GDOT
Georgia Department of Transportation

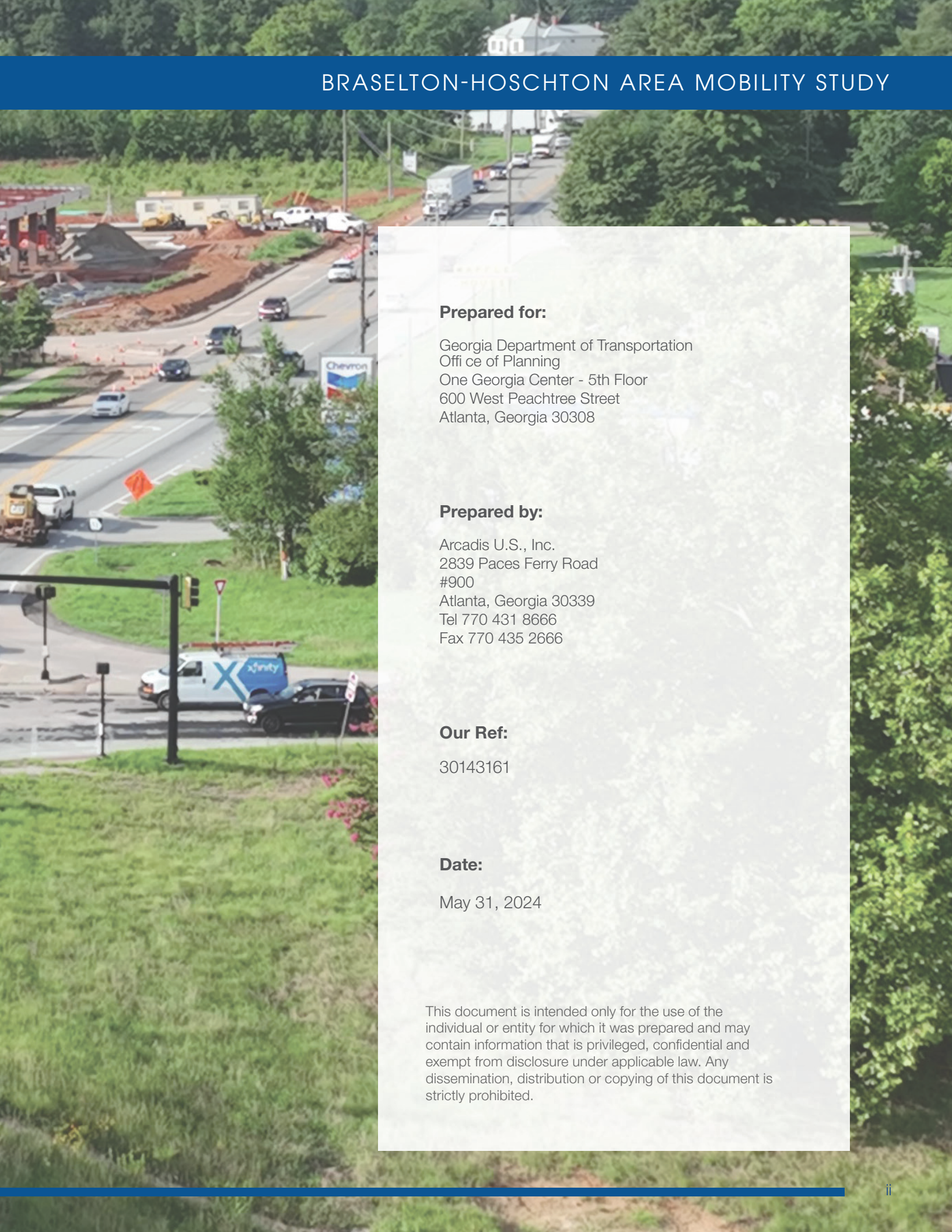
Braselton - Hoschton Area Mobility Study

Final Report





SR 53 south of I-85 Interchange



Prepared for:

Georgia Department of Transportation
Offi ce of Planning
One Georgia Center - 5th Floor
600 West Peachtree Street
Atlanta, Georgia 30308

Prepared by:

Arcadis U.S., Inc.
2839 Paces Ferry Road
#900
Atlanta, Georgia 30339
Tel 770 431 8666
Fax 770 435 2666

Our Ref:

30143161

Date:

May 31, 2024

This document is intended only for the use of the individual or entity for which it was prepared and may contain information that is privileged, confidential and exempt from disclosure under applicable law. Any dissemination, distribution or copying of this document is strictly prohibited.

Issue	Revision No.	Date Issued	Page No.	Description	Reviewed by

Table of Contents

Executive Summary ES-1
1 - Study Overview 1
1.1 Study Area 2
1.2 Study Process 3
1.3 Stakeholder Engagement 3
2 - Existing Conditions 5
2.1 Community and Environmental Attributes Data 5
2.1.1 Demographics 6
2.1.2 Justice 40 9
2.1.3 Transit 11
2.1.4 Land Use 11
2.1.5 Community Facilities and Environmental Resources 12
2.2 Traffic Data 14
2.2.1 Existing Year Volume Development 15
2.2.2 Origin-Destination Data 15
2.2.3 Existing Traffic Operations 15
3 - Modeling Tools and Methodology 19
4 - Baseline Conditions 21
4.1 Planned Developments 21
4.2 Population and Employment Growth 23
4.3 Transportation Improvement Program Projects 27
4.4 Traffic Growth 28
5 Analysis of Baseline Conditions 29
5.1 Regional Travel Demand Model Level of Service 29
5.2 Traffic Operations - Intersection Level of Service 31
6 - Regional Connectivity Improvements 33
6.1 Potential Regional Connectivity Improvements 33
6.2 Analysis of Regional Connectivity Improvements 36
6.3 Recommended Regional Connectivity Improvements 45
7 - Local Operational Improvements 47
7.1 Analysis of Local Operational Improvements 47
7.2 Recommended Local Operational Improvements 49
8 - Summary of Recommendations and Proposed Funding Method for Implementation 51
8.1 Recommended Projects 53
8.1.1 Long-Range Projects 55
8.1.2 Summary of Stakeholder Feedback 56
8.2 Opportunities for Federal Funding 57

Appendices

Appendix A: Stakeholder Meeting Materials
Appendix B: Traffic Model Outputs
Appendix C: Cost Estimates

Figures

Figure ES - 1. Study Area Map ES-2
Figure ES - 2. Regional Improvement Recommendations Map ES-4
Figure ES - 3. Local Operational Improvement Recommendations Map ES-5
Figure 1-1. Study Area 2
Figure 1-2. Study Process 3
Figure 2-1. Map of Study Area Population Density 7
Figure 2-2. Map of Disadvantaged Census Tracts 9
Figure 2-3. Map of Future Land Use 11
Figure 2-4. Map of National Register of Historic Places 12
Figure 2-5. Map of Wetlands 13
Figure 2-6. Local vs Pass-through Trips for All Vehicle Types 16
Figure 2-7. Local vs Pass-through Trips for Trucks 16
Figure 4-1. Map of Population Growth 24
Figure 4-2. Map of Employment Growth 26
Figure 5-1. Map of Baseline Conditions Level of Service 30
Figure 6-1. Map of Potential Regional Connectivity Improvements 34
Figure 6-2. Map of Alternative Combination 1 37
Figure 6-3. Map of TDM Results for Alternative Combination 1 38
Figure 6-4. Map of Alternative Combination 2 39
Figure 6-5. Map of TDM Results for Alternative Combination 2 40
Figure 6-6. Map of Alternative Combination 3 41
Figure 6-7. Map of TDM Results for Alternative Combination 3 42
Figure 6-8. Map of Alternative Combination 4 43
Figure 6-9. Map of TDM Results for Alternative Combination 4 44
Figure 8-1. Map of Recommended Regional Connectivity Improvements 53
Figure 8-2. Map of Recommended Local Operational Improvements 54

Tables

Table ES - 1. Recommended Regional Improvements ES-6
Table ES - 2. Local Operational Improvements ES-7
Table 2-1. Reference of Planning Studies 5
Table 2-2. Racial Demographics within the Study Area 6
Table 2-3. Socioeconomic Data for Study Area 8
Table 2-4. Breakdown of Transportation Cost Burden 10
Table 2-5. Existing Level of Service (LOS) 17
Table 3-1. Summary of Modeling 20
Table 4-1. Planned Development within Study Area 22
Table 4-2. Baseline 2050 Traffic Analysis Zones (TAZs) Population Results 23
Table 4-3. Baseline 2050 Traffic Analysis Zones (TAZs) Employment Results 25
Table 4-4. TIP Projects within Study Area 27
Table 4-5. Growth Rates 28
Table 5-1. Level of Service (LOS) for Open Year and Design Year 32
Table 6-1. Cost Estimates for Regional Connectivity Improvements 35
Table 6-2. Cost Estimates for Recommended Regional Connectivity Improvements 45
Table 7-1. Signal Warrant Analysis Results for Local Intersections 48
Table 7-2. Recommended Local Operational Improvements 49
Table 7-3. 2050 Intersection Level of Service for Baseline vs. Improvement Conditions 50
Table 8-1. Recommended Projects' Cost Estimates and Prioritization for Implementation 52
Table 8-2. Analysis of Regional Transportation Plans 55

Acronyms

ARC	Atlanta Regional Commission
B/C	Benefit-Cost
BHAM	Braselton-Hoschton Area Mobility
BIL	Bipartisan Infrastructure Law
DOT	Department of Transportation
DHV	Design Hourly Volumes
DRI	Development of Regional Impact
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
Georgia DOT	Georgia Department of Transportation
GHMPO	Gainesville-Hall Metropolitan Planning Organization
GSTDM	Georgia State Travel Demand Model
I-85	Interstate 85
LOS	Level of Service
MPO	Metropolitan Planning Organization
NHS	National Highway System
NRHP	National Register of Historic Places
OPB	Office of Planning and Budgeting
RAISE	Rebuilding American Infrastructure with Sustainability and Equity
RITIS	Regional integrated Transportation Information System
RTP	Regional Transportation Plan
SR	State Route
SSTP	Statewide Strategic Transportation Plan
STIP	Statewide Transportation Improvement Program
TADA	Traffic Analysis and Data Application
TAZ	Traffic Analysis Zone
TDM	Travel Demand Model
TIP	Transportation Improvement Plan
TSPLOST	Transportation Special Purpose Local Option Sales Tax
TWSC	Two-way Stop Control
USDOT	United States Department of Transportation
V/C	Volume Capacity
Veh/Hr	Vehicles per Hour

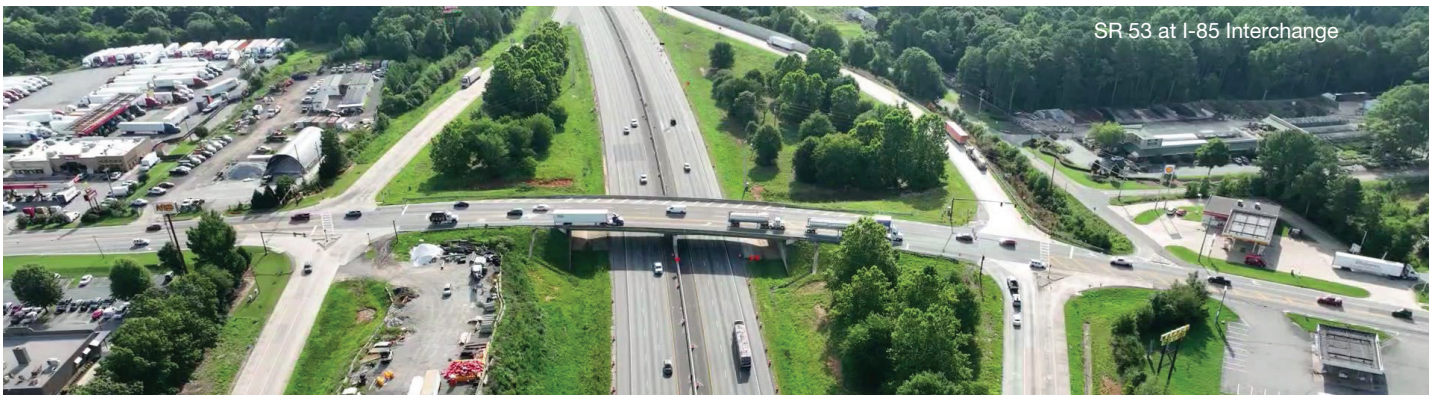
Executive Summary

In recent years, the Braselton-Hoschton area in northeastern Georgia has experienced unprecedented growth in residential and commercial development. The rapid growth has impacted the operations of transportation networks, which include state routes (SR) such as SR 53, SR 211, SR 124, and SR 60 as well as Interstate 85 (I-85). To address the impacts to the transportation networks, the Georgia Department of Transportation (Georgia DOT) initiated the Braselton-Hoschton Area Mobility (BHAM) study.

The purpose of the BHAM study is to analyze existing and future travel conditions in the Braselton-Hoschton area and to develop recommendations for improving future travel conditions. This study is also aligned to Georgia DOT and the Governor's goals to put Georgia first by improving transportation safety and security.[1]

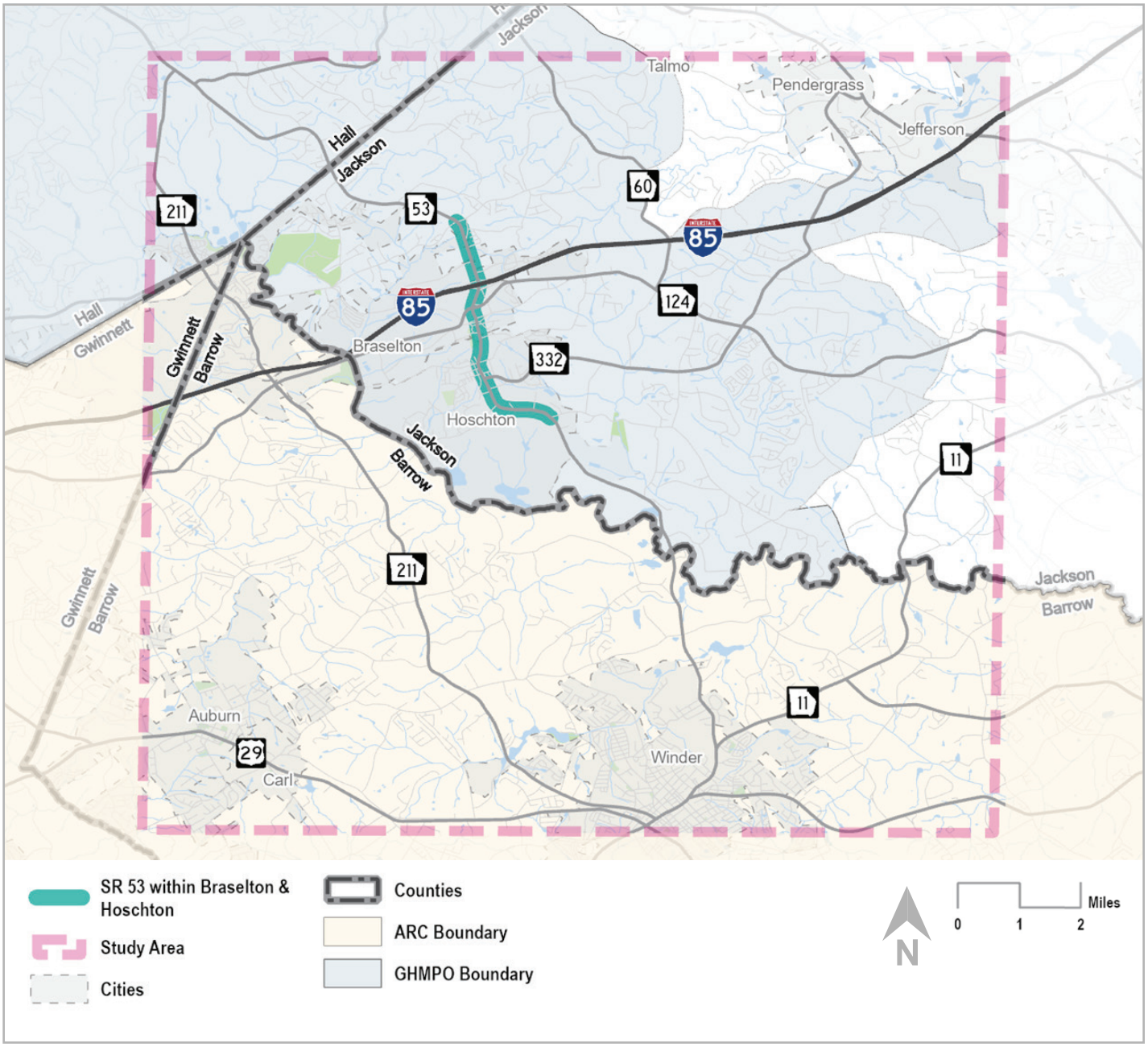
The study team, which consists of Georgia DOT and consultants, reviewed projects programmed for construction in the Braselton-Hoschton area as well as identified additional improvements. Two categories of improvements were identified for the study: regional connectivity and local operational improvements. Regional connectivity improvements refer to improvements that would manage the growth of traffic on SR 53 within the downtown portions of Braselton and Hoschton by providing improved capacity or connectivity to alternative routes around this portion of SR 53. The study looked at a broad study area as shown in Figure ES-1 for potential regional improvements that would divert traffic away from SR 53. The regional connectivity improvements focused on diverting the growth of traffic away from the blue highlighted portion of SR 53 shown in Figure ES-1. Local operational improvements refer to intersection and other operational improvements that could be implemented on SR 53 to manage traffic within the portions of SR 53 that travel through downtown Braselton and Hoschton.

[1]Statewide Transportation Improvement Program FY 2024-2027, STIP_FY24_27_Final.pdf (ga.gov) page 4, and Statewide Strategic Transportation Plan GDOT_FINAL_2021SSTP.pdf (ga.gov) page 13, accessed 4/9/2024.



SR 53 at I-85 Interchange

Figure ES - 1. Study Area Map



The study team began their analysis by identifying all regional connectivity improvement projects and modeled them into four scenarios (also referred to as alternatives). Each alternative was evaluated for future delay reduction; reduction in daily traffic; level of service (LOS), which is the traffic-carrying ability of a roadway described by levels ranging from LOS A to LOS F; and benefit-cost (B/C) ratio. An in-depth description of each of the four alternatives is found in Section 6.

The study team then identified all local operational projects that would improve the flow of traffic in Braselton and Hoschton. The currently unsignalized intersections were assessed to determine whether they will meet signal warrant criteria in either open year 2030 or design year 2050. If an intersection met at least two of the three signal warrants checked (Warrant 1 – Eight-Hour Vehicular Volume, Warrant 2 – Four-Hour Vehicular Volume, and Warrant 3 – Peak Hour), a signal was deter-



Pilot Station at SR 53

mined to be warranted. Potential local operational improvements were then determined based on the results of the signal warrant analysis as well as a planning-level Synchro and Sidra traffic analysis.

To assess the potential local operational improvements, two traffic volume scenarios were modeled for the design year 2050:

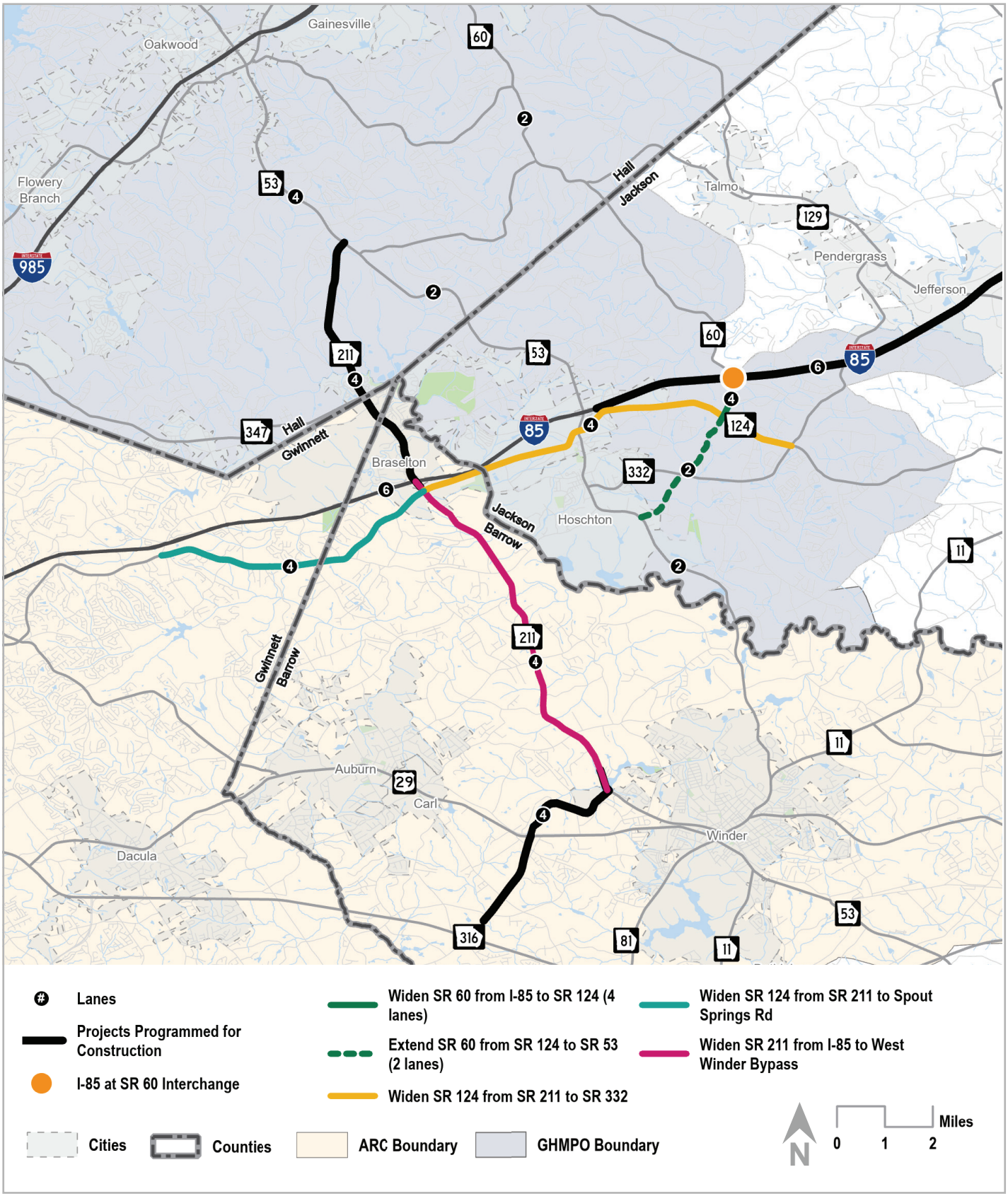
- One scenario where the existing volumes were assumed to increase by 1.37 percent per year, consistent with the baseline condition assumptions.
- Another scenario where a portion of the SR 53 traffic was assumed to be diverted from the corridor due to the implementation of recommended regional improvements (constructing a new interchange at SR 60 and I-85, widening SR 124, widening SR 211, and extending SR 60), which allowed the performance of the operational improvements to be assessed in conjunction with the regional improvements.

Further explanation and details of the local operational improvements analysis are in Section 7.

After identifying the regional connectivity and local operational improvements, the study team presented their findings to stakeholders, which included city and county officials, Georgia DOT representatives, school district representatives, and local Braselton and Hoschton business owners. Stakeholders shared their knowledge and insights of the area and provided feedback and input on a vision for the future of the study area.

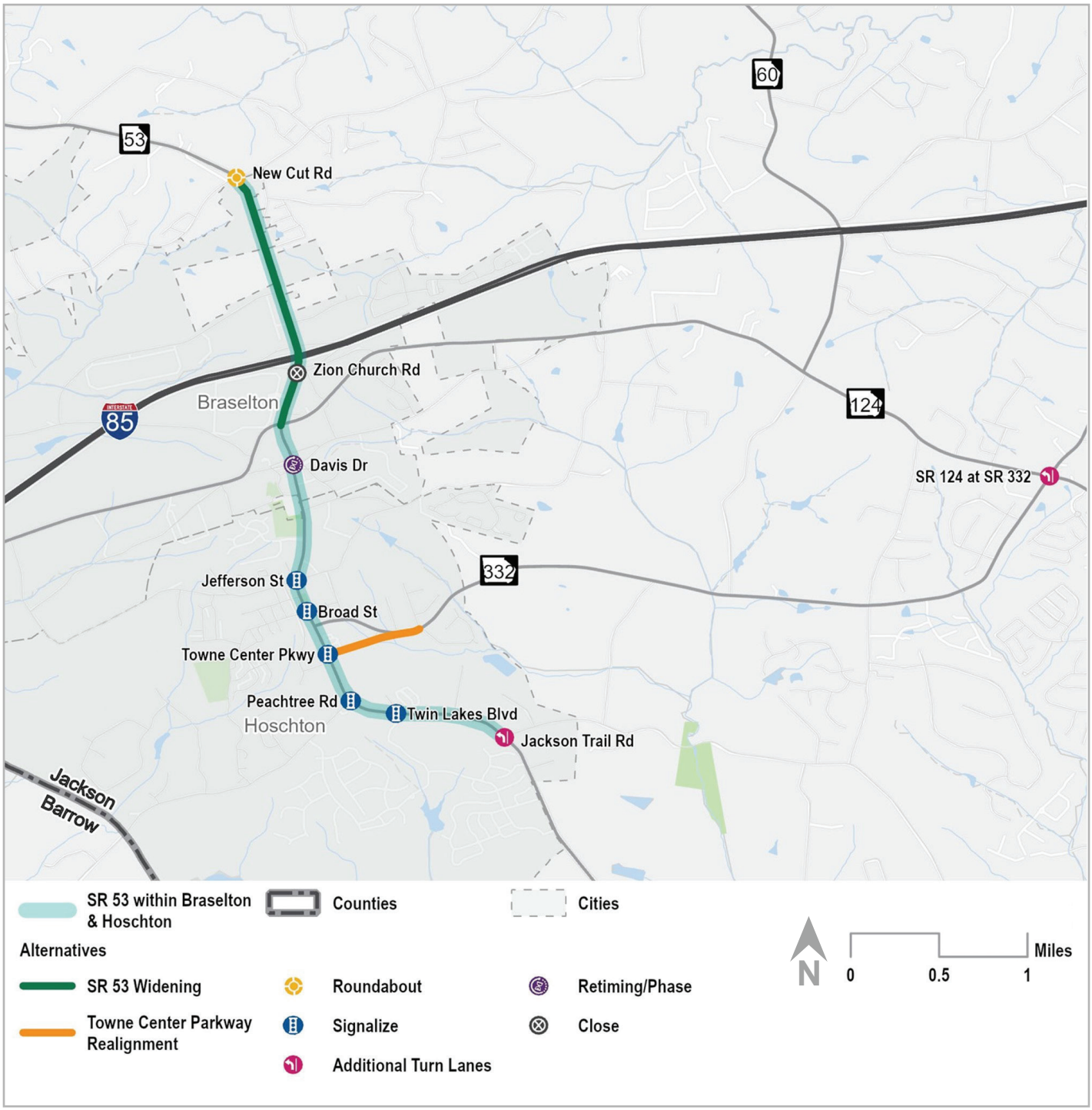
Of the four alternatives that were modeled as shown on Figure ES-2, the study team recommended alternative 4. The identified projects in alternative 4 effectively improve regional connectivity and reduce congestion in downtown Braselton and Hoschton. Section 6.2 provides an in-depth description of alternative 4.

Figure ES - 2. Regional Improvement Recommendations Map



As described earlier, the study team also identified local operational improvements and made recommendations based on results of signal warrant analysis and planning-level Synchro and Sidra traffic analysis. The recommended local operational improvements are shown in Figure ES-3. An in-depth explanation of the recommended local operational improvements can be found in Section 7.2.

Figure ES - 3. Local Operational Improvement Recommendations



Implementation of the recommended regional connectivity improvements would serve to accommodate the demand for north-south travel between I-85 and the area south of Braselton and Hoschton as well as improve connectivity by providing freight demand access to I-85. Based on the results of the 2050 travel demand model, SR 53 and SR 211 are forecasted to operate at or above their current design capacity by 2050 if no improvements are made.

The local operational improvements recommended by the study team aim to benefit local traffic while preserving the character of SR 53 through Braselton and Hoschton, as well as maintain safe access to businesses and neighborhoods. Most segments of SR 53 will operate at LOS E or LOS F in 2050 and most minor road approaches at stop-controlled intersections on SR 53 will operate at LOS F in 2050 if no enhancements are made to the system. The BHAM study provides recommendations to address regional connectivity and local traffic operations in the Braselton-Hoschton area impacted by the rapid growth in population and development. The recommended projects have been assigned a prioritization for implementation to identify which projects could move forward more quickly to address the region's needs. The prioritization for implementation is divided into three categories: Implement first, second, and third.

Tables ES-1 and ES-2 provide a summary of all the recommended regional connectivity and local operational improvements with phased cost estimates and time frame of implementation. It is advised that the project recommendations identified in this report be considered for inclusion in local, regional, or statewide plans. These projects must be included in one of these plans as a necessary step to receive funding for design, engineering, and construction activities. Outlined in Section 8.2 of this report, potential funding sources and sponsors have been identified to aid in the implementation process.

Table ES - 1. Recommended Regional Improvements

Regional Connectivity Improvement ($ nearest million)						
Improvement	**PE**	**ROW**	**UTL**	**CST**	**Total**	**Potential Sequencing**
Widen SR 124 from SR 211 to SR 332 (4 lanes)	$8	$8	$6	$65	$87	Second
Widen SR 211 from I-85 to West Winder Bypass (4-6 lanes)	$11	$11	$8	$87	$117	Second
Construct an interchange at SR 60 and widen SR 60 from I-85 to SR 124 (4 lanes)	$3	$18	$2	$23	$46	Third
Extend SR 60 from SR 124 to SR 53 (2 lanes)	$3	$8	$2	$23	$36	Third
Widen SR 124 from SR 211 to Spout Springs Road (4 lanes)	$7	$14	$6	$60	$87	Third
Total:					$373	

Table ES - 2. Local Operational Improvements

Local Operational Improvement ($ nearest thousand)						
Improvement	**PE**	**ROW**	**UTL**	**CST**	**Total**	**Potential Sequencing**
Widen SR 53 from two- to four-lanes between the intersections of SR 124 and New Cut Road.	$1,170	$5,474	$908	$9,553	$17,105	First
Modify and upgrade the SR 53 at New Cut Road roundabout to multi-lane.	$372	$2,053	$289	$3,041	$5,755	First
Close SR 53 at Zion Church Road	$26	--	$20	$215	$261	First
Retime/improve signal phasing at SR 53 at Davis Street	$30	--	$23	$246	$299	First
Signalize the intersection of SR 53 at Twin Lakes Boulevard	$36	--	$28	$297	$361	First
Add a dedicated right turn lane on Jackson Trail Road at the intersection with SR 53	$55	--	$43	$448	$546	First
At the intersection of SR 332 and SR 124, widen SR 124 to four lanes and add a dedicated right turn lane on SR 332 northbound	$746	$2,224	$579	$6,087	$9,636	First
Signalize the intersection of SR 53 at Peachtree Road	$36	--	$28	$297	$361	Second
Signalize the intersection at East Jefferson Street	$36	--	$28	$297	$361	Third
Signalize the intersection of SR 53 at East Broad Street	$61	--	$143	$501	$705	Third
Improvements to SR 53 at Towne Center Parkway, Industrial Boulevard, and SR 332/ Pendergrass Road	$352	$7,323	$273	$2,876	$10,825	Third
Total					**$46,215**	

*Note: Improvements to SR 53 include: align Towne Center Parkway with Industrial Boulevard, Reroute SR 332/Pendergrass Road traffic to Towne Center Parkway, close SR 53 at existing Pendergrass Road, and signalize the new intersection of SR 53 at Industrial Boulevard and SR 332/Towne Center Parkway/Pendergrass Road



SR 53 toward Braselton

1 - Study Overview

Since the early 2000s, northeastern Georgia has experienced unprecedented growth in commercial and residential development, leading to an increase in population in the region. As the population density of the region increased, so has the usage of existing transportation networks.

State Route (SR) 53, a major thoroughfare that passes through the downtown areas of Braselton and Hoschton in northeastern Georgia, has also experienced regional connectivity and local traffic congestion issues. The purpose of the Braselton-Hoschton Area Mobility (BHAM) study is to analyze existing and future travel conditions in the Braselton-Hoschton area and develop recommendations for improving regional connectivity and local operations. Regional connectivity improvements refer to improvements that would manage the growth of traffic on SR 53 within the downtown portions of Braselton and Hoschton by providing improved capacity or connectivity to alternative routes around this portion of SR 53. Local operational improvements refer to intersection and other operational improvements that could be implemented on SR 53 to manage traffic within the portions of SR 53 that travel through downtown Braselton and Hoschton.

The existing travel conditions of regional state routes such as SR 53, SR 211, SR 124, and SR 60 as well as Interstate 85 (I-85) were examined. In addition, local traffic operations in downtown Braselton and Hoschton were assessed. The analysis led to the formulation of a list of recommendations for regional connectivity and local traffic improvements.

This study aligns with Georgia DOT and the Governor's goals to put Georgia first by improving transportation safety and security.[2]

---

[2]Statewide Transportation Improvement Program FY 2024-2027, STIP_FY24_27_Final.pdf (ga.gov) page 4, and Statewide Strategic Transportation Plan GDOT_FINAL_2021SSTP.pdf (ga.gov) page 13, accessed 4/9/2024.



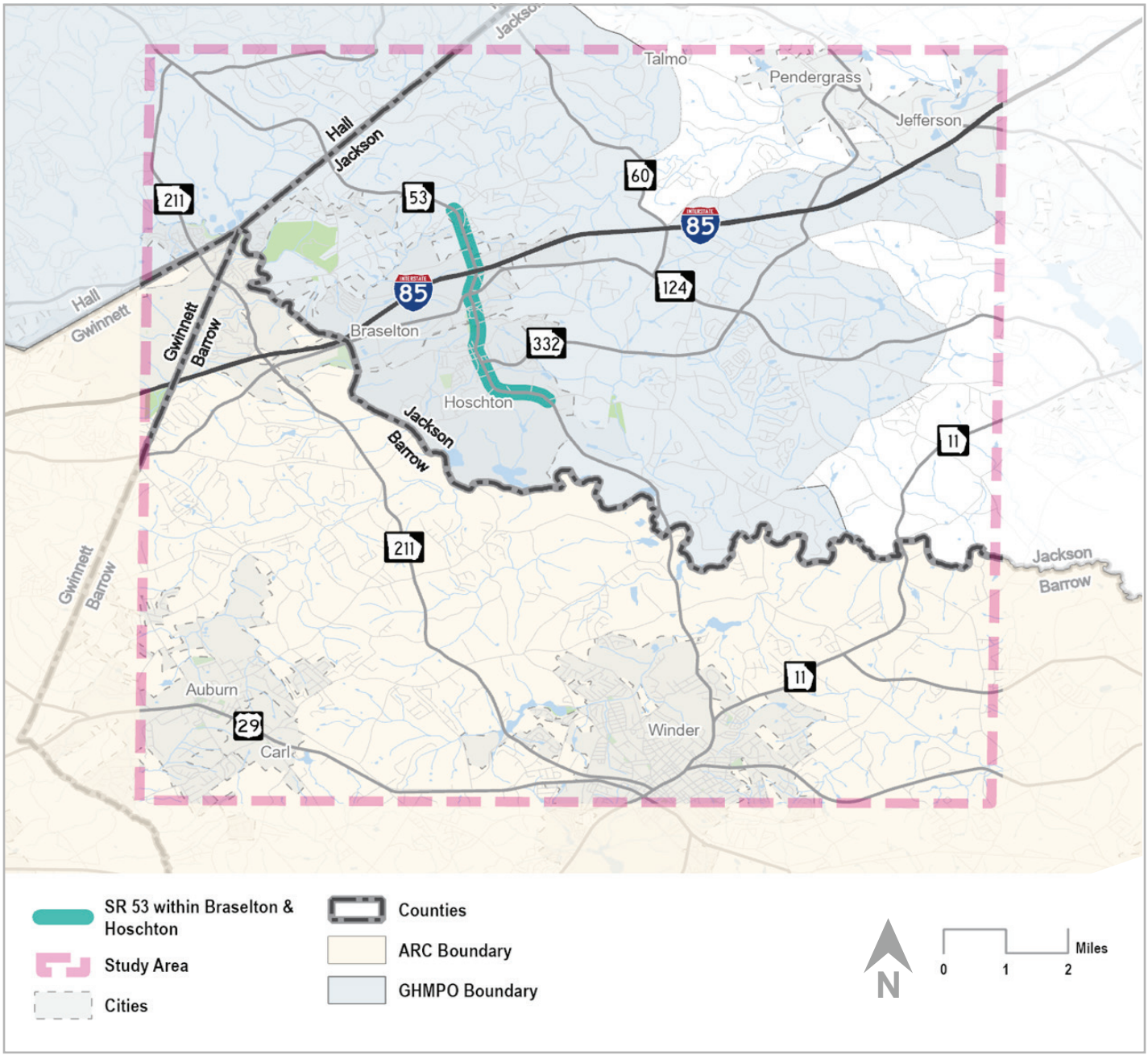
SR 53 at I-85 Interchange

1.1 Study Area

The study area includes the town of Braselton, the city of Hoschton, and portions of Jackson, Barrow, Gwinnett, and Hall Counties as shown on Figure 1.1. The area in beige is within the Atlanta Regional Commission (ARC) boundary and the area shaded in gray resides in the Gainesville-Hall Metropolitan Planning Organization (GHMPO) boundary.

A more detailed traffic operational analysis reviewing the traffic signal, two-way stop control (TWSC), and roundabout intersection performance along SR 53 was completed for the portion highlighted in turquoise on Figure 1-1.

Figure 1-1. Study Area



1.2 Study Process

The BHAM study approach consisted of an analytical process comprising the following steps: (1) gather data to assess the existing and baseline conditions of the study area; (2) identify regional connectivity and local operational improvements; (3) evaluate the screened improvements by examining how they would improve future travel conditions; (4) present results to stakeholders and review their feedback; and (5) provide Georgia DOT with a list of recommended regional and local operational improvement projects. The steps of the process are summarized on Figure 1-2 and are discussed in the following sections.

1.3 Stakeholder Engagement

Stakeholder engagement was a vital component of the BHAM analytical process. Stakeholders were invited to attend three in-person meetings, which were held on October 25, 2022; February 15, 2023; and November 16, 2023. The meetings consisted of presentations from the study team and stakeholder engagement activities. Stakeholders included city and county officials, Georgia DOT representatives, school district representatives, and local Braselton and Hoschton business owners. At the first meeting, the study team shared an overview of the purpose and background of the study and then encouraged stakeholders to provide their insights regarding the study area. Stakeholders reviewed data maps and further identified additional information such as the location of new or planned developments, what they believed was generating truck and car traffic in Braselton and Hoschton, and the best locations for new road connections.

Similarly, at the second meeting, stakeholders were given an overview of the existing conditions, baseline conditions, and potential improvements that the study team could analyze. They were encouraged to provide their insights on the regional and local operational improvements. The stakeholders offered their feedback and identified areas of concern. At the third and final meeting, stakeholders were presented with analysis results and were asked to provide feedback regarding the four highest performing alternatives and the potential sequencing of the recommendations. The stakeholders again shared their thoughts with the study team. After each meeting, the study team reviewed and incorporated the feedback from stakeholders into their continued analysis. The stakeholder engagement meeting notes and attendance logs are provided in Appendix A.

Figure 1-2. Study Process





Downtown Braselton

2 - Existing Conditions

The first step of the BHAM study was to gather data regarding the existing conditions in the study area. Existing condition data provided the study team, which consisted of Georgia DOT and consultants, with an overview of current connectivity and operational issues. These existing condition data include demographics, land use, and community and environmental resources. Traffic data for the current year 2023 were also collected. The existing conditions information collected formed the basis of future year analyses, which are discussed in later sections of this report.

2.1 Community and Environmental Attributes Data

To understand the existing conditions of the study area, the study team began their analysis by reviewing the previously completed planning studies listed in Table 2-1. These planning studies are referenced throughout this report.

Table 2-1. Reference of Planning Studies

Planning Study	Date Completed
Jackson County Transportation Plan	2019
Town of Braselton 2020-2030 Comprehensive Plan	2020
Gainesville-Hall Regional Transportation Plan 2020	2020
2050 Jackson County Comprehensive Plan	2020
Statewide Strategic Transportation Plan	2021
The Atlanta Region Commission's Regional Transportation Plan	2022
Gwinnett 2040 Unified Plan	2022
City of Hoschton, Georgia Comprehensive Plan 2021-2040 Five-Year Plan Update	2023
Statewide Transportation Improvement Program Fiscal Year 2024-2027	2023
The Atlanta Regional Commission's Transportation Improvement Plan	2023



Downtown Hoschton

2.1.1 Demographics

To further understand the existing conditions, the study team did an in-depth analysis of the demographics of the study area. Table 2-2 shows that most of the racial makeup of residents in Hoschton, Braselton and in the counties of Jackson, Barrow and Hall counties are white. Gwinnett County is the exception by having a population that is approximately evenly divided among all races and ethnicities.

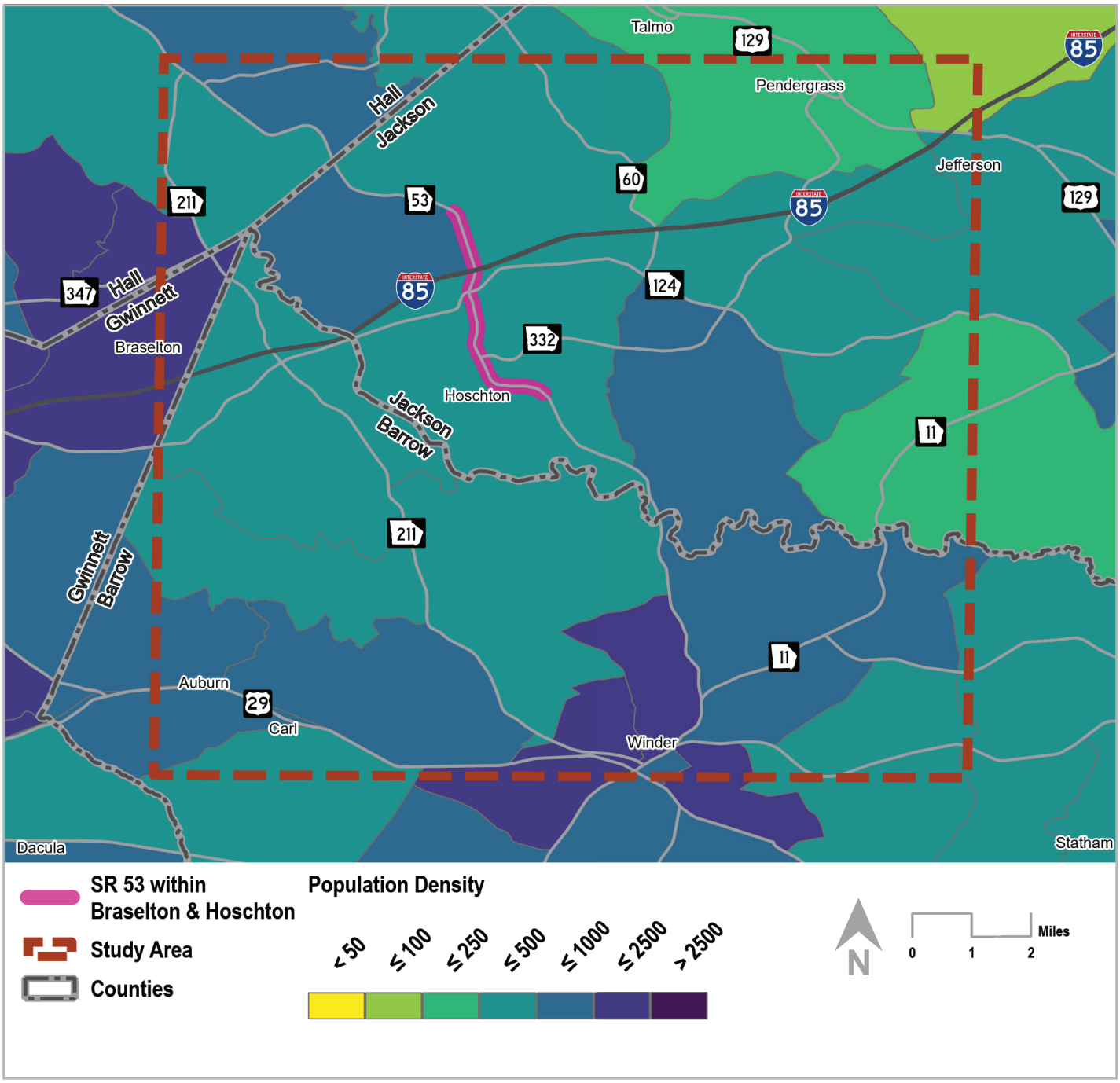
Table 2-2. Racial Demographics within the Study Area

	Hoschton	Braselton	Jackson County	Barrow County	Hall County	Gwinnett County
White (%)	83%	84%	82%	71%	72%	39%
Black (%)	5%	5%	7%	12%	6%	28%
Hispanic (%)	10%	8%	9%	13%	20%	21%
Asian (%)	2%	3%	2%	4%	2%	12%
Total Population:	**2,666**	**13,403**	**77,033**	**84,399**	**204,953**	**957,977**

Source: U.S. Census Bureau. "Demographic and Housing Estimates." American Community Survey, ACS 5-Year Estimates Subject Tables, Accessed on December 18, 2023.

The study team also calculated the existing population density of the study area by dividing the population of each census tract within the study area by the area of each census tract. Figure 2-1 shows that the population density for the study area is between 250 to 1,000 people per square area, which means that most of the study area is in the mid-level range of densely populated. Section 4 discusses how the planned and programmed projects will affect the existing demographic data in the study area.

Figure 2-1. Map of Study Area Population Density



An analysis of the socioeconomic data was also completed. Table 2-3 shows that more than half of the population of Hoschton (74%) travels outside of the county for work, while a little less than half of the population of Braselton (48%) travels outside the county for work. This pattern is consistent with the counties of Jackson and Barrow. However, less than half of the populations in Hall and Gwinnett counties travel outside their respective counties for work.

In addition, Table 2-3 also shows that the median household income is similar for the majority of the study area with the exception of Braselton which has an above average median household income at $111,080. The unemployment for the study area is at or below 2% and the number of families or people living below the poverty rate is at or below 12%.

Table 2-3. Socioeconomic Data for Study Area

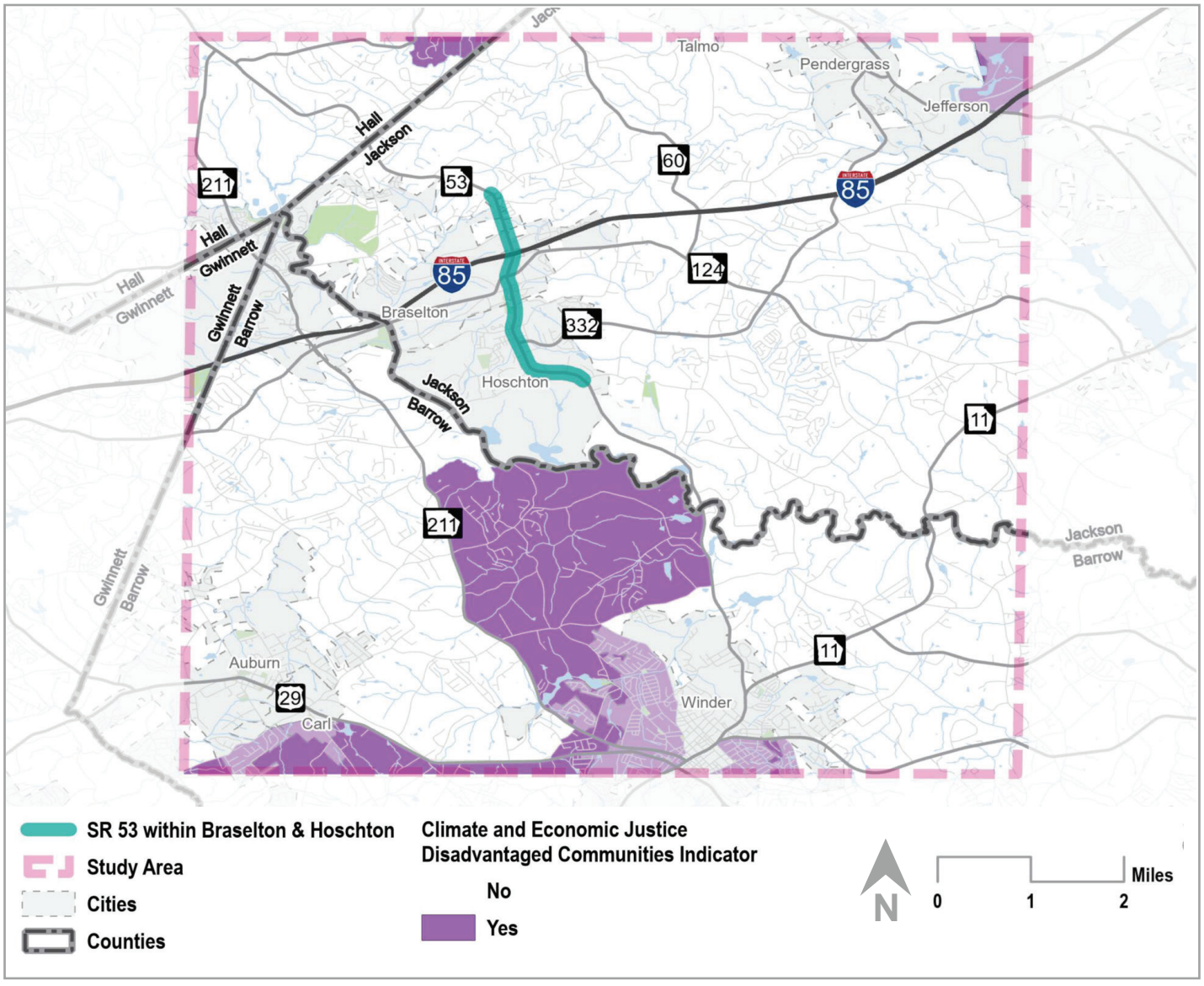
	Barrow County	Hall County	Jackson County	Gwinnett County	Hoschton	Braselton
# Households	30,950	74,331	28,145	327,019	1,124	5,070
Median Household Income	$75,053	$74,153	$82,056	$82,296	$87,021	$111,080
Employment Status						
Employed	64%	61.3%	61%	65.6%	69.6%	67.1%
Unemployed	2.7%	2.5	2.3%	2.8%	0.7%	1.4%
Place of Work Outside the County	65%	31%	53%	36.2%	74%	48%
% of Families and People whose Income is below the poverty level						
All People	8.4%	10.2%	5.4%	8.2%	10.4%	5.2%
All Families	9.6%	13.5%	8.1%	10.1%	12.1%	5.6%

Source: U.S. Census Bureau. "Means of Transportation to Work by Selected Characteristics." "Selected Economic Characteristics." American Community Survey, ACS 5-Year Estimates Subject Tables, Accessed on December 18, 2023.

2.1.2 Justice 40

The study team's analysis also included identifying any disadvantaged groups within the study area. According to the Climate and Economic Justice Screening Tool, census tracts are considered disadvantaged if they meet one of the thresholds for one of the following categories: climate change, energy, health, housing, legacy pollution, transportation, water and wastewater, and workforce development.[3] In Figure 2-2, the purple area shows the locations and concentrations of disadvantaged census tracts. After identifying these areas, the study team used USDOT's Equitable Transportation Community Explorer to measure how and if transportation created a burden for these communities.[4] Table 2-4 shows that the average household in the disadvantaged census tracts spends between 9% to 21% of their household income on transportation.

Figure 2-2. Map of Disadvantaged Census Tracts



[3]Explore the map - Climate & Economic Justice Screening Tool (geoplatform.gov), accessed 2/21/2024.

[4]ETC Explorer - State Results | USDOT Equitable Transportation Community (ETC) Explorer (arcgis.com), accessed 2/21/2024

Table 2-4. Breakdown of Transportation Cost Burden

County	Census Tract	Transportation Cost Burden
Barrow	Census Tract 1801.03	8%
Barrow	Census Tract 1801.04	9%
Barrow	Census Tract 1801.05	9%
Barrow	Census Tract 1801.06	9%
Barrow	Census Tract 1801.07	10%
Barrow	Census Tract 1801.08	11%
Barrow	Census Tract 1802.03	11%
Barrow	Census Tract 1802.04	11%
Barrow	Census Tract 1802.05	12%
Barrow	Census Tract 1802.06	12%
Barrow	Census Tract 1803.01	12%
Barrow	Census Tract 1803.02	12%
Barrow	Census Tract 1803.03	12%
Barrow	Census Tract 1804.01	13%
Gwinnett	Census Tract 506.17	14%
Hall	Census Tract 12.04	15%
Hall	Census Tract 13.02	15%
Hall	Census Tract 16.03	15%
Hall	Census Tract 16.12	15%
Jackson	Census Tract 101.04	16%
Jackson	Census Tract 101.05	16%
Jackson	Census Tract 101.06	16%
Jackson	Census Tract 101.07	16%
Jackson	Census Tract 101.08	17%
Jackson	Census Tract 101.09	17%
Jackson	Census Tract 102	17%
Jackson	Census Tract 107.03	18%
Jackson	Census Tract 107.04	21%
Jackson	Census Tract 107.05	21%

2.1.3 Transit

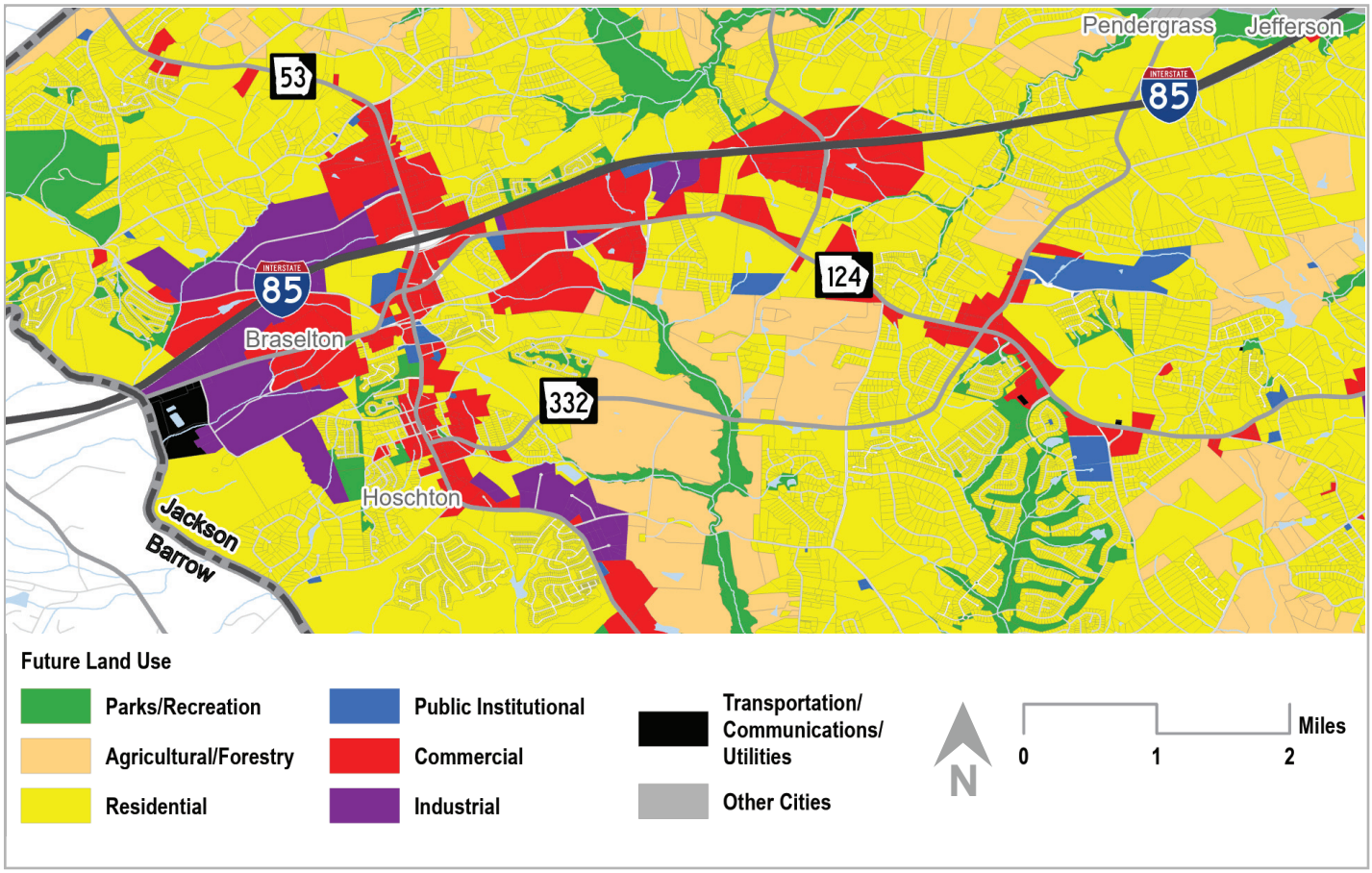
The study area is served by two public transit systems: Gwinnett County Transit and Jackson County Transit. The Gwinnett County transit system provides bus services to residents of Gwinnett County, which includes Braselton. Although there is no direct bus route to Braselton, residents may call ahead and request micro-transit services, an on-demand shared-ride service that picks up and drops off residents at specific destinations, e.g., shopping plazas. The city of Hoschton is served by Jackson County Transit, which is a rural public transportation bus service. Similar to Gwinnett County Transit, Jackson County also offers an on-demand shared-ride service. Both Gwinnett and Jackson County transit services provide paratransit services.[5]

2.1.4 Land Use

The existing land use within the study area is heavily residential with pockets of commercial and industrial developments. Most commercial areas are adjacent to SR 53 and I-85; existing distribution warehouse centers are located at the intersection of SR 53 and I-85.

Figure 2-3 shows the future land use of the study area and that the land use will continue to be heavily residential with commercial and industrial land uses adjacent to SR 53 and I-85.

Figure 2-3. Map of Future Land Use



[5] Bus Routes and Schedules - Gwinnett | Gwinnett County and Transit | Jackson County, GA (jacksoncountygov.com), accessed 2/21/2024.


Commercial Property at SR 124

2.1.5 Community Facilities and Environmental Resources

The study area includes two schools and two buildings that are eligible for listing in the National Register of Historic Places (NRHP), as shown on Figure 2-4. The Braselton Historic District and the Braselton Family Memorial Cemetery are also within the limits of the study area.

Figure 2-4. Map of National Register of Historic Places

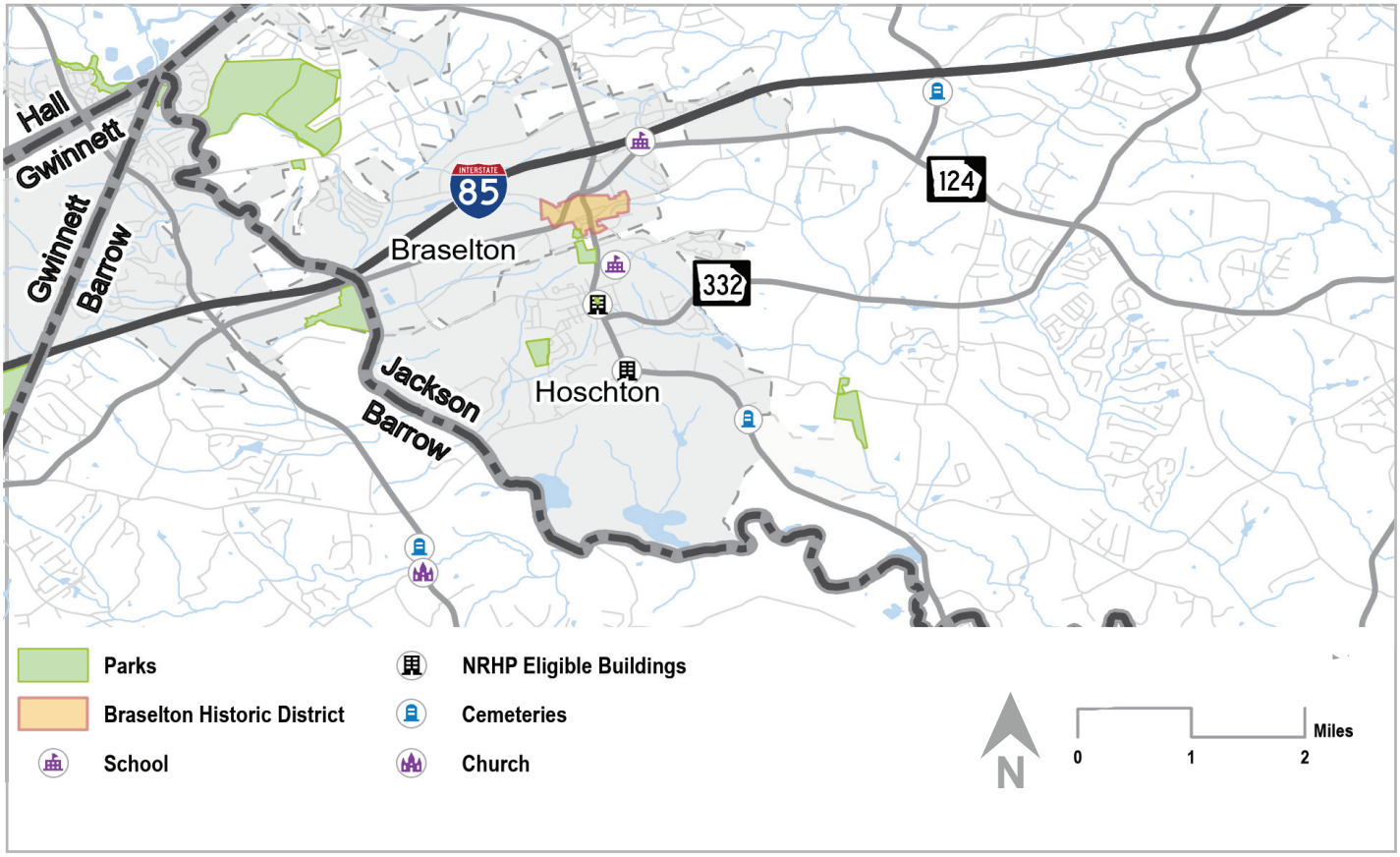
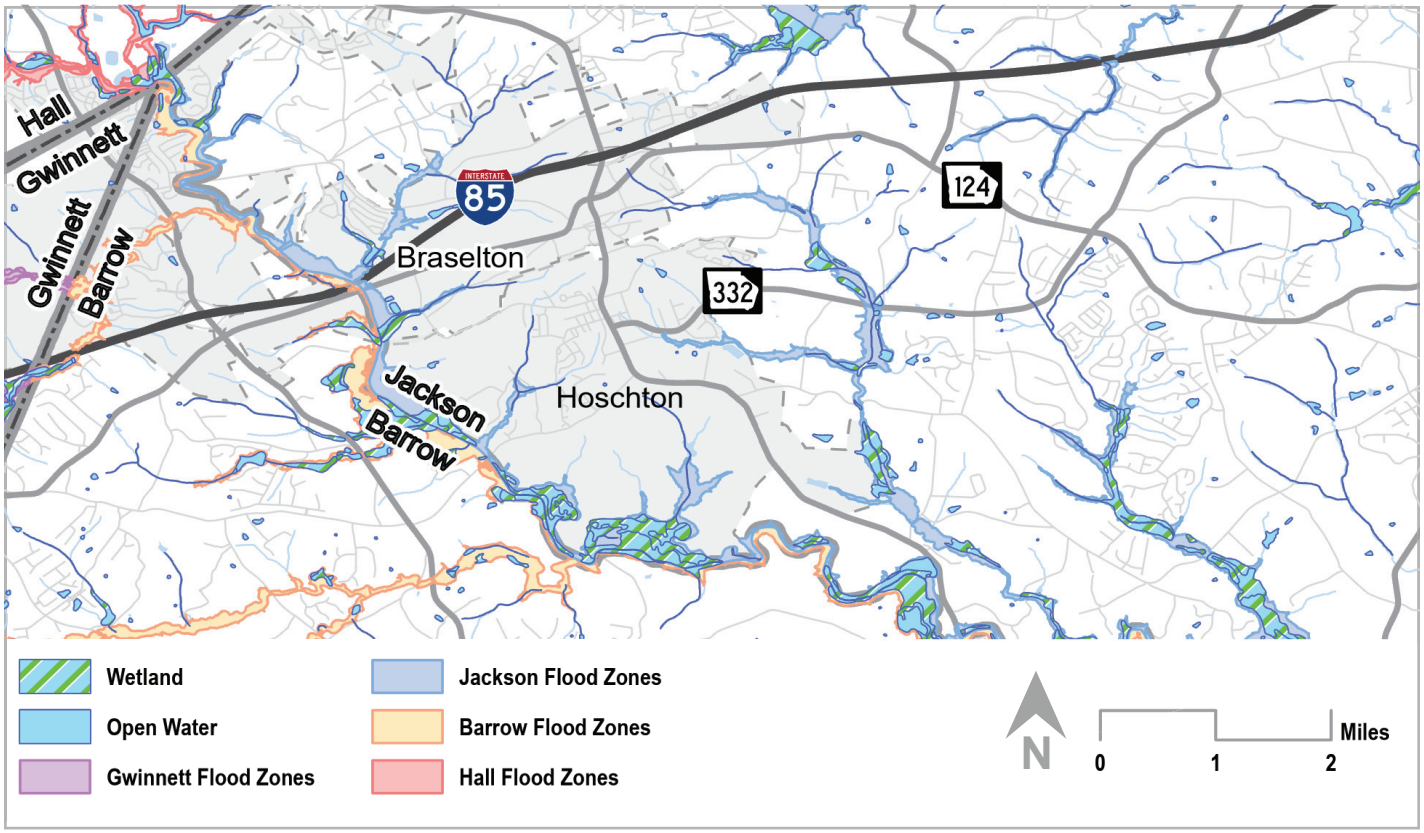


Figure 2-5. Map of Wetlands



As shown on Figure 2-5, the study area has wetlands in Braselton and Hoschton as well as on the border of Jackson and Barrow Counties adjacent to SR 53. Portions of SR 211 are in Barrow County's flood zone. A segment of SR 60, near the city of Talmo, is in open water. Certain segments of I-85, SR 124, SR 332, and SR 11 are also in open water or near open water.

Existing community facilities and environmental resources were identified to help establish the regional and local operational improvements described in later sections of this report.



2.2 Traffic Data

Traffic counts were conducted to determine existing year traffic volumes. Count data were collected at 19 intersections along SR 53 between New Cut Road and Jackson Trail Road as well as at the intersection of SR 332 at SR 124. The counted intersections on the SR 53 corridor are listed to the right.

Turning movement counts (TMCs) were collected at the 20 total intersections during the peak periods of 6:00 a.m. to 9:00 a.m. and 4:00 p.m. to 7:00 p.m. on the following dates:

- 15 intersection TMCs were performed on Tuesday, October 4, 2022.
- 5 intersection TMCs were performed on Wednesday, March 15, 2023.

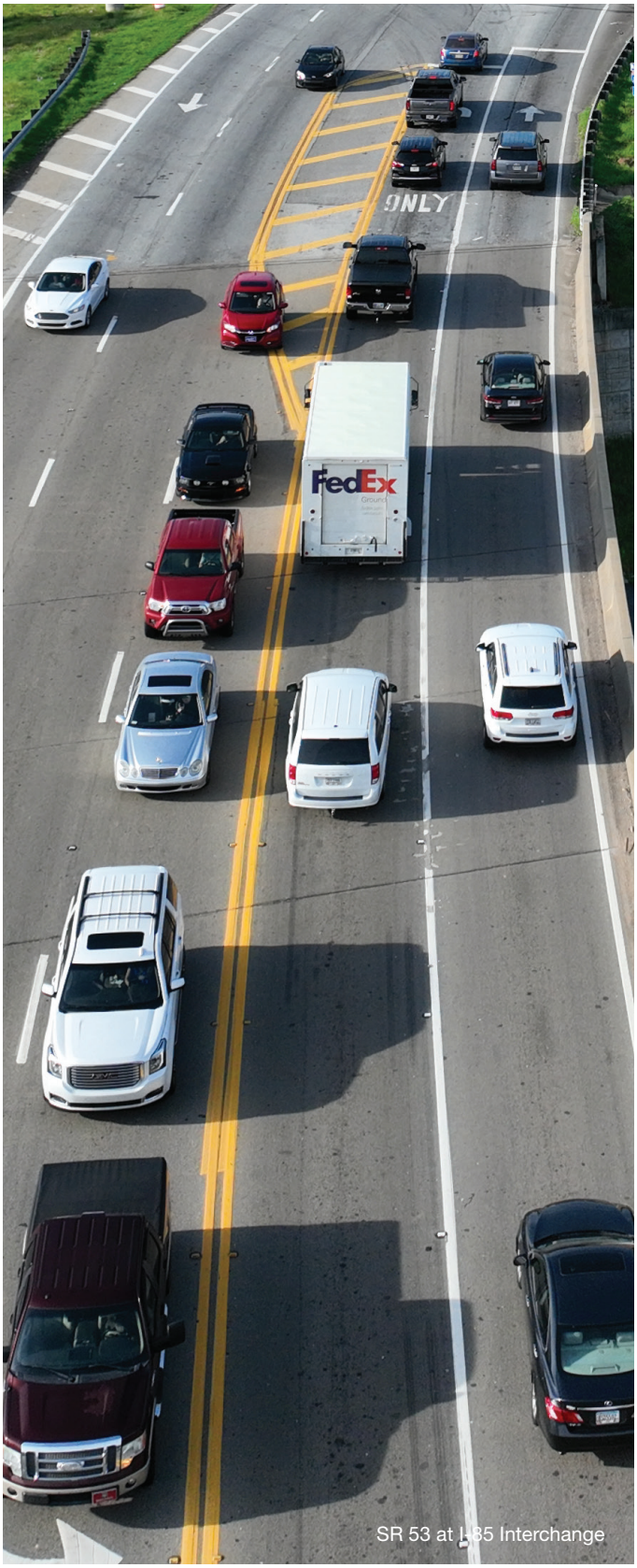
Additionally, 48-hour tube counts were conducted at the approaches to each counted intersection, with counts collected at a total of 46 locations. The tube counts included vehicle classification and were collected on the following dates:

- 34 tube counts were performed on Tuesday, October 4, 2022, and Wednesday, October 5, 2022.
- 12 tube counts were performed on Wednesday, March 15, 2023, and Thursday, March 16, 2023

Study Corridor Intersections

- New Cut Road
- Braselton Parkway
- Chardonnay Trace
- Pilot Driveway
- I-85 southbound ramps
- I-85 northbound ramps
- Zion Church Road
- Cherry Drive
- SR 124
- Davis Street
- Jackson Road
- East Jefferson Street
- East Broad Street
- Pendergrass Road
- Towne Center Parkway
- Industrial Boulevard
- Peachtree Road
- Twin Lakes Boulevard
- Jackson Trail Road





SR 53 at I-85 Interchange

2.2.1 Existing Year Volume Development

For 2022, peak-hour design hourly volumes (DHVs) were developed using the collected turning movement count data. The 48-hour count data were used to determine the a.m. and p.m. peak hours. The a.m. peak hour was determined to be 7:00 to 8:00 a.m. and the p.m. peak hour was determined to be 5:00 to 6:00 p.m.

2.2.2 Origin-Destination Data

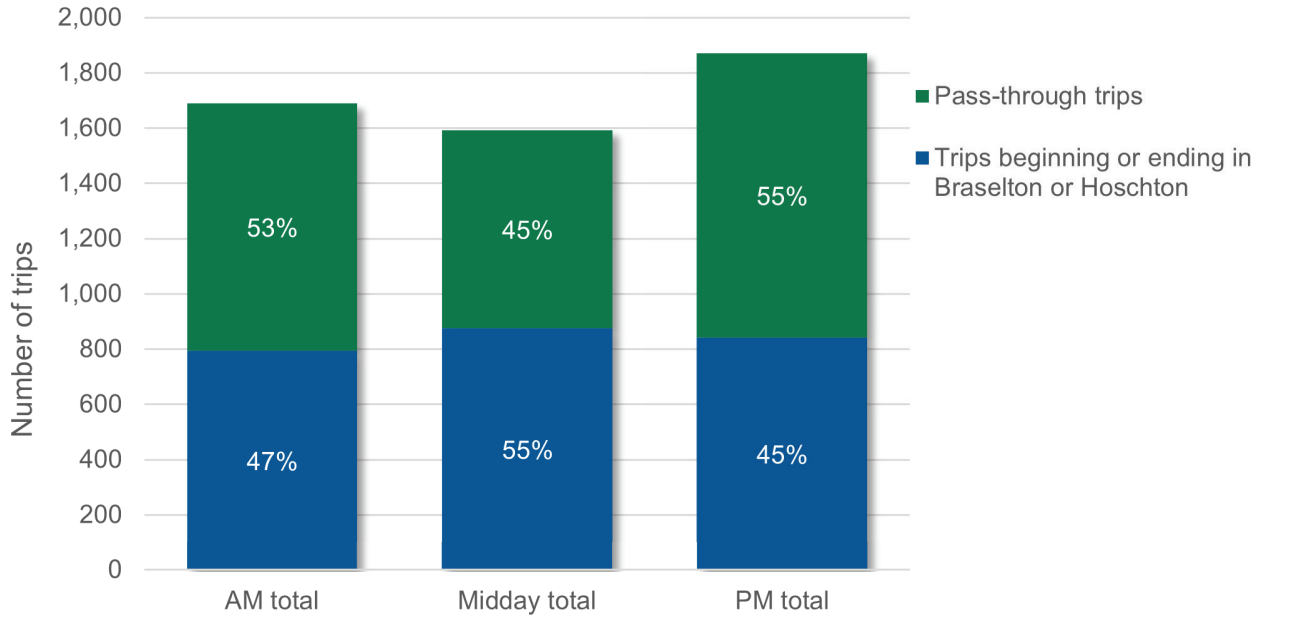
The Regional Integrated Transportation Information System (RITIS) platform was used to assess transportation patterns within and around the study area. A breakdown of local versus pass-through trips for all vehicle types is shown on Figure 2.6, while a breakdown for truck trips is presented on Figure 2.7. During the morning and evening peak hours, trips beginning and/or ending in Braselton or Hoschton account for an average of 46% of trips in the SR 53 corridor, while an average of 54% of trips use SR 53 to pass through the area. Truck trips are more likely than passenger cars to be traveling from or to a location in Braselton or Hoschton. During the midday peak period, which experiences the highest number of truck trips, nearly 70% of truck trips are local.

2.2.3 Existing Traffic Operations

In the existing conditions, peak period traffic congestion typically develops along SR 53 northbound, particularly along the segment between East Jefferson Street and I-85. Along SR 53 southbound, congestion tends to develop north of I-85 and north of SR 124 during the a.m. peak period and between Davis Street and Braselton Parkway during the p.m. peak period.

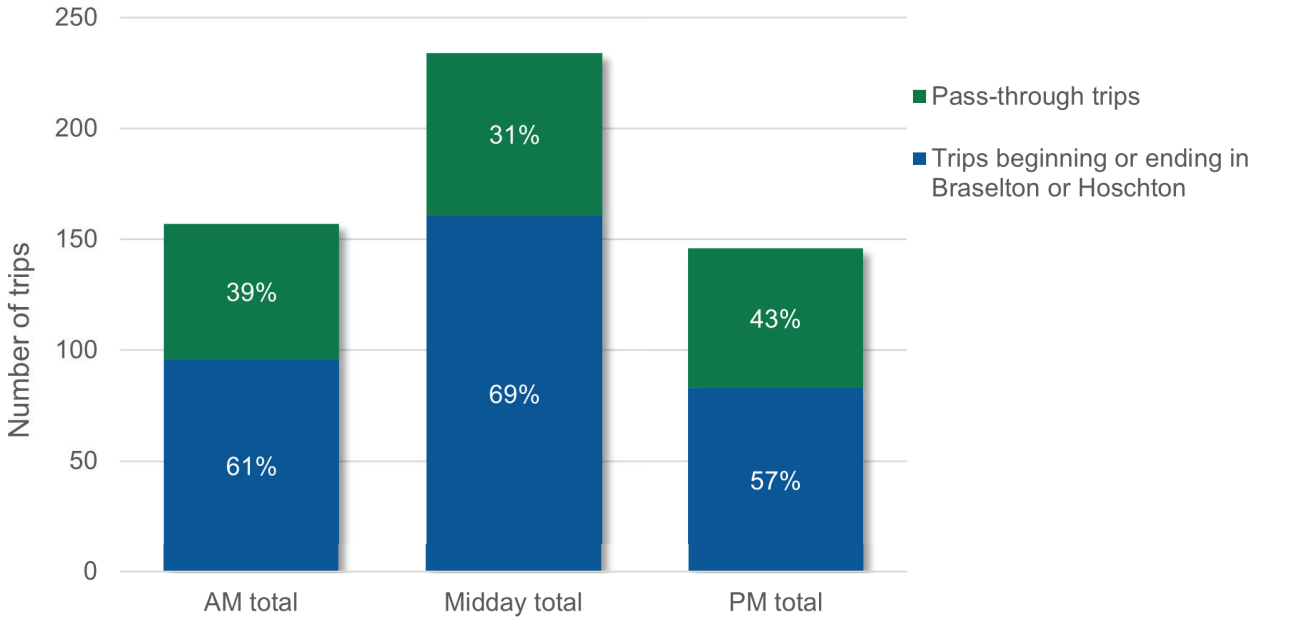
Synchro, a traffic modeling software, was used to model the existing conditions within the study area. Table 2-5 presents the level of service (LOS) results for the signalized and unsignalized intersections along SR 53 within the study area. Due to the

Figure 2-6. Local vs Pass-through Trips for All Vehicle Types



Note: The size of each bar corresponds to the number of trips in that period (e.g., 1,720 trips in the a.m. peak hour), while the percentages correspond to the % of trips in that period (i.e., the percentages add up to 100% for each bar).

Figure 2-7. Local vs Pass-through Trips for Trucks



Note: The size of each bar corresponds to the number of trips in that period (e.g., 1,720 trips in the a.m. peak hour), while the percentages correspond to the % of trips in that period (i.e., the percentages add up to 100% for each bar).

growing nature of the Braselton-Hoschton area, the urban LOS threshold standard was used for this study, which considers LOS D or better to be acceptable, rather than the rural LOS threshold standard, which considers LOS C or better to be acceptable. The Synchro analysis results indicate that nearly all the signalized intersections within the study area operate at an acceptable LOS (D or better) during both peak hours under the existing conditions. The exception is the intersection of SR 53 at the I-85 northbound ramps, which currently operates at LOS F during the a.m. peak hour. The unsignalized intersections along the SR 53 study corridor currently operate at LOS A during both peak hours. However, the minor, stop-controlled approaches at many of the unsignalized intersections currently operate at LOS E or LOS F, indicating a potential future need for intersection control improvements.

Table 2-5. Existing Level of Service (LOS)

Study Area Intersection	AM	PM
SR 53 at New Cut Road*	LOS F	LOS F
SR 53 at Braselton Parkway (Signal)	LOS A	LOS B
SR 53 at Chardonnay Trace (Signal)	LOS B	LOS B
SR 53 at Pilot Driveway*	LOS C	LOS C
SR 53 at I-85 Southbound Ramps (Signal)	LOS C	LOS B
SR 53 at I-85 Northbound Ramps (Signal)	LOS F	LOS C
SR 53 at Cherry Drive*	LOS C	LOS D
SR 53 at SR 124 (Signal)	LOS D	LOS D
SR 53 at Davis Street (Signal)	LOS A	LOS B
SR 53 at Jackson Road*	LOS D	LOS C
SR 53 at East Jefferson Street*	LOS E	LOS F
SR 53 at East Broad Street*	LOS D	LOS D
SR 53 at Pendergrass Road*	LOS C	LOS C
SR 53 at Towne Center Parkway*	LOS D	LOS C
SR 53 at Industrial Boulevard*	LOS C	LOS C
SR 53 at Peachtree Road*	LOS F	LOS E
SR 53 at Twin Lakes Boulevard*	LOS D	LOS E
SR 53 at Jackson Trail Road*	LOS B	LOS C
SR 332 at SR 124 (Signal)	LOS D	LOS D

Notes: *The highest minor road approach delays are shown for the unsignalized intersections. Results are not shown for Zion Church Road because the highway capacity model is unable to produce results for the intersection's existing sign configuration.



Downtown Hoschton

3 - Modeling Tools and Methodology

After the existing condition data were gathered, the study team began developing existing, baseline, and operational/regional improvement models. The existing condition models were created using the data described in Section 2. The baseline and operational/regional improvement models were created by combining existing condition data with the baseline condition data which will be described in Section 4.

The Georgia Statewide Travel Demand Model (TDM) was used to assess the future year performance of the regional transportation system and was validated and coded using socioeconomic data, such as demographic, land use, and community resource data. Modeling software, such as Synchro and Sidra, was used to analyze the operations of the local roadway network for the existing conditions, future year baseline conditions, and future year operational/regional improvement conditions; traffic volumes generated based on the collected traffic count data and the calculated annual traffic growth rate were used in the models. Sidra was used specifically for roundabout intersection analyses. The traffic model outputs are provided in Appendix B.

Table 3-1 summarizes the modeling tools used, what was modeled, and the models created. Additional information regarding the use of the software is provided in the following sections.



SR 53 at I-85 Interchange

Table 3-1. Summary of Modeling

Modeling Tool	What it Modeled	Model Created
Synchro	Local Operational Improvements	2022 Synchro Existing Conditions Model 2030 Synchro Open Year Baseline Model 2050 Synchro Design Year Baseline Model 2030 Synchro Open Year Operational Improvements Model 2050 Synchro Design Year Operational Improvements Model 2030 Synchro Open Year Operational Improvements with Diversions Model 2050 Synchro Design Year Operational Improvements with Diversions Model
Sidra	Local Operational Improvements (only for roundabouts)	2030 Sidra Open Year Operational Improvement Models 2050 Sidra Design Year Operational Improvement Models 2030 Sidra Open Year Operational Improvement with Diversions Models 2050 Sidra Design Year Operational Improvement with Diversions Models
TDM	Regional Improvement Combinations	2020 TDM Existing Conditions Model 2050 TDM Baseline Model 2050 TDM Combination of Regional Improvement Models

4 - Baseline Conditions

The baseline conditions are physical, social, and economic conditions that will occur regardless of any traffic improvements made in the future. These baseline conditions include planned developments, population growth, and the construction of road projects. Road projects listed in the Georgia Statewide Transportation Improvement Program (STIP), the ARC Transportation Improvement Program (TIP) and GHMPO TIP were reviewed, but only roadway projects in the ARC and GHMPO TIPs had projects within the study area. These conditions formed part of the baseline models.

4.1 Planned Developments

Planned developments consist of residential and commercial projects, which also include developments of regional impact (DRIs), and recreational projects that are planned in the study area. As shown in Table 4 1, fourteen residential developments, one commercial development, one recreational development, and four DRIs are planned in the study area.

Based on stakeholder input, the following planned developments were also included as baseline conditions: the new pilot gas station at SR 53, the new elementary school on SR 332, and the new middle school at Legacy Lane Road.

All these planned developments were used to determine population and employment growth as described in the next section.



Residential development at Twin Lakes Blvd

Table 4-1. Planned Development within Study Area

Study Area Intersection	City of County	Type	Units/Lots
Twin Lakes	Hoschton	Residential	60
Cambridge at Towne Center	Hoschton	Residential	299
Creekside Village Towns	Hoschton	Residential	31
West Jackson Commons	Jackson County	Residential	103
Town Square at Glenn Abby	Pendergrass	Residential	100
The Fields of Walnut Creek	Jackson County	Residential	N/A
Braselton Townside	Braselton	Residential	N/A
The Reserve at Liberty Park	Braselton	Residential	N/A
The Oaks at Belmont	Jackson County	Residential	N/A
Nunley Farms	Hoschton	Residential	N/A
Crossvine Estates	Braselton	Residential	N/A
Providence Estates	Pendergrass	Residential	N/A
Hoschton Park	Hoschton	Parks & Recreation	N/A
Prose Concord	Jefferson	Residential	300
The Blakely	Pendergrass	Residential	420
Publix Hoschton	Hoschton	Commercial	49,000 square feet
Jesse Chronic Road Tract	Braselton	DRI #3141	151,400 square feet
Wayne Poultry	Jackson County	DRI #3360	2,284,200 square feet
Jackson Quarry	Jackson County	DRI #3593	8.71 million square feet
Valentine Business Center	Jackson County	DRI #3714	2,543,300 square feet

Name of Development	City or County	Type	Units/Lots (square feet)	Estimated Project Phasing/Completion
Jesse Chronic Road Tract	Braselton	DRI #3141	151,400	2025
Wayne Poultry	Jackson County	DRI #3360	2,284,200	2023
Jackson Quarry	Jackson County	DRI #3593	8.71 million	Beyond 2050
Valentine Business Center	Jackson County	DRI #3714	2,543,300	2026

4.2 Population and Employment Growth

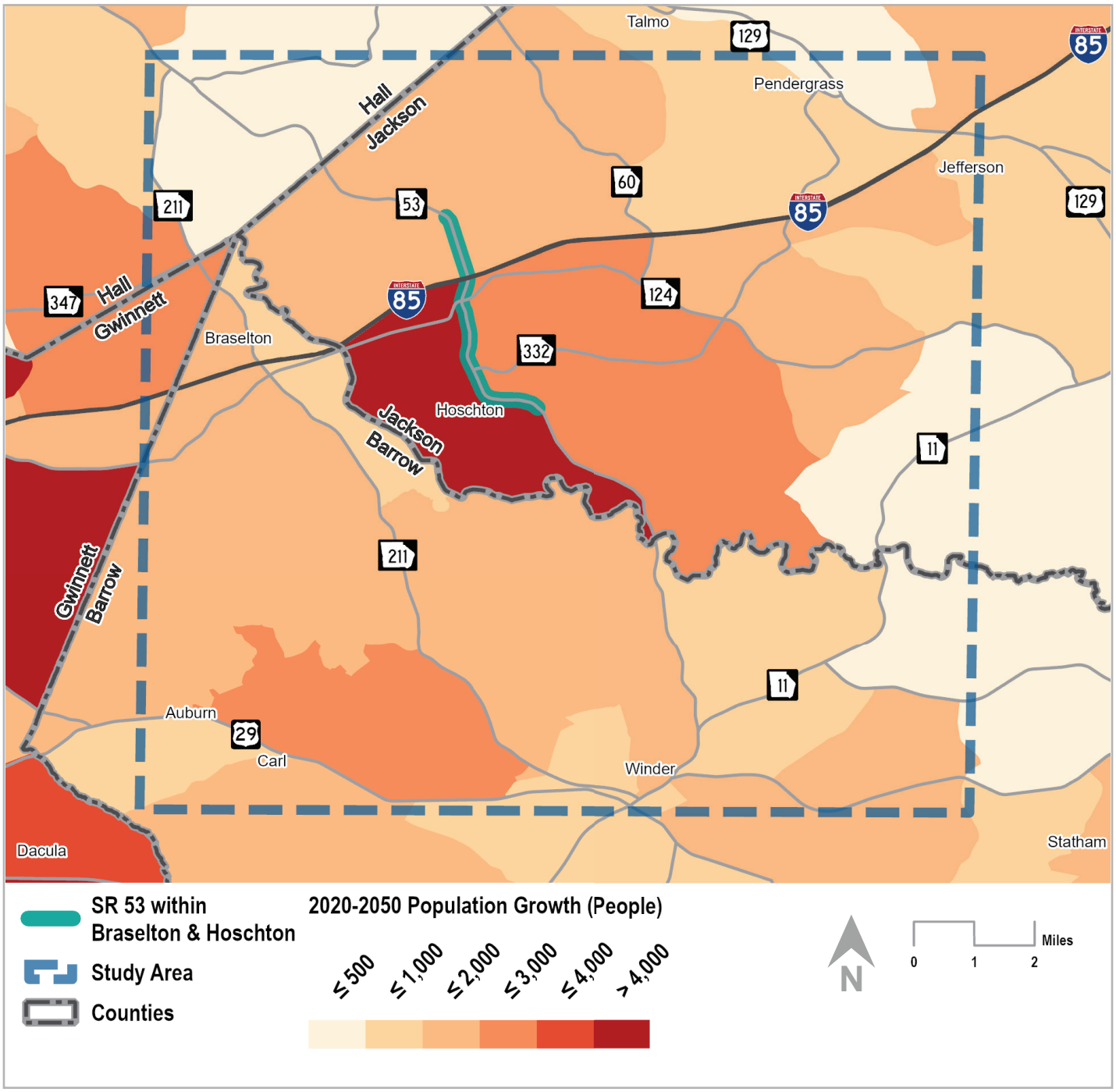
Population and employment growth are baseline conditions because both are expected to continue regardless of any traffic improvements. To calculate by how much population and employment would increase, the study team created a 2050 baseline TDM.

To create the model, the existing population for the year 2020 for seven traffic analysis zones (TAZs), which are units of geography used in traffic modeling, were added to the number of projected households that would result from the new residential developments discussed in the previous section. However, when the 2050 baseline TDM was compared with the data from the planned developments, population growth, and land use, it was noted that TAZ 927 and 1021 did not account for the additional projected growth; therefore, the study team modified the input data for these TAZs with extra households. Table 4-2 shows how the TAZs were weighted and the results. The final 2050 projected population values are used as baseline conditions. The results are also depicted on Figure 4-1, which shows that the greatest population growth is in the city of Hoschton.

Table 4-2. Baseline 2050 Traffic Analysis Zones (TAZs) Population Results

TAZ	2020 Population	No. of Households Created by Residential Developments	Household Growth	2050 Projected Population	Extra Households	Final 2050 Projected Population
750	1,271	0	1,190	2,461	-	2,461
751	1,053	34	641	1,694	-	1,694
927	5,966	2178	2,105	8,071	290	8,361
1021	1,267	7813	710	1,977	7103	9,080
1023	3,693	0	1,526	5,219	-	5,219
1024	6,141	1229	2,038	8,179	-	8,179
1043	2,786	540	1,383	4,169	-	4,169

Figure 4-1. Map of Population Growth



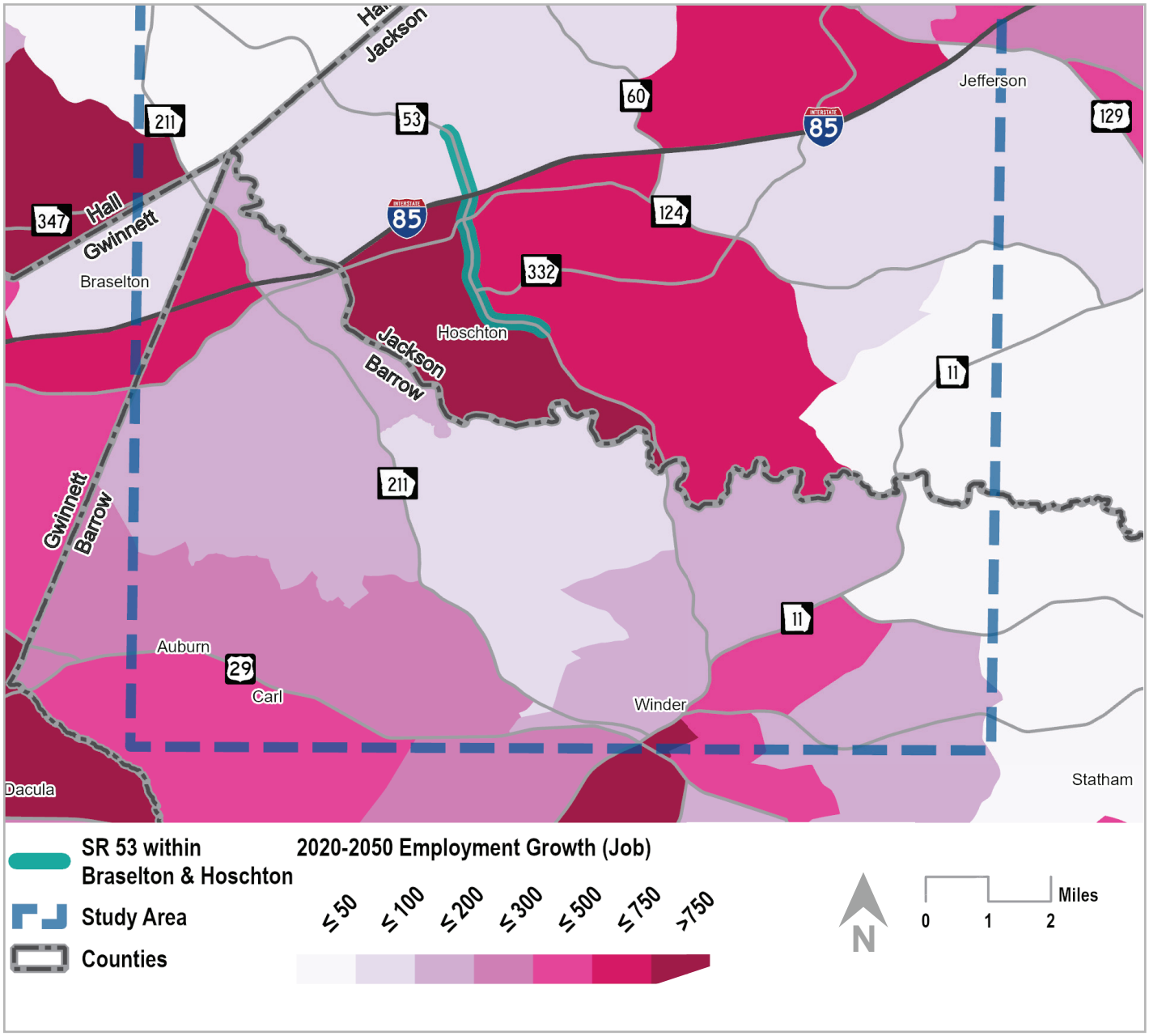
The study team also created a 2050 baseline TDM for employment growth. To calculate employment growth, the existing employment numbers for year 2020 for the TAZs were added to the projected employment that would arise from the new developments. However, when the 2050 baseline TDM was compared with the data from the planned developments, population growth, and land use, it was noted that TAZ 927 and 1021 did not account for the additional projected growth. The inputs for these TAZ were modified to include extra employment growth. Table 4-3 shows how the TAZs were weighted and the results. The final 2050 projected employment values are used as baseline conditions. The results are also depicted on Figure 4-2 which shows that the greatest employment growth will occur in the city of Hoschton.

Table 4-3. Baseline 2050 Traffic Analysis Zones (TAZs) Employment Results

TAZ	Employment Opportunities Created by New Developments	2020 Employment	Employment Growth	2050 Projected Employment	Extra Employment Growth	Final Projected Employment
750	657	739	173	912	484	1,396
751	0	934	117	1,051	-	1,051
927	948	6,660	27	6,687	921	7,608
1021	798	1,565	643	2,208	235	2,443
1023	0	306	64	370	-	370
1024	500	1,958	451	2,409	149	2,558
1043	0	123	61	184	-	184



Figure 4-2. Map of Employment Growth



4.3 Transportation Improvement Program Projects

Projects in the FY 24-27 ARC and GHMPO TIPs were included in the baseline models because they are programed for construction. It is important to note that there were no projects from the Georgia Statewide Transportation Improvement Program (STIP) within the study area and thus were not included in the baseline models. Table 4-4 identifies the TIP projects in the study area, including projects that are under construction, completed, or are receiving Transportation Special Purpose Local Option Sales Tax (TSPLOST) funding.

Table 4-4. TIP Projects within Study Area

Transportation Projects				
PI Number	**Project Name**	**Description**	**MPO**	**Status**
0007233	SR 211 from SR 53 to SR 347	Widen from 2 to 4 lanes	GHMPO	TIP
0013988	SR 211 from I-85 Northbound ramp to CS 1274/Pinot Noir Drive	Widen from 2 to 4 lanes	ARC	Under construction
0016089	SR 211 from CS 1274/Pinot Noir Drive to SR 347	Widen from 2 to 4 lanes	ARC GHMPO	TIP
H002173	SR 124/Braselton Highway (Pine Road to Spout Springs Road)	Widen from 2 to 4 lanes	ARC	Gwinnett County TSPLOST
0016349	SR 211 @ CR 38/Dee Kennedy Road	Install roundabout	ARC	TIP
0016350	SR 211 @ County Line Auburn Road	Install roundabout	ARC	TIP
0016065	SR 53 @ New Cut Road	Install roundabout	GHMPO	Under construction
0013545	I-85 from north of SR 53 to north of SR 11	Widen from 4 to 6 lanes	GHMPO	Under construction
0019862	SR 53 from Braselton City Limits to Twin Lakes	Shared-use path	GHMPO	TIP
0016166	SR 124 at SR 60 & Sam Freeman Road	Install roundabout	GHMPO	TIP
0010554	West Winder Bypass SR 316 to CR 325 Matthews School Rd Phase 2	New bypass	ARC	Complete
0010555	West Winder Bypass @ SR 316 – New Interchange – Phase 3	New interchange	ARC	TIP
0006327	West Winder Bypass	New bypass	ARC	Complete

4.4 Traffic Growth

A traffic growth rate was developed using a variety of sources, including Georgia DOT Traffic Analysis and Data Application (TADA) traffic count data and census population data, to project future year traffic volumes for the study area. The future projection data sources used include the Governor's Office of Planning and Budget (OPB) population projections, REMI population and employment projections, and the TDM population, employment, and traffic volume projections. A final annual growth rate of 1.37% was computed using a weighted average of the growth rates obtained from the utilized sources. Table 4-5 lists the growth rate data sources utilized, their respective weights, and the annual growth rates. The final annual growth rate of 1.37% was used to project open year 2030 and design year 2050 traffic volumes.



SR 53 at I-85 Interchange

Table 4-5. Growth Rates

Data Source	Data Years	Weight	Annual Rate
Historical traffic counts – TADA	2012 – 2021	15%	4.26%
Historical population growth – Census	2010 & 2020	5%	1.79%
Projected traffic volume growth – TDM	2020 & 2050	10%	1.36%
Projected population growth – OPB	2020, 2030, & 2050	10%	1.17%
Projected population growth – REMI	2021 & 2050	10%	0.79%
Projected population growth - TDM	2020 & 2050	10%	0.95%
Projected employment growth – REMI	2021 & 2050	10%	0.71%
Projected employment growth – TDM	2020 & 2050	30%	0.50%
Final Annual Growth Rate:		**100%**	**1.37%**

5 Analysis of Baseline Conditions

The study team analyzed the baseline conditions using the year 2050 TDM and year 2030 and year 2050 Synchro and Sidra models. The outputs of these models provided information regarding the expected future year operations for both the regional and local transportation networks within the study area if no additional network improvements were to be made.

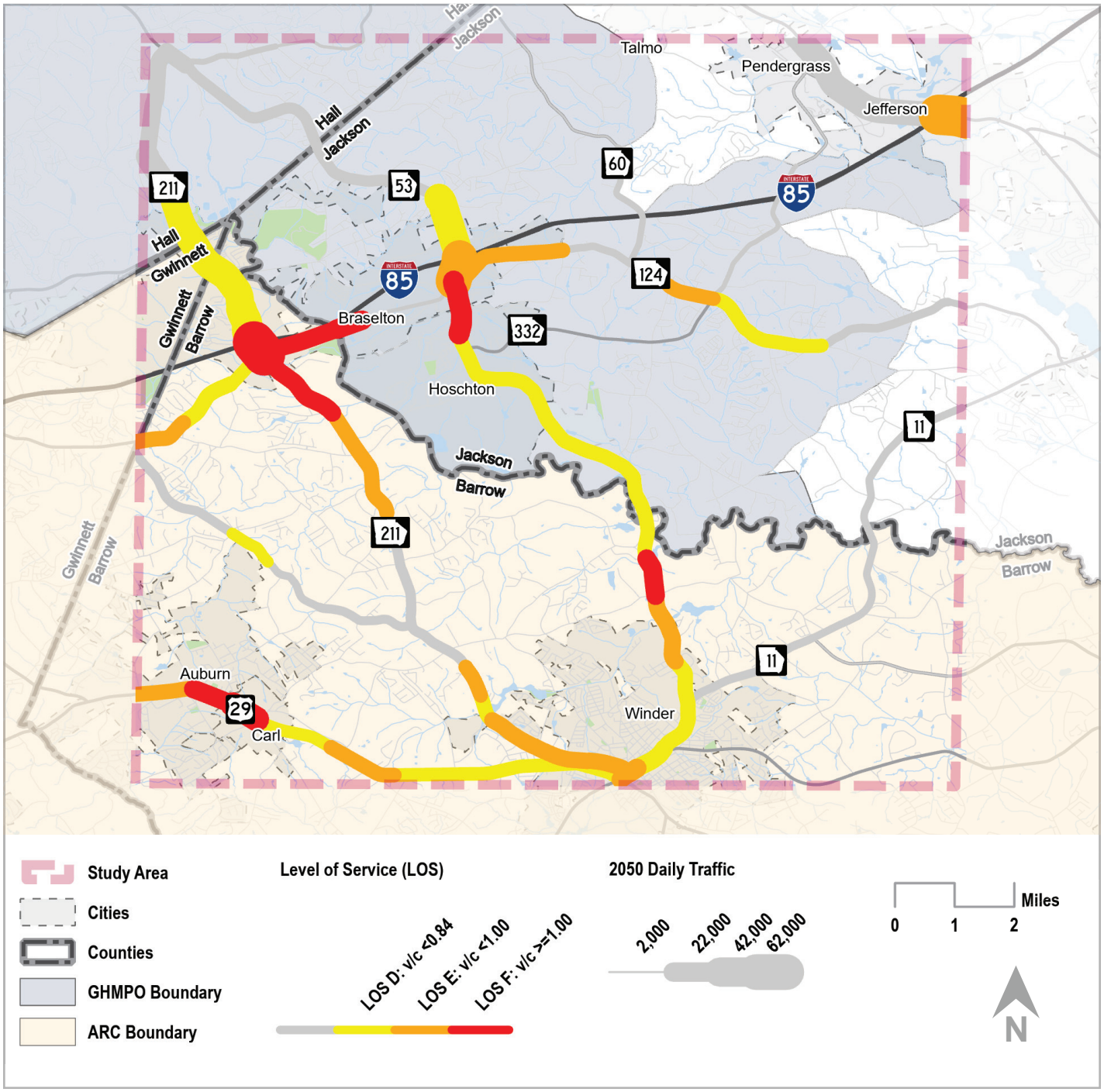


SR 53 through Hoschton

5.1 Regional Travel Demand Model Level of Service

A base 2050 TDM was used to identify traffic connectivity issues in and around the study area. The 2050 baseline TDM model results show that traffic volumes on SR 53, SR 211, and SR 124 exceed the roadway capacity. It is important to note that the presence of multiple distribution centers and warehouses, identified in Section 2.1.4, generate additional freight/truck traffic on SR 53, SR 211, and SR 124. Most of these roads operate at LOS D, E, or F in 2050, as shown on Figure 5-1. In urban areas, LOS D is the threshold for acceptable traffic operations. It corresponds to a roadway operating with a volume-to-capacity (V/C) ratio less than 0.84. Roadways operating at LOS E are approaching capacity and have V/C ratios greater than or equal to 0.84 and less than 1.0. Roadways operating at LOS F are over capacity and have V/C ratios of 1.0 or greater.

Figure 5-1. Map of Baseline Conditions Level of Service



5.2 Traffic Operations - Intersection Level of Service

Baseline traffic conditions were assessed using Synchro for an open year of 2030 and a design year of 2050. The baseline traffic models include traffic volumes projected from the existing year (2022) using an annual growth rate of 1.37%. The baseline models do not include any operational improvements such as lane widenings, signal retimings, signal phasing improvements, control type improvements, and turn-lane improvements, unless they are programmed. The potential local operational improvements are included in the future year traffic models discussed in Section 7.

The study area intersection operations under the open year 2030 and design year 2050 baseline scenarios are summarized in Table 5-1. In the baseline condition, several signalized intersections along SR 53 are expected to operate at LOS E or worse by design year 2050. These intersections include the I-85 southbound ramps (LOS F in the a.m. peak hour), the I-85 northbound ramps (LOS F in the p.m. peak hour), Davis Street (LOS F in the p.m. peak hour), and SR 332 at SR 124 (LOS F in both peak hours). These results indicate a need for smaller-scale local operational improvements in addition to regional-level improvements.



Table 5-1. Level of Service (LOS) for Open Year and Design Year

	Open Year 2030		Design Year 2050	
Study Area Intersection	**AM**	**PM**	**AM**	**PM**
SR 53 at New Cut Road (Roundabout)	LOS A	LOS A	LOS B	LOS A
SR 53 at Braselton Parkway (Signal)	LOS B	LOS B	LOS B	LOS C
SR 53 at Chardonnay Trace (Signal)	LOS C	LOS C	LOS C	LOS C
SR 53 at Pilot Driveway (Unsignalized)*	LOS D	LOS E	LOS F	LOS F
SR 53 at I-85 Southbound Ramps (Signal)	LOS D	LOS D	LOS F	LOS D
SR 53 at I-85 Northbound Ramps (Signal)	LOS C	LOS C	LOS C	LOS F
SR 53 at Cherry Drive (Unsignalized)*	LOS C	LOS F	LOS C	LOS F
SR 53 at SR 124 (Signal)	LOS D	LOS D	LOS D	LOS D
SR 53 at Davis Street (Signal)	LOS B	LOS C	LOS D	LOS F
SR 53 at Jackson Road (Unsignalized)*	LOS E	LOS D	LOS F	LOS F
SR 53 at East Jefferson Street (Unsignalized)*	LOS F	LOS F	LOS F	LOS F
SR 53 at East Broad Street (Unsignalized)*	LOS D	LOS E	LOS F	LOS F
SR 53 at SR 332/Pendergrass Road (Unsignalized)*	LOS D	LOS E	LOS F	LOS F
SR 53 at Towne Center Parkway (Unsignalized)*	LOS D	LOS C	LOS F	LOS F
SR 53 at Industrial Boulevard (Unsignalized)*	LOS C	LOS C	LOS E	LOS F
SR 53 at Peachtree Road (Unsignalized)*	LOS F	LOS F	LOS F	LOS F
SR 53 at Twin Lakes Boulevard (Unsignalized)*	LOS F	LOS F	LOS F	LOS F
SR 53 at Jackson Trail Road (Unsignalized)*	LOS C	LOS C	LOS D	LOS F
SR 332 at SR 124 (Signal)	LOS D	LOS E	LOS F	LOS F

Notes: *The highest minor road approach delays are shown for the unsignalized intersections. Results are not shown for Zion Church Road because the highway capacity model is unable to produce results for the intersection's existing sign configuration.

6 - Regional Connectivity Improvements

The following sections will describe the potential regional connectivity improvements that were identified by the study team, how they were analyzed, and the study team recommendations for regional connectivity projects.

6.1 Potential Regional Connectivity Improvements

After the existing and baseline conditions were analyzed and levels of service were determined, the study team identified a list of potential regional improvements that are listed below.

Potential Regional Connectivity Improvements

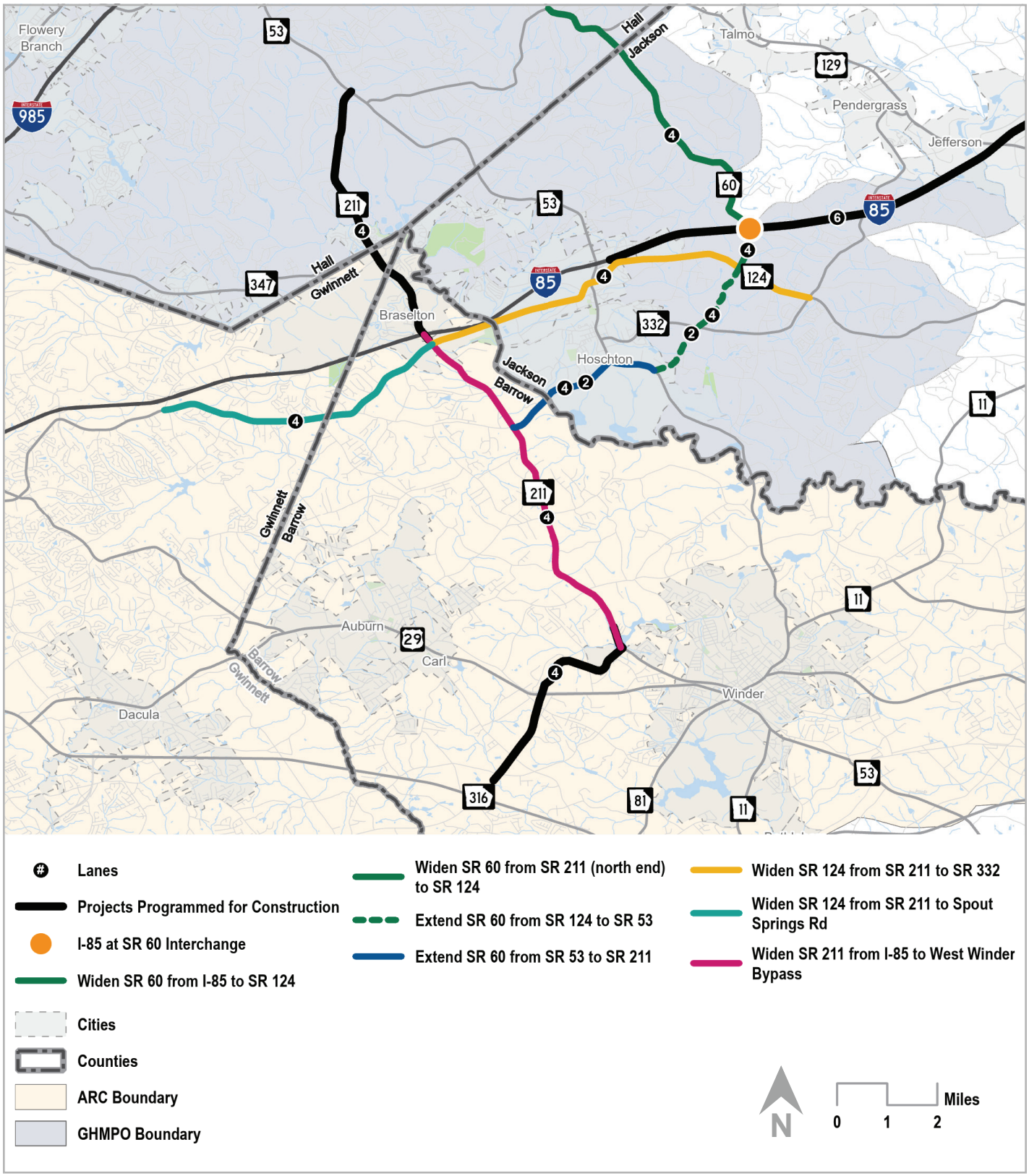
- Construct an interchange at SR 60 and widen SR 60 from I-85 to SR 124 (4 lanes)
- Widen SR 60 from SR 211 (north end) to SR 124 (4 lanes)
- Extend SR 60 from SR 124 to SR 53 (2 lanes)
- Extend SR 60 from SR 124 to SR 53 (4 lanes)
- Extend SR 60 from SR 53 to SR 211 (4 lanes)
- Extend SR 60 from SR 53 to SR 211 (2 lanes)
- Widen SR 124 from SR to 211 to Spout Springs Road (4 lanes)
- Widen SR 124 from SR 211 to SR 332 (4 lanes)
- Widen SR 211 from I-85 to West Winder Bypass (4-6 lanes); 6 lanes between I-85 and SR 124; 4 lanes between SR 124 and West Winder Bypass

Figure 6-1 depicts the potential regional improvements identified. Projects already programmed for construction are depicted by a black line.

The potential regional connectivity improvements focus on providing additional capacity or connectivity to alternative routes that would manage the growth of traffic on SR 53 within downtown Braselton and Hoschton. Based on this focus, potential improvements were identified on SR 60, SR 124, and SR 211 as these routes would either serve as potential alternative route to SR 53 or a way to connect SR 53 to an alternative route. While SR 332 is within the study area, capacity improvements on it near SR 53 did not fit the focus for regional connectivity improvements.

In addition, planning-level cost estimates were also developed for the potential regional improvements. Estimated costs include those associated with the construction of anticipated major items, such as construction of new pavement or resurfacing of existing pavement (asphalt or concrete), maintenance of traffic during construction, prevention of erosion and stormwater pollution, earthworks

Figure 6-1. Map of Potential Regional Connectivity Improvements



(embankments and excavations), and installation of new drainage systems (open or closed systems). Other costs include those associated with relocation, removal, and installation of utilities, right-of-way acquisition, and reimbursements for impacted or displaced properties (residential or commercial), and anticipated costs for the design and preliminary engineering of each project. For each of the cost categories (construction, utilities, right-of-way, and preliminary engineering), a sample of pertinent pay items was identified and applied to the project at the engineer's discretion and based on a general analysis of probable work activities and their impacts on existing conditions. Unit costs from Georgia DOT's Item Mean Summary (2023) were adjusted for each pay item based on the engineer's analysis of the most recent market conditions and to reflect the limited amount of information available regarding existing and proposed conditions. Contingencies were also applied to account for any unforeseen conditions, inflationary trends, and potential deficiencies associated with such broad, planning-level cost estimates. The estimated phased cost for each improvement is provided in Table 6-1. The methodology used to calculate the cost estimates is summarized in Appendix C.

Table 6-1. Cost Estimates for Regional Connectivity Improvements (millions of dollars)

Improvement	PE	ROW	UTL	CST	Total
Construct an interchange at SR 60 and widen SR 60 from I-85 to SR 124 (4 lanes)	$3	$18	$2	$23	$46
Widen SR 60 from SR 211 (north end) to SR 124 (4 lanes)	$8	$8	$6	$62	$84
Extend SR 60 from SR 124 to SR 53 (2 lanes)	$3	$8	$2	$23	$36
Extend SR 60 from SR 124 to SR 53 (4 lanes)	$6	$32	$4	$46	$88
Extend SR 60 from SR 53 to SR 211 (2 lanes)	$2	$3	$1	$14	$20
Extend SR 60 from SR 53 to SR 211 (4 lanes)	$4	$7	$3	$29	$43
Widen SR 124 from SR 211 to Spout Springs Road (4 lanes)	$7	$14	$6	$60	$87
Widen SR 124 to from SR 211 to SR 332 (4 lanes)	$8	$8	$6	$65	$87
Widen SR 211 from I-85 to West Winder Bypass (4-6 lanes)	$11	$11	$8	$87	$117
TOTAL					**$608**

6.2 Analysis of Regional Connectivity Improvements

After the potential regional connectivity improvements along with their cost estimates were identified, the improvements were then placed in different combinations to understand their impact in reducing vehicle hours of delay in the study area. A total of four combinations, or alternatives, were created and tested in the TDM. These alternatives are discussed below.

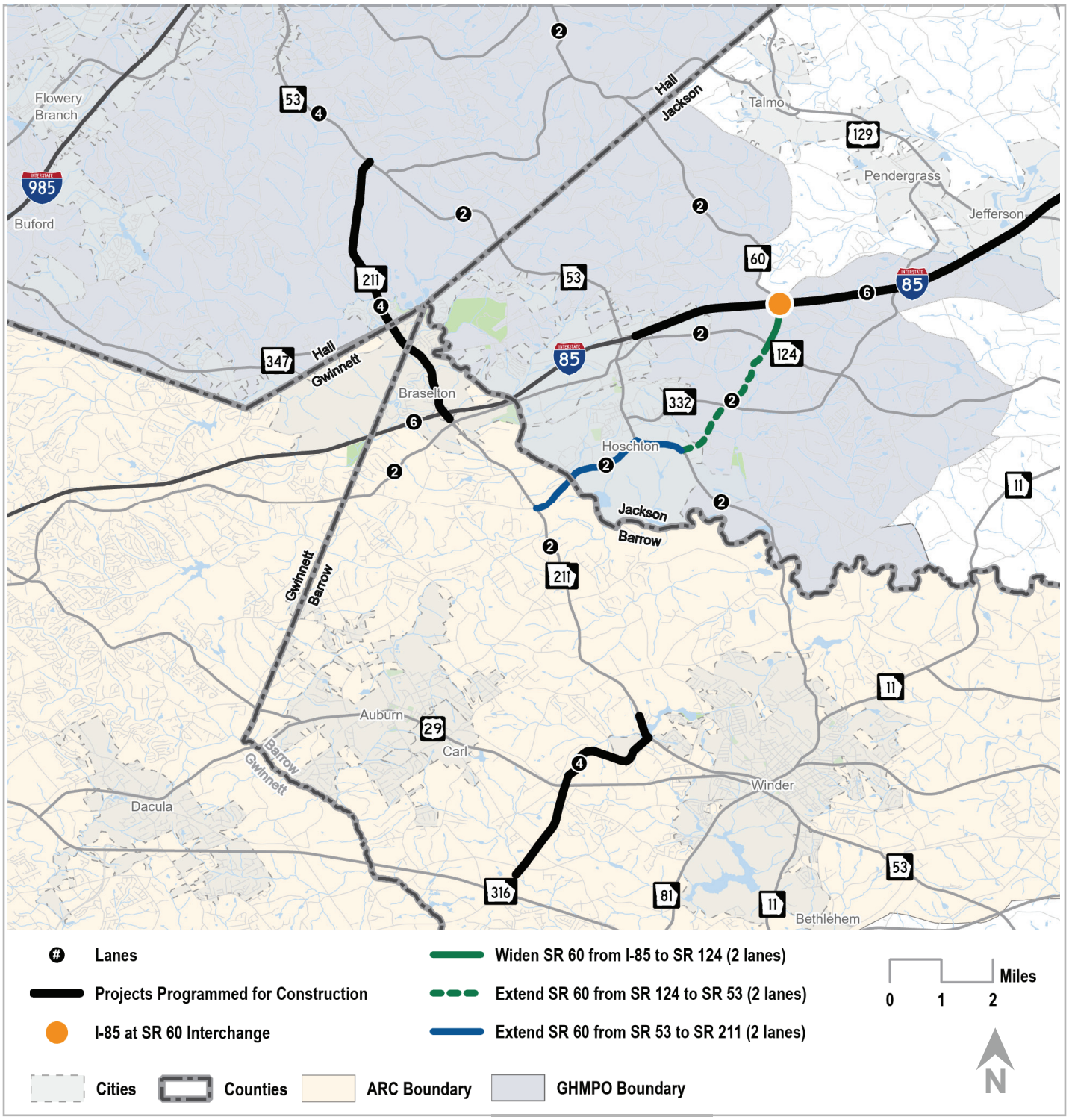


SR 211 towards I-85

Alternative Combination 1: Construct SR 60 Interchange and SR 60 Extension

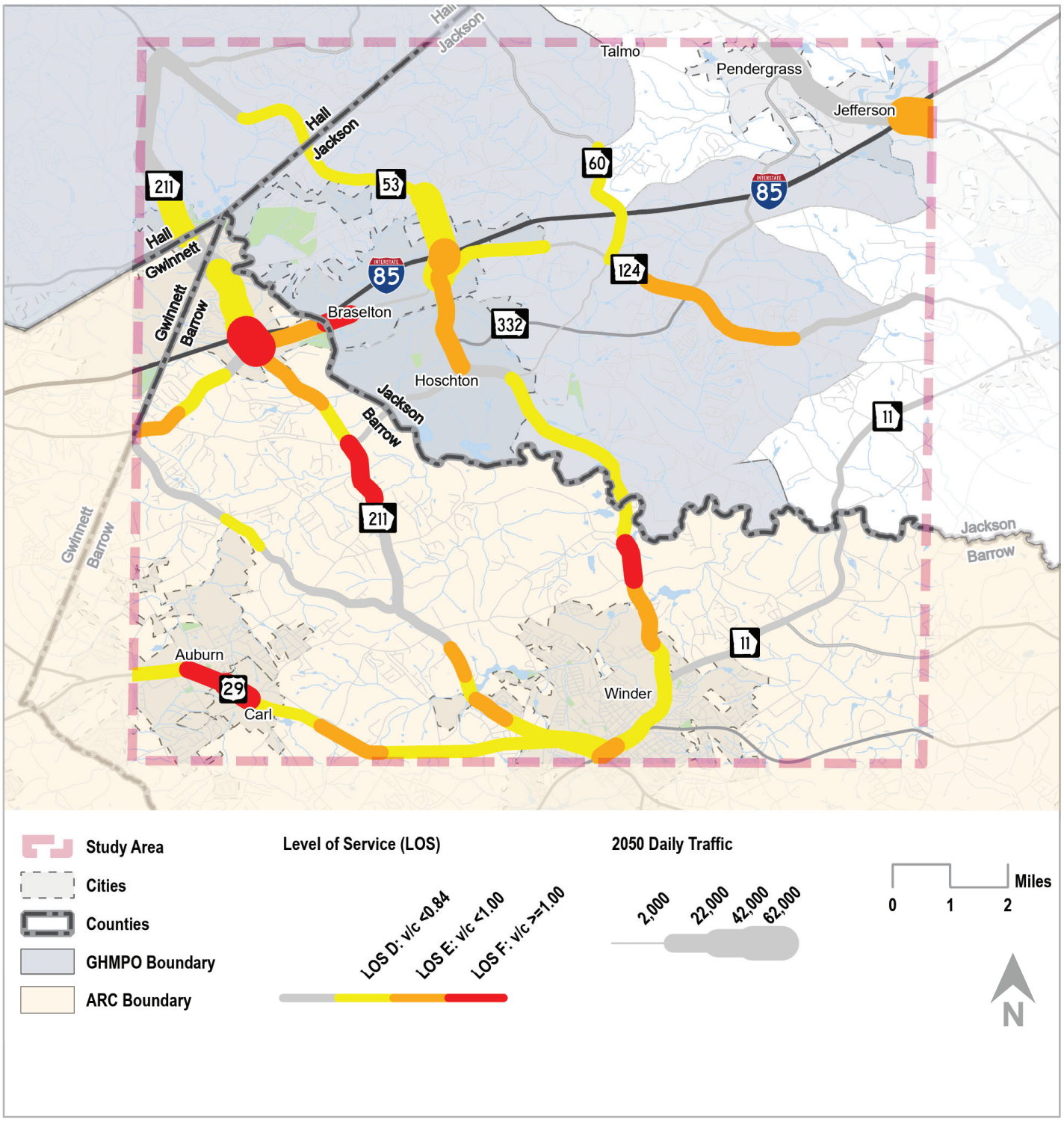
The first alternative, as shown on Figure 6-2 is the combination of the construction of the SR 60 interchange at I-85 with the SR 60 extension from SR 124 to SR 211 (total of two lanes). The total cost of this alternative

Figure 6-2. Map of Alternative Combination 1



is approximately $82 million, with a benefit-cost (B/C) ratio of 3.1. Based on the TDM results, this alternative would relieve congestion along SR 53 but would not address congestion in downtown Braselton. These results are illustrated on Figure 6-3.

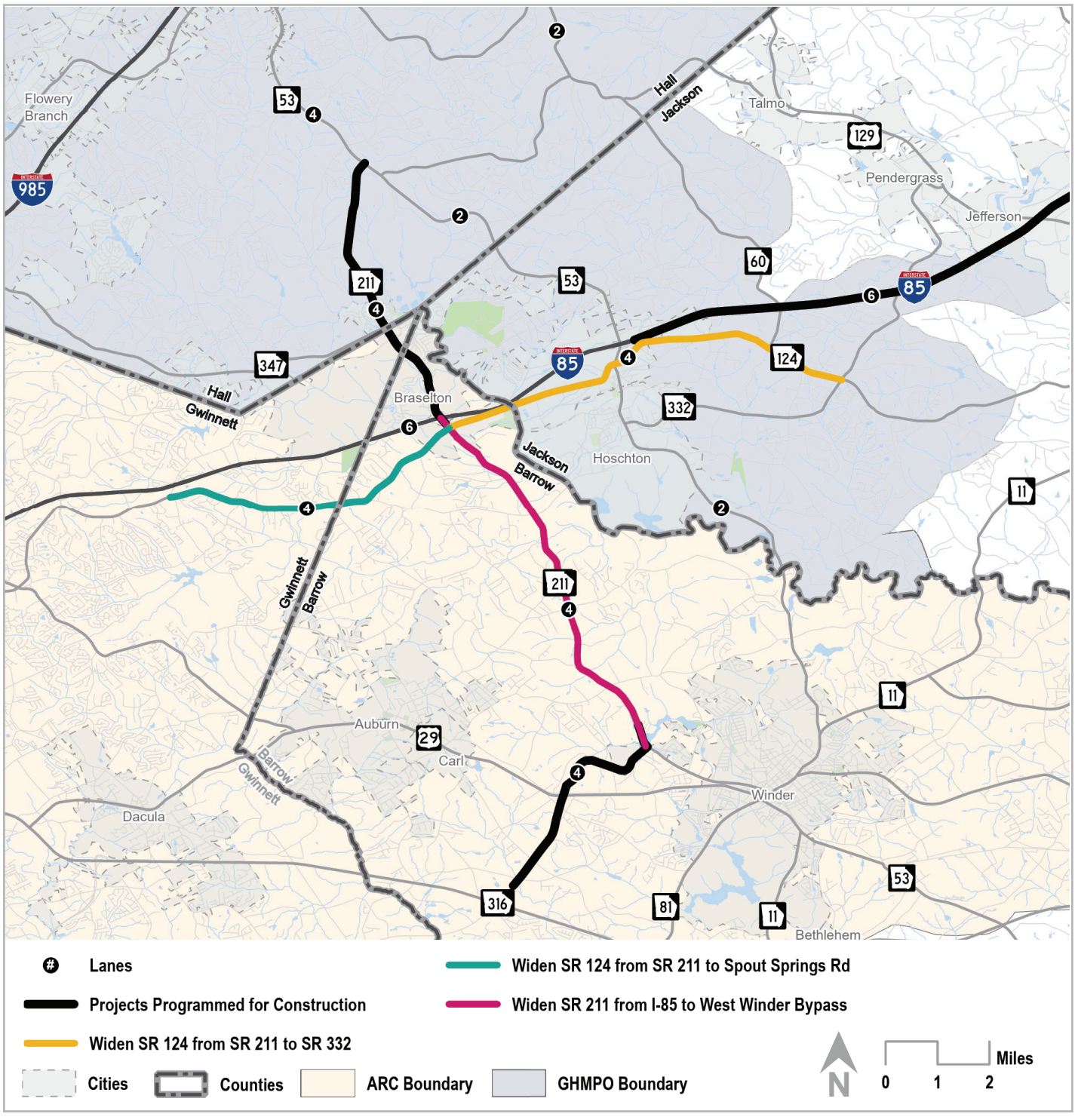
Figure 6-3. Map of TDM Results for Alternative Combination 1



Alternative Combination 2: SR 211 Widening and SR 124 Widening

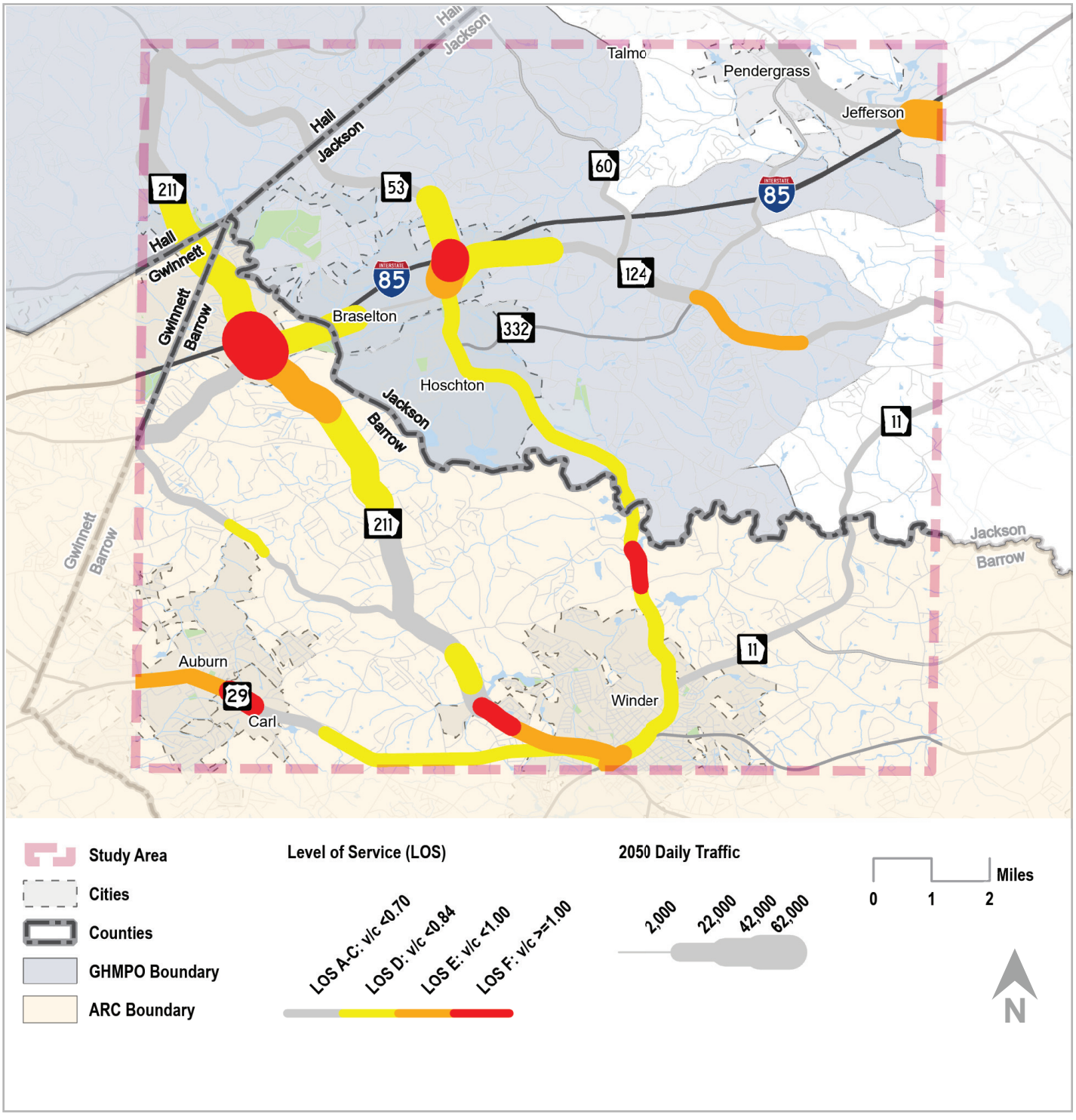
The second alternative, as shown on Figure 6-4, combines the SR 124 widening from Spout Springs Road to SR 332 with the SR 211 widening from I-85 to the West Winder Bypass. The total cost of this alternative is approximately $291 million, resulting in a B/C ratio of 1.7. Based on the TDM results, this alternative would

Figure 6-4. Map of Alternative Combination 2



improve capacity in the north/south as well as the east/west directions. This alternative would also relieve downtown congestion; however, the SR 53 interchange would operate over capacity. These results are illustrated on Figure 6-5.

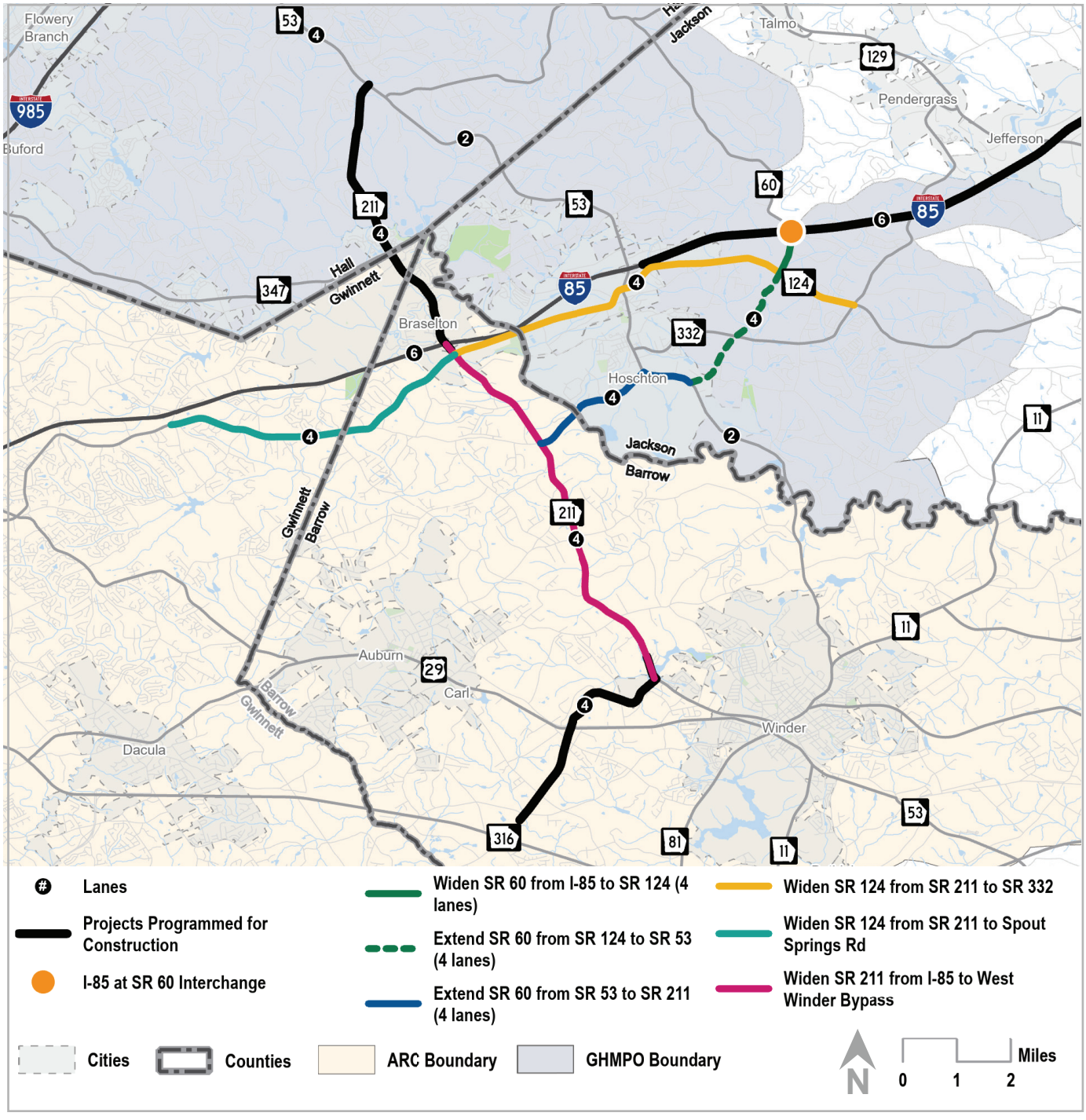
Figure 6-5. Map of TDM Results for Alternative Combination 2



Alternative Combination 3: Construct SR 60 Interchange, SR 60 Extension (Four Lanes), SR 211 Widening, and SR 124 Widening

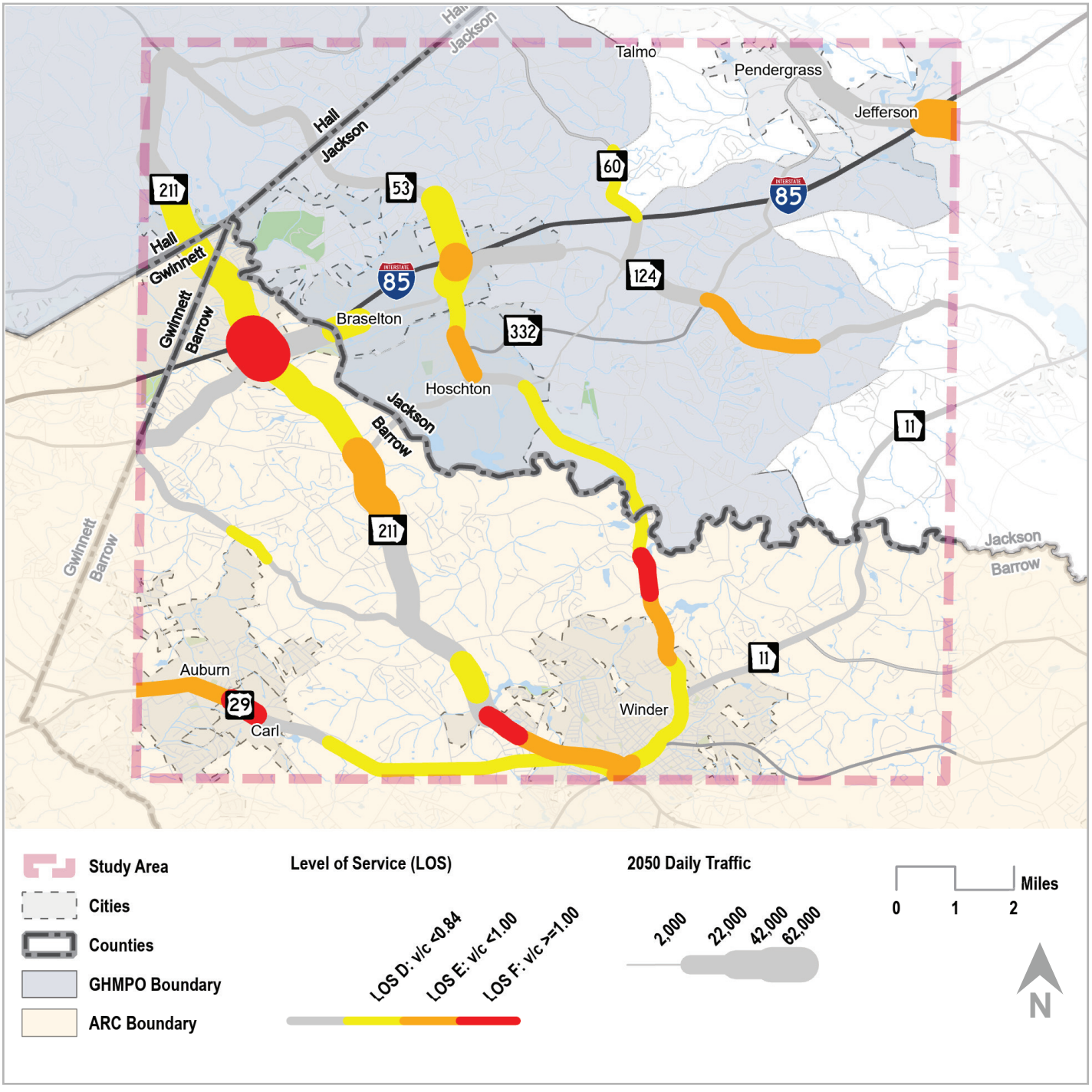
The third alternative, as shown on Figure 6-6, combines the construction of the SR 60 interchange at I-85, the SR 60 extension (four lanes) from I-85 to SR 211, the SR 211 widening (four lanes) from I-85 to the West Winder Bypass, and the SR 124 widening from Spout Springs Road to SR 332. The total cost of this alter-

Figure 6-6. Map of Alternative Combination 3



native is approximately $469 million, resulting in a B/C ratio of 1.1. Based on the TDM results, this alternative would improve capacity in the north/south as well as the east/west directions. The improved capacity would lead to a decrease in regional delay as a result of the diversion of traffic from SR 53. The results are illustrated on Figure 6-7. This alternative provides improvements to regional delay as well as traffic diversion from SR 53; however, it has the highest cost at $469 million and lowest B/C ratio at 1.1 in comparison to all other alternatives.

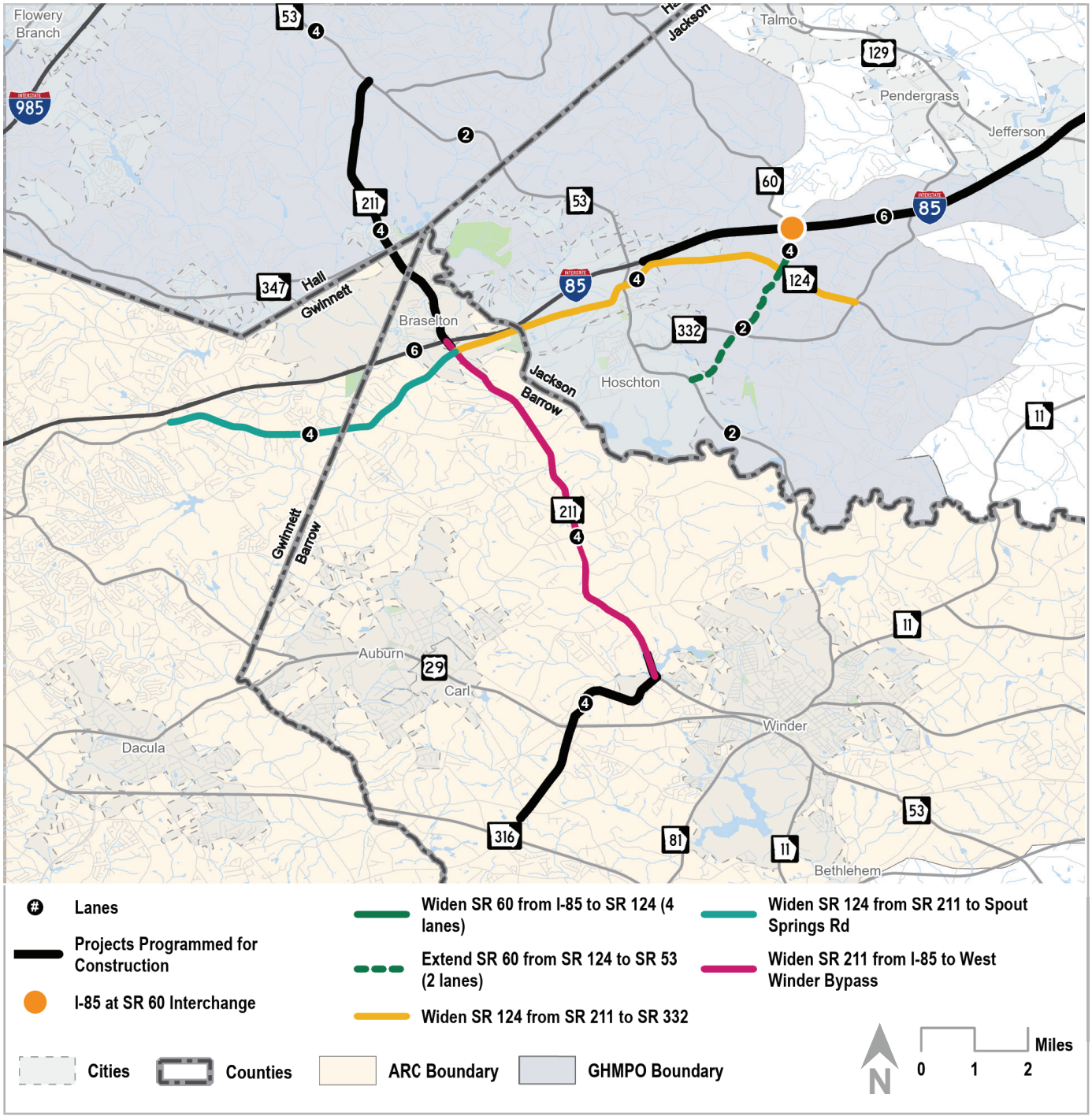
Figure 6-7. Map of TDM Results for Alternative Combination 3



Alternative Combination 4: Construct SR 60 Interchange, SR 60 Extension (Two Lanes), SR 211 Widening, and SR 124 Widening

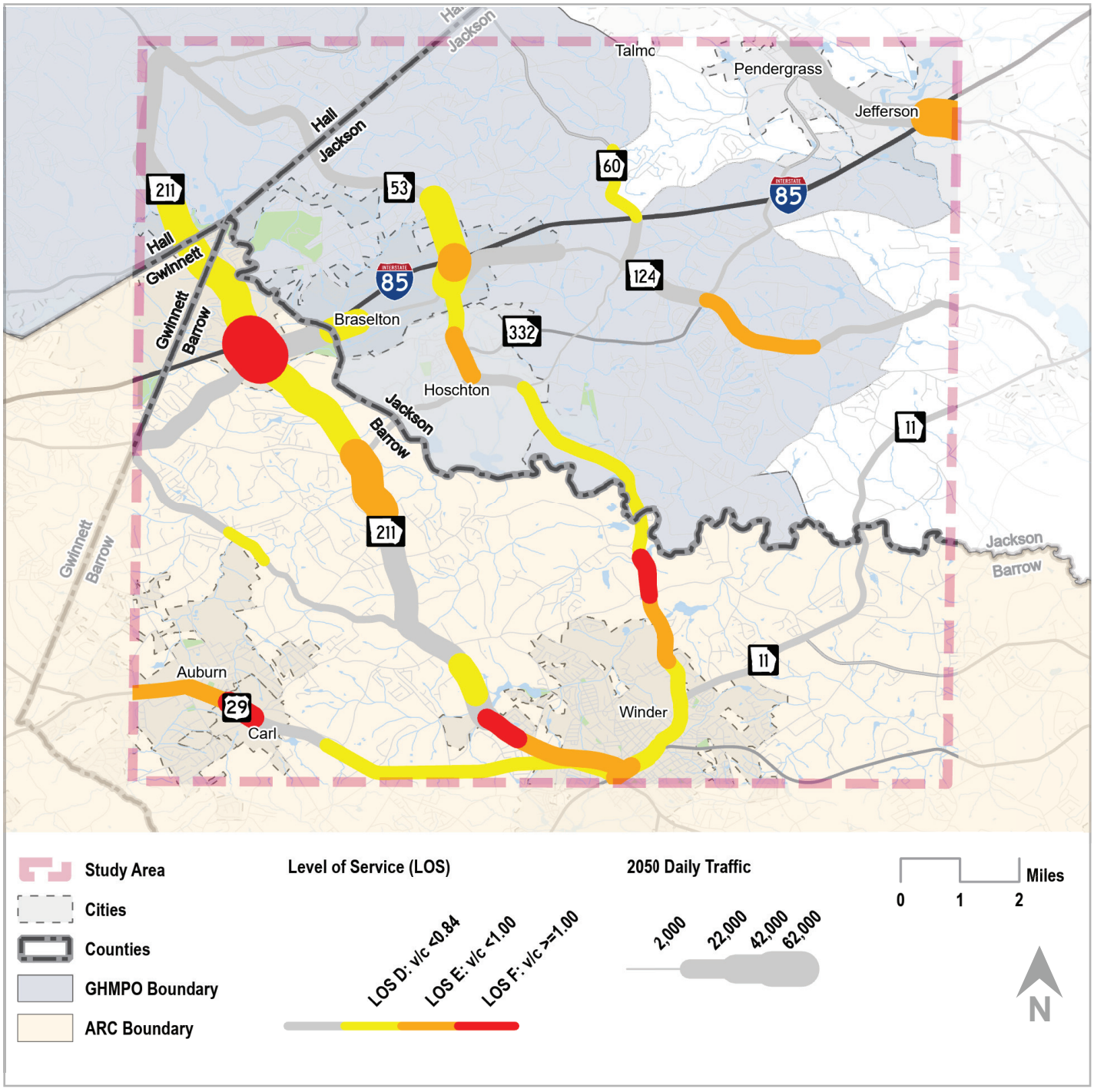
The fourth alternative, as shown on Figure 6-8, combines the construction of the SR 60 interchange at I-85, the SR 60 widening (four lanes) from I-85 to SR 124, the extension of SR 60 from SR 124 to SR 53 (two lanes), the SR 124 widening (four lanes) from Spout Springs Road to SR 332, and the SR 211 widening

Figure 6-8. Map of Alternative Combination 4



from I-85 to the West Winder Bypass (four to six lanes). The total cost of this alternative is approximately $373 million, resulting in a B/C ratio of 1.5. Based on the TDM results, this alternative leads to a decrease in regional delay and the diversion of traffic from SR 53. The results are illustrated on Figure 6-9. This alternative provides a combination of regional connectivity improvements and reduces congestion in downtown Braselton and Hoschton. This alternative in comparison to alternative three also has a lower estimated cost and a higher benefit to cost ratio.

Figure 6-9. Map of TDM Results for Alternative Combination 4



6.3 Recommended Regional Connectivity Improvements

Based on the previous analysis, out of all the alternatives, only alternative three and four provide the best combination for improvements to regional connectivity and reduction of downtown congestion. However, in comparison to alternative three, alternative four has a lower estimated cost and a higher B/C at 1.5. Therefore, alternative four was the highest performing alternative with the greatest benefit to cost ratio. Table 6-2 shows the following regional improvements described in alternative four with the associated phased cost estimates.

Table 6-2. Cost Estimates for Recommended Regional Connectivity Improvements (millions of dollars)

Improvement	PE	ROW	UTL	CST	Total
Construct an interchange at SR 60 and widen SR 60 to four lanes from I-85 to SR 124	$3	$18	$2	$23	$46
Extend SR 60 to two lanes from SR 124 to SR 53 (2 lanes)	$3	$8	$2	$23	$36
Widen SR 124 from SR 211 to Spout Springs Road (4 lanes)	$7	$14	$6	$60	$87
Widen SR 124 from SR 211 to SR 332 (4 lanes)	$8	$8	$6	$65	$87
Widen SR 211 from I-85 to West Winder Bypass 4-6 lanes)	$11	$11	$8	$87	$117
TOTAL					**$373**

SR 53 through Hoschton



7 - Local Operational Improvements

In addition to the analysis of regional-scale improvements, smaller-scale local operational improvements along the SR 53 study corridor, as well as at the intersection of SR 332 at SR 124, were analyzed using Synchro and Sidra.

7.1 Analysis of Local Operational Improvements

The initial step in the planning-level analysis of potential operational improvements was to assess whether the currently unsignalized intersections will meet signal warrant criteria in either open year 2030 or design year 2050. For each unsignalized intersection, three signal warrants were checked: Warrant 1 – Eight-Hour Vehicular Volume, Warrant 2 – Four-Hour Vehicular Volume, and Warrant 3 – Peak Hour. If an intersection met at least two of the three warrant criteria, a signal was determined to be warranted. The results of the signal warrant analysis are summarized in Table 7-1 and informed the potential operational improvement recommendations.



Pilot Truck Stop off of SR 53

Table 7-1. Signal Warrant Analysis Results for Local Intersections

Improvement	Warranted for Existing Year 2022	Warranted for Open Year 2030	Warranted for Design Year 2050
SR 53 at Cherry Drive	No	No	No
SR 53 at Jackson Road	No	No	No
SR 53 at East Jefferson Street	No	No	Yes
SR 53 at East Broad Street	No	No	Yes
SR 53 at SR 332/Pendergrass Road	No	No	No
SR 53 at Towne Center Parkway	No	No	No
SR 53 at Industrial Boulevard	No	No	No
SR 53 at SR 332/Pendergrass , Towne Center Parkway, and Industrial Boulevard	Yes	Yes	Yes
SR 53 at Peachtree Road	Yes	Yes	Yes
SR 53 at Twin Lakes Boulevard	No	Yes	Yes
SR 53 at Jackson Trail Road	No	No	No



7.2 Recommended Local Operational Improvements

Based on the results of the signal warrant analysis, as well as a planning-level Synchro and Sidra traffic analysis, the local operational improvements recommended for future implementation are listed in Table 7-2.

Using Synchro and Sidra, two traffic volume scenarios were modeled for the design year 2050 to assess the expected performance of the recommended operational improvements. The first traffic volume scenario assumes the existing year traffic volume will increase at an annual growth rate of 1.37%, consistent with the traffic volume analysis for the baseline condition. Additionally, to assess the performance of the operational improvements in conjunction with the regional improvements, a second volume scenario was analyzed. The second scenario includes the diversion of traffic from the SR 53 corridor because of the regional-level improvements: constructing a new interchange at SR 60 and I-85, widening SR 124, widening SR 211, and extending SR 60. The combined effect of these regional improvements is expected to divert up to 300 vehicles per hour from the SR 53 corridor by 2050.

The results of the design year 2050 modeling for the two traffic volume scenarios (operational improvements only and the combination of the operational and regional improvements) are summarized in Table 7-3 for the study area intersections. Comparing the design year 2050 baseline and improvement conditions, the number of study area intersections operating at LOS E or LOS F decreases from 9 to 3 in the a.m. peak hour and from 12 to 6 in the p.m. peak hour (when considering SR 53 at Pendergrass Road, Towne Center Parkway, and Industrial Boulevard as a combined intersection).

Table 7-2. Recommended Local Operational Improvements

Location	Recommended Improvement
SR 53 at New Cut Rd to SR 124	° Widen from two to four lanes
SR 53 at New Cut Rd	° Modify/upgrade the roundabout to a multi-lane facility.
SR 53 at Zion Church Rd	° Close intersection.
SR 53 at Davis Street	° Retime signal to include protected left turns.
SR 53 at East Jefferson Street	° Install traffic signal.
SR 53 at East Broad Street	° Install traffic signal.
SR 53 at Peachtree Rd	° Install traffic signal.
SR 53 at Twin Lakes Boulevard	° Install traffic signal.
SR 53 at Jackson Trail Rd	° Add a dedicated right-turn lane on Jackson Trail Road.
SR 332 at SR 124	° Widen SR 124 to four lanes. ° Add a dedicated right-turn lane on SR 332/Pendergrass Rd. northbound.
SR 53 at Towne Center Parkway, Industrial Boulevard, and SR 332/ Pendergrass Rd	° Align Towne Center Parkway and Industrial Boulevard. ° Reroute SR 53 at SR 332/Pendergrass Road traffic to realigned Towne Center Parkway at SR 53. ° Designate the realigned Towne Center Parkway segment between Pendergrass Road and SR 53 as SR 332 ° De-designate Pendegrass Road as SR 332 between SR 53 and Town Center Parkway ° Install traffic signal at new intersection of SR 53 at Industrial Boulevard and SR 332/Towne Center Parkway.

Table 7-3. 2050 Intersection Level of Service for Baseline vs. Improvement Conditions

Improvement	Baseline		With Operational Improvements		With Operational and Regional Improvements	
	AM	PM	AM	PM	AM	PM
SR 53 at New Cut Rd (Roundabout)	LOS B	LOS A	LOS B	LOS A	LOS B	LOS A
SR 53 at Braselton Parkway (Signal)	LOS B	LOS C	LOS C	LOS C	LOS C	LOS C
SR 53 at Chardonnay Trace (Signal)	LOS C	LOS C	LOS C	LOS C	LOS C	LOS C
SR 53 at Pilot Driveway (Unsignalized)*	LOS F	LOS F	LOS F	LOS F	LOS F	LOS F
SR 53 at I-85 Southbound Ramps (Signal)	LOS F	LOS D	LOS F	LOS D	LOS E	LOS D
SR 53 at I-85 Northbound Ramps (Signal)	LOS C	LOS F	LOS C	LOS E	LOS C	LOS D
SR 53 at Cherry Drive (Unsignalized)*	LOS C	LOS F	LOS B	LOS F	LOS B	LOS F
SR 53 at SR 124 (Signal)	LOS D	LOS D	LOS D	LOS D	LOS D	LOS C
SR 53 at Davis Street (Signal)	LOS D	LOS F	LOS D	LOS F	LOS C	LOS E
SR 53 at Jackson Road (Unsignalized)*	LOS F	LOS F	LOS F	LOS F	LOS F	LOS F
SR 53 at East Jefferson Street (Signal)	LOS F	LOS F	LOS A	LOS B	LOS A	LOS B
SR 53 at East Broad Street (Signal)	LOS F	LOS F	LOS A	LOS A	LOS A	LOS A
SR 53 at SR 332 Pendergrass Rd (Unsignalized)*	LOS F	LOS F	-	-	-	-
SR 53 at Towne Center Parkway (Unsignalized)*	LOS F	LOS F	-	-	-	-
SR 53 at Industrial Boulevard (Unsignalized)*	LOS E	LOS F	-	-	-	-
SR 53 at SR 332/Pendergrass Rd, Towne Center Parkway, and Industrial Boulevard	-	-	LOS B	LOS C	LOS B	LOS B
SR 53 at Peachtree Road (Signal)	LOS F	LOS F	LOS B	LOS F	LOS B	LOS F
SR 53 at Twin Lakes Boulevard (Signal)	LOS F	LOS F	LOS B	LOS A	LOS B	LOS A
SR 53 at Jackson Trail Road (Unsignalized)*	LOS D	LOS F	LOS C	LOS D	LOS D	LOS F
SR 332 at SR 124 (Signal)	LOS F	LOS F	LOS D	LOS D	LOS D	LOS D

Notes: *The highest minor road approach delays are shown for the unsignalized intersections.

8 - Summary of Recommendations and Proposed Funding Method for Implementation

The following sections will provide a summary of all the recommended projects with phased cost estimates. A timeline for implementation and a list of appropriate federal formula and discretionary funding for these projects is also provided.

In addition, a list of long-range projects that are in the ARC and GHMPO regional transportation plans were also analyzed to determine if they are consistent with the recommendations provided by the study team.



SR 53 at I-85 Interchange

Table 8-1. Recommended Projects' Cost Estimates and Prioritization for Implementation

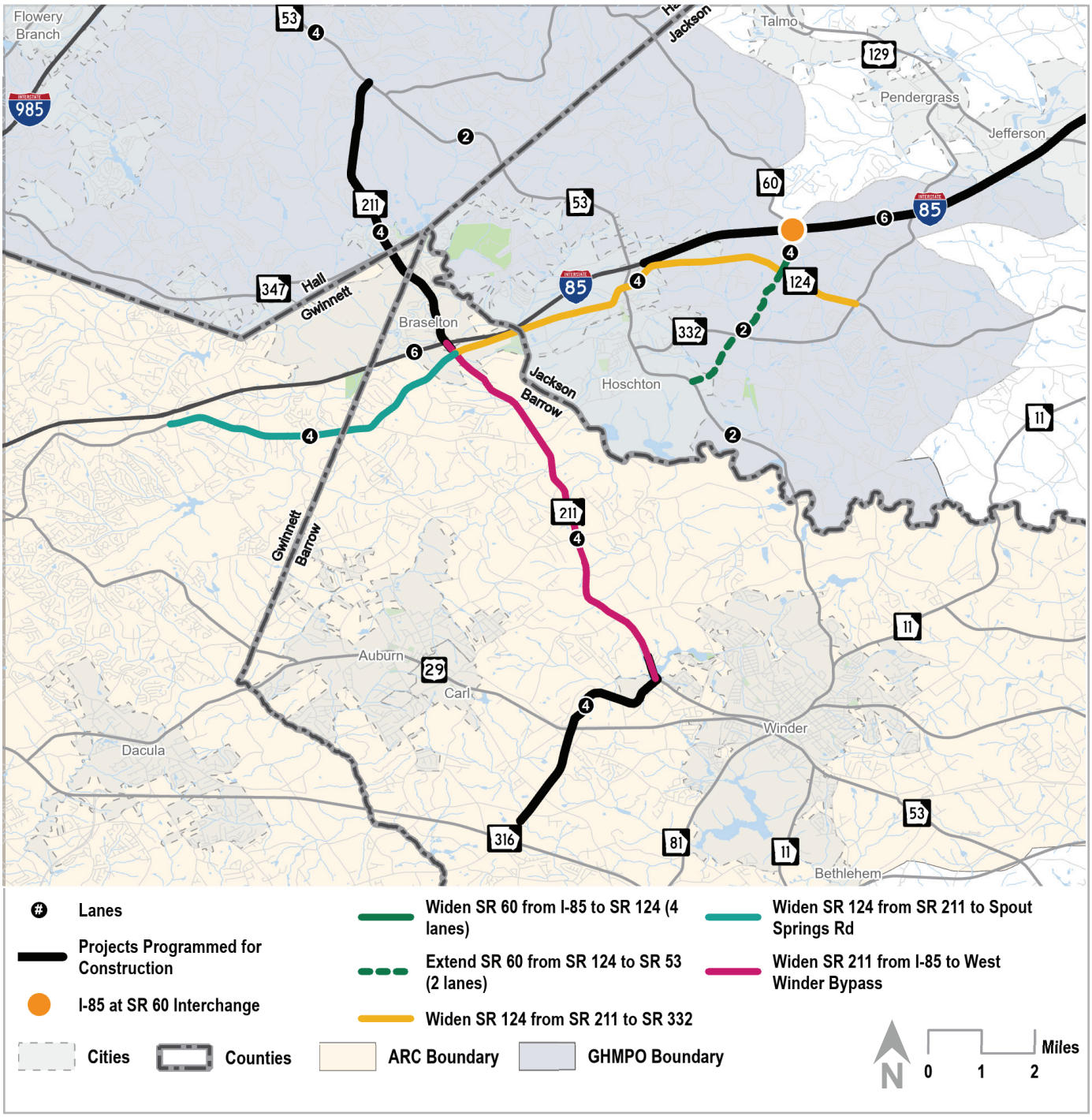
Improvement	PE	ROW	UTL	CST	Total	Potential Sequencing
Regional Connectivity Improvements ($ nearest million)						
Widen SR 124 from SR 211 to SR 332 (4 lanes)	$8	$8	$6	$65	$87	Second
Widen SR 211 to from I-85 to West Winder Bypass (4-6 lanes)	$11	$11	$8	$87	$117	Second
Construct an interchange at SR 60 and widen SR 60 from I-85 to SR 124 (4 lanes)	$3	$18	$2	$23	$46	Third
Extend SR 60 from SR 124 to SR 53 (2 lanes)	$3	$8	$2	$23	$36	Third
Widen SR 124 from SR 211 to Spout Springs Road (4 lanes)	$7	$14	$6	$60	$87	Third
TOTAL					**$373**	
Local Operational Improvements ($ nearest thousand)						
Widen SR 53 from two- to four-lanes between the intersections of SR 124 and New Cut Rd.	$1,170	$5,474	$908	$9,553	$17,105	First
Modify and upgrade the SR 53 at New Cut Road roundabout to multi-lane.	$372	$2,053	$289	$3,041	$5,755	First
Close SR 53 at Zion Church Road	$26	--	$20	$215	$261	First
Retime/improve signal phasing at SR 53 at Davis Street	$30	--	$23	$246	$299	First
Signalize the intersection of SR 53 at Twin Lakes Boulevard	$36	--	$28	$297	$361	First
Add a dedicated right turn lane on Jackson Trail Road at the intersection with SR 53	$55	--	$43	$448	$546	First
At the intersection of SR 332 and SR 124, widen SR 124 to four lanes and add a dedicated right turn lane on SR 332 northbound	$746	$2,224	$579	$6,087	$9,636	First
Signalize the intersection of SR 53 at Peachtree Road	$36	--	$28	$297	$361	Second
Signalize the intersection at East Jefferson Street	$36	--	$28	$297	$361	Third
Signalize the intersection of SR 53 at East Broad Street	$61	--	$143	$501	$705	Third
Improvements to SR 53 at Towne Center Parkway, Industrial Boulevard, and SR 332/ Pendergrass Road	$352	$7,323	$273	$2,876	$10,825	Third
TOTAL					**$46,215**	

*Note: Improvements to SR 53 include: align Towne Center Parkway with Industrial Boulevard, Reroute SR 332/Pendergrass Road traffic to Towne Center Parkway, close SR 53 at existing Pendergrass Road, and signalize the new intersection of SR 53 at Industrial Boulevard and SR 332/Towne Center Parkway/Pendergrass Road

8.1 Recommended Projects

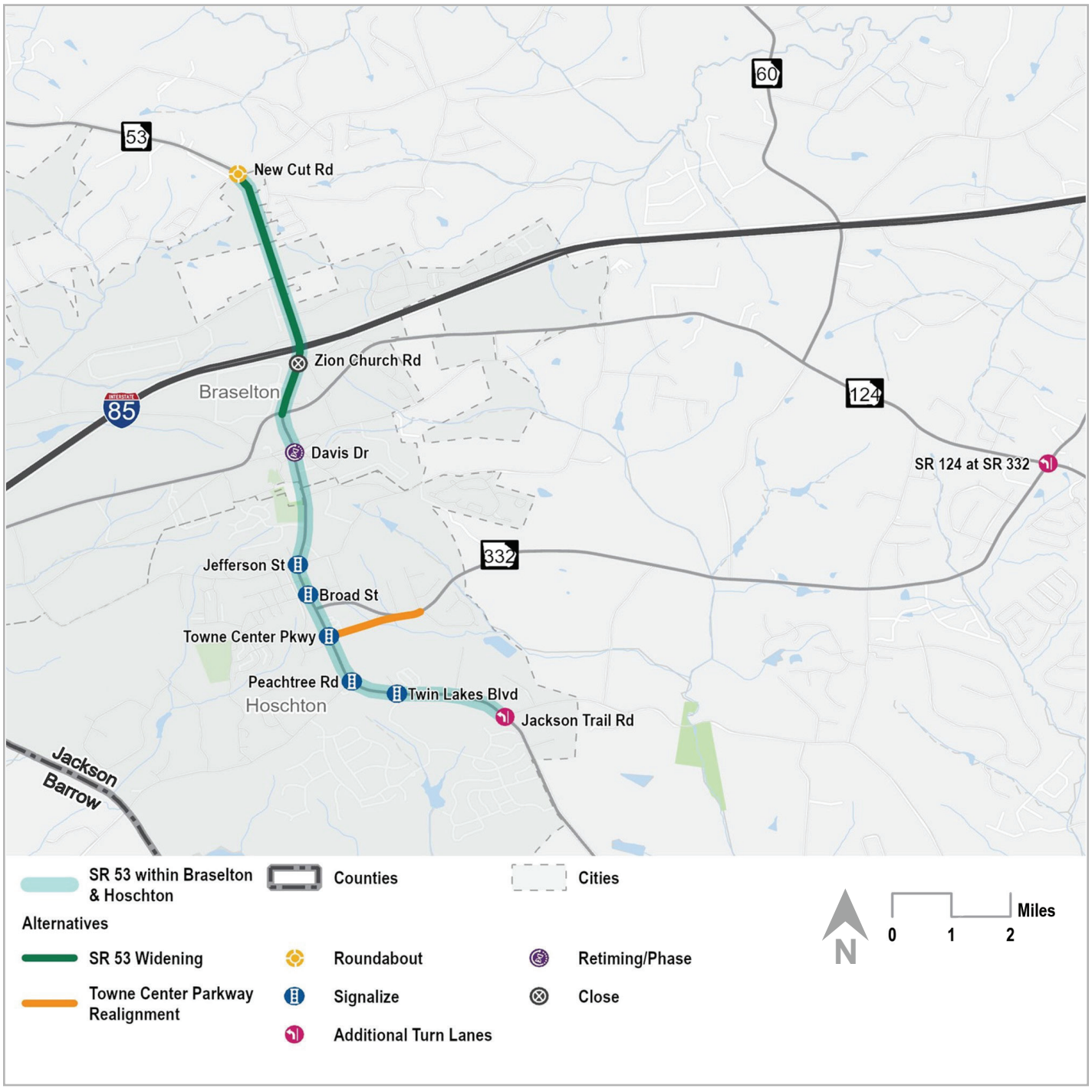
The BHAM study resulted in recommended regional and local operational improvements for the study area. The phased cost estimates for each recommended improvement as well as potential sequencing for implementation of each project are summarized in Table 8-1. The recommended projects were assigned potential sequencing based on which projects could move forward more quickly to address the region's needs. The

Figure 8-1. Map of Recommended Regional Connectivity Improvements



potential sequencing for implementation is divided into three categories: Implement first, second, and third. The locations of the recommended regional connectivity projects are depicted in Figure 8-1 and the local operational improvements are depicted in Figure 8-2. Projects that are already programmed for construction are shown in black.

Figure 8-2. Map of Recommended Local Operational Improvements



8.1.1 Long-Range Projects

Projects included in the ARC and GHMPO Regional Transportation Plans were analyzed to determine if they are consistent with the recommendations provided in this study. Table 8-2 shows the long-range projects located in the study area and whether the study team recommends that they remain, be modified, or removed.

Table 8-2. Analysis of Regional Transportation Plans

PI Number	Project Descripton	MPO	Recommended to Remain, Be Modified, or Removed
0013086	New interchange at SR 60 at I-85	Gainesville	Remain
0007830	Widen SR 211 from SR 124 to SR 11 from 2 lanes to 4 lanes	ARC	Modify limits of the project to begin at I-85 and end at the West Winder Bypass
0014927	Widen SR 124 from E of Hamilton Mill Pkwy to Wheeler Road from 2 to 4 lanes	ARC	Modify project limits to begin at Spout Springs Road and end at Wheeler Road
0007833	Widen SR 124 from Gwinnett County Line to Jackson County Line from 2 to 4 lanes	Gainesville	Remain
0007663	Widen SR 124 from Josh Pirkle Rd to SR 11 from 2 to 4 lane	Gainesville	Modify project limits to begin at Josh Pirkle and end at SR 332
0008434	Widen SR 53 from I-85 to Tapp Wood Rd from 2 to 4 lanes	Gainesville	Modify limits to begin at New Cut Road and end at Jackson Trail Road.
0013310	Widen SR 53 from I-85 to SR 211 from 2 to 4 lanes	Gainesville	Remove



8.1.2 Summary of Stakeholder Feedback

As discussed in Section 1.3, stakeholders were invited to provide feedback at each stage of the study, including analysis and recommendations, and their input helped guide the vision and outcomes of the study.

During the analysis phase, stakeholders shared their support for the study's approach of examining both local and regional improvements and were pleased to see alternatives that included the SR 60 interchange and widening of SR 124. They also appreciated that preserving their downtown areas was a priority of the study.

The stakeholders also provided their feedback on the final recommendations of the study, which included:

- Consider a bypass south of Hoschton over to SR 211, instead of the recommended SR 60 extension.
- Consider SR 332 within the recommended regional connectivity improvements.
- Consider what steps would be needed to remove portions of SR 53 within downtown Braselton and Hoschton from the state route system.
- Questions on time frame for the implementation of the recommendations.

Regarding a bypass south of Hoschton over to SR 211, the study team identified a range of potential improvements including an extension of SR 60 between SR 53 and SR 211. This is depicted in Section 6.1 of study. This would constitute a southern Bypass. Modeling results indicated that this potential regional improvement would not perform as well as other improvements in diverting traffic off SR 53 within downtown Braselton and Hoschton. The study team analyzed the effects that widening SR 211 and SR 124 would have on traffic and found that these recommendations were the best at diverting traffic.

Widening SR 332 as a regional improvement was not included since the western limit of SR 332 terminates on SR 53 within downtown Hoschton and Braselton. Widening this route would not meet one of the goals of the study to shift through traffic away from SR 53.

It was also noted that removing SR 53 from the state route system was common feedback. Considerations on removing portions of SR 53 from the state route system would need to occur after the recommendations for regional improvements are implemented so that appropriate routes could be identified to be designated as SR 53 to maintain connectivity of the state route network.

Implementation of each project is subject to many factors such as funding opportunities and a specific timeline cannot be provided by this study. Potential sequencing of recommended projects has been provided based on which projects could move forward more quickly to address the goals of the study.



8.2 Opportunities for Federal Funding

In November 2022, the Bipartisan Infrastructure Law (BIL) was passed and authorized dozens of formula and discretionary transportation funding programs for fiscal years 2022 through 2026. The United States Department of Transportation (USDOT) oversees the distribution of transportation funding across all modes, including Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) funding, among others.

The recommended improvements provided by this study were assessed to determine their eligibility for formula and discretionary funding. However, it should be noted that funding programs and their selection criteria may change with administrations and future infrastructure funding authorizations; therefore, funding sources should be reviewed periodically to determine applicability to projects.

Federal Formula Funding

Projects intended for formula funds are often required to be programmed into the STIP or the ARC and GHMPO TIP in which funds are allocated, or another statewide long-range plan. Each formula program has its own purpose and eligibility criteria, and therefore, some projects are more applicable to certain programs than others. A description of each formula funding opportunity is provided below:

Local Access Road Program

The Appalachian Regional Commission created this grant program using funds from the Appalachian Development Highway System, which were allocated to USDOT through the BIL. The Appalachian Regional Commission's Local Access Road Program offers a financing mechanism to support a variety of economic development, including local road projects that serve industrial and commercial areas, residential developments, recreational areas, and educational areas.[6] Local Access Road funds are available for preliminary engineering, right-of-way, and construction.[6]

Surface Transportation Block Grant Program

The Surface Transportation Block Grant Program (STBG) promotes flexibility in State and local transportation decisions and provides flexible funding to best address State and local transportation needs.[9]

National Highway Performance Program

The purposes of this program are to provide support for the condition and performance of the National Highway System (NHS); to provide support for the construction of new facilities on the NHS; to ensure that investments of federal-aid funds in highway construction are directed to support progress toward the achievement of performance targets established in a state's asset management plan for the NHS; and to provide support for activities to increase the resiliency of the NHS to mitigate the cost of damages from sea level rise, extreme weather events, flooding, wildfires, or other natural disasters.[8] It is important to note that SR 60 and I-85 are national highways; therefore, the regional improvements recommended by this study may qualify for this grant.[10]

[6] Local Access Road Program - Appalachian Regional Commission (arc.gov) accessed 12/22/23.
[7] ARC Local Access Road Project Guidelines, accessed 12/22/23.
[8] Bipartisan Infrastructure Law - National Highway Performance Program (NHPP) Fact Sheet | Federal Highway Administration (dot.gov), accessed 12/22/23.
[9] Bipartisan Infrastructure Law - Surface Transportation Block Grant (STBG) Fact Sheet | Federal Highway Administration (dot.gov), accessed 2/21/2024.
[10] Maps of National Highways In Georgia, ga_georgia.pdf (dot.gov), accessed 12/22/23.

Discretionary Funding

Discretionary grant funding is federal funding that is awarded to projects based on a competitive call for projects, typically referred to as a Notice of Funding Opportunity. Projects are in competition with other projects across the United States for funding. These programs have become increasingly popular since the passage of the BIL, as more discretionary programs were created and funded by Congress. The following is a list of discretionary programs that are applicable to the BHAM study recommendations:

RAISE Grant

The Rebuilding American Infrastructure with Sustainability and Equity, or RAISE Discretionary Grant program, provides funds to state DOTs to invest in road projects that will have a significant local or regional impact. The eligibility requirements of the RAISE program allow project sponsors at the state and local levels to obtain funding for multi-modal, multi-jurisdictional projects that are more difficult to support through traditional DOT programs. The RAISE program can provide funding directly to any public entity, including municipalities and counties.[11]

Rural Surface Transportation Grant Program

This program supports projects that improve and expand surface transportation infrastructure in rural areas to increase connectivity, improve the safety and reliability of the movement of people and freight, generate regional economic growth, and improve quality of life. Eligible projects for rural grants include highway, bridge, and tunnel projects that improve the movement of freight, improve safety, and provide or increase access to agricultural, commercial, energy, or transportation facilities that support the economy of a rural area. Ninety percent of rural funding must be awarded in $25 million or greater amounts.[12] It should be noted that within the study area only a small percentage of Jackson County qualifies for this program.

The regional connectivity and operational improvement projects recommended by the BHAM study are applicable for these discretionary grant opportunities.

[11]About RAISE Grants | US Department of Transportation last updated July 5, 2023.
[12]MPDG Program | US Department of Transportation last updated June 26, 2023.

Appendix A:

Stakeholder Meeting Materials

Minutes

SUBJECT
Braselton-Hoschton Area Mobility Study
Local Kickoff Meeting

START
1:30 PM

DATE
September 7, 2022

OUR REF
30143161

LOCATION
GDOT District 1 Office | Teams

PARTICIPANTS

Jannine Miller, GDOT
Radney Simpson, GDOT
Jonathan Peevy, GDOT D1
Kevin Poe, Jackson County
Michelle Ramey, GDOT D1
Joseph Boyd, GHMPO
Sandy Weinel, Town of Braselton
Jennifer Scott, Town of Braselton
Joe Hayes, City of Hoschton
Gina Roy, Jackson County
Sue Anne Decker, GDOT D1
Joseph Ciavarro, GDOT
Nicole Carsten, Arcadis
Otto Clemente, Arcadis
Andrew Lewis, Arcadis
Jomar Pastorelle, GDOT (virtual)
Andy Torrey, GDOT (virtual)
Charles Robinson, GDOT (virtual)

DISCUSSION POINTS AND ACTION ITEMS	WHO	WHEN

1. **Introductions and Background**

    - Jannine Miller (GDOT) provided background on the study and purpose of the meeting.

2. **Study Area and Goals**

    - Otto Clemente (Arcadis) shared the study area map and highlighted several projects within the corridor. Jannine Miller noted that although only state routes are shown, the local roads should be considered as well.

5. Analysis and Methodology

    - Andrew Lewis (Arcadis) explained the study team's process for collecting and analyzing traffic data that will inform recommendations for the area.

6. Schedule Overview

    - Andrew reviewed the study schedule. Jannine Miller asked where the MPO was with their TIP process. Joseph Boyd (GHMPO) noted they planned to apply for funding in January 2024. Gina Roy (Jackson County) also mentioned that Jackson County was revising their transportation plan in August 2023.

7. Open Discussion

DISCUSSION POINTS AND ACTION ITEMS	WHO	WHEN
• Jannine Miller asked stakeholders to share planned projects in their jurisdictions that are missing.		
• Sue Anne Decker (GDOT) will share a list of all the planned projects in District 1 with the study team.	Sue Anne Decker	
• Gina Roy shared that the Jackson County transportation plan was on their website. She also noted that Jackson County's GIS would have information for heavy residential or commercial areas. They can also share 911 mapping. ○ Andrew Lewis will follow up with her on gaining access to that information.	Gina Roy/ Andrew Lewis	
• Gina Roy also mentioned that new schools are planned for the area. She recommended connecting with the superintendent. Jennifer Scott (City of Braselton) noted that there were four school systems in the area. ○ Nicole Carsten will confirm that the four school systems are included on the stakeholder list.	Nicole Carsten	September 2022
• Gina Roy shared that Jackson County will have new LIDAR data collected in January/February of 2023 with results available in March. She can share with the study team then.	Gina Roy	March 2023
• Sue Anne Decker suggested bringing large scale roll plots to follow up stakeholder meeting to allow stakeholders to mark up with issues, projects, new developments, suggestions, etc.	Nicole Carsten/ Andrew Lewis	October 2022
• Andrew Lewis asked for additional feedback related to the study goals. Jennifer Scott stressed concern about the through traffic, especially freight, impeding the walkability of their town.		
• Kevin Poe (Jackson County) stated there were operational and capacity issues on SR 124 from SR 211 to SR 332. Jonathan Peevy (GDOT) noted when there is traffic or interstate shutdowns, traffic from I-85 is rerouted onto SR 124 and it cannot handle the capacity.		
• Jennifer Scott asked that freight impacts due to the new inland port be evaluated.	Andrew Lewis	
• Andrew Lewis asked if there were any recent counts for any of their projects. Braselton had recent counts to share. Jackson County and Hoschton had counts for the recent DRIs and planned schools. Jonathan Peevy shared that District 1 was analyzing SR 53 and SR 129 for operations and safety; he would share once complete.	Braselton, Jackson County, Jonathan Peevy	

DISCUSSION POINTS AND ACTION ITEMS	WHO	WHEN
• Kevin Poe stated that he can share concepts and other documentation for the SR 60 interchange developed ten years ago. Jannine Miller noted that it would be helpful to see what has changed.	Kevin Poe	
• Jennifer Scott recommended including ARC as portions of the study area is in their purview.	Nicole Carsten/ Andrew Lewis	
• Jessie Chronic Bridge was experiencing heavy freight traffic potentially exceeding weight limit. Sue Anne Decker noted that all posted bridges could be viewed in GeoPI. Jannine Miller asked Joe Ciavarro (GDOT) to check with the bridge department about planned bridge projects in the study area.	Joe Ciavarro	

Minutes

SUBJECT
Braselton-Hoschton Area Mobility Study
Stakeholder Meeting

START
2:00 PM

DATE
October 25, 2022

OUR REF
30143161

LOCATION
GDOT District 1 Office

PARTICIPANTS

Gina Roy, Jackson County
Kevin Poe, Jackson County
Marty Clark, Jackson County District 5
Sheriff Janis Mangum, Jackson County
Andy Torrey, GDOT
Joseph Ciavarro, GDOT
Kayla Schaaf, GDOT
Jomar Pastorelle, GDOT
Patrick Burke, Gwinnett County Public Schools
Jeff Bridges, Jackson County
Joe Hayes, City of Hoschton
Chad Bingham, Jackson County District 3
Brent Hoffman, GHMPO CAO
Jennifer Scott, Town of Braselton
Sandy Weinel, Town of Braselton
Sri Kumar, City of Hoschton Downtown Development Authority
Michael Haire, GHMPO
Phillipa L. Moss, City of Gainesville
Clint Cannon, City of Winder
Billy Pittard, Barrow County
Tracy Carswell
Jennifer Harrison, City of Hoschton
Michelle Ramey, GDOT D1
Sue Anne Decker, GDOT D1
Nicole Carsten, Arcadis
Otto Clemente, Arcadis
Andrew Lewis, Arcadis
Han Zheng, Arcadis
Jennifer Figueroa, Arcadis
Keren Bassourou, Arcadis
Monica Sagastizado, Arcadis

DISCUSSION POINTS AND ACTION ITEMS	WHO	WHEN
1. Introductions and Study Overview		
• Otto Clemente (Arcadis) reviewed the study area and purpose of the study.		
2. Preliminary Data Trends		
• Otto and Andrew Lewis (Arcadis) walked through data on crashes, congestion, and through trips for the study area.		
• Gina Roy (Jackson County) shared that school release traffic in the mornings and early afternoon is an issue. The study team will review traffic at these times in addition to the identified peak hours.	Andrew	
• Gina Roy also noted that the borders for Braselton and Hoschton used for trip analysis do not match the current town and city borders. Andrew explained that the current border represents the downtown areas, but the study team can perform an additional analysis with the expanded borders and compare.	Andrew	
•		

DISCUSSION POINTS AND ACTION ITEMS	WHO	WHEN

- Phillipa L. Moss (City of Gainesville) asked for the study's definition of a truck. Andrew explained that vehicles larger than a pickup truck, including school buses and delivery trucks, are considered trucks for this analysis.
- Sue Ann Decker clarified the importance of knowing local trips vs. through trips even with large facilities within the boundary. It was important to show that those trucks would not use a by-pass.

5. Feedback Activity

- Stakeholders had the opportunity to provide feedback at three stations where they added information to maps to address the following questions:
  1. Where is there new or planned development?
  2. What is generating truck traffic and car traffic in Braselton and Hoschton?
  3. Where do we need new road connections?
- Feedback provided by stakeholders is included in the attached summary.

6. Upcoming Activities

- Andrew reviewed the schedule and garnered feedback on the frequency of stakeholder meetings. The consensus was to keep the schedule with a meeting in late January/February and a last meeting in early summer.
- Gina Roy recommended meeting in Braselton or Hoschton for the next meeting. — Nicole

Brasleton-Hoschton Area Mobility Study

P.I. 0018300

Georgia Department of Transportation

Stakeholder Meeting Activity Summary

October 25, 2022

Station #1: Where is there new or planned development?

Stakeholders were asked to identify new and planned developments in the corridor. The study team will use this information to supplement available records to support projections of traffic in future years and to identify locations where transportation improvements are needed.

Responses from Stakeholders:

Blue dots - Residential (R)

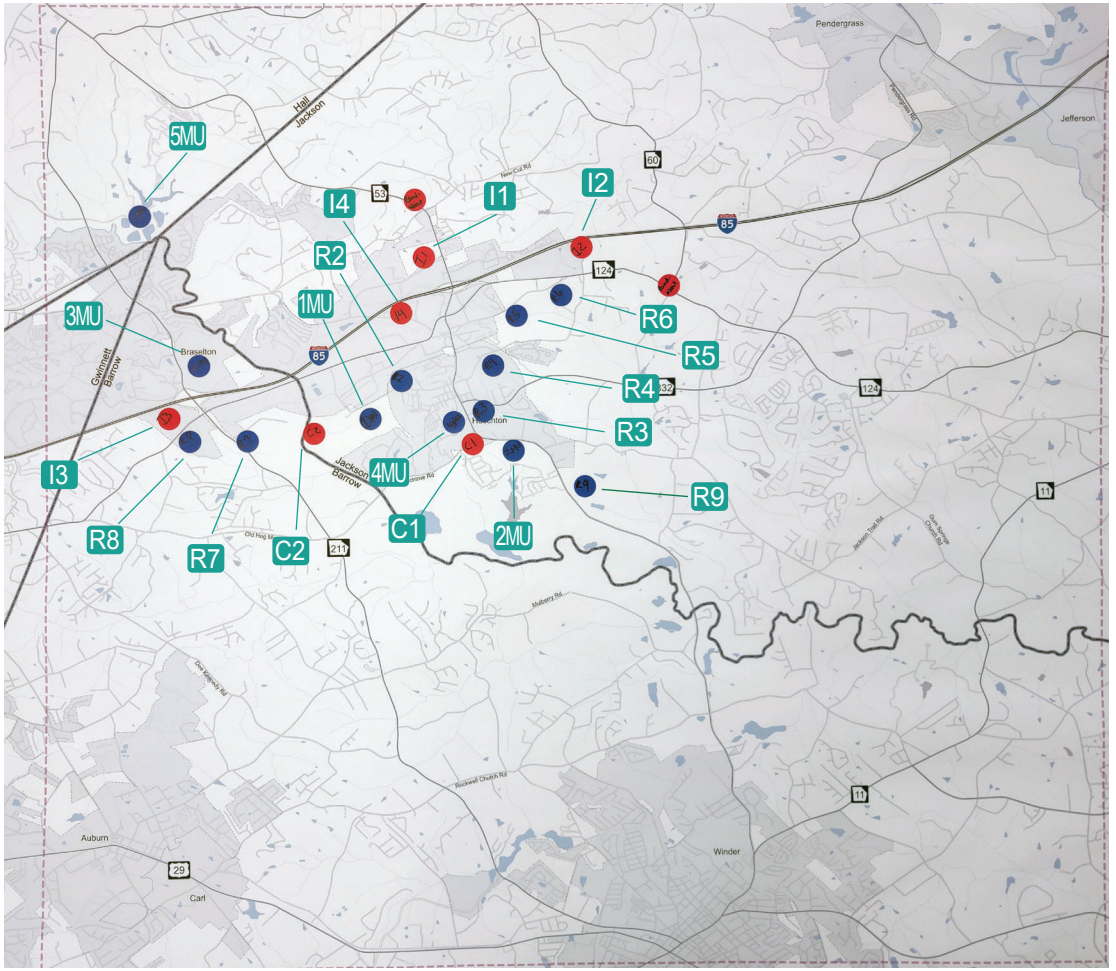
R2 – Development with 1,500 townhomes
R3 – Cambridge at Towne Center
R4 – Development with 2,500 townhomes
R5 – Animal Hospital south of Davis Street
R6 – Development near Davis Street
R7 – Development at SR 211 and Beaver Dam Rd
R8 – Mixed use development near SR 124
R9 – Development on SR 53 at Jackson Trail Rd
1MU - Pirkle Farms (DRI# 3512, access provided from SR 124)
2MU - Twin Lakes - 1,300 development plus residential
3MU - Braselton Village
4MU - SR 53 at SR 332 near downtown Hoschton
5MU - Desidential development near SR 211 at Union Church Rd.

Red dots – Commercial (C)

C1 – Publix on southwest corner of SR 53 at Peachtree Rd
C2 – Beaver Dam Creek

Red dots – Industrial Park (I)

I1 – Truck stop near SR 53 and Braselton Pkwy
I2 – Three building warehouse (Tom White Rd north cul-de-sac)
I3 – Braselton Crossroads Distirbution Center
I4 – Warehose development on Jessie Chronic Rd south of I-85



Brasleton-Hoschton Area Mobility Study

P.I. 0018300

Georgia Department of Transportation

Stakeholder Meeting Activity Summary

October 25, 2022

Station #2: What's generating truck traffic and car traffic in Braselton and Hoschton?

Stakeholders were asked to mark traffic generators in the corridor using blue and red stickers. The study team will use this information to identify locations where transportation improvements are needed and to evaluate the impact of proposed improvements.

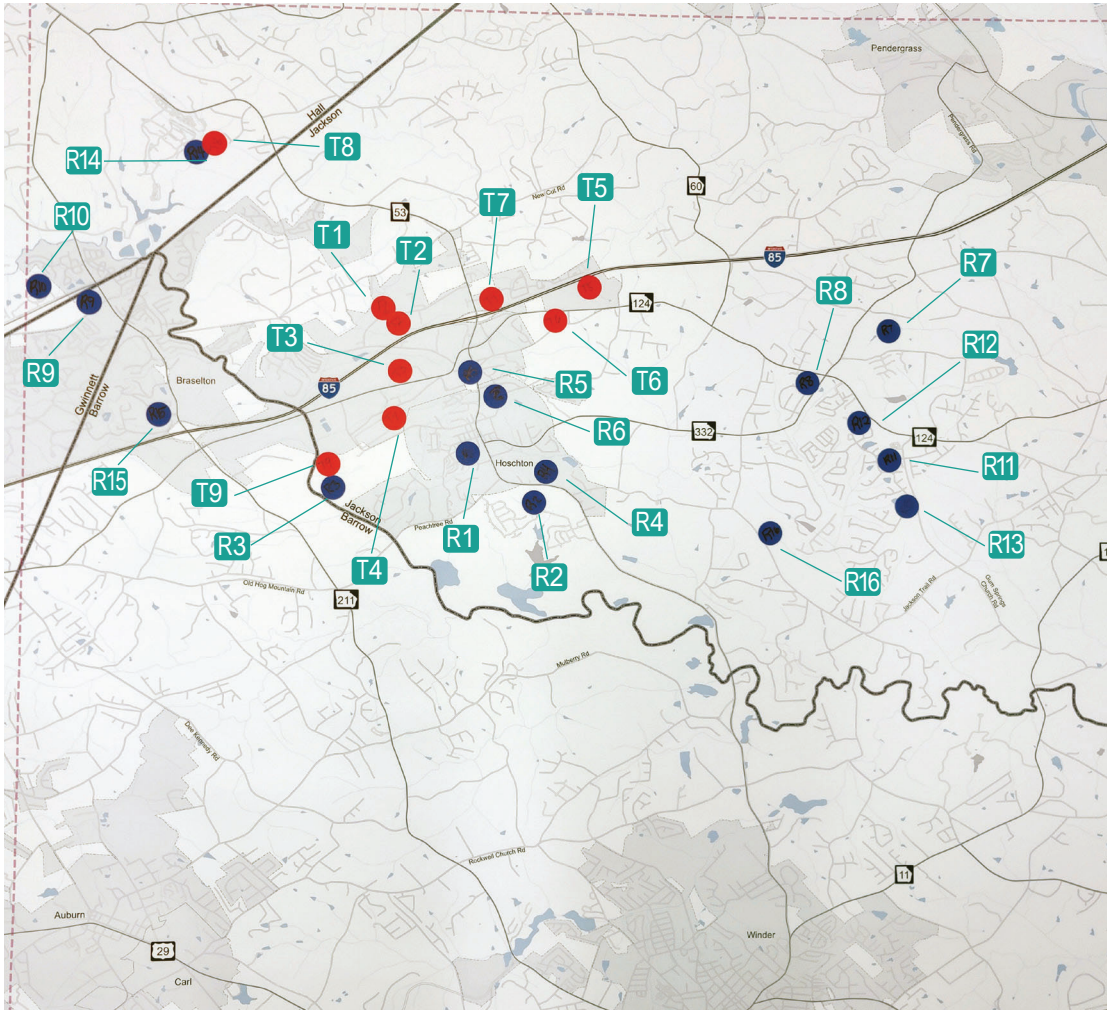
Responses from Stakeholders:

Blue dots - Residential (R)

R1 - Downtown Hoschton area
R2 - Twin Lakes new residential development - 1,800 homes
R3 - New residential development - 500 homes/townhomes
R4 - New residential development - 300 homes/townhomes
R5 - Local businesses and destinations from SR 124 to Twin Lakes (R2); bicycle and pedestrian facilities are wanted between these two points
R6 - West Jackson Elementary entrance
R7 - Jackson County High School (planned middle school site too)
R8 - Publix shopping center
R9 - Chick-fil-A - "one of the top ten busiest in the country"
R10 - Hospital – Northeast Georgia Medical Center
R11 - West Jackson Middle School and Gum Springs Elementary School
R12 - Entrance 1 to Traditions subdivision
R13 - Entrance 2 to Traditions subdivision
R14 - Michelin Raceway Road Atlanta
R15 - Chateau Elan
R16 - Upcoming new entrance to Traditions subdivision

Red dots - Truck (T)

T1 - FedEx facility
T2 - Carter's distribution center
T3 - Amazon Distribution Center (delivery cars and van traffic)
T4 - Uline Shipping Supplies distribution center
T5 &6 - Additional distribution centers like William Sonoma and Pottery Barn
T7 - Pilot truck stop
T8 - Michelin Raceway Road Atlanta
T9 - Planned site for new distribution centers



Brasleton-Hoschton Area Mobility Study

P.I. 0018300

Georgia Department of Transportation

Stakeholder Meeting Activity Summary

October 25, 2022

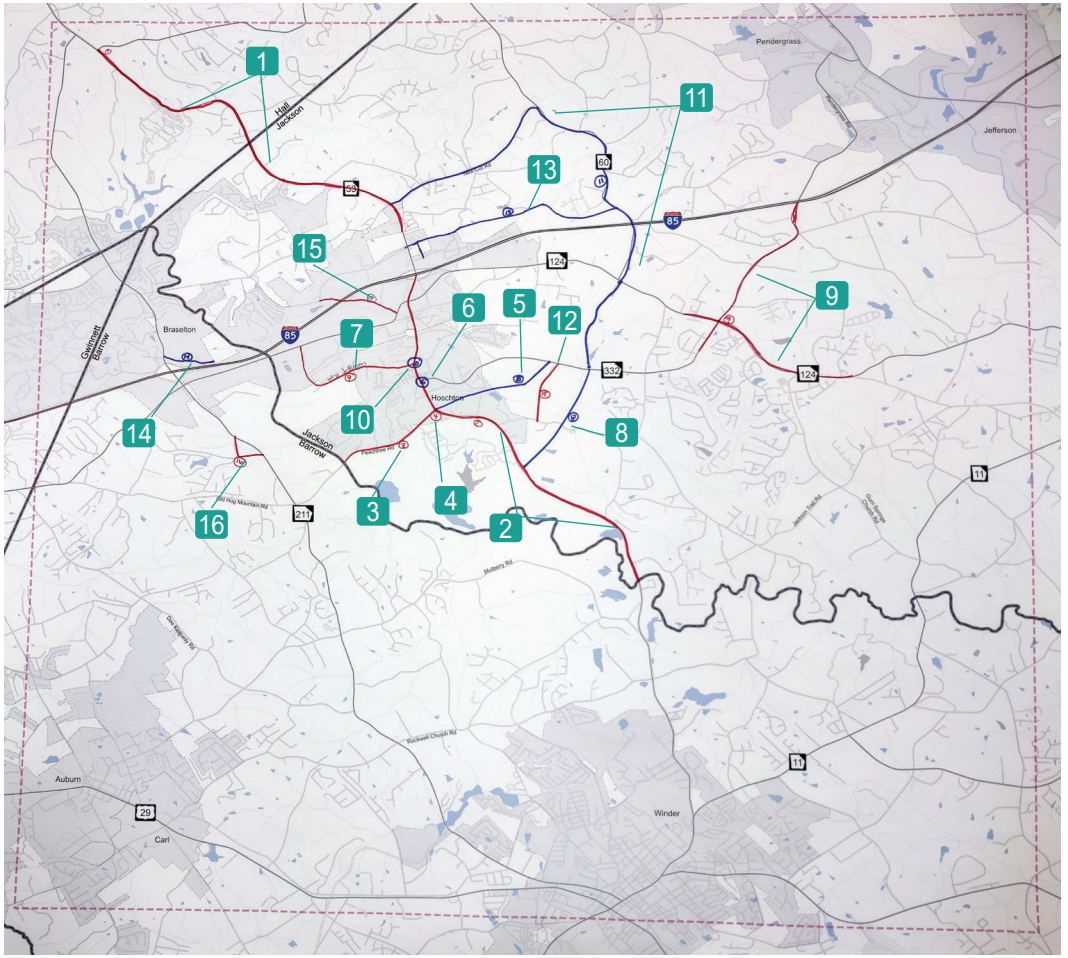
Station #3: Where do we need new roadways to connect?

Stakeholders were asked to outline current roadways in need of capacity improvements with a red marker. Ideas for new connections were drawn in blue. The study team will use this information to identify potential improvements to be evaluated during the study, including potential alignments for proposed bypasses in the study area.

Responses from Stakeholders:

Blue – New connections
Red – Improve existing connections

1. Improve SR 53 from SR 211 to Johnson Drive (Note: traffic is backed up on SR 53 where it is only 2 lanes)
2. Improve SR 53 from I-85 to Jackson county line. (Note: traffic is backed up on this section of SR 53. A huge development in Hoschton will increase traffic)
3. Peachtree Rd needs widening/improvements because of congestion at intersection at 53
4. Intersection of Peachtree and SR 53 has lots of traffic
5. Extend Peachtree
6. Roundabout needed at 332 in Hoschton
7. New development will cause congestion on West Jefferson
8. If interchange at 60 and I-85 is passed, a new road would be helpful as a by-pass
9. New will create the need for adjustments for volume at 124 & 332.
10. Add roundabout for safety
11. Upgrading New Cut Road to SR 60 and down to 332 to create by-pass around Braselton and Hoschton
12. Dirt road needs to be upgraded to road
13. Braselton Pkwy East is Pre-designed
14. Braselton Pkwy West is LET
15. Improve Jesse Chronic because 2 developments on either side. (may already be planned)
16. New development coming in and roads will need widening to accommodate



Minutes

SUBJECT
Braselton-Hoschton Area Mobility Study
Stakeholder Meeting

START
1:30 PM

DATE
February 15, 2023

OUR REF
30143161

LOCATION
Braselton Community Room

PARTICIPANTS

Gina Roy, Jackson County
Kevin Poe, Jackson County
Marty Clark, Jackson County District 5
Joseph Ciavarro, GDOT
Vivian Canizares, GDOT
Jomar Pastorelle, GDOT
Dylan Evans, GDOT
Justin Lott, GDOT
Joe Hayes, City of Hoschton
Chad Bingham, Jackson County District 3
Jennifer Scott, Town of Braselton
Sandy Weinel, Town of Braselton
Michael Haire, GHMPO
Phillipa L. Moss, City of Gainesville
Clint Cannon, City of Winder
B.R. White, City of Oakwood
Joseph Boyd, Hall County
Tracy Carswell
Jennifer Harrison, City of Hoschton
Keren Bassourou, Arcadis
Nicole Carsten, Arcadis
Otto Clemente, Arcadis
Alex Deus, Arcadis
Jennifer Figueroa, Arcadis
Andrew Lewis, Arcadis
Vamsi Peddisetty, Arcadis
Monica Sagastizado, Arcadis

DISCUSSION POINTS AND ACTION ITEMS	WHO	WHEN

1. **Introductions and Study Overview**

    - Otto Clemente (Arcadis) reviewed the study area and provided recap from the previous stakeholder meeting.

2. **Existing and No Build Analysis Update**

    - Otto and Andrew Lewis (Arcadis) walked through analysis activities and no build scenario.
    - Andrew shared data on population and employment growth in the study area.
    - Andrew then shared the analysis of regional volume to capacity and local intersection capacity for current and future volumes. He explained that the modeling doesn't account for driveways but only intersections.
    - Otto walked through the potential regional and local improvements the team would run through the travel demand model. The second component to the analysis was to glean feedback from the stakeholders.

5. Feedback Activity

DISCUSSION POINTS AND ACTION ITEMS	WHO	WHEN
• Stakeholders had the opportunity to provide feedback at three stations where they added information to maps to address the following questions: 1. Discuss and provide feedback on regional improvements. 2. Discuss and provide feedback on operational improvements. 3. Share what we missed regionally or locally. • Feedback provided by stakeholders is included in the attached summary.		
6. Upcoming Activities		
• Schedule next stakeholder meeting for June/July.	Nicole	

Brasleton-Hoschton Area Mobility Study

P.I. 0018300

Georgia Department of Transportation

Stakeholder Meeting Activity Summary

February 15, 2023

Station #1: Regional Connectivity

Stakeholders were asked to provide feedback on the three proposed regional connectivity improvements.

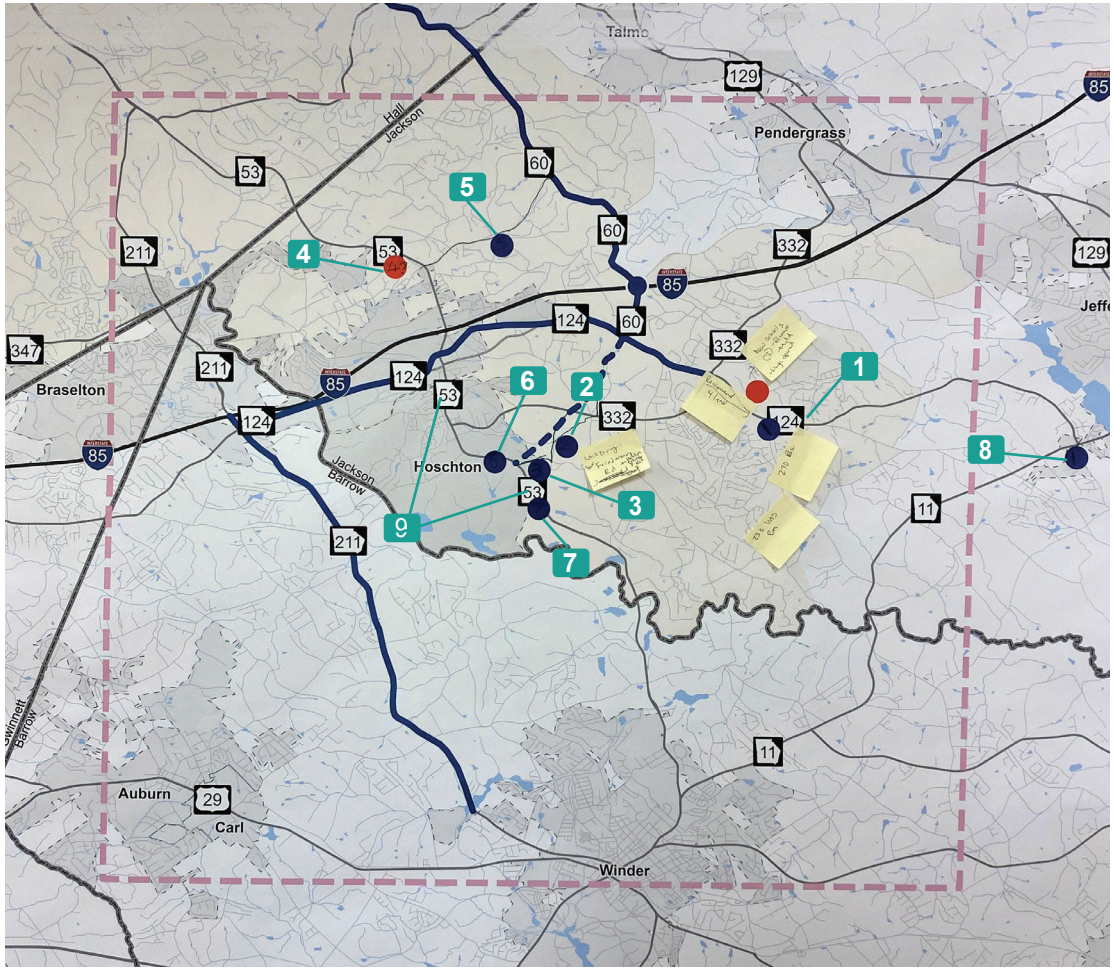
Responses from Stakeholders:

Labeled Comments

1) Consider widening SR 124 to this point blue due to new com mercial, school, and residential development in a few years.
2) Consider utilizing the existing dirt road (Jackson Trail) and Sam Freidman Rd as a bypass
3) Shows approximate location of Jackson Trail
4) (RED) Stakeholders questioned whether or not there were any long range plans to make SR 53 north of I-85 into 4 lanes. GDOT District 1 confirmed and stated the old PI number was 132860.
5) Suggest connecting New Cut Road as a bypass to SR 60

6 &7) Noted that new development exits will cause traffic. It will be important to move truck traffic away from this location.

8) SR 124 should be widened to SR 11
9) More signalized lighting throughout the downtown corridor on SR 53 like Downtown Monroe would help move traffic and should be put in place in these sections.



Brasleton-Hoschton Area Mobility Study

P.I. 0018300

Georgia Department of Transportation

Stakeholder Meeting Activity Summary

February 15, 2023

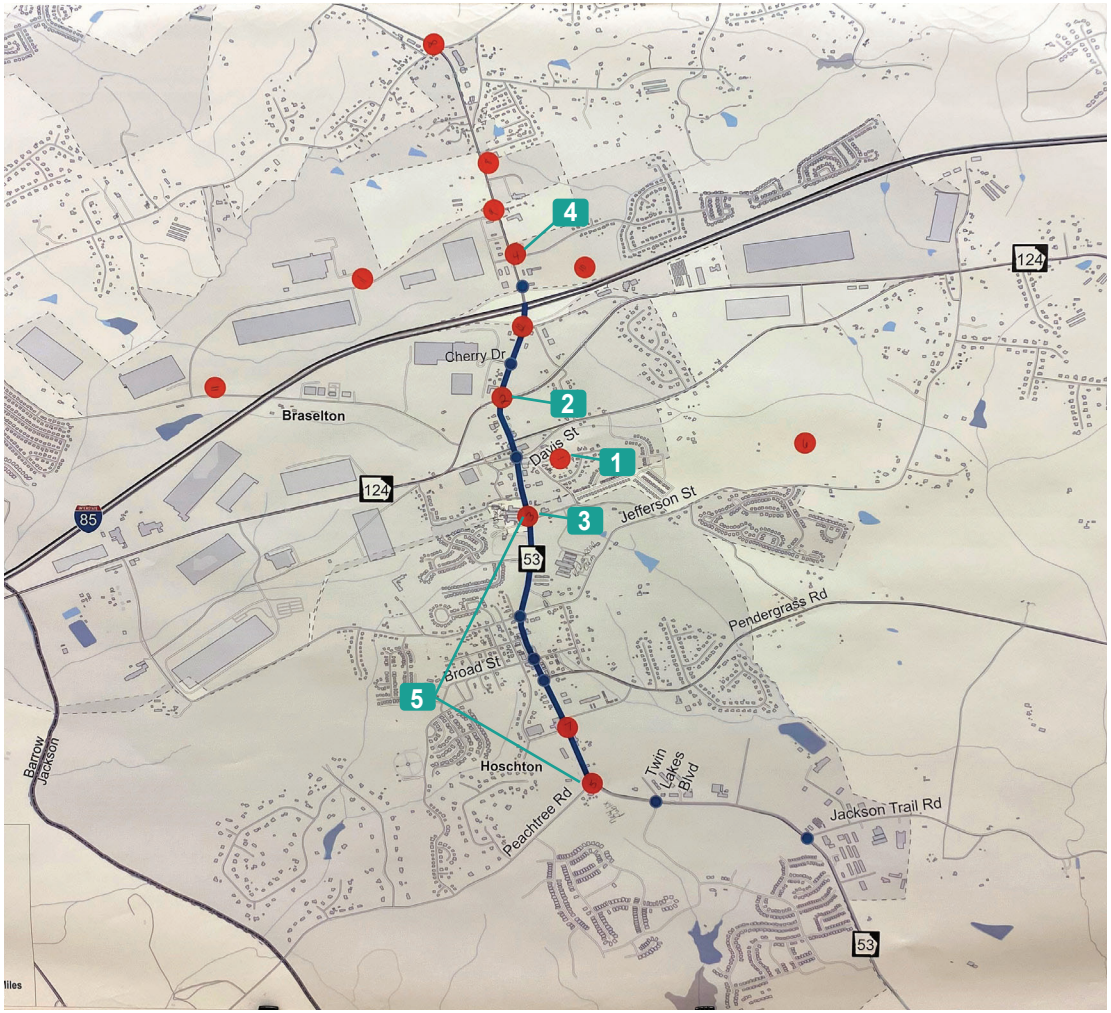
Station #2: Local Operational Improvements

Stakeholders were asked to provide feedback on the local operational improvements along SR 53 in Braselton and Hoschton.

Responses from Stakeholders:

Labeled Comments

1) Suggest syncing intersection signal with others.
2) Suggest finding a solution for traffic from SR 124 to enter SR 53 without impeding the northbound traffic on SR 53. Traffic backs up with people trying to turn right onto SR 53. But then SR 53 going north backs up because of all the traffic flowing from SR 124 cutting in front of them.
3) Need a solution to handle school traffic from West Jackson Elementary. All traffic enters from W Jackson and comes down E Jefferson. Morning and afternoon traffic on W Jackson Rd is currently controlled by a traffic cop. Traffic coming south on SR 53 to turn left onto W Jackson gets backed up. There is also a new school proposed on SR 53 at the W Jackson Rd intersection that will make things even worse. And the West Jackson Fire Department Station 1 on W Jackson Rd has been impacted by the traffic. There have been times when traffic has blocked emergency vehicles from leaving the fire station.
4) Need solutions to control traffic in and out of parking lots on SR 53 at Braselton Commons, especially during lunchtime due to restaurants and gas stations. A potential option would be:
   - Only right hand turns leaving businesses on the west side of SR 53.
   - Everyone else would go to a signaled intersection at Braselton Commons or Commons Dr.
   - No left hand turns would be allowed traveling north on SR 53 until signaled intersection.
5) There is a grant to construct a big, multi-use sidewalk along this section of SR 53.



Brasleton-Hoschton Area Mobility Study

P.I. 0018300

Georgia Department of Transportation

Stakeholder Meeting Activity Summary

February 15, 2023

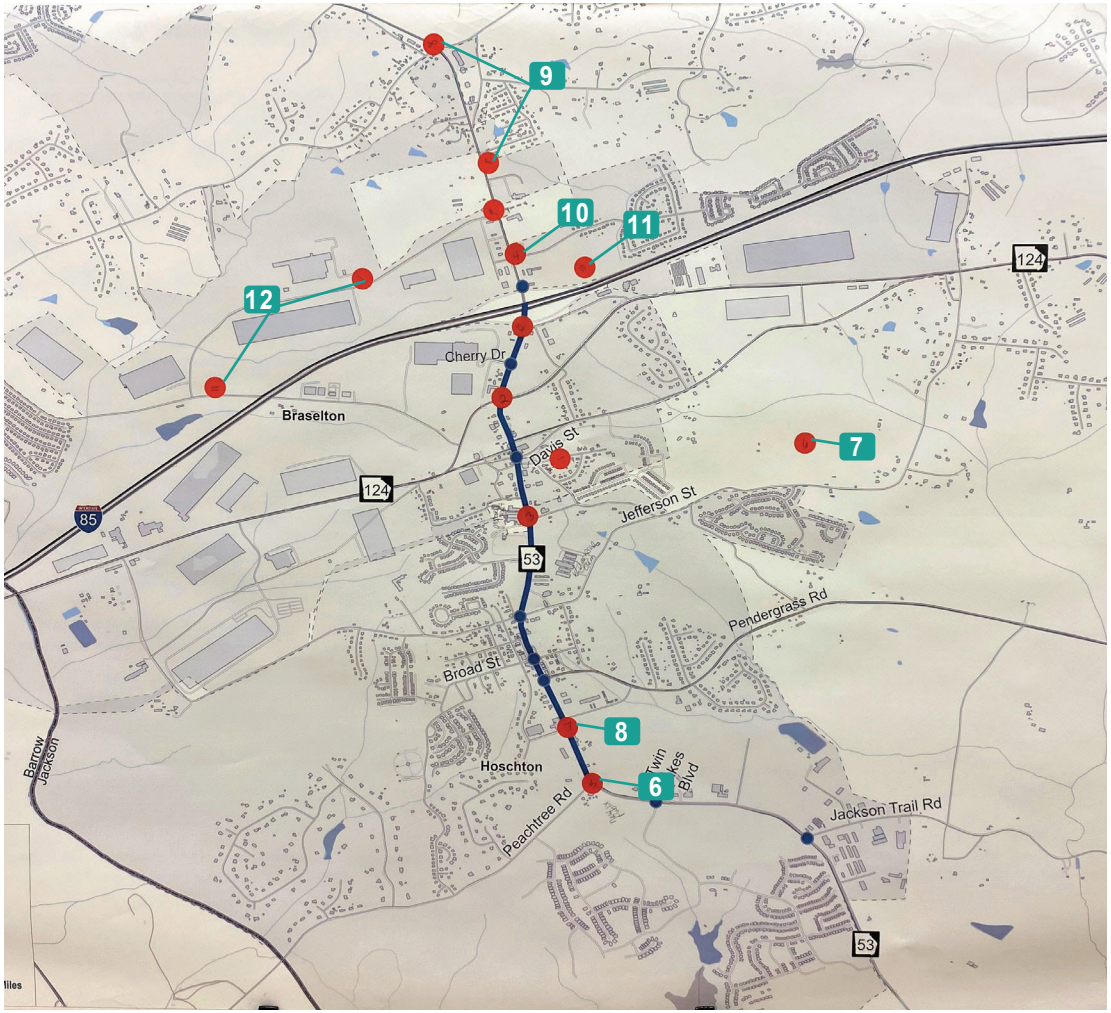
Station #2: Local Operational Improvements (continued)

Stakeholders were asked to provide feedback on the local operational improvements along SR 53 in Braselton and Hoschton.

Responses from Stakeholders:

Labeled Comments

6) Need alternate routes to SR 53 and/or alternate routes to the inter state. Peachtree Rd gets backed up with traffic turning left to the interstate. This will become worse with the new Publix. People are using White Trillium Dr and cutting through the subdivision.
7) A new subdivision is going in between Maddox Rd and Davis St. Could see increased traffic dumping onto both SR 124 and SR 53.
8) Suggest a roundabout here. Traffic backs up because Towne Center Pkwy and Industrial Blvd do not line up.
9) Suggest two lanes in both directions down to roundabout at New Cut Rd. Northbound traffic on SR 53 goes down to 1 lane at Johnson Dr. causing accidents as people try to pass before the right lane ends. The roundabout should have 2 right turn lanes – one that is a right turn only onto New Cut Rd and one that allows you to enter the roundabout.
10) Truck traffic from warehouses on Braselton Pkwy turning right onto SR 53. These trucks then immediately back up trying to turn left onto the interstate.
11) Need a solution for truck traffic on south bound I-85 exit ramp traveling to Pilot gas station. Cars are traveling up the left turn lane and jumping into the right turn lane at the last minute. Possible solutions:
    - Direct access for trucks into Pilot station
    - 2nd right turn lane
12) Suggest creating another way for truck traffic to access I-85 south of SR 53. Trucks coming from Braselton Pkwy dump onto SR 53 trying to get to I-85.



Brasleton-Hoschton Area Mobility Study

P.I. 0018300

Georgia Department of Transportation

Stakeholder Meeting Activity Summary

February 15, 2023

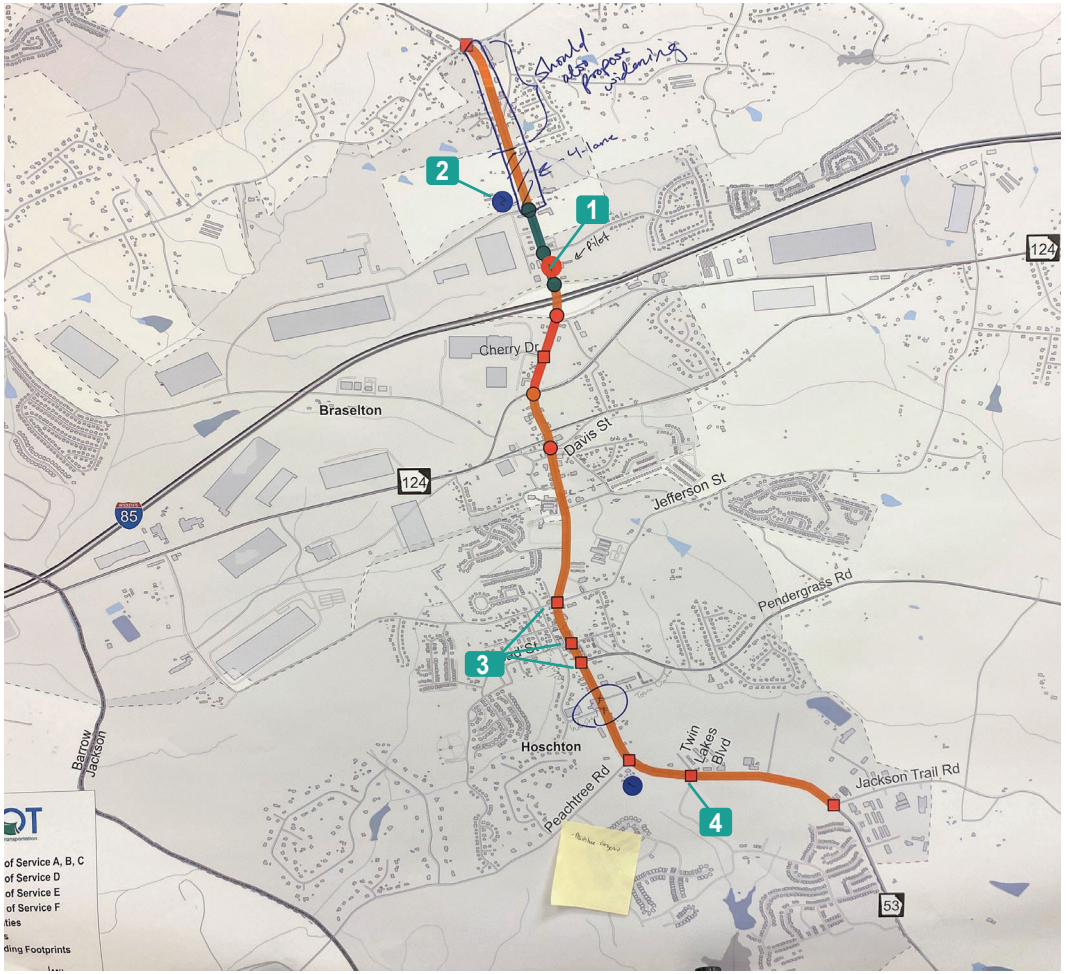
Station #3: What did we miss? (Locally)

Stakeholders were asked to provide feedback what we missed on a local operational level.

Responses from Stakeholders:

1. The Pilot truck station (and adjacent intersections) do not show delays in 2050 PM but are regularly congested. This may be a failure of the models to capture the turning movements into/out of the Pilot driveway or the extents of the truck traffic.

   Additionally, in the evenings, trucks are parked in many locations in the town due to proximity to truck stop.
2. Mixed use development planned at this location.
3. Stakeholders from Hoschton shared that they are open to both signalized intersections as well as roundabouts throughout their downtown. They had previously understood that certain intersections, such as Jefferson St, could not be signalized, potentially due to its proximity to the post office nearby. More study is needed to understand whether traffic signals could be implemented.
4. Hoschton shared that their planned multi-use path would extend to Twin Lakes Blvd. They will share the plan with the study team.



Brasleton-Hoschton Area Mobility Study

P.I. 0018300

Georgia Department of Transportation

Stakeholder Meeting Activity Summary

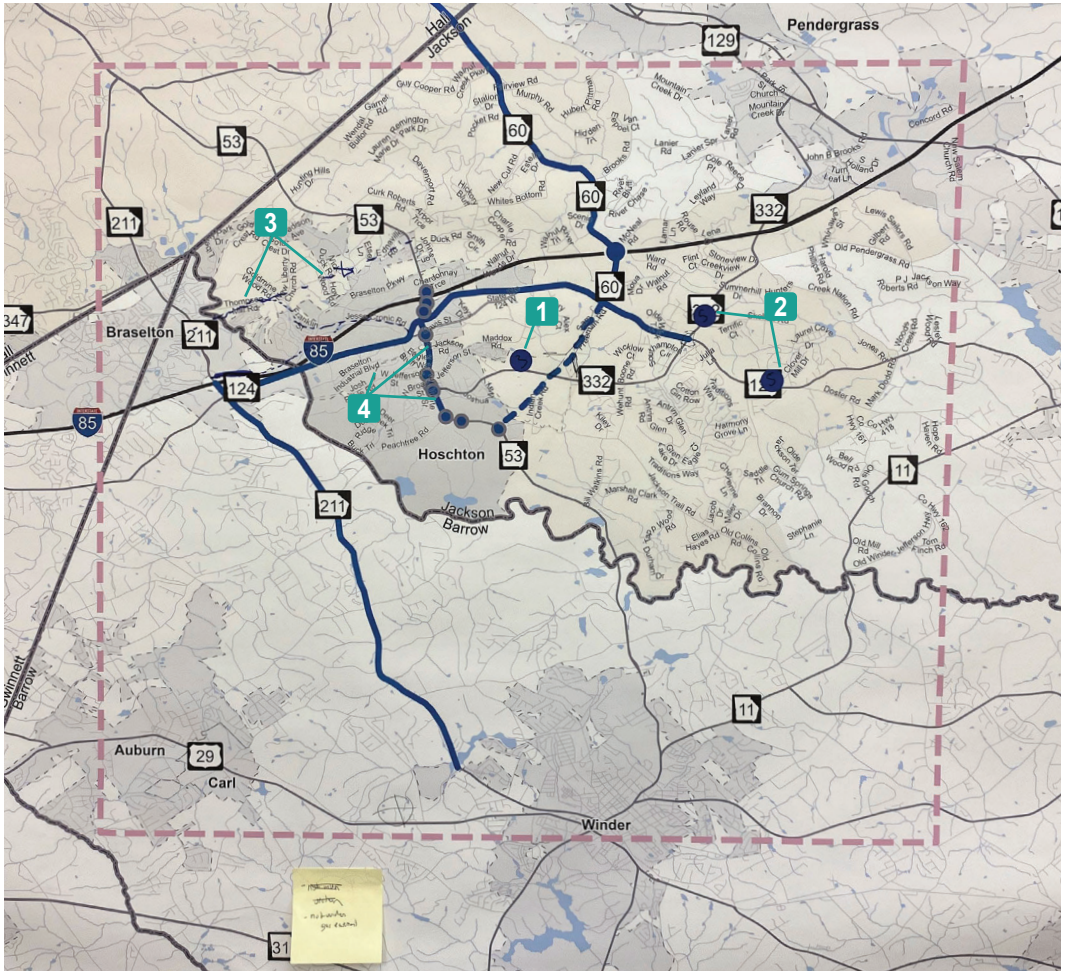
February 15, 2023

Station #3: What did we miss? (Regionally)

Stakeholders were asked to provide feedback what we missed on a regional level.

Responses from Stakeholders:

1. This is a large parcel which may be up for sale. The county, town, or GDOT could consider purchasing this property in order to utilize ROW for SR 60/Sam Freeman Rd extension.
2. Jackson County and GDOT are collaborating on improvements to Skelton Road to accommodate the new schools. However, improvements are not planned at the intersection of SR 124 and SR 332, which is currently signalized.
3. There is a proposed Braselton Parkway extension to connect SR 211 and SR 53. The first portion of it is being completed as part of the SR 211 project. Town of Braselton can provide to the study team.
4. Attendees noted that W Jackson Road, Town Center Pkwy, and Industrial Blvd should also be evaluated for potential signalization.



Brasleton-Hoschton Area Mobility Study

P.I. 0018300

Georgia Department of Transportation

Stakeholder Meeting Activity Summary — February 15, 2023

General Comments

Stakeholders provided general comments about the project corridor and the overall proposed improvements.

Responses from Stakeholders:

- Regional improvements and local operational improvements are needed in conjunction with one another.
- The proposed regional improvements and their extents are logical.
- Asked if SR 53 could be removed from the state route system if one or any of the proposed regional improvements were completed. They would like the improvements to adjacent roadways to allow SR 53 to be de-commissioned as a state route, and subsequently disallow through trucks on the road.
- Shared that, of the three regional improvements, the SR 60 improvements would be their favorite (or highest priority), followed by SR 124 improvements, and finally improving SR 211 would be their lowest priority. However, they would be happy to see all proposed regional improvements completed and would like this to be one of the scenarios evaluated.
- Mentioned that simply putting in a turn lane all the way down SR 53 could go a long way. Many times, traffic simply backs up behind someone trying to turn left onto a side street or into a business.
- Noted that the signal lights on SR 53, especially south of I-85, are not synced well causing traffic to bunch up randomly.
- Suggested that a diverging diamond interchange might work really well for I-85 and SR 53 with all of the traffic trying to get on I-85 in both directions in addition to a high volume of through traffic on SR 53 going across I-85.
- There were general concerns about widening SR 53 just to handle more traffic. There were concerns about space limitations and historical sites as well as and overall dislike of the idea of a “highway” going through town. General preference was for alternate routes to the interstate.
- There were general comments preferring an SR 60 interchange inconjunction with new connections and widening of SR 124.
- There were general comments that SR 211 and W Winder Bypass are not being fully utilized. They were not confident that SR 211 would pull traffic from SR 53.

Minutes

SUBJECT
Braselton-Hoschton Area Mobility Study Stakeholder Meeting

START
1:30 PM

DATE
November 16, 2023

OUR REF
30143161

LOCATION
Braselton Community Room

PARTICIPANTS

Gina Roy, Jackson County
Kevin Poe, Jackson County
Marty Clark, Jackson County District 5
Michelle Ramey, GDOT
Andy Torrey, GDOT
Dylan Evans, GDOT
Justin Lott, GDOT
Kelly Martin, GDOT
Brad Hill, City of Hoschton
Jerry Weitz, City of Hoschton
Jennifer Harrison, City of Hoschton
Sandy Weinel, Town of Braselton
Michael Haire, GHMPO
Jessica Jackson, Barrow County
Dan Schultz, City of Oakwood
Joseph Boyd, Hall County
David Brown
Jason Wester
Sri Kumar
Scott Courter
Debbie Martin
JJ Jackson
Ben Stephens
Kate Picklesimer, Arcadis
Nicole Carsten, Arcadis
Otto Clemente, Arcadis
Alex Deus, Arcadis
Jennifer Figueroa, Arcadis
Sachin Karmarkar, Arcadis
Kayla Nwaiji, Arcadis

DISCUSSION POINTS AND ACTION ITEMS	WHO	WHEN

1. **Introductions and Study Recap**

    - Otto Clemente (Arcadis) provided a recap from the previous stakeholder meeting. He also reviewed the 2050 baseline results.

2. **Regional Improvements**

    - Otto shared the evaluation criteria for the regional improvements and shared initial insights from the results.
    - Hs also walked through the four best performing scenarios.

3. **Operational Improvements**

    - Otto identified the potential intersections for operational improvements on SR 53 in the short and medium term. He also explained that these potential improvements would help to reduce delay by 2050. He noted that specific funding was not identified for these recommendations.

DISCUSSION POINTS AND ACTION ITEMS	WHO	WHEN

4. Feedback Activity

Stakeholders had the opportunity to provide feedback at four stations outlining the four highest performing scenarios. There were no specific comments regarding the four scenarios; however, the general comments were:

- City of Hoschton – preferred focusing on operational improvements over the four regional scenarios.
- Barrow County - noted that the SR 211 at I-85 intersection was still red in all scenarios.
- City of Hoschton – expressed concern about the state route remaining through their downtown.
- West Jackson Fire Department – ROW had been set aside to realign SR 332 Pendergrass Road to connect to Towne Center Parkway. If this realignment occurs, the Pendegrass Road intersection with SR 53 could be closed. The Fire Department would support this change.
- City Planner of Hoschton mentioned several local road connections east of SR 53 planned as part of redevelopment that could potentially improve connectivity and relieve some traffic from SR 53.
- City Planner of Hoschton mentioned development of property east of SR 53 at intersection of SR 53 and Peachtree Road. There are discussions with developer to install signal at SR 53 and Peachtree Road.
- City Planner of Hoschton mentioned there are discussions on a development of property east of SR 53 and south of Jackson Trail Road. ROW could be reserved within this development for potential extension of SR 60.

5. Potential Recommendations

- Otto recapped the potential project recommendations for the study. Potential sequencing was also shown. Otto reiterated that none of the recommendations at this time are funded. The outcome of the study would be a list of potential projects that would be considered within GDOT's planning and programming procedures for projects.

6. Next Steps

• The study team would send the presentation via email. Stakeholders were welcome to share any feedback post meeting.	GDOT	11/17/23

Appendix B:
Traffic Model Outputs

SECTION 1

Existing Year 2022 Delay Reports



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	160	20	15	270	400	10	370	20	195	385	170
Future Volume (vph)	70	160	20	15	270	400	10	370	20	195	385	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.9	6.5	6.5	6.5	6.5	6.5	6.9	6.7	6.7	6.9	6.7	6.7
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1492	2983	1335	1671	3343	1495	1671	1759	1495	1641	1727	1468
Flt Permitted	0.43	1.00	1.00	0.64	1.00	1.00	0.45	1.00	1.00	0.43	1.00	1.00
Satd. Flow (perm)	683	2983	1335	1129	3343	1495	793	1759	1495	745	1727	1468
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	76	174	22	16	293	435	11	402	22	212	418	185
RTOR Reduction (vph)	0	0	17	0	0	373	0	0	11	0	0	62
Lane Group Flow (vph)	76	174	5	16	293	62	11	402	11	212	418	123
Heavy Vehicles (%)	21%	21%	21%	8%	8%	8%	8%	8%	8%	10%	10%	10%
Turn Type	D.P+P	NA	Perm	D.Pm	NA	Perm	D.P+P	NA	Perm	D.P+P	NA	Perm
Protected Phases	7	4			8		1	6		5	2	
Permitted Phases	8		4	4		8	2		6	6		2
Actuated Green, G (s)	26.9	34.8	34.8	34.8	19.8	19.8	85.1	71.9	71.9	85.1	82.6	82.6
Effective Green, g (s)	26.9	34.8	34.8	34.8	19.8	19.8	85.1	71.9	71.9	85.1	82.6	82.6
Actuated g/C Ratio	0.19	0.25	0.25	0.25	0.14	0.14	0.61	0.51	0.51	0.61	0.59	0.59
Clearance Time (s)	7.9	6.5	6.5	6.5	6.5	6.5	6.9	6.7	6.7	6.9	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	172	741	331	280	472	211	497	903	767	537	1018	866
v/s Ratio Prot	c0.02	0.06			c0.09		0.00	c0.23		c0.04	c0.24	
v/s Ratio Perm	0.06		0.00	0.01		0.04	0.01		0.01	0.20		0.08
v/c Ratio	0.44	0.23	0.02	0.06	0.62	0.29	0.02	0.45	0.01	0.39	0.41	0.14
Uniform Delay, d1	48.2	42.0	39.7	40.1	56.6	53.8	11.2	21.5	16.7	13.1	15.5	12.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.79	1.67	3.31
Incremental Delay, d2	1.8	0.2	0.0	0.1	2.5	0.8	0.0	1.6	0.0	0.4	1.1	0.3
Delay (s)	50.0	42.1	39.7	40.2	59.1	54.6	11.3	23.1	16.7	23.9	27.0	42.9
Level of Service	D	D	D	D	E	D	B	C	B	C	C	D
Approach Delay (s)		44.1			56.1			22.4			29.8	
Approach LOS		D			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	38.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	65.8%	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												
Traffic Volume (vph)	190	5	210	0	0	0	0	890	65	140	545	0
Future Volume (vph)	190	5	210	0	0	0	0	890	65	140	545	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	16	16	16	12	12	12	12	12	12
Total Lost time (s)	6.5	6.5	6.5					7.0		7.1	7.0	
Lane Util. Factor	0.97	1.00	1.00					0.95		1.00	1.00	
Frt	1.00	1.00	0.85					0.99		1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	3045	0	1404					3308		1641	1727	
Flt Permitted	0.95	1.00	1.00					1.00		0.21	1.00	
Satd. Flow (perm)	3045	0	1404					3308		365	1727	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	207	5	228	0	0	0	0	967	71	152	592	0
RTOR Reduction (vph)	0	0	202	0	0	0	0	4	0	0	0	0
Lane Group Flow (vph)	207	5	26	0	0	0	0	1034	0	152	592	0
Heavy Vehicles (%)	15%	15%	15%	0%	0%	0%	8%	8%	8%	10%	10%	10%
Turn Type	Perm	NA	Perm					NA		D.P+P	NA	
Protected Phases		4						6		5	2	
Permitted Phases	4		4							6		
Actuated Green, G (s)	15.8	15.8	15.8					80.7		103.6	110.7	
Effective Green, g (s)	15.8	15.8	15.8					80.7		103.6	110.7	
Actuated g/C Ratio	0.11	0.11	0.11					0.58		0.74	0.79	
Clearance Time (s)	6.5	6.5	6.5					7.0		7.1	7.0	
Vehicle Extension (s)	3.0	3.0	3.0					7.0		3.0	7.0	
Lane Grp Cap (vph)	343	0	158					1906		478	1365	
v/s Ratio Prot								c0.31		0.05	c0.34	
v/s Ratio Perm	c0.07		0.02							0.18		
v/c Ratio	0.60	no cap	0.16					0.54		0.32	0.43	
Uniform Delay, d1	59.1	Error	56.1					18.3		16.0	4.7	
Progression Factor	1.00		1.00					0.85		1.30	1.04	
Incremental Delay, d2	3.0	Error	0.5					1.0		0.3	0.9	
Delay (s)	62.1	Error	56.6					16.5		21.1	5.8	
Level of Service	E	F	E					B		C	A	
Approach Delay (s)		Error			0.0			16.5			8.9	
Approach LOS		F			A			B			A	

Intersection Summary			
HCM 2000 Control Delay	Error	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.6
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	110	0	250	500	580	0	0	575	280
Future Volume (vph)	0	0	0	110	0	250	500	580	0	0	575	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.6		6.6	5.9	6.7			6.7	6.7
Lane Util. Factor				1.00		1.00	1.00	0.95			0.95	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)				1570		1404	1671	3343			3312	1482
Flt Permitted				0.95		1.00	0.32	1.00			1.00	1.00
Satd. Flow (perm)				1570		1404	568	3343			3312	1482
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	120	0	272	543	630	0	0	625	304
RTOR Reduction (vph)	0	0	0	0	0	239	0	0	0	0	0	162
Lane Group Flow (vph)	0	0	0	120	0	33	543	630	0	0	625	142
Heavy Vehicles (%)	0%	0%	0%	15%	15%	15%	8%	8%	8%	9%	9%	9%
Turn Type				Prot		Perm	D.P+P	NA			NA	Perm
Protected Phases				8			1 9	6			2	
Permitted Phases						8	2					2
Actuated Green, G (s)				17.1		17.1	99.2	109.6			55.3	55.3
Effective Green, g (s)				17.1		17.1	99.2	109.6			55.3	55.3
Actuated g/C Ratio				0.12		0.12	0.71	0.78			0.39	0.39
Clearance Time (s)				6.6		6.6		6.7			6.7	6.7
Vehicle Extension (s)				4.0		4.0		7.0			7.0	7.0
Lane Grp Cap (vph)				191		171	748	2617			1308	585
v/s Ratio Prot				c0.08			c0.23	0.19			0.19	
v/s Ratio Perm						0.02	c0.29					0.10
v/c Ratio				0.63		0.19	0.73	0.24			0.48	0.24
Uniform Delay, d1				58.4		55.3	10.9	4.1			31.6	28.3
Progression Factor				1.00		1.00	1.55	0.45			0.67	0.20
Incremental Delay, d2				7.1		0.8	3.2	0.2			1.2	1.0
Delay (s)				65.6		56.0	20.1	2.0			22.4	6.6
Level of Service				E		E	C	A			C	A
Approach Delay (s)		0.0			58.9			10.4			17.2	
Approach LOS		A			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.7
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	0	90	0	0	0	120	530	0	0	555	80
Future Volume (vph)	50	0	90	0	0	0	120	530	0	0	555	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.8	6.8					6.1	6.4			6.4	
Lane Util. Factor	1.00	1.00					1.00	0.95			0.95	
Frt	1.00	0.85					1.00	1.00			0.98	
Flt Protected	0.95	1.00					0.95	1.00			1.00	
Satd. Flow (prot)	1671	1495					1626	3252			3373	
Flt Permitted	0.76	1.00					0.38	1.00			1.00	
Satd. Flow (perm)	1332	1495					645	3252			3373	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	0	98	0	0	0	130	576	0	0	603	87
RTOR Reduction (vph)	0	90	0	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	54	8	0	0	0	0	130	576	0	0	686	0
Heavy Vehicles (%)	8%	8%	8%	0%	0%	0%	11%	11%	11%	5%	5%	5%
Turn Type	Perm	NA		D.Pm			D.P+P	NA		Perm	NA	
Protected Phases		8			4		1	6			2	
Permitted Phases	8			8			2			2		
Actuated Green, G (s)	11.4	11.4					109.3	115.4			101.6	
Effective Green, g (s)	11.4	11.4					109.3	115.4			101.6	
Actuated g/C Ratio	0.08	0.08					0.78	0.82			0.73	
Clearance Time (s)	6.8	6.8					6.1	6.4			6.4	
Vehicle Extension (s)	3.0	3.0					3.0	5.0			5.0	
Lane Grp Cap (vph)	108	121					557	2680			2447	
v/s Ratio Prot		0.01					0.01	c0.18			c0.20	
v/s Ratio Perm	c0.04						0.17					
v/c Ratio	0.50	0.07					0.23	0.21			0.28	
Uniform Delay, d1	61.6	59.4					3.7	2.6			6.6	
Progression Factor	1.00	1.00					0.46	0.38			1.00	
Incremental Delay, d2	3.6	0.2					0.2	0.2			0.3	
Delay (s)	65.2	59.6					1.9	1.2			6.9	
Level of Service	E	E					A	A			A	
Approach Delay (s)		61.6			0.0			1.3			6.9	
Approach LOS		E			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.3
Intersection Capacity Utilization	47.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	10	165	10	10	10	335	385	40	10	410	0
Future Volume (vph)	5	10	165	10	10	10	335	385	40	10	410	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		7.0	7.0	7.0	7.0	7.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.93		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1736	1827	1553	1703	1658		1719	1810	1538	1641	1727	
Flt Permitted	0.74	1.00	1.00	0.75	1.00		0.50	1.00	1.00	0.52	1.00	
Satd. Flow (perm)	1357	1827	1553	1345	1658		911	1810	1538	894	1727	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	11	179	11	11	11	364	418	43	11	446	0
RTOR Reduction (vph)	0	0	159	0	10	0	0	0	12	0	0	0
Lane Group Flow (vph)	5	11	20	11	12	0	364	418	31	11	446	0
Heavy Vehicles (%)	4%	4%	4%	6%	6%	6%	5%	5%	5%	10%	10%	10%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4			6		6	2		2
Actuated Green, G (s)	8.7	8.7	8.7	8.7	8.7		56.7	56.7	56.7	56.7	56.7	
Effective Green, g (s)	8.7	8.7	8.7	8.7	8.7		56.7	56.7	56.7	56.7	56.7	
Actuated g/C Ratio	0.11	0.11	0.11	0.11	0.11		0.72	0.72	0.72	0.72	0.72	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		7.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		5.0	5.0	5.0	5.0	5.0	
Lane Grp Cap (vph)	150	202	172	149	183		658	1309	1112	646	1248	
v/s Ratio Prot		0.01			0.01			0.23			0.26	
v/s Ratio Perm	0.00		c0.01	0.01			c0.40		0.02	0.01		
v/c Ratio	0.03	0.05	0.12	0.07	0.07		0.55	0.32	0.03	0.02	0.36	
Uniform Delay, d1	31.1	31.2	31.4	31.2	31.2		5.0	3.9	3.1	3.0	4.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	0.1	0.3	0.2	0.2		3.3	0.6	0.0	0.0	0.8	
Delay (s)	31.2	31.3	31.7	31.5	31.4		8.3	4.5	3.1	3.1	4.8	
Level of Service	C	C	C	C	C		A	A	A	A	A	
Approach Delay (s)		31.6			31.4			6.1			4.8	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	78.4	Sum of lost time (s)	13.0
Intersection Capacity Utilization	64.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	5	105	95	5	30	60	550	20	10	545	35
Future Volume (vph)	20	5	105	95	5	30	60	550	20	10	545	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4	7.4	9.0	7.4		6.5	6.3		6.3	6.3	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.87		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1641	1727	1468	2694	1271		1583	3150		1703	3375	
Flt Permitted	0.73	1.00	1.00	0.95	1.00		0.37	1.00		0.40	1.00	
Satd. Flow (perm)	1265	1727	1468	2694	1271		623	3150		721	3375	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	5	114	103	5	33	65	598	22	11	592	38
RTOR Reduction (vph)	0	0	107	0	26	0	0	1	0	0	3	0
Lane Group Flow (vph)	22	5	7	103	12	0	65	619	0	11	627	0
Heavy Vehicles (%)	10%	10%	10%	30%	30%	30%	14%	14%	14%	6%	6%	6%
Turn Type	D.Pm	NA	Perm	Prot	NA		D.P+P	NA		D.Pm	NA	
Protected Phases		4		3	8		1	6			2	
Permitted Phases	8		4				2			6		
Actuated Green, G (s)	30.1	8.3	8.3	12.8	30.1		89.7	96.2		96.2	78.9	
Effective Green, g (s)	30.1	8.3	8.3	12.8	30.1		89.7	96.2		96.2	78.9	
Actuated g/C Ratio	0.22	0.06	0.06	0.09	0.22		0.64	0.69		0.69	0.56	
Clearance Time (s)	7.4	7.4	7.4	9.0	7.4		6.5	6.3		6.3	6.3	
Vehicle Extension (s)	4.5	3.0	3.0	5.0	4.5		3.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	271	102	87	246	273		473	2164		495	1902	
v/s Ratio Prot		0.00		c0.04	0.01		0.01	c0.20			c0.19	
v/s Ratio Perm	c0.02		0.00				0.08			0.02		
v/c Ratio	0.08	0.05	0.08	0.42	0.04		0.14	0.29		0.02	0.33	
Uniform Delay, d1	43.9	62.1	62.2	60.1	43.6		13.2	8.5		7.0	16.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.02	1.12		0.61	0.70	
Incremental Delay, d2	0.2	0.2	0.4	2.4	0.1		0.1	0.3		0.1	0.5	
Delay (s)	44.1	62.3	62.6	62.5	43.7		13.6	9.8		4.3	12.0	
Level of Service	D	E	E	E	D		B	A		A	B	
Approach Delay (s)		59.7			57.4			10.2			11.8	
Approach LOS		E			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	29.2
Intersection Capacity Utilization	51.9%	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												
Traffic Volume (vph)	165	380	10	90	615	85	40	155	70	140	130	230
Future Volume (vph)	165	380	10	90	615	85	40	155	70	140	130	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1671	1827	1615	1787	1881	1538	1770	1753		1703	1863	1553
Flt Permitted	0.21	1.00	1.00	0.43	1.00	1.00	0.67	1.00		0.21	1.00	1.00
Satd. Flow (perm)	377	1827	1615	804	1881	1538	1243	1753		382	1863	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	179	413	11	98	668	92	43	168	76	152	141	250
RTOR Reduction (vph)	0	0	5	0	0	45	0	11	0	0	0	181
Lane Group Flow (vph)	179	413	6	98	668	47	43	233	0	152	141	69
Heavy Vehicles (%)	8%	4%	0%	1%	1%	5%	2%	3%	4%	6%	2%	4%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Perm	NA		D.P+P	NA	Perm
Protected Phases	1	6		5	2			8		7	4	
Permitted Phases	2		6	6		2	8			8		4
Actuated Green, G (s)	83.1	75.0	75.0	83.1	71.7	71.7	19.8	19.8		32.9	38.9	38.9
Effective Green, g (s)	83.1	75.0	75.0	83.1	71.7	71.7	19.8	19.8		32.9	38.9	38.9
Actuated g/C Ratio	0.59	0.54	0.54	0.59	0.51	0.51	0.14	0.14		0.23	0.28	0.28
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	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	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	329	978	865	534	963	787	175	247		213	517	431
v/s Ratio Prot	c0.04	c0.23		0.01	c0.36			c0.13		c0.07	0.08	
v/s Ratio Perm	0.28		0.00	0.10		0.03	0.03			0.10		0.04
v/c Ratio	0.54	0.42	0.01	0.18	0.69	0.06	0.25	0.94		0.71	0.27	0.16
Uniform Delay, d1	18.5	19.5	15.1	12.9	25.8	17.2	53.5	59.5		45.7	39.5	38.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.8	1.3	0.0	0.2	4.1	0.1	0.7	41.5		10.8	0.3	0.2
Delay (s)	20.4	20.8	15.2	13.1	30.0	17.3	54.2	101.1		56.4	39.8	38.4
Level of Service	C	C	B	B	C	B	D	F		E	D	D
Approach Delay (s)		20.6			26.7			94.0			43.8	
Approach LOS		C			C			F			D	

Intersection Summary			
HCM 2000 Control Delay	37.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	81.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	25	105	610	10	55	375
Future Volume (Veh/h)	25	105	610	10	55	375
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	114	663	11	60	408
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	1196	668			674	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1196	668			674	
tC, single (s)	6.4	6.2			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	86	75			93	
cM capacity (veh/h)	193	460			889	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	141	674	468
Volume Left	27	0	60
Volume Right	114	11	0
cSH	363	1700	889
Volume to Capacity	0.39	0.40	0.07
Queue Length 95th (ft)	45	0	5
Control Delay (s)	21.1	0.0	1.9
Lane LOS	C		A
Approach Delay (s)	21.1	0.0	1.9
Approach LOS	C		

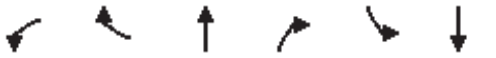
Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	73.3%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	5	15	10	5	75	40	665	30	25	400	15
Future Volume (Veh/h)	25	5	15	10	5	75	40	665	30	25	400	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	5	16	11	5	82	43	723	33	27	435	16
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	1325	1339	443	1341	1330	740	451			756		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1325	1339	443	1341	1330	740	451			756		
tC, single (s)	7.1	6.5	6.2	7.2	6.6	6.3	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	72	96	97	90	96	80	96			97		
cM capacity (veh/h)	98	142	615	113	140	409	1089			824		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	48	98	799	478
Volume Left	27	11	43	27
Volume Right	16	82	33	16
cSH	142	294	1089	824
Volume to Capacity	0.34	0.33	0.04	0.03
Queue Length 95th (ft)	34	35	3	3
Control Delay (s)	42.7	23.2	1.0	0.9
Lane LOS	E	C	A	A
Approach Delay (s)	42.7	23.2	1.0	0.9
Approach LOS	E	C		

Intersection Summary				
Average Delay	3.9			
Intersection Capacity Utilization	64.7%	ICU Level of Service	C	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	110	475	20	75	255
Future Volume (Veh/h)	10	110	475	20	75	255
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	120	516	22	82	277
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	968	527			538	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	968	527			538	
tC, single (s)	6.4	6.2			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	96	78			92	
cM capacity (veh/h)	256	547			1001	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	131	538	359
Volume Left	11	0	82
Volume Right	120	22	0
cSH	500	1700	1001
Volume to Capacity	0.26	0.32	0.08
Queue Length 95th (ft)	26	0	7
Control Delay (s)	14.7	0.0	2.7
Lane LOS	B		A
Approach Delay (s)	14.7	0.0	2.7
Approach LOS	B		

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	15	30	170	35	65	10	475	40	15	355	5
Future Volume (Veh/h)	5	15	30	170	35	65	10	475	40	15	355	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	16	33	185	38	71	11	516	43	16	386	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	1048	1002	388	1000	961	516	391			559		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1048	1002	388	1000	961	516	391			559		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	97	93	95	4	85	87	99			98		
cM capacity (veh/h)	155	236	660	194	247	553	1120			987		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	54	294	527	43	407
Volume Left	5	185	11	0	16
Volume Right	33	71	0	43	5
cSH	360	238	1120	1700	987
Volume to Capacity	0.15	1.24	0.01	0.03	0.02
Queue Length 95th (ft)	13	365	1	0	1
Control Delay (s)	16.8	180.0	0.3	0.0	0.5
Lane LOS	C	F	A		A
Approach Delay (s)	16.8	180.0	0.3		0.5
Approach LOS	C	F			

Intersection Summary				
Average Delay	40.9			
Intersection Capacity Utilization	59.7%	ICU Level of Service		B
Analysis Period (min)	15			

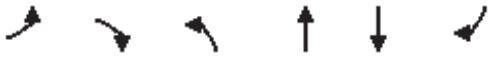
Intersection Sign configuration not allowed in HCM analysis.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	5	25	5	5	25	25	690	0	10	400	15
Future Volume (Veh/h)	20	5	25	5	5	25	25	690	0	10	400	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	5	27	5	5	27	27	750	0	11	435	16
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	1298	1269	443	1298	1277	750	451			750		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1298	1269	443	1298	1277	750	451			750		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	82	97	96	96	97	93	98			99		
cM capacity (veh/h)	123	162	615	126	160	411	1089			833		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	54	37	777	462
Volume Left	22	5	27	11
Volume Right	27	27	0	16
cSH	213	271	1089	833
Volume to Capacity	0.25	0.14	0.02	0.01
Queue Length 95th (ft)	24	12	2	1
Control Delay (s)	27.6	20.4	0.7	0.4
Lane LOS	D	C	A	A
Approach Delay (s)	27.6	20.4	0.7	0.4
Approach LOS	D	C		

Intersection Summary				
Average Delay	2.2			
Intersection Capacity Utilization	61.5%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	70	50	115	550	330	70
Future Volume (Veh/h)	70	50	115	550	330	70
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	76	54	125	598	359	76
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1245	397	435			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1245	397	435			
tC, single (s)	6.4	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	55	92	89			
cM capacity (veh/h)	168	646	1104			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	130	723	435
Volume Left	76	125	0
Volume Right	54	0	76
cSH	242	1104	1700
Volume to Capacity	0.54	0.11	0.26
Queue Length 95th (ft)	72	10	0
Control Delay (s)	35.8	2.8	0.0
Lane LOS	E	A	
Approach Delay (s)	35.8	2.8	0.0
Approach LOS	E		

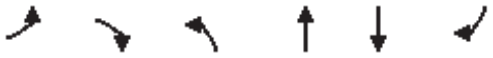
Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	73.9%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	0	5	0	0	0	5	575	5	5	325	50
Future Volume (Veh/h)	90	0	5	0	0	0	5	575	5	5	325	50
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	98	0	5	0	0	0	5	625	5	5	353	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	998	1003	353	998	998	625	353			630		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	998	1003	353	998	998	625	353			630		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	55	100	99	100	100	100	100			99		
cM capacity (veh/h)	218	237	684	221	243	488	1184			929		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	98	5	0	630	5	358	54
Volume Left	98	0	0	5	0	5	0
Volume Right	0	5	0	0	5	0	54
cSH	218	684	1700	1184	1700	929	1700
Volume to Capacity	0.45	0.01	0.00	0.00	0.00	0.01	0.03
Queue Length 95th (ft)	54	1	0	0	0	0	0
Control Delay (s)	34.3	10.3	0.0	0.1	0.0	0.2	0.0
Lane LOS	D	B	A	A		A	
Approach Delay (s)	33.1		0.0	0.1		0.2	
Approach LOS	D		A				

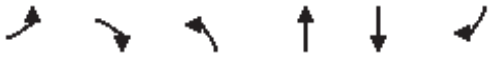
Intersection Summary				
Average Delay	3.1			
Intersection Capacity Utilization	45.9%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	5	5	835	745	10
Future Volume (Veh/h)	0	5	5	835	745	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	5	5	908	810	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				805	905	
pX, platoon unblocked	0.89	0.89	0.89			
vC, conflicting volume	1728	810	810			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1476	724	724			
tC, single (s)	6.6	6.4	4.2			
tC, 2 stage (s)						
tF (s)	3.7	3.5	2.3			
p0 queue free %	100	99	99			
cM capacity (veh/h)	112	353	749			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	5	5	908	810	11
Volume Left	0	5	0	0	0
Volume Right	5	0	0	0	11
cSH	353	749	1700	1700	1700
Volume to Capacity	0.01	0.01	0.53	0.48	0.01
Queue Length 95th (ft)	1	1	0	0	0
Control Delay (s)	15.3	9.8	0.0	0.0	0.0
Lane LOS	C	A			
Approach Delay (s)	15.3	0.1		0.0	
Approach LOS	C				

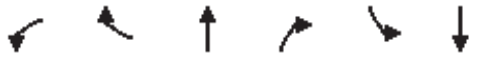
Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	53.9%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	5	35	645	440	5
Future Volume (Veh/h)	5	5	35	645	440	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	5	38	701	478	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	1258	480	483			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1258	480	483			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	99	96			
cM capacity (veh/h)	184	590	1074			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	10	739	483
Volume Left	5	38	0
Volume Right	5	0	5
cSH	280	1074	1700
Volume to Capacity	0.04	0.04	0.28
Queue Length 95th (ft)	3	3	0
Control Delay (s)	18.3	0.9	0.0
Lane LOS	C	A	
Approach Delay (s)	18.3	0.9	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	55	10	610	40	10	390
Future Volume (Veh/h)	55	10	610	40	10	390
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	60	11	663	43	11	424
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	1109	663			706	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1109	663			706	
tC, single (s)	6.4	6.4			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.5			2.2	
p0 queue free %	74	97			99	
cM capacity (veh/h)	231	436			902	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	71	663	43	11	424
Volume Left	60	0	0	11	0
Volume Right	11	0	43	0	0
cSH	249	1700	1700	902	1700
Volume to Capacity	0.28	0.39	0.03	0.01	0.25
Queue Length 95th (ft)	28	0	0	1	0
Control Delay (s)	25.1	0.0	0.0	9.0	0.0
Lane LOS	D			A	
Approach Delay (s)	25.1	0.0		0.2	
Approach LOS	D				

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	42.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	5	0	145	0	680	85	180	435	0
Future Volume (Veh/h)	0	0	0	5	0	145	0	680	85	180	435	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	5	0	158	0	739	92	196	473	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1808	1696	473	1650	1650	785	473			831		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1808	1696	473	1650	1650	785	473			831		
tC, single (s)	7.1	6.5	6.2	7.3	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	92	100	60	100			76		
cM capacity (veh/h)	30	70	591	59	75	394	1099			801		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1	SB 2
Volume Total	0	0	163	831	196	473
Volume Left	0	0	5	0	196	0
Volume Right	0	0	158	92	0	0
cSH	1700	1700	336	1700	801	1700
Volume to Capacity	0.00	0.00	0.49	0.49	0.24	0.28
Queue Length 95th (ft)	0	0	63	0	24	0
Control Delay (s)	0.0	0.0	25.4	0.0	10.9	0.0
Lane LOS	A	A	D		B	
Approach Delay (s)	0.0		25.4	0.0	3.2	
Approach LOS	A		D			

Intersection Summary				
Average Delay	3.8			
Intersection Capacity Utilization	70.2%	ICU Level of Service		C
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	20	0	30	15	780	35	5	835	0
Future Volume (Veh/h)	0	0	0	20	0	30	15	780	35	5	835	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	22	0	33	16	848	38	5	908	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								352			347	
pX, platoon unblocked	0.93	0.93	0.90	0.93	0.93	0.95	0.90			0.95		
vC, conflicting volume	1407	1836	454	1363	1817	443	908			886		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1056	1518	187	1009	1498	317	688			782		
tC, single (s)	7.5	6.5	6.9	7.6	6.5	7.0	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.4	2.2			2.2		
p0 queue free %	100	100	100	87	100	95	98			99		
cM capacity (veh/h)	155	107	745	172	112	633	828			805		

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	55	440	462	459	454
Volume Left	22	16	0	5	0
Volume Right	33	0	38	0	0
cSH	306	828	1700	805	1700
Volume to Capacity	0.18	0.02	0.27	0.01	0.27
Queue Length 95th (ft)	16	1	0	0	0
Control Delay (s)	19.3	0.6	0.0	0.2	0.0
Lane LOS	C	A		A	
Approach Delay (s)	19.3	0.3		0.1	
Approach LOS	C				

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	43.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	420	25	70	230	235	25	365	20	350	655	75
Future Volume (vph)	105	420	25	70	230	235	25	365	20	350	655	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.9	6.5	6.5	6.5	6.5	6.5	6.9	6.7	6.7	6.9	6.7	6.7
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	3471	1553	1736	3471	1553	1687	1776	1509	1736	1827	1553
Flt Permitted	0.47	1.00	1.00	0.33	1.00	1.00	0.26	1.00	1.00	0.27	1.00	1.00
Satd. Flow (perm)	857	3471	1553	603	3471	1553	454	1776	1509	492	1827	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	114	457	27	76	250	255	27	397	22	380	712	82
RTOR Reduction (vph)	0	0	21	0	0	227	0	0	15	0	0	33
Lane Group Flow (vph)	114	457	6	76	250	28	27	397	7	380	712	49
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	7%	7%	7%	4%	4%	4%
Turn Type	D.P+P	NA	Perm	D.Pm	NA	Perm	D.P+P	NA	Perm	D.P+P	NA	Perm
Protected Phases	7	4			8		1	6		5 11	2	
Permitted Phases	8		4	4		8	2		6	6		2
Actuated Green, G (s)	23.6	31.5	31.5	31.5	15.5	15.5	88.4	42.6	42.6	83.9	84.4	84.4
Effective Green, g (s)	23.6	31.5	31.5	31.5	15.5	15.5	88.4	42.6	42.6	83.9	84.4	84.4
Actuated g/C Ratio	0.17	0.22	0.22	0.22	0.11	0.11	0.63	0.30	0.30	0.60	0.60	0.60
Clearance Time (s)	7.9	6.5	6.5	6.5	6.5	6.5	6.9	6.7	6.7		6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0		5.0	5.0
Lane Grp Cap (vph)	195	780	349	135	384	171	321	540	459	661	1101	936
v/s Ratio Prot	0.03	c0.13			0.07		0.00	0.22		c0.17	c0.39	
v/s Ratio Perm	0.06		0.00	0.13		0.02	0.05		0.00	0.17		0.03
v/c Ratio	0.58	0.59	0.02	0.56	0.65	0.17	0.08	0.74	0.01	0.57	0.65	0.05
Uniform Delay, d1	51.9	48.4	42.2	48.1	59.7	56.4	12.9	43.6	34.0	17.0	18.1	11.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.16	1.05	1.00
Incremental Delay, d2	4.4	1.1	0.0	5.3	3.9	0.5	0.1	8.6	0.1	0.9	2.2	0.1
Delay (s)	56.3	49.6	42.2	53.4	63.6	56.8	13.1	52.3	34.1	20.6	21.2	11.5
Level of Service	E	D	D	D	E	E	B	D	C	C	C	B
Approach Delay (s)		50.5			59.3			49.0			20.3	
Approach LOS		D			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	39.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	32.5
Intersection Capacity Utilization	79.0%	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												
Traffic Volume (vph)	300	0	355	0	0	0	0	700	95	205	720	0
Future Volume (vph)	300	0	355	0	0	0	0	700	95	205	720	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	16	16	16	12	12	12	12	12	12
Total Lost time (s)	6.5		6.5					7.0		7.1	7.0	
Lane Util. Factor	0.97		1.00					0.95		1.00	1.00	
Frt	1.00		0.85					0.98		1.00	1.00	
Flt Protected	0.95		1.00					1.00		0.95	1.00	
Satd. Flow (prot)	3273		1509					3314		1687	1776	
Flt Permitted	0.95		1.00					1.00		0.25	1.00	
Satd. Flow (perm)	3273		1509					3314		448	1776	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	326	0	386	0	0	0	0	761	103	223	783	0
RTOR Reduction (vph)	0	0	235	0	0	0	0	7	0	0	0	0
Lane Group Flow (vph)	326	0	151	0	0	0	0	857	0	223	783	0
Heavy Vehicles (%)	7%	7%	7%	0%	0%	0%	7%	7%	7%	7%	7%	7%
Turn Type	Perm		Perm					NA		D.P+P	NA	
Protected Phases								6		5	2	
Permitted Phases	4		4							6		
Actuated Green, G (s)	19.7		19.7					70.8		99.7	106.8	
Effective Green, g (s)	19.7		19.7					70.8		99.7	106.8	
Actuated g/C Ratio	0.14		0.14					0.51		0.71	0.76	
Clearance Time (s)	6.5		6.5					7.0		7.1	7.0	
Vehicle Extension (s)	3.0		3.0					7.0		3.0	7.0	
Lane Grp Cap (vph)	460		212					1675		574	1354	
v/s Ratio Prot								0.26		0.08	c0.44	
v/s Ratio Perm	0.10		c0.10							0.20		
v/c Ratio	0.71		0.71					0.51		0.39	0.58	
Uniform Delay, d1	57.4		57.5					23.1		18.6	7.0	
Progression Factor	1.00		1.00					0.77		0.69	0.64	
Incremental Delay, d2	5.0		10.8					0.9		0.4	1.7	
Delay (s)	62.4		68.3					18.6		13.2	6.2	
Level of Service	E		E					B		B	A	
Approach Delay (s)		65.6			0.0			18.6			7.7	
Approach LOS		E			A			B			A	

Intersection Summary			
HCM 2000 Control Delay	27.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.6
Intersection Capacity Utilization	71.1%	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												
Traffic Volume (vph)	0	0	0	105	0	215	255	745	0	0	820	210
Future Volume (vph)	0	0	0	105	0	215	255	745	0	0	820	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.6		6.6	5.9	6.7			6.7	6.7
Lane Util. Factor				1.00		1.00	1.00	0.95			0.95	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)				1543		1380	1687	3374			3343	1495
Flt Permitted				0.95		1.00	0.28	1.00			1.00	1.00
Satd. Flow (perm)				1543		1380	490	3374			3343	1495
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	114	0	234	277	810	0	0	891	228
RTOR Reduction (vph)	0	0	0	0	0	197	0	0	0	0	0	63
Lane Group Flow (vph)	0	0	0	114	0	37	277	810	0	0	891	165
Heavy Vehicles (%)	0%	0%	0%	17%	17%	17%	7%	7%	7%	8%	8%	8%
Turn Type				Prot		Perm	D.P+P	NA			NA	Perm
Protected Phases				8			1	6			2	
Permitted Phases						8	2					2
Actuated Green, G (s)				16.6		16.6	104.2	110.1			87.2	87.2
Effective Green, g (s)				16.6		16.6	104.2	110.1			87.2	87.2
Actuated g/C Ratio				0.12		0.12	0.74	0.79			0.62	0.62
Clearance Time (s)				6.6		6.6	5.9	6.7			6.7	6.7
Vehicle Extension (s)				4.0		4.0	4.0	7.0			7.0	7.0
Lane Grp Cap (vph)				182		163	510	2653			2082	931
v/s Ratio Prot				c0.07			c0.07	0.24			0.27	
v/s Ratio Perm						0.03	c0.34					0.11
v/c Ratio				0.63		0.23	0.54	0.31			0.43	0.18
Uniform Delay, d1				58.7		55.9	6.5	4.2			13.6	11.2
Progression Factor				1.00		1.00	1.02	0.03			0.37	0.12
Incremental Delay, d2				7.4		1.0	1.3	0.3			0.6	0.4
Delay (s)				66.2		56.9	7.8	0.4			5.6	1.8
Level of Service				E		E	A	A			A	A
Approach Delay (s)		0.0			59.9			2.3			4.8	
Approach LOS		A			E			A			A	

Intersection Summary			
HCM 2000 Control Delay	11.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.2
Intersection Capacity Utilization	71.1%	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												
Traffic Volume (vph)	90	0	115	0	0	0	160	575	0	0	695	85
Future Volume (vph)	90	0	115	0	0	0	160	575	0	0	695	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.8	6.8					6.1	6.4			6.4	
Lane Util. Factor	1.00	1.00					1.00	0.95			0.95	
Frt	1.00	0.85					1.00	1.00			0.98	
Flt Protected	0.95	1.00					0.95	1.00			1.00	
Satd. Flow (prot)	1719	1538					1656	3312			3350	
Flt Permitted	0.76	1.00					0.31	1.00			1.00	
Satd. Flow (perm)	1370	1538					533	3312			3350	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	98	0	125	0	0	0	174	625	0	0	755	92
RTOR Reduction (vph)	0	111	0	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	98	14	0	0	0	0	174	625	0	0	843	0
Heavy Vehicles (%)	5%	5%	5%	33%	33%	33%	9%	9%	9%	6%	6%	6%
Turn Type	Perm	NA		D.Pm			D.P+P	NA		Perm	NA	
Protected Phases		8			4		1	6			2	
Permitted Phases	8			8			2			2		
Actuated Green, G (s)	15.3	15.3					105.4	111.5			96.4	
Effective Green, g (s)	15.3	15.3					105.4	111.5			96.4	
Actuated g/C Ratio	0.11	0.11					0.75	0.80			0.69	
Clearance Time (s)	6.8	6.8					6.1	6.4			6.4	
Vehicle Extension (s)	3.0	3.0					3.0	5.0			5.0	
Lane Grp Cap (vph)	149	168					473	2637			2306	
v/s Ratio Prot		0.01					c0.02	0.19			0.25	
v/s Ratio Perm	c0.07						c0.25					
v/c Ratio	0.66	0.08					0.37	0.24			0.37	
Uniform Delay, d1	59.8	56.0					5.1	3.6			9.1	
Progression Factor	1.00	1.00					0.79	0.29			1.00	
Incremental Delay, d2	10.0	0.2					0.5	0.2			0.4	
Delay (s)	69.9	56.2					4.5	1.2			9.5	
Level of Service	E	E					A	A			A	
Approach Delay (s)		62.2			0.0			2.0			9.5	
Approach LOS		E			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.3
Intersection Capacity Utilization	54.0%	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												
Traffic Volume (vph)	15	30	245	30	15	15	140	380	25	20	725	5
Future Volume (vph)	15	30	245	30	15	15	140	380	25	20	725	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1787	1881	1599	1805	1758		1719	1810	1538	1752	1845	1568
Flt Permitted	0.74	1.00	1.00	0.74	1.00		0.29	1.00	1.00	0.52	1.00	1.00
Satd. Flow (perm)	1385	1881	1599	1398	1758		520	1810	1538	957	1845	1568
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	33	266	33	16	16	152	413	27	22	788	5
RTOR Reduction (vph)	0	0	162	0	14	0	0	0	8	0	0	0
Lane Group Flow (vph)	16	33	104	33	18	0	152	413	19	22	788	5
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	5%	5%	5%	3%	3%	3%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4			6		6	2		2
Actuated Green, G (s)	11.1	11.1	11.1	11.1	11.1		54.1	54.1	54.1	54.1	54.1	54.1
Effective Green, g (s)	11.1	11.1	11.1	11.1	11.1		54.1	54.1	54.1	54.1	54.1	54.1
Actuated g/C Ratio	0.14	0.14	0.14	0.14	0.14		0.69	0.69	0.69	0.69	0.69	0.69
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	196	266	226	198	249		359	1252	1064	662	1276	1084
v/s Ratio Prot		0.02			0.01			0.23			c0.43	
v/s Ratio Perm	0.01		c0.06	0.02			0.29		0.01	0.02		0.00
v/c Ratio	0.08	0.12	0.46	0.17	0.07		0.42	0.33	0.02	0.03	0.62	0.00
Uniform Delay, d1	29.1	29.3	30.8	29.5	29.1		5.3	4.8	3.8	3.8	6.5	3.7
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.2	1.5	0.4	0.1		3.6	0.7	0.0	0.1	2.2	0.0
Delay (s)	29.3	29.5	32.3	29.9	29.2		8.9	5.5	3.8	3.9	8.7	3.7
Level of Service	C	C	C	C	C		A	A	A	A	A	A
Approach Delay (s)		31.8			29.6			6.3			8.6	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	78.2	Sum of lost time (s)	13.0
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



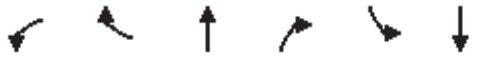
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	30	180	70	10	25	100	725	70	40	685	40
Future Volume (vph)	35	30	180	70	10	25	100	725	70	40	685	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4	7.4	9.0	7.4		6.5	6.3		6.3	6.3	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.89		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1719	1810	1538	2432	1179		1641	3239		1719	3410	
Flt Permitted	0.73	1.00	1.00	0.95	1.00		0.30	1.00		0.30	1.00	
Satd. Flow (perm)	1325	1810	1538	2432	1179		514	3239		545	3410	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	33	196	76	11	27	109	788	76	43	745	43
RTOR Reduction (vph)	0	0	183	0	21	0	0	4	0	0	2	0
Lane Group Flow (vph)	38	33	13	76	17	0	109	860	0	43	786	0
Heavy Vehicles (%)	5%	5%	5%	44%	44%	44%	10%	10%	10%	5%	5%	5%
Turn Type	D.Pm	NA	Perm	Prot	NA		D.P+P	NA		D.Pm	NA	
Protected Phases		4		3	8		1	6			2	
Permitted Phases	8		4				2			6		
Actuated Green, G (s)	28.6	9.6	9.6	10.0	28.6		91.2	97.7		97.7	77.7	
Effective Green, g (s)	28.6	9.6	9.6	10.0	28.6		91.2	97.7		97.7	77.7	
Actuated g/C Ratio	0.20	0.07	0.07	0.07	0.20		0.65	0.70		0.70	0.56	
Clearance Time (s)	7.4	7.4	7.4	9.0	7.4		6.5	6.3		6.3	6.3	
Vehicle Extension (s)	4.5	3.0	3.0	5.0	4.5		3.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	270	124	105	173	240		443	2260		380	1892	
v/s Ratio Prot		c0.02		c0.03	0.01		0.02	c0.27			c0.23	
v/s Ratio Perm	0.03		0.01				0.14			0.08		
v/c Ratio	0.14	0.27	0.13	0.44	0.07		0.25	0.38		0.11	0.42	
Uniform Delay, d1	45.6	61.9	61.3	62.3	45.0		16.3	8.7		6.9	18.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.54	0.50		0.83	0.84	
Incremental Delay, d2	0.4	1.2	0.6	3.7	0.2		0.3	0.5		0.6	0.6	
Delay (s)	46.0	63.0	61.8	66.0	45.2		9.1	4.8		6.3	15.8	
Level of Service	D	E	E	E	D		A	A		A	B	
Approach Delay (s)		59.7			59.1			5.3			15.3	
Approach LOS		E			E			A			B	

Intersection Summary			
HCM 2000 Control Delay	18.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	29.2
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	275	715	20	160	480	130	50	155	115	170	210	165
Future Volume (vph)	275	715	20	160	480	130	50	155	115	170	210	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1881	1615	1787	1845	1583	1805	1748		1787	1881	1583
Flt Permitted	0.30	1.00	1.00	0.14	1.00	1.00	0.62	1.00		0.21	1.00	1.00
Satd. Flow (perm)	565	1881	1615	261	1845	1583	1171	1748		388	1881	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	299	777	22	174	522	141	54	168	125	185	228	179
RTOR Reduction (vph)	0	0	11	0	0	74	0	19	0	0	0	129
Lane Group Flow (vph)	299	777	11	174	522	67	54	274	0	185	228	50
Heavy Vehicles (%)	2%	1%	0%	1%	3%	2%	0%	3%	0%	1%	1%	2%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Perm	NA		D.P+P	NA	Perm
Protected Phases	1	6		5	2			8		7	4	
Permitted Phases	2		6	6		2	8			8		4
Actuated Green, G (s)	83.0	72.4	72.4	83.0	67.0	67.0	19.4	19.4		33.0	39.0	39.0
Effective Green, g (s)	83.0	72.4	72.4	83.0	67.0	67.0	19.4	19.4		33.0	39.0	39.0
Actuated g/C Ratio	0.59	0.52	0.52	0.59	0.48	0.48	0.14	0.14		0.24	0.28	0.28
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	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	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	472	972	835	270	882	757	162	242		227	523	440
v/s Ratio Prot	c0.07	c0.41		0.05	0.28			c0.16		c0.08	0.12	
v/s Ratio Perm	0.30		0.01	0.33		0.04	0.05			0.11		0.03
v/c Ratio	0.63	0.80	0.01	0.64	0.59	0.09	0.33	1.13		0.81	0.44	0.11
Uniform Delay, d1	17.0	27.8	16.4	22.6	26.6	19.9	54.5	60.3		46.6	41.5	37.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.8	6.9	0.0	5.2	2.9	0.2	1.2	98.2		19.7	0.6	0.1
Delay (s)	19.8	34.7	16.5	27.8	29.5	20.1	55.7	158.5		66.2	42.1	37.7
Level of Service	B	C	B	C	C	C	E	F		E	D	D
Approach Delay (s)		30.3			27.6			142.5			48.3	
Approach LOS		C			C			F			D	

Intersection Summary			
HCM 2000 Control Delay	46.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	91.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	15	145	545	15	120	690
Future Volume (Veh/h)	15	145	545	15	120	690
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	158	592	16	130	750
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	1610	600			608	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1610	600			608	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	84	69			87	
cM capacity (veh/h)	100	503			970	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	174	608	880
Volume Left	16	0	130
Volume Right	158	16	0
cSH	367	1700	970
Volume to Capacity	0.47	0.36	0.13
Queue Length 95th (ft)	61	0	12
Control Delay (s)	23.3	0.0	3.3
Lane LOS	C		A
Approach Delay (s)	23.3	0.0	3.3
Approach LOS	C		

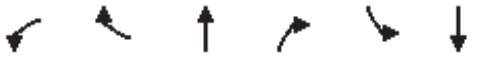
Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	5	40	5	0	20	15	565	25	20	840	20
Future Volume (Veh/h)	30	5	40	5	0	20	15	565	25	20	840	20
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	33	5	43	5	0	22	16	614	27	22	913	22
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	1628	1641	924	1673	1638	628	935			641		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1628	1641	924	1673	1638	628	935			641		
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 %	56	95	87	92	100	95	98			98		
cM capacity (veh/h)	76	96	328	61	95	481	720			943		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	81	27	657	957
Volume Left	33	5	16	22
Volume Right	43	22	27	22
cSH	131	211	720	943
Volume to Capacity	0.62	0.13	0.02	0.02
Queue Length 95th (ft)	80	11	2	2
Control Delay (s)	69.2	24.5	0.6	0.7
Lane LOS	F	C	A	A
Approach Delay (s)	69.2	24.5	0.6	0.7
Approach LOS	F	C		

Intersection Summary				
Average Delay	4.2			
Intersection Capacity Utilization	69.5%	ICU Level of Service	C	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	25	125	375	20	70	535
Future Volume (Veh/h)	25	125	375	20	70	535
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	136	408	22	76	582
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	1153	419			430	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1153	419			430	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	87	78			93	
cM capacity (veh/h)	201	628			1124	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	163	430	658
Volume Left	27	0	76
Volume Right	136	22	0
cSH	464	1700	1124
Volume to Capacity	0.35	0.25	0.07
Queue Length 95th (ft)	39	0	5
Control Delay (s)	16.9	0.0	1.7
Lane LOS	C		A
Approach Delay (s)	16.9	0.0	1.7
Approach LOS	C		

Intersection Summary			
Average Delay		3.1	
Intersection Capacity Utilization		72.1%	ICU Level of Service C
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	35	30	75	35	45	35	390	95	70	650	10
Future Volume (Veh/h)	0	35	30	75	35	45	35	390	95	70	650	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	38	33	82	38	49	38	424	103	76	707	11
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	1432	1468	712	1416	1370	424	718			527		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1432	1468	712	1416	1370	424	718			527		
tC, single (s)	7.1	6.5	6.2	7.2	6.6	6.3	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	100	66	92	0	70	92	96			93		
cM capacity (veh/h)	72	112	429	70	126	619	860			1020		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	71	169	462	103	794
Volume Left	0	82	38	0	76
Volume Right	33	49	0	103	11
cSH	170	109	860	1700	1020
Volume to Capacity	0.42	1.56	0.04	0.06	0.07
Queue Length 95th (ft)	47	315	3	0	6
Control Delay (s)	40.4	360.3	1.3	0.0	1.9
Lane LOS	E	F	A		A
Approach Delay (s)	40.4	360.3	1.0		1.9
Approach LOS	E	F			

Intersection Summary				
Average Delay	41.2			
Intersection Capacity Utilization	86.6%	ICU Level of Service		E
Analysis Period (min)	15			

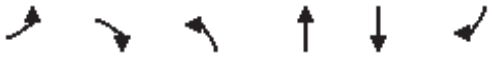
Intersection Sign configuration not allowed in HCM analysis.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	35	0	5	25	110	575	5	25	775	85
Future Volume (Veh/h)	5	0	35	0	5	25	110	575	5	25	775	85
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	0	38	0	5	27	120	625	5	27	842	92
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	1839	1812	888	1848	1856	628	934			630		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1839	1812	888	1848	1856	628	934			630		
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 %	89	100	89	100	92	94	83			97		
cM capacity (veh/h)	45	64	345	44	60	487	725			952		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	43	32	750	961
Volume Left	5	0	120	27
Volume Right	38	27	5	92
cSH	193	232	725	952
Volume to Capacity	0.22	0.14	0.17	0.03
Queue Length 95th (ft)	21	12	15	2
Control Delay (s)	28.9	23.0	4.2	0.8
Lane LOS	D	C	A	A
Approach Delay (s)	28.9	23.0	4.2	0.8
Approach LOS	D	C		

Intersection Summary				
Average Delay	3.3			
Intersection Capacity Utilization	98.6%	ICU Level of Service	F	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	90	75	80	470	595	110
Future Volume (Veh/h)	90	75	80	470	595	110
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	98	82	87	511	647	120
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	1392	707	767			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1392	707	767			
tC, single (s)	6.4	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	30	81	90			
cM capacity (veh/h)	139	434	829			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	180	598	767
Volume Left	98	87	0
Volume Right	82	0	120
cSH	202	829	1700
Volume to Capacity	0.89	0.10	0.45
Queue Length 95th (ft)	174	9	0
Control Delay (s)	86.8	2.7	0.0
Lane LOS	F	A	
Approach Delay (s)	86.8	2.7	0.0
Approach LOS	F		

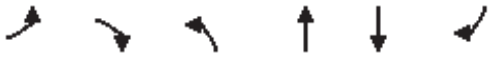
Intersection Summary			
Average Delay	11.2		
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	0	10	5	0	5	10	490	0	0	590	80
Future Volume (Veh/h)	55	0	10	5	0	5	10	490	0	0	590	80
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	60	0	11	5	0	5	11	533	0	0	641	87
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	1201	1196	641	1196	1196	533	641			533		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1201	1196	641	1196	1196	533	641			533		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	62	100	98	97	100	99	99			100		
cM capacity (veh/h)	159	184	475	159	185	551	920			1035		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	60	11	10	544	0	641	87
Volume Left	60	0	5	11	0	0	0
Volume Right	0	11	5	0	0	0	87
cSH	159	475	247	920	1700	1035	1700
Volume to Capacity	0.38	0.02	0.04	0.01	0.00	0.00	0.05
Queue Length 95th (ft)	40	2	3	1	0	0	0
Control Delay (s)	40.8	12.8	20.2	0.3	0.0	0.0	0.0
Lane LOS	E	B	C	A			
Approach Delay (s)	36.5		20.2	0.3		0.0	
Approach LOS	E		C				

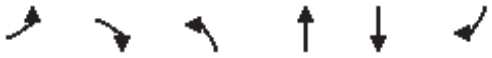
Intersection Summary				
Average Delay	2.2			
Intersection Capacity Utilization	47.7%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	5	0	705	1075	0
Future Volume (Veh/h)	5	5	0	705	1075	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	5	0	766	1168	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				805	905	
pX, platoon unblocked	0.85	0.79	0.79			
vC, conflicting volume	1934	1168	1168			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1459	1081	1081			
tC, single (s)	6.4	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	96	98	100			
cM capacity (veh/h)	123	212	493			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	10	0	766	1168	0
Volume Left	5	0	0	0	0
Volume Right	5	0	0	0	0
cSH	155	1700	1700	1700	1700
Volume to Capacity	0.06	0.00	0.45	0.69	0.00
Queue Length 95th (ft)	5	0	0	0	0
Control Delay (s)	29.8	0.0	0.0	0.0	0.0
Lane LOS	D				
Approach Delay (s)	29.8	0.0		0.0	
Approach LOS	D				

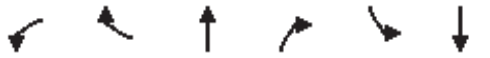
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	5	5	555	700	5
Future Volume (Veh/h)	5	5	5	555	700	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	5	5	603	761	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	1376	764	766			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1376	764	766			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	99	99			
cM capacity (veh/h)	161	407	856			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	10	608	766
Volume Left	5	5	0
Volume Right	5	0	5
cSH	230	856	1700
Volume to Capacity	0.04	0.01	0.45
Queue Length 95th (ft)	3	0	0
Control Delay (s)	21.3	0.2	0.0
Lane LOS	C	A	
Approach Delay (s)	21.3	0.2	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	15	25	535	25	15	690
Future Volume (Veh/h)	15	25	535	25	15	690
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	27	582	27	16	750
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	1364	582			609	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1364	582			609	
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	95			98	
cM capacity (veh/h)	162	517			979	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	43	582	27	16	750
Volume Left	16	0	0	16	0
Volume Right	27	0	27	0	0
cSH	284	1700	1700	979	1700
Volume to Capacity	0.15	0.34	0.02	0.02	0.44
Queue Length 95th (ft)	13	0	0	1	0
Control Delay (s)	19.9	0.0	0.0	8.7	0.0
Lane LOS	C			A	
Approach Delay (s)	19.9	0.0		0.2	
Approach LOS	C				

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	5	5	0	45	0	610	5	70	870	0
Future Volume (Veh/h)	0	0	5	5	0	45	0	610	5	70	870	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	5	5	0	49	0	663	5	76	946	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1812	1766	946	1768	1764	666	946			668		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1812	1766	946	1768	1764	666	946			668		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	98	92	100	89	100			92		
cM capacity (veh/h)	51	77	317	61	78	460	734			931		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1	SB 2
Volume Total	0	5	54	668	76	946
Volume Left	0	0	5	0	76	0
Volume Right	0	5	49	5	0	0
cSH	1700	317	286	1700	931	1700
Volume to Capacity	0.00	0.02	0.19	0.39	0.08	0.56
Queue Length 95th (ft)	0	1	17	0	7	0
Control Delay (s)	0.0	16.5	20.5	0.0	9.2	0.0
Lane LOS	A	C	C		A	
Approach Delay (s)	16.5		20.5	0.0	0.7	
Approach LOS	C		C			

Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	62.5%	ICU Level of Service		B
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	10	0	15	15	915	30	5	1020	5
Future Volume (Veh/h)	0	0	0	10	0	15	15	915	30	5	1020	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	11	0	16	16	995	33	5	1109	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)								352			347	
pX, platoon unblocked	0.90	0.90	0.87	0.90	0.90	0.94	0.87			0.94		
vC, conflicting volume	1667	2182	557	1608	2168	514	1114			1028		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1204	1773	197	1139	1758	343	836			892		
tC, single (s)	7.5	6.5	6.9	7.9	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	91	100	97	98			99		
cM capacity (veh/h)	120	72	707	122	75	617	703			719		

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	27	514	530	560	560
Volume Left	11	16	0	5	0
Volume Right	16	0	33	0	5
cSH	232	703	1700	719	1700
Volume to Capacity	0.12	0.02	0.31	0.01	0.33
Queue Length 95th (ft)	10	2	0	1	0
Control Delay (s)	22.5	0.6	0.0	0.2	0.0
Lane LOS	C	A		A	
Approach Delay (s)	22.5	0.3		0.1	
Approach LOS	C				

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	46.9%	ICU Level of Service	A	
Analysis Period (min)	15			

SECTION 2

Open Year 2030 Baseline Delay Reports

HCM 6th Signalized Intersection Summary
201: SR 53 & SR 124

01/18/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	180	20	15	300	450	10	415	20	225	435	190
Future Volume (veh/h)	80	180	20	15	300	450	10	415	20	225	435	190
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1589	1589	1589	1781	1781	1781	1781	1781	1781	1752	1752	1752
Adj Flow Rate, veh/h	87	196	0	16	326	0	11	451	22	245	473	207
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	21	21	21	8	8	8	8	8	8	10	10	10
Cap, veh/h	123	372		148	416		413	976	827	528	1090	924
Arrive On Green	0.05	0.12	0.00	0.06	0.12	0.00	0.01	0.55	0.55	0.08	0.62	0.62
Sat Flow, veh/h	1513	3019	1346	1697	3385	1510	1697	1781	1510	1668	1752	1485
Grp Volume(v), veh/h	87	196	0	16	326	0	11	451	22	245	473	207
Grp Sat Flow(s),veh/h/ln	1513	1509	1346	1697	1692	1510	1697	1781	1510	1668	1752	1485
Q Serve(g_s), s	4.9	8.5	0.0	1.4	13.1	0.0	0.3	21.5	0.9	8.9	19.6	8.6
Cycle Q Clear(g_c), s	4.9	8.5	0.0	1.4	13.1	0.0	0.3	21.5	0.9	8.9	19.6	8.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	123	372		0	416		413	976	827	528	1090	924
V/C Ratio(X)	0.71	0.53		0.00	0.78		0.03	0.46	0.03	0.46	0.43	0.22
Avail Cap(c_a), veh/h	128	1154		0	931		499	976	827	667	1090	924
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.94	0.94	0.94	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.4	57.5	0.0	0.0	59.6	0.0	11.1	19.2	14.5	13.6	13.7	11.6
Incr Delay (d2), s/veh	15.6	1.2	0.0	0.0	3.3	0.0	0.0	1.5	0.1	0.6	1.3	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	3.3	0.0	0.0	5.8	0.0	0.1	8.9	0.3	3.2	7.6	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.0	58.7	0.0	0.0	62.9	0.0	11.1	20.6	14.6	14.2	15.0	12.2
LnGrp LOS	D	E		A	E		B	C	B	B	B	B
Approach Vol, veh/h		283			342			484			925	
Approach Delay, s/veh		56.0			59.9			20.2			14.1	
Approach LOS		E			E			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	93.8	14.5	23.8	18.4	83.4	14.5	23.7
Change Period (Y+Rc), s	6.9	* 6.7	6.5	6.5	6.9	* 6.7	7.9	6.5
Max Green Setting (Gmax), s	8.1	* 58	53.5	53.5	23.1	* 43	7.1	38.5
Max Q Clear Time (g_c+I1), s	2.3	21.6	3.4	10.5	10.9	23.5	6.9	15.1
Green Ext Time (p_c), s	0.0	8.2	0.0	1.2	0.5	4.8	0.0	2.1

Intersection Summary	
HCM 6th Ctrl Delay	29.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	125	0	280	560	650	0	0	645	315
Future Volume (veh/h)	0	0	0	125	0	280	560	650	0	0	645	315
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1678	0	1678	1781	1781	0	0	1767	1767
Adj Flow Rate, veh/h				136	0	304	609	707	0	0	701	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				15	0	15	8	8	0	0	9	9
Cap, veh/h				365	0	325	644	2239	0	0	1072	
Arrive On Green				0.23	0.00	0.23	0.30	0.66	0.00	0.00	0.11	0.00
Sat Flow, veh/h				1598	0	1422	1697	3474	0	0	3445	1497
Grp Volume(v), veh/h				136	0	304	609	707	0	0	701	0
Grp Sat Flow(s),veh/h/ln				1598	0	1422	1697	1692	0	0	1678	1497
Q Serve(g_s), s				10.0	0.0	29.4	37.4	12.5	0.0	0.0	28.1	0.0
Cycle Q Clear(g_c), s				10.0	0.0	29.4	37.4	12.5	0.0	0.0	28.1	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				365	0	325	644	2239	0	0	1072	
V/C Ratio(X)				0.37	0.00	0.93	0.94	0.32	0.00	0.00	0.65	
Avail Cap(c_a), veh/h				389	0	346	747	2239	0	0	1072	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33
Upstream Filter(I)				1.00	0.00	1.00	0.78	0.78	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				45.5	0.0	53.0	30.2	10.1	0.0	0.0	55.2	0.0
Incr Delay (d2), s/veh				0.9	0.0	31.7	16.7	0.3	0.0	0.0	3.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.1	0.0	13.3	22.5	4.4	0.0	0.0	13.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				46.4	0.0	84.7	46.9	10.4	0.0	0.0	58.3	0.0
LnGrp LOS				D	A	F	D	B	A	A	E	
Approach Vol, veh/h					440			1316			701	
Approach Delay, s/veh					72.8			27.3			58.3	
Approach LOS					E			C			E	

Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	47.9	51.4				99.3		38.6				
Change Period (Y+Rc), s	* 5.9	6.7				6.7		6.6				
Max Green Setting (Gmax), s	* 50	36.3				92.6		34.1				
Max Q Clear Time (g_c+I1), s	39.4	30.1				14.5		31.4				
Green Ext Time (p_c), s	2.6	4.2				20.0		0.7				

Intersection Summary		
HCM 6th Ctrl Delay		44.3
HCM 6th LOS		D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	0	100	0	0	0	135	595	0	0	620	90
Future Volume (veh/h)	55	0	100	0	0	0	135	595	0	0	620	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1781	1781	1900	1900	1900	1737	1737	1737	1826	1826	1826
Adj Flow Rate, veh/h	60	0	109	0	0	0	147	647	0	0	674	98
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	8	8	8	0	0	0	11	11	11	5	5	5
Cap, veh/h	204	0	136	53	171	0	446	2277	0	51	1813	263
Arrive On Green	0.09	0.00	0.09	0.00	0.00	0.00	0.05	0.69	0.00	0.00	0.60	0.60
Sat Flow, veh/h	1697	0	1510	1810	1900	0	1654	3387	0	765	3040	441
Grp Volume(v), veh/h	60	0	109	0	0	0	147	647	0	0	384	388
Grp Sat Flow(s),veh/h/ln	1697	0	1510	1810	1900	0	1654	1650	0	765	1735	1746
Q Serve(g_s), s	4.7	0.0	9.9	0.0	0.0	0.0	4.8	10.6	0.0	0.0	16.1	16.1
Cycle Q Clear(g_c), s	4.7	0.0	9.9	0.0	0.0	0.0	4.8	10.6	0.0	0.0	16.1	16.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		0.25
Lane Grp Cap(c), veh/h	204	0	136	0	171	0	446	2277	0	51	1035	1042
V/C Ratio(X)	0.29	0.00	0.80	0.00	0.00	0.00	0.33	0.28	0.00	0.00	0.37	0.37
Avail Cap(c_a), veh/h	417	0	326	0	410	0	528	2277	0	51	1035	1042
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	0.00	0.96	0.96	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	60.1	0.0	62.5	0.0	0.0	0.0	10.8	8.4	0.0	0.0	14.6	14.7
Incr Delay (d2), s/veh	0.8	0.0	10.4	0.0	0.0	0.0	0.4	0.3	0.0	0.0	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	4.2	0.0	0.0	0.0	1.7	3.5	0.0	0.0	6.3	6.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.9	0.0	72.9	0.0	0.0	0.0	11.2	8.7	0.0	0.0	15.7	15.7
LnGrp LOS	E	A	E	A	A	A	B	A	A	A	B	B
Approach Vol, veh/h		169			0			794			772	
Approach Delay, s/veh		68.6			0.0			9.1			15.7	
Approach LOS		E						A			B	

Timer - Assigned Phs	1	2		4		6	7	8				
Phs Duration (G+Y+Rc), s	13.1	89.9		19.4		103.0	0.0	19.4				
Change Period (Y+Rc), s	6.1	6.4		* 6.8		6.4	* 6.8	* 6.8				
Max Green Setting (Gmax), s	13.9	76.6		* 30		96.6	* 30	* 30				
Max Q Clear Time (g_c+I1), s	6.8	18.1		0.0		12.6	0.0	11.9				
Green Ext Time (p_c), s	0.2	11.4		0.0		10.0	0.0	0.7				

Intersection Summary			
HCM 6th Ctrl Delay		17.8	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	10	185	10	10	10	375	430	45	10	460	0
Future Volume (veh/h)	5	10	185	10	10	10	375	430	45	10	460	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1811	1811	1811	1826	1826	1826	1752	1752	1752
Adj Flow Rate, veh/h	5	11	201	11	11	11	408	467	49	11	500	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	6	6	6	5	5	5	10	10	10
Cap, veh/h	298	292	247	270	132	132	565	1219	1033	555	1170	991
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.67	0.67	0.67	0.67	0.67	0.00
Sat Flow, veh/h	1368	1841	1560	1132	831	831	877	1826	1547	829	1752	1485
Grp Volume(v), veh/h	5	11	201	11	0	22	408	467	49	11	500	0
Grp Sat Flow(s),veh/h/ln	1368	1841	1560	1132	0	1662	877	1826	1547	829	1752	1485
Q Serve(g_s), s	0.2	0.4	9.3	0.6	0.0	0.8	30.3	8.5	0.8	0.4	9.9	0.0
Cycle Q Clear(g_c), s	1.1	0.4	9.3	1.0	0.0	0.8	40.2	8.5	0.8	9.0	9.9	0.0
Prop In Lane	1.00		1.00	1.00		0.50	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	298	292	247	270	0	263	565	1219	1033	555	1170	991
V/C Ratio(X)	0.02	0.04	0.81	0.04	0.00	0.08	0.72	0.38	0.05	0.02	0.43	0.00
Avail Cap(c_a), veh/h	574	664	563	499	0	599	565	1219	1033	555	1170	991
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	27.3	26.7	30.4	27.1	0.0	26.9	15.1	5.6	4.3	7.6	5.8	0.0
Incr Delay (d2), s/veh	0.0	0.1	6.3	0.1	0.0	0.1	7.8	0.9	0.1	0.1	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.2	3.8	0.2	0.0	0.3	5.9	2.4	0.2	0.1	2.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.3	26.7	36.8	27.1	0.0	27.0	22.9	6.5	4.4	7.6	6.9	0.0
LnGrp LOS	C	C	D	C	A	C	C	A	A	A	A	A
Approach Vol, veh/h		217			33			924			511	
Approach Delay, s/veh		36.0			27.0			13.6			6.9	
Approach LOS		D			C			B			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		57.0		17.9		57.0		17.9				
Change Period (Y+Rc), s		7.0		6.0		7.0		6.0				
Max Green Setting (Gmax), s		50.0		27.0		50.0		27.0				
Max Q Clear Time (g_c+I1), s		11.9		3.0		42.2		11.3				
Green Ext Time (p_c), s		6.8		0.1		4.9		0.6				

Intersection Summary												
HCM 6th Ctrl Delay			14.7									
HCM 6th LOS			B									

Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	5	115	105	5	35	65	615	20	10	610	40
Future Volume (veh/h)	20	5	115	105	5	35	65	615	20	10	610	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1752	1752	1752	1455	1455	1455	1693	1693	1693	1811	1811	1811
Adj Flow Rate, veh/h	22	5	125	114	5	38	71	668	22	11	663	43
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	10	30	30	30	14	14	14	6	6	6
Cap, veh/h	147	158	134	190	15	115	9999	9999	2618	1206	1797	116
Arrive On Green	0.06	0.09	0.09	0.07	0.10	0.10	1.00	1.00	1.00	0.67	0.55	0.55
Sat Flow, veh/h	1668	1752	1485	2689	146	1110	1612	3177	105	1725	3281	213
Grp Volume(v), veh/h	22	5	125	114	0	43	71	338	352	11	347	359
Grp Sat Flow(s),veh/h/ln	1668	1752	1485	1345	0	1256	1612	1608	1674	1725	1721	1773
Q Serve(g_s), s	3.3	0.4	11.7	5.8	0.0	4.5	0.0	0.0	0.0	1.2	16.0	16.0
Cycle Q Clear(g_c), s	3.3	0.4	11.7	5.8	0.0	4.5	0.0	0.0	0.0	1.2	16.0	16.0
Prop In Lane	1.00		1.00	1.00		0.88	1.00		0.06	1.00		0.12
Lane Grp Cap(c), veh/h	0	158	134	190	0	130	40597	40249	41896	0	943	971
V/C Ratio(X)	0.00	0.03	0.94	0.60	0.00	0.33	0.00	0.01	0.01	0.00	0.37	0.37
Avail Cap(c_a), veh/h	0	158	134	211	0	292	40597	40249	41896	0	943	971
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.96	0.96	0.96
Uniform Delay (d), s/veh	0.0	58.1	63.3	63.1	0.0	58.3	0.0	0.0	0.0	0.0	17.9	17.9
Incr Delay (d2), s/veh	0.0	0.1	58.4	6.9	0.0	2.5	0.0	0.0	0.0	0.0	1.1	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	6.6	2.2	0.0	1.5	0.0	0.0	0.0	0.0	6.4	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	58.2	121.7	70.1	0.0	60.8	0.0	0.0	0.0	0.0	19.0	19.0
LnGrp LOS	A	E	F	E	A	E	A	A	A	A	B	B
Approach Vol, veh/h		152			157			761			717	
Approach Delay, s/veh		102.0			67.5			0.0			18.7	
Approach LOS		F			E			A			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	3627.1	83.0	18.9	20.0	100.0	3610.1	15.4	23.5
Change Period (Y+Rc), s	6.5	6.3	9.0	7.4	6.3	* 6.5	7.4	* 9
Max Green Setting (Gmax), s	10.5	76.7	11.0	12.6	93.7	* 94	32.6	* 33
Max Q Clear Time (g_c+I1), s	2.0	18.0	7.8	13.7	3.2	2.0	5.3	6.5
Green Ext Time (p_c), s	0.1	10.0	0.2	0.0	0.1	10.0	0.1	0.3

Intersection Summary	
HCM 6th Ctrl Delay	22.1
HCM 6th LOS	C

Notes

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

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	185	425	10	100	690	95	45	175	80	155	145	255
Future Volume (veh/h)	185	425	10	100	690	95	45	175	80	155	145	255
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1841	1900	1885	1885	1826	1870	1856	1841	1811	1870	1841
Adj Flow Rate, veh/h	201	462	0	109	750	0	49	190	87	168	158	277
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	8	4	0	1	1	5	2	3	4	6	2	4
Cap, veh/h	283	964		468	927		214	205	94	227	572	477
Arrive On Green	0.07	0.52	0.00	0.04	0.49	0.00	0.17	0.17	0.17	0.09	0.31	0.31
Sat Flow, veh/h	1697	1841	1610	1795	1885	1547	954	1205	552	1725	1870	1560
Grp Volume(v), veh/h	201	462	0	109	750	0	49	0	277	168	158	277
Grp Sat Flow(s),veh/h/ln	1697	1841	1610	1795	1885	1547	954	0	1756	1725	1870	1560
Q Serve(g_s), s	8.2	22.3	0.0	3.9	47.0	0.0	6.3	0.0	21.8	11.1	9.0	21.0
Cycle Q Clear(g_c), s	8.2	22.3	0.0	3.9	47.0	0.0	6.3	0.0	21.8	11.1	9.0	21.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.31	1.00		1.00
Lane Grp Cap(c), veh/h	283	964		468	927		214	0	299	227	572	477
V/C Ratio(X)	0.71	0.48		0.23	0.81		0.23	0.00	0.93	0.74	0.28	0.58
Avail Cap(c_a), veh/h	327	964		471	927		215	0	301	227	574	479
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.2	21.2	0.0	16.1	30.0	0.0	50.8	0.0	57.2	44.1	36.9	41.0
Incr Delay (d2), s/veh	5.9	1.7	0.0	0.3	7.6	0.0	0.5	0.0	33.4	12.1	0.3	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	10.1	0.0	1.7	23.0	0.0	1.5	0.0	12.4	5.5	4.2	8.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.1	22.9	0.0	16.3	37.6	0.0	51.4	0.0	90.6	56.1	37.1	42.8
LnGrp LOS	C	C		B	D		D	A	F	E	D	D
Approach Vol, veh/h		663			859			326			603	
Approach Delay, s/veh		25.7			34.9			84.7			45.0	
Approach LOS		C			C			F			D	

Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.4	74.8		48.8	11.8	79.3	19.0	29.8				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	14.0	65.0		43.0	6.1	72.9	13.0	24.0				
Max Q Clear Time (g_c+I1), s	10.2	49.0		23.0	5.9	24.3	13.1	23.8				
Green Ext Time (p_c), s	0.2	4.9		1.8	0.0	3.3	0.0	0.0				

Intersection Summary												
HCM 6th Ctrl Delay			41.5									
HCM 6th LOS			D									

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	215	5	240	0	0	0	0	995	80	155	615	0
Future Volume (vph)	215	5	240	0	0	0	0	995	80	155	615	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	16	16	16	12	12	12	12	12	12
Total Lost time (s)	6.5	6.5	6.5					7.0		7.1	7.0	
Lane Util. Factor	0.95	0.95	1.00					0.95		1.00	1.00	
Frt	1.00	1.00	0.85					0.99		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1491	1498	1404					3305		1641	1727	
Flt Permitted	0.95	0.95	1.00					1.00		0.18	1.00	
Satd. Flow (perm)	1491	1498	1404					3305		309	1727	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	234	5	261	0	0	0	0	1082	87	168	668	0
RTOR Reduction (vph)	0	0	229	0	0	0	0	4	0	0	0	0
Lane Group Flow (vph)	119	120	32	0	0	0	0	1165	0	168	668	0
Heavy Vehicles (%)	15%	15%	15%	0%	0%	0%	8%	8%	8%	10%	10%	10%
Turn Type	Split	NA	Perm					NA		D.P+P	NA	
Protected Phases	4	4						6		5	2	
Permitted Phases			4							6		
Actuated Green, G (s)	17.3	17.3	17.3					84.2		102.1	109.2	
Effective Green, g (s)	17.3	17.3	17.3					84.2		102.1	109.2	
Actuated g/C Ratio	0.12	0.12	0.12					0.60		0.73	0.78	
Clearance Time (s)	6.5	6.5	6.5					7.0		7.1	7.0	
Vehicle Extension (s)	3.0	3.0	3.0					7.0		3.0	7.0	
Lane Grp Cap (vph)	184	185	173					1987		395	1347	
v/s Ratio Prot	0.08	c0.08						c0.35		0.05	c0.39	
v/s Ratio Perm			0.02							0.26		
v/c Ratio	0.65	0.65	0.19					0.59		0.43	0.50	
Uniform Delay, d1	58.4	58.5	55.0					17.2		21.4	5.5	
Progression Factor	1.00	1.00	1.00					0.74		1.05	1.19	
Incremental Delay, d2	7.6	7.6	0.5					1.1		0.6	1.1	
Delay (s)	66.0	66.1	55.6					13.8		23.1	7.6	
Level of Service	E	E	E					B		C	A	
Approach Delay (s)		60.6			0.0			13.8			10.7	
Approach LOS		E			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.6
Intersection Capacity Utilization	73.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	3.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	120	685	10	60	405
Future Vol, veh/h	30	120	685	10	60	405
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	7	7	8	8
Mvmt Flow	33	130	745	11	65	440

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1321	751	0	0	756	0
Stage 1	751	-	-	-	-	-
Stage 2	570	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.18	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.272	-
Pot Cap-1 Maneuver	174	412	-	-	828	-
Stage 1	468	-	-	-	-	-
Stage 2	568	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	156	412	-	-	828	-
Mov Cap-2 Maneuver	156	-	-	-	-	-
Stage 1	468	-	-	-	-	-
Stage 2	509	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	28.8	0	1.3
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	310	828	-
HCM Lane V/C Ratio	-	-	0.526	0.079	-
HCM Control Delay (s)	-	-	28.8	9.7	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	2.9	0.3	-

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	30	5	15	10	5	85	45	745	35	30	430	15
Future Vol, veh/h	30	5	15	10	5	85	45	745	35	30	430	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	7	7	7	6	6	6	9	9	9
Mvmt Flow	33	5	16	11	5	92	49	810	38	33	467	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1471	1487	475	1479	1476	829	483	0	0	848	0	0
Stage 1	541	541	-	927	927	-	-	-	-	-	-	-
Stage 2	930	946	-	552	549	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.17	6.57	6.27	4.16	-	-	4.19	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.17	5.57	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.17	5.57	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.563	4.063	3.363	2.254	-	-	2.281	-	-
Pot Cap-1 Maneuver	105	124	590	101	123	363	1059	-	-	760	-	-
Stage 1	525	521	-	315	340	-	-	-	-	-	-	-
Stage 2	321	340	-	509	508	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	67	106	590	84	105	363	1059	-	-	760	-	-
Mov Cap-2 Maneuver	67	106	-	84	105	-	-	-	-	-	-	-
Stage 1	479	490	-	287	310	-	-	-	-	-	-	-
Stage 2	214	310	-	460	478	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	83	16.3	0.5	0.6
HCM LOS	F	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1059	-	-	96	427	760	-	-
HCM Lane V/C Ratio	0.046	-	-	0.566	0.255	0.043	-	-
HCM Control Delay (s)	8.6	0	-	83	16.3	9.9	0	-
HCM Lane LOS	A	A	-	F	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.6	1	0.1	-	-

Intersection	
Int Delay, s/veh	3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	130	470	20	90	285
Future Vol, veh/h	10	130	470	20	90	285
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	7	7	8	8
Mvmt Flow	11	141	511	22	98	310

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1028	522	0	0	533	0
Stage 1	522	-	-	-	-	-
Stage 2	506	-	-	-	-	-
Critical Hdwy	6.44	6.24	-	-	4.18	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	-	-	2.272	-
Pot Cap-1 Maneuver	257	551	-	-	1005	-
Stage 1	591	-	-	-	-	-
Stage 2	601	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	227	551	-	-	1005	-
Mov Cap-2 Maneuver	227	-	-	-	-	-
Stage 1	591	-	-	-	-	-
Stage 2	530	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.3	0	2.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	500	1005	-
HCM Lane V/C Ratio	-	-	0.304	0.097	-
HCM Control Delay (s)	-	-	15.3	9	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1.3	0.3	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	5	30	5	5	30	30	775	0	10	430	15
Future Vol, veh/h	20	5	30	5	5	30	30	775	0	10	430	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	6	6	6	8	8	8
Mvmt Flow	22	5	33	5	5	33	33	842	0	11	467	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1424	1405	475	1424	1413	842	483	0	0	842	0	0
Stage 1	497	497	-	908	908	-	-	-	-	-	-	-
Stage 2	927	908	-	516	505	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.16	-	-	4.18	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.254	-	-	2.272	-	-
Pot Cap-1 Maneuver	113	139	590	113	138	364	1059	-	-	768	-	-
Stage 1	555	545	-	330	354	-	-	-	-	-	-	-
Stage 2	322	354	-	542	540	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	94	128	590	97	127	364	1059	-	-	768	-	-
Mov Cap-2 Maneuver	94	128	-	97	127	-	-	-	-	-	-	-
Stage 1	522	534	-	311	333	-	-	-	-	-	-	-
Stage 2	271	333	-	497	529	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	34.2	24.2	0.3	0.2
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1059	-	-	182	231	768	-	-
HCM Lane V/C Ratio	0.031	-	-	0.328	0.188	0.014	-	-
HCM Control Delay (s)	8.5	0	-	34.2	24.2	9.8	0	-
HCM Lane LOS	A	A	-	D	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.3	0.7	0	-	-

Intersection	
Int Delay, s/veh	16.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	100	75	135	595	355	80
Future Vol, veh/h	100	75	135	595	355	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	6	6	7	7
Mvmt Flow	109	82	147	647	386	87

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1371	430	473	0	-	0
Stage 1	430	-	-	-	-	-
Stage 2	941	-	-	-	-	-
Critical Hdwy	6.45	6.25	4.16	-	-	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	2.254	-	-	-
Pot Cap-1 Maneuver	159	619	1068	-	-	-
Stage 1	650	-	-	-	-	-
Stage 2	375	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	125	619	1068	-	-	-
Mov Cap-2 Maneuver	125	-	-	-	-	-
Stage 1	510	-	-	-	-	-
Stage 2	375	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	116.6	1.6	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1068	-	190	-	-
HCM Lane V/C Ratio	0.137	-	1.001	-	-
HCM Control Delay (s)	8.9	0	116.6	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	0.5	-	8.5	-	-

Intersection	
Int Delay, s/veh	8.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	140	0	5	0	0	0	5	590	5	5	370	55
Future Vol, veh/h	140	0	5	0	0	0	5	590	5	5	370	55
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	0	-	-	-	-	-	110	-	-	310
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	0	0	0	6	6	6	7	7	7
Mvmt Flow	152	0	5	0	0	0	5	641	5	5	402	60

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1066	1068	402	1063	1063	641	402	0	0	646	0	0
Stage 1	412	412	-	651	651	-	-	-	-	-	-	-
Stage 2	654	656	-	412	412	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.1	6.5	6.2	4.16	-	-	4.17	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.5	4	3.3	2.254	-	-	2.263	-	-
Pot Cap-1 Maneuver	197	219	642	203	225	478	1135	-	-	916	-	-
Stage 1	611	589	-	461	468	-	-	-	-	-	-	-
Stage 2	451	458	-	621	598	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	195	216	642	199	222	478	1135	-	-	916	-	-
Mov Cap-2 Maneuver	195	216	-	199	222	-	-	-	-	-	-	-
Stage 1	607	585	-	458	465	-	-	-	-	-	-	-
Stage 2	448	455	-	611	594	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	66.5	0	0.1	0.1
HCM LOS	F	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1135	-	-	195	642	-	916	-	-
HCM Lane V/C Ratio	0.005	-	-	0.78	0.008	-	0.006	-	-
HCM Control Delay (s)	8.2	0	-	68.5	10.7	0	9	0	-
HCM Lane LOS	A	A	-	F	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	5.3	0	-	0	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	5	5	940	845	10
Future Vol, veh/h	0	5	5	940	845	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Yield
Storage Length	0	-	135	-	-	220
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	20	20	10	10	10	10
Mvmt Flow	0	5	5	1022	918	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1950	918	918	0	-	0
Stage 1	918	-	-	-	-	-
Stage 2	1032	-	-	-	-	-
Critical Hdwy	6.6	6.4	4.2	-	-	-
Critical Hdwy Stg 1	5.6	-	-	-	-	-
Critical Hdwy Stg 2	5.6	-	-	-	-	-
Follow-up Hdwy	3.68	3.48	2.29	-	-	-
Pot Cap-1 Maneuver	63	305	711	-	-	-
Stage 1	362	-	-	-	-	-
Stage 2	318	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	63	305	711	-	-	-
Mov Cap-2 Maneuver	63	-	-	-	-	-
Stage 1	359	-	-	-	-	-
Stage 2	318	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	711	-	305	-	-
HCM Lane V/C Ratio	0.008	-	0.018	-	-
HCM Control Delay (s)	10.1	-	17	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	5	40	725	475	5
Future Vol, veh/h	5	5	40	725	475	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	3	5	9	0
Mvmt Flow	5	5	43	788	516	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1393	519	521	0	-	0
Stage 1	519	-	-	-	-	-
Stage 2	874	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.13	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.227	-	-	-
Pot Cap-1 Maneuver	158	561	1040	-	-	-
Stage 1	601	-	-	-	-	-
Stage 2	412	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	146	561	1040	-	-	-
Mov Cap-2 Maneuver	146	-	-	-	-	-
Stage 1	557	-	-	-	-	-
Stage 2	412	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.3	0.5	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1040	-	232	-	-
HCM Lane V/C Ratio	0.042	-	0.047	-	-
HCM Control Delay (s)	8.6	-	21.3	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	60	15	680	50	15	420
Future Vol, veh/h	60	15	680	50	15	420
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	210	465	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	17	6	0	0	10
Mvmt Flow	65	16	739	54	16	457

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1228	739	0	0	793	0
Stage 1	739	-	-	-	-	-
Stage 2	489	-	-	-	-	-
Critical Hdwy	6.4	6.37	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.453	-	-	2.2	-
Pot Cap-1 Maneuver	199	394	-	-	837	-
Stage 1	476	-	-	-	-	-
Stage 2	621	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	195	394	-	-	837	-
Mov Cap-2 Maneuver	195	-	-	-	-	-
Stage 1	476	-	-	-	-	-
Stage 2	609	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	31.2	0	0.3
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	217	837	-
HCM Lane V/C Ratio	-	-	0.376	0.019	-
HCM Control Delay (s)	-	-	31.2	9.4	-
HCM Lane LOS	-	-	D	A	-
HCM 95th %tile Q(veh)	-	-	1.6	0.1	-

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	5	0	160	0	765	95	200	470	0
Future Vol, veh/h	0	0	0	5	0	160	0	765	95	200	470	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	160	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	17	0	1	0	6	0	2	9	2
Mvmt Flow	0	0	0	5	0	174	0	832	103	217	511	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1916	1880	511	1829	1829	884	-	0	0	935	0	0
Stage 1	945	945	-	884	884	-	-	-	-	-	-	-
Stage 2	971	935	-	945	945	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.27	6.5	6.21	-	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.27	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.27	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.653	4	3.309	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	51	71	563	54	77	346	0	-	-	732	-	0
Stage 1	314	340	-	320	366	-	0	-	-	-	-	0
Stage 2	304	344	-	296	343	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	20	50	563	42	54	346	-	-	-	732	-	-
Mov Cap-2 Maneuver	20	50	-	42	54	-	-	-	-	-	-	-
Stage 1	314	239	-	320	366	-	-	-	-	-	-	-
Stage 2	151	344	-	208	241	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	37.1	0	3.6
HCM LOS	A	E		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	-	284	732	-
HCM Lane V/C Ratio	-	-	-	-	0.632	0.297	-
HCM Control Delay (s)	-	-	0	0	37.1	12	-
HCM Lane LOS	-	-	A	A	E	B	-
HCM 95th %tile Q(veh)	-	-	-	-	3.9	1.2	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	25	0	35	15	875	40	5	935	0
Future Vol, veh/h	0	0	0	25	0	35	15	875	40	5	935	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	6	0	7	0	6	8	0	6	0
Mvmt Flow	0	0	0	27	0	38	16	951	43	5	1016	0

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	1523	2031	497	1016	0	0	994	0	0
Stage 1	1005	1005	-	-	-	-	-	-	-
Stage 2	518	1026	-	-	-	-	-	-	-
Critical Hdwy	6.92	6.5	7.04	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	5.92	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.92	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.56	4	3.37	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	105	58	505	691	-	-	704	-	-
Stage 1	306	322	-	-	-	-	-	-	-
Stage 2	551	315	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	98	0	505	691	-	-	704	-	-
Mov Cap-2 Maneuver	98	0	-	-	-	-	-	-	-
Stage 1	290	0	-	-	-	-	-	-	-
Stage 2	542	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	34.7	0.4	0.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	691	-	-	185	704	-	-
HCM Lane V/C Ratio	0.024	-	-	0.353	0.008	-	-
HCM Control Delay (s)	10.3	0.3	-	34.7	10.2	0.1	-
HCM Lane LOS	B	A	-	D	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.5	0	-	-

HCM 6th Signalized Intersection Summary
201: SR 53 & SR 124

01/18/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	470	30	80	255	265	30	410	20	390	735	85
Future Volume (veh/h)	120	470	30	80	255	265	30	410	20	390	735	85
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1841	1841	1796	1796	1796	1841	1841	1841
Adj Flow Rate, veh/h	130	511	0	87	277	0	33	446	22	424	799	92
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	4	4	7	7	7	4	4	4
Cap, veh/h	128	619		175	678		198	725	614	518	1005	852
Arrive On Green	0.04	0.18	0.00	0.07	0.19	0.00	0.02	0.40	0.40	0.16	0.55	0.55
Sat Flow, veh/h	1753	3497	1560	1753	3497	1560	1711	1796	1522	1753	1841	1560
Grp Volume(v), veh/h	130	511	0	87	277	0	33	446	22	424	799	92
Grp Sat Flow(s),veh/h/ln	1753	1749	1560	1753	1749	1560	1711	1796	1522	1753	1841	1560
Q Serve(g_s), s	6.1	19.7	0.0	7.7	9.7	0.0	1.2	27.6	1.2	19.5	48.8	4.0
Cycle Q Clear(g_c), s	6.1	19.7	0.0	7.7	9.7	0.0	1.2	27.6	1.2	19.5	48.8	4.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	128	619		0	678		198	725	614	518	1005	852
V/C Ratio(X)	1.02	0.83		0.00	0.41		0.17	0.62	0.04	0.82	0.80	0.11
Avail Cap(c_a), veh/h	128	1099		0	749		208	725	614	579	1005	852
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.93	0.93	0.93	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.9	55.5	0.0	0.0	49.4	0.0	22.7	33.1	25.3	22.8	25.5	15.3
Incr Delay (d2), s/veh	84.2	2.9	0.0	0.0	0.4	0.0	0.4	3.6	0.1	8.3	6.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	8.8	0.0	0.0	4.3	0.0	0.5	12.4	0.5	8.7	21.7	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	126.1	58.4	0.0	0.0	49.8	0.0	23.0	36.7	25.4	31.0	32.0	15.6
LnGrp LOS	F	E		A	D		C	D	C	C	C	B
Approach Vol, veh/h		641			364			501			1315	
Approach Delay, s/veh		72.1			37.9			35.3			30.5	
Approach LOS		E			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.2	83.1	16.4	31.3	29.1	63.2	14.0	33.7
Change Period (Y+Rc), s	6.9	* 6.7	6.5	6.5	6.9	* 6.7	7.9	6.5
Max Green Setting (Gmax), s	3.1	* 73	44.0	44.0	27.1	* 49	6.1	30.0
Max Q Clear Time (g_c+I1), s	3.2	50.8	9.7	21.7	21.5	29.6	8.1	11.7
Green Ext Time (p_c), s	0.0	10.8	0.2	3.1	0.7	4.7	0.0	1.6

Intersection Summary	
HCM 6th Ctrl Delay	41.8
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	115	0	240	285	835	0	0	920	235
Future Volume (veh/h)	0	0	0	115	0	240	285	835	0	0	920	235
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1648	0	1648	1796	1796	0	0	1781	1781
Adj Flow Rate, veh/h				125	0	261	310	908	0	0	1000	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				17	0	17	7	7	0	0	8	8
Cap, veh/h				206	0	184	465	2640	0	0	2193	
Arrive On Green				0.13	0.00	0.13	0.08	0.77	0.00	0.00	0.65	0.00
Sat Flow, veh/h				1570	0	1397	1711	3503	0	0	3474	1510
Grp Volume(v), veh/h				125	0	261	310	908	0	0	1000	0
Grp Sat Flow(s),veh/h/ln				1570	0	1397	1711	1706	0	0	1692	1510
Q Serve(g_s), s				10.5	0.0	18.4	8.3	11.5	0.0	0.0	20.7	0.0
Cycle Q Clear(g_c), s				10.5	0.0	18.4	8.3	11.5	0.0	0.0	20.7	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				206	0	184	465	2640	0	0	2193	
V/C Ratio(X)				0.61	0.00	1.42	0.67	0.34	0.00	0.00	0.46	
Avail Cap(c_a), veh/h				206	0	184	678	2640	0	0	2193	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.79	0.79	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				57.4	0.0	60.8	9.7	4.9	0.0	0.0	12.3	0.0
Incr Delay (d2), s/veh				5.9	0.0	218.5	1.9	0.3	0.0	0.0	0.7	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.5	0.0	17.7	2.8	3.3	0.0	0.0	7.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				63.3	0.0	279.3	11.6	5.2	0.0	0.0	13.0	0.0
LnGrp LOS				E	A	F	B	A	A	A	B	
Approach Vol, veh/h					386			1218			1000	
Approach Delay, s/veh					209.4			6.8			13.0	
Approach LOS					F			A			B	

Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	17.6	97.4				115.0		25.0				
Change Period (Y+Rc), s	* 5.9	6.7				6.7		6.6				
Max Green Setting (Gmax), s	* 29	73.3				108.3		18.4				
Max Q Clear Time (g_c+I1), s	10.3	22.7				13.5		20.4				
Green Ext Time (p_c), s	1.4	27.6				30.8		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	39.2
HCM 6th LOS	D

Notes

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

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	0	130	0	0	0	180	645	0	0	775	95
Future Volume (veh/h)	100	0	130	0	0	0	180	645	0	0	775	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1411	1411	1411	1767	1767	1767	1811	1811	1811
Adj Flow Rate, veh/h	109	0	141	0	0	0	196	701	0	0	842	103
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	33	33	33	9	9	9	6	6	6
Cap, veh/h	243	0	170	52	155	0	409	2364	0	51	1839	225
Arrive On Green	0.11	0.00	0.11	0.00	0.00	0.00	0.13	1.00	0.00	0.00	0.60	0.60
Sat Flow, veh/h	1739	0	1547	1344	1411	0	1682	3445	0	722	3086	378
Grp Volume(v), veh/h	109	0	141	0	0	0	196	701	0	0	469	476
Grp Sat Flow(s),veh/h/ln	1739	0	1547	1344	1411	0	1682	1678	0	722	1721	1743
Q Serve(g_s), s	8.3	0.0	12.5	0.0	0.0	0.0	6.7	0.0	0.0	0.0	21.2	21.2
Cycle Q Clear(g_c), s	8.3	0.0	12.5	0.0	0.0	0.0	6.7	0.0	0.0	0.0	21.2	21.2
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		0.22
Lane Grp Cap(c), veh/h	243	0	170	0	155	0	409	2364	0	51	1025	1039
V/C Ratio(X)	0.45	0.00	0.83	0.00	0.00	0.00	0.48	0.30	0.00	0.00	0.46	0.46
Avail Cap(c_a), veh/h	402	0	312	0	284	0	528	2364	0	51	1025	1039
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	0.00	0.91	0.91	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	59.1	0.0	61.0	0.0	0.0	0.0	10.8	0.0	0.0	0.0	15.7	15.7
Incr Delay (d2), s/veh	1.3	0.0	9.7	0.0	0.0	0.0	0.8	0.3	0.0	0.0	1.5	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	5.4	0.0	0.0	0.0	2.1	0.1	0.0	0.0	8.3	8.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.4	0.0	70.7	0.0	0.0	0.0	11.6	0.3	0.0	0.0	17.2	17.2
LnGrp LOS	E	A	E	A	A	A	B	A	A	A	B	B
Approach Vol, veh/h		250			0			897			945	
Approach Delay, s/veh		66.3			0.0			2.8			17.2	
Approach LOS		E						A			B	

Timer - Assigned Phs	1	2		4		6	7	8				
Phs Duration (G+Y+Rc), s	15.2	89.8		22.2		105.0	0.0	22.2				
Change Period (Y+Rc), s	6.1	6.4		* 6.8		6.4	* 6.8	* 6.8				
Max Green Setting (Gmax), s	18.9	73.6		* 28		98.6	* 28	* 28				
Max Q Clear Time (g_c+I1), s	8.7	23.2		0.0		2.0	0.0	14.5				
Green Ext Time (p_c), s	0.4	14.9		0.0		11.2	0.0	0.9				

Intersection Summary			
HCM 6th Ctrl Delay		16.9	
HCM 6th LOS		B	

Notes

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

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	35	275	35	15	15	155	430	30	20	820	5
Future Volume (veh/h)	15	35	275	35	15	15	155	430	30	20	820	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1900	1900	1900	1826	1826	1826	1856	1856	1856
Adj Flow Rate, veh/h	16	38	299	38	16	16	168	467	33	22	891	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	0	0	0	5	5	5	3	3	3
Cap, veh/h	362	403	341	295	186	186	262	1153	977	535	1172	993
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.63	0.63	0.63	0.63	0.63	0.63
Sat Flow, veh/h	1388	1885	1598	1060	872	872	606	1826	1547	891	1856	1572
Grp Volume(v), veh/h	16	38	299	38	0	32	168	467	33	22	891	5
Grp Sat Flow(s),veh/h/ln	1388	1885	1598	1060	0	1743	606	1826	1547	891	1856	1572
Q Serve(g_s), s	0.8	1.4	15.2	2.5	0.0	1.2	22.8	10.6	0.7	1.1	28.6	0.1
Cycle Q Clear(g_c), s	2.0	1.4	15.2	3.9	0.0	1.2	51.4	10.6	0.7	11.7	28.6	0.1
Prop In Lane	1.00		1.00	1.00		0.50	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	362	403	341	295	0	373	262	1153	977	535	1172	993
V/C Ratio(X)	0.04	0.09	0.88	0.13	0.00	0.09	0.64	0.41	0.03	0.04	0.76	0.01
Avail Cap(c_a), veh/h	462	539	457	372	0	498	262	1153	977	535	1172	993
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.2	26.5	31.9	28.0	0.0	26.4	29.2	7.7	5.8	10.6	11.0	5.7
Incr Delay (d2), s/veh	0.0	0.1	13.7	0.2	0.0	0.1	11.4	1.1	0.1	0.1	4.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.6	7.0	0.6	0.0	0.5	3.8	3.5	0.2	0.2	10.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.3	26.6	45.6	28.2	0.0	26.5	40.6	8.7	5.9	10.7	15.6	5.7
LnGrp LOS	C	C	D	C	A	C	D	A	A	B	B	A
Approach Vol, veh/h		353			70			668			918	
Approach Delay, s/veh		42.7			27.5			16.6			15.5	
Approach LOS		D			C			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		60.0		23.9		60.0		23.9				
Change Period (Y+Rc), s		7.0		6.0		7.0		6.0				
Max Green Setting (Gmax), s		53.0		24.0		53.0		24.0				
Max Q Clear Time (g_c+I1), s		30.6		5.9		53.4		17.2				
Green Ext Time (p_c), s		12.0		0.2		0.0		0.7				

Intersection Summary												
HCM 6th Ctrl Delay			21.1									
HCM 6th LOS			C									

Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	35	200	80	10	30	110	810	80	45	765	45
Future Volume (veh/h)	40	35	200	80	10	30	110	810	80	45	765	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1248	1248	1248	1752	1752	1752	1826	1826	1826
Adj Flow Rate, veh/h	43	38	217	87	11	33	120	880	87	49	832	49
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	44	44	44	10	10	10	5	5	5
Cap, veh/h	151	287	243	159	46	139	433	1567	155	200	1229	72
Arrive On Green	0.06	0.16	0.16	0.07	0.17	0.17	0.46	1.00	1.00	0.09	0.37	0.37
Sat Flow, veh/h	1739	1826	1547	2306	275	825	1668	3059	302	1739	3329	196
Grp Volume(v), veh/h	43	38	217	87	0	44	120	479	488	49	433	448
Grp Sat Flow(s),veh/h/ln	1739	1826	1547	1153	0	1099	1668	1664	1697	1739	1735	1791
Q Serve(g_s), s	5.7	2.5	19.2	5.1	0.0	4.8	1.3	0.0	0.0	6.0	29.4	29.4
Cycle Q Clear(g_c), s	5.7	2.5	19.2	5.1	0.0	4.8	1.3	0.0	0.0	6.0	29.4	29.4
Prop In Lane	1.00		1.00	1.00		0.75	1.00		0.18	1.00		0.11
Lane Grp Cap(c), veh/h	0	287	243	159	0	186	433	852	869	0	641	661
V/C Ratio(X)	0.00	0.13	0.89	0.55	0.00	0.24	0.28	0.56	0.56	0.00	0.68	0.68
Avail Cap(c_a), veh/h	0	464	393	165	0	429	433	852	869	0	641	661
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.91	0.91	0.91
Uniform Delay (d), s/veh	0.0	50.8	57.8	63.1	0.0	50.3	29.4	0.0	0.0	0.0	37.1	37.1
Incr Delay (d2), s/veh	0.0	0.2	14.1	6.5	0.0	1.1	0.3	2.7	2.6	0.0	5.2	5.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.2	8.5	1.7	0.0	1.4	2.3	0.6	0.6	0.0	13.0	13.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	51.0	71.9	69.6	0.0	51.5	29.7	2.7	2.6	0.0	42.3	42.1
LnGrp LOS	A	D	E	E	A	D	C	A	A	A	D	D
Approach Vol, veh/h		298			131			1087			930	
Approach Delay, s/veh		58.8			63.5			5.6			40.0	
Approach LOS		E			E			A			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	38.5	58.0	18.7	29.4	18.3	78.2	15.4	32.7
Change Period (Y+Rc), s	6.5	6.3	9.0	7.4	6.3	* 6.5	7.4	* 9
Max Green Setting (Gmax), s	13.5	51.7	10.0	35.6	71.7	* 72	54.6	* 55
Max Q Clear Time (g_c+I1), s	3.3	31.4	7.1	21.2	8.0	2.0	7.7	6.8
Green Ext Time (p_c), s	0.2	9.3	0.1	0.8	0.3	16.5	0.2	0.4

Intersection Summary	
HCM 6th Ctrl Delay	28.3
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	310	800	20	180	535	145	55	175	130	190	235	185
Future Volume (veh/h)	310	800	20	180	535	145	55	175	130	190	235	185
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1885	1900	1885	1856	1870	1900	1856	1900	1885	1885	1870
Adj Flow Rate, veh/h	337	870	0	196	582	0	60	190	141	207	255	201
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	1	0	1	3	2	0	3	0	1	1	2
Cap, veh/h	455	995		247	889		206	134	100	231	525	442
Arrive On Green	0.11	0.53	0.00	0.07	0.48	0.00	0.14	0.14	0.14	0.10	0.28	0.28
Sat Flow, veh/h	1781	1885	1610	1795	1856	1585	1142	989	734	1795	1885	1585
Grp Volume(v), veh/h	337	870	0	196	582	0	60	0	331	207	255	201
Grp Sat Flow(s),veh/h/ln	1781	1885	1610	1795	1856	1585	1142	0	1723	1795	1885	1585
Q Serve(g_s), s	13.3	56.7	0.0	7.0	33.3	0.0	6.7	0.0	19.0	13.9	15.8	14.7
Cycle Q Clear(g_c), s	13.3	56.7	0.0	7.0	33.3	0.0	6.7	0.0	19.0	13.9	15.8	14.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.43	1.00		1.00
Lane Grp Cap(c), veh/h	455	995		247	889		206	0	234	231	525	442
V/C Ratio(X)	0.74	0.87		0.79	0.65		0.29	0.00	1.42	0.90	0.49	0.46
Avail Cap(c_a), veh/h	532	995		284	889		206	0	234	231	525	442
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.0	29.0	0.0	29.1	27.7	0.0	55.2	0.0	60.5	47.5	42.1	41.7
Incr Delay (d2), s/veh	4.6	10.6	0.0	12.6	3.7	0.0	0.8	0.0	210.2	33.0	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	28.0	0.0	4.3	15.6	0.0	2.0	0.0	22.0	8.4	7.5	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.6	39.6	0.0	41.6	31.4	0.0	56.0	0.0	270.7	80.5	42.8	42.5
LnGrp LOS	C	D		D	C		E	A	F	F	D	D
Approach Vol, veh/h		1207			778			391			663	
Approach Delay, s/veh		35.7			34.0			237.7			54.5	
Approach LOS		D			C			F			D	

Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.9	73.1		45.0	15.1	79.9	20.0	25.0				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	22.0	61.0		39.0	12.0	71.0	14.0	19.0				
Max Q Clear Time (g_c+I1), s	15.3	35.3		17.8	9.0	58.7	15.9	21.0				
Green Ext Time (p_c), s	0.6	4.2		2.1	0.2	5.2	0.0	0.0				

Intersection Summary			
HCM 6th Ctrl Delay		65.4	
HCM 6th LOS		E	

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	335	0	400	0	0	0	0	785	110	230	805	0
Future Volume (vph)	335	0	400	0	0	0	0	785	110	230	805	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	16	16	16	12	12	12	12	12	12
Total Lost time (s)	6.5	6.5	6.5					7.0		7.1	7.0	
Lane Util. Factor	0.95	0.95	1.00					0.95		1.00	1.00	
Frt	1.00	1.00	0.85					0.98		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1603	1603	1509					3311		1687	1776	
Flt Permitted	0.95	0.95	1.00					1.00		0.22	1.00	
Satd. Flow (perm)	1603	1603	1509					3311		382	1776	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	364	0	435	0	0	0	0	853	120	250	875	0
RTOR Reduction (vph)	0	0	192	0	0	0	0	8	0	0	0	0
Lane Group Flow (vph)	182	182	243	0	0	0	0	965	0	250	875	0
Heavy Vehicles (%)	7%	7%	7%	0%	0%	0%	7%	7%	7%	7%	7%	7%
Turn Type	Split	NA	Perm					NA		D.P+P	NA	
Protected Phases	4	4						6		5	2	
Permitted Phases			4							6		
Actuated Green, G (s)	23.5	23.5	23.5					73.0		95.9	103.0	
Effective Green, g (s)	23.5	23.5	23.5					73.0		95.9	103.0	
Actuated g/C Ratio	0.17	0.17	0.17					0.52		0.69	0.74	
Clearance Time (s)	6.5	6.5	6.5					7.0		7.1	7.0	
Vehicle Extension (s)	3.0	3.0	3.0					7.0		3.0	7.0	
Lane Grp Cap (vph)	269	269	253					1726		475	1306	
v/s Ratio Prot	0.11	0.11						0.29		0.09	c0.49	
v/s Ratio Perm			c0.16							0.27		
v/c Ratio	0.68	0.68	0.96					0.56		0.53	0.67	
Uniform Delay, d1	54.7	54.7	57.8					22.6		26.9	9.6	
Progression Factor	1.00	1.00	1.00					0.72		0.63	0.57	
Incremental Delay, d2	6.6	6.6	44.8					1.1		0.9	2.4	
Delay (s)	61.3	61.3	102.6					17.4		17.8	7.9	
Level of Service	E	E	F					B		B	A	
Approach Delay (s)		83.8			0.0			17.4			10.1	
Approach LOS		F			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	32.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.6
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	4.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	165	610	15	135	745
Future Vol, veh/h	15	165	610	15	135	745
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	5	5	2	2
Mvmt Flow	16	179	663	16	147	810

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1775	671	0	0	679	0
Stage 1	671	-	-	-	-	-
Stage 2	1104	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.12	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.218	-
Pot Cap-1 Maneuver	91	458	-	-	913	-
Stage 1	510	-	-	-	-	-
Stage 2	319	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	64	458	-	-	913	-
Mov Cap-2 Maneuver	64	-	-	-	-	-
Stage 1	510	-	-	-	-	-
Stage 2	226	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	36.2	0	1.5
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	303	913	-
HCM Lane V/C Ratio	-	-	0.646	0.161	-
HCM Control Delay (s)	-	-	36.2	9.7	0
HCM Lane LOS	-	-	E	A	A
HCM 95th %tile Q(veh)	-	-	4.2	0.6	-

Intersection	
Int Delay, s/veh	7.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	35	5	45	5	0	20	15	635	30	20	915	20
Future Vol, veh/h	35	5	45	5	0	20	15	635	30	20	915	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	3	3	3	5	5	5	2	2	2
Mvmt Flow	38	5	49	5	0	22	16	690	33	22	995	22

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1789	1805	1006	1816	1800	707	1017	0	0	723	0	0
Stage 1	1050	1050	-	739	739	-	-	-	-	-	-	-
Stage 2	739	755	-	1077	1061	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.13	6.53	6.23	4.15	-	-	4.12	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.527	4.027	3.327	2.245	-	-	2.218	-	-
Pot Cap-1 Maneuver	63	80	294	60	79	434	670	-	-	879	-	-
Stage 1	276	305	-	408	422	-	-	-	-	-	-	-
Stage 2	411	418	-	264	299	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	55	72	294	44	71	434	670	-	-	879	-	-
Mov Cap-2 Maneuver	55	72	-	44	71	-	-	-	-	-	-	-
Stage 1	265	287	-	392	405	-	-	-	-	-	-	-
Stage 2	375	401	-	203	282	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	150.8	23.7	0.2	0.2
HCM LOS	F	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	670	-	-	99	220	879	-	-
HCM Lane V/C Ratio	0.024	-	-	0.933	0.124	0.025	-	-
HCM Control Delay (s)	10.5	0	-	150.8	23.7	9.2	0	-
HCM Lane LOS	B	A	-	F	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	5.5	0.4	0.1	-	-

Intersection	
Int Delay, s/veh	3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	145	420	20	80	600
Future Vol, veh/h	30	145	420	20	80	600
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	8	8	3	3
Mvmt Flow	33	158	457	22	87	652

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1294	468	0	0	479	0
Stage 1	468	-	-	-	-	-
Stage 2	826	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.13	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.227	-
Pot Cap-1 Maneuver	177	589	-	-	1078	-
Stage 1	624	-	-	-	-	-
Stage 2	425	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	155	589	-	-	1078	-
Mov Cap-2 Maneuver	155	-	-	-	-	-
Stage 1	624	-	-	-	-	-
Stage 2	371	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22.1	0	1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	398	1078	-
HCM Lane V/C Ratio	-	-	0.478	0.081	-
HCM Control Delay (s)	-	-	22.1	8.6	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	2.5	0.3	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	0	40	0	5	30	125	645	5	30	840	95
Future Vol, veh/h	5	0	40	0	5	30	125	645	5	30	840	95
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	4	4	4	2	2	2
Mvmt Flow	5	0	43	0	5	33	136	701	5	33	913	103

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2026	2009	965	2028	2058	704	1016	0	0	706	0	0
Stage 1	1031	1031	-	976	976	-	-	-	-	-	-	-
Stage 2	995	978	-	1052	1082	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.14	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.236	-	-	2.218	-	-
Pot Cap-1 Maneuver	43	60	312	43	56	440	675	-	-	892	-	-
Stage 1	284	313	-	305	332	-	-	-	-	-	-	-
Stage 2	297	331	-	276	296	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	25	37	312	26	34	440	675	-	-	892	-	-
Mov Cap-2 Maneuver	25	37	-	26	34	-	-	-	-	-	-	-
Stage 1	190	286	-	204	222	-	-	-	-	-	-	-
Stage 2	179	221	-	217	270	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	45.2	33.7	1.9	0.3
HCM LOS	E	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	675	-	-	137	163	892	-	-
HCM Lane V/C Ratio	0.201	-	-	0.357	0.233	0.037	-	-
HCM Control Delay (s)	11.7	0	-	45.2	33.7	9.2	0	-
HCM Lane LOS	B	A	-	E	D	A	A	-
HCM 95th %tile Q(veh)	0.7	-	-	1.5	0.9	0.1	-	-

Intersection	
Int Delay, s/veh	54.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	130	115	95	495	635	125
Future Vol, veh/h	130	115	95	495	635	125
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	6	6	2	2
Mvmt Flow	141	125	103	538	690	136

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1502	758	826	0	-	0
Stage 1	758	-	-	-	-	-
Stage 2	744	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.16	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.254	-	-	-
Pot Cap-1 Maneuver	~ 133	405	788	-	-	-
Stage 1	461	-	-	-	-	-
Stage 2	468	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 108	405	788	-	-	-
Mov Cap-2 Maneuver	~ 108	-	-	-	-	-
Stage 1	375	-	-	-	-	-
Stage 2	468	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 351.9	1.7	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	788	-	165	-	-
HCM Lane V/C Ratio	0.131	-	1.614	-	-
HCM Control Delay (s)	10.3	0	$ 351.9	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q(veh)	0.5	-	18.2	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	85	0	15	5	0	5	10	500	0	0	660	90
Future Vol, veh/h	85	0	15	5	0	5	10	500	0	0	660	90
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	0	-	-	-	-	-	110	-	-	310
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	0	0	0	7	7	7	2	2	2
Mvmt Flow	92	0	16	5	0	5	11	543	0	0	717	98

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1285	1282	717	1282	1282	543	717	0	0	543	0	0
Stage 1	717	717	-	565	565	-	-	-	-	-	-	-
Stage 2	568	565	-	717	717	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.1	6.5	6.2	4.17	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.5	4	3.3	2.263	-	-	2.218	-	-
Pot Cap-1 Maneuver	142	165	430	144	167	544	861	-	-	1026	-	-
Stage 1	421	434	-	513	511	-	-	-	-	-	-	-
Stage 2	508	508	-	424	437	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	139	162	430	137	164	544	861	-	-	1026	-	-
Mov Cap-2 Maneuver	139	162	-	137	164	-	-	-	-	-	-	-
Stage 1	413	434	-	504	502	-	-	-	-	-	-	-
Stage 2	494	499	-	408	437	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	62.7	22.3	0.2	0
HCM LOS	F	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	861	-	-	139	430	219	1026	-	-
HCM Lane V/C Ratio	0.013	-	-	0.665	0.038	0.05	-	-	-
HCM Control Delay (s)	9.2	0	-	71.4	13.7	22.3	0	-	-
HCM Lane LOS	A	A	-	F	B	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	3.7	0.1	0.2	0	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	5	0	795	1205	0
Future Vol, veh/h	5	5	0	795	1205	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Yield
Storage Length	0	-	135	-	-	220
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	8	8	4	4
Mvmt Flow	5	5	0	864	1310	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2174	1310	1310	0	-	0
Stage 1	1310	-	-	-	-	-
Stage 2	864	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.18	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.272	-	-	-
Pot Cap-1 Maneuver	52	196	509	-	-	-
Stage 1	255	-	-	-	-	-
Stage 2	416	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	52	196	509	-	-	-
Mov Cap-2 Maneuver	52	-	-	-	-	-
Stage 1	255	-	-	-	-	-
Stage 2	416	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	55.5	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	509	-	82	-	-
HCM Lane V/C Ratio	-	-	0.133	-	-
HCM Control Delay (s)	0	-	55.5	-	-
HCM Lane LOS	A	-	F	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	5	5	620	755	5
Future Vol, veh/h	5	5	5	620	755	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	6	0	3	0
Mvmt Flow	5	5	5	674	821	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1508	824	826	0	-	0
Stage 1	824	-	-	-	-	-
Stage 2	684	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.16	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.254	-	-	-
Pot Cap-1 Maneuver	133	373	788	-	-	-
Stage 1	431	-	-	-	-	-
Stage 2	501	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	132	373	788	-	-	-
Mov Cap-2 Maneuver	132	-	-	-	-	-
Stage 1	427	-	-	-	-	-
Stage 2	501	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	24.5	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	788	-	195	-	-
HCM Lane V/C Ratio	0.007	-	0.056	-	-
HCM Control Delay (s)	9.6	-	24.5	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	25	600	25	15	745
Future Vol, veh/h	15	25	600	25	15	745
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	210	465	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	6	7	0	3
Mvmt Flow	16	27	652	27	16	810

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1494	652	0	0	679	0
Stage 1	652	-	-	-	-	-
Stage 2	842	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	137	471	-	-	923	-
Stage 1	522	-	-	-	-	-
Stage 2	426	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	135	471	-	-	923	-
Mov Cap-2 Maneuver	135	-	-	-	-	-
Stage 1	522	-	-	-	-	-
Stage 2	419	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22.9	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	244	923	-
HCM Lane V/C Ratio	-	-	0.178	0.018	-
HCM Control Delay (s)	-	-	22.9	9	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.6	0.1	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	5	5	0	50	0	685	5	80	945	0
Future Vol, veh/h	0	0	5	5	0	50	0	685	5	80	945	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	160	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	2	0	5	0	0	3	0
Mvmt Flow	0	0	5	5	0	54	0	745	5	87	1027	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1976	1951	1027	1952	1949	748	-	0	0	750	0	0
Stage 1	1201	1201	-	748	748	-	-	-	-	-	-	-
Stage 2	775	750	-	1204	1201	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.22	-	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.318	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	47	65	287	49	65	412	0	-	-	868	-	0
Stage 1	228	260	-	408	423	-	0	-	-	-	-	0
Stage 2	394	422	-	227	260	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	38	59	287	44	59	412	-	-	-	868	-	-
Mov Cap-2 Maneuver	38	59	-	44	59	-	-	-	-	-	-	-
Stage 1	228	234	-	408	423	-	-	-	-	-	-	-
Stage 2	342	422	-	200	234	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.8	25.6	0	0.7
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	287	234	868	-
HCM Lane V/C Ratio	-	-	-	0.019	0.255	0.1	-
HCM Control Delay (s)	-	-	0	17.8	25.6	9.6	-
HCM Lane LOS	-	-	A	C	D	A	-
HCM 95th %tile Q(veh)	-	-	-	0.1	1	0.3	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	10	0	15	15	1025	35	5	1145	5
Future Vol, veh/h	0	0	0	10	0	15	15	1025	35	5	1145	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	18	0	0	0	5	7	0	2	0
Mvmt Flow	0	0	0	11	0	16	16	1114	38	5	1245	5

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	1798	2425	576	1250	0	0	1152	0	0
Stage 1	1165	1165	-	-	-	-	-	-	-
Stage 2	633	1260	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.16	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.68	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	60	33	466	564	-	-	614	-	-
Stage 1	228	271	-	-	-	-	-	-	-
Stage 2	450	244	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	54	0	466	564	-	-	614	-	-
Mov Cap-2 Maneuver	54	0	-	-	-	-	-	-	-
Stage 1	210	0	-	-	-	-	-	-	-
Stage 2	438	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	45.7	0.5	0.1
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	564	-	-	115	614	-	-
HCM Lane V/C Ratio	0.029	-	-	0.236	0.009	-	-
HCM Control Delay (s)	11.6	0.4	-	45.7	10.9	0.1	-
HCM Lane LOS	B	A	-	E	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.9	0	-	-

SECTION 3

Design Year 2050 Baseline Delay Reports

HCM 6th Signalized Intersection Summary
201: SR 53 & SR 124

01/18/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	235	30	20	400	590	15	550	30	295	570	250
Future Volume (veh/h)	105	235	30	20	400	590	15	550	30	295	570	250
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1589	1589	1589	1781	1781	1781	1781	1781	1781	1752	1752	1752
Adj Flow Rate, veh/h	114	255	0	22	435	0	16	598	33	321	620	272
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	21	21	21	8	8	8	8	8	8	10	10	10
Cap, veh/h	128	488		148	535		277	849	719	401	1018	863
Arrive On Green	0.05	0.16	0.00	0.06	0.16	0.00	0.01	0.48	0.48	0.11	0.58	0.58
Sat Flow, veh/h	1513	3019	1346	1697	3385	1510	1697	1781	1510	1668	1752	1485
Grp Volume(v), veh/h	114	255	0	22	435	0	16	598	33	321	620	272
Grp Sat Flow(s),veh/h/ln	1513	1509	1346	1697	1692	1510	1697	1781	1510	1668	1752	1485
Q Serve(g_s), s	6.5	10.8	0.0	1.9	17.4	0.0	0.5	37.0	1.6	13.6	32.1	13.2
Cycle Q Clear(g_c), s	6.5	10.8	0.0	1.9	17.4	0.0	0.5	37.0	1.6	13.6	32.1	13.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	128	488		0	535		277	849	719	401	1018	863
V/C Ratio(X)	0.89	0.52		0.00	0.81		0.06	0.70	0.05	0.80	0.61	0.32
Avail Cap(c_a), veh/h	128	1154		0	931		358	849	719	449	1018	863
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.87	0.87	0.87	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.6	53.7	0.0	0.0	56.9	0.0	15.6	28.9	19.6	23.1	19.0	15.0
Incr Delay (d2), s/veh	47.7	0.9	0.0	0.0	3.0	0.0	0.1	4.3	0.1	9.1	2.7	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	4.1	0.0	0.0	7.7	0.0	0.2	16.1	0.6	5.9	13.0	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	82.3	54.6	0.0	0.0	60.0	0.0	15.7	33.1	19.7	32.2	21.7	16.0
LnGrp LOS	F	D		A	E		B	C	B	C	C	B
Approach Vol, veh/h		369			457			647			1213	
Approach Delay, s/veh		63.1			57.1			32.0			23.2	
Approach LOS		E			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.3	88.1	14.5	29.1	22.9	73.4	15.0	28.6
Change Period (Y+Rc), s	6.9	* 6.7	6.5	6.5	6.9	* 6.7	7.9	6.5
Max Green Setting (Gmax), s	8.1	* 58	53.5	53.5	20.1	* 46	7.1	38.5
Max Q Clear Time (g_c+I1), s	2.5	34.1	3.9	12.8	15.6	39.0	8.5	19.4
Green Ext Time (p_c), s	0.0	10.0	0.0	1.6	0.4	3.5	0.0	2.8

Intersection Summary	
HCM 6th Ctrl Delay	36.6
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	165	0	370	745	860	0	0	850	415
Future Volume (veh/h)	0	0	0	165	0	370	745	860	0	0	850	415
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1678	0	1678	1781	1781	0	0	1767	1767
Adj Flow Rate, veh/h				179	0	402	810	935	0	0	924	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				15	0	15	8	8	0	0	9	9
Cap, veh/h				388	0	345	671	2241	0	0	856	
Arrive On Green				0.24	0.00	0.24	0.37	0.66	0.00	0.00	0.26	0.00
Sat Flow, veh/h				1598	0	1422	1697	3474	0	0	3445	1497
Grp Volume(v), veh/h				179	0	402	810	935	0	0	924	0
Grp Sat Flow(s),veh/h/ln				1598	0	1422	1697	1692	0	0	1678	1497
Q Serve(g_s), s				13.4	0.0	34.0	51.1	18.1	0.0	0.0	35.7	0.0
Cycle Q Clear(g_c), s				13.4	0.0	34.0	51.1	18.1	0.0	0.0	35.7	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				388	0	345	671	2241	0	0	856	
V/C Ratio(X)				0.46	0.00	1.16	1.21	0.42	0.00	0.00	1.08	
Avail Cap(c_a), veh/h				388	0	345	671	2241	0	0	856	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.48	0.48	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				45.2	0.0	53.0	38.4	11.0	0.0	0.0	52.2	0.0
Incr Delay (d2), s/veh				1.2	0.0	101.0	100.4	0.3	0.0	0.0	54.5	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.5	0.0	21.8	39.6	6.3	0.0	0.0	21.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				46.4	0.0	154.0	138.9	11.3	0.0	0.0	106.7	0.0
LnGrp LOS				D	A	F	F	B	A	A	F	
Approach Vol, veh/h					581			1745			924	
Approach Delay, s/veh					120.8			70.5			106.7	
Approach LOS					F			E			F	

Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	57.0	42.4				99.4		40.6				
Change Period (Y+Rc), s	* 5.9	6.7				6.7		6.6				
Max Green Setting (Gmax), s	* 51	35.7				92.7		34.0				
Max Q Clear Time (g_c+I1), s	53.1	37.7				20.1		36.0				
Green Ext Time (p_c), s	0.0	0.0				29.8		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		89.8
HCM 6th LOS		F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	0	135	0	0	0	180	785	0	0	820	120
Future Volume (veh/h)	75	0	135	0	0	0	180	785	0	0	820	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1781	1781	1900	1900	1900	1737	1737	1737	1826	1826	1826
Adj Flow Rate, veh/h	82	0	147	0	0	0	196	853	0	0	891	130
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	8	8	8	0	0	0	11	11	11	5	5	5
Cap, veh/h	249	0	175	53	221	0	368	2277	0	51	1767	258
Arrive On Green	0.12	0.00	0.12	0.00	0.00	0.00	0.06	0.69	0.00	0.00	0.58	0.58
Sat Flow, veh/h	1697	0	1510	1810	1900	0	1654	3387	0	631	3038	443
Grp Volume(v), veh/h	82	0	147	0	0	0	196	853	0	0	509	512
Grp Sat Flow(s),veh/h/ln	1697	0	1510	1810	1900	0	1654	1650	0	631	1735	1746
Q Serve(g_s), s	6.3	0.0	13.3	0.0	0.0	0.0	6.7	15.1	0.0	0.0	24.3	24.3
Cycle Q Clear(g_c), s	6.3	0.0	13.3	0.0	0.0	0.0	6.7	15.1	0.0	0.0	24.3	24.3
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		0.25
Lane Grp Cap(c), veh/h	249	0	175	0	221	0	368	2277	0	51	1009	1016
V/C Ratio(X)	0.33	0.00	0.84	0.00	0.00	0.00	0.53	0.37	0.00	0.00	0.50	0.50
Avail Cap(c_a), veh/h	417	0	326	0	410	0	508	2277	0	51	1009	1016
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	0.00	0.91	0.91	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	57.5	0.0	60.6	0.0	0.0	0.0	13.3	9.1	0.0	0.0	17.3	17.3
Incr Delay (d2), s/veh	0.8	0.0	10.1	0.0	0.0	0.0	1.1	0.4	0.0	0.0	1.8	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	5.6	0.0	0.0	0.0	2.4	5.0	0.0	0.0	9.6	9.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.2	0.0	70.7	0.0	0.0	0.0	14.4	9.5	0.0	0.0	19.1	19.1
LnGrp LOS	E	A	E	A	A	A	B	A	A	A	B	B
Approach Vol, veh/h		229			0			1049			1021	
Approach Delay, s/veh		66.2			0.0			10.4			19.1	
Approach LOS		E						B			B	

Timer - Assigned Phs	1	2		4		6	7	8				
Phs Duration (G+Y+Rc), s	15.1	87.9		23.1		103.0	0.0	23.1				
Change Period (Y+Rc), s	6.1	6.4		* 6.8		6.4	* 6.8	* 6.8				
Max Green Setting (Gmax), s	20.9	69.6		* 30		96.6	* 30	* 30				
Max Q Clear Time (g_c+I1), s	8.7	26.3		0.0		17.1	0.0	15.3				
Green Ext Time (p_c), s	0.4	16.0		0.0		14.9	0.0	0.9				

Intersection Summary			
HCM 6th Ctrl Delay		19.8	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	15	245	15	15	15	495	575	60	15	605	0
Future Volume (veh/h)	5	15	245	15	15	15	495	575	60	15	605	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1811	1811	1811	1826	1826	1826	1752	1752	1752
Adj Flow Rate, veh/h	5	16	266	16	16	16	538	625	65	16	658	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	6	6	6	5	5	5	10	10	10
Cap, veh/h	333	363	308	290	164	164	414	1177	998	412	1129	957
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.64	0.64	0.64	0.64	0.64	0.00
Sat Flow, veh/h	1355	1841	1560	1062	831	831	757	1826	1547	705	1752	1485
Grp Volume(v), veh/h	5	16	266	16	0	32	538	625	65	16	658	0
Grp Sat Flow(s),veh/h/ln	1355	1841	1560	1062	0	1662	757	1826	1547	705	1752	1485
Q Serve(g_s), s	0.2	0.6	13.6	1.0	0.0	1.3	35.4	15.2	1.3	1.0	17.6	0.0
Cycle Q Clear(g_c), s	1.5	0.6	13.6	1.6	0.0	1.3	53.0	15.2	1.3	16.2	17.6	0.0
Prop In Lane	1.00		1.00	1.00		0.50	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	333	363	308	290	0	328	414	1177	998	412	1129	957
V/C Ratio(X)	0.01	0.04	0.86	0.06	0.00	0.10	1.30	0.53	0.07	0.04	0.58	0.00
Avail Cap(c_a), veh/h	462	537	455	390	0	485	414	1177	998	412	1129	957
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	27.6	26.7	31.9	27.4	0.0	27.0	27.1	7.9	5.4	12.3	8.3	0.0
Incr Delay (d2), s/veh	0.0	0.0	11.0	0.1	0.0	0.1	151.5	1.7	0.1	0.2	2.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.3	5.9	0.3	0.0	0.5	25.4	4.9	0.3	0.2	5.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.7	26.8	43.0	27.5	0.0	27.1	178.7	9.6	5.5	12.4	10.5	0.0
LnGrp LOS	C	C	D	C	A	C	F	A	A	B	B	A
Approach Vol, veh/h		287			48			1228			674	
Approach Delay, s/veh		41.8			27.2			83.5			10.6	
Approach LOS		D			C			F			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		60.0		22.2		60.0		22.2				
Change Period (Y+Rc), s		7.0		6.0		7.0		6.0				
Max Green Setting (Gmax), s		53.0		24.0		53.0		24.0				
Max Q Clear Time (g_c+I1), s		19.6		3.6		55.0		15.6				
Green Ext Time (p_c), s		9.7		0.1		0.0		0.6				

Intersection Summary		
HCM 6th Ctrl Delay		54.9
HCM 6th LOS		D

Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	5	155	140	5	45	90	815	30	15	805	50
Future Volume (veh/h)	30	5	155	140	5	45	90	815	30	15	805	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1752	1752	1752	1455	1455	1455	1693	1693	1693	1811	1811	1811
Adj Flow Rate, veh/h	33	5	168	152	5	49	98	886	33	16	875	54
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	10	30	30	30	14	14	14	6	6	6
Cap, veh/h	147	220	187	192	16	159	9999	9999	2807	1144	1662	103
Arrive On Green	0.06	0.13	0.13	0.07	0.14	0.14	1.00	1.00	1.00	0.63	0.50	0.50
Sat Flow, veh/h	1668	1752	1485	2689	116	1135	1612	3161	118	1725	3292	203
Grp Volume(v), veh/h	33	5	168	152	0	54	98	451	468	16	457	472
Grp Sat Flow(s),veh/h/ln	1668	1752	1485	1345	0	1251	1612	1608	1671	1725	1721	1775
Q Serve(g_s), s	4.9	0.4	15.6	7.8	0.0	5.4	0.0	0.0	0.0	1.8	25.1	25.1
Cycle Q Clear(g_c), s	4.9	0.4	15.6	7.8	0.0	5.4	0.0	0.0	0.0	1.8	25.1	25.1
Prop In Lane	1.00		1.00	1.00		0.91	1.00		0.07	1.00		0.11
Lane Grp Cap(c), veh/h	0	220	187	192	0	175	38685	38330	39842	0	869	896
V/C Ratio(X)	0.00	0.02	0.90	0.79	0.00	0.31	0.00	0.01	0.01	0.00	0.53	0.53
Avail Cap(c_a), veh/h	0	220	187	211	0	336	38685	38330	39842	0	869	896
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.90	0.90	0.90
Uniform Delay (d), s/veh	0.0	53.7	60.3	64.0	0.0	54.1	0.0	0.0	0.0	0.0	23.4	23.4
Incr Delay (d2), s/veh	0.0	0.0	39.2	20.6	0.0	1.7	0.0	0.0	0.0	0.0	2.1	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	7.9	3.2	0.0	1.8	0.0	0.0	0.0	0.0	10.3	10.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	53.7	99.5	84.6	0.0	55.8	0.0	0.0	0.0	0.0	25.4	25.4
LnGrp LOS	A	D	F	F	A	E	A	A	A	A	C	C
Approach Vol, veh/h		206			206			1017			945	
Approach Delay, s/veh		82.5			77.1			0.0			25.0	
Approach LOS		F			E			A			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	3456.1	77.0	19.0	25.0	95.0	3438.1	15.4	28.6
Change Period (Y+Rc), s	6.5	6.3	9.0	7.4	6.3	* 6.5	7.4	* 9
Max Green Setting (Gmax), s	11.5	70.7	11.0	17.6	88.7	* 89	37.6	* 38
Max Q Clear Time (g_c+I1), s	2.0	27.1	9.8	17.6	3.8	2.0	6.9	7.4
Green Ext Time (p_c), s	0.1	13.9	0.1	0.0	0.1	15.5	0.1	0.4

Intersection Summary	
HCM 6th Ctrl Delay	23.8
HCM 6th LOS	C

Notes

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

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	245	560	15	135	910	125	60	230	105	205	190	340
Future Volume (veh/h)	245	560	15	135	910	125	60	230	105	205	190	340
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1841	1900	1885	1885	1826	1870	1856	1841	1811	1870	1841
Adj Flow Rate, veh/h	266	609	0	147	989	0	65	250	114	223	207	370
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	8	4	0	1	1	5	2	3	4	6	2	4
Cap, veh/h	233	1041		426	956		159	155	71	199	481	401
Arrive On Green	0.11	0.57	0.00	0.05	0.51	0.00	0.13	0.13	0.13	0.09	0.26	0.26
Sat Flow, veh/h	1697	1841	1610	1795	1885	1547	836	1206	550	1725	1870	1560
Grp Volume(v), veh/h	266	609	0	147	989	0	65	0	364	223	207	370
Grp Sat Flow(s),veh/h/ln	1697	1841	1610	1795	1885	1547	836	0	1757	1725	1870	1560
Q Serve(g_s), s	15.0	30.1	0.0	4.8	71.0	0.0	10.3	0.0	18.0	12.0	12.9	32.3
Cycle Q Clear(g_c), s	15.0	30.1	0.0	4.8	71.0	0.0	10.3	0.0	18.0	12.0	12.9	32.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.31	1.00		1.00
Lane Grp Cap(c), veh/h	233	1041		426	956		159	0	226	199	481	401
V/C Ratio(X)	1.14	0.58		0.35	1.03		0.41	0.00	1.61	1.12	0.43	0.92
Avail Cap(c_a), veh/h	233	1041		428	956		159	0	226	199	481	401
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.9	19.7	0.0	15.3	34.5	0.0	57.6	0.0	61.0	52.2	43.4	50.6
Incr Delay (d2), s/veh	102.1	2.4	0.0	0.5	38.4	0.0	1.7	0.0	294.9	99.4	0.6	26.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.6	13.4	0.0	2.0	41.8	0.0	2.3	0.0	26.5	6.9	6.1	15.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	151.0	22.1	0.0	15.8	72.9	0.0	59.3	0.0	355.9	151.6	44.0	77.2
LnGrp LOS	F	C		B	F		E	A	F	F	D	E
Approach Vol, veh/h		875			1136			429			800	
Approach Delay, s/veh		61.3			65.5			311.0			89.4	
Approach LOS		E			E			F			F	

Timer - Assigned Phs	1	2		4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	77.0		42.0	12.8	85.2	18.0	24.0
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	15.0	71.0		36.0	7.0	79.0	12.0	18.0
Max Q Clear Time (g_c+I1), s	17.0	73.0		34.3	6.8	32.1	14.0	20.0
Green Ext Time (p_c), s	0.0	0.0		0.5	0.0	4.8	0.0	0.0

Intersection Summary		
HCM 6th Ctrl Delay		102.8
HCM 6th LOS		F

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	280	5	315	0	0	0	0	1325	100	205	810	0
Future Volume (vph)	280	5	315	0	0	0	0	1325	100	205	810	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	16	16	16	12	12	12	12	12	12
Total Lost time (s)	6.5	6.5	6.5					7.0		7.1	7.0	
Lane Util. Factor	0.95	0.95	1.00					0.95		1.00	1.00	
Frt	1.00	1.00	0.85					0.99		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1491	1497	1404					3307		1641	1727	
Flt Permitted	0.95	0.95	1.00					1.00		0.07	1.00	
Satd. Flow (perm)	1491	1497	1404					3307		128	1727	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	304	5	342	0	0	0	0	1440	109	223	880	0
RTOR Reduction (vph)	0	0	170	0	0	0	0	3	0	0	0	0
Lane Group Flow (vph)	155	154	172	0	0	0	0	1546	0	223	880	0
Heavy Vehicles (%)	15%	15%	15%	0%	0%	0%	8%	8%	8%	10%	10%	10%
Turn Type	Split	NA	Perm					NA		D.P+P	NA	
Protected Phases	4	4						6		5	2	
Permitted Phases			4							6		
Actuated Green, G (s)	22.5	22.5	22.5					79.0		96.9	104.0	
Effective Green, g (s)	22.5	22.5	22.5					79.0		96.9	104.0	
Actuated g/C Ratio	0.16	0.16	0.16					0.56		0.69	0.74	
Clearance Time (s)	6.5	6.5	6.5					7.0		7.1	7.0	
Vehicle Extension (s)	3.0	3.0	3.0					7.0		3.0	7.0	
Lane Grp Cap (vph)	239	240	225					1866		282	1282	
v/s Ratio Prot	0.10	0.10						c0.47		c0.10	0.51	
v/s Ratio Perm			c0.12							0.45		
v/c Ratio	0.65	0.64	0.76					0.83		0.79	0.69	
Uniform Delay, d1	55.0	55.0	56.2					25.0		41.2	9.4	
Progression Factor	1.00	1.00	1.00					1.09		0.63	1.31	
Incremental Delay, d2	5.9	5.8	14.2					2.3		7.5	1.5	
Delay (s)	61.0	60.7	70.4					29.6		33.3	13.9	
Level of Service	E	E	E					C		C	B	
Approach Delay (s)		65.9			0.0			29.6			17.8	
Approach LOS		E			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	32.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.6
Intersection Capacity Utilization	92.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	15.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	35	155	910	15	80	545
Future Vol, veh/h	35	155	910	15	80	545
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	7	7	8	8
Mvmt Flow	38	168	989	16	87	592

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1763	997	0	0	1005	0
Stage 1	997	-	-	-	-	-
Stage 2	766	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.18	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.272	-
Pot Cap-1 Maneuver	93	298	-	-	666	-
Stage 1	359	-	-	-	-	-
Stage 2	461	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	75	298	-	-	666	-
Mov Cap-2 Maneuver	75	-	-	-	-	-
Stage 1	359	-	-	-	-	-
Stage 2	371	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	135.5	0	1.4
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	193	666	-
HCM Lane V/C Ratio	-	-	1.07	0.131	-
HCM Control Delay (s)	-	-	135.5	11.2	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	9.7	0.4	-

Intersection	
Int Delay, s/veh	33.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	35	5	20	15	5	110	65	985	45	35	585	20
Future Vol, veh/h	35	5	20	15	5	110	65	985	45	35	585	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	7	7	7	6	6	6	9	9	9
Mvmt Flow	38	5	22	16	5	120	71	1071	49	38	636	22

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1963	1985	647	1975	1972	1096	658	0	0	1120	0	0
Stage 1	723	723	-	1238	1238	-	-	-	-	-	-	-
Stage 2	1240	1262	-	737	734	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.17	6.57	6.27	4.16	-	-	4.19	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.17	5.57	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.17	5.57	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.563	4.063	3.363	2.254	-	-	2.281	-	-
Pot Cap-1 Maneuver	47	61	471	45	60	254	911	-	-	599	-	-
Stage 1	417	431	-	210	242	-	-	-	-	-	-	-
Stage 2	214	241	-	402	419	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 18	43	471	30	43	254	911	-	-	599	-	-
Mov Cap-2 Maneuver	~ 18	43	-	30	43	-	-	-	-	-	-	-
Stage 1	330	388	-	166	191	-	-	-	-	-	-	-
Stage 2	87	191	-	340	377	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 862.4	87.6	0.6	0.6
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	911	-	-	29	168	599	-	-
HCM Lane V/C Ratio	0.078	-	-	2.249	0.841	0.064	-	-
HCM Control Delay (s)	9.3	0	-	$ 862.4	87.6	11.4	0	-
HCM Lane LOS	A	A	-	F	F	B	A	-
HCM 95th %tile Q(veh)	0.3	-	-	7.7	5.8	0.2	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	4.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	165	645	30	115	375
Future Vol, veh/h	15	165	645	30	115	375
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	7	7	8	8
Mvmt Flow	16	179	701	33	125	408

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1376	718	0	0	734	0
Stage 1	718	-	-	-	-	-
Stage 2	658	-	-	-	-	-
Critical Hdwy	6.44	6.24	-	-	4.18	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	-	-	2.272	-
Pot Cap-1 Maneuver	158	426	-	-	844	-
Stage 1	479	-	-	-	-	-
Stage 2	511	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	128	426	-	-	844	-
Mov Cap-2 Maneuver	128	-	-	-	-	-
Stage 1	479	-	-	-	-	-
Stage 2	413	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	26.7	0	2.3
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	357	844	-
HCM Lane V/C Ratio	-	-	0.548	0.148	-
HCM Control Delay (s)	-	-	26.7	10	0
HCM Lane LOS	-	-	D	B	A
HCM 95th %tile Q(veh)	-	-	3.1	0.5	-

Intersection	
Int Delay, s/veh	10.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	30	5	35	5	5	35	35	1030	0	15	585	20
Future Vol, veh/h	30	5	35	5	5	35	35	1030	0	15	585	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	6	6	6	8	8	8
Mvmt Flow	33	5	38	5	5	38	38	1120	0	16	636	22

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1897	1875	647	1897	1886	1120	658	0	0	1120	0	0
Stage 1	679	679	-	1196	1196	-	-	-	-	-	-	-
Stage 2	1218	1196	-	701	690	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.16	-	-	4.18	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.254	-	-	2.272	-	-
Pot Cap-1 Maneuver	53	72	471	53	71	251	911	-	-	602	-	-
Stage 1	441	451	-	227	259	-	-	-	-	-	-	-
Stage 2	221	259	-	429	446	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	37	61	471	40	61	251	911	-	-	602	-	-
Mov Cap-2 Maneuver	37	61	-	40	61	-	-	-	-	-	-	-
Stage 1	392	432	-	202	231	-	-	-	-	-	-	-
Stage 2	163	231	-	373	427	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	222.5	48.5	0.3	0.3
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	911	-	-	72	130	602	-	-
HCM Lane V/C Ratio	0.042	-	-	1.057	0.376	0.027	-	-
HCM Control Delay (s)	9.1	0	-	222.5	48.5	11.1	0	-
HCM Lane LOS	A	A	-	F	E	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	5.6	1.6	0.1	-	-

Intersection	
Int Delay, s/veh	107.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	120	85	175	805	475	105
Future Vol, veh/h	120	85	175	805	475	105
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	6	6	7	7
Mvmt Flow	130	92	190	875	516	114

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1828	573	630	0	-	0
Stage 1	573	-	-	-	-	-
Stage 2	1255	-	-	-	-	-
Critical Hdwy	6.45	6.25	4.16	-	-	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	2.254	-	-	-
Pot Cap-1 Maneuver	~ 83	513	933	-	-	-
Stage 1	558	-	-	-	-	-
Stage 2	265	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 50	513	933	-	-	-
Mov Cap-2 Maneuver	~ 50	-	-	-	-	-
Stage 1	337	-	-	-	-	-
Stage 2	265	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 918.4	1.8	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	933	-	80	-	-
HCM Lane V/C Ratio	0.204	-	2.785	-	-
HCM Control Delay (s)	9.8	0	$ 918.4	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	0.8	-	21.7	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	51.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	180	0	10	0	0	0	5	800	5	5	480	75
Future Vol, veh/h	180	0	10	0	0	0	5	800	5	5	480	75
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	0	-	-	-	-	-	110	-	-	310
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	0	0	0	6	6	6	7	7	7
Mvmt Flow	196	0	11	0	0	0	5	870	5	5	522	82

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1415	1417	522	1412	1412	870	522	0	0	875	0	0
Stage 1	532	532	-	880	880	-	-	-	-	-	-	-
Stage 2	883	885	-	532	532	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.1	6.5	6.2	4.16	-	-	4.17	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.5	4	3.3	2.254	-	-	2.263	-	-
Pot Cap-1 Maneuver	~ 113	135	549	117	139	354	1024	-	-	751	-	-
Stage 1	526	521	-	345	368	-	-	-	-	-	-	-
Stage 2	336	359	-	535	529	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 111	132	549	113	136	354	1024	-	-	751	-	-
Mov Cap-2 Maneuver	~ 111	132	-	113	136	-	-	-	-	-	-	-
Stage 1	521	516	-	342	364	-	-	-	-	-	-	-
Stage 2	333	355	-	519	524	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 421.2	0	0.1	0.1
HCM LOS	F	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1024	-	-	111	549	-	751	-	-
HCM Lane V/C Ratio	0.005	-	-	1.763	0.02	-	0.007	-	-
HCM Control Delay (s)	8.5	0	-	$ 443.9	11.7	0	9.8	0	-
HCM Lane LOS	A	A	-	F	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	15.4	0.1	-	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	5	5	1240	1110	15
Future Vol, veh/h	0	5	5	1240	1110	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Yield
Storage Length	0	-	135	-	-	220
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	20	20	10	10	10	10
Mvmt Flow	0	5	5	1348	1207	16

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2565	1207	1207	0	-	0
Stage 1	1207	-	-	-	-	-
Stage 2	1358	-	-	-	-	-
Critical Hdwy	6.6	6.4	4.2	-	-	-
Critical Hdwy Stg 1	5.6	-	-	-	-	-
Critical Hdwy Stg 2	5.6	-	-	-	-	-
Follow-up Hdwy	3.68	3.48	2.29	-	-	-
Pot Cap-1 Maneuver	25	205	551	-	-	-
Stage 1	260	-	-	-	-	-
Stage 2	219	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	25	205	551	-	-	-
Mov Cap-2 Maneuver	25	-	-	-	-	-
Stage 1	258	-	-	-	-	-
Stage 2	219	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	23	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	551	-	205	-	-
HCM Lane V/C Ratio	0.01	-	0.027	-	-
HCM Control Delay (s)	11.6	-	23	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	5	50	960	640	5
Future Vol, veh/h	5	5	50	960	640	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	3	5	9	0
Mvmt Flow	5	5	54	1043	696	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1850	699	701	0	-	0
Stage 1	699	-	-	-	-	-
Stage 2	1151	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.13	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.227	-	-	-
Pot Cap-1 Maneuver	83	443	891	-	-	-
Stage 1	497	-	-	-	-	-
Stage 2	304	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	71	443	891	-	-	-
Mov Cap-2 Maneuver	71	-	-	-	-	-
Stage 1	425	-	-	-	-	-
Stage 2	304	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	37.4	0.5	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	891	-	122	-	-
HCM Lane V/C Ratio	0.061	-	0.089	-	-
HCM Control Delay (s)	9.3	-	37.4	-	-
HCM Lane LOS	A	-	E	-	-
HCM 95th %tile Q(veh)	0.2	-	0.3	-	-

Intersection	
Int Delay, s/veh	7.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	80	20	905	60	15	565
Future Vol, veh/h	80	20	905	60	15	565
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	210	460	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	17	6	0	0	10
Mvmt Flow	87	22	984	65	16	614

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1630	984	0	0	1049	0
Stage 1	984	-	-	-	-	-
Stage 2	646	-	-	-	-	-
Critical Hdwy	6.4	6.37	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.453	-	-	2.2	-
Pot Cap-1 Maneuver	113	282	-	-	671	-
Stage 1	365	-	-	-	-	-
Stage 2	526	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	110	282	-	-	671	-
Mov Cap-2 Maneuver	110	-	-	-	-	-
Stage 1	365	-	-	-	-	-
Stage 2	513	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	114.6	0	0.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	125	671	-
HCM Lane V/C Ratio	-	-	0.87	0.024	-
HCM Control Delay (s)	-	-	114.6	10.5	-
HCM Lane LOS	-	-	F	B	-
HCM 95th %tile Q(veh)	-	-	5.4	0.1	-

Intersection	
Int Delay, s/veh	29.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	5	0	215	0	1005	125	265	635	0
Future Vol, veh/h	0	0	0	5	0	215	0	1005	125	265	635	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	160	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	17	0	1	0	6	0	2	9	0
Mvmt Flow	0	0	0	5	0	234	0	1092	136	288	690	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2543	2494	690	2426	2426	1160	-	0	0	1228	0	0
Stage 1	1266	1266	-	1160	1160	-	-	-	-	-	-	-
Stage 2	1277	1228	-	1266	1266	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.27	6.5	6.21	-	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.27	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.27	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.653	4	3.309	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	18	29	445	20	33	239	0	-	-	568	-	0
Stage 1	207	240	-	222	272	-	0	-	-	-	-	0
Stage 2	204	250	-	193	242	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	0	14	445	12	16	239	-	-	-	568	-	-
Mov Cap-2 Maneuver	0	14	-	12	16	-	-	-	-	-	-	-
Stage 1	207	118	-	222	272	-	-	-	-	-	-	-
Stage 2	5	250	-	95	119	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	276.5	0	5.2
HCM LOS	A	F		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	-	167	568	-
HCM Lane V/C Ratio	-	-	-	-	1.432	0.507	-
HCM Control Delay (s)	-	-	0	0	276.5	17.7	-
HCM Lane LOS	-	-	A	A	F	C	-
HCM 95th %tile Q(veh)	-	-	-	-	15	2.9	-

Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	30	0	45	20	1160	50	5	1235	0
Future Vol, veh/h	0	0	0	30	0	45	20	1160	50	5	1235	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	6	0	7	0	6	8	0	6	0
Mvmt Flow	0	0	0	33	0	49	22	1261	54	5	1342	0

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	2013	2684	658	1342	0	0	1315	0	0
Stage 1	1332	1332	-	-	-	-	-	-	-
Stage 2	681	1352	-	-	-	-	-	-	-
Critical Hdwy	6.92	6.5	7.04	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	5.92	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.92	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.56	4	3.37	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	49	22	395	520	-	-	533	-	-
Stage 1	204	225	-	-	-	-	-	-	-
Stage 2	453	220	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	40	0	395	520	-	-	533	-	-
Mov Cap-2 Maneuver	40	0	-	-	-	-	-	-	-
Stage 1	171	0	-	-	-	-	-	-	-
Stage 2	436	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	165.1	1.1	0.2
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	520	-	-	87	533	-	-
HCM Lane V/C Ratio	0.042	-	-	0.937	0.01	-	-
HCM Control Delay (s)	12.2	1	-	165.1	11.8	0.2	-
HCM Lane LOS	B	A	-	F	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	5.2	0	-	-

HCM 6th Signalized Intersection Summary
201: SR 53 & SR 124

01/18/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	620	35	105	340	355	35	540	30	520	970	110
Future Volume (veh/h)	155	620	35	105	340	355	35	540	30	520	970	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1841	1841	1796	1796	1796	1841	1841	1841
Adj Flow Rate, veh/h	168	674	0	114	370	0	38	587	33	565	1054	120
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	4	4	7	7	7	4	4	4
Cap, veh/h	90	783		208	983		1411	5304	4495	2386	5455	4623
Arrive On Green	0.02	0.22	0.00	0.09	0.28	0.00	0.02	1.00	1.00	0.03	1.00	1.00
Sat Flow, veh/h	1753	3497	1560	1753	3497	1560	1711	1796	1522	1753	1841	1560
Grp Volume(v), veh/h	168	674	0	114	370	0	38	587	33	565	1054	120
Grp Sat Flow(s),veh/h/ln	1753	1749	1560	1753	1749	1560	1711	1796	1522	1753	1841	1560
Q Serve(g_s), s	3.1	25.9	0.0	10.2	11.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.1	25.9	0.0	10.2	11.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	90	783		0	983		1411	5304	4495	2386	5455	4623
V/C Ratio(X)	1.86	0.86		0.00	0.38		0.03	0.11	0.01	0.24	0.19	0.03
Avail Cap(c_a), veh/h	90	1024		0	983		1420	5304	4495	2765	5455	4623
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.82	0.82	0.82	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.7	52.2	0.0	0.0	40.5	0.0	0.1	0.0	0.0	0.1	0.0	0.0
Incr Delay (d2), s/veh	426.8	6.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.4	11.8	0.0	0.0	5.2	0.0	0.0	0.1	0.0	0.0	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	478.5	58.2	0.0	0.0	40.7	0.0	0.1	0.0	0.0	0.2	0.1	0.0
LnGrp LOS	F	E		A	D		A	A	A	A	A	A
Approach Vol, veh/h		842			484			658			1739	
Approach Delay, s/veh		142.1			31.1			0.0			0.1	
Approach LOS		F			C			A			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.2	430.3	19.0	37.9	10.7	428.7	11.0	45.8
Change Period (Y+Rc), s	6.9	* 6.7	6.5	6.5	6.9	* 6.7	7.9	6.5
Max Green Setting (Gmax), s	3.0	* 76	41.0	41.0	34.1	* 45	3.1	30.0
Max Q Clear Time (g_c+I1), s	2.0	2.0	12.2	27.9	2.0	2.0	5.1	13.9
Green Ext Time (p_c), s	0.0	30.2	0.3	3.4	1.8	8.8	0.0	2.1

Intersection Summary	
HCM 6th Ctrl Delay	36.2
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	155	0	320	375	1105	0	0	1215	310
Future Volume (veh/h)	0	0	0	155	0	320	375	1105	0	0	1215	310
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1648	0	1648	1796	1796	0	0	1781	1781
Adj Flow Rate, veh/h				168	0	348	408	1201	0	0	1321	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				17	0	17	7	7	0	0	8	8
Cap, veh/h				285	0	253	434	2469	0	0	1690	
Arrive On Green				0.18	0.00	0.18	0.18	0.72	0.00	0.00	0.50	0.00
Sat Flow, veh/h				1570	0	1397	1711	3503	0	0	3474	1510
Grp Volume(v), veh/h				168	0	348	408	1201	0	0	1321	0
Grp Sat Flow(s),veh/h/ln				1570	0	1397	1711	1706	0	0	1692	1510
Q Serve(g_s), s				13.7	0.0	25.4	22.7	21.0	0.0	0.0	44.9	0.0
Cycle Q Clear(g_c), s				13.7	0.0	25.4	22.7	21.0	0.0	0.0	44.9	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				285	0	253	434	2469	0	0	1690	
V/C Ratio(X)				0.59	0.00	1.37	0.94	0.49	0.00	0.00	0.78	
Avail Cap(c_a), veh/h				285	0	253	478	2469	0	0	1690	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.48	0.48	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				52.5	0.0	57.3	37.1	8.3	0.0	0.0	28.8	0.0
Incr Delay (d2), s/veh				3.9	0.0	191.0	15.6	0.3	0.0	0.0	3.7	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.7	0.0	22.4	15.5	6.8	0.0	0.0	18.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				56.4	0.0	248.3	52.7	8.6	0.0	0.0	32.5	0.0
LnGrp LOS				E	A	F	D	A	A	A	C	
Approach Vol, veh/h					516			1609			1321	
Approach Delay, s/veh					185.8			19.8			32.5	
Approach LOS					F			B			C	

Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	31.4	76.6				108.0		32.0				
Change Period (Y+Rc), s	* 5.9	6.7				6.7		6.6				
Max Green Setting (Gmax), s	* 29	66.3				101.3		25.4				
Max Q Clear Time (g_c+I1), s	24.7	46.9				23.0		27.4				
Green Ext Time (p_c), s	0.8	16.8				44.5		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	49.5
HCM 6th LOS	D

Notes

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

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	0	170	0	0	0	235	850	0	0	1030	125
Future Volume (veh/h)	135	0	170	0	0	0	235	850	0	0	1030	125
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1411	1411	1411	1767	1767	1767	1811	1811	1811
Adj Flow Rate, veh/h	147	0	185	0	0	0	255	924	0	0	1120	136
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	33	33	33	9	9	9	6	6	6
Cap, veh/h	293	0	215	52	196	0	334	2364	0	51	1778	216
Arrive On Green	0.14	0.00	0.14	0.00	0.00	0.00	0.17	1.00	0.00	0.00	0.58	0.58
Sat Flow, veh/h	1739	0	1547	1344	1411	0	1682	3445	0	586	3090	375
Grp Volume(v), veh/h	147	0	185	0	0	0	255	924	0	0	623	633
Grp Sat Flow(s),veh/h/ln	1739	0	1547	1344	1411	0	1682	1678	0	586	1721	1744
Q Serve(g_s), s	11.1	0.0	16.4	0.0	0.0	0.0	9.4	0.0	0.0	0.0	33.7	33.9
Cycle Q Clear(g_c), s	11.1	0.0	16.4	0.0	0.0	0.0	9.4	0.0	0.0	0.0	33.7	33.9
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		0.21
Lane Grp Cap(c), veh/h	293	0	215	0	196	0	334	2364	0	51	990	1003
V/C Ratio(X)	0.50	0.00	0.86	0.00	0.00	0.00	0.76	0.39	0.00	0.00	0.63	0.63
Avail Cap(c_a), veh/h	402	0	312	0	284	0	478	2364	0	51	990	1003
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	0.00	0.77	0.77	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	56.7	0.0	58.9	0.0	0.0	0.0	17.1	0.0	0.0	0.0	19.8	19.8
Incr Delay (d2), s/veh	1.3	0.0	15.1	0.0	0.0	0.0	3.5	0.4	0.0	0.0	3.0	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	0.0	7.3	0.0	0.0	0.0	3.4	0.1	0.0	0.0	13.5	13.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.0	0.0	74.0	0.0	0.0	0.0	20.6	0.4	0.0	0.0	22.8	22.8
LnGrp LOS	E	A	E	A	A	A	C	A	A	A	C	C
Approach Vol, veh/h		332			0			1179			1256	
Approach Delay, s/veh		66.9			0.0			4.7			22.8	
Approach LOS		E						A			C	

Timer - Assigned Phs	1	2		4		6	7	8				
Phs Duration (G+Y+Rc), s	18.0	87.0		26.3		105.0	0.0	26.3				
Change Period (Y+Rc), s	6.1	6.4		* 6.8		6.4	* 6.8	* 6.8				
Max Green Setting (Gmax), s	23.9	68.6		* 28		98.6	* 28	* 28				
Max Q Clear Time (g_c+I1), s	11.4	35.9		0.0		2.0	0.0	18.4				
Green Ext Time (p_c), s	0.6	18.5		0.0		17.1	0.0	1.1				

Intersection Summary												
HCM 6th Ctrl Delay			20.4									
HCM 6th LOS			C									

Notes

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

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	45	365	45	20	20	205	565	35	30	1075	5
Future Volume (veh/h)	20	45	365	45	20	20	205	565	35	30	1075	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1900	1900	1900	1826	1826	1826	1856	1856	1856
Adj Flow Rate, veh/h	22	49	397	49	22	22	223	614	38	33	1168	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	0	0	0	5	5	5	3	3	3
Cap, veh/h	419	501	424	316	231	231	80	1077	913	376	1094	927
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.59	0.59	0.59	0.59	0.59	0.59
Sat Flow, veh/h	1373	1885	1598	959	872	872	467	1826	1547	774	1856	1572
Grp Volume(v), veh/h	22	49	397	49	0	44	223	614	38	33	1168	5
Grp Sat Flow(s),veh/h/ln	1373	1885	1598	959	0	1743	467	1826	1547	774	1856	1572
Q Serve(g_s), s	1.1	1.8	21.8	3.6	0.0	1.7	0.0	18.7	0.9	2.5	53.0	0.1
Cycle Q Clear(g_c), s	2.8	1.8	21.8	5.4	0.0	1.7	53.0	18.7	0.9	21.2	53.0	0.1
Prop In Lane	1.00		1.00	1.00		0.50	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	419	501	424	316	0	463	80	1077	913	376	1094	927
V/C Ratio(X)	0.05	0.10	0.94	0.16	0.00	0.10	2.78	0.57	0.04	0.09	1.07	0.01
Avail Cap(c_a), veh/h	421	503	427	317	0	466	80	1077	913	376	1094	927
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.9	24.9	32.3	26.9	0.0	24.9	44.9	11.4	7.8	17.9	18.4	7.6
Incr Delay (d2), s/veh	0.1	0.1	28.0	0.2	0.0	0.1	836.1	2.2	0.1	0.5	47.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.8	11.4	0.8	0.0	0.7	20.3	6.8	0.3	0.5	32.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.0	25.0	60.2	27.1	0.0	25.0	881.1	13.6	7.8	18.4	65.5	7.6
LnGrp LOS	C	C	E	C	A	C	F	B	A	B	F	A
Approach Vol, veh/h		468			93			875			1206	
Approach Delay, s/veh		54.9			26.1			234.4			64.0	
Approach LOS		D			C			F			E	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		60.0		29.9		60.0		29.9				
Change Period (Y+Rc), s		7.0		6.0		7.0		6.0				
Max Green Setting (Gmax), s		53.0		24.0		53.0		24.0				
Max Q Clear Time (g_c+I1), s		55.0		7.4		55.0		23.8				
Green Ext Time (p_c), s		0.0		0.3		0.0		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			117.5									
HCM 6th LOS			F									

Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	45	265	105	15	35	150	1075	105	60	1015	60
Future Volume (veh/h)	50	45	265	105	15	35	150	1075	105	60	1015	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1248	1248	1248	1752	1752	1752	1826	1826	1826
Adj Flow Rate, veh/h	54	49	288	114	16	38	163	1168	114	65	1103	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	44	44	44	10	10	10	5	5	5
Cap, veh/h	170	369	313	163	67	160	433	1582	154	200	1244	73
Arrive On Green	0.07	0.20	0.20	0.07	0.20	0.20	0.46	1.00	1.00	0.09	0.37	0.37
Sat Flow, veh/h	1739	1826	1547	2306	328	779	1668	3064	299	1739	3329	196
Grp Volume(v), veh/h	54	49	288	114	0	54	163	634	648	65	574	594
Grp Sat Flow(s),veh/h/ln	1739	1826	1547	1153	0	1108	1668	1664	1698	1739	1735	1791
Q Serve(g_s), s	7.2	3.1	25.5	6.8	0.0	5.7	3.9	0.0	0.0	8.1	43.4	43.5
Cycle Q Clear(g_c), s	7.2	3.1	25.5	6.8	0.0	5.7	3.9	0.0	0.0	8.1	43.4	43.5
Prop In Lane	1.00		1.00	1.00		0.70	1.00		0.18	1.00		0.11
Lane Grp Cap(c), veh/h	0	369	313	163	0	227	433	859	877	0	648	669
V/C Ratio(X)	0.00	0.13	0.92	0.70	0.00	0.24	0.38	0.74	0.74	0.00	0.89	0.89
Avail Cap(c_a), veh/h	0	456	387	165	0	427	433	859	877	0	648	669
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.73	0.73	0.73
Uniform Delay (d), s/veh	0.0	45.8	54.7	63.6	0.0	46.5	29.8	0.0	0.0	0.0	41.1	41.1
Incr Delay (d2), s/veh	0.0	0.2	23.9	15.5	0.0	0.9	0.5	5.6	5.6	0.0	12.7	12.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.4	12.0	2.4	0.0	1.7	3.2	1.3	1.4	0.0	20.1	20.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	45.9	78.7	79.1	0.0	47.5	30.3	5.6	5.6	0.0	53.8	53.5
LnGrp LOS	A	D	E	E	A	D	C	A	A	A	D	D
Approach Vol, veh/h		391			168			1445			1233	
Approach Delay, s/veh		63.7			69.0			8.4			50.8	
Approach LOS		E			E			A			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	38.5	58.6	18.9	35.7	18.3	78.8	16.9	37.7
Change Period (Y+Rc), s	6.5	6.3	9.0	7.4	6.3	* 6.5	7.4	* 9
Max Green Setting (Gmax), s	13.5	52.3	10.0	35.0	72.3	* 72	54.0	* 54
Max Q Clear Time (g_c+I1), s	5.9	45.5	8.8	27.5	10.1	2.0	9.2	7.7
Green Ext Time (p_c), s	0.2	5.2	0.1	0.8	0.4	27.3	0.3	0.5

Intersection Summary	
HCM 6th Ctrl Delay	34.4
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	405	1060	30	235	710	190	75	230	170	250	310	245
Future Volume (veh/h)	405	1060	30	235	710	190	75	230	170	250	310	245
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1885	1900	1885	1856	1870	1900	1856	1900	1885	1885	1870
Adj Flow Rate, veh/h	440	1152	0	255	772	0	82	250	185	272	337	266
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	1	0	1	3	2	0	3	0	1	1	2
Cap, veh/h	410	1037		180	795		143	127	94	192	471	396
Arrive On Green	0.19	0.55	0.00	0.07	0.43	0.00	0.13	0.13	0.13	0.08	0.25	0.25
Sat Flow, veh/h	1781	1885	1610	1795	1856	1585	1060	991	733	1795	1885	1585
Grp Volume(v), veh/h	440	1152	0	255	772	0	82	0	435	272	337	266
Grp Sat Flow(s),veh/h/ln	1781	1885	1610	1795	1856	1585	1060	0	1724	1795	1885	1585
Q Serve(g_s), s	27.0	77.0	0.0	10.0	57.0	0.0	10.7	0.0	18.0	11.0	22.9	21.2
Cycle Q Clear(g_c), s	27.0	77.0	0.0	10.0	57.0	0.0	16.6	0.0	18.0	11.0	22.9	21.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.43	1.00		1.00
Lane Grp Cap(c), veh/h	410	1037		180	795		143	0	222	192	471	396
V/C Ratio(X)	1.07	1.11		1.42	0.97		0.57	0.00	1.96	1.41	0.72	0.67
Avail Cap(c_a), veh/h	410	1037		180	795		143	0	222	192	471	396
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.7	31.5	0.0	48.4	39.1	0.0	63.3	0.0	61.0	52.8	47.9	47.3
Incr Delay (d2), s/veh	65.4	63.6	0.0	218.0	25.6	0.0	5.4	0.0	449.3	213.7	5.1	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	21.3	52.0	0.0	14.2	31.2	0.0	3.1	0.0	35.5	12.9	11.4	8.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	111.1	95.1	0.0	266.4	64.7	0.0	68.6	0.0	510.3	266.5	53.0	51.7
LnGrp LOS	F	F		F	E		E	A	F	F	D	D
Approach Vol, veh/h		1592			1027			517			875	
Approach Delay, s/veh		99.5			114.8			440.2			119.0	
Approach LOS		F			F			F			F	

Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.0	66.0		41.0	16.0	83.0	17.0	24.0				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	27.0	60.0		35.0	10.0	77.0	11.0	18.0				
Max Q Clear Time (g_c+I1), s	29.0	59.0		24.9	12.0	79.0	13.0	20.0				
Green Ext Time (p_c), s	0.0	0.5		2.2	0.0	0.0	0.0	0.0				

Intersection Summary			
HCM 6th Ctrl Delay		151.6	
HCM 6th LOS		F	

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	445	0	530	0	0	0	0	1035	145	305	1065	0
Future Volume (vph)	445	0	530	0	0	0	0	1035	145	305	1065	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	16	16	16	12	12	12	12	12	12
Total Lost time (s)	6.5	6.5	6.5					7.0		7.1	7.0	
Lane Util. Factor	0.95	0.95	1.00					0.95		1.00	1.00	
Frt	1.00	1.00	0.85					0.98		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1603	1603	1509					3312		1687	1776	
Flt Permitted	0.95	0.95	1.00					1.00		0.10	1.00	
Satd. Flow (perm)	1603	1603	1509					3312		179	1776	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	484	0	576	0	0	0	0	1125	158	332	1158	0
RTOR Reduction (vph)	0	0	114	0	0	0	0	8	0	0	0	0
Lane Group Flow (vph)	242	242	462	0	0	0	0	1275	0	332	1158	0
Heavy Vehicles (%)	7%	7%	7%	0%	0%	0%	7%	7%	7%	7%	7%	7%
Turn Type	Split	NA	Perm					NA		D.P+P	NA	
Protected Phases	4	4						6		5	2	
Permitted Phases			4							6		
Actuated Green, G (s)	23.5	23.5	23.5					68.0		95.9	103.0	
Effective Green, g (s)	23.5	23.5	23.5					68.0		95.9	103.0	
Actuated g/C Ratio	0.17	0.17	0.17					0.49		0.69	0.74	
Clearance Time (s)	6.5	6.5	6.5					7.0		7.1	7.0	
Vehicle Extension (s)	3.0	3.0	3.0					7.0		3.0	7.0	
Lane Grp Cap (vph)	269	269	253					1608		423	1306	
v/s Ratio Prot	0.15	0.15						0.39		0.16	c0.65	
v/s Ratio Perm			c0.31							0.38		
v/c Ratio	0.90	0.90	1.83					0.79		0.78	0.89	
Uniform Delay, d1	57.1	57.1	58.2					30.1		37.2	14.1	
Progression Factor	1.00	1.00	1.00					0.52		0.64	1.08	
Incremental Delay, d2	29.8	29.8	386.8					2.2		5.4	5.5	
Delay (s)	86.9	86.9	445.1					18.0		29.2	20.7	
Level of Service	F	F	F					B		C	C	
Approach Delay (s)		281.5			0.0			18.0			22.6	
Approach LOS		F			A			B			C	

Intersection Summary			
HCM 2000 Control Delay	92.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.6
Intersection Capacity Utilization	100.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	73.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	215	810	20	180	1005
Future Vol, veh/h	20	215	810	20	180	1005
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	5	5	2	2
Mvmt Flow	22	234	880	22	196	1092

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2375	891	0	0	902	0
Stage 1	891	-	-	-	-	-
Stage 2	1484	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.12	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.218	-
Pot Cap-1 Maneuver	38	343	-	-	754	-
Stage 1	402	-	-	-	-	-
Stage 2	209	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 13	343	-	-	754	-
Mov Cap-2 Maneuver	~ 13	-	-	-	-	-
Stage 1	402	-	-	-	-	-
Stage 2	71	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 695.5	0	1.7
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	109	754	-
HCM Lane V/C Ratio	-	-	2.343	0.259	-
HCM Control Delay (s)	-	-	$ 695.5	11.4	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	22.6	1	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	69.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	45	5	60	5	0	30	20	835	35	30	1235	30
Future Vol, veh/h	45	5	60	5	0	30	20	835	35	30	1235	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	3	3	3	5	5	5	2	2	2
Mvmt Flow	49	5	65	5	0	33	22	908	38	33	1342	33

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2396	2415	1359	2431	2412	927	1375	0	0	946	0	0
Stage 1	1425	1425	-	971	971	-	-	-	-	-	-	-
Stage 2	971	990	-	1460	1441	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.13	6.53	6.23	4.15	-	-	4.12	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.527	4.027	3.327	2.245	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 23	33	183	22	33	324	489	-	-	725	-	-
Stage 1	169	202	-	303	330	-	-	-	-	-	-	-
Stage 2	305	326	-	160	197	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 16	24	183	9	24	324	489	-	-	725	-	-
Mov Cap-2 Maneuver	~ 16	24	-	9	24	-	-	-	-	-	-	-
Stage 1	153	162	-	274	298	-	-	-	-	-	-	-
Stage 2	248	295	-	80	158	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, $	1429.7	141.3	0.3	0.2
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	489	-	-	33	59	725	-	-
HCM Lane V/C Ratio	0.044	-	-	3.623	0.645	0.045	-	-
HCM Control Delay (s)	12.7	0	-	$ 1429.7	141.3	10.2	0	-
HCM Lane LOS	B	A	-	F	F	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	14	2.7	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	8.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	35	185	510	30	105	790
Future Vol, veh/h	35	185	510	30	105	790
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	8	8	3	3
Mvmt Flow	38	201	554	33	114	859

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1658	571	0	0	587	0
Stage 1	571	-	-	-	-	-
Stage 2	1087	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.13	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.227	-
Pot Cap-1 Maneuver	106	515	-	-	983	-
Stage 1	559	-	-	-	-	-
Stage 2	319	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	82	515	-	-	983	-
Mov Cap-2 Maneuver	82	-	-	-	-	-
Stage 1	559	-	-	-	-	-
Stage 2	248	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	62.6	0	1.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	280	983	-
HCM Lane V/C Ratio	-	-	0.854	0.116	-
HCM Control Delay (s)	-	-	62.6	9.1	0
HCM Lane LOS	-	-	F	A	A
HCM 95th %tile Q(veh)	-	-	7.3	0.4	-

Intersection	
Int Delay, s/veh	14.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	0	45	0	5	35	170	850	5	35	1140	125
Future Vol, veh/h	5	0	45	0	5	35	170	850	5	35	1140	125
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	4	4	4	2	2	2
Mvmt Flow	5	0	49	0	5	38	185	924	5	38	1239	136

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2701	2682	1307	2705	2748	927	1375	0	0	929	0	0
Stage 1	1383	1383	-	1297	1297	-	-	-	-	-	-	-
Stage 2	1318	1299	-	1408	1451	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.14	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.236	-	-	2.218	-	-
Pot Cap-1 Maneuver	14	22	197	14	20	328	493	-	-	736	-	-
Stage 1	180	213	-	201	234	-	-	-	-	-	-	-
Stage 2	196	234	-	174	197	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	4	197	3	~ 3	328	493	-	-	736	-	-
Mov Cap-2 Maneuver	-	4	-	3	~ 3	-	-	-	-	-	-	-
Stage 1	40	163	-	45	52	-	-	-	-	-	-	-
Stage 2	35	52	-	100	151	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s		$ 778.1	2.8	0.3
HCM LOS	-	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	493	-	-	-	23	736	-	-
HCM Lane V/C Ratio	0.375	-	-	-	1.89	0.052	-	-
HCM Control Delay (s)	16.6	0	-	-	$ 778.1	10.2	0	-
HCM Lane LOS	C	A	-	-	F	B	A	-
HCM 95th %tile Q(veh)	1.7	-	-	-	5.5	0.2	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	238.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	155	130	120	675	860	165
Future Vol, veh/h	155	130	120	675	860	165
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	6	6	2	2
Mvmt Flow	168	141	130	734	935	179

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2019	1025	1114	0	-	0
Stage 1	1025	-	-	-	-	-
Stage 2	994	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.16	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.254	-	-	-
Pot Cap-1 Maneuver	~ 64	284	612	-	-	-
Stage 1	345	-	-	-	-	-
Stage 2	357	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 41	284	612	-	-	-
Mov Cap-2 Maneuver	~ 41	-	-	-	-	-
Stage 1	221	-	-	-	-	-
Stage 2	357	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, $	1755.3	1.9	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	612	-	67	-	-
HCM Lane V/C Ratio	0.213	-	4.624	-	-
HCM Control Delay (s)	12.5	$	1755.3	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q(veh)	0.8	-	33.8	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	31.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	110	0	20	5	0	5	15	680	0	0	870	120
Future Vol, veh/h	110	0	20	5	0	5	15	680	0	0	870	120
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	0	-	-	-	-	-	110	-	-	310
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	0	0	0	7	7	7	2	2	2
Mvmt Flow	120	0	22	5	0	5	16	739	0	0	946	130

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1720	1717	946	1717	1717	739	946	0	0	739	0	0
Stage 1	946	946	-	771	771	-	-	-	-	-	-	-
Stage 2	774	771	-	946	946	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.1	6.5	6.2	4.17	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.5	4	3.3	2.263	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 70	90	317	72	91	421	705	-	-	867	-	-
Stage 1	314	340	-	396	413	-	-	-	-	-	-	-
Stage 2	391	410	-	317	343	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 67	86	317	65	87	421	705	-	-	867	-	-
Mov Cap-2 Maneuver	~ 67	86	-	65	87	-	-	-	-	-	-	-
Stage 1	302	340	-	381	397	-	-	-	-	-	-	-
Stage 2	371	394	-	295	343	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s$	432.4	40.2	0.2	0
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	705	-	-	67	317	113	867	-	-
HCM Lane V/C Ratio	0.023	-	-	1.785	0.069	0.096	-	-	-
HCM Control Delay (s)	10.2	0	-	$ 507.9	17.2	40.2	0	-	-
HCM Lane LOS	B	A	-	F	C	E	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	10.7	0.2	0.3	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	5	0	1050	1595	0
Future Vol, veh/h	5	5	0	1050	1595	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Yield
Storage Length	0	-	135	-	-	220
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	8	8	4	4
Mvmt Flow	5	5	0	1141	1734	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2875	1734	1734	0	-	0
Stage 1	1734	-	-	-	-	-
Stage 2	1141	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.18	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.272	-	-	-
Pot Cap-1 Maneuver	18	110	348	-	-	-
Stage 1	158	-	-	-	-	-
Stage 2	307	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	18	110	348	-	-	-
Mov Cap-2 Maneuver	18	-	-	-	-	-
Stage 1	158	-	-	-	-	-
Stage 2	307	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	174.2	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	348	-	31	-	-
HCM Lane V/C Ratio	-	-	0.351	-	-
HCM Control Delay (s)	0	-	174.2	-	-
HCM Lane LOS	A	-	F	-	-
HCM 95th %tile Q(veh)	0	-	1.1	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	5	10	820	1020	10
Future Vol, veh/h	10	5	10	820	1020	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	6	3	0
Mvmt Flow	11	5	11	891	1109	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2028	1115	1120	0	-	0
Stage 1	1115	-	-	-	-	-
Stage 2	913	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	64	255	631	-	-	-
Stage 1	316	-	-	-	-	-
Stage 2	395	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	62	255	631	-	-	-
Mov Cap-2 Maneuver	62	-	-	-	-	-
Stage 1	305	-	-	-	-	-
Stage 2	395	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	58.7	0.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	631	-	83	-	-
HCM Lane V/C Ratio	0.017	-	0.196	-	-
HCM Control Delay (s)	10.8	-	58.7	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	0.1	-	0.7	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	35	795	35	20	1005
Future Vol, veh/h	25	35	795	35	20	1005
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	210	460	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	6	7	0	3
Mvmt Flow	27	38	864	38	22	1092

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2000	864	0	0	902	0
Stage 1	864	-	-	-	-	-
Stage 2	1136	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	67	357	-	-	762	-
Stage 1	416	-	-	-	-	-
Stage 2	309	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	65	357	-	-	762	-
Mov Cap-2 Maneuver	65	-	-	-	-	-
Stage 1	416	-	-	-	-	-
Stage 2	300	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	62.5	0	0.2
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	124	762	-
HCM Lane V/C Ratio	-	-	0.526	0.029	-
HCM Control Delay (s)	-	-	62.5	9.9	-
HCM Lane LOS	-	-	F	A	-
HCM 95th %tile Q(veh)	-	-	2.5	0.1	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	5	5	0	65	0	905	5	105	1285	0
Future Vol, veh/h	0	0	5	5	0	65	0	905	5	105	1285	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	160	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	0	0	2	0	5	0	0	3	0
Mvmt Flow	0	0	5	5	0	71	0	984	5	114	1397	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2647	2614	1397	2615	2612	987	-	0	0	989	0	0
Stage 1	1625	1625	-	987	987	-	-	-	-	-	-	-
Stage 2	1022	989	-	1628	1625	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.1	6.5	6.22	-	-	-	4.1	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.5	4	3.318	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	15	24	173	16	25	300	0	-	-	707	-	0
Stage 1	129	161	-	300	328	-	0	-	-	-	-	0
Stage 2	285	325	-	130	162	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	10	20	173	14	21	300	-	-	-	707	-	-
Mov Cap-2 Maneuver	10	20	-	14	21	-	-	-	-	-	-	-
Stage 1	129	135	-	300	328	-	-	-	-	-	-	-
Stage 2	218	325	-	106	136	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	26.5	74.1	0	0.8
HCM LOS	D	F		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	173	122	707	-
HCM Lane V/C Ratio	-	-	-	0.031	0.624	0.161	-
HCM Control Delay (s)	-	-	0	26.5	74.1	11.1	-
HCM Lane LOS	-	-	A	D	F	B	-
HCM 95th %tile Q(veh)	-	-	-	0.1	3.2	0.6	-

Intersection	
Int Delay, s/veh	8.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	15	0	20	20	1360	45	5	1510	5
Future Vol, veh/h	0	0	0	15	0	20	20	1360	45	5	1510	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	18	0	0	0	5	7	0	2	0
Mvmt Flow	0	0	0	16	0	22	22	1478	49	5	1641	5

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	2378	3203	764	1646	0	0	1527	0	0
Stage 1	1547	1547	-	-	-	-	-	-	-
Stage 2	831	1656	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.16	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.68	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	23	10	351	398	-	-	442	-	-
Stage 1	138	177	-	-	-	-	-	-	-
Stage 2	350	157	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	~ 12	0	351	398	-	-	442	-	-
Mov Cap-2 Maneuver	~ 12	0	-	-	-	-	-	-	-
Stage 1	86	0	-	-	-	-	-	-	-
Stage 2	303	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 535.3	2.8	0.9
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	398	-	-	27	442	-	-
HCM Lane V/C Ratio	0.055	-	-	1.409	0.012	-	-
HCM Control Delay (s)	14.6	2.7	-	$ 535.3	13.2	0.9	-
HCM Lane LOS	B	A	-	F	B	A	-
HCM 95th %tile Q(veh)	0.2	-	-	4.5	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

SECTION 4

Open Year 2030 With Operational Improvements Delay Reports

MOVEMENT SUMMARY

Site: 1 [SR 53 @ New Cut Rd 2030 AM (With Operational Improvements)]

SR 53 @ New Cut Rd - 2030 AM
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: SR 53											
3	L2	11	11.5	0.425	6.6	LOS A	3.5	94.9	0.24	0.09	34.2
8	T1	576	11.5	0.425	6.6	LOS A	3.5	94.9	0.24	0.09	34.2
18	R2	49	11.5	0.035	2.9	LOS A	0.2	5.1	0.15	0.04	35.2
Approach		636	11.5	0.425	6.3	LOS A	3.5	94.9	0.24	0.09	34.3
East: New Cut Rd											
1	L2	207	4.0	0.463	11.6	LOS B	3.6	93.4	0.82	0.83	30.6
6	T1	43	4.0	0.463	11.6	LOS B	3.6	93.4	0.82	0.83	30.6
16	R2	82	4.0	0.463	11.6	LOS B	3.6	93.4	0.82	0.83	29.8
Approach		332	4.0	0.463	11.6	LOS B	3.6	93.4	0.82	0.83	30.4
North: SR 53											
7	L2	16	5.5	0.206	5.5	LOS A	1.3	35.0	0.54	0.37	34.8
4	T1	429	5.5	0.206	5.2	LOS A	1.4	36.4	0.53	0.36	35.0
14	R2	5	5.5	0.206	4.9	LOS A	1.4	36.4	0.53	0.35	34.1
Approach		451	5.5	0.206	5.2	LOS A	1.4	36.4	0.54	0.36	35.0
West: Ednaville Rd											
5	L2	5	13.5	0.030	5.2	LOS A	0.1	3.3	0.55	0.43	34.2
2	T1	16	13.5	0.030	5.2	LOS A	0.1	3.3	0.55	0.43	34.3
12	R2	38	13.5	0.051	5.4	LOS A	0.2	5.8	0.55	0.45	33.8
Approach		60	13.5	0.051	5.3	LOS A	0.2	5.8	0.55	0.45	34.0
All Vehicles		1478	8.1	0.463	7.1	LOS A	3.6	94.9	0.47	0.35	33.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SIDRA INTERSECTION 7.0 | Copyright © 2000-2017 Akcelik and Associates Pty Ltd | sidrasolutions.com



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	180	20	15	300	585	10	415	20	225	435	190
Future Volume (veh/h)	80	180	20	15	300	585	10	415	20	225	435	190
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1589	1589	1589	1781	1781	1781	1781	1781	1781	1752	1752	1752
Adj Flow Rate, veh/h	87	196	0	16	326	0	11	451	22	245	473	207
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	21	21	21	8	8	8	8	8	8	10	10	10
Cap, veh/h	97	322		148	419		357	1019	863	669	1119	948
Arrive On Green	0.03	0.11	0.00	0.06	0.12	0.00	0.01	1.00	1.00	0.02	0.21	0.21
Sat Flow, veh/h	1513	3019	1346	1697	3385	1510	1697	1781	1510	1668	1752	1485
Grp Volume(v), veh/h	87	196	0	16	326	0	11	451	22	245	473	207
Grp Sat Flow(s),veh/h/ln	1513	1509	1346	1697	1692	1510	1697	1781	1510	1668	1752	1485
Q Serve(g_s), s	4.2	8.7	0.0	1.4	13.1	0.0	0.3	0.0	0.0	8.1	32.8	16.1
Cycle Q Clear(g_c), s	4.2	8.7	0.0	1.4	13.1	0.0	0.3	0.0	0.0	8.1	32.8	16.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	97	322		0	419		357	1019	863	669	1119	948
V/C Ratio(X)	0.90	0.61		0.00	0.78		0.03	0.44	0.03	0.37	0.42	0.22
Avail Cap(c_a), veh/h	97	1242		0	1100		382	1019	863	736	1119	948
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.95	0.95	0.95	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.9	59.7	0.0	0.0	59.5	0.0	12.6	0.0	0.0	10.7	32.9	26.3
Incr Delay (d2), s/veh	59.9	1.9	0.0	0.0	3.1	0.0	0.0	1.3	0.1	0.3	1.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	3.3	0.0	0.0	5.8	0.0	0.1	0.4	0.0	3.2	15.7	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	98.7	61.6	0.0	0.0	62.6	0.0	12.6	1.3	0.1	11.1	34.1	26.9
LnGrp LOS	F	E		A	E		B	A	A	B	C	C
Approach Vol, veh/h		283			342			484			925	
Approach Delay, s/veh		73.0			59.7			1.5			26.4	
Approach LOS		E			E			A			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	96.1	14.5	21.4	17.3	86.8	12.1	23.8
Change Period (Y+Rc), s	6.9	* 6.7	6.5	6.5	6.9	* 6.7	7.9	6.5
Max Green Setting (Gmax), s	3.1	* 59	57.6	57.6	16.1	* 46	4.2	45.5
Max Q Clear Time (g_c+I1), s	2.3	34.8	3.4	10.7	10.1	2.0	6.2	15.1
Green Ext Time (p_c), s	0.0	7.2	0.0	1.2	0.3	6.2	0.0	2.3

Intersection Summary	
HCM 6th Ctrl Delay	32.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	125	0	280	560	650	0	0	645	315
Future Volume (veh/h)	0	0	0	125	0	280	560	650	0	0	645	315
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1678	0	1678	1781	1781	0	0	1767	1767
Adj Flow Rate, veh/h				136	0	304	609	707	0	0	701	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				15	0	15	8	8	0	0	9	9
Cap, veh/h				365	0	325	671	2239	0	0	1238	
Arrive On Green				0.23	0.00	0.23	0.25	0.66	0.00	0.00	0.74	0.00
Sat Flow, veh/h				1598	0	1422	1697	3474	0	0	3445	1497
Grp Volume(v), veh/h				136	0	304	609	707	0	0	701	0
Grp Sat Flow(s),veh/h/ln				1598	0	1422	1697	1692	0	0	1678	1497
Q Serve(g_s), s				10.0	0.0	29.4	29.8	12.5	0.0	0.0	13.2	0.0
Cycle Q Clear(g_c), s				10.0	0.0	29.4	29.8	12.5	0.0	0.0	13.2	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				365	0	325	671	2239	0	0	1238	
V/C Ratio(X)				0.37	0.00	0.93	0.91	0.32	0.00	0.00	0.57	
Avail Cap(c_a), veh/h				389	0	346	857	2239	0	0	1238	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)				1.00	0.00	1.00	0.77	0.77	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				45.5	0.0	53.0	19.2	10.1	0.0	0.0	13.3	0.0
Incr Delay (d2), s/veh				0.9	0.0	31.7	9.8	0.3	0.0	0.0	1.9	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.1	0.0	13.3	12.5	4.4	0.0	0.0	3.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				46.4	0.0	84.7	29.0	10.4	0.0	0.0	15.2	0.0
LnGrp LOS				D	A	F	C	B	A	A	B	
Approach Vol, veh/h					440			1316			701	
Approach Delay, s/veh					72.8			19.0			15.2	
Approach LOS					E			B			B	

Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	41.0	58.3				99.3		38.6				
Change Period (Y+Rc), s	* 5.9	6.7				6.7		6.6				
Max Green Setting (Gmax), s	* 50	36.3				92.6		34.1				
Max Q Clear Time (g_c+I1), s	31.8	15.2				14.5		31.4				
Green Ext Time (p_c), s	3.2	11.2				20.0		0.7				

Intersection Summary		
HCM 6th Ctrl Delay		27.6
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	0	100	0	0	0	135	595	0	0	620	90
Future Volume (veh/h)	55	0	100	0	0	0	135	595	0	0	620	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1781	1781	1900	1900	1900	1737	1737	1737	1826	1826	1826
Adj Flow Rate, veh/h	60	0	109	0	0	0	147	647	0	0	674	98
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	8	8	8	0	0	0	11	11	11	5	5	5
Cap, veh/h	205	0	137	53	172	0	420	2159	0	51	1691	246
Arrive On Green	0.09	0.00	0.09	0.00	0.00	0.00	0.05	0.65	0.00	0.00	0.56	0.56
Sat Flow, veh/h	1697	0	1510	1810	1900	0	1654	3387	0	765	3040	441
Grp Volume(v), veh/h	60	0	109	0	0	0	147	647	0	0	384	388
Grp Sat Flow(s),veh/h/ln	1697	0	1510	1810	1900	0	1654	1650	0	765	1735	1746
Q Serve(g_s), s	4.7	0.0	9.9	0.0	0.0	0.0	5.3	11.8	0.0	0.0	17.7	17.7
Cycle Q Clear(g_c), s	4.7	0.0	9.9	0.0	0.0	0.0	5.3	11.8	0.0	0.0	17.7	17.7
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		0.25
Lane Grp Cap(c), veh/h	205	0	137	0	172	0	420	2159	0	51	965	972
V/C Ratio(X)	0.29	0.00	0.80	0.00	0.00	0.00	0.35	0.30	0.00	0.00	0.40	0.40
Avail Cap(c_a), veh/h	478	0	380	0	478	0	601	2159	0	51	965	972
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	0.00	0.96	0.96	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	60.0	0.0	62.4	0.0	0.0	0.0	13.1	10.4	0.0	0.0	17.7	17.7
Incr Delay (d2), s/veh	0.8	0.0	10.2	0.0	0.0	0.0	0.5	0.3	0.0	0.0	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	4.2	0.0	0.0	0.0	1.9	4.1	0.0	0.0	7.1	7.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.8	0.0	72.6	0.0	0.0	0.0	13.6	10.7	0.0	0.0	18.9	18.9
LnGrp LOS	E	A	E	A	A	A	B	B	A	A	B	B
Approach Vol, veh/h		169			0			794			772	
Approach Delay, s/veh		68.4			0.0			11.3			18.9	
Approach LOS		E						B			B	

Timer - Assigned Phs	1	2		4		6	7	8				
Phs Duration (G+Y+Rc), s	13.7	84.3		19.5		98.0	0.0	19.5				
Change Period (Y+Rc), s	6.1	6.4		* 6.8		6.4	* 6.8	* 6.8				
Max Green Setting (Gmax), s	22.9	62.6		* 35		91.6	* 35	* 35				
Max Q Clear Time (g_c+I1), s	7.3	19.7		0.0		13.8	0.0	11.9				
Green Ext Time (p_c), s	0.3	10.8		0.0		10.0	0.0	0.8				

Intersection Summary		
HCM 6th Ctrl Delay		20.2
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	10	185	10	10	10	375	430	45	10	460	0
Future Volume (veh/h)	5	10	185	10	10	10	375	430	45	10	460	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1811	1811	1811	1826	1826	1826	1752	1752	1752
Adj Flow Rate, veh/h	5	11	201	11	11	11	408	467	49	11	500	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	6	6	6	5	5	5	10	10	10
Cap, veh/h	252	265	224	230	124	124	755	1231	1043	538	996	844
Arrive On Green	0.01	0.14	0.14	0.01	0.15	0.15	0.12	0.67	0.67	0.02	1.00	0.00
Sat Flow, veh/h	1753	1841	1560	1725	831	831	1739	1826	1547	1668	1752	1485
Grp Volume(v), veh/h	5	11	201	11	0	22	408	467	49	11	500	0
Grp Sat Flow(s),veh/h/ln	1753	1841	1560	1725	0	1662	1739	1826	1547	1668	1752	1485
Q Serve(g_s), s	0.3	0.7	17.7	0.8	0.0	1.6	13.4	15.7	1.5	0.3	0.0	0.0
Cycle Q Clear(g_c), s	0.3	0.7	17.7	0.8	0.0	1.6	13.4	15.7	1.5	0.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.50	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	252	265	224	230	0	249	755	1231	1043	538	996	844
V/C Ratio(X)	0.02	0.04	0.90	0.05	0.00	0.09	0.54	0.38	0.05	0.02	0.50	0.00
Avail Cap(c_a), veh/h	303	355	301	270	0	320	941	1231	1043	577	996	844
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.86	0.86	0.00
Uniform Delay (d), s/veh	50.0	51.6	58.9	50.2	0.0	51.3	9.0	10.0	7.7	7.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	22.5	0.1	0.0	0.2	0.6	0.9	0.1	0.0	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.3	8.4	0.3	0.0	0.7	4.7	6.0	0.5	0.1	0.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.0	51.7	81.4	50.3	0.0	51.4	9.6	10.9	7.8	7.7	1.6	0.0
LnGrp LOS	D	D	F	D	A	D	A	B	A	A	A	A
Approach Vol, veh/h		217			33			924			511	
Approach Delay, s/veh		79.2			51.0			10.1			1.7	
Approach LOS		E			D			B			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	86.6	5.4	27.0	6.2	101.4	6.2	26.1
Change Period (Y+Rc), s	4.5	7.0	4.5	6.0	4.5	7.0	4.5	6.0
Max Green Setting (Gmax), s	31.5	54.5	5.0	27.0	5.0	81.0	5.0	27.0
Max Q Clear Time (g_c+I1), s	15.4	2.0	2.3	3.6	2.3	17.7	2.8	19.7
Green Ext Time (p_c), s	1.1	7.0	0.0	0.1	0.0	6.9	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	17.3
HCM 6th LOS	B

Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	5	15	10	5	85	45	745	35	30	430	15
Future Volume (veh/h)	30	5	15	10	5	85	45	745	35	30	430	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1796	1796	1796	1811	1811	1811	1767	1767	1767
Adj Flow Rate, veh/h	33	5	16	11	5	0	49	810	38	33	467	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	7	7	7	6	6	6	9	9	9
Cap, veh/h	86	13	24	96	35		86	1363	63	93	1281	43
Arrive On Green	0.05	0.05	0.05	0.05	0.05	0.00	1.00	1.00	1.00	0.86	0.86	0.86
Sat Flow, veh/h	836	249	457	979	660	0	69	1584	73	76	1488	50
Grp Volume(v), veh/h	54	0	0	16	0	0	897	0	0	516	0	0
Grp Sat Flow(s),veh/h/ln	1541	0	0	1639	0	0	1726	0	0	1614	0	0
Q Serve(g_s), s	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.7	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	8.1	0.0	0.0
Prop In Lane	0.61		0.30	0.69		0.00	0.05		0.04	0.06		0.03
Lane Grp Cap(c), veh/h	124	0	0	131	0		1513	0	0	1417	0	0
V/C Ratio(X)	0.44	0.00	0.00	0.12	0.00		0.59	0.00	0.00	0.36	0.00	0.00
Avail Cap(c_a), veh/h	215	0	0	219	0		1513	0	0	1417	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.83	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	64.9	0.0	0.0	63.3	0.0	0.0	0.0	0.0	0.0	1.9	0.0	0.0
Incr Delay (d2), s/veh	2.4	0.0	0.0	0.4	0.0	0.0	1.4	0.0	0.0	0.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	2.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.3	0.0	0.0	63.7	0.0	0.0	1.4	0.0	0.0	2.6	0.0	0.0
LnGrp LOS	E	A	A	E	A		A	A	A	A	A	A
Approach Vol, veh/h		54			16			897			516	
Approach Delay, s/veh		67.3			63.7			1.4			2.6	
Approach LOS		E			E			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		126.5		13.5		126.5		13.5				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		112.0		16.0		112.0		16.0				
Max Q Clear Time (g_c+I1), s		10.1		6.7		2.0		3.2				
Green Ext Time (p_c), s		4.1		0.1		9.3		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			4.9									
HCM 6th LOS			A									

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	5	115	105	5	35	65	615	20	10	610	40
Future Volume (veh/h)	20	5	115	105	5	35	65	615	20	10	610	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1752	1752	1752	1455	1455	1455	1693	1693	1693	1811	1811	1811
Adj Flow Rate, veh/h	22	5	125	114	5	38	71	668	22	11	663	43
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	10	30	30	30	14	14	14	6	6	6
Cap, veh/h	147	175	148	190	17	126	9999	9999	1308	873	1188	77
Arrive On Green	0.06	0.10	0.10	0.07	0.11	0.11	1.00	1.00	1.00	0.48	0.36	0.36
Sat Flow, veh/h	1668	1752	1485	2689	146	1110	1612	3177	105	1725	3281	213
Grp Volume(v), veh/h	22	5	125	114	0	43	71	338	352	11	347	359
Grp Sat Flow(s),veh/h/ln	1668	1752	1485	1345	0	1256	1612	1608	1674	1725	1721	1773
Q Serve(g_s), s	2.9	0.4	11.6	5.8	0.0	4.4	0.0	0.0	0.0	1.4	22.6	22.6
Cycle Q Clear(g_c), s	2.9	0.4	11.6	5.8	0.0	4.4	0.0	0.0	0.0	1.4	22.6	22.6
Prop In Lane	1.00		1.00	1.00		0.88	1.00		0.06	1.00		0.12
Lane Grp Cap(c), veh/h	0	175	148	190	0	142	20390	20104	20927	0	623	642
V/C Ratio(X)	0.00	0.03	0.84	0.60	0.00	0.30	0.00	0.02	0.02	0.00	0.56	0.56
Avail Cap(c_a), veh/h	0	470	399	250	0	535	20390	20104	20927	0	623	642
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.96	0.96	0.96
Uniform Delay (d), s/veh	0.0	56.9	61.9	63.1	0.0	57.0	0.0	0.0	0.0	0.0	35.7	35.7
Incr Delay (d2), s/veh	0.0	0.1	12.1	6.4	0.0	2.0	0.0	0.0	0.0	0.0	3.4	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	4.9	2.2	0.0	1.5	0.0	0.0	0.0	0.0	9.8	10.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	57.0	74.0	69.5	0.0	59.0	0.0	0.0	0.0	0.0	39.1	39.0
LnGrp LOS	A	E	E	E	A	E	A	A	A	A	D	D
Approach Vol, veh/h		152			157			761			717	
Approach Delay, s/veh		62.8			66.6			0.0			38.5	
Approach LOS		E			E			A			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	1819.4	57.0	18.9	21.4	73.0	1803.4	15.4	24.9
Change Period (Y+Rc), s	6.5	6.3	9.0	7.4	6.3	* 6.5	7.4	* 9
Max Green Setting (Gmax), s	9.5	50.7	13.0	37.6	66.7	* 67	59.6	* 60
Max Q Clear Time (g_c+I1), s	2.0	24.6	7.8	13.6	3.4	2.0	4.9	6.4
Green Ext Time (p_c), s	0.1	8.2	0.3	0.4	0.0	9.8	0.1	0.4

Intersection Summary	
HCM 6th Ctrl Delay	26.6
HCM 6th LOS	C

Notes

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

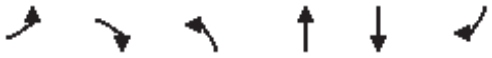
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	5	30	5	5	30	30	775	0	10	430	15
Future Volume (veh/h)	20	5	30	5	5	30	30	775	0	10	430	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1811	1811	1811	1781	1781	1781
Adj Flow Rate, veh/h	22	5	33	5	5	33	33	842	0	11	467	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	6	6	6	8	8	8
Cap, veh/h	62	15	50	34	16	71	810	1554	0	41	1429	48
Arrive On Green	0.06	0.06	0.06	0.06	0.06	0.06	1.00	1.00	0.00	1.00	1.00	1.00
Sat Flow, veh/h	472	263	899	100	284	1265	883	1811	0	17	1665	56
Grp Volume(v), veh/h	60	0	0	43	0	0	33	842	0	494	0	0
Grp Sat Flow(s),veh/h/ln	1634	0	0	1649	0	0	883	1811	0	1739	0	0
Q Serve(g_s), s	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.8	0.0	0.0	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.37		0.55	0.12		0.77	1.00		0.00	0.02		0.03
Lane Grp Cap(c), veh/h	127	0	0	121	0	0	810	1554	0	1519	0	0
V/C Ratio(X)	0.47	0.00	0.00	0.35	0.00	0.00	0.04	0.54	0.00	0.33	0.00	0.00
Avail Cap(c_a), veh/h	183	0	0	179	0	0	810	1554	0	1519	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.73	0.73	0.00	0.93	0.00	0.00
Uniform Delay (d), s/veh	64.6	0.0	0.0	64.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	2.7	0.0	0.0	1.8	0.0	0.0	0.1	1.0	0.0	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	0.0	1.6	0.0	0.0	0.0	0.4	0.0	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.3	0.0	0.0	65.8	0.0	0.0	0.1	1.0	0.0	0.5	0.0	0.0
LnGrp LOS	E	A	A	E	A	A	A	A	A	A	A	A
Approach Vol, veh/h		60			43			875			494	
Approach Delay, s/veh		67.3			65.8			1.0			0.5	
Approach LOS		E			E			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		126.1		13.9		126.1		13.9				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		115.0		13.0		115.0		13.0				
Max Q Clear Time (g_c+I1), s		2.0		6.8		2.0		5.6				
Green Ext Time (p_c), s		3.6		0.1		8.2		0.1				

Intersection Summary												
HCM 6th Ctrl Delay			5.4									
HCM 6th LOS			A									



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	100	75	135	595	355	80
Future Volume (veh/h)	100	75	135	595	355	80
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1826	1826	1811	1811	1796	1796
Adj Flow Rate, veh/h	109	82	147	647	386	87
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	6	6	7	7
Cap, veh/h	123	92	244	1024	1142	257
Arrive On Green	0.13	0.13	1.00	1.00	1.00	1.00
Sat Flow, veh/h	938	706	265	1273	1419	320
Grp Volume(v), veh/h	192	0	794	0	0	473
Grp Sat Flow(s),veh/h/ln	1652	0	1538	0	0	1739
Q Serve(g_s), s	16.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	16.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.57	0.43	0.19			0.18
Lane Grp Cap(c), veh/h	216	0	1268	0	0	1400
V/C Ratio(X)	0.89	0.00	0.63	0.00	0.00	0.34
Avail Cap(c_a), veh/h	294	0	1268	0	0	1400
HCM Platoon Ratio	1.00	1.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.88	0.00	0.00	0.95
Uniform Delay (d), s/veh	59.9	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	21.4	0.0	2.1	0.0	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	0.0	0.7	0.0	0.0	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	81.3	0.0	2.1	0.0	0.0	0.6
LnGrp LOS	F	A	A	A	A	A
Approach Vol, veh/h	192			794	473	
Approach Delay, s/veh	81.3			2.1	0.6	
Approach LOS	F			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		117.2		22.8		117.2
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		106.1		24.9		106.1
Max Q Clear Time (g_c+I1), s		2.0		18.0		2.0
Green Ext Time (p_c), s		7.2		0.3		3.4

Intersection Summary		
HCM 6th Ctrl Delay		12.0
HCM 6th LOS		B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	0	5	0	0	0	5	590	5	5	370	55
Future Volume (veh/h)	140	0	5	0	0	0	5	590	5	5	370	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1900	1900	1900	1811	1811	1811	1796	1796	1796
Adj Flow Rate, veh/h	152	0	0	0	0	0	5	641	5	5	402	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	0	0	0	6	6	6	7	7	7
Cap, veh/h	227	0		0	241	0	29	1421	1209	31	1403	
Arrive On Green	0.13	0.00	0.00	0.00	0.00	0.00	0.79	0.79	0.79	1.00	1.00	0.00
Sat Flow, veh/h	1384	0	1547	0	1900	0	4	1804	1535	6	1782	1522
Grp Volume(v), veh/h	152	0	0	0	0	0	646	0	5	407	0	0
Grp Sat Flow(s),veh/h/ln	1384	0	1547	0	1900	0	1808	0	1535	1788	0	1522
Q Serve(g_s), s	15.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	15.1	0.0	0.0	0.0	0.0	0.0	16.5	0.0	0.1	0.0	0.0	0.0
Prop In Lane	1.00		1.00	0.00		0.00	0.01		1.00	0.01		1.00
Lane Grp Cap(c), veh/h	227	0		0	241	0	1450	0	1209	1434	0	
V/C Ratio(X)	0.67	0.00		0.00	0.00	0.00	0.45	0.00	0.00	0.28	0.00	
Avail Cap(c_a), veh/h	388	0		0	461	0	1450	0	1209	1434	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00	0.95	0.00	0.00
Uniform Delay (d), s/veh	60.0	0.0	0.0	0.0	0.0	0.0	4.9	0.0	3.2	0.0	0.0	0.0
Incr Delay (d2), s/veh	3.4	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	0.0	0.0	0.0	0.0	0.0	5.1	0.0	0.0	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.4	0.0	0.0	0.0	0.0	0.0	5.9	0.0	3.2	0.5	0.0	0.0
LnGrp LOS	E	A		A	A	A	A	A	A	A	A	
Approach Vol, veh/h		152			0			651			407	
Approach Delay, s/veh		63.4			0.0			5.9			0.5	
Approach LOS		E						A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		116.3		23.7		116.3		23.7				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		94.0		34.0		94.0		34.0				
Max Q Clear Time (g_c+I1), s		2.0		17.1		18.5		0.0				
Green Ext Time (p_c), s		2.3		0.7		4.6		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		11.3
HCM 6th LOS		B

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	5	135	0	90	40	710	60	75	385	5
Future Volume (veh/h)	5	0	5	135	0	90	40	710	60	75	385	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900	1870	1870	1870	1856	1826	1870	1870	1767	1900
Adj Flow Rate, veh/h	5	0	5	147	0	98	43	772	65	82	418	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	0	2	2	2	3	5	2	2	9	0
Cap, veh/h	158	12	131	204	0	109	78	1275	1193	545	1311	16
Arrive On Green	0.18	0.00	0.18	0.18	0.00	0.18	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	650	67	717	891	0	594	68	1694	1585	657	1742	21
Grp Volume(v), veh/h	10	0	0	245	0	0	815	0	65	82	0	423
Grp Sat Flow(s),veh/h/ln	1434	0	0	1485	0	0	1762	0	1585	657	0	1763
Q Serve(g_s), s	0.0	0.0	0.0	21.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.7	0.0	0.0	22.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.50		0.50	0.60		0.40	0.05		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	301	0	0	313	0	0	1353	0	1193	545	0	1327
V/C Ratio(X)	0.03	0.00	0.00	0.78	0.00	0.00	0.60	0.00	0.05	0.15	0.00	0.32
Avail Cap(c_a), veh/h	412	0	0	428	0	0	1353	0	1193	545	0	1327
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.65	0.00	0.65	0.95	0.00	0.95
Uniform Delay (d), s/veh	47.0	0.0	0.0	55.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	6.4	0.0	0.0	1.3	0.0	0.1	0.6	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	9.0	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.0	0.0	0.0	62.2	0.0	0.0	1.3	0.0	0.1	0.6	0.0	0.6
LnGrp LOS	D	A	A	E	A	A	A	A	A	A	A	A
Approach Vol, veh/h		10			245			880			505	
Approach Delay, s/veh		47.0			62.2			1.2			0.6	
Approach LOS		D			E			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		109.8		30.2		109.8		30.2				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		94.5		36.5		94.5		36.5				
Max Q Clear Time (g_c+I1), s		2.0		2.7		2.0		24.6				
Green Ext Time (p_c), s		7.9		0.0		3.8		1.1				

Intersection Summary												
HCM 6th Ctrl Delay			10.4									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	185	425	10	100	690	95	45	175	80	155	145	255
Future Volume (veh/h)	185	425	10	100	690	95	45	175	80	155	145	255
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1841	1900	1885	1885	1826	1870	1856	1841	1811	1870	1841
Adj Flow Rate, veh/h	201	462	0	109	750	0	49	190	87	168	158	277
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	8	4	0	1	1	5	2	3	4	6	2	4
Cap, veh/h	451	1984		592	1921		169	228	192	247	495	413
Arrive On Green	0.07	0.57	0.00	0.04	0.54	0.00	0.12	0.12	0.12	0.10	0.26	0.26
Sat Flow, veh/h	1697	3497	1610	1795	3582	1547	954	1856	1560	1725	1870	1560
Grp Volume(v), veh/h	201	462	0	109	750	0	49	190	87	168	158	277
Grp Sat Flow(s),veh/h/ln	1697	1749	1610	1795	1791	1547	954	1856	1560	1725	1870	1560
Q Serve(g_s), s	7.4	9.2	0.0	3.6	17.2	0.0	6.7	14.0	7.3	11.8	9.5	22.2
Cycle Q Clear(g_c), s	7.4	9.2	0.0	3.6	17.2	0.0	6.7	14.0	7.3	11.8	9.5	22.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	451	1984		592	1921		169	228	192	247	495	413
V/C Ratio(X)	0.45	0.23		0.18	0.39		0.29	0.83	0.45	0.68	0.32	0.67
Avail Cap(c_a), veh/h	598	1984		611	1921		235	358	301	297	681	568
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.8	15.1	0.0	11.9	19.0	0.0	56.8	60.0	57.0	47.8	41.3	46.0
Incr Delay (d2), s/veh	0.7	0.3	0.0	0.1	0.6	0.0	0.9	9.3	1.7	4.8	0.4	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	3.8	0.0	1.5	7.3	0.0	1.7	7.2	3.0	5.4	4.5	8.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.5	15.4	0.0	12.0	19.6	0.0	57.7	69.3	58.7	52.5	41.7	47.9
LnGrp LOS	B	B		B	B		E	E	E	D	D	D
Approach Vol, veh/h		663			859			326			603	
Approach Delay, s/veh		15.1			18.7			64.8			47.6	
Approach LOS		B			B			E			D	

Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.8	81.1		43.1	11.5	85.4	19.9	23.2				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	22.0	49.0		51.0	7.0	64.0	18.0	27.0				
Max Q Clear Time (g_c+I1), s	9.4	19.2		24.2	5.6	11.2	13.8	16.0				
Green Ext Time (p_c), s	0.4	5.9		1.9	0.0	3.5	0.2	1.2				

Intersection Summary			
HCM 6th Ctrl Delay		30.9	
HCM 6th LOS		C	

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	215	5	240	0	0	0	0	995	80	155	615	0
Future Volume (vph)	215	5	240	0	0	0	0	995	80	155	615	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	16	16	16	12	12	12	12	12	12
Total Lost time (s)	6.5	6.5	6.5					7.0		7.1	7.0	
Lane Util. Factor	0.95	0.95	1.00					0.95		1.00	0.95	
Frt	1.00	1.00	0.85					0.99		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1491	1498	1404					3305		1641	3282	
Flt Permitted	0.95	0.95	1.00					1.00		0.18	1.00	
Satd. Flow (perm)	1491	1498	1404					3305		305	3282	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	234	5	261	0	0	0	0	1082	87	168	668	0
RTOR Reduction (vph)	0	0	229	0	0	0	0	3	0	0	0	0
Lane Group Flow (vph)	119	120	32	0	0	0	0	1166	0	168	668	0
Heavy Vehicles (%)	15%	15%	15%	0%	0%	0%	8%	8%	8%	10%	10%	10%
Turn Type	Split	NA	Perm					NA		D.P+P	NA	
Protected Phases	4	4						6		5	2	
Permitted Phases			4							6		
Actuated Green, G (s)	17.3	17.3	17.3					83.2		102.1	109.2	
Effective Green, g (s)	17.3	17.3	17.3					83.2		102.1	109.2	
Actuated g/C Ratio	0.12	0.12	0.12					0.59		0.73	0.78	
Clearance Time (s)	6.5	6.5	6.5					7.0		7.1	7.0	
Vehicle Extension (s)	3.0	3.0	3.0					7.0		3.0	7.0	
Lane Grp Cap (vph)	184	185	173					1964		402	2559	
v/s Ratio Prot	0.08	c0.08						c0.35		c0.06	0.20	
v/s Ratio Perm			0.02							0.25		
v/c Ratio	0.65	0.65	0.19					0.59		0.42	0.26	
Uniform Delay, d1	58.4	58.5	55.0					17.8		21.8	4.3	
Progression Factor	1.00	1.00	1.00					0.79		0.85	0.73	
Incremental Delay, d2	7.6	7.6	0.5					0.8		0.6	0.2	
Delay (s)	66.0	66.1	55.6					14.9		19.0	3.3	
Level of Service	E	E	E					B		B	A	
Approach Delay (s)		60.6			0.0			14.9			6.5	
Approach LOS		E			A			B			A	

Intersection Summary			
HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.6
Intersection Capacity Utilization	73.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	2.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	130	470	20	90	285
Future Vol, veh/h	10	130	470	20	90	285
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	310	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	7	7	8	8
Mvmt Flow	11	141	511	22	98	310

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1028	522	0	0	533	0
Stage 1	522	-	-	-	-	-
Stage 2	506	-	-	-	-	-
Critical Hdwy	6.44	6.24	-	-	4.18	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	-	-	2.272	-
Pot Cap-1 Maneuver	257	551	-	-	1005	-
Stage 1	591	-	-	-	-	-
Stage 2	601	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	227	551	-	-	1005	-
Mov Cap-2 Maneuver	227	-	-	-	-	-
Stage 1	591	-	-	-	-	-
Stage 2	530	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.4	0	2.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	227	551	1005	-
HCM Lane V/C Ratio	-	-	0.048	0.256	0.097	-
HCM Control Delay (s)	-	-	21.7	13.8	9	0
HCM Lane LOS	-	-	C	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	1	0.3	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	5	5	1075	845	10
Future Vol, veh/h	0	5	5	1075	845	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Yield
Storage Length	80	0	135	-	-	220
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	20	20	10	10	10	10
Mvmt Flow	0	5	5	1168	918	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1512	459	918	0	-	0
Stage 1	918	-	-	-	-	-
Stage 2	594	-	-	-	-	-
Critical Hdwy	7.2	7.3	4.3	-	-	-
Critical Hdwy Stg 1	6.2	-	-	-	-	-
Critical Hdwy Stg 2	6.2	-	-	-	-	-
Follow-up Hdwy	3.7	3.5	2.3	-	-	-
Pot Cap-1 Maneuver	93	503	691	-	-	-
Stage 1	309	-	-	-	-	-
Stage 2	467	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	92	503	691	-	-	-
Mov Cap-2 Maneuver	92	-	-	-	-	-
Stage 1	307	-	-	-	-	-
Stage 2	467	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	691	-	-	503	-	-
HCM Lane V/C Ratio	0.008	-	-	0.011	-	-
HCM Control Delay (s)	10.3	-	0	12.2	-	-
HCM Lane LOS	B	-	A	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0	-	-

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	5	0	160	0	765	95	200	470	0
Future Vol, veh/h	0	0	0	5	0	160	0	765	95	200	470	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	160	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	17	0	1	0	6	0	2	9	2
Mvmt Flow	0	0	0	5	0	174	0	832	103	217	511	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1916	1880	511	1829	1829	884	-	0	0	935	0	0
Stage 1	945	945	-	884	884	-	-	-	-	-	-	-
Stage 2	971	935	-	945	945	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.27	6.5	6.21	-	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.27	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.27	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.653	4	3.309	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	51	71	563	54	77	346	0	-	-	732	-	0
Stage 1	314	340	-	320	366	-	0	-	-	-	-	0
Stage 2	304	344	-	296	343	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	20	50	563	42	54	346	-	-	-	732	-	-
Mov Cap-2 Maneuver	20	50	-	42	54	-	-	-	-	-	-	-
Stage 1	314	239	-	320	366	-	-	-	-	-	-	-
Stage 2	151	344	-	208	241	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	37.1	0	3.6
HCM LOS	A	E		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	-	284	732	-
HCM Lane V/C Ratio	-	-	-	-	0.632	0.297	-
HCM Control Delay (s)	-	-	0	0	37.1	12	-
HCM Lane LOS	-	-	A	A	E	B	-
HCM 95th %tile Q(veh)	-	-	-	-	3.9	1.2	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	25	0	35	15	875	40	5	935	0
Future Vol, veh/h	0	0	0	25	0	35	15	875	40	5	935	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	6	0	7	0	6	8	0	6	0
Mvmt Flow	0	0	0	27	0	38	16	951	43	5	1016	0

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	1523	2031	497	1016	0	0	994	0	0
Stage 1	1005	1005	-	-	-	-	-	-	-
Stage 2	518	1026	-	-	-	-	-	-	-
Critical Hdwy	6.92	6.5	7.04	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	5.92	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.92	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.56	4	3.37	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	105	58	505	691	-	-	704	-	-
Stage 1	306	322	-	-	-	-	-	-	-
Stage 2	551	315	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	98	0	505	691	-	-	704	-	-
Mov Cap-2 Maneuver	98	0	-	-	-	-	-	-	-
Stage 1	290	0	-	-	-	-	-	-	-
Stage 2	542	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	34.7	0.4	0.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	691	-	-	185	704	-	-
HCM Lane V/C Ratio	0.024	-	-	0.353	0.008	-	-
HCM Control Delay (s)	10.3	0.3	-	34.7	10.2	0.1	-
HCM Lane LOS	B	A	-	D	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.5	0	-	-

MOVEMENT SUMMARY

Site: 1 [SR 53 @ New Cut Rd 2030 PM (With Operational Improvements)]

SR 53 @ New Cut Rd - 2030 PM
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: SR 53											
3	L2	43	6.0	0.385	6.3	LOS A	2.9	75.2	0.42	0.23	34.4
8	T1	473	6.0	0.385	6.3	LOS A	2.9	75.2	0.42	0.23	34.3
18	R2	114	6.0	0.085	3.4	LOS A	0.5	12.5	0.32	0.15	35.1
Approach		630	6.0	0.385	5.8	LOS A	2.9	75.2	0.40	0.22	34.4
East: New Cut Rd											
1	L2	92	6.5	0.256	7.8	LOS A	1.6	41.8	0.71	0.62	32.5
6	T1	43	6.5	0.256	7.8	LOS A	1.6	41.8	0.71	0.62	32.5
16	R2	54	6.5	0.256	7.8	LOS A	1.6	41.8	0.71	0.62	31.6
Approach		190	6.5	0.256	7.8	LOS A	1.6	41.8	0.71	0.62	32.2
North: SR 53											
7	L2	87	5.5	0.369	6.9	LOS A	2.7	70.4	0.51	0.33	33.7
4	T1	788	5.5	0.369	6.6	LOS A	2.8	72.3	0.50	0.32	34.2
14	R2	11	5.5	0.369	6.3	LOS A	2.8	72.3	0.49	0.31	33.4
Approach		886	5.5	0.369	6.6	LOS A	2.8	72.3	0.50	0.32	34.1
West: Ednaville Rd											
5	L2	1	2.5	0.062	5.7	LOS A	0.3	6.7	0.63	0.56	35.0
2	T1	43	2.5	0.062	5.7	LOS A	0.3	6.7	0.63	0.56	34.9
12	R2	38	2.5	0.051	5.3	LOS A	0.2	5.4	0.61	0.52	34.1
Approach		83	2.5	0.062	5.5	LOS A	0.3	6.7	0.62	0.54	34.5
All Vehicles		1789	5.6	0.385	6.4	LOS A	2.9	75.2	0.49	0.33	34.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

HCM 6th Signalized Intersection Summary
201: SR 53 & SR 124

01/18/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	470	30	80	255	360	30	410	20	390	735	85
Future Volume (veh/h)	120	470	30	80	255	360	30	410	20	390	735	85
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1841	1841	1796	1796	1796	1841	1841	1841
Adj Flow Rate, veh/h	130	511	0	87	277	0	33	446	22	424	799	92
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	4	4	7	7	7	4	4	4
Cap, veh/h	128	619		175	678		238	715	606	610	1005	852
Arrive On Green	0.04	0.18	0.00	0.07	0.19	0.00	0.03	0.80	0.80	0.22	0.73	0.73
Sat Flow, veh/h	1753	3497	1560	1753	3497	1560	1711	1796	1522	1753	1841	1560
Grp Volume(v), veh/h	130	511	0	87	277	0	33	446	22	424	799	92
Grp Sat Flow(s),veh/h/ln	1753	1749	1560	1753	1749	1560	1711	1796	1522	1753	1841	1560
Q Serve(g_s), s	6.1	19.7	0.0	7.7	9.7	0.0	1.2	14.1	0.4	20.4	39.4	2.5
Cycle Q Clear(g_c), s	6.1	19.7	0.0	7.7	9.7	0.0	1.2	14.1	0.4	20.4	39.4	2.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	128	619		0	678		238	715	606	610	1005	852
V/C Ratio(X)	1.02	0.83		0.00	0.41		0.14	0.62	0.04	0.69	0.80	0.11
Avail Cap(c_a), veh/h	128	1099		0	749		248	715	606	661	1005	852
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.94	0.94	0.94	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.9	55.5	0.0	0.0	49.4	0.0	19.2	10.0	8.6	17.9	14.1	9.0
Incr Delay (d2), s/veh	84.2	2.9	0.0	0.0	0.4	0.0	0.2	3.8	0.1	2.9	6.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	8.8	0.0	0.0	4.3	0.0	0.5	4.0	0.2	7.5	13.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	126.1	58.4	0.0	0.0	49.8	0.0	19.4	13.9	8.8	20.8	20.6	9.3
LnGrp LOS	F	E		A	D		B	B	A	C	C	A
Approach Vol, veh/h		641			364			501			1315	
Approach Delay, s/veh		72.1			37.9			14.0			19.9	
Approach LOS		E			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.2	83.1	16.4	31.3	29.9	62.4	14.0	33.7
Change Period (Y+Rc), s	6.9	* 6.7	6.5	6.5	6.9	* 6.7	7.9	6.5
Max Green Setting (Gmax), s	3.1	* 73	44.0	44.0	27.1	* 49	6.1	30.0
Max Q Clear Time (g_c+I1), s	3.2	41.4	9.7	21.7	22.4	16.1	8.1	11.7
Green Ext Time (p_c), s	0.0	13.0	0.2	3.1	0.6	5.7	0.0	1.6

Intersection Summary	
HCM 6th Ctrl Delay	33.0
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	115	0	240	285	835	0	0	920	235
Future Volume (veh/h)	0	0	0	115	0	240	285	835	0	0	920	235
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1648	0	1648	1796	1796	0	0	1781	1781
Adj Flow Rate, veh/h				125	0	261	310	908	0	0	1000	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				17	0	17	7	7	0	0	8	8
Cap, veh/h				322	0	287	401	2250	0	0	1722	
Arrive On Green				0.21	0.00	0.21	0.11	0.66	0.00	0.00	0.51	0.00
Sat Flow, veh/h				1570	0	1397	1711	3503	0	0	3474	1510
Grp Volume(v), veh/h				125	0	261	310	908	0	0	1000	0
Grp Sat Flow(s),veh/h/ln				1570	0	1397	1711	1706	0	0	1692	1510
Q Serve(g_s), s				9.6	0.0	25.6	11.9	17.3	0.0	0.0	28.8	0.0
Cycle Q Clear(g_c), s				9.6	0.0	25.6	11.9	17.3	0.0	0.0	28.8	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				322	0	287	401	2250	0	0	1722	
V/C Ratio(X)				0.39	0.00	0.91	0.77	0.40	0.00	0.00	0.58	
Avail Cap(c_a), veh/h				386	0	343	583	2250	0	0	1722	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.72	0.72	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				48.1	0.0	54.4	19.5	11.1	0.0	0.0	24.0	0.0
Incr Delay (d2), s/veh				1.1	0.0	26.0	3.8	0.4	0.0	0.0	1.4	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.9	0.0	11.1	4.7	6.1	0.0	0.0	11.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				49.1	0.0	80.4	23.2	11.5	0.0	0.0	25.4	0.0
LnGrp LOS				D	A	F	C	B	A	A	C	
Approach Vol, veh/h					386			1218			1000	
Approach Delay, s/veh					70.3			14.5			25.4	
Approach LOS					E			B			C	

Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	21.1	77.9				99.0		35.3				
Change Period (Y+Rc), s	* 5.9	6.7				6.7		6.6				
Max Green Setting (Gmax), s	* 30	56.3				92.3		34.4				
Max Q Clear Time (g_c+I1), s	13.9	30.8				19.3		27.6				
Green Ext Time (p_c), s	1.3	17.5				28.5		1.1				

Intersection Summary		
HCM 6th Ctrl Delay		26.9
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	0	130	0	0	0	180	645	0	0	775	95
Future Volume (veh/h)	100	0	130	0	0	0	180	645	0	0	775	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1411	1411	1411	1767	1767	1767	1811	1811	1811
Adj Flow Rate, veh/h	109	0	141	0	0	0	196	701	0	0	842	103
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	33	33	33	9	9	9	6	6	6
Cap, veh/h	244	0	172	52	157	0	387	2244	0	51	1713	210
Arrive On Green	0.11	0.00	0.11	0.00	0.00	0.00	0.14	1.00	0.00	0.00	0.56	0.56
Sat Flow, veh/h	1739	0	1547	1344	1411	0	1682	3445	0	722	3086	378
Grp Volume(v), veh/h	109	0	141	0	0	0	196	701	0	0	469	476
Grp Sat Flow(s),veh/h/ln	1739	0	1547	1344	1411	0	1682	1678	0	722	1721	1743
Q Serve(g_s), s	8.3	0.0	12.5	0.0	0.0	0.0	7.4	0.0	0.0	0.0	23.4	23.4
Cycle Q Clear(g_c), s	8.3	0.0	12.5	0.0	0.0	0.0	7.4	0.0	0.0	0.0	23.4	23.4
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		0.22
Lane Grp Cap(c), veh/h	244	0	172	0	157	0	387	2244	0	51	955	967
V/C Ratio(X)	0.45	0.00	0.82	0.00	0.00	0.00	0.51	0.31	0.00	0.00	0.49	0.49
Avail Cap(c_a), veh/h	464	0	367	0	335	0	556	2244	0	51	955	967
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	0.00	0.91	0.91	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	59.0	0.0	60.9	0.0	0.0	0.0	13.0	0.0	0.0	0.0	19.1	19.1
Incr Delay (d2), s/veh	1.3	0.0	9.3	0.0	0.0	0.0	0.9	0.3	0.0	0.0	1.8	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	5.4	0.0	0.0	0.0	2.3	0.1	0.0	0.0	9.3	9.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.3	0.0	70.2	0.0	0.0	0.0	14.0	0.3	0.0	0.0	20.9	20.8
LnGrp LOS	E	A	E	A	A	A	B	A	A	A	C	C
Approach Vol, veh/h		250			0			897			945	
Approach Delay, s/veh		65.9			0.0			3.3			20.9	
Approach LOS		E						A			C	

Timer - Assigned Phs	1	2		4		6	7	8				
Phs Duration (G+Y+Rc), s	15.9	84.1		22.3		100.0	0.0	22.3				
Change Period (Y+Rc), s	6.1	6.4		* 6.8		6.4	* 6.8	* 6.8				
Max Green Setting (Gmax), s	23.9	63.6		* 33		93.6	* 33	* 33				
Max Q Clear Time (g_c+I1), s	9.4	25.4		0.0		2.0	0.0	14.5				
Green Ext Time (p_c), s	0.4	13.7		0.0		11.2	0.0	1.1				

Intersection Summary			
HCM 6th Ctrl Delay		18.7	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	35	275	35	15	15	155	430	30	20	820	5
Future Volume (veh/h)	15	35	275	35	15	15	155	430	30	20	820	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1900	1900	1900	1826	1826	1826	1856	1856	1856
Adj Flow Rate, veh/h	16	38	299	38	16	16	168	467	33	22	891	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	0	0	0	5	5	5	3	3	3
Cap, veh/h	343	364	308	288	178	178	492	1099	931	502	1052	892
Arrive On Green	0.02	0.19	0.19	0.03	0.20	0.20	0.06	0.60	0.60	0.04	1.00	1.00
Sat Flow, veh/h	1795	1885	1598	1810	872	872	1739	1826	1547	1767	1856	1572
Grp Volume(v), veh/h	16	38	299	38	0	32	168	467	33	22	891	5
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1810	0	1743	1739	1826	1547	1767	1856	1572
Q Serve(g_s), s	1.0	2.3	26.0	2.3	0.0	2.1	5.7	19.2	1.2	0.7	0.0	0.0
Cycle Q Clear(g_c), s	1.0	2.3	26.0	2.3	0.0	2.1	5.7	19.2	1.2	0.7	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.50	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	343	364	308	288	0	355	492	1099	931	502	1052	892
V/C Ratio(X)	0.05	0.10	0.97	0.13	0.00	0.09	0.34	0.42	0.04	0.04	0.85	0.01
Avail Cap(c_a), veh/h	378	364	308	303	0	355	526	1099	931	529	1052	892
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Uniform Delay (d), s/veh	42.9	46.5	56.1	43.5	0.0	45.2	11.0	14.9	11.3	11.2	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.1	43.1	0.2	0.0	0.1	0.4	1.2	0.1	0.0	5.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.1	14.2	1.1	0.0	0.9	2.1	7.8	0.4	0.2	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.0	46.7	99.2	43.7	0.0	45.3	11.5	16.1	11.4	11.2	5.8	0.0
LnGrp LOS	D	D	F	D	A	D	B	B	B	B	A	A
Approach Vol, veh/h		353			70			668			918	
Approach Delay, s/veh		91.0			44.4			14.7			5.9	
Approach LOS		F			D			B			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.3	86.4	6.8	34.5	7.4	91.3	8.4	33.0
Change Period (Y+Rc), s	4.5	7.0	4.5	6.0	4.5	7.0	4.5	6.0
Max Green Setting (Gmax), s	10.5	75.5	5.0	27.0	5.0	81.0	5.0	27.0
Max Q Clear Time (g_c+I1), s	7.7	2.0	3.0	4.1	2.7	21.2	4.3	28.0
Green Ext Time (p_c), s	0.1	19.1	0.0	0.1	0.0	6.8	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	25.1
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	5	45	5	0	20	15	635	30	20	915	20
Future Volume (veh/h)	35	5	45	5	0	20	15	635	30	20	915	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1856	1856	1856	1826	1826	1826	1870	1870	1870
Adj Flow Rate, veh/h	38	5	49	5	0	0	16	690	33	22	995	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	3	3	3	5	5	5	2	2	2
Cap, veh/h	76	13	60	133	0		42	1408	67	44	1492	33
Arrive On Green	0.07	0.07	0.07	0.07	0.00	0.00	1.00	1.00	1.00	0.84	0.84	0.84
Sat Flow, veh/h	549	180	831	1143	0	0	18	1671	79	21	1770	39
Grp Volume(v), veh/h	92	0	0	5	0	0	739	0	0	1039	0	0
Grp Sat Flow(s),veh/h/ln	1560	0	0	1143	0	0	1768	0	0	1830	0	0
Q Serve(g_s), s	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	8.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	27.8	0.0	0.0
Prop In Lane	0.41		0.53	1.00		0.00	0.02		0.04	0.02		0.02
Lane Grp Cap(c), veh/h	148	0	0	133	0		1516	0	0	1568	0	0
V/C Ratio(X)	0.62	0.00	0.00	0.04	0.00		0.49	0.00	0.00	0.66	0.00	0.00
Avail Cap(c_a), veh/h	203	0	0	181	0		1516	0	0	1568	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.90	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	64.0	0.0	0.0	60.6	0.0	0.0	0.0	0.0	0.0	3.9	0.0	0.0
Incr Delay (d2), s/veh	4.2	0.0	0.0	0.1	0.0	0.0	1.0	0.0	0.0	2.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	0.0	0.0	0.2	0.0	0.0	0.4	0.0	0.0	8.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.2	0.0	0.0	60.7	0.0	0.0	1.0	0.0	0.0	6.1	0.0	0.0
LnGrp LOS	E	A	A	E	A		A	A	A	A	A	A
Approach Vol, veh/h		92			5			739			1039	
Approach Delay, s/veh		68.2			60.7			1.0			6.1	
Approach LOS		E			E			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		124.0		16.0		124.0		16.0				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		113.0		15.0		113.0		15.0				
Max Q Clear Time (g_c+I1), s		29.8		10.1		2.0		2.6				
Green Ext Time (p_c), s		12.6		0.2		6.6		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		7.3
HCM 6th LOS		A

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	35	200	80	10	30	110	810	80	45	765	45
Future Volume (veh/h)	40	35	200	80	10	30	110	810	80	45	765	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1248	1248	1248	1752	1752	1752	1826	1826	1826
Adj Flow Rate, veh/h	43	38	217	87	11	33	120	880	87	49	832	49
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	44	44	44	10	10	10	5	5	5
Cap, veh/h	151	287	243	159	46	139	433	1567	155	200	1229	72
Arrive On Green	0.06	0.16	0.16	0.07	0.17	0.17	0.46	1.00	1.00	0.09	0.37	0.37
Sat Flow, veh/h	1739	1826	1547	2306	275	825	1668	3059	302	1739	3329	196
Grp Volume(v), veh/h	43	38	217	87	0	44	120	479	488	49	433	448
Grp Sat Flow(s),veh/h/ln	1739	1826	1547	1153	0	1099	1668	1664	1697	1739	1735	1791
Q Serve(g_s), s	5.7	2.5	19.2	5.1	0.0	4.8	1.3	0.0	0.0	6.0	29.4	29.4
Cycle Q Clear(g_c), s	5.7	2.5	19.2	5.1	0.0	4.8	1.3	0.0	0.0	6.0	29.4	29.4
Prop In Lane	1.00		1.00	1.00		0.75	1.00		0.18	1.00		0.11
Lane Grp Cap(c), veh/h	0	287	243	159	0	186	433	852	869	0	641	661
V/C Ratio(X)	0.00	0.13	0.89	0.55	0.00	0.24	0.28	0.56	0.56	0.00	0.68	0.68
Avail Cap(c_a), veh/h	0	464	393	165	0	429	433	852	869	0	641	661
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.91	0.91	0.91
Uniform Delay (d), s/veh	0.0	50.8	57.8	63.1	0.0	50.3	29.4	0.0	0.0	0.0	37.1	37.1
Incr Delay (d2), s/veh	0.0	0.2	14.1	6.5	0.0	1.1	0.3	2.7	2.6	0.0	5.2	5.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.2	8.5	1.7	0.0	1.4	2.3	0.6	0.6	0.0	13.0	13.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	51.0	71.9	69.6	0.0	51.5	29.7	2.7	2.6	0.0	42.3	42.1
LnGrp LOS	A	D	E	E	A	D	C	A	A	A	D	D
Approach Vol, veh/h		298			131			1087			930	
Approach Delay, s/veh		58.8			63.5			5.6			40.0	
Approach LOS		E			E			A			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	38.5	58.0	18.7	29.4	18.3	78.2	15.4	32.7
Change Period (Y+Rc), s	6.5	6.3	9.0	7.4	6.3	* 6.5	7.4	* 9
Max Green Setting (Gmax), s	13.5	51.7	10.0	35.6	71.7	* 72	54.6	* 55
Max Q Clear Time (g_c+I1), s	3.3	31.4	7.1	21.2	8.0	2.0	7.7	6.8
Green Ext Time (p_c), s	0.2	9.3	0.1	0.8	0.3	16.5	0.2	0.4

Intersection Summary	
HCM 6th Ctrl Delay	28.3
HCM 6th LOS	C

Notes

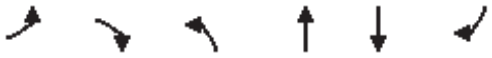
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	40	0	5	30	125	645	5	30	840	95
Future Volume (veh/h)	5	0	40	0	5	30	125	645	5	30	840	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1841	1841	1841	1870	1870	1870
Adj Flow Rate, veh/h	5	0	43	0	5	33	136	701	5	33	913	103
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	4	4	4	2	2	2
Cap, veh/h	33	4	79	0	12	79	521	1568	11	57	1351	151
Arrive On Green	0.06	0.00	0.06	0.00	0.06	0.06	0.86	0.86	0.86	1.00	1.00	1.00
Sat Flow, veh/h	86	81	1441	0	216	1427	546	1825	13	36	1573	175
Grp Volume(v), veh/h	48	0	0	0	0	38	136	0	706	1049	0	0
Grp Sat Flow(s),veh/h/ln	1609	0	0	0	0	1643	546	0	1838	1784	0	0
Q Serve(g_s), s	0.3	0.0	0.0	0.0	0.0	3.1	6.5	0.0	12.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.0	0.0	0.0	0.0	0.0	3.1	6.5	0.0	12.3	0.0	0.0	0.0
Prop In Lane	0.10		0.90	0.00		0.87	1.00		0.01	0.03		0.10
Lane Grp Cap(c), veh/h	117	0	0	0	0	91	521	0	1579	1559	0	0
V/C Ratio(X)	0.41	0.00	0.00	0.00	0.00	0.42	0.26	0.00	0.45	0.67	0.00	0.00
Avail Cap(c_a), veh/h	120	0	0	0	0	94	521	0	1579	1559	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	0.78	0.00	0.78	0.67	0.00	0.00
Uniform Delay (d), s/veh	64.4	0.0	0.0	0.0	0.0	64.0	1.8	0.0	2.3	0.0	0.0	0.0
Incr Delay (d2), s/veh	2.3	0.0	0.0	0.0	0.0	3.1	1.0	0.0	0.7	1.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	0.0	0.0	0.0	1.4	0.6	0.0	3.0	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.7	0.0	0.0	0.0	0.0	67.0	2.8	0.0	3.0	1.6	0.0	0.0
LnGrp LOS	E	A	A	A	A	E	A	A	A	A	A	A
Approach Vol, veh/h		48			38			842			1049	
Approach Delay, s/veh		66.7			67.0			2.9			1.6	
Approach LOS		E			E			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		126.3		13.7		126.3		13.7				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		120.0		8.0		120.0		8.0				
Max Q Clear Time (g_c+I1), s		2.0		6.0		14.3		5.1				
Green Ext Time (p_c), s		13.3		0.0		8.3		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			5.0									
HCM 6th LOS			A									



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	130	115	95	495	635	125
Future Volume (veh/h)	130	115	95	495	635	125
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1811	1811	1870	1870
Adj Flow Rate, veh/h	141	125	103	538	690	136
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	6	6	2	2
Cap, veh/h	178	158	188	814	908	179
Arrive On Green	0.20	0.20	0.60	0.60	1.00	1.00
Sat Flow, veh/h	882	782	160	1361	1517	299
Grp Volume(v), veh/h	267	0	641	0	0	826
Grp Sat Flow(s),veh/h/ln	1671	0	1520	0	0	1817
Q Serve(g_s), s	6.8	0.0	3.2	0.0	0.0	0.0
Cycle Q Clear(g_c), s	6.8	0.0	11.0	0.0	0.0	0.0
Prop In Lane	0.53	0.47	0.16			0.16
Lane Grp Cap(c), veh/h	337	0	1003	0	0	1087
V/C Ratio(X)	0.79	0.00	0.64	0.00	0.00	0.76
Avail Cap(c_a), veh/h	668	0	1003	0	0	1087
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.93	0.00	0.00	0.63
Uniform Delay (d), s/veh	17.1	0.0	5.7	0.0	0.0	0.0
Incr Delay (d2), s/veh	4.2	0.0	2.9	0.0	0.0	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0	2.3	0.0	0.0	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	21.3	0.0	8.6	0.0	0.0	3.2
LnGrp LOS	C	A	A	A	A	A
Approach Vol, veh/h	267			641	826	
Approach Delay, s/veh	21.3			8.6	3.2	
Approach LOS	C			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		31.4		13.6		31.4
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		18.0		18.0		18.0
Max Q Clear Time (g_c+I1), s		13.0		8.8		2.0
Green Ext Time (p_c), s		2.0		0.6		5.5

Intersection Summary	
HCM 6th Ctrl Delay	8.0
HCM 6th LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	0	15	5	0	5	10	500	0	0	660	90
Future Volume (veh/h)	85	0	15	5	0	5	10	500	0	0	660	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1900	1900	1900	1796	1796	1796	1870	1870	1870
Adj Flow Rate, veh/h	92	0	0	5	0	5	11	543	0	0	717	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	0	0	0	7	7	7	2	2	2
Cap, veh/h	163	0		95	12	69	38	1472	1273	0	1564	
Arrive On Green	0.08	0.00	0.00	0.08	0.00	0.08	0.84	0.84	0.00	0.00	0.84	0.00
Sat Flow, veh/h	1436	0	1585	728	156	885	14	1759	1522	0	1870	1585
Grp Volume(v), veh/h	92	0	0	10	0	0	554	0	0	0	717	0
Grp Sat Flow(s),veh/h/ln	1436	0	1585	1770	0	0	1774	0	1522	0	1870	1585
Q Serve(g_s), s	8.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.2	0.0
Cycle Q Clear(g_c), s	8.8	0.0	0.0	0.7	0.0	0.0	10.2	0.0	0.0	0.0	14.2	0.0
Prop In Lane	1.00		1.00	0.50		0.50	0.02		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	163	0		176	0	0	1510	0	1273	0	1564	
V/C Ratio(X)	0.56	0.00		0.06	0.00	0.00	0.37	0.00	0.00	0.00	0.46	
Avail Cap(c_a), veh/h	295	0		319	0	0	1510	0	1273	0	1564	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.54	0.00
Uniform Delay (d), s/veh	63.5	0.0	0.0	59.9	0.0	0.0	2.7	0.0	0.0	0.0	3.0	0.0
Incr Delay (d2), s/veh	3.0	0.0	0.0	0.1	0.0	0.0	0.7	0.0	0.0	0.0	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	0.0	0.0	0.3	0.0	0.0	2.5	0.0	0.0	0.0	2.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.5	0.0	0.0	60.0	0.0	0.0	3.4	0.0	0.0	0.0	3.6	0.0
LnGrp LOS	E	A		E	A	A	A	A	A	A	A	
Approach Vol, veh/h		92			10			554			717	
Approach Delay, s/veh		66.5			60.0			3.4			3.6	
Approach LOS		E			E			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		123.1		16.9		123.1		16.9				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		104.0		24.0		104.0		24.0				
Max Q Clear Time (g_c+I1), s		16.2		10.8		12.2		2.7				
Green Ext Time (p_c), s		4.8		0.3		3.7		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			8.1									
HCM 6th LOS			A									

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	5	30	0	190	5	580	40	150	725	5
Future Volume (veh/h)	5	0	5	30	0	190	5	580	40	150	725	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1885	1900	1885	1811	1811	1811	1870	1856	1900
Adj Flow Rate, veh/h	5	0	5	33	0	207	5	630	43	163	788	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	1	0	1	6	6	6	2	3	0
Cap, veh/h	241	36	158	117	17	273	82	1088	926	640	1111	7
Arrive On Green	0.20	0.00	0.20	0.20	0.00	0.20	1.00	1.00	1.00	0.60	0.60	0.60
Sat Flow, veh/h	616	185	801	134	87	1386	3	1804	1535	796	1842	12
Grp Volume(v), veh/h	10	0	0	240	0	0	635	0	43	163	0	793
Grp Sat Flow(s),veh/h/ln	1602	0	0	1607	0	0	1807	0	1535	796	0	1853
Q Serve(g_s), s	0.0	0.0	0.0	2.9	0.0	0.0	0.0	0.0	0.0	4.6	0.0	13.4
Cycle Q Clear(g_c), s	0.2	0.0	0.0	6.3	0.0	0.0	0.0	0.0	0.0	4.6	0.0	13.4
Prop In Lane	0.50		0.50	0.14		0.86	0.01		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	436	0	0	408	0	0	1170	0	926	640	0	1118
V/C Ratio(X)	0.02	0.00	0.00	0.59	0.00	0.00	0.54	0.00	0.05	0.25	0.00	0.71
Avail Cap(c_a), veh/h	710	0	0	729	0	0	1170	0	926	640	0	1118
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.34	0.00	0.34	0.69	0.00	0.69
Uniform Delay (d), s/veh	14.6	0.0	0.0	17.0	0.0	0.0	0.0	0.0	0.0	4.5	0.0	6.2
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.4	0.0	0.0	0.6	0.0	0.0	0.7	0.0	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	2.2	0.0	0.0	0.2	0.0	0.0	0.5	0.0	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.6	0.0	0.0	18.4	0.0	0.0	0.6	0.0	0.0	5.1	0.0	8.9
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		10			240			678			956	
Approach Delay, s/veh		14.6			18.4			0.6			8.2	
Approach LOS		B			B			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		31.6		13.4		31.6		13.4				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.0		18.0		18.0		18.0				
Max Q Clear Time (g_c+I1), s		2.0		2.2		15.4		8.3				
Green Ext Time (p_c), s		4.1		0.0		1.6		1.0				

Intersection Summary												
HCM 6th Ctrl Delay			6.8									
HCM 6th LOS			A									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	310	800	20	180	535	145	55	175	130	190	235	185
Future Volume (veh/h)	310	800	20	180	535	145	55	175	130	190	235	185
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1885	1900	1885	1856	1870	1900	1856	1900	1885	1885	1870
Adj Flow Rate, veh/h	337	870	0	196	582	0	60	190	141	207	255	201
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	1	0	1	3	2	0	3	0	1	1	2
Cap, veh/h	567	1876		410	1672		192	228	198	285	529	445
Arrive On Green	0.12	0.52	0.00	0.07	0.47	0.00	0.12	0.12	0.12	0.11	0.28	0.28
Sat Flow, veh/h	1781	3582	1610	1795	3526	1585	1142	1856	1610	1795	1885	1585
Grp Volume(v), veh/h	337	870	0	196	582	0	60	190	141	207	255	201
Grp Sat Flow(s),veh/h/ln	1781	1791	1610	1795	1763	1585	1142	1856	1610	1795	1885	1585
Q Serve(g_s), s	13.4	21.4	0.0	7.0	14.6	0.0	6.8	14.0	11.8	13.9	15.8	14.6
Cycle Q Clear(g_c), s	13.4	21.4	0.0	7.0	14.6	0.0	6.8	14.0	11.8	13.9	15.8	14.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	567	1876		410	1672		192	228	198	285	529	445
V/C Ratio(X)	0.59	0.46		0.48	0.35		0.31	0.83	0.71	0.73	0.48	0.45
Avail Cap(c_a), veh/h	780	1876		533	1672		255	331	288	323	673	566
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.7	21.0	0.0	15.5	23.2	0.0	56.8	60.0	59.0	46.8	41.9	41.5
Incr Delay (d2), s/veh	1.0	0.8	0.0	0.9	0.6	0.0	0.9	11.3	4.7	6.9	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	9.2	0.0	3.0	6.2	0.0	2.0	7.3	5.1	6.8	7.5	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.7	21.8	0.0	16.4	23.7	0.0	57.8	71.3	63.7	53.8	42.6	42.2
LnGrp LOS	B	C		B	C		E	E	E	D	D	D
Approach Vol, veh/h		1207			778			391			663	
Approach Delay, s/veh		20.4			21.9			66.5			46.0	
Approach LOS		C			C			E			D	

Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	22.3	72.4		45.3	15.4	79.3	22.1	23.2				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	33.0	39.0		50.0	19.0	53.0	19.0	25.0				
Max Q Clear Time (g_c+I1), s	15.4	16.6		17.8	9.0	23.4	15.9	16.0				
Green Ext Time (p_c), s	0.9	4.0		2.3	0.4	7.1	0.2	1.2				

Intersection Summary			
HCM 6th Ctrl Delay		32.3	
HCM 6th LOS		C	

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	335	0	400	0	0	0	0	785	110	230	805	0
Future Volume (vph)	335	0	400	0	0	0	0	785	110	230	805	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	16	16	16	12	12	12	12	12	12
Total Lost time (s)	6.5	6.5	6.5					7.0		7.1	7.0	
Lane Util. Factor	0.95	0.95	1.00					0.95		1.00	0.95	
Frt	1.00	1.00	0.85					0.98		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1603	1603	1509					3311		1687	3374	
Flt Permitted	0.95	0.95	1.00					1.00		0.17	1.00	
Satd. Flow (perm)	1603	1603	1509					3311		309	3374	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	364	0	435	0	0	0	0	853	120	250	875	0
RTOR Reduction (vph)	0	0	115	0	0	0	0	7	0	0	0	0
Lane Group Flow (vph)	182	182	320	0	0	0	0	966	0	250	875	0
Heavy Vehicles (%)	7%	7%	7%	0%	0%	0%	7%	7%	7%	7%	7%	7%
Turn Type	Split	NA	Perm					NA		D.P+P	NA	
Protected Phases	4	4						6		5	2	
Permitted Phases			4							6		
Actuated Green, G (s)	35.2	35.2	35.2					60.3		84.2	91.3	
Effective Green, g (s)	35.2	35.2	35.2					60.3		84.2	91.3	
Actuated g/C Ratio	0.25	0.25	0.25					0.43		0.60	0.65	
Clearance Time (s)	6.5	6.5	6.5					7.0		7.1	7.0	
Vehicle Extension (s)	3.0	3.0	3.0					7.0		3.0	7.0	
Lane Grp Cap (vph)	403	403	379					1426		421	2200	
v/s Ratio Prot	0.11	0.11						c0.29		c0.10	0.26	
v/s Ratio Perm			c0.21							0.26		
v/c Ratio	0.45	0.45	0.85					0.68		0.59	0.40	
Uniform Delay, d1	44.2	44.2	49.8					32.0		34.6	11.4	
Progression Factor	1.00	1.00	1.00					0.80		0.56	0.35	
Incremental Delay, d2	0.8	0.8	15.8					2.1		2.0	0.5	
Delay (s)	45.1	45.1	65.6					27.8		21.3	4.5	
Level of Service	D	D	E					C		C	A	
Approach Delay (s)		56.2			0.0			27.8			8.2	
Approach LOS		E			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	28.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.6
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	2.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	145	420	20	80	600
Future Vol, veh/h	30	145	420	20	80	600
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	310	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	8	8	3	3
Mvmt Flow	33	158	457	22	87	652

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1294	468	0	0	479	0
Stage 1	468	-	-	-	-	-
Stage 2	826	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.13	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.227	-
Pot Cap-1 Maneuver	177	589	-	-	1078	-
Stage 1	624	-	-	-	-	-
Stage 2	425	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	155	589	-	-	1078	-
Mov Cap-2 Maneuver	155	-	-	-	-	-
Stage 1	624	-	-	-	-	-
Stage 2	371	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.9	0	1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	155	589	1078	-
HCM Lane V/C Ratio	-	-	0.21	0.268	0.081	-
HCM Control Delay (s)	-	-	34.3	13.3	8.6	0
HCM Lane LOS	-	-	D	B	A	A
HCM 95th %tile Q(veh)	-	-	0.8	1.1	0.3	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	5	0	890	1205	0
Future Vol, veh/h	5	5	0	890	1205	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Yield
Storage Length	80	0	135	-	-	220
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	8	8	4	4
Mvmt Flow	5	5	0	967	1310	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1794	655	1310	0	-	0
Stage 1	1310	-	-	-	-	-
Stage 2	484	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.26	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.28	-	-	-
Pot Cap-1 Maneuver	73	413	493	-	-	-
Stage 1	220	-	-	-	-	-
Stage 2	591	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	73	413	493	-	-	-
Mov Cap-2 Maneuver	73	-	-	-	-	-
Stage 1	220	-	-	-	-	-
Stage 2	591	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	36	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	493	-	73	413	-	-
HCM Lane V/C Ratio	-	-	0.074	0.013	-	-
HCM Control Delay (s)	0	-	58.2	13.8	-	-
HCM Lane LOS	A	-	F	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	0	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	5	5	0	50	0	685	5	80	945	0
Future Vol, veh/h	0	0	5	5	0	50	0	685	5	80	945	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	160	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	2	0	5	0	0	3	0
Mvmt Flow	0	0	5	5	0	54	0	745	5	87	1027	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1976	1951	1027	1952	1949	748	-	0	0	750	0	0
Stage 1	1201	1201	-	748	748	-	-	-	-	-	-	-
Stage 2	775	750	-	1204	1201	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.22	-	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.318	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	47	65	287	49	65	412	0	-	-	868	-	0
Stage 1	228	260	-	408	423	-	0	-	-	-	-	0
Stage 2	394	422	-	227	260	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	38	59	287	44	59	412	-	-	-	868	-	-
Mov Cap-2 Maneuver	38	59	-	44	59	-	-	-	-	-	-	-
Stage 1	228	234	-	408	423	-	-	-	-	-	-	-
Stage 2	342	422	-	200	234	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.8	25.6	0	0.7
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	287	234	868	-
HCM Lane V/C Ratio	-	-	-	0.019	0.255	0.1	-
HCM Control Delay (s)	-	-	0	17.8	25.6	9.6	-
HCM Lane LOS	-	-	A	C	D	A	-
HCM 95th %tile Q(veh)	-	-	-	0.1	1	0.3	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	10	0	15	15	1025	35	5	1145	5
Future Vol, veh/h	0	0	0	10	0	15	15	1025	35	5	1145	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	18	0	0	0	5	7	0	2	0
Mvmt Flow	0	0	0	11	0	16	16	1114	38	5	1245	5

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	1798	2425	576	1250	0	0	1152	0	0
Stage 1	1165	1165	-	-	-	-	-	-	-
Stage 2	633	1260	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.16	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.68	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	60	33	466	564	-	-	614	-	-
Stage 1	228	271	-	-	-	-	-	-	-
Stage 2	450	244	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	54	0	466	564	-	-	614	-	-
Mov Cap-2 Maneuver	54	0	-	-	-	-	-	-	-
Stage 1	210	0	-	-	-	-	-	-	-
Stage 2	438	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	45.7	0.5	0.1
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	564	-	-	115	614	-	-
HCM Lane V/C Ratio	0.029	-	-	0.236	0.009	-	-
HCM Control Delay (s)	11.6	0.4	-	45.7	10.9	0.1	-
HCM Lane LOS	B	A	-	E	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.9	0	-	-

SECTION 5

Open Year 2030 With Operational & Regional Improvements Delay Reports

MOVEMENT SUMMARY

Site: 1 [SR 53 @ New Cut Rd 2030 AM (With Operational & Regional Improvements)]

SR 53 @ New Cut Rd - 2030 AM (With Diversions)
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: SR 53											
3	L2	11	11.5	0.405	6.4	LOS A	3.2	88.0	0.24	0.09	34.3
8	T1	549	11.5	0.405	6.4	LOS A	3.2	88.0	0.24	0.09	34.3
18	R2	49	11.5	0.035	2.9	LOS A	0.2	5.1	0.15	0.04	35.2
Approach		609	11.5	0.405	6.1	LOS A	3.2	88.0	0.23	0.09	34.4
East: New Cut Rd											
1	L2	207	4.0	0.450	11.1	LOS B	3.4	87.6	0.80	0.79	30.9
6	T1	43	4.0	0.450	11.1	LOS B	3.4	87.6	0.80	0.79	30.8
16	R2	82	4.0	0.450	11.1	LOS B	3.4	87.6	0.80	0.79	30.0
Approach		332	4.0	0.450	11.1	LOS B	3.4	87.6	0.80	0.79	30.6
North: SR 53											
7	L2	16	5.5	0.196	5.4	LOS A	1.3	32.9	0.54	0.37	34.8
4	T1	408	5.5	0.196	5.1	LOS A	1.3	34.2	0.53	0.35	35.1
14	R2	5	5.5	0.196	4.8	LOS A	1.3	34.2	0.52	0.34	34.2
Approach		429	5.5	0.196	5.1	LOS A	1.3	34.2	0.53	0.35	35.1
West: Ednaville Rd											
5	L2	5	13.5	0.029	5.1	LOS A	0.1	3.3	0.55	0.42	34.2
2	T1	16	13.5	0.029	5.1	LOS A	0.1	3.3	0.55	0.42	34.3
12	R2	38	13.5	0.050	5.3	LOS A	0.2	5.7	0.54	0.44	33.9
Approach		60	13.5	0.050	5.2	LOS A	0.2	5.7	0.55	0.43	34.0
All Vehicles		1429	8.0	0.450	6.9	LOS A	3.4	88.0	0.47	0.34	33.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	180	20	10	300	510	10	380	20	150	400	190
Future Volume (veh/h)	80	180	20	10	300	510	10	380	20	150	400	190
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1589	1589	1589	1781	1781	1781	1781	1781	1781	1752	1752	1752
Adj Flow Rate, veh/h	87	196	0	11	326	0	11	413	22	163	435	207
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	21	21	21	8	8	8	8	8	8	10	10	10
Cap, veh/h	107	342		148	419		378	1045	885	598	1107	939
Arrive On Green	0.04	0.11	0.00	0.06	0.12	0.00	0.01	0.78	0.78	0.02	0.21	0.21
Sat Flow, veh/h	1513	3019	1346	1697	3385	1510	1697	1781	1510	1668	1752	1485
Grp Volume(v), veh/h	87	196	0	11	326	0	11	413	22	163	435	207
Grp Sat Flow(s),veh/h/ln	1513	1509	1346	1697	1692	1510	1697	1781	1510	1668	1752	1485
Q Serve(g_s), s	4.6	8.6	0.0	1.0	13.1	0.0	0.3	10.3	0.5	5.3	30.0	16.2
Cycle Q Clear(g_c), s	4.6	8.6	0.0	1.0	13.1	0.0	0.3	10.3	0.5	5.3	30.0	16.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	107	342		0	419		378	1045	885	598	1107	939
V/C Ratio(X)	0.82	0.57		0.00	0.78		0.03	0.40	0.02	0.27	0.39	0.22
Avail Cap(c_a), veh/h	107	1283		0	1124		403	1045	885	654	1107	939
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.96	0.96	0.96	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.2	58.9	0.0	0.0	59.5	0.0	12.4	7.5	6.4	10.9	32.2	26.8
Incr Delay (d2), s/veh	37.0	1.5	0.0	0.0	3.1	0.0	0.0	1.1	0.0	0.2	1.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	3.3	0.0	0.0	5.8	0.0	0.1	3.4	0.2	2.0	14.3	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.2	60.4	0.0	0.0	62.6	0.0	12.4	8.6	6.5	11.2	33.3	27.3
LnGrp LOS	E	E		A	E		B	A	A	B	C	C
Approach Vol, veh/h		283			337			446			805	
Approach Delay, s/veh		63.7			60.5			8.6			27.3	
Approach LOS		E			E			A			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	95.2	14.5	22.4	14.3	88.8	13.0	23.9
Change Period (Y+Rc), s	6.9	* 6.7	6.5	6.5	6.9	* 6.7	7.9	6.5
Max Green Setting (Gmax), s	3.1	* 57	59.5	59.5	12.1	* 48	5.1	46.5
Max Q Clear Time (g_c+I1), s	2.3	32.0	3.0	10.6	7.3	12.3	6.6	15.1
Green Ext Time (p_c), s	0.0	6.8	0.0	1.2	0.2	5.3	0.0	2.3

Intersection Summary	
HCM 6th Ctrl Delay	34.3
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	60	0	280	535	625	0	0	625	315
Future Volume (veh/h)	0	0	0	60	0	280	535	625	0	0	625	315
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1678	0	1678	1781	1781	0	0	1767	1767
Adj Flow Rate, veh/h				65	0	304	582	679	0	0	679	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				15	0	15	8	8	0	0	9	9
Cap, veh/h				365	0	324	671	2236	0	0	1285	
Arrive On Green				0.23	0.00	0.23	0.24	0.66	0.00	0.00	0.77	0.00
Sat Flow, veh/h				1598	0	1422	1697	3474	0	0	3445	1497
Grp Volume(v), veh/h				65	0	304	582	679	0	0	679	0
Grp Sat Flow(s),veh/h/ln				1598	0	1422	1697	1692	0	0	1678	1497
Q Serve(g_s), s				4.6	0.0	29.4	27.9	11.9	0.0	0.0	11.1	0.0
Cycle Q Clear(g_c), s				4.6	0.0	29.4	27.9	11.9	0.0	0.0	11.1	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				365	0	324	671	2236	0	0	1285	
V/C Ratio(X)				0.18	0.00	0.94	0.87	0.30	0.00	0.00	0.53	
Avail Cap(c_a), veh/h				390	0	347	878	2236	0	0	1285	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)				1.00	0.00	1.00	0.81	0.81	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				43.5	0.0	53.0	17.7	10.1	0.0	0.0	11.4	0.0
Incr Delay (d2), s/veh				0.3	0.0	32.1	6.8	0.3	0.0	0.0	1.6	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.9	0.0	13.4	11.2	4.2	0.0	0.0	3.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				43.8	0.0	85.1	24.5	10.4	0.0	0.0	13.0	0.0
LnGrp LOS				D	A	F	C	B	A	A	B	
Approach Vol, veh/h					369			1261			679	
Approach Delay, s/veh					77.9			16.9			13.0	
Approach LOS					E			B			B	

Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	38.9	60.3				99.2		38.5				
Change Period (Y+Rc), s	* 5.9	6.7				6.7		6.6				
Max Green Setting (Gmax), s	* 50	36.5				92.5		34.2				
Max Q Clear Time (g_c+I1), s	29.9	13.1				13.9		31.4				
Green Ext Time (p_c), s	3.1	11.6				18.9		0.6				

Intersection Summary		
HCM 6th Ctrl Delay		25.5
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	0	100	0	0	0	135	570	0	0	600	90
Future Volume (veh/h)	55	0	100	0	0	0	135	570	0	0	600	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1781	1781	1900	1900	1900	1737	1737	1737	1826	1826	1826
Adj Flow Rate, veh/h	60	0	109	0	0	0	147	620	0	0	652	98
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	8	8	8	0	0	0	11	11	11	5	5	5
Cap, veh/h	205	0	136	53	172	0	434	2183	0	51	1707	256
Arrive On Green	0.09	0.00	0.09	0.00	0.00	0.00	0.05	0.66	0.00	0.00	0.56	0.56
Sat Flow, veh/h	1697	0	1510	1810	1900	0	1654	3387	0	785	3025	454
Grp Volume(v), veh/h	60	0	109	0	0	0	147	620	0	0	374	376
Grp Sat Flow(s),veh/h/ln	1697	0	1510	1810	1900	0	1654	1650	0	785	1735	1744
Q Serve(g_s), s	4.7	0.0	9.9	0.0	0.0	0.0	5.2	11.0	0.0	0.0	16.7	16.8
Cycle Q Clear(g_c), s	4.7	0.0	9.9	0.0	0.0	0.0	5.2	11.0	0.0	0.0	16.7	16.8
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		0.26
Lane Grp Cap(c), veh/h	205	0	136	0	172	0	434	2183	0	51	979	984
V/C Ratio(X)	0.29	0.00	0.80	0.00	0.00	0.00	0.34	0.28	0.00	0.00	0.38	0.38
Avail Cap(c_a), veh/h	466	0	369	0	464	0	604	2183	0	51	979	984
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	0.00	0.96	0.96	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	60.0	0.0	62.4	0.0	0.0	0.0	12.5	9.9	0.0	0.0	16.9	16.9
Incr Delay (d2), s/veh	0.8	0.0	10.2	0.0	0.0	0.0	0.4	0.3	0.0	0.0	1.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	4.2	0.0	0.0	0.0	1.9	3.8	0.0	0.0	6.7	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.8	0.0	72.6	0.0	0.0	0.0	13.0	10.2	0.0	0.0	18.1	18.1
LnGrp LOS	E	A	E	A	A	A	B	B	A	A	B	B
Approach Vol, veh/h		169			0			767			750	
Approach Delay, s/veh		68.4			0.0			10.7			18.1	
Approach LOS		E						B			B	

Timer - Assigned Phs	1	2		4		6	7	8				
Phs Duration (G+Y+Rc), s	13.6	85.4		19.4		99.0	0.0	19.4				
Change Period (Y+Rc), s	6.1	6.4		* 6.8		6.4	* 6.8	* 6.8				
Max Green Setting (Gmax), s	21.9	64.6		* 34		92.6	* 34	* 34				
Max Q Clear Time (g_c+I1), s	7.2	18.8		0.0		13.0	0.0	11.9				
Green Ext Time (p_c), s	0.3	10.5		0.0		9.4	0.0	0.8				

Intersection Summary		
HCM 6th Ctrl Delay		19.8
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	10	185	10	10	10	375	395	45	10	425	0
Future Volume (veh/h)	5	10	185	10	10	10	375	395	45	10	425	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1811	1811	1811	1826	1826	1826	1752	1752	1752
Adj Flow Rate, veh/h	5	11	201	11	11	11	408	429	49	11	462	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	6	6	6	5	5	5	10	10	10
Cap, veh/h	252	265	224	230	124	124	683	1231	1043	565	996	844
Arrive On Green	0.01	0.14	0.14	0.01	0.15	0.15	0.12	0.67	0.67	0.02	0.76	0.00
Sat Flow, veh/h	1753	1841	1560	1725	831	831	1739	1826	1547	1668	1752	1485
Grp Volume(v), veh/h	5	11	201	11	0	22	408	429	49	11	462	0
Grp Sat Flow(s),veh/h/ln	1753	1841	1560	1725	0	1662	1739	1826	1547	1668	1752	1485
Q Serve(g_s), s	0.3	0.7	17.7	0.8	0.0	1.6	13.4	14.0	1.5	0.3	13.9	0.0
Cycle Q Clear(g_c), s	0.3	0.7	17.7	0.8	0.0	1.6	13.4	14.0	1.5	0.3	13.9	0.0
Prop In Lane	1.00		1.00	1.00		0.50	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	252	265	224	230	0	249	683	1231	1043	565	996	844
V/C Ratio(X)	0.02	0.04	0.90	0.05	0.00	0.09	0.60	0.35	0.05	0.02	0.46	0.00
Avail Cap(c_a), veh/h	303	355	301	270	0	320	881	1231	1043	604	996	844
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.90	0.90	0.00
Uniform Delay (d), s/veh	50.0	51.6	58.9	50.2	0.0	51.3	10.2	9.7	7.7	7.6	9.1	0.0
Incr Delay (d2), s/veh	0.0	0.1	22.5	0.1	0.0	0.2	0.8	0.8	0.1	0.0	1.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.3	8.4	0.3	0.0	0.7	4.7	5.4	0.5	0.1	4.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.0	51.7	81.4	50.3	0.0	51.4	11.1	10.5	7.8	7.6	10.5	0.0
LnGrp LOS	D	D	F	D	A	D	B	B	A	A	B	A
Approach Vol, veh/h		217			33			886			473	
Approach Delay, s/veh		79.2			51.0			10.6			10.4	
Approach LOS		E			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.1	86.6	5.4	27.0	6.2	101.4	6.2	26.1
Change Period (Y+Rc), s	4.5	7.0	4.5	6.0	4.5	7.0	4.5	6.0
Max Green Setting (Gmax), s	32.5	53.5	5.0	27.0	5.0	81.0	5.0	27.0
Max Q Clear Time (g_c+I1), s	15.4	15.9	2.3	3.6	2.3	16.0	2.8	19.7
Green Ext Time (p_c), s	1.1	6.0	0.0	0.1	0.0	6.2	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	20.6
HCM 6th LOS	C

Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Volume (veh/h)	30	5	15	10	5	85	45	710	35	30	395	15
Future Volume (veh/h)	30	5	15	10	5	85	45	710	35	30	395	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1796	1796	1796	1811	1811	1811	1767	1767	1767
Adj Flow Rate, veh/h	33	5	16	11	5	0	49	772	38	33	429	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	7	7	7	6	6	6	9	9	9
Cap, veh/h	86	13	24	96	35		89	1359	66	100	1265	46
Arrive On Green	0.05	0.05	0.05	0.05	0.05	0.00	1.00	1.00	1.00	0.86	0.86	0.86
Sat Flow, veh/h	836	249	457	979	660	0	72	1578	76	84	1469	54
Grp Volume(v), veh/h	54	0	0	16	0	0	859	0	0	478	0	0
Grp Sat Flow(s),veh/h/ln	1541	0	0	1639	0	0	1727	0	0	1607	0	0
Q Serve(g_s), s	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.7	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	7.3	0.0	0.0
Prop In Lane	0.61		0.30	0.69		0.00	0.06		0.04	0.07		0.03
Lane Grp Cap(c), veh/h	124	0	0	131	0		1514	0	0	1411	0	0
V/C Ratio(X)	0.44	0.00	0.00	0.12	0.00		0.57	0.00	0.00	0.34	0.00	0.00
Avail Cap(c_a), veh/h	225	0	0	230	0		1514	0	0	1411	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.85	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	64.9	0.0	0.0	63.3	0.0	0.0	0.0	0.0	0.0	1.9	0.0	0.0
Incr Delay (d2), s/veh	2.4	0.0	0.0	0.4	0.0	0.0	1.3	0.0	0.0	0.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0	1.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.3	0.0	0.0	63.7	0.0	0.0	1.3	0.0	0.0	2.5	0.0	0.0
LnGrp LOS	E	A	A	E	A		A	A	A	A	A	A
Approach Vol, veh/h		54			16			859			478	
Approach Delay, s/veh		67.3			63.7			1.3			2.5	
Approach LOS		E			E			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		126.5		13.5		126.5		13.5				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		111.0		17.0		111.0		17.0				
Max Q Clear Time (g_c+I1), s		9.3		6.7		2.0		3.2				
Green Ext Time (p_c), s		3.7		0.1		8.6		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	5.0
HCM 6th LOS	A

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	5	115	105	5	35	65	590	20	10	590	40
Future Volume (veh/h)	20	5	115	105	5	35	65	590	20	10	590	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1752	1752	1752	1455	1455	1455	1693	1693	1693	1811	1811	1811
Adj Flow Rate, veh/h	22	5	125	114	5	38	71	641	22	11	641	43
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	10	30	30	30	14	14	14	6	6	6
Cap, veh/h	147	175	148	190	17	126	9999	9999	1309	861	1162	78
Arrive On Green	0.06	0.10	0.10	0.07	0.11	0.11	1.00	1.00	1.00	0.47	0.35	0.35
Sat Flow, veh/h	1668	1752	1485	2689	146	1110	1612	3172	109	1725	3273	219
Grp Volume(v), veh/h	22	5	125	114	0	43	71	325	338	11	337	347
Grp Sat Flow(s),veh/h/ln	1668	1752	1485	1345	0	1256	1612	1608	1673	1725	1721	1772
Q Serve(g_s), s	2.9	0.4	11.6	5.8	0.0	4.4	0.0	0.0	0.0	1.4	22.0	22.0
Cycle Q Clear(g_c), s	2.9	0.4	11.6	5.8	0.0	4.4	0.0	0.0	0.0	1.4	22.0	22.0
Prop In Lane	1.00		1.00	1.00		0.88	1.00		0.07	1.00		0.12
Lane Grp Cap(c), veh/h	0	175	148	190	0	142	19628	19344	20126	0	611	629
V/C Ratio(X)	0.00	0.03	0.84	0.60	0.00	0.30	0.00	0.02	0.02	0.00	0.55	0.55
Avail Cap(c_a), veh/h	0	470	399	269	0	544	19628	19344	20126	0	611	629
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.96	0.96	0.96
Uniform Delay (d), s/veh	0.0	56.9	61.9	63.1	0.0	57.0	0.0	0.0	0.0	0.0	36.2	36.2
Incr Delay (d2), s/veh	0.0	0.1	12.1	6.4	0.0	2.0	0.0	0.0	0.0	0.0	3.4	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	4.9	2.2	0.0	1.5	0.0	0.0	0.0	0.0	9.6	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	57.0	74.0	69.5	0.0	59.0	0.0	0.0	0.0	0.0	39.6	39.6
LnGrp LOS	A	E	E	E	A	E	A	A	A	A	D	D
Approach Vol, veh/h		152			157			734			695	
Approach Delay, s/veh		62.8			66.6			0.0			39.0	
Approach LOS		E			E			A			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	1751.2	56.0	18.9	21.4	72.0	1735.2	15.4	24.9
Change Period (Y+Rc), s	6.5	6.3	9.0	7.4	6.3	* 6.5	7.4	* 9
Max Green Setting (Gmax), s	9.5	49.7	14.0	37.6	65.7	* 66	60.6	* 61
Max Q Clear Time (g_c+I1), s	2.0	24.0	7.8	13.6	3.4	2.0	4.9	6.4
Green Ext Time (p_c), s	0.1	7.8	0.3	0.4	0.0	9.3	0.1	0.4

Intersection Summary	
HCM 6th Ctrl Delay	27.1
HCM 6th LOS	C

Notes

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

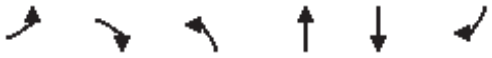
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	5	30	5	5	30	30	740	0	10	395	15
Future Volume (veh/h)	20	5	30	5	5	30	30	740	0	10	395	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1811	1811	1811	1781	1781	1781
Adj Flow Rate, veh/h	22	5	33	5	5	33	33	804	0	11	429	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	6	6	6	8	8	8
Cap, veh/h	62	15	50	34	16	71	837	1554	0	43	1420	52
Arrive On Green	0.06	0.06	0.06	0.06	0.06	0.06	1.00	1.00	0.00	1.00	1.00	1.00
Sat Flow, veh/h	472	263	899	100	284	1265	915	1811	0	20	1655	61
Grp Volume(v), veh/h	60	0	0	43	0	0	33	804	0	456	0	0
Grp Sat Flow(s),veh/h/ln	1634	0	0	1649	0	0	915	1811	0	1736	0	0
Q Serve(g_s), s	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.8	0.0	0.0	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.37		0.55	0.12		0.77	1.00		0.00	0.02		0.04
Lane Grp Cap(c), veh/h	127	0	0	121	0	0	837	1554	0	1516	0	0
V/C Ratio(X)	0.47	0.00	0.00	0.35	0.00	0.00	0.04	0.52	0.00	0.30	0.00	0.00
Avail Cap(c_a), veh/h	204	0	0	202	0	0	837	1554	0	1516	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.82	0.82	0.00	0.94	0.00	0.00
Uniform Delay (d), s/veh	64.6	0.0	0.0	64.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	2.7	0.0	0.0	1.8	0.0	0.0	0.1	1.0	0.0	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	0.0	1.6	0.0	0.0	0.0	0.4	0.0	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.3	0.0	0.0	65.8	0.0	0.0	0.1	1.0	0.0	0.5	0.0	0.0
LnGrp LOS	E	A	A	E	A	A	A	A	A	A	A	A
Approach Vol, veh/h		60			43			837			456	
Approach Delay, s/veh		67.3			65.8			1.0			0.5	
Approach LOS		E			E			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		126.1		13.9		126.1		13.9				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		113.0		15.0		113.0		15.0				
Max Q Clear Time (g_c+I1), s		2.0		6.8		2.0		5.6				
Green Ext Time (p_c), s		3.3		0.1		7.5		0.1				

Intersection Summary												
HCM 6th Ctrl Delay			5.7									
HCM 6th LOS			A									



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	100	75	135	560	320	80
Future Volume (veh/h)	100	75	135	560	320	80
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1826	1826	1811	1811	1796	1796
Adj Flow Rate, veh/h	109	82	147	609	348	87
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	6	6	7	7
Cap, veh/h	123	92	256	1017	1116	279
Arrive On Green	0.13	0.13	1.00	1.00	1.00	1.00
Sat Flow, veh/h	938	706	279	1263	1387	347
Grp Volume(v), veh/h	192	0	756	0	0	435
Grp Sat Flow(s),veh/h/ln	1652	0	1542	0	0	1734
Q Serve(g_s), s	16.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	16.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.57	0.43	0.19			0.20
Lane Grp Cap(c), veh/h	216	0	1272	0	0	1396
V/C Ratio(X)	0.89	0.00	0.59	0.00	0.00	0.31
Avail Cap(c_a), veh/h	301	0	1272	0	0	1396
HCM Platoon Ratio	1.00	1.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.90	0.00	0.00	0.97
Uniform Delay (d), s/veh	59.8	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	20.4	0.0	1.8	0.0	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	0.0	0.7	0.0	0.0	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	80.3	0.0	1.8	0.0	0.0	0.6
LnGrp LOS	F	A	A	A	A	A
Approach Vol, veh/h	192			756	435	
Approach Delay, s/veh	80.3			1.8	0.6	
Approach LOS	F			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		117.2		22.8		117.2
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		105.5		25.5		105.5
Max Q Clear Time (g_c+I1), s		2.0		18.0		2.0
Green Ext Time (p_c), s		6.6		0.3		3.1

Intersection Summary		
HCM 6th Ctrl Delay		12.3
HCM 6th LOS		B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	0	5	0	0	0	5	555	5	5	335	55
Future Volume (veh/h)	140	0	5	0	0	0	5	555	5	5	335	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1900	1900	1900	1811	1811	1811	1796	1796	1796
Adj Flow Rate, veh/h	152	0	0	0	0	0	5	603	5	5	364	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	0	0	0	6	6	6	7	7	7
Cap, veh/h	227	0		0	241	0	29	1420	1208	32	1401	
Arrive On Green	0.13	0.00	0.00	0.00	0.00	0.00	0.79	0.79	0.79	1.00	1.00	0.00
Sat Flow, veh/h	1384	0	1547	0	1900	0	4	1804	1535	7	1780	1522
Grp Volume(v), veh/h	152	0	0	0	0	0	608	0	5	369	0	0
Grp Sat Flow(s),veh/h/ln	1384	0	1547	0	1900	0	1808	0	1535	1787	0	1522
Q Serve(g_s), s	15.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	15.1	0.0	0.0	0.0	0.0	0.0	15.1	0.0	0.1	0.0	0.0	0.0
Prop In Lane	1.00		1.00	0.00		0.00	0.01		1.00	0.01		1.00
Lane Grp Cap(c), veh/h	227	0		0	241	0	1449	0	1208	1433	0	
V/C Ratio(X)	0.67	0.00		0.00	0.00	0.00	0.42	0.00	0.00	0.26	0.00	
Avail Cap(c_a), veh/h	407	0		0	489	0	1449	0	1208	1433	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00	0.96	0.00	0.00
Uniform Delay (d), s/veh	59.9	0.0	0.0	0.0	0.0	0.0	4.8	0.0	3.2	0.0	0.0	0.0
Incr Delay (d2), s/veh	3.4	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	0.0	0.0	0.0	0.0	0.0	4.7	0.0	0.0	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.3	0.0	0.0	0.0	0.0	0.0	5.7	0.0	3.2	0.4	0.0	0.0
LnGrp LOS	E	A		A	A	A	A	A	A	A	A	
Approach Vol, veh/h		152			0			613			369	
Approach Delay, s/veh		63.3			0.0			5.6			0.4	
Approach LOS		E						A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		116.2		23.8		116.2		23.8				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		92.0		36.0		92.0		36.0				
Max Q Clear Time (g_c+I1), s		2.0		17.1		17.1		0.0				
Green Ext Time (p_c), s		2.0		0.8		4.2		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	11.7
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	5	90	0	135	40	630	60	75	350	5
Future Volume (veh/h)	5	0	5	90	0	135	40	630	60	75	350	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900	1870	1870	1870	1856	1826	1870	1870	1767	1900
Adj Flow Rate, veh/h	5	0	5	98	0	147	43	685	65	82	380	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	0	2	2	2	3	5	2	2	9	0
Cap, veh/h	134	12	108	139	7	164	85	1272	1198	590	1315	17
Arrive On Green	0.18	0.00	0.18	0.18	0.00	0.18	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	531	68	599	570	38	912	76	1684	1585	712	1740	23
Grp Volume(v), veh/h	10	0	0	245	0	0	728	0	65	82	0	385
Grp Sat Flow(s),veh/h/ln	1198	0	0	1521	0	0	1760	0	1585	712	0	1762
Q Serve(g_s), s	0.0	0.0	0.0	20.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.7	0.0	0.0	22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.50		0.50	0.40		0.60	0.06		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	254	0	0	310	0	0	1357	0	1198	590	0	1332
V/C Ratio(X)	0.04	0.00	0.00	0.79	0.00	0.00	0.54	0.00	0.05	0.14	0.00	0.29
Avail Cap(c_a), veh/h	376	0	0	442	0	0	1357	0	1198	590	0	1332
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.69	0.00	0.69	0.96	0.00	0.96
Uniform Delay (d), s/veh	47.3	0.0	0.0	56.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	6.2	0.0	0.0	1.1	0.0	0.1	0.5	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	9.0	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.4	0.0	0.0	62.2	0.0	0.0	1.1	0.0	0.1	0.5	0.0	0.5
LnGrp LOS	D	A	A	E	A	A	A	A	A	A	A	A
Approach Vol, veh/h		10			245			793			467	
Approach Delay, s/veh		47.4			62.2			1.0			0.5	
Approach LOS		D			E			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		110.3		29.7		110.3		29.7				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		93.5		37.5		93.5		37.5				
Max Q Clear Time (g_c+I1), s		2.0		2.7		2.0		24.0				
Green Ext Time (p_c), s		6.5		0.0		3.3		1.2				

Intersection Summary												
HCM 6th Ctrl Delay			11.0									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	185	425	10	100	690	95	45	175	80	155	145	255
Future Volume (veh/h)	185	425	10	100	690	95	45	175	80	155	145	255
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1841	1900	1885	1885	1826	1870	1856	1841	1811	1870	1841
Adj Flow Rate, veh/h	201	462	0	109	750	0	49	190	87	168	158	277
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	8	4	0	1	1	5	2	3	4	6	2	4
Cap, veh/h	451	1984		592	1921		169	228	192	247	495	413
Arrive On Green	0.07	0.57	0.00	0.04	0.54	0.00	0.12	0.12	0.12	0.10	0.26	0.26
Sat Flow, veh/h	1697	3497	1610	1795	3582	1547	954	1856	1560	1725	1870	1560
Grp Volume(v), veh/h	201	462	0	109	750	0	49	190	87	168	158	277
Grp Sat Flow(s),veh/h/ln	1697	1749	1610	1795	1791	1547	954	1856	1560	1725	1870	1560
Q Serve(g_s), s	7.4	9.2	0.0	3.6	17.2	0.0	6.7	14.0	7.3	11.8	9.5	22.2
Cycle Q Clear(g_c), s	7.4	9.2	0.0	3.6	17.2	0.0	6.7	14.0	7.3	11.8	9.5	22.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	451	1984		592	1921		169	228	192	247	495	413
V/C Ratio(X)	0.45	0.23		0.18	0.39		0.29	0.83	0.45	0.68	0.32	0.67
Avail Cap(c_a), veh/h	598	1984		611	1921		235	358	301	297	681	568
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.8	15.1	0.0	11.9	19.0	0.0	56.8	60.0	57.0	47.8	41.3	46.0
Incr Delay (d2), s/veh	0.7	0.3	0.0	0.1	0.6	0.0	0.9	9.3	1.7	4.8	0.4	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	3.8	0.0	1.5	7.3	0.0	1.7	7.2	3.0	5.4	4.5	8.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.5	15.4	0.0	12.0	19.6	0.0	57.7	69.3	58.7	52.5	41.7	47.9
LnGrp LOS	B	B		B	B		E	E	E	D	D	D
Approach Vol, veh/h		663			859			326			603	
Approach Delay, s/veh		15.1			18.7			64.8			47.6	
Approach LOS		B			B			E			D	

Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.8	81.1		43.1	11.5	85.4	19.9	23.2				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	22.0	49.0		51.0	7.0	64.0	18.0	27.0				
Max Q Clear Time (g_c+I1), s	9.4	19.2		24.2	5.6	11.2	13.8	16.0				
Green Ext Time (p_c), s	0.4	5.9		1.9	0.0	3.5	0.2	1.2				

Intersection Summary			
HCM 6th Ctrl Delay		30.9	
HCM 6th LOS		C	

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	215	5	215	0	0	0	0	945	20	155	530	0
Future Volume (vph)	215	5	215	0	0	0	0	945	20	155	530	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	16	16	16	12	12	12	12	12	12
Total Lost time (s)	6.5	6.5	6.5					7.0		7.1	7.0	
Lane Util. Factor	0.95	0.95	1.00					0.95		1.00	0.95	
Frt	1.00	1.00	0.85					1.00		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1491	1498	1404					3332		1641	3282	
Flt Permitted	0.95	0.95	1.00					1.00		0.21	1.00	
Satd. Flow (perm)	1491	1498	1404					3332		361	3282	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	234	5	234	0	0	0	0	1027	22	168	576	0
RTOR Reduction (vph)	0	0	205	0	0	0	0	1	0	0	0	0
Lane Group Flow (vph)	119	120	29	0	0	0	0	1048	0	168	576	0
Heavy Vehicles (%)	15%	15%	15%	0%	0%	0%	8%	8%	8%	10%	10%	10%
Turn Type	Split	NA	Perm					NA		D.P+P	NA	
Protected Phases	4	4						6		5	2	
Permitted Phases			4							6		
Actuated Green, G (s)	17.3	17.3	17.3					81.2		102.1	109.2	
Effective Green, g (s)	17.3	17.3	17.3					81.2		102.1	109.2	
Actuated g/C Ratio	0.12	0.12	0.12					0.58		0.73	0.78	
Clearance Time (s)	6.5	6.5	6.5					7.0		7.1	7.0	
Vehicle Extension (s)	3.0	3.0	3.0					7.0		3.0	7.0	
Lane Grp Cap (vph)	184	185	173					1932		454	2559	
v/s Ratio Prot	0.08	c0.08						c0.31		c0.06	0.18	
v/s Ratio Perm			0.02							0.21		
v/c Ratio	0.65	0.65	0.17					0.54		0.37	0.23	
Uniform Delay, d1	58.4	58.5	54.9					18.0		18.0	4.1	
Progression Factor	1.00	1.00	1.00					0.88		0.98	0.47	
Incremental Delay, d2	7.6	7.6	0.5					0.8		0.5	0.2	
Delay (s)	66.0	66.1	55.4					16.8		18.1	2.1	
Level of Service	E	E	E					B		B	A	
Approach Delay (s)		60.8			0.0			16.8			5.7	
Approach LOS		E			A			B			A	

Intersection Summary			
HCM 2000 Control Delay	22.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.6
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	3.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	45	130	435	55	90	250
Future Vol, veh/h	45	130	435	55	90	250
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	310	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	7	7	8	8
Mvmt Flow	49	141	473	60	98	272

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	971	503	0	0	533	0
Stage 1	503	-	-	-	-	-
Stage 2	468	-	-	-	-	-
Critical Hdwy	6.44	6.24	-	-	4.18	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	-	-	2.272	-
Pot Cap-1 Maneuver	278	565	-	-	1005	-
Stage 1	603	-	-	-	-	-
Stage 2	626	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	246	565	-	-	1005	-
Mov Cap-2 Maneuver	246	-	-	-	-	-
Stage 1	603	-	-	-	-	-
Stage 2	554	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16	0	2.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	246	565	1005	-
HCM Lane V/C Ratio	-	-	0.199	0.25	0.097	-
HCM Control Delay (s)	-	-	23.2	13.5	9	0
HCM Lane LOS	-	-	C	B	A	A
HCM 95th %tile Q(veh)	-	-	0.7	1	0.3	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	5	5	965	735	10
Future Vol, veh/h	0	5	5	965	735	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Yield
Storage Length	80	0	135	-	-	220
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	20	20	10	10	10	10
Mvmt Flow	0	5	5	1049	799	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1334	400	799	0	-	0
Stage 1	799	-	-	-	-	-
Stage 2	535	-	-	-	-	-
Critical Hdwy	7.2	7.3	4.3	-	-	-
Critical Hdwy Stg 1	6.2	-	-	-	-	-
Critical Hdwy Stg 2	6.2	-	-	-	-	-
Follow-up Hdwy	3.7	3.5	2.3	-	-	-
Pot Cap-1 Maneuver	124	552	770	-	-	-
Stage 1	360	-	-	-	-	-
Stage 2	503	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	123	552	770	-	-	-
Mov Cap-2 Maneuver	123	-	-	-	-	-
Stage 1	358	-	-	-	-	-
Stage 2	503	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.6	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	770	-	-	552	-	-
HCM Lane V/C Ratio	0.007	-	-	0.01	-	-
HCM Control Delay (s)	9.7	-	0	11.6	-	-
HCM Lane LOS	A	-	A	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0	-	-

Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	5	0	160	0	730	95	200	435	0
Future Vol, veh/h	0	0	0	5	0	160	0	730	95	200	435	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	160	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	17	0	1	0	6	0	2	9	2
Mvmt Flow	0	0	0	5	0	174	0	793	103	217	473	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1839	1803	473	1752	1752	845	-	0	0	896	0	0
Stage 1	907	907	-	845	845	-	-	-	-	-	-	-
Stage 2	932	896	-	907	907	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.27	6.5	6.21	-	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.27	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.27	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.653	4	3.309	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	58	79	591	61	86	364	0	-	-	757	-	0
Stage 1	330	355	-	337	382	-	0	-	-	-	-	0
Stage 2	320	359	-	311	357	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	24	56	591	47	61	364	-	-	-	757	-	-
Mov Cap-2 Maneuver	24	56	-	47	61	-	-	-	-	-	-	-
Stage 1	330	253	-	337	382	-	-	-	-	-	-	-
Stage 2	167	359	-	222	255	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	32.9	0	3.7
HCM LOS	A	D		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	-	302	757	-
HCM Lane V/C Ratio	-	-	-	-	0.594	0.287	-
HCM Control Delay (s)	-	-	0	0	32.9	11.7	-
HCM Lane LOS	-	-	A	A	D	B	-
HCM 95th %tile Q(veh)	-	-	-	-	3.6	1.2	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	25	0	35	15	850	40	5	915	0
Future Vol, veh/h	0	0	0	25	0	35	15	850	40	5	915	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	6	0	7	0	6	8	0	6	0
Mvmt Flow	0	0	0	27	0	38	16	924	43	5	995	0

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	1486	1983	484	995	0	0	967	0	0
Stage 1	978	978	-	-	-	-	-	-	-
Stage 2	508	1005	-	-	-	-	-	-	-
Critical Hdwy	6.92	6.5	7.04	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	5.92	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.92	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.56	4	3.37	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	111	62	516	703	-	-	720	-	-
Stage 1	316	331	-	-	-	-	-	-	-
Stage 2	558	322	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	104	0	516	703	-	-	720	-	-
Mov Cap-2 Maneuver	104	0	-	-	-	-	-	-	-
Stage 1	300	0	-	-	-	-	-	-	-
Stage 2	549	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	32.5	0.4	0.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	703	-	-	195	720	-	-
HCM Lane V/C Ratio	0.023	-	-	0.334	0.008	-	-
HCM Control Delay (s)	10.2	0.2	-	32.5	10	0.1	-
HCM Lane LOS	B	A	-	D	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.4	0	-	-

MOVEMENT SUMMARY

Site: 1 [SR 53 @ New Cut Rd 2030 PM (With Operational & Regional Improvements)]

SR 53 @ New Cut Rd - 2030 PM (With Diversions)
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: SR 53											
3	L2	43	6.0	0.377	6.2	LOS A	2.8	72.9	0.41	0.23	34.4
8	T1	462	6.0	0.377	6.2	LOS A	2.8	72.9	0.41	0.23	34.3
18	R2	114	6.0	0.085	3.4	LOS A	0.5	12.5	0.32	0.15	35.1
Approach		620	6.0	0.377	5.7	LOS A	2.8	72.9	0.39	0.22	34.5
East: New Cut Rd											
1	L2	92	6.5	0.253	7.7	LOS A	1.6	41.2	0.70	0.61	32.6
6	T1	43	6.5	0.253	7.7	LOS A	1.6	41.2	0.70	0.61	32.5
16	R2	54	6.5	0.253	7.7	LOS A	1.6	41.2	0.70	0.61	31.6
Approach		190	6.5	0.253	7.7	LOS A	1.6	41.2	0.70	0.61	32.3
North: SR 53											
7	L2	87	5.5	0.365	6.9	LOS A	2.6	69.2	0.51	0.33	33.7
4	T1	777	5.5	0.365	6.5	LOS A	2.7	71.0	0.50	0.32	34.2
14	R2	11	5.5	0.365	6.2	LOS A	2.7	71.0	0.49	0.31	33.5
Approach		875	5.5	0.365	6.5	LOS A	2.7	71.0	0.50	0.32	34.1
West: Ednaville Rd											
5	L2	1	2.5	0.062	5.6	LOS A	0.3	6.7	0.63	0.56	35.0
2	T1	43	2.5	0.062	5.6	LOS A	0.3	6.7	0.63	0.56	34.9
12	R2	38	2.5	0.050	5.3	LOS A	0.2	5.4	0.60	0.52	34.1
Approach		83	2.5	0.062	5.5	LOS A	0.3	6.7	0.62	0.54	34.5
All Vehicles		1767	5.6	0.377	6.3	LOS A	2.8	72.9	0.49	0.32	34.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

HCM 6th Signalized Intersection Summary
201: SR 53 & SR 124

01/18/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	470	30	80	255	285	30	375	20	315	700	85
Future Volume (veh/h)	120	470	30	80	255	285	30	375	20	315	700	85
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1841	1841	1796	1796	1796	1841	1841	1841
Adj Flow Rate, veh/h	130	511	0	87	277	0	33	408	22	342	761	92
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	4	4	7	7	7	4	4	4
Cap, veh/h	140	620		175	654		262	779	660	634	1004	851
Arrive On Green	0.05	0.18	0.00	0.07	0.19	0.00	0.03	0.87	0.87	0.17	0.73	0.73
Sat Flow, veh/h	1753	3497	1560	1753	3497	1560	1711	1796	1522	1753	1841	1560
Grp Volume(v), veh/h	130	511	0	87	277	0	33	408	22	342	761	92
Grp Sat Flow(s),veh/h/ln	1753	1749	1560	1753	1749	1560	1711	1796	1522	1753	1841	1560
Q Serve(g_s), s	7.0	19.7	0.0	7.7	9.8	0.0	1.2	7.7	0.3	15.4	35.3	2.5
Cycle Q Clear(g_c), s	7.0	19.7	0.0	7.7	9.8	0.0	1.2	7.7	0.3	15.4	35.3	2.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	140	620		0	654		262	779	660	634	1004	851
V/C Ratio(X)	0.93	0.82		0.00	0.42		0.13	0.52	0.03	0.54	0.76	0.11
Avail Cap(c_a), veh/h	140	1124		0	749		272	779	660	723	1004	851
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.96	0.96	0.96	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.0	55.5	0.0	0.0	50.2	0.0	18.1	5.8	5.3	16.3	13.6	9.1
Incr Delay (d2), s/veh	54.2	2.8	0.0	0.0	0.4	0.0	0.2	2.4	0.1	0.7	5.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	8.8	0.0	0.0	4.4	0.0	0.5	2.4	0.1	5.5	11.5	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	91.2	58.3	0.0	0.0	50.7	0.0	18.3	8.2	5.4	17.0	18.9	9.3
LnGrp LOS	F	E		A	D		B	A	A	B	B	A
Approach Vol, veh/h		641			364			463			1195	
Approach Delay, s/veh		65.0			38.6			8.8			17.6	
Approach LOS		E			D			A			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.2	83.1	16.4	31.3	24.9	67.4	15.0	32.7
Change Period (Y+Rc), s	6.9	* 6.7	6.5	6.5	6.9	* 6.7	7.9	6.5
Max Green Setting (Gmax), s	3.1	* 72	45.0	45.0	25.1	* 50	7.1	30.0
Max Q Clear Time (g_c+I1), s	3.2	37.3	9.7	21.7	17.4	9.7	9.0	11.8
Green Ext Time (p_c), s	0.0	12.6	0.2	3.1	0.6	5.4	0.0	1.6

Intersection Summary	
HCM 6th Ctrl Delay	30.3
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	40	0	240	260	825	0	0	910	235
Future Volume (veh/h)	0	0	0	40	0	240	260	825	0	0	910	235
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1648	0	1648	1796	1796	0	0	1781	1781
Adj Flow Rate, veh/h				43	0	261	283	897	0	0	989	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				17	0	17	7	7	0	0	8	8
Cap, veh/h				320	0	285	390	2226	0	0	1727	
Arrive On Green				0.20	0.00	0.20	0.10	0.65	0.00	0.00	0.51	0.00
Sat Flow, veh/h				1570	0	1397	1711	3503	0	0	3474	1510
Grp Volume(v), veh/h				43	0	261	283	897	0	0	989	0
Grp Sat Flow(s),veh/h/ln				1570	0	1397	1711	1706	0	0	1692	1510
Q Serve(g_s), s				3.1	0.0	25.6	10.8	17.4	0.0	0.0	28.3	0.0
Cycle Q Clear(g_c), s				3.1	0.0	25.6	10.8	17.4	0.0	0.0	28.3	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				320	0	285	390	2226	0	0	1727	
V/C Ratio(X)				0.13	0.00	0.92	0.72	0.40	0.00	0.00	0.57	
Avail Cap(c_a), veh/h				397	0	353	563	2226	0	0	1727	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.80	0.80	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				45.6	0.0	54.5	18.7	11.5	0.0	0.0	23.7	0.0
Incr Delay (d2), s/veh				0.3	0.0	26.0	3.0	0.4	0.0	0.0	1.4	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.3	0.0	11.1	4.2	6.2	0.0	0.0	11.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				45.9	0.0	80.5	21.6	11.9	0.0	0.0	25.1	0.0
LnGrp LOS				D	A	F	C	B	A	A	C	
Approach Vol, veh/h					304			1180			989	
Approach Delay, s/veh					75.6			14.3			25.1	
Approach LOS					E			B			C	

Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	19.9	78.1				98.0		35.2				
Change Period (Y+Rc), s	* 5.9	6.7				6.7		6.6				
Max Green Setting (Gmax), s	* 28	57.3				91.3		35.4				
Max Q Clear Time (g_c+I1), s	12.8	30.3				19.4		27.6				
Green Ext Time (p_c), s	1.1	18.1				27.9		1.0				

Intersection Summary		
HCM 6th Ctrl Delay		26.1
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	0	130	0	0	0	180	635	0	0	765	95
Future Volume (veh/h)	100	0	130	0	0	0	180	635	0	0	765	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1411	1411	1411	1767	1767	1767	1811	1811	1811
Adj Flow Rate, veh/h	109	0	141	0	0	0	196	690	0	0	832	103
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	33	33	33	9	9	9	6	6	6
Cap, veh/h	245	0	172	52	157	0	385	2220	0	51	1685	209
Arrive On Green	0.11	0.00	0.11	0.00	0.00	0.00	0.14	1.00	0.00	0.00	0.55	0.55
Sat Flow, veh/h	1739	0	1547	1344	1411	0	1682	3445	0	729	3081	381
Grp Volume(v), veh/h	109	0	141	0	0	0	196	690	0	0	465	470
Grp Sat Flow(s),veh/h/ln	1739	0	1547	1344	1411	0	1682	1678	0	729	1721	1742
Q Serve(g_s), s	8.3	0.0	12.5	0.0	0.0	0.0	7.5	0.0	0.0	0.0	23.5	23.5
Cycle Q Clear(g_c), s	8.3	0.0	12.5	0.0	0.0	0.0	7.5	0.0	0.0	0.0	23.5	23.5
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		0.22
Lane Grp Cap(c), veh/h	245	0	172	0	157	0	385	2220	0	51	941	953
V/C Ratio(X)	0.45	0.00	0.82	0.00	0.00	0.00	0.51	0.31	0.00	0.00	0.49	0.49
Avail Cap(c_a), veh/h	476	0	378	0	345	0	565	2220	0	51	941	953
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	0.00	0.91	0.91	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	59.0	0.0	60.9	0.0	0.0	0.0	13.4	0.0	0.0	0.0	19.7	19.7
Incr Delay (d2), s/veh	1.3	0.0	9.3	0.0	0.0	0.0	0.9	0.3	0.0	0.0	1.9	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	5.4	0.0	0.0	0.0	2.4	0.1	0.0	0.0	9.4	9.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.3	0.0	70.1	0.0	0.0	0.0	14.4	0.3	0.0	0.0	21.5	21.5
LnGrp LOS	E	A	E	A	A	A	B	A	A	A	C	C
Approach Vol, veh/h		250			0			886			935	
Approach Delay, s/veh		65.8			0.0			3.4			21.5	
Approach LOS		E						A			C	

Timer - Assigned Phs	1	2		4		6	7	8				
Phs Duration (G+Y+Rc), s	16.0	83.0		22.3		99.0	0.0	22.3				
Change Period (Y+Rc), s	6.1	6.4		* 6.8		6.4	* 6.8	* 6.8				
Max Green Setting (Gmax), s	24.9	61.6		* 34		92.6	* 34	* 34				
Max Q Clear Time (g_c+I1), s	9.5	25.5		0.0		2.0	0.0	14.5				
Green Ext Time (p_c), s	0.4	13.2		0.0		10.9	0.0	1.1				

Intersection Summary		
HCM 6th Ctrl Delay		19.1
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	35	275	35	15	15	155	395	30	20	785	5
Future Volume (veh/h)	15	35	275	35	15	15	155	395	30	20	785	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1900	1900	1900	1826	1826	1826	1856	1856	1856
Adj Flow Rate, veh/h	16	38	299	38	16	16	168	429	33	22	853	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	0	0	0	5	5	5	3	3	3
Cap, veh/h	343	364	308	288	178	178	504	1099	931	530	1052	892
Arrive On Green	0.02	0.19	0.19	0.03	0.20	0.20	0.06	0.60	0.60	0.04	1.00	1.00
Sat Flow, veh/h	1795	1885	1598	1810	872	872	1739	1826	1547	1767	1856	1572
Grp Volume(v), veh/h	16	38	299	38	0	32	168	429	33	22	853	5
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1810	0	1743	1739	1826	1547	1767	1856	1572
Q Serve(g_s), s	1.0	2.3	26.0	2.3	0.0	2.1	5.7	17.1	1.2	0.7	0.0	0.0
Cycle Q Clear(g_c), s	1.0	2.3	26.0	2.3	0.0	2.1	5.7	17.1	1.2	0.7	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.50	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	343	364	308	288	0	355	504	1099	931	530	1052	892
V/C Ratio(X)	0.05	0.10	0.97	0.13	0.00	0.09	0.33	0.39	0.04	0.04	0.81	0.01
Avail Cap(c_a), veh/h	378	364	308	303	0	355	538	1099	931	557	1052	892
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.70	0.70	0.70
Uniform Delay (d), s/veh	42.9	46.5	56.1	43.5	0.0	45.2	11.0	14.5	11.3	10.9	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.1	43.1	0.2	0.0	0.1	0.4	1.0	0.1	0.0	4.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.1	14.2	1.1	0.0	0.9	2.1	7.0	0.4	0.2	1.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.0	46.7	99.2	43.7	0.0	45.3	11.4	15.5	11.4	11.0	4.9	0.0
LnGrp LOS	D	D	F	D	A	D	B	B	B	B	A	A
Approach Vol, veh/h		353			70			630			880	
Approach Delay, s/veh		91.0			44.4			14.2			5.0	
Approach LOS		F			D			B			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.3	86.4	6.8	34.5	7.4	91.3	8.4	33.0
Change Period (Y+Rc), s	4.5	7.0	4.5	6.0	4.5	7.0	4.5	6.0
Max Green Setting (Gmax), s	10.5	75.5	5.0	27.0	5.0	81.0	5.0	27.0
Max Q Clear Time (g_c+I1), s	7.7	2.0	3.0	4.1	2.7	19.1	4.3	28.0
Green Ext Time (p_c), s	0.1	17.5	0.0	0.1	0.0	6.1	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	25.1
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Volume (veh/h)	35	5	45	5	0	20	15	600	30	20	880	20
Future Volume (veh/h)	35	5	45	5	0	20	15	600	30	20	880	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1856	1856	1856	1826	1826	1826	1870	1870	1870
Adj Flow Rate, veh/h	38	5	49	5	0	0	16	652	33	22	957	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	3	3	3	5	5	5	2	2	2
Cap, veh/h	76	13	60	133	0		42	1403	70	45	1490	34
Arrive On Green	0.07	0.07	0.07	0.07	0.00	0.00	1.00	1.00	1.00	0.84	0.84	0.84
Sat Flow, veh/h	549	180	831	1143	0	0	19	1665	83	22	1768	40
Grp Volume(v), veh/h	92	0	0	5	0	0	701	0	0	1001	0	0
Grp Sat Flow(s),veh/h/ln	1560	0	0	1143	0	0	1768	0	0	1831	0	0
Q Serve(g_s), s	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	8.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	25.6	0.0	0.0
Prop In Lane	0.41		0.53	1.00		0.00	0.02		0.05	0.02		0.02
Lane Grp Cap(c), veh/h	148	0	0	133	0		1516	0	0	1569	0	0
V/C Ratio(X)	0.62	0.00	0.00	0.04	0.00		0.46	0.00	0.00	0.64	0.00	0.00
Avail Cap(c_a), veh/h	203	0	0	181	0		1516	0	0	1569	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.91	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	64.0	0.0	0.0	60.6	0.0	0.0	0.0	0.0	0.0	3.7	0.0	0.0
Incr Delay (d2), s/veh	4.2	0.0	0.0	0.1	0.0	0.0	0.9	0.0	0.0	2.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	0.0	0.0	0.2	0.0	0.0	0.4	0.0	0.0	7.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.2	0.0	0.0	60.7	0.0	0.0	0.9	0.0	0.0	5.7	0.0	0.0
LnGrp LOS	E	A	A	E	A		A	A	A	A	A	A
Approach Vol, veh/h		92			5			701			1001	
Approach Delay, s/veh		68.2			60.7			0.9			5.7	
Approach LOS		E			E			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		124.0		16.0		124.0		16.0				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		113.0		15.0		113.0		15.0				
Max Q Clear Time (g_c+I1), s		27.6		10.1		2.0		2.6				
Green Ext Time (p_c), s		11.5		0.2		6.0		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			7.2									
HCM 6th LOS			A									

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	35	200	80	10	30	110	800	80	45	755	45
Future Volume (veh/h)	40	35	200	80	10	30	110	800	80	45	755	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1248	1248	1248	1752	1752	1752	1826	1826	1826
Adj Flow Rate, veh/h	43	38	217	87	11	33	120	870	87	49	821	49
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	44	44	44	10	10	10	5	5	5
Cap, veh/h	151	287	243	159	46	139	433	1565	156	200	1228	73
Arrive On Green	0.06	0.16	0.16	0.07	0.17	0.17	0.46	1.00	1.00	0.09	0.37	0.37
Sat Flow, veh/h	1739	1826	1547	2306	275	825	1668	3055	306	1739	3326	199
Grp Volume(v), veh/h	43	38	217	87	0	44	120	474	483	49	428	442
Grp Sat Flow(s),veh/h/ln	1739	1826	1547	1153	0	1099	1668	1664	1697	1739	1735	1790
Q Serve(g_s), s	5.7	2.5	19.2	5.1	0.0	4.8	1.3	0.0	0.0	6.0	28.9	28.9
Cycle Q Clear(g_c), s	5.7	2.5	19.2	5.1	0.0	4.8	1.3	0.0	0.0	6.0	28.9	28.9
Prop In Lane	1.00		1.00	1.00		0.75	1.00		0.18	1.00		0.11
Lane Grp Cap(c), veh/h	0	287	243	159	0	186	433	852	869	0	641	661
V/C Ratio(X)	0.00	0.13	0.89	0.55	0.00	0.24	0.28	0.56	0.56	0.00	0.67	0.67
Avail Cap(c_a), veh/h	0	464	393	165	0	429	433	852	869	0	641	661
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.91	0.91	0.91
Uniform Delay (d), s/veh	0.0	50.8	57.8	63.1	0.0	50.3	29.4	0.0	0.0	0.0	37.0	37.0
Incr Delay (d2), s/veh	0.0	0.2	14.1	6.5	0.0	1.1	0.3	2.6	2.6	0.0	5.0	4.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.2	8.5	1.7	0.0	1.4	2.3	0.6	0.6	0.0	12.8	13.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	51.0	71.9	69.6	0.0	51.5	29.7	2.6	2.6	0.0	42.0	41.8
LnGrp LOS	A	D	E	E	A	D	C	A	A	A	D	D
Approach Vol, veh/h		298			131			1077			919	
Approach Delay, s/veh		58.8			63.5			5.6			39.6	
Approach LOS		E			E			A			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	38.5	58.0	18.7	29.4	18.3	78.2	15.4	32.7
Change Period (Y+Rc), s	6.5	6.3	9.0	7.4	6.3	* 6.5	7.4	* 9
Max Green Setting (Gmax), s	13.5	51.7	10.0	35.6	71.7	* 72	54.6	* 55
Max Q Clear Time (g_c+I1), s	3.3	30.9	7.1	21.2	8.0	2.0	7.7	6.8
Green Ext Time (p_c), s	0.2	9.3	0.1	0.8	0.3	16.2	0.2	0.4

Intersection Summary	
HCM 6th Ctrl Delay	28.2
HCM 6th LOS	C

Notes

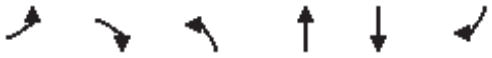
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	40	0	5	30	125	610	5	30	805	95
Future Volume (veh/h)	5	0	40	0	5	30	125	610	5	30	805	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1841	1841	1841	1870	1870	1870
Adj Flow Rate, veh/h	5	0	43	0	5	33	136	663	5	33	875	103
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	4	4	4	2	2	2
Cap, veh/h	33	4	79	0	12	79	538	1568	12	59	1345	156
Arrive On Green	0.06	0.00	0.06	0.00	0.06	0.06	0.86	0.86	0.86	1.00	1.00	1.00
Sat Flow, veh/h	86	81	1441	0	216	1427	566	1824	14	37	1565	182
Grp Volume(v), veh/h	48	0	0	0	0	38	136	0	668	1011	0	0
Grp Sat Flow(s),veh/h/ln	1609	0	0	0	0	1643	566	0	1838	1784	0	0
Q Serve(g_s), s	0.3	0.0	0.0	0.0	0.0	3.1	6.2	0.0	11.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.0	0.0	0.0	0.0	0.0	3.1	6.2	0.0	11.3	0.0	0.0	0.0
Prop In Lane	0.10		0.90	0.00		0.87	1.00		0.01	0.03		0.10
Lane Grp Cap(c), veh/h	117	0	0	0	0	91	538	0	1579	1559	0	0
V/C Ratio(X)	0.41	0.00	0.00	0.00	0.00	0.42	0.25	0.00	0.42	0.65	0.00	0.00
Avail Cap(c_a), veh/h	132	0	0	0	0	106	538	0	1579	1559	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	0.82	0.00	0.82	0.70	0.00	0.00
Uniform Delay (d), s/veh	64.4	0.0	0.0	0.0	0.0	64.0	1.8	0.0	2.2	0.0	0.0	0.0
Incr Delay (d2), s/veh	2.3	0.0	0.0	0.0	0.0	3.1	0.9	0.0	0.7	1.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	0.0	0.0	0.0	1.4	0.6	0.0	2.8	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.7	0.0	0.0	0.0	0.0	67.0	2.8	0.0	2.9	1.5	0.0	0.0
LnGrp LOS	E	A	A	A	A	E	A	A	A	A	A	A
Approach Vol, veh/h		48			38			804			1011	
Approach Delay, s/veh		66.7			67.0			2.8			1.5	
Approach LOS		E			E			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		126.3		13.7		126.3		13.7				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		119.0		9.0		119.0		9.0				
Max Q Clear Time (g_c+I1), s		2.0		6.0		13.3		5.1				
Green Ext Time (p_c), s		12.2		0.0		7.6		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			5.0									
HCM 6th LOS			A									



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	130	115	95	460	600	125
Future Volume (veh/h)	130	115	95	460	600	125
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1811	1811	1870	1870
Adj Flow Rate, veh/h	141	125	103	500	652	136
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	6	6	2	2
Cap, veh/h	178	158	195	808	898	187
Arrive On Green	0.20	0.20	0.60	0.60	1.00	1.00
Sat Flow, veh/h	882	782	170	1350	1501	313
Grp Volume(v), veh/h	267	0	603	0	0	788
Grp Sat Flow(s),veh/h/ln	1671	0	1519	0	0	1814
Q Serve(g_s), s	6.8	0.0	1.8	0.0	0.0	0.0
Cycle Q Clear(g_c), s	6.8	0.0	9.6	0.0	0.0	0.0
Prop In Lane	0.53	0.47	0.17			0.17
Lane Grp Cap(c), veh/h	337	0	1003	0	0	1086
V/C Ratio(X)	0.79	0.00	0.60	0.00	0.00	0.73
Avail Cap(c_a), veh/h	668	0	1003	0	0	1086
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.94	0.00	0.00	0.69
Uniform Delay (d), s/veh	17.1	0.0	5.5	0.0	0.0	0.0
Incr Delay (d2), s/veh	4.2	0.0	2.5	0.0	0.0	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0	2.0	0.0	0.0	0.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	21.3	0.0	8.0	0.0	0.0	3.0
LnGrp LOS	C	A	A	A	A	A
Approach Vol, veh/h	267			603	788	
Approach Delay, s/veh	21.3			8.0	3.0	
Approach LOS	C			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		31.4		13.6		31.4
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		18.0		18.0		18.0
Max Q Clear Time (g_c+I1), s		11.6		8.8		2.0
Green Ext Time (p_c), s		2.2		0.6		5.2

Intersection Summary		
HCM 6th Ctrl Delay	7.7	
HCM 6th LOS	A	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	0	15	5	0	5	10	465	0	0	625	90
Future Volume (veh/h)	85	0	15	5	0	5	10	465	0	0	625	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1900	1900	1900	1796	1796	1796	1870	1870	1870
Adj Flow Rate, veh/h	92	0	0	5	0	5	11	505	0	0	679	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	0	0	0	7	7	7	2	2	2
Cap, veh/h	164	0		95	12	69	40	1469	1273	0	1564	
Arrive On Green	0.08	0.00	0.00	0.08	0.00	0.08	0.84	0.84	0.00	0.00	0.84	0.00
Sat Flow, veh/h	1436	0	1585	728	156	884	16	1756	1522	0	1870	1585
Grp Volume(v), veh/h	92	0	0	10	0	0	516	0	0	0	679	0
Grp Sat Flow(s),veh/h/ln	1436	0	1585	1769	0	0	1773	0	1522	0	1870	1585
Q Serve(g_s), s	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.1	0.0
Cycle Q Clear(g_c), s	8.8	0.0	0.0	0.7	0.0	0.0	9.2	0.0	0.0	0.0	13.1	0.0
Prop In Lane	1.00		1.00	0.50		0.50	0.02		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	164	0		177	0	0	1509	0	1273	0	1564	
V/C Ratio(X)	0.56	0.00		0.06	0.00	0.00	0.34	0.00	0.00	0.00	0.43	
Avail Cap(c_a), veh/h	315	0		340	0	0	1509	0	1273	0	1564	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.60	0.00
Uniform Delay (d), s/veh	63.5	0.0	0.0	59.8	0.0	0.0	2.6	0.0	0.0	0.0	2.9	0.0
Incr Delay (d2), s/veh	3.0	0.0	0.0	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	0.0	0.0	0.3	0.0	0.0	2.3	0.0	0.0	0.0	2.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.5	0.0	0.0	60.0	0.0	0.0	3.3	0.0	0.0	0.0	3.5	0.0
LnGrp LOS	E	A		E	A	A	A	A	A	A	A	
Approach Vol, veh/h		92			10			516			679	
Approach Delay, s/veh		66.5			60.0			3.3			3.5	
Approach LOS		E			E			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		123.1		16.9		123.1		16.9				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		102.0		26.0		102.0		26.0				
Max Q Clear Time (g_c+I1), s		15.1		10.8		11.2		2.7				
Green Ext Time (p_c), s		4.4		0.3		3.4		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			8.3									
HCM 6th LOS			A									

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	5	30	0	190	5	545	40	150	690	5
Future Volume (veh/h)	5	0	5	30	0	190	5	545	40	150	690	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1885	1900	1885	1811	1811	1811	1870	1856	1900
Adj Flow Rate, veh/h	5	0	5	33	0	207	5	592	43	163	750	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	1	0	1	6	6	6	2	3	0
Cap, veh/h	241	36	158	117	17	273	82	1088	926	657	1110	7
Arrive On Green	0.20	0.00	0.20	0.20	0.00	0.20	1.00	1.00	1.00	0.60	0.60	0.60
Sat Flow, veh/h	616	185	801	134	87	1386	3	1804	1535	825	1841	12
Grp Volume(v), veh/h	10	0	0	240	0	0	597	0	43	163	0	755
Grp Sat Flow(s),veh/h/ln	1602	0	0	1607	0	0	1806	0	1535	825	0	1853
Q Serve(g_s), s	0.0	0.0	0.0	2.9	0.0	0.0	0.0	0.0	0.0	4.4	0.0	12.3
Cycle Q Clear(g_c), s	0.2	0.0	0.0	6.3	0.0	0.0	0.0	0.0	0.0	4.4	0.0	12.3
Prop In Lane	0.50		0.50	0.14		0.86	0.01		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	436	0	0	408	0	0	1170	0	926	657	0	1118
V/C Ratio(X)	0.02	0.00	0.00	0.59	0.00	0.00	0.51	0.00	0.05	0.25	0.00	0.68
Avail Cap(c_a), veh/h	710	0	0	729	0	0	1170	0	926	657	0	1118
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.50	0.00	0.50	0.72	0.00	0.72
Uniform Delay (d), s/veh	14.6	0.0	0.0	17.0	0.0	0.0	0.0	0.0	0.0	4.4	0.0	6.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.4	0.0	0.0	0.8	0.0	0.0	0.6	0.0	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	2.2	0.0	0.0	0.3	0.0	0.0	0.5	0.0	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.6	0.0	0.0	18.4	0.0	0.0	0.8	0.0	0.0	5.1	0.0	8.4
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		10			240			640			918	
Approach Delay, s/veh		14.6			18.4			0.7			7.8	
Approach LOS		B			B			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		31.6		13.4		31.6		13.4				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.0		18.0		18.0		18.0				
Max Q Clear Time (g_c+I1), s		2.0		2.2		14.3		8.3				
Green Ext Time (p_c), s		3.8		0.0		2.1		1.0				

Intersection Summary												
HCM 6th Ctrl Delay			6.7									
HCM 6th LOS			A									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	310	800	20	180	535	145	55	175	130	190	235	185
Future Volume (veh/h)	310	800	20	180	535	145	55	175	130	190	235	185
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1885	1900	1885	1856	1870	1900	1856	1900	1885	1885	1870
Adj Flow Rate, veh/h	337	870	0	196	582	0	60	190	141	207	255	201
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	1	0	1	3	2	0	3	0	1	1	2
Cap, veh/h	567	1876		410	1672		192	228	198	285	529	445
Arrive On Green	0.12	0.52	0.00	0.07	0.47	0.00	0.12	0.12	0.12	0.11	0.28	0.28
Sat Flow, veh/h	1781	3582	1610	1795	3526	1585	1142	1856	1610	1795	1885	1585
Grp Volume(v), veh/h	337	870	0	196	582	0	60	190	141	207	255	201
Grp Sat Flow(s),veh/h/ln	1781	1791	1610	1795	1763	1585	1142	1856	1610	1795	1885	1585
Q Serve(g_s), s	13.4	21.4	0.0	7.0	14.6	0.0	6.8	14.0	11.8	13.9	15.8	14.6
Cycle Q Clear(g_c), s	13.4	21.4	0.0	7.0	14.6	0.0	6.8	14.0	11.8	13.9	15.8	14.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	567	1876		410	1672		192	228	198	285	529	445
V/C Ratio(X)	0.59	0.46		0.48	0.35		0.31	0.83	0.71	0.73	0.48	0.45
Avail Cap(c_a), veh/h	780	1876		533	1672		255	331	288	323	673	566
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.7	21.0	0.0	15.5	23.2	0.0	56.8	60.0	59.0	46.8	41.9	41.5
Incr Delay (d2), s/veh	1.0	0.8	0.0	0.9	0.6	0.0	0.9	11.3	4.7	6.9	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	9.2	0.0	3.0	6.2	0.0	2.0	7.3	5.1	6.8	7.5	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.7	21.8	0.0	16.4	23.7	0.0	57.8	71.3	63.7	53.8	42.6	42.2
LnGrp LOS	B	C		B	C		E	E	E	D	D	D
Approach Vol, veh/h		1207			778			391			663	
Approach Delay, s/veh		20.4			21.9			66.5			46.0	
Approach LOS		C			C			E			D	

Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	22.3	72.4		45.3	15.4	79.3	22.1	23.2				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	33.0	39.0		50.0	19.0	53.0	19.0	25.0				
Max Q Clear Time (g_c+I1), s	15.4	16.6		17.8	9.0	23.4	15.9	16.0				
Green Ext Time (p_c), s	0.9	4.0		2.3	0.4	7.1	0.2	1.2				

Intersection Summary			
HCM 6th Ctrl Delay		32.3	
HCM 6th LOS		C	

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	335	0	375	0	0	0	0	750	35	230	720	0
Future Volume (vph)	335	0	375	0	0	0	0	750	35	230	720	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	16	16	16	12	12	12	12	12	12
Total Lost time (s)	6.5	6.5	6.5					7.0		7.1	7.0	
Lane Util. Factor	0.95	0.95	1.00					0.95		1.00	0.95	
Frt	1.00	1.00	0.85					0.99		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1603	1603	1509					3351		1687	3374	
Flt Permitted	0.95	0.95	1.00					1.00		0.23	1.00	
Satd. Flow (perm)	1603	1603	1509					3351		405	3374	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	364	0	408	0	0	0	0	815	38	250	783	0
RTOR Reduction (vph)	0	0	144	0	0	0	0	2	0	0	0	0
Lane Group Flow (vph)	182	182	264	0	0	0	0	851	0	250	783	0
Heavy Vehicles (%)	7%	7%	7%	0%	0%	0%	7%	7%	7%	7%	7%	7%
Turn Type	Split	NA	Perm					NA		D.P+P	NA	
Protected Phases	4	4						6		5	2	
Permitted Phases			4							6		
Actuated Green, G (s)	30.9	30.9	30.9					61.4		88.5	95.6	
Effective Green, g (s)	30.9	30.9	30.9					61.4		88.5	95.6	
Actuated g/C Ratio	0.22	0.22	0.22					0.44		0.63	0.68	
Clearance Time (s)	6.5	6.5	6.5					7.0		7.1	7.0	
Vehicle Extension (s)	3.0	3.0	3.0					7.0		3.0	7.0	
Lane Grp Cap (vph)	353	353	333					1469		504	2303	
v/s Ratio Prot	0.11	0.11						c0.25		c0.10	0.23	
v/s Ratio Perm			c0.17							0.22		
v/c Ratio	0.52	0.52	0.79					0.58		0.50	0.34	
Uniform Delay, d1	48.0	48.0	51.5					29.6		28.7	9.2	
Progression Factor	1.00	1.00	1.00					0.85		0.48	0.14	
Incremental Delay, d2	1.3	1.3	12.2					1.4		0.7	0.4	
Delay (s)	49.2	49.2	63.7					26.7		14.4	1.7	
Level of Service	D	D	E					C		B	A	
Approach Delay (s)		56.9			0.0			26.7			4.8	
Approach LOS		E			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	26.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.6
Intersection Capacity Utilization	62.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	4.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	65	145	385	55	80	565
Future Vol, veh/h	65	145	385	55	80	565
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	310	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	8	8	3	3
Mvmt Flow	71	158	418	60	87	614

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1236	448	0	0	478	0
Stage 1	448	-	-	-	-	-
Stage 2	788	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.13	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.227	-
Pot Cap-1 Maneuver	192	604	-	-	1079	-
Stage 1	637	-	-	-	-	-
Stage 2	443	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	169	604	-	-	1079	-
Mov Cap-2 Maneuver	169	-	-	-	-	-
Stage 1	637	-	-	-	-	-
Stage 2	389	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.7	0	1.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	169	604	1079	-
HCM Lane V/C Ratio	-	-	0.418	0.261	0.081	-
HCM Control Delay (s)	-	-	40.8	13.1	8.6	0
HCM Lane LOS	-	-	E	B	A	A
HCM 95th %tile Q(veh)	-	-	1.9	1	0.3	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	5	0	780	1095	0
Future Vol, veh/h	5	5	0	780	1095	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Yield
Storage Length	80	0	135	-	-	220
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	8	8	4	4
Mvmt Flow	5	5	0	848	1190	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1614	595	1190	0	-	0
Stage 1	1190	-	-	-	-	-
Stage 2	424	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.26	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.28	-	-	-
Pot Cap-1 Maneuver	97	452	550	-	-	-
Stage 1	255	-	-	-	-	-
Stage 2	634	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	97	452	550	-	-	-
Mov Cap-2 Maneuver	97	-	-	-	-	-
Stage 1	255	-	-	-	-	-
Stage 2	634	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	28.7	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	550	-	97	452	-	-
HCM Lane V/C Ratio	-	-	0.056	0.012	-	-
HCM Control Delay (s)	0	-	44.3	13.1	-	-
HCM Lane LOS	A	-	E	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	0	-	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	5	5	0	50	0	650	5	80	910	0
Future Vol, veh/h	0	0	5	5	0	50	0	650	5	80	910	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	160	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	2	0	5	0	0	3	0
Mvmt Flow	0	0	5	5	0	54	0	707	5	87	989	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1900	1875	989	1876	1873	710	-	0	0	712	0	0
Stage 1	1163	1163	-	710	710	-	-	-	-	-	-	-
Stage 2	737	712	-	1166	1163	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.22	-	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.318	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	53	73	302	55	73	434	0	-	-	897	-	0
Stage 1	239	271	-	428	440	-	0	-	-	-	-	0
Stage 2	413	439	-	238	271	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	43	66	302	50	66	434	-	-	-	897	-	-
Mov Cap-2 Maneuver	43	66	-	50	66	-	-	-	-	-	-	-
Stage 1	239	245	-	428	440	-	-	-	-	-	-	-
Stage 2	361	439	-	211	245	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.1	23.3	0	0.8
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	302	256	897	-
HCM Lane V/C Ratio	-	-	-	0.018	0.234	0.097	-
HCM Control Delay (s)	-	-	0	17.1	23.3	9.4	-
HCM Lane LOS	-	-	A	C	C	A	-
HCM 95th %tile Q(veh)	-	-	-	0.1	0.9	0.3	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	10	0	15	15	1015	35	5	1135	5
Future Vol, veh/h	0	0	0	10	0	15	15	1015	35	5	1135	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	18	0	0	0	5	7	0	2	0
Mvmt Flow	0	0	0	11	0	16	16	1103	38	5	1234	5

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	1781	2403	571	1239	0	0	1141	0	0
Stage 1	1154	1154	-	-	-	-	-	-	-
Stage 2	627	1249	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.16	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.68	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	62	34	469	569	-	-	620	-	-
Stage 1	231	274	-	-	-	-	-	-	-
Stage 2	453	247	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	56	0	469	569	-	-	620	-	-
Mov Cap-2 Maneuver	56	0	-	-	-	-	-	-	-
Stage 1	213	0	-	-	-	-	-	-	-
Stage 2	441	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	44	0.5	0.1
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	569	-	-	119	620	-	-
HCM Lane V/C Ratio	0.029	-	-	0.228	0.009	-	-
HCM Control Delay (s)	11.5	0.4	-	44	10.9	0.1	-
HCM Lane LOS	B	A	-	E	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.8	0	-	-

SECTION 6

Design Year 2050 With Operational Improvements Delay Reports

MOVEMENT SUMMARY

Site: 1 [SR 53 @ New Cut Rd 2050 AM (With Operational Improvements)]

SR 53 @ New Cut Rd - 2050 AM
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: SR 53											
3	L2	16	11.5	0.573	9.0	LOS A	5.9	161.2	0.35	0.15	33.0
8	T1	766	11.5	0.573	9.0	LOS A	5.9	161.2	0.35	0.15	33.0
18	R2	65	11.5	0.047	3.0	LOS A	0.3	7.0	0.18	0.06	35.1
Approach		848	11.5	0.573	8.5	LOS A	5.9	161.2	0.34	0.14	33.2
East: New Cut Rd											
1	L2	272	4.0	0.770	28.7	LOS D	10.8	279.2	1.00	1.34	25.0
6	T1	54	4.0	0.770	28.7	LOS D	10.8	279.2	1.00	1.34	24.9
16	R2	103	4.0	0.770	28.7	LOS D	10.8	279.2	1.00	1.34	24.4
Approach		429	4.0	0.770	28.7	LOS D	10.8	279.2	1.00	1.34	24.8
North: SR 53											
7	L2	22	5.5	0.302	7.2	LOS A	2.1	55.8	0.67	0.52	33.9
4	T1	571	5.5	0.302	6.7	LOS A	2.3	58.9	0.66	0.50	34.2
14	R2	5	5.5	0.302	6.3	LOS A	2.3	58.9	0.65	0.48	33.4
Approach		598	5.5	0.302	6.7	LOS A	2.3	58.9	0.66	0.50	34.2
West: Ednaville Rd											
5	L2	5	13.5	0.043	6.2	LOS A	0.2	5.1	0.63	0.54	33.9
2	T1	22	13.5	0.043	6.2	LOS A	0.2	5.1	0.63	0.54	33.9
12	R2	49	13.5	0.076	6.4	LOS A	0.3	9.0	0.63	0.57	33.3
Approach		76	13.5	0.076	6.3	LOS A	0.3	9.0	0.63	0.56	33.5
All Vehicles		1951	8.1	0.770	12.3	LOS B	10.8	279.2	0.59	0.53	31.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

HCM 6th Signalized Intersection Summary
201: SR 53 & SR 124

01/18/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	235	30	20	400	775	15	550	30	295	570	250
Future Volume (veh/h)	105	235	30	20	400	775	15	550	30	295	570	250
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1589	1589	1589	1781	1781	1781	1781	1781	1781	1752	1752	1752
Adj Flow Rate, veh/h	114	255	0	22	435	0	16	598	33	321	620	272
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	21	21	21	8	8	8	8	8	8	10	10	10
Cap, veh/h	84	406		148	543		302	912	773	376	1066	903
Arrive On Green	0.02	0.13	0.00	0.06	0.16	0.00	0.00	0.17	0.17	0.11	0.61	0.61
Sat Flow, veh/h	1513	3019	1346	1697	3385	1510	1697	1781	1510	1668	1752	1485
Grp Volume(v), veh/h	114	255	0	22	435	0	16	598	33	321	620	272
Grp Sat Flow(s),veh/h/ln	1513	1509	1346	1697	1692	1510	1697	1781	1510	1668	1752	1485
Q Serve(g_s), s	3.0	11.2	0.0	1.9	17.3	0.0	0.5	43.9	2.6	12.7	30.0	12.3
Cycle Q Clear(g_c), s	3.0	11.2	0.0	1.9	17.3	0.0	0.5	43.9	2.6	12.7	30.0	12.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	84	406		0	543		302	912	773	376	1066	903
V/C Ratio(X)	1.36	0.63		0.00	0.80		0.05	0.66	0.04	0.85	0.58	0.30
Avail Cap(c_a), veh/h	84	1281		0	1173		322	912	773	391	1066	903
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.90	0.90	0.90	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.5	57.3	0.0	0.0	56.6	0.0	13.7	46.6	29.5	24.6	16.6	13.1
Incr Delay (d2), s/veh	221.2	1.6	0.0	0.0	2.8	0.0	0.1	3.3	0.1	16.0	2.3	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.9	4.3	0.0	0.0	7.6	0.0	0.2	21.8	1.0	6.6	11.9	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	267.6	58.9	0.0	0.0	59.4	0.0	13.8	50.0	29.6	40.6	18.9	14.0
LnGrp LOS	F	E		A	E		B	D	C	D	B	B
Approach Vol, veh/h		369			457			647			1213	
Approach Delay, s/veh		123.4			56.6			48.0			23.6	
Approach LOS		F			E			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.3	91.9	14.5	25.3	21.8	78.4	10.9	28.9
Change Period (Y+Rc), s	6.9	* 6.7	6.5	6.5	6.9	* 6.7	7.9	6.5
Max Green Setting (Gmax), s	3.0	* 58	59.4	59.4	16.1	* 44	3.0	48.5
Max Q Clear Time (g_c+I1), s	2.5	32.0	3.9	13.2	14.7	45.9	5.0	19.3
Green Ext Time (p_c), s	0.0	10.2	0.0	1.6	0.1	0.0	0.0	3.1

Intersection Summary	
HCM 6th Ctrl Delay	48.8
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	165	0	370	745	860	0	0	850	415
Future Volume (veh/h)	0	0	0	165	0	370	745	860	0	0	850	415
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1678	0	1678	1781	1781	0	0	1767	1767
Adj Flow Rate, veh/h				179	0	402	810	935	0	0	924	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				15	0	15	8	8	0	0	9	9
Cap, veh/h				388	0	345	671	2241	0	0	856	
Arrive On Green				0.24	0.00	0.24	0.37	0.66	0.00	0.00	0.51	0.00
Sat Flow, veh/h				1598	0	1422	1697	3474	0	0	3445	1497
Grp Volume(v), veh/h				179	0	402	810	935	0	0	924	0
Grp Sat Flow(s),veh/h/ln				1598	0	1422	1697	1692	0	0	1678	1497
Q Serve(g_s), s				13.4	0.0	34.0	51.1	18.1	0.0	0.0	35.7	0.0
Cycle Q Clear(g_c), s				13.4	0.0	34.0	51.1	18.1	0.0	0.0	35.7	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				388	0	345	671	2241	0	0	856	
V/C Ratio(X)				0.46	0.00	1.16	1.21	0.42	0.00	0.00	1.08	
Avail Cap(c_a), veh/h				388	0	345	671	2241	0	0	856	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)				1.00	0.00	1.00	0.46	0.46	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				45.2	0.0	53.0	38.4	11.0	0.0	0.0	34.3	0.0
Incr Delay (d2), s/veh				1.2	0.0	101.0	100.2	0.3	0.0	0.0	54.5	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.5	0.0	21.8	39.5	6.3	0.0	0.0	16.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				46.4	0.0	154.0	138.6	11.3	0.0	0.0	88.8	0.0
LnGrp LOS				D	A	F	F	B	A	A	F	
Approach Vol, veh/h					581			1745			924	
Approach Delay, s/veh					120.8			70.4			88.8	
Approach LOS					F			E			F	

Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	57.0	42.4				99.4		40.6				
Change Period (Y+Rc), s	* 5.9	6.7				6.7		6.6				
Max Green Setting (Gmax), s	* 51	35.7				92.7		34.0				
Max Q Clear Time (g_c+I1), s	53.1	37.7				20.1		36.0				
Green Ext Time (p_c), s	0.0	0.0				29.8		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		84.6
HCM 6th LOS		F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	0	135	0	0	0	180	785	0	0	820	120
Future Volume (veh/h)	75	0	135	0	0	0	180	785	0	0	820	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1781	1781	1900	1900	1900	1737	1737	1737	1826	1826	1826
Adj Flow Rate, veh/h	82	0	147	0	0	0	196	853	0	0	891	130
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	8	8	8	0	0	0	11	11	11	5	5	5
Cap, veh/h	249	0	176	53	221	0	359	2230	0	51	1717	250
Arrive On Green	0.12	0.00	0.12	0.00	0.00	0.00	0.07	0.68	0.00	0.00	0.57	0.57
Sat Flow, veh/h	1697	0	1510	1810	1900	0	1654	3387	0	631	3038	443
Grp Volume(v), veh/h	82	0	147	0	0	0	196	853	0	0	509	512
Grp Sat Flow(s),veh/h/ln	1697	0	1510	1810	1900	0	1654	1650	0	631	1735	1746
Q Serve(g_s), s	6.3	0.0	13.3	0.0	0.0	0.0	6.9	15.8	0.0	0.0	25.3	25.3
Cycle Q Clear(g_c), s	6.3	0.0	13.3	0.0	0.0	0.0	6.9	15.8	0.0	0.0	25.3	25.3
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		0.25
Lane Grp Cap(c), veh/h	249	0	176	0	221	0	359	2230	0	51	980	987
V/C Ratio(X)	0.33	0.00	0.84	0.00	0.00	0.00	0.55	0.38	0.00	0.00	0.52	0.52
Avail Cap(c_a), veh/h	442	0	347	0	437	0	543	2230	0	51	980	987
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	0.00	0.91	0.91	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	57.4	0.0	60.5	0.0	0.0	0.0	14.4	9.9	0.0	0.0	18.7	18.7
Incr Delay (d2), s/veh	0.8	0.0	9.9	0.0	0.0	0.0	1.2	0.5	0.0	0.0	2.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	5.6	0.0	0.0	0.0	2.5	5.3	0.0	0.0	10.1	10.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.2	0.0	70.4	0.0	0.0	0.0	15.6	10.4	0.0	0.0	20.7	20.7
LnGrp LOS	E	A	E	A	A	A	B	B	A	A	C	C
Approach Vol, veh/h		229			0			1049			1021	
Approach Delay, s/veh		66.0			0.0			11.4			20.7	
Approach LOS		E						B			C	

Timer - Assigned Phs	1	2		4		6	7	8				
Phs Duration (G+Y+Rc), s	15.5	85.5		23.1		101.0	0.0	23.1				
Change Period (Y+Rc), s	6.1	6.4		* 6.8		6.4	* 6.8	* 6.8				
Max Green Setting (Gmax), s	24.9	63.6		* 32		94.6	* 32	* 32				
Max Q Clear Time (g_c+I1), s	8.9	27.3		0.0		17.8	0.0	15.3				
Green Ext Time (p_c), s	0.4	14.9		0.0		14.8	0.0	1.0				

Intersection Summary	
HCM 6th Ctrl Delay	20.9
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	15	245	15	15	15	495	575	60	15	605	0
Future Volume (veh/h)	5	15	245	15	15	15	495	575	60	15	605	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1811	1811	1811	1826	1826	1826	1752	1752	1752
Adj Flow Rate, veh/h	5	16	266	16	16	16	538	625	65	16	658	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	6	6	6	5	5	5	10	10	10
Cap, veh/h	303	337	286	267	161	161	542	1144	969	384	692	587
Arrive On Green	0.01	0.18	0.18	0.02	0.19	0.19	0.25	0.63	0.63	0.03	0.79	0.00
Sat Flow, veh/h	1753	1841	1560	1725	831	831	1739	1826	1547	1668	1752	1485
Grp Volume(v), veh/h	5	16	266	16	0	32	538	625	65	16	658	0
Grp Sat Flow(s),veh/h/ln	1753	1841	1560	1725	0	1662	1739	1826	1547	1668	1752	1485
Q Serve(g_s), s	0.3	1.0	23.5	1.0	0.0	2.2	34.2	27.2	2.3	0.5	44.3	0.0
Cycle Q Clear(g_c), s	0.3	1.0	23.5	1.0	0.0	2.2	34.2	27.2	2.3	0.5	44.3	0.0
Prop In Lane	1.00		1.00	1.00		0.50	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	303	337	286	267	0	322	542	1144	969	384	692	587
V/C Ratio(X)	0.02	0.05	0.93	0.06	0.00	0.10	0.99	0.55	0.07	0.04	0.95	0.00
Avail Cap(c_a), veh/h	355	355	301	300	0	322	542	1144	969	416	692	587
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.61	0.61	0.00
Uniform Delay (d), s/veh	45.0	47.1	56.3	45.2	0.0	46.4	38.0	14.9	10.2	11.5	13.5	0.0
Incr Delay (d2), s/veh	0.0	0.1	33.3	0.1	0.0	0.1	36.7	1.9	0.1	0.0	17.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.5	11.9	0.5	0.0	0.9	23.6	11.0	0.8	0.2	8.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.0	47.2	89.6	45.3	0.0	46.6	74.8	16.7	10.3	11.5	30.7	0.0
LnGrp LOS	D	D	F	D	A	D	E	B	B	B	C	A
Approach Vol, veh/h		287			48			1228			674	
Approach Delay, s/veh		86.5			46.1			41.8			30.3	
Approach LOS		F			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	39.2	62.3	5.4	33.1	6.8	94.7	6.8	31.7
Change Period (Y+Rc), s	4.5	7.0	4.5	6.0	4.5	7.0	4.5	6.0
Max Green Setting (Gmax), s	34.7	51.3	5.0	27.0	5.0	81.0	5.0	27.0
Max Q Clear Time (g_c+I1), s	36.2	46.3	2.3	4.2	2.5	29.2	3.0	25.5
Green Ext Time (p_c), s	0.0	2.7	0.0	0.1	0.0	10.3	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	44.2
HCM 6th LOS	D

Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Volume (veh/h)	35	5	20	15	5	110	65	985	45	35	585	20
Future Volume (veh/h)	35	5	20	15	5	110	65	985	45	35	585	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1796	1796	1796	1811	1811	1811	1767	1767	1767
Adj Flow Rate, veh/h	38	5	22	16	5	0	71	1071	49	38	636	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	7	7	7	6	6	6	9	9	9
Cap, veh/h	87	11	29	104	26		97	1318	60	79	1274	43
Arrive On Green	0.06	0.06	0.06	0.06	0.06	0.00	1.00	1.00	1.00	0.86	0.86	0.86
Sat Flow, veh/h	837	196	529	1058	476	0	81	1534	69	60	1483	50
Grp Volume(v), veh/h	65	0	0	21	0	0	1191	0	0	696	0	0
Grp Sat Flow(s),veh/h/ln	1563	0	0	1534	0	0	1684	0	0	1594	0	0
Q Serve(g_s), s	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	5.6	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	12.9	0.0	0.0
Prop In Lane	0.58		0.34	0.76		0.00	0.06		0.04	0.05		0.03
Lane Grp Cap(c), veh/h	127	0	0	130	0		1474	0	0	1396	0	0
V/C Ratio(X)	0.51	0.00	0.00	0.16	0.00		0.81	0.00	0.00	0.50	0.00	0.00
Avail Cap(c_a), veh/h	183	0	0	183	0		1474	0	0	1396	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.60	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	65.1	0.0	0.0	63.3	0.0	0.0	0.0	0.0	0.0	2.3	0.0	0.0
Incr Delay (d2), s/veh	3.2	0.0	0.0	0.6	0.0	0.0	3.0	0.0	0.0	1.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	0.0	0.7	0.0	0.0	1.2	0.0	0.0	3.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.2	0.0	0.0	63.9	0.0	0.0	3.0	0.0	0.0	3.6	0.0	0.0
LnGrp LOS	E	A	A	E	A		A	A	A	A	A	A
Approach Vol, veh/h		65			21			1191			696	
Approach Delay, s/veh		68.2			63.9			3.0			3.6	
Approach LOS		E			E			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		126.3		13.7		126.3		13.7				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		115.0		13.0		115.0		13.0				
Max Q Clear Time (g_c+I1), s		14.9		7.6		2.0		3.7				
Green Ext Time (p_c), s		6.5		0.1		19.7		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			6.0									
HCM 6th LOS			A									

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	5	155	140	5	45	90	815	30	15	805	50
Future Volume (veh/h)	30	5	155	140	5	45	90	815	30	15	805	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1752	1752	1752	1455	1455	1455	1693	1693	1693	1811	1811	1811
Adj Flow Rate, veh/h	33	5	168	152	5	49	98	886	33	16	875	54
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	10	30	30	30	14	14	14	6	6	6
Cap, veh/h	147	226	191	194	17	163	9999	9999	1674	890	1169	72
Arrive On Green	0.06	0.13	0.13	0.07	0.14	0.14	1.00	1.00	1.00	0.49	0.35	0.35
Sat Flow, veh/h	1668	1752	1485	2689	116	1135	1612	3161	118	1725	3292	203
Grp Volume(v), veh/h	33	5	168	152	0	54	98	451	468	16	457	472
Grp Sat Flow(s),veh/h/ln	1668	1752	1485	1345	0	1251	1612	1608	1671	1725	1721	1775
Q Serve(g_s), s	4.5	0.3	15.6	7.8	0.0	5.4	0.0	0.0	0.0	2.0	32.7	32.7
Cycle Q Clear(g_c), s	4.5	0.3	15.6	7.8	0.0	5.4	0.0	0.0	0.0	2.0	32.7	32.7
Prop In Lane	1.00		1.00	1.00		0.91	1.00		0.07	1.00		0.11
Lane Grp Cap(c), veh/h	0	226	191	194	0	180	23175	22855	23756	0	611	630
V/C Ratio(X)	0.00	0.02	0.88	0.78	0.00	0.30	0.00	0.02	0.02	0.00	0.75	0.75
Avail Cap(c_a), veh/h	0	440	373	269	0	520	23175	22855	23756	0	611	630
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.90	0.90	0.90
Uniform Delay (d), s/veh	0.0	53.3	59.9	63.9	0.0	53.6	0.0	0.0	0.0	0.0	39.7	39.7
Incr Delay (d2), s/veh	0.0	0.0	12.0	15.5	0.0	1.6	0.0	0.0	0.0	0.0	7.4	7.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	6.5	3.1	0.0	1.8	0.0	0.0	0.0	0.0	14.6	15.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	53.3	71.9	79.4	0.0	55.2	0.0	0.0	0.0	0.0	47.1	46.9
LnGrp LOS	A	D	E	E	A	E	A	A	A	A	D	D
Approach Vol, veh/h		206			206			1017			945	
Approach Delay, s/veh		59.9			73.0			0.0			46.2	
Approach LOS		E			E			A			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	2068.4	56.0	19.1	25.5	74.4	2050.0	15.4	29.1
Change Period (Y+Rc), s	6.5	6.3	9.0	7.4	6.3	* 6.5	7.4	* 9
Max Green Setting (Gmax), s	11.9	49.7	14.0	35.2	68.1	* 68	58.2	* 58
Max Q Clear Time (g_c+I1), s	2.0	34.7	9.8	17.6	4.0	2.0	6.5	7.4
Green Ext Time (p_c), s	0.1	8.1	0.3	0.5	0.1	15.1	0.2	0.6

Intersection Summary	
HCM 6th Ctrl Delay	29.9
HCM 6th LOS	C

Notes

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

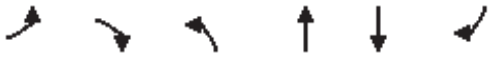
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	5	35	5	5	35	35	1030	0	15	585	20
Future Volume (veh/h)	30	5	35	5	5	35	35	1030	0	15	585	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1811	1811	1811	1781	1781	1781
Adj Flow Rate, veh/h	33	5	38	5	5	38	38	1120	0	16	636	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	6	6	6	8	8	8
Cap, veh/h	73	12	48	34	15	78	694	1550	0	43	1406	48
Arrive On Green	0.06	0.06	0.06	0.06	0.06	0.06	1.00	1.00	0.00	1.00	1.00	1.00
Sat Flow, veh/h	623	199	822	91	259	1332	751	1811	0	19	1643	56
Grp Volume(v), veh/h	76	0	0	48	0	0	38	1120	0	674	0	0
Grp Sat Flow(s),veh/h/ln	1644	0	0	1683	0	0	751	1811	0	1719	0	0
Q Serve(g_s), s	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	6.2	0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.43		0.50	0.10		0.79	1.00		0.00	0.02		0.03
Lane Grp Cap(c), veh/h	133	0	0	127	0	0	694	1550	0	1497	0	0
V/C Ratio(X)	0.57	0.00	0.00	0.38	0.00	0.00	0.05	0.72	0.00	0.45	0.00	0.00
Avail Cap(c_a), veh/h	163	0	0	159	0	0	694	1550	0	1497	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.47	0.47	0.00	0.82	0.00	0.00
Uniform Delay (d), s/veh	64.8	0.0	0.0	63.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	3.8	0.0	0.0	1.8	0.0	0.0	0.1	1.4	0.0	0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	0.0	1.7	0.0	0.0	0.0	0.6	0.0	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.7	0.0	0.0	65.8	0.0	0.0	0.1	1.4	0.0	0.8	0.0	0.0
LnGrp LOS	E	A	A	E	A	A	A	A	A	A	A	A
Approach Vol, veh/h		76			48			1158			674	
Approach Delay, s/veh		68.7			65.8			1.4			0.8	
Approach LOS		E			E			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		125.8		14.2		125.8		14.2				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		117.0		11.0		117.0		11.0				
Max Q Clear Time (g_c+I1), s		2.0		8.2		2.0		6.0				
Green Ext Time (p_c), s		5.7		0.1		15.8		0.1				

Intersection Summary												
HCM 6th Ctrl Delay			5.4									
HCM 6th LOS			A									



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	120	85	175	805	475	105
Future Volume (veh/h)	120	85	175	805	475	105
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1826	1826	1811	1811	1796	1796
Adj Flow Rate, veh/h	130	92	190	875	516	114
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	6	6	7	7
Cap, veh/h	124	88	234	983	1150	254
Arrive On Green	0.13	0.13	1.00	1.00	1.00	1.00
Sat Flow, veh/h	965	683	252	1218	1425	315
Grp Volume(v), veh/h	223	0	1065	0	0	630
Grp Sat Flow(s),veh/h/ln	1655	0	1471	0	0	1740
Q Serve(g_s), s	18.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	18.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.58	0.41	0.18			0.18
Lane Grp Cap(c), veh/h	213	0	1217	0	0	1404
V/C Ratio(X)	1.05	0.00	0.87	0.00	0.00	0.45
Avail Cap(c_a), veh/h	213	0	1217	0	0	1404
HCM Platoon Ratio	1.00	1.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.70	0.00	0.00	0.89
Uniform Delay (d), s/veh	61.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	74.9	0.0	6.5	0.0	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.0	0.0	2.2	0.0	0.0	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	135.9	0.0	6.5	0.0	0.0	0.9
LnGrp LOS	F	A	A	A	A	A
Approach Vol, veh/h	223			1065	630	
Approach Delay, s/veh	135.9			6.5	0.9	
Approach LOS	F			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		117.5		22.5		117.5
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		113.0		18.0		113.0
Max Q Clear Time (g_c+I1), s		2.0		20.0		2.0
Green Ext Time (p_c), s		14.2		0.0		5.0

Intersection Summary		
HCM 6th Ctrl Delay	19.7	
HCM 6th LOS	B	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	0	10	0	0	0	5	800	5	5	480	75
Future Volume (veh/h)	180	0	10	0	0	0	5	800	5	5	480	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1900	1900	1900	1811	1811	1811	1796	1796	1796
Adj Flow Rate, veh/h	196	0	0	0	0	0	5	870	5	5	522	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	0	0	0	6	6	6	7	7	7
Cap, veh/h	271	0		0	301	0	28	1365	1160	29	1348	
Arrive On Green	0.16	0.00	0.00	0.00	0.00	0.00	0.76	0.76	0.76	1.00	1.00	0.00
Sat Flow, veh/h	1384	0	1547	0	1900	0	3	1805	1535	4	1784	1522
Grp Volume(v), veh/h	196	0	0	0	0	0	875	0	5	527	0	0
Grp Sat Flow(s),veh/h/ln	1384	0	1547	0	1900	0	1808	0	1535	1788	0	1522
Q Serve(g_s), s	19.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	19.4	0.0	0.0	0.0	0.0	0.0	32.0	0.0	0.1	0.0	0.0	0.0
Prop In Lane	1.00		1.00	0.00		0.00	0.01		1.00	0.01		1.00
Lane Grp Cap(c), veh/h	271	0		0	301	0	1392	0	1160	1377	0	
V/C Ratio(X)	0.72	0.00		0.00	0.00	0.00	0.63	0.00	0.00	0.38	0.00	
Avail Cap(c_a), veh/h	368	0		0	434	0	1392	0	1160	1377	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00	0.89	0.00	0.00
Uniform Delay (d), s/veh	57.8	0.0	0.0	0.0	0.0	0.0	8.1	0.0	4.2	0.0	0.0	0.0
Incr Delay (d2), s/veh	4.5	0.0	0.0	0.0	0.0	0.0	2.2	0.0	0.0	0.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.2	0.0	0.0	0.0	0.0	0.0	10.9	0.0	0.0	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.3	0.0	0.0	0.0	0.0	0.0	10.2	0.0	4.2	0.7	0.0	0.0
LnGrp LOS	E	A		A	A	A	B	A	A	A	A	
Approach Vol, veh/h		196			0			880			527	
Approach Delay, s/veh		62.3			0.0			10.2			0.7	
Approach LOS		E						B			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		111.8		28.2		111.8		28.2				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		96.0		32.0		96.0		32.0				
Max Q Clear Time (g_c+I1), s		2.0		21.4		34.0		0.0				
Green Ext Time (p_c), s		3.2		0.8		7.6		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			13.4									
HCM 6th LOS			B									

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	5	115	0	175	50	885	75	95	525	5
Future Volume (veh/h)	5	0	5	115	0	175	50	885	75	95	525	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900	1870	1870	1870	1856	1826	1870	1870	1767	1900
Adj Flow Rate, veh/h	5	0	5	125	0	190	54	962	82	103	571	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	0	2	2	2	3	5	2	2	9	0
Cap, veh/h	153	12	126	164	5	202	79	1189	1133	438	1250	11
Arrive On Green	0.22	0.00	0.22	0.22	0.00	0.22	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	516	55	572	580	22	915	73	1664	1585	540	1749	15
Grp Volume(v), veh/h	10	0	0	315	0	0	1016	0	82	103	0	576
Grp Sat Flow(s),veh/h/ln	1144	0	0	1517	0	0	1736	0	1585	540	0	1764
Q Serve(g_s), s	0.0	0.0	0.0	27.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.6	0.0	0.0	28.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.50		0.50	0.40		0.60	0.05		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	291	0	0	371	0	0	1268	0	1133	438	0	1261
V/C Ratio(X)	0.03	0.00	0.00	0.85	0.00	0.00	0.80	0.00	0.07	0.24	0.00	0.46
Avail Cap(c_a), veh/h	307	0	0	388	0	0	1268	0	1133	438	0	1261
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.09	0.00	0.09	0.88	0.00	0.88
Uniform Delay (d), s/veh	42.7	0.0	0.0	53.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	15.6	0.0	0.0	0.5	0.0	0.0	1.1	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	12.5	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.8	0.0	0.0	69.2	0.0	0.0	0.5	0.0	0.0	1.1	0.0	1.1
LnGrp LOS	D	A	A	E	A	A	A	A	A	A	A	A
Approach Vol, veh/h		10			315			1098			679	
Approach Delay, s/veh		42.8			69.2			0.5			1.1	
Approach LOS		D			E			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		104.6		35.4		104.6		35.4				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		98.5		32.5		98.5		32.5				
Max Q Clear Time (g_c+I1), s		2.0		2.6		2.0		30.6				
Green Ext Time (p_c), s		12.7		0.0		6.0		0.4				

Intersection Summary												
HCM 6th Ctrl Delay			11.2									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	245	560	15	135	910	125	60	230	105	205	190	340
Future Volume (veh/h)	245	560	15	135	910	125	60	230	105	205	190	340
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1841	1900	1885	1885	1826	1870	1856	1841	1811	1870	1841
Adj Flow Rate, veh/h	266	609	0	147	989	0	65	250	114	223	207	370
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	8	4	0	1	1	5	2	3	4	6	2	4
Cap, veh/h	356	1749		472	1623		179	284	238	282	593	495
Arrive On Green	0.10	0.50	0.00	0.05	0.45	0.00	0.15	0.15	0.15	0.12	0.32	0.32
Sat Flow, veh/h	1697	3497	1610	1795	3582	1547	836	1856	1560	1725	1870	1560
Grp Volume(v), veh/h	266	609	0	147	989	0	65	250	114	223	207	370
Grp Sat Flow(s),veh/h/ln	1697	1749	1610	1795	1791	1547	836	1856	1560	1725	1870	1560
Q Serve(g_s), s	11.6	14.8	0.0	5.6	29.2	0.0	10.0	18.5	9.4	15.1	11.9	29.7
Cycle Q Clear(g_c), s	11.6	14.8	0.0	5.6	29.2	0.0	10.0	18.5	9.4	15.1	11.9	29.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	356	1749		472	1623		179	284	238	282	593	495
V/C Ratio(X)	0.75	0.35		0.31	0.61		0.36	0.88	0.48	0.79	0.35	0.75
Avail Cap(c_a), veh/h	475	1749		492	1623		201	331	279	282	641	535
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.5	21.2	0.0	16.1	28.9	0.0	54.5	58.1	54.2	43.8	36.7	42.8
Incr Delay (d2), s/veh	4.5	0.5	0.0	0.4	1.7	0.0	1.2	20.9	1.5	14.2	0.4	5.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	6.2	0.0	2.4	12.9	0.0	2.2	10.3	3.8	7.6	5.6	12.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.0	21.7	0.0	16.5	30.6	0.0	55.7	78.9	55.7	58.1	37.1	48.1
LnGrp LOS	C	C		B	C		E	E	E	E	D	D
Approach Vol, veh/h		875			1136			429			800	
Approach Delay, s/veh		23.3			28.8			69.2			48.0	
Approach LOS		C			C			E			D	

Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.2	69.4		50.4	13.6	76.0	23.0	27.4				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	24.0	50.0		48.0	9.2	64.8	17.0	25.0				
Max Q Clear Time (g_c+I1), s	13.6	31.2		31.7	7.6	16.8	17.1	20.5				
Green Ext Time (p_c), s	0.6	7.0		2.3	0.1	4.9	0.0	0.9				

Intersection Summary												
HCM 6th Ctrl Delay			37.4									
HCM 6th LOS			D									

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	280	5	315	0	0	0	0	1325	100	205	810	0
Future Volume (vph)	280	5	315	0	0	0	0	1325	100	205	810	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	16	16	16	12	12	12	12	12	12
Total Lost time (s)	6.5	6.5	6.5					7.0		7.1	7.0	
Lane Util. Factor	0.95	0.95	1.00					0.95		1.00	0.95	
Frt	1.00	1.00	0.85					0.99		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1491	1497	1404					3307		1641	3282	
Flt Permitted	0.95	0.95	1.00					1.00		0.07	1.00	
Satd. Flow (perm)	1491	1497	1404					3307		123	3282	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	304	5	342	0	0	0	0	1440	109	223	880	0
RTOR Reduction (vph)	0	0	170	0	0	0	0	4	0	0	0	0
Lane Group Flow (vph)	155	154	172	0	0	0	0	1545	0	223	880	0
Heavy Vehicles (%)	15%	15%	15%	0%	0%	0%	8%	8%	8%	10%	10%	10%
Turn Type	Split	NA	Perm					NA		D.P+P	NA	
Protected Phases	4	4						6		5	2	
Permitted Phases			4							6		
Actuated Green, G (s)	22.5	22.5	22.5					78.0		96.9	104.0	
Effective Green, g (s)	22.5	22.5	22.5					78.0		96.9	104.0	
Actuated g/C Ratio	0.16	0.16	0.16					0.56		0.69	0.74	
Clearance Time (s)	6.5	6.5	6.5					7.0		7.1	7.0	
Vehicle Extension (s)	3.0	3.0	3.0					7.0		3.0	7.0	
Lane Grp Cap (vph)	239	240	225					1842		290	2438	
v/s Ratio Prot	0.10	0.10						c0.47		c0.10	0.27	
v/s Ratio Perm			c0.12							0.43		
v/c Ratio	0.65	0.64	0.76					0.84		0.77	0.36	
Uniform Delay, d1	55.0	55.0	56.2					25.8		41.4	6.3	
Progression Factor	1.00	1.00	1.00					0.67		0.39	0.70	
Incremental Delay, d2	5.9	5.8	14.2					0.5		3.0	0.1	
Delay (s)	61.0	60.7	70.4					17.6		19.3	4.5	
Level of Service	E	E	E					B		B	A	
Approach Delay (s)		65.9			0.0			17.6			7.5	
Approach LOS		E			A			B			A	

Intersection Summary			
HCM 2000 Control Delay	23.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.6
Intersection Capacity Utilization	92.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	3.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	165	645	30	115	375
Future Vol, veh/h	15	165	645	30	115	375
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	310	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	7	7	8	8
Mvmt Flow	16	179	701	33	125	408

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1376	718	0	0	734	0
Stage 1	718	-	-	-	-	-
Stage 2	658	-	-	-	-	-
Critical Hdwy	6.44	6.24	-	-	4.18	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	-	-	2.272	-
Pot Cap-1 Maneuver	158	426	-	-	844	-
Stage 1	479	-	-	-	-	-
Stage 2	511	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	128	426	-	-	844	-
Mov Cap-2 Maneuver	128	-	-	-	-	-
Stage 1	479	-	-	-	-	-
Stage 2	413	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21	0	2.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	128	426	844	-
HCM Lane V/C Ratio	-	-	0.127	0.421	0.148	-
HCM Control Delay (s)	-	-	37.2	19.5	10	0
HCM Lane LOS	-	-	E	C	B	A
HCM 95th %tile Q(veh)	-	-	0.4	2	0.5	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	5	5	1425	1110	15
Future Vol, veh/h	0	5	5	1425	1110	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Yield
Storage Length	80	0	135	-	-	220
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	20	20	10	10	10	10
Mvmt Flow	0	5	5	1549	1207	16

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1992	604	1207	0	-	0
Stage 1	1207	-	-	-	-	-
Stage 2	785	-	-	-	-	-
Critical Hdwy	7.2	7.3	4.3	-	-	-
Critical Hdwy Stg 1	6.2	-	-	-	-	-
Critical Hdwy Stg 2	6.2	-	-	-	-	-
Follow-up Hdwy	3.7	3.5	2.3	-	-	-
Pot Cap-1 Maneuver	43	400	531	-	-	-
Stage 1	212	-	-	-	-	-
Stage 2	367	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	43	400	531	-	-	-
Mov Cap-2 Maneuver	43	-	-	-	-	-
Stage 1	210	-	-	-	-	-
Stage 2	367	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	531	-	-	400	-	-
HCM Lane V/C Ratio	0.01	-	-	0.014	-	-
HCM Control Delay (s)	11.8	-	0	14.1	-	-
HCM Lane LOS	B	-	A	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0	-	-

Intersection	
Int Delay, s/veh	29.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	5	0	215	0	1005	125	265	635	0
Future Vol, veh/h	0	0	0	5	0	215	0	1005	125	265	635	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	160	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	17	0	1	0	6	0	2	9	2
Mvmt Flow	0	0	0	5	0	234	0	1092	136	288	690	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2543	2494	690	2426	2426	1160	-	0	0	1228	0	0
Stage 1	1266	1266	-	1160	1160	-	-	-	-	-	-	-
Stage 2	1277	1228	-	1266	1266	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.27	6.5	6.21	-	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.27	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.27	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.653	4	3.309	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	18	29	445	20	33	239	0	-	-	568	-	0
Stage 1	207	240	-	222	272	-	0	-	-	-	-	0
Stage 2	204	250	-	193	242	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	0	14	445	12	16	239	-	-	-	568	-	-
Mov Cap-2 Maneuver	0	14	-	12	16	-	-	-	-	-	-	-
Stage 1	207	118	-	222	272	-	-	-	-	-	-	-
Stage 2	5	250	-	95	119	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	276.5	0	5.2
HCM LOS	A	F		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	-	167	568	-
HCM Lane V/C Ratio	-	-	-	-	1.432	0.507	-
HCM Control Delay (s)	-	-	0	0	276.5	17.7	-
HCM Lane LOS	-	-	A	A	F	C	-
HCM 95th %tile Q(veh)	-	-	-	-	15	2.9	-

Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	30	0	45	20	1160	50	5	1235	0
Future Vol, veh/h	0	0	0	30	0	45	20	1160	50	5	1235	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	6	0	7	0	6	8	0	6	0
Mvmt Flow	0	0	0	33	0	49	22	1261	54	5	1342	0

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	2013	2684	658	1342	0	0	1315	0	0
Stage 1	1332	1332	-	-	-	-	-	-	-
Stage 2	681	1352	-	-	-	-	-	-	-
Critical Hdwy	6.92	6.5	7.04	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	5.92	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.92	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.56	4	3.37	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	49	22	395	520	-	-	533	-	-
Stage 1	204	225	-	-	-	-	-	-	-
Stage 2	453	220	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	40	0	395	520	-	-	533	-	-
Mov Cap-2 Maneuver	40	0	-	-	-	-	-	-	-
Stage 1	171	0	-	-	-	-	-	-	-
Stage 2	436	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	165.1	1.1	0.2
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	520	-	-	87	533	-	-
HCM Lane V/C Ratio	0.042	-	-	0.937	0.01	-	-
HCM Control Delay (s)	12.2	1	-	165.1	11.8	0.2	-
HCM Lane LOS	B	A	-	F	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	5.2	0	-	-

MOVEMENT SUMMARY

Site: 1 [SR 53 @ New Cut Rd 2050 PM (With Operational Improvements)]

SR 53 @ New Cut Rd - 2050 PM
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: SR 53											
3	L2	54	6.0	0.526	8.5	LOS A	4.6	121.7	0.56	0.35	33.3
8	T1	625	6.0	0.526	8.5	LOS A	4.6	121.7	0.56	0.35	33.2
18	R2	152	6.0	0.118	3.7	LOS A	0.7	18.2	0.38	0.21	34.9
Approach		832	6.0	0.526	7.6	LOS A	4.6	121.7	0.52	0.33	33.5
East: New Cut Rd											
1	L2	120	6.5	0.406	12.0	LOS B	3.0	77.7	0.86	0.85	30.7
6	T1	54	6.5	0.406	12.0	LOS B	3.0	77.7	0.86	0.85	30.6
16	R2	71	6.5	0.406	12.0	LOS B	3.0	77.7	0.86	0.85	29.8
Approach		245	6.5	0.406	12.0	LOS B	3.0	77.7	0.86	0.85	30.4
North: SR 53											
7	L2	114	5.5	0.517	9.6	LOS A	4.4	114.3	0.66	0.48	32.4
4	T1	1043	5.5	0.517	9.1	LOS A	4.5	118.5	0.65	0.46	32.9
14	R2	16	5.5	0.517	8.7	LOS A	4.5	118.5	0.64	0.45	32.3
Approach		1174	5.5	0.517	9.1	LOS A	4.5	118.5	0.65	0.46	32.9
West: Ednaville Rd											
5	L2	1	2.5	0.096	7.4	LOS A	0.4	11.3	0.73	0.71	34.1
2	T1	54	2.5	0.096	7.4	LOS A	0.4	11.3	0.73	0.71	34.0
12	R2	49	2.5	0.079	6.7	LOS A	0.4	9.2	0.70	0.66	33.4
Approach		104	2.5	0.096	7.1	LOS A	0.4	11.3	0.72	0.69	33.7
All Vehicles		2354	5.6	0.526	8.8	LOS A	4.6	121.7	0.63	0.47	32.9

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

HCM 6th Signalized Intersection Summary
201: SR 53 & SR 124

01/18/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	620	35	105	340	480	35	540	30	520	970	110
Future Volume (veh/h)	155	620	35	105	340	480	35	540	30	520	970	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1841	1841	1796	1796	1796	1841	1841	1841
Adj Flow Rate, veh/h	168	674	0	114	370	0	38	587	33	565	1054	120
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	4	4	7	7	7	4	4	4
Cap, veh/h	90	783		208	983		1411	5304	4495	2386	5455	4623
Arrive On Green	0.02	0.22	0.00	0.09	0.28	0.00	0.03	1.00	1.00	0.01	0.98	0.98
Sat Flow, veh/h	1753	3497	1560	1753	3497	1560	1711	1796	1522	1753	1841	1560
Grp Volume(v), veh/h	168	674	0	114	370	0	38	587	33	565	1054	120
Grp Sat Flow(s),veh/h/ln	1753	1749	1560	1753	1749	1560	1711	1796	1522	1753	1841	1560
Q Serve(g_s), s	3.1	25.9	0.0	10.2	11.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.1	25.9	0.0	10.2	11.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	90	783		0	983		1411	5304	4495	2386	5455	4623
V/C Ratio(X)	1.86	0.86		0.00	0.38		0.03	0.11	0.01	0.24	0.19	0.03
Avail Cap(c_a), veh/h	90	1024		0	983		1420	5304	4495	2765	5455	4623
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.84	0.84	0.84	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.7	52.2	0.0	0.0	40.5	0.0	0.1	0.0	0.0	0.1	0.0	0.0
Incr Delay (d2), s/veh	426.8	6.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.4	11.8	0.0	0.0	5.2	0.0	0.0	0.1	0.0	0.0	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	478.5	58.2	0.0	0.0	40.7	0.0	0.1	0.0	0.0	0.2	0.1	0.0
LnGrp LOS	F	E		A	D		A	A	A	A	A	A
Approach Vol, veh/h		842			484			658			1739	
Approach Delay, s/veh		142.1			31.1			0.0			0.1	
Approach LOS		F			C			A			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.2	430.3	19.0	37.9	10.7	428.7	11.0	45.8
Change Period (Y+Rc), s	6.9	* 6.7	6.5	6.5	6.9	* 6.7	7.9	6.5
Max Green Setting (Gmax), s	3.0	* 76	41.0	41.0	34.1	* 45	3.1	30.0
Max Q Clear Time (g_c+I1), s	2.0	2.0	12.2	27.9	2.0	2.0	5.1	13.9
Green Ext Time (p_c), s	0.0	30.2	0.3	3.4	1.8	8.8	0.0	2.1

Intersection Summary	
HCM 6th Ctrl Delay	36.2
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	155	0	320	375	1105	0	0	1215	310
Future Volume (veh/h)	0	0	0	155	0	320	375	1105	0	0	1215	310
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1648	0	1648	1796	1796	0	0	1781	1781
Adj Flow Rate, veh/h				168	0	348	408	1201	0	0	1321	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				17	0	17	7	7	0	0	8	8
Cap, veh/h				381	0	339	427	2260	0	0	1377	
Arrive On Green				0.24	0.00	0.24	0.21	0.66	0.00	0.00	0.41	0.00
Sat Flow, veh/h				1570	0	1397	1711	3503	0	0	3474	1510
Grp Volume(v), veh/h				168	0	348	408	1201	0	0	1321	0
Grp Sat Flow(s),veh/h/ln				1570	0	1397	1711	1706	0	0	1692	1510
Q Serve(g_s), s				12.7	0.0	34.0	27.8	25.7	0.0	0.0	53.1	0.0
Cycle Q Clear(g_c), s				12.7	0.0	34.0	27.8	25.7	0.0	0.0	53.1	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				381	0	339	427	2260	0	0	1377	
V/C Ratio(X)				0.44	0.00	1.03	0.96	0.53	0.00	0.00	0.96	
Avail Cap(c_a), veh/h				381	0	339	428	2260	0	0	1377	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.18	0.18	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				44.9	0.0	53.0	44.0	12.3	0.0	0.0	40.4	0.0
Incr Delay (d2), s/veh				1.1	0.0	55.7	10.2	0.2	0.0	0.0	16.3	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.1	0.0	17.1	14.9	8.9	0.0	0.0	24.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				46.1	0.0	108.7	54.2	12.5	0.0	0.0	56.6	0.0
LnGrp LOS				D	A	F	D	B	A	A	E	
Approach Vol, veh/h					516			1609			1321	
Approach Delay, s/veh					88.3			23.1			56.6	
Approach LOS					F			C			E	

Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	35.7	63.7				99.4		40.6				
Change Period (Y+Rc), s	* 5.9	6.7				6.7		6.6				
Max Green Setting (Gmax), s	* 30	56.9				92.7		34.0				
Max Q Clear Time (g_c+I1), s	29.8	55.1				27.7		36.0				
Green Ext Time (p_c), s	0.0	1.7				39.9		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		45.7
HCM 6th LOS		D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	0	170	0	0	0	235	850	0	0	1030	125
Future Volume (veh/h)	135	0	170	0	0	0	235	850	0	0	1030	125
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1411	1411	1411	1767	1767	1767	1811	1811	1811
Adj Flow Rate, veh/h	147	0	185	0	0	0	255	924	0	0	1120	136
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	33	33	33	9	9	9	6	6	6
Cap, veh/h	294	0	216	52	197	0	327	2311	0	51	1720	208
Arrive On Green	0.14	0.00	0.14	0.00	0.00	0.00	0.18	1.00	0.00	0.00	0.56	0.56
Sat Flow, veh/h	1739	0	1547	1344	1411	0	1682	3445	0	586	3090	375
Grp Volume(v), veh/h	147	0	185	0	0	0	255	924	0	0	623	633
Grp Sat Flow(s),veh/h/ln	1739	0	1547	1344	1411	0	1682	1678	0	586	1721	1744
Q Serve(g_s), s	11.1	0.0	16.4	0.0	0.0	0.0	9.8	0.0	0.0	0.0	35.2	35.4
Cycle Q Clear(g_c), s	11.1	0.0	16.4	0.0	0.0	0.0	9.8	0.0	0.0	0.0	35.2	35.4
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		0.21
Lane Grp Cap(c), veh/h	294	0	216	0	197	0	327	2311	0	51	958	971
V/C Ratio(X)	0.50	0.00	0.86	0.00	0.00	0.00	0.78	0.40	0.00	0.00	0.65	0.65
Avail Cap(c_a), veh/h	429	0	336	0	306	0	502	2311	0	51	958	971
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	0.00	0.77	0.77	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	56.6	0.0	58.8	0.0	0.0	0.0	18.5	0.0	0.0	0.0	21.6	21.6
Incr Delay (d2), s/veh	1.3	0.0	12.2	0.0	0.0	0.0	3.3	0.4	0.0	0.0	3.4	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	0.0	7.2	0.0	0.0	0.0	3.5	0.1	0.0	0.0	14.2	14.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.9	0.0	71.1	0.0	0.0	0.0	21.9	0.4	0.0	0.0	25.0	25.0
LnGrp LOS	E	A	E	A	A	A	C	A	A	A	C	C
Approach Vol, veh/h		332			0			1179			1256	
Approach Delay, s/veh		65.2			0.0			5.0			25.0	
Approach LOS		E						A			C	

Timer - Assigned Phs	1	2		4		6	7	8				
Phs Duration (G+Y+Rc), s	18.5	84.3		26.4		102.8	0.0	26.4				
Change Period (Y+Rc), s	6.1	6.4		* 6.8		6.4	* 6.8	* 6.8				
Max Green Setting (Gmax), s	26.9	63.4		* 30		96.4	* 30	* 30				
Max Q Clear Time (g_c+I1), s	11.8	37.4		0.0		2.0	0.0	18.4				
Green Ext Time (p_c), s	0.6	16.0		0.0		17.1	0.0	1.2				

Intersection Summary	
HCM 6th Ctrl Delay	21.3
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	45	365	45	20	20	205	565	35	30	1075	5
Future Volume (veh/h)	20	45	365	45	20	20	205	565	35	30	1075	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1900	1900	1900	1826	1826	1826	1856	1856	1856
Adj Flow Rate, veh/h	22	49	397	49	22	22	223	614	38	33	1168	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	0	0	0	5	5	5	3	3	3
Cap, veh/h	339	364	308	271	177	177	182	1084	919	397	1010	856
Arrive On Green	0.02	0.19	0.19	0.03	0.20	0.20	0.08	0.59	0.59	0.03	0.72	0.72
Sat Flow, veh/h	1795	1885	1598	1810	872	872	1739	1826	1547	1767	1856	1572
Grp Volume(v), veh/h	22	49	397	49	0	44	223	614	38	33	1168	5
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1810	0	1743	1739	1826	1547	1767	1856	1572
Q Serve(g_s), s	1.3	3.0	27.0	3.0	0.0	2.9	10.5	28.8	1.4	1.0	76.2	0.1
Cycle Q Clear(g_c), s	1.3	3.0	27.0	3.0	0.0	2.9	10.5	28.8	1.4	1.0	76.2	0.1
Prop In Lane	1.00		1.00	1.00		0.50	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	339	364	308	271	0	354	182	1084	919	397	1010	856
V/C Ratio(X)	0.06	0.13	1.29	0.18	0.00	0.12	1.23	0.57	0.04	0.08	1.16	0.01
Avail Cap(c_a), veh/h	366	364	308	280	0	354	182	1084	919	416	1010	856
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.10	0.10	0.10
Uniform Delay (d), s/veh	42.8	46.8	56.5	43.4	0.0	45.6	48.2	17.4	11.9	13.3	19.3	8.8
Incr Delay (d2), s/veh	0.1	0.2	152.1	0.3	0.0	0.2	140.7	2.1	0.1	0.0	71.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.5	23.9	1.4	0.0	1.3	13.5	12.0	0.5	0.4	42.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.8	47.0	208.6	43.7	0.0	45.8	188.9	19.6	11.9	13.3	90.9	8.8
LnGrp LOS	D	D	F	D	A	D	F	B	B	B	F	A
Approach Vol, veh/h		468			93			875			1206	
Approach Delay, s/veh		183.9			44.7			62.4			88.4	
Approach LOS		F			D			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	83.2	7.4	34.4	8.1	90.1	8.8	33.0
Change Period (Y+Rc), s	4.5	7.0	4.5	6.0	4.5	7.0	4.5	6.0
Max Green Setting (Gmax), s	10.5	75.5	5.0	27.0	5.1	80.9	5.0	27.0
Max Q Clear Time (g_c+I1), s	12.5	78.2	3.3	4.9	3.0	30.8	5.0	29.0
Green Ext Time (p_c), s	0.0	0.0	0.0	0.2	0.0	9.7	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	95.2
HCM 6th LOS	F



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	5	60	5	0	30	20	835	35	30	1235	30
Future Volume (veh/h)	45	5	60	5	0	30	20	835	35	30	1235	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1856	1856	1856	1826	1826	1826	1870	1870	1870
Adj Flow Rate, veh/h	49	5	65	5	0	0	22	908	38	33	1342	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	3	3	3	5	5	5	2	2	2
Cap, veh/h	72	5	48	114	0		45	1414	59	50	1487	36
Arrive On Green	0.06	0.06	0.06	0.06	0.00	0.00	1.00	1.00	1.00	0.86	0.86	0.86
Sat Flow, veh/h	622	83	848	1103	0	0	21	1650	68	27	1735	42
Grp Volume(v), veh/h	119	0	0	5	0	0	968	0	0	1408	0	0
Grp Sat Flow(s),veh/h/ln	1553	0	0	1103	0	0	1740	0	0	1804	0	0
Q Serve(g_s), s	7.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0
Cycle Q Clear(g_c), s	8.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	66.9	0.0	0.0
Prop In Lane	0.41		0.55	1.00		0.00	0.02		0.04	0.02		0.02
Lane Grp Cap(c), veh/h	125	0	0	114	0		1518	0	0	1573	0	0
V/C Ratio(X)	0.95	0.00	0.00	0.04	0.00		0.64	0.00	0.00	0.90	0.00	0.00
Avail Cap(c_a), veh/h	125	0	0	114	0		1518	0	0	1573	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.79	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	67.0	0.0	0.0	62.5	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0
Incr Delay (d2), s/veh	65.4	0.0	0.0	0.2	0.0	0.0	1.6	0.0	0.0	8.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	0.0	0.0	0.2	0.0	0.0	0.7	0.0	0.0	17.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	132.3	0.0	0.0	62.7	0.0	0.0	1.6	0.0	0.0	14.3	0.0	0.0
LnGrp LOS	F	A	A	E	A		A	A	A	B	A	A
Approach Vol, veh/h		119			5			968			1408	
Approach Delay, s/veh		132.3			62.7			1.6			14.3	
Approach LOS		F			E			A			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	126.0	14.0	126.0	14.0
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	120.0	8.0	120.0	8.0
Max Q Clear Time (g_c+I1), s	68.9	10.0	2.0	2.6
Green Ext Time (p_c), s	26.8	0.0	11.4	0.0

Intersection Summary	
HCM 6th Ctrl Delay	15.1
HCM 6th LOS	B

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	45	265	105	15	35	150	1075	105	60	1015	60
Future Volume (veh/h)	50	45	265	105	15	35	150	1075	105	60	1015	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1248	1248	1248	1752	1752	1752	1826	1826	1826
Adj Flow Rate, veh/h	54	49	288	114	16	38	163	1168	114	65	1103	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	44	44	44	10	10	10	5	5	5
Cap, veh/h	170	369	313	163	67	160	433	1582	154	200	1244	73
Arrive On Green	0.07	0.20	0.20	0.07	0.20	0.20	0.46	1.00	1.00	0.09	0.37	0.37
Sat Flow, veh/h	1739	1826	1547	2306	328	779	1668	3064	299	1739	3329	196
Grp Volume(v), veh/h	54	49	288	114	0	54	163	634	648	65	574	594
Grp Sat Flow(s),veh/h/ln	1739	1826	1547	1153	0	1108	1668	1664	1698	1739	1735	1791
Q Serve(g_s), s	7.2	3.1	25.5	6.8	0.0	5.7	3.9	0.0	0.0	8.1	43.4	43.5
Cycle Q Clear(g_c), s	7.2	3.1	25.5	6.8	0.0	5.7	3.9	0.0	0.0	8.1	43.4	43.5
Prop In Lane	1.00		1.00	1.00		0.70	1.00		0.18	1.00		0.11
Lane Grp Cap(c), veh/h	0	369	313	163	0	227	433	859	877	0	648	669
V/C Ratio(X)	0.00	0.13	0.92	0.70	0.00	0.24	0.38	0.74	0.74	0.00	0.89	0.89
Avail Cap(c_a), veh/h	0	456	387	165	0	427	433	859	877	0	648	669
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.71	0.71	0.71
Uniform Delay (d), s/veh	0.0	45.8	54.7	63.6	0.0	46.5	29.8	0.0	0.0	0.0	41.1	41.1
Incr Delay (d2), s/veh	0.0	0.2	23.9	15.5	0.0	0.9	0.5	5.6	5.6	0.0	12.4	12.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.4	12.0	2.4	0.0	1.7	3.2	1.3	1.4	0.0	20.1	20.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	45.9	78.7	79.1	0.0	47.5	30.3	5.6	5.6	0.0	53.5	53.2
LnGrp LOS	A	D	E	E	A	D	C	A	A	A	D	D
Approach Vol, veh/h		391			168			1445			1233	
Approach Delay, s/veh		63.7			69.0			8.4			50.5	
Approach LOS		E			E			A			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	38.5	58.6	18.9	35.7	18.3	78.8	16.9	37.7
Change Period (Y+Rc), s	6.5	6.3	9.0	7.4	6.3	* 6.5	7.4	* 9
Max Green Setting (Gmax), s	13.5	52.3	10.0	35.0	72.3	* 72	54.0	* 54
Max Q Clear Time (g_c+I1), s	5.9	45.5	8.8	27.5	10.1	2.0	9.2	7.7
Green Ext Time (p_c), s	0.2	5.2	0.1	0.8	0.4	27.3	0.3	0.5

Intersection Summary	
HCM 6th Ctrl Delay	34.3
HCM 6th LOS	C

Notes

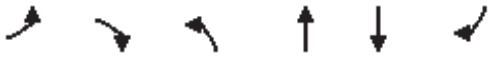
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	45	0	5	35	170	850	5	35	1140	125
Future Volume (veh/h)	5	0	45	0	5	35	170	850	5	35	1140	125
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1841	1841	1841	1870	1870	1870
Adj Flow Rate, veh/h	5	0	49	0	5	38	185	924	5	38	1239	136
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	4	4	4	2	2	2
Cap, veh/h	32	4	82	0	11	81	385	1570	8	54	1347	146
Arrive On Green	0.06	0.00	0.06	0.00	0.06	0.06	0.86	0.86	0.86	1.00	1.00	1.00
Sat Flow, veh/h	76	73	1460	0	191	1449	388	1829	10	32	1570	171
Grp Volume(v), veh/h	54	0	0	0	0	43	185	0	929	1413	0	0
Grp Sat Flow(s),veh/h/ln	1609	0	0	0	0	1639	388	0	1839	1772	0	0
Q Serve(g_s), s	0.8	0.0	0.0	0.0	0.0	3.6	18.0	0.0	20.2	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.5	0.0	0.0	0.0	0.0	3.6	18.0	0.0	20.2	0.0	0.0	0.0
Prop In Lane	0.09		0.91	0.00		0.88	1.00		0.01	0.03		0.10
Lane Grp Cap(c), veh/h	118	0	0	0	0	92	385	0	1579	1548	0	0
V/C Ratio(X)	0.46	0.00	0.00	0.00	0.00	0.47	0.48	0.00	0.59	0.91	0.00	0.00
Avail Cap(c_a), veh/h	120	0	0	0	0	94	385	0	1579	1548	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	0.09	0.00	0.09	0.27	0.00	0.00
Uniform Delay (d), s/veh	64.5	0.0	0.0	0.0	0.0	64.1	2.7	0.0	2.8	0.0	0.0	0.0
Incr Delay (d2), s/veh	2.8	0.0	0.0	0.0	0.0	3.7	0.4	0.0	0.1	3.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	0.0	0.0	0.0	1.6	0.9	0.0	4.6	1.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.3	0.0	0.0	0.0	0.0	67.8	3.1	0.0	3.0	3.1	0.0	0.0
LnGrp LOS	E	A	A	A	A	E	A	A	A	A	A	A
Approach Vol, veh/h		54			43			1114			1413	
Approach Delay, s/veh		67.3			67.8			3.0			3.1	
Approach LOS		E			E			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		126.2		13.8		126.2		13.8				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		120.0		8.0		120.0		8.0				
Max Q Clear Time (g_c+I1), s		2.0		6.5		22.2		5.6				
Green Ext Time (p_c), s		37.0		0.0		16.9		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			5.4									
HCM 6th LOS			A									



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	155	130	120	675	860	165
Future Volume (veh/h)	155	130	120	675	860	165
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1811	1811	1870	1870
Adj Flow Rate, veh/h	168	141	130	734	935	179
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	6	6	2	2
Cap, veh/h	208	174	92	241	871	167
Arrive On Green	0.23	0.23	0.57	0.57	1.00	1.00
Sat Flow, veh/h	907	761	0	423	1526	292
Grp Volume(v), veh/h	310	0	864	0	0	1114
Grp Sat Flow(s),veh/h/ln	1673	0	423	0	0	1818
Q Serve(g_s), s	7.9	0.0	0.0	0.0	0.0	25.7
Cycle Q Clear(g_c), s	7.9	0.0	25.7	0.0	0.0	25.7
Prop In Lane	0.54	0.45	0.15			0.16
Lane Grp Cap(c), veh/h	383	0	333	0	0	1038
V/C Ratio(X)	0.81	0.00	2.59	0.00	0.00	1.07
Avail Cap(c_a), veh/h	669	0	333	0	0	1038
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.82	0.00	0.00	0.09
Uniform Delay (d), s/veh	16.4	0.0	13.3	0.0	0.0	0.0
Incr Delay (d2), s/veh	4.1	0.0	723.5	0.0	0.0	35.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	68.6	0.0	0.0	10.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.5	0.0	736.8	0.0	0.0	35.2
LnGrp LOS	C	A	F	A	A	F
Approach Vol, veh/h	310			864	1114	
Approach Delay, s/veh	20.5			736.8	35.2	
Approach LOS	C			F	D	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		30.2		14.8		30.2
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		18.0		18.0		18.0
Max Q Clear Time (g_c+I1), s		27.7		9.9		27.7
Green Ext Time (p_c), s		0.0		0.6		0.0

Intersection Summary		
HCM 6th Ctrl Delay	298.2	
HCM 6th LOS	F	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	0	20	5	0	5	15	680	0	0	870	120
Future Volume (veh/h)	110	0	20	5	0	5	15	680	0	0	870	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1900	1900	1900	1796	1796	1796	1870	1870	1870
Adj Flow Rate, veh/h	120	0	0	5	0	5	16	739	0	0	946	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	0	0	0	7	7	7	2	2	2
Cap, veh/h	192	0		114	12	88	41	1420	1242	0	1526	
Arrive On Green	0.10	0.00	0.00	0.10	0.00	0.10	0.82	0.82	0.00	0.00	0.82	0.00
Sat Flow, veh/h	1431	0	1585	766	125	891	18	1741	1522	0	1870	1585
Grp Volume(v), veh/h	120	0	0	10	0	0	755	0	0	0	946	0
Grp Sat Flow(s),veh/h/ln	1431	0	1585	1783	0	0	1758	0	1522	0	1870	1585
Q Serve(g_s), s	10.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.4	0.0
Cycle Q Clear(g_c), s	11.5	0.0	0.0	0.7	0.0	0.0	18.7	0.0	0.0	0.0	26.4	0.0
Prop In Lane	1.00		1.00	0.50		0.50	0.02		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	192	0		214	0	0	1461	0	1242	0	1526	
V/C Ratio(X)	0.62	0.00		0.05	0.00	0.00	0.52	0.00	0.00	0.00	0.62	
Avail Cap(c_a), veh/h	285	0		314	0	0	1461	0	1242	0	1526	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.09	0.00
Uniform Delay (d), s/veh	62.0	0.0	0.0	57.2	0.0	0.0	4.1	0.0	0.0	0.0	4.8	0.0
Incr Delay (d2), s/veh	3.3	0.0	0.0	0.1	0.0	0.0	1.3	0.0	0.0	0.0	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	0.0	0.0	0.3	0.0	0.0	5.2	0.0	0.0	0.0	6.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.3	0.0	0.0	57.3	0.0	0.0	5.4	0.0	0.0	0.0	5.0	0.0
LnGrp LOS	E	A		E	A	A	A	A	A	A	A	
Approach Vol, veh/h		120			10			755			946	
Approach Delay, s/veh		65.3			57.3			5.4			5.0	
Approach LOS		E			E			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		120.2		19.8		120.2		19.8				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		105.0		23.0		105.0		23.0				
Max Q Clear Time (g_c+I1), s		28.4		13.5		20.7		2.7				
Green Ext Time (p_c), s		7.9		0.4		6.0		0.0				

Intersection Summary		
HCM 6th Ctrl Delay	9.4	
HCM 6th LOS	A	

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	5	45	0	250	10	765	55	200	975	10
Future Volume (veh/h)	10	0	5	45	0	250	10	765	55	200	975	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1885	1900	1885	1811	1811	1811	1870	1856	1900
Adj Flow Rate, veh/h	11	0	5	49	0	272	11	832	60	217	1060	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	1	0	1	6	6	6	2	3	0
Cap, veh/h	323	25	97	132	23	344	81	721	840	315	1003	10
Arrive On Green	0.25	0.00	0.25	0.25	0.00	0.25	1.00	1.00	1.00	0.55	0.55	0.55
Sat Flow, veh/h	743	97	382	155	90	1360	0	1317	1535	660	1833	19
Grp Volume(v), veh/h	16	0	0	321	0	0	843	0	60	217	0	1071
Grp Sat Flow(s),veh/h/ln	1223	0	0	1605	0	0	1317	0	1535	660	0	1852
Q Serve(g_s), s	0.0	0.0	0.0	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.6
Cycle Q Clear(g_c), s	0.3	0.0	0.0	8.3	0.0	0.0	24.6	0.0	0.0	24.6	0.0	24.6
Prop In Lane	0.69		0.31	0.15		0.85	0.01		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	444	0	0	498	0	0	802	0	840	315	0	1013
V/C Ratio(X)	0.04	0.00	0.00	0.64	0.00	0.00	1.05	0.00	0.07	0.69	0.00	1.06
Avail Cap(c_a), veh/h	624	0	0	731	0	0	802	0	840	315	0	1013
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.09	0.00	0.09	0.30	0.00	0.30
Uniform Delay (d), s/veh	12.7	0.0	0.0	15.6	0.0	0.0	6.0	0.0	0.0	13.7	0.0	10.2
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.4	0.0	0.0	26.8	0.0	0.0	3.7	0.0	33.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	2.8	0.0	0.0	7.7	0.0	0.0	2.4	0.0	15.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.7	0.0	0.0	17.0	0.0	0.0	32.8	0.0	0.0	17.4	0.0	43.4
LnGrp LOS	B	A	A	B	A	A	F	A	A	B	A	F
Approach Vol, veh/h		16			321			903			1288	
Approach Delay, s/veh		12.7			17.0			30.6			39.0	
Approach LOS		B			B			C			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		29.1		15.9		29.1		15.9				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.0		18.0		18.0		18.0				
Max Q Clear Time (g_c+I1), s		26.6		2.3		26.6		10.3				
Green Ext Time (p_c), s		0.0		0.0		0.0		1.2				

Intersection Summary												
HCM 6th Ctrl Delay			33.1									
HCM 6th LOS			C									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	405	1060	30	235	710	190	75	230	170	250	310	245
Future Volume (veh/h)	405	1060	30	235	710	190	75	230	170	250	310	245
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1885	1900	1885	1856	1870	1900	1856	1900	1885	1885	1870
Adj Flow Rate, veh/h	440	1152	0	255	772	0	82	250	185	272	337	266
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	1	0	1	3	2	0	3	0	1	1	2
Cap, veh/h	490	1588		309	1281		212	280	243	324	630	529
Arrive On Green	0.17	0.44	0.00	0.09	0.36	0.00	0.15	0.15	0.15	0.14	0.33	0.33
Sat Flow, veh/h	1781	3582	1610	1795	3526	1585	1060	1856	1610	1795	1885	1585
Grp Volume(v), veh/h	440	1152	0	255	772	0	82	250	185	272	337	266
Grp Sat Flow(s),veh/h/ln	1781	1791	1610	1795	1763	1585	1060	1856	1610	1795	1885	1585
Q Serve(g_s), s	21.2	36.9	0.0	10.7	25.0	0.0	10.0	18.5	15.4	17.7	20.3	18.8
Cycle Q Clear(g_c), s	21.2	36.9	0.0	10.7	25.0	0.0	10.0	18.5	15.4	17.7	20.3	18.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	490	1588		309	1281		212	280	243	324	630	529
V/C Ratio(X)	0.90	0.73		0.83	0.60		0.39	0.89	0.76	0.84	0.54	0.50
Avail Cap(c_a), veh/h	618	1588		401	1281		226	305	265	324	654	550
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.3	32.0	0.0	26.9	36.3	0.0	54.7	58.3	57.0	42.9	37.8	37.3
Incr Delay (d2), s/veh	13.6	2.9	0.0	10.5	2.1	0.0	1.2	25.0	11.2	17.4	0.8	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.7	16.6	0.0	5.4	11.2	0.0	2.7	10.7	7.1	9.5	9.6	7.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.9	34.9	0.0	37.4	38.4	0.0	55.8	83.3	68.2	60.3	38.6	38.1
LnGrp LOS	D	C		D	D		E	F	E	E	D	D
Approach Vol, veh/h		1592			1027			517			875	
Approach Delay, s/veh		36.0			38.2			73.6			45.2	
Approach LOS		D			D			E			D	

Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.4	56.9		52.8	19.2	68.1	25.6	27.2				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	34.4	39.0		48.6	20.4	53.0	19.6	23.0				
Max Q Clear Time (g_c+I1), s	23.2	27.0		22.3	12.7	38.9	19.7	20.5				
Green Ext Time (p_c), s	1.1	4.2		3.1	0.4	7.1	0.0	0.7				

Intersection Summary			
HCM 6th Ctrl Delay		43.4	
HCM 6th LOS		D	

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	445	0	530	0	0	0	0	1035	145	305	1065	0
Future Volume (vph)	445	0	530	0	0	0	0	1035	145	305	1065	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	16	16	16	12	12	12	12	12	12
Total Lost time (s)	6.5	6.5	6.5					7.0		7.1	7.0	
Lane Util. Factor	0.95	0.95	1.00					0.95		1.00	0.95	
Frt	1.00	1.00	0.85					0.98		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1603	1603	1509					3312		1687	3374	
Flt Permitted	0.95	0.95	1.00					1.00		0.08	1.00	
Satd. Flow (perm)	1603	1603	1509					3312		139	3374	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	484	0	576	0	0	0	0	1125	158	332	1158	0
RTOR Reduction (vph)	0	0	58	0	0	0	0	8	0	0	0	0
Lane Group Flow (vph)	242	242	518	0	0	0	0	1275	0	332	1158	0
Heavy Vehicles (%)	7%	7%	7%	0%	0%	0%	7%	7%	7%	7%	7%	7%
Turn Type	Split	NA	Perm					NA		D.P+P	NA	
Protected Phases	4	4						6		5	2	
Permitted Phases			4							6		
Actuated Green, G (s)	45.5	45.5	45.5					51.0		73.9	81.0	
Effective Green, g (s)	45.5	45.5	45.5					51.0		73.9	81.0	
Actuated g/C Ratio	0.32	0.32	0.32					0.36		0.53	0.58	
Clearance Time (s)	6.5	6.5	6.5					7.0		7.1	7.0	
Vehicle Extension (s)	3.0	3.0	3.0					7.0		3.0	7.0	
Lane Grp Cap (vph)	520	520	490					1206		326	1952	
v/s Ratio Prot	0.15	0.15						c0.39		c0.17	0.34	
v/s Ratio Perm			c0.34							0.37		
v/c Ratio	0.47	0.47	1.06					1.06		1.02	0.59	
Uniform Delay, d1	37.6	37.6	47.2					44.5		54.9	18.9	
Progression Factor	1.00	1.00	1.00					0.74		0.48	0.29	
Incremental Delay, d2	0.7	0.7	56.6					34.5		37.4	0.6	
Delay (s)	38.2	38.2	103.8					67.5		63.9	6.0	
Level of Service	D	D	F					E		E	A	
Approach Delay (s)		73.9			0.0			67.5			18.9	
Approach LOS		E			A			E			B	

Intersection Summary			
HCM 2000 Control Delay	50.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.6
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	4.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	35	185	510	30	105	790
Future Vol, veh/h	35	185	510	30	105	790
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	310	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	8	8	3	3
Mvmt Flow	38	201	554	33	114	859

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1658	571	0	0	587	0
Stage 1	571	-	-	-	-	-
Stage 2	1087	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.13	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.227	-
Pot Cap-1 Maneuver	106	515	-	-	983	-
Stage 1	559	-	-	-	-	-
Stage 2	319	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	82	515	-	-	983	-
Mov Cap-2 Maneuver	82	-	-	-	-	-
Stage 1	559	-	-	-	-	-
Stage 2	248	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	26.9	0	1.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	82	515	983	-
HCM Lane V/C Ratio	-	-	0.464	0.39	0.116	-
HCM Control Delay (s)	-	-	82.3	16.4	9.1	0
HCM Lane LOS	-	-	F	C	A	A
HCM 95th %tile Q(veh)	-	-	1.9	1.8	0.4	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	5	0	1175	1595	0
Future Vol, veh/h	5	5	0	1175	1595	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Yield
Storage Length	80	0	135	-	-	220
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	8	8	4	4
Mvmt Flow	5	5	0	1277	1734	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2373	867	1734	0	-	0
Stage 1	1734	-	-	-	-	-
Stage 2	639	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.26	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.28	-	-	-
Pot Cap-1 Maneuver	30	300	334	-	-	-
Stage 1	130	-	-	-	-	-
Stage 2	493	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	30	300	334	-	-	-
Mov Cap-2 Maneuver	30	-	-	-	-	-
Stage 1	130	-	-	-	-	-
Stage 2	493	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	83.6	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	334	-	30	300	-	-
HCM Lane V/C Ratio	-	-	0.181	0.018	-	-
HCM Control Delay (s)	0	-	149.9	17.2	-	-
HCM Lane LOS	A	-	F	C	-	-
HCM 95th %tile Q(veh)	0	-	0.6	0.1	-	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	5	5	0	65	0	905	5	105	1285	0
Future Vol, veh/h	0	0	5	5	0	65	0	905	5	105	1285	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	160	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	2	0	5	0	0	3	0
Mvmt Flow	0	0	5	5	0	71	0	984	5	114	1397	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2647	2614	1397	2615	2612	987	-	0	0	989	0	0
Stage 1	1625	1625	-	987	987	-	-	-	-	-	-	-
Stage 2	1022	989	-	1628	1625	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.22	-	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.318	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	15	25	174	16	25	300	0	-	-	707	-	0
Stage 1	130	162	-	300	328	-	0	-	-	-	-	0
Stage 2	287	327	-	130	162	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	10	21	174	14	21	300	-	-	-	707	-	-
Mov Cap-2 Maneuver	10	21	-	14	21	-	-	-	-	-	-	-
Stage 1	130	136	-	300	328	-	-	-	-	-	-	-
Stage 2	219	327	-	106	136	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	26.4	74.1	0	0.8
HCM LOS	D	F		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	174	122	707	-
HCM Lane V/C Ratio	-	-	-	0.031	0.624	0.161	-
HCM Control Delay (s)	-	-	0	26.4	74.1	11.1	-
HCM Lane LOS	-	-	A	D	F	B	-
HCM 95th %tile Q(veh)	-	-	-	0.1	3.2	0.6	-

Intersection	
Int Delay, s/veh	8.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	15	0	20	20	1360	45	5	1510	5
Future Vol, veh/h	0	0	0	15	0	20	20	1360	45	5	1510	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	18	0	0	0	5	7	0	2	0
Mvmt Flow	0	0	0	16	0	22	22	1478	49	5	1641	5

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	2378	3203	764	1646	0	0	1527	0	0
Stage 1	1547	1547	-	-	-	-	-	-	-
Stage 2	831	1656	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.16	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.68	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	23	10	351	398	-	-	442	-	-
Stage 1	138	177	-	-	-	-	-	-	-
Stage 2	350	157	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	~ 12	0	351	398	-	-	442	-	-
Mov Cap-2 Maneuver	~ 12	0	-	-	-	-	-	-	-
Stage 1	86	0	-	-	-	-	-	-	-
Stage 2	303	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 535.3	2.8	0.9
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	398	-	-	27	442	-	-
HCM Lane V/C Ratio	0.055	-	-	1.409	0.012	-	-
HCM Control Delay (s)	14.6	2.7	-	$ 535.3	13.2	0.9	-
HCM Lane LOS	B	A	-	F	B	A	-
HCM 95th %tile Q(veh)	0.2	-	-	4.5	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

SECTION 7

Design Year 2050 With Operational & Regional Improvements Delay Reports

MOVEMENT SUMMARY

Site: 1 [SR 53 @ New Cut Rd 2050 AM (With Operational & Regional Improvements)]

SR 53 @ New Cut Rd - 2050 AM (With Diversions)
Roundabout

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: SR 53											
3	L2	16	11.5	0.549	8.5	LOS A	5.4	148.0	0.34	0.14	33.2
8	T1	734	11.5	0.549	8.5	LOS A	5.4	148.0	0.34	0.14	33.3
18	R2	65	11.5	0.047	3.0	LOS A	0.3	7.0	0.18	0.06	35.1
Approach		815	11.5	0.549	8.1	LOS A	5.4	148.0	0.33	0.14	33.4
East: New Cut Rd											
1	L2	272	4.0	0.736	25.1	LOS D	9.7	251.2	1.00	1.30	26.0
6	T1	54	4.0	0.736	25.1	LOS D	9.7	251.2	1.00	1.30	25.9
16	R2	103	4.0	0.736	25.1	LOS D	9.7	251.2	1.00	1.30	25.3
Approach		429	4.0	0.736	25.1	LOS D	9.7	251.2	1.00	1.30	25.8
North: SR 53											
7	L2	22	5.5	0.288	7.0	LOS A	2.0	52.8	0.66	0.51	34.0
4	T1	543	5.5	0.288	6.5	LOS A	2.1	55.7	0.65	0.49	34.3
14	R2	5	5.5	0.288	6.1	LOS A	2.1	55.7	0.65	0.48	33.5
Approach		571	5.5	0.288	6.5	LOS A	2.1	55.7	0.65	0.49	34.3
West: Ednaville Rd											
5	L2	5	13.5	0.042	6.0	LOS A	0.2	5.0	0.62	0.53	33.9
2	T1	22	13.5	0.042	6.0	LOS A	0.2	5.0	0.62	0.53	34.0
12	R2	49	13.5	0.075	6.3	LOS A	0.3	8.8	0.62	0.56	33.3
Approach		76	13.5	0.075	6.2	LOS A	0.3	8.8	0.62	0.55	33.6
All Vehicles		1891	8.1	0.736	11.4	LOS B	9.7	251.2	0.59	0.52	31.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

HCM 6th Signalized Intersection Summary
201: SR 53 & SR 124

01/18/2024



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	235	30	20	400	675	15	500	30	195	520	250
Future Volume (veh/h)	105	235	30	20	400	675	15	500	30	195	520	250
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1589	1589	1589	1781	1781	1781	1781	1781	1781	1752	1752	1752
Adj Flow Rate, veh/h	114	255	0	22	435	0	16	543	33	212	565	272
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	21	21	21	8	8	8	8	8	8	10	10	10
Cap, veh/h	89	418		148	543		329	967	820	378	1059	897
Arrive On Green	0.02	0.14	0.00	0.06	0.16	0.00	0.00	0.18	0.18	0.07	0.60	0.60
Sat Flow, veh/h	1513	3019	1346	1697	3385	1510	1697	1781	1510	1668	1752	1485
Grp Volume(v), veh/h	114	255	0	22	435	0	16	543	33	212	565	272
Grp Sat Flow(s),veh/h/ln	1513	1509	1346	1697	1692	1510	1697	1781	1510	1668	1752	1485
Q Serve(g_s), s	3.5	11.1	0.0	1.9	17.3	0.0	0.5	38.9	2.5	7.9	26.4	12.4
Cycle Q Clear(g_c), s	3.5	11.1	0.0	1.9	17.3	0.0	0.5	38.9	2.5	7.9	26.4	12.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	89	418		0	543		329	967	820	378	1059	897
V/C Ratio(X)	1.28	0.61		0.00	0.80		0.05	0.56	0.04	0.56	0.53	0.30
Avail Cap(c_a), veh/h	89	1335		0	1221		348	967	820	406	1059	897
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.92	0.92	0.92	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.0	56.8	0.0	0.0	56.6	0.0	13.1	42.2	27.3	19.3	16.2	13.4
Incr Delay (d2), s/veh	186.8	1.4	0.0	0.0	2.8	0.0	0.1	2.2	0.1	1.5	1.9	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	4.3	0.0	0.0	7.6	0.0	0.2	19.1	0.9	2.9	10.4	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	229.8	58.2	0.0	0.0	59.4	0.0	13.2	44.4	27.4	20.9	18.1	14.3
LnGrp LOS	F	E		A	E		B	D	C	C	B	B
Approach Vol, veh/h		369			457			592			1049	
Approach Delay, s/veh		111.2			56.5			42.6			17.7	
Approach LOS		F			E			D			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.3	91.3	14.5	25.9	16.9	82.7	11.4	29.0
Change Period (Y+Rc), s	6.9	* 6.7	6.5	6.5	6.9	* 6.7	7.9	6.5
Max Green Setting (Gmax), s	3.0	* 55	61.9	61.9	12.3	* 46	3.5	50.5
Max Q Clear Time (g_c+I1), s	2.5	28.4	3.9	13.1	9.9	40.9	5.5	19.3
Green Ext Time (p_c), s	0.0	9.5	0.0	1.6	0.1	2.2	0.0	3.1

Intersection Summary	
HCM 6th Ctrl Delay	44.8
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	40	0	370	695	830	0	0	825	415
Future Volume (veh/h)	0	0	0	40	0	370	695	830	0	0	825	415
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1678	0	1678	1781	1781	0	0	1767	1767
Adj Flow Rate, veh/h				43	0	402	755	902	0	0	897	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				15	0	15	8	8	0	0	9	9
Cap, veh/h				388	0	345	671	2241	0	0	856	
Arrive On Green				0.24	0.00	0.24	0.37	0.66	0.00	0.00	0.51	0.00
Sat Flow, veh/h				1598	0	1422	1697	3474	0	0	3445	1497
Grp Volume(v), veh/h				43	0	402	755	902	0	0	897	0
Grp Sat Flow(s),veh/h/ln				1598	0	1422	1697	1692	0	0	1678	1497
Q Serve(g_s), s				2.9	0.0	34.0	51.1	17.2	0.0	0.0	35.7	0.0
Cycle Q Clear(g_c), s				2.9	0.0	34.0	51.1	17.2	0.0	0.0	35.7	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				388	0	345	671	2241	0	0	856	
V/C Ratio(X)				0.11	0.00	1.16	1.13	0.40	0.00	0.00	1.05	
Avail Cap(c_a), veh/h				388	0	345	671	2241	0	0	856	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)				1.00	0.00	1.00	0.57	0.57	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				41.2	0.0	53.0	38.4	10.9	0.0	0.0	34.3	0.0
Incr Delay (d2), s/veh				0.2	0.0	101.0	68.0	0.3	0.0	0.0	44.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.2	0.0	21.8	33.5	6.0	0.0	0.0	15.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				41.4	0.0	154.0	106.4	11.2	0.0	0.0	78.4	0.0
LnGrp LOS				D	A	F	F	B	A	A	F	
Approach Vol, veh/h					445			1657			897	
Approach Delay, s/veh					143.1			54.6			78.4	
Approach LOS					F			D			E	

Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	57.0	42.4				99.4		40.6				
Change Period (Y+Rc), s	* 5.9	6.7				6.7		6.6				
Max Green Setting (Gmax), s	* 51	35.7				92.7		34.0				
Max Q Clear Time (g_c+I1), s	53.1	37.7				19.2		36.0				
Green Ext Time (p_c), s	0.0	0.0				28.3		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		74.8
HCM 6th LOS		E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	0	135	0	0	0	180	755	0	0	795	120
Future Volume (veh/h)	75	0	135	0	0	0	180	755	0	0	795	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1781	1781	1900	1900	1900	1737	1737	1737	1826	1826	1826
Adj Flow Rate, veh/h	82	0	147	0	0	0	196	821	0	0	864	130
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	8	8	8	0	0	0	11	11	11	5	5	5
Cap, veh/h	249	0	176	53	221	0	368	2230	0	51	1709	257
Arrive On Green	0.12	0.00	0.12	0.00	0.00	0.00	0.07	0.68	0.00	0.00	0.57	0.57
Sat Flow, veh/h	1697	0	1510	1810	1900	0	1654	3387	0	651	3024	455
Grp Volume(v), veh/h	82	0	147	0	0	0	196	821	0	0	496	498
Grp Sat Flow(s),veh/h/ln	1697	0	1510	1810	1900	0	1654	1650	0	651	1735	1744
Q Serve(g_s), s	6.3	0.0	13.3	0.0	0.0	0.0	6.9	15.0	0.0	0.0	24.3	24.3
Cycle Q Clear(g_c), s	6.3	0.0	13.3	0.0	0.0	0.0	6.9	15.0	0.0	0.0	24.3	24.3
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		0.26
Lane Grp Cap(c), veh/h	249	0	176	0	221	0	368	2230	0	51	981	986
V/C Ratio(X)	0.33	0.00	0.84	0.00	0.00	0.00	0.53	0.37	0.00	0.00	0.51	0.51
Avail Cap(c_a), veh/h	442	0	347	0	437	0	540	2230	0	51	981	986
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	0.00	0.91	0.91	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	57.4	0.0	60.5	0.0	0.0	0.0	14.1	9.8	0.0	0.0	18.5	18.5
Incr Delay (d2), s/veh	0.8	0.0	9.9	0.0	0.0	0.0	1.1	0.4	0.0	0.0	1.9	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	5.6	0.0	0.0	0.0	2.5	5.1	0.0	0.0	9.8	9.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.2	0.0	70.4	0.0	0.0	0.0	15.2	10.2	0.0	0.0	20.4	20.4
LnGrp LOS	E	A	E	A	A	A	B	B	A	A	C	C
Approach Vol, veh/h		229			0			1017			994	
Approach Delay, s/veh		66.0			0.0			11.2			20.4	
Approach LOS		E						B			C	

Timer - Assigned Phs	1	2		4		6	7	8				
Phs Duration (G+Y+Rc), s	15.5	85.5		23.1		101.0	0.0	23.1				
Change Period (Y+Rc), s	6.1	6.4		* 6.8		6.4	* 6.8	* 6.8				
Max Green Setting (Gmax), s	23.9	64.6		* 32		94.6	* 32	* 32				
Max Q Clear Time (g_c+I1), s	8.9	26.3		0.0		17.0	0.0	15.3				
Green Ext Time (p_c), s	0.4	14.7		0.0		14.0	0.0	1.0				

Intersection Summary			
HCM 6th Ctrl Delay		20.9	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	15	245	15	15	15	495	525	60	15	555	0
Future Volume (veh/h)	5	15	245	15	15	15	495	525	60	15	555	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1811	1811	1811	1826	1826	1826	1752	1752	1752
Adj Flow Rate, veh/h	5	16	266	16	16	16	538	571	65	16	603	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	6	6	6	5	5	5	10	10	10
Cap, veh/h	303	337	286	267	161	161	665	1144	969	418	804	681
Arrive On Green	0.01	0.18	0.18	0.02	0.19	0.19	0.18	0.63	0.63	0.03	0.92	0.00
Sat Flow, veh/h	1753	1841	1560	1725	831	831	1739	1826	1547	1668	1752	1485
Grp Volume(v), veh/h	5	16	266	16	0	32	538	571	65	16	603	0
Grp Sat Flow(s),veh/h/ln	1753	1841	1560	1725	0	1662	1739	1826	1547	1668	1752	1485
Q Serve(g_s), s	0.3	1.0	23.5	1.0	0.0	2.2	22.4	23.8	2.3	0.5	12.7	0.0
Cycle Q Clear(g_c), s	0.3	1.0	23.5	1.0	0.0	2.2	22.4	23.8	2.3	0.5	12.7	0.0
Prop In Lane	1.00		1.00	1.00		0.50	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	303	337	286	267	0	322	665	1144	969	418	804	681
V/C Ratio(X)	0.02	0.05	0.93	0.06	0.00	0.10	0.81	0.50	0.07	0.04	0.75	0.00
Avail Cap(c_a), veh/h	355	355	301	300	0	322	786	1144	969	450	804	681
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.66	0.66	0.00
Uniform Delay (d), s/veh	45.0	47.1	56.3	45.2	0.0	46.4	14.7	14.2	10.2	10.9	3.6	0.0
Incr Delay (d2), s/veh	0.0	0.1	33.3	0.1	0.0	0.1	5.4	1.6	0.1	0.0	4.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.5	11.9	0.5	0.0	0.9	9.0	9.6	0.8	0.2	2.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.0	47.2	89.6	45.3	0.0	46.6	20.1	15.8	10.3	10.9	7.9	0.0
LnGrp LOS	D	D	F	D	A	D	C	B	B	B	A	A
Approach Vol, veh/h		287			48			1174			619	
Approach Delay, s/veh		86.5			46.1			17.5			8.0	
Approach LOS		F			D			B			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	30.3	71.3	5.4	33.1	6.8	94.7	6.8	31.7
Change Period (Y+Rc), s	4.5	7.0	4.5	6.0	4.5	7.0	4.5	6.0
Max Green Setting (Gmax), s	35.5	50.5	5.0	27.0	5.0	81.0	5.0	27.0
Max Q Clear Time (g_c+I1), s	24.4	14.7	2.3	4.2	2.5	25.8	3.0	25.5
Green Ext Time (p_c), s	1.4	8.5	0.0	0.1	0.0	9.2	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	24.7
HCM 6th LOS	C

Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Volume (veh/h)	35	5	20	15	5	110	65	935	45	35	535	20
Future Volume (veh/h)	35	5	20	15	5	110	65	935	45	35	535	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1796	1796	1796	1811	1811	1811	1767	1767	1767
Adj Flow Rate, veh/h	38	5	22	16	5	0	71	1016	49	38	582	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	7	7	7	6	6	6	9	9	9
Cap, veh/h	87	11	29	104	26		101	1314	63	85	1259	47
Arrive On Green	0.06	0.06	0.06	0.06	0.06	0.00	1.00	1.00	1.00	0.86	0.86	0.86
Sat Flow, veh/h	837	196	529	1058	476	0	85	1530	73	67	1465	54
Grp Volume(v), veh/h	65	0	0	21	0	0	1136	0	0	642	0	0
Grp Sat Flow(s),veh/h/ln	1563	0	0	1534	0	0	1688	0	0	1587	0	0
Q Serve(g_s), s	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	5.6	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	11.4	0.0	0.0
Prop In Lane	0.58		0.34	0.76		0.00	0.06		0.04	0.06		0.03
Lane Grp Cap(c), veh/h	127	0	0	130	0		1477	0	0	1391	0	0
V/C Ratio(X)	0.51	0.00	0.00	0.16	0.00		0.77	0.00	0.00	0.46	0.00	0.00
Avail Cap(c_a), veh/h	205	0	0	204	0		1477	0	0	1391	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.65	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	65.1	0.0	0.0	63.3	0.0	0.0	0.0	0.0	0.0	2.2	0.0	0.0
Incr Delay (d2), s/veh	3.2	0.0	0.0	0.6	0.0	0.0	2.6	0.0	0.0	1.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	0.0	0.7	0.0	0.0	1.1	0.0	0.0	2.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.2	0.0	0.0	63.9	0.0	0.0	2.6	0.0	0.0	3.3	0.0	0.0
LnGrp LOS	E	A	A	E	A		A	A	A	A	A	A
Approach Vol, veh/h		65			21			1136			642	
Approach Delay, s/veh		68.2			63.9			2.6			3.3	
Approach LOS		E			E			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		126.3		13.7		126.3		13.7				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		113.0		15.0		113.0		15.0				
Max Q Clear Time (g_c+I1), s		13.4		7.6		2.0		3.7				
Green Ext Time (p_c), s		5.7		0.1		16.9		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	5.8
HCM 6th LOS	A

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	5	155	140	5	45	90	785	30	15	780	50
Future Volume (veh/h)	30	5	155	140	5	45	90	785	30	15	780	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1752	1752	1752	1455	1455	1455	1693	1693	1693	1811	1811	1811
Adj Flow Rate, veh/h	33	5	168	152	5	49	98	853	33	16	848	54
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	10	30	30	30	14	14	14	6	6	6
Cap, veh/h	147	226	191	194	17	163	9999	9999	1736	890	1164	74
Arrive On Green	0.06	0.13	0.13	0.07	0.14	0.14	1.00	1.00	1.00	0.49	0.35	0.35
Sat Flow, veh/h	1668	1752	1485	2689	116	1135	1612	3156	122	1725	3285	209
Grp Volume(v), veh/h	33	5	168	152	0	54	98	435	451	16	444	458
Grp Sat Flow(s),veh/h/ln	1668	1752	1485	1345	0	1251	1612	1608	1671	1725	1721	1773
Q Serve(g_s), s	4.5	0.3	15.6	7.8	0.0	5.4	0.0	0.0	0.0	2.0	31.5	31.5
Cycle Q Clear(g_c), s	4.5	0.3	15.6	7.8	0.0	5.4	0.0	0.0	0.0	2.0	31.5	31.5
Prop In Lane	1.00		1.00	1.00		0.91	1.00		0.07	1.00		0.12
Lane Grp Cap(c), veh/h	0	226	191	194	0	180	23176	22855	23745	0	610	628
V/C Ratio(X)	0.00	0.02	0.88	0.78	0.00	0.30	0.00	0.02	0.02	0.00	0.73	0.73
Avail Cap(c_a), veh/h	0	440	373	269	0	520	23176	22855	23745	0	610	628
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.90	0.90	0.90
Uniform Delay (d), s/veh	0.0	53.3	59.9	63.9	0.0	53.6	0.0	0.0	0.0	0.0	39.3	39.3
Incr Delay (d2), s/veh	0.0	0.0	12.0	15.5	0.0	1.6	0.0	0.0	0.0	0.0	6.8	6.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	6.5	3.1	0.0	1.8	0.0	0.0	0.0	0.0	14.0	14.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	53.3	71.9	79.4	0.0	55.2	0.0	0.0	0.0	0.0	46.1	45.9
LnGrp LOS	A	D	E	E	A	E	A	A	A	A	D	D
Approach Vol, veh/h		206			206			984			918	
Approach Delay, s/veh		59.9			73.0			0.0			45.2	
Approach LOS		E			E			A			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	2068.5	55.9	19.1	25.5	74.4	2050.0	15.4	29.1
Change Period (Y+Rc), s	6.5	6.3	9.0	7.4	6.3	* 6.5	7.4	* 9
Max Green Setting (Gmax), s	12.0	49.6	14.0	35.2	68.1	* 68	58.2	* 58
Max Q Clear Time (g_c+I1), s	2.0	33.5	9.8	17.6	4.0	2.0	6.5	7.4
Green Ext Time (p_c), s	0.1	8.3	0.3	0.5	0.1	14.2	0.2	0.6

Intersection Summary	
HCM 6th Ctrl Delay	29.8
HCM 6th LOS	C

Notes

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

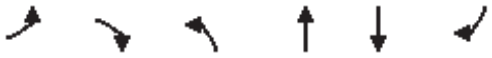
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	5	35	5	5	35	35	980	0	15	535	20
Future Volume (veh/h)	30	5	35	5	5	35	35	980	0	15	535	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1811	1811	1811	1781	1781	1781
Adj Flow Rate, veh/h	33	5	38	5	5	38	38	1065	0	16	582	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	6	6	6	8	8	8
Cap, veh/h	73	12	48	34	15	78	727	1550	0	45	1398	52
Arrive On Green	0.06	0.06	0.06	0.06	0.06	0.06	1.00	1.00	0.00	1.00	1.00	1.00
Sat Flow, veh/h	623	199	822	91	259	1332	790	1811	0	22	1634	61
Grp Volume(v), veh/h	76	0	0	48	0	0	38	1065	0	620	0	0
Grp Sat Flow(s),veh/h/ln	1644	0	0	1683	0	0	790	1811	0	1716	0	0
Q Serve(g_s), s	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	6.2	0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.43		0.50	0.10		0.79	1.00		0.00	0.03		0.04
Lane Grp Cap(c), veh/h	133	0	0	127	0	0	727	1550	0	1495	0	0
V/C Ratio(X)	0.57	0.00	0.00	0.38	0.00	0.00	0.05	0.69	0.00	0.41	0.00	0.00
Avail Cap(c_a), veh/h	163	0	0	159	0	0	727	1550	0	1495	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.54	0.54	0.00	0.85	0.00	0.00
Uniform Delay (d), s/veh	64.8	0.0	0.0	63.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	3.8	0.0	0.0	1.8	0.0	0.0	0.1	1.4	0.0	0.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	0.0	1.7	0.0	0.0	0.0	0.6	0.0	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.7	0.0	0.0	65.8	0.0	0.0	0.1	1.4	0.0	0.7	0.0	0.0
LnGrp LOS	E	A	A	E	A	A	A	A	A	A	A	A
Approach Vol, veh/h		76			48			1103			620	
Approach Delay, s/veh		68.7			65.8			1.3			0.7	
Approach LOS		E			E			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		125.8		14.2		125.8		14.2				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		117.0		11.0		117.0		11.0				
Max Q Clear Time (g_c+I1), s		2.0		8.2		2.0		6.0				
Green Ext Time (p_c), s		5.1		0.1		13.7		0.1				

Intersection Summary												
HCM 6th Ctrl Delay			5.6									
HCM 6th LOS			A									



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	120	85	175	755	425	105
Future Volume (veh/h)	120	85	175	755	425	105
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1826	1826	1811	1811	1796	1796
Adj Flow Rate, veh/h	130	92	190	821	462	114
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	6	6	7	7
Cap, veh/h	127	90	246	975	1118	276
Arrive On Green	0.13	0.13	1.00	1.00	1.00	1.00
Sat Flow, veh/h	965	683	268	1213	1391	343
Grp Volume(v), veh/h	223	0	1011	0	0	576
Grp Sat Flow(s),veh/h/ln	1655	0	1481	0	0	1734
Q Serve(g_s), s	18.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	18.5	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.58	0.41	0.19			0.20
Lane Grp Cap(c), veh/h	219	0	1220	0	0	1394
V/C Ratio(X)	1.02	0.00	0.83	0.00	0.00	0.41
Avail Cap(c_a), veh/h	219	0	1220	0	0	1394
HCM Platoon Ratio	1.00	1.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.74	0.00	0.00	0.92
Uniform Delay (d), s/veh	60.8	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	66.1	0.0	5.0	0.0	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.8	0.0	1.7	0.0	0.0	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	126.8	0.0	5.0	0.0	0.0	0.8
LnGrp LOS	F	A	A	A	A	A
Approach Vol, veh/h	223			1011	576	
Approach Delay, s/veh	126.8			5.0	0.8	
Approach LOS	F			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		117.0		23.0		117.0
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		112.5		18.5		112.5
Max Q Clear Time (g_c+I1), s		2.0		20.5		2.0
Green Ext Time (p_c), s		12.3		0.0		4.4

Intersection Summary		
HCM 6th Ctrl Delay		18.7
HCM 6th LOS		B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	0	10	0	0	0	5	750	5	5	430	75
Future Volume (veh/h)	180	0	10	0	0	0	5	750	5	5	430	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1900	1900	1900	1811	1811	1811	1796	1796	1796
Adj Flow Rate, veh/h	196	0	0	0	0	0	5	815	5	5	467	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	0	0	0	6	6	6	7	7	7
Cap, veh/h	271	0		0	302	0	28	1364	1159	30	1347	
Arrive On Green	0.16	0.00	0.00	0.00	0.00	0.00	0.76	0.76	0.76	1.00	1.00	0.00
Sat Flow, veh/h	1384	0	1547	0	1900	0	3	1805	1535	5	1783	1522
Grp Volume(v), veh/h	196	0	0	0	0	0	820	0	5	472	0	0
Grp Sat Flow(s),veh/h/ln	1384	0	1547	0	1900	0	1808	0	1535	1788	0	1522
Q Serve(g_s), s	19.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	19.4	0.0	0.0	0.0	0.0	0.0	28.3	0.0	0.1	0.0	0.0	0.0
Prop In Lane	1.00		1.00	0.00		0.00	0.01		1.00	0.01		1.00
Lane Grp Cap(c), veh/h	271	0		0	302	0	1392	0	1159	1376	0	
V/C Ratio(X)	0.72	0.00		0.00	0.00	0.00	0.59	0.00	0.00	0.34	0.00	
Avail Cap(c_a), veh/h	388	0		0	461	0	1392	0	1159	1376	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00	0.91	0.00	0.00
Uniform Delay (d), s/veh	57.7	0.0	0.0	0.0	0.0	0.0	7.7	0.0	4.2	0.0	0.0	0.0
Incr Delay (d2), s/veh	3.8	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	0.0	0.0	0.0	0.0	0.0	9.6	0.0	0.0	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.4	0.0	0.0	0.0	0.0	0.0	9.5	0.0	4.2	0.6	0.0	0.0
LnGrp LOS	E	A		A	A	A	A	A	A	A	A	
Approach Vol, veh/h		196			0			825			472	
Approach Delay, s/veh		61.4			0.0			9.5			0.6	
Approach LOS		E						A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		111.7		28.3		111.7		28.3				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		94.0		34.0		94.0		34.0				
Max Q Clear Time (g_c+I1), s		2.0		21.4		30.3		0.0				
Green Ext Time (p_c), s		2.8		0.8		6.7		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			13.5									
HCM 6th LOS			B									

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	5	115	0	175	50	835	75	95	475	5
Future Volume (veh/h)	5	0	5	115	0	175	50	835	75	95	475	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900	1870	1870	1870	1856	1826	1870	1870	1767	1900
Adj Flow Rate, veh/h	5	0	5	125	0	190	54	908	82	103	516	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	0	2	2	2	3	5	2	2	9	0
Cap, veh/h	154	12	128	165	5	204	82	1185	1130	457	1245	12
Arrive On Green	0.22	0.00	0.22	0.22	0.00	0.22	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	518	55	573	579	23	915	77	1663	1585	569	1747	17
Grp Volume(v), veh/h	10	0	0	315	0	0	962	0	82	103	0	521
Grp Sat Flow(s),veh/h/ln	1146	0	0	1517	0	0	1740	0	1585	569	0	1764
Q Serve(g_s), s	0.0	0.0	0.0	27.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.6	0.0	0.0	28.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.50		0.50	0.40		0.60	0.06		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	294	0	0	374	0	0	1267	0	1130	457	0	1257
V/C Ratio(X)	0.03	0.00	0.00	0.84	0.00	0.00	0.76	0.00	0.07	0.23	0.00	0.41
Avail Cap(c_a), veh/h	326	0	0	410	0	0	1267	0	1130	457	0	1257
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.20	0.00	0.20	0.90	0.00	0.90
Uniform Delay (d), s/veh	42.5	0.0	0.0	53.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	13.7	0.0	0.0	0.9	0.0	0.0	1.0	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	12.3	0.0	0.0	0.3	0.0	0.0	0.1	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.6	0.0	0.0	67.0	0.0	0.0	0.9	0.0	0.0	1.0	0.0	0.9
LnGrp LOS	D	A	A	E	A	A	A	A	A	A	A	A
Approach Vol, veh/h		10			315			1044			624	
Approach Delay, s/veh		42.6			67.0			0.8			0.9	
Approach LOS		D			E			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		104.3		35.7		104.3		35.7				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		96.5		34.5		96.5		34.5				
Max Q Clear Time (g_c+I1), s		2.0		2.6		2.0		30.5				
Green Ext Time (p_c), s		11.2		0.0		5.3		0.7				

Intersection Summary												
HCM 6th Ctrl Delay			11.5									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	245	560	15	135	910	125	60	230	105	205	190	340
Future Volume (veh/h)	245	560	15	135	910	125	60	230	105	205	190	340
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1841	1900	1885	1885	1826	1870	1856	1841	1811	1870	1841
Adj Flow Rate, veh/h	266	609	0	147	989	0	65	250	114	223	207	370
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	8	4	0	1	1	5	2	3	4	6	2	4
Cap, veh/h	356	1749		472	1623		179	284	238	282	593	495
Arrive On Green	0.10	0.50	0.00	0.05	0.45	0.00	0.15	0.15	0.15	0.12	0.32	0.32
Sat Flow, veh/h	1697	3497	1610	1795	3582	1547	836	1856	1560	1725	1870	1560
Grp Volume(v), veh/h	266	609	0	147	989	0	65	250	114	223	207	370
Grp Sat Flow(s),veh/h/ln	1697	1749	1610	1795	1791	1547	836	1856	1560	1725	1870	1560
Q Serve(g_s), s	11.6	14.8	0.0	5.6	29.2	0.0	10.0	18.5	9.4	15.1	11.9	29.7
Cycle Q Clear(g_c), s	11.6	14.8	0.0	5.6	29.2	0.0	10.0	18.5	9.4	15.1	11.9	29.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	356	1749		472	1623		179	284	238	282	593	495
V/C Ratio(X)	0.75	0.35		0.31	0.61		0.36	0.88	0.48	0.79	0.35	0.75
Avail Cap(c_a), veh/h	475	1749		492	1623		201	331	279	282	641	535
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.5	21.2	0.0	16.1	28.9	0.0	54.5	58.1	54.2	43.8	36.7	42.8
Incr Delay (d2), s/veh	4.5	0.5	0.0	0.4	1.7	0.0	1.2	20.9	1.5	14.2	0.4	5.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	6.2	0.0	2.4	12.9	0.0	2.2	10.3	3.8	7.6	5.6	12.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.0	21.7	0.0	16.5	30.6	0.0	55.7	78.9	55.7	58.1	37.1	48.1
LnGrp LOS	C	C		B	C		E	E	E	E	D	D
Approach Vol, veh/h		875			1136			429			800	
Approach Delay, s/veh		23.3			28.8			69.2			48.0	
Approach LOS		C			C			E			D	

Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.2	69.4		50.4	13.6	76.0	23.0	27.4				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	24.0	50.0		48.0	9.2	64.8	17.0	25.0				
Max Q Clear Time (g_c+I1), s	13.6	31.2		31.7	7.6	16.8	17.1	20.5				
Green Ext Time (p_c), s	0.6	7.0		2.3	0.1	4.9	0.0	0.9				

Intersection Summary												
HCM 6th Ctrl Delay			37.4									
HCM 6th LOS			D									

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	280	5	315	0	0	0	0	1245	30	205	660	0
Future Volume (vph)	280	5	315	0	0	0	0	1245	30	205	660	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	16	16	16	12	12	12	12	12	12
Total Lost time (s)	6.5	6.5	6.5					7.0		7.1	7.0	
Lane Util. Factor	0.95	0.95	1.00					0.95		1.00	0.95	
Frt	1.00	1.00	0.85					1.00		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1491	1497	1404					3331		1641	3282	
Flt Permitted	0.95	0.95	1.00					1.00		0.10	1.00	
Satd. Flow (perm)	1491	1497	1404					3331		175	3282	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	304	5	342	0	0	0	0	1353	33	223	717	0
RTOR Reduction (vph)	0	0	236	0	0	0	0	1	0	0	0	0
Lane Group Flow (vph)	155	154	106	0	0	0	0	1385	0	223	717	0
Heavy Vehicles (%)	15%	15%	15%	0%	0%	0%	8%	8%	8%	10%	10%	10%
Turn Type	Split	NA	Perm					NA		D.P+P	NA	
Protected Phases	4	4						6		5	2	
Permitted Phases			4							6		
Actuated Green, G (s)	21.4	21.4	21.4					76.1		98.0	105.1	
Effective Green, g (s)	21.4	21.4	21.4					76.1		98.0	105.1	
Actuated g/C Ratio	0.15	0.15	0.15					0.54		0.70	0.75	
Clearance Time (s)	6.5	6.5	6.5					7.0		7.1	7.0	
Vehicle Extension (s)	3.0	3.0	3.0					7.0		3.0	7.0	
Lane Grp Cap (vph)	227	228	214					1810		351	2463	
v/s Ratio Prot	c0.10	0.10						c0.42		c0.10	0.22	
v/s Ratio Perm			0.08							0.35		
v/c Ratio	0.68	0.68	0.50					0.77		0.64	0.29	
Uniform Delay, d1	56.1	56.0	54.4					25.0		35.2	5.6	
Progression Factor	1.00	1.00	1.00					0.72		0.57	0.04	
Incremental Delay, d2	8.2	7.7	1.8					1.0		0.3	0.0	
Delay (s)	64.3	63.7	56.2					19.0		20.5	0.3	
Level of Service	E	E	E					B		C	A	
Approach Delay (s)		59.9			0.0			19.0			5.1	
Approach LOS		E			A			B			A	

Intersection Summary			
HCM 2000 Control Delay	23.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.6
Intersection Capacity Utilization	86.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	5.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	65	165	595	80	115	325
Future Vol, veh/h	65	165	595	80	115	325
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	310	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	7	7	8	8
Mvmt Flow	71	179	647	87	125	353

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1294	691	0	0	734	0
Stage 1	691	-	-	-	-	-
Stage 2	603	-	-	-	-	-
Critical Hdwy	6.44	6.24	-	-	4.18	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	-	-	2.272	-
Pot Cap-1 Maneuver	178	441	-	-	844	-
Stage 1	494	-	-	-	-	-
Stage 2	542	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	145	441	-	-	844	-
Mov Cap-2 Maneuver	145	-	-	-	-	-
Stage 1	494	-	-	-	-	-
Stage 2	442	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	27.9	0	2.6
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	145	441	844	-
HCM Lane V/C Ratio	-	-	0.487	0.407	0.148	-
HCM Control Delay (s)	-	-	51.4	18.6	10	0
HCM Lane LOS	-	-	F	C	B	A
HCM 95th %tile Q(veh)	-	-	2.3	1.9	0.5	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	5	5	1275	960	15
Future Vol, veh/h	0	5	5	1275	960	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Yield
Storage Length	80	0	135	-	-	220
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	20	20	10	10	10	10
Mvmt Flow	0	5	5	1386	1043	16

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1746	522	1043	0	-	0
Stage 1	1043	-	-	-	-	-
Stage 2	703	-	-	-	-	-
Critical Hdwy	7.2	7.3	4.3	-	-	-
Critical Hdwy Stg 1	6.2	-	-	-	-	-
Critical Hdwy Stg 2	6.2	-	-	-	-	-
Follow-up Hdwy	3.7	3.5	2.3	-	-	-
Pot Cap-1 Maneuver	64	455	617	-	-	-
Stage 1	263	-	-	-	-	-
Stage 2	407	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	63	455	617	-	-	-
Mov Cap-2 Maneuver	63	-	-	-	-	-
Stage 1	261	-	-	-	-	-
Stage 2	407	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	617	-	-	455	-	-
HCM Lane V/C Ratio	0.009	-	-	0.012	-	-
HCM Control Delay (s)	10.9	-	0	13	-	-
HCM Lane LOS	B	-	A	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0	-	-

Intersection	
Int Delay, s/veh	23.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	5	0	215	0	955	125	265	585	0
Future Vol, veh/h	0	0	0	5	0	215	0	955	125	265	585	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	160	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	17	0	1	0	6	0	2	9	2
Mvmt Flow	0	0	0	5	0	234	0	1038	136	288	636	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2435	2386	636	2318	2318	1106	-	0	0	1174	0	0
Stage 1	1212	1212	-	1106	1106	-	-	-	-	-	-	-
Stage 2	1223	1174	-	1212	1212	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.27	6.5	6.21	-	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.27	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.27	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.653	4	3.309	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	22	34	478	24	38	257	0	-	-	595	-	0
Stage 1	222	255	-	239	289	-	0	-	-	-	-	0
Stage 2	219	266	-	207	257	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	1	18	478	15	20	257	-	-	-	595	-	-
Mov Cap-2 Maneuver	1	18	-	15	20	-	-	-	-	-	-	-
Stage 1	222	132	-	239	289	-	-	-	-	-	-	-
Stage 2	20	266	-	107	133	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	206.6	0	5.2
HCM LOS	A	F		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	-	188	595	-
HCM Lane V/C Ratio	-	-	-	-	1.272	0.484	-
HCM Control Delay (s)	-	-	0	0	206.6	16.6	-
HCM Lane LOS	-	-	A	A	F	C	-
HCM 95th %tile Q(veh)	-	-	-	-	13.2	2.6	-

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	30	0	45	20	1130	50	5	1210	0
Future Vol, veh/h	0	0	0	30	0	45	20	1130	50	5	1210	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	6	0	7	0	6	8	0	6	0
Mvmt Flow	0	0	0	33	0	49	22	1228	54	5	1315	0

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	1967	2624	641	1315	0	0	1282	0	0
Stage 1	1299	1299	-	-	-	-	-	-	-
Stage 2	668	1325	-	-	-	-	-	-	-
Critical Hdwy	6.92	6.5	7.04	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	5.92	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.92	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.56	4	3.37	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	52	24	406	533	-	-	548	-	-
Stage 1	212	234	-	-	-	-	-	-	-
Stage 2	461	227	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	43	0	406	533	-	-	548	-	-
Mov Cap-2 Maneuver	43	0	-	-	-	-	-	-	-
Stage 1	181	0	-	-	-	-	-	-	-
Stage 2	445	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	142.6	1	0.2
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	533	-	-	93	548	-	-
HCM Lane V/C Ratio	0.041	-	-	0.877	0.01	-	-
HCM Control Delay (s)	12	0.9	-	142.6	11.6	0.2	-
HCM Lane LOS	B	A	-	F	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	4.9	0	-	-

MOVEMENT SUMMARY

Site: 1 [SR 53 @ New Cut Rd 2050 PM (With Operational & Regional Improvements)]

SR 53 @ New Cut Rd - 2050 PM (With Diversions)
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: SR 53											
3	L2	54	6.0	0.505	8.1	LOS A	4.3	113.6	0.54	0.34	33.4
8	T1	598	6.0	0.505	8.1	LOS A	4.3	113.6	0.54	0.34	33.4
18	R2	152	6.0	0.118	3.7	LOS A	0.7	18.2	0.38	0.20	34.9
Approach		804	6.0	0.505	7.3	LOS A	4.3	113.6	0.51	0.32	33.6
East: New Cut Rd											
1	L2	120	6.5	0.391	11.4	LOS B	2.7	72.1	0.85	0.81	30.9
6	T1	54	6.5	0.391	11.4	LOS B	2.7	72.1	0.85	0.81	30.9
16	R2	71	6.5	0.391	11.4	LOS B	2.7	72.1	0.85	0.81	30.1
Approach		245	6.5	0.391	11.4	LOS B	2.7	72.1	0.85	0.81	30.7
North: SR 53											
7	L2	114	5.5	0.505	9.4	LOS A	4.2	109.8	0.65	0.48	32.5
4	T1	1016	5.5	0.505	8.8	LOS A	4.4	113.8	0.64	0.45	33.0
14	R2	16	5.5	0.505	8.5	LOS A	4.4	113.8	0.63	0.44	32.4
Approach		1147	5.5	0.505	8.9	LOS A	4.4	113.8	0.64	0.46	33.0
West: Ednaville Rd											
5	L2	1	2.5	0.094	7.2	LOS A	0.4	11.0	0.72	0.70	34.2
2	T1	54	2.5	0.094	7.2	LOS A	0.4	11.0	0.72	0.70	34.1
12	R2	49	2.5	0.078	6.6	LOS A	0.4	9.0	0.69	0.65	33.4
Approach		104	2.5	0.094	6.9	LOS A	0.4	11.0	0.71	0.68	33.8
All Vehicles		2300	5.6	0.505	8.5	LOS A	4.4	113.8	0.62	0.46	33.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

HCM 6th Signalized Intersection Summary
201: SR 53 & SR 124

01/18/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	620	35	105	340	380	35	490	30	420	920	110
Future Volume (veh/h)	155	620	35	105	340	380	35	490	30	420	920	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1841	1841	1796	1796	1796	1841	1841	1841
Adj Flow Rate, veh/h	168	674	0	114	370	0	38	533	33	457	1000	120
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	4	4	7	7	7	4	4	4
Cap, veh/h	115	788		208	938		1280	4539	3847	2154	4665	3954
Arrive On Green	0.04	0.23	0.00	0.09	0.27	0.00	0.03	1.00	1.00	0.01	0.84	0.84
Sat Flow, veh/h	1753	3497	1560	1753	3497	1560	1711	1796	1522	1753	1841	1560
Grp Volume(v), veh/h	168	674	0	114	370	0	38	533	33	457	1000	120
Grp Sat Flow(s),veh/h/ln	1753	1749	1560	1753	1749	1560	1711	1796	1522	1753	1841	1560
Q Serve(g_s), s	5.1	25.9	0.0	10.2	12.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	5.1	25.9	0.0	10.2	12.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	115	788		0	938		1280	4539	3847	2154	4665	3954
V/C Ratio(X)	1.46	0.85		0.00	0.39		0.03	0.12	0.01	0.21	0.21	0.03
Avail Cap(c_a), veh/h	115	1074		0	938		1289	4539	3847	2461	4665	3954
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.88	0.88	0.88	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.8	52.0	0.0	0.0	41.9	0.0	0.1	0.0	0.0	0.1	0.0	0.0
Incr Delay (d2), s/veh	247.2	5.2	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.5	11.7	0.0	0.0	5.3	0.0	0.0	0.1	0.0	0.0	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	291.9	57.2	0.0	0.0	42.2	0.0	0.1	0.0	0.0	0.1	0.1	0.0
LnGrp LOS	F	E		A	D		A	A	A	A	A	A
Approach Vol, veh/h		842			484			604			1577	
Approach Delay, s/veh		104.0			32.3			0.0			0.1	
Approach LOS		F			C			A			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.2	368.4	19.0	38.1	10.3	367.3	13.0	44.1
Change Period (Y+Rc), s	6.9	* 6.7	6.5	6.5	6.9	* 6.7	7.9	6.5
Max Green Setting (Gmax), s	3.0	* 74	43.0	43.0	27.9	* 49	5.1	30.0
Max Q Clear Time (g_c+I1), s	2.0	2.0	12.2	27.9	2.0	2.0	7.1	14.1
Green Ext Time (p_c), s	0.0	26.7	0.3	3.7	1.4	7.9	0.0	2.1

Intersection Summary	
HCM 6th Ctrl Delay	29.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	80	0	320	325	1080	0	0	1190	310
Future Volume (veh/h)	0	0	0	80	0	320	325	1080	0	0	1190	310
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1648	0	1648	1796	1796	0	0	1781	1781
Adj Flow Rate, veh/h				87	0	348	353	1174	0	0	1293	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				17	0	17	7	7	0	0	8	8
Cap, veh/h				381	0	339	380	2260	0	0	1547	
Arrive On Green				0.24	0.00	0.24	0.16	0.66	0.00	0.00	0.46	0.00
Sat Flow, veh/h				1570	0	1397	1711	3503	0	0	3474	1510
Grp Volume(v), veh/h				87	0	348	353	1174	0	0	1293	0
Grp Sat Flow(s),veh/h/ln				1570	0	1397	1711	1706	0	0	1692	1510
Q Serve(g_s), s				6.2	0.0	34.0	20.0	24.8	0.0	0.0	47.0	0.0
Cycle Q Clear(g_c), s				6.2	0.0	34.0	20.0	24.8	0.0	0.0	47.0	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				381	0	339	380	2260	0	0	1547	
V/C Ratio(X)				0.23	0.00	1.03	0.93	0.52	0.00	0.00	0.84	
Avail Cap(c_a), veh/h				381	0	339	432	2260	0	0	1547	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.40	0.40	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				42.5	0.0	53.0	38.1	12.2	0.0	0.0	33.4	0.0
Incr Delay (d2), s/veh				0.4	0.0	55.7	13.1	0.3	0.0	0.0	5.5	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.5	0.0	17.1	13.3	8.7	0.0	0.0	19.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				42.9	0.0	108.7	51.3	12.5	0.0	0.0	38.9	0.0
LnGrp LOS				D	A	F	D	B	A	A	D	
Approach Vol, veh/h					435			1527			1293	
Approach Delay, s/veh					95.5			21.5			38.9	
Approach LOS					F			C			D	

Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	28.7	70.7				99.4		40.6				
Change Period (Y+Rc), s	* 5.9	6.7				6.7		6.6				
Max Green Setting (Gmax), s	* 27	59.7				92.7		34.0				
Max Q Clear Time (g_c+I1), s	22.0	49.0				26.8		36.0				
Green Ext Time (p_c), s	0.8	9.6				39.1		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		38.3
HCM 6th LOS		D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	0	170	0	0	0	235	825	0	0	1005	125
Future Volume (veh/h)	135	0	170	0	0	0	235	825	0	0	1005	125
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1411	1411	1411	1767	1767	1767	1811	1811	1811
Adj Flow Rate, veh/h	147	0	185	0	0	0	255	897	0	0	1092	136
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	33	33	33	9	9	9	6	6	6
Cap, veh/h	294	0	216	52	197	0	334	2311	0	51	1714	213
Arrive On Green	0.14	0.00	0.14	0.00	0.00	0.00	0.18	1.00	0.00	0.00	0.56	0.56
Sat Flow, veh/h	1739	0	1547	1344	1411	0	1682	3445	0	601	3080	383
Grp Volume(v), veh/h	147	0	185	0	0	0	255	897	0	0	609	619
Grp Sat Flow(s),veh/h/ln	1739	0	1547	1344	1411	0	1682	1678	0	601	1721	1742
Q Serve(g_s), s	11.1	0.0	16.4	0.0	0.0	0.0	9.8	0.0	0.0	0.0	34.0	34.2
Cycle Q Clear(g_c), s	11.1	0.0	16.4	0.0	0.0	0.0	9.8	0.0	0.0	0.0	34.0	34.2
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		0.22
Lane Grp Cap(c), veh/h	294	0	216	0	197	0	334	2311	0	51	958	970
V/C Ratio(X)	0.50	0.00	0.86	0.00	0.00	0.00	0.76	0.39	0.00	0.00	0.64	0.64
Avail Cap(c_a), veh/h	429	0	336	0	306	0	509	2311	0	51	958	970
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	0.00	0.78	0.78	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	56.6	0.0	58.8	0.0	0.0	0.0	17.7	0.0	0.0	0.0	21.3	21.3
Incr Delay (d2), s/veh	1.3	0.0	12.2	0.0	0.0	0.0	2.9	0.4	0.0	0.0	3.2	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	0.0	7.2	0.0	0.0	0.0	3.2	0.1	0.0	0.0	13.8	14.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.9	0.0	71.1	0.0	0.0	0.0	20.5	0.4	0.0	0.0	24.5	24.5
LnGrp LOS	E	A	E	A	A	A	C	A	A	A	C	C
Approach Vol, veh/h		332			0			1152			1228	
Approach Delay, s/veh		65.2			0.0			4.8			24.5	
Approach LOS		E						A			C	

Timer - Assigned Phs	1	2		4		6	7	8				
Phs Duration (G+Y+Rc), s	18.5	84.3		26.4		102.8	0.0	26.4				
Change Period (Y+Rc), s	6.1	6.4		* 6.8		6.4	* 6.8	* 6.8				
Max Green Setting (Gmax), s	26.9	63.4		* 30		96.4	* 30	* 30				
Max Q Clear Time (g_c+I1), s	11.8	36.2		0.0		2.0	0.0	18.4				
Green Ext Time (p_c), s	0.6	16.1		0.0		16.2	0.0	1.2				

Intersection Summary	
HCM 6th Ctrl Delay	21.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	45	365	45	20	20	205	515	35	30	1025	5
Future Volume (veh/h)	20	45	365	45	20	20	205	515	35	30	1025	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1900	1900	1900	1826	1826	1826	1856	1856	1856
Adj Flow Rate, veh/h	22	49	397	49	22	22	223	560	38	33	1114	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	0	0	0	5	5	5	3	3	3
Cap, veh/h	339	364	308	271	177	177	431	1084	919	434	1018	863
Arrive On Green	0.02	0.19	0.19	0.03	0.20	0.20	0.07	0.59	0.59	0.05	1.00	1.00
Sat Flow, veh/h	1795	1885	1598	1810	872	872	1739	1826	1547	1767	1856	1572
Grp Volume(v), veh/h	22	49	397	49	0	44	223	560	38	33	1114	5
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1810	0	1743	1739	1826	1547	1767	1856	1572
Q Serve(g_s), s	1.3	3.0	27.0	3.0	0.0	2.9	7.8	25.2	1.4	1.0	0.0	0.0
Cycle Q Clear(g_c), s	1.3	3.0	27.0	3.0	0.0	2.9	7.8	25.2	1.4	1.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.50	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	339	364	308	271	0	354	431	1084	919	434	1018	863
V/C Ratio(X)	0.06	0.13	1.29	0.18	0.00	0.12	0.52	0.52	0.04	0.08	1.09	0.01
Avail Cap(c_a), veh/h	366	364	308	280	0	354	438	1084	919	453	1018	863
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.21	0.21	0.21
Uniform Delay (d), s/veh	42.8	46.8	56.5	43.4	0.0	45.6	11.7	16.7	11.9	12.3	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.2	152.1	0.3	0.0	0.2	1.0	1.8	0.1	0.0	46.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.5	23.9	1.4	0.0	1.3	3.0	10.4	0.5	0.4	13.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.8	47.0	208.6	43.7	0.0	45.8	12.8	18.4	11.9	12.4	46.4	0.0
LnGrp LOS	D	D	F	D	A	D	B	B	B	B	F	A
Approach Vol, veh/h		468			93			821			1152	
Approach Delay, s/veh		183.9			44.7			16.6			45.2	
Approach LOS		F			D			B			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.4	83.8	7.4	34.4	8.1	90.1	8.8	33.0
Change Period (Y+Rc), s	4.5	7.0	4.5	6.0	4.5	7.0	4.5	6.0
Max Green Setting (Gmax), s	10.5	75.5	5.0	27.0	5.1	80.9	5.0	27.0
Max Q Clear Time (g_c+I1), s	9.8	2.0	3.3	4.9	3.0	27.2	5.0	29.0
Green Ext Time (p_c), s	0.0	31.9	0.0	0.2	0.0	8.6	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	61.5
HCM 6th LOS	E



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	5	60	5	0	30	20	785	35	30	1185	30
Future Volume (veh/h)	45	5	60	5	0	30	20	785	35	30	1185	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1856	1856	1856	1826	1826	1826	1870	1870	1870
Adj Flow Rate, veh/h	49	5	65	5	0	0	22	853	38	33	1288	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	3	3	3	5	5	5	2	2	2
Cap, veh/h	81	10	67	128	0		45	1374	60	50	1449	37
Arrive On Green	0.08	0.08	0.08	0.08	0.00	0.00	1.00	1.00	1.00	0.84	0.84	0.84
Sat Flow, veh/h	572	131	847	971	0	0	23	1644	72	28	1734	44
Grp Volume(v), veh/h	119	0	0	5	0	0	913	0	0	1354	0	0
Grp Sat Flow(s),veh/h/ln	1550	0	0	971	0	0	1739	0	0	1806	0	0
Q Serve(g_s), s	9.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.7	0.0	0.0
Cycle Q Clear(g_c), s	10.7	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	65.5	0.0	0.0
Prop In Lane	0.41		0.55	1.00		0.00	0.02		0.04	0.02		0.02
Lane Grp Cap(c), veh/h	158	0	0	128	0		1480	0	0	1536	0	0
V/C Ratio(X)	0.75	0.00	0.00	0.04	0.00		0.62	0.00	0.00	0.88	0.00	0.00
Avail Cap(c_a), veh/h	158	0	0	128	0		1480	0	0	1536	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.82	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	64.3	0.0	0.0	59.7	0.0	0.0	0.0	0.0	0.0	7.0	0.0	0.0
Incr Delay (d2), s/veh	18.2	0.0	0.0	0.1	0.0	0.0	1.6	0.0	0.0	7.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	0.0	0.0	0.2	0.0	0.0	0.7	0.0	0.0	19.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	82.6	0.0	0.0	59.9	0.0	0.0	1.6	0.0	0.0	14.7	0.0	0.0
LnGrp LOS	F	A	A	E	A		A	A	A	B	A	A
Approach Vol, veh/h		119			5			913			1354	
Approach Delay, s/veh		82.6			59.9			1.6			14.7	
Approach LOS		F			E			A			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		123.0		17.0		123.0		17.0				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		117.0		11.0		117.0		11.0				
Max Q Clear Time (g_c+I1), s		67.5		12.7		2.0		2.7				
Green Ext Time (p_c), s		23.6		0.0		10.0		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		13.2
HCM 6th LOS		B

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	45	265	105	15	35	150	1050	105	60	990	60
Future Volume (veh/h)	50	45	265	105	15	35	150	1050	105	60	990	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1248	1248	1248	1752	1752	1752	1826	1826	1826
Adj Flow Rate, veh/h	54	49	288	114	16	38	163	1141	114	65	1076	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	44	44	44	10	10	10	5	5	5
Cap, veh/h	170	369	313	163	67	160	433	1578	157	200	1242	75
Arrive On Green	0.07	0.20	0.20	0.07	0.20	0.20	0.46	1.00	1.00	0.09	0.37	0.37
Sat Flow, veh/h	1739	1826	1547	2306	328	779	1668	3056	305	1739	3324	201
Grp Volume(v), veh/h	54	49	288	114	0	54	163	621	634	65	561	580
Grp Sat Flow(s),veh/h/ln	1739	1826	1547	1153	0	1108	1668	1664	1697	1739	1735	1790
Q Serve(g_s), s	7.2	3.1	25.5	6.8	0.0	5.7	3.9	0.0	0.0	8.1	42.0	42.0
Cycle Q Clear(g_c), s	7.2	3.1	25.5	6.8	0.0	5.7	3.9	0.0	0.0	8.1	42.0	42.0
Prop In Lane	1.00		1.00	1.00		0.70	1.00		0.18	1.00		0.11
Lane Grp Cap(c), veh/h	0	369	313	163	0	227	433	859	876	0	648	669
V/C Ratio(X)	0.00	0.13	0.92	0.70	0.00	0.24	0.38	0.72	0.72	0.00	0.87	0.87
Avail Cap(c_a), veh/h	0	456	387	165	0	427	433	859	876	0	648	669
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.73	0.73	0.73
Uniform Delay (d), s/veh	0.0	45.8	54.7	63.6	0.0	46.5	29.8	0.0	0.0	0.0	40.6	40.6
Incr Delay (d2), s/veh	0.0	0.2	23.9	15.5	0.0	0.9	0.5	5.2	5.2	0.0	11.1	10.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.4	12.0	2.4	0.0	1.7	3.2	1.2	1.3	0.0	19.2	19.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	45.9	78.7	79.1	0.0	47.5	30.3	5.2	5.2	0.0	51.7	51.5
LnGrp LOS	A	D	E	E	A	D	C	A	A	A	D	D
Approach Vol, veh/h		391			168			1418			1206	
Approach Delay, s/veh		63.7			69.0			8.1			48.8	
Approach LOS		E			E			A			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	38.5	58.6	18.9	35.7	18.3	78.8	16.9	37.7
Change Period (Y+Rc), s	6.5	6.3	9.0	7.4	6.3	* 6.5	7.4	* 9
Max Green Setting (Gmax), s	13.5	52.3	10.0	35.0	72.3	* 72	54.0	* 54
Max Q Clear Time (g_c+I1), s	5.9	44.0	8.8	27.5	10.1	2.0	9.2	7.7
Green Ext Time (p_c), s	0.2	6.1	0.1	0.8	0.4	26.2	0.3	0.5

Intersection Summary	
HCM 6th Ctrl Delay	33.6
HCM 6th LOS	C

Notes

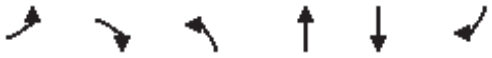
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	45	0	5	35	170	800	5	35	1090	125
Future Volume (veh/h)	5	0	45	0	5	35	170	800	5	35	1090	125
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1841	1841	1841	1870	1870	1870
Adj Flow Rate, veh/h	5	0	49	0	5	38	185	870	5	38	1185	136
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	4	4	4	2	2	2
Cap, veh/h	32	4	82	0	11	81	402	1570	9	55	1341	152
Arrive On Green	0.06	0.00	0.06	0.00	0.06	0.06	0.86	0.86	0.86	1.00	1.00	1.00
Sat Flow, veh/h	76	73	1460	0	191	1449	409	1828	11	33	1563	177
Grp Volume(v), veh/h	54	0	0	0	0	43	185	0	875	1359	0	0
Grp Sat Flow(s),veh/h/ln	1609	0	0	0	0	1639	409	0	1839	1773	0	0
Q Serve(g_s), s	0.8	0.0	0.0	0.0	0.0	3.6	16.4	0.0	18.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.5	0.0	0.0	0.0	0.0	3.6	16.4	0.0	18.0	0.0	0.0	0.0
Prop In Lane	0.09		0.91	0.00		0.88	1.00		0.01	0.03		0.10
Lane Grp Cap(c), veh/h	118	0	0	0	0	92	402	0	1579	1549	0	0
V/C Ratio(X)	0.46	0.00	0.00	0.00	0.00	0.47	0.46	0.00	0.55	0.88	0.00	0.00
Avail Cap(c_a), veh/h	120	0	0	0	0	94	402	0	1579	1549	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	0.09	0.00	0.09	0.31	0.00	0.00
Uniform Delay (d), s/veh	64.5	0.0	0.0	0.0	0.0	64.1	2.6	0.0	2.7	0.0	0.0	0.0
Incr Delay (d2), s/veh	2.8	0.0	0.0	0.0	0.0	3.7	0.3	0.0	0.1	2.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	0.0	0.0	0.0	1.6	0.9	0.0	4.1	1.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.3	0.0	0.0	0.0	0.0	67.8	2.9	0.0	2.8	2.5	0.0	0.0
LnGrp LOS	E	A	A	A	A	E	A	A	A	A	A	A
Approach Vol, veh/h		54			43			1060			1359	
Approach Delay, s/veh		67.3			67.8			2.8			2.5	
Approach LOS		E			E			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		126.2		13.8		126.2		13.8				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		120.0		8.0		120.0		8.0				
Max Q Clear Time (g_c+I1), s		2.0		6.5		20.0		5.6				
Green Ext Time (p_c), s		31.3		0.0		14.8		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			5.1									
HCM 6th LOS			A									



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	155	130	120	625	810	165
Future Volume (veh/h)	155	130	120	625	810	165
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1811	1811	1870	1870
Adj Flow Rate, veh/h	168	141	130	679	880	179
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	6	6	2	2
Cap, veh/h	208	174	100	276	861	175
Arrive On Green	0.23	0.23	0.57	0.57	1.00	1.00
Sat Flow, veh/h	907	761	12	484	1508	307
Grp Volume(v), veh/h	310	0	809	0	0	1059
Grp Sat Flow(s),veh/h/ln	1673	0	496	0	0	1815
Q Serve(g_s), s	7.9	0.0	1.5	0.0	0.0	24.2
Cycle Q Clear(g_c), s	7.9	0.0	25.7	0.0	0.0	24.2
Prop In Lane	0.54	0.45	0.16			0.17
Lane Grp Cap(c), veh/h	383	0	376	0	0	1036
V/C Ratio(X)	0.81	0.00	2.15	0.00	0.00	1.02
Avail Cap(c_a), veh/h	669	0	376	0	0	1036
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.85	0.00	0.00	0.09
Uniform Delay (d), s/veh	16.4	0.0	11.4	0.0	0.0	0.0
Incr Delay (d2), s/veh	4.1	0.0	526.1	0.0	0.0	14.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	56.3	0.0	0.0	4.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.5	0.0	537.5	0.0	0.0	14.8
LnGrp LOS	C	A	F	A	A	F
Approach Vol, veh/h	310			809	1059	
Approach Delay, s/veh	20.5			537.5	14.8	
Approach LOS	C			F	B	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		30.2		14.8		30.2
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		18.0		18.0		18.0
Max Q Clear Time (g_c+I1), s		27.7		9.9		26.2
Green Ext Time (p_c), s		0.0		0.6		0.0

Intersection Summary		
HCM 6th Ctrl Delay		209.7
HCM 6th LOS		F



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	0	20	5	0	5	15	630	0	0	820	120
Future Volume (veh/h)	110	0	20	5	0	5	15	630	0	0	820	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1900	1900	1900	1796	1796	1796	1870	1870	1870
Adj Flow Rate, veh/h	120	0	0	5	0	5	16	685	0	0	891	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	0	0	0	7	7	7	2	2	2
Cap, veh/h	193	0		114	12	88	42	1419	1242	0	1525	
Arrive On Green	0.10	0.00	0.00	0.10	0.00	0.10	0.82	0.82	0.00	0.00	0.82	0.00
Sat Flow, veh/h	1431	0	1585	766	125	891	19	1739	1522	0	1870	1585
Grp Volume(v), veh/h	120	0	0	10	0	0	701	0	0	0	891	0
Grp Sat Flow(s),veh/h/ln	1431	0	1585	1782	0	0	1758	0	1522	0	1870	1585
Q Serve(g_s), s	10.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.5	0.0
Cycle Q Clear(g_c), s	11.5	0.0	0.0	0.7	0.0	0.0	16.5	0.0	0.0	0.0	23.5	0.0
Prop In Lane	1.00		1.00	0.50		0.50	0.02		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	193	0		214	0	0	1460	0	1242	0	1525	
V/C Ratio(X)	0.62	0.00		0.05	0.00	0.00	0.48	0.00	0.00	0.00	0.58	
Avail Cap(c_a), veh/h	295	0		325	0	0	1460	0	1242	0	1525	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.09	0.00
Uniform Delay (d), s/veh	62.0	0.0	0.0	57.2	0.0	0.0	3.9	0.0	0.0	0.0	4.5	0.0
Incr Delay (d2), s/veh	3.3	0.0	0.0	0.1	0.0	0.0	1.1	0.0	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	0.0	0.0	0.3	0.0	0.0	4.6	0.0	0.0	0.0	5.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.2	0.0	0.0	57.3	0.0	0.0	5.0	0.0	0.0	0.0	4.7	0.0
LnGrp LOS	E	A		E	A	A	A	A	A	A	A	
Approach Vol, veh/h		120			10			701			891	
Approach Delay, s/veh		65.2			57.3			5.0			4.7	
Approach LOS		E			E			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		120.2		19.8		120.2		19.8				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		104.0		24.0		104.0		24.0				
Max Q Clear Time (g_c+I1), s		25.5		13.5		18.5		2.7				
Green Ext Time (p_c), s		7.0		0.4		5.4		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			9.4									
HCM 6th LOS			A									

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	5	45	0	250	10	715	55	200	925	10
Future Volume (veh/h)	10	0	5	45	0	250	10	715	55	200	925	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1885	1900	1885	1811	1811	1811	1870	1856	1900
Adj Flow Rate, veh/h	11	0	5	49	0	272	11	777	60	217	1005	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	1	0	1	6	6	6	2	3	0
Cap, veh/h	323	25	97	132	23	344	81	721	840	316	1002	11
Arrive On Green	0.25	0.00	0.25	0.25	0.00	0.25	1.00	1.00	1.00	0.55	0.55	0.55
Sat Flow, veh/h	743	97	382	155	90	1360	0	1317	1535	694	1832	20
Grp Volume(v), veh/h	16	0	0	321	0	0	788	0	60	217	0	1016
Grp Sat Flow(s),veh/h/ln	1223	0	0	1605	0	0	1317	0	1535	694	0	1852
Q Serve(g_s), s	0.0	0.0	0.0	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.6
Cycle Q Clear(g_c), s	0.3	0.0	0.0	8.3	0.0	0.0	24.6	0.0	0.0	24.6	0.0	24.6
Prop In Lane	0.69		0.31	0.15		0.85	0.01		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	444	0	0	498	0	0	802	0	840	316	0	1013
V/C Ratio(X)	0.04	0.00	0.00	0.64	0.00	0.00	0.98	0.00	0.07	0.69	0.00	1.00
Avail Cap(c_a), veh/h	624	0	0	731	0	0	802	0	840	316	0	1013
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.09	0.00	0.09	0.37	0.00	0.37
Uniform Delay (d), s/veh	12.7	0.0	0.0	15.6	0.0	0.0	5.8	0.0	0.0	13.7	0.0	10.2
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.4	0.0	0.0	6.4	0.0	0.0	4.5	0.0	17.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	2.8	0.0	0.0	3.1	0.0	0.0	2.5	0.0	11.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.7	0.0	0.0	17.0	0.0	0.0	12.1	0.0	0.0	18.1	0.0	28.0
LnGrp LOS	B	A	A	B	A	A	B	A	A	B	A	F
Approach Vol, veh/h		16			321			848			1233	
Approach Delay, s/veh		12.7			17.0			11.3			26.3	
Approach LOS		B			B			B			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		29.1		15.9		29.1		15.9				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.0		18.0		18.0		18.0				
Max Q Clear Time (g_c+I1), s		26.6		2.3		26.6		10.3				
Green Ext Time (p_c), s		0.0		0.0		0.0		1.2				

Intersection Summary												
HCM 6th Ctrl Delay			19.7									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	405	1060	30	235	710	190	75	230	170	250	310	245
Future Volume (veh/h)	405	1060	30	235	710	190	75	230	170	250	310	245
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1885	1900	1885	1856	1870	1900	1856	1900	1885	1885	1870
Adj Flow Rate, veh/h	440	1152	0	255	772	0	82	250	185	272	337	266
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	1	0	1	3	2	0	3	0	1	1	2
Cap, veh/h	490	1588		309	1281		212	280	243	324	630	529
Arrive On Green	0.17	0.44	0.00	0.09	0.36	0.00	0.15	0.15	0.15	0.14	0.33	0.33
Sat Flow, veh/h	1781	3582	1610	1795	3526	1585	1060	1856	1610	1795	1885	1585
Grp Volume(v), veh/h	440	1152	0	255	772	0	82	250	185	272	337	266
Grp Sat Flow(s),veh/h/ln	1781	1791	1610	1795	1763	1585	1060	1856	1610	1795	1885	1585
Q Serve(g_s), s	21.2	36.9	0.0	10.7	25.0	0.0	10.0	18.5	15.4	17.7	20.3	18.8
Cycle Q Clear(g_c), s	21.2	36.9	0.0	10.7	25.0	0.0	10.0	18.5	15.4	17.7	20.3	18.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	490	1588		309	1281		212	280	243	324	630	529
V/C Ratio(X)	0.90	0.73		0.83	0.60		0.39	0.89	0.76	0.84	0.54	0.50
Avail Cap(c_a), veh/h	618	1588		401	1281		226	305	265	324	654	550
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.3	32.0	0.0	26.9	36.3	0.0	54.7	58.3	57.0	42.9	37.8	37.3
Incr Delay (d2), s/veh	13.6	2.9	0.0	10.5	2.1	0.0	1.2	25.0	11.2	17.4	0.8	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.7	16.6	0.0	5.4	11.2	0.0	2.7	10.7	7.1	9.5	9.6	7.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.9	34.9	0.0	37.4	38.4	0.0	55.8	83.3	68.2	60.3	38.6	38.1
LnGrp LOS	D	C		D	D		E	F	E	E	D	D
Approach Vol, veh/h		1592			1027			517			875	
Approach Delay, s/veh		36.0			38.2			73.6			45.2	
Approach LOS		D			D			E			D	

Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.4	56.9		52.8	19.2	68.1	25.6	27.2				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	34.4	39.0		48.6	20.4	53.0	19.6	23.0				
Max Q Clear Time (g_c+I1), s	23.2	27.0		22.3	12.7	38.9	19.7	20.5				
Green Ext Time (p_c), s	1.1	4.2		3.1	0.4	7.1	0.0	0.7				

Intersection Summary			
HCM 6th Ctrl Delay		43.4	
HCM 6th LOS		D	

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	445	0	480	0	0	0	0	960	70	305	965	0
Future Volume (vph)	445	0	480	0	0	0	0	960	70	305	965	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	16	16	16	12	12	12	12	12	12
Total Lost time (s)	6.5	6.5	6.5					7.0		7.1	7.0	
Lane Util. Factor	0.95	0.95	1.00					0.95		1.00	0.95	
Frt	1.00	1.00	0.85					0.99		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1603	1603	1509					3339		1687	3374	
Flt Permitted	0.95	0.95	1.00					1.00		0.08	1.00	
Satd. Flow (perm)	1603	1603	1509					3339		142	3374	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	484	0	522	0	0	0	0	1043	76	332	1049	0
RTOR Reduction (vph)	0	0	70	0	0	0	0	4	0	0	0	0
Lane Group Flow (vph)	242	242	452	0	0	0	0	1115	0	332	1049	0
Heavy Vehicles (%)	7%	7%	7%	0%	0%	0%	7%	7%	7%	7%	7%	7%
Turn Type	Split	NA	Perm					NA		D.P+P	NA	
Protected Phases	4	4						6		5	2	
Permitted Phases			4							6		
Actuated Green, G (s)	43.6	43.6	43.6					49.9		75.8	82.9	
Effective Green, g (s)	43.6	43.6	43.6					49.9		75.8	82.9	
Actuated g/C Ratio	0.31	0.31	0.31					0.36		0.54	0.59	
Clearance Time (s)	6.5	6.5	6.5					7.0		7.1	7.0	
Vehicle Extension (s)	3.0	3.0	3.0					7.0		3.0	7.0	
Lane Grp Cap (vph)	499	499	469					1190		362	1997	
v/s Ratio Prot	0.15	0.15						c0.33		c0.17	0.31	
v/s Ratio Perm			c0.30							0.33		
v/c Ratio	0.48	0.48	0.96					0.94		0.92	0.53	
Uniform Delay, d1	39.1	39.1	47.4					43.5		48.7	16.9	
Progression Factor	1.00	1.00	1.00					0.72		0.48	0.19	
Incremental Delay, d2	0.7	0.7	32.0					10.3		17.5	0.5	
Delay (s)	39.8	39.8	79.5					41.7		40.7	3.7	
Level of Service	D	D	E					D		D	A	
Approach Delay (s)		60.4			0.0			41.7			12.6	
Approach LOS		E			A			D			B	

Intersection Summary			
HCM 2000 Control Delay	35.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.6
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	11.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	85	185	460	80	105	740
Future Vol, veh/h	85	185	460	80	105	740
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	310	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	8	8	3	3
Mvmt Flow	92	201	500	87	114	804

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1576	544	0	0	587	0
Stage 1	544	-	-	-	-	-
Stage 2	1032	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.13	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.227	-
Pot Cap-1 Maneuver	119	533	-	-	983	-
Stage 1	576	-	-	-	-	-
Stage 2	339	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	94	533	-	-	983	-
Mov Cap-2 Maneuver	94	-	-	-	-	-
Stage 1	576	-	-	-	-	-
Stage 2	268	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	64.3	0	1.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	94	533	983	-
HCM Lane V/C Ratio	-	-	0.983	0.377	0.116	-
HCM Control Delay (s)	-	-	169.7	15.8	9.1	0
HCM Lane LOS	-	-	F	C	A	A
HCM 95th %tile Q(veh)	-	-	5.8	1.7	0.4	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	5	0	1025	1445	0
Future Vol, veh/h	5	5	0	1025	1445	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Yield
Storage Length	80	0	135	-	-	220
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	8	8	4	4
Mvmt Flow	5	5	0	1114	1571	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2128	786	1571	0	-	0
Stage 1	1571	-	-	-	-	-
Stage 2	557	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.26	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.28	-	-	-
Pot Cap-1 Maneuver	44	339	388	-	-	-
Stage 1	160	-	-	-	-	-
Stage 2	543	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	44	339	388	-	-	-
Mov Cap-2 Maneuver	44	-	-	-	-	-
Stage 1	160	-	-	-	-	-
Stage 2	543	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	56.9	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	388	-	44	339	-	-
HCM Lane V/C Ratio	-	-	0.124	0.016	-	-
HCM Control Delay (s)	0	-	98	15.8	-	-
HCM Lane LOS	A	-	F	C	-	-
HCM 95th %tile Q(veh)	0	-	0.4	0	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	5	5	0	65	0	855	5	105	1235	0
Future Vol, veh/h	0	0	5	5	0	65	0	855	5	105	1235	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	160	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	2	0	5	0	0	3	0
Mvmt Flow	0	0	5	5	0	71	0	929	5	114	1342	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2537	2504	1342	2505	2502	932	-	0	0	934	0	0
Stage 1	1570	1570	-	932	932	-	-	-	-	-	-	-
Stage 2	967	934	-	1573	1570	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.22	-	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.318	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	19	29	188	20	29	323	0	-	-	741	-	0
Stage 1	140	173	-	322	348	-	0	-	-	-	-	0
Stage 2	308	347	-	140	173	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	13	25	188	17	25	323	-	-	-	741	-	-
Mov Cap-2 Maneuver	13	25	-	17	25	-	-	-	-	-	-	-
Stage 1	140	146	-	322	348	-	-	-	-	-	-	-
Stage 2	241	347	-	115	146	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	24.7	57.1	0	0.8
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	188	141	741	-
HCM Lane V/C Ratio	-	-	-	0.029	0.54	0.154	-
HCM Control Delay (s)	-	-	0	24.7	57.1	10.7	-
HCM Lane LOS	-	-	A	C	F	B	-
HCM 95th %tile Q(veh)	-	-	-	0.1	2.7	0.5	-

Intersection	
Int Delay, s/veh	6.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	15	0	20	20	1335	45	5	1485	5
Future Vol, veh/h	0	0	0	15	0	20	20	1335	45	5	1485	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	18	0	0	0	5	7	0	2	0
Mvmt Flow	0	0	0	16	0	22	22	1451	49	5	1614	5

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	2337	3149	750	1619	0	0	1500	0	0
Stage 1	1520	1520	-	-	-	-	-	-	-
Stage 2	817	1629	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.16	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.68	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	25	11	358	408	-	-	453	-	-
Stage 1	143	183	-	-	-	-	-	-	-
Stage 2	357	162	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	~ 15	0	358	408	-	-	453	-	-
Mov Cap-2 Maneuver	~ 15	0	-	-	-	-	-	-	-
Stage 1	95	0	-	-	-	-	-	-	-
Stage 2	317	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 388.8	2.4	0.7
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	408	-	-	33	453	-	-
HCM Lane V/C Ratio	0.053	-	-	1.153	0.012	-	-
HCM Control Delay (s)	14.3	2.3	-	$ 388.8	13	0.7	-
HCM Lane LOS	B	A	-	F	B	A	-
HCM 95th %tile Q(veh)	0.2	-	-	4.1	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Appendix C:
Cost Estimates

Project Cost Estimation Spreadsheet - Improve SR 60: Construct an Interchange at SR 60 + Widen SR 60 from I-85 to SR 124

Project Identification				
Description	Improve SR 60: Construct an Interchange at SR			
From Limit				
To Limit				
Notes				
Mainline (Ramps, Speed-Change Lanes)	0.91			
SR 60 Widening Limits	0.85			
		miles	total	1.76

Cost Summary Incl. Contingency		per mile	Yr. of Exp.	Inflated Cost	Total Program Cost	
Preliminary Engineering	**$ 2,823,091**	$ 1,602,787	2023	**$ 2,823,091**	**$ 2,823,091**	
Reimbursable Utility	**$ 1,905,587**	$ 1,081,881	2023	**$ 1,905,587**	**$ 2,191,425**	
Right-of-Way	**$ 15,220,785**	$ 8,641,478	2023	**$ 15,220,785**	**$ 17,503,903**	
Construction	**$ 20,043,948**	$ 11,379,790	2023	**$ 20,043,948**	**$ 23,050,540**	
Total	**$ 39,993,411**	$ 22,705,937	**Total**	**$ 39,993,411**	**$ 45,568,959**	

Construction Costs

Average Per Lane-Mile Components	Unit Cost	Miles	Add Lanes	Lane-Miles	Cost
Surface Str. New Cst. base & pave	$680,000			0.00	$0
SR or High volume Rd widening	$830,000			0.00	$0
Ramps, Speed-Change Lanes		0.91	2.17	2.00	$1,660,000
SR 60 Widening		0.85	2.00	2.00	$1,660,000
Surface Street Overlay	$192,000	0.85	1.00	1.00	$192,000
Concrete Widening	$1,252,745			0.00	$0
Cross Streets widening	$510,000			0.00	$0
			Factor		
Cross Street Overlay	$20,000			0.00	$0
Traffic Control	$700,000	2.00	0.70	1.40	$980,000
Typical Driveways	$75,000			0.00	$0
Typical E & S Control Temp&Perm	$450,000	2.00	0.18	0.36	$162,000
Typical Earthwork	$2,000,000	2.00	0.28	0.56	$1,120,000
Typical Drainage - Urban Section	$255,000	0.85	1.65	1.41	$358,594
Curb & Gutter both sides (mile)	$370,000	0.85	1.00	0.85	$315,341
Typical Drainage - Rural Section	$150,000	0.91	2.70	2.45	$368,182
Signing & Marking	$50,000	2.00	1.00	2.00	$100,000
Typical Clear & Grub-120 ft wide	$109,091	2.00	1.00	2.00	$218,182
Typical Guardrail Type W	$212,000	0.91	0.30	0.27	$57,818
20ft. Raised median +C&G (mile)	$1,308,267			0.00	$0
Median landscaping	$100,000			0.00	$0
Sidewalks 5 ft. ea.side (mile)	$352,000	0.85	1.00	0.85	$300,000
ADA Ramps	$2,500			0.00	$0
				Subtotal	**$7,492,116**

Additional Per Mile Components	Unit Cost	Length	Factor	Cost
Add'l Major Earthwork (mile)	$350,000			$0
Add'l Major Drainage (mile)	$150,000			$0
Add'l Major Grade changes (mile)	$350,000			$0
Major alignment corrections (mile)	$750,000			$0
Maint of Traffic difficulty (mile)	$200,000			$0
Temporary Barrier	$50			$0
Concrete Island + C&G (SY)	$60			$0
Add'l guardrail Type T (mile)	$423,000			$0
Paved Shoulders, 4 ft, 2 sides(mile)	$100,000			$0
Rumble Strips (Shoulder & Edgeline)	$0			$0
Rumble Strips [EA] (RAB/Stop Cntrl)	$1,000			$0
Bikeway, 4 feet, both side (mile)	$553,333			$0
Add'l driveways (mile)	$75,000			$0
Cl. B Conc. Base or pvmt widening	$792,000			$0
Colored & Stamped Concrete + C&G	$100			$0
Special E&S control	$300,000			$0
				$0
			Subtotal	**$0**

Individual Components	Unit Cost	Length (ft)	Width (ft)	Ht (ft)	Cost
Retaining Walls - Gravity 0 - 5' (LF)	$60				$0
Retaining Walls-Gravity 5'-max (LF)	$120				$0
Retaining Walls-Special Design(SF)	$60				$0
Bridges - widen (SF)	$300				$0
Bridges - widen (SF)	$300				$0
Bridges - replace (SF)	$225	266	97		$5,805,450
Bridges - replace (SF)	$185				$0
Bridges - detour (SF)	$60				$0
Bridge Removal (SF)	$50	266	33.3		$442,890
Cofferdams (ea)	$20,000				$0
Box Culverts (SF)	$95				$0
Box Culverts (SF)	$95				$0
Large cross drains (LF)	$80				$0
Replace cross drains (LF)	$120				$0
Sediment/ detention ponds (ea)	$30,000				$0
Pavement patching (Sq yd)	$30				$0
Roundabout Lighting	$100,000				$0
Traffic Signalization / Upgrade (ea)	$125,000	3	1		$375,000
				Subtotal	**$6,623,340**
				Total Construction Cost	**$14,115,456**
					48%

Right-of-Way Costs

Area Type	Unit Cost (acre)	Miles	Width (ft)	Acres	Cost
Urban Residential	$800,000			0.000	$0
Easement Residential	$240,000			0.000	$0
Urban Commercial	$1,200,000			0.000	$0
Easement Commercial	$360,000			0.000	$0
Suburban/Rural Residential	$50,000	see note	see note	35.164	$1,758,219
Easement rural Residential	$180,000			0.000	$0
Suburban/Rural Commercial	$800,000			0.000	$0
Easement rural Commercial	$240,000			0.000	$0
Displacements		Number	factor		
Residential	$250,000				$0
Commercial	$1,000,000	2	1.00		$2,000,000
Damages	$0				$0
				ROW multiplier	3
				Total Right-of-Way Cost	**$11,274,656**
					38%

Reimbursable Utility Costs

			0
	10%	$	1,411,546
		Total Reimbursable Utility Cost	**$1,411,546**
			5%

Preliminary Engineering Costs

PE %	20%	**Total Preliminary Engineering Cost**	**$2,823,091**
			10%

Contingency Costs

Contingency %	35%	**Total Contingency Cost**	**$10,368,662**
		Total (PE+Util.+ROW+CST)	**$29,624,749**
		Grand Total	**$39,993,411**

Project Cost Estimation Spreadsheet - Improve SR 60: Extend SR 60 from SR 53 to SR 211 (via Peachtree Rd Rehabilitation)

Project Identification

Description	Improve SR 60: Extend SR 60 from SR 53 to SR 211
From Limit	SR 53
To Limit	SR 211
Notes	
Project Limits	2.27

miles total 2.27

Cost Summary Incl. Contingency		per mile	Yr. of Exp.	Inflated Cost	Total Program Cost
Preliminary Engineering	**$ 1,736,919**	$ 764,244	2023	**$ 1,736,919**	**$ 1,736,919**
Reimbursable Utility	**$ 1,172,420**	$ 515,865	2023	**$ 1,172,420**	**$ 1,348,283**
Right-of-Way	**$ 2,789,256**	$ 1,227,273	2023	**$ 2,789,256**	**$ 3,207,645**
Construction	**$ 12,332,122**	$ 5,426,134	2023	**$ 12,332,122**	**$ 14,181,940**
Total	**$ 18,030,717**	$ 7,933,515	**Total**	**$ 18,030,717**	**$ 20,474,787**

Construction Costs

Average Per Lane-Mile Components	Unit Cost	Miles	Add Lanes	Lane-Miles	Cost
Surface Str. New Cst. base & pave	$680,000	2.27	0.50	1.14	$772,727
SR or High volume Rd widening	$830,000			0.00	$0
Surface Street Structural Overlay	$238,000	2.27	0.83	2.00	$476,000
Concrete Widening	$1,252,745			0.00	$0
Cross Streets widening	$510,000			0.00	$0
				0.00	$0
			Factor		$0
Cross Street Overlay	$20,000			0.00	$0
Traffic Control	$700,000	2.27	0.60	1.36	$954,545
Typical Driveways	$75,000			0.00	$0
Typical E & S Control Temp&Perm	$450,000	2.27	0.15	0.34	$153,409
Typical Earthwork	$2,000,000	2.27	0.23	0.52	$1,045,455
Typical Drainage - Urban Section	$255,000	2.27	1.20	2.73	$695,455
Curb & Gutter both sides (mile)	$370,000	2.27	2.00	4.55	$1,681,818
Typical Drainage - Rural Section	$150,000			0.00	$0
Signing & Marking	$50,000	2.27	1.00	2.27	$113,636
Typical Clear & Grub-120 ft wide	$109,091	2.27	1.00	2.27	$247,934
Typical Guardrail Type W	$212,000	2.27	0.30	0.68	$144,545
20ft. Raised median +C&G (mile)	$1,308,267			0.00	$0
Median landscaping	$100,000			0.00	$0
Sidewalks 5 ft. ea.side (mile)	$352,000	2.27	1.00	2.27	$800,000
ADA Ramps	$1,500			0.00	$0
					$0
					$0
					$0
					$0
				Subtotal	**$7,085,525**

Additional Per Mile Components	Unit Cost	Length	factor	Cost
Add'l Major Earthwork (mile)	$350,000			$0
Add'l Major Drainage (mile)	$150,000			$0
Add'l Major Grade changes (mile)	$350,000			$0
Major alignment corrections (mile)	$750,000	0.28	1.00	$213,068
Maint of Traffic difficulty (mile)	$200,000			$0
Temporary Barrier	$50			$0
Concrete Island + C&G (SY)	$60			$0
Add'l guardrail Type T (mile)	$423,000			$0
Paved Shoulders, 4 ft, 2 sides(mile)	$100,000			$0
Rumble Strips (Shoulder & Edgeline)	$0			$0
Rumble Strips [EA] (RAB/Stop Cntrl)	$1,000			$0
Bikeway, 4 feet, both side (mile)	$553,333			$0
Add'l driveways (mile)	$75,000			$0
Cl. B Conc. Base or pvmt widening	$792,000			$0
Colored & Stamped Concrete + C&G	$100			$0
Special E&S control	$300,000			$0
				$0
			Subtotal	**$213,068**

Individual Components	Unit Cost	Length (ft)	Width (ft)	Ht (ft)	Cost
Retaining Walls - Gravity 0 - 5' (LF)	$60				$0
Retaining Walls-Gravity 5'-max (LF)	$120				$0
Retaining Walls-Special Design(SF)	$60				$0
Bridges - widen (SF)	$300				$0
Bridges - widen (SF)	$300				$0
Bridges - replace (SF)	$225	220	28		$1,386,000
Bridges - replace (SF)	$185				$0
Bridges - detour (SF)	$60				$0
Bridge Removal (SF)	$50				$0
Cofferdams (ea)	$20,000				$0
Box Culverts (SF)	$95				$0
Box Culverts (SF)	$95				$0
Large cross drains (LF)	$80				$0
Replace cross drains (LF)	$120				$0
Sediment/ detention ponds (ea)	$30,000				$0
Pavement patching (Sq yd)	$30				$0
Roundabout Lighting	$100,000				$0
Traffic Signalization / Upgrade (ea)	$125,000				$0
				Subtotal	**$1,386,000**
				Total Construction Cost	**$8,684,593**
					65%

Right-of-Way Costs

Area Type	Unit Cost (acre)	Miles	Width (ft)	Acres	Cost
Urban Residential	$800,000			0.000	$0
Easement Residential	$240,000			0.000	$0
Urban Commercial	$2,306,992			0.000	$0
Easement Commercial	$175,000			0.000	$0
Suburban/Rural Residential	$50,000			8.264	$413,223
Easement rural Residential	$180,000			0.000	$0
Suburban/Rural Commercial	$800,000			0.000	$0
Easement rural Commercial	$240,000			0.000	$0
Displacements		Number	Factor		
Residential	$250,000				$0
Commercial	$1,000,000				$0
Damages	$0				$0
				ROW multiplier	5
				Total Right-of-Way Cost	**$2,066,116**
					15%

Reimbursable Utility Costs

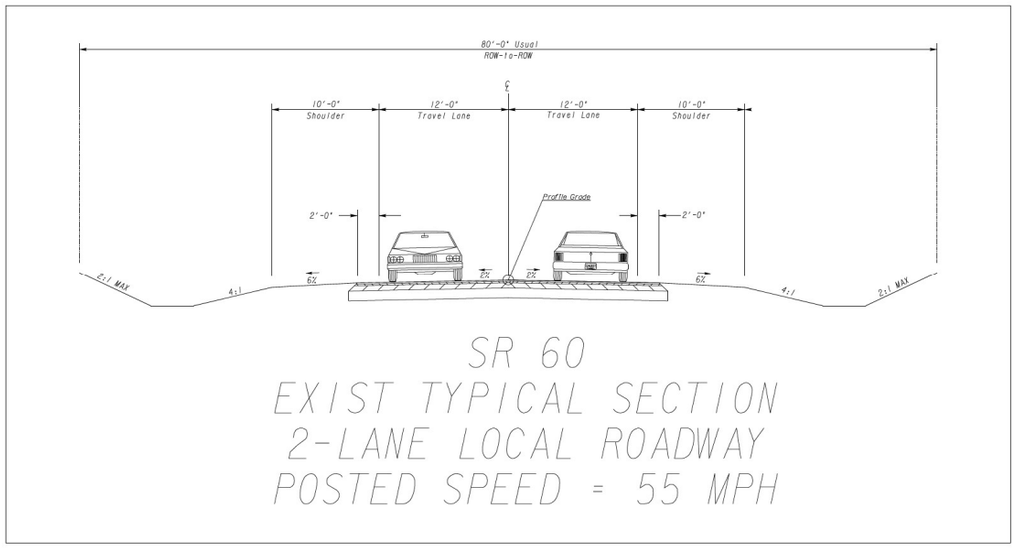
			0
	10%		$ 868,459
		Total Reimbursable Utility Cost	**$868,459**
			7%

Preliminary Engineering Costs

PE %	20%	**Total Preliminary Engineering Cost**	**$1,736,919**
			13%

Contingency Costs

Contingency %	35%	**Total Contingency Cost**	**$4,674,630**
		Total (PE+Util.+ROW+CST)	**$13,356,087**
		Grand Total	**$18,030,717**


80'-0" Usual
ROW-to-ROW
℄
10'-0"
Shoulder
12'-0"
Travel Lane
12'-0"
Travel Lane
10'-0"
Shoulder
Profile Grade
2'-0"
2'-0"
6%
2%
2%
6%
4:1 MAX
4:1
4:1
2:1 MAX
SR 60
EXIST TYPICAL SECTION
2-LANE LOCAL ROADWAY
POSTED SPEED = 55 MPH

Project Cost Estimation Spreadsheet - Extend SR 60 from SR 53 to SR 211 (4 lanes)

Project Identification					
Description	Extend SR 60 from SR 53 to SR 211 (4 lanes)				
From Limit	SR 53				
To Limit	SR 211				
Notes					
Peachtree Rd Widening	2.27				
		miles	total	2.27	

Cost Summary Incl. Contingency		per mile	Yr. of Exp.	Inflated Cost	Total Program Cost	
Preliminary Engineering	**$ 3,551,496**	$ 1,562,658	2023	**$ 3,551,496**	**$ 3,551,496**	
Reimbursable Utility	**$ 2,397,260**	$ 1,054,794	2023	**$ 2,397,260**	**$ 2,756,849**	
Right-of-Way	**$ 6,508,264**	$ 2,863,636	2023	**$ 6,508,264**	**$ 7,484,504**	
Construction	**$ 25,215,621**	$ 11,094,873	2023	**$ 25,215,621**	**$ 28,997,964**	
Total	**$ 37,672,641**	$ 16,575,962	**Total**	**$ 37,672,641**	**$ 42,790,812**	

Construction Costs

Average Per Lane-Mile Components	Unit Cost	Miles	Add Lanes	Lane-Miles	Cost
Surface Str. New Cst. base & pave	$680,000			0.00	$0
SR or High volume Rd widening	$830,000	2.27	2.00	5.00	$4,150,000
Surface Street Overlay	$192,000	2.27	1.00	3.00	$576,000
Concrete Widening	$1,252,745			0.00	$0
Cross Streets widening	$510,000			0.00	$0
				0.00	$0
			Factor		$0
Cross Street Overlay	$20,000			0.00	$0
Traffic Control	$700,000	2.27	1.05	2.39	$1,670,455
Typical Driveways	$75,000			0.00	$0
Typical E & S Control Temp&Perm	$450,000	2.27	0.20	0.45	$204,545
Typical Earthwork	$2,000,000	2.27	0.42	0.95	$1,909,091
Typical Drainage - Urban Section	$255,000	2.27	2.30	5.23	$1,332,955
Curb & Gutter both sides (mile)	$370,000	2.27	2.00	4.55	$1,681,818
Typical Drainage - Rural Section	$150,000			0.00	$0
Signing & Marking	$50,000	2.27	1.00	2.27	$113,636
Typical Clear & Grub-120 ft wide	$109,091	2.27	1.00	2.27	$247,934
Typical Guardrail Type W	$212,000	2.27	0.30	0.68	$144,545
20ft. Raised median +C&G (mile)	$1,308,267			0.00	$0
Median landscaping	$100,000			0.00	$0
Sidewalks 5 ft. ea.side (mile)	$352,000	2.27	1.00	2.27	$800,000
ADA Ramps	$1,500			0.00	$0
					$0
					$0
					$0
					$0
				Subtotal	**$12,830,979**

Additional Per Mile Components	Unit Cost	Length	factor	Cost
Add'l Major Earthwork (mile)	$350,000			$0
Add'l Major Drainage (mile)	$150,000			$0
Add'l Major Grade changes (mile)	$350,000			$0
Major alignment corrections (mile)	$750,000			$0
Maint of Traffic difficulty (mile)	$200,000			$0
Temporary Barrier	$50			$0
Concrete Island + C&G (SY)	$60			$0
Add'l guardrail Type T (mile)	$423,000			$0
Paved Shoulders, 4 ft, 2 sides(mile)	$100,000			$0
Rumble Strips (Shoulder & Edgeline)	$0			$0
Rumble Strips [EA] (RAB/Stop Cntrl)	$1,000			$0
Bikeway, 4 feet, both side (mile)	$553,333			$0
Add'l driveways (mile)	$75,000			$0
Cl. B Conc. Base or pvmt widening	$792,000			$0
Colored & Stamped Concrete + C&G	$100			$0
Special E&S control	$300,000			$0
				$0
			Subtotal	**$0**

Individual Components	Unit Cost	Length (ft)	Width (ft)	Ht (ft)	Cost
Retaining Walls - Gravity 0 - 5' (LF)	$60				$0
Retaining Walls-Gravity 5'-max (LF)	$120				$0
Retaining Walls-Special Design(SF)	$60				$0
Bridges - widen (SF)	$300				$0
Bridges - widen (SF)	$300				$0
Bridges - replace (SF)	$225	220	97		$4,801,500
Bridges - replace (SF)	$185				$0
Bridges - detour (SF)	$60				$0
Bridge Removal (SF)	$50				$0
Cofferdams (ea)	$20,000				$0
Box Culverts (SF)	$95				$0
Box Culverts (SF)	$95				$0
Large cross drains (LF)	$80				$0
Replace cross drains (LF)	$120				$0
Sediment/ detention ponds (ea)	$30,000				$0
Pavement patching (Sq yd)	$30				$0
Roundabout Lighting	$100,000				$0
Traffic Signalization / Upgrade (ea)	$125,000	1	1		$125,000
				Subtotal	**$4,926,500**
				Total Construction Cost	**$17,757,479**
					64%

Right-of-Way Costs

Area Type	Unit Cost (acre)	Miles	Width (ft)	Acres	Cost
Urban Residential	$800,000			0.000	$0
Easement Residential	$240,000			0.000	$0
Urban Commercial	$2,306,992			0.000	$0
Easement Commercial	$175,000			0.000	$0
Suburban/Rural Residential	$50,000			19.284	$964,187
Easement rural Residential	$180,000			0.000	$0
Suburban/Rural Commercial	$800,000			0.000	$0
Easement rural Commercial	$240,000			0.000	$0
Displacements		Number	Factor		
Residential	$250,000				$0
Commercial	$1,000,000				$0
Damages	$0				$0
				ROW multiplier	5
				Total Right-of-Way Cost	**$4,820,937**
					17%

Reimbursable Utility Costs

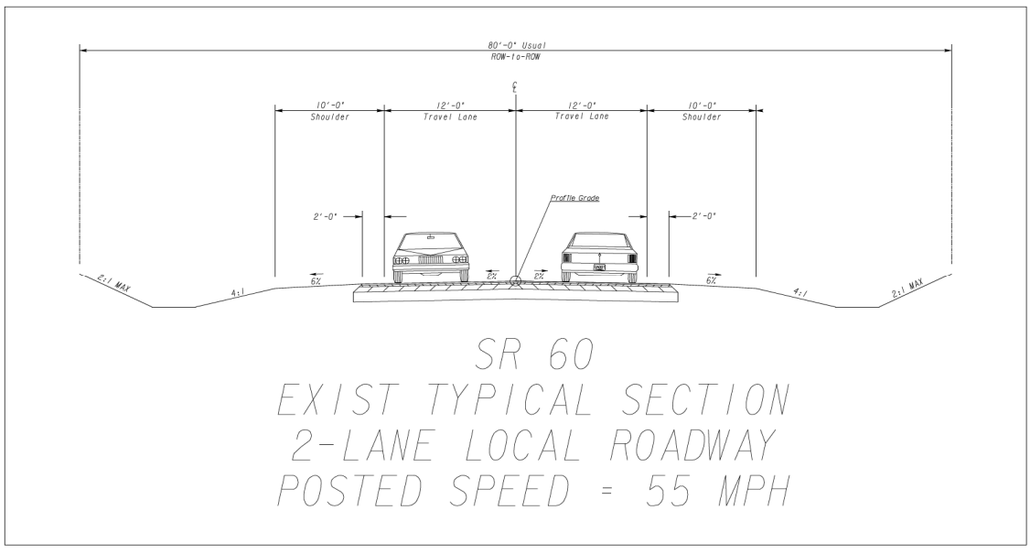
			0
	10%	$	1,775,748
		Total Reimbursable Utility Cost	**$1,775,748**
			6%

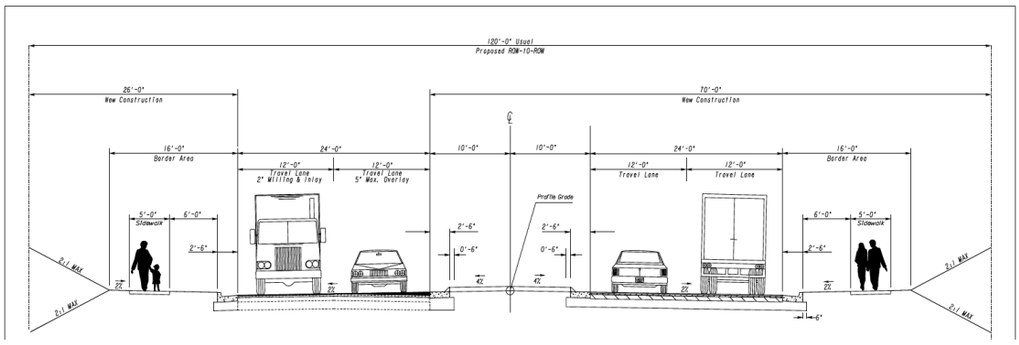
Preliminary Engineering Costs

PE %	20%	**Total Preliminary Engineering Cost**	**$3,551,496**
			13%

Contingency Costs

Contingency %	35%	**Total Contingency Cost**	**$9,766,981**
		Total (PE+Util.+ROW+CST)	**$27,905,660**
		Grand Total	**$37,672,641**


80'-0" Usual
ROW-to-ROW
10'-0"
Shoulder
12'-0"
Travel Lane
12'-0"
Travel Lane
10'-0"
Shoulder
Profile Grade
2'-0"
2'-0"
6:1 MAX
4:1
2%
2%
6%
6%
4:1
6:1 MAX
SR 60
EXIST TYPICAL SECTION
2-LANE LOCAL ROADWAY
POSTED SPEED = 55 MPH


120'-0" Usual
Proposed ROW-TO-ROW
26'-0"
New Construction
70'-0"
New Construction
16'-0"
Border Area
24'-0"
12'-0"
Travel Lane
2" Milling & Inlay
12'-0"
Travel Lane
5" Max. Overlay
10'-0"
10'-0"
24'-0"
12'-0"
Travel Lane
12'-0"
Travel Lane
16'-0"
Border Area
Profile Grade
5'-0"
Sidewalk
6'-0"
2'-6"
2'-6"
0'-6"
1'-0"
6'-0"
5'-0"
Sidewalk
2'-6"
6:1 MAX
6:1 MAX
6:1 MAX
6:1 MAX
2%
2%
4%
4%
2%
2%
6"

Project Cost Estimation Spreadsheet - Extend SR 60 from SR 124 to SR 53 (2 lanes)

Project Identification			
Description	Extend SR 60 from SR 124 to SR 53 (2 lanes)		
From Limit	SR 124		
To Limit	SR 53		
Notes			
SR 60 New Construction	2.08		
Jackson Trail Rd Overlay	0.55		
		miles	total 2.63

Cost Summary Incl. Contingency		per mile	Yr. of Exp.	Inflated Cost	Total Program Cost
Preliminary Engineering	**$ 2,834,295**	$ 1,076,624	2023	**$ 2,834,295**	**$ 2,834,295**
Reimbursable Utility	**$ 1,913,149**	$ 726,721	2023	**$ 1,913,149**	**$ 2,200,122**
Right-of-Way	**$ 7,309,091**	$ 2,776,403	2023	**$ 7,309,091**	**$ 8,405,455**
Construction	**$ 20,123,496**	$ 7,644,033	2023	**$ 20,123,496**	**$ 23,142,020**
Total	**$ 32,180,031**	$ 12,223,782	**Total**	**$ 32,180,031**	**$ 36,581,892**

Construction Costs

Average Per Lane-Mile Components	Unit Cost	Miles	Add Lanes	Lane-Miles	Cost
Surface Str. New Cst. base & pave	$680,000			0.00	$0
SR or High volume Rd widening	$830,000			0.00	$0
SR 60 New Construction		2.08	2.00	5.00	$4,150,000
Surface Street Overlay	$192,000	0.55	2.00	2.00	$384,000
Concrete Widening	$1,252,745			0.00	$0
Cross Streets widening	$510,000			0.00	$0
				0.00	$0
			Factor		$0
Cross Street Overlay	$20,000			0.00	$0
Traffic Control	$700,000	2.63	0.90	2.37	$1,658,523
Typical Driveways	$75,000			0.00	$0
Typical E & S Control Temp&Perm	$450,000	2.63	0.20	0.53	$236,932
Typical Earthwork	$2,000,000	2.63	0.37	0.97	$1,948,106
Typical Drainage - Urban Section	$255,000	2.63	2.06	5.42	$1,382,892
Curb & Gutter both sides (mile)	$370,000	2.63	2.00	5.27	$1,948,106
Typical Drainage - Rural Section	$150,000			0.00	$0
Signing & Marking	$50,000	2.63	1.00	2.63	$131,629
Typical Clear & Grub-120 ft wide	$109,091	2.63	1.00	2.63	$287,190
Typical Guardrail Type W	$212,000	2.63	0.30	0.79	$167,432
20ft. Raised median +C&G (mile)	$1,308,267			0.00	$0
Median landscaping	$100,000			0.00	$0
Sidewalks 5 ft. ea.side (mile)	$352,000	2.63	1.00	2.63	$926,667
ADA Ramps	$1,500			0.00	$0
					$0
					$0
					$0
					$0
				Subtotal	**$13,221,476**

Additional Per Mile Components	Unit Cost	Length	factor	Cost
Add'l Major Earthwork (mile)	$350,000			$0
Add'l Major Drainage (mile)	$150,000			$0
Add'l Major Grade changes (mile)	$350,000			$0
Major alignment corrections (mile)	$750,000			$0
Maint of Traffic difficulty (mile)	$200,000			$0
Temporary Barrier	$50			$0
Concrete Island + C&G (SY)	$60			$0
Add'l guardrail Type T (mile)	$423,000			$0
Paved Shoulders, 4 ft, 2 sides(mile)	$100,000			$0
Rumble Strips (Shoulder & Edgeline)	$0			$0
Rumble Strips [EA] (RAB/Stop Cntrl)	$1,000			$0
Bikeway, 4 feet, both side (mile)	$553,333			$0
Add'l driveways (mile)	$75,000			$0
Cl. B Conc. Base or pvmt widening	$792,000			$0
Colored & Stamped Concrete + C&G	$100			$0
Special E&S control	$300,000			$0
				$0
			Subtotal	**$0**

Individual Components	Unit Cost	Length (ft)	Width (ft)	Ht (ft)	Cost
Retaining Walls - Gravity 0 - 5' (LF)	$60				$0
Retaining Walls-Gravity 5'-max (LF)	$120				$0
Retaining Walls-Special Design(SF)	$60				$0
Bridges - widen (SF)	$300				$0
Bridges - widen (SF)	$300				$0
Bridges - replace (SF)	$225				$0
Bridges - replace (SF)	$185				$0
Bridges - detour (SF)	$60				$0
Bridge Removal (SF)	$50				$0
Cofferdams (ea)	$20,000				$0
Box Culverts (SF)	$95	100	100		$950,000
Box Culverts (SF)	$95				$0
Large cross drains (LF)	$80				$0
Replace cross drains (LF)	$120				$0
Sediment/ detention ponds (ea)	$30,000				$0
Pavement patching (Sq yd)	$30				$0
Roundabout Lighting	$100,000				$0
Traffic Signalization / Upgrade (ea)	$125,000				$0
				Subtotal	**$950,000**
				Total Construction Cost	**$14,171,476**
					59%

Right-of-Way Costs

Area Type	Unit Cost (acre)	Miles	Width (ft)	Acres	Cost
Urban Residential	$800,000			0.000	$0
Easement Residential	$240,000			0.000	$0
Urban Commercial	$2,306,992			0.000	$0
Easement Commercial	$175,000			0.000	$0
Suburban/Rural Residential	$50,000			21.657	$1,082,828
Easement rural Residential	$180,000			0.000	$0
Suburban/Rural Commercial	$800,000			0.000	$0
Easement rural Commercial	$240,000			0.000	$0
Displacements		Number	factor		
Residential	$250,000				$0
Commercial	$1,000,000				$0
Damages	$0				$0
				ROW multiplier	5
				Total Right-of-Way Cost	**$5,414,141**
					23%

Reimbursable Utility Costs

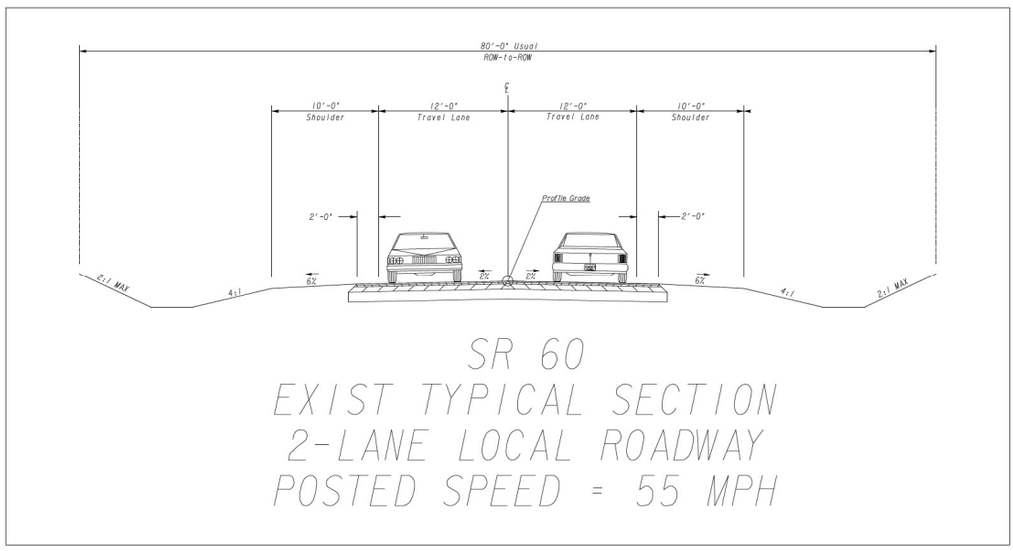
			0
	10%	$	1,417,148
		Total Reimbursable Utility Cost	**$1,417,148**
			6%

Preliminary Engineering Costs

PE %	20%	**Total Preliminary Engineering Cost**	**$2,834,295**
			12%

Contingency Costs

Contingency %	35%	**Total Contingency Cost**	**$8,342,971**
		Total (PE+Util.+ROW+CST)	**$23,837,060**
		Grand Total	**$32,180,031**


80'-0" Usual
ROW-to-ROW
℄
10'-0"
Shoulder
12'-0"
Travel Lane
12'-0"
Travel Lane
10'-0"
Shoulder
Profile Grade
2'-0"
2'-0"
6%
2%
2%
6%
2:1 MAX
4:1
4:1
2:1 MAX
SR 60
EXIST TYPICAL SECTION
2-LANE LOCAL ROADWAY
POSTED SPEED = 55 MPH

Project Cost Estimation Spreadsheet - Extend SR 60 from SR 124 to SR 53 (4 lanes)

Project Identification			
Description	Extend SR 60 from SR 124 to SR 53 (4 lanes)		
From Limit	SR 124		
To Limit	SR 53		
Notes			
SR 60 New Construction	2.56		
Sam Freeman Rd Widening	0.59		
Jackson Trail Rd Widening	0.38		
		miles	total 3.52

Cost Summary Incl. Contingency		per mile	Yr. of Exp.	Inflated Cost	Total Program Cost	
Preliminary Engineering	**$ 5,633,336**	$ 1,599,140	2023	**$ 5,633,336**	**$ 5,633,336**	
Reimbursable Utility	**$ 3,802,502**	$ 1,079,420	2023	**$ 3,802,502**	**$ 4,372,877**	
Right-of-Way	**$ 28,112,603**	$ 7,980,352	2023	**$ 28,112,603**	**$ 32,329,494**	
Construction	**$ 39,996,683**	$ 11,353,897	2023	**$ 39,996,683**	**$ 45,996,186**	
Total	**$ 77,545,124**	$ 22,012,809	**Total**	**$ 77,545,124**	**$ 88,331,892**	

Construction Costs

Average Per Lane-Mile Components	Unit Cost	Miles	Add Lanes	Lane-Miles	Cost
Surface Str. New Cst. base & pave	$680,000			0.00	$0
SR or High volume Rd widening	$830,000			0.00	$0
SR 60 New Construction		2.56	4.00	11.00	$9,130,000
Sam Freeman Rd Widening		0.59	2.00	2.00	$1,660,000
Jackson Trail Rd Widening		0.38	2.00	1.00	$830,000
Surface Street Overlay	$192,000	0.97	1.00	1.00	$192,000
Concrete Widening	$1,252,745			0.00	$0
Cross Streets widening	$510,000			0.00	$0
				0.00	$0
			Factor		$0
Cross Street Overlay	$20,000			0.00	$0
Traffic Control	$700,000	3.52	1.40	4.93	$3,452,273
Typical Driveways	$75,000			0.00	$0
Typical E & S Control Temp&Perm	$450,000	3.52	0.30	1.06	$475,568
Typical Earthwork	$2,000,000	3.52	0.57	2.01	$4,015,909
Typical Drainage - Urban Section	$255,000	3.52	3.15	11.10	$2,829,631
Curb & Gutter both sides (mile)	$370,000	3.52	2.00	7.05	$2,606,818
Typical Drainage - Rural Section	$150,000			0.00	$0
Signing & Marking	$50,000	3.52	1.00	3.52	$176,136
Typical Clear & Grub-120 ft wide	$109,091	3.52	1.00	3.52	$384,298
Typical Guardrail Type W	$212,000	3.52	0.30	1.06	$224,045
20ft. Raised median +C&G (mile)	$1,308,267			0.00	$0
Median landscaping	$100,000			0.00	$0
Sidewalks 5 ft. ea.side (mile)	$352,000	3.52	1.00	3.52	$1,240,000
ADA Ramps	$1,500			0.00	$0
					$0
					$0
					$0
					$0
				Subtotal	**$27,216,678**

Additional Per Mile Components	Unit Cost	Length	factor	Cost
Add'l Major Earthwork (mile)	$350,000			$0
Add'l Major Drainage (mile)	$150,000			$0
Add'l Major Grade changes (mile)	$350,000			$0
Major alignment corrections (mile)	$750,000			$0
Maint of Traffic difficulty (mile)	$200,000			$0
Temporary Barrier	$50			$0
Concrete Island + C&G (SY)	$60			$0
Add'l guardrail Type T (mile)	$423,000			$0
Paved Shoulders, 4 ft, 2 sides(mile)	$100,000			$0
Rumble Strips (Shoulder & Edgeline)	$0			$0
Rumble Strips [EA] (RAB/Stop Cntrl)	$1,000			$0
Bikeway, 4 feet, both side (mile)	$553,333			$0
Add'l driveways (mile)	$75,000			$0
Cl. B Conc. Base or pvmt widening	$792,000			$0
Colored & Stamped Concrete + C&G	$100			$0
Special E&S control	$300,000			$0
				$0
			Subtotal	**$0**

Individual Components	Unit Cost	Length (ft)	Width (ft)	Ht (ft)	Cost
Retaining Walls - Gravity 0 - 5' (LF)	$60				$0
Retaining Walls-Gravity 5'-max (LF)	$120				$0
Retaining Walls-Special Design(SF)	$60				$0
Bridges - widen (SF)	$300				$0
Bridges - widen (SF)	$300				$0
Bridges - replace (SF)	$225				$0
Bridges - replace (SF)	$185				$0
Bridges - detour (SF)	$60				$0
Bridge Removal (SF)	$50				$0
Cofferdams (ea)	$20,000				$0
Box Culverts (SF)	$95	100	100		$950,000
Box Culverts (SF)	$95				$0
Large cross drains (LF)	$80				$0
Replace cross drains (LF)	$120				$0
Sediment/ detention ponds (ea)	$30,000				$0
Pavement patching (Sq yd)	$30				$0
Roundabout Lighting	$100,000				$0
Traffic Signalization / Upgrade (ea)	$125,000				$0
				Subtotal	**$950,000**
				Total Construction Cost	**$28,166,678**
					49%

Right-of-Way Costs

Area Type	Unit Cost (acre)	Miles	Width (ft)	Acres	Cost
Urban Residential	$800,000			0.000	$0
Easement Residential	$240,000			0.000	$0
Urban Commercial	$2,306,992			0.000	$0
Easement Commercial	$175,000			0.000	$0
Suburban/Rural Residential	$50,000			43.297	$2,164,830
Easement rural Residential	$180,000			0.000	$0
Suburban/Rural Commercial	$800,000			0.000	$0
Easement rural Commercial	$240,000			0.000	$0
Displacements		Number	factor		
Residential	$250,000				$0
Commercial	$1,000,000	2	1.00		$2,000,000
Damages	$0				$0
				ROW multiplier	5
				Total Right-of-Way Cost	**$20,824,151**
					36%

Reimbursable Utility Costs

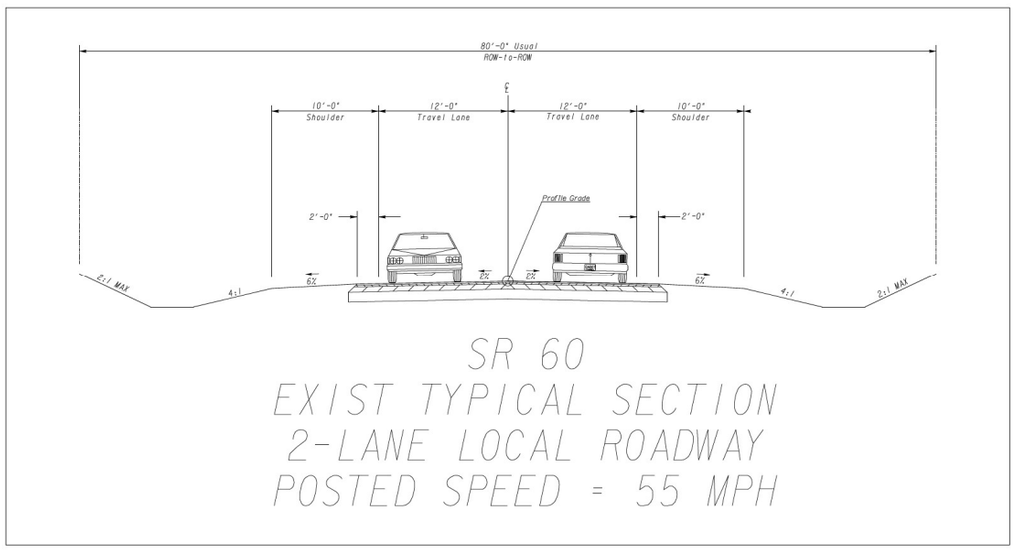
			0
	10%		$ 2,816,668
		Total Reimbursable Utility Cost	**$2,816,668**
			5%

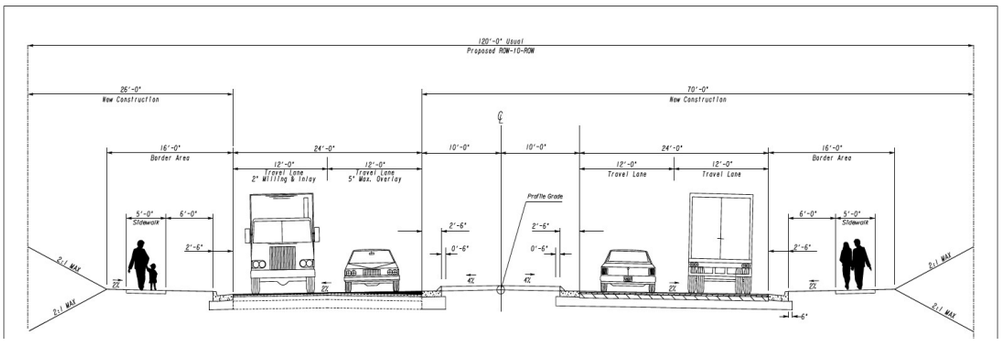
Preliminary Engineering Costs

PE %	20%	**Total Preliminary Engineering Cost**	**$5,633,336**
			10%

Contingency Costs

Contingency %	35%	**Total Contingency Cost**	**$20,104,291**
		Total (PE+Util.+ROW+CST)	**$57,440,832**
		Grand Total	**$77,545,124**


80'-0" Usual
ROW-to-ROW
10'-0"
Shoulder
12'-0"
Travel Lane
12'-0"
Travel Lane
10'-0"
Shoulder
Profile Grade
2'-0"
2'-0"
6%
2%
2%
6%
4:1
4:1
2:1 MAX
2:1 MAX
SR 60
EXIST TYPICAL SECTION
2-LANE LOCAL ROADWAY
POSTED SPEED = 55 MPH


120'-0" Usual
Proposed ROW-to-ROW
26'-0"
New Construction
70'-0"
New Construction
16'-0"
Border Area
24'-0"
10'-0"
10'-0"
24'-0"
16'-0"
Border Area
12'-0"
Travel Lane
2" Milling & Inlay
12'-0"
Travel Lane
5" Max. Overlay
12'-0"
Travel Lane
12'-0"
Travel Lane
Profile Grade
5'-0"
Sidewalk
6'-0"
2'-6"
2'-6"
1'-6"
2'-6"
0'-6"
6'-0"
2'-6"
5'-0"
Sidewalk
2:1 MAX
2:1 MAX
2:1 MAX
2:1 MAX
2%
4%
4%
2%
6"

Project Cost Estimation Spreadsheet - Improve SR 60: Widen SR 60 from SR 211 (north end) to SR 124

Project Identification

Description	Improve SR 60: Widen SR 60 from SR 211 (north end)
From Limit	I-85 (North of Interchange)
To Limit	SR 211
Notes	
Mainline	6.35
Side Street	

miles total 6.35

Cost Summary Incl. Contingency		per mile	Yr. of Exp.	Inflated Cost	Total Program Cost
Preliminary Engineering	**$ 7,610,577**	$ 1,199,294	2023	**$ 7,610,577**	**$ 7,610,577**
Reimbursable Utility	**$ 5,137,140**	$ 809,524	2023	**$ 5,137,140**	**$ 5,907,711**
Right-of-Way	**$ 6,872,727**	$ 1,083,022	2023	**$ 6,872,727**	**$ 7,903,636**
Construction	**$ 54,035,099**	$ 8,514,990	2023	**$ 54,035,099**	**$ 62,140,363**
Total	**$ 73,655,543**	$ 11,606,830	**Total**	**$ 73,655,543**	**$ 83,562,288**

Construction Costs

Average Per Lane-Mile Components	Unit Cost	Miles	Add Lanes	Lane-Miles	Cost
Surface Str. New Cst. base & pave	$680,000			0.00	$0
SR or High volume Rd widening	$830,000	7.00	2.00	14.00	$11,620,000
Surface Street Overlay	$192,000	7.00	1.00	7.00	$1,344,000
Concrete Widening	$1,252,745			0.00	$0
Cross Streets widening	$510,000			0.00	$0
			Factor		
Cross Street Overlay	$20,000			0.00	$0
Traffic Control	$700,000	7.00	0.90	6.30	$4,410,000
Typical Driveways	$75,000	7.00	0.50	3.50	$262,500
Typical E & S Control Temp&Perm	$450,000	7.00	0.25	1.75	$787,500
Typical Earthwork	$2,000,000	7.00	0.37	2.59	$5,180,000
Typical Drainage - Urban Section	$255,000	7.00	1.90	13.30	$3,391,500
Curb & Gutter both sides (mile)	$370,000			0.00	$0
Typical Drainage - Rural Section	$150,000			0.00	$0
Signing & Marking	$50,000	7.00	1.00	7.00	$350,000
Typical Clear & Grub-120 ft wide	$109,091	7.00	1.00	7.00	$763,636
Typical Guardrail Type W	$212,000	7.00	1.00	7.00	$1,484,000
20ft. Raised median +C&G (mile)	$1,308,267			0.00	$0
Median landscaping	$100,000			0.00	$0
Sidewalks 5 ft. ea.side (mile)	$352,000	7.00	2.00	14.00	$4,928,000
ADA Ramps	$1,500	7.00	1.00	7.00	$10,500
					$0
					$0
					$0
					$0
				Subtotal	**$34,531,636**

Additional Per Mile Components	Unit Cost	Length	factor	Cost
Add'l Major Earthwork (mile)	$350,000			$0
Add'l Major Drainage (mile)	$150,000			$0
Add'l Major Grade changes (mile)	$350,000			$0
Major alignment corrections (mile)	$750,000			$0
Maint of Traffic difficulty (mile)	$200,000			$0
Temporary Barrier	$50			$0
Concrete Island + C&G (SY)	$60			$0
Add'l guardrail Type T (mile)	$423,000			$0
Paved Shoulders, 4 ft, 2 sides(mile)	$100,000			$0
Rumble Strips (Shoulder & Edgeline)	$0			$0
Rumble Strips [EA] (RAB/Stop Cntrl)	$1,000			$0
Bikeway, 4 feet, both side (mile)	$553,333			$0
Add'l driveways (mile)	$75,000			$0
Cl. B Conc. Base or pvmt widening	$792,000			$0
Colored & Stamped Concrete + C&G	$100			$0
Special E&S control	$300,000			$0
				$0
			Subtotal	**$0**

Individual Components	Unit Cost	Length (ft)	Width (ft)	Ht (ft)	Cost
Retaining Walls - Gravity 0 - 5' (LF)	$60				$0
Retaining Walls-Gravity 5'-max (LF)	$120				$0
Retaining Walls-Special Design(SF)	$60				$0
Bridges - widen (SF)	$300				$0
Bridges - widen (SF)	$300				$0
Bridges - replace (SF)	$225	150	97		$3,273,750
Bridges - replace (SF)	$185				$0
Bridges - detour (SF)	$60				$0
Bridge Removal (SF)	$50	150	33		$247,500
Cofferdams (ea)	$20,000				$0
Box Culverts (SF)	$95				$0
Box Culverts (SF)	$95				$0
Large cross drains (LF)	$80				$0
Replace cross drains (LF)	$120				$0
Sediment/ detention ponds (ea)	$30,000				$0
Pavement patching (Sq yd)	$30				$0
Roundabout Lighting	$100,000				$0
Traffic Signalization / Upgrade (ea)	$125,000				$0
				Subtotal	**$3,521,250**
				Total Construction Cost	**$38,052,886**
					70%

Right-of-Way Costs

Area Type	Unit Cost (acre)	Miles	Width (ft)	Acres	Cost
Urban Residential	$800,000			0.000	$0
Easement Residential	$240,000			0.000	$0
Urban Commercial	$2,306,992			0.000	$0
Easement Commercial	$175,000			0.000	$0
Suburban/Rural Residential	$50,000	7.00	40	33.939	$1,696,970
Easement rural Residential	$180,000			0.000	$0
Suburban/Rural Commercial	$800,000			0.000	$0
Easement rural Commercial	$240,000			0.000	$0
Displacements		Number	factor		
Residential	$250,000				$0
Commercial	$1,000,000				$0
Damages	$0				$0
				ROW multiplier	3
				Total Right-of-Way Cost	**$5,090,909**
					9%

Reimbursable Utility Costs

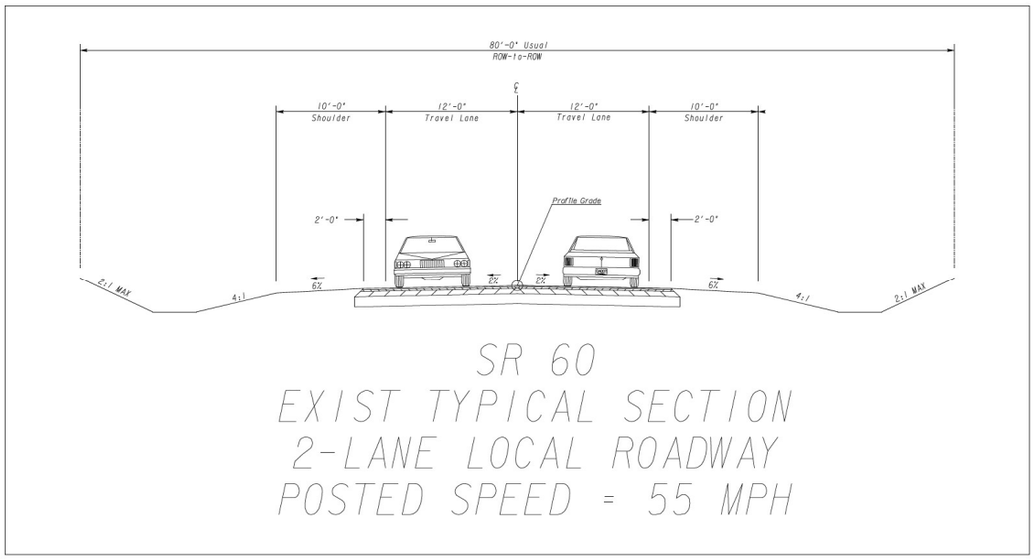
			0
	10%	$	3,805,289
		Total Reimbursable Utility Cost	**$3,805,289**
			7%

Preliminary Engineering Costs

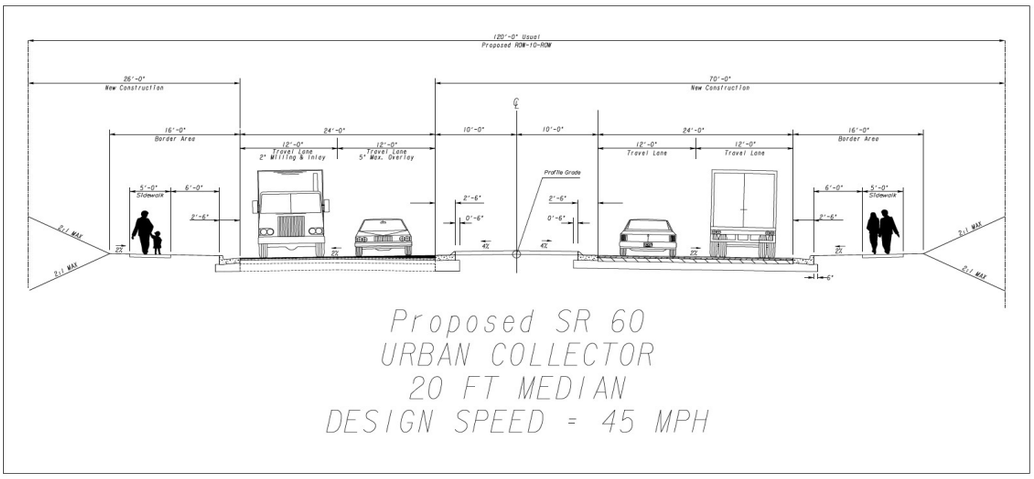
PE %	20%	**Total Preliminary Engineering Cost**	**$7,610,577**
			14%

Contingency Costs

Contingency %	35%	**Total Contingency Cost**	**$19,095,881**
		Total (PE+Util.+ROW+CST)	**$54,559,661**
		Grand Total	**$73,655,543**



SR 60
EXIST TYPICAL SECTION
2-LANE LOCAL ROADWAY
POSTED SPEED = 55 MPH



Proposed SR 60
URBAN COLLECTOR
20 FT MEDIAN
DESIGN SPEED = 45 MPH

Project Cost Estimation Spreadsheet - Improve SR 124: Widen SR 124 from SR 211 to SR 232

Project Identification				
Description	Improve SR 124: Widen SR 124 from SR 211 to SR 232			
From Limit	SR 211			
To Limit	SR 332			
Notes				
Mainline	6.92			
Side Street		miles	total	6.92

Cost Summary Incl. Contingency		per mile	Yr. of Exp.	Inflated Cost	Total Program Cost	
Preliminary Engineering	**$ 7,979,177**	$ 1,152,585	2023	**$ 7,979,177**	**$ 7,979,177**	
Reimbursable Utility	**$ 5,385,945**	$ 777,995	2023	**$ 5,385,945**	**$ 6,193,836**	
Right-of-Way	**$ 6,872,727**	$ 992,759	2023	**$ 6,872,727**	**$ 7,903,636**	
Construction	**$ 56,652,159**	$ 8,183,353	2023	**$ 56,652,159**	**$ 65,149,982**	
Total	**$ 76,890,008**	$ 11,106,692	**Total**	**$ 76,890,008**	**$ 87,226,632**	

Construction Costs

Average Per Lane-Mile Components	Unit Cost	Miles	Add Lanes	Lane-Miles	Cost
Surface Str. New Cst. base & pave	$680,000			0.00	$0
SR or High volume Rd widening	$830,000	7.00	2.00	14.00	$11,620,000
Surface Street Overlay	$192,000	7.00	1.00	7.00	$1,344,000
Concrete Widening	$1,252,745			0.00	$0
Cross Streets widening	$510,000			0.00	$0
				0.00	$0
			Factor		$0
Cross Street Overlay	$20,000			0.00	$0
Traffic Control	$700,000	7.00	0.90	6.30	$4,410,000
Typical Driveways	$75,000	7.00	0.50	3.50	$262,500
Typical E & S Control Temp&Perm	$450,000	7.00	0.25	1.75	$787,500
Typical Earthwork	$2,000,000	7.00	0.37	2.59	$5,180,000
Typical Drainage - Urban Section	$255,000	7.00	1.85	12.95	$3,302,250
Curb & Gutter both sides (mile)	$370,000			0.00	$0
Typical Drainage - Rural Section	$150,000			0.00	$0
Signing & Marking	$50,000	7.00	1.00	7.00	$350,000
Typical Clear & Grub-120 ft wide	$109,091	7.00	1.00	7.00	$763,636
Typical Guardrail Type W	$212,000	7.00	1.00	7.00	$1,484,000
20ft. Raised median +C&G (mile)	$1,308,267			0.00	$0
Median landscaping	$100,000			0.00	$0
Sidewalks 5 ft. ea.side (mile)	$352,000	7.00	2.00	14.00	$4,928,000
ADA Ramps	$1,500	7.00	1.00	7.00	$10,500
					$0
					$0
					$0
					$0
				Subtotal	**$34,442,386**

Additional Per Mile Components	Unit Cost	Length	factor	Cost
Add'l Major Earthwork (mile)	$350,000			$0
Add'l Major Drainage (mile)	$150,000			$0
Add'l Major Grade changes (mile)	$350,000			$0
Major alignment corrections (mile)	$750,000			$0
Maint of Traffic difficulty (mile)	$200,000			$0
Temporary Barrier	$50			$0
Concrete Island + C&G (SY)	$60			$0
Add'l guardrail Type T (mile)	$423,000			$0
Paved Shoulders, 4 ft, 2 sides(mile)	$100,000			$0
Rumble Strips (Shoulder & Edgeline)	$0			$0
Rumble Strips [EA] (RAB/Stop Cntrl)	$1,000			$0
Bikeway, 4 feet, both side (mile)	$553,333			$0
Add'l driveways (mile)	$75,000			$0
Cl. B Conc. Base or pvmt widening	$792,000			$0
Colored & Stamped Concrete + C&G	$100			$0
Special E&S control	$300,000			$0
				$0
			Subtotal	**$0**

Individual Components	Unit Cost	Length (ft)	Width (ft)	Ht (ft)	Cost
Retaining Walls - Gravity 0 - 5' (LF)	$60				$0
Retaining Walls-Gravity 5'-max (LF)	$120				$0
Retaining Walls-Special Design(SF)	$60				$0
Bridges - widen (SF)	$300				$0
Bridges - widen (SF)	$300				$0
Bridges - replace (SF)	$225	260	87		$5,089,500
Bridges - replace (SF)	$185				$0
Bridges - detour (SF)	$60				$0
Bridge Removal (SF)	$50	260	28		$364,000
Cofferdams (ea)	$20,000				$0
Box Culverts (SF)	$95				$0
Box Culverts (SF)	$95				$0
Large cross drains (LF)	$80				$0
Replace cross drains (LF)	$120				$0
Sediment/ detention ponds (ea)	$30,000				$0
Pavement patching (Sq yd)	$30				$0
Roundabout Lighting	$100,000				$0
Traffic Signalization / Upgrade (ea)	$125,000				$0
				Subtotal	**$5,453,500**
				Total Construction Cost	**$39,895,886**
					70%

Right-of-Way Costs

Area Type	Unit Cost (acre)	Miles	Width (ft)	Acres	Cost
Urban Residential	$800,000			0.000	$0
Easement Residential	$240,000			0.000	$0
Urban Commercial	$2,306,992			0.000	$0
Easement Commercial	$175,000			0.000	$0
Suburban/Rural Residential	$100,000	7.00	20	16.970	$1,696,970
Easement rural Residential	$180,000			0.000	$0
Suburban/Rural Commercial	$800,000			0.000	$0
Easement rural Commercial	$240,000			0.000	$0
Displacements		Number	factor		
Residential	$250,000				$0
Commercial	$1,000,000				$0
Damages	$0				$0
				ROW multiplier	3
				Total Right-of-Way Cost	**$5,090,909**
					9%

Reimbursable Utility Costs

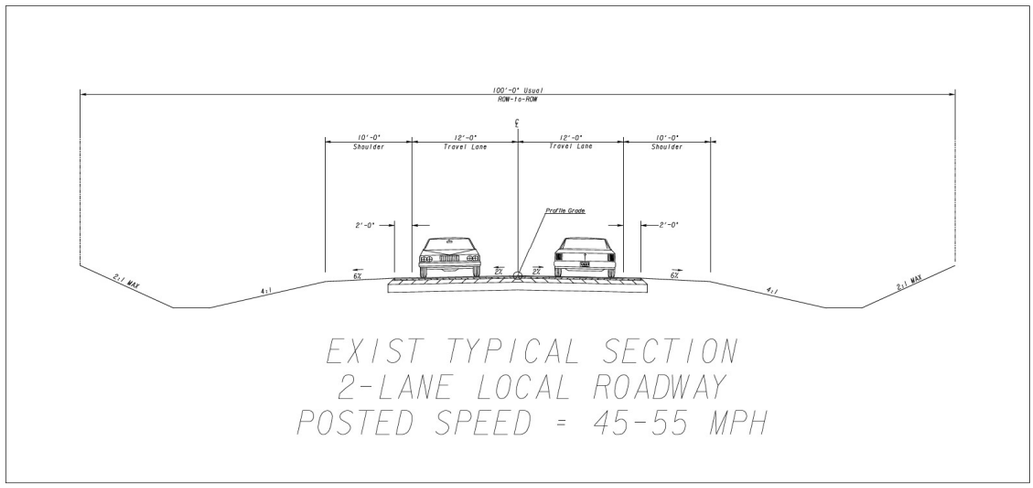
			0
	10%	$	3,989,589
		Total Reimbursable Utility Cost	**$3,989,589**
			7%

Preliminary Engineering Costs

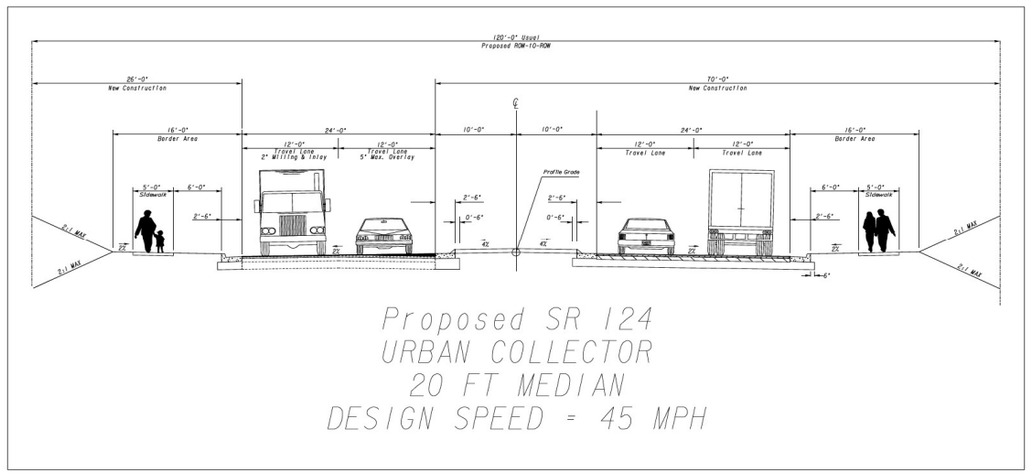
PE %	20%	**Total Preliminary Engineering Cost**	**$7,979,177**
			14%

Contingency Costs

Contingency %	35%	**Total Contingency Cost**	**$19,934,446**
		Total (PE+Util.+ROW+CST)	**$56,955,561**
		Grand Total	**$76,890,008**



EXIST TYPICAL SECTION
2-LANE LOCAL ROADWAY
POSTED SPEED = 45-55 MPH



Proposed SR 124
URBAN COLLECTOR
20 FT MEDIAN
DESIGN SPEED = 45 MPH

Project Cost Estimation Spreadsheet - Widen SR 211 from I-85 to West Winder Bypass (4-6 lanes)

Project Identification	
Description	Widen SR 211 from I-85 to West Winder Bypass (4-6 lanes)
From Limit	
To Limit	
Notes	
Mainline	7.14
Side Street	

miles total 7.14

Cost Summary Incl. Contingency		per mile	Yr. of Exp.	Inflated Cost	Total Program Cost	
Preliminary Engineering	**$ 10,612,136**	$ 1,485,994	2023	**$ 10,612,136**	**$ 10,612,136**	
Reimbursable Utility	**$ 7,163,192**	$ 1,003,046	2023	**$ 7,163,192**	**$ 8,237,671**	
Right-of-Way	**$ 9,762,397**	$ 1,367,007	2023	**$ 9,762,397**	**$ 11,226,756**	
Construction	**$ 75,346,168**	$ 10,550,560	2023	**$ 75,346,168**	**$ 86,648,093**	
Total	**$ 102,883,893**	$ 14,406,608	**Total**	**$ 102,883,893**	**$ 116,724,657**	

Construction Costs

Average Per Lane-Mile Components	Unit Cost	Miles	Add Lanes	Lane-Miles	Cost
Surface Str. New Cst. base & pave	$680,000			0.00	$0
SR or High volume Rd widening	$830,000	7.14	2.00	15.00	$12,450,000
Surface Street Overlay	$192,000	7.14	1.00	8.00	$1,536,000
Concrete Widening	$1,252,745			0.00	$0
Cross Streets widening	$510,000			0.00	$0
				0.00	$0
			Factor		$0
Cross Street Overlay	$20,000			0.00	$0
Traffic Control	$700,000	7.14	1.30	9.28	$6,498,708
Typical Driveways	$75,000	7.14	0.50	3.57	$267,804
Typical E & S Control Temp&Perm	$450,000	7.14	0.30	2.14	$964,094
Typical Earthwork	$2,000,000	7.14	0.55	3.93	$7,855,582
Typical Drainage - Urban Section	$255,000	7.14	2.85	20.35	$5,190,040
Curb & Gutter both sides (mile)	$370,000			0.00	$0
Typical Drainage - Rural Section	$150,000			0.00	$0
Signing & Marking	$50,000	7.14	1.00	7.14	$357,072
Typical Clear & Grub-120 ft wide	$109,091	7.14	1.00	7.14	$779,066
Typical Guardrail Type W	$212,000	7.14	1.00	7.14	$1,513,985
20ft. Raised median +C&G (mile)	$1,308,267	7.14	1.00	7.14	$9,342,905
Median landscaping	$100,000			0.00	$0
Sidewalks 5 ft. ea.side (mile)	$352,000	7.14	2.00	14.28	$5,027,572
ADA Ramps	$2,500	7.14	1.00	7.14	$17,854
					$0
					$0
					$0
					$0
				Subtotal	**$51,800,682**

Additional Per Mile Components	Unit Cost	Length	factor		Cost
Add'l Major Earthwork (mile)	$350,000				$0
Add'l Major Drainage (mile)	$150,000				$0
Add'l Major Grade changes (mile)	$350,000				$0
Major alignment corrections (mile)	$750,000				$0
Maint of Traffic difficulty (mile)	$200,000				$0
Temporary Barrier	$50				$0
Concrete Island + C&G (SY)	$60				$0
Add'l guardrail Type T (mile)	$423,000				$0
Paved Shoulders, 4 ft, 2 sides(mile)	$100,000				$0
Rumble Strips (Shoulder & Edgeline)	$0				$0
Rumble Strips [EA] (RAB/Stop Cntrl)	$1,000				$0
Bikeway, 4 feet, both side (mile)	$553,333				$0
Add'l driveways (mile)	$75,000				$0
Cl. B Conc. Base or pvmt widening	$792,000				$0
Colored & Stamped Concrete + C&G	$100				$0
Special E&S control	$300,000				$0
					$0
				Subtotal	**$0**

Individual Components	Unit Cost	Length (ft)	Width (ft)	Ht (ft)	Cost
Retaining Walls - Gravity 0 - 5' (LF)	$60				$0
Retaining Walls-Gravity 5'-max (LF)	$120				$0
Retaining Walls-Special Design(SF)	$60				$0
Bridges - widen (SF)	$300				$0
Bridges - widen (SF)	$300				$0
Bridges - replace (SF)	$225	224	25		$1,260,000
Bridges - replace (SF)	$185				$0
Bridges - detour (SF)	$60				$0
Bridge Removal (SF)	$50				$0
Cofferdams (ea)	$20,000				$0
Box Culverts (SF)	$95				$0
Box Culverts (SF)	$95				$0
Large cross drains (LF)	$80				$0
Replace cross drains (LF)	$120				$0
Sediment/ detention ponds (ea)	$30,000				$0
Pavement patching (Sq yd)	$30				$0
Roundabout Lighting	$100,000				$0
Traffic Signalization / Upgrade (ea)	$125,000				$0
				Subtotal	**$1,260,000**
				Total Construction Cost	**$53,060,682**
					70%

Right-of-Way Costs

Area Type	Unit Cost (acre)	Miles	Width (ft)	Acres	Cost
Urban Residential	$800,000			0.000	$0
Easement Residential	$240,000			0.000	$0
Urban Commercial	$1,200,000			0.000	$0
Easement Commercial	$360,000			0.000	$0
Suburban/Rural Residential	$50,000	6.63	60	48.209	$2,410,468
Easement rural Residential	$180,000			0.000	$0
Suburban/Rural Commercial	$800,000			0.000	$0
Easement rural Commercial	$240,000			0.000	$0
Displacements		Number	factor		
Residential	$250,000				$0
Commercial	$1,000,000				$0
Damages	$0				$0
				ROW multiplier	3
				Total Right-of-Way Cost	**$7,231,405**
					9%

Reimbursable Utility Costs

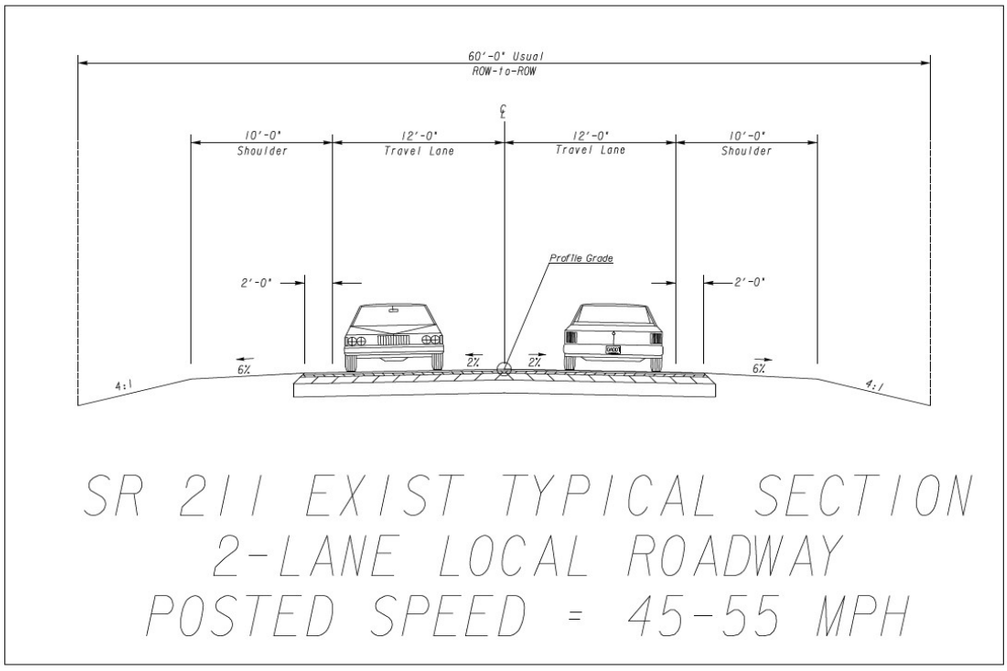
			0
	10%	$	5,306,068
		Total Reimbursable Utility Cost	**$5,306,068**
			7%

Preliminary Engineering Costs

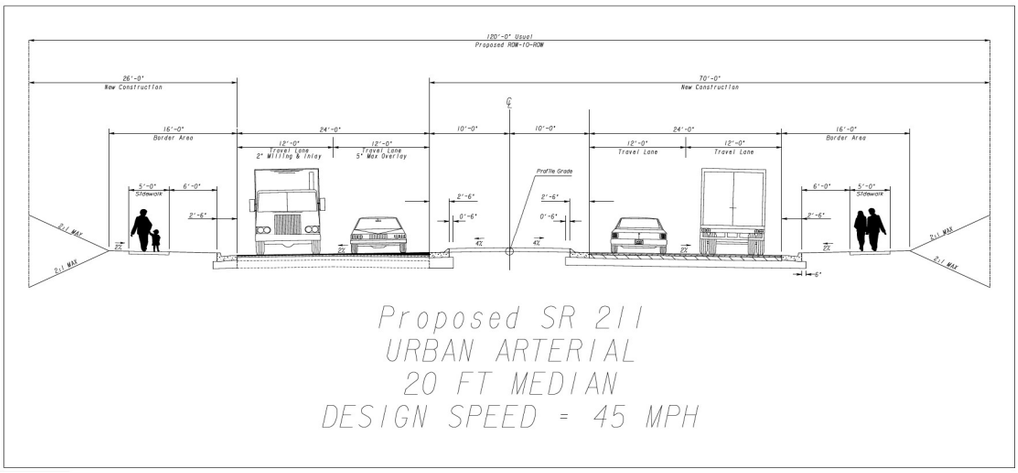
PE %	20%	**Total Preliminary Engineering Cost**	**$10,612,136**
			14%

Contingency Costs

Contingency %	35%	**Total Contingency Cost**	**$26,673,602**
		Total (PE+Util.+ROW+CST)	**$76,210,291**
		Grand Total	**$102,883,893**



SR 211 EXIST TYPICAL SECTION
2-LANE LOCAL ROADWAY
POSTED SPEED = 45-55 MPH



Proposed SR 211
URBAN ARTERIAL
20 FT MEDIAN
DESIGN SPEED = 45 MPH

GDOT Georgia Department of Transportation

Bridge #157-5082-0(Routine)
SR 53 over I-85 (SR 403) (157-00053D-003.13E)
County: Jackson, **District:** 1, **Inspection Area:** 7
Team Lead: Joshua Cofer, **Inspection Date:** 10/19/2022

IDENTIFICATION	
(1) State Names	13-Georgia
(8) Structure Number	157-5082-0
(5) Inventory Route	00053
(2) Highway Agency District	1
(3) County Code	Jackson
(4) Place Code	0
(6) Features Intersected	I-85 (SR 403)
(7) Facility Carried	SR 53
(9) Location	0.7 MI N OF BRASELTON
(11) Mile Point	3.13 mi
(12) Base Highway Network	Yes
(13) LRS Inventory Rte & Subrte	1571005300
(16) Latitude	34.11751
(17) Longitude	-83.76226
(98) Border Bridge State Code	
(99) Border Bridge Structure No.	
STRUCTURE TYPE AND MATERIAL	
(43) Main Structure Type	42
Material	4-Steel continuous
Type	2-Stringer/Multi-beam or girder
(44) Approach Structure Type	0
Material	0-Other
Type	0-Other
(45) No. of Spans in Main Unit	2
(46) No. of Approach Spans	0
(107) Deck Structure Type	1-Concrete Cast-in-Place
(108) Wearing Surface/Protective System	
Type of Wearing Surface	5-Epoxy Overlay
Type of Membrane	0-None
Type of Deck Protection	0-None
AGE AND SERVICE	
(27) Year Built	2002
(106) Year Reconstructed	0
(42) Type of Service	11
On	1-Highway
Under	1-Highway, with or without pedestrian
(28) Lane	
On	3
Under	6
(29) Average Daily Traffic	10540
(30) Year of ADT	2011
(109) Truck ADT	1 %
(19) Bypass, Detour Length	14 mi
GEOMETRIC DATA	
(48) Length of Maximum Span	112 ft
(49) Structure Length	224 ft
(50) Curb or Sidewalk Width	
Left	0 ft
Right	0 ft
(51) Bridge Roadway Width Curb to Curb	69 ft
(52) Deck Width Out to Out	72.5 ft
(32) Approach Roadway Width (W/Shoulders)	24 ft
(33) Bridge Median	0-No median
(34) Skew	20 Deg
(35) Structure Flared	0-No flare
(10) Inventory Route Min Vert Clear	99.99 ft
(47) Inventory Route Total Horiz Clear	69 ft
(53) Min Vert Clear Over Bridge Rdwy	99.99 ft
(54) Min Vert Underclear	18 ft
Ref:	
(55) Min Lat Underclear RT	51.3 ft
Ref:	
(56) Min Lat Underclear LT	53.4 ft
NAVIGATION DATA	
(38) Navigation Control	N-Not applicable, no waterway.
(111) Pier Protection	0-Not Applicable (P)
(39) Navigation Vertical Clearance	0 ft
(116) Vert-Lift Bridge Nav Min Vert Clear	0 ft
(40) Navigation Horizontal Clearance	0 ft

CLASSIFICATION	
(112) NBIS Bridge Length	Y
(104) Highway System	1
(26) Functional Class	6-Rural Minor Arterial
(100) Defense Highway	1-The inventory route is on a
(101) Parallel Structure	N-No parallel structure exists
(102) Direction of Traffic	2-2 - way traffic
(103) Temporary Structure	
(105) Federal Lands Highways	0-N/A
(110) Designated National Network	0-The inventory route is not part o
(20) Toll	3-On free road. The structure is tol
(21) Maintain	1-State Highway Agency
(22) Owner	1-State Highway Agency
(37) Historical Significance	5-Bridge is not eligible for the NR
CONDITION	
(58) Deck	7
(59) Superstructure	7
(60) Substructure	7
(61) Channel & Channel Protection	N
(62) Culverts	N
LOAD RATING AND POSTING	
(31) Design Load	6-MS 18+Mod / HS 20+Mod
(63) Operating Rating Method	2
(64) Operating Rating	
Type	2-Allowable Stress(AS)
Rating	72
(65) Inventory Rating Method	2-Allowable Stress(AS)
(66) Inventory Rating	
Type	2
Rating	36
(70) Bridge Posting	5-Equal to or above legal loads
(41) Structure Open/Posted/Closed	A-Open, no restriction
APPRAISAL	
(67) Structural Evaluation	7
(68) Deck Geometry	9
(69) Clearances, Vertical/Horizontal	9
(71) Waterway Adequacy	N
(72) Approach Roadway Alignment	6
(36) Traffic Safety Features	1111
A) Bridge Railings	1-Inspected feature meets currently
B) Transitions	1-Inspected feature meets currently
C) Approach Guardrail	1-Inspected feature meets currently
D) Approach Guardrail Ends	1-Inspected feature meets currently
(113) Scour Critical Bridges	N-Bridge not over waterway.
PROPOSED IMPROVEMENTS	
(75) Type of Work	
(76) Length of Structure Improvement	0 ft
(94) Bridge Improvement Cost	$ 1114
(95) Roadway Improvement Cost	$ 111
(96) Total Project Cost	$ 1671
(97) Year of Improvement Cost Estimate	2013
(114) Future ADT	15810
(115) Year of Future ADT	2031

INSPECTIONS			
(90) Inspection Date			10/2020
(91) Frequency			24 Months
(92) Critical Feature Inspection	Done	Freq. (Mon)	Date
A: Fracture Critical Detail	No		
B: Underwater Inspection	Yes	0	/
C: Other Special Inspection	Yes	0	/

Project Cost Estimation Spreadsheet - Improve SR 124: Widening SR 124 from SR 211 to Spout Springs Road

Project Identification				
Description	Improve SR 124: Widening SR 124 from SR 211 to			
From Limit	SR 211			
To Limit	Spout Springs Rd			
Notes				
Mainline	5.01			
Side Street				
		miles	total	5.01

Cost Summary Incl. Contingency		per mile	Yr. of Exp.	Inflated Cost	Total Program Cost	
Preliminary Engineering	**$ 7,363,009**	$ 1,469,192	2023	**$ 7,363,009**	**$ 7,363,009**	
Reimbursable Utility	**$ 4,970,031**	$ 991,705	2023	**$ 4,970,031**	**$ 5,715,536**	
Right-of-Way	**$ 11,781,818**	$ 2,350,908	2023	**$ 11,781,818**	**$ 13,549,091**	
Construction	**$ 52,277,365**	$ 10,431,266	2023	**$ 52,277,365**	**$ 60,118,969**	
Total	**$ 76,392,223**	$ 15,243,071	**Total**	**$ 76,392,223**	**$ 86,746,605**	

Construction Costs

Average Per Lane-Mile Components	Unit Cost	Miles	Add Lanes	Lane-Miles	Cost
Surface Str. New Cst. base & pave	$680,000			0.00	$0
SR or High volume Rd widening	$830,000	6.00	2.00	12.00	$9,960,000
Surface Street Overlay	$192,000	6.00	1.00	6.00	$1,152,000
Concrete Widening	$1,252,745			0.00	$0
Cross Streets widening	$510,000			0.00	$0
				0.00	$0
			Factor		$0
Cross Street Overlay	$20,000			0.00	$0
Traffic Control	$700,000	6.00	1.10	6.60	$4,620,000
Typical Driveways	$75,000	6.00	0.50	3.00	$225,000
Typical E & S Control Temp&Perm	$450,000	6.00	0.30	1.80	$810,000
Typical Earthwork	$2,000,000	6.00	0.45	2.70	$5,400,000
Typical Drainage - Urban Section	$255,000	6.00	2.45	14.70	$3,748,500
Curb & Gutter both sides (mile)	$370,000	6.00	2.00	12.00	$4,440,000
Typical Drainage - Rural Section	$150,000			0.00	$0
Signing & Marking	$50,000	6.00	1.00	6.00	$300,000
Typical Clear & Grub-120 ft wide	$109,091	6.00	1.00	6.00	$654,545
Typical Guardrail Type W	$212,000	6.00	1.00	6.00	$1,272,000
20ft. Raised median +C&G (mile)	$1,308,267			0.00	$0
Median landscaping	$100,000			0.00	$0
Sidewalks 5 ft. ea.side (mile)	$352,000	6.00	2.00	12.00	$4,224,000
ADA Ramps	$1,500	6.00	1.00	6.00	$9,000
				Subtotal	**$36,815,045**

Additional Per Mile Components	Unit Cost	Length	factor	Cost
Add'l Major Earthwork (mile)	$350,000			$0
Add'l Major Drainage (mile)	$150,000			$0
Add'l Major Grade changes (mile)	$350,000			$0
Major alignment corrections (mile)	$750,000			$0
Maint of Traffic difficulty (mile)	$200,000			$0
Temporary Barrier	$50			$0
Concrete Island + C&G (SY)	$60			$0
Add'l guardrail Type T (mile)	$423,000			$0
Paved Shoulders, 4 ft, 2 sides(mile)	$100,000			$0
Rumble Strips (Shoulder & Edgeline)	$0			$0
Rumble Strips [EA] (RAB/Stop Cntrl)	$1,000			$0
Bikeway, 4 feet, both side (mile)	$553,333			$0
Add'l driveways (mile)	$75,000			$0
Cl. B Conc. Base or pvmt widening	$792,000			$0
Colored & Stamped Concrete + C&G	$100			$0
Special E&S control	$300,000			$0
				$0
			Subtotal	**$0**

Individual Components	Unit Cost	Length (ft)	Width (ft)	Ht (ft)	Cost
Retaining Walls - Gravity 0 - 5' (LF)	$60				$0
Retaining Walls-Gravity 5'-max (LF)	$120				$0
Retaining Walls-Special Design(SF)	$60				$0
Bridges - widen (SF)	$300				$0
Bridges - widen (SF)	$300				$0
Bridges - replace (SF)	$225				$0
Bridges - replace (SF)	$185				$0
Bridges - detour (SF)	$60				$0
Bridge Removal (SF)	$50				$0
Cofferdams (ea)	$20,000				$0
Box Culverts (SF)	$95				$0
Box Culverts (SF)	$95				$0
Large cross drains (LF)	$80				$0
Replace cross drains (LF)	$120				$0
Sediment/ detention ponds (ea)	$30,000				$0
Pavement patching (Sq yd)	$30				$0
Roundabout Lighting	$100,000				$0
Traffic Signalization / Upgrade (ea)	$125,000				$0
				Subtotal	**$0**
				Total Construction Cost	**$36,815,045**
					65%

Right-of-Way Costs

Area Type	Unit Cost (acre)	Miles	Width (ft)	Acres	Cost
Urban Residential	$800,000			0.000	$0
Easement Residential	$240,000			0.000	$0
Urban Commercial	$2,306,992			0.000	$0
Easement Commercial	$175,000			0.000	$0
Suburban/Rural Residential	$100,000	6.00	40	29.091	$2,909,091
Easement rural Residential	$180,000			0.000	$0
Suburban/Rural Commercial	$800,000			0.000	$0
Easement rural Commercial	$240,000			0.000	$0
Displacements		Number	factor		
Residential	$250,000				$0
Commercial	$1,000,000				$0
Damages	$0				$0
				ROW multiplier	3
				Total Right-of-Way Cost	**$8,727,273**
					15%

Reimbursable Utility Costs

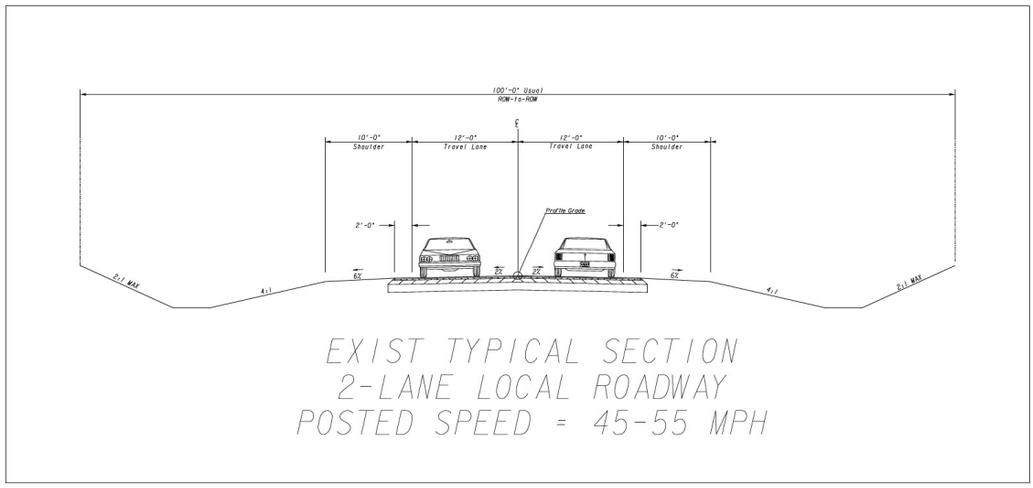
			0
	10%	$	3,681,505
		Total Reimbursable Utility Cost	**$3,681,505**
			7%

Preliminary Engineering Costs

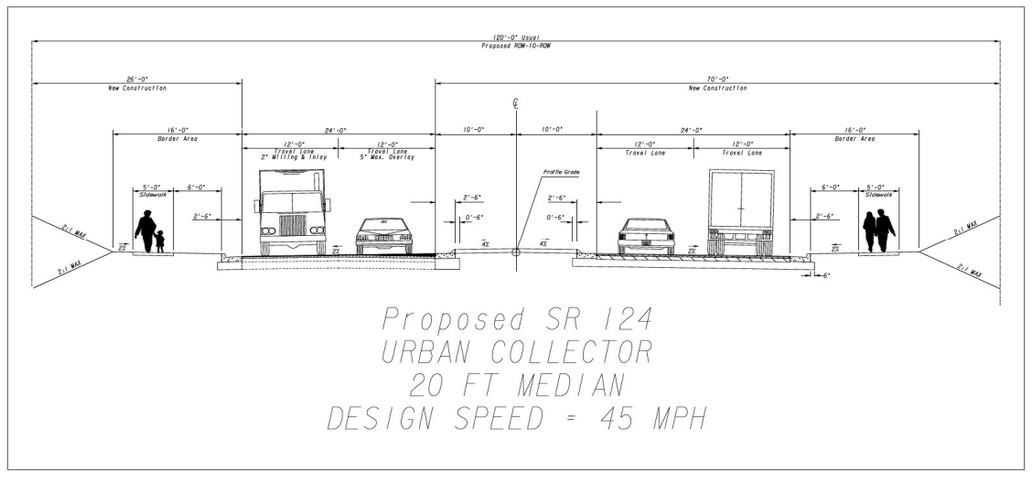
PE %	20%	**Total Preliminary Engineering Cost**	**$7,363,009**
			13%

Contingency Costs

Contingency %	35%	**Total Contingency Cost**	**$19,805,391**
		Total (PE+Util.+ROW+CST)	**$56,586,832**
		Grand Total	**$76,392,223**



EXIST TYPICAL SECTION
2-LANE LOCAL ROADWAY
POSTED SPEED = 45-55 MPH



Proposed SR 124
URBAN COLLECTOR
20 FT MEDIAN
DESIGN SPEED = 45 MPH

Project Cost Estimation Spreadsheet - Add a dedicated right turn lane on Jackson Trail Road at SR 53

Project Identification					
Description	Add a dedicated right turn lane on Jackson Trail Road				
From Limit					
To Limit					
Notes					
SR 53 Widening	0.15				
		miles	total	0.15	

Cost Summary Incl. Contingency		per mile	Yr. of Exp.	Inflated Cost	Total Program Cost	
Preliminary Engineering	**$ 54,909**	$ 362,400	2023	**$ 54,909**	**$ 54,909**	
Reimbursable Utility	**$ 37,064**	$ 244,620	2023	**$ 37,064**	**$ 42,623**	
Right-of-Way	**$ -**	$ -	2023	**$ -**	**$ -**	
Construction	**$ 389,855**	$ 2,573,040	2023	**$ 389,855**	**$ 448,333**	
Total	**$ 481,827**	$ 3,180,060	**Total**	**$ 481,827**	**$ 545,865**	

Construction Costs

Average Per Lane-Mile Components	Unit Cost	Miles	Add Lanes	Lane-Miles	Cost
Surface Str. New Cst. base & pave	$680,000			0.00	$0
SR or High volume Rd widening	$830,000	0.15	1.00	0.15	$125,758
Surface Street Overlay	$192,000	0.15	1.00	0.15	$29,091
Concrete Widening	$1,252,745			0.00	$0
Cross Streets widening	$510,000			0.00	$0
			Factor		
Cross Street Overlay	$20,000			0.00	$0
Traffic Control	$150,000	0.15	1.60	0.24	$36,364
Typical Driveways	$75,000			0.00	$0
Typical E & S Control Temp&Perm	$150,000	0.15	0.30	0.05	$6,818
Typical Earthwork	$500,000	0.15	0.55	0.08	$41,667
Typical Drainage - Urban Section	$255,000			0.00	$0
Curb & Gutter both sides (mile)	$370,000			0.00	$0
Typical Drainage - Rural Section	$150,000	0.15	1.20	0.18	$27,273
Signing & Marking	$50,000	0.15	1.00	0.15	$7,576
Typical Clear & Grub-120 ft wide	$109,091			0.00	$0
Typical Guardrail Type W	$212,000			0.00	$0
20ft. Raised median +C&G (mile)	$1,308,267			0.00	$0
Median landscaping	$100,000			0.00	$0
Sidewalks 5 ft. ea.side (mile)	$352,000			0.00	$0
ADA Ramps	$1,500			0.00	$0
				Subtotal	**$274,545**

Additional Per Mile Components	Unit Cost	Length	Factor	Cost
Add'l Major Earthwork (mile)	$350,000			$0
Add'l Major Drainage (mile)	$150,000			$0
Add'l Major Grade changes (mile)	$350,000			$0
Major alignment corrections (mile)	$750,000			$0
Maint of Traffic difficulty (mile)	$200,000			$0
Temporary Barrier	$50			$0
Concrete Island + C&G (SY)	$60			$0
Add'l guardrail Type T (mile)	$423,000			$0
Paved Shoulders, 4 ft, 2 sides(mile)	$100,000			$0
Rumble Strips (Shoulder & Edgeline)	$0			$0
Rumble Strips [EA] (RAB/Stop Cntrl)	$1,000			$0
Bikeway, 4 feet, both side (mile)	$553,333			$0
Add'l driveways (mile)	$75,000			$0
Cl. B Conc. Base or pvmt widening	$792,000			$0
Colored & Stamped Concrete + C&G	$100			$0
Special E&S control	$300,000			$0
			Subtotal	**$0**

Individual Components	Unit Cost	Length (ft)	Width (ft)	Ht (ft)	Cost
Retaining Walls - Gravity 0 - 5' (LF)	$60				$0
Retaining Walls-Gravity 5'-max (LF)	$120				$0
Retaining Walls-Special Design(SF)	$60				$0
Bridges - widen (SF)	$150				$0
Bridges - widen (SF)	$150				$0
Bridges - replace (SF)	$225				$0
Bridges - replace (SF)	$185				$0
Bridges - detour (SF)	$60				$0
Bridge Removal (SF)	$50				$0
Cofferdams (ea)	$20,000				$0
Box Culverts (SF)	$95				$0
Box Culverts (SF)	$95				$0
Large cross drains (LF)	$80				$0
Replace cross drains (LF)	$120				$0
Sediment/ detention ponds (ea)	$30,000				$0
Pavement patching (Sq yd)	$30				$0
Roundabout Lighting	$100,000				$0
Traffic Signalization / Upgrade (ea)	$125,000				$0
				Subtotal	**$0**
				Total Construction Cost	**$274,545**
					77%

Right-of-Way Costs

Area Type	Unit Cost (acre)	Miles	Width (ft)	Acres	Cost
Urban Residential	$800,000			0.000	$0
Easement Residential	$240,000			0.000	$0
Urban Commercial	$2,306,992			0.000	$0
Easement Commercial	$175,000			0.000	$0
Suburban/Rural Residential	$50,000			0.000	$0
Easement rural Residential	$180,000			0.000	$0
Suburban/Rural Commercial	$800,000			0.000	$0
Easement rural Commercial	$240,000			0.000	$0
Displacements		Number	Factor		
Residential	$250,000				$0
Commercial	$1,000,000				$0
Damages	$0				$0
				ROW multiplier	5
				Total Right-of-Way Cost	**$0**
					0%

Reimbursable Utility Costs

			0
	10%		$ 27,455
		Total Reimbursable Utility Cost	**$27,455**
			8%

Preliminary Engineering Costs

PE %	20%	**Total Preliminary Engineering Cost**	**$54,909**
			15%

Contingency Costs

Contingency %	35%	**Total Contingency Cost**	**$124,918**
		Total (PE+Util.+ROW+CST)	**$356,909**
		Grand Total	**$481,827**

Project Cost Estimation Spreadsheet - Close SR 53 at Zion Church Road

Project Identification				
Description	Close SR 53 at Zion Church Road			
From Limit				
To Limit				
Notes	Construct 60ft radius cul-de-sac			
Resurfacing	0.09			
Reconstruction (Cul-de-Sac)	0.04			
		miles	total	0.13

Cost Summary Incl. Contingency		per mile	Yr. of Exp.	Inflated Cost	Total Program Cost	
Preliminary Engineering	**$ 26,314**	$ 198,485	2023	**$ 26,314**	**$ 26,314**	
Reimbursable Utility	**$ 17,762**	$ 133,977	2023	**$ 17,762**	**$ 20,426**	
Right-of-Way	**$ -**	$ -	2023	**$ -**	**$ -**	
Construction	**$ 186,832**	$ 1,409,245	2023	**$ 186,832**	**$ 214,856**	
Total	**$ 230,908**	$ 1,741,707	**Total**	**$ 230,908**	**$ 261,597**	

Construction Costs

Average Per Lane-Mile Components	Unit Cost	Miles	Add Lanes	Lane-Miles	Cost
Surface Str. New Cst. base & pave	$680,000			0.00	$0
SR or High volume Rd widening	$830,000	0.04	2.00	0.08	$62,879
Surface Street Overlay	$192,000	0.09	2.00	0.19	$36,364
Concrete Widening	$1,252,745			0.00	$0
Cross Streets widening	$510,000			0.00	$0
			Factor		
Cross Street Overlay	$20,000			0.00	$0
Traffic Control	$150,000			0.00	$0
Typical Driveways	$75,000			0.00	$0
Typical E & S Control Temp&Perm	$150,000	0.13	0.10	0.01	$1,989
Typical Earthwork	$500,000	0.13	0.18	0.02	$11,932
Typical Drainage - Urban Section	$255,000	0.13	0.30	0.04	$10,142
Curb & Gutter both sides (mile)	$370,000			0.00	$0
Typical Drainage - Rural Section	$150,000			0.00	$0
Signing & Marking	$50,000			0.00	$0
Typical Clear & Grub-120 ft wide	$109,091			0.00	$0
Typical Guardrail Type W	$212,000			0.00	$0
20ft. Raised median +C&G (mile)	$1,308,267			0.00	$0
Median landscaping	$100,000			0.00	$0
Sidewalks 5 ft. ea.side (mile)	$352,000			0.00	$0
ADA Ramps	$1,500			0.00	$0
				Subtotal	**$123,305**

Additional Per Mile Components	Unit Cost	Length	Factor	Cost
Add'l Major Earthwork (mile)	$350,000			$0
Add'l Major Drainage (mile)	$150,000			$0
Add'l Major Grade changes (mile)	$350,000			$0
Major alignment corrections (mile)	$750,000			$0
Maint of Traffic difficulty (mile)	$200,000			$0
Temporary Barrier	$50			$0
Concrete Island + C&G (SY)	$60			$0
Add'l guardrail Type T (mile)	$423,000			$0
Paved Shoulders, 4 ft, 2 sides(mile)	$100,000			$0
Rumble Strips (Shoulder & Edgeline)	$0			$0
Rumble Strips [EA] (RAB/Stop Cntrl)	$1,000			$0
Bikeway, 4 feet, both side (mile)	$553,333			$0
Add'l driveways (mile)	$75,000			$0
Cl. B Conc. Base or pvmt widening	$792,000			$0
Colored & Stamped Concrete + C&G	$100			$0
Special E&S control	$300,000			$0
			Subtotal	**$0**

Individual Components	Unit Cost	Length (ft)	Width (ft)	Ht (ft)	Cost
Retaining Walls - Gravity 0 - 5' (LF)	$60				$0
Retaining Walls-Gravity 5'-max (LF)	$120				$0
Retaining Walls-Special Design(SF)	$60				$0
Bridges - widen (SF)	$150				$0
Bridges - widen (SF)	$150				$0
Bridges - replace (SF)	$225				$0
Bridges - replace (SF)	$185				$0
Bridges - detour (SF)	$60				$0
Bridge Removal (SF)	$50				$0
Cofferdams (ea)	$20,000				$0
Box Culverts (SF)	$95				$0
Box Culverts (SF)	$95				$0
Large cross drains (LF)	$80				$0
Replace cross drains (LF)	$120				$0
Sediment/ detention ponds (ea)	$30,000				$0
Pavement Removal (Sq yd)	$20				$0
Pavement patching (Sq yd)	$30	275.56	1		$8,267
Roundabout Lighting	$100,000				$0
Traffic Signalization / Upgrade (ea)	$125,000				$0
				Subtotal	**$8,267**
				Total Construction Cost	**$131,572**
					77%

Right-of-Way Costs

Area Type	Unit Cost (acre)	Miles	Width (ft)	Acres	Cost
Urban Residential	$800,000			0.000	$0
Easement Residential	$240,000			0.000	$0
Urban Commercial	$2,306,992			0.000	$0
Easement Commercial	$175,000			0.000	$0
Suburban/Rural Residential	$50,000			0.000	$0
Easement rural Residential	$180,000			0.000	$0
Suburban/Rural Commercial	$800,000			0.000	$0
Easement rural Commercial	$240,000			0.000	$0
Displacements		Number	Factor		
Residential	$250,000				$0
Commercial	$1,000,000				$0
Damages	$0				$0
				ROW multiplier	5
				Total Right-of-Way Cost	**$0**
					0%

Reimbursable Utility Costs

			0
	10%		$ 13,157
		Total Reimbursable Utility Cost	**$13,157**
			8%

Preliminary Engineering Costs

PE %	20%	**Total Preliminary Engineering Cost**	**$26,314**
			15%

Contingency Costs

Contingency %	35%	**Total Contingency Cost**	**$59,865**
		Total (PE+Util.+ROW+CST)	**$171,043**
		Grand Total	**$230,908**

Project Cost Estimation Spreadsheet - Modify and upgrade the SR 53 at New Cut Road roundabout to multilane

Project Identification			
Description	Modify and upgrade the SR 53 at New Cut Road		
From Limit			
To Limit			
Notes			
SR 53 Widening	0.45	1600' on SR 53, 800' on New Cut Rd	
		miles total	0.45

Cost Summary Incl. Contingency		per mile	Yr. of Exp.	Inflated Cost	Total Program Cost	
Preliminary Engineering	**$ 372,394**	$ 819,267	2023	**$ 372,394**	**$ 372,394**	
Reimbursable Utility	**$ 251,366**	$ 553,005	2023	**$ 251,366**	**$ 289,071**	
Right-of-Way	**$ 1,785,124**	$ 3,927,273	2023	**$ 1,785,124**	**$ 2,052,893**	
Construction	**$ 2,643,997**	$ 5,816,793	2023	**$ 2,643,997**	**$ 3,040,597**	
Total	**$ 5,052,881**	$ 11,116,338	**Total**	**$ 5,052,881**	**$ 5,754,954**	

Construction Costs

Average Per Lane-Mile Components	Unit Cost	Miles	Add Lanes	Lane-Miles	Cost
Surface Str. New Cst. base & pave	$680,000	0.15	2.50	0.38	$257,576
SR or High volume Rd widening	$830,000	0.30	2.00	0.61	$503,030
Surface Street Overlay	$192,000			0.00	$0
Concrete Widening	$1,252,745			0.00	$0
Cross Streets widening	$510,000			0.00	$0
			Factor		
Cross Street Overlay	$20,000			0.00	$0
Traffic Control	$150,000	0.45	3.50	1.59	$238,636
Typical Driveways	$75,000			0.00	$0
Typical E & S Control Temp&Perm	$150,000	0.45	0.50	0.23	$34,091
Typical Earthwork	$500,000	0.45	1.25	0.57	$284,091
Typical Drainage - Urban Section	$255,000	0.45	1.60	0.73	$185,455
Curb & Gutter both sides (mile)	$370,000	0.45	2.00	0.91	$336,364
Typical Drainage - Rural Section	$150,000			0.00	$0
Signing & Marking	$50,000	0.45	1.00	0.45	$22,727
Typical Clear & Grub-120 ft wide	$109,091			0.00	$0
Typical Guardrail Type W	$212,000			0.00	$0
20ft. Raised median +C&G (mile)	$1,308,267			0.00	$0
Median landscaping	$100,000			0.00	$0
Sidewalks 5 ft. ea.side (mile)	$352,000			0.00	$0
ADA Ramps	$1,500			0.00	$0
				Subtotal	**$1,861,970**

Additional Per Mile Components	Unit Cost	Length	Factor	Cost
Add'l Major Earthwork (mile)	$350,000			$0
Add'l Major Drainage (mile)	$150,000			$0
Add'l Major Grade changes (mile)	$350,000			$0
Major alignment corrections (mile)	$750,000			$0
Maint of Traffic difficulty (mile)	$200,000			$0
Temporary Barrier	$50			$0
Concrete Island + C&G (SY)	$60			$0
Add'l guardrail Type T (mile)	$423,000			$0
Paved Shoulders, 4 ft, 2 sides(mile)	$100,000			$0
Rumble Strips (Shoulder & Edgeline)	$0			$0
Rumble Strips [EA] (RAB/Stop Cntrl)	$1,000			$0
Bikeway, 4 feet, both side (mile)	$553,333			$0
Add'l driveways (mile)	$75,000			$0
Cl. B Conc. Base or pvmt widening	$792,000			$0
Colored & Stamped Concrete + C&G	$100			$0
Special E&S control	$300,000			$0
			Subtotal	**$0**

Individual Components	Unit Cost	Length (ft)	Width (ft)	Ht (ft)	Cost
Retaining Walls - Gravity 0 - 5' (LF)	$60				$0
Retaining Walls-Gravity 5'-max (LF)	$120				$0
Retaining Walls-Special Design(SF)	$60				$0
Bridges - widen (SF)	$150				$0
Bridges - widen (SF)	$150				$0
Bridges - replace (SF)	$225				$0
Bridges - replace (SF)	$185				$0
Bridges - detour (SF)	$60				$0
Bridge Removal (SF)	$50				$0
Cofferdams (ea)	$20,000				$0
Box Culverts (SF)	$95				$0
Box Culverts (SF)	$95				$0
Large cross drains (LF)	$80				$0
Replace cross drains (LF)	$120				$0
Sediment/ detention ponds (ea)	$30,000				$0
Pavement patching (Sq yd)	$30				$0
Roundabout Lighting	$100,000				$0
Traffic Signalization / Upgrade (ea)	$125,000				$0
				Subtotal	**$0**
				Total Construction Cost	**$1,861,970**
					50%

Right-of-Way Costs

Area Type	Unit Cost (acre)	Miles	Width (ft)	Acres	Cost
Urban Residential	$800,000			0.000	$0
Easement Residential	$240,000			0.000	$0
Urban Commercial	$1,200,000	0.45	20	1.102	$1,322,314
Easement Commercial	$175,000			0.000	$0
Suburban/Rural Residential	$500,000			0.000	$0
Easement rural Residential	$180,000			0.000	$0
Suburban/Rural Commercial	$800,000			0.000	$0
Easement rural Commercial	$240,000			0.000	$0
Displacements		Number	Factor		
Residential	$250,000				$0
Commercial	$1,000,000				$0
Damages	$0				$0
				ROW multiplier	1
				Total Right-of-Way Cost	**$1,322,314**
					35%

Reimbursable Utility Costs

			0
	10%	$	186,197
		Total Reimbursable Utility Cost	**$186,197**
			5%

Preliminary Engineering Costs

PE %	20%	**Total Preliminary Engineering Cost**	**$372,394**
			10%

Contingency Costs

Contingency %	35%	**Total Contingency Cost**	**$1,310,006**
		Total (PE+Util.+ROW+CST)	**$3,742,875**
		Grand Total	**$5,052,881**

Project Cost Estimation Spreadsheet - Retime/improve Signal Phasing at SR 53 at Davis Street

Project Identification				
Description	Retime/improve Signal Phasing at SR 53 at Davis			
From Limit				
To Limit				
Notes				
		miles	total	0.00

Cost Summary Incl. Contingency		per mile	Yr. of Exp.	Inflated Cost	Total Program Cost	
Preliminary Engineering	**$ 30,100**	$ -	2023	**$ 30,100**	**$ 30,100**	
Reimbursable Utility	**$ 20,318**	$ -	2023	**$ 20,318**	**$ 23,365**	
Right-of-Way	**$ -**	$ -	2023	**$ -**	**$ -**	
Construction	**$ 213,710**	$ -	2023	**$ 213,710**	**$ 245,767**	
Total	**$ 264,128**	$ -	**Total**	**$ 264,128**	**$ 299,232**	

Construction Costs

Average Per Lane-Mile Components	Unit Cost	Miles	Add Lanes	Lane-Miles	Cost
Surface Str. New Cst. base & pave	$680,000			0.00	$0
SR or High volume Rd widening	$830,000			0.00	$0
Surface Street Overlay	$192,000			0.00	$0
Concrete Widening	$1,252,745			0.00	$0
Cross Streets widening	$510,000			0.00	$0
			Factor		
Cross Street Overlay	$20,000			0.00	$0
Traffic Control	$150,000	0.09	2.00	0.17	$25,500
Typical Driveways	$75,000			0.00	$0
Typical E & S Control Temp&Perm	$150,000			0.00	$0
Typical Earthwork	$500,000			0.00	$0
Typical Drainage - Urban Section	$255,000			0.00	$0
Curb & Gutter both sides (mile)	$370,000			0.00	$0
Typical Drainage - Rural Section	$150,000			0.00	$0
Signing & Marking	$50,000			0.00	$0
Typical Clear & Grub-120 ft wide	$109,091			0.00	$0
Typical Guardrail Type W	$212,000			0.00	$0
20ft. Raised median +C&G (mile)	$1,308,267			0.00	$0
Median landscaping	$100,000			0.00	$0
Sidewalks 5 ft. ea.side (mile)	$352,000			0.00	$0
ADA Ramps	$1,500			0.00	$0
				Subtotal	**$25,500**

Additional Per Mile Components	Unit Cost	Length	Factor	Cost
Add'l Major Earthwork (mile)	$350,000			$0
Add'l Major Drainage (mile)	$150,000			$0
Add'l Major Grade changes (mile)	$350,000			$0
Major alignment corrections (mile)	$750,000			$0
Maint of Traffic difficulty (mile)	$200,000			$0
Temporary Barrier	$50			$0
Concrete Island + C&G (SY)	$60			$0
Add'l guardrail Type T (mile)	$423,000			$0
Paved Shoulders, 4 ft, 2 sides(mile)	$100,000			$0
Rumble Strips (Shoulder & Edgeline)	$0			$0
Rumble Strips [EA] (RAB/Stop Cntrl)	$1,000			$0
Bikeway, 4 feet, both side (mile)	$553,333			$0
Add'l driveways (mile)	$75,000			$0
Cl. B Conc. Base or pvmt widening	$792,000			$0
Colored & Stamped Concrete + C&G	$100			$0
Special E&S control	$300,000			$0
			Subtotal	**$0**

Individual Components	Unit Cost	Length (ft)	Width (ft)	Ht (ft)	Cost
Retaining Walls - Gravity 0 - 5' (LF)	$60				$0
Retaining Walls-Gravity 5'-max (LF)	$120				$0
Retaining Walls-Special Design(SF)	$60				$0
Bridges - widen (SF)	$150				$0
Bridges - widen (SF)	$150				$0
Bridges - replace (SF)	$225				$0
Bridges - replace (SF)	$185				$0
Bridges - detour (SF)	$60				$0
Bridge Removal (SF)	$50				$0
Cofferdams (ea)	$20,000				$0
Box Culverts (SF)	$95				$0
Box Culverts (SF)	$95				$0
Large cross drains (LF)	$80				$0
Replace cross drains (LF)	$120				$0
Sediment/ detention ponds (ea)	$30,000				$0
Pavement patching (Sq yd)	$30				$0
Roundabout Lighting	$100,000				$0
Traffic Signalization / Upgrade (ea)	$125,000	1			$125,000
				Subtotal	**$125,000**
				Total Construction Cost	**$150,500**
					77%

Right-of-Way Costs

Area Type	Unit Cost (acre)	Miles	Width (ft)	Acres	Cost
Urban Residential	$800,000			0.000	$0
Easement Residential	$240,000			0.000	$0
Urban Commercial	$2,306,992			0.000	$0
Easement Commercial	$175,000			0.000	$0
Suburban/Rural Residential	$50,000			0.000	$0
Easement rural Residential	$180,000			0.000	$0
Suburban/Rural Commercial	$800,000			0.000	$0
Easement rural Commercial	$240,000			0.000	$0
Displacements		Number	Factor		
Residential	$250,000				$0
Commercial	$1,000,000				$0
Damages	$0				$0
				ROW multiplier	5
				Total Right-of-Way Cost	**$0**
					0%

Reimbursable Utility Costs

			0
	10%		$ 15,050
		Total Reimbursable Utility Cost	**$15,050**
			8%

Preliminary Engineering Costs

PE %	20%	**Total Preliminary Engineering Cost**	**$30,100**
			15%

Contingency Costs

Contingency %	35%	**Total Contingency Cost**	**$68,478**
		Total (PE+Util.+ROW+CST)	**$195,650**
		Grand Total	**$264,128**

Project Cost Estimation Spreadsheet - Signalize the intersection at East Jefferson Street

Project Identification				
Description	Signalize the intersection at East Jefferson Street			
From Limit				
To Limit				
Notes				
SR 53 Widening	0.19			
		miles	total	0.19

Cost Summary Incl. Contingency		per mile	Yr. of Exp.	Inflated Cost	Total Program Cost	
Preliminary Engineering	**$ 36,394**	$ 192,160	2023	**$ 36,394**	**$ 36,394**	
Reimbursable Utility	**$ 24,566**	$ 129,708	2023	**$ 24,566**	**$ 28,251**	
Right-of-Way	**$ -**	$ -	2023	**$ -**	**$ -**	
Construction	**$ 258,397**	$ 1,364,336	2023	**$ 258,397**	**$ 297,157**	
Total	**$ 319,357**	$ 1,686,204	**Total**	**$ 319,357**	**$ 361,801**	

Construction Costs

Average Per Lane-Mile Components	Unit Cost	Miles	Add Lanes	Lane-Miles	Cost
Surface Str. New Cst. base & pave	$680,000			0.00	$0
SR or High volume Rd widening	$830,000			0.00	$0
Surface Street Overlay	$192,000	0.19	1.00	0.19	$36,364
Concrete Widening	$1,252,745			0.00	$0
Cross Streets widening	$510,000			0.00	$0
			Factor		
Cross Street Overlay	$20,000			0.00	$0
Traffic Control	$150,000	0.19	0.30	0.06	$8,523
Typical Driveways	$75,000			0.00	$0
Typical E & S Control Temp&Perm	$150,000	0.19	0.09	0.02	$2,614
Typical Earthwork	$500,000			0.00	$0
Typical Drainage - Urban Section	$255,000			0.00	$0
Curb & Gutter both sides (mile)	$370,000			0.00	$0
Typical Drainage - Rural Section	$150,000			0.00	$0
Signing & Marking	$50,000	0.19	1.00	0.19	$9,470
Typical Clear & Grub-120 ft wide	$109,091			0.00	$0
Typical Guardrail Type W	$212,000			0.00	$0
20ft. Raised median +C&G (mile)	$1,308,267			0.00	$0
Median landscaping	$100,000			0.00	$0
Sidewalks 5 ft. ea.side (mile)	$352,000			0.00	$0
ADA Ramps	$1,500			0.00	$0
				Subtotal	**$56,970**

Additional Per Mile Components	Unit Cost	Length	Factor	Cost
Add'l Major Earthwork (mile)	$350,000			$0
Add'l Major Drainage (mile)	$150,000			$0
Add'l Major Grade changes (mile)	$350,000			$0
Major alignment corrections (mile)	$750,000			$0
Maint of Traffic difficulty (mile)	$200,000			$0
Temporary Barrier	$50			$0
Concrete Island + C&G (SY)	$60			$0
Add'l guardrail Type T (mile)	$423,000			$0
Paved Shoulders, 4 ft, 2 sides(mile)	$100,000			$0
Rumble Strips (Shoulder & Edgeline)	$0			$0
Rumble Strips [EA] (RAB/Stop Cntrl)	$1,000			$0
Bikeway, 4 feet, both side (mile)	$553,333			$0
Add'l driveways (mile)	$75,000			$0
Cl. B Conc. Base or pvmt widening	$792,000			$0
Colored & Stamped Concrete + C&G	$100			$0
Special E&S control	$300,000			$0
			Subtotal	**$0**

Individual Components	Unit Cost	Length (ft)	Width (ft)	Ht (ft)	Cost
Retaining Walls - Gravity 0 - 5' (LF)	$60				$0
Retaining Walls-Gravity 5'-max (LF)	$120				$0
Retaining Walls-Special Design(SF)	$60				$0
Bridges - widen (SF)	$150				$0
Bridges - widen (SF)	$150				$0
Bridges - replace (SF)	$225				$0
Bridges - replace (SF)	$185				$0
Bridges - detour (SF)	$60				$0
Bridge Removal (SF)	$50				$0
Cofferdams (ea)	$20,000				$0
Box Culverts (SF)	$95				$0
Box Culverts (SF)	$95				$0
Large cross drains (LF)	$80				$0
Replace cross drains (LF)	$120				$0
Sediment/ detention ponds (ea)	$30,000				$0
Pavement patching (Sq yd)	$30				$0
Roundabout Lighting	$100,000				$0
Traffic Signalization / Upgrade (ea)	$125,000	1			$125,000
				Subtotal	**$125,000**
				Total Construction Cost	**$181,970**
					77%

Right-of-Way Costs

Area Type	Unit Cost (acre)	Miles	Width (ft)	Acres	Cost
Urban Residential	$800,000			0.000	$0
Easement Residential	$240,000			0.000	$0
Urban Commercial	$2,306,992			0.000	$0
Easement Commercial	$175,000			0.000	$0
Suburban/Rural Residential	$50,000			0.000	$0
Easement rural Residential	$180,000			0.000	$0
Suburban/Rural Commercial	$800,000			0.000	$0
Easement rural Commercial	$240,000			0.000	$0
Displacements		Number	Factor		
Residential	$250,000				$0
Commercial	$1,000,000				$0
Damages	$0				$0
				ROW multiplier	5
				Total Right-of-Way Cost	**$0**
					0%

Reimbursable Utility Costs

			0
	10%	$	18,197
		Total Reimbursable Utility Cost	**$18,197**
			8%

Preliminary Engineering Costs

PE %	20%	**Total Preliminary Engineering Cost**	**$36,394**
			15%

Contingency Costs

Contingency %	35%	**Total Contingency Cost**	**$82,796**
		Total (PE+Util.+ROW+CST)	**$236,561**
		Grand Total	**$319,357**

Project Cost Estimation Spreadsheet - Signalize the intersection of SR 53 at East Broad Street

Project Identification				
Description	Signalize the intersection of SR 53 at East Broad			
From Limit				
To Limit				
Notes				
SR 53	0.19			
		miles	total	0.19

Cost Summary Incl. Contingency		per mile	Yr. of Exp.	Inflated Cost	Total Program Cost	
Preliminary Engineering	**$ 61,394**	$ 324,160	2023	**$ 61,394**	**$ 61,394**	
Reimbursable Utility	**$ 124,323**	$ 656,424	2023	**$ 124,323**	**$ 142,971**	
Right-of-Way	**$ -**	$ -	2023	**$ -**	**$ -**	
Construction	**$ 435,897**	$ 2,301,536	2023	**$ 435,897**	**$ 501,282**	
Total	**$ 621,614**	$ 3,282,120	**Total**	**$ 621,614**	**$ 705,647**	

Construction Costs

Average Per Lane-Mile Components	Unit Cost	Miles	Add Lanes	Lane-Miles	Cost
Surface Str. New Cst. base & pave	$680,000			0.00	$0
SR or High volume Rd widening	$830,000			0.00	$0
Surface Street Overlay	$192,000	0.19	1.00	0.19	$36,364
Concrete Widening	$1,252,745			0.00	$0
Cross Streets widening	$510,000			0.00	$0
			Factor		
Cross Street Overlay	$20,000			0.00	$0
Traffic Control	$150,000	0.19	0.30	0.06	$8,523
Typical Driveways	$75,000			0.00	$0
Typical E & S Control Temp&Perm	$150,000	0.19	0.09	0.02	$2,614
Typical Earthwork	$500,000			0.00	$0
Typical Drainage - Urban Section	$255,000			0.00	$0
Curb & Gutter both sides (mile)	$370,000			0.00	$0
Typical Drainage - Rural Section	$150,000			0.00	$0
Signing & Marking	$50,000	0.19	1.00	0.19	$9,470
Typical Clear & Grub-120 ft wide	$109,091			0.00	$0
Typical Guardrail Type W	$212,000			0.00	$0
20ft. Raised median +C&G (mile)	$1,308,267			0.00	$0
Median landscaping	$100,000			0.00	$0
Sidewalks 5 ft. ea.side (mile)	$352,000			0.00	$0
ADA Ramps	$1,500			0.00	$0
				Subtotal	**$56,970**

Additional Per Mile Components	Unit Cost	Length	Factor	Cost
Add'l Major Earthwork (mile)	$350,000			$0
Add'l Major Drainage (mile)	$150,000			$0
Add'l Major Grade changes (mile)	$350,000			$0
Major alignment corrections (mile)	$750,000			$0
Maint of Traffic difficulty (mile)	$200,000			$0
Temporary Barrier	$50			$0
Concrete Island + C&G (SY)	$60			$0
Add'l guardrail Type T (mile)	$423,000			$0
Paved Shoulders, 4 ft, 2 sides(mile)	$100,000			$0
Rumble Strips (Shoulder & Edgeline)	$0			$0
Rumble Strips [EA] (RAB/Stop Cntrl)	$1,000			$0
Bikeway, 4 feet, both side (mile)	$553,333			$0
Add'l driveways (mile)	$75,000			$0
Cl. B Conc. Base or pvmt widening	$792,000			$0
Colored & Stamped Concrete + C&G	$100			$0
Special E&S control	$300,000			$0
			Subtotal	**$0**

Individual Components	Unit Cost	Length (ft)	Width (ft)	Ht (ft)	Cost
Retaining Walls - Gravity 0 - 5' (LF)	$60				$0
Retaining Walls-Gravity 5'-max (LF)	$120				$0
Retaining Walls-Special Design(SF)	$60				$0
Bridges - widen (SF)	$150				$0
Bridges - widen (SF)	$150				$0
Bridges - replace (SF)	$225				$0
Bridges - replace (SF)	$185				$0
Bridges - detour (SF)	$60				$0
Bridge Removal (SF)	$50				$0
Cofferdams (ea)	$20,000				$0
Box Culverts (SF)	$95				$0
Box Culverts (SF)	$95				$0
Large cross drains (LF)	$80				$0
Replace cross drains (LF)	$120				$0
Sediment/ detention ponds (ea)	$30,000				$0
Pavement patching (Sq yd)	$30				$0
Roundabout Lighting	$100,000				$0
Traffic Signalization / Upgrade (ea)	$125,000	2			$250,000
				Subtotal	**$250,000**
				Total Construction Cost	**$306,970**
					67%

Right-of-Way Costs

Area Type	Unit Cost (acre)	Miles	Width (ft)	Acres	Cost
Urban Residential	$800,000			0.000	$0
Easement Residential	$240,000			0.000	$0
Urban Commercial	$2,306,992			0.000	$0
Easement Commercial	$175,000			0.000	$0
Suburban/Rural Residential	$50,000			0.000	$0
Easement rural Residential	$180,000			0.000	$0
Suburban/Rural Commercial	$800,000			0.000	$0
Easement rural Commercial	$240,000			0.000	$0
Displacements		Number	Factor		
Residential	$250,000				$0
Commercial	$1,000,000				$0
Damages	$0				$0
				ROW multiplier	5
				Total Right-of-Way Cost	**$0**
					0%

Reimbursable Utility Costs

			0
	30%		$ 92,091
		Total Reimbursable Utility Cost	**$92,091**
			20%

Preliminary Engineering Costs

PE %	20%	**Total Preliminary Engineering Cost**	**$61,394**
			13%

Contingency Costs

Contingency %	35%	**Total Contingency Cost**	**$161,159**
		Total (PE+Util.+ROW+CST)	**$460,455**
		Grand Total	**$621,614**

Project Cost Estimation Spreadsheet - Signalize the intersection of SR 53 at Peachtree Road

Project Identification				
Description	Signalize the intersection of SR 53 at Peachtree			
From Limit				
To Limit				
Notes				
SR 53	0.19			
		miles	total	0.19

Cost Summary Incl. Contingency		per mile	Yr. of Exp.	Inflated Cost	Total Program Cost	
Preliminary Engineering	**$ 36,394**	$ 192,160	2023	**$ 36,394**	**$ 36,394**	
Reimbursable Utility	**$ 24,566**	$ 129,708	2023	**$ 24,566**	**$ 28,251**	
Right-of-Way	**$ -**	$ -	2023	**$ -**	**$ -**	
Construction	**$ 258,397**	$ 1,364,336	2023	**$ 258,397**	**$ 297,157**	
Total	**$ 319,357**	$ 1,686,204	**Total**	**$ 319,357**	**$ 361,801**	

Construction Costs

Average Per Lane-Mile Components	Unit Cost	Miles	Add Lanes	Lane-Miles	Cost
Surface Str. New Cst. base & pave	$680,000			0.00	$0
SR or High volume Rd widening	$830,000			0.00	$0
Surface Street Overlay	$192,000	0.19	1.00	0.19	$36,364
Concrete Widening	$1,252,745			0.00	$0
Cross Streets widening	$510,000			0.00	$0
			Factor		
Cross Street Overlay	$20,000			0.00	$0
Traffic Control	$150,000	0.19	0.30	0.06	$8,523
Typical Driveways	$75,000			0.00	$0
Typical E & S Control Temp&Perm	$150,000	0.19	0.09	0.02	$2,614
Typical Earthwork	$500,000			0.00	$0
Typical Drainage - Urban Section	$255,000			0.00	$0
Curb & Gutter both sides (mile)	$370,000			0.00	$0
Typical Drainage - Rural Section	$150,000			0.00	$0
Signing & Marking	$50,000	0.19	1.00	0.19	$9,470
Typical Clear & Grub-120 ft wide	$109,091			0.00	$0
Typical Guardrail Type W	$212,000			0.00	$0
20ft. Raised median +C&G (mile)	$1,308,267			0.00	$0
Median landscaping	$100,000			0.00	$0
Sidewalks 5 ft. ea.side (mile)	$352,000			0.00	$0
ADA Ramps	$1,500			0.00	$0
				Subtotal	**$56,970**

Additional Per Mile Components	Unit Cost	Length	Factor	Cost
Add'l Major Earthwork (mile)	$350,000			$0
Add'l Major Drainage (mile)	$150,000			$0
Add'l Major Grade changes (mile)	$350,000			$0
Major alignment corrections (mile)	$750,000			$0
Maint of Traffic difficulty (mile)	$200,000			$0
Temporary Barrier	$50			$0
Concrete Island + C&G (SY)	$60			$0
Add'l guardrail Type T (mile)	$423,000			$0
Paved Shoulders, 4 ft, 2 sides(mile)	$100,000			$0
Rumble Strips (Shoulder & Edgeline)	$0			$0
Rumble Strips [EA] (RAB/Stop Cntrl)	$1,000			$0
Bikeway, 4 feet, both side (mile)	$553,333			$0
Add'l driveways (mile)	$75,000			$0
Cl. B Conc. Base or pvmt widening	$792,000			$0
Colored & Stamped Concrete + C&G	$100			$0
Special E&S control	$300,000			$0
			Subtotal	**$0**

Individual Components	Unit Cost	Length (ft)	Width (ft)	Ht (ft)	Cost
Retaining Walls - Gravity 0 - 5' (LF)	$60				$0
Retaining Walls-Gravity 5'-max (LF)	$120				$0
Retaining Walls-Special Design(SF)	$60				$0
Bridges - widen (SF)	$150				$0
Bridges - widen (SF)	$150				$0
Bridges - replace (SF)	$225				$0
Bridges - replace (SF)	$185				$0
Bridges - detour (SF)	$60				$0
Bridge Removal (SF)	$50				$0
Cofferdams (ea)	$20,000				$0
Box Culverts (SF)	$95				$0
Box Culverts (SF)	$95				$0
Large cross drains (LF)	$80				$0
Replace cross drains (LF)	$120				$0
Sediment/ detention ponds (ea)	$30,000				$0
Pavement patching (Sq yd)	$30				$0
Roundabout Lighting	$100,000				$0
Traffic Signalization / Upgrade (ea)	$125,000	1			$125,000
				Subtotal	**$125,000**
				Total Construction Cost	**$181,970**
					77%

Right-of-Way Costs

Area Type	Unit Cost (acre)	Miles	Width (ft)	Acres	Cost
Urban Residential	$800,000			0.000	$0
Easement Residential	$240,000			0.000	$0
Urban Commercial	$2,306,992			0.000	$0
Easement Commercial	$175,000			0.000	$0
Suburban/Rural Residential	$50,000			0.000	$0
Easement rural Residential	$180,000			0.000	$0
Suburban/Rural Commercial	$800,000			0.000	$0
Easement rural Commercial	$240,000			0.000	$0
Displacements		Number	Factor		
Residential	$250,000				$0
Commercial	$1,000,000				$0
Damages	$0				$0
				ROW multiplier	5
				Total Right-of-Way Cost	**$0**
					0%

Reimbursable Utility Costs

			0
	10%		$ 18,197
		Total Reimbursable Utility Cost	**$18,197**
			8%

Preliminary Engineering Costs

PE %	20%	**Total Preliminary Engineering Cost**	**$36,394**
			15%

Contingency Costs

Contingency %	35%	**Total Contingency Cost**	**$82,796**
		Total (PE+Util.+ROW+CST)	**$236,561**
		Grand Total	**$319,357**

Project Cost Estimation Spreadsheet - Signalize the intersection of SR 53 at Twin Lakes Boulevard

Project Identification				
Description	Signalize the intersection of SR 53 at Twin Lakes			
From Limit				
To Limit				
Notes				
SR 53 Widening	0.19			
		miles	total	0.19

Cost Summary Incl. Contingency		per mile	Yr. of Exp.	Inflated Cost	Total Program Cost	
Preliminary Engineering	**$ 36,394**	$ 192,160	2023	**$ 36,394**	**$ 36,394**	
Reimbursable Utility	**$ 24,566**	$ 129,708	2023	**$ 24,566**	**$ 28,251**	
Right-of-Way	**$ -**	$ -	2023	**$ -**	**$ -**	
Construction	**$ 258,397**	$ 1,364,336	2023	**$ 258,397**	**$ 297,157**	
Total	**$ 319,357**	$ 1,686,204	**Total**	**$ 319,357**	**$ 361,801**	

Construction Costs

Average Per Lane-Mile Components	Unit Cost	Miles	Add Lanes	Lane-Miles	Cost
Surface Str. New Cst. base & pave	$680,000			0.00	$0
SR or High volume Rd widening	$830,000			0.00	$0
Surface Street Overlay	$192,000	0.19	1.00	0.19	$36,364
Concrete Widening	$1,252,745			0.00	$0
Cross Streets widening	$510,000			0.00	$0
			Factor		
Cross Street Overlay	$20,000			0.00	$0
Traffic Control	$150,000	0.19	0.30	0.06	$8,523
Typical Driveways	$75,000			0.00	$0
Typical E & S Control Temp&Perm	$150,000	0.19	0.09	0.02	$2,614
Typical Earthwork	$500,000			0.00	$0
Typical Drainage - Urban Section	$255,000			0.00	$0
Curb & Gutter both sides (mile)	$370,000			0.00	$0
Typical Drainage - Rural Section	$150,000			0.00	$0
Signing & Marking	$50,000	0.19	1.00	0.19	$9,470
Typical Clear & Grub-120 ft wide	$109,091			0.00	$0
Typical Guardrail Type W	$212,000			0.00	$0
20ft. Raised median +C&G (mile)	$1,308,267			0.00	$0
Median landscaping	$100,000			0.00	$0
Sidewalks 5 ft. ea.side (mile)	$352,000			0.00	$0
ADA Ramps	$1,500			0.00	$0
				Subtotal	**$56,970**

Additional Per Mile Components	Unit Cost	Length	Factor	Cost
Add'l Major Earthwork (mile)	$350,000			$0
Add'l Major Drainage (mile)	$150,000			$0
Add'l Major Grade changes (mile)	$350,000			$0
Major alignment corrections (mile)	$750,000			$0
Maint of Traffic difficulty (mile)	$200,000			$0
Temporary Barrier	$50			$0
Concrete Island + C&G (SY)	$60			$0
Add'l guardrail Type T (mile)	$423,000			$0
Paved Shoulders, 4 ft, 2 sides(mile)	$100,000			$0
Rumble Strips (Shoulder & Edgeline)	$0			$0
Rumble Strips [EA] (RAB/Stop Cntrl)	$1,000			$0
Bikeway, 4 feet, both side (mile)	$553,333			$0
Add'l driveways (mile)	$75,000			$0
Cl. B Conc. Base or pvmt widening	$792,000			$0
Colored & Stamped Concrete + C&G	$100			$0
Special E&S control	$300,000			$0
			Subtotal	**$0**

Individual Components	Unit Cost	Length (ft)	Width (ft)	Ht (ft)	Cost
Retaining Walls - Gravity 0 - 5' (LF)	$60				$0
Retaining Walls-Gravity 5'-max (LF)	$120				$0
Retaining Walls-Special Design(SF)	$60				$0
Bridges - widen (SF)	$150				$0
Bridges - widen (SF)	$150				$0
Bridges - replace (SF)	$225				$0
Bridges - replace (SF)	$185				$0
Bridges - detour (SF)	$60				$0
Bridge Removal (SF)	$50				$0
Cofferdams (ea)	$20,000				$0
Box Culverts (SF)	$95				$0
Box Culverts (SF)	$95				$0
Large cross drains (LF)	$80				$0
Replace cross drains (LF)	$120				$0
Sediment/ detention ponds (ea)	$30,000				$0
Pavement patching (Sq yd)	$30				$0
Roundabout Lighting	$100,000				$0
Traffic Signalization / Upgrade (ea)	$125,000	1			$125,000
				Subtotal	**$125,000**
				Total Construction Cost	**$181,970**
					77%

Right-of-Way Costs

Area Type	Unit Cost (acre)	Miles	Width (ft)	Acres	Cost
Urban Residential	$800,000			0.000	$0
Easement Residential	$240,000			0.000	$0
Urban Commercial	$2,306,992			0.000	$0
Easement Commercial	$175,000			0.000	$0
Suburban/Rural Residential	$50,000			0.000	$0
Easement rural Residential	$180,000			0.000	$0
Suburban/Rural Commercial	$800,000			0.000	$0
Easement rural Commercial	$240,000			0.000	$0
Displacements		Number	Factor		
Residential	$250,000				$0
Commercial	$1,000,000				$0
Damages	$0				$0
				ROW multiplier	5
				Total Right-of-Way Cost	**$0**
					0%

Reimbursable Utility Costs

			0
	10%	$	18,197
		Total Reimbursable Utility Cost	**$18,197**
			8%

Preliminary Engineering Costs

PE %	20%	**Total Preliminary Engineering Cost**	**$36,394**
			15%

Contingency Costs

Contingency %	35%	**Total Contingency Cost**	**$82,796**
		Total (PE+Util.+ROW+CST)	**$236,561**
		Grand Total	**$319,357**

Project Cost Estimation Spreadsheet - Improvements to SR 53 at Towne Center Pkwy, Industrial Blvd, and Pendergrass Rd

Project Identification				
Description	Improvements to SR 53 at Towne Center Pkwy, Industrial			
From Limit				
To Limit				
Notes				
Roadway limits	0.47			
		miles	total	0.47

Cost Summary Incl. Contingency		per mile	Yr. of Exp.	Inflated Cost	Total Program Cost	
Preliminary Engineering	**$ 352,268**	$ 743,990	2023	**$ 352,268**	**$ 352,268**	
Reimbursable Utility	**$ 237,781**	$ 502,194	2023	**$ 237,781**	**$ 273,448**	
Right-of-Way	**$ 6,367,872**	$ 13,448,945	2023	**$ 6,367,872**	**$ 7,323,053**	
Construction	**$ 2,501,104**	$ 5,282,332	2023	**$ 2,501,104**	**$ 2,876,270**	
Total	**$ 9,459,025**	$ 19,977,462	**Total**	**$ 9,459,025**	**$ 10,825,039**	

Construction Costs

Average Per Lane-Mile Components	Unit Cost	Miles	Add Lanes	Lane-Miles	Cost
Surface Str. New Cst. base & pave	$680,000			0.00	$0
SR or High volume Rd widening	$830,000	0.47	2.08	0.99	$818,734
Surface Street Overlay	$192,000			0.00	$0
Concrete Widening	$1,252,745			0.00	$0
Cross Streets widening	$510,000			0.00	$0
			Factor		
Cross Street Overlay	$20,000			0.00	$0
Traffic Control	$150,000	0.47	2.50	1.18	$177,557
Typical Driveways	$75,000			0.00	$0
Typical E & S Control Temp&Perm	$150,000	0.47	0.30	0.14	$21,307
Typical Earthwork	$500,000	0.47	0.90	0.43	$213,068
Typical Drainage - Urban Section	$255,000			0.00	$0
Curb & Gutter both sides (mile)	$370,000			0.00	$0
Typical Drainage - Rural Section	$150,000	0.47	2.00	0.95	$142,045
Signing & Marking	$50,000	0.47	2.00	0.95	$47,348
Typical Clear & Grub-120 ft wide	$109,091			0.00	$0
Typical Guardrail Type W	$212,000			0.00	$0
20ft. Raised median +C&G (mile)	$1,308,267			0.00	$0
Median landscaping	$100,000			0.00	$0
Sidewalks 5 ft. ea.side (mile)	$352,000			0.00	$0
ADA Ramps	$1,500			0.00	$0
				Subtotal	**$1,420,060**

Additional Per Mile Components	Unit Cost	Length	Factor	Cost
Add'l Major Earthwork (mile)	$350,000			$0
Add'l Major Drainage (mile)	$150,000			$0
Add'l Major Grade changes (mile)	$350,000			$0
Major alignment corrections (mile)	$750,000			$0
Maint of Traffic difficulty (mile)	$200,000			$0
Temporary Barrier	$50			$0
Concrete Island + C&G (SY)	$60			$0
Add'l guardrail Type T (mile)	$423,000			$0
Paved Shoulders, 4 ft, 2 sides(mile)	$100,000			$0
Rumble Strips (Shoulder & Edgeline)	$0			$0
Rumble Strips [EA] (RAB/Stop Cntrl)	$1,000			$0
Bikeway, 4 feet, both side (mile)	$553,333			$0
Add'l driveways (mile)	$75,000			$0
Cl. B Conc. Base or pvmt widening	$792,000			$0
Colored & Stamped Concrete + C&G	$100			$0
Special E&S control	$300,000			$0
			Subtotal	**$0**

Individual Components	Unit Cost	Length (ft)	Width (ft)	Ht (ft)	Cost
Retaining Walls - Gravity 0 - 5' (LF)	$60				$0
Retaining Walls-Gravity 5'-max (LF)	$120				$0
Retaining Walls-Special Design(SF)	$60				$0
Bridges - widen (SF)	$150				$0
Bridges - widen (SF)	$150				$0
Bridges - replace (SF)	$225				$0
Bridges - replace (SF)	$185				$0
Bridges - detour (SF)	$60				$0
Bridge Removal (SF)	$50				$0
Cofferdams (ea)	$20,000				$0
Box Culverts (SF)	$95				$0
Box Culverts (SF)	$95				$0
Large cross drains (LF)	$80				$0
Replace cross drains (LF)	$120				$0
Sediment/ detention ponds (ea)	$30,000				$0
Pavement Removal (Sq yd)	$30	3042.70	1		$91,281
Pavement patching (Sq yd)	$100,000				$0
Traffic Signalization / Upgrade (ea)	$125,000	2			$250,000
				Subtotal	**$341,281**
				Total Construction Cost	**$1,761,341**
					25%

Right-of-Way Costs

Area Type	Unit Cost (acre)	Miles	Width (ft)	Acres	Cost
Urban Residential	$800,000			0.000	$0
Easement Residential	$240,000			0.000	$0
Urban Commercial	$2,306,992			0.000	$0
Easement Commercial	$175,000			0.000	$0
Suburban/Rural Residential	$50,000			0.000	$0
Easement rural Residential	$180,000			0.000	$0
Suburban/Rural Commercial	$800,000	0.23	60	1.653	$1,322,314
Easement rural Commercial	$240,000			0.000	$0
Displacements		Number	Factor		
Residential	$250,000	1	1.00		$250,000
Commercial	$1,000,000				$0
Damages	$0				$0
				ROW multiplier	3
				Total Right-of-Way Cost	**$4,716,942**
					67%

Reimbursable Utility Costs

			0
	10%	$	176,134
		Total Reimbursable Utility Cost	**$176,134**
			3%

Preliminary Engineering Costs

PE %	20%	**Total Preliminary Engineering Cost**	**$352,268**
			5%

Contingency Costs

Contingency %	35%	**Total Contingency Cost**	**$2,452,340**
		Total (PE+Util.+ROW+CST)	**$7,006,686**
		Grand Total	**$9,459,025**

Project Cost Estimation Spreadsheet - At SR 332 and SR 124, widen SR 124 to 4 lanes w/ dedicated right turn lane on SR 332NB

Project Identification				
Description	At SR 332 and SR 124, widen SR 124 to 4 lanes w/			
From Limit				
To Limit				
Notes	Widen to 4-12ft lanes with 14-ft TWLCTL			
SR 124 Widening	0.76			
SR 332 Widening	0.08			
		miles	total	0.83

Cost Summary Incl. Contingency		per mile	Yr. of Exp.	Inflated Cost	Total Program Cost	
Preliminary Engineering	**$ 745,529**	$ 894,635	2023	**$ 745,529**	**$ 745,529**	
Reimbursable Utility	**$ 503,232**	$ 603,878	2023	**$ 503,232**	**$ 578,717**	
Right-of-Way	**$ 1,933,884**	$ 2,320,661	2023	**$ 1,933,884**	**$ 2,223,967**	
Construction	**$ 5,293,254**	$ 6,351,905	2023	**$ 5,293,254**	**$ 6,087,243**	
Total	**$ 8,475,899**	$ 10,171,079	**Total**	**$ 8,475,899**	**$ 9,635,455**	

Construction Costs

Average Per Lane-Mile Components	Unit Cost	Miles	Add Lanes	Lane-Miles	Cost
Surface Str. New Cst. base & pave	$680,000			0.00	$0
SR or High volume Rd widening	$830,000			0.00	$0
SR 124 Widening		0.76	2.00	1.52	$1,257,576
SR 332 Widening		0.08	1.00	0.08	$62,879
Surface Street Overlay	$192,000			0.00	$0
Concrete Widening	$1,252,745			0.00	$0
Cross Streets widening	$510,000			0.00	$0
			Factor		
Cross Street Overlay	$20,000			0.00	$0
Traffic Control	$150,000	0.83	3.50	2.92	$437,500
Typical Driveways	$75,000			0.00	$0
Typical E & S Control Temp&Perm	$150,000	0.83	0.60	0.50	$75,000
Typical Earthwork	$500,000	0.83	1.22	1.02	$508,333
Typical Drainage - Urban Section	$255,000	0.83	1.50	1.25	$318,750
Curb & Gutter both sides (mile)	$370,000	0.83	1.00	0.83	$308,333
Typical Drainage - Rural Section	$150,000			0.00	$0
Signing & Marking	$50,000	0.83	2.00	1.67	$83,333
Typical Clear & Grub-120 ft wide	$109,091			0.00	$0
Typical Guardrail Type W	$212,000			0.00	$0
20ft. Raised median +C&G (mile)	$1,308,267			0.00	$0
Median landscaping	$100,000			0.00	$0
Sidewalks 5 ft. ea.side (mile)	$352,000	0.76	1.00	0.76	$266,667
ADA Ramps	$1,500	38.00	1.00	38.00	$57,000
				Subtotal	**$3,375,371**

Additional Per Mile Components	Unit Cost	Length	Factor	Cost
Add'l Major Earthwork (mile)	$350,000			$0
Add'l Major Drainage (mile)	$150,000	0.76	2.00	$227,273
Add'l Major Grade changes (mile)	$350,000			$0
Major alignment corrections (mile)	$750,000			$0
Maint of Traffic difficulty (mile)	$200,000			$0
Temporary Barrier	$50			$0
Concrete Island + C&G (SY)	$60			$0
Add'l guardrail Type T (mile)	$423,000			$0
Paved Shoulders, 4 ft, 2 sides(mile)	$100,000			$0
Rumble Strips (Shoulder & Edgeline)	$0			$0
Rumble Strips [EA] (RAB/Stop Cntrl)	$1,000			$0
Bikeway, 4 feet, both side (mile)	$553,333			$0
Add'l driveways (mile)	$75,000			$0
Cl. B Conc. Base or pvmt widening	$792,000			$0
Colored & Stamped Concrete + C&G	$100			$0
Special E&S control	$300,000			$0
			Subtotal	**$227,273**

Individual Components	Unit Cost	Length (ft)	Width (ft)	Ht (ft)	Cost
Retaining Walls - Gravity 0 - 5' (LF)	$60				$0
Retaining Walls-Gravity 5'-max (LF)	$120				$0
Retaining Walls-Special Design(SF)	$60				$0
Bridges - widen (SF)	$150				$0
Bridges - widen (SF)	$150				$0
Bridges - replace (SF)	$225				$0
Bridges - replace (SF)	$185				$0
Bridges - detour (SF)	$60				$0
Bridge Removal (SF)	$50				$0
Cofferdams (ea)	$20,000				$0
Box Culverts (SF)	$95				$0
Box Culverts (SF)	$95				$0
Large cross drains (LF)	$80				$0
Replace cross drains (LF)	$120				$0
Sediment/ detention ponds (ea)	$30,000				$0
Pavement patching (Sq yd)	$30				$0
Roundabout Lighting	$100,000				$0
Traffic Signalization / Upgrade (ea)	$125,000	1			$125,000
				Subtotal	**$125,000**
				Total Construction Cost	**$3,727,644**
					59%

Right-of-Way Costs

Area Type	Unit Cost (acre)	Miles	Width (ft)	Acres	Cost
Urban Residential	$800,000			0.000	$0
Easement Residential	$240,000			0.000	$0
Urban Commercial	$2,306,992			0.000	$0
Easement Commercial	$175,000			0.000	$0
Suburban/Rural Residential	$50,000			0.000	$0
Easement rural Residential	$180,000			0.000	$0
Suburban/Rural Commercial	$800,000	0.25	20	0.597	$477,502
Easement rural Commercial	$240,000			0.000	$0
Displacements		Number	Factor		
Residential	$250,000				$0
Commercial	$1,000,000				$0
Damages	$0				$0
				ROW multiplier	3
				Total Right-of-Way Cost	**$1,432,507**
					23%

Reimbursable Utility Costs

			0
	10%	$	372,764
		Total Reimbursable Utility Cost	**$372,764**
			6%

Preliminary Engineering Costs

PE %	20%	**Total Preliminary Engineering Cost**	**$745,529**
			12%

Contingency Costs

Contingency %	35%	**Total Contingency Cost**	**$2,197,455**
		Total (PE+Util.+ROW+CST)	**$6,278,444**
		Grand Total	**$8,475,899**

Project Cost Estimation Spreadsheet - Widen SR 53 Between the Intersections of SR 124 and New Cut Road

Project Identification				
Description	Widen SR 53 Between the Intersections of SR			
From Limit	New Cut Rd			
To Limit	SR 124			
Notes	Widen to 4-12ft lanes with 14-ft TWLCTL			
SR 53 Widening	0.98			
		miles	total	0.98

Cost Summary Incl. Contingency		per mile	Yr. of Exp.	Inflated Cost	Total Program Cost
Preliminary Engineering	**$ 1,170,033**	$ 1,188,033	2023	**$ 1,170,033**	**$ 1,170,033**
Reimbursable Utility	**$ 789,772**	$ 801,923	2023	**$ 789,772**	**$ 908,238**
Right-of-Way	**$ 4,760,331**	$ 4,833,566	2023	**$ 4,760,331**	**$ 5,474,380**
Construction	**$ 8,307,233**	$ 8,435,037	2023	**$ 8,307,233**	**$ 9,553,318**
Total	**$ 15,027,369**	$ 15,258,559	**Total**	**$ 15,027,369**	**$ 17,105,969**

Construction Costs

Average Per Lane-Mile Components	Unit Cost	Miles	Add Lanes	Lane-Miles	Cost
Surface Str. New Cst. base & pave	$680,000			0.00	$0
SR or High volume Rd widening	$830,000	0.98	3.33	3.28	$2,724,747
Surface Street Overlay	$192,000			0.00	$0
Concrete Widening	$1,252,745			0.00	$0
Cross Streets widening	$510,000			0.00	$0
			Factor		
Cross Street Overlay	$20,000			0.00	$0
Traffic Control	$150,000	0.98	5.00	4.92	$738,636
Typical Driveways	$75,000			0.00	$0
Typical E & S Control Temp&Perm	$150,000	0.98	0.70	0.69	$103,409
Typical Earthwork	$500,000	0.98	1.82	1.79	$896,212
Typical Drainage - Urban Section	$255,000	0.98	2.30	2.27	$577,614
Curb & Gutter both sides (mile)	$370,000	0.98	1.00	0.98	$364,394
Typical Drainage - Rural Section	$150,000			0.00	$0
Signing & Marking	$50,000	0.98	2.00	1.97	$98,485
Typical Clear & Grub-120 ft wide	$109,091			0.00	$0
Typical Guardrail Type W	$212,000			0.00	$0
20ft. Raised median +C&G (mile)	$1,308,267			0.00	$0
Median landscaping	$100,000			0.00	$0
Sidewalks 5 ft. ea.side (mile)	$352,000	0.98	1.00	0.98	$346,667
ADA Ramps	$1,500			0.00	$0
				Subtotal	**$5,850,164**

Additional Per Mile Components	Unit Cost	Length	Factor	Cost
Add'l Major Earthwork (mile)	$350,000			$0
Add'l Major Drainage (mile)	$150,000			$0
Add'l Major Grade changes (mile)	$350,000			$0
Major alignment corrections (mile)	$750,000			$0
Maint of Traffic difficulty (mile)	$200,000			$0
Temporary Barrier	$50			$0
Concrete Island + C&G (SY)	$60			$0
Add'l guardrail Type T (mile)	$423,000			$0
Paved Shoulders, 4 ft, 2 sides(mile)	$100,000			$0
Rumble Strips (Shoulder & Edgeline)	$0			$0
Rumble Strips [EA] (RAB/Stop Cntrl)	$1,000			$0
Bikeway, 4 feet, both side (mile)	$553,333			$0
Add'l driveways (mile)	$75,000			$0
Cl. B Conc. Base or pvmt widening	$792,000			$0
Colored & Stamped Concrete + C&G	$100			$0
Special E&S control	$300,000			$0
			Subtotal	**$0**

Individual Components	Unit Cost	Length (ft)	Width (ft)	Ht (ft)	Cost
Retaining Walls - Gravity 0 - 5' (LF)	$60				$0
Retaining Walls-Gravity 5'-max (LF)	$120				$0
Retaining Walls-Special Design(SF)	$60				$0
Bridges - widen (SF)	$150				$0
Bridges - widen (SF)	$150				$0
Bridges - replace (SF)	$225				$0
Bridges - replace (SF)	$185				$0
Bridges - detour (SF)	$60				$0
Bridge Removal (SF)	$50				$0
Cofferdams (ea)	$20,000				$0
Box Culverts (SF)	$95				$0
Box Culverts (SF)	$95				$0
Large cross drains (LF)	$80				$0
Replace cross drains (LF)	$120				$0
Sediment/ detention ponds (ea)	$30,000				$0
Pavement patching (Sq yd)	$30				$0
Roundabout Lighting	$100,000				$0
Traffic Signalization / Upgrade (ea)	$125,000				$0
				Subtotal	**$0**
				Total Construction Cost	**$5,850,164**
					53%

Right-of-Way Costs

Area Type	Unit Cost (acre)	Miles	Width (ft)	Acres	Cost
Urban Residential	$800,000			0.000	$0
Easement Residential	$240,000			0.000	$0
Urban Commercial	$2,306,992			0.000	$0
Easement Commercial	$175,000			0.000	$0
Suburban/Rural Residential	$50,000			0.000	$0
Easement rural Residential	$180,000			0.000	$0
Suburban/Rural Commercial	$800,000	0.61	20	1.469	$1,175,390
Easement rural Commercial	$240,000			0.000	$0
Displacements		Number	Factor		
Residential	$250,000				$0
Commercial	$1,000,000				$0
Damages	$0				$0
				ROW multiplier	3
				Total Right-of-Way Cost	**$3,526,171**
					32%

Reimbursable Utility Costs

			0
	10%	$	585,016
		Total Reimbursable Utility Cost	**$585,016**
			5%

Preliminary Engineering Costs

PE %	20%	**Total Preliminary Engineering Cost**	**$1,170,033**
			11%

Contingency Costs

Contingency %	35%	**Total Contingency Cost**	**$3,895,984**
		Total (PE+Util.+ROW+CST)	**$11,131,384**
		Grand Total	**$15,027,369**