00 | | 0.38 | 1.00 | | 0.61 | 1.00 | 1.00 |
| Satd. Flow (perm) | 505 | 1658 | | 880 | 1758 | | 713 | 1752 | | 1072 | 1696 | 1553 |
| Volume (vph) | 271 | 293 | 192 | 19 | 228 | 70 | 132 | 187 | 26 | 86 | 220 | 256 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 301 | 326 | 213 | 21 | 253 | 78 | 147 | 208 | 29 | 96 | 244 | 284 |
| RTOR Reduction (vph) | 0 | 29 | 0 | 0 | 14 | 0 | 0 | 6 | 0 | 0 | 0 | 214 |
| Lane Group Flow (vph) | 301 | 510 | 0 | 21 | 317 | 0 | 147 | 231 | 0 | 96 | 244 | 70 |
| Confl. Peds. (#/hr) | | | | | | | | | 2 | 2 | | |
| Heavy Vehicles (%) | 2% | 7% | 9% | 0% | 4% | 5% | 0% | 7% | 0% | 8% | 12% | 4% |
| Turn Type | pm+pt | | | Perm | | | pm+pt | | | Perm | | Perm |
| Protected Phases | 7 | 4 | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | 33.5 | 33.5 | | 16.3 | 16.3 | | 22.6 | 22.6 | | 15.4 | 15.4 | 15.4 |
| Effective Green, g (s) | 34.5 | 34.5 | | 17.3 | 17.3 | | 23.6 | 23.6 | | 16.4 | 16.4 | 16.4 |
| Actuated g/C Ratio | 0.52 | 0.52 | | 0.26 | 0.26 | | 0.36 | 0.36 | | 0.25 | 0.25 | 0.25 |
| Clearance Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 516 | 865 | | 230 | 460 | | 307 | 626 | | 266 | 421 | 385 |
| v/s Ratio Prot | 0.12 | c0.31 | | | c0.18 | | c0.02 | 0.13 | | | c0.14 | |
| v/s Ratio Perm | 0.19 | | | 0.02 | | | 0.15 | | | 0.09 | | 0.05 |
| v/c Ratio | 0.58 | 0.59 | | 0.09 | 0.69 | | 0.48 | 0.37 | | 0.36 | 0.58 | 0.18 |
| Uniform Delay, d1 | 10.4 | 10.9 | | 18.5 | 22.0 | | 16.3 | 15.7 | | 20.5 | 21.8 | 19.6 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.7 | 1.0 | | 0.2 | 4.3 | | 1.2 | 0.4 | | 0.8 | 1.9 | 0.2 |
| Delay (s) | 12.1 | 12.0 | | 18.6 | 26.3 | | 17.5 | 16.1 | | 21.4 | 23.8 | 19.8 |
| Level of Service | B | B | | B | C | | B | B | | C | C | B |
| Approach Delay (s) | | 12.0 | | | 25.8 | | | 16.6 | | | 21.6 | |
| Approach LOS | | B | | | C | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 66.1 | Sum of lost time (s) | 16.0 |
| 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 | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 21 | 90 | 1 | 10 | 136 | 24 | 19 | 88 | 27 | 6 | 44 | 23 |
| Peak Hour Factor | 0.66 | 0.66 | 0.66 | 0.90 | 0.90 | 0.90 | 0.76 | 0.76 | 0.76 | 0.71 | 0.71 | 0.71 |
| Hourly flow rate (vph) | 32 | 136 | 2 | 11 | 151 | 27 | 25 | 116 | 36 | 8 | 62 | 32 |
| 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 | 178 | | | 138 | | | 451 | 401 | 137 | 481 | 388 | 164 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 178 | | | 138 | | | 451 | 401 | 137 | 481 | 388 | 164 |
| 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 % | 98 | | | 99 | | | 94 | 78 | 96 | 98 | 88 | 96 |
| cM capacity (veh/h) | 1410 | | | 1452 | | | 448 | 525 | 914 | 388 | 533 | 885 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 170 | 189 | 176 | 103 |
| Volume Left | 32 | 11 | 25 | 8 |
| Volume Right | 2 | 27 | 36 | 32 |
| cSH | 1410 | 1452 | 559 | 589 |
| Volume to Capacity | 0.02 | 0.01 | 0.32 | 0.17 |
| Queue Length 95th (ft) | 2 | 1 | 34 | 16 |
| Control Delay (s) | 1.6 | 0.5 | 14.4 | 12.4 |
| Lane LOS | A | A | B | B |
| Approach Delay (s) | 1.6 | 0.5 | 14.4 | 12.4 |
| Approach LOS | | | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 6.5 | | |
| Intersection Capacity Utilization | 30.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 7 | 58 | 9 | 0 | 64 | 15 | 13 | 169 | 0 | 8 | 156 | 18 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.94 | 0.94 | 0.94 | 0.77 | 0.77 | 0.77 |
| Hourly flow rate (vph) | 8 | 64 | 10 | 0 | 71 | 17 | 14 | 180 | 0 | 10 | 203 | 23 |
| 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 | 495 | 443 | 214 | 485 | 454 | 180 | 226 | | | 180 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 495 | 443 | 214 | 485 | 454 | 180 | 226 | | | 180 | | |
| 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 % | 98 | 87 | 99 | 100 | 86 | 98 | 99 | | | 99 | | |
| cM capacity (veh/h) | 418 | 500 | 828 | 436 | 493 | 868 | 1348 | | | 1408 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 82 | 88 | 194 | 236 |
| Volume Left | 8 | 0 | 14 | 10 |
| Volume Right | 10 | 17 | 0 | 23 |
| cSH | 516 | 537 | 1348 | 1408 |
| Volume to Capacity | 0.16 | 0.16 | 0.01 | 0.01 |
| Queue Length 95th (ft) | 14 | 15 | 1 | 1 |
| Control Delay (s) | 13.3 | 13.0 | 0.6 | 0.4 |
| Lane LOS | B | B | A | A |
| Approach Delay (s) | 13.3 | 13.0 | 0.6 | 0.4 |
| Approach LOS | B | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 4.1 | | |
| Intersection Capacity Utilization | 29.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 7 | 122 | 2 | 0 | 136 | 165 | 0 | 0 | 0 | 119 | 5 | 11 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.91 | 0.91 | 0.91 | 0.25 | 0.25 | 0.25 | 0.85 | 0.85 | 0.85 |
| Hourly flow rate (vph) | 8 | 136 | 2 | 0 | 149 | 181 | 0 | 0 | 0 | 140 | 6 | 13 |
| 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 | 331 | | | 138 | | | 318 | 483 | 137 | 301 | 303 | 149 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 331 | | | 138 | | | 318 | 483 | 137 | 301 | 303 | 149 |
| tC, single (s) | 4.2 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.3 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 99 | | | 100 | | | 100 | 100 | 100 | 78 | 99 | 99 |
| cM capacity (veh/h) | 1164 | | | 1458 | | | 622 | 483 | 917 | 644 | 609 | 902 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total | 8 | 138 | 149 | 181 | 0 | 140 | 19 |
| Volume Left | 8 | 0 | 0 | 0 | 0 | 140 | 0 |
| Volume Right | 0 | 2 | 0 | 181 | 0 | 0 | 13 |
| cSH | 1164 | 1700 | 1458 | 1700 | 1700 | 644 | 785 |
| Volume to Capacity | 0.01 | 0.08 | 0.00 | 0.11 | 0.00 | 0.22 | 0.02 |
| Queue Length 95th (ft) | 1 | 0 | 0 | 0 | 0 | 21 | 2 |
| Control Delay (s) | 8.1 | 0.0 | 0.0 | 0.0 | 0.0 | 12.1 | 9.7 |
| Lane LOS | A | | | | A | B | A |
| Approach Delay (s) | 0.4 | | 0.0 | | 0.0 | 11.8 | |
| Approach LOS | | | | | A | B | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.1 | | |
| Intersection Capacity Utilization | 23.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

# 2035 Build Conditions – 70% Threshold

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 11 | 11 | 9 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 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 | 0.85 | | 0.98 | | | 0.98 | | | 0.95 | |
| Flt Protected | | 0.99 | 1.00 | | 0.99 | | | 0.98 | | | 0.99 | |
| Satd. Flow (prot) | | 1703 | 1309 | | 1635 | | | 1694 | | | 1704 | |
| Flt Permitted | | 0.84 | 1.00 | | 0.90 | | | 0.74 | | | 0.90 | |
| Satd. Flow (perm) | | 1444 | 1309 | | 1485 | | | 1281 | | | 1547 | |
| Volume (vph) | 83 | 246 | 38 | 46 | 230 | 46 | 75 | 92 | 24 | 54 | 135 | 128 |
| Peak-hour factor, PHF | 0.80 | 0.80 | 0.80 | 0.78 | 0.78 | 0.78 | 0.67 | 0.67 | 0.67 | 0.74 | 0.74 | 0.74 |
| Adj. Flow (vph) | 104 | 308 | 48 | 59 | 295 | 59 | 112 | 137 | 36 | 73 | 182 | 173 |
| RTOR Reduction (vph) | 0 | 0 | 28 | 0 | 9 | 0 | 0 | 8 | 0 | 0 | 38 | 0 |
| Lane Group Flow (vph) | 0 | 412 | 20 | 0 | 404 | 0 | 0 | 277 | 0 | 0 | 390 | 0 |
| Heavy Vehicles (%) | 5% | 7% | 11% | 14% | 14% | 8% | 6% | 8% | 15% | 7% | 6% | 2% |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 17.8 | 17.8 | | 17.8 | | | 16.6 | | | 16.6 | |
| Effective Green, g (s) | | 17.8 | 17.8 | | 17.8 | | | 16.6 | | | 16.6 | |
| Actuated g/C Ratio | | 0.42 | 0.42 | | 0.42 | | | 0.39 | | | 0.39 | |
| 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) | | 606 | 550 | | 623 | | | 502 | | | 606 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | c0.29 | 0.02 | | 0.27 | | | 0.22 | | | c0.25 | |
| v/c Ratio | | 0.68 | 0.04 | | 0.65 | | | 0.55 | | | 0.64 | |
| Uniform Delay, d1 | | 10.0 | 7.2 | | 9.8 | | | 10.0 | | | 10.5 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 3.0 | 0.0 | | 2.3 | | | 1.3 | | | 2.3 | |
| Delay (s) | | 13.0 | 7.3 | | 12.1 | | | 11.3 | | | 12.8 | |
| Level of Service | | B | A | | B | | | B | | | B | |
| Approach Delay (s) | | 12.4 | | | 12.1 | | | 11.3 | | | 12.8 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 42.4 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 65.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 8 | 3 | 14 | 0 | 3 | 9 | 6 | 186 | 3 | 9 | 260 | 1 |
| Peak Hour Factor | 0.40 | 0.40 | 0.40 | 0.45 | 0.45 | 0.45 | 0.80 | 0.80 | 0.80 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 20 | 8 | 35 | 0 | 7 | 20 | 8 | 232 | 4 | 10 | 295 | 1 |
| 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 | 589 | 568 | 296 | 605 | 566 | 234 | 297 | | | 236 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 589 | 568 | 296 | 605 | 566 | 234 | 297 | | | 236 | | |
| 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 % | 95 | 98 | 95 | 100 | 98 | 98 | 99 | | | 99 | | |
| cM capacity (veh/h) | 403 | 430 | 748 | 384 | 430 | 810 | 1276 | | | 1343 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 62 | 27 | 244 | 307 |
| Volume Left | 20 | 0 | 8 | 10 |
| Volume Right | 35 | 20 | 4 | 1 |
| cSH | 549 | 663 | 1276 | 1343 |
| Volume to Capacity | 0.11 | 0.04 | 0.01 | 0.01 |
| Queue Length 95th (ft) | 10 | 3 | 0 | 1 |
| Control Delay (s) | 12.4 | 10.7 | 0.3 | 0.3 |
| Lane LOS | B | B | A | A |
| Approach Delay (s) | 12.4 | 10.7 | 0.3 | 0.3 |
| Approach LOS | B | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.9 | | |
| Intersection Capacity Utilization | 32.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 10 | 86 | 6 | 107 | 71 | 19 | 2 | 163 | 36 | 37 | 206 | 36 |
| Peak Hour Factor | 0.80 | 0.80 | 0.80 | 0.90 | 0.90 | 0.90 | 0.80 | 0.80 | 0.80 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 12 | 108 | 8 | 119 | 79 | 21 | 2 | 204 | 45 | 41 | 229 | 40 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 128 | 219 | 251 | 310 |
| Volume Left (vph) | 13 | 119 | 3 | 41 |
| Volume Right (vph) | 8 | 21 | 45 | 40 |
| Hadj (s) | 0.07 | 0.16 | 0.15 | 0.03 |
| Departure Headway (s) | 6.0 | 5.9 | 5.6 | 5.4 |
| Degree Utilization, x | 0.21 | 0.36 | 0.39 | 0.47 |
| Capacity (veh/h) | 526 | 556 | 589 | 624 |
| Control Delay (s) | 10.6 | 12.1 | 12.2 | 13.1 |
| Approach Delay (s) | 10.6 | 12.1 | 12.2 | 13.1 |
| Approach LOS | B | B | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 12.3 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 53.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Volume (veh/h) | 6 | 6 | 508 | 5 | 4 | 465 |
| Peak Hour Factor | 0.63 | 0.63 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 10 | 10 | 564 | 6 | 4 | 517 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1093 | 567 | | | 570 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1093 | 567 | | | 570 | |
| tC, single (s) | 6.6 | 6.6 | | | 4.8 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.7 | 3.7 | | | 2.8 | |
| p0 queue free % | 96 | 98 | | | 99 | |
| cM capacity (veh/h) | 218 | 458 | | | 747 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 19 | 570 | 521 |
| Volume Left | 10 | 0 | 4 |
| Volume Right | 10 | 6 | 0 |
| cSH | 295 | 1700 | 747 |
| Volume to Capacity | 0.06 | 0.34 | 0.01 |
| Queue Length 95th (ft) | 5 | 0 | 0 |
| Control Delay (s) | 18.0 | 0.0 | 0.2 |
| Lane LOS | C | | A |
| Approach Delay (s) | 18.0 | 0.0 | 0.2 |
| Approach LOS | C | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.4 | | |
| Intersection Capacity Utilization | 37.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 13 | 39 | 68 | 62 | 58 | 86 | 227 | 692 | 53 | 43 | 396 | 3 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.92 | 0.92 | 0.92 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 14 | 43 | 76 | 69 | 64 | 96 | 247 | 752 | 58 | 48 | 440 | 3 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | 6 | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1863 | 1840 | 442 | 1907 | 1813 | 781 | 443 | | | 810 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1863 | 1840 | 442 | 1907 | 1813 | 781 | 443 | | | 810 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.3 | 6.5 | 6.2 | 4.1 | | | 4.2 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.7 | 4.0 | 3.3 | 2.2 | | | 2.3 | | |
| p0 queue free % | 0 | 22 | 88 | 0 | 0 | 76 | 78 | | | 94 | | |
| cM capacity (veh/h) | 0 | 55 | 616 | 12 | 57 | 393 | 1117 | | | 799 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total | 133 | 229 | 247 | 810 | 48 | 443 |
| Volume Left | 14 | 69 | 247 | 0 | 48 | 0 |
| Volume Right | 76 | 96 | 0 | 58 | 0 | 3 |
| cSH | 0 | 35 | 1117 | 1700 | 799 | 1700 |
| Volume to Capacity | Err | 6.49 | 0.22 | 0.48 | 0.06 | 0.26 |
| Queue Length 95th (ft) | Err | Err | 21 | 0 | 5 | 0 |
| Control Delay (s) | Err | Err | 9.1 | 0.0 | 9.8 | 0.0 |
| Lane LOS | F | F | A | | A | |
| Approach Delay (s) | Err | Err | 2.1 | | 1.0 | |
| Approach LOS | F | F | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | Err | | |
| Intersection Capacity Utilization | 66.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 11 | 11 | 12 | 11 | 11 | 11 | 11 | 11 | 11 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flt Protected | | 0.99 | 1.00 | | 0.97 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1739 | 1478 | | 1631 | 1568 | 1711 | 1746 | | 1646 | 1782 | |
| Flt Permitted | | 0.91 | 1.00 | | 0.81 | 1.00 | 0.43 | 1.00 | | 0.22 | 1.00 | |
| Satd. Flow (perm) | | 1594 | 1478 | | 1350 | 1568 | 768 | 1746 | | 382 | 1782 | |
| Volume (vph) | 13 | 39 | 68 | 62 | 58 | 86 | 227 | 692 | 53 | 43 | 396 | 3 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.92 | 0.92 | 0.92 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 14 | 43 | 76 | 69 | 64 | 96 | 247 | 752 | 58 | 48 | 440 | 3 |
| RTOR Reduction (vph) | 0 | 0 | 64 | 0 | 0 | 81 | 0 | 3 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 57 | 12 | 0 | 133 | 15 | 247 | 807 | 0 | 48 | 443 | 0 |
| Heavy Vehicles (%) | 0% | 1% | 2% | 17% | 2% | 3% | 2% | 4% | 5% | 6% | 3% | 0% |
| Turn Type | Perm | | Perm | Perm | | Perm | pm+pt | | | pm+pt | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | | 9.7 | 9.7 | | 9.7 | 9.7 | 45.5 | 41.4 | | 42.3 | 39.8 | |
| Effective Green, g (s) | | 10.7 | 10.7 | | 10.7 | 10.7 | 47.5 | 42.4 | | 44.3 | 40.8 | |
| Actuated g/C Ratio | | 0.16 | 0.16 | | 0.16 | 0.16 | 0.69 | 0.62 | | 0.65 | 0.59 | |
| Clearance Time (s) | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 249 | 231 | | 211 | 245 | 602 | 1079 | | 311 | 1060 | |
| v/s Ratio Prot | | | | | | | c0.03 | c0.46 | | 0.01 | 0.25 | |
| v/s Ratio Perm | | 0.04 | 0.01 | | c0.10 | 0.01 | 0.25 | | | 0.09 | | |
| v/c Ratio | | 0.23 | 0.05 | | 0.63 | 0.06 | 0.41 | 0.75 | | 0.15 | 0.42 | |
| Uniform Delay, d1 | | 25.3 | 24.6 | | 27.1 | 24.7 | 4.2 | 9.3 | | 6.4 | 7.5 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.5 | 0.1 | | 6.0 | 0.1 | 0.5 | 2.9 | | 0.2 | 0.3 | |
| Delay (s) | | 25.8 | 24.7 | | 33.1 | 24.8 | 4.7 | 12.2 | | 6.6 | 7.8 | |
| Level of Service | | C | C | | C | C | A | B | | A | A | |
| Approach Delay (s) | | 25.2 | | | 29.6 | | | 10.4 | | | 7.7 | |
| Approach LOS | | C | | | C | | | B | | | A | |

Intersection Summary

| | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.72 | | |
| Actuated Cycle Length (s) | 68.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 67.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 97 | 24 | 14 | 856 | 473 | 69 |
| Peak Hour Factor | 0.93 | 0.93 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 104 | 26 | 16 | 951 | 526 | 77 |
| Pedestrians | 1 | | | | | |
| Lane Width (ft) | 11.0 | | | | | |
| Walking Speed (ft/s) | 4.0 | | | | | |
| Percent Blockage | 0 | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1547 | 565 | 603 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1547 | 565 | 603 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.4 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.4 | | | |
| p0 queue free % | 15 | 95 | 98 | | | |
| cM capacity (veh/h) | 122 | 518 | 863 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 130 | 967 | 602 |
| Volume Left | 104 | 16 | 0 |
| Volume Right | 26 | 0 | 77 |
| cSH | 144 | 863 | 1700 |
| Volume to Capacity | 0.90 | 0.02 | 0.35 |
| Queue Length 95th (ft) | 154 | 1 | 0 |
| Control Delay (s) | 111.7 | 0.5 | 0.0 |
| Lane LOS | F | A | |
| Approach Delay (s) | 111.7 | 0.5 | 0.0 |
| Approach LOS | F | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 8.8 | | |
| Intersection Capacity Utilization | 69.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 11 | 11 | 12 | 12 | 11 | 11 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 0.97 | | 1.00 | 1.00 | 0.98 | |
| Flt Protected | 0.96 | | 0.95 | 1.00 | 1.00 | |
| Satd. Flow (prot) | 1649 | | 1421 | 1827 | 1721 | |
| Flt Permitted | 0.96 | | 0.39 | 1.00 | 1.00 | |
| Satd. Flow (perm) | 1649 | | 589 | 1827 | 1721 | |
| Volume (vph) | 97 | 24 | 14 | 856 | 473 | 69 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 104 | 26 | 16 | 951 | 526 | 77 |
| RTOR Reduction (vph) | 11 | 0 | 0 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 119 | 0 | 16 | 951 | 597 | 0 |
| Confl. Peds. (#/hr) | | | 1 | | | 1 |
| Heavy Vehicles (%) | 4% | 5% | 27% | 4% | 5% | 2% |
| Turn Type | | | Perm | | | |
| Protected Phases | 4 | | | 2 | 6 | |
| Permitted Phases | | | 2 | | | |
| Actuated Green, G (s) | 8.8 | | 50.1 | 50.1 | 50.1 | |
| Effective Green, g (s) | 9.8 | | 51.1 | 51.1 | 51.1 | |
| Actuated g/C Ratio | 0.14 | | 0.74 | 0.74 | 0.74 | |
| Clearance Time (s) | 5.0 | | 5.0 | 5.0 | 5.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 235 | | 437 | 1355 | 1276 | |
| v/s Ratio Prot | c0.07 | | | c0.52 | 0.35 | |
| v/s Ratio Perm | | | 0.03 | | | |
| v/c Ratio | 0.51 | | 0.04 | 0.70 | 0.47 | |
| Uniform Delay, d1 | 27.3 | | 2.4 | 4.8 | 3.5 | |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.7 | | 0.0 | 1.7 | 0.3 | |
| Delay (s) | 29.0 | | 2.4 | 6.5 | 3.8 | |
| Level of Service | C | | A | A | A | |
| Approach Delay (s) | 29.0 | | | 6.4 | 3.8 | |
| Approach LOS | C | | | A | A | |

Intersection Summary

| | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.2 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.67 | | |
| Actuated Cycle Length (s) | 68.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 58.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 4 | 24 | 23 | 8 | 17 | 5 | 33 | 871 | 8 | 5 | 477 | 4 |
| Peak Hour Factor | 0.63 | 0.63 | 0.63 | 0.69 | 0.69 | 0.69 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 6 | 38 | 37 | 12 | 25 | 7 | 37 | 968 | 9 | 6 | 530 | 4 |
| 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 | 1608 | 1593 | 532 | 1644 | 1591 | 972 | 534 | | | 977 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1608 | 1593 | 532 | 1644 | 1591 | 972 | 534 | | | 977 | | |
| tC, single (s) | 7.4 | 6.6 | 6.3 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.8 | 4.1 | 3.4 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 88 | 61 | 93 | 77 | 76 | 98 | 96 | | | 99 | | |
| cM capacity (veh/h) | 55 | 98 | 540 | 51 | 104 | 309 | 1023 | | | 714 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 81 | 43 | 1013 | 540 |
| Volume Left | 6 | 12 | 37 | 6 |
| Volume Right | 37 | 7 | 9 | 4 |
| cSH | 141 | 89 | 1023 | 714 |
| Volume to Capacity | 0.57 | 0.49 | 0.04 | 0.01 |
| Queue Length 95th (ft) | 73 | 53 | 3 | 1 |
| Control Delay (s) | 60.1 | 79.5 | 1.0 | 0.2 |
| Lane LOS | F | F | A | A |
| Approach Delay (s) | 60.1 | 79.5 | 1.0 | 0.2 |
| Approach LOS | F | F | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 5.6 | | |
| Intersection Capacity Utilization | 77.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 11 | 11 | 11 | 11 | 11 | 11 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 0.94 | | | 0.98 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flt Protected | | 1.00 | | | 0.99 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1502 | | | 1712 | | 1678 | 1762 | | 1745 | 1765 | |
| Flt Permitted | | 0.97 | | | 0.91 | | 0.39 | 1.00 | | 0.27 | 1.00 | |
| Satd. Flow (perm) | | 1466 | | | 1572 | | 691 | 1762 | | 493 | 1765 | |
| Volume (vph) | 4 | 24 | 23 | 8 | 17 | 5 | 33 | 871 | 8 | 5 | 477 | 4 |
| Peak-hour factor, PHF | 0.63 | 0.63 | 0.63 | 0.69 | 0.69 | 0.69 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 6 | 38 | 37 | 12 | 25 | 7 | 37 | 968 | 9 | 6 | 530 | 4 |
| RTOR Reduction (vph) | 0 | 34 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 47 | 0 | 0 | 38 | 0 | 37 | 977 | 0 | 6 | 534 | 0 |
| Heavy Vehicles (%) | 33% | 11% | 6% | 0% | 0% | 0% | 4% | 4% | 17% | 0% | 4% | 0% |
| Turn Type | Perm | | | Perm | | | pm+pt | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 6.2 | | | 6.2 | | 61.0 | 61.0 | | 54.0 | 54.0 | |
| Effective Green, g (s) | | 7.2 | | | 7.2 | | 62.0 | 62.0 | | 55.0 | 55.0 | |
| Actuated g/C Ratio | | 0.09 | | | 0.09 | | 0.80 | 0.80 | | 0.71 | 0.71 | |
| Clearance Time (s) | | 5.0 | | | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 137 | | | 147 | | 593 | 1415 | | 351 | 1257 | |
| v/s Ratio Prot | | | | | | | 0.00 | c0.55 | | | 0.30 | |
| v/s Ratio Perm | | c0.03 | | | 0.02 | | 0.05 | | | 0.01 | | |
| v/c Ratio | | 0.35 | | | 0.26 | | 0.06 | 0.69 | | 0.02 | 0.42 | |
| Uniform Delay, d1 | | 32.8 | | | 32.5 | | 2.1 | 3.4 | | 3.2 | 4.6 | |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 1.5 | | | 0.9 | | 0.0 | 1.5 | | 0.0 | 0.2 | |
| Delay (s) | | 34.3 | | | 33.4 | | 2.2 | 4.8 | | 3.3 | 4.8 | |
| Level of Service | | C | | | C | | A | A | | A | A | |
| Approach Delay (s) | | 34.3 | | | 33.4 | | | 4.7 | | | 4.8 | |
| Approach LOS | | C | | | C | | | A | | | A | |

Intersection Summary

| | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.9 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 77.2 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 57.2% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 3% | | | 0% | 0% | |
| Volume (veh/h) | 92 | 59 | 14 | 782 | 473 | 67 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 102 | 66 | 16 | 869 | 526 | 74 |
| Pedestrians | 1 | | | 1 | | |
| Lane Width (ft) | 10.0 | | | 11.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1464 | 565 | 601 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1464 | 565 | 601 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 26 | 87 | 98 | | | |
| cM capacity (veh/h) | 139 | 522 | 985 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 168 | 884 | 600 |
| Volume Left | 102 | 16 | 0 |
| Volume Right | 66 | 0 | 74 |
| cSH | 195 | 985 | 1700 |
| Volume to Capacity | 0.86 | 0.02 | 0.35 |
| Queue Length 95th (ft) | 161 | 1 | 0 |
| Control Delay (s) | 82.8 | 0.4 | 0.0 |
| Lane LOS | F | A | |
| Approach Delay (s) | 82.8 | 0.4 | 0.0 |
| Approach LOS | F | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 8.6 | | |
| Intersection Capacity Utilization | 67.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 3% | | | 0% | 0% | |
| Volume (veh/h) | 92 | 59 | 14 | 782 | 473 | 67 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 102 | 66 | 16 | 869 | 526 | 74 |
| Pedestrians | 1 | | | 1 | | |
| Lane Width (ft) | 10.0 | | | 11.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | TWLTL | | | | | |
| Median storage veh) | 2 | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1464 | 565 | 601 | | | |
| vC1, stage 1 conf vol | 564 | | | | | |
| vC2, stage 2 conf vol | 900 | | | | | |
| vCu, unblocked vol | 1464 | 565 | 601 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | 5.4 | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 70 | 87 | 98 | | | |
| cM capacity (veh/h) | 337 | 522 | 985 | | | |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 102 | 66 | 16 | 869 | 600 |
| Volume Left | 102 | 0 | 16 | 0 | 0 |
| Volume Right | 0 | 66 | 0 | 0 | 74 |
| cSH | 337 | 522 | 985 | 1700 | 1700 |
| Volume to Capacity | 0.30 | 0.13 | 0.02 | 0.51 | 0.35 |
| Queue Length 95th (ft) | 31 | 11 | 1 | 0 | 0 |
| Control Delay (s) | 20.3 | 12.9 | 8.7 | 0.0 | 0.0 |
| Lane LOS | C | B | A | | |
| Approach Delay (s) | 17.4 | | 0.2 | | 0.0 |
| Approach LOS | C | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.8 | | |
| Intersection Capacity Utilization | 53.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 11 | 11 | 12 | 11 | 12 | 12 |
| 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 | 0.95 | |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 0.91 | |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | |
| Satd. Flow (prot) | 1646 | 1346 | 1543 | 1733 | 2990 | |
| Flt Permitted | 0.95 | 1.00 | 0.18 | 1.00 | 1.00 | |
| Satd. Flow (perm) | 1646 | 1346 | 291 | 1733 | 2990 | |
| Volume (vph) | 585 | 177 | 427 | 295 | 241 | 406 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.90 | 0.90 | 0.91 | 0.91 |
| Adj. Flow (vph) | 636 | 192 | 474 | 328 | 265 | 446 |
| RTOR Reduction (vph) | 0 | 64 | 0 | 0 | 319 | 0 |
| Lane Group Flow (vph) | 636 | 128 | 474 | 328 | 392 | 0 |
| Heavy Vehicles (%) | 6% | 16% | 17% | 6% | 5% | 12% |
| Turn Type | | pm+ov | pm+pt | | | |
| Protected Phases | 4 | 5 | 5 | 2 | 6 | |
| Permitted Phases | | 4 | 2 | | | |
| Actuated Green, G (s) | 30.5 | 56.8 | 48.6 | 48.6 | 16.3 | |
| Effective Green, g (s) | 32.5 | 60.8 | 50.6 | 50.6 | 18.3 | |
| Actuated g/C Ratio | 0.36 | 0.67 | 0.56 | 0.56 | 0.20 | |
| Clearance Time (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 587 | 957 | 551 | 963 | 601 | |
| v/s Ratio Prot | c0.39 | 0.04 | c0.27 | 0.19 | 0.13 | |
| v/s Ratio Perm | | 0.05 | c0.21 | | | |
| v/c Ratio | 1.08 | 0.13 | 0.86 | 0.34 | 0.65 | |
| Uniform Delay, d1 | 29.3 | 5.5 | 25.1 | 11.1 | 33.5 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 61.8 | 0.1 | 12.9 | 0.2 | 2.5 | |
| Delay (s) | 91.1 | 5.6 | 38.0 | 11.3 | 36.0 | |
| Level of Service | F | A | D | B | D | |
| Approach Delay (s) | 71.2 | | | 27.1 | 36.0 | |
| Approach LOS | E | | | C | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 45.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.93 | | |
| Actuated Cycle Length (s) | 91.1 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 85.8% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 11 | 11 | 12 | 11 | 12 | 12 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3193 | 1346 | 1543 | 1733 | 1810 | 1442 |
| Flt Permitted | 0.95 | 1.00 | 0.47 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3193 | 1346 | 767 | 1733 | 1810 | 1442 |
| Volume (vph) | 585 | 177 | 427 | 295 | 241 | 406 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.90 | 0.90 | 0.91 | 0.91 |
| Adj. Flow (vph) | 636 | 192 | 474 | 328 | 265 | 446 |
| RTOR Reduction (vph) | 0 | 85 | 0 | 0 | 0 | 109 |
| Lane Group Flow (vph) | 636 | 107 | 474 | 328 | 265 | 337 |
| Heavy Vehicles (%) | 6% | 16% | 17% | 6% | 5% | 12% |
| Turn Type | | pm+ov | pm+pt | | | pm+ov |
| Protected Phases | 4 | 5 | 5 | 2 | 6 | 4 |
| Permitted Phases | | 4 | 2 | | | 6 |
| Actuated Green, G (s) | 18.2 | 32.3 | 35.0 | 35.0 | 14.9 | 33.1 |
| Effective Green, g (s) | 20.2 | 36.3 | 37.0 | 37.0 | 16.9 | 37.1 |
| Actuated g/C Ratio | 0.31 | 0.56 | 0.57 | 0.57 | 0.26 | 0.57 |
| Clearance Time (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 989 | 832 | 627 | 983 | 469 | 909 |
| v/s Ratio Prot | c0.20 | 0.03 | c0.19 | 0.19 | 0.15 | 0.11 |
| v/s Ratio Perm | | 0.05 | c0.24 | | | 0.12 |
| v/c Ratio | 0.64 | 0.13 | 0.76 | 0.33 | 0.57 | 0.37 |
| Uniform Delay, d1 | 19.4 | 6.9 | 13.2 | 7.5 | 21.0 | 7.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.4 | 0.1 | 5.2 | 0.2 | 1.6 | 0.3 |
| Delay (s) | 20.8 | 7.0 | 18.4 | 7.7 | 22.5 | 7.9 |
| Level of Service | C | A | B | A | C | A |
| Approach Delay (s) | 17.6 | | | 14.0 | 13.4 | |
| Approach LOS | B | | | B | B | |

Intersection Summary

| | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 65.2 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 63.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.94 | | 1.00 | 0.93 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1769 | 1690 | | 1626 | 1663 | | 1770 | 1697 | | 1595 | 1759 | 1553 |
| Flt Permitted | 0.31 | 1.00 | | 0.58 | 1.00 | | 0.34 | 1.00 | | 0.57 | 1.00 | 1.00 |
| Satd. Flow (perm) | 575 | 1690 | | 994 | 1663 | | 625 | 1697 | | 954 | 1759 | 1553 |
| Volume (vph) | 220 | 165 | 99 | 69 | 153 | 128 | 124 | 239 | 46 | 44 | 197 | 154 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.73 | 0.73 | 0.73 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 244 | 183 | 110 | 95 | 210 | 175 | 138 | 266 | 51 | 49 | 219 | 171 |
| RTOR Reduction (vph) | 0 | 23 | 0 | 0 | 34 | 0 | 0 | 10 | 0 | 0 | 0 | 140 |
| Lane Group Flow (vph) | 244 | 270 | 0 | 95 | 351 | 0 | 138 | 307 | 0 | 49 | 219 | 31 |
| Confl. Peds. (#/hr) | 1 | | | | | 1 | | | 1 | 1 | | |
| Heavy Vehicles (%) | 2% | 8% | 3% | 11% | 0% | 12% | 2% | 5% | 29% | 13% | 8% | 4% |
| Turn Type | pm+pt | | | Perm | | | pm+pt | | | Perm | | Perm |
| Protected Phases | 7 | 4 | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | 35.1 | 35.1 | | 21.1 | 21.1 | | 17.4 | 17.4 | | 10.4 | 10.4 | 10.4 |
| Effective Green, g (s) | 36.1 | 36.1 | | 22.1 | 22.1 | | 18.4 | 18.4 | | 11.4 | 11.4 | 11.4 |
| Actuated g/C Ratio | 0.58 | 0.58 | | 0.35 | 0.35 | | 0.29 | 0.29 | | 0.18 | 0.18 | 0.18 |
| Clearance Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 523 | 976 | | 351 | 588 | | 239 | 500 | | 174 | 321 | 283 |
| v/s Ratio Prot | c0.07 | 0.16 | | | c0.21 | | 0.03 | c0.18 | | | 0.12 | |
| v/s Ratio Perm | 0.19 | | | 0.10 | | | 0.14 | | | 0.05 | | 0.02 |
| v/c Ratio | 0.47 | 0.28 | | 0.27 | 0.60 | | 0.58 | 0.61 | | 0.28 | 0.68 | 0.11 |
| Uniform Delay, d1 | 7.7 | 6.6 | | 14.4 | 16.6 | | 18.5 | 19.0 | | 22.0 | 23.9 | 21.3 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.7 | 0.2 | | 0.4 | 1.6 | | 3.4 | 2.2 | | 0.9 | 5.9 | 0.2 |
| Delay (s) | 8.4 | 6.8 | | 14.9 | 18.2 | | 21.8 | 21.2 | | 22.9 | 29.7 | 21.5 |
| Level of Service | A | A | | B | B | | C | C | | C | C | C |
| Approach Delay (s) | | 7.5 | | | 17.5 | | | 21.4 | | | 25.8 | |
| Approach LOS | | A | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 62.5 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 65.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 15 | 147 | 3 | 17 | 79 | 8 | 3 | 53 | 19 | 15 | 97 | 3 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.61 | 0.61 | 0.61 | 0.64 | 0.64 | 0.64 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 17 | 163 | 3 | 28 | 130 | 13 | 5 | 83 | 30 | 17 | 110 | 3 |
| Pedestrians | | | | | | | | 2 | | | | |
| Lane Width (ft) | | | | | | | | 12.0 | | | | |
| Walking Speed (ft/s) | | | | | | | | 4.0 | | | | |
| Percent Blockage | | | | | | | | 0 | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 143 | | | 169 | | | 451 | 399 | 167 | 461 | 394 | 136 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 143 | | | 169 | | | 451 | 399 | 167 | 461 | 394 | 136 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.6 | 6.4 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.4 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 99 | | | 98 | | | 99 | 84 | 96 | 96 | 79 | 100 |
| cM capacity (veh/h) | 1453 | | | 1413 | | | 425 | 517 | 843 | 422 | 523 | 918 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 183 | 170 | 117 | 131 |
| Volume Left | 17 | 28 | 5 | 17 |
| Volume Right | 3 | 13 | 30 | 3 |
| cSH | 1453 | 1413 | 568 | 513 |
| Volume to Capacity | 0.01 | 0.02 | 0.21 | 0.25 |
| Queue Length 95th (ft) | 1 | 2 | 19 | 25 |
| Control Delay (s) | 0.8 | 1.4 | 13.0 | 14.4 |
| Lane LOS | A | A | B | B |
| Approach Delay (s) | 0.8 | 1.4 | 13.0 | 14.4 |
| Approach LOS | | | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 6.3 | | |
| Intersection Capacity Utilization | 28.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 11 | 40 | 16 | 1 | 92 | 9 | 14 | 142 | 1 | 10 | 194 | 15 |
| Peak Hour Factor | 0.52 | 0.52 | 0.52 | 0.90 | 0.90 | 0.90 | 0.65 | 0.65 | 0.65 | 0.62 | 0.62 | 0.62 |
| Hourly flow rate (vph) | 21 | 77 | 31 | 1 | 102 | 10 | 22 | 218 | 2 | 16 | 313 | 24 |
| Pedestrians | | 1 | | | | | | | | | | |
| Lane Width (ft) | | 12.0 | | | | | | | | | | |
| Walking Speed (ft/s) | | 4.0 | | | | | | | | | | |
| Percent Blockage | | 0 | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 682 | 621 | 326 | 689 | 633 | 219 | 338 | | | 220 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 682 | 621 | 326 | 689 | 633 | 219 | 338 | | | 220 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.8 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.8 | 2.2 | | | 2.2 | | |
| p0 queue free % | 92 | 80 | 96 | 100 | 73 | 99 | 98 | | | 99 | | |
| cM capacity (veh/h) | 280 | 392 | 717 | 288 | 385 | 701 | 1220 | | | 1361 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 129 | 113 | 242 | 353 |
| Volume Left | 21 | 1 | 22 | 16 |
| Volume Right | 31 | 10 | 2 | 24 |
| cSH | 410 | 400 | 1220 | 1361 |
| Volume to Capacity | 0.31 | 0.28 | 0.02 | 0.01 |
| Queue Length 95th (ft) | 33 | 29 | 1 | 1 |
| Control Delay (s) | 17.8 | 17.5 | 0.9 | 0.5 |
| Lane LOS | C | C | A | A |
| Approach Delay (s) | 17.8 | 17.5 | 0.9 | 0.5 |
| Approach LOS | C | C | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 5.6 | | |
| Intersection Capacity Utilization | 30.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 23 | 122 | 1 | 0 | 179 | 203 | 0 | 0 | 0 | 184 | 6 | 17 |
| Peak Hour Factor | 0.75 | 0.75 | 0.75 | 0.92 | 0.92 | 0.92 | 0.25 | 0.25 | 0.25 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 31 | 163 | 1 | 0 | 195 | 221 | 0 | 0 | 0 | 200 | 7 | 18 |
| 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 | 415 | | | 164 | | | 441 | 640 | 163 | 419 | 420 | 195 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 415 | | | 164 | | | 441 | 640 | 163 | 419 | 420 | 195 |
| tC, single (s) | 4.2 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.2 | 6.5 | 6.3 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.3 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.6 | 4.0 | 3.4 |
| p0 queue free % | 97 | | | 100 | | | 100 | 100 | 100 | 62 | 99 | 98 |
| cM capacity (veh/h) | 1123 | | | 1427 | | | 499 | 383 | 881 | 525 | 513 | 832 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total | 31 | 164 | 195 | 221 | 0 | 200 | 25 |
| Volume Left | 31 | 0 | 0 | 0 | 0 | 200 | 0 |
| Volume Right | 0 | 1 | 0 | 221 | 0 | 0 | 18 |
| cSH | 1123 | 1700 | 1427 | 1700 | 1700 | 525 | 716 |
| Volume to Capacity | 0.03 | 0.10 | 0.00 | 0.13 | 0.00 | 0.38 | 0.03 |
| Queue Length 95th (ft) | 2 | 0 | 0 | 0 | 0 | 44 | 3 |
| Control Delay (s) | 8.3 | 0.0 | 0.0 | 0.0 | 0.0 | 16.0 | 10.2 |
| Lane LOS | A | | | | A | C | B |
| Approach Delay (s) | 1.3 | | 0.0 | | 0.0 | 15.4 | |
| Approach LOS | | | | | A | C | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 4.4 | | |
| Intersection Capacity Utilization | 36.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 106 | 77 | 67 | 0 | 29 | 0 | 19 | 12 | 0 | 0 | 44 | 49 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.80 | 0.80 | 0.80 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 115 | 84 | 73 | 0 | 32 | 0 | 24 | 15 | 0 | 0 | 49 | 54 |
| 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 | 32 | | | 157 | | | 461 | 382 | 120 | 390 | 418 | 32 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 32 | | | 157 | | | 461 | 382 | 120 | 390 | 418 | 32 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.2 | 6.6 | 6.3 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.6 | 4.1 | 3.4 |
| p0 queue free % | 93 | | | 100 | | | 94 | 97 | 100 | 100 | 90 | 95 |
| cM capacity (veh/h) | 1568 | | | 1436 | | | 420 | 510 | 931 | 508 | 472 | 1012 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 272 | 32 | 39 | 103 |
| Volume Left | 115 | 0 | 24 | 0 |
| Volume Right | 73 | 0 | 0 | 54 |
| cSH | 1568 | 1436 | 451 | 656 |
| Volume to Capacity | 0.07 | 0.00 | 0.09 | 0.16 |
| Queue Length 95th (ft) | 6 | 0 | 7 | 14 |
| Control Delay (s) | 3.5 | 0.0 | 13.7 | 11.5 |
| Lane LOS | A | | B | B |
| Approach Delay (s) | 3.5 | 0.0 | 13.7 | 11.5 |
| Approach LOS | | | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 6.0 | | |
| Intersection Capacity Utilization | 35.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 0 | 108 | 212 | 302 | 361 | 0 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 0 | 120 | 236 | 336 | 401 | 0 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1208 | 401 | 401 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1208 | 401 | 401 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 81 | 79 | | | |
| cM capacity (veh/h) | 159 | 645 | 1141 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 120 | 236 | 336 | 401 |
| Volume Left | 0 | 236 | 0 | 0 |
| Volume Right | 120 | 0 | 0 | 0 |
| cSH | 645 | 1141 | 1700 | 1700 |
| Volume to Capacity | 0.19 | 0.21 | 0.20 | 0.24 |
| Queue Length 95th (ft) | 17 | 19 | 0 | 0 |
| Control Delay (s) | 11.9 | 9.0 | 0.0 | 0.0 |
| Lane LOS | B | A | | |
| Approach Delay (s) | 11.9 | 3.7 | | 0.0 |
| Approach LOS | B | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.2 | | |
| Intersection Capacity Utilization | 47.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 107 | 11 | 11 | 90 | 3 | 3 |
| Peak Hour Factor | 0.80 | 0.80 | 0.90 | 0.90 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 134 | 14 | 12 | 100 | 3 | 3 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 148 | | 265 | 141 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 148 | | 265 | 141 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 99 | | 100 | 100 |
| cM capacity (veh/h) | | | 1434 | | 718 | 907 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total | 148 | 112 | 7 |
| Volume Left | 0 | 12 | 3 |
| Volume Right | 14 | 0 | 3 |
| cSH | 1700 | 1434 | 802 |
| Volume to Capacity | 0.09 | 0.01 | 0.01 |
| Queue Length 95th (ft) | 0 | 1 | 1 |
| Control Delay (s) | 0.0 | 0.9 | 9.5 |
| Lane LOS | | A | A |
| Approach Delay (s) | 0.0 | 0.9 | 9.5 |
| Approach LOS | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.6 | | |
| Intersection Capacity Utilization | 22.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 99 | 11 | 11 | 98 | 3 | 3 |
| Peak Hour Factor | 0.80 | 0.80 | 0.90 | 0.90 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 124 | 14 | 12 | 109 | 3 | 3 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 138 | | 264 | 131 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 138 | | 264 | 131 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 99 | | 100 | 100 |
| cM capacity (veh/h) | | | 1446 | | 719 | 919 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total | 138 | 121 | 7 |
| Volume Left | 0 | 12 | 3 |
| Volume Right | 14 | 0 | 3 |
| cSH | 1700 | 1446 | 807 |
| Volume to Capacity | 0.08 | 0.01 | 0.01 |
| Queue Length 95th (ft) | 0 | 1 | 1 |
| Control Delay (s) | 0.0 | 0.8 | 9.5 |
| Lane LOS | | A | A |
| Approach Delay (s) | 0.0 | 0.8 | 9.5 |
| Approach LOS | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.6 | | |
| Intersection Capacity Utilization | 22.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 3 | 28 | 100 | 198 | 308 | 11 |
| Peak Hour Factor | 0.92 | 0.92 | 0.80 | 0.80 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 3 | 30 | 125 | 248 | 342 | 12 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | 1162 | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 846 | 348 | 354 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 846 | 348 | 354 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 99 | 96 | 90 | | | |
| cM capacity (veh/h) | 298 | 695 | 1204 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 34 | 372 | 354 |
| Volume Left | 3 | 125 | 0 |
| Volume Right | 30 | 0 | 12 |
| cSH | 616 | 1204 | 1700 |
| Volume to Capacity | 0.05 | 0.10 | 0.21 |
| Queue Length 95th (ft) | 4 | 9 | 0 |
| Control Delay (s) | 11.2 | 3.5 | 0.0 |
| Lane LOS | B | A | |
| Approach Delay (s) | 11.2 | 3.5 | 0.0 |
| Approach LOS | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.2 | | |
| Intersection Capacity Utilization | 46.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Volume (veh/h) | 22 | 55 | 23 | 189 | 53 | 6 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 24 | 61 | 26 | 210 | 58 | 7 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 236 | | | | 241 | 131 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 236 | | | | 241 | 131 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 98 | | | | 92 | 99 |
| cM capacity (veh/h) | 1332 | | | | 734 | 919 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 86 | 236 | 64 |
| Volume Left | 24 | 0 | 58 |
| Volume Right | 0 | 210 | 7 |
| cSH | 1332 | 1700 | 749 |
| Volume to Capacity | 0.02 | 0.14 | 0.09 |
| Queue Length 95th (ft) | 1 | 0 | 7 |
| Control Delay (s) | 2.3 | 0.0 | 10.3 |
| Lane LOS | A | | B |
| Approach Delay (s) | 2.3 | 0.0 | 10.3 |
| Approach LOS | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.2 | | |
| Intersection Capacity Utilization | 30.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | |
| Satd. Flow (prot) | 1770 | 1583 | 1770 | 1810 | 1787 | |
| Flt Permitted | 0.95 | 1.00 | 0.30 | 1.00 | 1.00 | |
| Satd. Flow (perm) | 1770 | 1583 | 559 | 1810 | 1787 | |
| Volume (vph) | 25 | 78 | 278 | 488 | 382 | 89 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 27 | 85 | 309 | 542 | 424 | 99 |
| RTOR Reduction (vph) | 0 | 66 | 0 | 0 | 11 | 0 |
| Lane Group Flow (vph) | 27 | 19 | 309 | 542 | 512 | 0 |
| Heavy Vehicles (%) | 2% | 2% | 2% | 5% | 4% | 2% |
| Turn Type | | pm+ov | pm+pt | | | |
| Protected Phases | 4 | 5 | 5 | 2 | 6 | |
| Permitted Phases | | 4 | 2 | | | |
| Actuated Green, G (s) | 1.0 | 7.7 | 31.3 | 31.3 | 19.6 | |
| Effective Green, g (s) | 2.0 | 9.7 | 32.3 | 32.3 | 20.6 | |
| Actuated g/C Ratio | 0.05 | 0.23 | 0.76 | 0.76 | 0.49 | |
| Clearance Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 84 | 513 | 647 | 1382 | 870 | |
| v/s Ratio Prot | c0.02 | 0.01 | c0.09 | 0.30 | c0.29 | |
| v/s Ratio Perm | | 0.01 | 0.28 | | | |
| v/c Ratio | 0.32 | 0.04 | 0.48 | 0.39 | 0.59 | |
| Uniform Delay, d1 | 19.5 | 12.7 | 2.9 | 1.7 | 7.8 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.2 | 0.0 | 0.6 | 0.2 | 1.0 | |
| Delay (s) | 21.7 | 12.7 | 3.4 | 1.9 | 8.8 | |
| Level of Service | C | B | A | A | A | |
| Approach Delay (s) | 14.9 | | | 2.4 | 8.8 | |
| Approach LOS | B | | | A | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 5.6 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 42.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 55.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Volume (veh/h) | 0 | 96 | 221 | 67 | 18 | 0 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 107 | 246 | 74 | 20 | 0 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 320 | | | | 389 | 283 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 320 | | | | 389 | 283 |
| 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 | | | | 97 | 100 |
| cM capacity (veh/h) | 1240 | | | | 614 | 756 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 107 | 320 | 20 |
| Volume Left | 0 | 0 | 20 |
| Volume Right | 0 | 74 | 0 |
| cSH | 1240 | 1700 | 614 |
| Volume to Capacity | 0.00 | 0.19 | 0.03 |
| Queue Length 95th (ft) | 0 | 0 | 2 |
| Control Delay (s) | 0.0 | 0.0 | 11.1 |
| Lane LOS | | | B |
| Approach Delay (s) | 0.0 | 0.0 | 11.1 |
| Approach LOS | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.5 | | |
| Intersection Capacity Utilization | 25.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Volume (veh/h) | 0 | 40 | 20 | 201 | 56 | 0 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 44 | 22 | 223 | 61 | 0 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 246 | | | | 178 | 134 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 246 | | | | 178 | 134 |
| 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 | | | | 92 | 100 |
| cM capacity (veh/h) | 1320 | | | | 811 | 915 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 44 | 246 | 61 |
| Volume Left | 0 | 0 | 61 |
| Volume Right | 0 | 223 | 0 |
| cSH | 1320 | 1700 | 811 |
| Volume to Capacity | 0.00 | 0.14 | 0.08 |
| Queue Length 95th (ft) | 0 | 0 | 6 |
| Control Delay (s) | 0.0 | 0.0 | 9.8 |
| Lane LOS | | | A |
| Approach Delay (s) | 0.0 | 0.0 | 9.8 |
| Approach LOS | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.7 | | |
| Intersection Capacity Utilization | 23.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 11 | 11 | 9 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 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 | |
| Frpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.97 | | | 0.98 | | | 0.94 | |
| Flt Protected | | 0.98 | 1.00 | | 0.99 | | | 0.99 | | | 0.99 | |
| Satd. Flow (prot) | | 1768 | 1309 | | 1790 | | | 1753 | | | 1713 | |
| Flt Permitted | | 0.61 | 1.00 | | 0.92 | | | 0.78 | | | 0.85 | |
| Satd. Flow (perm) | | 1099 | 1309 | | 1659 | | | 1386 | | | 1475 | |
| Volume (vph) | 169 | 218 | 34 | 48 | 308 | 96 | 70 | 200 | 56 | 92 | 204 | 209 |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.91 | 0.91 | 0.91 | 0.84 | 0.84 | 0.84 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 197 | 253 | 40 | 53 | 338 | 105 | 83 | 238 | 67 | 99 | 219 | 225 |
| RTOR Reduction (vph) | 0 | 0 | 20 | 0 | 13 | 0 | 0 | 12 | 0 | 0 | 40 | 0 |
| Lane Group Flow (vph) | 0 | 450 | 20 | 0 | 483 | 0 | 0 | 376 | 0 | 0 | 503 | 0 |
| Confl. Peds. (#/hr) | | | | | | | 1 | | 1 | 1 | | 1 |
| Heavy Vehicles (%) | 0% | 3% | 11% | 5% | 3% | 0% | 2% | 3% | 12% | 0% | 4% | 3% |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 31.1 | 31.1 | | 31.1 | | | 24.6 | | | 24.6 | |
| Effective Green, g (s) | | 31.1 | 31.1 | | 31.1 | | | 24.6 | | | 24.6 | |
| Actuated g/C Ratio | | 0.49 | 0.49 | | 0.49 | | | 0.39 | | | 0.39 | |
| 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) | | 537 | 639 | | 810 | | | 535 | | | 570 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | c0.41 | 0.01 | | 0.29 | | | 0.27 | | | c0.34 | |
| v/c Ratio | | 0.84 | 0.03 | | 0.60 | | | 0.70 | | | 0.88 | |
| Uniform Delay, d1 | | 14.1 | 8.5 | | 11.8 | | | 16.5 | | | 18.2 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 11.0 | 0.0 | | 1.2 | | | 4.2 | | | 15.0 | |
| Delay (s) | | 25.1 | 8.5 | | 13.0 | | | 20.7 | | | 33.2 | |
| Level of Service | | C | A | | B | | | C | | | C | |
| Approach Delay (s) | | 23.7 | | | 13.0 | | | 20.7 | | | 33.2 | |
| Approach LOS | | C | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.86 | | |
| Actuated Cycle Length (s) | 63.7 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 92.0% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 15 | 10 | 18 | 4 | 12 | 24 | 8 | 293 | 6 | 22 | 328 | 15 |
| Peak Hour Factor | 0.69 | 0.69 | 0.69 | 0.65 | 0.65 | 0.65 | 0.95 | 0.95 | 0.95 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 22 | 14 | 26 | 6 | 18 | 37 | 8 | 308 | 6 | 24 | 364 | 17 |
| Pedestrians | | | | | 1 | | | 2 | | | 1 | |
| Lane Width (ft) | | | | | 10.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 797 | 754 | 375 | 786 | 759 | 314 | 381 | | | 316 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 797 | 754 | 375 | 786 | 759 | 314 | 381 | | | 316 | | |
| 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 % | 92 | 96 | 96 | 98 | 94 | 95 | 99 | | | 98 | | |
| cM capacity (veh/h) | 273 | 331 | 675 | 283 | 329 | 730 | 1188 | | | 1255 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 62 | 62 | 323 | 406 |
| Volume Left | 22 | 6 | 8 | 24 |
| Volume Right | 26 | 37 | 6 | 17 |
| cSH | 385 | 479 | 1188 | 1255 |
| Volume to Capacity | 0.16 | 0.13 | 0.01 | 0.02 |
| Queue Length 95th (ft) | 14 | 11 | 1 | 1 |
| Control Delay (s) | 16.2 | 13.6 | 0.3 | 0.7 |
| Lane LOS | C | B | A | A |
| Approach Delay (s) | 16.2 | 13.6 | 0.3 | 0.7 |
| Approach LOS | C | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.6 | | |
| Intersection Capacity Utilization | 41.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 44 | 93 | 7 | 119 | 87 | 50 | 8 | 270 | 178 | 44 | 219 | 30 |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.87 | 0.87 | 0.87 | 0.88 | 0.88 | 0.88 | 0.89 | 0.89 | 0.89 |
| Hourly flow rate (vph) | 52 | 109 | 8 | 137 | 100 | 57 | 9 | 307 | 202 | 49 | 246 | 34 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 169 | 294 | 518 | 329 |
| Volume Left (vph) | 52 | 137 | 9 | 49 |
| Volume Right (vph) | 8 | 57 | 202 | 34 |
| Hadj (s) | 0.11 | 0.04 | -0.16 | 0.12 |
| Departure Headway (s) | 7.9 | 7.3 | 6.4 | 7.1 |
| Degree Utilization, x | 0.37 | 0.60 | 0.92 | 0.65 |
| Capacity (veh/h) | 409 | 466 | 551 | 482 |
| Control Delay (s) | 15.5 | 20.7 | 46.2 | 22.2 |
| Approach Delay (s) | 15.5 | 20.7 | 46.2 | 22.2 |
| Approach LOS | C | C | E | C |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 30.5 | | |
| HCM Level of Service | D | | |
| Intersection Capacity Utilization | 67.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Volume (veh/h) | 6 | 14 | 671 | 15 | 9 | 729 |
| Peak Hour Factor | 0.33 | 0.33 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 18 | 42 | 746 | 17 | 10 | 810 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1584 | 754 | | | 762 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1584 | 754 | | | 762 | |
| tC, single (s) | 6.6 | 6.3 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.7 | 3.4 | | | 2.2 | |
| p0 queue free % | 83 | 89 | | | 99 | |
| cM capacity (veh/h) | 104 | 395 | | | 859 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 61 | 762 | 820 |
| Volume Left | 18 | 0 | 10 |
| Volume Right | 42 | 17 | 0 |
| cSH | 215 | 1700 | 859 |
| Volume to Capacity | 0.28 | 0.45 | 0.01 |
| Queue Length 95th (ft) | 28 | 0 | 1 |
| Control Delay (s) | 28.2 | 0.0 | 0.3 |
| Lane LOS | D | | A |
| Approach Delay (s) | 28.2 | 0.0 | 0.3 |
| Approach LOS | D | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.2 | | |
| Intersection Capacity Utilization | 55.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 21 | 82 | 245 | 64 | 66 | 77 | 163 | 694 | 80 | 117 | 835 | 21 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.63 | 0.63 | 0.63 | 0.93 | 0.93 | 0.93 | 0.87 | 0.87 | 0.87 |
| Hourly flow rate (vph) | 23 | 91 | 272 | 102 | 105 | 122 | 175 | 746 | 86 | 134 | 960 | 24 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | 6 | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 2451 | 2424 | 972 | 2686 | 2393 | 789 | 984 | | | 832 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 2451 | 2424 | 972 | 2686 | 2393 | 789 | 984 | | | 832 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.2 | 6.5 | 6.2 | 4.1 | | | 4.2 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.6 | 4.0 | 3.3 | 2.2 | | | 2.3 | | |
| p0 queue free % | 0 | 0 | 11 | 0 | 0 | 69 | 75 | | | 82 | | |
| cM capacity (veh/h) | 0 | 20 | 306 | 0 | 21 | 389 | 702 | | | 759 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total | 387 | 329 | 175 | 832 | 134 | 984 |
| Volume Left | 23 | 102 | 175 | 0 | 134 | 0 |
| Volume Right | 272 | 122 | 0 | 86 | 0 | 24 |
| cSH | 0 | 0 | 702 | 1700 | 759 | 1700 |
| Volume to Capacity | Err | 1710.05 | 0.25 | 0.49 | 0.18 | 0.58 |
| Queue Length 95th (ft) | Err | Err | 25 | 0 | 16 | 0 |
| Control Delay (s) | Err | Err | 11.8 | 0.0 | 10.8 | 0.0 |
| Lane LOS | F | F | B | | B | |
| Approach Delay (s) | Err | Err | 2.1 | | 1.3 | |
| Approach LOS | F | F | | | | |

Intersection Summary

| | | | |
|---|---|---|---|
| Average Delay | Err | | |
| Intersection Capacity Utilization | 93.6% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 11 | 11 | 12 | 11 | 11 | 11 | 11 | 11 | 11 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | |
| Flt Protected | | 0.99 | 1.00 | | 0.98 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1715 | 1478 | | 1708 | 1568 | 1711 | 1757 | | 1558 | 1778 | |
| Flt Permitted | | 0.90 | 1.00 | | 0.76 | 1.00 | 0.08 | 1.00 | | 0.19 | 1.00 | |
| Satd. Flow (perm) | | 1550 | 1478 | | 1324 | 1568 | 140 | 1757 | | 312 | 1778 | |
| Volume (vph) | 21 | 82 | 245 | 64 | 66 | 77 | 163 | 694 | 80 | 117 | 835 | 21 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.63 | 0.63 | 0.63 | 0.93 | 0.93 | 0.93 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 23 | 91 | 272 | 102 | 105 | 122 | 175 | 746 | 86 | 134 | 960 | 24 |
| RTOR Reduction (vph) | 0 | 0 | 173 | 0 | 0 | 98 | 0 | 5 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 114 | 99 | 0 | 207 | 24 | 175 | 827 | 0 | 134 | 983 | 0 |
| Heavy Vehicles (%) | 0% | 3% | 2% | 7% | 3% | 3% | 2% | 3% | 2% | 12% | 3% | 0% |
| Turn Type | Perm | | Perm | Perm | | Perm | pm+pt | | | pm+pt | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | | 15.4 | 15.4 | | 15.4 | 15.4 | 55.6 | 50.5 | | 52.8 | 49.1 | |
| Effective Green, g (s) | | 16.4 | 16.4 | | 16.4 | 16.4 | 57.6 | 51.5 | | 54.8 | 50.1 | |
| Actuated g/C Ratio | | 0.19 | 0.19 | | 0.19 | 0.19 | 0.68 | 0.61 | | 0.65 | 0.59 | |
| Clearance Time (s) | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 300 | 287 | | 257 | 304 | 209 | 1070 | | 271 | 1053 | |
| v/s Ratio Prot | | | | | | | c0.06 | 0.47 | | 0.03 | c0.55 | |
| v/s Ratio Perm | | 0.07 | 0.07 | | c0.16 | 0.02 | 0.51 | | | 0.29 | | |
| v/c Ratio | | 0.38 | 0.34 | | 0.81 | 0.08 | 0.84 | 0.77 | | 0.49 | 0.93 | |
| Uniform Delay, d1 | | 29.7 | 29.5 | | 32.6 | 27.9 | 21.2 | 12.2 | | 9.8 | 15.7 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.8 | 0.7 | | 16.6 | 0.1 | 24.2 | 3.5 | | 1.4 | 14.4 | |
| Delay (s) | | 30.5 | 30.2 | | 49.2 | 28.0 | 45.4 | 15.8 | | 11.2 | 30.1 | |
| Level of Service | | C | C | | D | C | D | B | | B | C | |
| Approach Delay (s) | | 30.3 | | | 41.3 | | | 20.9 | | | 27.9 | |
| Approach LOS | | C | | | D | | | C | | | C | |

Intersection Summary

| | | | |
|---|---|---|---|
| HCM Average Control Delay | 27.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.90 | | |
| Actuated Cycle Length (s) | 84.6 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 77.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 161 | 54 | 53 | 770 | 955 | 194 |
| Peak Hour Factor | 0.92 | 0.92 | 0.87 | 0.87 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 175 | 59 | 61 | 885 | 1061 | 216 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 2176 | 1169 | 1277 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 2176 | 1169 | 1277 | | | |
| tC, single (s) | 6.4 | 6.3 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.4 | 2.2 | | | |
| p0 queue free % | 0 | 74 | 89 | | | |
| cM capacity (veh/h) | 45 | 229 | 534 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 234 | 946 | 1277 |
| Volume Left | 175 | 61 | 0 |
| Volume Right | 59 | 0 | 216 |
| cSH | 57 | 534 | 1700 |
| Volume to Capacity | 4.10 | 0.11 | 0.75 |
| Queue Length 95th (ft) | Err | 10 | 0 |
| Control Delay (s) | Err | 3.6 | 0.0 |
| Lane LOS | F | A | |
| Approach Delay (s) | Err | 3.6 | 0.0 |
| Approach LOS | F | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 952.7 | | |
| Intersection Capacity Utilization | 102.9% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 11 | 11 | 12 | 12 | 11 | 11 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 0.97 | | 1.00 | 1.00 | 0.98 | |
| Flt Protected | 0.96 | | 0.95 | 1.00 | 1.00 | |
| Satd. Flow (prot) | 1664 | | 1719 | 1845 | 1748 | |
| Flt Permitted | 0.96 | | 0.07 | 1.00 | 1.00 | |
| Satd. Flow (perm) | 1664 | | 119 | 1845 | 1748 | |
| Volume (vph) | 161 | 54 | 53 | 770 | 955 | 194 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.87 | 0.87 | 0.90 | 0.90 |
| Adj. Flow (vph) | 175 | 59 | 61 | 885 | 1061 | 216 |
| RTOR Reduction (vph) | 15 | 0 | 0 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 219 | 0 | 61 | 885 | 1268 | 0 |
| Heavy Vehicles (%) | 1% | 8% | 5% | 3% | 3% | 1% |
| Turn Type | | | Perm | | | |
| Protected Phases | 4 | | | 2 | 6 | |
| Permitted Phases | | | 2 | | | |
| Actuated Green, G (s) | 11.8 | | 59.6 | 59.6 | 59.6 | |
| Effective Green, g (s) | 12.8 | | 60.6 | 60.6 | 60.6 | |
| Actuated g/C Ratio | 0.16 | | 0.74 | 0.74 | 0.74 | |
| Clearance Time (s) | 5.0 | | 5.0 | 5.0 | 5.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 262 | | 89 | 1374 | 1301 | |
| v/s Ratio Prot | c0.13 | | | 0.48 | c0.73 | |
| v/s Ratio Perm | | | 0.51 | | | |
| v/c Ratio | 0.84 | | 0.69 | 0.64 | 0.97 | |
| Uniform Delay, d1 | 33.3 | | 5.4 | 5.1 | 9.7 | |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 20.0 | | 19.7 | 1.0 | 19.0 | |
| Delay (s) | 53.2 | | 25.1 | 6.2 | 28.7 | |
| Level of Service | D | | C | A | C | |
| Approach Delay (s) | 53.2 | | | 7.4 | 28.7 | |
| Approach LOS | D | | | A | C | |

Intersection Summary

| | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.95 | | |
| Actuated Cycle Length (s) | 81.4 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 80.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 29 | 83 | 146 | 5 | 97 | 14 | 149 | 765 | 15 | 15 | 956 | 23 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.69 | 0.69 | 0.69 | 0.97 | 0.97 | 0.97 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 31 | 89 | 157 | 7 | 141 | 20 | 154 | 789 | 15 | 16 | 1028 | 25 |
| 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 | 2267 | 2184 | 1040 | 2378 | 2189 | 796 | 1053 | | | 804 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 2267 | 2184 | 1040 | 2378 | 2189 | 796 | 1053 | | | 804 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.2 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.3 | | |
| p0 queue free % | 0 | 0 | 44 | 0 | 0 | 95 | 77 | | | 98 | | |
| cM capacity (veh/h) | 0 | 34 | 280 | 0 | 35 | 390 | 657 | | | 786 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 277 | 168 | 958 | 1069 |
| Volume Left | 31 | 7 | 154 | 16 |
| Volume Right | 157 | 20 | 15 | 25 |
| cSH | 0 | 0 | 657 | 786 |
| Volume to Capacity | Err | Err | 0.23 | 0.02 |
| Queue Length 95th (ft) | Err | Err | 23 | 2 |
| Control Delay (s) | Err | Err | 6.5 | 0.7 |
| Lane LOS | F | F | A | A |
| Approach Delay (s) | Err | Err | 6.5 | 0.7 |
| Approach LOS | F | F | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | Err | | |
| Intersection Capacity Utilization | 133.5% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 11 | 11 | 11 | 11 | 11 | 11 |
| 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 | | 0.92 | | | 0.98 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flt Protected | | 0.99 | | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1590 | | | 1741 | | 1694 | 1776 | | 1586 | 1778 | |
| Flt Permitted | | 0.93 | | | 0.97 | | 0.07 | 1.00 | | 0.33 | 1.00 | |
| Satd. Flow (perm) | | 1493 | | | 1694 | | 126 | 1776 | | 546 | 1778 | |
| Volume (vph) | 29 | 83 | 146 | 5 | 97 | 14 | 149 | 765 | 15 | 15 | 956 | 23 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.69 | 0.69 | 0.69 | 0.97 | 0.97 | 0.97 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 31 | 89 | 157 | 7 | 141 | 20 | 154 | 789 | 15 | 16 | 1028 | 25 |
| RTOR Reduction (vph) | 0 | 53 | 0 | 0 | 6 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 224 | 0 | 0 | 162 | 0 | 154 | 803 | 0 | 16 | 1052 | 0 |
| Heavy Vehicles (%) | 0% | 4% | 2% | 0% | 0% | 0% | 3% | 3% | 10% | 10% | 3% | 0% |
| Turn Type | Perm | | | Perm | | | pm+pt | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 14.7 | | | 14.7 | | 61.8 | 61.8 | | 51.8 | 51.8 | |
| Effective Green, g (s) | | 15.7 | | | 15.7 | | 62.8 | 62.8 | | 52.8 | 52.8 | |
| Actuated g/C Ratio | | 0.18 | | | 0.18 | | 0.73 | 0.73 | | 0.61 | 0.61 | |
| Clearance Time (s) | | 5.0 | | | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 271 | | | 307 | | 200 | 1289 | | 333 | 1085 | |
| v/s Ratio Prot | | | | | | | c0.05 | 0.45 | | | c0.59 | |
| v/s Ratio Perm | | c0.15 | | | 0.10 | | 0.51 | | | 0.03 | | |
| v/c Ratio | | 0.83 | | | 0.53 | | 0.77 | 0.62 | | 0.05 | 0.97 | |
| Uniform Delay, d1 | | 34.1 | | | 32.0 | | 23.0 | 5.9 | | 6.8 | 16.1 | |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 18.2 | | | 1.6 | | 16.6 | 0.9 | | 0.1 | 20.0 | |
| Delay (s) | | 52.3 | | | 33.7 | | 39.5 | 6.9 | | 6.8 | 36.1 | |
| Level of Service | | D | | | C | | D | A | | A | D | |
| Approach Delay (s) | | 52.3 | | | 33.7 | | | 12.1 | | | 35.7 | |
| Approach LOS | | D | | | C | | | B | | | D | |

Intersection Summary

| | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.92 | | |
| Actuated Cycle Length (s) | 86.5 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 91.6% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 3% | | | 0% | 0% | |
| Volume (veh/h) | 104 | 43 | 64 | 805 | 941 | 105 |
| Peak Hour Factor | 0.91 | 0.91 | 0.93 | 0.93 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 114 | 47 | 69 | 866 | 1046 | 117 |
| Pedestrians | 1 | | | 1 | | |
| Lane Width (ft) | 10.0 | | | 11.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 2108 | 1106 | 1163 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 2108 | 1106 | 1163 | | | |
| tC, single (s) | 6.4 | 6.3 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 0 | 81 | 89 | | | |
| cM capacity (veh/h) | 50 | 252 | 607 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 162 | 934 | 1162 |
| Volume Left | 114 | 69 | 0 |
| Volume Right | 47 | 0 | 117 |
| cSH | 65 | 607 | 1700 |
| Volume to Capacity | 2.49 | 0.11 | 0.68 |
| Queue Length 95th (ft) | 397 | 10 | 0 |
| Control Delay (s) | 812.2 | 3.4 | 0.0 |
| Lane LOS | F | A | |
| Approach Delay (s) | 812.2 | 3.4 | 0.0 |
| Approach LOS | F | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 59.5 | | |
| Intersection Capacity Utilization | 110.4% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 3% | | | 0% | 0% | |
| Volume (veh/h) | 104 | 43 | 64 | 805 | 941 | 105 |
| Peak Hour Factor | 0.91 | 0.91 | 0.93 | 0.93 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 114 | 47 | 69 | 866 | 1046 | 117 |
| Pedestrians | 1 | | | 1 | | |
| Lane Width (ft) | 10.0 | | | 11.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | TWLTL | | | | | |
| Median storage veh) | 2 | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 2108 | 1106 | 1163 | | | |
| vC1, stage 1 conf vol | 1105 | | | | | |
| vC2, stage 2 conf vol | 1003 | | | | | |
| vCu, unblocked vol | 2108 | 1106 | 1163 | | | |
| tC, single (s) | 6.4 | 6.3 | 4.1 | | | |
| tC, 2 stage (s) | 5.4 | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 48 | 81 | 89 | | | |
| cM capacity (veh/h) | 221 | 252 | 607 | | | |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 114 | 47 | 69 | 866 | 1162 |
| Volume Left | 114 | 0 | 69 | 0 | 0 |
| Volume Right | 0 | 47 | 0 | 0 | 117 |
| cSH | 221 | 252 | 607 | 1700 | 1700 |
| Volume to Capacity | 0.52 | 0.19 | 0.11 | 0.51 | 0.68 |
| Queue Length 95th (ft) | 67 | 17 | 10 | 0 | 0 |
| Control Delay (s) | 37.5 | 22.6 | 11.7 | 0.0 | 0.0 |
| Lane LOS | E | C | B | | |
| Approach Delay (s) | 33.1 | | 0.9 | | 0.0 |
| Approach LOS | D | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.7 | | |
| Intersection Capacity Utilization | 68.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 11 | 11 | 12 | 11 | 12 | 12 |
| 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 | 0.95 | |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 0.90 | |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | |
| Satd. Flow (prot) | 1601 | 1346 | 1444 | 1783 | 3072 | |
| Flt Permitted | 0.95 | 1.00 | 0.13 | 1.00 | 1.00 | |
| Satd. Flow (perm) | 1601 | 1346 | 195 | 1783 | 3072 | |
| Volume (vph) | 567 | 486 | 339 | 376 | 391 | 689 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.86 | 0.86 | 0.91 | 0.91 |
| Adj. Flow (vph) | 623 | 534 | 394 | 437 | 430 | 757 |
| RTOR Reduction (vph) | 0 | 49 | 0 | 0 | 304 | 0 |
| Lane Group Flow (vph) | 623 | 485 | 394 | 437 | 883 | 0 |
| Heavy Vehicles (%) | 9% | 16% | 25% | 3% | 5% | 7% |
| Turn Type | | pm+ov | pm+pt | | | |
| Protected Phases | 4 | 5 | 5 | 2 | 6 | |
| Permitted Phases | | 4 | 2 | | | |
| Actuated Green, G (s) | 30.1 | 56.9 | 57.9 | 57.9 | 25.1 | |
| Effective Green, g (s) | 32.1 | 60.9 | 59.9 | 59.9 | 27.1 | |
| Actuated g/C Ratio | 0.32 | 0.61 | 0.60 | 0.60 | 0.27 | |
| Clearance Time (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 514 | 874 | 477 | 1068 | 833 | |
| v/s Ratio Prot | c0.39 | 0.16 | c0.24 | 0.25 | c0.29 | |
| v/s Ratio Perm | | 0.20 | 0.26 | | | |
| v/c Ratio | 1.21 | 0.56 | 0.83 | 0.41 | 1.06 | |
| Uniform Delay, d1 | 34.0 | 11.5 | 29.8 | 10.7 | 36.4 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 112.4 | 0.8 | 11.2 | 0.3 | 48.3 | |
| Delay (s) | 146.4 | 12.3 | 40.9 | 10.9 | 84.8 | |
| Level of Service | F | B | D | B | F | |
| Approach Delay (s) | 84.5 | | | 25.1 | 84.8 | |
| Approach LOS | F | | | C | F | |

Intersection Summary

| | | | |
|---|---|---|---|
| HCM Average Control Delay | 69.1 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.00 | | |
| Actuated Cycle Length (s) | 100.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 93.2% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 11 | 11 | 12 | 11 | 12 | 12 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3105 | 1346 | 1444 | 1783 | 1810 | 1509 |
| Flt Permitted | 0.95 | 1.00 | 0.27 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3105 | 1346 | 416 | 1783 | 1810 | 1509 |
| Volume (vph) | 567 | 486 | 339 | 376 | 391 | 689 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.86 | 0.86 | 0.91 | 0.91 |
| Adj. Flow (vph) | 623 | 534 | 394 | 437 | 430 | 757 |
| RTOR Reduction (vph) | 0 | 83 | 0 | 0 | 0 | 99 |
| Lane Group Flow (vph) | 623 | 451 | 394 | 437 | 430 | 658 |
| Heavy Vehicles (%) | 9% | 16% | 25% | 3% | 5% | 7% |
| Turn Type | | pm+ov | pm+pt | | | pm+ov |
| Protected Phases | 4 | 5 | 5 | 2 | 6 | 4 |
| Permitted Phases | | 4 | 2 | | | 6 |
| Actuated Green, G (s) | 19.8 | 35.3 | 41.5 | 41.5 | 20.0 | 39.8 |
| Effective Green, g (s) | 21.8 | 39.3 | 43.5 | 43.5 | 22.0 | 43.8 |
| Actuated g/C Ratio | 0.30 | 0.54 | 0.59 | 0.59 | 0.30 | 0.60 |
| Clearance Time (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 923 | 795 | 492 | 1058 | 543 | 984 |
| v/s Ratio Prot | 0.20 | 0.14 | c0.19 | 0.25 | 0.24 | c0.20 |
| v/s Ratio Perm | | 0.20 | c0.28 | | | 0.24 |
| v/c Ratio | 0.67 | 0.57 | 0.80 | 0.41 | 0.79 | 0.67 |
| Uniform Delay, d1 | 22.6 | 11.3 | 18.1 | 8.0 | 23.5 | 9.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.0 | 0.9 | 9.1 | 0.3 | 7.8 | 1.7 |
| Delay (s) | 24.6 | 12.3 | 27.2 | 8.3 | 31.3 | 11.6 |
| Level of Service | C | B | C | A | C | B |
| Approach Delay (s) | 18.9 | | | 17.2 | 18.8 | |
| Approach LOS | B | | | B | B | |

Intersection Summary

| | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.75 | | |
| Actuated Cycle Length (s) | 73.3 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 68.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.94 | | 1.00 | 0.96 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1770 | 1664 | | 1805 | 1750 | | 1805 | 1755 | | 1667 | 1696 | 1553 |
| Flt Permitted | 0.17 | 1.00 | | 0.43 | 1.00 | | 0.23 | 1.00 | | 0.56 | 1.00 | 1.00 |
| Satd. Flow (perm) | 325 | 1664 | | 822 | 1750 | | 442 | 1755 | | 987 | 1696 | 1553 |
| Volume (vph) | 327 | 345 | 207 | 23 | 269 | 96 | 143 | 263 | 32 | 123 | 331 | 346 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 363 | 383 | 230 | 26 | 299 | 107 | 159 | 292 | 36 | 137 | 368 | 384 |
| RTOR Reduction (vph) | 0 | 26 | 0 | 0 | 16 | 0 | 0 | 6 | 0 | 0 | 0 | 279 |
| Lane Group Flow (vph) | 363 | 587 | 0 | 26 | 390 | 0 | 159 | 322 | 0 | 137 | 368 | 105 |
| Confl. Peds. (#/hr) | | | | | | | | | 2 | 2 | | |
| Heavy Vehicles (%) | 2% | 7% | 9% | 0% | 4% | 5% | 0% | 7% | 0% | 8% | 12% | 4% |
| Turn Type | pm+pt | | | Perm | | | pm+pt | | | Perm | | Perm |
| Protected Phases | 7 | 4 | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | 36.9 | 36.9 | | 18.4 | 18.4 | | 26.1 | 26.1 | | 18.9 | 18.9 | 18.9 |
| Effective Green, g (s) | 37.9 | 37.9 | | 19.4 | 19.4 | | 27.1 | 27.1 | | 19.9 | 19.9 | 19.9 |
| Actuated g/C Ratio | 0.52 | 0.52 | | 0.27 | 0.27 | | 0.37 | 0.37 | | 0.27 | 0.27 | 0.27 |
| Clearance Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 456 | 864 | | 218 | 465 | | 224 | 652 | | 269 | 462 | 423 |
| v/s Ratio Prot | c0.16 | 0.35 | | | 0.22 | | c0.03 | 0.18 | | | 0.22 | |
| v/s Ratio Perm | c0.26 | | | 0.03 | | | c0.23 | | | 0.14 | | 0.07 |
| v/c Ratio | 0.80 | 0.68 | | 0.12 | 0.84 | | 0.71 | 0.49 | | 0.51 | 0.80 | 0.25 |
| Uniform Delay, d1 | 14.8 | 13.0 | | 20.3 | 25.3 | | 20.3 | 17.7 | | 22.4 | 24.7 | 20.7 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 9.3 | 2.1 | | 0.2 | 12.5 | | 9.9 | 0.6 | | 1.5 | 9.2 | 0.3 |
| Delay (s) | 24.1 | 15.2 | | 20.6 | 37.8 | | 30.1 | 18.3 | | 23.9 | 33.9 | 21.0 |
| Level of Service | C | B | | C | D | | C | B | | C | C | C |
| Approach Delay (s) | | 18.5 | | | 36.8 | | | 22.1 | | | 26.8 | |
| Approach LOS | | B | | | D | | | C | | | C | |

Intersection Summary

| | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 73.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 77.8% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 26 | 142 | 1 | 22 | 226 | 39 | 23 | 108 | 38 | 12 | 54 | 28 |
| Peak Hour Factor | 0.66 | 0.66 | 0.66 | 0.90 | 0.90 | 0.90 | 0.76 | 0.76 | 0.76 | 0.71 | 0.71 | 0.71 |
| Hourly flow rate (vph) | 39 | 215 | 2 | 24 | 251 | 43 | 30 | 142 | 50 | 17 | 76 | 39 |
| 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 | 294 | | | 217 | | | 694 | 638 | 216 | 737 | 617 | 273 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 294 | | | 217 | | | 694 | 638 | 216 | 737 | 617 | 273 |
| 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 | | | 98 | | | 89 | 62 | 94 | 92 | 80 | 95 |
| cM capacity (veh/h) | 1279 | | | 1359 | | | 280 | 378 | 826 | 215 | 388 | 771 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 256 | 319 | 222 | 132 |
| Volume Left | 39 | 24 | 30 | 17 |
| Volume Right | 2 | 43 | 50 | 39 |
| cSH | 1279 | 1359 | 408 | 407 |
| Volume to Capacity | 0.03 | 0.02 | 0.54 | 0.33 |
| Queue Length 95th (ft) | 2 | 1 | 79 | 35 |
| Control Delay (s) | 1.5 | 0.7 | 23.9 | 18.1 |
| Lane LOS | A | A | C | C |
| Approach Delay (s) | 1.5 | 0.7 | 23.9 | 18.1 |
| Approach LOS | | | C | C |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 8.9 | | |
| Intersection Capacity Utilization | 37.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 18 | 122 | 21 | 0 | 105 | 18 | 20 | 206 | 0 | 10 | 190 | 26 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.94 | 0.94 | 0.94 | 0.77 | 0.77 | 0.77 |
| Hourly flow rate (vph) | 20 | 136 | 23 | 0 | 117 | 20 | 21 | 219 | 0 | 13 | 247 | 34 |
| 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 | 630 | 551 | 264 | 642 | 568 | 219 | 281 | | | 219 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 630 | 551 | 264 | 642 | 568 | 219 | 281 | | | 219 | | |
| 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 % | 93 | 69 | 97 | 100 | 72 | 98 | 98 | | | 99 | | |
| cM capacity (veh/h) | 297 | 431 | 777 | 280 | 421 | 826 | 1288 | | | 1362 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 179 | 137 | 240 | 294 |
| Volume Left | 20 | 0 | 21 | 13 |
| Volume Right | 23 | 20 | 0 | 34 |
| cSH | 434 | 454 | 1288 | 1362 |
| Volume to Capacity | 0.41 | 0.30 | 0.02 | 0.01 |
| Queue Length 95th (ft) | 50 | 31 | 1 | 1 |
| Control Delay (s) | 19.0 | 16.3 | 0.8 | 0.4 |
| Lane LOS | C | C | A | A |
| Approach Delay (s) | 19.0 | 16.3 | 0.8 | 0.4 |
| Approach LOS | C | C | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 7.0 | | |
| Intersection Capacity Utilization | 43.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 9 | 242 | 3 | 0 | 216 | 206 | 0 | 0 | 0 | 153 | 6 | 13 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.91 | 0.91 | 0.91 | 0.25 | 0.25 | 0.25 | 0.85 | 0.85 | 0.85 |
| Hourly flow rate (vph) | 10 | 269 | 3 | 0 | 237 | 226 | 0 | 0 | 0 | 180 | 7 | 15 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 464 | | | 272 | | | 547 | 754 | 271 | 526 | 530 | 237 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 464 | | | 272 | | | 547 | 754 | 271 | 526 | 530 | 237 |
| tC, single (s) | 4.2 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.3 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 99 | | | 100 | | | 100 | 100 | 100 | 61 | 98 | 98 |
| cM capacity (veh/h) | 1037 | | | 1303 | | | 434 | 337 | 773 | 456 | 453 | 807 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total | 10 | 272 | 237 | 226 | 0 | 180 | 22 |
| Volume Left | 10 | 0 | 0 | 0 | 0 | 180 | 0 |
| Volume Right | 0 | 3 | 0 | 226 | 0 | 0 | 15 |
| cSH | 1037 | 1700 | 1303 | 1700 | 1700 | 456 | 647 |
| Volume to Capacity | 0.01 | 0.16 | 0.00 | 0.13 | 0.00 | 0.39 | 0.03 |
| Queue Length 95th (ft) | 1 | 0 | 0 | 0 | 0 | 46 | 3 |
| Control Delay (s) | 8.5 | 0.0 | 0.0 | 0.0 | 0.0 | 18.0 | 10.8 |
| Lane LOS | A | | | | A | C | B |
| Approach Delay (s) | 0.3 | | 0.0 | | 0.0 | 17.2 | |
| Approach LOS | | | | | A | C | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.8 | | |
| Intersection Capacity Utilization | 32.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 89 | 76 | 45 | 0 | 100 | 0 | 71 | 47 | 0 | 0 | 30 | 105 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.85 | 0.85 | 0.85 | 0.87 | 0.87 | 0.87 |
| Hourly flow rate (vph) | 99 | 84 | 50 | 0 | 111 | 0 | 84 | 55 | 0 | 0 | 34 | 121 |
| 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 | 111 | | | 134 | | | 556 | 418 | 109 | 446 | 443 | 111 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 111 | | | 134 | | | 556 | 418 | 109 | 446 | 443 | 111 |
| tC, single (s) | 4.2 | | | 4.1 | | | 7.2 | 6.6 | 6.3 | 7.2 | 6.6 | 6.3 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.3 | | | 2.2 | | | 3.6 | 4.1 | 3.4 | 3.6 | 4.1 | 3.4 |
| p0 queue free % | 93 | | | 100 | | | 75 | 89 | 100 | 100 | 93 | 87 |
| cM capacity (veh/h) | 1454 | | | 1444 | | | 339 | 484 | 933 | 445 | 467 | 929 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 233 | 111 | 139 | 155 |
| Volume Left | 99 | 0 | 84 | 0 |
| Volume Right | 50 | 0 | 0 | 121 |
| cSH | 1454 | 1444 | 385 | 762 |
| Volume to Capacity | 0.07 | 0.00 | 0.36 | 0.20 |
| Queue Length 95th (ft) | 5 | 0 | 40 | 19 |
| Control Delay (s) | 3.6 | 0.0 | 19.5 | 10.9 |
| Lane LOS | A | | C | B |
| Approach Delay (s) | 3.6 | 0.0 | 19.5 | 10.9 |
| Approach LOS | | | C | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 8.2 | | |
| Intersection Capacity Utilization | 42.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 0 | 261 | 203 | 482 | 477 | 0 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.89 | 0.89 |
| Hourly flow rate (vph) | 0 | 290 | 226 | 536 | 536 | 0 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1523 | 536 | 536 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1523 | 536 | 536 | | | |
| tC, single (s) | 6.5 | 6.3 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.6 | 3.4 | 2.2 | | | |
| p0 queue free % | 100 | 46 | 78 | | | |
| cM capacity (veh/h) | 99 | 537 | 1027 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 290 | 226 | 536 | 536 |
| Volume Left | 0 | 226 | 0 | 0 |
| Volume Right | 290 | 0 | 0 | 0 |
| cSH | 537 | 1027 | 1700 | 1700 |
| Volume to Capacity | 0.54 | 0.22 | 0.32 | 0.32 |
| Queue Length 95th (ft) | 80 | 21 | 0 | 0 |
| Control Delay (s) | 19.3 | 9.5 | 0.0 | 0.0 |
| Lane LOS | C | A | | |
| Approach Delay (s) | 19.3 | 2.8 | | 0.0 |
| Approach LOS | C | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 4.9 | | |
| Intersection Capacity Utilization | 62.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 128 | 8 | 7 | 123 | 12 | 12 |
| Peak Hour Factor | 0.85 | 0.85 | 0.87 | 0.87 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 151 | 9 | 8 | 141 | 13 | 13 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 160 | | 313 | 155 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 160 | | 313 | 155 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 99 | | 98 | 99 |
| cM capacity (veh/h) | | | 1419 | | 676 | 890 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total | 160 | 149 | 26 |
| Volume Left | 0 | 8 | 13 |
| Volume Right | 9 | 0 | 13 |
| cSH | 1700 | 1419 | 769 |
| Volume to Capacity | 0.09 | 0.01 | 0.03 |
| Queue Length 95th (ft) | 0 | 0 | 3 |
| Control Delay (s) | 0.0 | 0.5 | 9.8 |
| Lane LOS | | A | A |
| Approach Delay (s) | 0.0 | 0.5 | 9.8 |
| Approach LOS | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.0 | | |
| Intersection Capacity Utilization | 22.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 133 | 7 | 7 | 118 | 12 | 12 |
| Peak Hour Factor | 0.85 | 0.85 | 0.87 | 0.87 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 156 | 8 | 8 | 136 | 13 | 13 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 165 | | 312 | 161 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 165 | | 312 | 161 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 99 | | 98 | 99 |
| cM capacity (veh/h) | | | 1414 | | 676 | 884 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total | 165 | 144 | 26 |
| Volume Left | 0 | 8 | 13 |
| Volume Right | 8 | 0 | 13 |
| cSH | 1700 | 1414 | 767 |
| Volume to Capacity | 0.10 | 0.01 | 0.03 |
| Queue Length 95th (ft) | 0 | 0 | 3 |
| Control Delay (s) | 0.0 | 0.5 | 9.9 |
| Lane LOS | | A | A |
| Approach Delay (s) | 0.0 | 0.5 | 9.9 |
| Approach LOS | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.0 | | |
| Intersection Capacity Utilization | 21.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 12 | 106 | 67 | 444 | 338 | 7 |
| Peak Hour Factor | 0.92 | 0.92 | 0.88 | 0.88 | 0.89 | 0.89 |
| Hourly flow rate (vph) | 13 | 115 | 76 | 505 | 380 | 8 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | 1162 | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1041 | 384 | 388 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1041 | 384 | 388 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 95 | 83 | 93 | | | |
| cM capacity (veh/h) | 238 | 664 | 1171 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 128 | 581 | 388 |
| Volume Left | 13 | 76 | 0 |
| Volume Right | 115 | 0 | 8 |
| cSH | 562 | 1171 | 1700 |
| Volume to Capacity | 0.23 | 0.07 | 0.23 |
| Queue Length 95th (ft) | 22 | 5 | 0 |
| Control Delay (s) | 13.3 | 1.8 | 0.0 |
| Lane LOS | B | A | |
| Approach Delay (s) | 13.3 | 1.8 | 0.0 |
| Approach LOS | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.5 | | |
| Intersection Capacity Utilization | 62.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Volume (veh/h) | 15 | 61 | 76 | 127 | 200 | 24 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 17 | 68 | 84 | 141 | 217 | 26 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 226 | | | | 256 | 155 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 226 | | | | 256 | 155 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 99 | | | | 70 | 97 |
| cM capacity (veh/h) | 1343 | | | | 724 | 891 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 84 | 226 | 243 |
| Volume Left | 17 | 0 | 217 |
| Volume Right | 0 | 141 | 26 |
| cSH | 1343 | 1700 | 738 |
| Volume to Capacity | 0.01 | 0.13 | 0.33 |
| Queue Length 95th (ft) | 1 | 0 | 36 |
| Control Delay (s) | 1.6 | 0.0 | 12.3 |
| Lane LOS | A | | B |
| Approach Delay (s) | 1.6 | 0.0 | 12.3 |
| Approach LOS | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 5.6 | | |
| Intersection Capacity Utilization | 35.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | |
| Satd. Flow (prot) | 1770 | 1583 | 1770 | 1845 | 1778 | |
| Flt Permitted | 0.95 | 1.00 | 0.13 | 1.00 | 1.00 | |
| Satd. Flow (perm) | 1770 | 1583 | 249 | 1845 | 1778 | |
| Volume (vph) | 94 | 294 | 187 | 592 | 675 | 60 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 102 | 320 | 208 | 658 | 750 | 67 |
| RTOR Reduction (vph) | 0 | 122 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 102 | 198 | 208 | 658 | 813 | 0 |
| Heavy Vehicles (%) | 2% | 2% | 2% | 3% | 6% | 2% |
| Turn Type | | pm+ov | pm+pt | | | |
| Protected Phases | 4 | 5 | 5 | 2 | 6 | |
| Permitted Phases | | 4 | 2 | | | |
| Actuated Green, G (s) | 7.3 | 15.4 | 47.1 | 47.1 | 34.0 | |
| Effective Green, g (s) | 8.3 | 17.4 | 48.1 | 48.1 | 35.0 | |
| Actuated g/C Ratio | 0.13 | 0.27 | 0.75 | 0.75 | 0.54 | |
| Clearance Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 228 | 526 | 401 | 1378 | 966 | |
| v/s Ratio Prot | c0.06 | 0.05 | 0.07 | c0.36 | c0.46 | |
| v/s Ratio Perm | | 0.07 | 0.31 | | | |
| v/c Ratio | 0.45 | 0.38 | 0.52 | 0.48 | 0.84 | |
| Uniform Delay, d1 | 25.9 | 19.1 | 9.1 | 3.2 | 12.4 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.4 | 0.5 | 1.1 | 0.3 | 6.7 | |
| Delay (s) | 27.3 | 19.5 | 10.2 | 3.5 | 19.1 | |
| Level of Service | C | B | B | A | B | |
| Approach Delay (s) | 21.4 | | | 5.1 | 19.1 | |
| Approach LOS | C | | | A | B | |

Intersection Summary

| | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 64.4 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 64.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Volume (veh/h) | 0 | 278 | 205 | 45 | 71 | 0 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 309 | 228 | 50 | 77 | 0 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 278 | | | | 562 | 253 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 278 | | | | 562 | 253 |
| 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 | | | | 84 | 100 |
| cM capacity (veh/h) | 1285 | | | | 488 | 786 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 309 | 278 | 77 |
| Volume Left | 0 | 0 | 77 |
| Volume Right | 0 | 50 | 0 |
| cSH | 1285 | 1700 | 488 |
| Volume to Capacity | 0.00 | 0.16 | 0.16 |
| Queue Length 95th (ft) | 0 | 0 | 14 |
| Control Delay (s) | 0.0 | 0.0 | 13.7 |
| Lane LOS | | | B |
| Approach Delay (s) | 0.0 | 0.0 | 13.7 |
| Approach LOS | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.6 | | |
| Intersection Capacity Utilization | 25.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Volume (veh/h) | 0 | 66 | 70 | 135 | 212 | 0 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 73 | 78 | 150 | 230 | 0 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 228 | | | | 226 | 153 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 228 | | | | 226 | 153 |
| 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 | | | | 70 | 100 |
| cM capacity (veh/h) | 1340 | | | | 762 | 893 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 73 | 228 | 230 |
| Volume Left | 0 | 0 | 230 |
| Volume Right | 0 | 150 | 0 |
| cSH | 1340 | 1700 | 762 |
| Volume to Capacity | 0.00 | 0.13 | 0.30 |
| Queue Length 95th (ft) | 0 | 0 | 32 |
| Control Delay (s) | 0.0 | 0.0 | 11.8 |
| Lane LOS | | | B |
| Approach Delay (s) | 0.0 | 0.0 | 11.8 |
| Approach LOS | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 5.1 | | |
| Intersection Capacity Utilization | 30.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

# 2035 Build Conditions – Full Build-Out

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 11 | 11 | 9 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 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 | 0.85 | | 0.98 | | | 0.98 | | | 0.95 | |
| Flt Protected | | 0.99 | 1.00 | | 0.99 | | | 0.98 | | | 0.99 | |
| Satd. Flow (prot) | | 1703 | 1309 | | 1635 | | | 1695 | | | 1706 | |
| Flt Permitted | | 0.83 | 1.00 | | 0.89 | | | 0.74 | | | 0.90 | |
| Satd. Flow (perm) | | 1439 | 1309 | | 1468 | | | 1272 | | | 1552 | |
| Volume (vph) | 83 | 246 | 43 | 51 | 230 | 46 | 76 | 95 | 25 | 54 | 145 | 128 |
| Peak-hour factor, PHF | 0.80 | 0.80 | 0.80 | 0.78 | 0.78 | 0.78 | 0.67 | 0.67 | 0.67 | 0.74 | 0.74 | 0.74 |
| Adj. Flow (vph) | 104 | 308 | 54 | 65 | 295 | 59 | 113 | 142 | 37 | 73 | 196 | 173 |
| RTOR Reduction (vph) | 0 | 0 | 31 | 0 | 9 | 0 | 0 | 8 | 0 | 0 | 36 | 0 |
| Lane Group Flow (vph) | 0 | 412 | 23 | 0 | 410 | 0 | 0 | 284 | 0 | 0 | 406 | 0 |
| Heavy Vehicles (%) | 5% | 7% | 11% | 14% | 14% | 8% | 6% | 8% | 15% | 7% | 6% | 2% |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 18.0 | 18.0 | | 18.0 | | | 17.0 | | | 17.0 | |
| Effective Green, g (s) | | 18.0 | 18.0 | | 18.0 | | | 17.0 | | | 17.0 | |
| Actuated g/C Ratio | | 0.42 | 0.42 | | 0.42 | | | 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) | | 602 | 548 | | 615 | | | 503 | | | 614 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | c0.29 | 0.02 | | 0.28 | | | 0.22 | | | c0.26 | |
| v/c Ratio | | 0.68 | 0.04 | | 0.67 | | | 0.56 | | | 0.66 | |
| Uniform Delay, d1 | | 10.2 | 7.4 | | 10.1 | | | 10.1 | | | 10.6 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 3.2 | 0.0 | | 2.7 | | | 1.5 | | | 2.7 | |
| Delay (s) | | 13.4 | 7.4 | | 12.8 | | | 11.6 | | | 13.3 | |
| Level of Service | | B | A | | B | | | B | | | B | |
| Approach Delay (s) | | 12.7 | | | 12.8 | | | 11.6 | | | 13.3 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.67 | | |
| Actuated Cycle Length (s) | 43.0 | 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 | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 8 | 3 | 14 | 0 | 3 | 9 | 6 | 191 | 3 | 9 | 280 | 1 |
| Peak Hour Factor | 0.40 | 0.40 | 0.40 | 0.45 | 0.45 | 0.45 | 0.80 | 0.80 | 0.80 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 20 | 8 | 35 | 0 | 7 | 20 | 8 | 239 | 4 | 10 | 318 | 1 |
| 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 | 618 | 597 | 319 | 634 | 595 | 241 | 319 | | | 242 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 618 | 597 | 319 | 634 | 595 | 241 | 319 | | | 242 | | |
| 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 % | 95 | 98 | 95 | 100 | 98 | 98 | 99 | | | 99 | | |
| cM capacity (veh/h) | 385 | 413 | 727 | 367 | 414 | 803 | 1252 | | | 1336 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 62 | 27 | 250 | 330 |
| Volume Left | 20 | 0 | 8 | 10 |
| Volume Right | 35 | 20 | 4 | 1 |
| cSH | 529 | 650 | 1252 | 1336 |
| Volume to Capacity | 0.12 | 0.04 | 0.01 | 0.01 |
| Queue Length 95th (ft) | 10 | 3 | 0 | 1 |
| Control Delay (s) | 12.7 | 10.8 | 0.3 | 0.3 |
| Lane LOS | B | B | A | A |
| Approach Delay (s) | 12.7 | 10.8 | 0.3 | 0.3 |
| Approach LOS | B | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.9 | | |
| Intersection Capacity Utilization | 33.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 14 | 90 | 6 | 140 | 86 | 19 | 2 | 166 | 45 | 37 | 216 | 51 |
| Peak Hour Factor | 0.80 | 0.80 | 0.80 | 0.90 | 0.90 | 0.90 | 0.80 | 0.80 | 0.80 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 18 | 112 | 8 | 156 | 96 | 21 | 2 | 208 | 56 | 41 | 240 | 57 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 138 | 272 | 266 | 338 |
| Volume Left (vph) | 18 | 156 | 3 | 41 |
| Volume Right (vph) | 8 | 21 | 56 | 57 |
| Hadj (s) | 0.08 | 0.17 | 0.12 | 0.00 |
| Departure Headway (s) | 6.4 | 6.2 | 6.0 | 5.8 |
| Degree Utilization, x | 0.25 | 0.47 | 0.44 | 0.54 |
| Capacity (veh/h) | 479 | 536 | 551 | 590 |
| Control Delay (s) | 11.5 | 14.5 | 13.7 | 15.3 |
| Approach Delay (s) | 11.5 | 14.5 | 13.7 | 15.3 |
| Approach LOS | B | B | B | C |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 14.1 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 58.2% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Volume (veh/h) | 6 | 6 | 643 | 5 | 4 | 537 |
| Peak Hour Factor | 0.63 | 0.63 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 10 | 10 | 714 | 6 | 4 | 597 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1323 | 717 | | | 720 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1323 | 717 | | | 720 | |
| tC, single (s) | 6.6 | 6.6 | | | 4.8 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.7 | 3.7 | | | 2.8 | |
| p0 queue free % | 94 | 97 | | | 99 | |
| cM capacity (veh/h) | 157 | 372 | | | 646 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 19 | 720 | 601 |
| Volume Left | 10 | 0 | 4 |
| Volume Right | 10 | 6 | 0 |
| cSH | 221 | 1700 | 646 |
| Volume to Capacity | 0.09 | 0.42 | 0.01 |
| Queue Length 95th (ft) | 7 | 0 | 1 |
| Control Delay (s) | 22.9 | 0.0 | 0.2 |
| Lane LOS | C | | A |
| Approach Delay (s) | 22.9 | 0.0 | 0.2 |
| Approach LOS | C | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.4 | | |
| Intersection Capacity Utilization | 44.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 13 | 39 | 95 | 62 | 77 | 114 | 322 | 906 | 53 | 51 | 456 | 3 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.92 | 0.92 | 0.92 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 14 | 43 | 106 | 69 | 86 | 127 | 350 | 985 | 58 | 57 | 507 | 3 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | 6 | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 2413 | 2364 | 508 | 2461 | 2337 | 1014 | 510 | | | 1042 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 2413 | 2364 | 508 | 2461 | 2337 | 1014 | 510 | | | 1042 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.3 | 6.5 | 6.2 | 4.1 | | | 4.2 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.7 | 4.0 | 3.3 | 2.2 | | | 2.3 | | |
| p0 queue free % | 0 | 0 | 81 | 0 | 0 | 56 | 67 | | | 91 | | |
| cM capacity (veh/h) | 0 | 22 | 565 | 0 | 22 | 288 | 1055 | | | 652 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total | 163 | 281 | 350 | 1042 | 57 | 510 |
| Volume Left | 14 | 69 | 350 | 0 | 57 | 0 |
| Volume Right | 106 | 127 | 0 | 58 | 0 | 3 |
| cSH | 0 | 1 | 1055 | 1700 | 652 | 1700 |
| Volume to Capacity | Err | 515.66 | 0.33 | 0.61 | 0.09 | 0.30 |
| Queue Length 95th (ft) | Err | Err | 37 | 0 | 7 | 0 |
| Control Delay (s) | Err | Err | 10.1 | 0.0 | 11.0 | 0.0 |
| Lane LOS | F | F | B | | B | |
| Approach Delay (s) | Err | Err | 2.5 | | 1.1 | |
| Approach LOS | F | F | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | Err | | |
| Intersection Capacity Utilization | 83.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 11 | 11 | 12 | 11 | 11 | 11 | 11 | 11 | 11 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flt Protected | | 0.99 | 1.00 | | 0.98 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1739 | 1478 | | 1653 | 1568 | 1711 | 1750 | | 1646 | 1782 | |
| Flt Permitted | | 0.90 | 1.00 | | 0.83 | 1.00 | 0.38 | 1.00 | | 0.10 | 1.00 | |
| Satd. Flow (perm) | | 1588 | 1478 | | 1402 | 1568 | 691 | 1750 | | 173 | 1782 | |
| Volume (vph) | 13 | 39 | 95 | 62 | 77 | 114 | 322 | 906 | 53 | 51 | 456 | 3 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.92 | 0.92 | 0.92 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 14 | 43 | 106 | 69 | 86 | 127 | 350 | 985 | 58 | 57 | 507 | 3 |
| RTOR Reduction (vph) | 0 | 0 | 91 | 0 | 0 | 108 | 0 | 2 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 57 | 15 | 0 | 155 | 19 | 350 | 1041 | 0 | 57 | 510 | 0 |
| Heavy Vehicles (%) | 0% | 1% | 2% | 17% | 2% | 3% | 2% | 4% | 5% | 6% | 3% | 0% |
| Turn Type | Perm | | Perm | Perm | | Perm | pm+pt | | | pm+pt | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | | 10.7 | 10.7 | | 10.7 | 10.7 | 56.7 | 51.1 | | 52.5 | 49.0 | |
| Effective Green, g (s) | | 11.7 | 11.7 | | 11.7 | 11.7 | 58.7 | 52.1 | | 54.5 | 50.0 | |
| Actuated g/C Ratio | | 0.15 | 0.15 | | 0.15 | 0.15 | 0.73 | 0.65 | | 0.68 | 0.62 | |
| Clearance Time (s) | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 231 | 215 | | 204 | 228 | 589 | 1135 | | 200 | 1110 | |
| v/s Ratio Prot | | | | | | | c0.05 | c0.59 | | 0.02 | 0.29 | |
| v/s Ratio Perm | | 0.04 | 0.01 | | c0.11 | 0.01 | 0.39 | | | 0.18 | | |
| v/c Ratio | | 0.25 | 0.07 | | 0.76 | 0.08 | 0.59 | 0.92 | | 0.28 | 0.46 | |
| Uniform Delay, d1 | | 30.4 | 29.6 | | 33.0 | 29.7 | 4.7 | 12.2 | | 11.8 | 8.0 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.6 | 0.1 | | 15.0 | 0.2 | 1.6 | 11.5 | | 0.8 | 0.3 | |
| Delay (s) | | 31.0 | 29.8 | | 47.9 | 29.8 | 6.3 | 23.7 | | 12.6 | 8.3 | |
| Level of Service | | C | C | | D | C | A | C | | B | A | |
| Approach Delay (s) | | 30.2 | | | 39.8 | | | 19.3 | | | 8.7 | |
| Approach LOS | | C | | | D | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.89 | | |
| Actuated Cycle Length (s) | 80.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 79.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 120 | 24 | 14 | 1142 | 553 | 76 |
| Peak Hour Factor | 0.93 | 0.93 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 129 | 26 | 16 | 1269 | 614 | 84 |
| Pedestrians | 1 | | | | | |
| Lane Width (ft) | 11.0 | | | | | |
| Walking Speed (ft/s) | 4.0 | | | | | |
| Percent Blockage | 0 | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1958 | 658 | 700 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1958 | 658 | 700 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.4 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.4 | | | |
| p0 queue free % | 0 | 94 | 98 | | | |
| cM capacity (veh/h) | 68 | 459 | 791 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 155 | 1284 | 699 |
| Volume Left | 129 | 16 | 0 |
| Volume Right | 26 | 0 | 84 |
| cSH | 79 | 791 | 1700 |
| Volume to Capacity | 1.96 | 0.02 | 0.41 |
| Queue Length 95th (ft) | 343 | 2 | 0 |
| Control Delay (s) | 562.5 | 0.9 | 0.0 |
| Lane LOS | F | A | |
| Approach Delay (s) | 562.5 | 0.9 | 0.0 |
| Approach LOS | F | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 41.2 | | |
| Intersection Capacity Utilization | 86.1% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 11 | 11 | 12 | 12 | 11 | 11 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 0.98 | | 1.00 | 1.00 | 0.98 | |
| Flt Protected | 0.96 | | 0.95 | 1.00 | 1.00 | |
| Satd. Flow (prot) | 1654 | | 1421 | 1827 | 1722 | |
| Flt Permitted | 0.96 | | 0.35 | 1.00 | 1.00 | |
| Satd. Flow (perm) | 1654 | | 519 | 1827 | 1722 | |
| Volume (vph) | 120 | 24 | 14 | 1142 | 553 | 76 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 129 | 26 | 16 | 1269 | 614 | 84 |
| RTOR Reduction (vph) | 9 | 0 | 0 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 146 | 0 | 16 | 1269 | 693 | 0 |
| Confl. Peds. (#/hr) | | | 1 | | | 1 |
| Heavy Vehicles (%) | 4% | 5% | 27% | 4% | 5% | 2% |
| Turn Type | | | Perm | | | |
| Protected Phases | 4 | | | 2 | 6 | |
| Permitted Phases | | | 2 | | | |
| Actuated Green, G (s) | 10.8 | | 63.4 | 63.4 | 63.4 | |
| Effective Green, g (s) | 11.8 | | 64.4 | 64.4 | 64.4 | |
| Actuated g/C Ratio | 0.14 | | 0.76 | 0.76 | 0.76 | |
| Clearance Time (s) | 5.0 | | 5.0 | 5.0 | 5.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 232 | | 397 | 1397 | 1317 | |
| v/s Ratio Prot | c0.09 | | | c0.69 | 0.40 | |
| v/s Ratio Perm | | | 0.03 | | | |
| v/c Ratio | 0.63 | | 0.04 | 0.91 | 0.53 | |
| Uniform Delay, d1 | 34.1 | | 2.4 | 7.6 | 3.9 | |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 5.2 | | 0.0 | 8.8 | 0.4 | |
| Delay (s) | 39.3 | | 2.4 | 16.5 | 4.3 | |
| Level of Service | D | | A | B | A | |
| Approach Delay (s) | 39.3 | | | 16.3 | 4.3 | |
| Approach LOS | D | | | B | A | |

Intersection Summary

| | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.86 | | |
| Actuated Cycle Length (s) | 84.2 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 74.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 4 | 24 | 23 | 8 | 17 | 5 | 33 | 1157 | 8 | 5 | 557 | 4 |
| Peak Hour Factor | 0.63 | 0.63 | 0.63 | 0.69 | 0.69 | 0.69 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 6 | 38 | 37 | 12 | 25 | 7 | 37 | 1286 | 9 | 6 | 619 | 4 |
| 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 | 2015 | 2000 | 621 | 2051 | 1998 | 1290 | 623 | | | 1294 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 2015 | 2000 | 621 | 2051 | 1998 | 1290 | 623 | | | 1294 | | |
| tC, single (s) | 7.4 | 6.6 | 6.3 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.8 | 4.1 | 3.4 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 71 | 29 | 92 | 27 | 57 | 96 | 96 | | | 99 | | |
| cM capacity (veh/h) | 22 | 54 | 480 | 16 | 58 | 202 | 948 | | | 542 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 81 | 43 | 1331 | 629 |
| Volume Left | 6 | 12 | 37 | 6 |
| Volume Right | 37 | 7 | 9 | 4 |
| cSH | 76 | 36 | 948 | 542 |
| Volume to Capacity | 1.07 | 1.19 | 0.04 | 0.01 |
| Queue Length 95th (ft) | 146 | 113 | 3 | 1 |
| Control Delay (s) | 219.9 | 381.2 | 1.7 | 0.3 |
| Lane LOS | F | F | A | A |
| Approach Delay (s) | 219.9 | 381.2 | 1.7 | 0.3 |
| Approach LOS | F | F | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 17.6 | | |
| Intersection Capacity Utilization | 92.9% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 11 | 11 | 11 | 11 | 11 | 11 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 0.94 | | | 0.98 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flt Protected | | 1.00 | | | 0.99 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1502 | | | 1712 | | 1678 | 1763 | | 1745 | 1765 | |
| Flt Permitted | | 0.98 | | | 0.90 | | 0.35 | 1.00 | | 0.13 | 1.00 | |
| Satd. Flow (perm) | | 1471 | | | 1567 | | 621 | 1763 | | 235 | 1765 | |
| Volume (vph) | 4 | 24 | 23 | 8 | 17 | 5 | 33 | 1157 | 8 | 5 | 557 | 4 |
| Peak-hour factor, PHF | 0.63 | 0.63 | 0.63 | 0.69 | 0.69 | 0.69 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 6 | 38 | 37 | 12 | 25 | 7 | 37 | 1286 | 9 | 6 | 619 | 4 |
| RTOR Reduction (vph) | 0 | 34 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 47 | 0 | 0 | 38 | 0 | 37 | 1295 | 0 | 6 | 623 | 0 |
| Heavy Vehicles (%) | 33% | 11% | 6% | 0% | 0% | 0% | 4% | 4% | 17% | 0% | 4% | 0% |
| Turn Type | Perm | | | Perm | | | pm+pt | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 7.8 | | | 7.8 | | 77.4 | 77.4 | | 69.1 | 69.1 | |
| Effective Green, g (s) | | 8.8 | | | 8.8 | | 78.4 | 78.4 | | 70.1 | 70.1 | |
| Actuated g/C Ratio | | 0.09 | | | 0.09 | | 0.82 | 0.82 | | 0.74 | 0.74 | |
| Clearance Time (s) | | 5.0 | | | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 136 | | | 145 | | 559 | 1452 | | 173 | 1300 | |
| v/s Ratio Prot | | | | | | | 0.00 | c0.73 | | | 0.35 | |
| v/s Ratio Perm | | c0.03 | | | 0.02 | | 0.05 | | | 0.03 | | |
| v/c Ratio | | 0.35 | | | 0.26 | | 0.07 | 0.89 | | 0.03 | 0.48 | |
| Uniform Delay, d1 | | 40.5 | | | 40.2 | | 2.5 | 5.6 | | 3.4 | 5.1 | |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 1.6 | | | 1.0 | | 0.1 | 7.3 | | 0.1 | 0.3 | |
| Delay (s) | | 42.1 | | | 41.1 | | 2.5 | 12.9 | | 3.5 | 5.4 | |
| Level of Service | | D | | | D | | A | B | | A | A | |
| Approach Delay (s) | | 42.1 | | | 41.1 | | | 12.6 | | | 5.4 | |
| Approach LOS | | D | | | D | | | B | | | A | |

Intersection Summary

| | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.84 | | |
| Actuated Cycle Length (s) | 95.2 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 72.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 3% | | | 0% | 0% | |
| Volume (veh/h) | 116 | 59 | 14 | 1044 | 547 | 73 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 129 | 66 | 16 | 1160 | 608 | 81 |
| Pedestrians | 1 | | | 1 | | |
| Lane Width (ft) | 10.0 | | | 11.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1840 | 650 | 690 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1840 | 650 | 690 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 0 | 86 | 98 | | | |
| cM capacity (veh/h) | 81 | 466 | 913 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 194 | 1176 | 689 |
| Volume Left | 129 | 16 | 0 |
| Volume Right | 66 | 0 | 81 |
| cSH | 112 | 913 | 1700 |
| Volume to Capacity | 1.73 | 0.02 | 0.41 |
| Queue Length 95th (ft) | 377 | 1 | 0 |
| Control Delay (s) | 429.1 | 0.6 | 0.0 |
| Lane LOS | F | A | |
| Approach Delay (s) | 429.1 | 0.6 | 0.0 |
| Approach LOS | F | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 40.9 | | |
| Intersection Capacity Utilization | 83.0% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 3% | | | 0% | 0% | |
| Volume (veh/h) | 116 | 59 | 14 | 1044 | 547 | 73 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 129 | 66 | 16 | 1160 | 608 | 81 |
| Pedestrians | 1 | | | 1 | | |
| Lane Width (ft) | 10.0 | | | 11.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | TWLTL | | | | | |
| Median storage veh) | 2 | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1840 | 650 | 690 | | | |
| vC1, stage 1 conf vol | 649 | | | | | |
| vC2, stage 2 conf vol | 1191 | | | | | |
| vCu, unblocked vol | 1840 | 650 | 690 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | 5.4 | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 49 | 86 | 98 | | | |
| cM capacity (veh/h) | 251 | 466 | 913 | | | |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 129 | 66 | 16 | 1160 | 689 |
| Volume Left | 129 | 0 | 16 | 0 | 0 |
| Volume Right | 0 | 66 | 0 | 0 | 81 |
| cSH | 251 | 466 | 913 | 1700 | 1700 |
| Volume to Capacity | 0.51 | 0.14 | 0.02 | 0.68 | 0.41 |
| Queue Length 95th (ft) | 67 | 12 | 1 | 0 | 0 |
| Control Delay (s) | 33.5 | 14.0 | 9.0 | 0.0 | 0.0 |
| Lane LOS | D | B | A | | |
| Approach Delay (s) | 26.9 | | 0.1 | | 0.0 |
| Approach LOS | D | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.6 | | |
| Intersection Capacity Utilization | 68.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 11 | 11 | 12 | 11 | 12 | 12 |
| 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 | 0.95 | |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 0.90 | |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | |
| Satd. Flow (prot) | 1646 | 1346 | 1543 | 1733 | 2982 | |
| Flt Permitted | 0.95 | 1.00 | 0.16 | 1.00 | 1.00 | |
| Satd. Flow (perm) | 1646 | 1346 | 266 | 1733 | 2982 | |
| Volume (vph) | 776 | 177 | 427 | 366 | 261 | 460 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.90 | 0.90 | 0.91 | 0.91 |
| Adj. Flow (vph) | 843 | 192 | 474 | 407 | 287 | 505 |
| RTOR Reduction (vph) | 0 | 66 | 0 | 0 | 329 | 0 |
| Lane Group Flow (vph) | 843 | 126 | 474 | 407 | 463 | 0 |
| Heavy Vehicles (%) | 6% | 16% | 17% | 6% | 5% | 12% |
| Turn Type | | pm+ov | pm+pt | | | |
| Protected Phases | 4 | 5 | 5 | 2 | 6 | |
| Permitted Phases | | 4 | 2 | | | |
| Actuated Green, G (s) | 30.4 | 57.7 | 51.7 | 51.7 | 18.4 | |
| Effective Green, g (s) | 32.4 | 61.7 | 53.7 | 53.7 | 20.4 | |
| Actuated g/C Ratio | 0.34 | 0.66 | 0.57 | 0.57 | 0.22 | |
| Clearance Time (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 567 | 940 | 549 | 989 | 646 | |
| v/s Ratio Prot | c0.51 | 0.04 | c0.27 | 0.23 | 0.16 | |
| v/s Ratio Perm | | 0.05 | c0.22 | | | |
| v/c Ratio | 1.49 | 0.13 | 0.86 | 0.41 | 0.72 | |
| Uniform Delay, d1 | 30.9 | 6.1 | 26.4 | 11.3 | 34.2 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 228.3 | 0.1 | 13.2 | 0.3 | 3.8 | |
| Delay (s) | 259.2 | 6.2 | 39.6 | 11.6 | 38.0 | |
| Level of Service | F | A | D | B | D | |
| Approach Delay (s) | 212.3 | | | 26.7 | 38.0 | |
| Approach LOS | F | | | C | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 100.9 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.08 | | |
| Actuated Cycle Length (s) | 94.1 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 98.7% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 11 | 11 | 12 | 11 | 12 | 12 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3193 | 1346 | 1543 | 1733 | 1810 | 1442 |
| Flt Permitted | 0.95 | 1.00 | 0.43 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3193 | 1346 | 698 | 1733 | 1810 | 1442 |
| Volume (vph) | 776 | 177 | 427 | 366 | 261 | 460 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.90 | 0.90 | 0.91 | 0.91 |
| Adj. Flow (vph) | 843 | 192 | 474 | 407 | 287 | 505 |
| RTOR Reduction (vph) | 0 | 83 | 0 | 0 | 0 | 100 |
| Lane Group Flow (vph) | 843 | 109 | 474 | 407 | 287 | 405 |
| Heavy Vehicles (%) | 6% | 16% | 17% | 6% | 5% | 12% |
| Turn Type | | pm+ov | pm+pt | | | pm+ov |
| Protected Phases | 4 | 5 | 5 | 2 | 6 | 4 |
| Permitted Phases | | 4 | 2 | | | 6 |
| Actuated Green, G (s) | 20.7 | 35.3 | 36.3 | 36.3 | 15.7 | 36.4 |
| Effective Green, g (s) | 22.7 | 39.3 | 38.3 | 38.3 | 17.7 | 40.4 |
| Actuated g/C Ratio | 0.33 | 0.57 | 0.56 | 0.56 | 0.26 | 0.59 |
| Clearance Time (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 1050 | 845 | 591 | 962 | 464 | 928 |
| v/s Ratio Prot | c0.26 | 0.03 | c0.19 | 0.23 | 0.16 | 0.14 |
| v/s Ratio Perm | | 0.05 | c0.25 | | | 0.14 |
| v/c Ratio | 0.80 | 0.13 | 0.80 | 0.42 | 0.62 | 0.44 |
| Uniform Delay, d1 | 21.1 | 6.9 | 15.3 | 8.9 | 22.7 | 8.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 4.5 | 0.1 | 7.7 | 0.3 | 2.5 | 0.3 |
| Delay (s) | 25.6 | 7.0 | 23.0 | 9.2 | 25.1 | 8.3 |
| Level of Service | C | A | C | A | C | A |
| Approach Delay (s) | 22.2 | | | 16.6 | 14.4 | |
| Approach LOS | C | | | B | B | |

Intersection Summary

| | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.78 | | |
| Actuated Cycle Length (s) | 69.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 69.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.94 | | 1.00 | 0.93 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1769 | 1690 | | 1626 | 1653 | | 1770 | 1707 | | 1595 | 1759 | 1553 |
| Flt Permitted | 0.20 | 1.00 | | 0.58 | 1.00 | | 0.39 | 1.00 | | 0.55 | 1.00 | 1.00 |
| Satd. Flow (perm) | 381 | 1690 | | 994 | 1653 | | 719 | 1707 | | 927 | 1759 | 1553 |
| Volume (vph) | 253 | 165 | 99 | 69 | 153 | 138 | 124 | 267 | 46 | 47 | 205 | 163 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.73 | 0.73 | 0.73 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 281 | 183 | 110 | 95 | 210 | 189 | 138 | 297 | 51 | 52 | 228 | 181 |
| RTOR Reduction (vph) | 0 | 26 | 0 | 0 | 40 | 0 | 0 | 9 | 0 | 0 | 0 | 138 |
| Lane Group Flow (vph) | 281 | 267 | 0 | 95 | 359 | 0 | 138 | 339 | 0 | 52 | 228 | 43 |
| Confl. Peds. (#/hr) | 1 | | | | | 1 | | | 1 | 1 | | |
| Heavy Vehicles (%) | 2% | 8% | 3% | 11% | 0% | 12% | 2% | 5% | 29% | 13% | 8% | 4% |
| Turn Type | pm+pt | | | Perm | | | pm+pt | | | Perm | | Perm |
| Protected Phases | 7 | 4 | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | 34.8 | 34.8 | | 17.5 | 17.5 | | 22.0 | 22.0 | | 14.8 | 14.8 | 14.8 |
| Effective Green, g (s) | 35.8 | 35.8 | | 18.5 | 18.5 | | 23.0 | 23.0 | | 15.8 | 15.8 | 15.8 |
| Actuated g/C Ratio | 0.54 | 0.54 | | 0.28 | 0.28 | | 0.34 | 0.34 | | 0.24 | 0.24 | 0.24 |
| Clearance Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 481 | 906 | | 275 | 458 | | 298 | 588 | | 219 | 416 | 367 |
| v/s Ratio Prot | c0.12 | 0.16 | | | c0.22 | | 0.02 | c0.20 | | | 0.13 | |
| v/s Ratio Perm | 0.20 | | | 0.10 | | | 0.14 | | | 0.06 | | 0.03 |
| v/c Ratio | 0.58 | 0.30 | | 0.35 | 0.78 | | 0.46 | 0.58 | | 0.24 | 0.55 | 0.12 |
| Uniform Delay, d1 | 10.5 | 8.5 | | 19.3 | 22.3 | | 16.8 | 17.9 | | 20.6 | 22.4 | 20.0 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.8 | 0.2 | | 0.8 | 8.5 | | 1.1 | 1.4 | | 0.6 | 1.5 | 0.1 |
| Delay (s) | 12.3 | 8.7 | | 20.1 | 30.8 | | 17.9 | 19.3 | | 21.2 | 23.8 | 20.2 |
| Level of Service | B | A | | C | C | | B | B | | C | C | C |
| Approach Delay (s) | | 10.5 | | | 28.7 | | | 18.9 | | | 22.1 | |
| Approach LOS | | B | | | C | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 66.8 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 69.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 15 | 180 | 3 | 18 | 88 | 9 | 3 | 53 | 24 | 20 | 97 | 3 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.61 | 0.61 | 0.61 | 0.64 | 0.64 | 0.64 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 17 | 200 | 3 | 30 | 144 | 15 | 5 | 83 | 38 | 23 | 110 | 3 |
| Pedestrians | | | | | | | | 2 | | | | |
| Lane Width (ft) | | | | | | | | 12.0 | | | | |
| Walking Speed (ft/s) | | | | | | | | 4.0 | | | | |
| Percent Blockage | | | | | | | | 0 | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 159 | | | 205 | | | 506 | 455 | 204 | 525 | 449 | 152 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 159 | | | 205 | | | 506 | 455 | 204 | 525 | 449 | 152 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.6 | 6.4 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.4 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 99 | | | 98 | | | 99 | 83 | 95 | 94 | 77 | 100 |
| cM capacity (veh/h) | 1433 | | | 1370 | | | 384 | 480 | 804 | 373 | 486 | 900 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 220 | 189 | 125 | 136 |
| Volume Left | 17 | 30 | 5 | 23 |
| Volume Right | 3 | 15 | 38 | 3 |
| cSH | 1433 | 1370 | 540 | 468 |
| Volume to Capacity | 0.01 | 0.02 | 0.23 | 0.29 |
| Queue Length 95th (ft) | 1 | 2 | 22 | 30 |
| Control Delay (s) | 0.7 | 1.4 | 13.7 | 15.8 |
| Lane LOS | A | A | B | C |
| Approach Delay (s) | 0.7 | 1.4 | 13.7 | 15.8 |
| Approach LOS | | | B | C |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 6.4 | | |
| Intersection Capacity Utilization | 31.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 12 | 48 | 17 | 1 | 120 | 9 | 19 | 142 | 1 | 10 | 194 | 20 |
| Peak Hour Factor | 0.52 | 0.52 | 0.52 | 0.90 | 0.90 | 0.90 | 0.65 | 0.65 | 0.65 | 0.62 | 0.62 | 0.62 |
| Hourly flow rate (vph) | 23 | 92 | 33 | 1 | 133 | 10 | 29 | 218 | 2 | 16 | 313 | 32 |
| Pedestrians | | 1 | | | | | | | | | | |
| Lane Width (ft) | | 12.0 | | | | | | | | | | |
| Walking Speed (ft/s) | | 4.0 | | | | | | | | | | |
| Percent Blockage | | 0 | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 717 | 641 | 330 | 718 | 656 | 219 | 346 | | | 220 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 717 | 641 | 330 | 718 | 656 | 219 | 346 | | | 220 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.8 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.8 | 2.2 | | | 2.2 | | |
| p0 queue free % | 90 | 76 | 95 | 100 | 64 | 99 | 98 | | | 99 | | |
| cM capacity (veh/h) | 239 | 380 | 713 | 262 | 371 | 701 | 1212 | | | 1361 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 148 | 144 | 249 | 361 |
| Volume Left | 23 | 1 | 29 | 16 |
| Volume Right | 33 | 10 | 2 | 32 |
| cSH | 384 | 382 | 1212 | 1361 |
| Volume to Capacity | 0.39 | 0.38 | 0.02 | 0.01 |
| Queue Length 95th (ft) | 44 | 43 | 2 | 1 |
| Control Delay (s) | 20.1 | 20.0 | 1.1 | 0.5 |
| Lane LOS | C | C | A | A |
| Approach Delay (s) | 20.1 | 20.0 | 1.1 | 0.5 |
| Approach LOS | C | C | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 7.0 | | |
| Intersection Capacity Utilization | 33.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 23 | 136 | 1 | 0 | 228 | 208 | 0 | 0 | 0 | 185 | 6 | 17 |
| Peak Hour Factor | 0.75 | 0.75 | 0.75 | 0.92 | 0.92 | 0.92 | 0.25 | 0.25 | 0.25 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 31 | 181 | 1 | 0 | 248 | 226 | 0 | 0 | 0 | 201 | 7 | 18 |
| 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 | 474 | | | 183 | | | 513 | 717 | 182 | 490 | 492 | 248 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 474 | | | 183 | | | 513 | 717 | 182 | 490 | 492 | 248 |
| tC, single (s) | 4.2 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.2 | 6.5 | 6.3 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.3 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.6 | 4.0 | 3.4 |
| p0 queue free % | 97 | | | 100 | | | 100 | 100 | 100 | 57 | 99 | 98 |
| cM capacity (veh/h) | 1067 | | | 1405 | | | 446 | 345 | 861 | 470 | 467 | 776 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total | 31 | 183 | 248 | 226 | 0 | 201 | 25 |
| Volume Left | 31 | 0 | 0 | 0 | 0 | 201 | 0 |
| Volume Right | 0 | 1 | 0 | 226 | 0 | 0 | 18 |
| cSH | 1067 | 1700 | 1405 | 1700 | 1700 | 470 | 662 |
| Volume to Capacity | 0.03 | 0.11 | 0.00 | 0.13 | 0.00 | 0.43 | 0.04 |
| Queue Length 95th (ft) | 2 | 0 | 0 | 0 | 0 | 53 | 3 |
| Control Delay (s) | 8.5 | 0.0 | 0.0 | 0.0 | 0.0 | 18.3 | 10.7 |
| Lane LOS | A | | | | A | C | B |
| Approach Delay (s) | 1.2 | | 0.0 | | 0.0 | 17.4 | |
| Approach LOS | | | | | A | C | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 4.6 | | |
| Intersection Capacity Utilization | 36.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 116 | 87 | 95 | 0 | 32 | 0 | 27 | 18 | 0 | 0 | 64 | 51 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.80 | 0.80 | 0.80 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 126 | 95 | 103 | 0 | 35 | 0 | 34 | 22 | 0 | 0 | 71 | 57 |
| 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 | 35 | | | 198 | | | 525 | 433 | 146 | 444 | 485 | 35 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 35 | | | 198 | | | 525 | 433 | 146 | 444 | 485 | 35 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.2 | 6.6 | 6.3 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.6 | 4.1 | 3.4 |
| p0 queue free % | 92 | | | 100 | | | 91 | 95 | 100 | 100 | 83 | 94 |
| cM capacity (veh/h) | 1564 | | | 1387 | | | 358 | 474 | 901 | 457 | 429 | 1008 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 324 | 35 | 56 | 128 |
| Volume Left | 126 | 0 | 34 | 0 |
| Volume Right | 103 | 0 | 0 | 57 |
| cSH | 1564 | 1387 | 397 | 575 |
| Volume to Capacity | 0.08 | 0.00 | 0.14 | 0.22 |
| Queue Length 95th (ft) | 7 | 0 | 12 | 21 |
| Control Delay (s) | 3.3 | 0.0 | 15.6 | 13.0 |
| Lane LOS | A | | C | B |
| Approach Delay (s) | 3.3 | 0.0 | 15.6 | 13.0 |
| Approach LOS | | | C | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 6.7 | | |
| Intersection Capacity Utilization | 39.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 0 | 131 | 293 | 356 | 411 | 0 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 0 | 146 | 326 | 396 | 457 | 0 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1503 | 457 | 457 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1503 | 457 | 457 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 76 | 70 | | | |
| cM capacity (veh/h) | 93 | 600 | 1089 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 146 | 326 | 396 | 457 |
| Volume Left | 0 | 326 | 0 | 0 |
| Volume Right | 146 | 0 | 0 | 0 |
| cSH | 600 | 1089 | 1700 | 1700 |
| Volume to Capacity | 0.24 | 0.30 | 0.23 | 0.27 |
| Queue Length 95th (ft) | 24 | 32 | 0 | 0 |
| Control Delay (s) | 12.9 | 9.7 | 0.0 | 0.0 |
| Lane LOS | B | A | | |
| Approach Delay (s) | 12.9 | 4.4 | | 0.0 |
| Approach LOS | B | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.8 | | |
| Intersection Capacity Utilization | 56.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 118 | 16 | 16 | 111 | 4 | 4 |
| Peak Hour Factor | 0.80 | 0.80 | 0.90 | 0.90 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 148 | 20 | 18 | 123 | 4 | 4 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 168 | | 316 | 158 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 168 | | 316 | 158 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 99 | | 99 | 100 |
| cM capacity (veh/h) | | | 1410 | | 668 | 888 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total | 168 | 141 | 9 |
| Volume Left | 0 | 18 | 4 |
| Volume Right | 20 | 0 | 4 |
| cSH | 1700 | 1410 | 763 |
| Volume to Capacity | 0.10 | 0.01 | 0.01 |
| Queue Length 95th (ft) | 0 | 1 | 1 |
| Control Delay (s) | 0.0 | 1.0 | 9.8 |
| Lane LOS | | A | A |
| Approach Delay (s) | 0.0 | 1.0 | 9.8 |
| Approach LOS | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | | 0.7 | |
| Intersection Capacity Utilization | 27.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 106 | 16 | 16 | 123 | 4 | 4 |
| Peak Hour Factor | 0.80 | 0.80 | 0.90 | 0.90 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 132 | 20 | 18 | 137 | 4 | 4 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 152 | | 315 | 142 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 152 | | 315 | 142 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 99 | | 99 | 100 |
| cM capacity (veh/h) | | | 1428 | | 670 | 905 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total | 152 | 154 | 9 |
| Volume Left | 0 | 18 | 4 |
| Volume Right | 20 | 0 | 4 |
| cSH | 1700 | 1428 | 770 |
| Volume to Capacity | 0.09 | 0.01 | 0.01 |
| Queue Length 95th (ft) | 0 | 1 | 1 |
| Control Delay (s) | 0.0 | 1.0 | 9.7 |
| Lane LOS | | A | A |
| Approach Delay (s) | 0.0 | 1.0 | 9.7 |
| Approach LOS | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.7 | | |
| Intersection Capacity Utilization | 27.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 4 | 40 | 143 | 209 | 346 | 16 |
| Peak Hour Factor | 0.92 | 0.92 | 0.80 | 0.80 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 4 | 43 | 179 | 261 | 384 | 18 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1012 | 393 | 402 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1012 | 393 | 402 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 98 | 93 | 85 | | | |
| cM capacity (veh/h) | 224 | 656 | 1156 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 48 | 440 | 402 |
| Volume Left | 4 | 179 | 0 |
| Volume Right | 43 | 0 | 18 |
| cSH | 558 | 1156 | 1700 |
| Volume to Capacity | 0.09 | 0.15 | 0.24 |
| Queue Length 95th (ft) | 7 | 14 | 0 |
| Control Delay (s) | 12.1 | 4.5 | 0.0 |
| Lane LOS | B | A | |
| Approach Delay (s) | 12.1 | 4.5 | 0.0 |
| Approach LOS | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.9 | | |
| Intersection Capacity Utilization | 51.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Volume (veh/h) | 32 | 55 | 23 | 270 | 76 | 9 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 36 | 61 | 26 | 300 | 83 | 10 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 326 | | | | 308 | 176 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 326 | | | | 308 | 176 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 97 | | | | 88 | 99 |
| cM capacity (veh/h) | 1234 | | | | 665 | 868 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 97 | 326 | 92 |
| Volume Left | 36 | 0 | 83 |
| Volume Right | 0 | 300 | 10 |
| cSH | 1234 | 1700 | 682 |
| Volume to Capacity | 0.03 | 0.19 | 0.14 |
| Queue Length 95th (ft) | 2 | 0 | 12 |
| Control Delay (s) | 3.1 | 0.0 | 11.1 |
| Lane LOS | A | | B |
| Approach Delay (s) | 3.1 | 0.0 | 11.1 |
| Approach LOS | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.6 | | |
| Intersection Capacity Utilization | 37.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | |
| Satd. Flow (prot) | 1770 | 1583 | 1770 | 1810 | 1777 | |
| Flt Permitted | 0.95 | 1.00 | 0.21 | 1.00 | 1.00 | |
| Satd. Flow (perm) | 1770 | 1583 | 399 | 1810 | 1777 | |
| Volume (vph) | 36 | 111 | 397 | 612 | 417 | 127 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 39 | 121 | 441 | 680 | 463 | 141 |
| RTOR Reduction (vph) | 0 | 86 | 0 | 0 | 16 | 0 |
| Lane Group Flow (vph) | 39 | 35 | 441 | 680 | 588 | 0 |
| Heavy Vehicles (%) | 2% | 2% | 2% | 5% | 4% | 2% |
| Turn Type | | pm+ov | pm+pt | | | |
| Protected Phases | 4 | 5 | 5 | 2 | 6 | |
| Permitted Phases | | 4 | 2 | | | |
| Actuated Green, G (s) | 2.3 | 11.4 | 34.3 | 34.3 | 20.2 | |
| Effective Green, g (s) | 3.3 | 13.4 | 35.3 | 35.3 | 21.2 | |
| Actuated g/C Ratio | 0.07 | 0.29 | 0.76 | 0.76 | 0.45 | |
| Clearance Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 125 | 591 | 599 | 1371 | 808 | |
| v/s Ratio Prot | c0.02 | 0.01 | c0.16 | 0.38 | 0.33 | |
| v/s Ratio Perm | | 0.01 | c0.40 | | | |
| v/c Ratio | 0.31 | 0.06 | 0.74 | 0.50 | 0.73 | |
| Uniform Delay, d1 | 20.6 | 12.0 | 6.4 | 2.2 | 10.3 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.4 | 0.0 | 4.7 | 0.3 | 3.3 | |
| Delay (s) | 22.0 | 12.1 | 11.1 | 2.5 | 13.6 | |
| Level of Service | C | B | B | A | B | |
| Approach Delay (s) | 14.5 | | | 5.9 | 13.6 | |
| Approach LOS | B | | | A | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 9.1 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.68 | | |
| Actuated Cycle Length (s) | 46.6 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 65.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Volume (veh/h) | 0 | 120 | 306 | 96 | 27 | 0 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 133 | 340 | 107 | 29 | 0 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 447 | | | | 527 | 393 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 447 | | | | 527 | 393 |
| 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 | | | | 94 | 100 |
| cM capacity (veh/h) | 1114 | | | | 512 | 656 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 133 | 447 | 29 |
| Volume Left | 0 | 0 | 29 |
| Volume Right | 0 | 107 | 0 |
| cSH | 1114 | 1700 | 512 |
| Volume to Capacity | 0.00 | 0.26 | 0.06 |
| Queue Length 95th (ft) | 0 | 0 | 5 |
| Control Delay (s) | 0.0 | 0.0 | 12.5 |
| Lane LOS | | | B |
| Approach Delay (s) | 0.0 | 0.0 | 12.5 |
| Approach LOS | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.6 | | |
| Intersection Capacity Utilization | 31.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Volume (veh/h) | 0 | 40 | 20 | 286 | 80 | 0 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 44 | 22 | 318 | 87 | 0 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 340 | | | | 226 | 181 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 340 | | | | 226 | 181 |
| 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 | | | | 89 | 100 |
| cM capacity (veh/h) | 1219 | | | | 763 | 862 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 44 | 340 | 87 |
| Volume Left | 0 | 0 | 87 |
| Volume Right | 0 | 318 | 0 |
| cSH | 1219 | 1700 | 763 |
| Volume to Capacity | 0.00 | 0.20 | 0.11 |
| Queue Length 95th (ft) | 0 | 0 | 10 |
| Control Delay (s) | 0.0 | 0.0 | 10.3 |
| Lane LOS | | | B |
| Approach Delay (s) | 0.0 | 0.0 | 10.3 |
| Approach LOS | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.9 | | |
| Intersection Capacity Utilization | 29.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 11 | 11 | 9 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 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 | |
| Frpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.97 | | | 0.98 | | | 0.94 | |
| Flt Protected | | 0.98 | 1.00 | | 0.99 | | | 0.99 | | | 0.99 | |
| Satd. Flow (prot) | | 1768 | 1309 | | 1789 | | | 1751 | | | 1714 | |
| Flt Permitted | | 0.60 | 1.00 | | 0.92 | | | 0.77 | | | 0.85 | |
| Satd. Flow (perm) | | 1091 | 1309 | | 1650 | | | 1367 | | | 1465 | |
| Volume (vph) | 169 | 218 | 37 | 51 | 308 | 96 | 75 | 211 | 61 | 92 | 210 | 209 |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.91 | 0.91 | 0.91 | 0.84 | 0.84 | 0.84 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 197 | 253 | 43 | 56 | 338 | 105 | 89 | 251 | 73 | 99 | 226 | 225 |
| RTOR Reduction (vph) | 0 | 0 | 22 | 0 | 13 | 0 | 0 | 12 | 0 | 0 | 39 | 0 |
| Lane Group Flow (vph) | 0 | 450 | 21 | 0 | 486 | 0 | 0 | 401 | 0 | 0 | 511 | 0 |
| Confl. Peds. (#/hr) | | | | | | | 1 | | 1 | 1 | | 1 |
| Heavy Vehicles (%) | 0% | 3% | 11% | 5% | 3% | 0% | 2% | 3% | 12% | 0% | 4% | 3% |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 31.1 | 31.1 | | 31.1 | | | 25.1 | | | 25.1 | |
| Effective Green, g (s) | | 31.1 | 31.1 | | 31.1 | | | 25.1 | | | 25.1 | |
| Actuated g/C Ratio | | 0.48 | 0.48 | | 0.48 | | | 0.39 | | | 0.39 | |
| 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) | | 529 | 634 | | 799 | | | 534 | | | 573 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | c0.41 | 0.02 | | 0.29 | | | 0.29 | | | c0.35 | |
| v/c Ratio | | 0.85 | 0.03 | | 0.61 | | | 0.75 | | | 0.89 | |
| Uniform Delay, d1 | | 14.5 | 8.7 | | 12.1 | | | 16.9 | | | 18.3 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 12.4 | 0.0 | | 1.3 | | | 5.9 | | | 16.1 | |
| Delay (s) | | 26.9 | 8.7 | | 13.4 | | | 22.7 | | | 34.3 | |
| Level of Service | | C | A | | B | | | C | | | C | |
| Approach Delay (s) | | 25.4 | | | 13.4 | | | 22.7 | | | 34.3 | |
| Approach LOS | | C | | | B | | | C | | | C | |

Intersection Summary

| | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.87 | | |
| Actuated Cycle Length (s) | 64.2 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 92.4% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 15 | 10 | 18 | 4 | 12 | 24 | 8 | 314 | 6 | 22 | 341 | 15 |
| Peak Hour Factor | 0.69 | 0.69 | 0.69 | 0.65 | 0.65 | 0.65 | 0.95 | 0.95 | 0.95 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 22 | 14 | 26 | 6 | 18 | 37 | 8 | 331 | 6 | 24 | 379 | 17 |
| Pedestrians | | | | | 1 | | | 2 | | | 1 | |
| Lane Width (ft) | | | | | 10.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 834 | 791 | 389 | 823 | 796 | 336 | 396 | | | 338 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 834 | 791 | 389 | 823 | 796 | 336 | 396 | | | 338 | | |
| 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 % | 92 | 95 | 96 | 98 | 94 | 95 | 99 | | | 98 | | |
| cM capacity (veh/h) | 257 | 315 | 662 | 267 | 313 | 710 | 1174 | | | 1232 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 62 | 62 | 345 | 420 |
| Volume Left | 22 | 6 | 8 | 24 |
| Volume Right | 26 | 37 | 6 | 17 |
| cSH | 367 | 459 | 1174 | 1232 |
| Volume to Capacity | 0.17 | 0.13 | 0.01 | 0.02 |
| Queue Length 95th (ft) | 15 | 11 | 1 | 2 |
| Control Delay (s) | 16.8 | 14.0 | 0.3 | 0.7 |
| Lane LOS | C | B | A | A |
| Approach Delay (s) | 16.8 | 14.0 | 0.3 | 0.7 |
| Approach LOS | C | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.6 | | |
| Intersection Capacity Utilization | 42.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 60 | 108 | 7 | 142 | 97 | 50 | 8 | 280 | 214 | 44 | 225 | 40 |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.87 | 0.87 | 0.87 | 0.88 | 0.88 | 0.88 | 0.89 | 0.89 | 0.89 |
| Hourly flow rate (vph) | 71 | 127 | 8 | 163 | 111 | 57 | 9 | 318 | 243 | 49 | 253 | 45 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 206 | 332 | 570 | 347 |
| Volume Left (vph) | 71 | 163 | 9 | 49 |
| Volume Right (vph) | 8 | 57 | 243 | 45 |
| Hadj (s) | 0.12 | 0.06 | -0.18 | 0.10 |
| Departure Headway (s) | 8.4 | 7.8 | 7.0 | 7.6 |
| Degree Utilization, x | 0.48 | 0.72 | 1.12 | 0.74 |
| Capacity (veh/h) | 391 | 446 | 512 | 454 |
| Control Delay (s) | 18.9 | 28.3 | 101.3 | 29.2 |
| Approach Delay (s) | 18.9 | 28.3 | 101.3 | 29.2 |
| Approach LOS | C | D | F | D |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 55.8 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 70.4% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Volume (veh/h) | 6 | 14 | 795 | 15 | 9 | 885 |
| Peak Hour Factor | 0.33 | 0.33 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 18 | 42 | 883 | 17 | 10 | 983 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1895 | 892 | | | 900 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1895 | 892 | | | 900 | |
| tC, single (s) | 6.6 | 6.3 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.7 | 3.4 | | | 2.2 | |
| p0 queue free % | 72 | 87 | | | 99 | |
| cM capacity (veh/h) | 66 | 328 | | | 763 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 61 | 900 | 993 |
| Volume Left | 18 | 0 | 10 |
| Volume Right | 42 | 17 | 0 |
| cSH | 149 | 1700 | 763 |
| Volume to Capacity | 0.41 | 0.53 | 0.01 |
| Queue Length 95th (ft) | 44 | 0 | 1 |
| Control Delay (s) | 44.7 | 0.0 | 0.4 |
| Lane LOS | E | | A |
| Approach Delay (s) | 44.7 | 0.0 | 0.4 |
| Approach LOS | E | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.6 | | |
| Intersection Capacity Utilization | 63.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 21 | 102 | 346 | 64 | 79 | 96 | 226 | 838 | 80 | 147 | 1062 | 21 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.63 | 0.63 | 0.63 | 0.93 | 0.93 | 0.93 | 0.87 | 0.87 | 0.87 |
| Hourly flow rate (vph) | 23 | 113 | 384 | 102 | 125 | 152 | 243 | 901 | 86 | 169 | 1221 | 24 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | 6 | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 3097 | 3044 | 1233 | 3430 | 3013 | 944 | 1245 | | | 987 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 3097 | 3044 | 1233 | 3430 | 3013 | 944 | 1245 | | | 987 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.2 | 6.5 | 6.2 | 4.1 | | | 4.2 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.6 | 4.0 | 3.3 | 2.2 | | | 2.3 | | |
| p0 queue free % | 0 | 0 | 0 | 0 | 0 | 52 | 57 | | | 74 | | |
| cM capacity (veh/h) | 0 | 5 | 216 | 0 | 6 | 317 | 559 | | | 662 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|
| Volume Total | 521 | 379 | 243 | 987 | 169 | 1245 |
| Volume Left | 23 | 102 | 243 | 0 | 169 | 0 |
| Volume Right | 384 | 152 | 0 | 86 | 0 | 24 |
| cSH | 0 | 0 | 559 | 1700 | 662 | 1700 |
| Volume to Capacity | Err | 7770.72 | 0.43 | 0.58 | 0.26 | 0.73 |
| Queue Length 95th (ft) | Err | Err | 55 | 0 | 25 | 0 |
| Control Delay (s) | Err | Err | 16.3 | 0.0 | 12.3 | 0.0 |
| Lane LOS | F | F | C | | B | |
| Approach Delay (s) | Err | Err | 3.2 | | 1.5 | |
| Approach LOS | F | F | | | | |

Intersection Summary

| | | | |
|---|---|---|---|
| Average Delay | Err | | |
| Intersection Capacity Utilization | 114.2% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 11 | 11 | 12 | 11 | 11 | 11 | 11 | 11 | 11 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flt Protected | | 0.99 | 1.00 | | 0.98 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1716 | 1478 | | 1714 | 1568 | 1711 | 1761 | | 1558 | 1779 | |
| Flt Permitted | | 0.86 | 1.00 | | 0.71 | 1.00 | 0.07 | 1.00 | | 0.08 | 1.00 | |
| Satd. Flow (perm) | | 1492 | 1478 | | 1240 | 1568 | 133 | 1761 | | 133 | 1779 | |
| Volume (vph) | 21 | 102 | 346 | 64 | 79 | 96 | 226 | 838 | 80 | 147 | 1062 | 21 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.63 | 0.63 | 0.63 | 0.93 | 0.93 | 0.93 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 23 | 113 | 384 | 102 | 125 | 152 | 243 | 901 | 86 | 169 | 1221 | 24 |
| RTOR Reduction (vph) | 0 | 0 | 128 | 0 | 0 | 122 | 0 | 4 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 136 | 256 | 0 | 227 | 30 | 243 | 983 | 0 | 169 | 1244 | 0 |
| Heavy Vehicles (%) | 0% | 3% | 2% | 7% | 3% | 3% | 2% | 3% | 2% | 12% | 3% | 0% |
| Turn Type | Perm | | Perm | Perm | | Perm | pm+pt | | | pm+pt | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | | 16.9 | 16.9 | | 16.9 | 16.9 | 58.0 | 53.0 | | 58.0 | 53.0 | |
| Effective Green, g (s) | | 17.9 | 17.9 | | 17.9 | 17.9 | 60.0 | 54.0 | | 60.0 | 54.0 | |
| Actuated g/C Ratio | | 0.20 | 0.20 | | 0.20 | 0.20 | 0.67 | 0.60 | | 0.67 | 0.60 | |
| Clearance Time (s) | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 297 | 294 | | 247 | 312 | 194 | 1058 | | 184 | 1069 | |
| v/s Ratio Prot | | | | | | | c0.08 | 0.56 | | 0.06 | 0.70 | |
| v/s Ratio Perm | | 0.09 | 0.17 | | c0.18 | 0.02 | c0.75 | | | 0.55 | | |
| v/c Ratio | | 0.46 | 0.87 | | 0.92 | 0.10 | 1.25 | 0.93 | | 0.92 | 1.16 | |
| Uniform Delay, d1 | | 31.7 | 34.9 | | 35.3 | 29.4 | 44.2 | 16.2 | | 22.7 | 18.0 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 1.1 | 23.3 | | 35.7 | 0.1 | 148.8 | 13.6 | | 43.3 | 84.2 | |
| Delay (s) | | 32.8 | 58.1 | | 71.0 | 29.5 | 193.0 | 29.8 | | 66.0 | 102.2 | |
| Level of Service | | C | E | | E | C | F | C | | E | F | |
| Approach Delay (s) | | 51.5 | | | 54.4 | | | 62.1 | | | 97.8 | |
| Approach LOS | | D | | | D | | | E | | | F | |

Intersection Summary

| | | | |
|---|---|---|---|
| HCM Average Control Delay | 74.0 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.18 | | |
| Actuated Cycle Length (s) | 89.9 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 96.3% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 176 | 54 | 53 | 962 | 1258 | 219 |
| Peak Hour Factor | 0.92 | 0.92 | 0.87 | 0.87 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 191 | 59 | 61 | 1106 | 1398 | 243 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 2747 | 1519 | 1641 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 2747 | 1519 | 1641 | | | |
| tC, single (s) | 6.4 | 6.3 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.4 | 2.2 | | | |
| p0 queue free % | 0 | 58 | 84 | | | |
| cM capacity (veh/h) | 19 | 141 | 386 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 250 | 1167 | 1641 |
| Volume Left | 191 | 61 | 0 |
| Volume Right | 59 | 0 | 243 |
| cSH | 23 | 386 | 1700 |
| Volume to Capacity | 10.66 | 0.16 | 0.97 |
| Queue Length 95th (ft) | Err | 14 | 0 |
| Control Delay (s) | Err | 7.7 | 0.0 |
| Lane LOS | F | A | |
| Approach Delay (s) | Err | 7.7 | 0.0 |
| Approach LOS | F | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 820.4 | | |
| Intersection Capacity Utilization | 113.6% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 11 | 11 | 12 | 12 | 11 | 11 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Frt | 0.97 | | 1.00 | 1.00 | 0.98 | |
| Flt Protected | 0.96 | | 0.95 | 1.00 | 1.00 | |
| Satd. Flow (prot) | 1668 | | 1719 | 1845 | 1753 | |
| Flt Permitted | 0.96 | | 0.07 | 1.00 | 1.00 | |
| Satd. Flow (perm) | 1668 | | 120 | 1845 | 1753 | |
| Volume (vph) | 176 | 54 | 53 | 962 | 1258 | 219 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.87 | 0.87 | 0.90 | 0.90 |
| Adj. Flow (vph) | 191 | 59 | 61 | 1106 | 1398 | 243 |
| RTOR Reduction (vph) | 14 | 0 | 0 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 236 | 0 | 61 | 1106 | 1633 | 0 |
| Heavy Vehicles (%) | 1% | 8% | 5% | 3% | 3% | 1% |
| Turn Type | | | Perm | | | |
| Protected Phases | 4 | | | 2 | 6 | |
| Permitted Phases | | | 2 | | | |
| Actuated Green, G (s) | 12.0 | | 59.1 | 59.1 | 59.1 | |
| Effective Green, g (s) | 13.0 | | 60.1 | 60.1 | 60.1 | |
| Actuated g/C Ratio | 0.16 | | 0.74 | 0.74 | 0.74 | |
| Clearance Time (s) | 5.0 | | 5.0 | 5.0 | 5.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 267 | | 89 | 1367 | 1299 | |
| v/s Ratio Prot | c0.14 | | | 0.60 | c0.93 | |
| v/s Ratio Perm | | | 0.51 | | | |
| v/c Ratio | 0.88 | | 0.69 | 0.81 | 1.26 | |
| Uniform Delay, d1 | 33.3 | | 5.5 | 6.8 | 10.5 | |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 27.1 | | 19.7 | 3.6 | 122.2 | |
| Delay (s) | 60.4 | | 25.2 | 10.4 | 132.7 | |
| Level of Service | E | | C | B | F | |
| Approach Delay (s) | 60.4 | | | 11.2 | 132.7 | |
| Approach LOS | E | | | B | F | |

Intersection Summary

| | | | |
|---|---|---|---|
| HCM Average Control Delay | 80.4 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.19 | | |
| Actuated Cycle Length (s) | 81.1 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 99.2% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 29 | 83 | 146 | 5 | 97 | 14 | 149 | 957 | 15 | 15 | 1259 | 23 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.69 | 0.69 | 0.69 | 0.97 | 0.97 | 0.97 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 31 | 89 | 157 | 7 | 141 | 20 | 154 | 987 | 15 | 16 | 1354 | 25 |
| 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 | 2791 | 2708 | 1366 | 2902 | 2712 | 994 | 1378 | | | 1002 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 2791 | 2708 | 1366 | 2902 | 2712 | 994 | 1378 | | | 1002 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.2 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.3 | | |
| p0 queue free % | 0 | 0 | 13 | 0 | 0 | 93 | 69 | | | 98 | | |
| cM capacity (veh/h) | 0 | 14 | 180 | 0 | 14 | 300 | 494 | | | 660 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 277 | 168 | 1156 | 1395 |
| Volume Left | 31 | 7 | 154 | 16 |
| Volume Right | 157 | 20 | 15 | 25 |
| cSH | 0 | 0 | 494 | 660 |
| Volume to Capacity | Err | Err | 0.31 | 0.02 |
| Queue Length 95th (ft) | Err | Err | 33 | 2 |
| Control Delay (s) | Err | Err | 12.3 | 1.5 |
| Lane LOS | F | F | B | A |
| Approach Delay (s) | Err | Err | 12.3 | 1.5 |
| Approach LOS | F | F | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | Err | | |
| Intersection Capacity Utilization | 159.6% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 10 | 10 | 10 | 10 | 10 | 10 | 11 | 11 | 11 | 11 | 11 | 11 |
| 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 | | 0.92 | | | 0.98 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flt Protected | | 0.99 | | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1590 | | | 1741 | | 1694 | 1777 | | 1586 | 1779 | |
| Flt Permitted | | 0.93 | | | 0.97 | | 0.07 | 1.00 | | 0.21 | 1.00 | |
| Satd. Flow (perm) | | 1488 | | | 1691 | | 121 | 1777 | | 355 | 1779 | |
| Volume (vph) | 29 | 83 | 146 | 5 | 97 | 14 | 149 | 957 | 15 | 15 | 1259 | 23 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.69 | 0.69 | 0.69 | 0.97 | 0.97 | 0.97 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 31 | 89 | 157 | 7 | 141 | 20 | 154 | 987 | 15 | 16 | 1354 | 25 |
| RTOR Reduction (vph) | 0 | 53 | 0 | 0 | 6 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 224 | 0 | 0 | 162 | 0 | 154 | 1001 | 0 | 16 | 1378 | 0 |
| Heavy Vehicles (%) | 0% | 4% | 2% | 0% | 0% | 0% | 3% | 3% | 10% | 10% | 3% | 0% |
| Turn Type | Perm | | | Perm | | | pm+pt | | | Perm | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 15.0 | | | 15.0 | | 64.0 | 64.0 | | 54.0 | 54.0 | |
| Effective Green, g (s) | | 16.0 | | | 16.0 | | 65.0 | 65.0 | | 55.0 | 55.0 | |
| Actuated g/C Ratio | | 0.18 | | | 0.18 | | 0.73 | 0.73 | | 0.62 | 0.62 | |
| Clearance Time (s) | | 5.0 | | | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 268 | | | 304 | | 194 | 1298 | | 219 | 1099 | |
| v/s Ratio Prot | | | | | | | 0.05 | c0.56 | | | c0.77 | |
| v/s Ratio Perm | | c0.15 | | | 0.10 | | 0.53 | | | 0.05 | | |
| v/c Ratio | | 0.83 | | | 0.53 | | 0.79 | 0.77 | | 0.07 | 1.25 | |
| Uniform Delay, d1 | | 35.2 | | | 33.1 | | 42.6 | 7.4 | | 6.8 | 17.0 | |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 19.5 | | | 1.8 | | 19.6 | 2.9 | | 0.1 | 121.9 | |
| Delay (s) | | 54.8 | | | 34.9 | | 62.2 | 10.3 | | 6.9 | 138.9 | |
| Level of Service | | D | | | C | | E | B | | A | F | |
| Approach Delay (s) | | 54.8 | | | 34.9 | | | 17.2 | | | 137.4 | |
| Approach LOS | | D | | | C | | | B | | | F | |

Intersection Summary

| | | | |
|---|---|---|---|
| HCM Average Control Delay | 77.6 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.14 | | |
| Actuated Cycle Length (s) | 89.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 107.5% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 3% | | | 0% | 0% | |
| Volume (veh/h) | 120 | 43 | 64 | 981 | 1219 | 130 |
| Peak Hour Factor | 0.91 | 0.91 | 0.93 | 0.93 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 132 | 47 | 69 | 1055 | 1354 | 144 |
| Pedestrians | 1 | | | 1 | | |
| Lane Width (ft) | 10.0 | | | 11.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 2620 | 1429 | 1500 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 2620 | 1429 | 1500 | | | |
| tC, single (s) | 6.4 | 6.3 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 0 | 71 | 85 | | | |
| cM capacity (veh/h) | 22 | 162 | 453 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 179 | 1124 | 1499 |
| Volume Left | 132 | 69 | 0 |
| Volume Right | 47 | 0 | 144 |
| cSH | 29 | 453 | 1700 |
| Volume to Capacity | 6.18 | 0.15 | 0.88 |
| Queue Length 95th (ft) | Err | 13 | 0 |
| Control Delay (s) | Err | 6.3 | 0.0 |
| Lane LOS | F | A | |
| Approach Delay (s) | Err | 6.3 | 0.0 |
| Approach LOS | F | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 641.8 | | |
| Intersection Capacity Utilization | 120.2% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 3% | | | 0% | 0% | |
| Volume (veh/h) | 120 | 43 | 64 | 981 | 1219 | 130 |
| Peak Hour Factor | 0.91 | 0.91 | 0.93 | 0.93 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 132 | 47 | 69 | 1055 | 1354 | 144 |
| Pedestrians | 1 | | | 1 | | |
| Lane Width (ft) | 10.0 | | | 11.0 | | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | | |
| Percent Blockage | 0 | | | 0 | | |
| Right turn flare (veh) | | | | | | |
| Median type | TWLTL | | | | | |
| Median storage veh) | 2 | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 2620 | 1429 | 1500 | | | |
| vC1, stage 1 conf vol | 1428 | | | | | |
| vC2, stage 2 conf vol | 1192 | | | | | |
| vCu, unblocked vol | 2620 | 1429 | 1500 | | | |
| tC, single (s) | 6.4 | 6.3 | 4.1 | | | |
| tC, 2 stage (s) | 5.4 | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 16 | 71 | 85 | | | |
| cM capacity (veh/h) | 158 | 162 | 453 | | | |

| Direction, Lane # | EB 1 | EB 2 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 132 | 47 | 69 | 1055 | 1499 |
| Volume Left | 132 | 0 | 69 | 0 | 0 |
| Volume Right | 0 | 47 | 0 | 0 | 144 |
| cSH | 158 | 162 | 453 | 1700 | 1700 |
| Volume to Capacity | 0.84 | 0.29 | 0.15 | 0.62 | 0.88 |
| Queue Length 95th (ft) | 140 | 29 | 13 | 0 | 0 |
| Control Delay (s) | 90.6 | 36.0 | 14.4 | 0.0 | 0.0 |
| Lane LOS | F | E | B | | |
| Approach Delay (s) | 76.2 | | 0.9 | | 0.0 |
| Approach LOS | F | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 5.2 | | |
| Intersection Capacity Utilization | 85.6% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 11 | 11 | 12 | 11 | 12 | 12 |
| 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 | 0.95 | |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 0.90 | |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | |
| Satd. Flow (prot) | 1601 | 1346 | 1444 | 1783 | 3061 | |
| Flt Permitted | 0.95 | 1.00 | 0.13 | 1.00 | 1.00 | |
| Satd. Flow (perm) | 1601 | 1346 | 195 | 1783 | 3061 | |
| Volume (vph) | 695 | 486 | 339 | 424 | 467 | 891 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.86 | 0.86 | 0.91 | 0.91 |
| Adj. Flow (vph) | 764 | 534 | 394 | 493 | 513 | 979 |
| RTOR Reduction (vph) | 0 | 32 | 0 | 0 | 332 | 0 |
| Lane Group Flow (vph) | 764 | 502 | 394 | 493 | 1160 | 0 |
| Heavy Vehicles (%) | 9% | 16% | 25% | 3% | 5% | 7% |
| Turn Type | | pm+ov | pm+pt | | | |
| Protected Phases | 4 | 5 | 5 | 2 | 6 | |
| Permitted Phases | | 4 | 2 | | | |
| Actuated Green, G (s) | 30.1 | 56.8 | 57.8 | 57.8 | 25.1 | |
| Effective Green, g (s) | 32.1 | 60.8 | 59.8 | 59.8 | 27.1 | |
| Actuated g/C Ratio | 0.32 | 0.61 | 0.60 | 0.60 | 0.27 | |
| Clearance Time (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 514 | 873 | 476 | 1067 | 830 | |
| v/s Ratio Prot | c0.48 | 0.17 | c0.24 | 0.28 | c0.38 | |
| v/s Ratio Perm | | 0.21 | 0.26 | | | |
| v/c Ratio | 1.49 | 0.58 | 0.83 | 0.46 | 1.31dr | |
| Uniform Delay, d1 | 33.9 | 11.8 | 29.8 | 11.1 | 36.4 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 229.1 | 0.9 | 11.3 | 0.3 | 186.5 | |
| Delay (s) | 263.0 | 12.7 | 41.1 | 11.4 | 222.9 | |
| Level of Service | F | B | D | B | F | |
| Approach Delay (s) | 160.0 | | | 24.6 | 222.9 | |
| Approach LOS | F | | | C | F | |

Intersection Summary

| | | | |
|---|---|---|---|
| HCM Average Control Delay | 152.9 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.19 | | |
| Actuated Cycle Length (s) | 99.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 108.9% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

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

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 11 | 11 | 12 | 11 | 12 | 12 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3105 | 1346 | 1444 | 1783 | 1810 | 1509 |
| Flt Permitted | 0.95 | 1.00 | 0.18 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3105 | 1346 | 269 | 1783 | 1810 | 1509 |
| Volume (vph) | 695 | 486 | 339 | 424 | 467 | 891 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.86 | 0.86 | 0.91 | 0.91 |
| Adj. Flow (vph) | 764 | 534 | 394 | 493 | 513 | 979 |
| RTOR Reduction (vph) | 0 | 57 | 0 | 0 | 0 | 79 |
| Lane Group Flow (vph) | 764 | 477 | 394 | 493 | 513 | 900 |
| Heavy Vehicles (%) | 9% | 16% | 25% | 3% | 5% | 7% |
| Turn Type | | pm+ov | pm+pt | | | pm+ov |
| Protected Phases | 4 | 5 | 5 | 2 | 6 | 4 |
| Permitted Phases | | 4 | 2 | | | 6 |
| Actuated Green, G (s) | 22.0 | 39.0 | 45.6 | 45.6 | 22.6 | 44.6 |
| Effective Green, g (s) | 24.0 | 43.0 | 47.6 | 47.6 | 24.6 | 48.6 |
| Actuated g/C Ratio | 0.30 | 0.54 | 0.60 | 0.60 | 0.31 | 0.61 |
| Clearance Time (s) | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 936 | 795 | 441 | 1066 | 559 | 997 |
| v/s Ratio Prot | 0.25 | 0.14 | c0.21 | 0.28 | 0.28 | c0.27 |
| v/s Ratio Perm | | 0.21 | 0.32 | | | 0.32 |
| v/c Ratio | 0.82 | 0.60 | 0.89 | 0.46 | 0.92 | 0.90 |
| Uniform Delay, d1 | 25.8 | 12.4 | 23.0 | 8.9 | 26.5 | 13.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 5.6 | 1.2 | 19.9 | 0.3 | 20.0 | 11.2 |
| Delay (s) | 31.3 | 13.7 | 43.0 | 9.2 | 46.5 | 24.6 |
| Level of Service | C | B | D | A | D | C |
| Approach Delay (s) | 24.1 | | | 24.2 | 32.2 | |
| Approach LOS | C | | | C | C | |

Intersection Summary

| | | | |
|---|---|---|---|
| HCM Average Control Delay | 27.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.86 | | |
| Actuated Cycle Length (s) | 79.6 | Sum of lost time (s) | 4.0 |
| Intersection Capacity Utilization | 80.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.94 | | 1.00 | 0.96 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1770 | 1664 | | 1805 | 1747 | | 1805 | 1756 | | 1668 | 1696 | 1553 |
| Flt Permitted | 0.17 | 1.00 | | 0.43 | 1.00 | | 0.20 | 1.00 | | 0.55 | 1.00 | 1.00 |
| Satd. Flow (perm) | 313 | 1664 | | 822 | 1747 | | 380 | 1756 | | 968 | 1696 | 1553 |
| Volume (vph) | 350 | 345 | 207 | 23 | 269 | 102 | 143 | 282 | 32 | 133 | 361 | 382 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 389 | 383 | 230 | 26 | 299 | 113 | 159 | 313 | 36 | 148 | 401 | 424 |
| RTOR Reduction (vph) | 0 | 27 | 0 | 0 | 17 | 0 | 0 | 6 | 0 | 0 | 0 | 305 |
| Lane Group Flow (vph) | 389 | 586 | 0 | 26 | 395 | 0 | 159 | 343 | 0 | 148 | 401 | 119 |
| Confl. Peds. (#/hr) | | | | | | | | | 2 | 2 | | |
| Heavy Vehicles (%) | 2% | 7% | 9% | 0% | 4% | 5% | 0% | 7% | 0% | 8% | 12% | 4% |
| Turn Type | pm+pt | | | Perm | | | pm+pt | | | Perm | | Perm |
| Protected Phases | 7 | 4 | | | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | 37.9 | 37.9 | | 18.8 | 18.8 | | 28.4 | 28.4 | | 20.4 | 20.4 | 20.4 |
| Effective Green, g (s) | 38.9 | 38.9 | | 19.8 | 19.8 | | 29.4 | 29.4 | | 21.4 | 21.4 | 21.4 |
| Actuated g/C Ratio | 0.51 | 0.51 | | 0.26 | 0.26 | | 0.39 | 0.39 | | 0.28 | 0.28 | 0.28 |
| Clearance Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 448 | 848 | | 213 | 453 | | 221 | 677 | | 271 | 476 | 436 |
| v/s Ratio Prot | c0.17 | 0.35 | | | 0.23 | | c0.04 | 0.20 | | | c0.24 | |
| v/s Ratio Perm | c0.27 | | | 0.03 | | | 0.24 | | | 0.15 | | 0.08 |
| v/c Ratio | 0.87 | 0.69 | | 0.12 | 0.87 | | 0.72 | 0.51 | | 0.55 | 0.84 | 0.27 |
| Uniform Delay, d1 | 17.5 | 14.2 | | 21.6 | 27.0 | | 19.1 | 17.9 | | 23.3 | 25.9 | 21.4 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 16.2 | 2.4 | | 0.3 | 16.6 | | 10.7 | 0.6 | | 2.2 | 12.7 | 0.3 |
| Delay (s) | 33.7 | 16.6 | | 21.9 | 43.7 | | 29.8 | 18.5 | | 25.6 | 38.6 | 21.7 |
| Level of Service | C | B | | C | D | | C | B | | C | D | C |
| Approach Delay (s) | | 23.2 | | | 42.4 | | | 22.0 | | | 29.3 | |
| Approach LOS | | C | | | D | | | C | | | C | |

Intersection Summary

| | | | |
|---|---|---|---|
| HCM Average Control Delay | 27.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.84 | | |
| Actuated Cycle Length (s) | 76.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 80.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 26 | 165 | 1 | 27 | 262 | 44 | 23 | 108 | 42 | 16 | 54 | 28 |
| Peak Hour Factor | 0.66 | 0.66 | 0.66 | 0.90 | 0.90 | 0.90 | 0.76 | 0.76 | 0.76 | 0.71 | 0.71 | 0.71 |
| Hourly flow rate (vph) | 39 | 250 | 2 | 30 | 291 | 49 | 30 | 142 | 55 | 23 | 76 | 39 |
| 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 | 340 | | | 252 | | | 783 | 730 | 251 | 831 | 706 | 316 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 340 | | | 252 | | | 783 | 730 | 251 | 831 | 706 | 316 |
| 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 | | | 98 | | | 87 | 57 | 93 | 87 | 78 | 95 |
| cM capacity (veh/h) | 1230 | | | 1320 | | | 236 | 333 | 790 | 173 | 343 | 730 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 291 | 370 | 228 | 138 |
| Volume Left | 39 | 30 | 30 | 23 |
| Volume Right | 2 | 49 | 55 | 39 |
| cSH | 1230 | 1320 | 364 | 340 |
| Volume to Capacity | 0.03 | 0.02 | 0.62 | 0.41 |
| Queue Length 95th (ft) | 2 | 2 | 101 | 48 |
| Control Delay (s) | 1.3 | 0.8 | 30.0 | 22.6 |
| Lane LOS | A | A | D | C |
| Approach Delay (s) | 1.3 | 0.8 | 30.0 | 22.6 |
| Approach LOS | | | D | C |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 10.4 | | |
| Intersection Capacity Utilization | 40.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 23 | 152 | 26 | 0 | 124 | 18 | 24 | 206 | 0 | 10 | 190 | 30 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.94 | 0.94 | 0.94 | 0.77 | 0.77 | 0.77 |
| Hourly flow rate (vph) | 26 | 169 | 29 | 0 | 138 | 20 | 26 | 219 | 0 | 13 | 247 | 39 |
| 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 | 651 | 562 | 266 | 676 | 582 | 219 | 286 | | | 219 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 651 | 562 | 266 | 676 | 582 | 219 | 286 | | | 219 | | |
| 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 % | 91 | 60 | 96 | 100 | 67 | 98 | 98 | | | 99 | | |
| cM capacity (veh/h) | 270 | 423 | 775 | 240 | 412 | 826 | 1282 | | | 1362 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 223 | 158 | 245 | 299 |
| Volume Left | 26 | 0 | 26 | 13 |
| Volume Right | 29 | 20 | 0 | 39 |
| cSH | 420 | 440 | 1282 | 1362 |
| Volume to Capacity | 0.53 | 0.36 | 0.02 | 0.01 |
| Queue Length 95th (ft) | 76 | 40 | 2 | 1 |
| Control Delay (s) | 22.9 | 17.7 | 1.0 | 0.4 |
| Lane LOS | C | C | A | A |
| Approach Delay (s) | 22.9 | 17.7 | 1.0 | 0.4 |
| Approach LOS | C | C | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 8.9 | | |
| Intersection Capacity Utilization | 48.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 9 | 292 | 3 | 0 | 248 | 210 | 0 | 0 | 0 | 159 | 6 | 13 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.91 | 0.91 | 0.91 | 0.25 | 0.25 | 0.25 | 0.85 | 0.85 | 0.85 |
| Hourly flow rate (vph) | 10 | 324 | 3 | 0 | 273 | 231 | 0 | 0 | 0 | 187 | 7 | 15 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 503 | | | 328 | | | 637 | 849 | 326 | 617 | 620 | 273 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 503 | | | 328 | | | 637 | 849 | 326 | 617 | 620 | 273 |
| tC, single (s) | 4.2 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.3 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 99 | | | 100 | | | 100 | 100 | 100 | 53 | 98 | 98 |
| cM capacity (veh/h) | 1002 | | | 1243 | | | 377 | 297 | 720 | 396 | 402 | 771 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total | 10 | 328 | 273 | 231 | 0 | 187 | 22 |
| Volume Left | 10 | 0 | 0 | 0 | 0 | 187 | 0 |
| Volume Right | 0 | 3 | 0 | 231 | 0 | 0 | 15 |
| cSH | 1002 | 1700 | 1243 | 1700 | 1700 | 396 | 598 |
| Volume to Capacity | 0.01 | 0.19 | 0.00 | 0.14 | 0.00 | 0.47 | 0.04 |
| Queue Length 95th (ft) | 1 | 0 | 0 | 0 | 0 | 61 | 3 |
| Control Delay (s) | 8.6 | 0.0 | 0.0 | 0.0 | 0.0 | 21.9 | 11.3 |
| Lane LOS | A | | | | A | C | B |
| Approach Delay (s) | 0.3 | | 0.0 | | 0.0 | 20.8 | |
| Approach LOS | | | | | A | C | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 4.2 | | |
| Intersection Capacity Utilization | 35.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 95 | 83 | 64 | 0 | 109 | 0 | 101 | 67 | 0 | 0 | 42 | 115 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.85 | 0.85 | 0.85 | 0.87 | 0.87 | 0.87 |
| Hourly flow rate (vph) | 106 | 92 | 71 | 0 | 121 | 0 | 119 | 79 | 0 | 0 | 48 | 132 |
| 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 | 121 | | | 163 | | | 616 | 460 | 128 | 499 | 496 | 121 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 121 | | | 163 | | | 616 | 460 | 128 | 499 | 496 | 121 |
| tC, single (s) | 4.2 | | | 4.1 | | | 7.2 | 6.6 | 6.3 | 7.2 | 6.6 | 6.3 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.3 | | | 2.2 | | | 3.6 | 4.1 | 3.4 | 3.6 | 4.1 | 3.4 |
| p0 queue free % | 93 | | | 100 | | | 60 | 83 | 100 | 100 | 89 | 86 |
| cM capacity (veh/h) | 1442 | | | 1409 | | | 294 | 456 | 912 | 388 | 434 | 917 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 269 | 121 | 198 | 180 |
| Volume Left | 106 | 0 | 119 | 0 |
| Volume Right | 71 | 0 | 0 | 132 |
| cSH | 1442 | 1409 | 342 | 707 |
| Volume to Capacity | 0.07 | 0.00 | 0.58 | 0.26 |
| Queue Length 95th (ft) | 6 | 0 | 86 | 25 |
| Control Delay (s) | 3.4 | 0.0 | 28.9 | 11.8 |
| Lane LOS | A | | D | B |
| Approach Delay (s) | 3.4 | 0.0 | 28.9 | 11.8 |
| Approach LOS | | | D | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 11.4 | | |
| Intersection Capacity Utilization | 48.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 0 | 347 | 257 | 552 | 547 | 0 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.89 | 0.89 |
| Hourly flow rate (vph) | 0 | 386 | 286 | 613 | 615 | 0 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1799 | 615 | 615 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1799 | 615 | 615 | | | |
| tC, single (s) | 6.4 | 6.3 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.4 | 2.2 | | | |
| p0 queue free % | 100 | 20 | 70 | | | |
| cM capacity (veh/h) | 62 | 484 | 960 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 386 | 286 | 613 | 615 |
| Volume Left | 0 | 286 | 0 | 0 |
| Volume Right | 386 | 0 | 0 | 0 |
| cSH | 484 | 960 | 1700 | 1700 |
| Volume to Capacity | 0.80 | 0.30 | 0.36 | 0.36 |
| Queue Length 95th (ft) | 184 | 31 | 0 | 0 |
| Control Delay (s) | 35.6 | 10.3 | 0.0 | 0.0 |
| Lane LOS | E | B | | |
| Approach Delay (s) | 35.6 | 3.3 | | 0.0 |
| Approach LOS | E | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 8.8 | | |
| Intersection Capacity Utilization | 74.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 151 | 11 | 11 | 140 | 17 | 17 |
| Peak Hour Factor | 0.85 | 0.85 | 0.87 | 0.87 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 178 | 13 | 13 | 161 | 18 | 18 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 191 | | 370 | 184 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 191 | | 370 | 184 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 99 | | 97 | 98 |
| cM capacity (veh/h) | | | 1383 | | 624 | 858 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total | 191 | 174 | 37 |
| Volume Left | 0 | 13 | 18 |
| Volume Right | 13 | 0 | 18 |
| cSH | 1700 | 1383 | 723 |
| Volume to Capacity | 0.11 | 0.01 | 0.05 |
| Queue Length 95th (ft) | 0 | 1 | 4 |
| Control Delay (s) | 0.0 | 0.6 | 10.2 |
| Lane LOS | | A | B |
| Approach Delay (s) | 0.0 | 0.6 | 10.2 |
| Approach LOS | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.2 | | |
| Intersection Capacity Utilization | 26.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 158 | 10 | 11 | 134 | 17 | 17 |
| Peak Hour Factor | 0.85 | 0.85 | 0.87 | 0.87 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 186 | 12 | 13 | 154 | 18 | 18 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 198 | | 371 | 192 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 198 | | 371 | 192 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 99 | | 97 | 98 |
| cM capacity (veh/h) | | | 1375 | | 624 | 850 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total | 198 | 167 | 37 |
| Volume Left | 0 | 13 | 18 |
| Volume Right | 12 | 0 | 18 |
| cSH | 1700 | 1375 | 719 |
| Volume to Capacity | 0.12 | 0.01 | 0.05 |
| Queue Length 95th (ft) | 0 | 1 | 4 |
| Control Delay (s) | 0.0 | 0.7 | 10.3 |
| Lane LOS | | A | B |
| Approach Delay (s) | 0.0 | 0.7 | 10.3 |
| Approach LOS | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.2 | | |
| Intersection Capacity Utilization | 26.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 17 | 151 | 96 | 485 | 363 | 11 |
| Peak Hour Factor | 0.92 | 0.92 | 0.88 | 0.88 | 0.89 | 0.89 |
| Hourly flow rate (vph) | 18 | 164 | 109 | 551 | 408 | 12 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1183 | 414 | 420 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1183 | 414 | 420 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 90 | 74 | 90 | | | |
| cM capacity (veh/h) | 189 | 638 | 1139 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 183 | 660 | 420 |
| Volume Left | 18 | 109 | 0 |
| Volume Right | 164 | 0 | 12 |
| cSH | 515 | 1139 | 1700 |
| Volume to Capacity | 0.35 | 0.10 | 0.25 |
| Queue Length 95th (ft) | 40 | 8 | 0 |
| Control Delay (s) | 15.8 | 2.4 | 0.0 |
| Lane LOS | C | A | |
| Approach Delay (s) | 15.8 | 2.4 | 0.0 |
| Approach LOS | C | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.5 | | |
| Intersection Capacity Utilization | 70.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Volume (veh/h) | 22 | 61 | 76 | 181 | 286 | 33 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 24 | 68 | 84 | 201 | 311 | 36 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 286 | | | | 302 | 185 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 286 | | | | 302 | 185 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 98 | | | | 54 | 96 |
| cM capacity (veh/h) | 1277 | | | | 677 | 857 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 92 | 286 | 347 |
| Volume Left | 24 | 0 | 311 |
| Volume Right | 0 | 201 | 36 |
| cSH | 1277 | 1700 | 692 |
| Volume to Capacity | 0.02 | 0.17 | 0.50 |
| Queue Length 95th (ft) | 1 | 0 | 71 |
| Control Delay (s) | 2.2 | 0.0 | 15.3 |
| Lane LOS | A | | C |
| Approach Delay (s) | 2.2 | 0.0 | 15.3 |
| Approach LOS | | | C |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 7.6 | | |
| Intersection Capacity Utilization | 47.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | |
| Satd. Flow (prot) | 1770 | 1583 | 1770 | 1845 | 1776 | |
| Flt Permitted | 0.95 | 1.00 | 0.09 | 1.00 | 1.00 | |
| Satd. Flow (perm) | 1770 | 1583 | 164 | 1845 | 1776 | |
| Volume (vph) | 135 | 421 | 267 | 675 | 806 | 85 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 147 | 458 | 297 | 750 | 896 | 94 |
| RTOR Reduction (vph) | 0 | 78 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 147 | 380 | 297 | 750 | 986 | 0 |
| Heavy Vehicles (%) | 2% | 2% | 2% | 3% | 6% | 2% |
| Turn Type | | pm+ov | pm+pt | | | |
| Protected Phases | 4 | 5 | 5 | 2 | 6 | |
| Permitted Phases | | 4 | 2 | | | |
| Actuated Green, G (s) | 9.6 | 18.7 | 54.6 | 54.6 | 40.5 | |
| Effective Green, g (s) | 10.6 | 20.7 | 55.6 | 55.6 | 41.5 | |
| Actuated g/C Ratio | 0.14 | 0.28 | 0.75 | 0.75 | 0.56 | |
| Clearance Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 253 | 527 | 341 | 1383 | 993 | |
| v/s Ratio Prot | 0.08 | c0.10 | 0.12 | 0.41 | c0.56 | |
| v/s Ratio Perm | | 0.14 | 0.53 | | | |
| v/c Ratio | 0.58 | 0.72 | 0.87 | 0.54 | 0.99 | |
| Uniform Delay, d1 | 29.7 | 24.1 | 22.5 | 3.9 | 16.2 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.4 | 4.8 | 20.8 | 0.4 | 26.6 | |
| Delay (s) | 33.1 | 29.0 | 43.3 | 4.4 | 42.8 | |
| Level of Service | C | C | D | A | D | |
| Approach Delay (s) | 30.0 | | | 15.4 | 42.8 | |
| Approach LOS | C | | | B | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.89 | | |
| Actuated Cycle Length (s) | 74.2 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 80.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Volume (veh/h) | 0 | 368 | 262 | 64 | 101 | 0 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 409 | 291 | 71 | 110 | 0 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 362 | | | | 736 | 327 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 362 | | | | 736 | 327 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 100 | | | | 72 | 100 |
| cM capacity (veh/h) | 1196 | | | | 386 | 715 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 409 | 362 | 110 |
| Volume Left | 0 | 0 | 110 |
| Volume Right | 0 | 71 | 0 |
| cSH | 1196 | 1700 | 386 |
| Volume to Capacity | 0.00 | 0.21 | 0.28 |
| Queue Length 95th (ft) | 0 | 0 | 29 |
| Control Delay (s) | 0.0 | 0.0 | 18.0 |
| Lane LOS | | | C |
| Approach Delay (s) | 0.0 | 0.0 | 18.0 |
| Approach LOS | | | C |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.2 | | |
| Intersection Capacity Utilization | 31.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

associated with eight special events at Darien Lake that occurred on some Thursdays and Fridays in August. A review of traffic associated with a Phish concert that occurred on August 13, 2009 indicates that there was an increase of approximately 500 vehicles above the average August rate at the Exit 48A toll plaza (1,450 total vehicles). Based on conversations with the NYSTA, it was concluded that the NYSTA can address the increased demand at the interchange during special events along with traffic associated with the STAMP project by managing the existing staffed/EZ-pass toll lanes or adding additional toll lanes. .

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