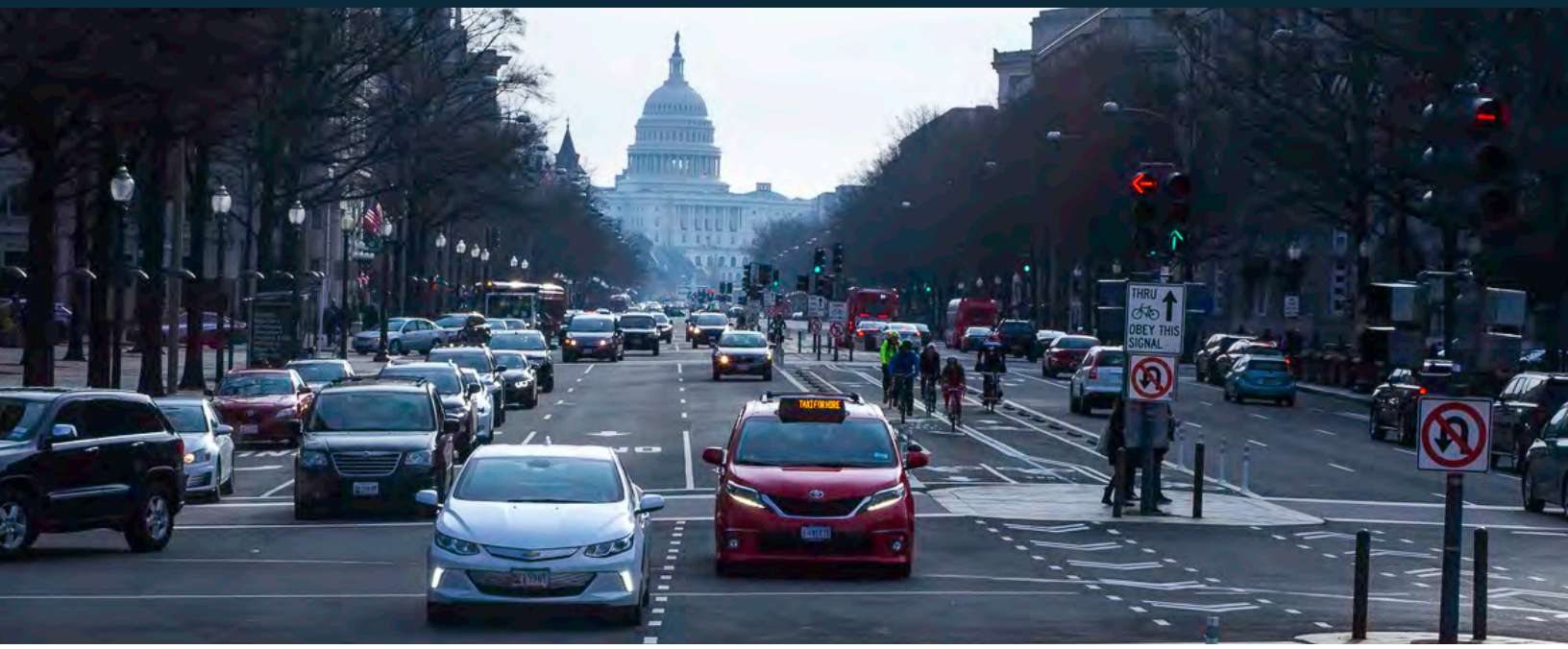
PENNSYLVANIA AVENUE EAST OF THE WHITE HOUSE TRANSPORTATION STUDY

Final Report | March 2018



PENNSYLVANIA AVENUE TRANSPORTATION STUDY
East of the White House

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PENNSYLVANIA AVENUE EAST OF THE WHITE HOUSE TRANSPORTATION STUDY

March 2018

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CHAPTER 1 EXECUTIVE SUMMARY

PENNSYLVANIA AVENUE TRANSPORTATION STUDY
East of the White House

1.1 Introduction

One of the most iconic streets in the world, Pennsylvania Avenue NW between the White House and the Capitol regularly hosts presidents, dignitaries, and tourists, while also serving a vital role in moving residents and workers from the District of Columbia. From a transportation perspective, with the closure of the 1600 block of Pennsylvania Avenue NW in front of the White House, the roadway no longer serves the amount of vehicular through traffic the current configuration was designed to serve. The additional capacity has created a rare opportunity in the District to consider repurposing available right-of-way to allow Pennsylvania Avenue NW to better serve the many users of this iconic avenue.

The National Capital Planning Commission (NCPC), the General Services Administration (GSA), and the National Park Service (NPS), in coordination with other federal and District agencies formed an Executive Committee and launched the Pennsylvania Avenue Initiative. With public input and the guidance of the Executive Committee, the Pennsylvania Avenue Initiative is seeking to improve the experience on Pennsylvania Avenue NW by providing an environment that builds off the already existing strong civic identity and character of the avenue and develops a thriving destination that consistently engages users. The Initiative is studying the near- and long-term needs of Pennsylvania Avenue NW and surrounding neighborhoods, identifying a governance framework, and developing a vision for how Pennsylvania Avenue NW can meet local and national needs.

1.2 Impetus

To advance the Pennsylvania Avenue Initiative, the Executive Committee engaged the District Department of Transportation (DDOT) to understand the transportation feasibility of various options within the existing 100-foot curb-to-curb roadbed on Pennsylvania Avenue NW. To that end, DDOT initiated this transportation feasibility study with the intent of identifying a range of feasible Options for the Pennsylvania Avenue Initiative.

These findings, in conjunction with other economic, physical, and operational assessments of Pennsylvania Avenue NW will support the Executive Committee's desires for near- and long-term changes to the corridor. Consequently, rather than providing one recommended Option, this study provides four feasible Options that present a range of Options for the Executive Committee to consider. These four Options, while presented separately, include individual elements that can be combined to develop multimodal options that differ from the four Options shown.

1.3 Goal

The goal of the Pennsylvania Avenue East of the White House Transportation Feasibility Study is to support the Pennsylvania Avenue Initiative in identifying the near- and long-term transportation needs of all users of Pennsylvania Avenue NW and the surrounding neighborhood. This includes access to and from activity centers, and safety and mobility along the corridor



for pedestrians, bicyclists, transit users, and motorists. The focus of the Study is not to provide a recommendation for a preferred Option. Instead, the Study develops four potential Options that meet local and national needs in a 21st century capital city, including the ability to host the Presidential Inaugural Parade every four years, along with other nationally significant events and activities. The Options will be compatible with Pennsylvania Avenue's role as one of the most historic thoroughfares in the world, a ceremonial promenade, and a lively downtown event space.

1.3.1 Objectives

To ensure that the Options align with the near- and long-term transportation needs of all users, each Option was evaluated based on the objectives discussed in **Table 1**. **Table 1** also includes the objectives' associated performance measures and evaluation methods.

1. Improve pedestrian and bicycle safety, minimize the potential for conflicts between modes, and provide compatible speeds between pedestrians, bicyclists, transit riders, and motorists by designing a right-of-way compatible with all modes.
2. Improve the pedestrian, bicycle, and transit experience and attract new users.
3. Provide comfortable and abundant pedestrian facilities and crossings that accommodate increased pedestrian demands related to economic development and activation of public spaces.
4. Improve bicycle accessibility and provide comfortable bicycle facilities for riders of all skill and comfort levels that accommodate increased demand for cycling.
5. Provide more reliable corridor travel by transit vehicles, provide safe and comfortable locations for boarding and alighting, and enhance connectivity between transit modes and between transit riders and nearby destinations.
6. Minimize blockage related to vehicular queues at pedestrian or bicycle connections, intersections, or access locations.
7. Provide more efficient management of curbside space for transit vehicles, pick-up and drop-offs, and parking.
8. Ensure compatibility with the corridor's historical and monumental significance while also recognizing the role of the corridor as a key component of the District's transportation network.
9. Develop Options that are feasible, implementable, and support the Pennsylvania Avenue Initiative.

1.4 Existing Conditions

The study team analyzed the transportation facilities to identify existing infrastructure and understand existing conditions on Pennsylvania Avenue NW. The subsequent subsection provide a brief overview of existing conditions for all transportation users along the one-mile section of Pennsylvania Avenue NW.

- Pennsylvania Avenue NW is designated as an arterial roadway, but the corridor's motor vehicle role is closer to that of a collector facility than its designated arterial status
- Pennsylvania Avenue NW's lack of east-west connectivity, location between other arterial streets like Constitution Avenue NW, and closure in front of the White House has shifted the motor vehicle demand away from through movements towards turning movements onto adjacent arterial streets
- Intersections on Pennsylvania Avenue NW generally operate below capacity and within LOS ranges that exceed driver expectations for delay within the District during AM and PM peak periods
- The number of crashes on Pennsylvania Avenue NW appear to be largely correlated with corridor traffic volumes, indicating total exposure might be the consistent linkage between many corridor crashes
- While the pedestrian network is mostly complete in the study area with no identified gaps, generally, the pedestrian network on Pennsylvania Avenue NW is not sized appropriately for the existing pedestrian demands
- Across Pennsylvania Avenue NW two-stage pedestrian crossings break up long crossings into two simpler ones, however the absence of a raised or separated refuge creates conflicts with bicyclists using the center-running protected bike lanes
- The center-running protected bike lanes on Pennsylvania Avenue NW and 15th Street NW serve as the backbone of the bicycle network within the study area
- Pennsylvania Avenue NW is one of the busiest transit corridors in the District, with near-constant service. This includes service from three Metrorail stations, 24 Metrobus bus routes, and commuter and tourist buses
- The substantial transit service along with the need for pick-ups and drop-offs, as well as parking creates a high-demand for curbside use along Pennsylvania Avenue NW. One of the primary motivations behind placing the existing bicycle lanes in the center of the roadway was to avoid the curbside uses on the edges of the street

TABLE 1: STUDY OBJECTIVES, PERFORMANCE MEASURES, AND EVALUATION METHODS

No.	Objective	Performance Measure	Evaluation Method
1	Improve pedestrian and bicycle safety, minimize the potential for conflicts between modes, and provide compatible speeds between pedestrians, bicyclists, transit riders, and motorists	■ Pedestrian Crashes	■ Pedestrian conflict points at crosswalks
		■ Bicycle Crashes	■ Turning vehicle conflict points with bicycles
		■ Pedestrian Exposure	■ Intersection crossing distance
		■ Auto Volumes	■ Turning volumes across crosswalks and bicycle facilities
2	Improve the pedestrian, bicycle, and transit experience and attract new users	■ Pedestrian experience/comfort	■ Additional pedestrian space provided (cross-section)
		■ Bicycle experience/comfort	■ Elevated or at-grade facility
		■ Bus Stop Availability	■ Number of corridor bus stops with adequate space
3	Provide comfortable and abundant pedestrian facilities and crossings that accommodate increased pedestrian demands related to economic development and activation of public spaces	■ Crossing Distance/Time	■ Average Pennsylvania Avenue pedestrian crossing time (3.5 feet per second)
		■ Buffer from Moving Traffic	■ Buffer width between sidewalk and auto travel lane (cross-section)
		■ Buffer from Bicycle Facilities	■ Buffer provided between pedestrian and bicycle facilities
		■ Pedestrian connections	■ Number of Pennsylvania Avenue pedestrian crossings
4	Improve bicycle accessibility and provide comfortable bicycle facilities for riders of all skill and comfort levels that accommodates increased demand for cycling	■ Buffer and Protection from Moving Traffic	■ Buffer width between each bicycle facility and auto travel lane (cross-section)
		■ Bicycle Network Connectivity	■ Connections provided to other bicycle facilities
5	Provide more reliable corridor travel by transit vehicles, provide safe and comfortable locations for boarding and alighting, and enhance connectivity between transit modes and between transit riders and nearby destinations	■ Bus Stop Locations	■ Number of corridor bus stops with adequate space
		■ Crossing Distance	■ Intersection crossing distance
		■ Transit Disruptions	■ Locations where buses could be blocked by adjacent travel lane
6	Minimize blockage related to vehicular queues at pedestrian or bicycle connections, intersections, or access locations	■ Queuing	■ Identification of 95th-percentile queues at corridor intersections blocking pedestrian or bicycle crossings or access points
		■ Vehicle Delay	■ Total eastbound and westbound approach peak hour delay at corridor intersections
7	Provide sufficient curbside space for transit vehicles, pick-up and drop-offs, loading and unloading, and parking	■ Sufficient Curbside Space	■ Provide sufficient designated locations for transit vehicles, pick-ups and drop-offs, loading and unloading, and parking
8	Ensure compatibility with the corridor's historical and monumental significance while also recognizing the role of the corridor as a key component of the District's transportation network	■ Compatibility	■ Compatibility with historical and monumental corridor significance
9	Develop alternatives that are feasible and implementable, and support the Pennsylvania Avenue Initiative	■ Compatibility	■ Feasible, implementable, and support Pennsylvania Avenue Initiative

1.5 Stakeholder Engagement

Stakeholder engagement was a crucial part of the project process. Although the stakeholder engagement did not include community involvement at this stage, stakeholder engagement did consider community interests and concerns as represented by the project's internal and external stakeholders identified below:

- Pennsylvania Avenue Initiative Executive Committee
  - National Park Service (NPS)
  - National Capital Planning Commission (NCPC)
  - General Services Administration (GSA)
  - Office of the Deputy Mayor for Planning and Economic Development (DMPED)
- Office of Planning (OP)
- Washington Metropolitan Area Transit Authority (WMATA)

1.6 Option Development

As identified through the existing conditions review of Pennsylvania Avenue NW, the restriction of vehicular traffic in front of the White House and the resultant shift in vehicular to other corridors has resulted in roadway capacity that can be repurposed to further enhance the safety, comfort, and experience of other users.

All design Options were constrained by a set of design guidelines established to maintain the corridor's iconic nature, dignified appearance, and prestige. These include:

1. **Viewshed**: The view of the corridor framed by the United States Capitol serving as an eastern vista point will be prioritized under any design scenario. To frame the Capitol building, symmetry along the roadway edges must be maintained.
2. **Fixtures**: Fixtures on the roadway (e.g., signal poles, cycle-track barriers, etc.) must be removable to accommodate ceremonial processions, specifically the Inaugural Presidential Ceremony.
3. **Curb Edge:** Any modifications proposed cannot extend beyond the existing 100-foot curb-to-curb roadbed.

The project team used "building blocks" to identify potential Options for Pennsylvania Avenue NW. Because the outcome of the project was intended to identify a range of potential Options, building blocks were combined to present design Options and perform analysis. However, building blocks that were identified as being feasible can be mixed and matched by the Pennsylvania Avenue Initiative moving forward.

1.7 Building Blocks

In the development of Options, the following "building blocks" were identified:

- **Travel Lanes** – Options were developed with the number of through travel lanes ranging from four to eight travel lanes along the corridor.
- **Transit Lanes** – The use of transit lanes, whether on the curb edges or in the middle of Pennsylvania Avenue were explored, but because of the limited distance many buses travel along Pennsylvania Avenue NW, the number of observed transit-vehicle turning movements, and bus operator feedback, transit lanes were not carried forward as a building block.
- **Protected Bike Lanes** – Protected bike lanes were included in all Options, with designs ranging from retaining the current center-running configuration, to splitting the lanes on either side of the street and putting the lanes together in a two-way configuration on one side of the street. Options for elevating the bicycle lanes to sidewalk level were also explored.
- **Pedestrian Space** – In all Options where the number of travel lanes were reduced, the additional space within the existing 100-foot curb-to-curb roadbed was devoted to additional pedestrian space.
- **Curbside Uses** – To provide space for transit vehicle stops and pick-ups and drop-offs, curbside use space was provided along the curb edge where turn lanes or through lanes were not necessary.
- **Curb Extensions** – Curb extensions –were introduced in the design Options where turn lanes at intersection were not necessary. Curb extensions provide more visibility and space for pedestrians, shorten intersection crossings, and help enforce turning movement restrictions.
- **Mid-block Crossing** – A mid-block crossing along the 8th Street NW north-south axis across Pennsylvania Avenue NW was explored and is feasible in all design Options. The mid-block crossing, in addition to extending the 8th Street NW pedestrian desire line, also provides connectivity to the National Archives and the nearby Archives Metrorail Station.

1.8 Refined Options

These building blocks were combined into four feasible Option designs seen in the figures below. These four Options, while presented discretely, include individual building blocks that can be mixed and matched in other manners than the four Options shown.



Option 1 – Center-running Protected Bike Lanes

One of the distinguishing travel patterns identified in the existing conditions analysis is that vehicles travel on Pennsylvania Avenue NW for a very short distance before turning from the corridor to continue traveling north or south. The high volume of turning vehicles results in increased pedestrian and bicycle exposure to collisions. Option 1 proposes to maintain the protected bicycle facilities in the center of Pennsylvania Avenue NW. Aside from reducing bicycle exposure to turning vehicles, Option 1 also maintains a design that is consistent with existing conditions and familiar to the corridor's current users. Additionally, pedestrian accommodations are enhanced by reducing the overall crossing distance at marked crosswalks. **Figure 1** and **Figure 2** present the key multimodal characteristics proposed in **Option 1**.

FIGURE 1: OPTION 1 - KEY MULTIMODAL CHARACTERISTICS
CURB-TO-CURB DISTANCE: 100 FEET



FIGURE 2: OPTION 1 - CONCEPT RENDERING LOOKING EAST TOWARDS THE CAPITOL



Option 2 – Center Walkway with Two-Way Protected Bike Lanes

Pennsylvania Avenue NW attracts a myriad of users for a variety of reasons. While some pedestrians use the corridor as a byway to their destination, others meander through to take of advantage of the views in the center of the street of the White House to the west and the Capitol to the east. Currently, the absence of a pedestrian n refuge area results in additional conflicts between bicyclists and pedestrians. Option 2 proposes a pedestrian center-running walkway flanked by protected bicycle lanes. While the overall width of the roadway would remain at 100 feet, the center-running walkway proposed in Option 2 provides an additional buffered space for pedestrians on Pennsylvania Avenue NW. **Figure 3** and **Figure 4** present the key multimodal characteristics proposed in **Option 2**.

FIGURE 3: OPTION 2 – KEY MULTIMODAL CHARACTERISTICS

CURB-TO-CURB DISTANCE: 100 FEET



FIGURE 4: OPTION 2 - CONCEPT RENDERING LOOKING EAST TOWARDS THE CAPITOL



Option 3 – One-way Protected Bike Lanes

While the first two Options under the refined concepts maintain a look and feel that mirrors existing conditions, Option 3 combines the multimodal building blocks to provide additional protection for pedestrians and bicyclists along the curb on Pennsylvania Avenue NW. A major design consideration for Pennsylvania Avenue NW is that the roadway fixtures must be removable to accommodate the Inaugural Presidential Ceremony, among other events. Such a design consideration constrains the degree to which the proposed changes enhance safety for pedestrians and bicyclists. By shifting the enhancements to either side of the curb, Option 3 reduces the exposure of pedestrians to vehicles with a shorter crossing distance and introduces a vertical element of safety for bicyclists with a one-way raised bicycle facility. **Figure 5** and **Figure 6** present the key multimodal characteristics proposed by **Option 3**.

FIGURE 5: OPTION 3 – KEY MULTIMODAL CHARACTERISTICS

CURB-TO-CURB DISTANCE: 100 FEET



FIGURE 6: OPTION 3 - CONCEPT RENDERING LOOKING EAST TOWARDS THE CAPITOL



Option 4 – Two-way Protected Bike Lanes

Higher volumes of turning vehicles occur on the north side of Pennsylvania Avenue NW during the existing conditions analysis. To reduce the exposure of bicyclists to turning vehicles, Option 4 proposes a two-way protected bicycle facility on the south side of Pennsylvania Avenue NW. Similar to Option 3, Option 4 introduces a vertical element of safety for bicyclists by raising the bicycle facility above the roadway. While additional pedestrian space is provided on the south side, the majority of additional pedestrian space is added to the north side of the corridor. **Figure 7** and **Figure 8** present the key multimodal characteristics proposed by **Option 4**.

FIGURE 7: OPTION 4 – KEY MULTIMODAL CHARACTERISTICS

CURB-TO-CURB DISTANCE: 100 FEET



FIGURE 8: OPTION 4 - CONCEPT RENDERING LOOKING EAST TOWARDS THE CAPITOL



1.9 Performance Measures

This section discusses the broad range of ways that the proposed combination of multimodal building blocks (the Options) were evaluated and assesses how well the Options perform relative to the No Build scenario and to each other in terms of meeting the study's goals and objectives. **Table 3** displays the performance measures selected for each objective, provides the evaluation methodology, and presents the assessment showing how the Options compare to the No Build scenario and to each other.

1.10 Cost Estimate

A planning-level cost estimate was performed for the proposed changes by quantifying the major construction elements for each Option. **Table 2** summarizes the planning-level cost estimates.

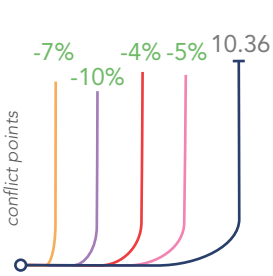
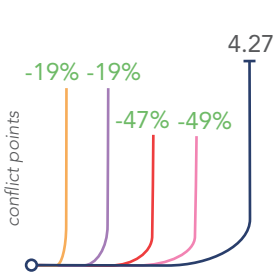
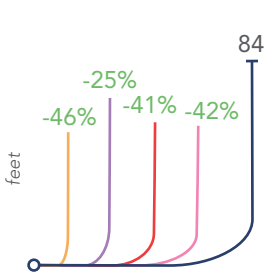
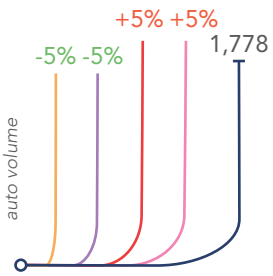
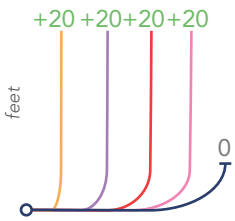
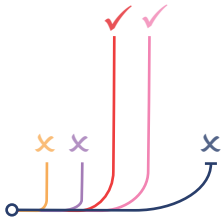
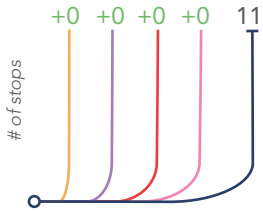
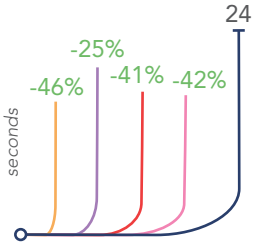
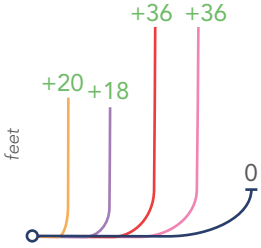
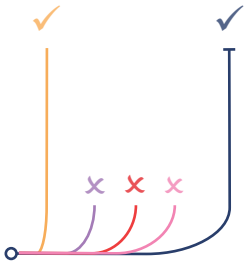
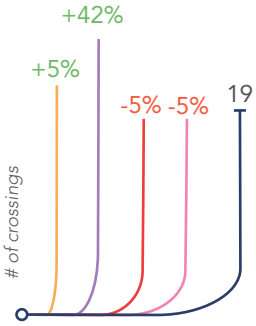
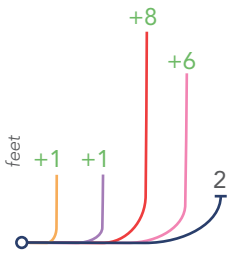
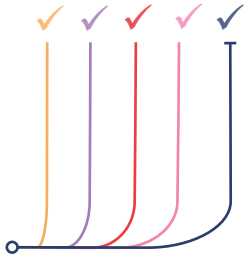
1.11 Outcomes and Next Steps

The four Options consist of several combinations of building blocks that identified as feasible Options for the corridor. These building blocks, in conjunction with outcomes from other Pennsylvania Avenue NW Initiative studies will help frame the design Options considered as the Executive Committee moves forward with the environmental analysis. At that point public feedback along with a thoughtful consideration of trade-offs and priorities will help identify a recommended alternative for moving forward with the environmental approval.

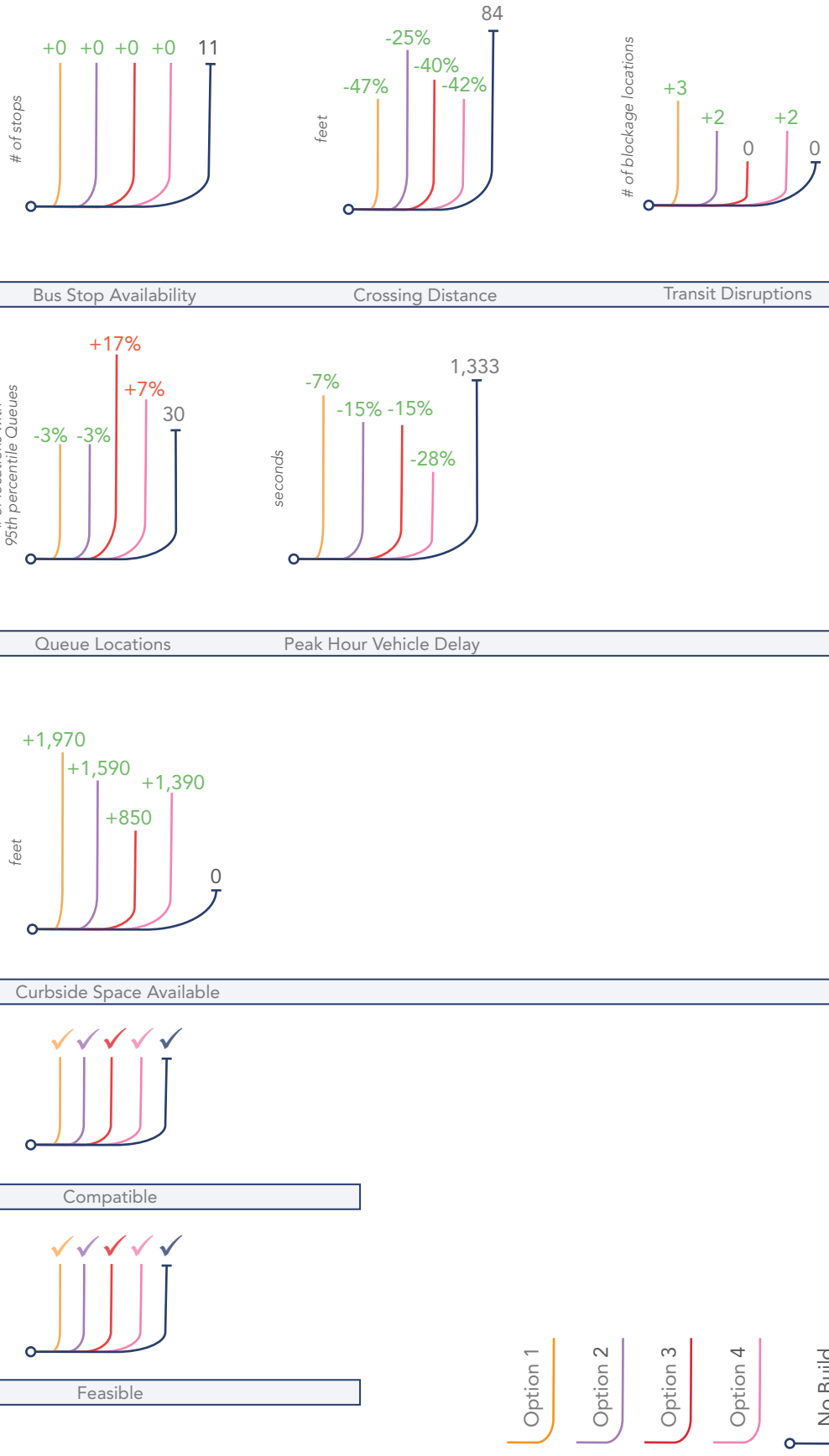
TABLE 2: PLANNING-LEVEL COST ESTIMATES FOR THE PROPOSED OPTIONS

	Option 1	Option 2	Option 3	Option 4
Quantities	$14,784,000	$14,042,000	$13,824,000	$13,768,000
Utilities and Landscaping	$5,680,000	$4,743,000	$5,363,000	$5,345,000
Maintenance of Traffic and Mobilization	$5,116,000	$4,696,000	$4,797,000	$4,778,000
40% Contingency	$7,674,000	$7,044,000	$7,195,000	$7,167,000
Total Estimated Engineering and Construction Cost	**$33,253,000**	**$30,525,000**	**$31,179,000**	**$31,057,000**

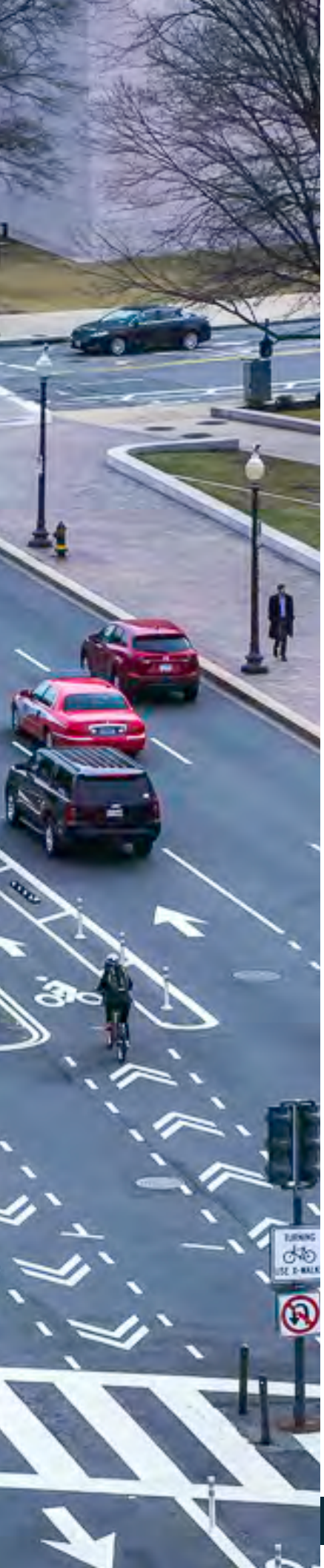
TABLE 3: STUDY OBJECTIVES, PERFORMANCE MEASURES, AND EVALUATION METHODS

No.	Objective	Evaluation			
1	Improve Pedestrian and Bicycle Safety				
		Pedestrian Crashes	Bicycle Crashes	Crossing Distance	Peak Hour Auto Volumes
2	Improve the Pedestrian, Bicycle, and Transit Experience				
		Additional Pedestrian Space	Elevated Bicycle Facility	Bus Stop Availability	
3	Provide Comfortable and Abundant Pedestrian Facilites				
		Pedestrian Crossing Time	Vehicle Buffer	Bicycle Buffer	Pedestrian Crossings
4	Provide Comfortable Bicycle Facilities for Riders of all Skill and Comfort Levels				
		Vehicle Buffer	Bicycle Connectivity		

No.	Objective	Evaluation
5	Provide More Reliable Corridor Travel by Transit Vehicles	Bus Stop Availability; Crossing Distance; Transit Disruptions
6	Minimize Blockage Related to Vehicular Queues	Queue Locations; Peak Hour Vehicle Delay
7	Provide Sufficient Curbside Space	Curbside Space Available
8	Ensure Compatibility with the Corridor's Historical and Monumental Significance	Compatible
9	Develop Alternatives that are Feasible and Implementable	Feasible




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CHAPTER 2 INTRODUCTION AND BACKGROUND

PENNSYLVANIA AVENUE TRANSPORTATION STUDY
East of the White House

2.1 Introduction

One of the most iconic streets in the world, Pennsylvania Avenue NW between the White House and the Capitol regularly hosts presidents, dignitaries, and tourists, while also serving a vital role in moving residents and workers from the District of Colombia. Like other great streets of the world, Pennsylvania Avenue NW serves many roles for the street's myriad users. From a transportation perspective, with the closure of the 1600 block of Pennsylvania Avenue NW in front of the White House, the roadway no longer serves the amount of vehicular through traffic the current configuration was designed to serve. The additional capacity has created a rare opportunity in the District to consider repurposing available right-of-way to allow Pennsylvania Avenue NW to better serve the many users of this iconic avenue.

Pennsylvania Avenue NW provides a key transportation connection within the District while also serving as an attraction itself. The one-mile corridor's location between the White House and Capitol, along with its role in hosting locally and nationally significant events, draws a diverse group of users to the corridor, including event attendees, children, recreation enthusiasts, workers, families, seniors, DC residents, and tourists. However, the Office of Planning's Pedestrian Life Study identified Pennsylvania Avenue NW as a "great street in waiting" and described today's corridor experience as that "of monumental buildings, gracious trees, and few people or activities to attract them."

As identified in *moveDC*, the District's Multimodal Long-Range Transportation Plan, Pennsylvania Avenue NW has been identified as an existing bicycle-priority corridor. The National Capital Planning Commission (NCPC), the General Services Administration (GSA), and the National Park Service (NPS), in coordination with other federal and District agencies formed an Executive Committee and launched the Pennsylvania Avenue Initiative. With public input and the guidance of the Executive Committee, the Pennsylvania Avenue Initiative is seeking to improve the experience on Pennsylvania Avenue NW by providing an environment that builds off the already existing strong civic identity and character of the avenue and develops a thriving destination that consistently engages users. By identifying short- and long-term projects, the Initiative is seeking to develop a vision for the corridor more in line with Daniel Patrick Moynihan's "lively, friendly and inviting, as well as dignified and impressive" description of the corridor. Further, as part of the planned redevelopment of the FBI Headquarters building, the opportunity exists to re-establish D Street NW between 9th Street NW and 10th Street NW.



PENNSYLVANIA AVENUE NW HOSTS THE PRESIDENTIAL INAUGURAL PARADE EVERY FOUR YEARS



MORNING COMMUTE ON PENNSYLVANIA AVENUE NW



PENNSYLVANIA AVENUE NW ROUTINELY SERVES AS A NATURAL COMMUNITY GATHERING PLACE FOR RESIDENTS AND VISITORS OF THE DISTRICT

The purpose of the Pennsylvania Avenue East of the White House Transportation Feasibility Study is to identify the current transportation conditions on Pennsylvania Avenue NW and develop a range of conceptual roadway design Options that enhance the experience for all modes. The range of conceptual Options developed will be one of a broad range of elements to inform future changes on Pennsylvania Avenue NW. The four Options consist of several combinations of building blocks identified as feasible Options for the corridor. These building blocks, in conjunction with outcomes from other Pennsylvania Avenue NW Initiative studies, will help frame the design Options considered as the Executive Committee moves forward with the environmental analysis. At that point public feedback, along with a thoughtful consideration of trade-offs and priorities, will help identify a recommended alternative for moving forward with the environmental approval. The study area is shown in **Figure 9**.

2.2 Background

There are a variety of existing plans, studies, and recommendations that are relevant to the Pennsylvania Avenue East of the White House Transportation Feasibility Study. These documents were reviewed to understand key multimodal opportunities within the corridor. The following section summarizes key findings and highlights location-specific recommendations contained in these documents.

2.2.1 Previous Studies and Recommendations

From the 1970s to the 1990s, the Pennsylvania Avenue Development Corporation re-imagined the corridor and adjoining area, which also helped with efforts to revitalize the District's downtown. These efforts ceased in the mid-1990s.Until recently, minimal work outside of security enhancements have been done on "America's Main Street."

Bicycle Facility Evaluation Report (2012)

In June 2010, the District Department of Transportation (DDOT) expanded its network of safe and accessible bicycle facilities with the installation of center-running protected bike lanes on Pennsylvania Avenue NW. These lanes were evaluated in DDOT's Bicycle Facility Evaluation Report (2012). The report provided an evaluation of the three locations where innovative bicycle facilities were installed in Northwest DC (15th Street NW, Pennsylvania Avenue NW, and at the intersection of 16th Street/U Street/New Hampshire Avenue NW) in 2010. The report documented an increase in comfort levels for bicyclists on Pennsylvania Avenue NW, which coincided with a large increase in bicycle volumes on the corridor and minimal change in motor vehicle volumes. The report also identified areas for improvement. These areas of improvement included greater protection for bicyclists from u-turning vehicles, which led to experiments with "zebra" traffic separators, and installation of rubber curb stops in May 2015. In addition, the report recommended the use of measures to minimize conflicts between pedestrians and bicyclists. One specific recommendation included the installation of separate signals for bicyclists and motorists to improve operations and clarify when each mode has the right-of-way.

Pennsylvania Avenue National Historic Site Management Plan (2014)

The Pennsylvania Avenue National Historic Site Management Plan (2014) establishes a vision for the protection, use, and management of the Pennsylvania Avenue National Historic Site (NHS) as a unit of the national park system. NHS extends from the Capitol grounds to the east side of the White House. While the roadway is operated and maintained by DDOT, the distinct park areas, plazas, sidewalks, special lighting, trees, sculptures, and memorials adjacent to the corridor are managed by National Park Services (NPS). The plan addresses current problems and concerns about the management and maintenance of Pennsylvania Avenue NW and its integrated relationship to the District; seeks to take advantage of opportunities to improve amenities for visitors, residents, workers, and commuters; and articulates specific desired conditions and future management actions that will ensure that the site's purposes continue to be met and its significance is preserved and communicated to the public.

The management plan identifies the following concerns, opportunities, and actions related to access and circulation on Pennsylvania Avenue NW:

- Pedestrian Crossings: The countdown times for pedestrian street-crossings may be too short for many people, who may be stranded on traffic islands if not enough time is allowed for crossing. Moreover, pedestrian crossings are not always clearly marked, and pedestrians may not be familiar with the half-road crossing approaches at 6th and 12th Streets.
    - Action: Work with DC through an updated/ amended MOA and design guidelines prepared by a collaborative working group to improve crosswalks (pavement and markings), upgrade traffic islands, coordinate crosswalk lights, and improve signage to educate users about half-road crossings.
- Bicycling: Center-running bike lanes within Pennsylvania Avenue NW have been added, but there is concern about safety of bicyclists due to lack of physical separation, as well as bicyclists on sidewalks.
    - Action: Address bicycle safety issues through a collaborative interagency working group.
- Regulatory Signage and Multimodal Use: Opportunities exist to improve signage with respect to multimodal transportation along Pennsylvania Avenue NW to reduce conflicts between user groups and improve safety for all users.
    - Action: Provide signage alerting users (pedestrians, bicyclists, motorists, and Segway™ HT riders) of multiple modes of circulation along the corridor.

People on Penn – Pennsylvania Avenue Pedestrian Life Study (2016)

In 2016 the DC Office of Planning produced a report, *People on Penn – Pennsylvania Avenue Pedestrian Life Study*, that detailed the functionality of the public spaces and sidewalks on Pennsylvania Avenue NW. The report helps to inform a vision for how Pennsylvania Avenue NW can meet local and national needs and perform as a truly great pedestrian street.

2.2.2 Ongoing Studies and Initiatives

The Pennsylvania Avenue Initiative

NCPC, the General Services Administration (GSA), and NPS, in coordination with other federal and District agencies, launched the Pennsylvania Avenue Initiative. The Initiative is studying the near- and long-term needs of Pennsylvania Avenue NW and surrounding neighborhoods, identifying a governance framework, and developing a vision for how Pennsylvania Avenue NW can meet local and national needs.

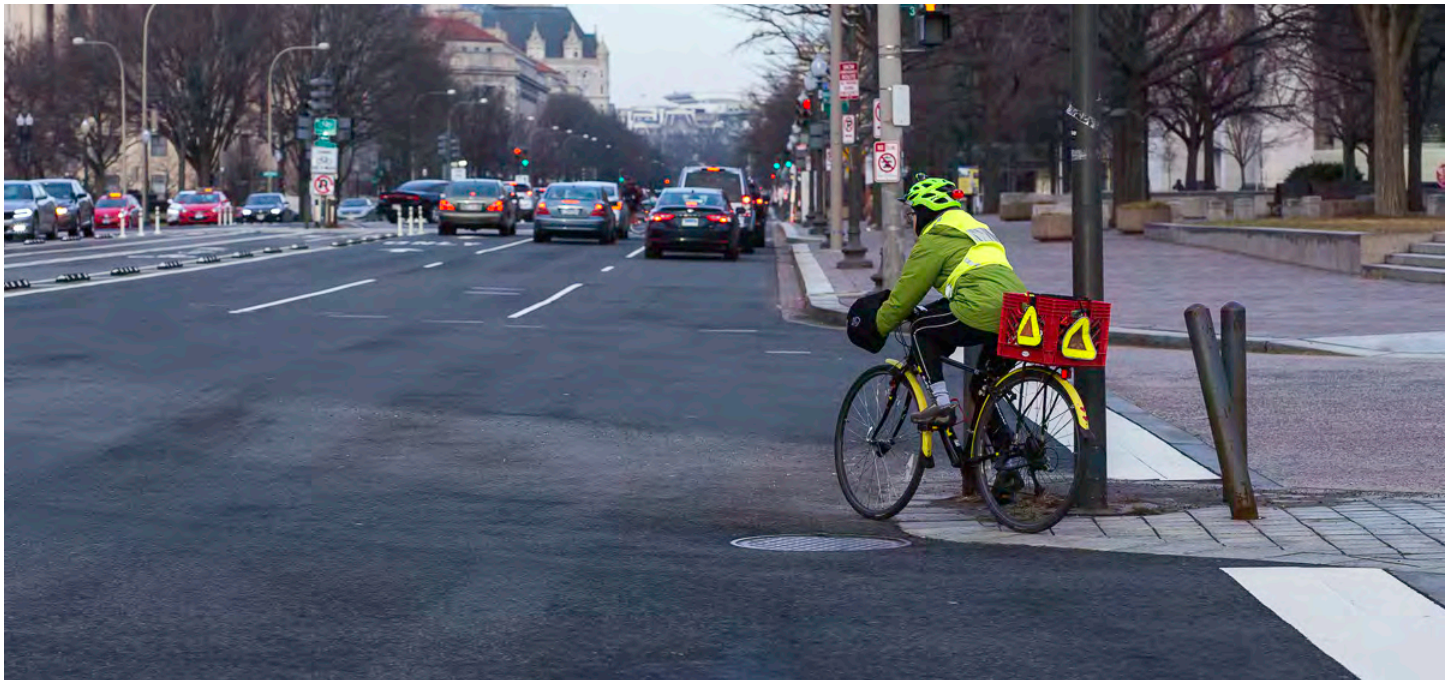
NCPC is in the process of developing urban design strategies for Pennsylvania Avenue NW and adjacent areas from the White House to the U.S. Capitol Grounds (generally 1st to 15th Streets NW and F Street to Madison Drive NW). The draft report of these strategies provides a general assessment of the transportation network and examines how effectively the existing infrastructure serves Pennsylvania Avenue NW and contributes to its connectivity to adjoining neighborhoods, the city, and the region. Additionally, the draft report proposes design alternatives for Pennsylvania Avenue NW focused on the following themes: Destination America, Workplace for the Future, and Living District.

Louisiana Avenue Bicycle Facility Design

DDOT is studying how to improve bicycle safety, access, and connectivity on Louisiana Avenue NW between Columbus Circle NE and Constitution Avenue NW. Currently, the corridor is designated as a signed bicycle route. The 2005 Bicycle Master Plan and the 2014 moveDC Plan identified Louisiana Avenue as a missing bicycle link between Union Station and the U.S. Capitol. DDOT has developed two protected bike facility alternatives for Louisiana Avenue NW. The first alternative includes protected bike lanes on either side of Louisiana Avenue NW. The second alternative proposes a two-way protected bike lane on the southeast side of Louisiana Avenue NW. Alternatives proposed in the Pennsylvania Avenue East of the White House Transportation Study consider transitions between both bicycle facilities.

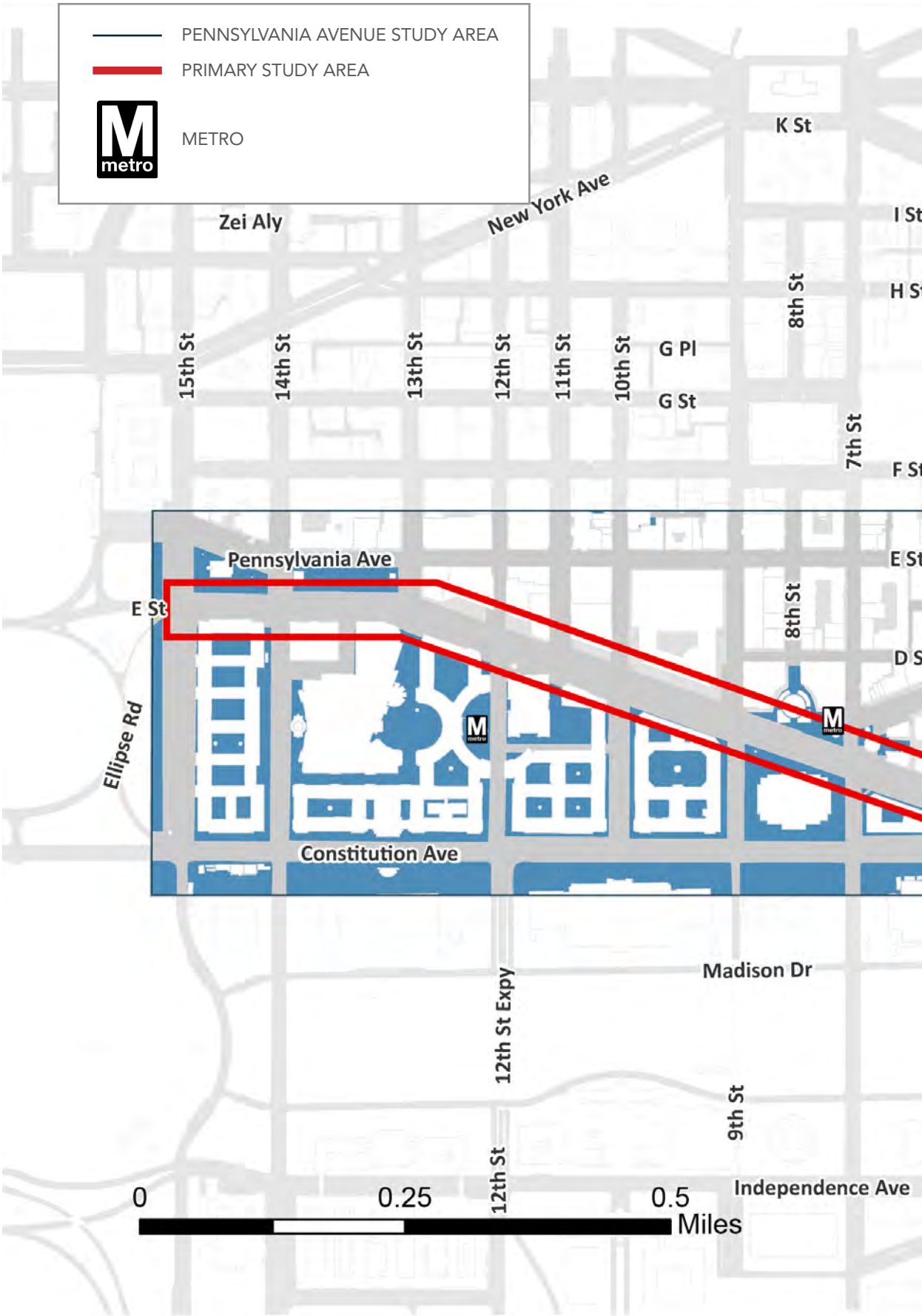
FBI Headquarters Consolidation – Draft Environmental Impact Statement (2016)

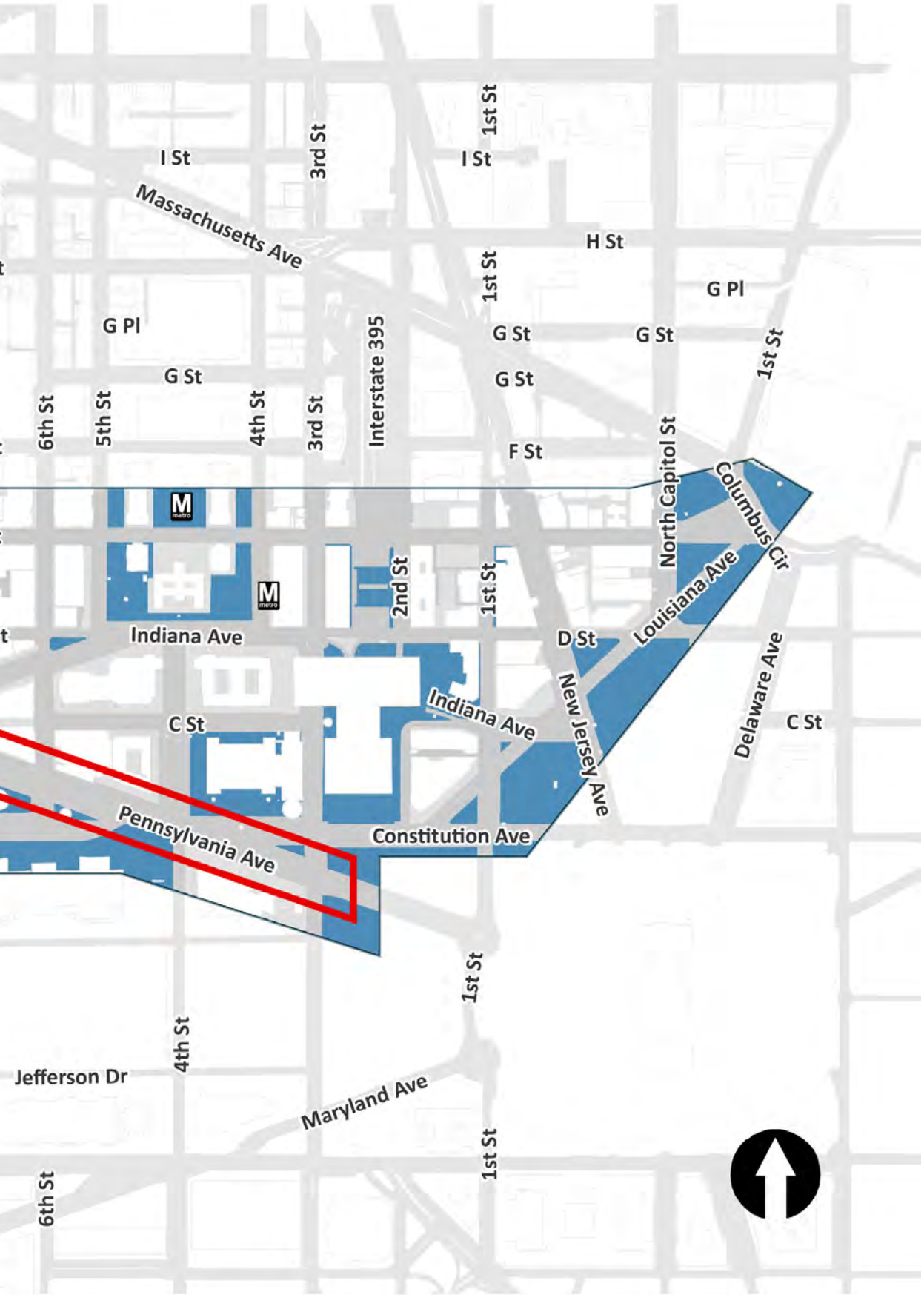
The Federal Bureau of Investigation (FBI) currently occupies the J. Edgar Hoover building located along Pennsylvania Avenue NW. The GSA has proposed to exchange the J. Edgar Hoover building with a development entity from the private sector for a new facility so the FBI can consolidate their headquarters operations and relocate elsewhere in the region. The GSA prepared a Draft Environmental Impact Statement (Draft EIS) in 2016 to guide the evaluation of alternatives for a new, permanent location for a proposed consolidated FBI Headquarters. The Draft EIS proposes two conceptual reasonably foreseeable development scenarios. Under the first scenario the existing J. Edgar Hoover building would be used for private commercial uses. In the second scenario, the building would be demolished and redeveloped to maximize development capacity for private commercial use. The Draft EIS provides a summary of the environmental impacts.



BICYCLIST TRANSITIONING FROM CONSTITUTION AVENUE NW TO PENNSYLVANIA AVENUE NW

FIGURE 9: STUDY AREA




I St
3rd St
1st St
I St
Massachusetts Ave
H St
1st St
G Pl
G Pl
G St
G St
1st St
Interstate 395
G St
G St
6th St
5th St
4th St
3rd St
F St
North Capitol St
Columbus Cir
2nd St
1st St
Louisiana Ave
Indiana Ave
D St
Delaware Ave
Indiana Ave
New Jersey Ave
C St
C St
Pennsylvania Ave
Constitution Ave
1st St
4th St
Jefferson Dr
Maryland Ave
1st St
6th St

2.2.2.1 moveDC Recommendations

In 2014, the District developed a Multimodal Long-Range Transportation Plan called moveDC. The plan established that non-local streets should prioritize pedestrians, accommodate driving and local deliveries, and support one of the following modes:

- Protected bicycle facilities;
- Dedicated high-capacity surface transit line(s);
- Dedicated freight routes; or,
- A combination of these modes in simpler accommodations.

Using these priorities as guidelines, *moveDC* developed multimodal improvements throughout the entire District, including the areas surrounding Pennsylvania Avenue NW. The specific recommendations for Pennsylvania Avenue NW and the adjacent areas are listed in **Table 4**.

2.2.2.2 Vision Zero Findings

Vision Zero is the Mayor's initiative to end traffic related fatalities and serious injuries by 2024. Residents and users of the streets can identify location-specific qualitative and anecdotal evidence of safety issues in the District. As a large crowd-sourced data set, this provides unique insight into daily and recurring traffic safety issues. The top three most-reported concerns are failure to stop for pedestrians, speeding, and double parking.

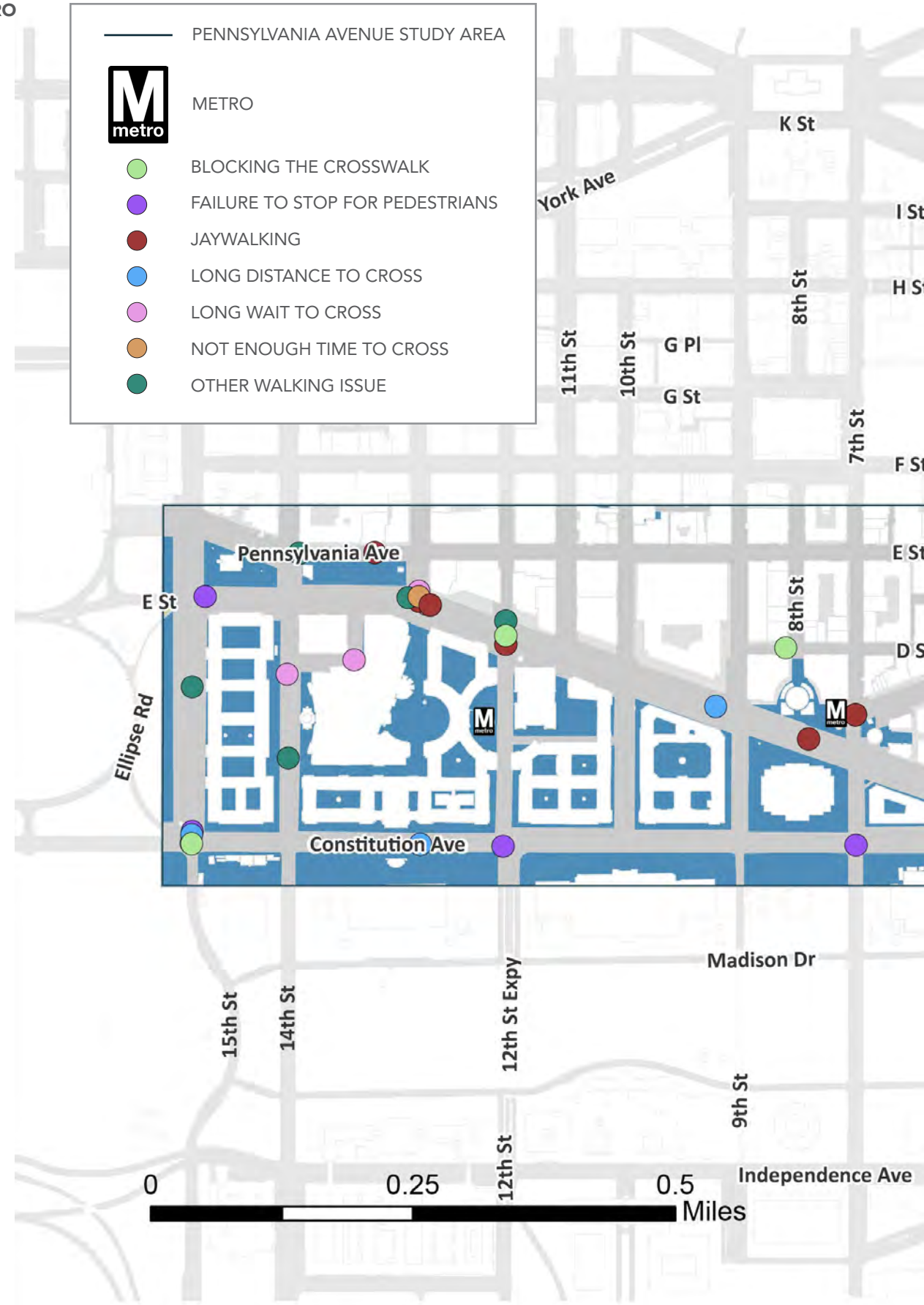
In the Pennsylvania Avenue NW study area, the Vision Zero Safety Map shows many traffic safety concerns for pedestrians, bicyclists, and drivers and that hot spots emerge when analyzing the data for location and mode-specific concerns. The Vision Zero pedestrian-safety related issues are shown in **Figure 10**.

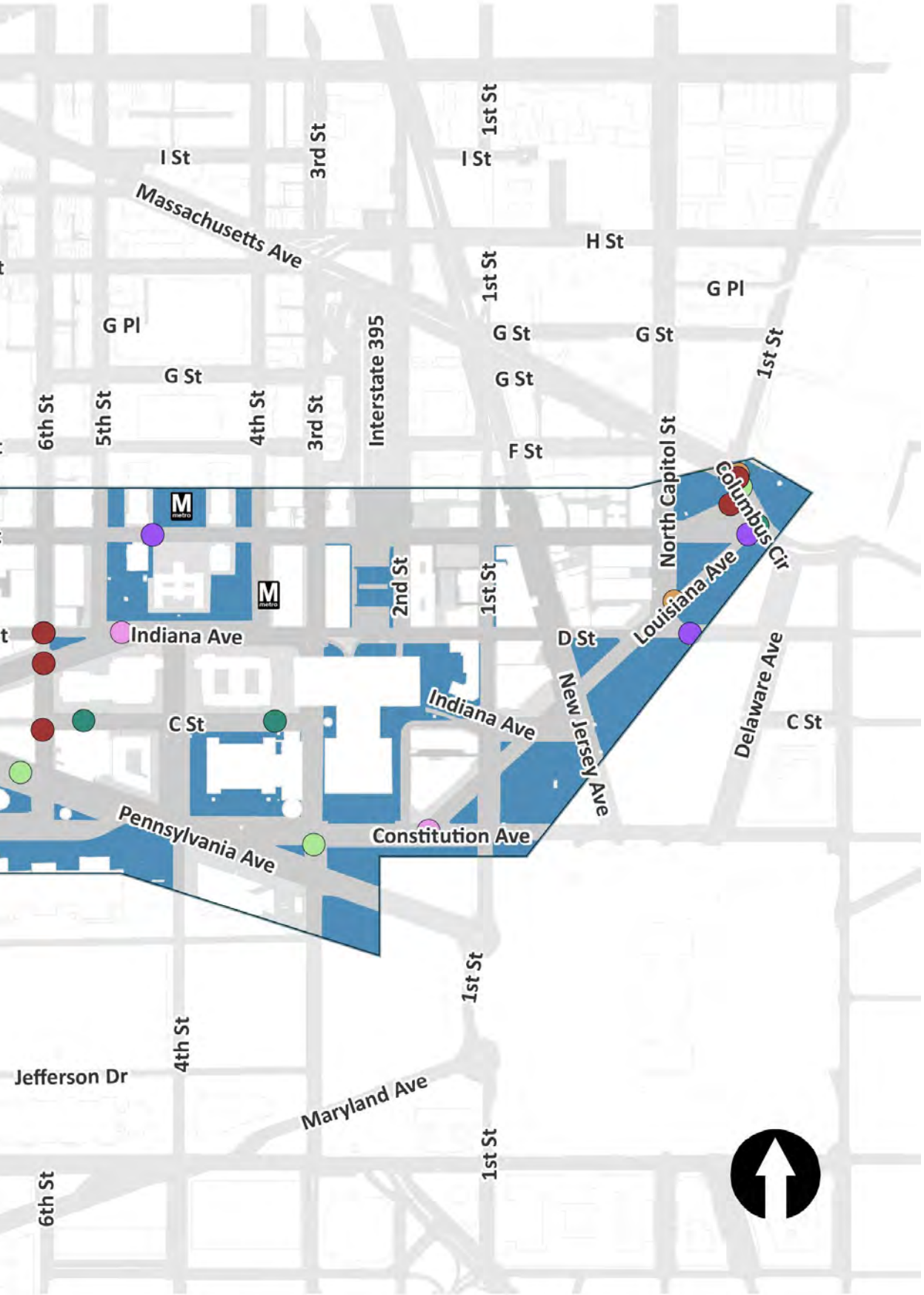
TABLE 4: ***MOVEDC*** **RECOMMENDATIONS FOR PENNSYLVANIA AVENUE NW**

	Street	From	To	Improvement
1	15th Street NW	Constitution Ave NW	I St NW	Cycle Track
2	4th Street NW	I St SW	Constitution Ave NW	Cycle Track
3	6th Street NW	Pennsylvania Ave NW	R St NW	Cycle Track
4	Louisiana Avenue NW	Constitution Ave NW	Columbus Circle	Cycle Track

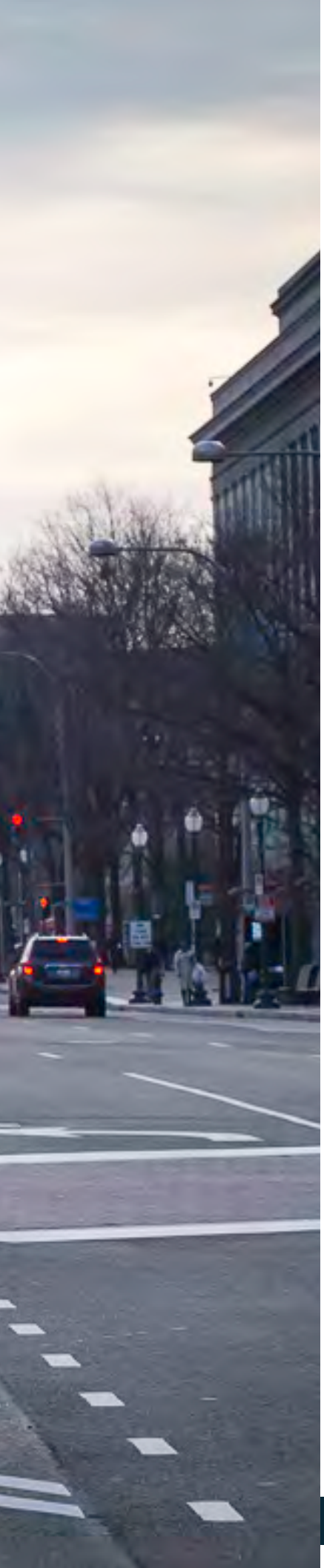


FIGURE 10: VISION ZERO PEDESTRIAN-SAFETY RELATED ISSUES




I St
3rd St
1st St
I St
Massachusetts Ave
H St
1st St
G Pl
G Pl
G St
Interstate 395
G St
G St
1st St
G St
6th St
5th St
4th St
3rd St
F St
North Capitol St
Columbus Cir
2nd St
1st St
Louisiana Ave
Indiana Ave
D St
Indiana Ave
New Jersey Ave
Delaware Ave
C St
C St
Pennsylvania Ave
Constitution Ave
1st St
4th St
Jefferson Dr
Maryland Ave
1st St
6th St


THRU
OBEY THIS
SIGNAL



CHAPTER 3 GOALS AND OBJECTIVES

PENNSYLVANIA AVENUE TRANSPORTATION STUDY
East of the White House

3.1.1 Goal

The goal of the Pennsylvania Avenue East of the White House Transportation Feasibility Study is to support the Pennsylvania Avenue Initiative in identifying the near- and long-term transportation needs of all users of Pennsylvania Avenue NW and the surrounding neighborhood. This includes access to and from activity centers, and safety and mobility along the corridor for pedestrians, bicyclists, transit users, and motorists. The focus of the Study is not to provide a recommendation for a preferred Option. Instead, the Study develops four potential Options that meet local and national needs in a 21st century capital city, including the ability to host the Presidential Inaugural Parade every four years, along with other nationally significant events and activities. The Options will be compatible with Pennsylvania Avenue's role as one of the most historic thoroughfares in the world, a ceremonial promenade, and a lively downtown event space.

3.1.2 Objectives

To ensure that the Options align with the near- and long-term transportation needs of all users, each Option will be evaluated based on the objectives discussed below and in **Table 5**. **Table 5** also includes the objectives' associated performance measures and evaluation methods.

1. Improve pedestrian and bicycle safety, minimize the potential for conflicts between modes, and provide compatible speeds between pedestrians, bicyclists, transit riders, and motorists by designing a right-of-way compatible with all modes.
2. Improve the pedestrian, bicycle, and transit experience and attract new users
3. Provide comfortable and abundant pedestrian facilities and crossings that accommodate increased pedestrian demands related to economic development and activation of public spaces.
4. Improve bicycle accessibility and provide comfortable bicycle facilities for riders of all skill and comfort levels that accommodate increased demand for cycling.
5. Provide more reliable corridor travel by transit vehicles, provide safe and comfortable locations for boarding and alighting, and enhance connectivity between transit modes and between transit riders and nearby destinations.
6. Minimize blockage related to vehicular queues at pedestrian or bicycle connections, intersections, or access locations.
7. Provide more efficient management of curbside space for transit vehicles, pick-up and drop-offs, and parking.
8. Ensure compatibility with the corridor's historical and monumental significance while also recognizing the role of the corridor as a key component of the District's transportation network.
9. Develop Options that are feasible, implementable, and support the Pennsylvania Avenue Initiative.

TABLE 5: STUDY OBJECTIVES, PERFORMANCE MEASURES, AND EVALUATION METHODS

No.	Objective	Performance Measure	Evaluation Method
1	Improve pedestrian and bicycle safety, minimize the potential for conflicts between modes, and provide compatible speeds between pedestrians, bicyclists, transit riders, and motorists	■ Pedestrian Crashes	■ Pedestrian conflict points at crosswalks
		■ Bicycle Crashes	■ Turning vehicle conflict points with bicycles
		■ Pedestrian Exposure	■ Intersection crossing distance
		■ Auto Volumes	■ Turning volumes across crosswalks and bicycle facilities
2	Improve the pedestrian, bicycle, and transit experience and attract new users	■ Pedestrian experience/comfort	■ Additional pedestrian space provided (cross-section)
		■ Bicycle experience/comfort	■ Elevated or at-grade facility
		■ Bus Stop Availability	■ Number of corridor bus stops with adequate space
3	Provide comfortable and abundant pedestrian facilities and crossings that accommodate increased pedestrian demands related to economic development and activation of public spaces	■ Crossing Distance/Time	■ Average Pennsylvania Avenue pedestrian crossing time (3.5 feet per second)
		■ Buffer from Moving Traffic	■ Buffer width between sidewalk and auto travel lane (cross-section)
		■ Buffer from Bicycle Facilities	■ Buffer provided between pedestrian and bicycle facilities
		■ Pedestrian connections	■ Number of Pennsylvania Avenue pedestrian crossings
4	Improve bicycle accessibility and provide comfortable bicycle facilities for riders of all skill and comfort levels that accommodates increased demand for cycling	■ Buffer and Protection from Moving Traffic	■ Buffer width between each bicycle facility and auto travel lane (cross-section)
		■ Bicycle Network Connectivity	■ Connections provided to other bicycle facilities
5	Provide more reliable corridor travel by transit vehicles, provide safe and comfortable locations for boarding and alighting, and enhance connectivity between transit modes and between transit riders and nearby destinations	■ Bus Stop Locations	■ Number of corridor bus stops with adequate space
		■ Crossing Distance	■ Intersection crossing distance
		■ Transit Disruptions	■ Locations where buses could be blocked by adjacent travel lane
6	Minimize blockage related to vehicular queues at pedestrian or bicycle connections, intersections, or access locations	■ Queuing	■ Identification of 95th-percentile queues at corridor intersections blocking pedestrian or bicycle crossings or access points
		■ Vehicle Delay	■ Total eastbound and westbound approach peak hour delay at corridor intersections
7	Provide sufficient curbside space for transit vehicles, pick-up and drop-offs, loading and unloading, and parking	■ Sufficient Curbside Space	■ Provide sufficient designated locations for transit vehicles, pick-ups and drop-offs, loading and unloading, and parking
8	Ensure compatibility with the corridor's historical and monumental significance while also recognizing the role of the corridor as a key component of the District's transportation network	■ Compatibility	■ Compatibility with historical and monumental corridor significance
9	Develop alternatives that are feasible and implementable, and support the Pennsylvania Avenue Initiative	■ Compatibility	■ Feasible, implementable, and support Pennsylvania Avenue Initiative





CHAPTER 4 EXISTING CONDITIONS

PENNSYLVANIA AVENUE TRANSPORTATION STUDY
East of the White House

Pennsylvania Avenue NW has some of the most unique attractions and destinations in the District that make the corridor a popular destination for a range of users. Prior to the closure of the 1600 block of Pennsylvania Avenue NW in front of the White House, the corridor served as an important roadway for traffic traveling through Downtown. With east-west vehicular access restricted, the primary function of Pennsylvania Avenue NW as a principal arterial shifted. Currently, motor vehicles and buses travel on Pennsylvania Avenue NW for a few blocks before diverting onto major north-south corridors to continue their trips. The shift in vehicular travel patterns to other corridors has resulted in excess capacity and an opportunity to repurpose roadway space on Pennsylvania Avenue NW to support an environment that takes advantage of the numerous tourist and employment destinations in between the two iconic attractions that bookend the corridor.

The study team analyzed the transportation facilities to identify existing infrastructure and understand existing conditions on Pennsylvania Avenue NW. The subsequent subsections provide a brief overview of existing conditions for all transportation users along the one-mile section of Pennsylvania Avenue NW. Refer to the Existing Conditions Briefing Booklet in **Appendix A** for a more in-depth discussion of existing conditions.

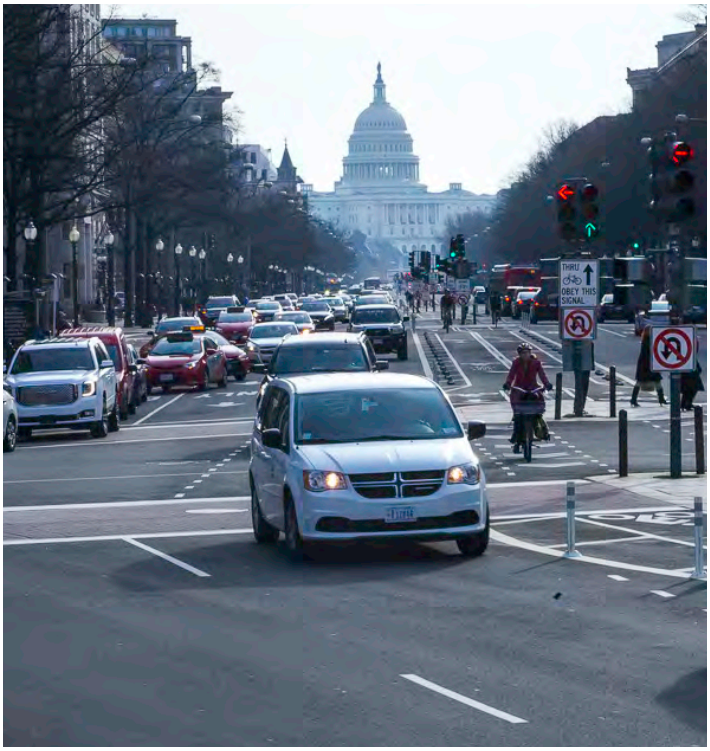
4.1 Corridor Characteristics

4.1.1 Functional Classification

Within the study area, Pennsylvania Avenue NW and Constitution Avenue NW are designated as arterial roadways in the east-west direction, and 7th Street NW and 14th Street NW are designated as arterial roadways in the north-south directions. Arterial roadways are the highest traffic volume corridors and connect major centers of activity in urban areas. These roads are served by a grid of collector and local streets to the north of Pennsylvania Avenue NW. Pennsylvania Avenue NW's lack of east-west connectivity and location between other arterial streets like Constitution Avenue NW has shifted the motor vehicle demand away from through movements towards turning movements onto adjacent arterial streets. The corridor's motor vehicle role is closer to that of a collector facility than its designated arterial status. The existing cross-section for the corridor is shown if **Figure 11**.

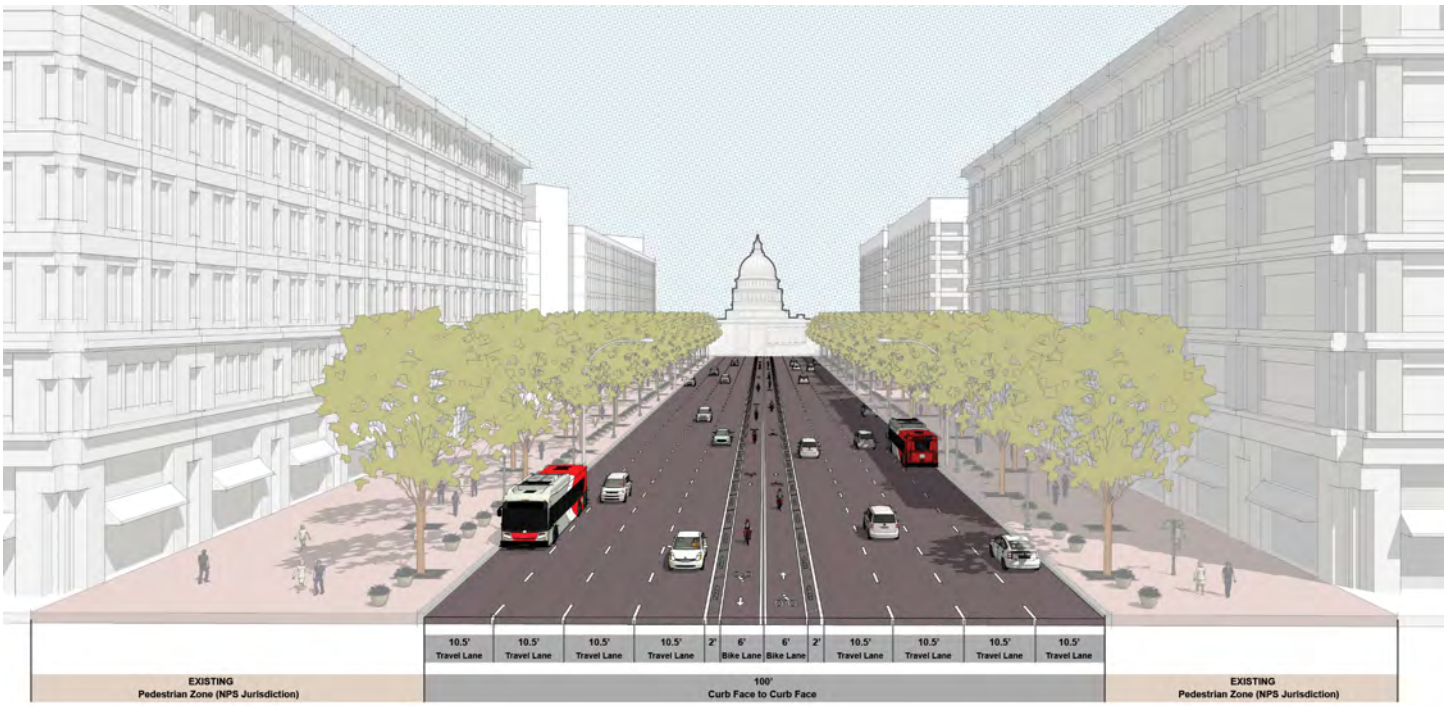


BIRD'S EYE VIEW OF PENNSYLVANIA AVENUE NW AFTER THE MORNING COMMUTE



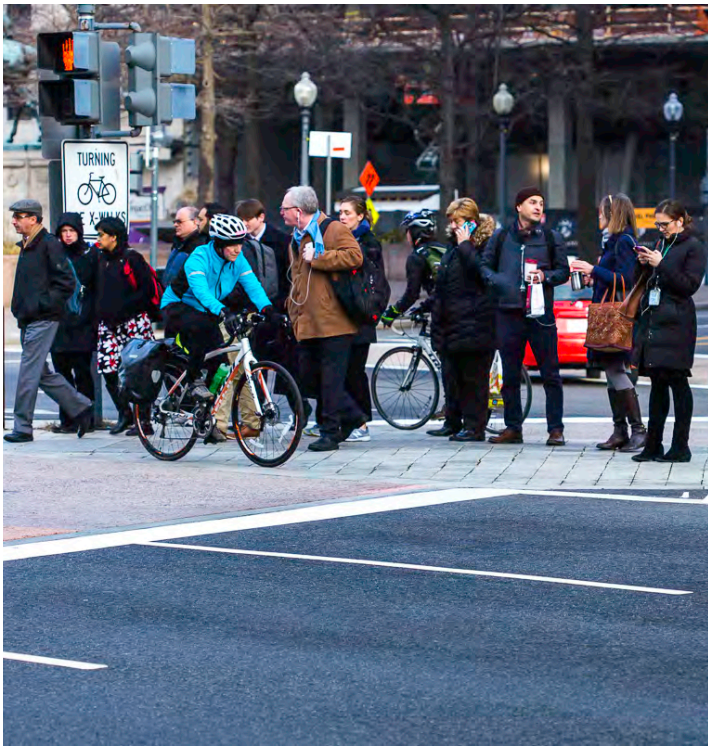
HEAVY RIGHT-TURN MOVEMENT ONTO 13TH STREET NW

FIGURE 11: EXISTING CROSS-SECTION

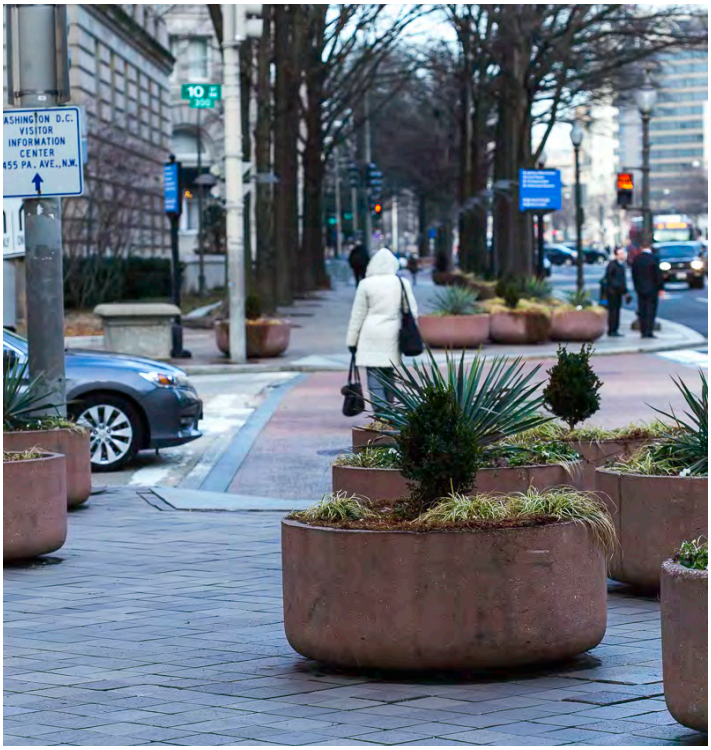


4.1.2 Pedestrian Network

The pedestrian network, specifically sidewalk infrastructure, is mostly complete in the study area with no identified gaps. While pedestrian ramps exist at most intersections along Pennsylvania Avenue NW, they do not have truncated domes and are not currently compliant with guidelines provided by the Americans with Disabilities Act (ADA). Across Pennsylvania Avenue NW two-stage pedestrian crossings break up long crossings into two simpler ones, however the absence of a raised or separated refuge creates conflicts with bicyclists using the center-running protected bike lanes. Generally, the pedestrian network on Pennsylvania Avenue NW is not sized appropriately for the existing pedestrian demands. While some sections are crowded, and pedestrians are observed waiting in the streets, in other sections the corridor has wide sidewalks with minimal public life or pedestrian activity.



TYPICAL CONFLICT BETWEEN PEDESTRIANS AND BICYCLISTS AT MEDIAN REFUGE



SIDEWALK PLANTERS ON PENNSYLVANIA AVENUE NW LIMIT PEDESTRIAN ACCESS AND BLOCK RAMPS

4.1.3 Bicycle Network

The bicycle network in the study area is primarily oriented toward accessing Pennsylvania Avenue NW from the north and east-west along the center-running protected bike lanes along Pennsylvania Avenue NW. The center-running protected bike lanes on Pennsylvania Avenue NW and 15th Street NW serve as the backbone of the bicycle network within the study area. A variety of treatments, including the current zebra-striped curb stops, were installed to improve safety and limit dangerous interactions with other modes (e.g., motorists making illegal u-turns across the bike lanes). Even then, the current design of the center-running protected bike lanes creates a direct conflict with bicyclists and pedestrians in the median refuge island.



CENTER-RUNNING BICYCLE FACILITY ON PENNSYLVANIA AVENUE NW

4.1.4 Transit Network

Pennsylvania Avenue NW is one of the busiest transit corridors in the District, with near-constant service. The study area is served by both Washington Metropolitan Area Transit Authority (WMATA) Metrobus and Metrorail service, as well as by commuter bus service from the surround region. Three Metrorail stations are located within the study area and 24 Metrobus bus routes either travel along or across Pennsylvania Avenue NW (see **Figure 12**). Like auto traffic along the corridor, many of the Metrobus routes only travel along Pennsylvania Avenue NW for a few blocks before turning off the corridor.



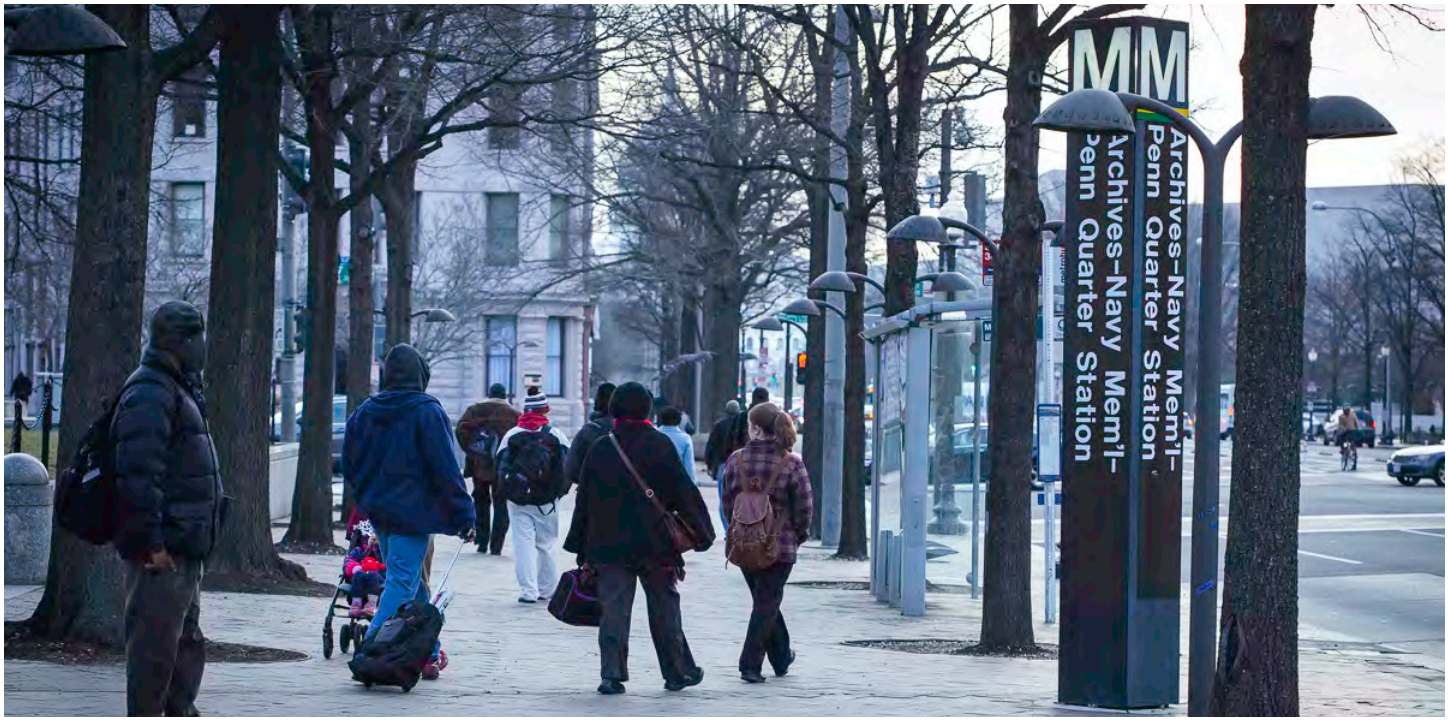
ZEBRA-STRIPED CURB STOPS SEPARATE THE CENTER RUNNING BICYCLE FACILITY FROM THE TRAVEL LANE

4.1.5 Curbside Uses

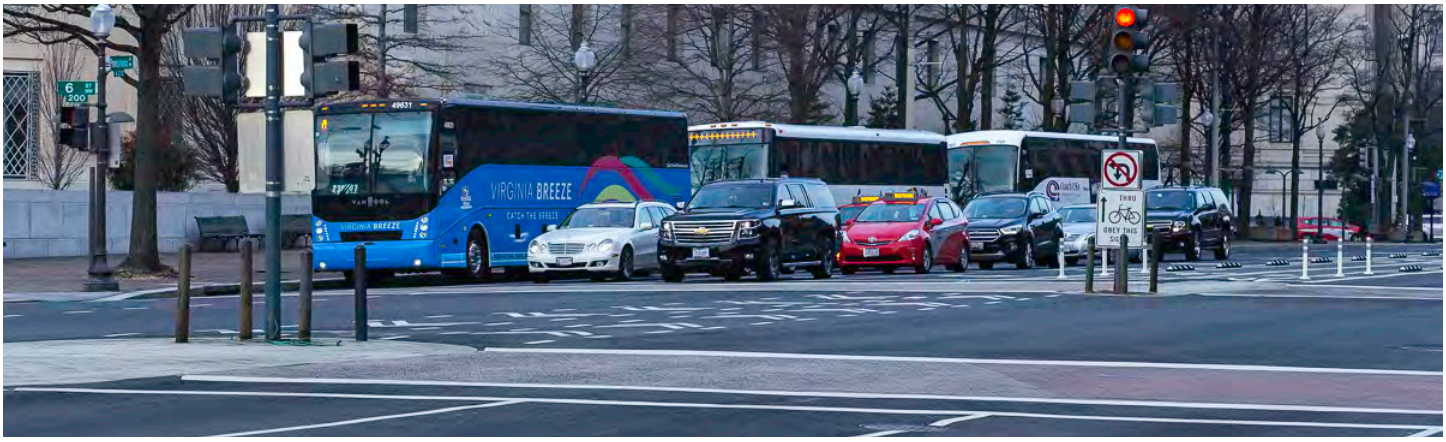
With many buses and passenger pick-ups and drop-offs, the demand for curbside space on Pennsylvania Avenue NW is constant throughout the corridor. A majority of the corridor's curbside activity occurs at the designated "No Parking" zones, which allows for vehicles to expeditiously load or unload passengers, packages, or merchandise at the curbside. While limited, parking is permitted on Pennsylvania Avenue NW near 15th, 14th, and 3rd Streets NW.



WMATA METROBUS ACTIVITY ALONG PENNSYLVANIA AVENUE NW



THE ARCHIVES-NAVY MEMORIAL-PENN QUARTER METRORAIL STATION IS LOCATED ON PENNSYLVANIA AVENUE NW



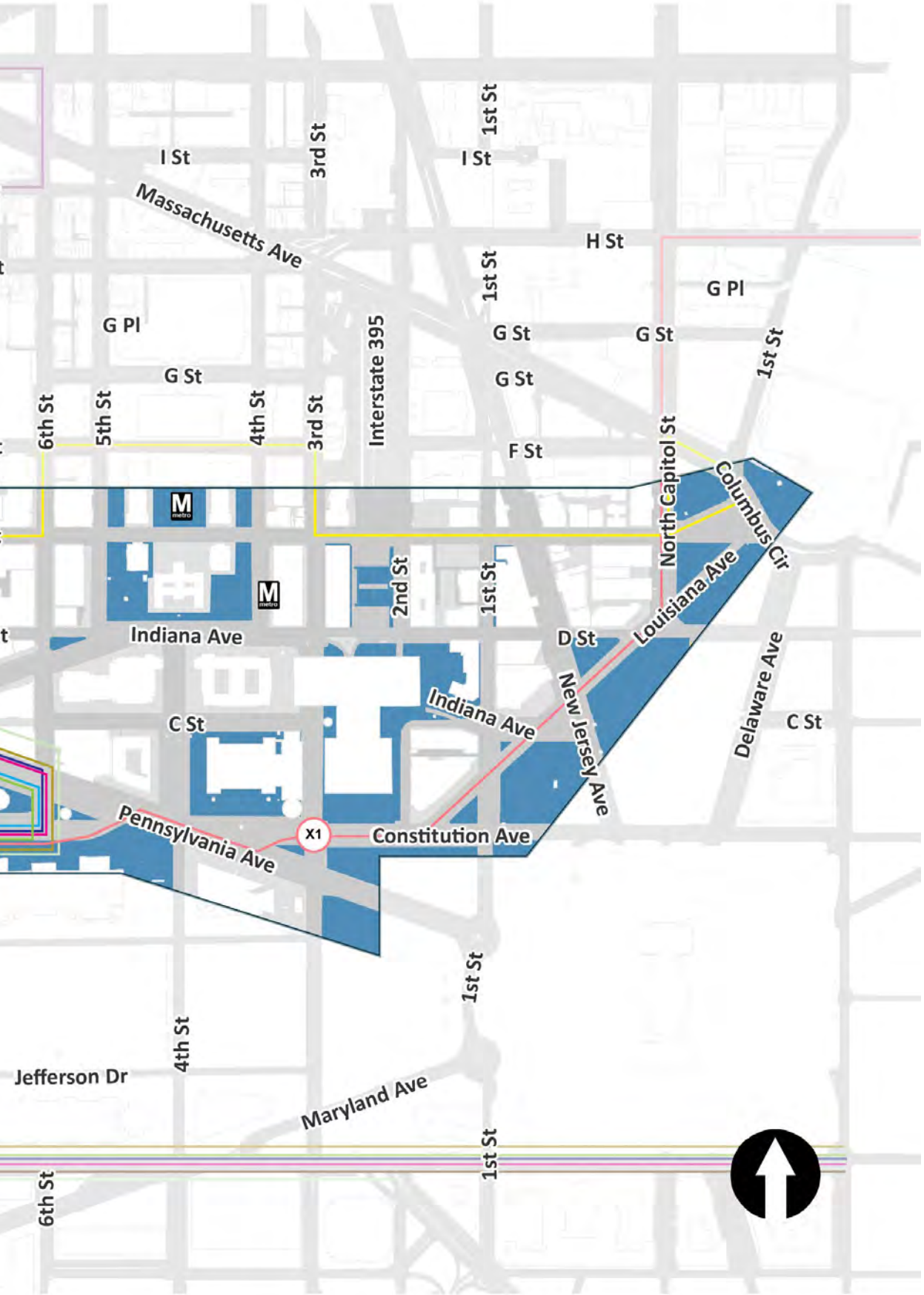
COMMUTER BUSES IDLING ON PENNSYLVANIA AVENUE NW



PASSENGER PICK-UP BY TAXI CABS

FIGURE 12: EXISTING STUDY AREA WMATA BUS SERVICE




I St
3rd St
1st St
I St
Massachusetts Ave
H St
1st St
G Pl
G Pl
Interstate 395
G St
G St
1st St
G St
G St
6th St
5th St
4th St
3rd St
F St
North Capitol St
Columbus Cir
2nd St
1st St
Louisiana Ave
Indiana Ave
D St
Delaware Ave
New Jersey Ave
Indiana Ave
C St
C St
Pennsylvania Ave
X1
Constitution Ave
1st St
4th St
Jefferson Dr
Maryland Ave
1st St
6th St

4.2 Modal Conditions

4.2.1 Vehicle Movements

The lack of corridor connectivity to the east and west combined with left-turn restrictions minimizes the number of vehicles traveling the entire length of the corridor. Instead, vehicles tend to use Pennsylvania Avenue NW to access other major routes by traveling only a few blocks along the corridor and making right-turns to exit the corridor in the morning and left turns to access the corridor in the afternoon (see **Figure 13** and **Figure 14**).

4.2.2 Traffic Operations

Intersections on Pennsylvania Avenue NW generally operate below capacity and within LOS ranges that exceed driver expectations for delay within the District during AM and PM peak periods (**Figure 15**). The performance of intersection operations is aided further by left-turn restrictions. This suggests an opportunity may exist to reduce the number of lanes along Pennsylvania Avenue NW.

4.2.3 Crash History

The number of crashes on Pennsylvania Avenue NW appear to be somewhat correlated with corridor traffic volumes – locations along Pennsylvania Avenue NW with higher traffic volumes and therefore more potential conflicts with pedestrians tend to have more pedestrian crashes. Crash rates can be an effective tool to measure the relative safety of a location. Crash rates for the study intersections highlight instances at seven locations where multiple crashes occur at the same location over a period (see **Table 6**). The intersection of 15th Street NW & E Street NW has the highest crash rate at 2.10. Multiple crashes occurring at the same location over a period of time may be an indication of a safety issue to be investigated further.

4.2.4 Pedestrians

A combination of high-density land uses combined with many local tourist destinations results in a significant amount of pedestrian activity within the study area. However, as described in the Pennsylvania Avenue Pedestrian Life Study, the current pedestrian experience does not match the iconic or monumental nature of the corridor . Further, high-demand north-south crossings are currently problematic due to signal timing that requires two-stage crossings across Pennsylvania Avenue NW and directly conflicts with the center-running protected bike lanes while pedestrians wait between "Walk" phases.

4.2.5 Bicyclists

The design of the center-running protected bike lanes introduces direct conflicts with pedestrians, and can be challenging to enter and exit, especially for less-confident bicyclists. However, the center-running design limits the exposure of bicyclists to vehicles turning from Pennsylvania Avenue NW onto north-south arterials.

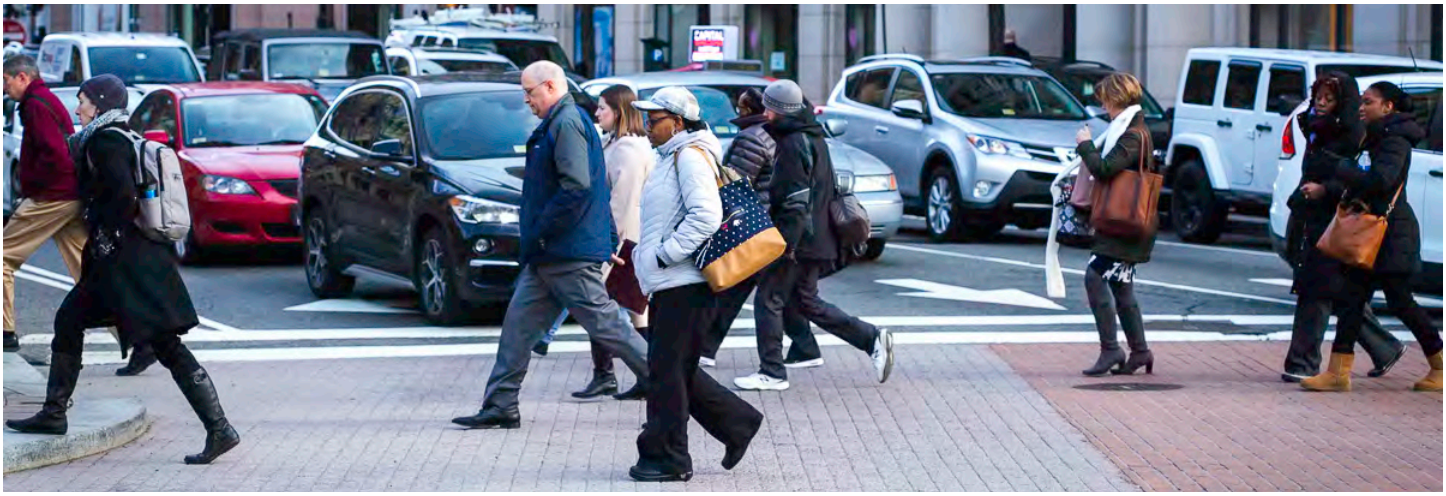
4.2.6 Transit

Transit plays an important role in getting people to and from Pennsylvania Avenue NW. Several sections of Pennsylvania Avenue NW were observed to have nearly 80 buses per hour in each direction during the peak periods. Like vehicular traffic, buses travel on Pennsylvania Avenue NW for a short distance before exiting the corridor. In some instances, buses use the corridor for only one block.

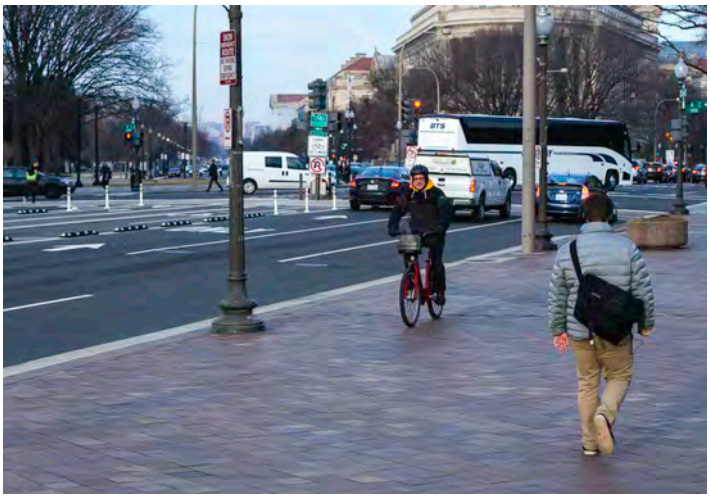
TABLE 6: CRASH RATE FOR STUDY INTERSECTIONS ALONG PENNSYLVANIA AVENUE NW

Intersection	Crash Rate (crashes/mev*)
15TH ST NW & E ST NW	2.10
14TH ST NW & PENNSYLVANIA AVE NW	1.06
13TH ST NW & PENNSYLVANIA AVE NW	1.56
12TH ST NW & PENNSYLVANIA AVE NW	0.93
11TH ST NW & PENNSYLVANIA AVE NW	1.17
10TH ST NW & PENNSYLVANIA AVE NW	0.65
9TH ST NW & PENNSYLVANIA AVE NW	1.22
7TH ST NW & PENNSYLVANIA AVE NW	1.83
6TH ST NW & PENNSYLVANIA AVE NW	1.08
CONSTITUTION AVE NW & PENNSYLVANIA AVE NW - WEST	0.39
4TH ST NW & CONSTITUTION AVE NW	0.39
CONSTITUTION AVE NW & PENNSYLVANIA AVE NW - EAST	0.14
3RD ST NW & CONSTITUTION AVE NW	0.60
3RD ST NW & PENNSYLVANIA AVE NW	0.18

**mev = million entering vehicles*



PEDESTRIANS CROSSING AT PENNSYLVANIA AVENUE NW AND 9TH STREET NW



LESS CONFIDENT BICYCLISTS MAY CHOOSE TO RIDE ON SIDEWALKS

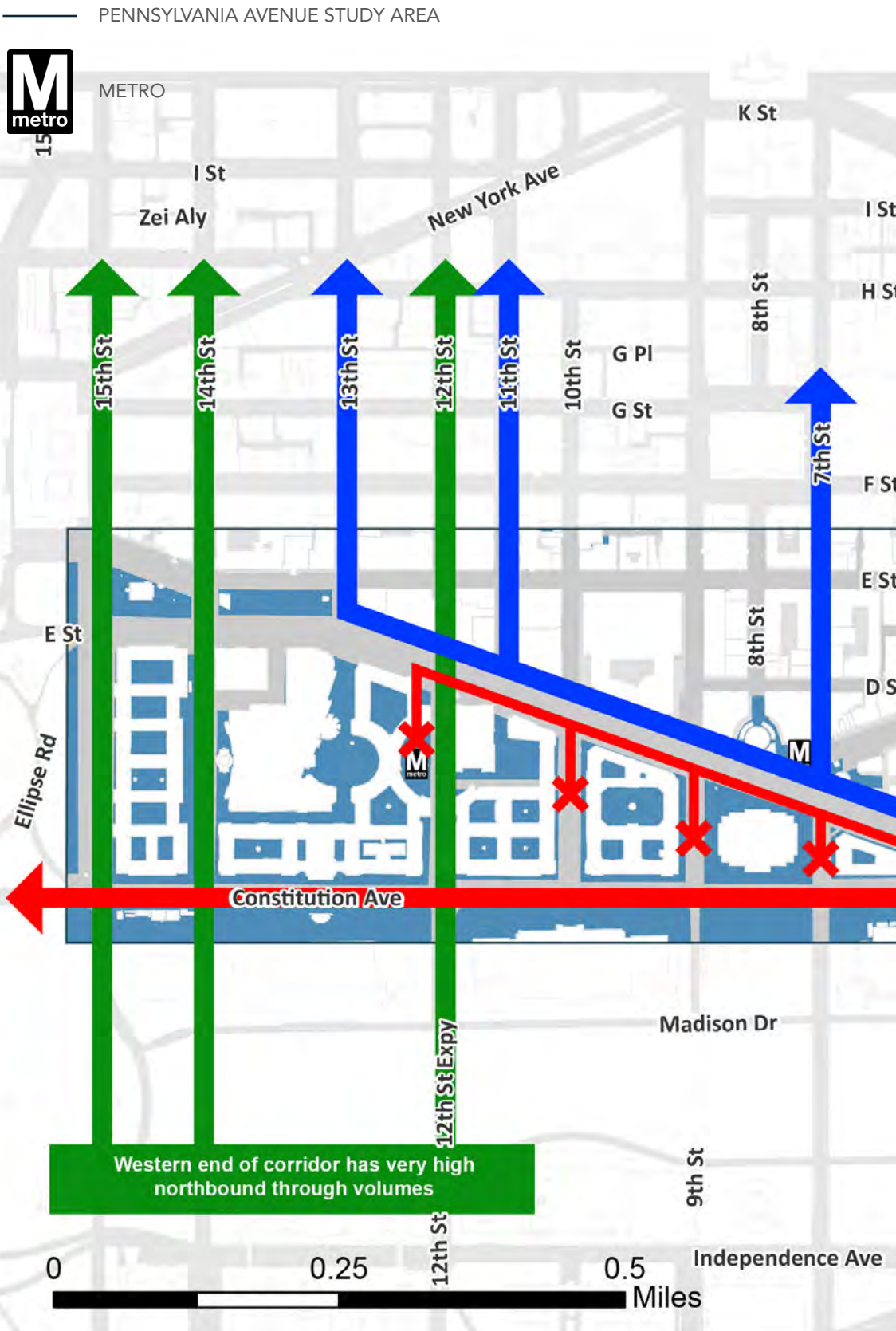


BICYCLISTS HEADING EAST ON THE CENTER-RUNNING BICYCLE FACILITY ON PENNSYLVANIA AVENUE NW



BUSES PREPARING TO TURN RIGHT ONTO 13TH STREET NW FROM PENNSYLVANIA AVENUE NW

FIGURE 13: WEEKDAY AM PEAK-HOUR PREDOMINANT TRAFFIC FLOWS



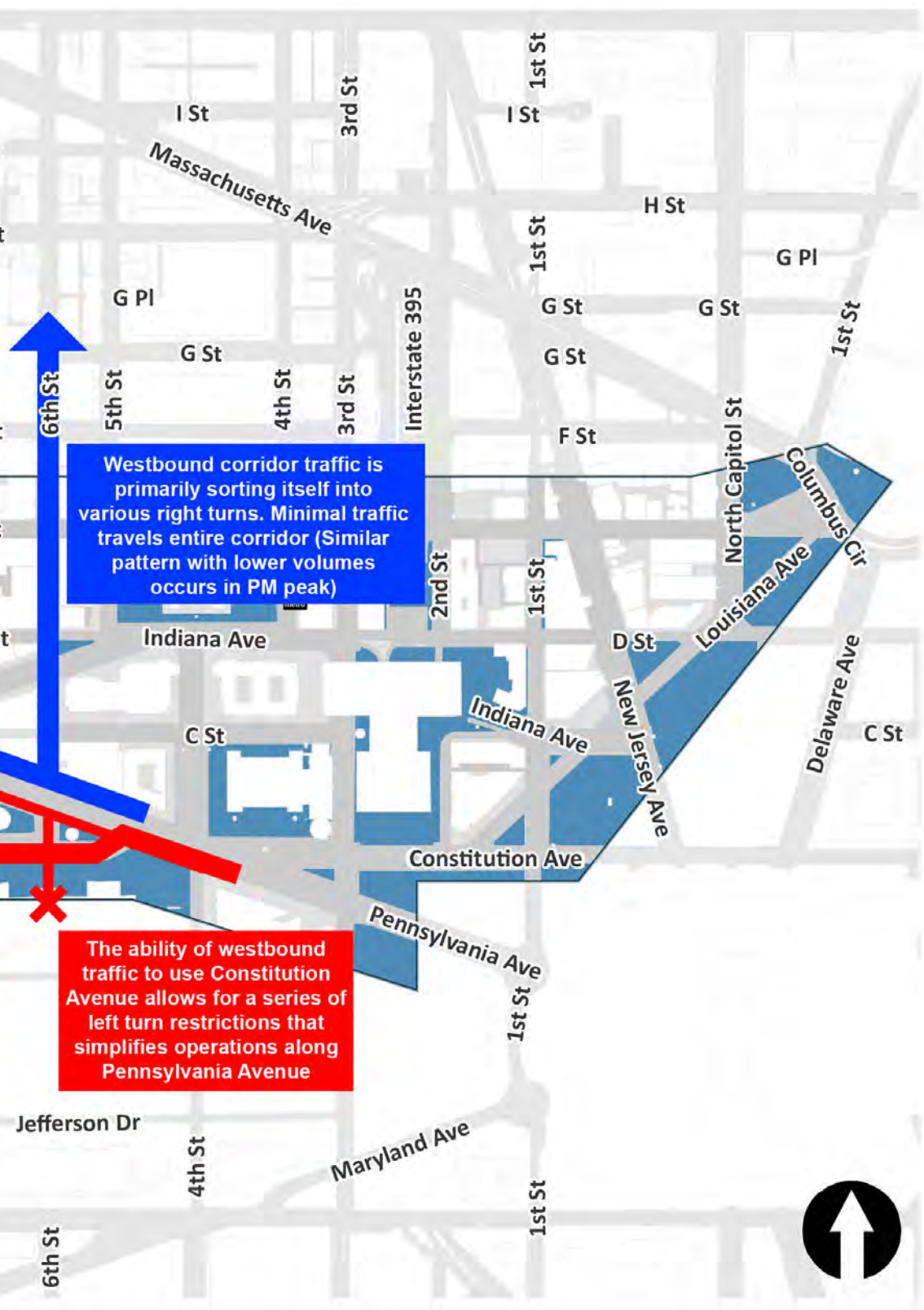
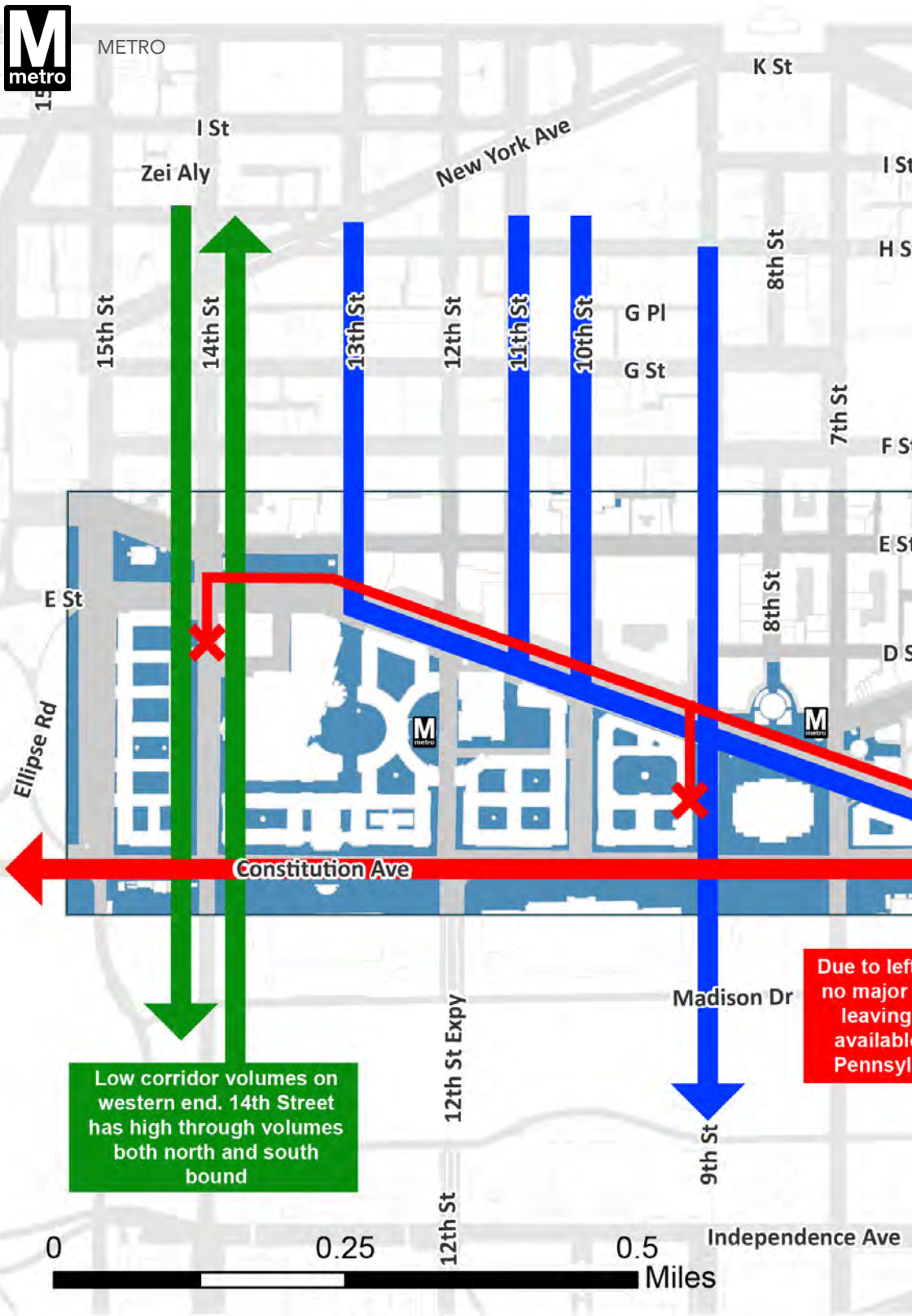

Westbound corridor traffic is primarily sorting itself into various right turns. Minimal traffic travels entire corridor (Similar pattern with lower volumes occurs in PM peak)
The ability of westbound traffic to use Constitution Avenue allows for a series of left turn restrictions that simplifies operations along Pennsylvania Avenue
I St
Massachusetts Ave
3rd St
1st St
H St
G Pl
G St
5th St
4th St
Interstate 395
6th St
F St
North Capitol St
Columbus Cir
Louisiana Ave
2nd St
Indiana Ave
D St
New Jersey Ave
Delaware Ave
C St
Constitution Ave
Pennsylvania Ave
Jefferson Dr
Maryland Ave

FIGURE 14: WEEKDAY PM PEAK-HOUR PREDOMINAI TRAFFIC FLOWS



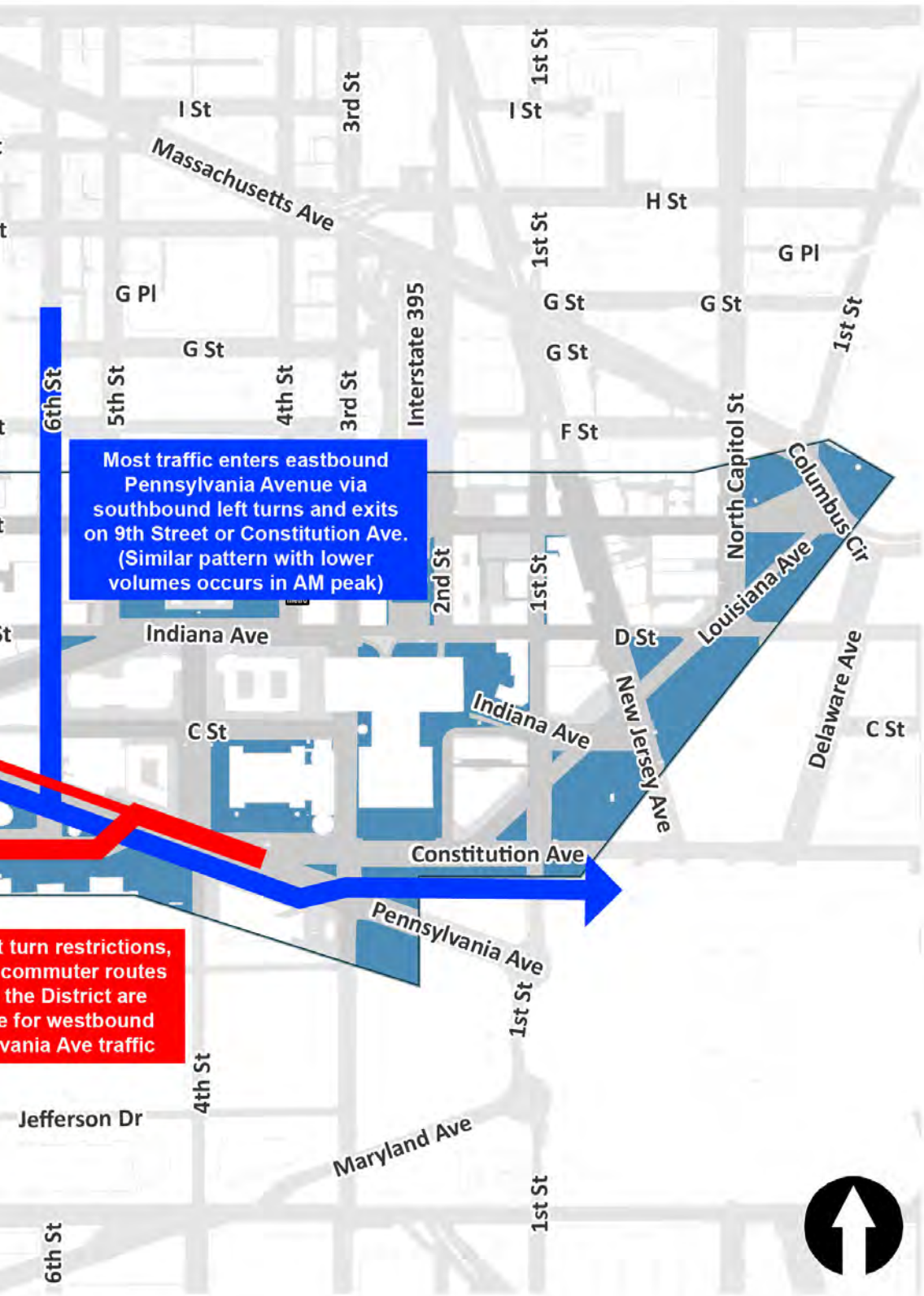
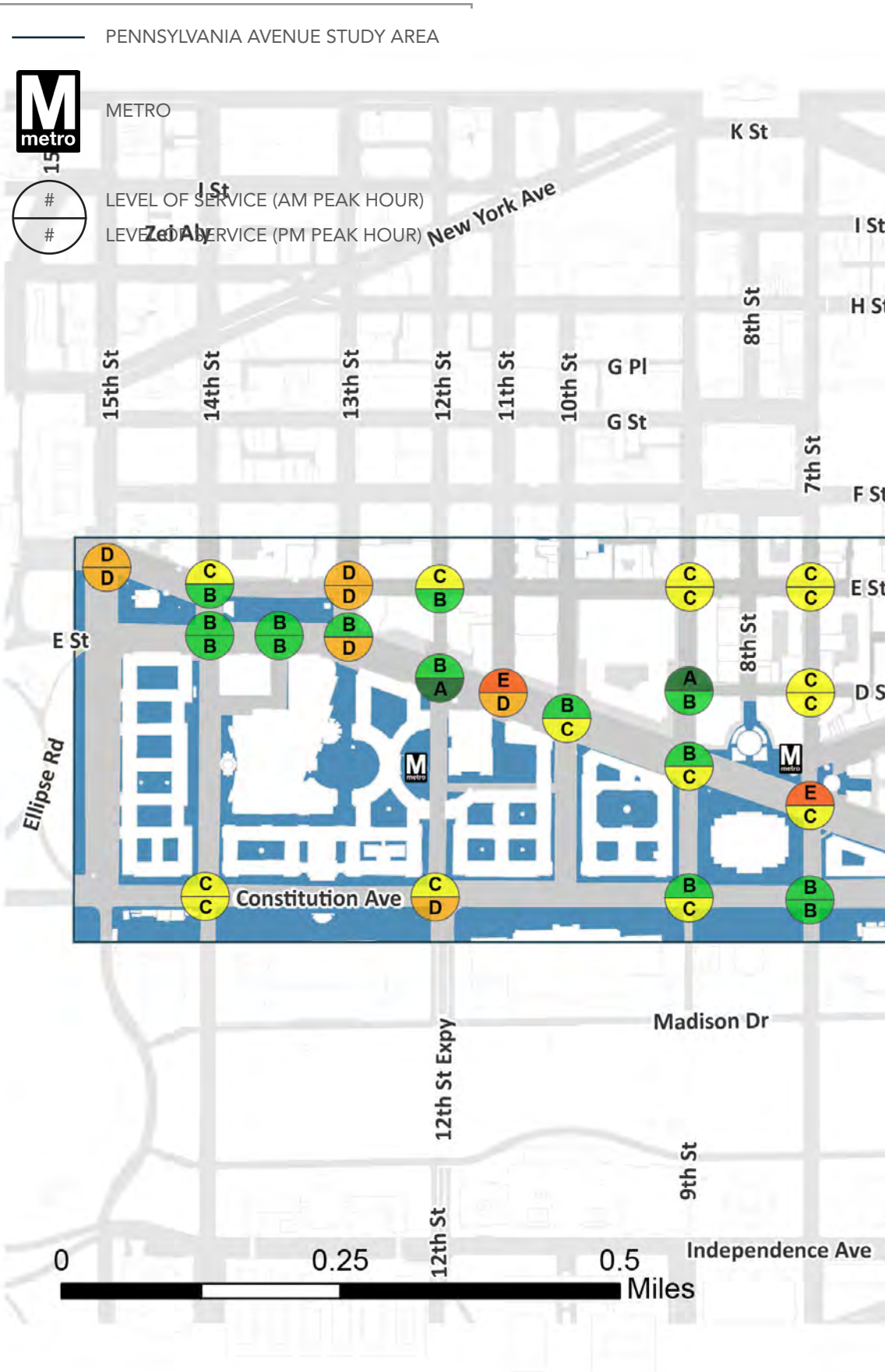
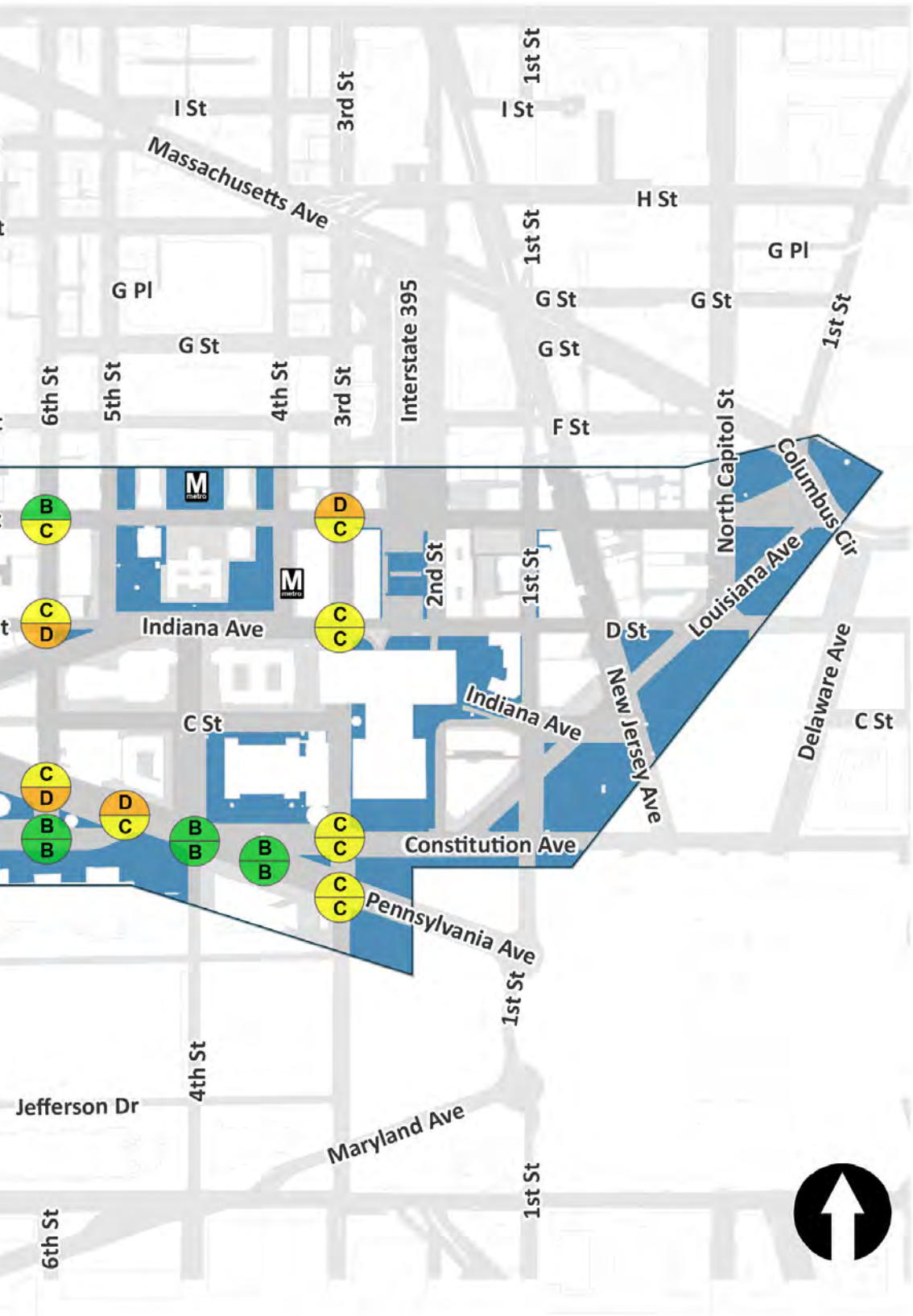

Most traffic enters eastbound Pennsylvania Avenue via southbound left turns and exits on 9th Street or Constitution Ave. (Similar pattern with lower volumes occurs in AM peak)
t turn restrictions, commuter routes the District are e for westbound vania Ave traffic
I St
3rd St
1st St
Massachusetts Ave
H St
G Pl
G St
Interstate 395
6th St
5th St
4th St
F St
North Capitol St
Columbus Cir
2nd St
Louisiana Ave
Indiana Ave
D St
New Jersey Ave
Delaware Ave
C St
Constitution Ave
Pennsylvania Ave
Jefferson Dr
Maryland Ave

FIGURE 15: WEEKDAY AM AND PM PEAK-HOUR LEV OF SERVICE




I St
3rd St
1st St
I St
Massachusetts Ave
H St
1st St
G Pl
G Pl
G St
G St
1st St
Interstate 395
G St
G St
6th St
5th St
4th St
3rd St
F St
North Capitol St
Columbus Cir
Louisiana Ave
2nd St
1st St
Indiana Ave
D St
Indiana Ave
New Jersey Ave
Delaware Ave
C St
C St
Constitution Ave
Pennsylvania Ave
1st St
4th St
Jefferson Dr
Maryland Ave
1st St
6th St





CHAPTER 5 STAKEHOLDER ENGAGEMENT

PENNSYLVANIA AVENUE TRANSPORTATION STUDY
East of the White House

Stakeholder engagement was a crucial part of the project process. Although the stakeholder engagement did not include community involvement at this stage, stakeholder engagement did consider community interests and concerns as represented by the project's internal and external stakeholders identified below:

- Pennsylvania Avenue Initiative Executive Committee
  - National Park Service (NPS)
  - National Capital Planning Commission (NCPC)
  - General Services Administration (GSA)
  - Office of the Deputy Mayor for Planning and Economic Development (DMPED)
- Office of Planning (OP)
- WMATA

Throughout the course of the project, the study team (DDOT and the Consultant Team) participated in nine stakeholder meetings, including six internal DDOT review meetings. In addition, the study team met twice with the Pennsylvania Avenue Initiative Executive Committee and once with WMATA bus operators. **Table 7** provides a summary of the stakeholder engagement meetings and outcomes.

TABLE 7: STAKEHOLDER ENGAGEMENT MEETINGS AND OUTCOMES

Meeting	Group	Date	Key Decisions and Outcomes
Kick-Off Meeting	DDOT Working Group	April 25, 2017	■ Identification of stakeholders ■ Review of current and planned Pennsylvania Avenue Initiative actions ■ Overview of project process and schedule
Existing Conditions Meeting	DDOT Working Group	May 22, 2017	■ Refined existing conditions information and messaging for the briefing booklet ■ Identification of priorities from DDOT divisions to assist with the development of goals and objectives
Concept Development Meeting	DDOT Working Group	July 12, 2017	■ Input on initial concepts ■ Identification of missing data ■ Next steps on concept screening and initial analysis
Bus Operator Meeting	Project team and WMATA Bus Operators	August 8, 2017	■ WMATA bus operator issues and concerns ■ Refinement and screening of transit-related elements in initial concept designs, including the use of transit-only lanes
Concept Development Meeting	DDOT Working Group	August 9, 2017	■ Feedback on three initial concept designs and limited analysis ■ Refinement of concepts prior to meeting with the Pennsylvania Avenue Initiative Executive Committee
Concept Development Meeting	Pennsylvania Avenue Initiative Executive Committee	September 27, 2017	■ Revise concepts to minimize the number of travel lanes and prioritize bicycle and pedestrian space ■ Move forward with center-running pedestrian-space concept (Option 2), curb adjacent bicycle facilities with pedestrian space concept (Option 3), and south-side two-way bicycle facility and additional north-side pedestrian space concept (Option 4)
Concept Refinement Meeting	DDOT Working Group	December 13, 2017	■ Add additional concept with center-running bicycle lanes and additional outside pedestrian space (Option 1) ■ Initial review of performance measures and opportunities for refinement of initial analysis
Traffic Operations Discussion	Project team and DDOT Traffic Engineering and Singals Division" to "DDOT Working Group	January 11, 2018	■ Review of future-year intersection operations with reduced number of travel lanes ■ Opportunities for future-year signal timing refinements ■ Tweaks to intersection lane configuration and pedestrian crossings
Refined Concepts	Pennsylvania Avenue Initiative Executive Committee	February 14, 2018	■ Review of four proposed concepts ■ Refinements to final report messaging and concept visualization ■ Identification of priorities for the final report


7



CHAPTER 6
CONCEPT DEVELOPMENT

PENNSYLVANIA AVENUE
TRANSPORTATION STUDY
East of the White House

The existing conditions identified and analyzed on Pennsylvania Avenue NW (see **Chapter 4 - Existing Conditions**) established a baseline and provided insight into limitations and opportunities for multimodal changes in the corridor. The restriction of vehicular traffic in front of the White House and the resultant shift in vehicular demand from Pennsylvania Avenue NW to other corridors has resulted in roadway capacity that can be repurposed to further enhance the safety, comfort, and experience of other users. The subsequent sections detail the general approach to developing preliminary Options.

6.1 General Design Considerations

Pennsylvania Avenue NW is governed by a set of guidelines established to maintain the corridor's iconic nature, dignified appearance, and prestige. The design elements discussed in this section reinforce the corridor's significance, yet require that special consideration be exercised to ensure that the development of Options reinforce the monumental nature of Pennsylvania Avenue NW.

6.1.1 Viewshed

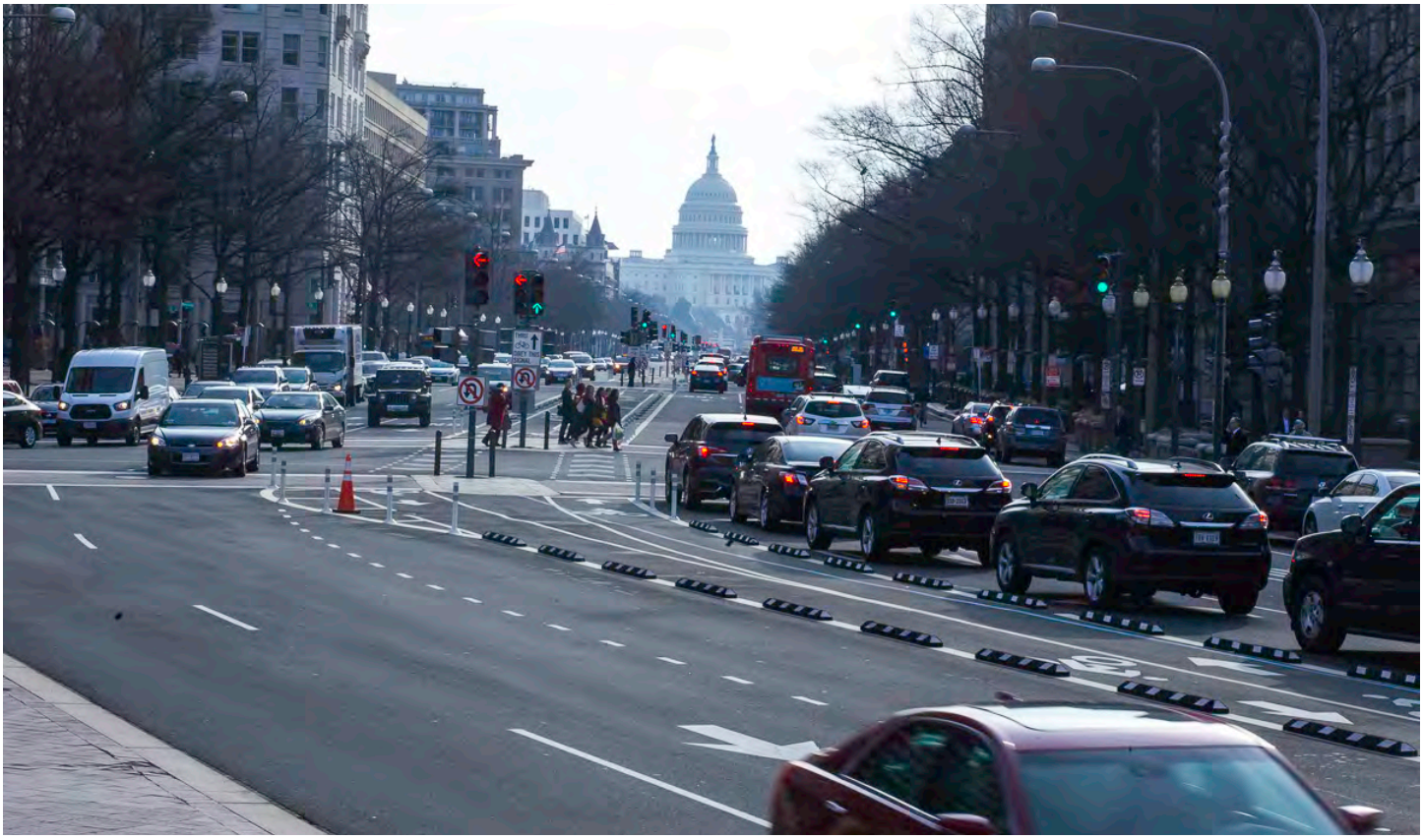
The view of the corridor framed by the United States Capitol serving as an eastern vista point will be prioritized under any design Option. To frame the Capitol building, symmetry along the roadway edges must be maintained. This includes a consistent tree line and streetscape on either side of Pennsylvania Avenue NW.

6.1.2 Fixtures

Fixtures on the roadway must be removeable to accommodate ceremonial processions, specifically the Inaugural Presidential Ceremony. During the procession, the roadway is stripped of any fixtures to allow the President and Vice President, along with the military, citizens' groups, marching bands, etc., to make their way to the White House on Pennsylvania Avenue NW.

6.1.3 Cartway

Aside from the institutional requirements mentioned previously, any modifications proposed cannot extend beyond the existing one hundred-foot curb-to-curb roadbed. The proposed Options must consider multimodal enhancements by repurposing existing roadway width for travel lanes to enhance other modes.



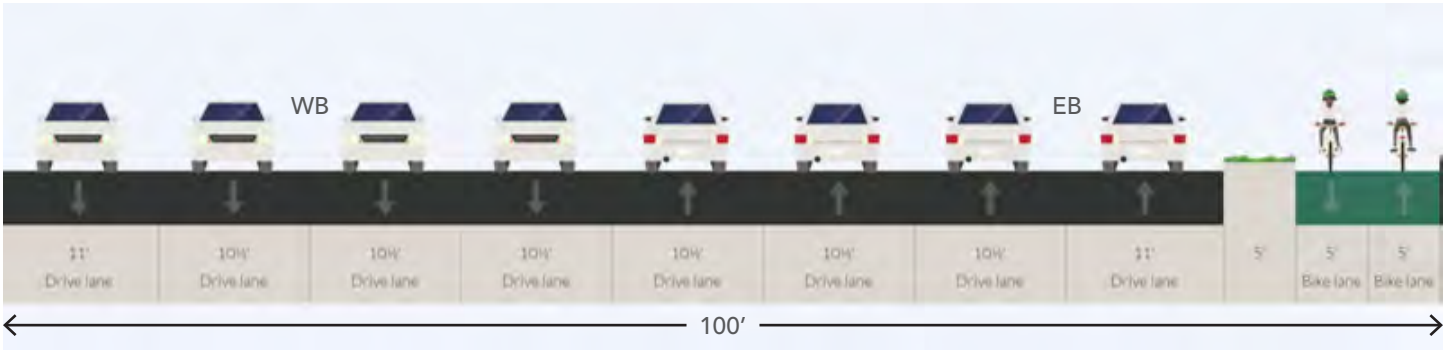
SYMMETRY OF PENNSYLVANIA AVENUE NW IS AN IMPORTANT DESIGN CONSIDERATION

6.2 Universe of Options

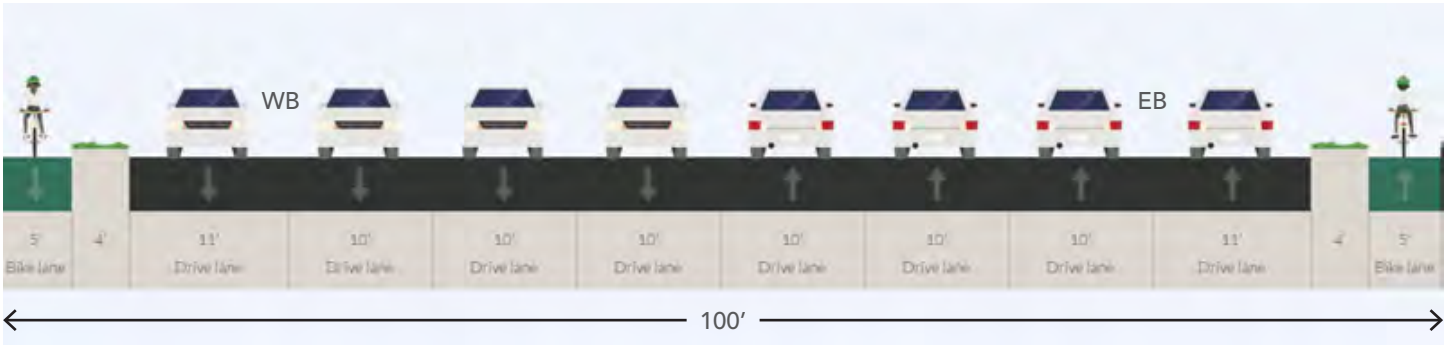
Using the high-level design considerations, the study team set out to develop a comprehensive list of Options for multimodal changes that were identified as opportunities during the review of the existing conditions analysis, plans and previous studies. While important components, the goals, objectives, performance measures, and evaluation of traffic served only as guidelines in this preliminary step, since the Options were not technically evaluated in detail. The following typical sections show examples of some the Options identified in the universe of Options.

While each Option proposed changes for the various modes, the divergence between the Options consisted primarily in the number of travel lanes and the location of the multimodal enhancements (i.e., additional sidewalk space, landscaping, bicycle facilities, etc.). Given the range of multimodal Options being considered, the study team incorporated a building block approach that narrowed the attributes to facilitate the mixing and matching of multimodal attributes. Multimodal attributes that were not operationally feasible (e.g., center-running dedicated bus lanes) were no longer considered. The subsequent section describes the building block approach in greater detail.

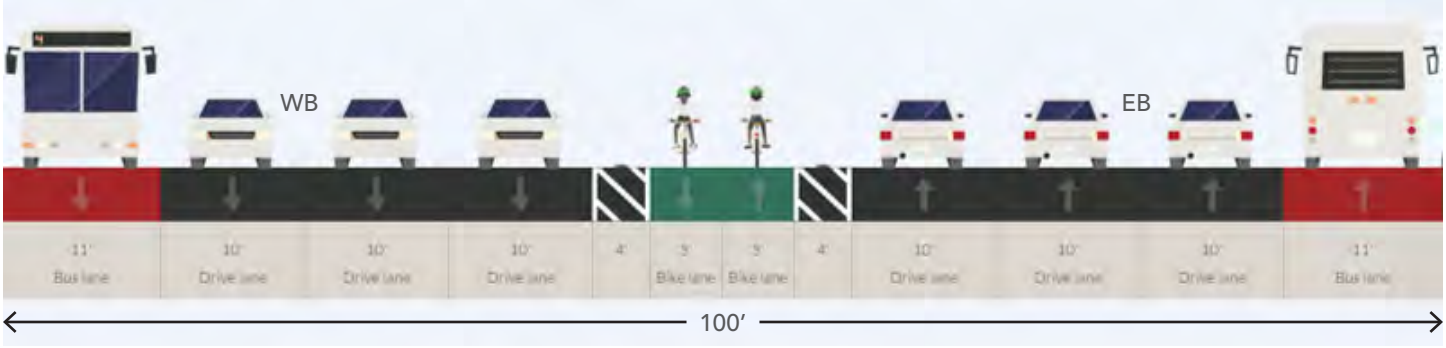
TWO-WAY PROTECTED BIKE LANES W/ PHYSICAL SEPARATION FROM MOVING TRAFFIC



TWO ONE-WAY PROTECTED BIKE LANES ON OUTSIDE EDGES



TWO-WAY PROTECTED BIKE LANES WITH CURBSIDE DEDICATED BUS LANES

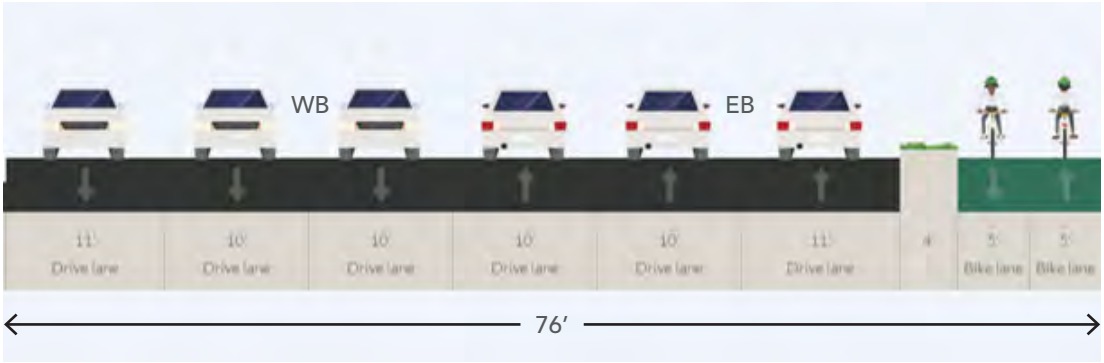


CENTER-RUNNING PROTECTED BIKE LANES - CIRCLED LANE COULD BE SHIFTED TO SERVE DIFFERENT NEEDS ALONG CORRIDOR



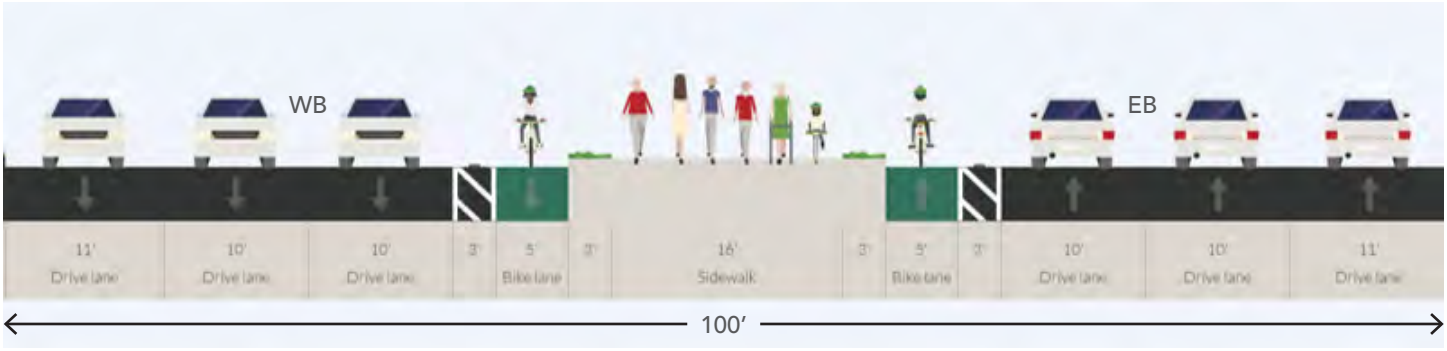
7-Lane Option - Maintains a lane that can be used strategically along corridor for turn lane/ bus lane/etc.

TWO-WAY PROTECTED BIKE LANES ON OUTSIDE EDGE

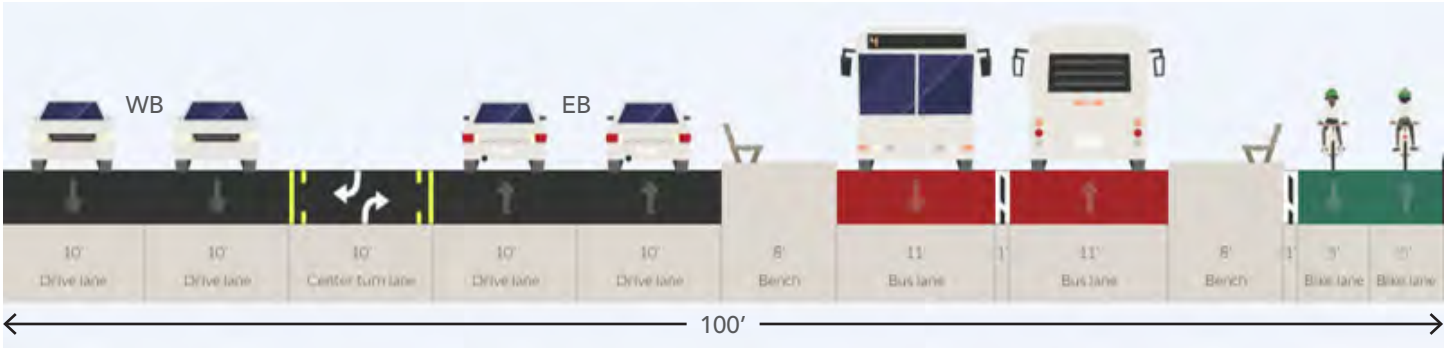


6-Lane Options - Creates more space that can be used for center running pedestrian path or expanded sidewalks

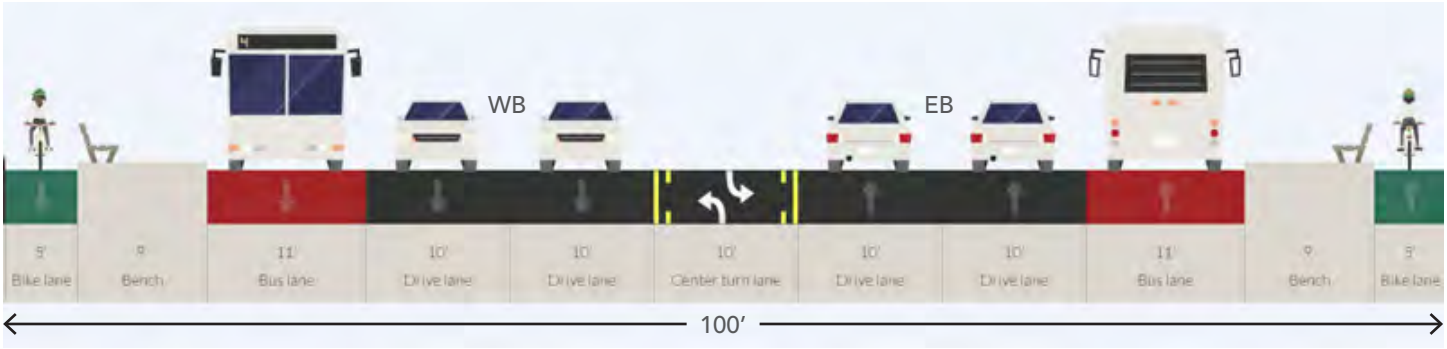
CENTER-RUNNING PEDESTRIAN PATH



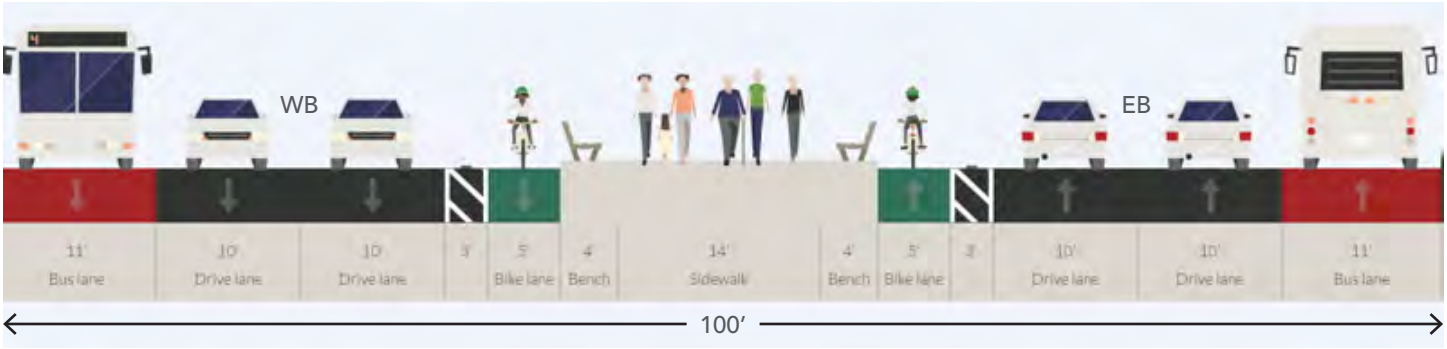
TWO-WAY PROTECTED BIKE LANES, BUS LANES, AND POCKET LEFT-TURN LANE



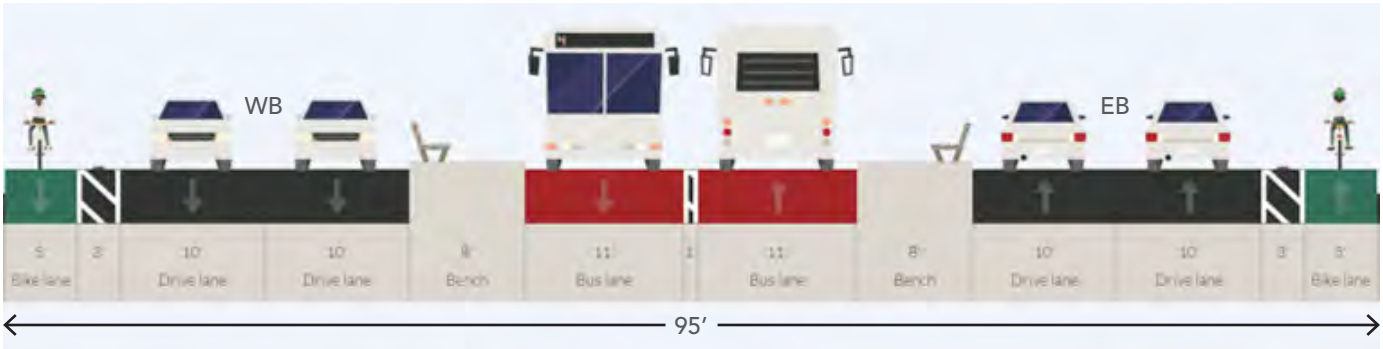
PROTECTED BIKE AND BUS LANES ON OUTSIDE, AND POCKET LEFT-TURN LANE



CENTER RUNNING PEDESTRIAN PATH AND BIKE LANES WITH OUTSIDE BUS LANES



CENTER RUNNING BUS LANES, OUTSIDE RUNNING PROTECTED BIKE LANES



6.3 Building Blocks Approach

Conceptualizing Options for Pennsylvania Avenue NW was an iterative process that considered the design limitations previously discussed and focused on addressing the goals and objectives identified in **Chapter 3 - Goals and Objectives**. To facilitate the iterative process and guide the development of the preliminary Options, a set of multimodal building blocks were identified. The building blocks represent a mode and specify the type and/or location of the proposed change.

The study is not intended to identify one preferred Options, but rather a range of Options feasible for implementation. The building block approach allows a range of multimodal changes to be tested for feasibility. While presented independently, the building blocks provide the flexibility to mix and match modes to propose multimodal designs.

The building blocks identified for each mode are discussed in the following sections.

6.3.1 Travel Lanes

The building blocks for the number of travel lanes provide a range for the number of lanes necessary on Pennsylvania Avenue NW to maintain vehicular operations without substantially degrading service. The travel lane building blocks range from the absolute minimum number of lanes required (i.e., four through lanes) to existing conditions (i.e., eight lanes), **Figure 16**.

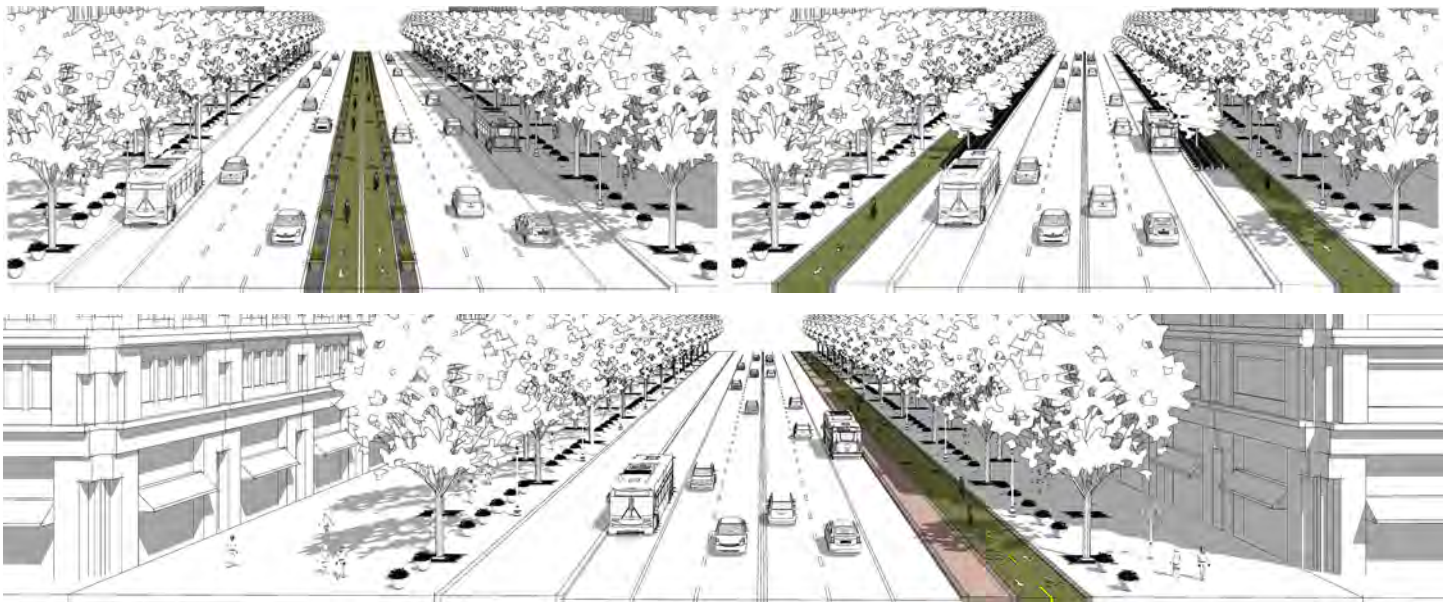
FIGURE 16: TRAVEL LANE BUILDING BLOCKS



6.3.2 Protected Bicycle Lanes

The building blocks for the protected bike lanes focus on increasing safety and shifting the location of the facilities. See **Figure 17** for a range of the building blocks for protected bike lanes. The first building block maintains the protected bike lanes as a two-way center running facility. The second building block shifts the bicycle lanes away from the center and makes them curbside one-way protected bike lanes. The final building block shifts the two-way protected bike lanes to the north or south of Pennsylvania Avenue NW.

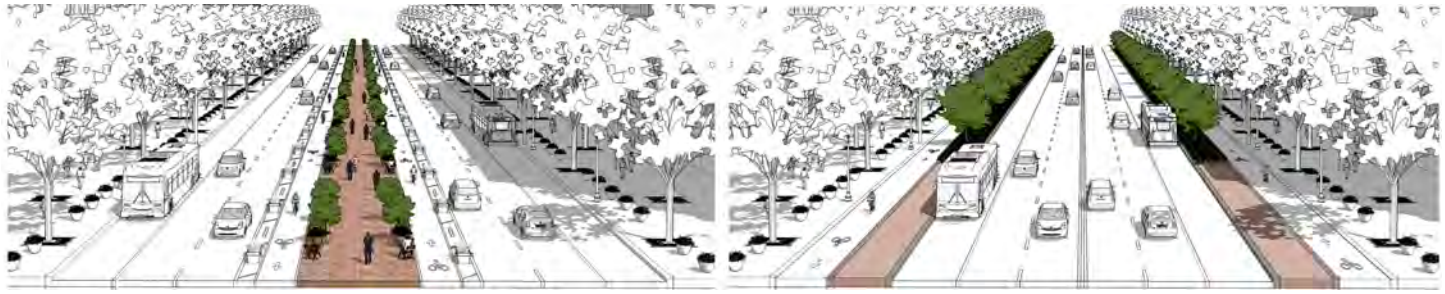
FIGURE 17: PROTECTED BIKE LANES BUILDING BLOCKS



6.3.3 Pedestrian Space

The building blocks for pedestrian space provide additional space beyond what is already provided for pedestrians on either side of the roadway. See **Figure 18** for a range of the building blocks for additional pedestrian space. The first building block creates a center-running pedestrian walkway on Pennsylvania Avenue NW. The second building block extends existing sidewalks to provide additional space for pedestrians. While the two previously mentioned building blocks span the entire length of the corridor, there is an additional building block within the Options for pedestrian space that extends the curbs. This building block can be used at intersections or mid-block crossings to reduce the overall crossing distance for pedestrians.

FIGURE 18: PEDESTRIAN SPACE BUILDING BLOCKS



6.3.4 Curbside Use

The building blocks for curbside use are intended to dedicate space to WMATA and commuter buses, tour buses, transportation network companies (i.e., Uber, Lyft), and parking, among others, that currently compete for curbside space to Pennsylvania Avenue NW. See **Figure 19** for a range of the building blocks for curbside uses. The first building block dedicates curbside use space to the roadway without clearly offsetting it from general travel lanes. The second building block assigns curbside activity zones were appropriate along Pennsylvania Avenue NW.

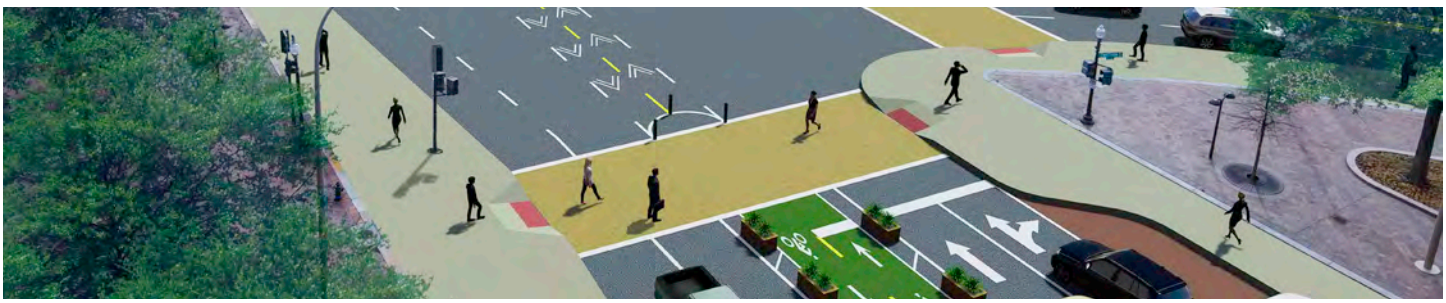
FIGURE 19: CURBSIDE USE BUILDING BLOCKS



6.3.5 Curb Extensions

Curb extensions – which provide more visibility and space for pedestrians, shorten intersection crossings, and help enforce turning movement restrictions – were introduced in the design Options where turn lanes at intersection were not necessary.

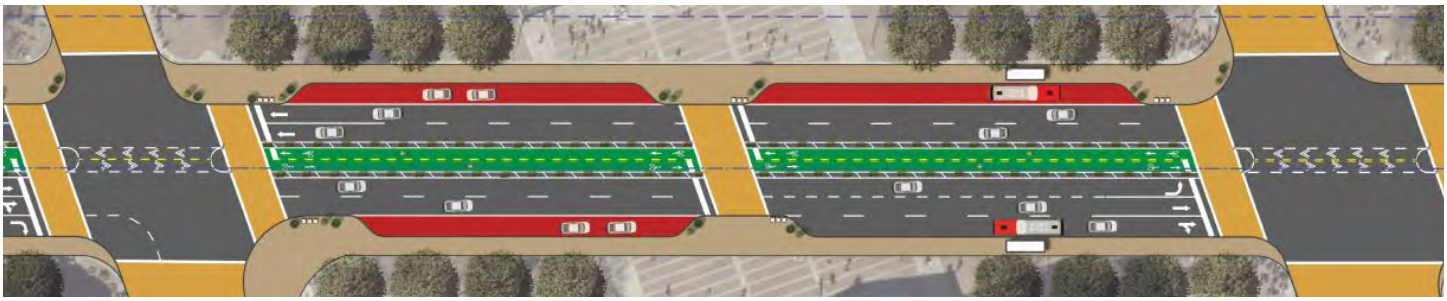
FIGURE 20: CURB EXTENSIONS



6.3.6 Midblock Crossing

A midblock crossing along the 8th Street NW north-south axis across Pennsylvania Avenue NW was explored and is feasible in all design Options. The midblock crossing, in addition to extending the 8th Street NW pedestrian desire line, also provides connectivity to the National Archives and the nearby Archives Metrorail Station.

FIGURE 22: MIDBLOCK CROSSING



6.3.7 Transit Lanes

The use of transit lanes, whether on the curb edges or in the middle of Pennsylvania Avenue NW were explored, but because of the limited distance many buses travel along Pennsylvania Avenue NW, the number of observed transit-vehicle turning movements, and bus operator feedback, transit lanes were not carried forward as a building block.

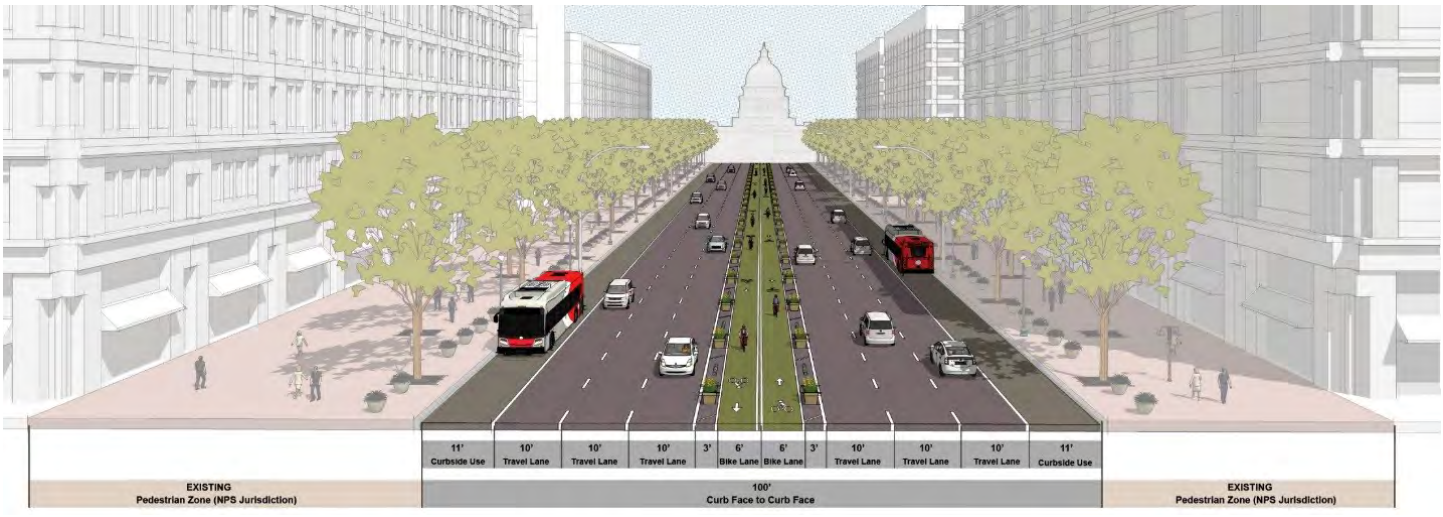
6.4 Preliminary Concepts

Utilizing the building blocks, the study team developed three preliminary Options to be tested for feasibility. The three preliminary Options identified for further review are discussed in the following sections.

6.4.1 Eight Through Lanes

- No adjustments to existing curb-to-curb width
- Generally, eight total lanes (depending on segment includes four to five total through lanes, zero to three total dedicated turn lanes, and zero to two total lanes for curbside uses)
- Additional pedestrian space in the form of refuge islands and curb extensions
- Some additional separation for bicyclists from pedestrians at refuge islands located at intersections
- Additional curbside space for bus stops, transportation network company (TNC) pick-up and drop-offs, tour/commuter buses, parking, or curb extensions

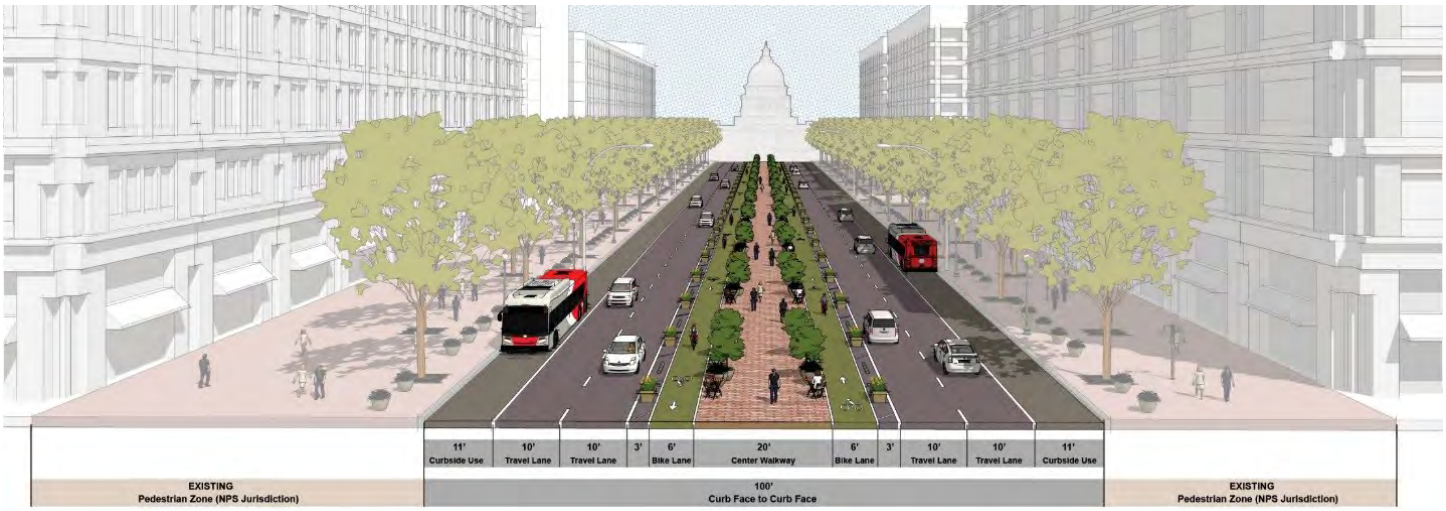
FIGURE 21: PRELIMINARY OPTION - EIGHT THROUGH LANES



6.4.2 Six Through Lanes – Center Walkway

- Generally, six through lanes (depending on segment includes four to six total through lanes, zero to two total dedicated turn lanes, and zero to two total lanes for curbside uses)
- Additional pedestrian space via 20foot center pedestrian walkway or 20 feet of additional sidewalk space outside of curbs
- Bike lanes outside of travel way with additional protection. They could also be placed in the median.
- Additional curbside space for bus stops, TNC pick-up and drop-offs, tour/commuter buses, or curb extensions

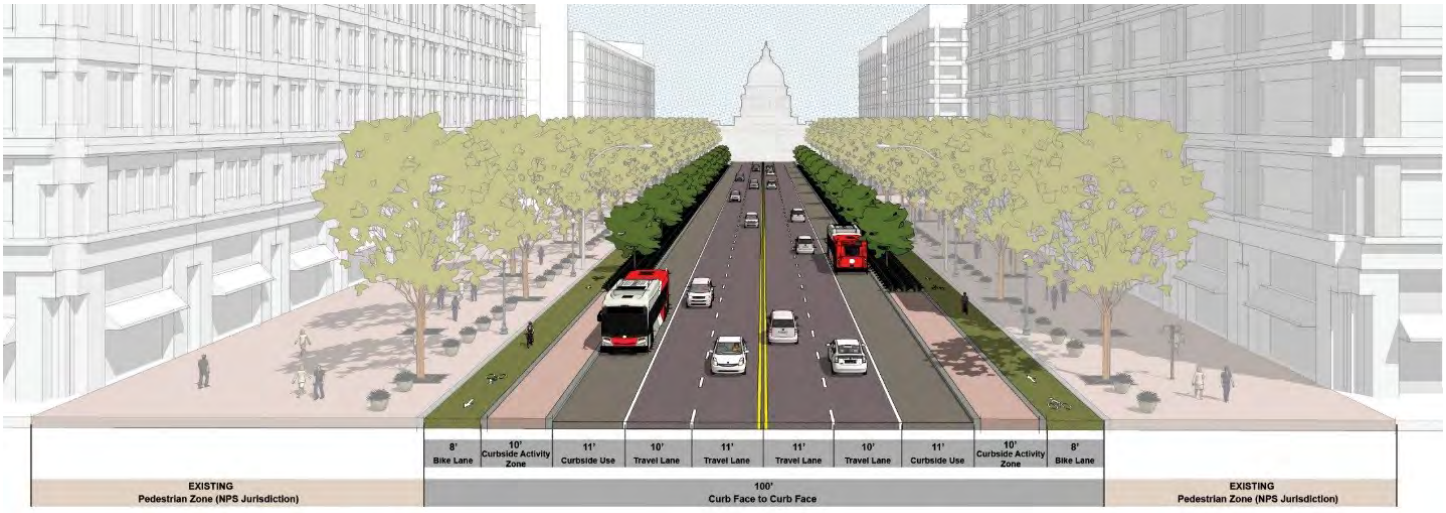
FIGURE 23: PRELIMINARY OPTION - SIX THROUGH LANES



6.4.3 Four Through Lanes – Protected Bike Lanes

- Generally, four through lanes (depending on segment includes three to five total through lanes, zero to two total dedicated turn lanes, and zero to two total lanes for curbside uses)
- Shorter crossing distances for pedestrians with signals timed for one-stage crossings
- Bike lanes outside of travel way with additional protection. They could also be placed in the median.
- Additional curbside space for bus stops, TNC pick-up and drop-offs, tour/commuter buses, or curb extensions

FIGURE 24: PRELIMINARY OPTION - FOUR THROUGH LANES



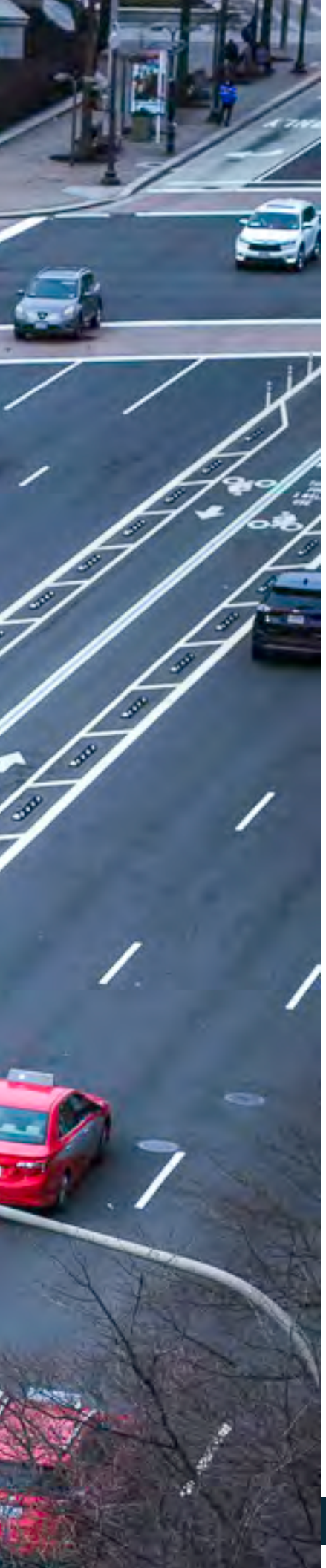
6.5 Traffic Operations Analysis of Preliminary Options

The traffic operations analysis of the preliminary Options provided an overview of the locations where the repurposing of roadway space resulted in constrained vehicular operations (see **Appendix B**). DDOT's internal working group reviewed the results and provided input on the preliminary Options. The results confirmed that the eight-lane Option was under capacity and highlighted that an Option with fewer travel lanes would provide additional space for other modes while still maintaining acceptable automobile mobility.



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ONLY



CHAPTER 7
REFINED CONCEPTS

PENNSYLVANIA AVENUE
TRANSPORTATION STUDY
East of the White House

The three preliminary Options identified previously were presented to the Pennsylvania Avenue Executive Committee in September 2017. Key input provided by the Executive Committee included revising the Options to minimize the number of travel lanes and prioritizing bicycle and pedestrian space. Additionally, the Executive Committee supported moving forward with refining the Options listed below:

- Option 2 Center-running pedestrian-space Option,
- Option 3 Curb adjacent protected bike facilities with pedestrian space Option, and
- Option 4 South-side two-way protected bike facilities and additional north-side pedestrian space Option.

Later in the Fall of 2017, an additional Option, Option 1, was introduced to the list of options to be refined. Option 1, discussed in subsequent sections of this chapter, mirrors existing conditions yet has one less travel lane per direction. The additional space from the travel lanes is repurposed for pedestrians.

7.1 Traffic Operations

The proposed Pennsylvania Avenue NW Options operate with lower average delay than the No-Build scenario as a result of improved signal timing optimization and operational adjustments, despite the decrease in vehicular travel lanes. Additionally, the proposed Options provide dedicated curbside space which greatly reduces the potential for stopping/standing vehicles within travel lanes, thus creating a more efficient corridor. Based on this analysis, all Options are feasible from a transportation capacity standpoint and may be considered for implementation.

7.1.1 Future Conditions

The Metropolitan Washington Council of Governments/ Transportation Planning Board (MWCOG/TPB) travel demand model (TDM) was used to establish a corridor-wide vehicular volume growth rate for 2040. The growth rates identified were applied to the existing conditions analysis to determine future-year traffic conditions with and without the proposed modifications to Pennsylvania Avenue NW presented in the refined Options. The methodology used to determine study area growth rates is provided in **Appendix C**.

7.1.2 No-Build

The 2040 No-Build scenario assumes no changes to the geometry or operations of the Pennsylvania Avenue NW corridor intersections. The vehicular volumes are increased through the application of the growth rates described above in **Section 7.1.1 Future Conditions**. As such, the No-Build scenario observes similar vehicular capacity analysis results as those observed under existing conditions, with delay increasing throughout the corridor in conjunction with the background growth.

7.2 Refined Concepts

The previous section presented three preliminary Options that were developed to visualize how Pennsylvania Avenue NW could be transformed into an environment that is potentially safer and more comfortable for all modes and enhances the experience for users of the corridor as an iconic attraction. Undergirding the preliminary Options is that vehicular traffic on Pennsylvania Avenue NW currently operates under capacity. Moving forward into the refined Options, vehicular capacity was generally set to two through lanes with additional turning lanes provided at key intersections as necessary to accommodate heavy turn movements. Modifications on Pennsylvania Avenue NW to enhance the other modes results in trade-offs described in greater detail in **Chapter 8 - Performance Measures** where the proposed Options are evaluated. The subsequent sections describe the four refined Options and the combination of multimodal building blocks used to redistribute the additional roadway space.



7.2.1 Option 1 – Center-running Protected Bike Lanes

One of the distinguishing travel patterns identified in the existing conditions analysis is that vehicles travel on Pennsylvania Avenue NW for a very short distance before turning from the corridor to continue traveling north or south. The high volume of turning vehicles results in increased pedestrian and bicycle exposure to collisions. Option 1 proposes to maintain the protected bicycle facilities in the center of Pennsylvania Avenue NW. Aside from reducing bicycle exposure to turning vehicles, Option 1 also maintains a design that is consistent with existing conditions and familiar to the corridor's current users. Additionally, pedestrian accommodations are enhanced by reducing the overall crossing distance at marked crosswalks. **Figure 26** and **Figure 28** present the key multimodal characteristics proposed in **Option 1**.

FIGURE 25: OPTION 1 - KEY MULTIMODAL CHARACTERISTICS
CURB-TO-CURB DISTANCE: 100 FEET



FIGURE 26: PLAN VIEW OF OPTION 1 BETWEEN 7TH AND 9TH STREETS NW

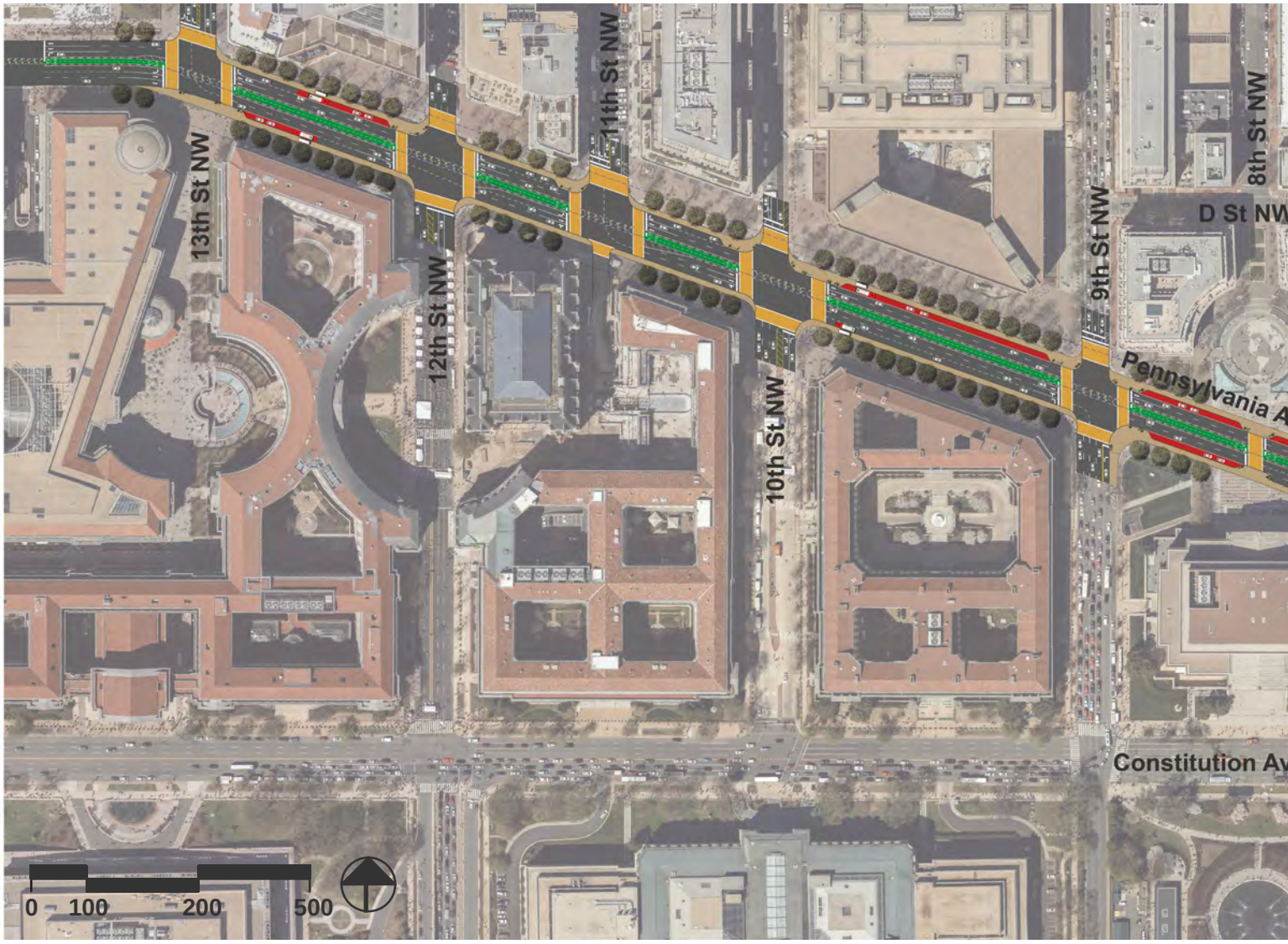
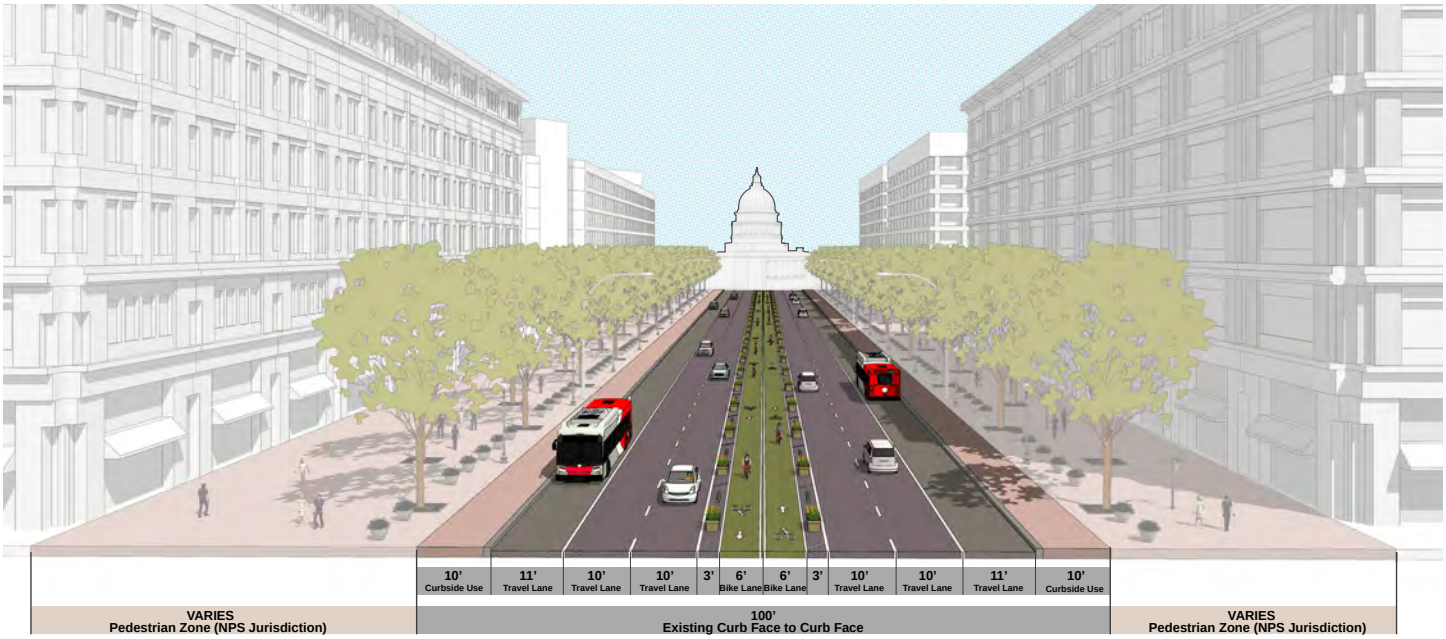
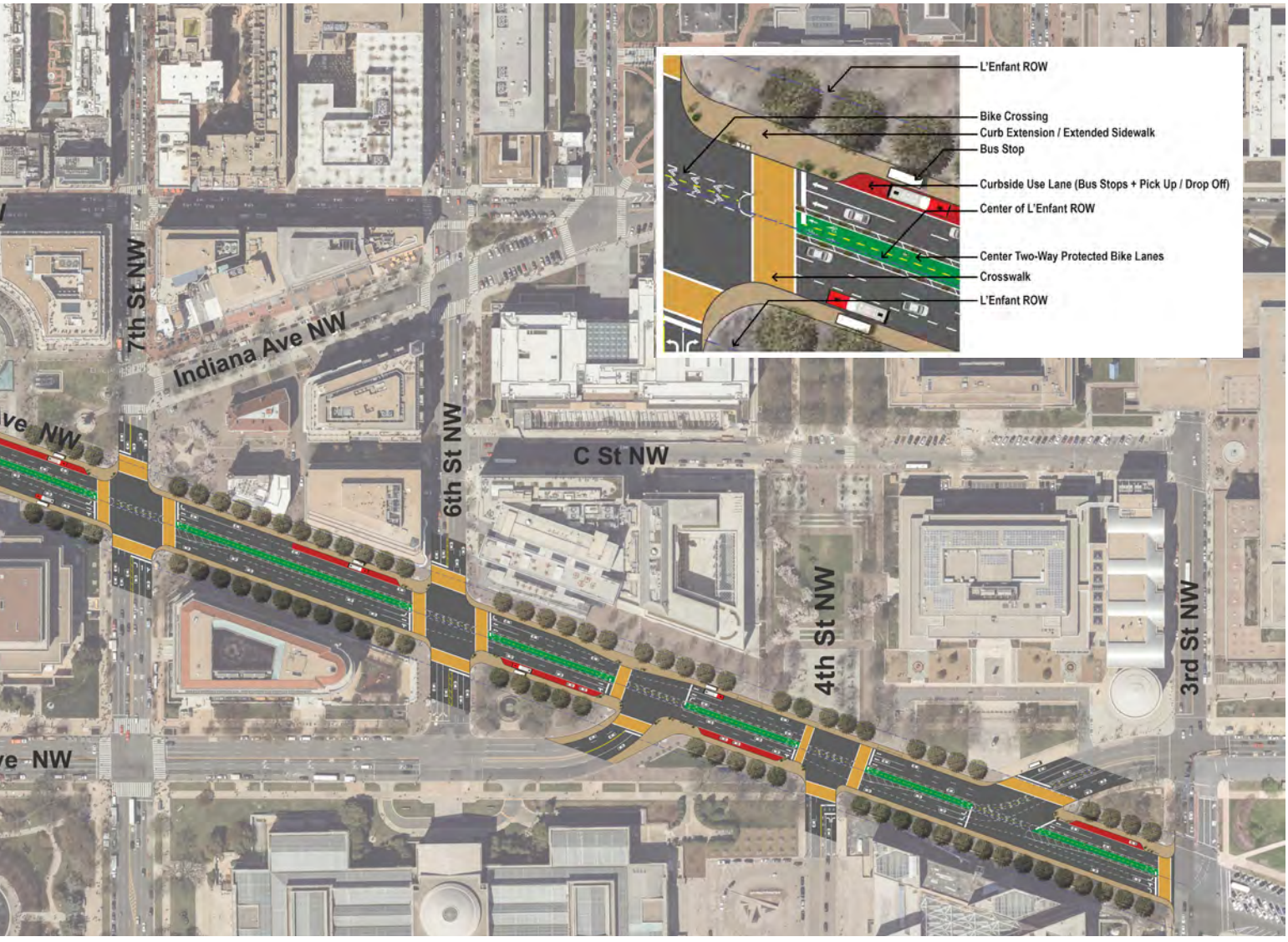


FIGURE 27: OPTION 1 – CENTER-RUNNING PROTECTED BIKE LANES





7.2.2 Option 2 – Center Walkway with Two-Way Protected Bike Lanes

Pennsylvania Avenue NW attracts a myriad of users for a variety of reasons. While some pedestrians use the corridor as a byway to their destination, others meander through to take of advantage of the views in the center of the street of the White House to the west and the Capitol to the east. Currently, the absence of a pedestrian n refuge area results in additional conflicts between bicyclists and pedestrians. Option 2 proposes a pedestrian center-running walkway flanked by protected bicycle lanes. While the overall width of the roadway would remain at 100 feet, the center-running walkway proposed in Option 2 provides an additional buffered space for pedestrians on Pennsylvania Avenue NW. **Figure 29** and **Figure 31** present the key multimodal characteristics proposed in **Option 2**.

FIGURE 28: OPTION 2 – KEY MULTIMODAL CHARACTERISTICS
CURB-TO-CURB DISTANCE: 100 FEET



FIGURE 29: PLAN VIEW OF OPTION 2 BETWEEN 7TH AND 9TH STREETS NW

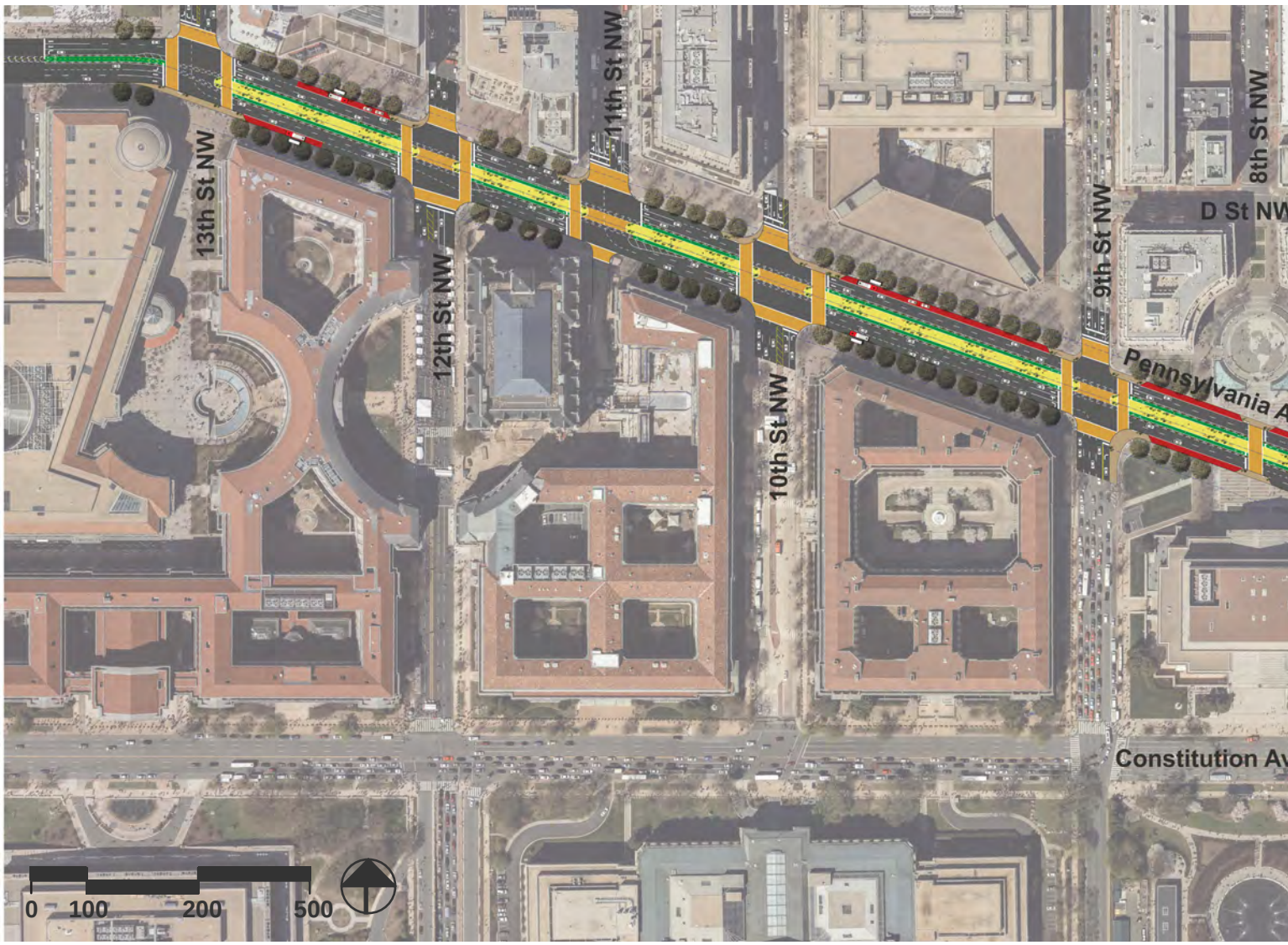
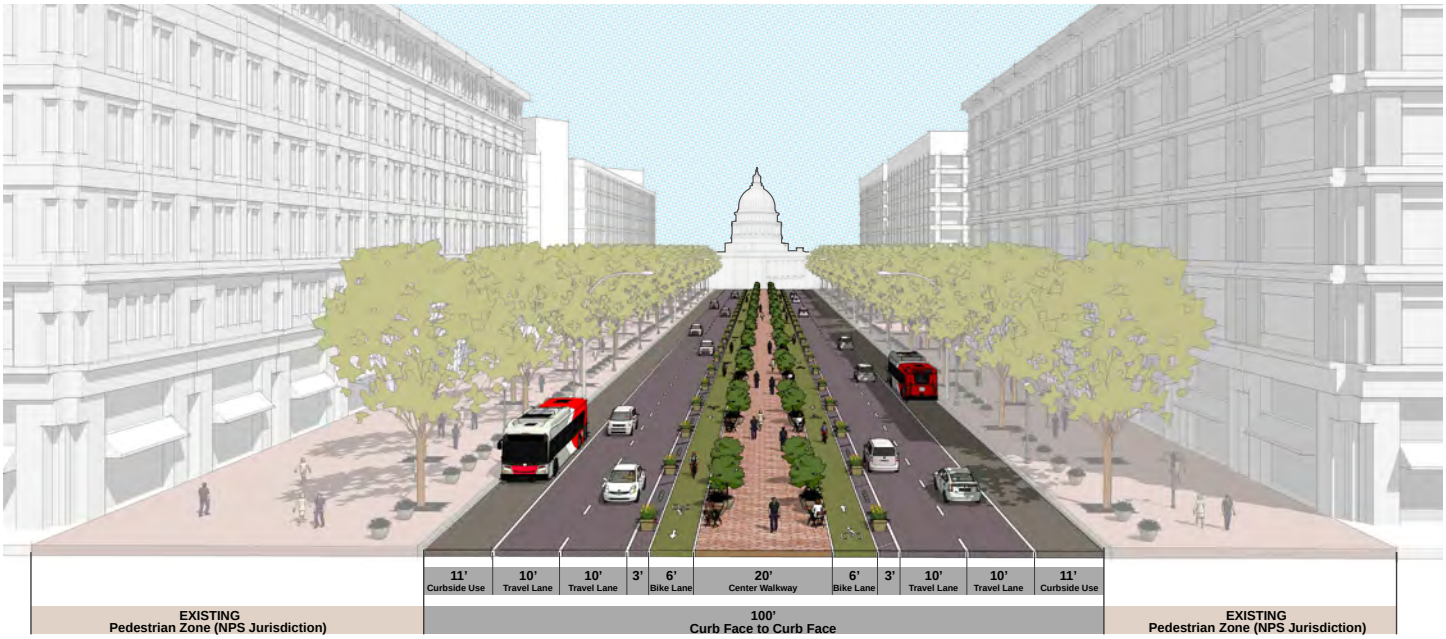
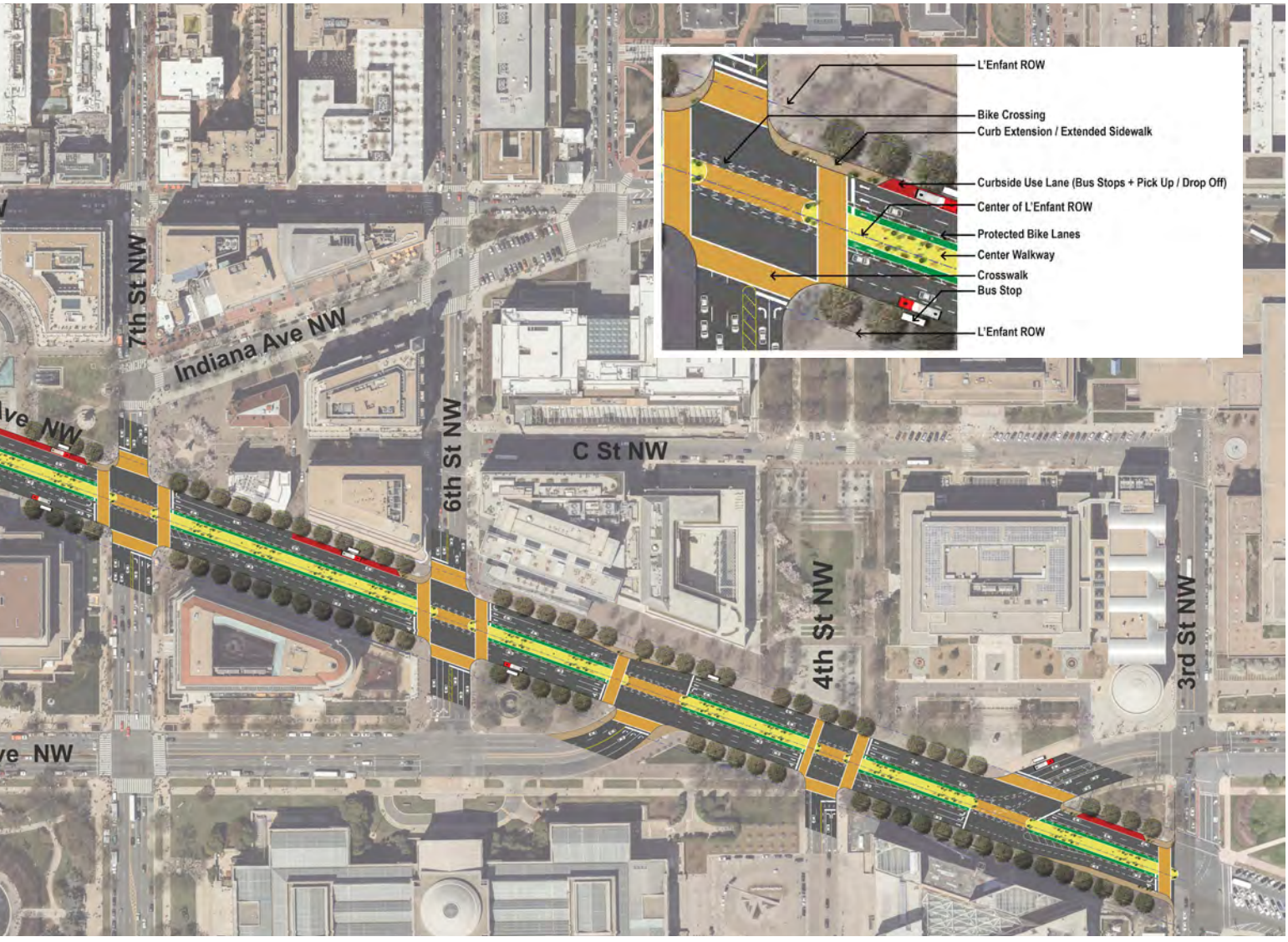


FIGURE 30: OPTION 2 – CENTER WALKWAY WITH TWO-WAY PROTECTED BIKE LANES





7.2.3 Option 3 – One-way Protected Bike Lanes

While the first two Options under the refined concepts maintain a look and feel that mirrors existing conditions, Option 3 combines the multimodal building blocks to provide additional protection for pedestrians and bicyclists along the curb on Pennsylvania Avenue NW. A major design consideration for Pennsylvania Avenue NW is that the roadway fixtures must be removable to accommodate the Inaugural Presidential Ceremony, among other events. Such a design consideration constrains the degree to which the proposed changes enhance safety for pedestrians and bicyclists. By shifting the enhancements to either side of the curb, Option 3 reduces the exposure of pedestrians to vehicles with a shorter crossing distance and introduces a vertical element of safety for bicyclists with a one-way raised bicycle facility. **Figure 32** and **Figure 34** present the key multimodal characteristics proposed by **Option 3**.

FIGURE 31: OPTION 3 – KEY MULTIMODAL CHARACTERISTICS
CURB-TO-CURB DISTANCE: 100 FEET



FIGURE 32: PLAN VIEW OF OPTION 3 BETWEEN 7TH AND 9TH STREETS NW

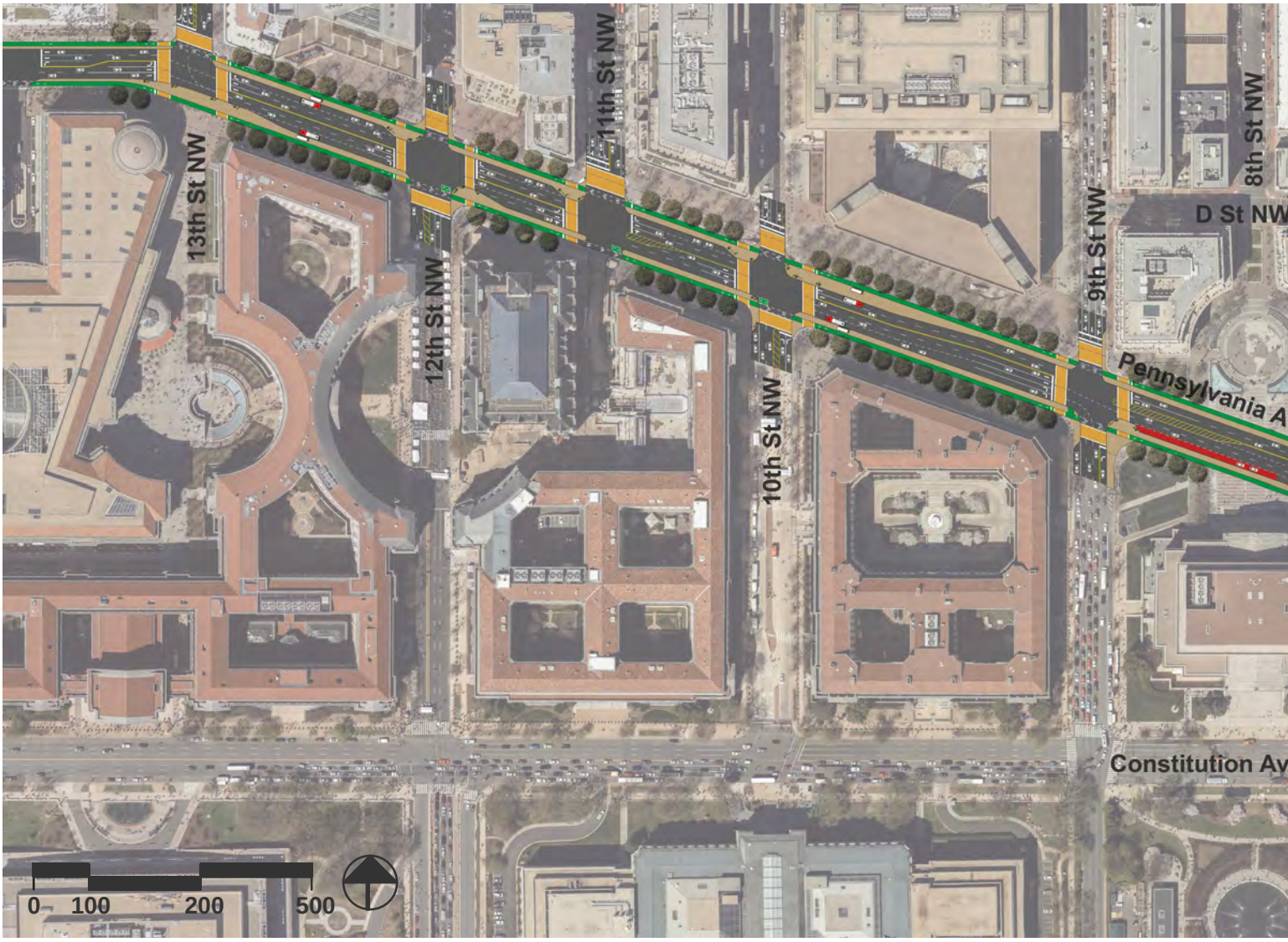
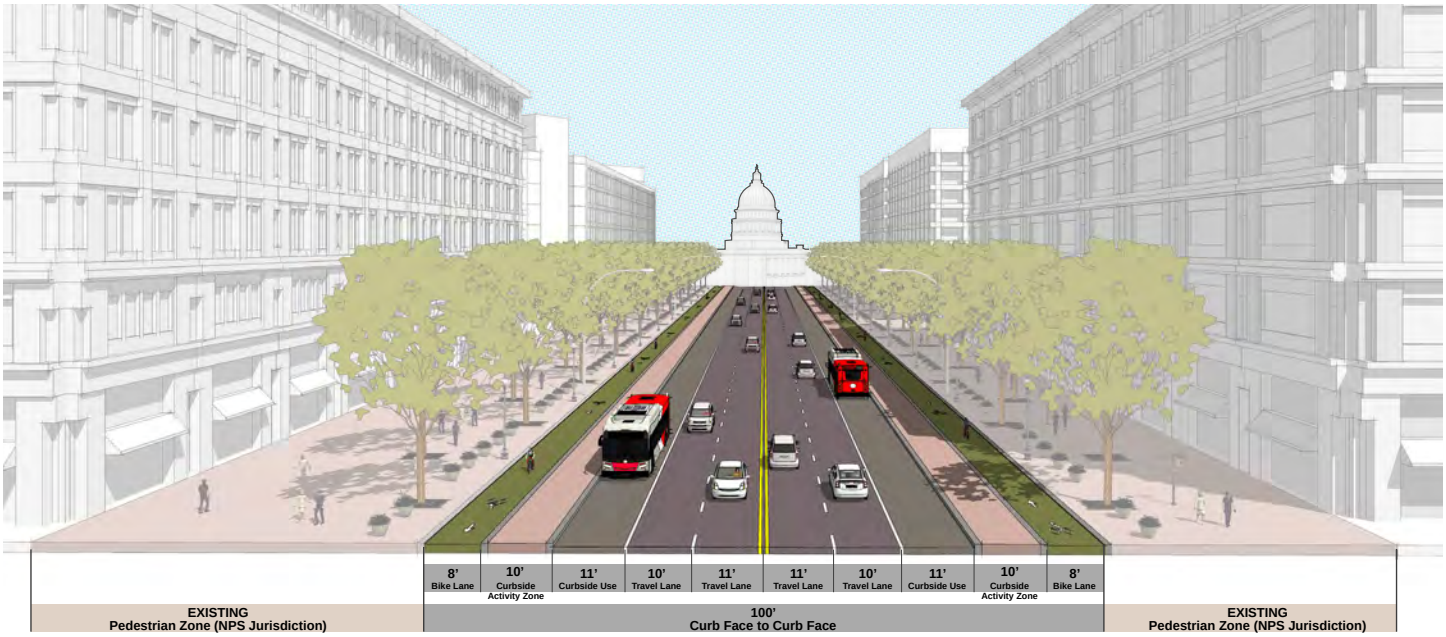
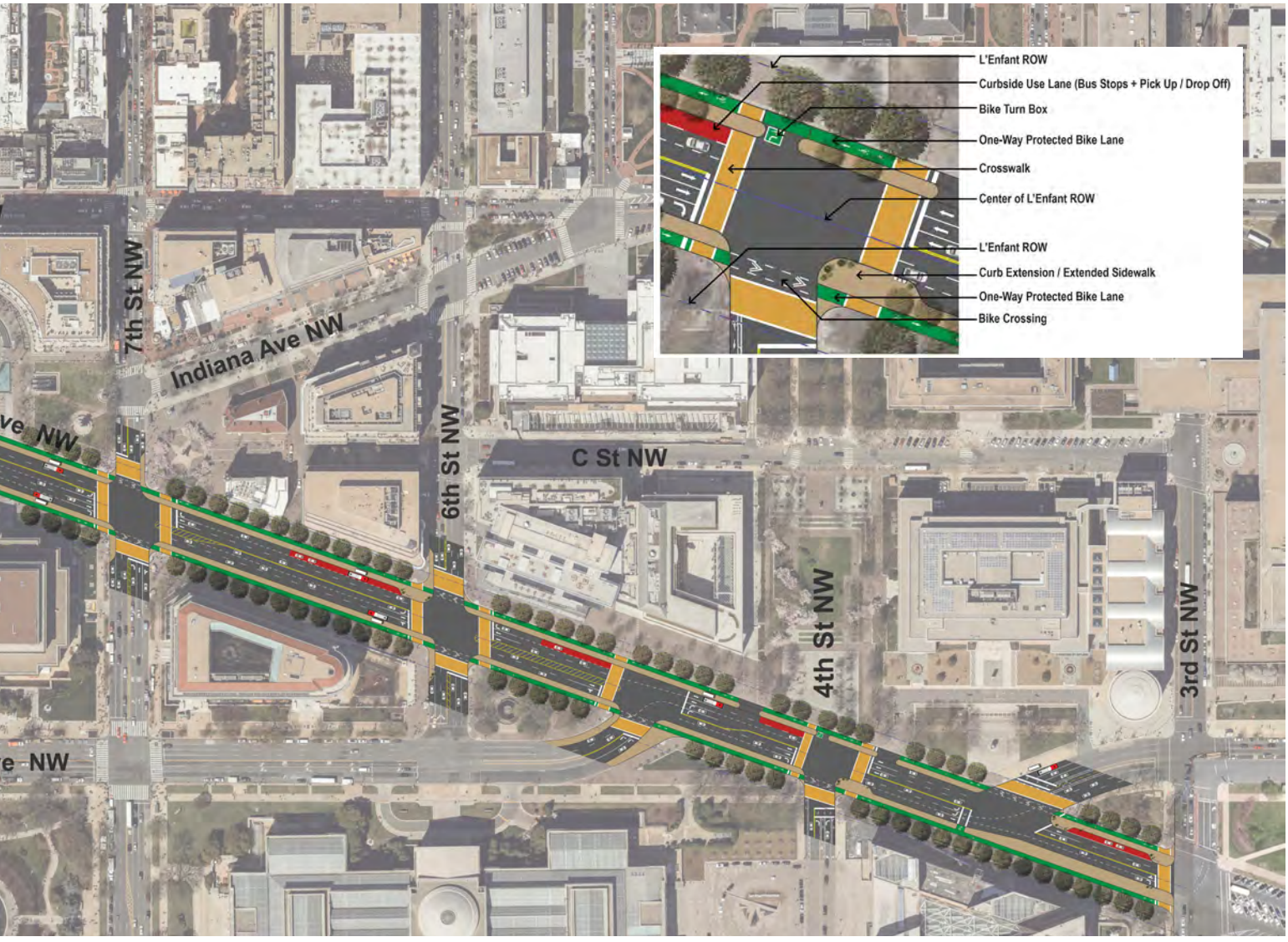


FIGURE 33: OPTION 3 – CENTER WALKWAY WITH TWO-WAY PROTECTED BIKE LANES





7.2.4 Option 4 – Two-way Protected Bike Lanes

Higher volumes of turning vehicles occur on the north side of Pennsylvania Avenue NW during the existing conditions analysis. To reduce the exposure of bicyclists to turning vehicles, Option 4 proposes a two-way protected bicycle facility on the south side of Pennsylvania Avenue NW. Similar to Option 3, Option 4 introduces a vertical element of safety for bicyclists by raising the bicycle facility above the roadway. While additional pedestrian space is provided on the south side, the majority of additional pedestrian space is added to the north side of the corridor. **Figure 35** and **Figure 37** present the key multimodal characteristics proposed by Option 4.

FIGURE 34: OPTION 4 – KEY MULTIMODAL CHARACTERISTICS
CURB-TO-CURB DISTANCE: 100 FEET



FIGURE 35: PLAN VIEW OF OPTION 4 BETWEEN 7TH AND 9TH STREETS NW

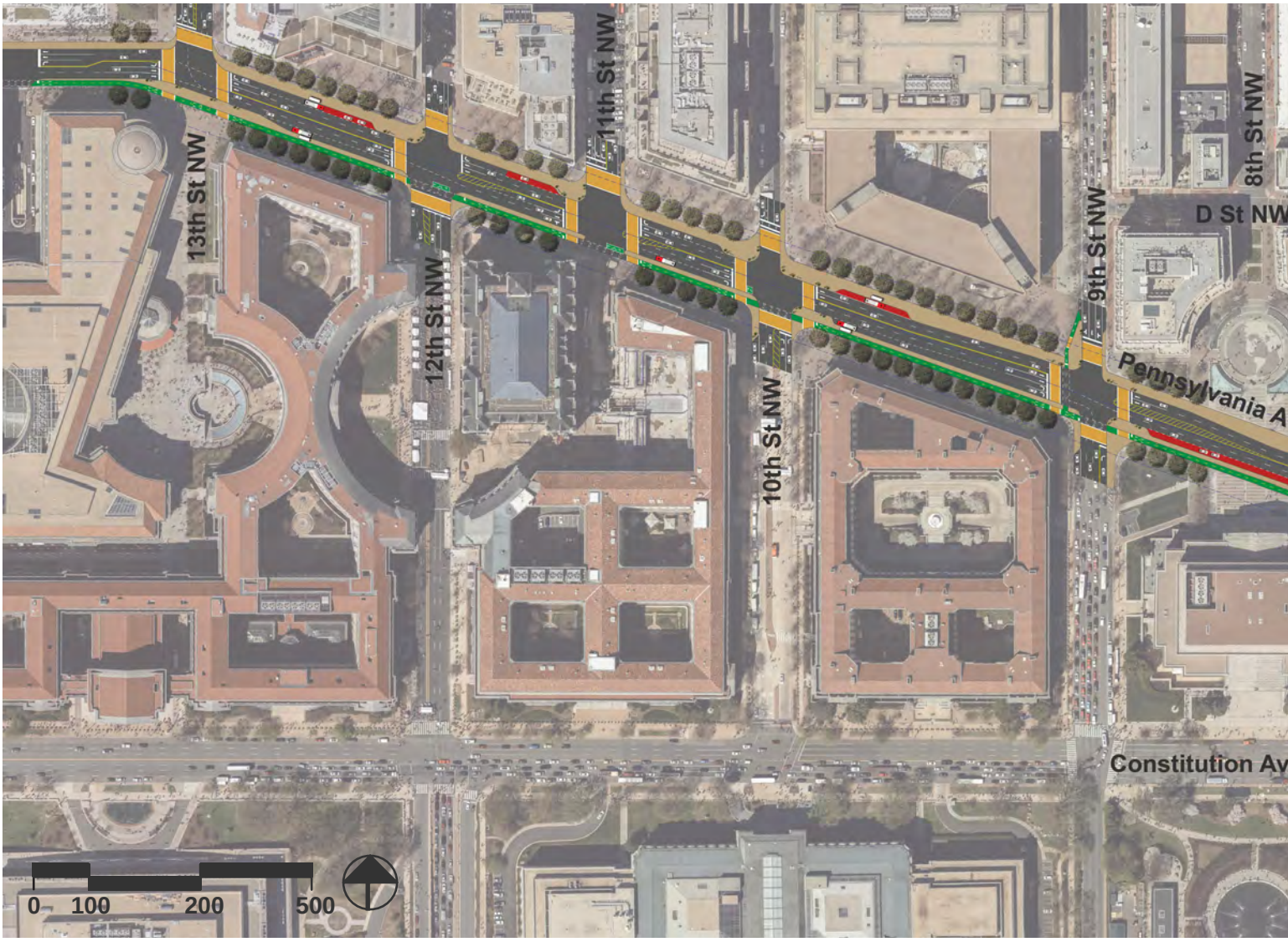
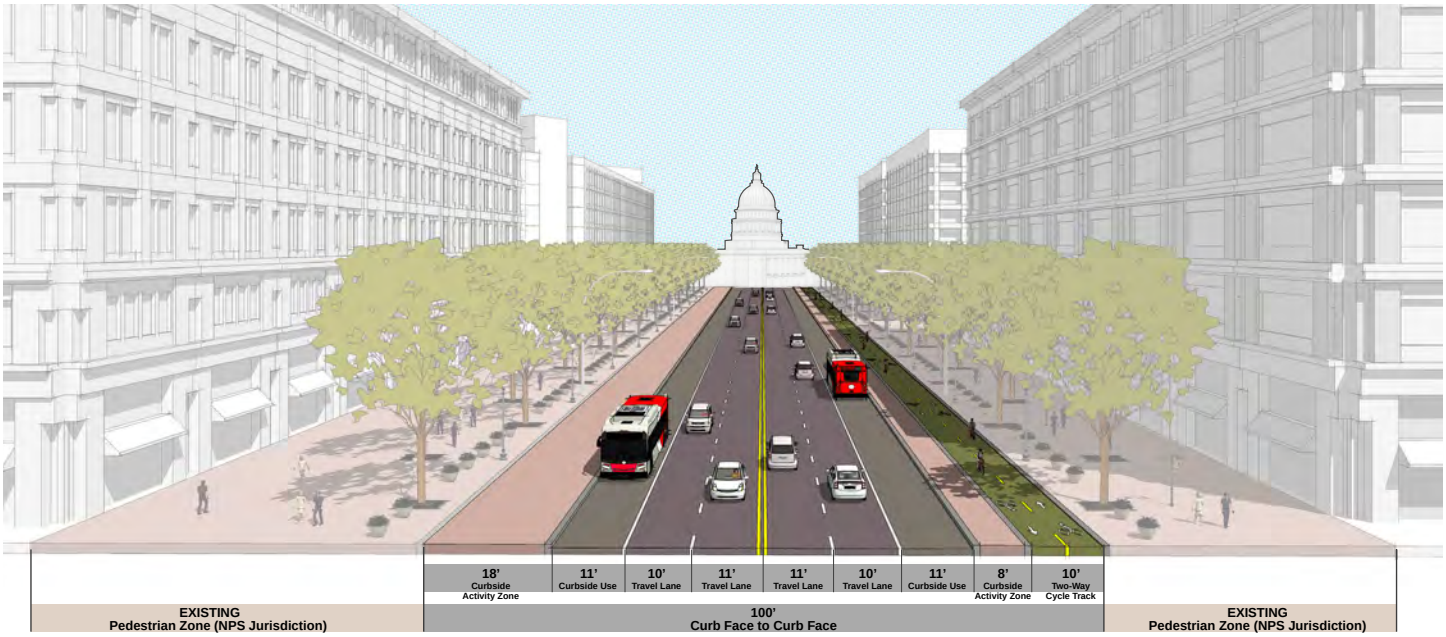
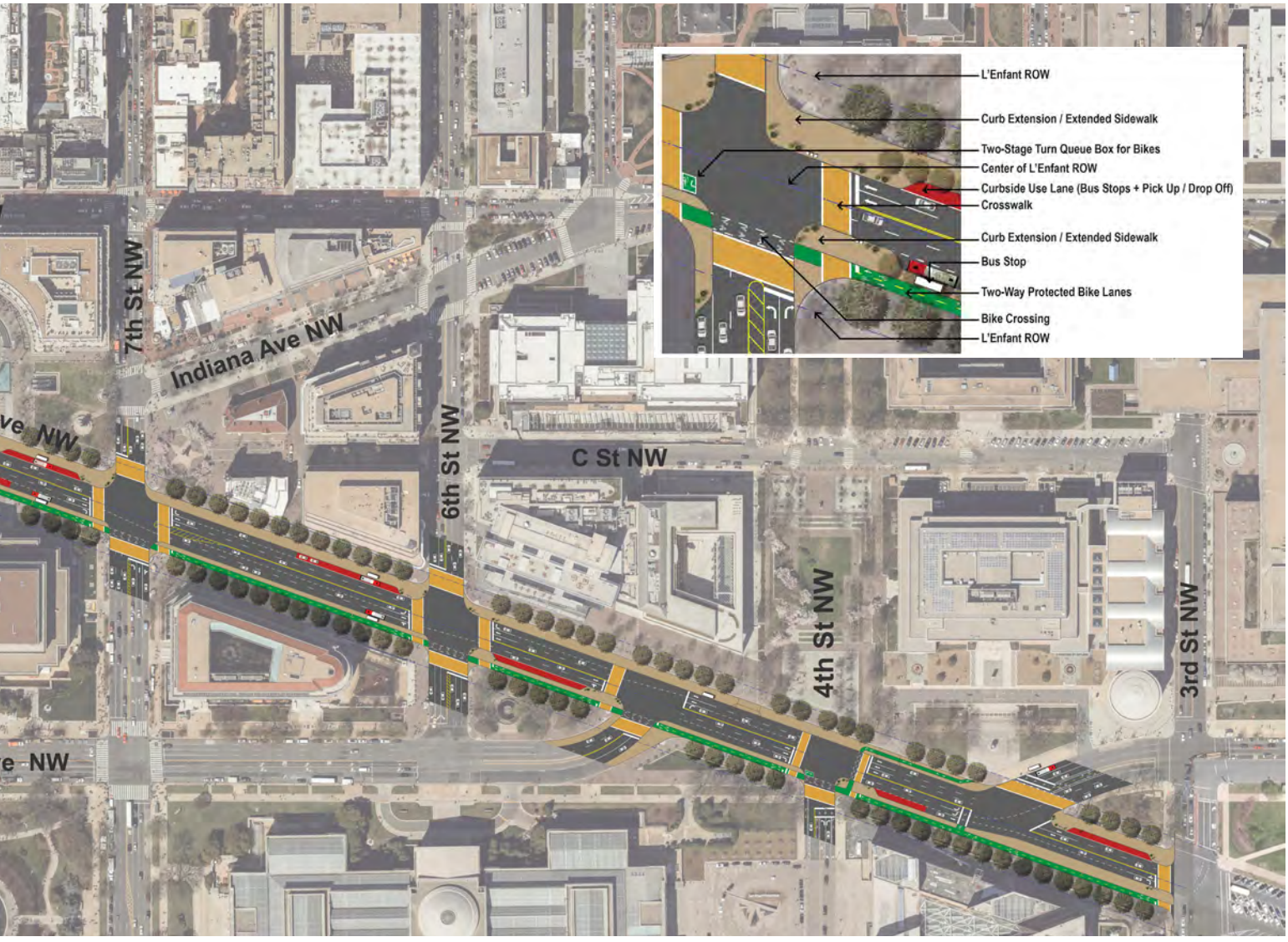


FIGURE 36: OPTION 4 – CENTER WALKWAY WITH TWO-WAY PROTECTED BIKE LANES





7.2.5 Intersection Review

Several of the corridor intersections operate under acceptable conditions under all study scenarios during both peak hours; however, seven intersections were observed to operate under unacceptable conditions during at least one study scenario, defined as having at least one approach operate at LOS E or worse during at least one peak hour. Of these intersections, some were able to accommodate varying operational or geometric configurations. These intersections, which are detailed in the subsequent sections, highlight different operational and geometric variations that result in improved or degraded capacity conditions:

4th Street NW & Pennsylvania Avenue NW

Under Option 2, the eastbound approach operates at LOS F during the PM peak hour. In Option 2, the removal of an additional eastbound lane was explored in order to gain additional dedicated curbside space. In Option 1, which employs similar signal phasing and operations, the third vehicular travel lane was maintained resulting in improved vehicular operations.

7th Street NW & Pennsylvania Avenue NW

Under Option 1 and Option 2, the eastbound approach operates at LOS E during the PM peak hour. In conjunction with the lane reductions, the degraded operations at this intersection are primarily a result of the protected-only eastbound left turn phase, high vehicular volumes along both Pennsylvania Avenue NW and 7th Street NW, and the minimum north-south green times that result in limited green time for east-west through traffic.

Under Option 3, the westbound approach operates at LOS E during the AM peak hour. Similar to Options 1 and 2, this is primarily a result of protected left-turn and right-turn phases to de-conflict turning vehicles from bicyclists traveling in the cycle track. Although Option 4 has similar operational needs, it operates under acceptable conditions due to the restriction of eastbound left turns. By eliminating eastbound left turns, a significant amount of green time is made available to east-west and north-south through movements. Additionally, there is ample capacity at the adjacent 6th Street NW intersection to process rerouted left turning traffic.

11th Street NW & Pennsylvania Avenue NW

Under the No-Build scenario, the majority of approaches operate at LOS E or F during both the AM and PM peak hours. Unlike most intersections along the Pennsylvania Avenue NW corridor, there are no approaches that have turn restrictions. The combination of accommodating left-turns, accommodating minimum pedestrian crossing times, and de-conflicting turning vehicles from bicycles results in excessive delays along the majority of approaches.

Similar to the No-Build scenario, under Option 2 the eastbound and westbound approaches operate at LOS E during the AM peak hour and the southbound approach operates at LOS E during the PM peak hour. Alternatively, Option 1, which has the same operational constraints as the No-Build scenario and Option 1, operates under acceptable conditions during both peak hours. This is as a result of the elimination of the eastern crosswalk. Although removing a crosswalk is not a typical solution in urban areas, 11th Street NW is adjacent to closely spaced intersections on both sides. As such, the removal of the crosswalk does not significantly degrade the pedestrian experience as there are still five crosswalks within a 750-foot stretch of Pennsylvania Avenue NW. Removing the eastern crosswalk allows for green time to be allocated more efficiently.

Under Option 3, the southbound approach operates at LOS E during the PM peak hour. Similar to Option 1, Option 3 incorporates the removal of the eastern crosswalk; however, due to the need to de-conflict right-turning vehicles and bicycles in the cycle track, additional delay is observed at the intersection. Alternatively, Option 4 operates under acceptable conditions during both peak hours by restricting westbound left turns. The combination of a limited number of left turns, with the need to de-conflict the turns from bicycle traffic, results in inefficient use of green time. By eliminating these left turns, the intersection operates significantly

7.2.6 Intersection Review Summary

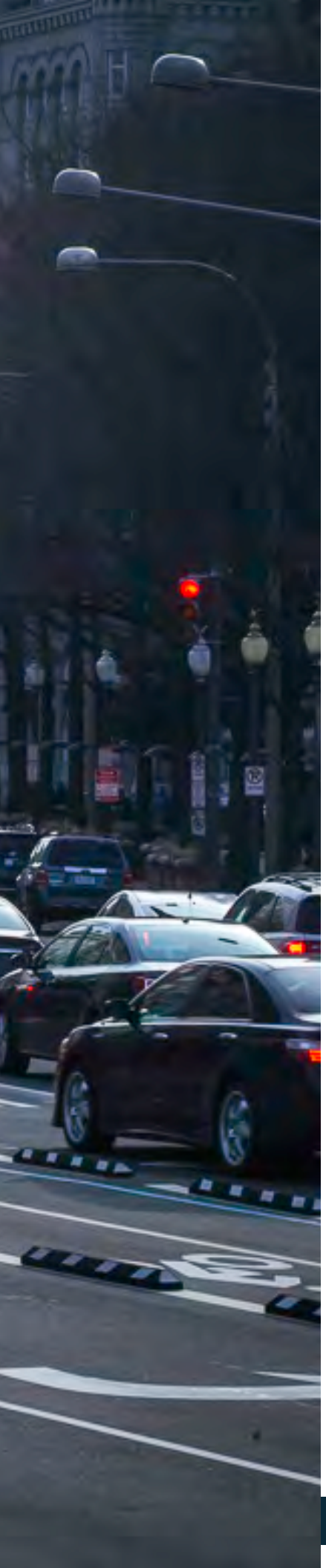
Depending on design desires moving forward, the operational and geometric variations described in the previous section can be adjusted to prioritize additional pedestrian space, bike lanes, curbside uses, or motor vehicle operations. **Table 8** provides a summary of the operational and geometric variations applied to each of the intersections.

TABLE 8: CORRIDOR INTERSECTION OPERATIONAL AND GEOMETRIC VARIATIONS SUMMARY

	No-Build	Option 1	Option 2	Option 3	Option 4
4TH STREET NW/ PENNSYLVANIA AVENUE NW			Removal of vehicular travel lane		
7TH STREET NW/ PENNSYLVANIA AVENUE NW		Protected left-turn phases	Protected left- turn phases	Protected right-turn phases	Restriction of EB left turns
11TH STREET NW/ PENNSYLVANIA AVENUE NW	Protected left-turn phases	Removal of eastern x-walk	Maintains eastern x-walk	Removal of eastern x-walk, but protected right-turn phases	Removal of eastern x-walk and WB left-turns







CHAPTER 8 PERFORMANCE MEASURES

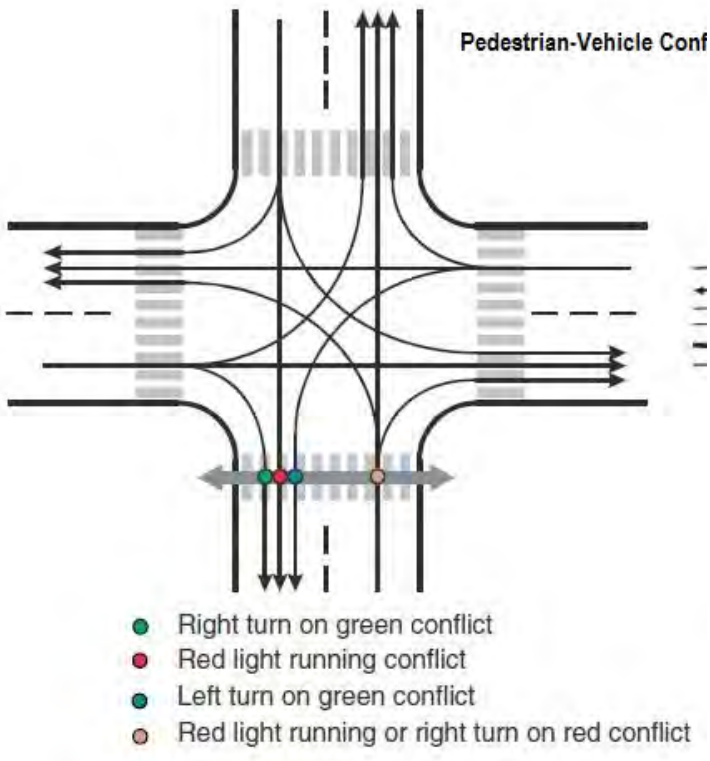
PENNSYLVANIA AVENUE TRANSPORTATION STUDY
East of the White House

This section discusses the broad range of ways that the proposed combination of multimodal building blocks (the Options) were evaluated and assesses how well the Options perform relative to the No Build scenario and to each other in terms of meeting the study's goals and objectives identified in **Chapter 3 - Goals and Objectives**.

A total of 21 performance measures were identified to evaluate and compare the effects of the proposed changes on Pennsylvania Avenue NW. To provide a base for comparison, the Options contain different building blocks (e.g., curb extensions, mid-block crossings, location of additional pedestrian space, curbside use lanes, etc.). The combination of building blocks results in trade-offs that provide opportunities and issues for various modes. For example, the use of a mid-block crossing improves safety, connectivity, and access for pedestrians, but has the potential to degrade transit operations if buses are required to merge back into a travel lane after pulling into a bus stop.

Given the corridor's unique characteristics, a holistic approach was considered to ensure that the performance measures captured the effects of the changes on the different users. The subsequent sections highlight the performance measures selected for each objective, describe how they were evaluated, and assess how the Options compare to the No Build scenario and to each other. **Table 9** provides an overview of the performance measure evaluation results.

FIGURE 37: PEDESTRIAN-VEHICLE CONFLICT POINTS



Source: NCHRP Report 672 Exhibits 5-7 and 5-8

8.1 Objective 1: Improve pedestrian and bicycle safety, minimize the potential for conflicts between modes, and provide compatible speeds between pedestrians, bicyclists, transit riders, and motorists

Changes to pedestrian and bicycle safety were assessed by evaluating the anticipated collision risk of non-motorized modes with vehicles. The following four measures were selected to assess how the proposed Options satisfied **Objective 1**:

- **Pedestrian Crashes** were evaluated by assessing the number of conflict points where vehicles interact with pedestrians at high-risk locations at intersections or mid-block crossings (see **Figure 37**). The average number of pedestrian and vehicle conflict points at intersections and mid-block crossings is reported for each Option.
- **Bicycle Crashes** were evaluated by assessing the number of conflict points where turning vehicles interact with bicycles at intersections. The average number of bicycle and vehicle conflict points at intersections is reported for each Option.
- **Pedestrian Exposure** to vehicles in the roadway was evaluated by assessing the distance between the curbs in marked crosswalks. The average crossing distance at intersections for each Option is reported. Longer crossing distances increase pedestrian exposure.
- **Auto Turning Volumes** were evaluated to determine pedestrian and bicycle exposure across marked crosswalks and bicycle facilities, respectively. The average number of turning vehicles at each intersection is reported for each Option.

As shown, Options 1, 2, 3, and 4 provide improvements related to the identified performance measures compared to the no-build conditions. Options 1 and 2 reduce the number of pedestrian conflict points, while Options 3 and 4 reduce the number of bicycle conflict points. Options 1, 3, and 4 provide the shortest crossing distances, with values close to 50 feet, while Option 2, is close to 60 feet. By keeping the bike lanes in the center of the roadway, Options 1 and 2 have the lowest number of vehicles turning across crosswalks and bicycle facilities.

8.2 Objective 2: Improve the pedestrian, bicycle, and transit experience and attract new users

Changes to the pedestrian, bicycle, and transit experience were assessed to determine how they increase safety, comfort, convenience, and accessibility of the corridor's users. The following three measures were selected to assess how the proposed Options satisfied Objective 2:

- Pedestrian Experience and Comfort was evaluated by assessing how much additional pedestrian space was provided. The cross-section for each Option was used to estimate how much additional space would be reallocated to pedestrians.

- The Bicycle Experience and Comfort measure was evaluated by assessing if the proposed facility would be raised. Bicycle facilities adjacent to the curb offer an opportunity to improve perceived comfort and safety by providing an additional level of separation from vehicles.
- Bus Stop Availability was evaluated by assessing the number of bus stops along the corridor.

As shown, Options 1, 2, 3, and 4 provide improvements related to the identified performance measures compared to the no-build conditions. All Options provide additional pedestrian space, with Options 1, 2, and 3 providing 20 additional feet, and Option 4 providing 26 additional feet. Options 3 and 4 provide additional bicycle comfort by providing elevated bicycle facilities compared to street-level facilities provided in the no-build conditions, and in Options 1 and 2. All Options, including no-build conditions provide the existing 11 bus stops along the corridor.

8.3 Objective 3: Provide comfortable and abundant pedestrian facilities and crossings that accommodate increased pedestrian demands related to economic development and activation of public spaces

Pedestrians are one of the most vulnerable road users. Objective 3 assessed how the proposed changes enhance pedestrian comfort and safety by providing additional separation from the other modes while maintaining connectivity to the corridor's many attractions and destinations. The following four measures were selected to assess **Objective 3**:

- **Crossing Time** was evaluated to determine the average pedestrian crossing time at marked crosswalks on Pennsylvania Avenue NW. A walking speed of 3.5 feet per second was used to calculate crossing time.
- **Buffer from Moving Traffic** was evaluated by assessing how much additional space was provided between sidewalks and travel lanes. The cross-section for each Option was used to estimate how much additional space was provided as a buffer.
- **Buffer from Bicycle Facilities** was evaluated by assessing how much additional space was provided between sidewalks and bicycle facilities. The cross-section for each Option was used to estimate how much additional space was provided as a buffer.
- **Pedestrian Connections** were evaluated by assessing the total number of opportunities to cross north, south, or along the center-running walkway at intersections or mid-block crossings on Pennsylvania Avenue NW.

Options 1, 2, 3, and 4 provide shorter pedestrian crossing distances, and consequently shorter pedestrian crossing times. Further, the four Options provide buffers from moving traffic, and the no-build conditions along with Options 1 and 2 provide a buffer between the bicycle facilities and pedestrian facilities by placing the bicycle facilities in the center of the roadway.

Option 2 with the center walkway provides the greatest number of pedestrian connections, largely due to providing east-west crossings across Pennsylvania Avenue in the center of the roadway.

8.4 Objective 4: Improve bicycle accessibility, and provide comfortable bicycle facilities for riders of all skill and comfort levels that accommodates increased demand for cycling

Like pedestrians, bicyclists are a vulnerable road user and have a high risk of injury during a collision with vehicles. Objective 4 assessed how the proposed changes reduce exposure of bicyclists to other modes while maintaining connectivity to the corridor's existing and proposed bicycle facilities. The following two measures were selected to assess Objective 4:

- **Buffer and Protection from Moving Traffic** was evaluated by assessing how much additional space was provided between bicycle facilities and travel lanes. The cross-section for each Option was used to estimate how much additional space was provided as a buffer.
- **Bicycle Network Connectivity** was evaluated by assessing whether the Option connected to existing and planned bicycle facilities.

While all Options connect to all existing and proposed bicycle facilities along the corridor, Options 3 and 4 provide the greatest buffer between bicycle facilities and travel lanes.

8.5 Objective 5: Provide more reliable corridor travel by transit vehicles, provide safe and comfortable locations for boarding and alighting, and enhance connectivity between transit modes and between transit riders and nearby destinations

Transit changes on Pennsylvania Avenue NW were assessed to determine how well the enhancements would improve reliability, safety, and comfort. The following three measures were selected to assess Objective 5:

- **Bus Stop Locations** were evaluated by assessing the number of bus stops along the corridor.
- **Crossing Distance** was evaluated by assessing the average distance between marked crossing at intersections. Longer crossing distances increase pedestrian exposure and the time it takes to get to nearby destinations and attractions and decreases the likelihood of crossing the street to reach a transit connection.
- Transit Disruptions were evaluated by assessing the total number of times that buses would have to merge back into traffic from a bus pull-out bay. While pull-out bays create additional space for other users, they also make it difficult to reenter the roadway.

All Options provide the existing 11 bus stop locations along the corridor. Options 1, 3, and 4 provide the shortest crossing distances, with values close to 50 feet, while Option 2, is close to 60 feet. Option 3 is the only Option (outside of no-build) with no locations where buses could be blocked by the adjacent travel lane.

8.6 Objective 6: Minimize blockage related to vehicular queues at pedestrian or bicycle connections, intersections, or access locations

The multimodal building blocks were used to repurpose excess roadway capacity for other modes. In doing so, the proposed Options will impact traffic operations. The following two measures were selected to assess **Objective 6**:

- **Queuing** was evaluated by assessing 95th-percentile queue at each of the corridor's intersections.
- **Vehicle Delay** was evaluated by assessing the average eastbound and westbound approach peak hour delay at the corridor's intersections.

8.7 Objective 7: Provide sufficient curbside space for transit vehicles, pick-up and drop-offs, and parking

Changes in curbside space were evaluated to assess how well users other than pedestrians, bicycles, and vehicles were accommodated on Pennsylvania Avenue NW. The following measure was selected to assess **Objective 7**:

- Sufficient Curbside Space was evaluated by assessing how much linear feet of curbside space was designated for curbside uses such as transit vehicles, pick-ups and drop-offs, and parking

All Options provide the additional curbside space; however, Option 1 provides the most.

8.8 Objective 8: Ensure compatibility with the corridor's historical and monumental significance while also recognizing the role of the corridor as a key component of the District's transportation network

Changes proposed for Pennsylvania Avenue NW were evaluated to ensure that the designs complemented and emphasized the corridor's iconic and historical character. The following measure was selected to assess **Objective 8**:

- **Compatibility** was evaluated by determining if the proposed Options enhanced the monumental significance of Pennsylvania Avenue NW.

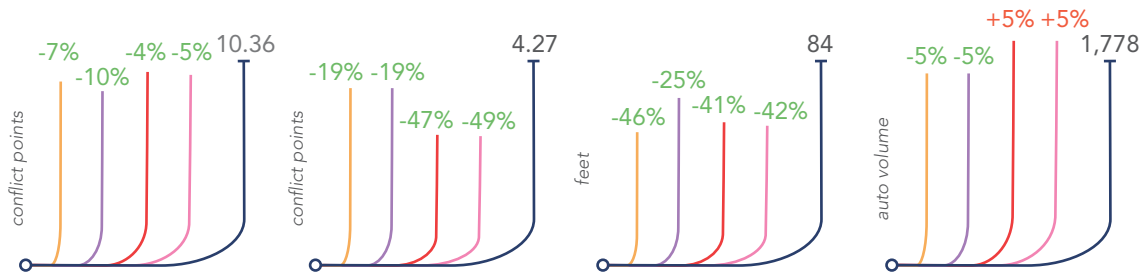
8.9 Objective 9: Develop Options that are feasible and implementable, and support the Pennsylvania Avenue Initiative

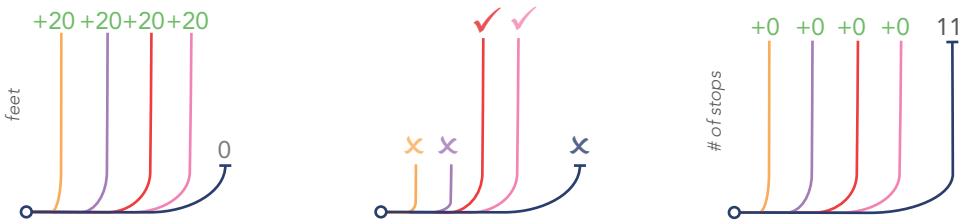
The following measure was selected to assess **Objective 9**:

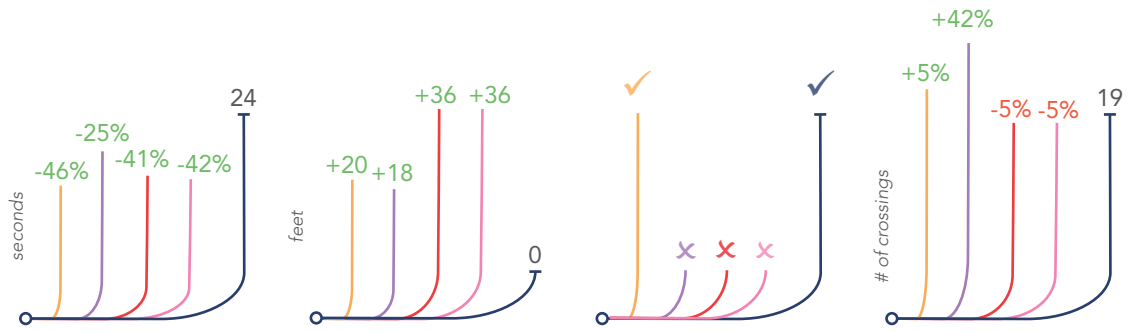
- **Compatibility** was evaluated by determining if the proposed Options supported the goals of the Pennsylvania Avenue Initiative.

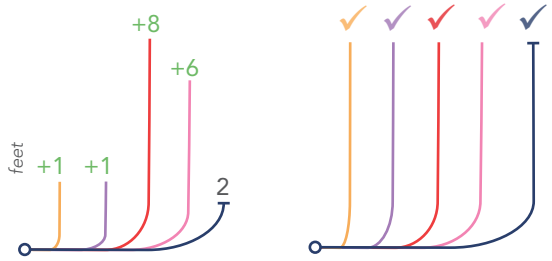

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TABLE 9: PERFORMANCE MEASURE EVALUATION RESULTS

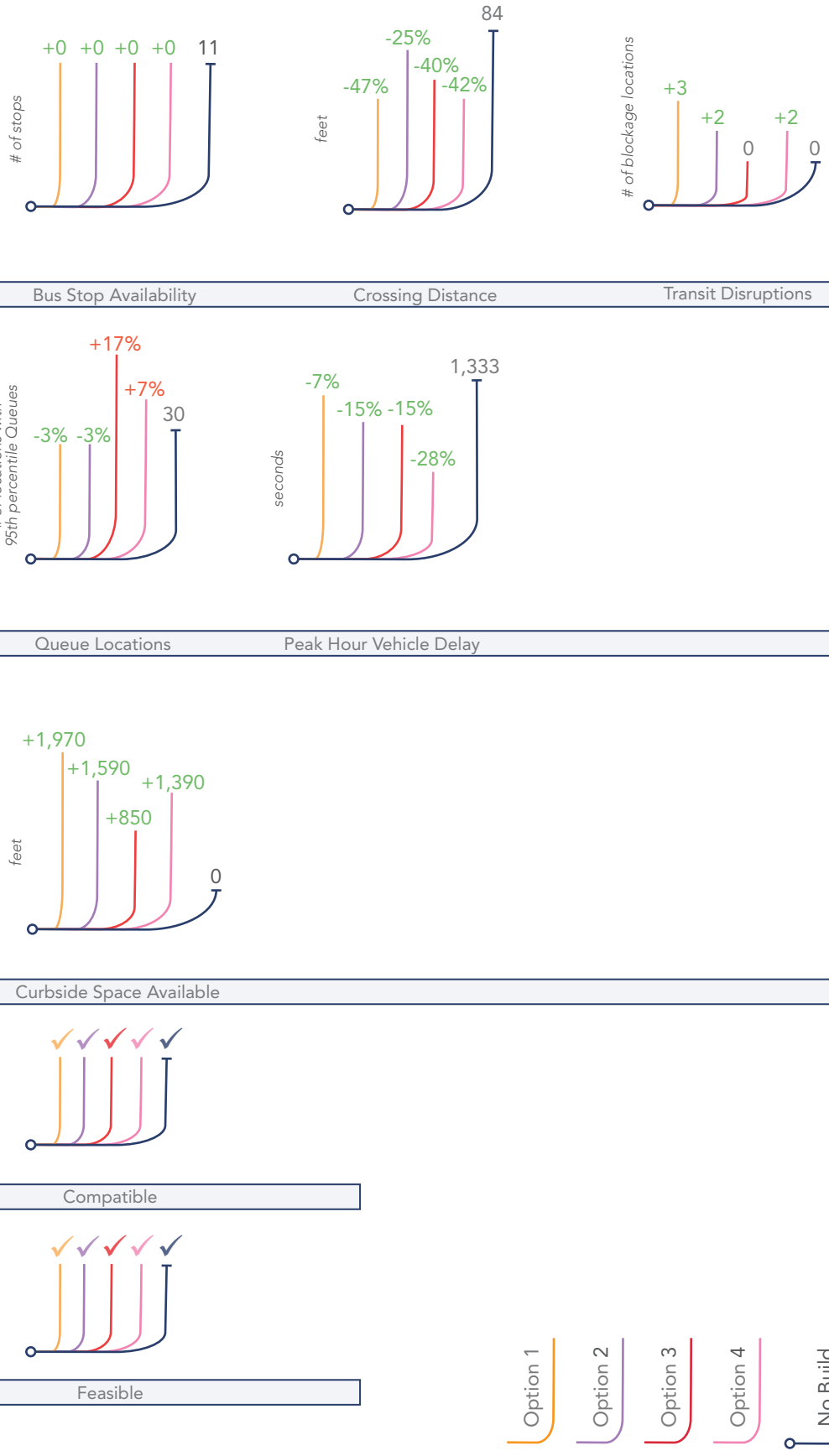
No.	Objective	Evaluation
1	Improve Pedestrian and Bicycle Safety	

No.	Objective	Evaluation
2	Improve the Pedestrian, Bicycle, and Transit Experience	

No.	Objective	Evaluation
3	Provide Comfortable and Abundant Pedestrian Facilites	

No.	Objective	Evaluation
4	Provide Comfortable Bicycle Facilities for Riders of all Skill and Comfort Levels	

No.	Objective	Evaluation
5	Provide More Reliable Corridor Travel by Transit Vehicles	Bus Stop Availability; Crossing Distance; Transit Disruptions
6	Minimize Blockage Related to Vehicular Queues	Queue Locations; Peak Hour Vehicle Delay
7	Provide Sufficient Curbside Space	Curbside Space Available
8	Ensure Compatibility with the Corridor's Historical and Monumental Significance	Compatible
9	Develop Alternatives that are Feasible and Implementable	Feasible




THRU
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CHAPTER 9
COST ESTIMATES

PENNSYLVANIA AVENUE
TRANSPORTATION STUDY
East of the White House

Planning-level cost estimates were developed for the proposed Options by quantifying the major construction elements for each Option. Quantities for new curb and gutter, pedestrian ramps, buffer planters, and various surface treatments such as textured concrete and asphalt were measured in the digital model for each Option. Construction costs for each major quantity group were estimated based on recent item prices paid for similar projects in the District. Additionally, costs factored include relocating or rebuilding auxiliary street infrastructure such as storm drains and utilities. A 30% contingency factor was included on top of the quantities and components mentioned above. The contingency factor is intended to cover unknown project costs that could arise in later phases of the project as more engineering details are developed and from construction elements that require special construction techniques or materials due to the highly visible project location. Contingency costs do not include design costs. **Table 10** summarizes the planning-level cost estimates. **Appendix D** contains the cost estimate worksheets

TABLE 10: PLANNING-LEVEL COST ESTIMATES FOR THE PROPOSED OPTIONS

	Option 1	Option 2	Option 3	Option 4
Quantities	$14,784,000	$14,042,000	$13,824,000	$13,768,000
Utilities and Landscaping	$5,680,000	$4,743,000	$5,363,000	$5,345,000
Maintenance of Traffic and Mobilization	$5,116,000	$4,696,000	$4,797,000	$4,778,000
40% Contingency	$7,674,000	$7,044,000	$7,195,000	$7,167,000
Total Estimated Engineering and Construction Cost	**$33,253,000**	**$30,525,000**	**$31,179,000**	**$31,057,000**

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EVACUATION ROUTE
Pennsylvania Ave NW
300
capital bikeshare



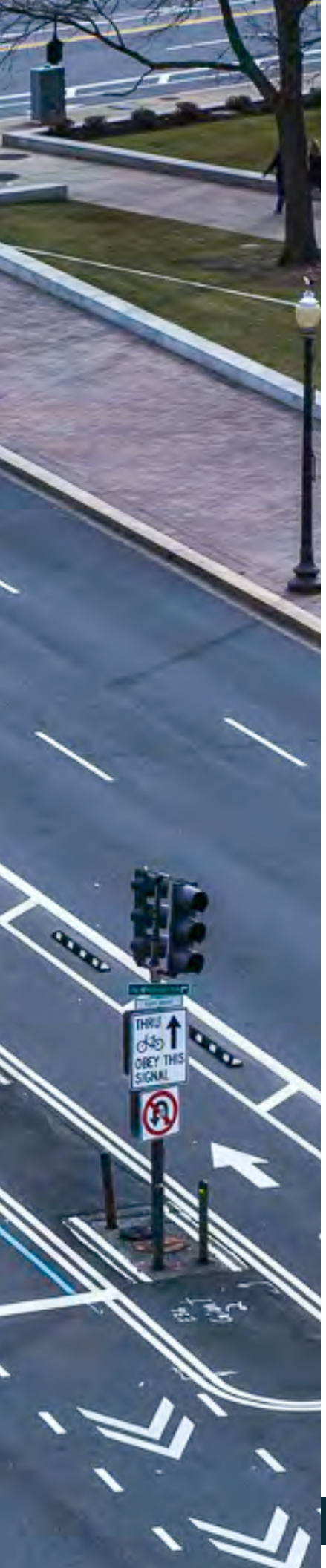
CHAPTER 10 OUTCOMES & NEXT STEPS

PENNSYLVANIA AVENUE TRANSPORTATION STUDY
East of the White House

The four Options consist of several combinations of building blocks identified as feasible Options for the corridor. These building blocks, in conjunction with outcomes from other Pennsylvania Avenue NW Initiative studies will inform the design Options considered as the Executive Committee moves forward with the environmental analysis. At that point public feedback along with a thoughtful consideration of trade-offs and priorities will help identify a recommended alternative for moving forward with the environmental approval.

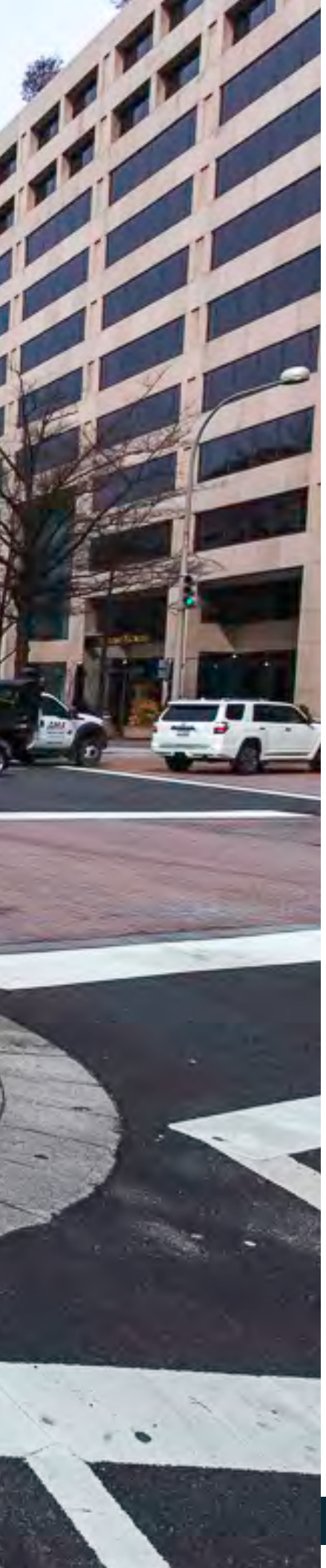

BIG BUS
CO147
BIGBUSTOURS.COM
BI4 BUS

ONLY
ONLY
ONLY



APPENDICES


TURNING
USE X-WALKS



APPENDIX A
EXISTING CONDITIONS BRIEFING BOOKLET

PENNSYLVANIA AVENUE EAST OF THE WHITE HOUSE TRANSPORTATION STUDY

Briefing Booklet *Draft* | *Existing Conditions*

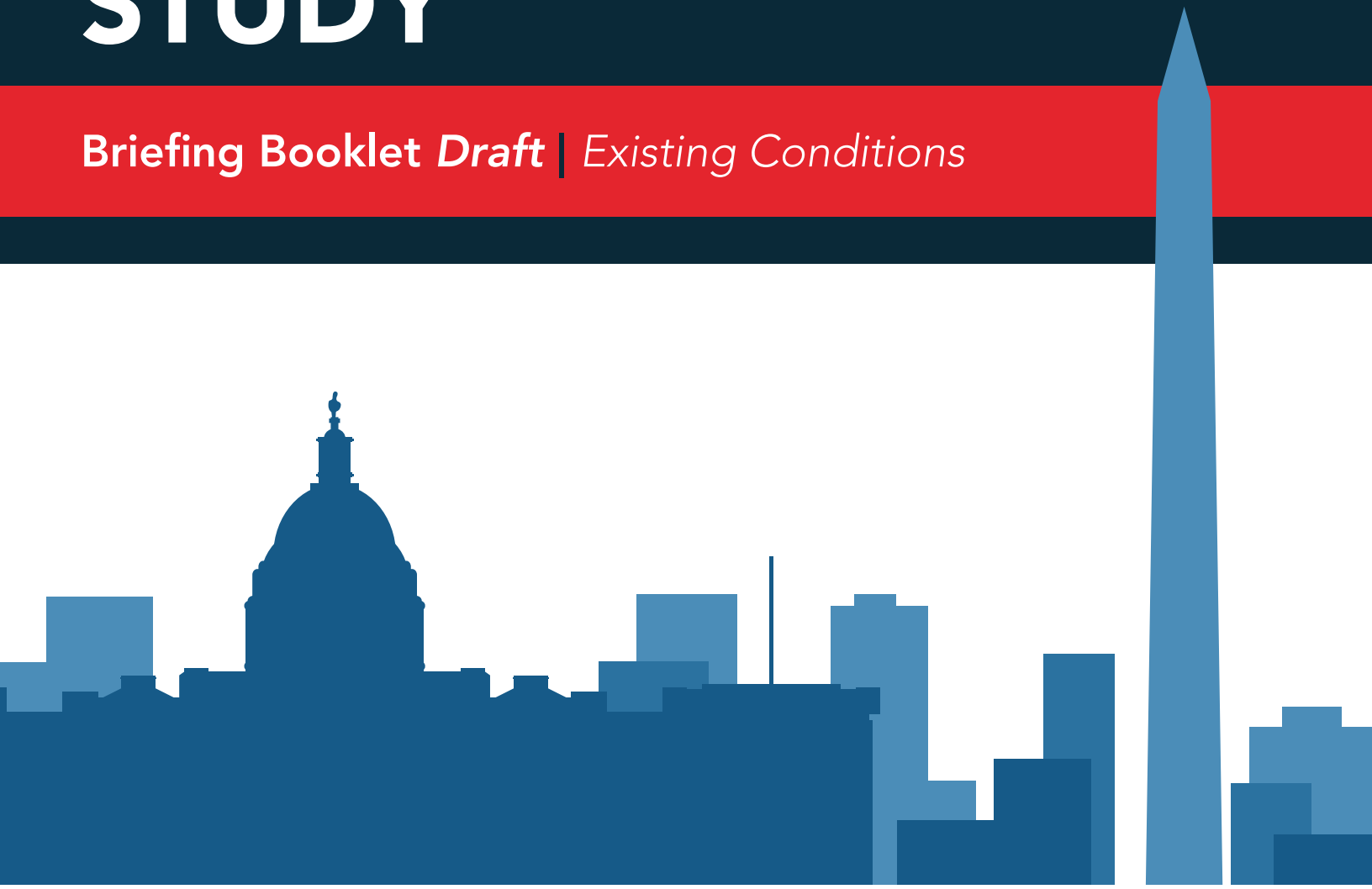


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CHAPTER 1 INTRODUCTION

One of the most iconic streets in the world, Pennsylvania Avenue NW between the White House and the Capitol regularly hosts presidents, dignitaries, and tourists, while also serving a vital role in moving District residents and workers. Like other great streets of the world, Pennsylvania Avenue NW plays many roles for many people. From a transportation perspective, with the closure of the 1600 block of Pennsylvania Avenue NW in front of the White House, the roadway no longer serves the amount of through traffic the current configuration was designed to serve. The additional capacity has created a rare opportunity in Washington, D.C. to consider repurposing available right-of-way to allow Pennsylvania Avenue NW to better serve the many users of this iconic avenue.

From the 1970s to the 1990s, the Pennsylvania Avenue Development Corporation helped re-imagine the corridor and adjoining area, which also helped with efforts to revitalize downtown Washington, D.C. These efforts ceased in the mid-1990s and, until recently, minimal work outside of security enhancements has been done on "America's Main Street." After September 11, 2001, the permanent closure of the portion of Pennsylvania Avenue NW that passes in front of the White House eliminated the function of this roadway as a major thoroughfare for vehicles traveling across the District.

In June 2010, DDOT installed center-running separated bike lanes. These lanes were evaluated in DDOT's *Bicycle Facility Evaluation* Report. The report provided an evaluation of the three locations where innovative bicycle facilities were installed in Northwest DC (15th Street NW, Pennsylvania Avenue NW, and at the intersection of 16th Street/U Street/New Hampshire Avenue NW) in 2010. The report documented an increase in comfort levels for bicyclists on Pennsylvania Avenue NW, which coincided with a large increase in bicycle volumes on Pennsylvania Avenue NW and minimal motor vehicle volume change. The report also identified areas for improvement. These areas of improvement included greater protection for cyclists from U-turning vehicles, which led to experiments with "zebra" traffic separators, and finally the installation of rubber curb stops in May 2015. In addition, the report recommended the use of bicycle signals and/or markings to provide independent vehicle and bicycle through phases to clarify and improve operations, along with other measures to minimize conflicts between pedestrians and cyclists.



PENNSYLVANIA AVENUE NW HOSTS THE PRESIDENTIAL INAUGURAL PARADE EVERY FOUR YEARS

Pennsylvania Avenue NW has several unique travel characteristics. As identified in the Bicycle Facility Evaluation project, Pennsylvania Avenue NW predominantly serves automobiles traveling only a few blocks on Pennsylvania Avenue NW rather than a predominant through movement.

Currently, 23 WMATA bus routes serve Pennsylvania Avenue NW, along with heavy curbside demand from motorcoaches, and pick-up and drop offs from taxis and rideshare vehicles. Additionally, setbacks established as part of several redevelopment plans along Pennsylvania Avenue NW have created inconsistent sidewalk widths, especially along the north side of Pennsylvania Avenue NW.

As identified in moveDC, DDOT's long-range multimodal transportation plan, Pennsylvania Avenue NW has been identified as an existing bicycle-priority corridor. Current efforts by the National Capital Planning Commission (NCPC) are identifying short- and long-term improvement projects seeking to develop a new vision for the corridor more in line with Daniel Patrick Moynihan's "lively, friendly and inviting as well as dignified and impressive" description of the corridor. Further, as part of the planned redevelopment of the FBI Headquarters building, the opportunity exists to reestablish D Street NW between 9th Street NW and 10th Street NW.

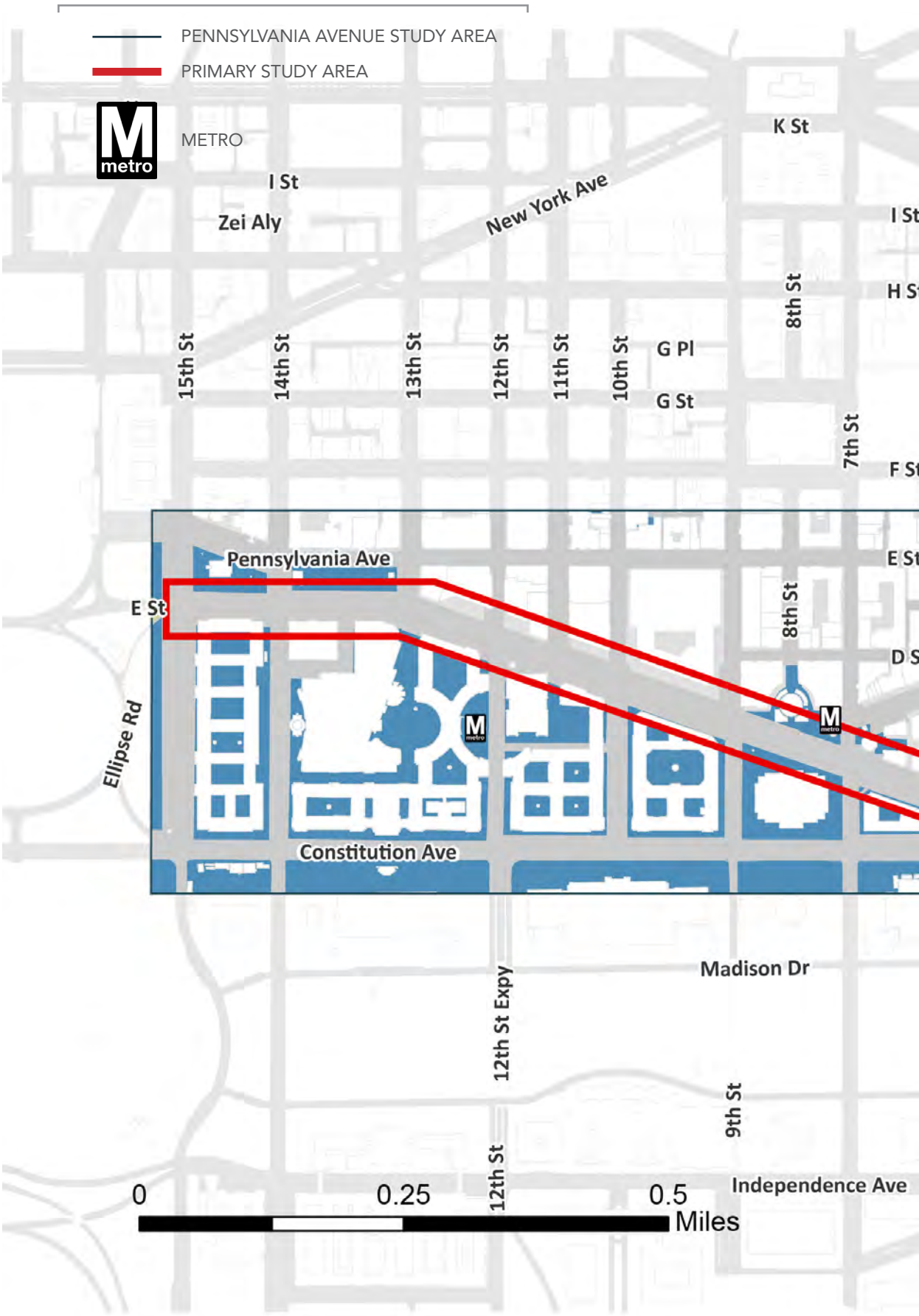
Pennsylvania Avenue NW provides a key transportation connection within the District of Columbia while also serving as an attraction itself. The one-mile corridor's location between the White House and Capitol, along with its role in hosting locally and nationally significant events, draws a diverse group of users to the corridor, including event attendees, children, recreation enthusiasts, workers, families, seniors, DC residents, and tourists. However, the Office of Planning's *Pedestrian Life Study* identified Pennsylvania Avenue NW as a "great street in waiting" and described today's corridor experience as that "of monumental buildings, gracious trees, and few people or activities to attract them."

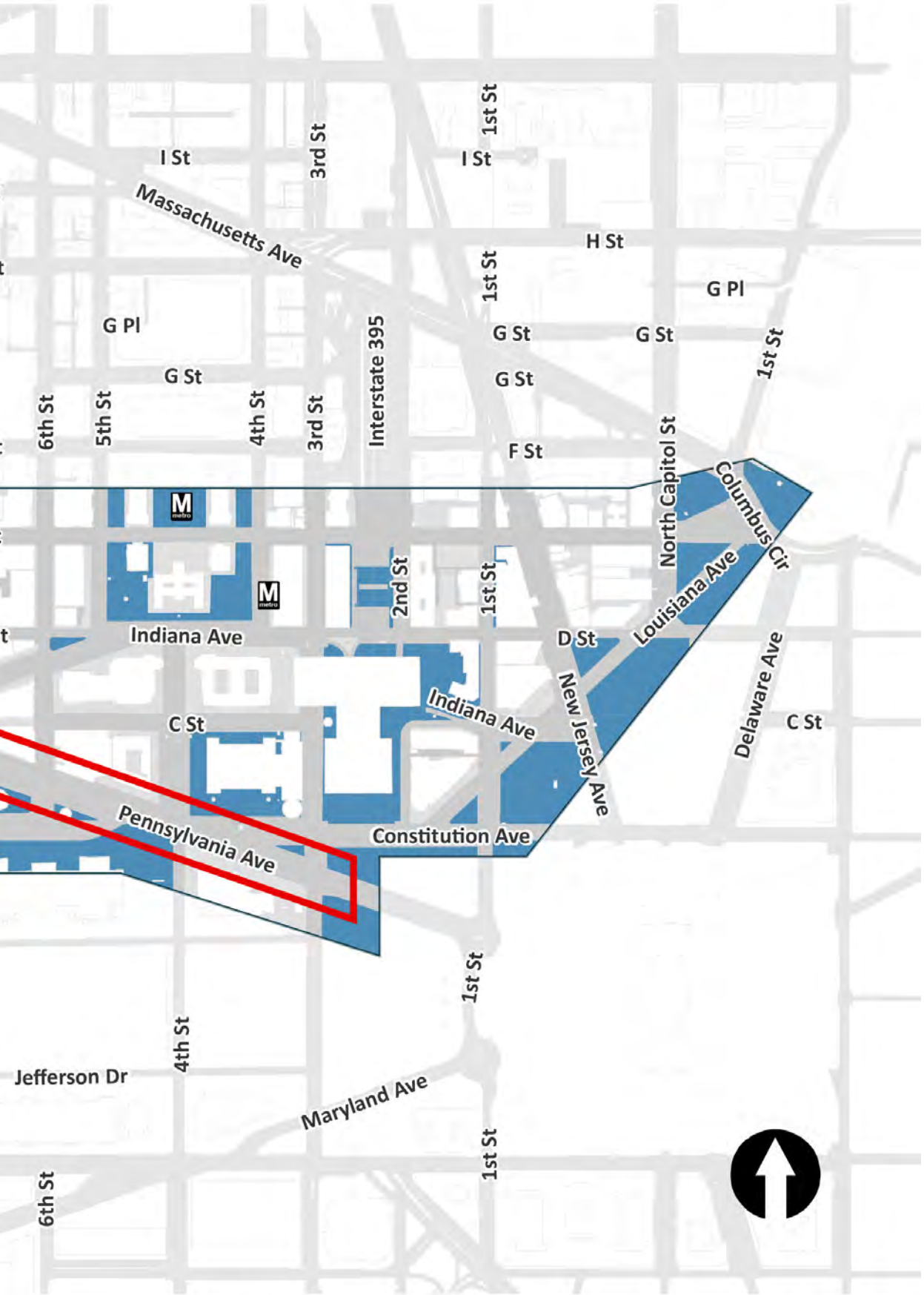
The purpose of the Pennsylvania Avenue East of the White House Transportation Feasibility Study is to identify the current transportation conditions on Pennsylvania Avenue NW and develop a range of conceptual roadway design alternatives that enhances the experience for all modes. Identified within this document are the current transportation conditions of the corridor and surrounding neighborhood. The study area is shown in **Figure 1**.



PENNSYLVANIA AVENUE, NW ROUTINELY SERVES AS A NATURAL COMMUNITY GATHERING PLACE FOR RESIDENTS AND VISITORS OF THE DISTRICT

FIGURE 1
STUDY AREA




I St
3rd St
1st St
I St
Massachusetts Ave
H St
1st St
G Pl
G Pl
G St
G St
1st St
G St
G St
6th St
5th St
4th St
3rd St
Interstate 395
F St
North Capitol St
Columbus Cir
Louisiana Ave
2nd St
1st St
Indiana Ave
D St
Indiana Ave
New Jersey Ave
Delaware Ave
C St
C St
Pennsylvania Ave
Constitution Ave
1st St
4th St
Jefferson Dr
Maryland Ave
1st St
6th St

CHAPTER 2 GOALS AND OBJECTIVES

2.1 Goal

The goal of the **Pennsylvania Avenue East of the White House Transportation Feasibility Study** is to support the Pennsylvania Avenue Initiative in identifying the near- and long-term transportation needs of all users of Pennsylvania Avenue and the surrounding neighborhood. This includes access to and from activity centers, and safety and mobility along the corridor for pedestrians, bicyclists, transit users, and vehicles. The Study will develop three alternatives that meet local and national needs in a 21st century capital city, including the ability to host the Presidential Inaugural Parade every four years, along with other nationally significant events and activities. The alternatives will be compatible with Pennsylvania Avenue's role as one of the most historic thoroughfares of the world, a ceremonial promenade, and a lively downtown event space. The alternatives will be evaluated based on the objectives below and in Table 1. Table 1 also includes the objectives' associated performance measures and evaluation methods.

2.2 Objectives

1. Improve pedestrian and bicycle safety, minimize the potential for conflicts between modes, and provide compatible speeds between pedestrians, bicyclists, transit riders, and motorists by designing a right-of-way compatible with all modes.
2. Improve the pedestrian, bicycle, and transit experience and attract new users
    a. Provide comfortable and abundant pedestrian facilities and crossings that accommodate increased pedestrian demands related to economic development and activation of public spaces.
    b. Improve bicycle accessibility, and provide comfortable bicycle facilities for riders of all skill and comfort levels that accommodate increased demand for cycling.
    c. Provide more reliable corridor travel by transit vehicles, provide safe and comfortable locations for boarding and alighting, and enhance connectivity between transit modes and between transit riders and nearby destinations.
3. Provide sufficient person throughput on the corridor and surrounding system to satisfy existing and future transportation system needs.
4. Minimize blockage related to vehicular queues at pedestrian or bicycle connections, intersections, or access locations.
5. Provide more efficient management of curbside space for transit vehicles, deliveries, loading and unloading, and pick-up and drop-offs.
6. Ensure compatibility with the corridor's historical and monumental significance while also recognizing the role of the corridor as a key component of the District's transportation network.
7. Develop alternatives that are feasible, implementable, and support the Pennsylvania Avenue Initiative.

CHAPTER 3 TRANSPORTATION CONDITIONS

3.1 Existing Infrastructure

3.1.1 Functional Classification

The functional classification of streets is primarily oriented towards vehicle travel, and serves as the blueprint for the hierarchy of how streets are intended to be used by motorists. The functional classification can also provide insight into how people move about a particular area and help determine eligibility for federal funding to improve streets. Arterials provide connections between freeways and collector streets, while collector streets feed traffic into and out of local streets. Functional classification is typically reserved for classifying the expected motor vehicle use of the roadway, and may not fully recognize the role a street plays in the bicycle and pedestrian network. Further, while some streets may share the same functional classification, the local environment, land use, and other design-related components will influence the design of the roadway, and may cause roadways with the same functional classification to look and operate differently.

Figure 2 identifies the study area street functional classification. Within the study area, Constitution Avenue, NW, and Pennsylvania Avenue, NW are designated as arterial roadways in the east-west direction, and 7th Street, NW and 14th Street, NW are designated as arterial roadways in the north-south directions. These roads are served by a grid of collector and local streets to the north of Pennsylvania Avenue NW.

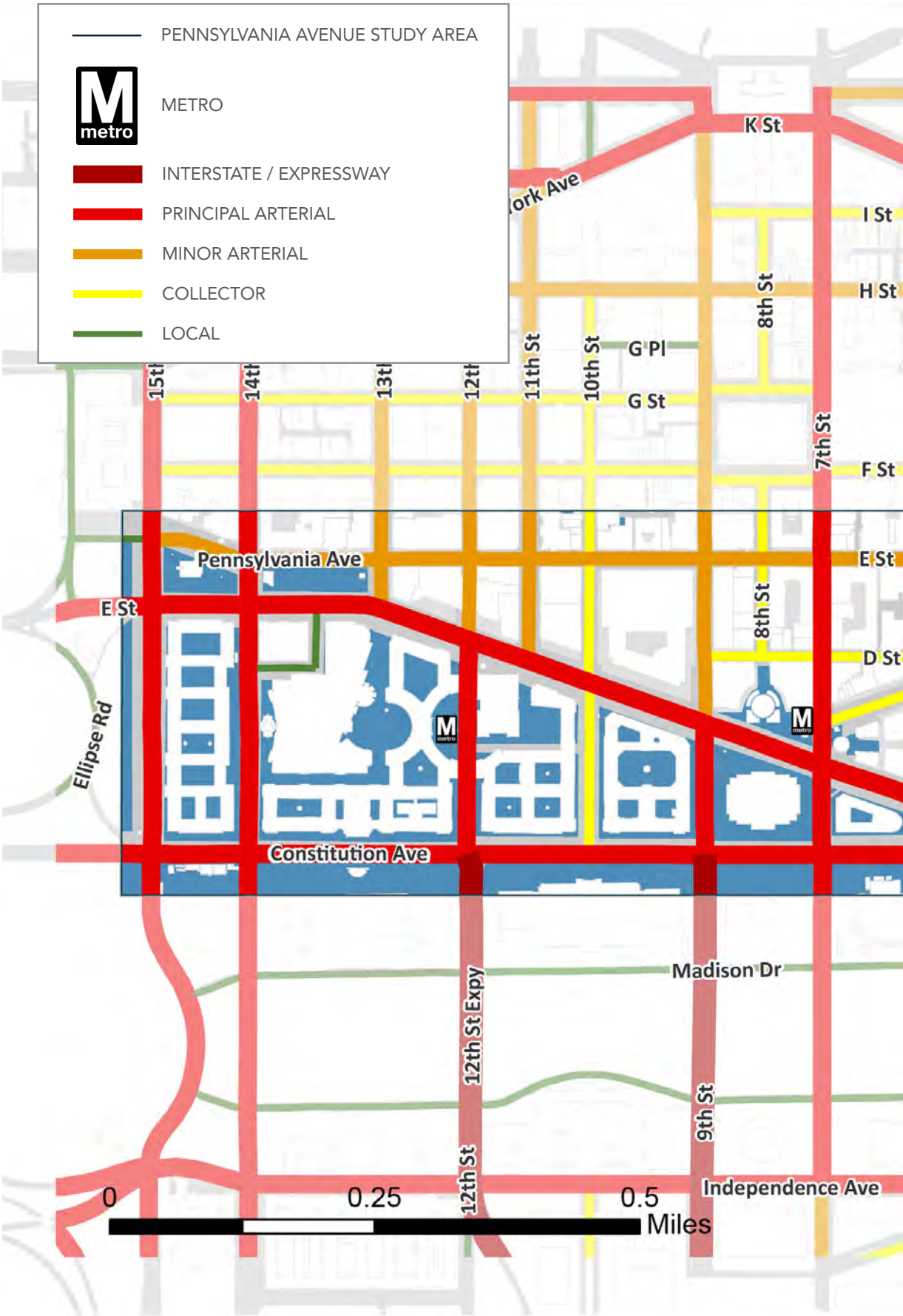
Security measures implemented in the 1990s and early 2000s, especially closing Pennsylvania Avenue NW in front of the White House between 15th Street NW and 17th Street NW contributed to traffic shifting away from Pennsylvania Avenue NW and onto other east-west routes like Constitution Avenue NW, and the grid of streets to the north. While the design and functional classification of Pennsylvania Avenue NW are consistent with its classification as an arterial roadway, because Pennsylvania Avenue NW terminates to the east at 3rd Street NW, and to the west at 15th Street NW, and is parallel to a grid of streets to the north and Constitution Avenue NW to the south the operations of Pennsylvania Avenue NW are closer to that of a collector street distributing traffic to adjacent arterials.

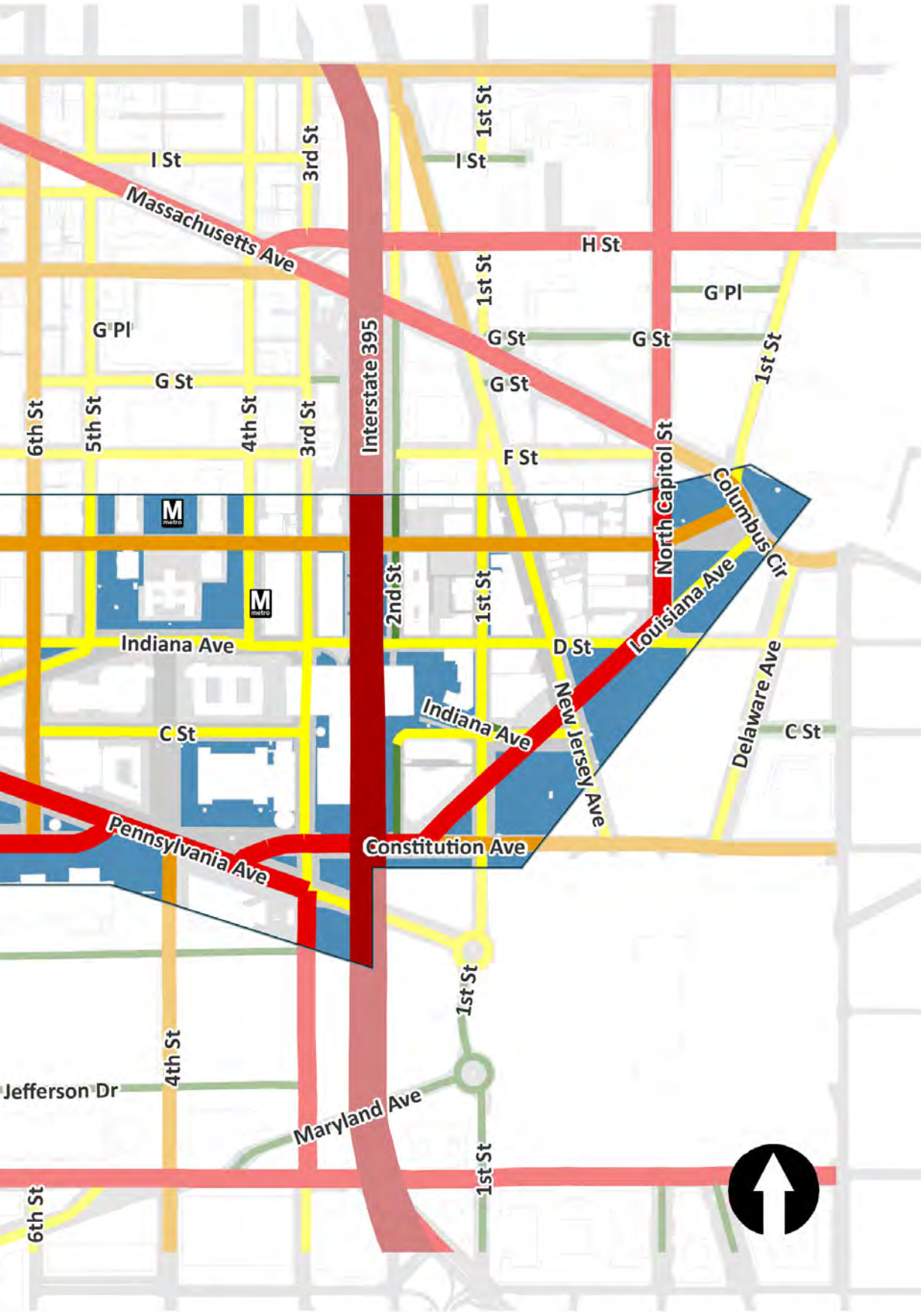
> **Pennsylvania Avenue NW's lack of east-west connectivity and location between other arterial streets has shifted the motor vehicle demand away from through movements towards turning movements onto adjacent arterial streets. Arguably, the corridor's motor vehicle role is closer to that of a collector facility than its designated arterial status.**

TABLE 1
STUDY OBJECTIVES, PERFORMANCE MEASURES, AND EVALUATION METHODS

No.	Objective	Performance Measure	Evaluation Method
1	Improve pedestrian and bicycle safety, minimize the potential for conflicts between modes, and provide compatible speeds between pedestrians, bicyclists, transit riders, and motorists	■ Pedestrian Crashes ■ Bicycle Crashes ■ Crash Frequency/Crash Rate/Crash Severity ■ Auto Volumes	■ Existing and expected pedestrian crashes ■ Existing and expected pedestrian crashes ■ Crashes, crash severity, volumes ■ Directional AM and PM peak hour traffic volumes, turning volumes across crosswalks and bicycle facilities
2	Improve the pedestrian, bicycle, and transit experience and attract new users	■ Pedestrian Volume ■ Bicycle Volumes ■ Bus Ridership	■ Pedestrian counts ■ Bicycle counts ■ Bus ridership at corridor bus stops
2A	Provide comfortable and abundant pedestrian facilities and crossings that accommodates increased pedestrian demands related to economic development and activation of public spaces	■ Crossing Distance/Time ■ Buffer from Moving Traffic ■ Buffer from Bicycle Facilities ■ Pedestrian connections	■ Crossing distance between curbs / Average crossing time between ■ Buffer width between sidewalk and auto travel lane ■ Buffer width between pedestrian and bicycle facilities ■ Number of pedestrian crossings, and connectivity to key destinations
2B	Improve bicycle accessibility, and provide comfortable bicycle facilities for riders of all skill and comfort levels that accommodates increased demand for cycling	■ Buffer and Protection from Moving Traffic ■ Bicycle Network Connectivity	■ Buffer width and level of protection between bicycle facility and roadway ■ Connections to other bicycle facilities and key destinations
2C	Provide more reliable corridor travel by transit vehicles, provide safe and comfortable locations for boarding and alighting, and enhance connectivity between transit modes and between transit riders and nearby destinations	■ Bus Stop Locations ■ Crossing Distance ■ Transit Frequency ■ Transit Disruptions	■ Provides sufficient designated locations to accommodate expected buses ■ Crossing distance between curbs ■ Number of transit vehicles, boardings, and alightings ■ Bus blockages
3	Provide sufficient person throughput on the corridor and surrounding system to satisfy existing and future transportation system needs	■ Person Throughput ■ Local Street Impact (Traffic Diversion) ■ Motorist Compliance	■ Persons in private vehicles, transit vehicles, pedestrians, and bicycles at key corridor locations ■ Delay and queues at non-Pennsylvania Avenue study area intersections ■ Citation information
4	Minimize blockage related to vehicular queues at pedestrian or bicycle connections, intersections, or access locations	■ Queuing ■ Vehicle Delay ■ Progression Speed	■ Identification of 95th-percentile queues at corridor intersections blocking pedestrian or bicycle crossings, or access points ■ Average peak hour delay at corridor intersections ■ 85th percentile speed and time-space diagrams
5	Provide sufficient curbside space for transit vehicles, deliveries, loading and unloading, and pick-up and drop-offs	■ Loading and Deliveries ■ Pick-up and Drop-Off	■ Provides sufficient designated locations for deliveries ■ Provides sufficient designated location for taxi and car share pick-ups and drop-offs
6	Ensure compatibility with the corridor's historical and monumental significance while also recognizing the role of the corridor as a key component of the District's transportation network	■ Compatibility with historical and monumental corridor significance	■ Compatibility
7	Develop alternatives that are feasible and implementable, and support the Pennsylvania Avenue Initiative	■ Feasible, implementable, and support Pennsylvania Avenue Initiative	■ Compatibility

FIGURE 2
STUDY AREA FUNCTIONAL CLASSIFICATION




I St
3rd St
1st St
I St
Massachusetts Ave
H St
1st St
G Pl
G Pl
G St
G St
1st St
G St
G St
6th St
5th St
4th St
3rd St
Interstate 395
F St
North Capitol St
Columbus Cir
Louisiana Ave
2nd St
1st St
Indiana Ave
D St
New Jersey Ave
Delaware Ave
Indiana Ave
C St
C St
Pennsylvania Ave
Constitution Ave
1st St
4th St
Jefferson Dr
Maryland Ave
1st St
6th St

3.1.2 Pedestrian Network

The pedestrian network, specifically sidewalk infrastructure, is mostly complete in the study area with no identified gaps. Along Pennsylvania Avenue NW itself, the sidewalk width varies, but as noted by the Office of Planning's *Pedestrian Life Study*, tends to be wider than necessary for pedestrian demands. Across Pennsylvania Avenue NW pedestrians tend to have two-stage crossings with the need to wait within the identified pedestrian refuge area flush with the pavement in the center of the corridor. The flush pedestrian refuge areas include removable traffic signal poles, signage, and are traversed by the center-running bicycle lanes, creating a natural bicycle-pedestrian conflict when pedestrians have a "Don't Walk" sign and bicycles have a green signal. In addition, security barriers along Pennsylvania Avenue NW tend to obstruct natural pedestrian paths and make accessibility difficult. The pedestrian ramps along Pennsylvania Avenue NW do not have the truncated domes at the pedestrian ramps and are not currently ADA compliant.

In describing Pennsylvania Avenue NW as a "great street in waiting," The *Pedestrian Life Study* identified several issues with pedestrian network along Pennsylvania Avenue NW, including the following:

- Lack of places and destinations;
- Peripheral location;
- Lack of human scale;
- No reason to linger;
- Major event programming occurs during off hours;
- Inactivity at night; and,
- High incidence of homelessness.



THE CENTER-RUNNING SEPARATED BIKE LANE IS DESIGNED TO GO THROUGH THE PEDESTRIAN REFUGE ISLANDS, WHICH CREATES A NATURAL CONFLICT BETWEEN BICYCLES AND PEDESTRIANS
Source: http://john-s-allen.com/blog/?p=1470

To address these issues, the study recommends the following:

1. Provide a mixture of uses
2. Create engaging buildings
3. Activate the plazas and public spaces
4. Provide more intimate sidewalks
5. Make Pennsylvania Avenue NW a destination experience

Of these recommendations, only recommendation number four, calling for sidewalk to be sized more in conjunction with pedestrian demands, relates to elements from the Pennsylvania Avenue East of the White House transportation study. The study notes that existing pedestrian volumes are well within the capacity of a typical 16' to 20' downtown sidewalk. To increase pedestrian activity, the study recommends providing enclosure or definition to pedestrian spaces, and programming wide sidewalks to engage pedestrians.

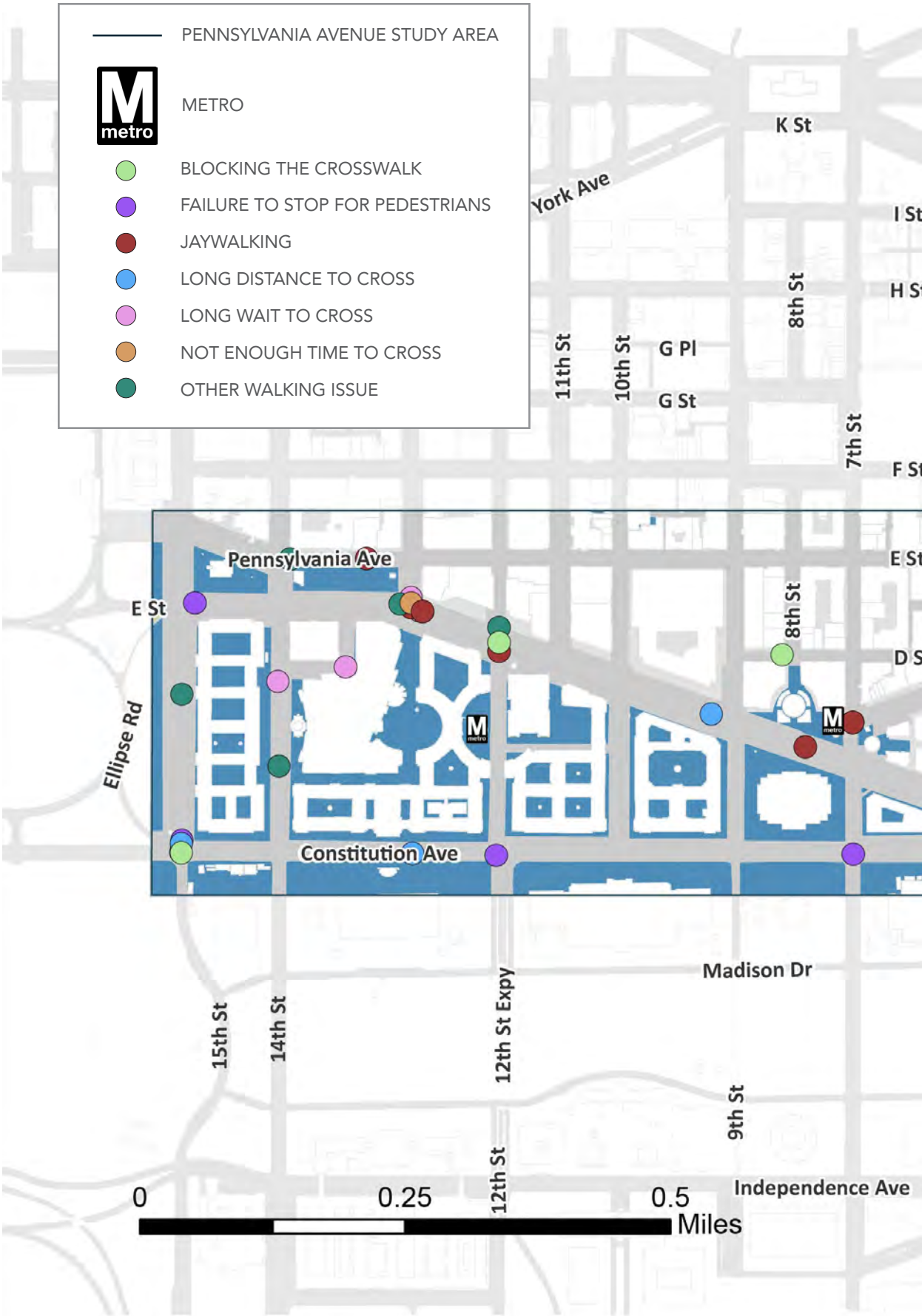
Pedestrian safety information was collected from the DDOT Vision Zero map. The map identified several issues related to pedestrian safety. The issues identified and the number of comments received for each issue are shown in **Figure 3**.

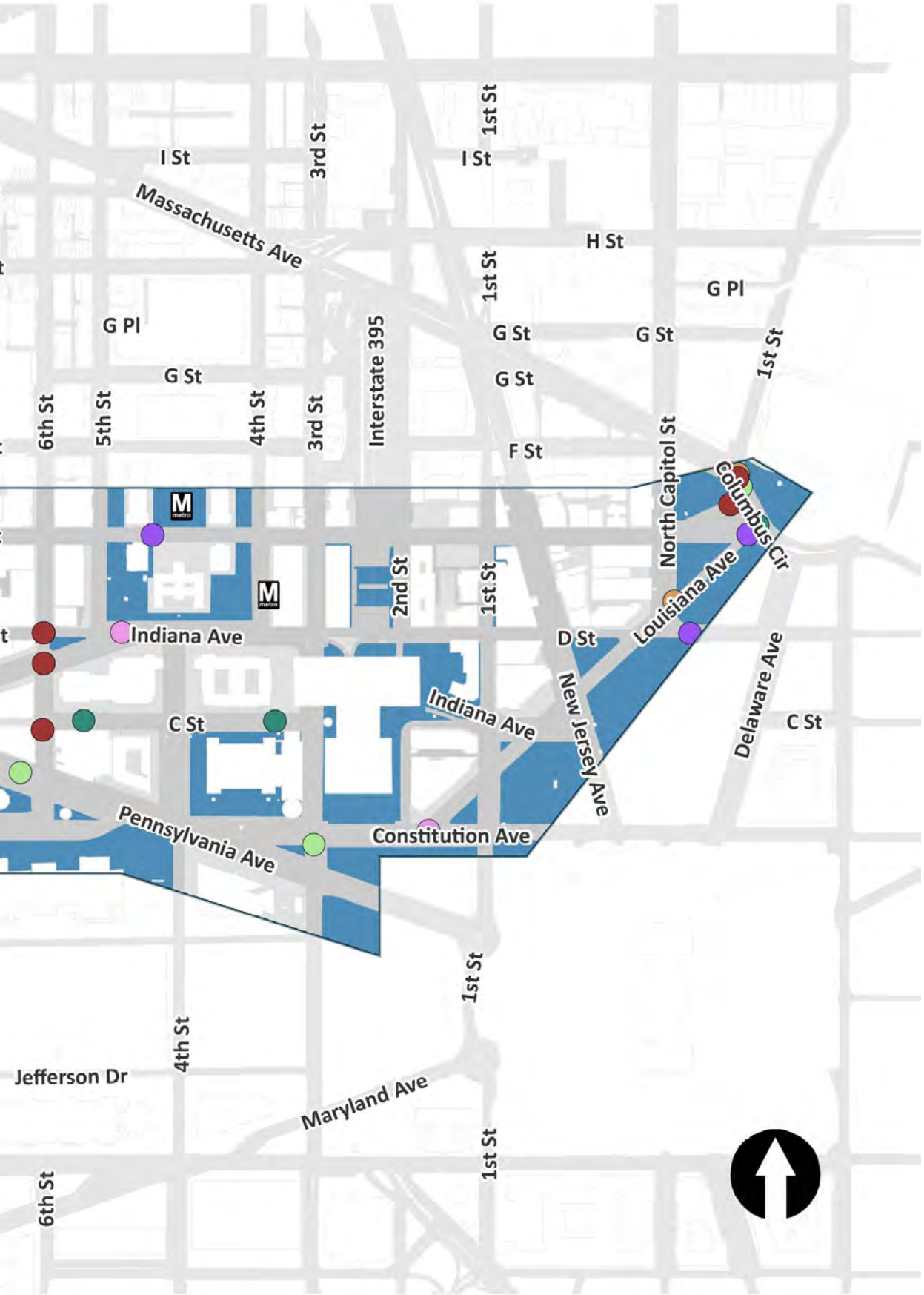
> **The existing pedestrian network is not sized appropriately for the existing pedestrian demands. While some sections are crowded and pedestrians are observed waiting in the streets, in other sections the corridor has wide sidewalks with minimal public life or pedestrian activity.**



SECURITY BARRIERS OBSTRUCTING PEDESTRIAN PATHS AT PENNSYLVANIA AVENUE/9TH STREET NW

FIGURE 3
VISION ZERO
PEDESTRIAN-SAFETY
RELATED ISSUES




I St
3rd St
1st St
I St
Massachusetts Ave
H St
1st St
G Pl
G Pl
G St
G St
G St
G St
1st St
6th St
5th St
4th St
3rd St
Interstate 395
F St
North Capitol St
Columbus Cir
2nd St
1st St
Louisiana Ave
Indiana Ave
D St
Indiana Ave
New Jersey Ave
Delaware Ave
C St
C St
Pennsylvania Ave
Constitution Ave
1st St
4th St
Jefferson Dr
Maryland Ave
1st St
6th St



PEDESTRIANS JAYWALK AND USE THE SEPARATED BIKE LANES AS A MEDIAN



PEDESTRIANS ROUTINELY CROSS DURING THE "DON'T WALK" PHASE ALONG THE CORRIDOR

3.1.3 Bicycle Network

The bicycle network in the study area, shown in **Figure 4**, is primarily oriented toward accessing Pennsylvania Avenue NW from the north towards the western portion of the study area, and east-west along the center-running separated bike lane along Pennsylvania Avenue NW. At the western edge of the study area, the 15th Street separated bike lane provides a connection to the White House, and north along 15th Street NW. Outside of Pennsylvania Avenue NW convenient east-west biking is largely limited to E Street NW through the study area, as are facilities in the eastern portion of the study area. In addition, with the exception of 4th Street NW, there are no available north-south connections south of Pennsylvania Avenue NW. In particular, there is no direct access to Union Station or the First Street NE separated bike lanes from the center-running separated bike lanes along Pennsylvania Avenue NW. After the construction of the center-running separated bike lanes, a variety of treatments including the current zebra-striped curb stops were installed to limit vehicles from making U-turns across the bike lanes. Further, the current design of the center-running separated bike lanes creates a direct conflict with the pedestrian refuge island.

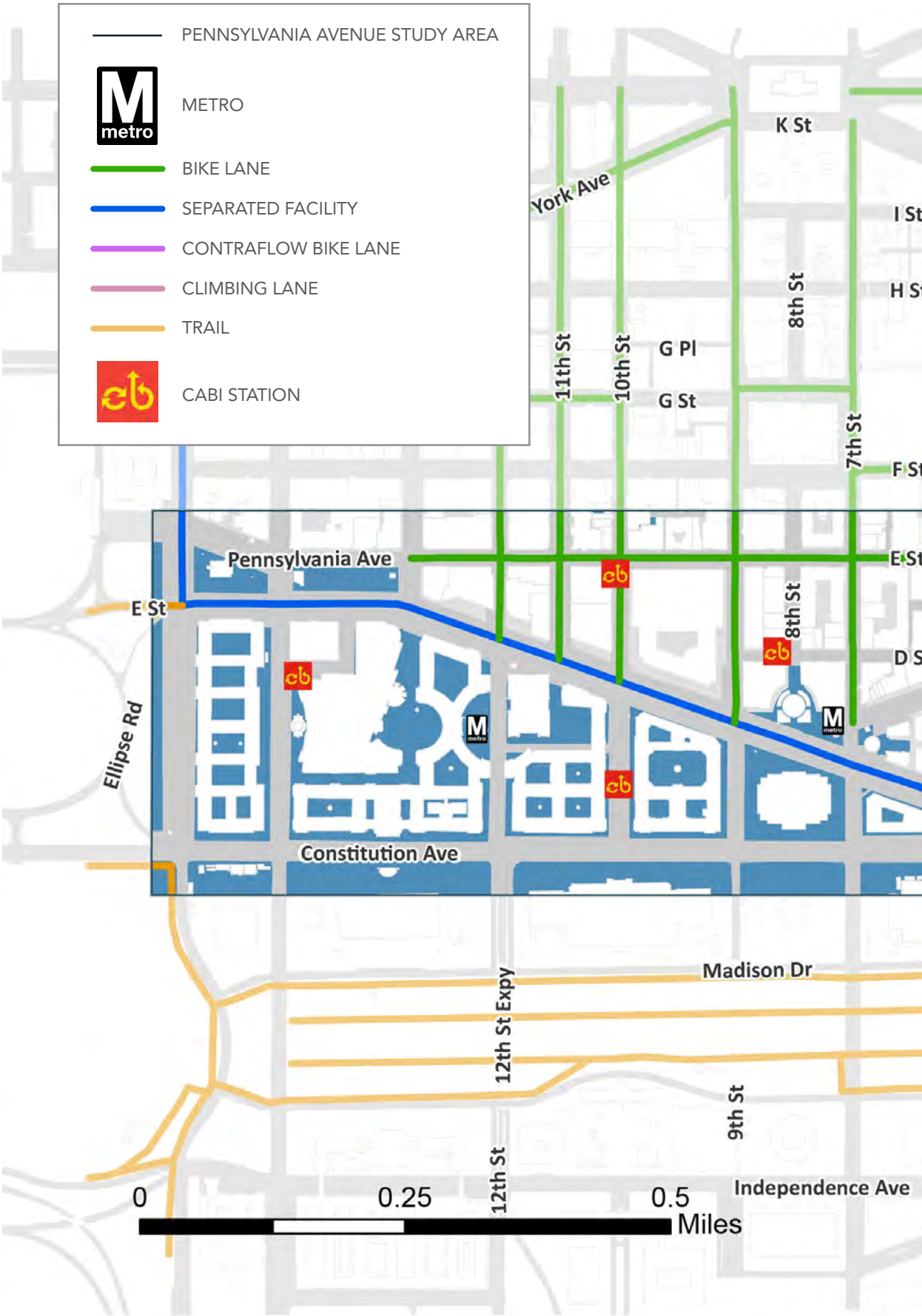
The study area bicycle network is complemented by seven Capital Bikeshare stations, with two stations south of Pennsylvania Avenue NW, four stations north of Pennsylvania Avenue in the Penn Quarter neighborhood, and one station just east of Pennsylvania Avenue NW on Constitution Avenue NW near Louisiana Avenue NW.

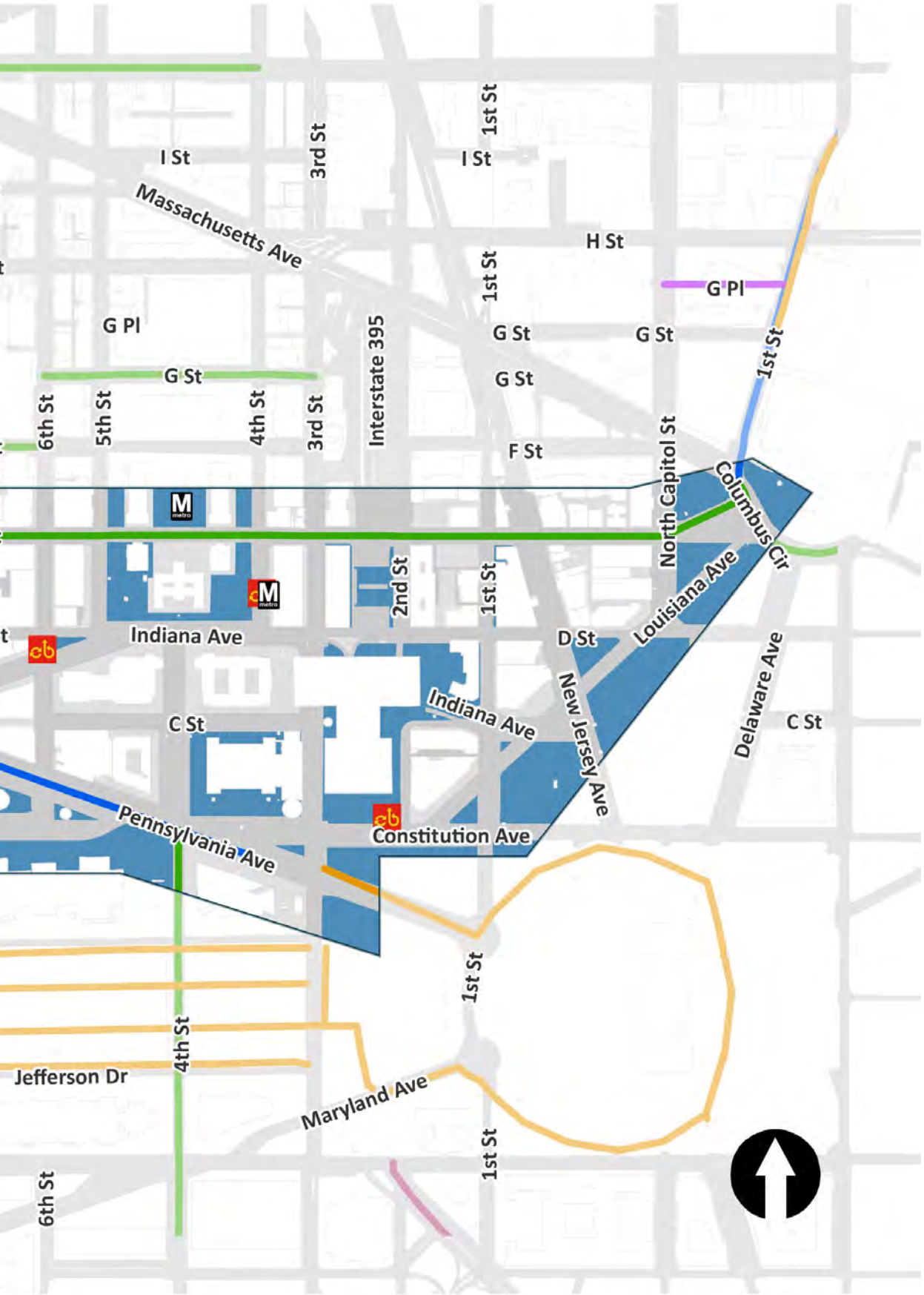
> **The center-running separated bike lanes on Pennsylvania Avenue NW and 15th Street NW serve as the backbone of the study area bicycle network.**



CENTER-RUNNING SEPARATED BIKE LANE ON PENNSYLVANIA AVENUE NW

FIGURE 4
EXISTING STUDY AREA
BICYCLE NETWORK




I St
3rd St
1st St
I St
Massachusetts Ave
H St
1st St
G Pl
G Pl
G St
G St
1st St
Interstate 395
G St
G St
6th St
5th St
4th St
3rd St
F St
North Capitol St
Columbus Cir
2nd St
1st St
Louisiana Ave
Indiana Ave
D St
Delaware Ave
New Jersey Ave
Indiana Ave
C St
C St
Pennsylvania Ave
Constitution Ave
1st St
4th St
Jefferson Dr
Maryland Ave
1st St
6th St

3.1.4 Transit Network

WMATA Service

The study area is served by both WMATA Metrobus service and WMATA Metrorail. Three Metrorail stations are located within the study area, including the Judiciary Square (Red Line) station, the Federal Triangle (Orange, Blue, Silver lines) station, and the Archives-Navy Memorial (Yellow, Green lines) station. The Archives-Navy Memorial and Federal Triangle stations provide the most direct access to Pennsylvania Avenue NW, with the Archives-Navy Memorial located immediately adjacent to Pennsylvania Avenue NW on 7th Street NW.

24 Metrobus bus routes either travel along or across Pennsylvania Avenue NW as shown in **Figure 5**. Similar to auto traffic along the corridor, many of the bus routes only travel along Pennsylvania Avenue NW for a few blocks before turning off the corridor. It was noted during an interagency meeting on June 14, 2017, that buses tend to have problems traveling along or across Pennsylvania Avenue NW due to a lack of green time to make turning movements, the need for buses to cross lanes between turning movements and stop locations, and bus stop locations being blocked by other vehicles.

Other Surface Transit Service

Several long-distance commuter buses also serve Pennsylvania Avenue NW including Maryland Transit Administration's Commuter Bus and OmniRide, which serves Prince William County, Virginia, plus two adjacent independent cities, Manassas and Manassas Park, and is operated by the Potomac and Rappahannock Transportation Commission. In general, each commuter bus service route provides three to four trips during the weekday AM and PM peak periods with designated pick-up or drop-off locations identified along the corridor.

Other private bus services including motorcoaches, tourist buses, trolley-like buses, and double-decker buses also use Pennsylvania Avenue NW. The Big Bus and Old Town Trolley Tour companies both have scheduled service along Pennsylvania Avenue, with buses departing every 15 to 20 minutes throughout the day. Other operators also have designated stops on Pennsylvania Avenue NW along with additional tour companies that provide tours along Pennsylvania Avenue NW but do not have stops.

> **Pennsylvania Avenue NW is one of the busiest transit corridors in the Washington, DC region, with near-constant service.**

3.1.5 Curbside Uses

An inventory of curbside uses was completed the week of June 5th, 2017, with the results shown in **Figure 6**. A majority of the corridor is designated as "No Parking," which allows for vehicles to "expeditiously" load or unload passengers, packages, or merchandise at the curbside. Site visit observations indicated that a large amount of passenger pick-up/drop-offs occur in these "No Parking" areas. A slug line pick-up/drop-off, located on 14th and D Streets NW, generates pedestrian traffic during the morning and evening peak hours. Bus stop areas were also identified along Pennsylvania Avenue NW near 4th Street NW, 7th Street NW, 10th Street NW, and 12th Street NW. These bus stops include WMATA Metrobus, Commuter Bus service, and tourist buses. Limited on-street parking is provided along the corridor west of 12th Street NW and near 3rd Street NW.

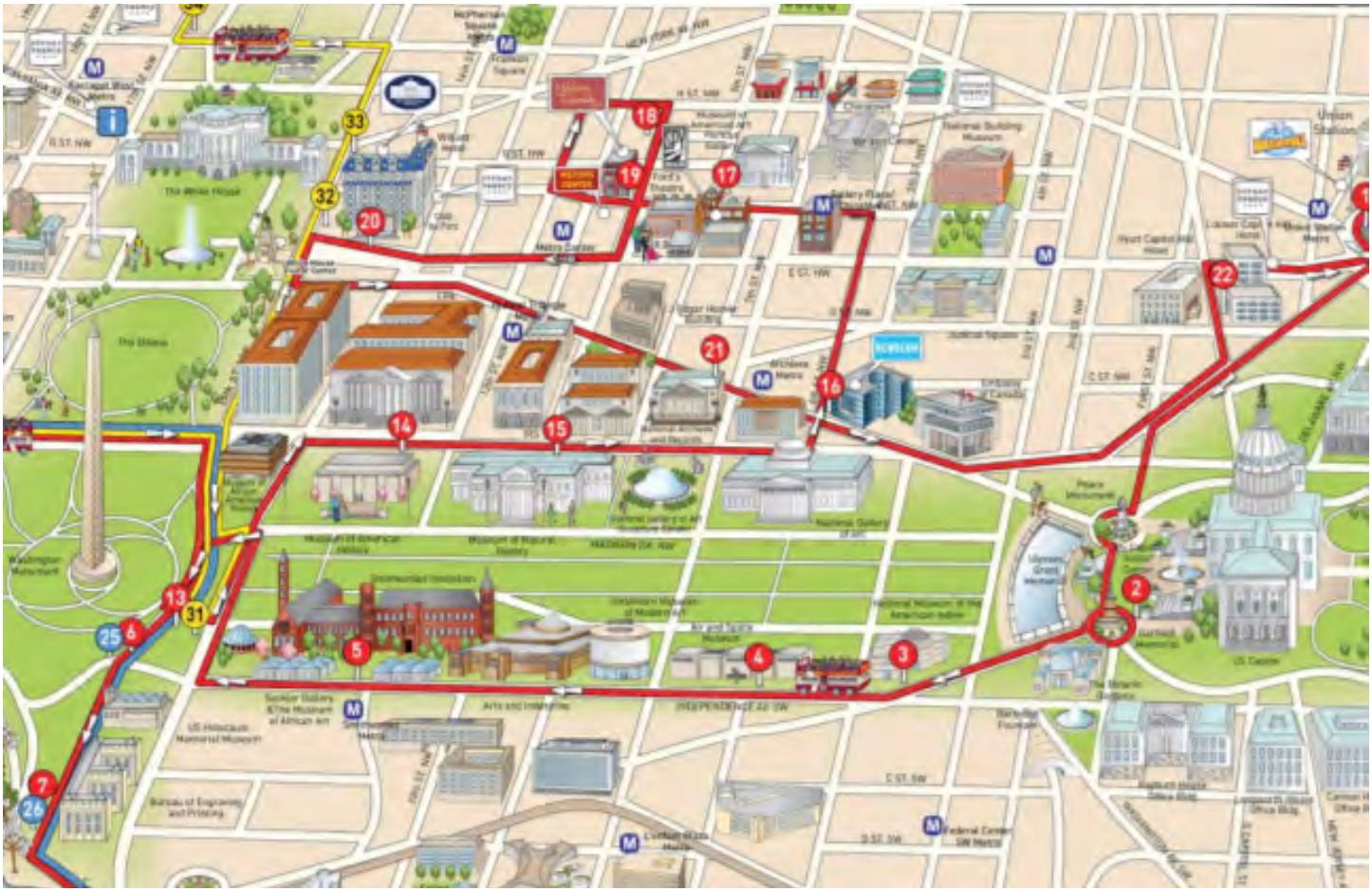
> **With many buses, delivery vehicles, and passenger pick-ups and drop-offs, the demand for curbside space is constant throughout the corridor.**



WMATA METROBUS ACTIVITY ALONG PENNSYLVANIA AVENUE NW



LONG-DISTANCE COMMUTER BUSES PROVIDE SERVICE ALONG PENNSYLVANIA AVENUE NW



BIG BUS ROUTE MAP WITH STOPS ALONG PENNSYLVANIA AVENUE NW
Source: www.bigbustours.com

FIGURE 5
EXISTING STUDY AREA
WMATA BUS SERVICE



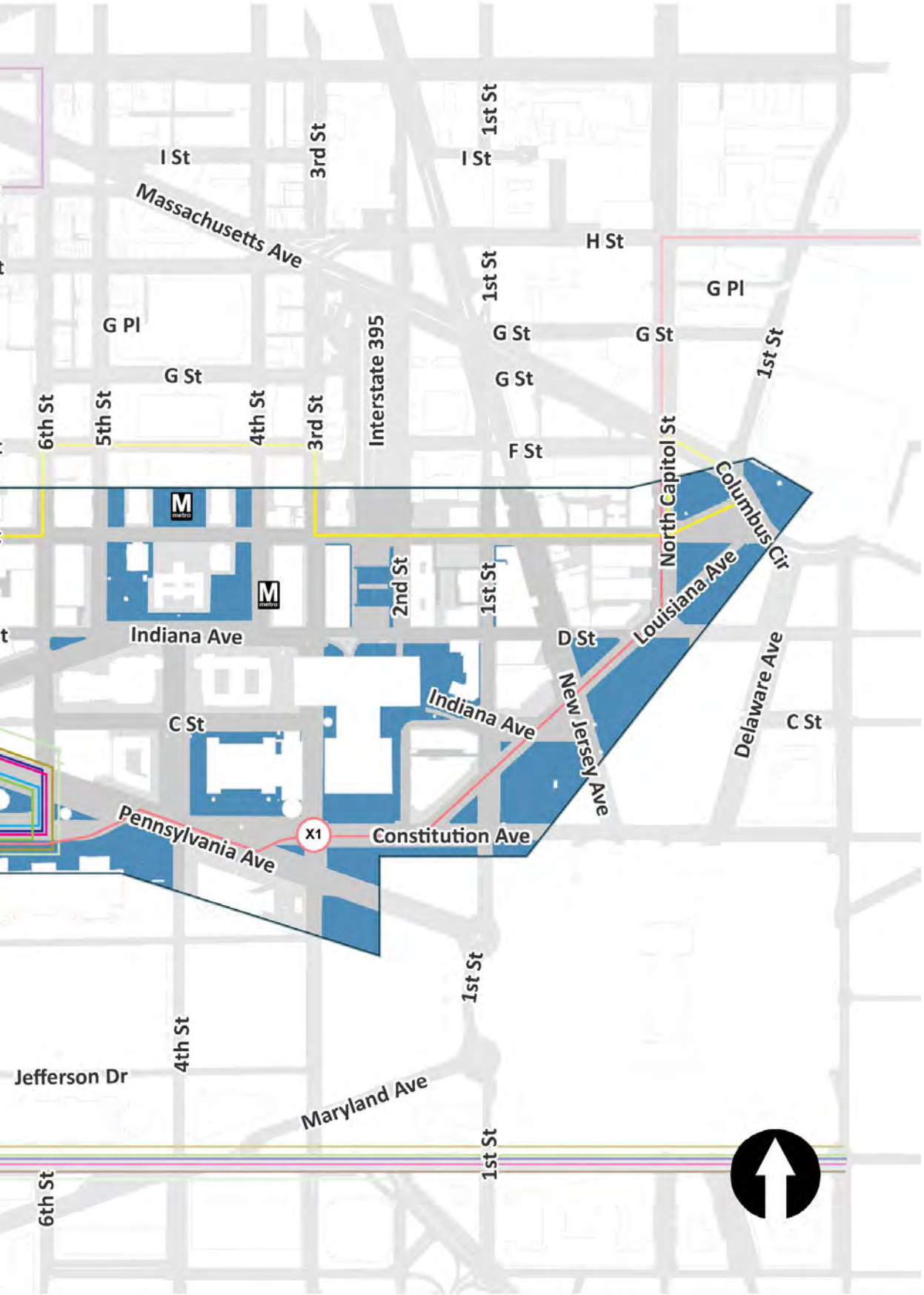
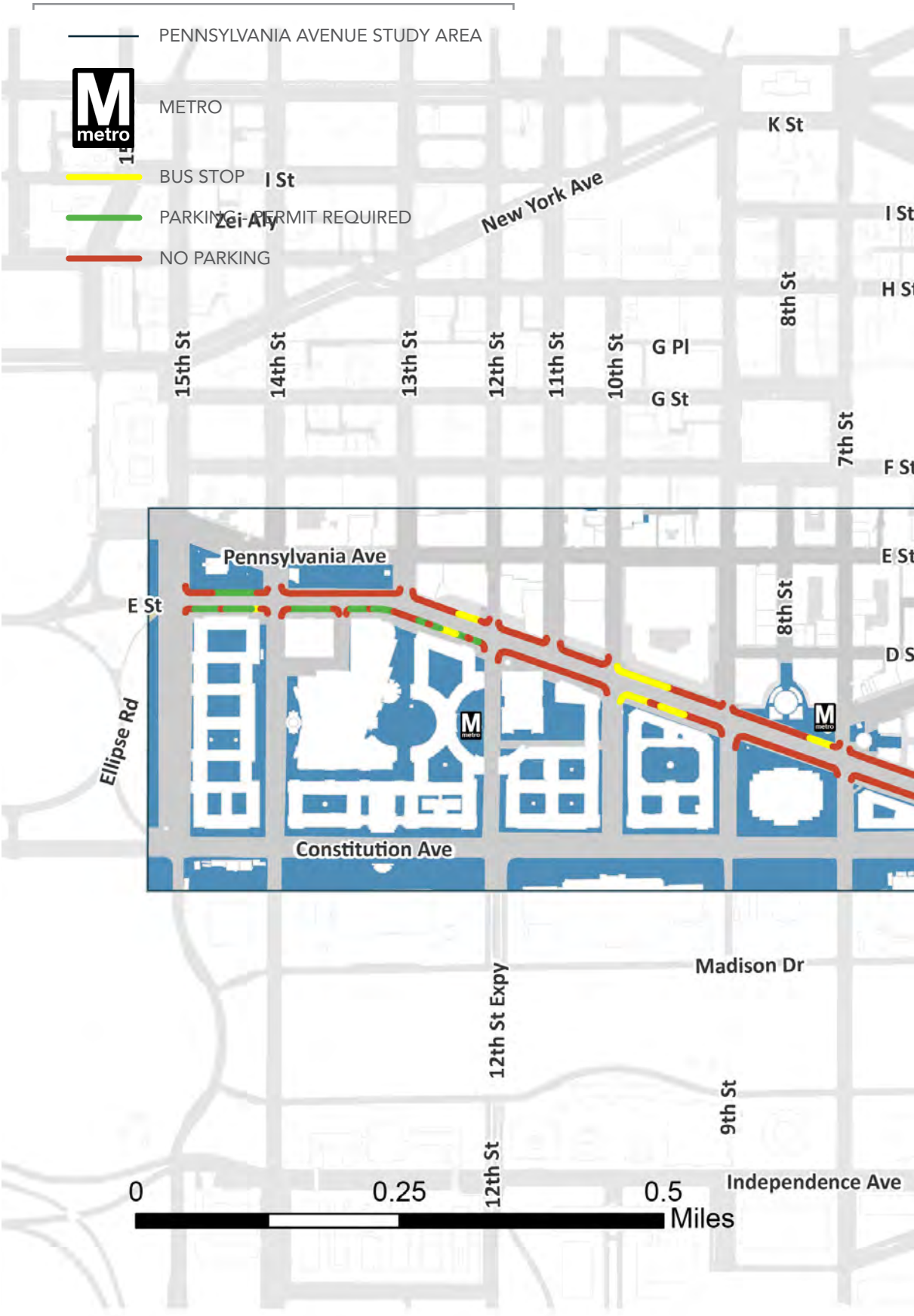
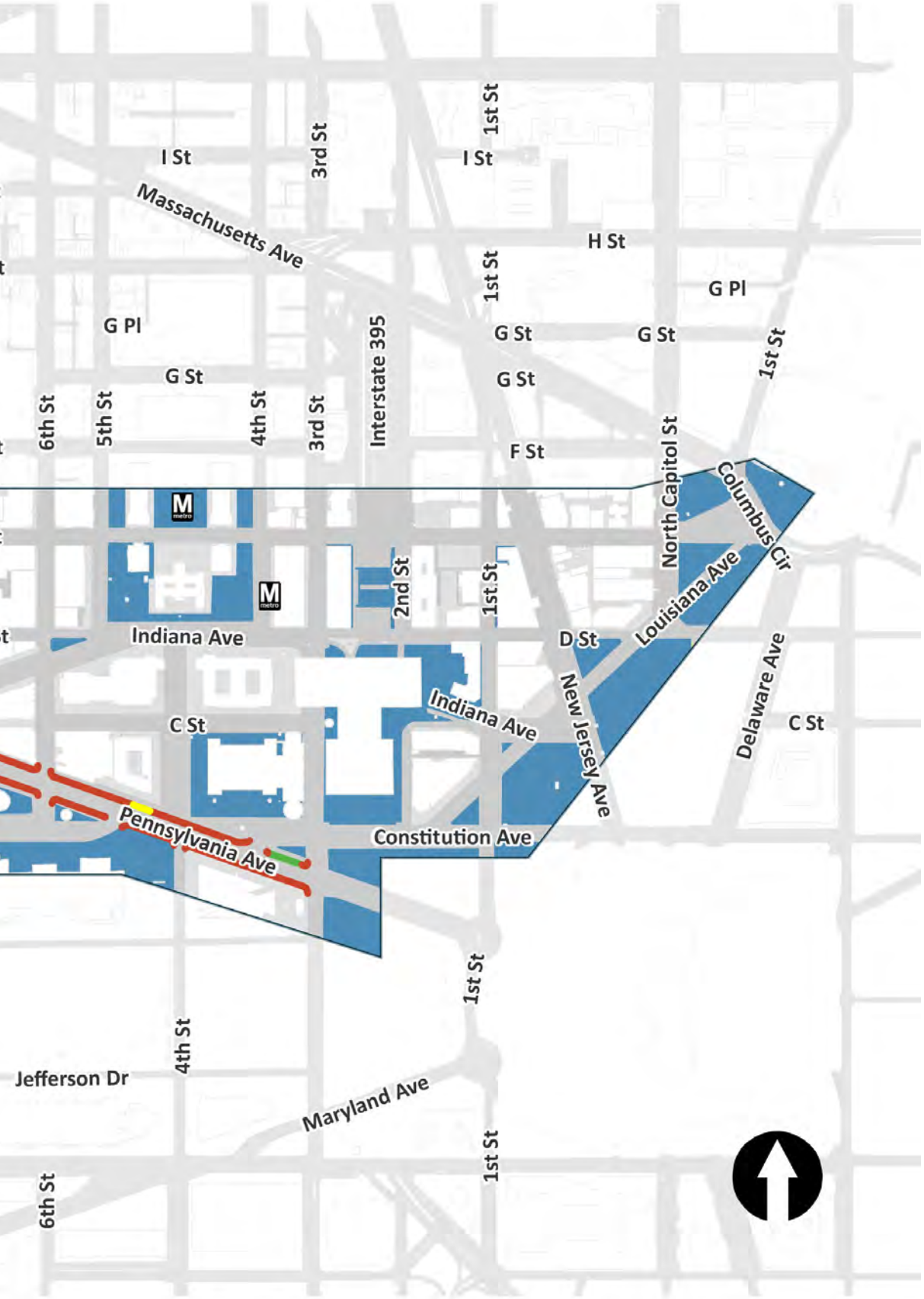

I St
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Massachusetts Ave
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G Pl
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G St
6th St
5th St
4th St
3rd St
F St
North Capitol St
Columbus Cir
2nd St
1st St
Louisiana Ave
Indiana Ave
D St
Delaware Ave
New Jersey Ave
Indiana Ave
C St
C St
Pennsylvania Ave
X1
Constitution Ave
1st St
4th St
Jefferson Dr
Maryland Ave
1st St
6th St

FIGURE 6
PENNSYLVANIA AVENUE NW
CURBSIDE USES




I St
3rd St
1st St
I St
Massachusetts Ave
H St
1st St
G Pl
G Pl
Interstate 395
G St
G St
1st St
G St
6th St
5th St
4th St
3rd St
F St
North Capitol St
Columbus Cir
2nd St
1st St
Louisiana Ave
Indiana Ave
D St
Delaware Ave
Indiana Ave
New Jersey Ave
C St
C St
Pennsylvania Ave
Constitution Ave
1st St
4th St
Jefferson Dr
Maryland Ave
1st St
6th St

3.2 Existing Conditions

Approximately 33 study intersections have been identified in the Pennsylvania Avenue NW study area. These intersections are evaluated with various analysis methodologies and have been separated by travel mode in the following sections.

3.2.1 Motor Vehicle

Vehicle Movements

Motor vehicle conditions are represented by a number of figures and explanations, including traffic operations, existing volumes, crash history, and common origins and destinations of users within the study area.

In reviewing collected peak-hour turning-movement volumes and turn restrictions, the lack of through movements and the prevalence of turning movements on Pennsylvania Avenue NW became evident. With the number of turn restrictions on Pennsylvania Avenue NW along with the corridor being disconnected east of 3rd Street NW and west of 15th Street NW, the lack of through movements was expected. The turning movement volumes and turn restrictions are shown in **Figure 7** and **Figure 8** for the weekday AM and PM peak hours, respectively. The diagrams shown in **Figure 9** and **Figure 10** for the weekday AM and PM peak hours, respectively, show further information about the corridor operations. This information can be summarized as follows:

Weekday AM Peak Hour

- High northbound volumes on western half of corridor.
- Most westbound traffic on the eastern end ultimately travel north via rights turns.
- Constitution Avenue NW serves as the major east-west route in the study area, minimizing the need for Pennsylvania Avenue NW to carry the bulk of the east-west traffic, and allowing for left-turn restrictions on Pennsylvania Avenue NW.
- Most of the traffic using Pennsylvania Avenue NW only travels along the corridor for a few blocks before making a turning movement.
- The two ends of the corridor function differently, with the eastern portion distributing traffic on to Constitution Avenue NW or to the north via a series of potential westbound right-turn movements. At the intersections of Pennsylvania Avenue/12th Street NW, Pennsylvania Avenue/14th Street NW, and Pennsylvania Avenue/15th Street NW, Pennsylvania Avenue NW serves as the minor approach as 12th Street NW, 14th Street NW, and 15th Street NW all process a high number of northbound through movements.

Weekday PM Peak Hour

- Similar to the AM peak hour, Pennsylvania Avenue NW towards the western end of the study area serves as the minor approach at the intersections of Pennsylvania Avenue/12th Street NW, Pennsylvania Avenue/14th Street NW, and Pennsylvania Avenue/15th Street NW.
- 14th Street NW has high northbound and southbound through volumes.
- Most traffic enters eastbound Pennsylvania Avenue NW via southbound left-turns and exits on 9th Street NW or Constitution Avenue NW.
- Due to left-turn restrictions, commuters leaving the District in the westbound (outbound) direction are unable to use Pennsylvania Avenue NW, and instead need to use Constitution Avenue NW or other alternate routes.

> **The lack of corridor connectivity to the east and west combined with left-turn restrictions minimizes the number of vehicles traveling the entire length of the corridor. Instead, vehicles tend to use Pennsylvania Avenue NW to access other major routes by traveling only a few blocks along the corridor, and making right-turns to exit the corridor.**

Traffic Operations (AM & PM)

Figure 11 and **Figure 12** detail the weekday AM and PM peak hour level of service (LOS) for the study area intersections under existing conditions. As described in the Highway Capacity Manual 2010 methodology, intersection LOS is defined in terms of average total vehicle delay of all movements through the intersection. The assigned LOS value reflects the average delay experienced per vehicle at the intersection during the analysis period (typically a one-hour AM and one-hour PM peak). LOS A can be considered free flow or near free flow (less than 10 seconds of average delay per vehicle) and LOS F indicates highly congested conditions, with more than 80 seconds of average delay at a signalized intersection.

Within the District of Columbia, a certain amount of congestion is expected during the weekday AM and PM peak hours, and an identified LOS F is common at many intersections. As shown in **Figure 11**, no intersections within the study area are operating at LOS F. The worst performing intersection on Pennsylvania Avenue is Pennsylvania Avenue NW/7th Street NW, which is operating at LOS E during the weekday AM and PM peak hours. The corridor intersections are generally operating below capacity and within LOS ranges that exceed driver expectations for delay within the District. This suggests an opportunity may exist to reduce the number of lanes along Pennsylvania Avenue NW.

Helping intersection operations are the left-turn restrictions along the corridor. In the eastbound directions, left-turns are only allowed at the 13th Street NW, 11th Street NW, 7th Street NW, and Constitution Avenue NW intersections with Pennsylvania Avenue NW. In the westbound direction, the only left-turn allowed is on to Constitution Avenue NW. The removal of left-turn movements helps to simplify intersection operations, and reduce the number of signal phases necessary.

> **Because of the lack of east-west connectivity and left-turn restrictions, the corridor processes left-turn movements at key intersections, and right-turn movements along the entire corridor length. Considering the corridor context, the corridor operates with less vehicle delay than found on many other arterial roads in the District, indicating opportunities for reducing corridor motor vehicle capacity.**

Daily Traffic Volumes

Daily traffic volumes from year 2014 (the most recent year available) are shown in **Figure 13**. While roadway designs are typically based on peak-period conditions, traffic volumes provide a high-level overview of auto travel demand in an area. For example, daily traffic volumes on Pennsylvania Avenue NW vary from 8,500 west of 13th Street NW to 29,600 east of Constitution Avenue NW. Constitution Avenue NW west of Pennsylvania Avenue NW has traffic volumes that increase from 24,500 near Pennsylvania Avenue NW to 32,600 to the west. 14th Street is the predominant north-south street with traffic volumes of 32,500 just south of Pennsylvania Avenue NW. 7th Street NW, also a designated arterial street, has traffic volumes of 13,800 near Pennsylvania Avenue NW.

Crash History

Three years (2013 to 2015) of vehicle crash data, obtained from DDOT, at study intersections along Pennsylvania Avenue NW are shown in **Figure 14**. When compared to the traffic volume map, it is evident that the higher crash totals are typically on streets with higher volumes. To investigate the relative safety at study intersections along Pennsylvania Avenue NW, crash rates were calculated. Crashes rates for the study intersections are presented in **Table 2**. The intersections of 6th Street/ Pennsylvania Avenue NW, 7th Street/Pennsylvania Avenue NW, 9th Street/Pennsylvania Avenue NW, 11th Street/Pennsylvania Avenue NW, 13th Street/Pennsylvania Avenue NW, 14th Street/ Pennsylvania Avenue NW, and 15th Street/E Street NW were identified as having a crash rate over 1.0. Multiple crashes occurring at the same location over a period of time may be an indication of a safety issue and should be investigated.[1]

The number of corridor crashes appears to be largely correlated with corridor traffic volumes, indicating total exposure might be the consistent linkage between many corridor crashes. Crash rates for the study intersections highlight instances at seven intersections where multiple crashes occur at the same location over a period of time. The intersection of 15th St NW & E St, NW has the highest crash rate at 2.10.

TABLE 2

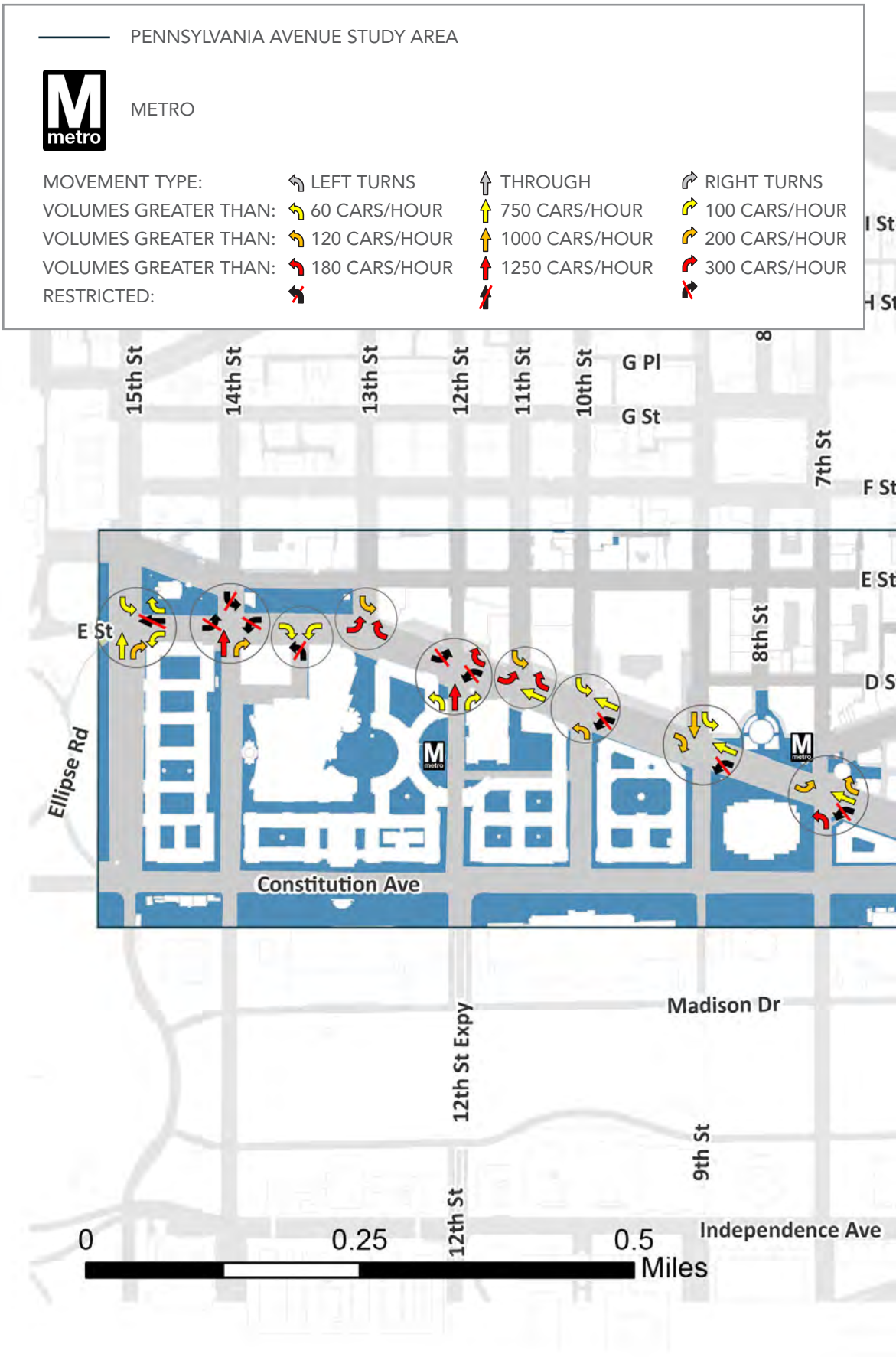
CRASH RATE FOR STUDY INTERSECTIONS ALONG PENNSYLVANIA AVENUE NW

Intersection	Crash Rate (crashes/mev*)
15TH ST NW & E ST NW	2.10
14TH ST NW & PENNSYLVANIA AVE NW	1.06
13TH ST NW & PENNSYLVANIA AVE NW	1.56
12TH ST NW & PENNSYLVANIA AVE NW	0.93
11TH ST NW & PENNSYLVANIA AVE NW	1.17
10TH ST NW & PENNSYLVANIA AVE NW	0.65
9TH ST NW & PENNSYLVANIA AVE NW	1.22
7TH ST NW & PENNSYLVANIA AVE NW	1.83
6TH ST NW & PENNSYLVANIA AVE NW	1.08
CONSTITUTION AVE NW & PENNSYLVANIA AVE NW - WEST	0.39
4TH ST NW & CONSTITUTION AVE NW	0.39
CONSTITUTION AVE NW & PENNSYLVANIA AVE NW - EAST	0.14
3RD ST NW & CONSTITUTION AVE NW	0.60
3RD ST NW & PENNSYLVANIA AVE NW	0.18

**mev = million entering vehicles*

[1] *Roadway Safety Information Analysis: A Manual for Local and Rural Road Owners. FHWA. 2011.*

FIGURE 7
WEEKDAY AM PEAK-HOUR TURNING-MOVEMENT VOLUMES AND TURN RESTRICTIONS



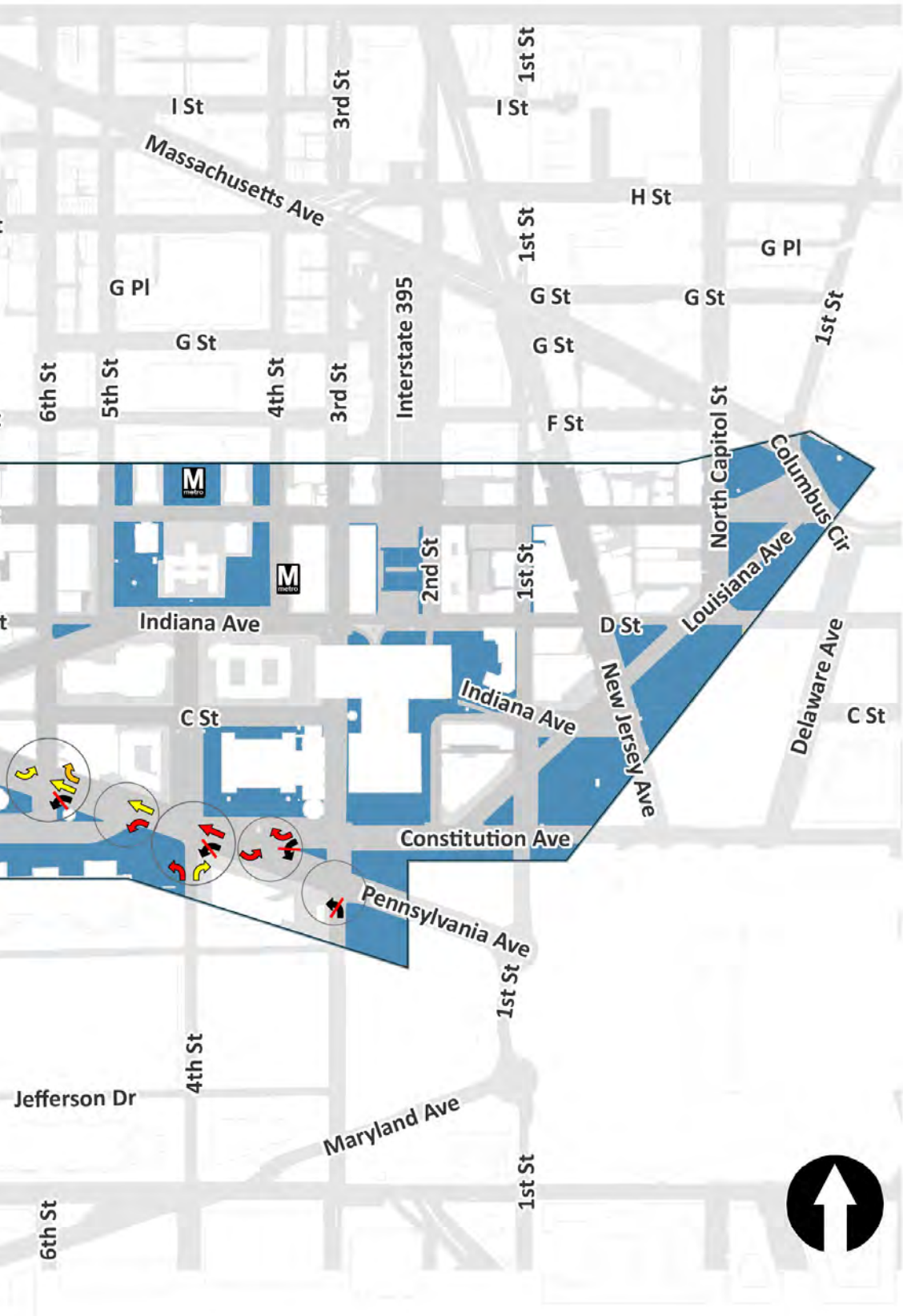
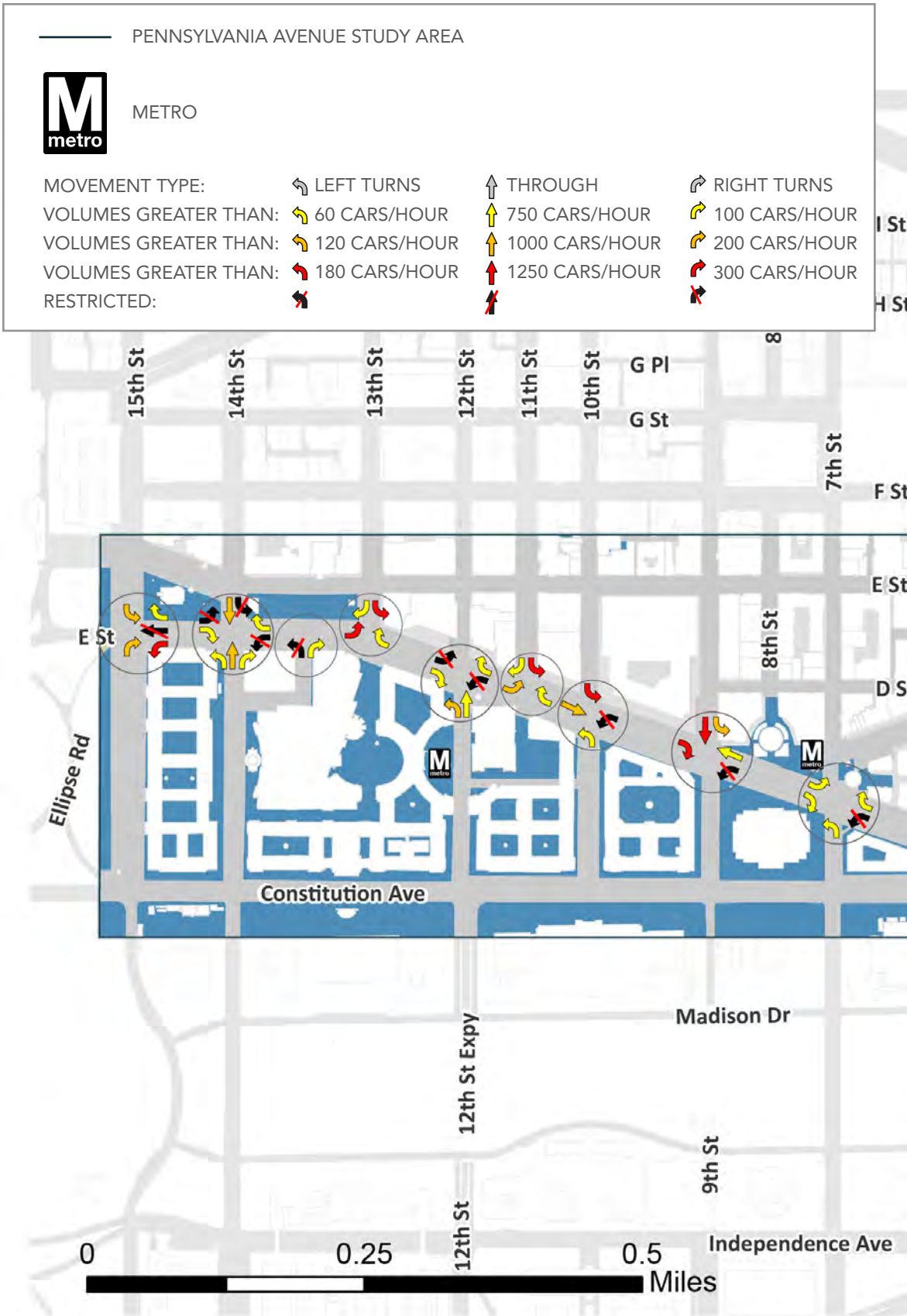
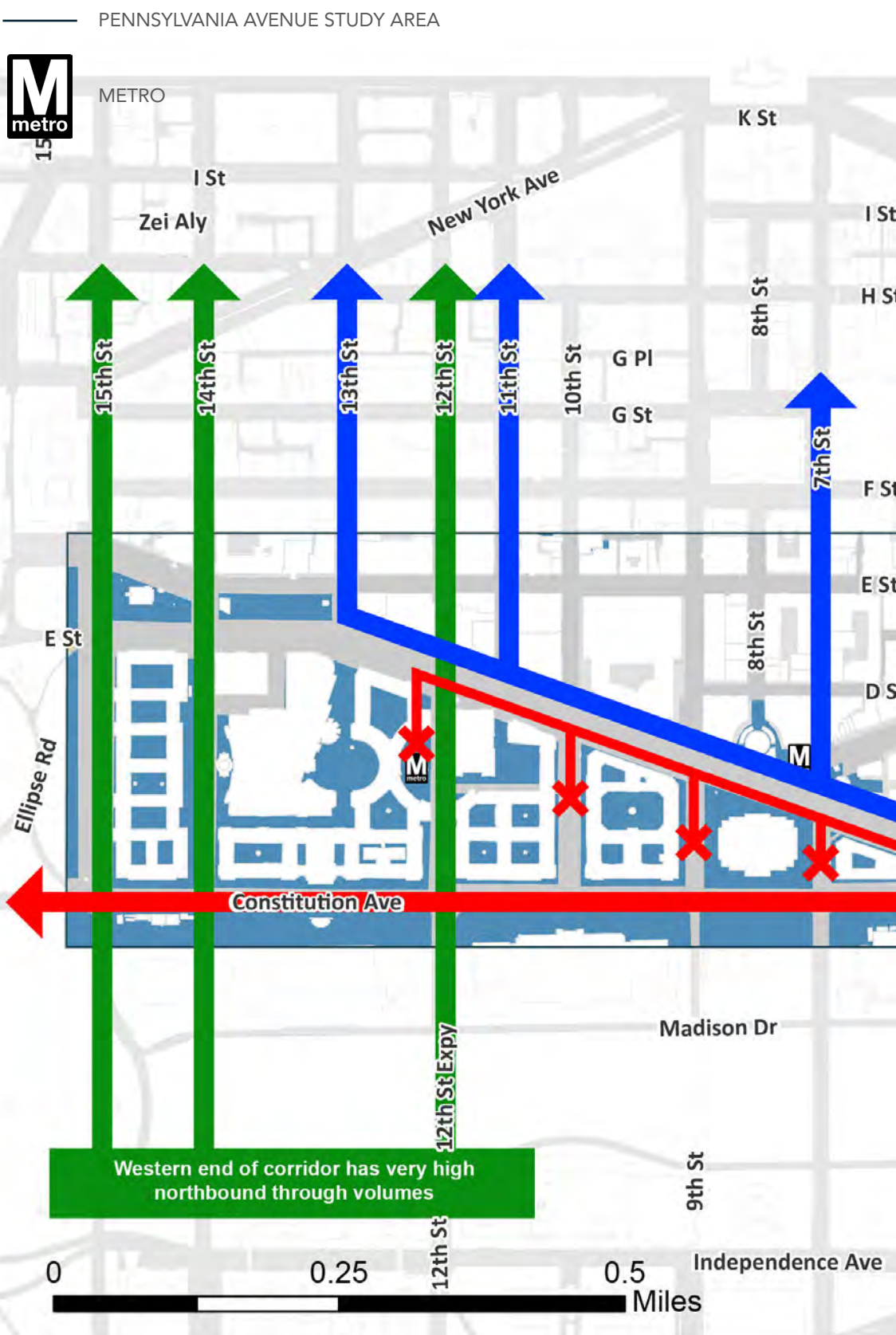

I St
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Massachusetts Ave
H St
1st St
G Pl
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G St
Interstate 395
G St
G St
1st St
6th St
5th St
4th St
3rd St
G St
F St
North Capitol St
Columbus Cir
Louisiana Ave
2nd St
1st St
Indiana Ave
D St
Delaware Ave
Indiana Ave
New Jersey Ave
C St
C St
Constitution Ave
Pennsylvania Ave
1st St
4th St
Jefferson Dr
Maryland Ave
1st St
6th St

FIGURE 8
WEEKDAY PM PEAK-HOUR TURNING-MOVEMENT VOLUMES AND TURN RESTRICTIONS




I St
3rd St
1st St
I St
Massachusetts Ave
H St
1st St
G Pl
G Pl
G St
G St
1st St
Interstate 395
G St
G St
6th St
5th St
4th St
3rd St
F St
North Capitol St
Columbus Cir
Louisiana Ave
2nd St
1st St
Indiana Ave
D St
Delaware Ave
New Jersey Ave
Indiana Ave
C St
C St
Constitution Ave
Pennsylvania Ave
1st St
4th St
Jefferson Dr
Maryland Ave
1st St
6th St

FIGURE 9
WEEKDAY AM PEAK-HOUR PREDOMINANT TRAFFIC FLOWS



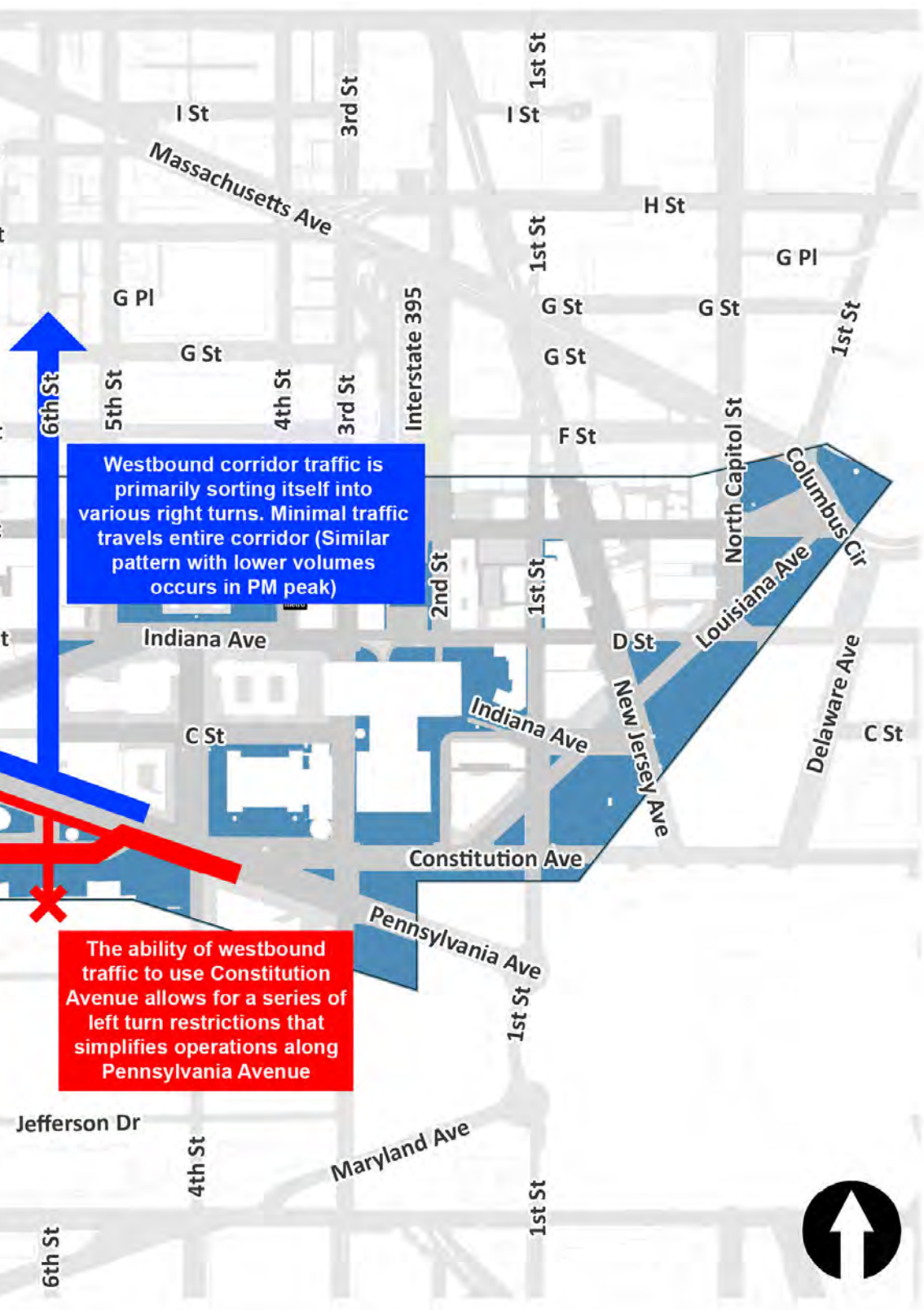
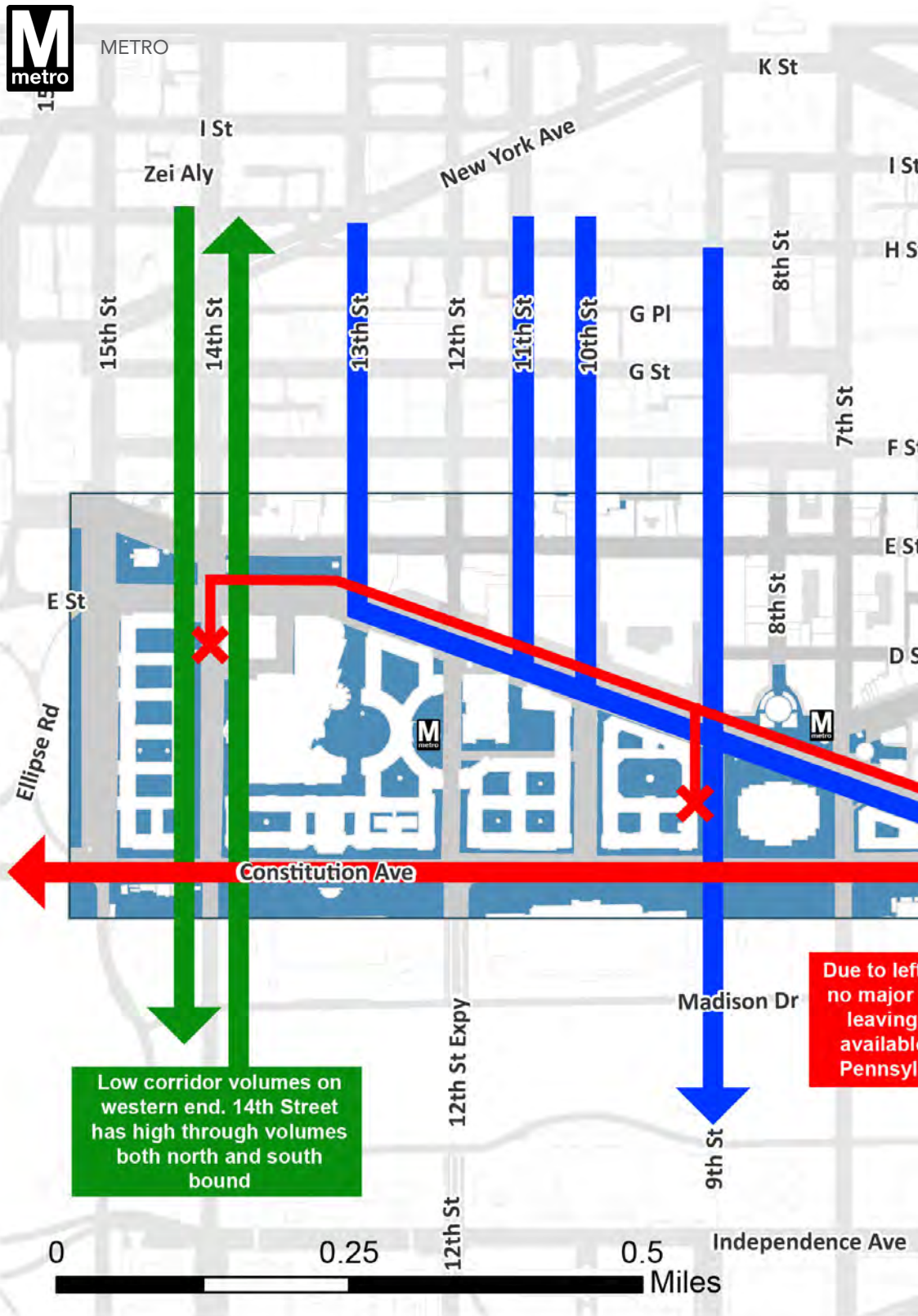

Westbound corridor traffic is primarily sorting itself into various right turns. Minimal traffic travels entire corridor (Similar pattern with lower volumes occurs in PM peak)
The ability of westbound traffic to use Constitution Avenue allows for a series of left turn restrictions that simplifies operations along Pennsylvania Avenue
I St
Massachusetts Ave
3rd St
1st St
H St
G Pl
G St
Interstate 395
6th St
5th St
4th St
F St
North Capitol St
Columbus Cir
Louisiana Ave
2nd St
Indiana Ave
D St
New Jersey Ave
Delaware Ave
C St
Constitution Ave
Pennsylvania Ave
Jefferson Dr
Maryland Ave

FIGURE 10
WEEKDAY PM PEAK-HOUR PREDOMINANT TRAFFIC FLOWS



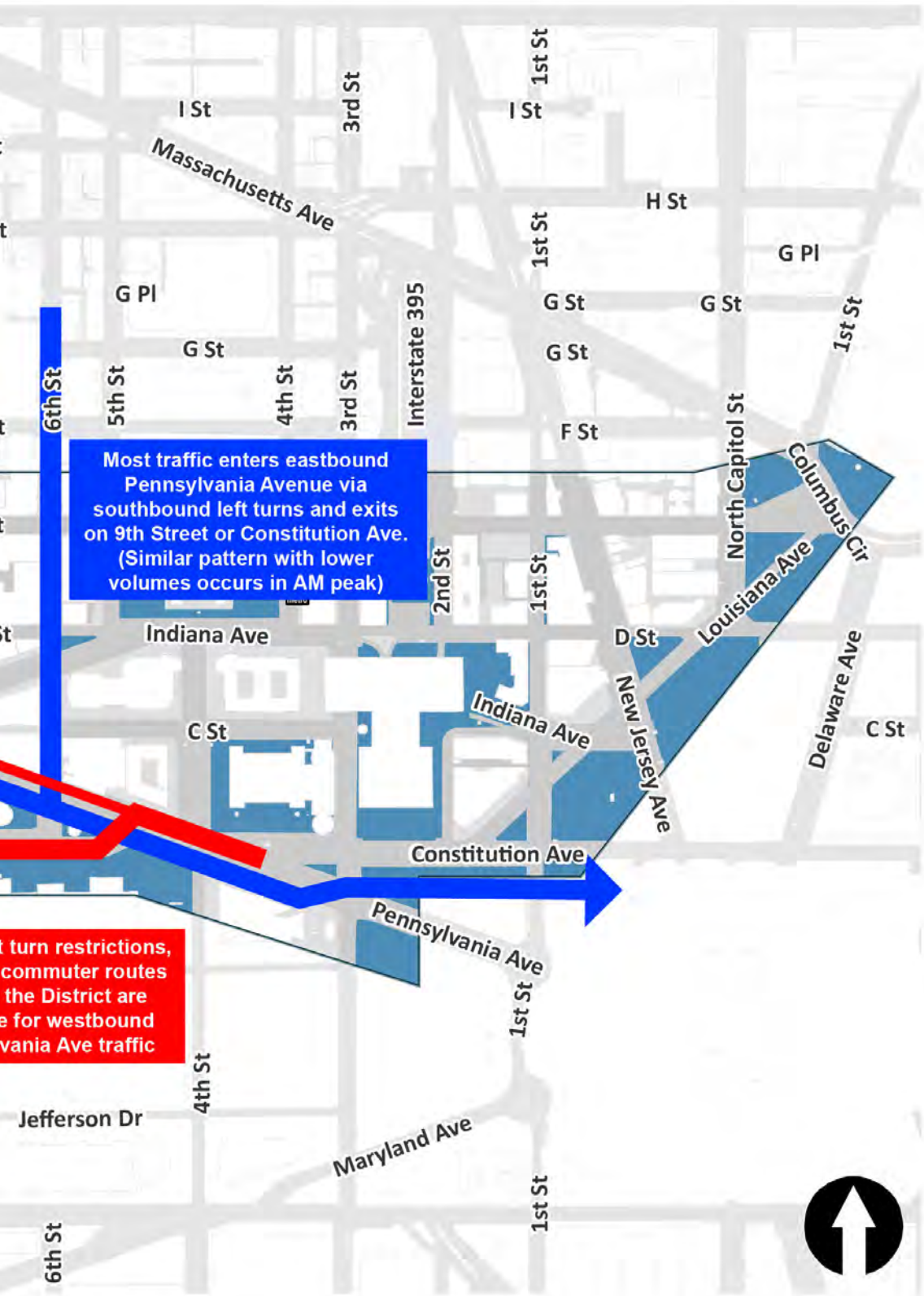
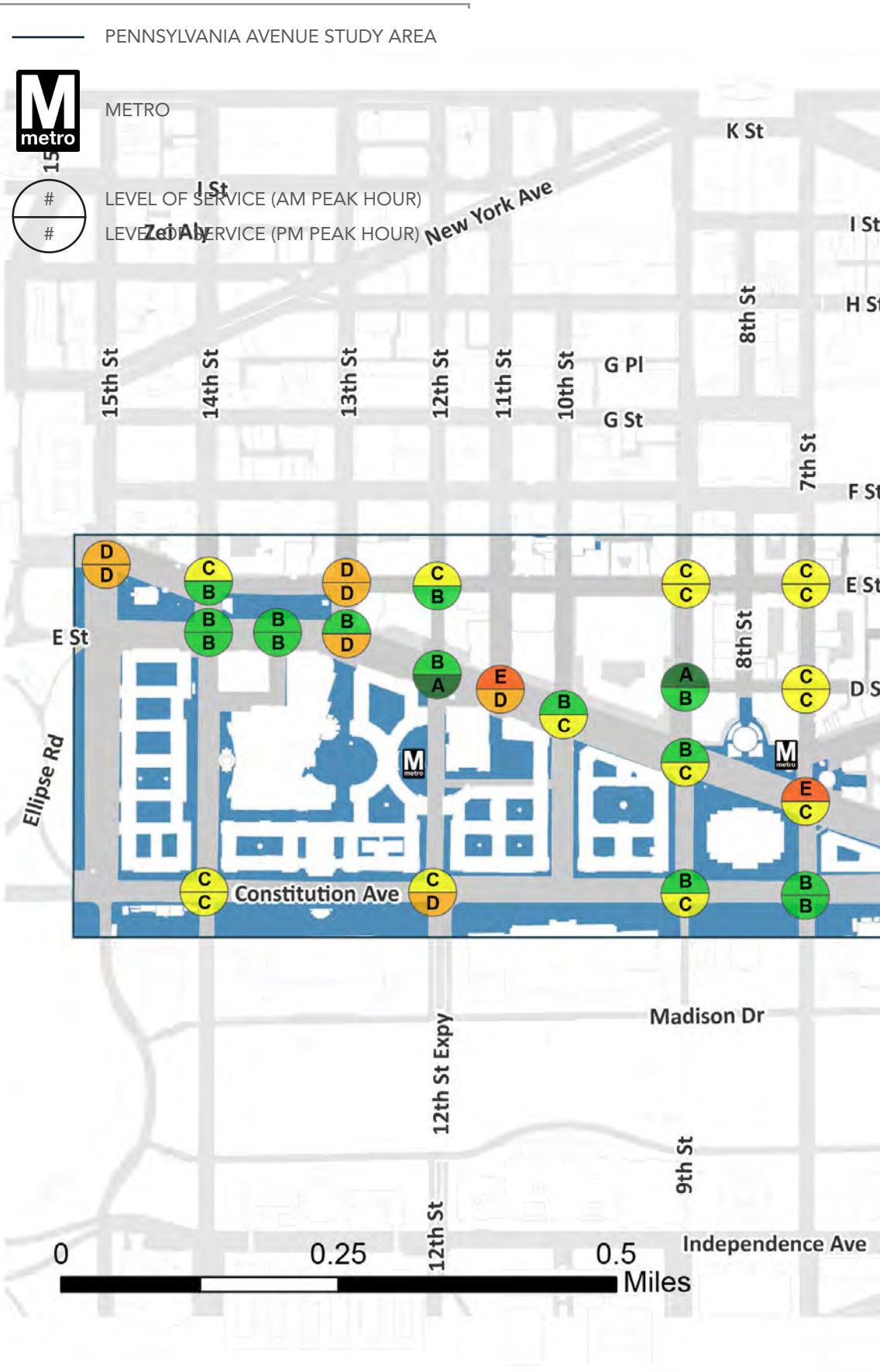

I St
3rd St
1st St
I St
Massachusetts Ave
H St
1st St
G Pl
G Pl
G St
G St
1st St
Interstate 395
G St
G St
6th St
5th St
4th St
3rd St
F St
Most traffic enters eastbound Pennsylvania Avenue via southbound left turns and exits on 9th Street or Constitution Ave. (Similar pattern with lower volumes occurs in AM peak)
North Capitol St
Columbus Cir
2nd St
1st St
Louisiana Ave
Indiana Ave
D St
Delaware Ave
New Jersey Ave
Indiana Ave
C St
C St
Constitution Ave
Pennsylvania Ave
t turn restrictions, commuter routes the District are e for westbound lvania Ave traffic
1st St
4th St
Jefferson Dr
Maryland Ave
1st St
6th St

FIGURE 11
WEEKDAY AM AND PM PE
HOUR LEVEL OF SERVICE



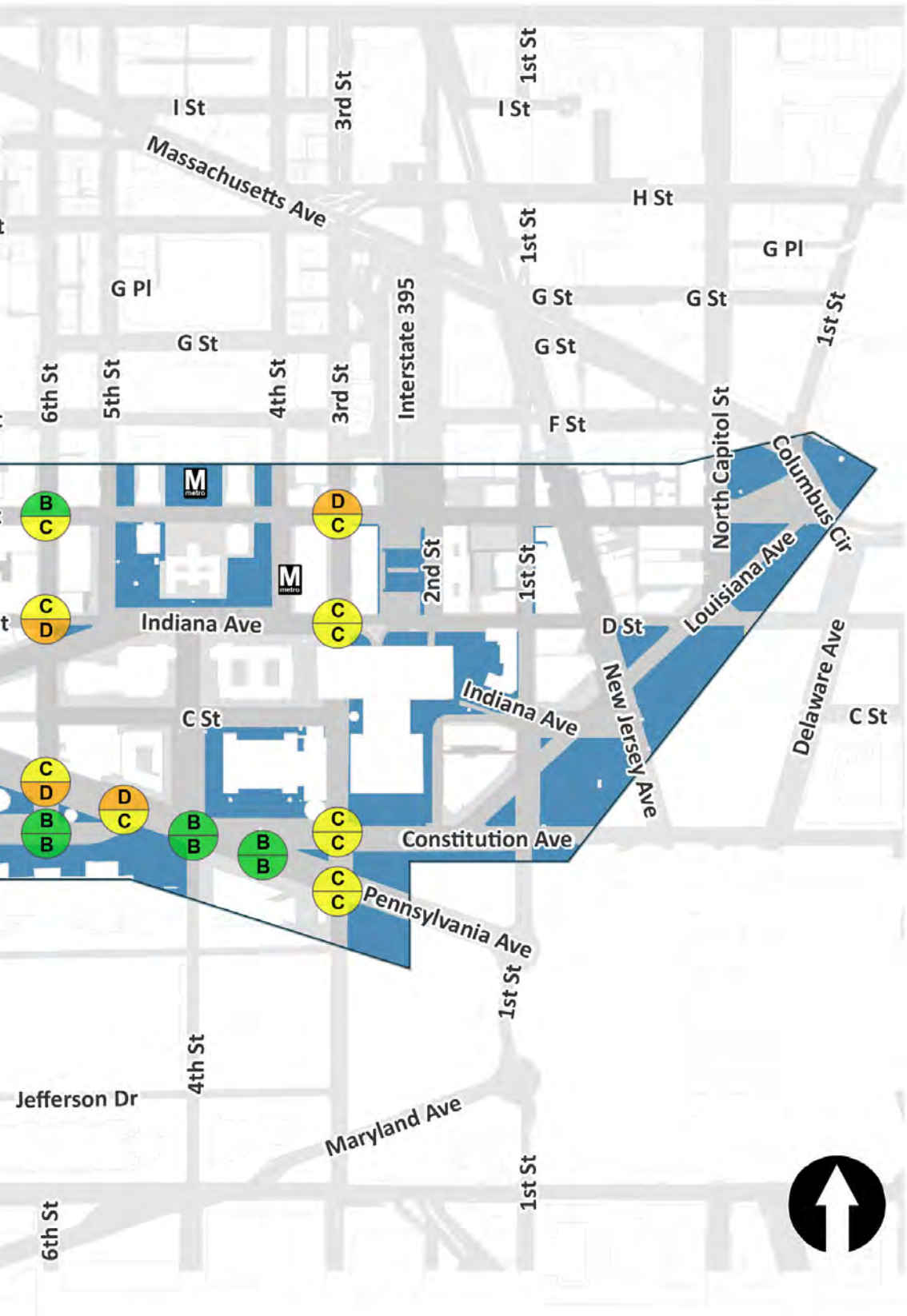
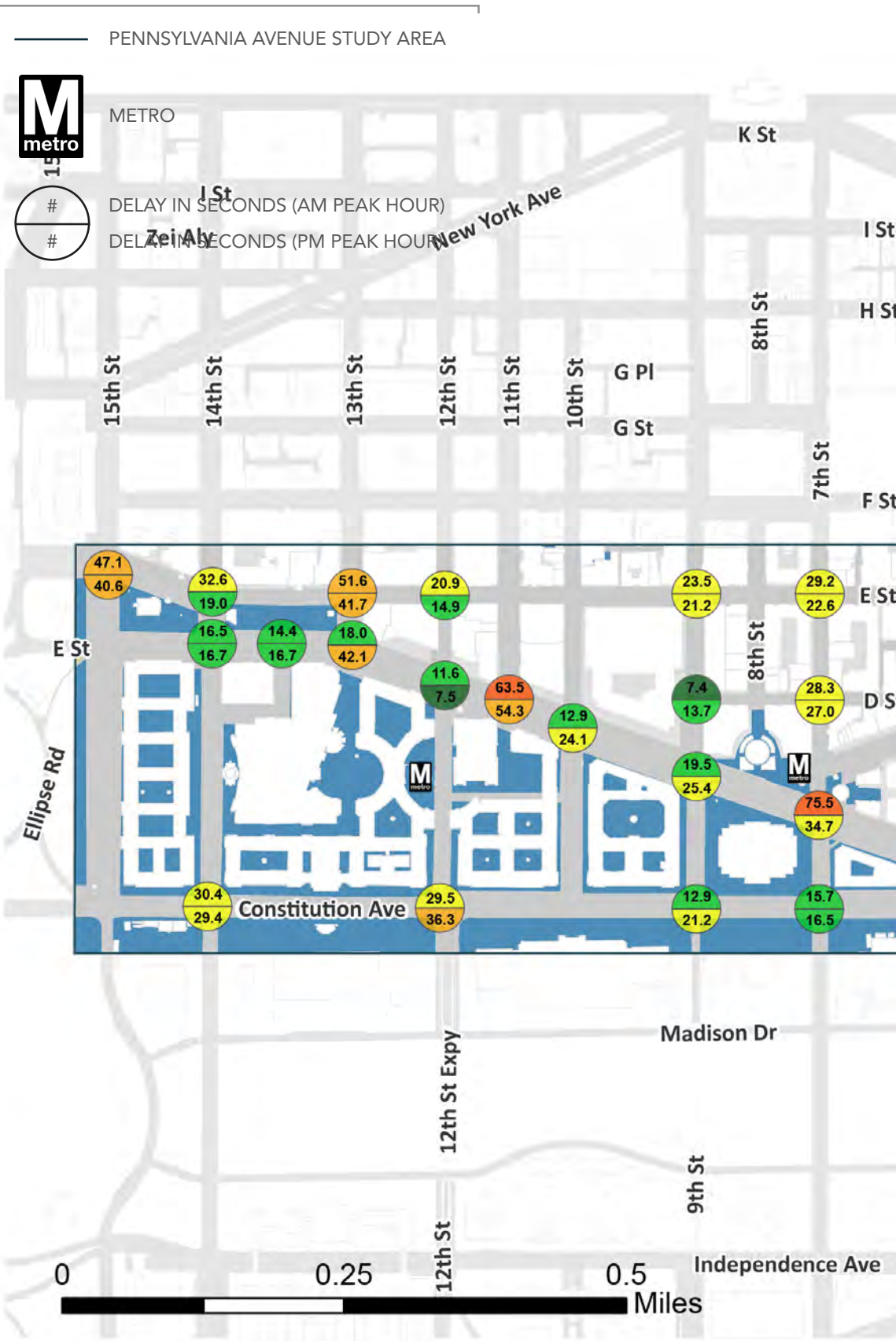

I St
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I St
Massachusetts Ave
H St
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G Pl
G Pl
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G St
G St
6th St
5th St
4th St
3rd St
Interstate 395
F St
North Capitol St
Columbus Cir
Louisiana Ave
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Indiana Ave
New Jersey Ave
Delaware Ave
C St
C St
Constitution Ave
Pennsylvania Ave
1st St
4th St
Jefferson Dr
Maryland Ave
1st St
6th St

FIGURE 12
WEEKDAY AM AND PM PEAK-HOUR INTERSECTIOI AVERAGE DELAY



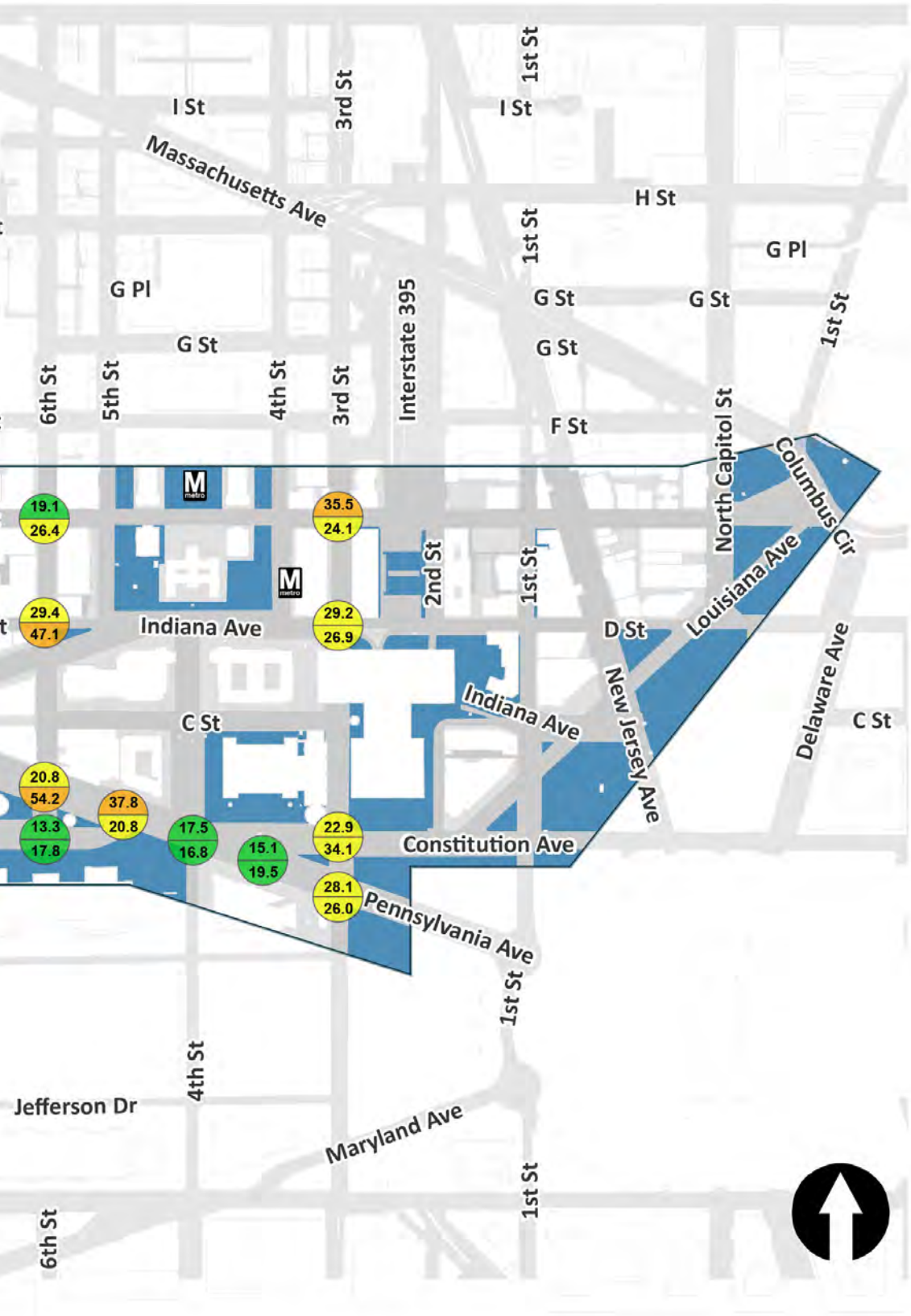
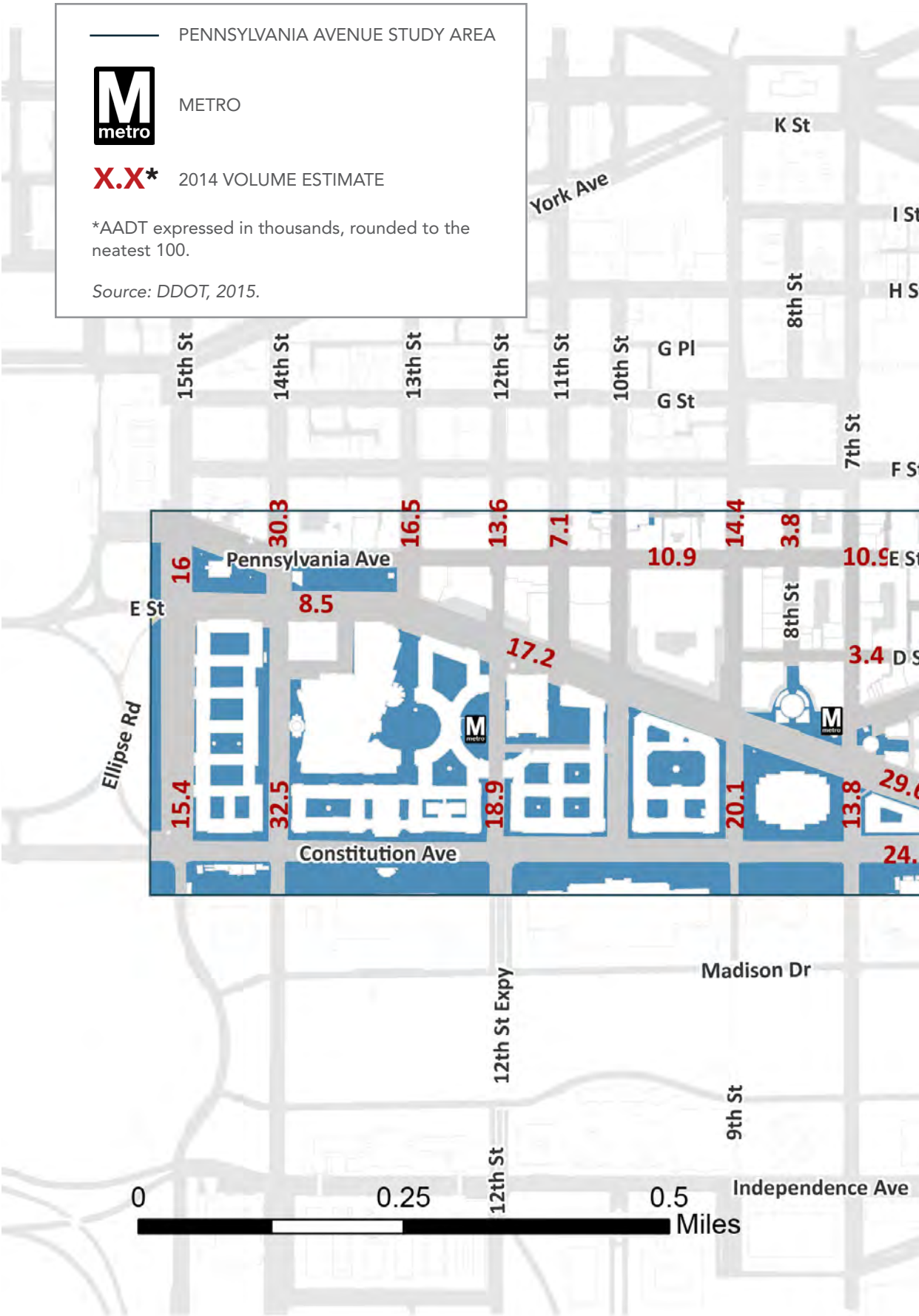

I St
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I St
Massachusetts Ave
H St
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G Pl
G Pl
Interstate 395
G St
G St
1st St
G St
G St
6th St
5th St
4th St
3rd St
F St
North Capitol St
Columbus Cir
19.1
26.4
35.5
24.1
2nd St
1st St
Louisiana Ave
29.4
47.1
Indiana Ave
29.2
26.9
D St
Delaware Ave
Indiana Ave
New Jersey Ave
C St
C St
20.8
54.2
37.8
20.8
13.3
17.8
17.5
16.8
15.1
19.5
22.9
34.1
Constitution Ave
28.1
26.0
Pennsylvania Ave
1st St
4th St
Jefferson Dr
Maryland Ave
1st St
6th St

FIGURE 13
DAILY TRAFFIC VOLUMES (DDOT 2014 TRAFFIC VOLUME MAP)



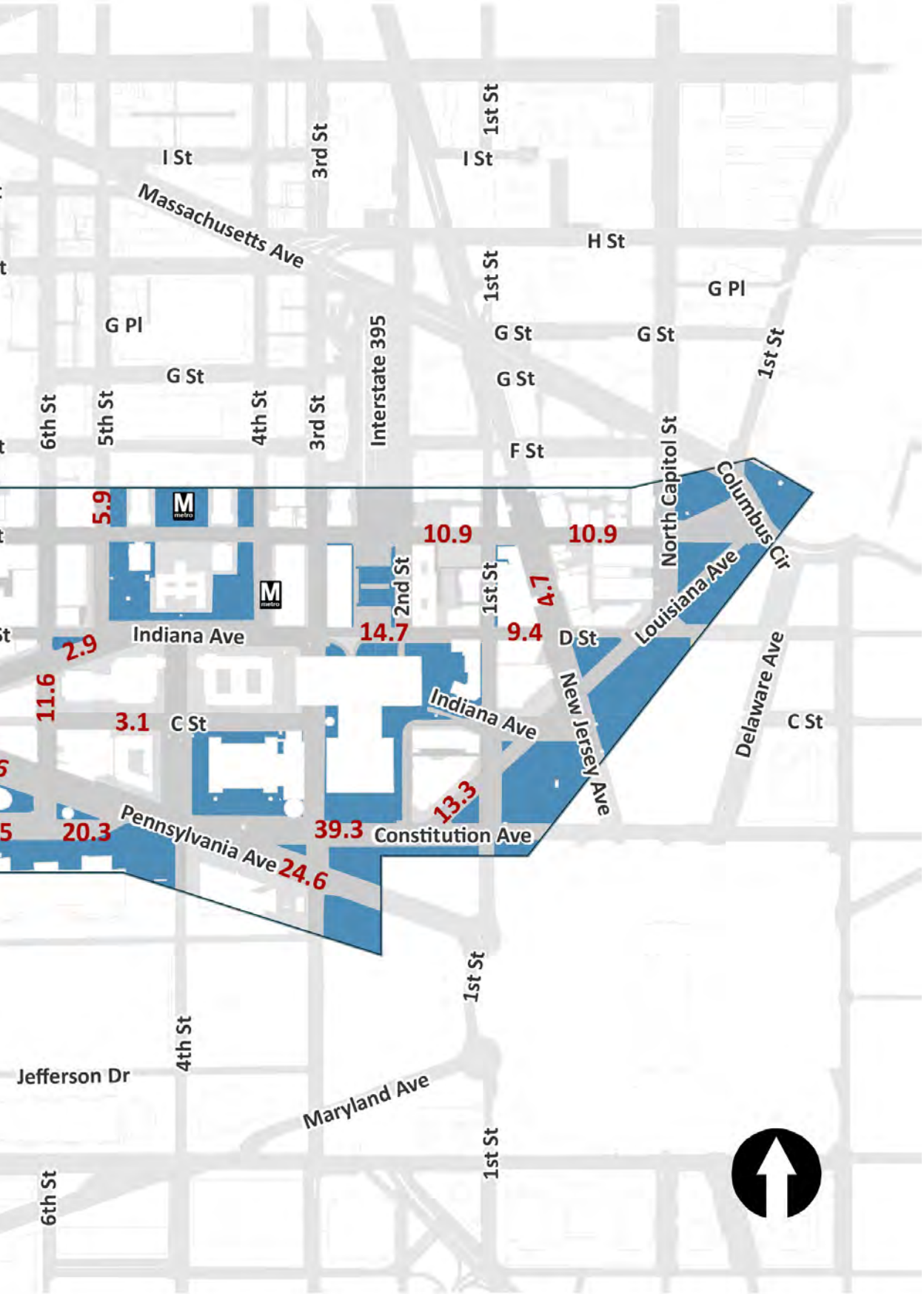
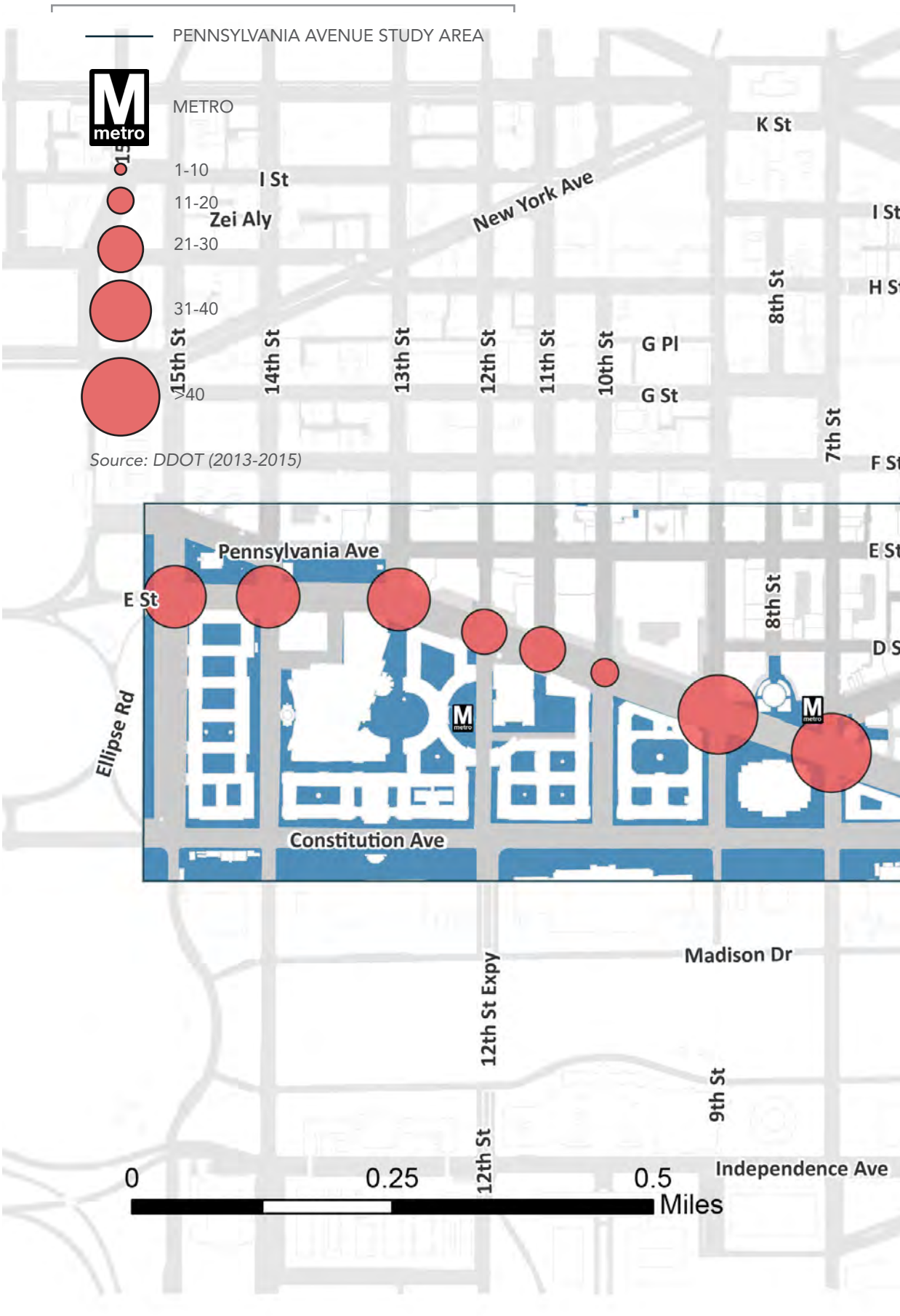
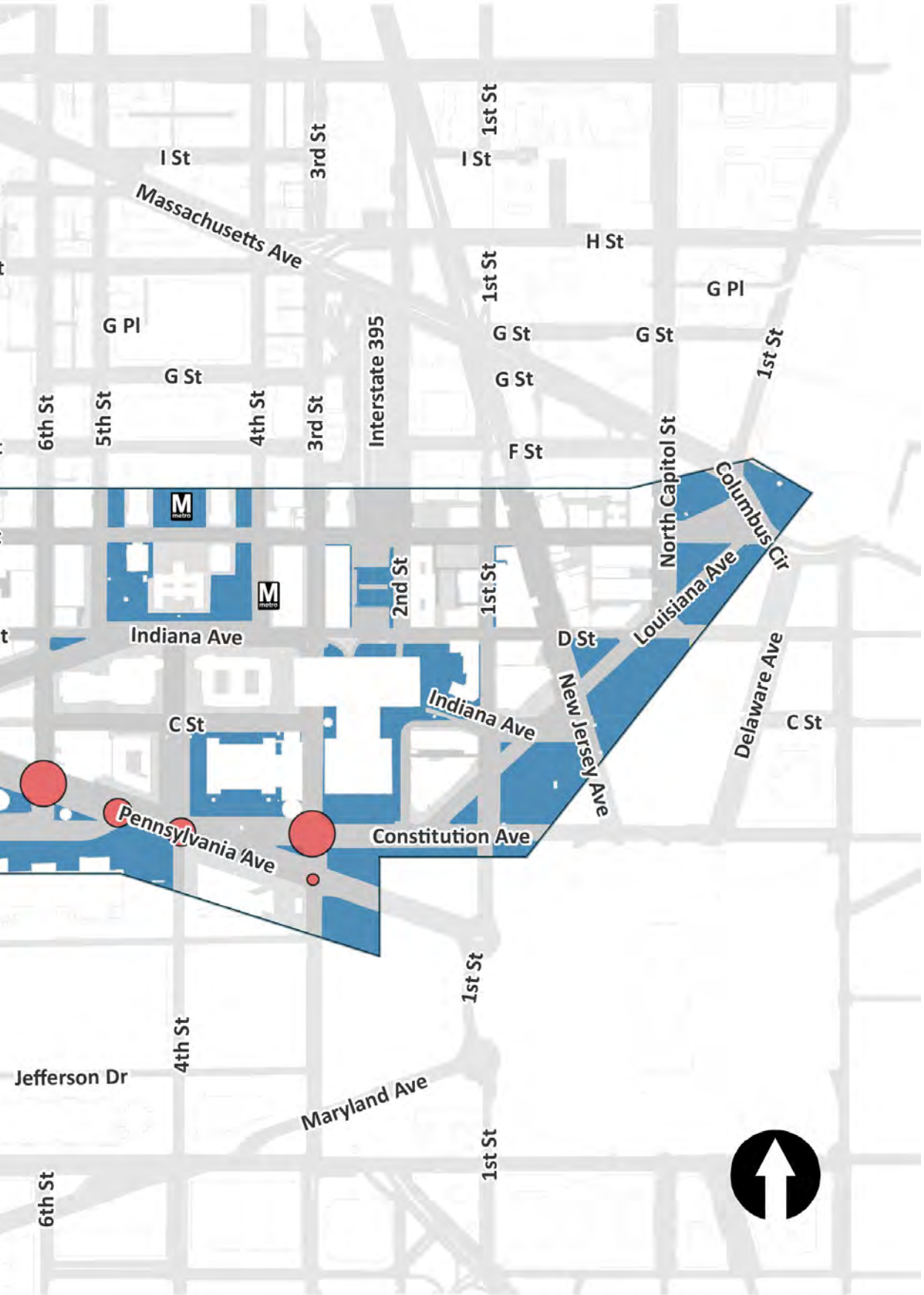

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6th St
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North Capitol St
Columbus Cir
Louisiana Ave
2nd St
D St
Indiana Ave
New Jersey Ave
Delaware Ave
C St
Pennsylvania Ave
Constitution Ave
Jefferson Dr
Maryland Ave
5.9
10.9
4.7
9.4
14.7
2.9
11.6
3.1
13.3
20.3
39.3
24.6

FIGURE 14
PENNSYLVANIA AVENUE CRASHES (YEARS 2013 TO 2015)



Source: DDOT (2013-2015)


I St
3rd St
1st St
I St
Massachusetts Ave
H St
1st St
G Pl
G Pl
G St
G St
1st St
Interstate 395
G St
G St
6th St
5th St
4th St
3rd St
F St
North Capitol St
Columbus Cir
Louisiana Ave
2nd St
1st St
Indiana Ave
D St
Delaware Ave
New Jersey Ave
Indiana Ave
C St
C St
Pennsylvania Ave
Constitution Ave
1st St
4th St
Jefferson Dr
Maryland Ave
1st St
6th St

3.2.2 Pedestrian

Desire Lines and Two-Stage Crossings

A combination of high-density land uses combined with many local tourist destinations create a demand for a significant amount of pedestrian activity within the study area. **Figure 15** displays many pedestrian generators within the study area, along with common pedestrian desire lines. As shown, commercial activity to the north, along with some museums to the north, combined with the National Mall and Smithsonian Museums to the south create a large amount of north-south pedestrian movements across Pennsylvania Avenue NW. Along Pennsylvania Avenue NW itself, relatively few attractions and minimal retail or food and beverage establishments reduce the amount of pedestrian demand that would be expected of such an iconic corridor.

Crash History

Pedestrian crashes over a three-year period (2013 to 2015) are displayed in **Figure 16**. As shown, pedestrian crashes are uniformly distributed throughout the corridor. Intersections identified as having higher crossing volumes (9th Street NW, 12th Street NW, and 14th Street NW) were also identified as having more pedestrian crashes (5+ at each intersection) over the three-year period.

> **The current pedestrian experience does not match the iconic or monumental nature of the corridor. Further, high-demand north-south crossings are currently problematic due to the signal timing that requires two-stage crossings across Pennsylvania Avenue NW and directly conflicts with the center-running separated bike lane while pedestrians wait between "Walk" phases.**

3.2.3 Bicycle

Bicycle Volumes

Bicycle volumes are stable throughout the study area, except for 15th Street NW, which sees a spike in bicycle volumes during the weekday PM peak hour due to the two-way protected bike facility on 15th Street NW. The eastern portion of Pennsylvania Avenue NW sees slightly greater bicycle volumes during both the weekday AM and PM peak hours, which is likely a funneling effect of bicycle traffic along Pennsylvania Avenue NW combining as bicycles travel east on the corridor.

Crash History

The bicycle crash history is similar to the pedestrian crash history with a uniform distribution of crashes throughout the corridor, with slightly higher numbers of crashes at the intersections with higher volumes of motor vehicles. However, as noted in the bicycle volume figures, the bicycle volumes are higher in the eastern portion of the study area, while the bicycle crashes are higher on the western portion of the study area.

Level of Traffic Stress

Level of traffic stress (LTS) is a methodology developed by the Mineta Transportation Institute to evaluate the LTS that bicyclists experience on roadway segments, intersection approaches, and unsignalized crossings. Using this approach, a street network can be classified into four stress levels, ranging from low stress to high stress. For a bicycle network to attract the broadest segment of the population it must provide low stress connectivity, defined as "providing routes between people's origins and destinations that do not require cyclists to use links that exceed their tolerance for traffic stress, and that do not involve an undue level of detour."

The LTS methodology focuses on the following criteria for evaluating traffic stress on bicyclists:

- Presence or absence of parking
- Presence or absence of a bike lane
- Street width (number of lanes)
- Width of bike lane and parking lane
- Speed limit or prevailing speed
- Frequency of vehicles parked in bike lanes
- Intersection Approaches
- Presence of right turn lane(s)
- Length of right turn lane
- Turn lane configuration (bike lane shifts vs. bike lane continues straight)
- Unsignalized Crossings
- Width of cross street
- Speed limit of cross street
- Presence or absence of median refuge

The analysis applies a "weakest link" logic, where the stress level is assigned based on the lowest-performing attribute. For example, even if a segment has mostly low-stress characteristics, the occurrence of one high-stress attribute (e.g., a narrow outside lane) dictates the stress level for the link. LTS values are highly predictive of the comfort level that bicyclists will experience on a given facility. Generally, "interested but concerned" bicyclists will be comfortable on facilities with an LTS of I or 2. More confident and experienced bicyclist types may be comfortable on higher LTS facilities. Mapping an area's network using LTS shows what portion of the network is suitable for different rider groups.

The LTS methodology identifies four stress levels based on key facility and traffic factors:

- Stress level 4 — High stress, only suitable for experienced bicyclists
- Stress level 3 — Moderate traffic stress for all bicyclists
- Stress level 2 — Low traffic stress and suitable for most adults
- Stress level I — Requires little attention to surroundings; suitable for most children

A level-of-traffic stress analysis was completed on all D.C. streets in 2016, and the results of the LTS analysis for the study area are shown in **Figure 20**. As shown, Pennsylvania Avenue NW and 10th Street NW north of Pennsylvania Avenue NW are the only study area streets with LTS scores of 1, indicating the most comfortable facilities. With a few exceptions on short segments towards the east of the study area, all other study area streets have LTS scores of 3 and 4, which matches site visit observations

indicating limited use by casual cyclists outside of Pennsylvania Avenue NW.

> **The design of the center-running separated bike lane introduces direct conflicts with pedestrians, and can be challenging to enter and exit, especially for less-confident cyclists.**

Capital Bikeshare Station Usage

The study area is home to seven Capital Bikeshare stations, with two stations located south of Pennsylvania Avenue toward the western side of the study area, four located north of the study area in the Penn Quarter neighborhood, and one located just east of the study area on Constitution Avenue NW. As shown in **Figure 21**, the Constitution Avenue NW bikeshare station has the most use of any study area bikeshare station. This is also the largest bikeshare station by number of docks in the study area. The two bikeshare stations south of Pennsylvania Avenue NW provide access to the National Mall to the south and to Smithsonian museums. All study area bikeshare stations likely serve commuters as well as tourists due to their proximity to office buildings and area attractions.

3.2.4 Transit

WMATA Bus Ridership

Bus ridership data was collected from WMATA, and is displayed in **Figure 22**. As shown, the busiest group of bus stops is concentrated near the Pennsylvania Avenue/7th Street NW intersection, which is also adjacent to the Federal Archives – Navy Memorial Metro station.

Transit Volumes

Turning movement videos of the study area, collected in October 2016, were reviewed to identify the number of buses observed during the weekday AM and PM peak hours. The video observations were limited to the three intersections with known WMATA Metrobus stops, which included:

- Pennsylvania Avenue NW/7th Street NW
- Pennsylvania Avenue NW/9th Street NW
- Pennsylvania Avenue NW/12th Street NW

The number of buses observed during the peak hours, by movement, are displayed in **Figure 23** and **Figure 24** for the weekday AM and PM peak hours, respectively. As shown, several sections of Pennsylvania Avenue NW were observed to have nearly 80 buses per hour in each direction during the peak periods. Additional findings from the video observations include:

- Short-Trips on Pennsylvania Avenue NW– Some of the bus routes on Pennsylvania Avenue NW only use the corridor for a single block. For example, at 12th Street NW and 9th Street NW, WMATA buses enter Pennsylvania Avenue NW by turning right onto Pennsylvania Avenue NW from the south and then immediately cross three travel lanes to enter the left-turn lane. When there is more than one bus making this movement, the buses were observed stopping at an angle across multiple lanes. These buses do not use the same lanes as through-movement buses, which tend to stay in the two right most lanes.
- Lack of Space at Bus Stops – When the volume of buses is high, the bus stops often do not provide sufficient space for buses at the curb. This results in buses queuing into the crosswalk or needing to pull in past the designated stop. The most problematic location observed was at the bus stop west of 7th Street NW on the north side of the street. This is partly due to the location being used by both WMATA Metrobus and commuter buses.
- Right Turns Around Stopped Buses – Vehicles were frequently observed making right turns in front of and around the bus stop located on the south side of Pennsylvania Avenue NW just east of 7th Street NW.
- High Bus Volumes – Bus volumes were consistently high at the three observed intersections, with over 60 buses an hour:
    1. Turning left from 7th Street NW to Pennsylvania Avenue NW during the weekday AM peak hour;
    2. Traveling west along Pennsylvania Avenue NW at 9th Street NW during the weekday AM peak hour;
    3. Turning right from Pennsylvania Avenue NW to 7th Street NW during the weekday PM peak hour; and
    4. Traveling east along Pennsylvania Avenue NW at 9th Street NW during the weekday PM peak hour.
- Avoiding Turn Lanes – Where turn lanes exist, buses were observed merging into the center lanes to avoid vehicles slowing due to buses boarding and alighting or making right turns. This is most noticeable with westbound WMATA Metrobuses at 9th Street NW.
- Heavy Traffic along 12th Street NW – Pedestrians are frequently inconvenienced by vehicles that back up into the crosswalk at the north side of the Pennsylvania Avenue, NW crossing at 12th Street NW. Over the hour observed, the queues extended into the Pennsylvania Avenue/12th Street NW intersection on two occasions to slow traffic on Pennsylvania Avenue NW.
- Right Turn at 12th Street NW and Pedestrians – There are two turn lanes for westbound vehicles turning right onto 12th Street NW from Pennsylvania Avenue NW. Buses generally use the right most lane to turn. When buses stop for pedestrians, vehicles in the second right turn lane have limited visibility of the crosswalk and several near misses with pedestrians were observed.
- Bike Behavior – Bicyclists enter and exit the center-running separated bike lane using two distinct methods. Some enter with pedestrians during the walk signal, while others join traffic flow and turn in a traffic lane. A minimal number of bicyclist were observed running red lights.

FIGURE 15
PENNSYLVANIA AVENUE NW
PEDESTRIAN DESIRE LINES



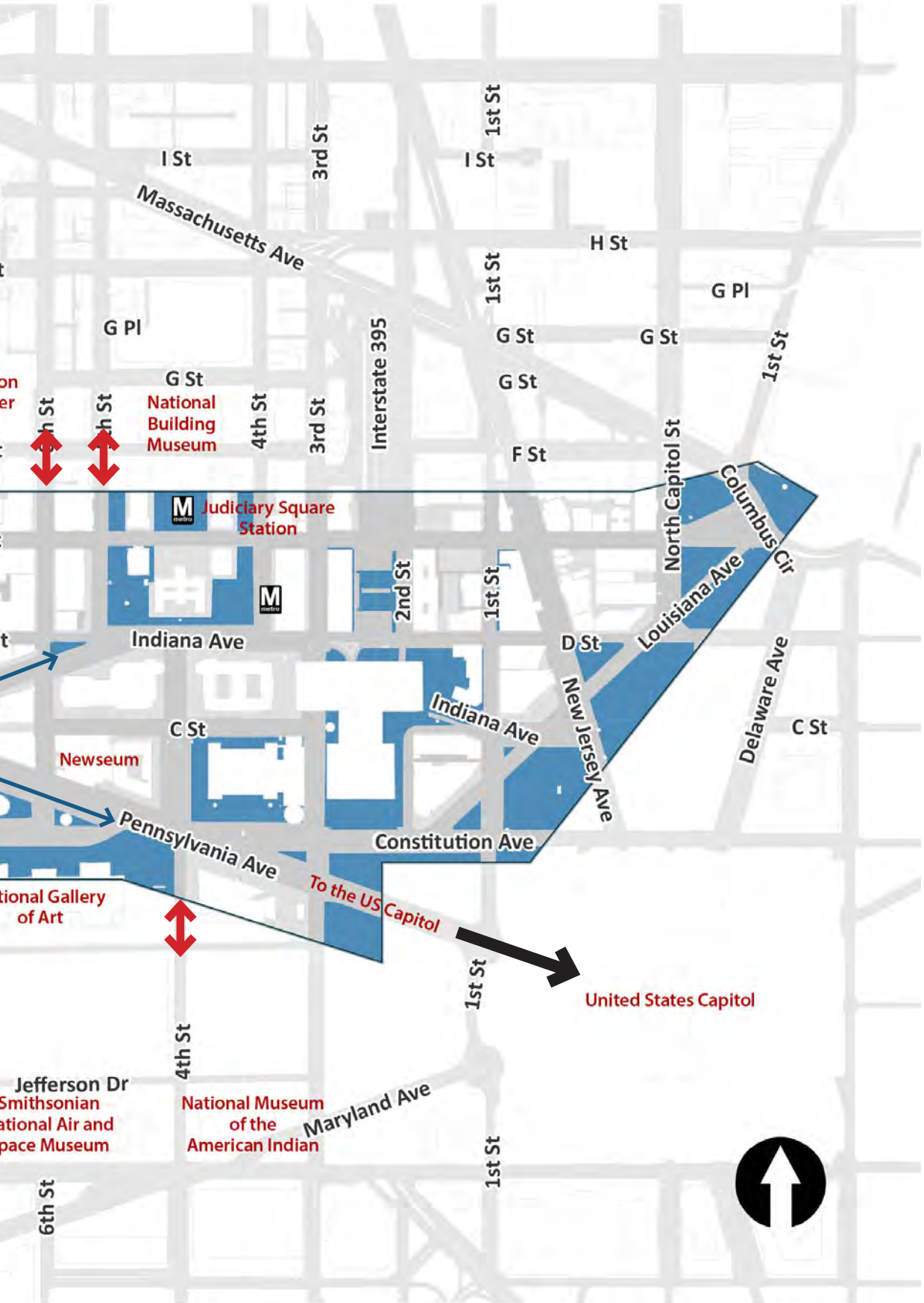
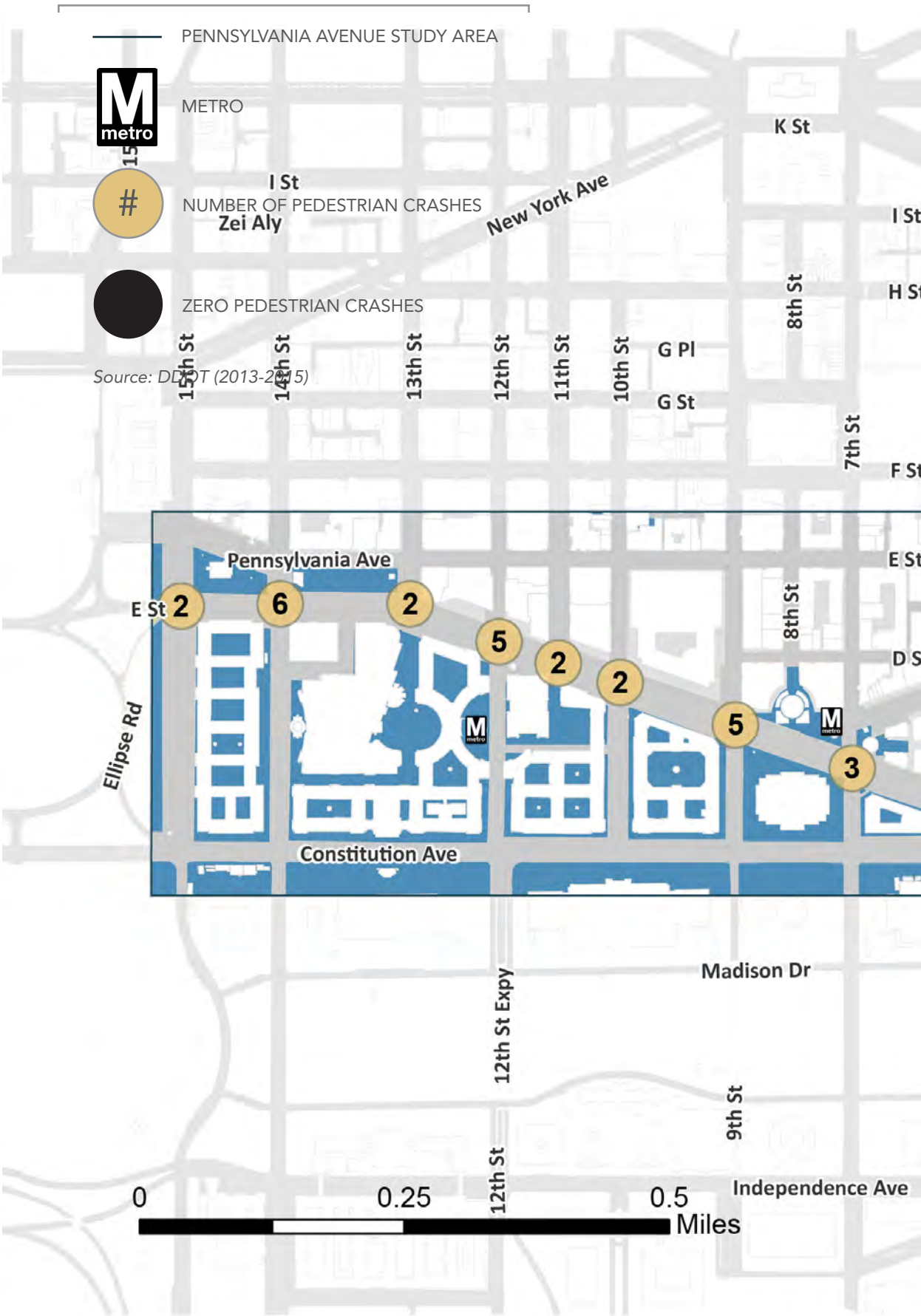

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North Capitol St
Columbus Cir
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FIGURE 16
CRASHES INVOLVING PEDESTRIANS



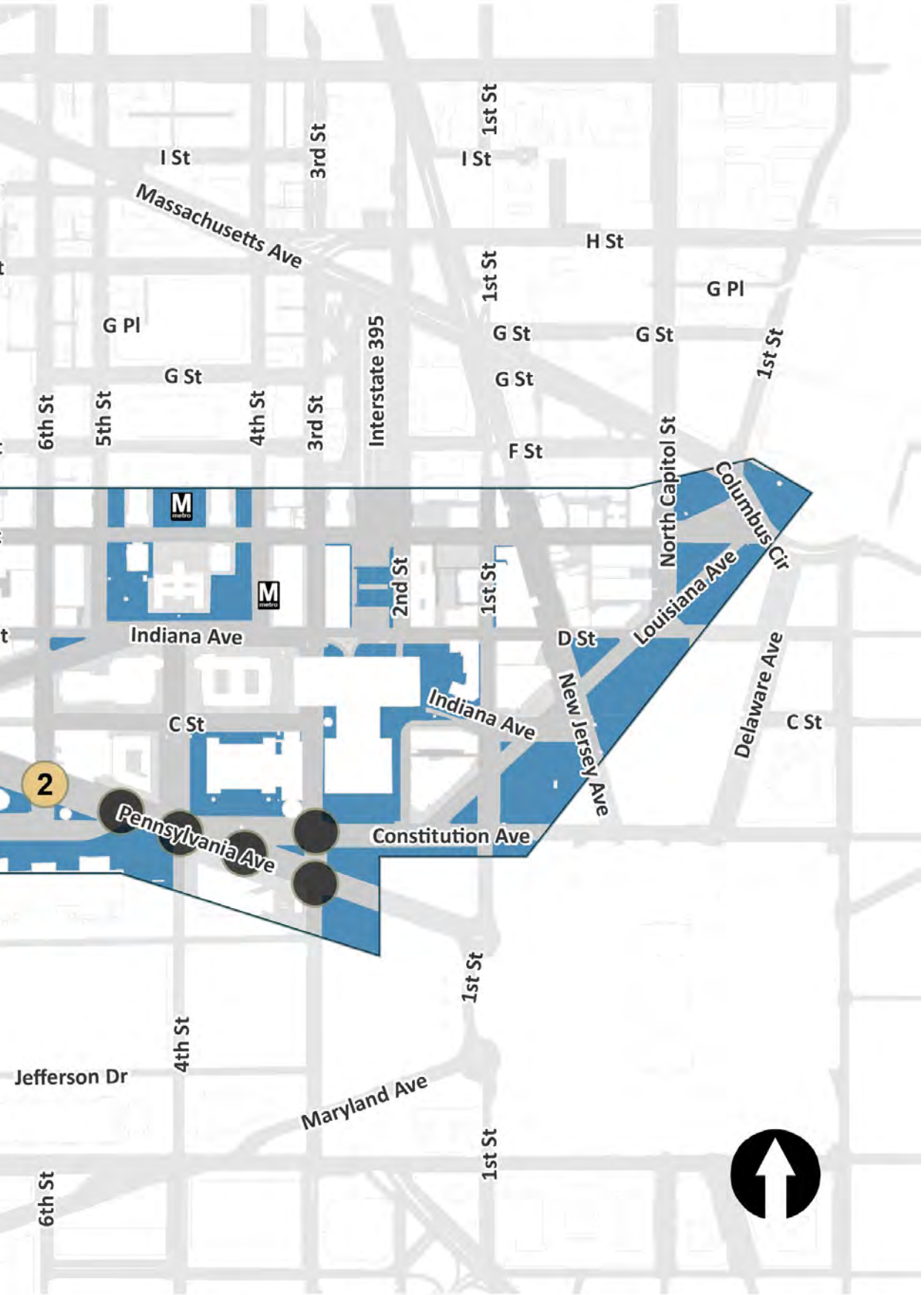
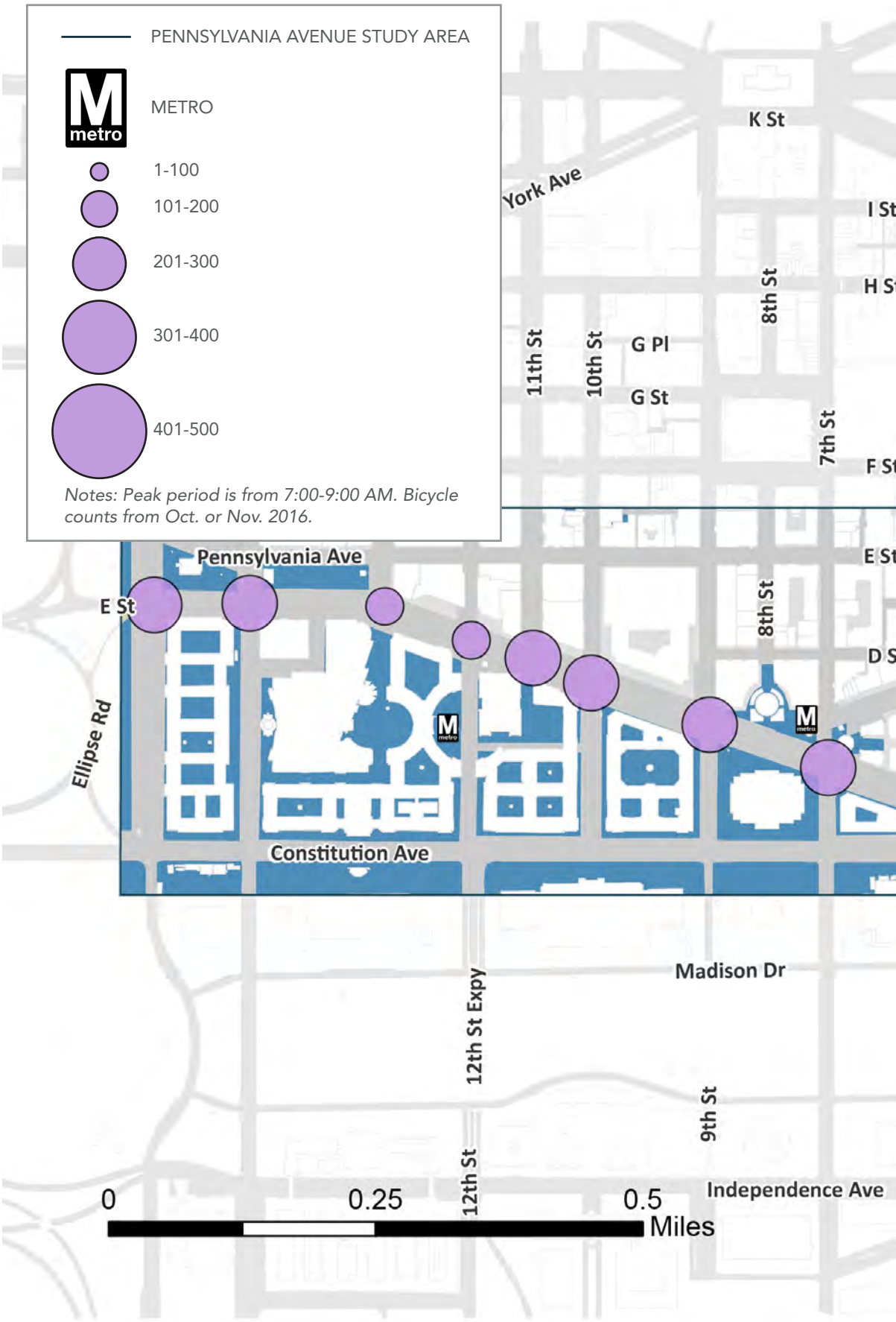

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FIGURE 17
WEEKDAY AM PEAK-PERIOD BICYCLE COUNTS (ALL MOVEMENTS)



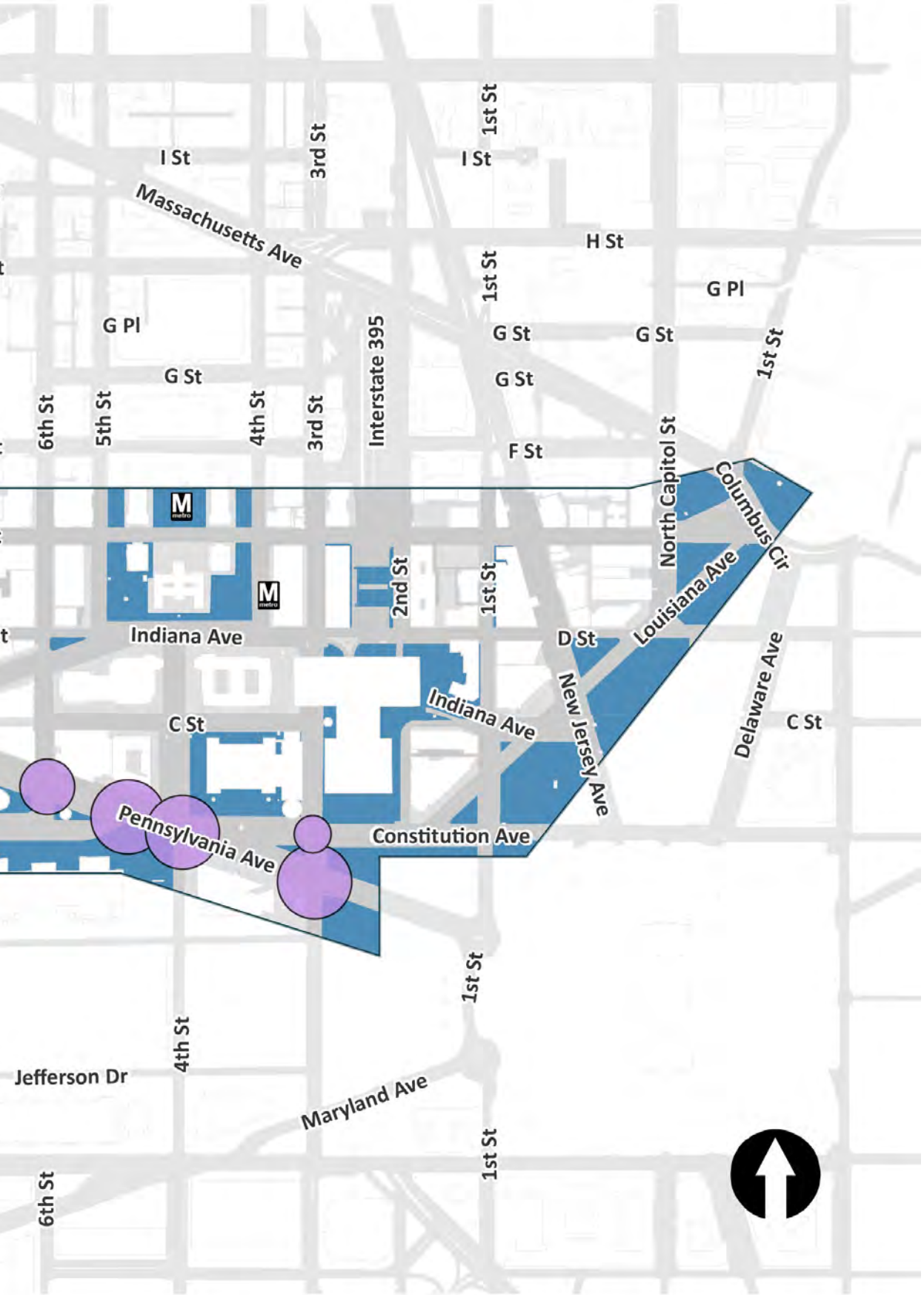
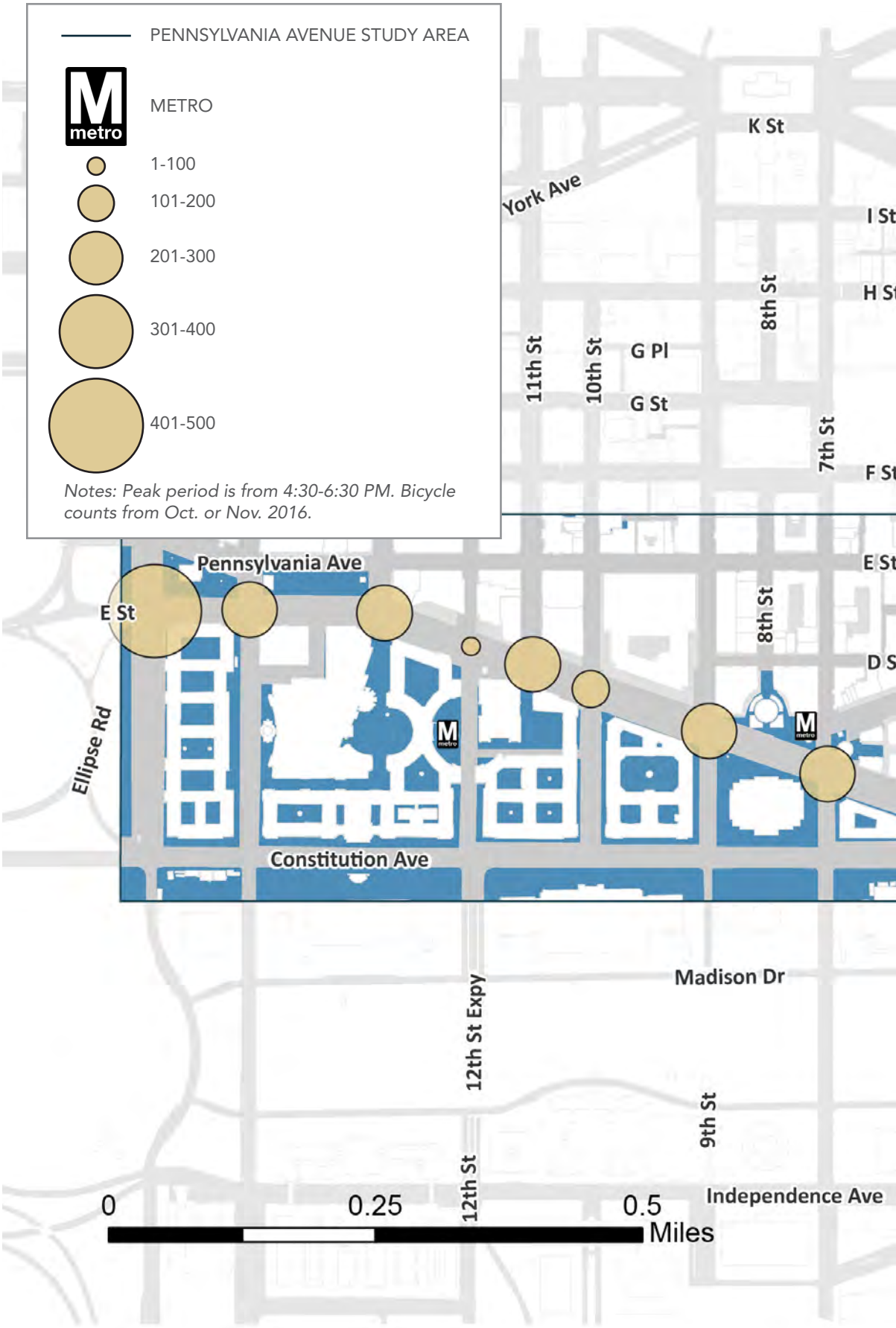

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FIGURE 18
WEEKDAY PM PEAK-PERIOD BICYCLE COUNTS (ALL MOVEMENTS)



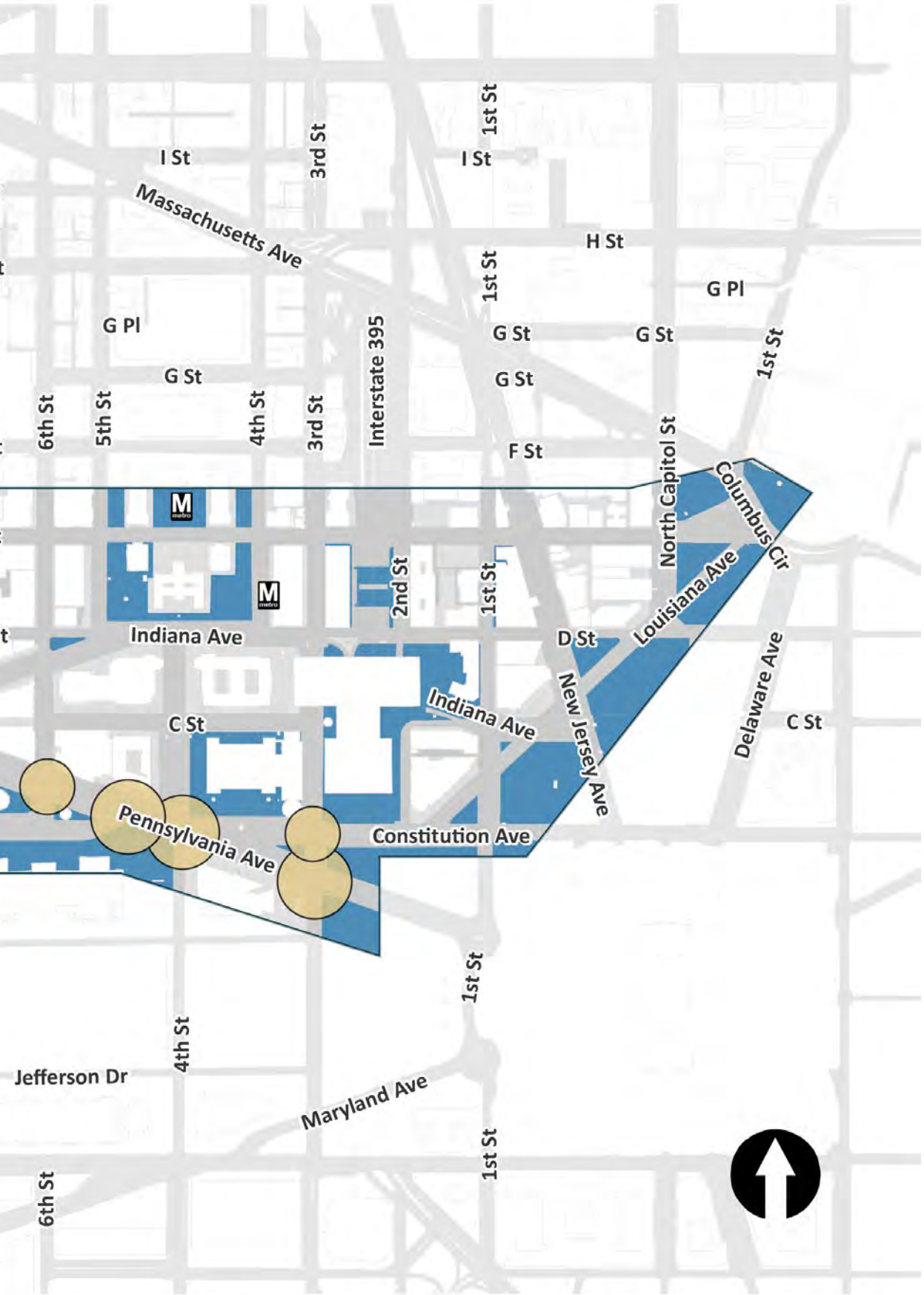
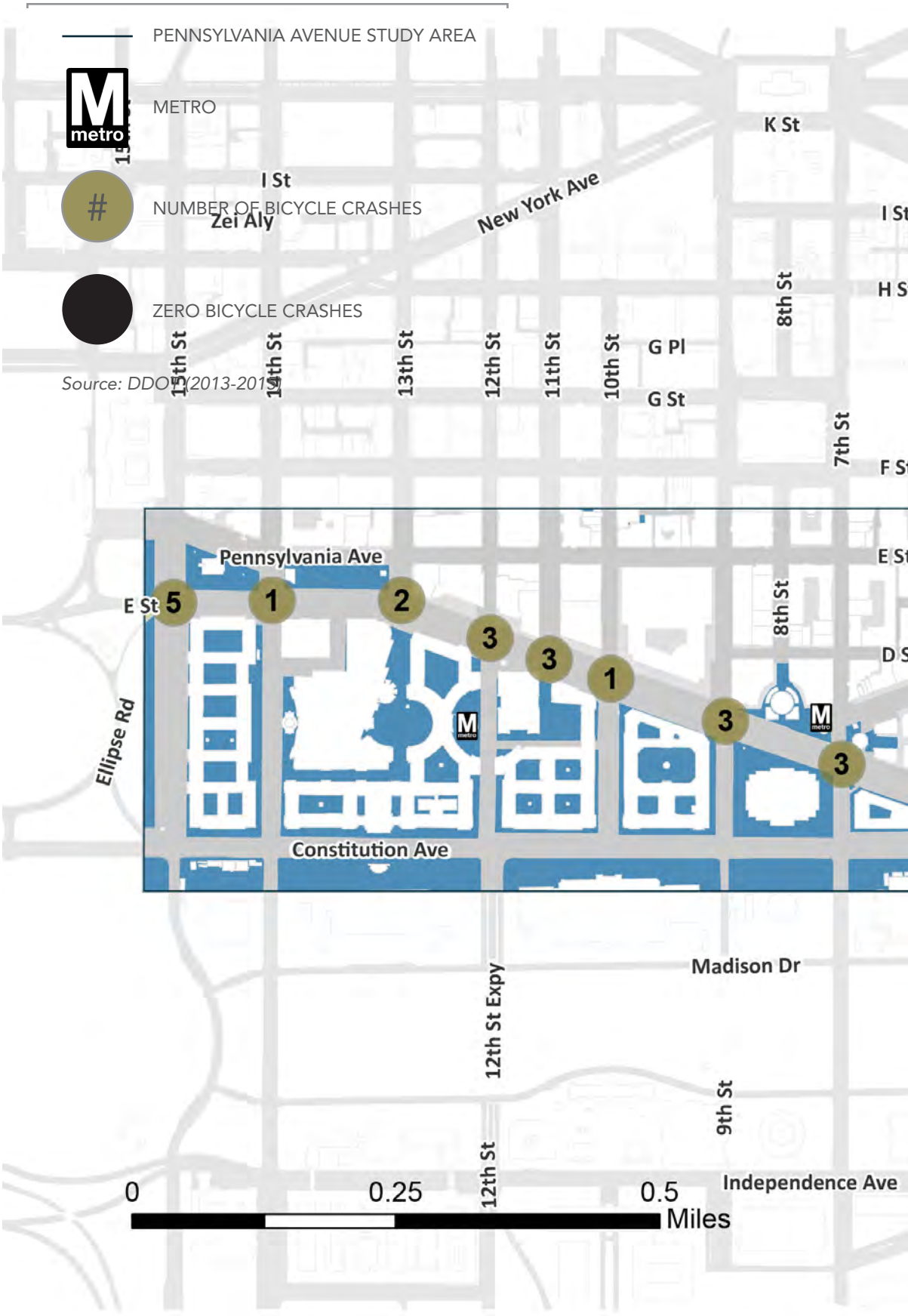

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FIGURE 19
CRASHES INVOLVING BICYCLISTS



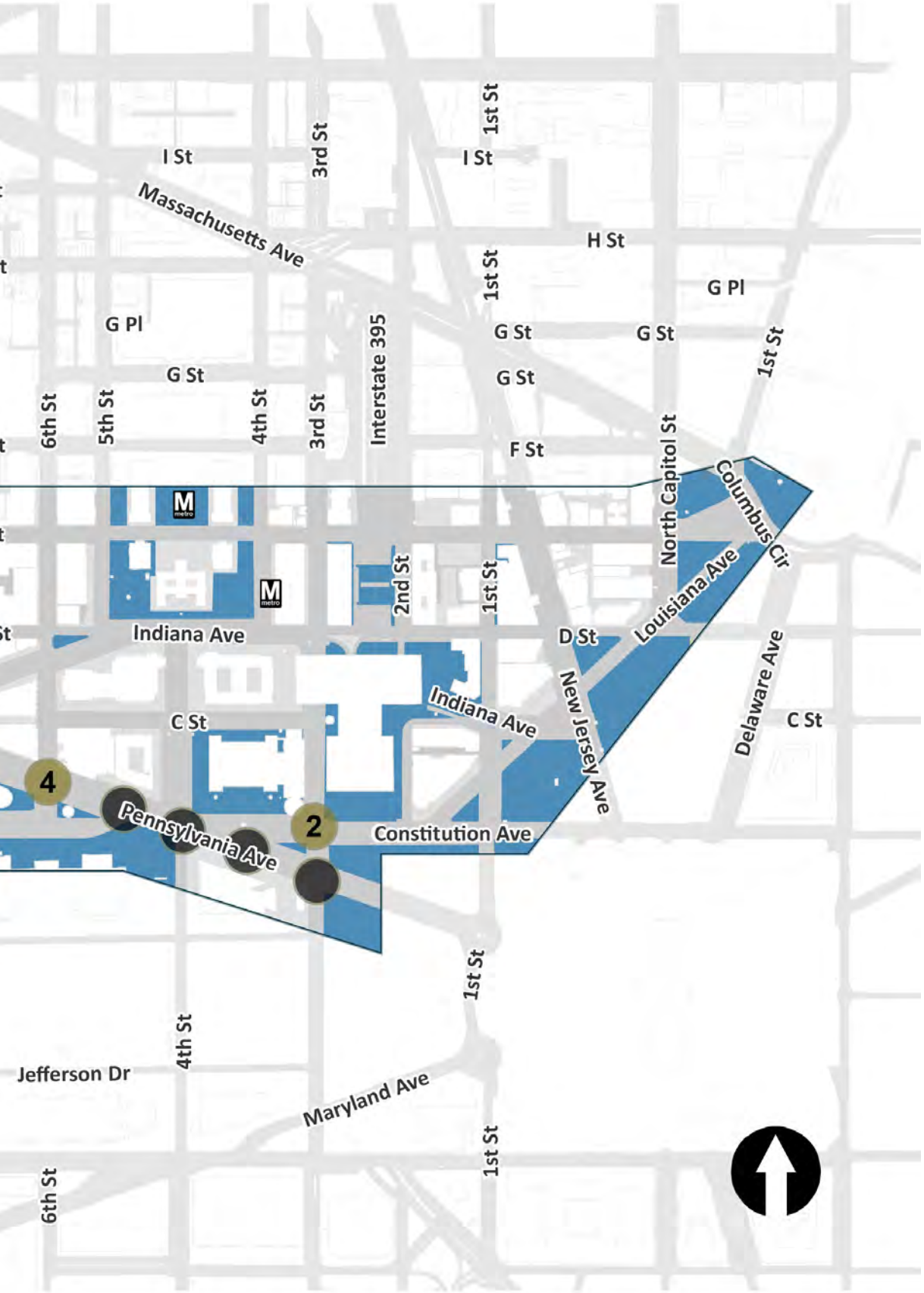
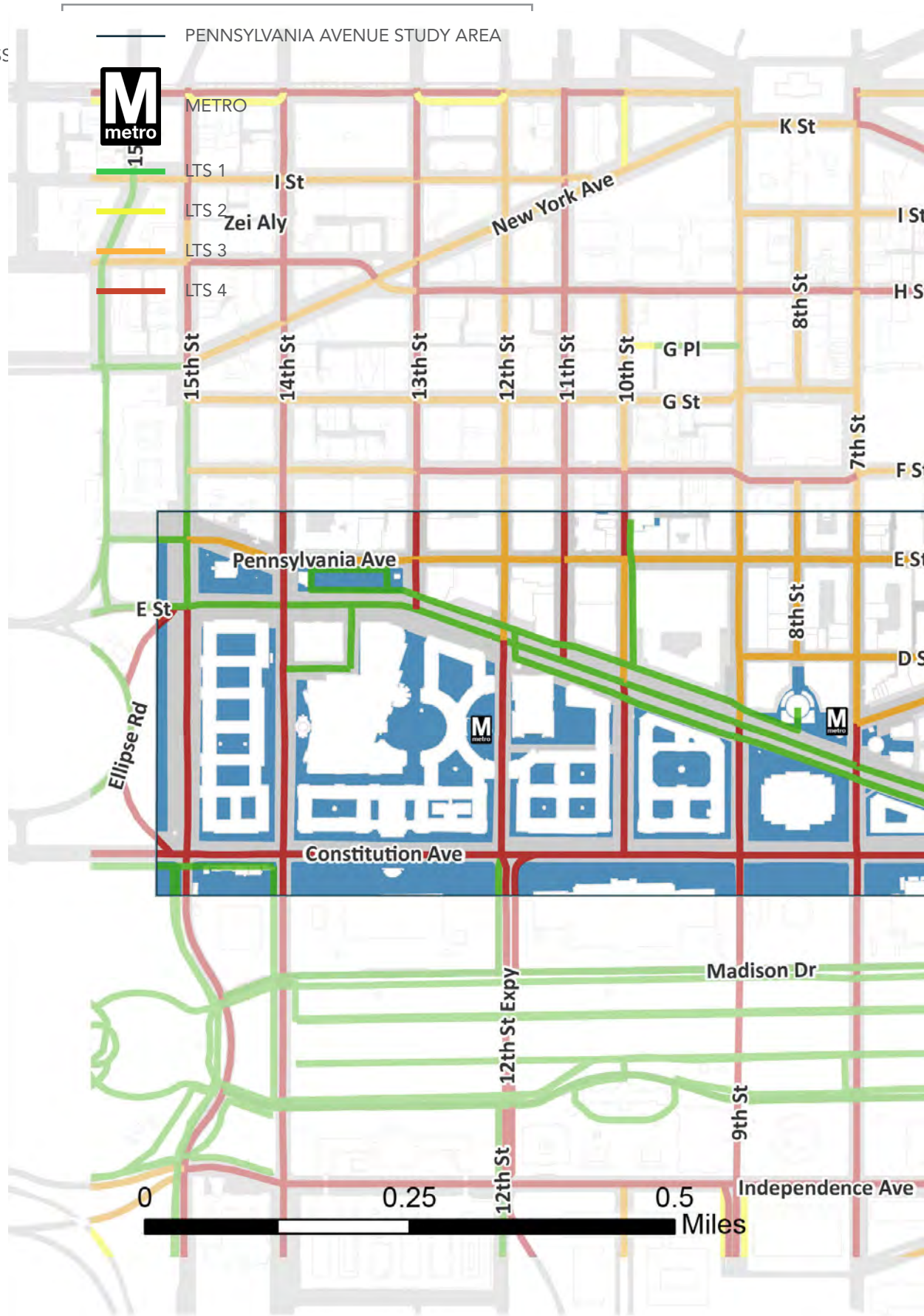

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FIGURE 20
EXISTING STUDY AREA
LEVEL-OF-TRAFFIC STRESS



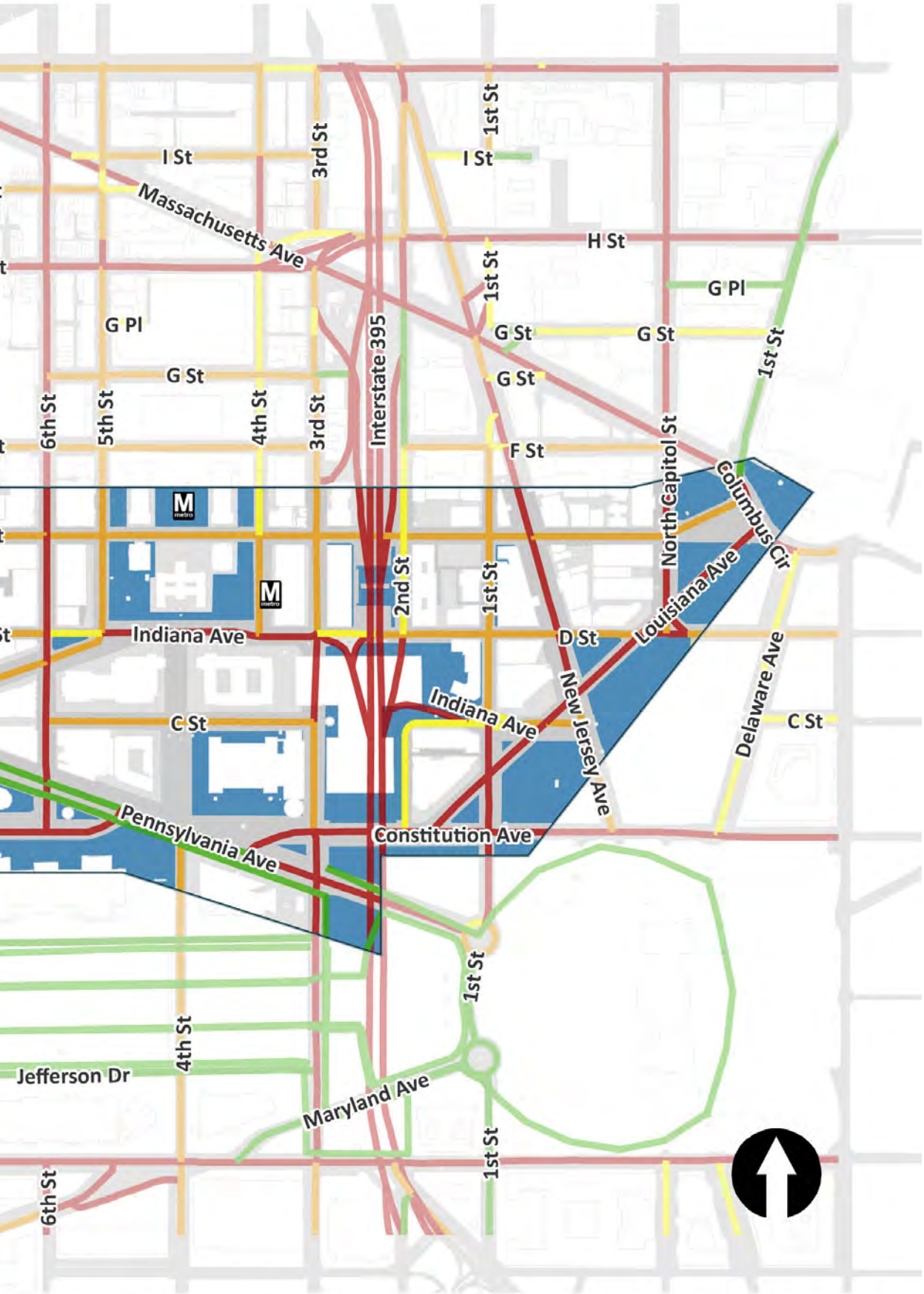
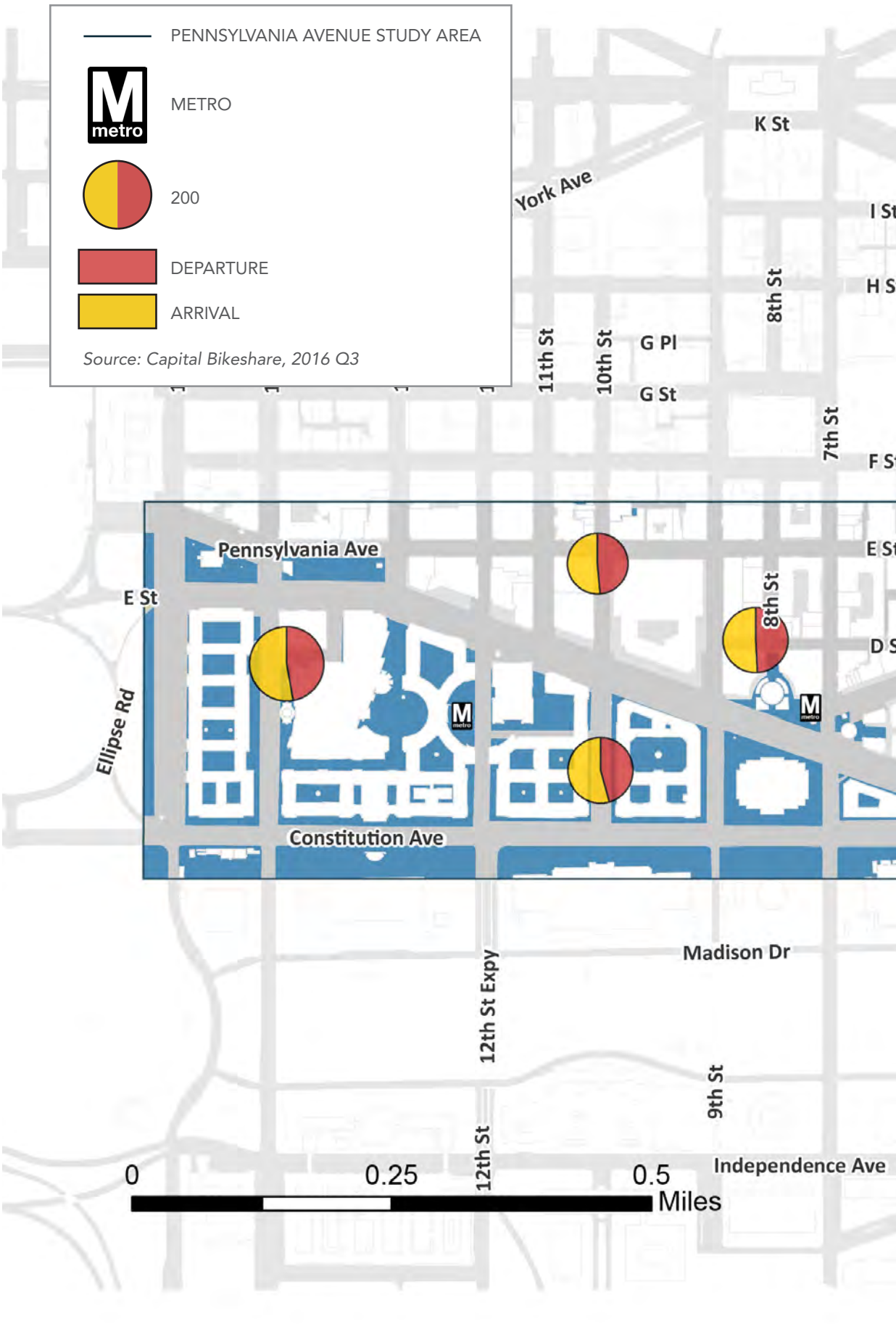

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FIGURE 21
CAPITAL BIKESHARE TRIPS
AVERAGE DAILY



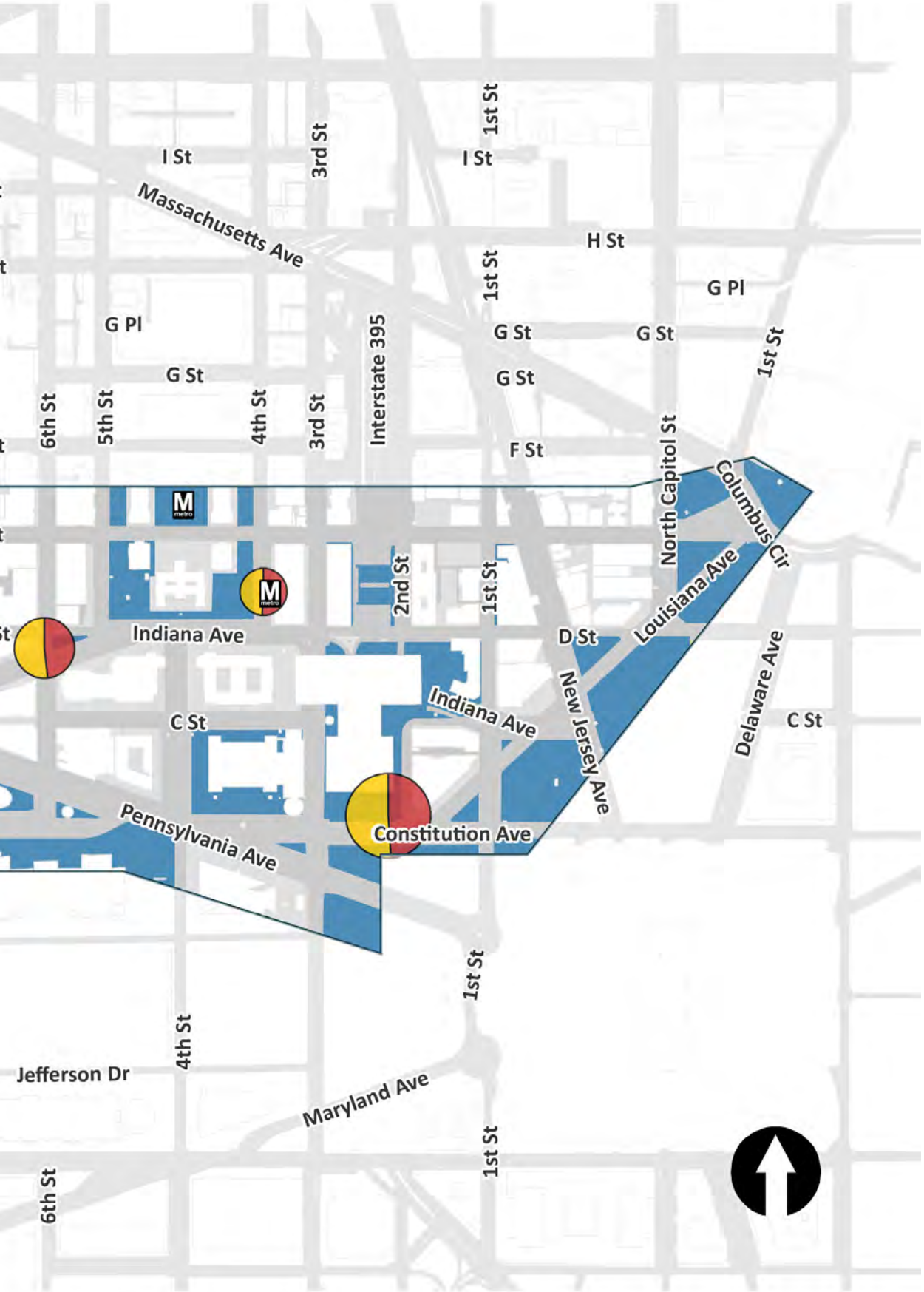
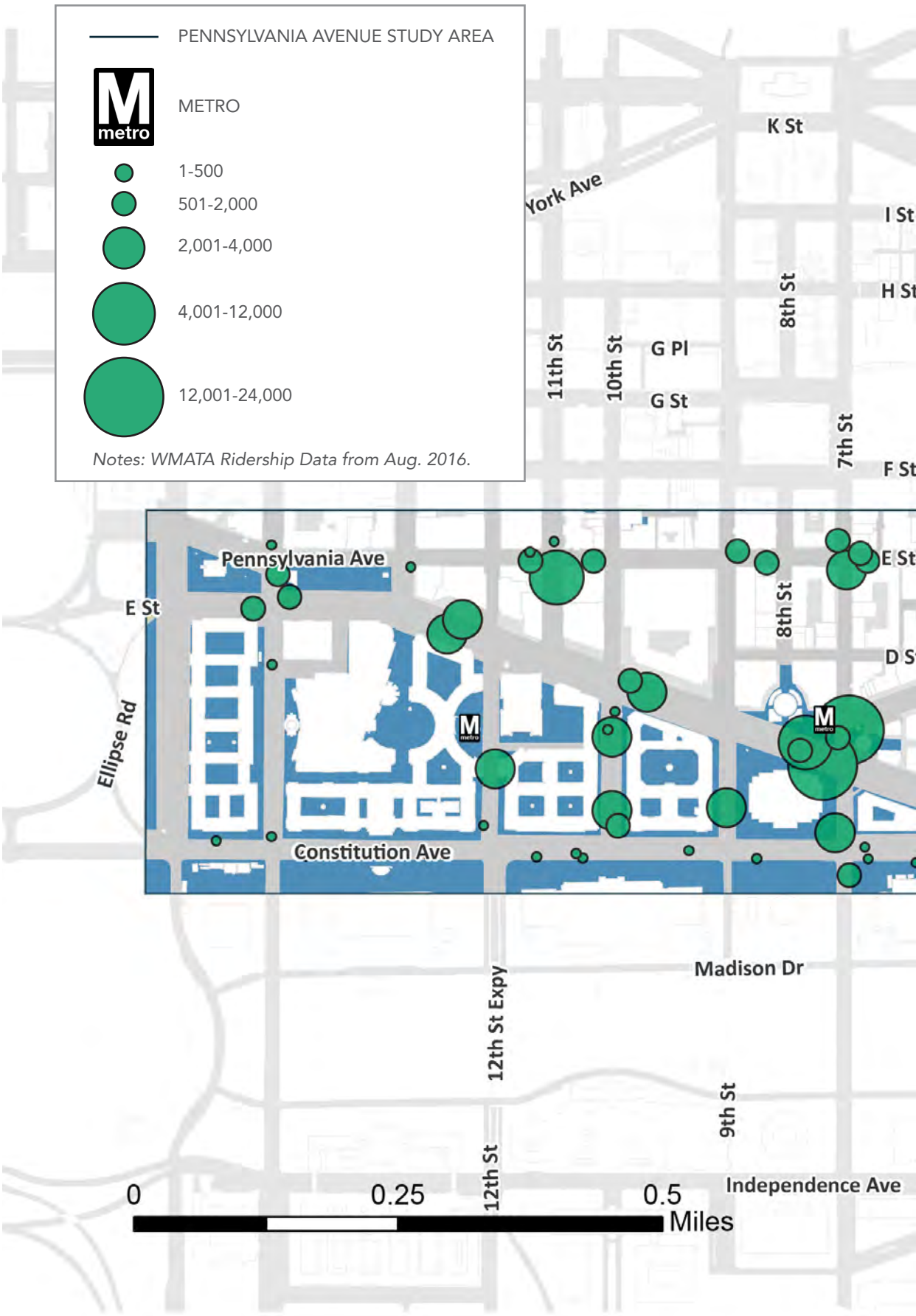

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FIGURE 22
WMATA DAILY BUS RIDERSHIP



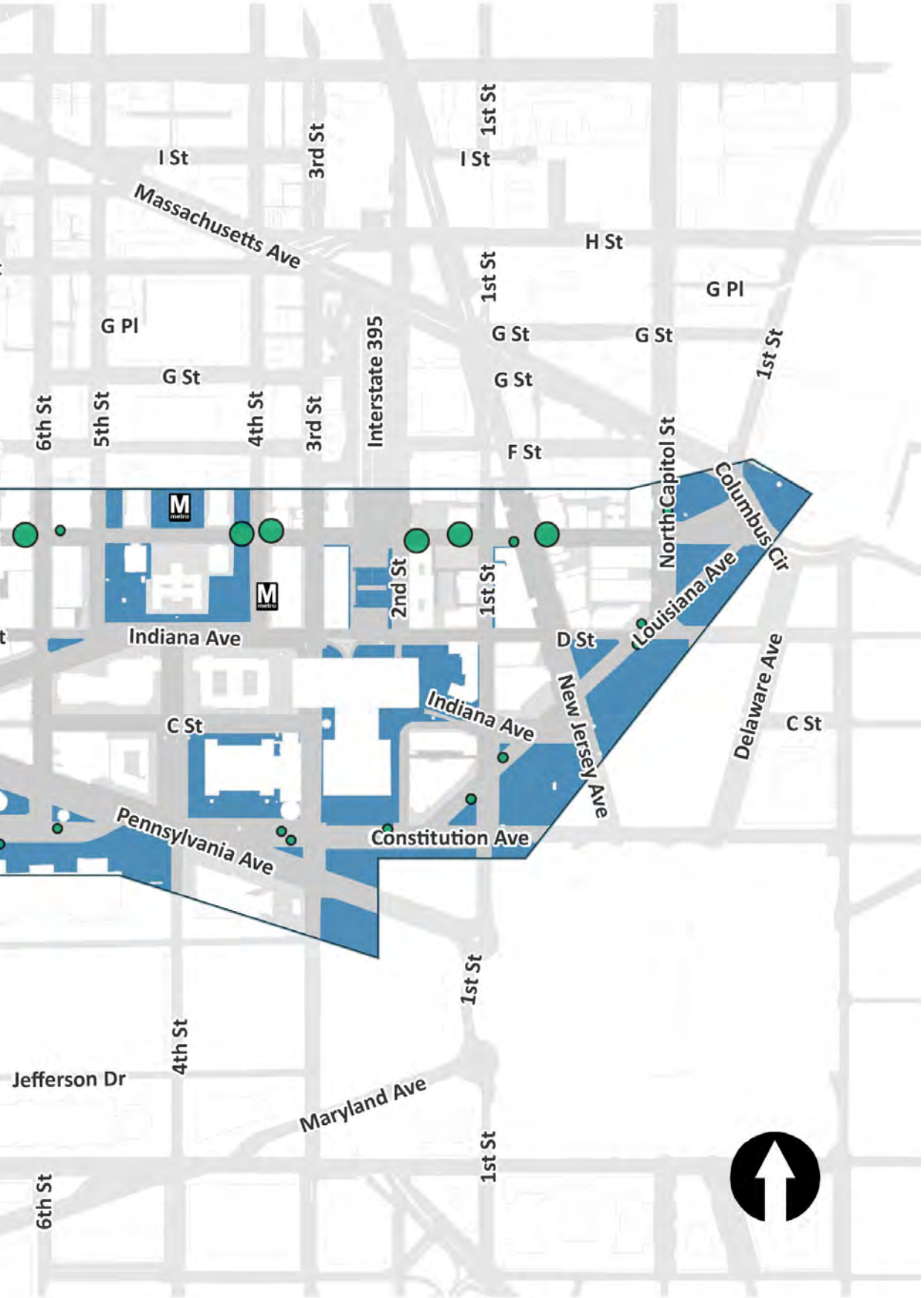
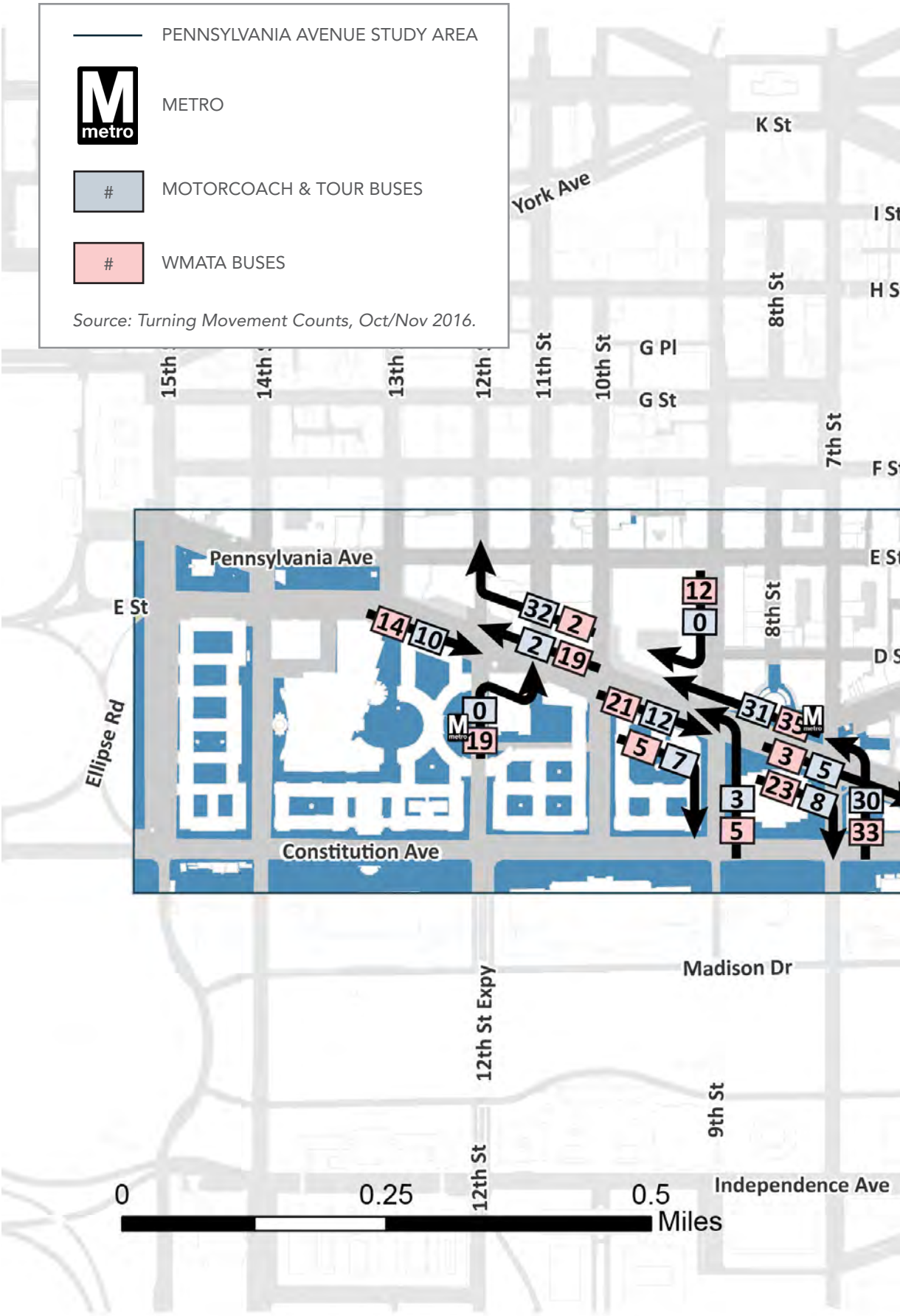

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FIGURE 23
WEEKDAY AM PEAK-HOUR
NUMBER OF BUSES



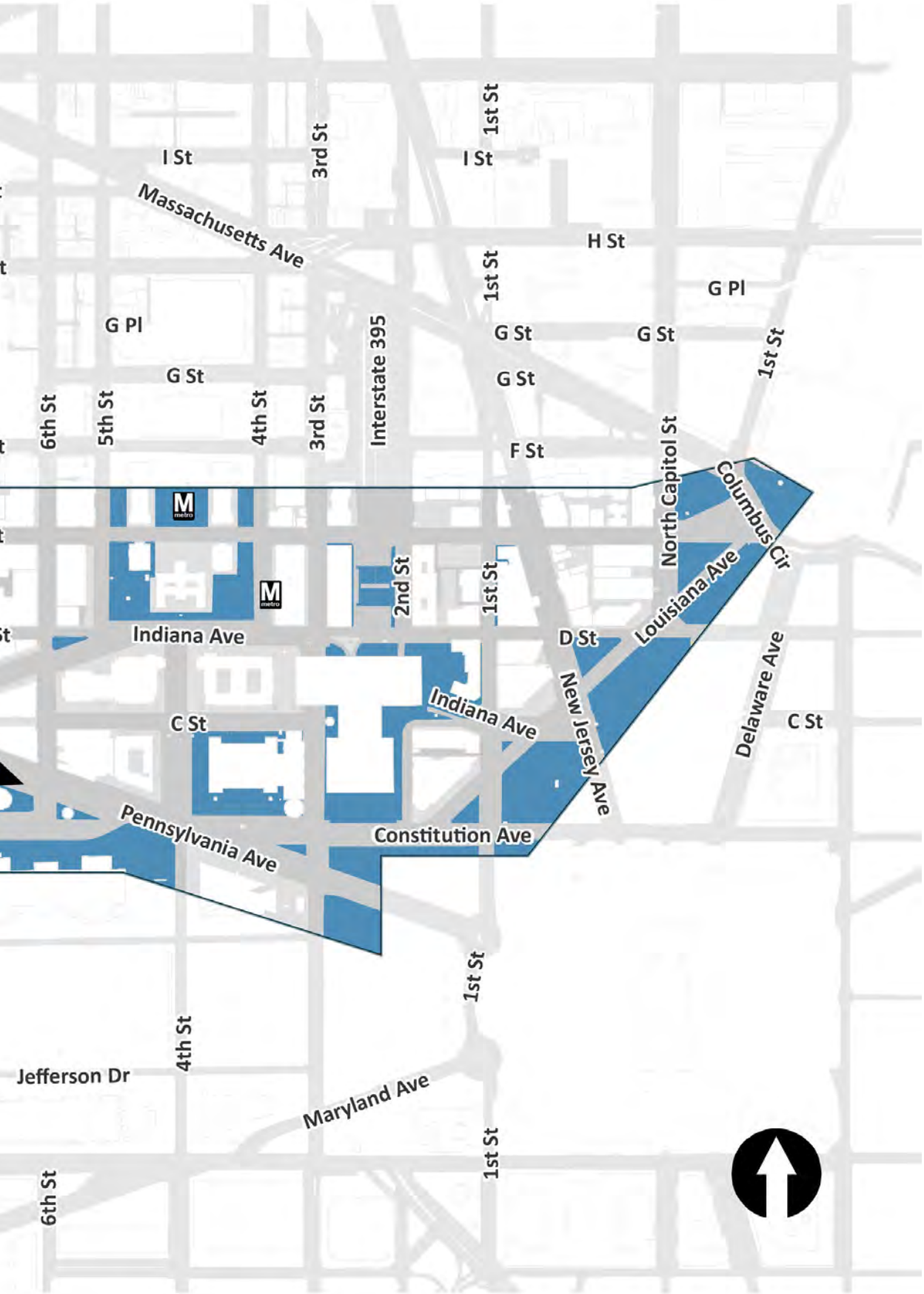
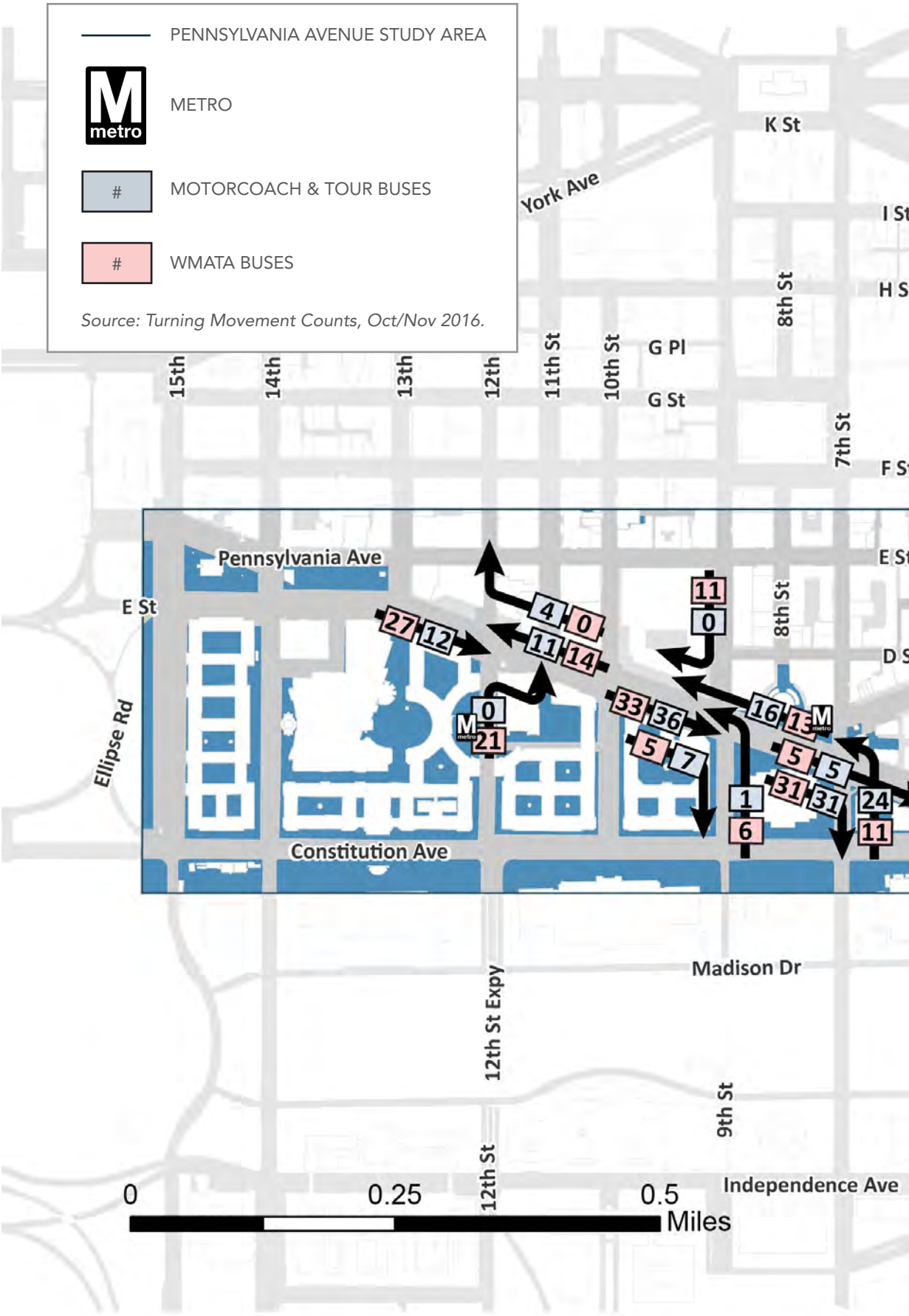
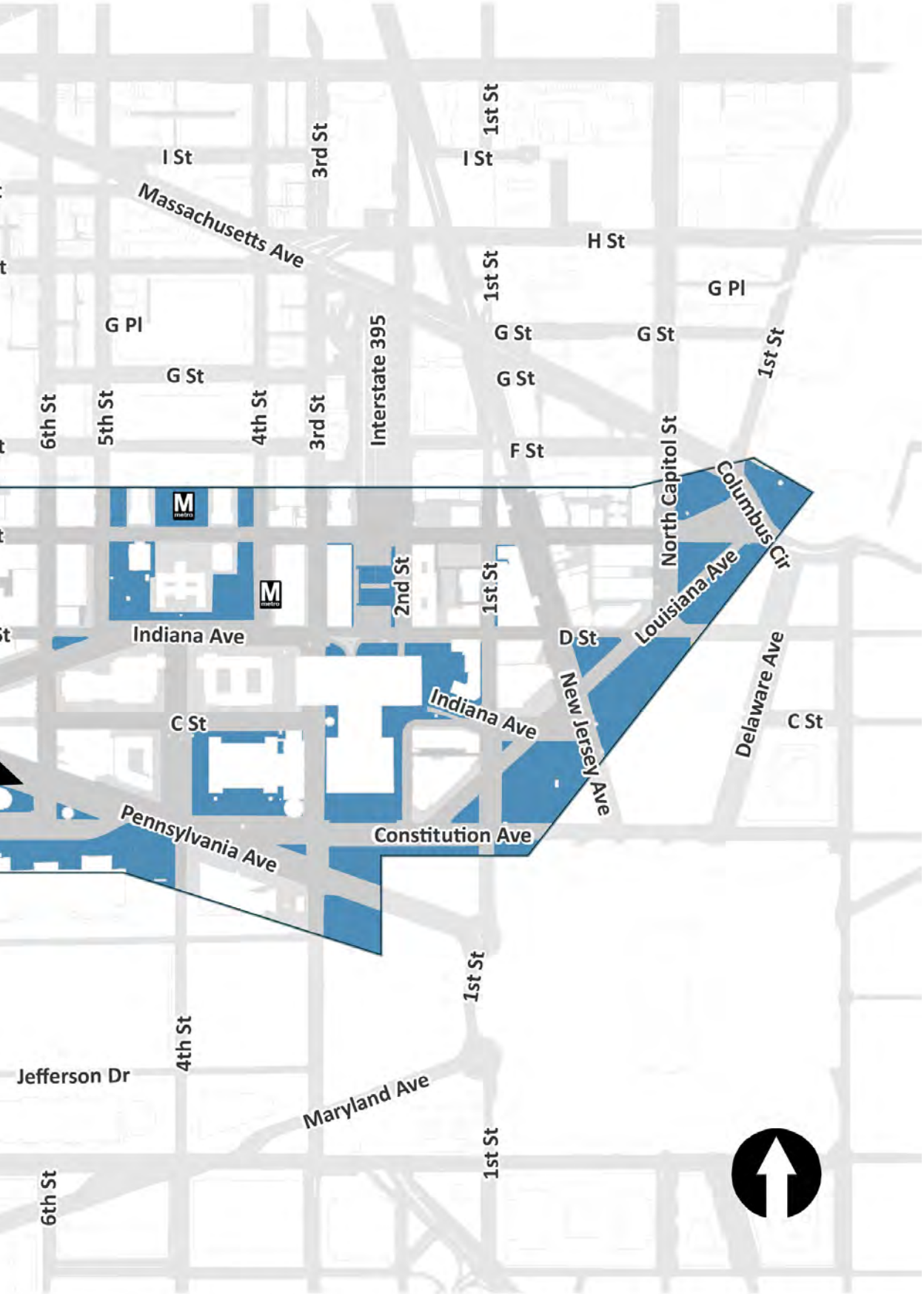

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FIGURE 24
WEEKDAY PM PEAK-HOUR NUMBER OF BUSES




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CHAPTER 4 CURRENT AND PAST TRANSPORTATION STUDIES

Aside from the current Pennsylvania Avenue East of the White House Transportation Study, other ongoing initiatives and past studies have been conducted within or near the study area. The following studies listed below were reviewed to identify and better understand issues on Pennsylvania Avenue east of the White House.

Ongoing Studies/Initiatives

- Louisiana Avenue Bicycle Facility, DDOT
- The Pennsylvania Avenue Initiative, NCPC, GSA, & NPS
- Urban Design Strategies – Draft, NCPC

Previous Studies and Recommendations

- Bicycle Facility Evaluation, DDOT, (2012)
- Pennsylvania Ave National Historic Site Management Plan, NPS (2014)
- Pennsylvania Avenue U-Turn Traffic Analysis, DDOT (2016)
- People on Penn – Pennsylvania Avenue Pedestrian Life Study, DC Office of Planning (2016)

Institution Master Plans and Development Studies

- FBI Headquarters Consolidation Draft EIS, GSA (2016)

4.1 Ongoing Studies/ Initiatives

Louisiana Avenue Bicycle Facility

Louisiana Avenue NW between Columbus Circle NE and Constitution Avenue NW is currently a signed bicycle route. The 2005 Bicycle Master Plan and the 2014 moveDC Plan identified Louisiana Avenue as a missing bicycle link between Union Station and the U.S. Capitol. To improve safety, access, and connectivity, DDOT has developed two separated bicycle facility alternatives for Louisiana Avenue NW. The first alternative includes separated bike lanes on either side of Louisiana Avenue NW. The second alternative proposes a two-way separated bicycle lane on the southeast side of Louisiana Avenue NW. Alternatives proposed in the Pennsylvania Avenue East of the White House Transportation Study should consider transitions between both bicycle facilities.

The Pennsylvania Avenue Initiative

The National Capital Planning Commission (NCPC), the General Services Administration (GSA), and the National Park Service (NPS), in coordination with other federal and District agencies, launched the Pennsylvania Avenue Initiative. The Initiative is studying the near- and long-term needs of Pennsylvania Avenue and surrounding neighborhoods, identifying a governance framework, and developing a vision for how Pennsylvania Avenue can meet local and national needs.

Urban Design Strategies – Draft, NCPC, GSA, NPS

NCPC is in the process of developing urban design strategies for Pennsylvania Avenue and adjacent areas from the White House to the U.S. Capitol Grounds (generally 1st to 15th Streets NW and F Street to Madison Drive NW). The draft provides a general assessment of the transportation network and examines how effectively the existing infrastructure serves Pennsylvania Avenue and contributes to its connectivity to adjoining neighborhoods, the city, and the region. Additionally, the draft report proposes design alternatives for Pennsylvania Avenue focused on the following themes: Destination America, Workplace for the Future, and Living District.

4.2 Previous Studies and Recommendations

Bicycle Facility Evaluation, DDOT (2012)

The **Bicycle Facility Evaluation Report** examines innovative bicycle facilities installed throughout Northwest D.C. on New Hampshire Avenue NW/U Street NW/16th Street NW, Pennsylvania Avenue NW, and 15th Street NW. The purpose of the report was to understand how well the bicycle facilities work for bicyclists, motorists, and pedestrians in terms of safety, level of service, behavior, and attitude.

Preliminary recommendations for the center running bike lanes on Pennsylvania Avenue NW from 3rd Street NW to 15th Street NW include the following:

- Improve legibility of signals, signs, and markings;
- Add bicycle signals to create independent vehicle and bicycle through phases;
- Resize and reposition bicycle signs;
- Consider additional pavement markings to reduce pedestrian/bicyclist conflicts;
- Include cyclist progression analysis as an explicit performance measure in future signal re-timing along Pennsylvania Avenue; and,
- Consider a cyclist education and enforcement campaign to encourage compliance with traffic signals.

Pennsylvania Ave National Historic Site Management Plan, NPS (2014)

The Pennsylvania Ave National Historic Site Management Plan establishes a vision for the protection, use, and management of Pennsylvania Avenue National Historic Site as a unit of the national park system. The management plan addresses current problems and concerns about the management and maintenance of Pennsylvania Avenue and its integrated relationship to the city; seeks to take advantage of opportunities to improve amenities for visitors, residents, workers, and commuters; and articulates specific desired conditions and future management

actions that will ensure that the site's purposes continue to be met and its significance is preserved and communicated to the public.

The management plan identifies the following concerns, opportunities, and actions related to access and circulation on Pennsylvania Avenue:

- Pedestrian Crossings:
  - *Problems and Concerns (Existing Conditions):* The countdown times for pedestrian street-crossings may be too short for many people, who may be stranded on traffic islands if not enough time is allowed for crossing. Moreover, pedestrian crossings are not always clearly marked, and pedestrians may not be familiar with the half-road crossing approaches at 6th and 12th Streets.
  - *Actions:* Work with DC through an updated/amended MOA and design guidelines prepared by a collaborative working group to improve crosswalks (pavement and markings); upgrade traffic islands, coordinate crosswalk lights, and improve signage to educate users about half-road crossings.
- Bicycling:
  - *Problems and Concerns (Existing Conditions):* Center bike lanes within Pennsylvania Avenue have been added, but there is concern about safety by bicycle riders due to lack of physical separation, as well as bicycle riders on sidewalks.
  - *Actions:* Address bicycle safety issues through a collaborative interagency working group.
- Regulatory Signage and Multimodal Use:
  - *Opportunities:* Improved signage with respect to multimodal transportation along the avenue could help reduce conflicts between user groups and improve safety for all users.
  - *Action:* Provide signage alerting users (pedestrians, bicyclists, motorists, and Segway™ HT riders) of multiple modes of circulation along the avenue.

Pennsylvania Avenue U-Turn Traffic Analysis, DDOT (2016)

Rubber curb stops were recently installed along the outside of the center running bike lanes on Pennsylvania Avenue to deter and prevent motor vehicles from entering the bicycle facilities. Prior to the installation of the deterrents along the center running bike lanes, motor vehicles frequently made mid-block U-turns along Pennsylvania Avenue, creating a conflict between bicyclists and motorists. While the deterrents improved the safety for bicyclists, motorists are now required to seek appropriate side streets to make legal U-turns along the Pennsylvania Avenue corridor.

At the following locations, an existing through lane could be converted to a new left/U-turn lane:

- Westbound left/U-turn lane at 7th Street;
- Westbound left/U-turn lane 9th Street; and,
- Westbound and eastbound left/U-turn lanes at 12th Street.

The traffic analysis results indicate the following:

- 7th Street
  - Control delay and LOS results suggest generally acceptable operations with the addition of the westbound left/U-turn lane. The existing eastbound left-turn movement during the AM peak hour significantly exceeds the LOS F threshold under existing conditions.
- 9th Street
  - While control delay and LOS results suggest generally acceptable operations, control delay for the eastbound right-turn movement during the PM peak hour will significantly exceed the LOS F threshold.
- 12th Street
  - While control delay and LOS results suggest generally acceptable operations, control delay for the eastbound and westbound left-turn movements during the AM peak hour will significantly exceed the LOS F threshold.

People on Penn – Pennsylvania Avenue Pedestrian Life Study, DC Office of Planning (2016)

People on Penn – Pennsylvania Avenue Pedestrian Life Study is a detailed study of the functionality of the public spaces and sidewalks on Pennsylvania Avenue. The purpose of the report is to help inform a vision for how Pennsylvania Avenue can meet local and national needs and perform as a truly great pedestrian street.

The study identifies the following critical findings and observations:

- Lack of places and destinations;
- Peripheral location;
- Lack of human scale;
- No reason to linger;
- Major event programming occurs during off hours;
- Inactivity at night; and,
- High incidence of homelessness.

To make Pennsylvania Avenue a great street, the study proposes the following:

- Mixture of uses;
- Engaging facades;
- Active plazas;
- Intimate sidewalks; and,
- Creating an experience.

4.3 Institution Master Plans and Development Studies

FBI Headquarters Consolidation EIS

The Federal Bureau of Investigation (FBI) currently occupies the J. Edgar Hoover building located along Pennsylvania Avenue. The GSA is proposing to exchange the J. Edgar Hoover building with the private sector for a new facility so they can move and consolidate their headquarters operations. The GSA prepared a Draft Environmental Impact Statement (Draft EIS) to guide the evaluation of alternatives for a new, permanent location for a proposed consolidated FBI Headquarters. The Draft EIS proposes two conceptual reasonably foreseeable development scenarios. Under the first scenario the existing J. Edgar Hoover building would be used for private commercial uses. In the second scenario, the building would be demolished and redeveloped to maximize development capacity for private commercial use. The Draft EIS provides a summary of the environmental impacts.

4.4 moveDC Recommendations

In 2014, the District developed a multimodal Long-Range Transportation Plan called moveDC. The plan established that non-local streets should prioritize pedestrians, accommodate driving and local deliveries, and support one of the following modes:

- Protected bicycle facilities;
- Dedicated high-capacity surface transit line(s);
- Dedicated freight routes; or
- A combination of these modes in simpler accommodations.

Using these priorities as guidelines, moveDC developed multimodal improvements throughout the entire District, including the areas surrounding Pennsylvania Avenue. The specific recommendations made for the Pennsylvania Avenue study area are listed in the table below.

4.5 Vision Zero Findings

Vision Zero is the Mayor's initiative to end traffic fatalities and serious injuries by 2024. Residents and users of the streets can identify location-specific qualitative and anecdotal evidence of safety issues in the District. As a large crowd-sourced data set, this provides unique insight into daily and recurring traffic safety issues. The top three most-reported concerns are failure to stop for pedestrians, speeding, and double parking.

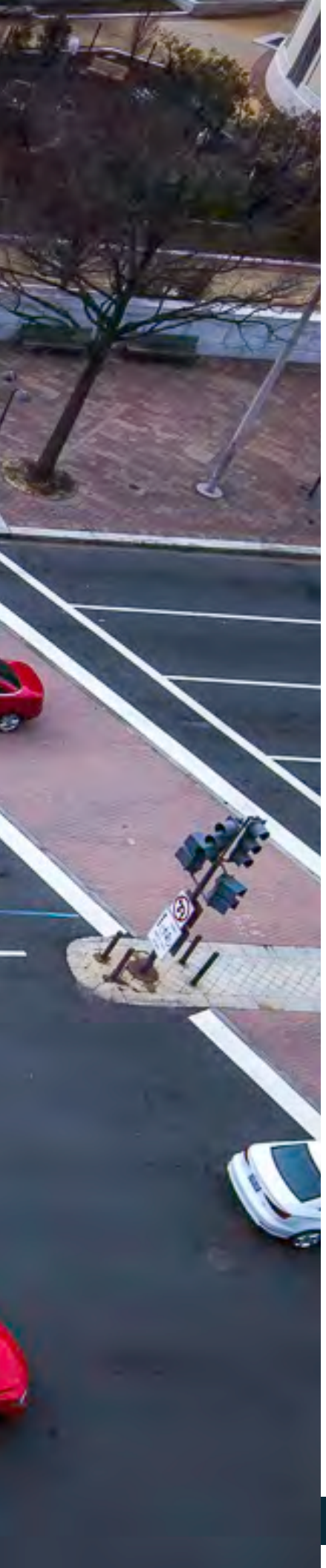
In the Pennsylvania Avenue study area, the Vision Zero Safety Map shows that there are many traffic safety concerns for pedestrians, bicyclists, and drivers. There are hot spots that emerge when analyzing the data for location and mode-specific concerns.

- Blocking the bike box = 10 (5 were on Penn Ave/Constitution Ave)
- Blocking the crosswalk = 7 (3 were on Penn Ave/Constitution Ave)
- Cyclist Behavior = 12 (12 were on Penn Ave/Constitution Ave)
- Jaywalking = 11 (4 were on Penn Ave/Constitution Ave)
- Other biking issue = 30 (10 were on Penn Ave/Constitution Ave)
- Other driving issue = 36 (17 were on Penn Ave/Constitution Ave)
- Red light running = 22 (9 were on Penn Ave/Constitution Ave)
- Speeding = 15 (6 were on Penn Ave/Constitution Ave)

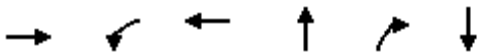
TABLE 3
MOVEDC RECOMMENDATIONS FOR PENNSYLVANIA AVENUE

	Street	From	To	Improvement
1	15th Street NW	Constitution Ave NW	I St NW	Cycle Track
2	4th Street NW	I St SW	Constitution Ave NW	Cycle Track
3	6th Street NW	Pennsylvania Ave NW	R St NW	Cycle Track
4	Louisiana Avenue NW	Constitution Ave NW	Columbus Circle	Cycle Track


HOP ON HOP OFF • TOUR ALL DAY



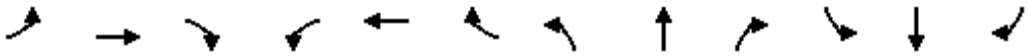
APPENDIX B TRAFFIC OPERATIONS ANALYSIS



Lane Group	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	572	230	1609	436	313	209
v/c Ratio	0.36	0.73	0.61	0.45	0.50	0.25
Control Delay	28.4	57.2	16.6	6.8	6.9	26.4
Queue Delay	0.0	0.0	0.0	0.1	1.8	0.0
Total Delay	28.4	57.2	16.6	7.0	8.7	26.4
Queue Length 50th (ft)	110	155	253	13	54	46
Queue Length 95th (ft)	144	#262	300	17	114	82
Internal Link Dist (ft)	282		355	154		901
Turn Bay Length (ft)						
Base Capacity (vph)	1578	315	2624	974	632	828
Starvation Cap Reductn	0	0	0	79	179	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.73	0.61	0.49	0.69	0.25

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	557	2	225	1328	249	54	373	307	41	101	63
Future Volume (vph)	2	557	2	225	1328	249	54	373	307	41	101	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		5.0	6.0			6.5	6.5		6.5	
Lane Util. Factor		0.91		1.00	0.91			0.95	1.00		0.95	
Frpb, ped/bikes		1.00		1.00	0.95			1.00	0.84		0.98	
Flpb, ped/bikes		1.00		1.00	1.00			1.00	1.00		0.99	
Frt		1.00		1.00	0.98			1.00	0.85		0.95	
Flt Protected		1.00		0.95	1.00			0.99	1.00		0.99	
Satd. Flow (prot)		5031		1736	4614			3433	1303		3157	
Flt Permitted		0.93		0.95	1.00			0.87	1.00		0.80	
Satd. Flow (perm)		4697		1736	4614			3019	1303		2541	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	2	568	2	230	1355	254	55	381	313	42	103	64
RTOR Reduction (vph)	0	0	0	0	25	0	0	0	212	0	9	0
Lane Group Flow (vph)	0	572	0	230	1584	0	0	436	101	0	200	0
Confl. Peds. (#/hr)	236		19	19		236	39		112	112		39
Confl. Bikes (#/hr)			12			48			8			19
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Perm	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			4			4	
Permitted Phases	2						4		4	4		
Actuated Green, G (s)		37.0		20.0	62.0			35.5	35.5		35.5	
Effective Green, g (s)		37.0		20.0	62.0			35.5	35.5		35.5	
Actuated g/C Ratio		0.34		0.18	0.56			0.32	0.32		0.32	
Clearance Time (s)		6.0		5.0	6.0			6.5	6.5		6.5	
Lane Grp Cap (vph)		1579		315	2600			974	420		820	
v/s Ratio Prot				c0.13	c0.34							
v/s Ratio Perm		0.12						c0.14	0.08		0.08	
v/c Ratio		0.36		0.73	0.61			0.45	0.24		0.24	
Uniform Delay, d1		27.6		42.5	16.0			29.5	27.4		27.4	
Progression Factor		1.00		1.00	1.00			0.19	1.35		0.99	
Incremental Delay, d2		0.6		13.9	1.1			1.3	1.2		0.7	
Delay (s)		28.2		56.3	17.0			6.8	38.1		27.8	
Level of Service		C		E	B			A	D		C	
Approach Delay (s)		28.2			21.9			19.9			27.8	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	22.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	116.7%	ICU Level of Service	H
Analysis Period (min)	15		

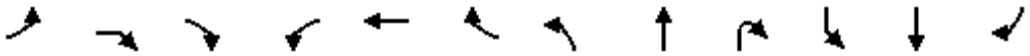
c Critical Lane Group



Lane Group	EBL	EBR	EBR2	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	48	91	63	136	245	413	497	381
v/c Ratio	0.22	0.22	0.13	0.33	0.50	0.40	0.80	0.22
Control Delay	35.0	33.4	5.4	35.3	38.5	6.1	47.2	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0
Total Delay	35.0	33.4	5.4	35.3	38.5	6.3	47.4	7.9
Queue Length 50th (ft)	27	50	0	77	147	68	166	71
Queue Length 95th (ft)	61	95	24	134	227	116	#233	69
Internal Link Dist (ft)					301		901	413
Turn Bay Length (ft)								
Base Capacity (vph)	219	417	475	415	491	1027	620	1696
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	129	6	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.22	0.13	0.33	0.50	0.46	0.81	0.22

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR2	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	86	60	129	233	392	62	323	87	178	162	22
Future Volume (vph)	46	86	60	129	233	392	62	323	87	178	162	22
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	5.0		6.0			6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		0.95			0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.96		0.99			0.96	
Flpb, ped/bikes	0.96	1.00	1.00	0.89	1.00	1.00		0.96			1.00	
Frt	1.00	0.85	0.85	1.00	1.00	0.85		0.97			0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99			0.98	
Satd. Flow (prot)	1698	1583	1583	1577	1863	1524		3220			3289	
Flt Permitted	0.47	1.00	1.00	0.95	1.00	1.00		0.82			0.56	
Satd. Flow (perm)	831	1583	1583	1577	1863	1524		2670			1874	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	48	91	63	136	245	413	65	340	92	187	171	23
RTOR Reduction (vph)	0	0	46	0	0	46	0	62	0	0	4	0
Lane Group Flow (vph)	48	91	17	136	245	367	0	435	0	0	377	0
Confl. Peds. (#/hr)	25		66	66		25	364		15	15		364
Confl. Bikes (#/hr)						6			11			20
Turn Type	Perm	Prot	Prot	Perm	NA	custom	Perm	NA		pm+pt	NA	
Protected Phases		4	4		8	5		6		5	2	
Permitted Phases	4	4	4	8		8	6			2		
Actuated Green, G (s)	29.0	29.0	29.0	29.0	29.0	70.0		23.0			69.0	
Effective Green, g (s)	29.0	29.0	29.0	29.0	29.0	70.0		23.0			69.0	
Actuated g/C Ratio	0.26	0.26	0.26	0.26	0.26	0.64		0.21			0.63	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	5.0		6.0			6.0	
Lane Grp Cap (vph)	219	417	417	415	491	969		558			1702	
v/s Ratio Prot		0.06	0.01		c0.13	c0.14					0.08	
v/s Ratio Perm	0.06			0.09		0.10		c0.16			0.06	
v/c Ratio	0.22	0.22	0.04	0.33	0.50	0.38		0.78			0.22	
Uniform Delay, d1	31.7	31.6	30.1	32.6	34.3	9.6		41.1			8.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.08			0.90	
Incremental Delay, d2	2.3	1.2	0.2	2.1	3.6	1.1		9.1			0.3	
Delay (s)	33.9	32.8	30.3	34.7	37.9	10.7		53.5			8.3	
Level of Service	C	C	C	C	D	B		D			A	
Approach Delay (s)					23.2			53.5			8.3	
Approach LOS					C			D			A	

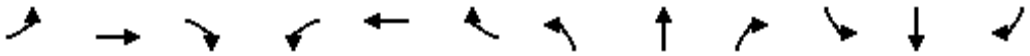
Intersection Summary			
HCM 2000 Control Delay	29.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	79.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	19	56	215	369	731	315
v/c Ratio	0.10	0.09	0.62	0.93	0.83	0.25
Control Delay	20.9	14.9	38.9	51.2	30.8	14.2
Queue Delay	0.0	0.0	0.0	0.0	3.7	0.0
Total Delay	20.9	14.9	38.9	51.2	34.5	14.2
Queue Length 50th (ft)	8	18	124	160	335	58
Queue Length 95th (ft)	m22	43	209	#354	#488	85
Internal Link Dist (ft)		1267		269	413	277
Turn Bay Length (ft)	100					
Base Capacity (vph)	184	600	345	398	876	1238
Starvation Cap Reductn	0	0	0	0	82	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.09	0.62	0.93	0.92	0.25

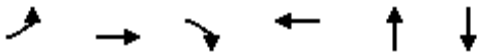
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



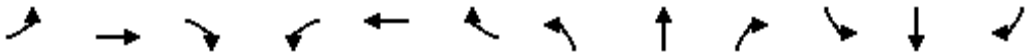
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	38	12	191	77	251	51	476	124	67	206	8
Future Volume (vph)	17	38	12	191	77	251	51	476	124	67	206	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			0.95	
Frpb, ped/bikes	1.00	0.93		1.00	0.51			0.97			0.99	
Flpb, ped/bikes	0.75	1.00		0.73	1.00			0.98			0.99	
Frt	1.00	0.97		1.00	0.89			0.97			1.00	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1329	1670		1286	840			1708			3406	
Flt Permitted	0.37	1.00		0.72	1.00			0.94			0.67	
Satd. Flow (perm)	519	1670		975	840			1620			2307	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	19	43	13	215	87	282	57	535	139	75	231	9
RTOR Reduction (vph)	0	8	0	0	101	0	0	8	0	0	2	0
Lane Group Flow (vph)	19	48	0	215	268	0	0	723	0	0	313	0
Confl. Peds. (#/hr)	364		179	179		364	163		128	128		163
Confl. Bikes (#/hr)			14			81			9			8
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	39.0	39.0		39.0	39.0			59.0			59.0	
Effective Green, g (s)	39.0	39.0		39.0	39.0			59.0			59.0	
Actuated g/C Ratio	0.35	0.35		0.35	0.35			0.54			0.54	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	184	592		345	297			868			1237	
v/s Ratio Prot		0.03			c0.32							
v/s Ratio Perm	0.04			0.22				c0.45			0.14	
v/c Ratio	0.10	0.08		0.62	0.90			0.83			0.25	
Uniform Delay, d1	23.8	23.6		29.4	33.7			21.4			13.7	
Progression Factor	0.80	0.75		1.00	1.00			1.05			1.00	
Incremental Delay, d2	1.1	0.3		8.2	32.5			7.8			0.5	
Delay (s)	20.2	18.0		37.6	66.2			30.2			14.2	
Level of Service	C	B		D	E			C			B	
Approach Delay (s)		18.6			55.7			30.2			14.2	
Approach LOS		B			E			C			B	

Intersection Summary			
HCM 2000 Control Delay	35.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	95.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBT	NBT	SBT
Lane Group Flow (vph)	34	54	53	17	811	354
v/c Ratio	0.22	0.12	0.12	0.19	0.52	0.23
Control Delay	54.2	29.4	29.4	50.9	32.3	16.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.8
Total Delay	54.2	29.4	29.4	50.9	32.3	17.4
Queue Length 50th (ft)	12	29	28	10	170	42
Queue Length 95th (ft)	28	61	61	34	209	76
Internal Link Dist (ft)		282		633	181	154
Turn Bay Length (ft)						
Base Capacity (vph)	154	433	428	91	1552	1514
Starvation Cap Reductn	0	0	0	0	0	848
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.12	0.12	0.19	0.52	0.53

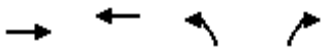
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	3	93	8	5	2	0	708	13	2	306	7
Future Volume (vph)	30	3	93	8	5	2	0	708	13	2	306	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.5	6.5		6.5			6.5			7.0	
Lane Util. Factor	0.97	0.95	0.95		1.00			0.91			0.95	
Frpb, ped/bikes	1.00	0.98	0.97		0.98			0.99			1.00	
Flpb, ped/bikes	1.00	1.00	1.00		1.00			1.00			1.00	
Frt	1.00	0.86	0.85		0.98			1.00			1.00	
Flt Protected	0.95	1.00	1.00		0.97			1.00			1.00	
Satd. Flow (prot)	3400	1467	1450		1788			4944			3317	
Flt Permitted	0.95	1.00	1.00		0.92			1.00			0.95	
Satd. Flow (perm)	3400	1467	1450		1687			4944			3167	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	34	3	104	9	6	2	0	796	15	2	344	8
RTOR Reduction (vph)	0	0	0	0	1	0	0	2	0	0	2	0
Lane Group Flow (vph)	34	54	53	0	16	0	0	809	0	0	352	0
Confl. Peds. (#/hr)	28		4	4		28	66		125	125		66
Confl. Bikes (#/hr)			14			140			26			43
Heavy Vehicles (%)	3%	3%	3%	0%	0%	0%	4%	4%	4%	8%	8%	8%
Turn Type	Prot	NA	Perm	Prot	NA			NA		pm+pt	NA	
Protected Phases	1	6		1	2			4		3	8	
Permitted Phases			6							8		
Actuated Green, G (s)	5.0	32.5	32.5		37.5			34.5			52.0	
Effective Green, g (s)	5.0	32.5	32.5		37.5			34.5			52.0	
Actuated g/C Ratio	0.05	0.30	0.30		0.34			0.31			0.47	
Clearance Time (s)	7.0	6.5	6.5		6.5			6.5			7.0	
Lane Grp Cap (vph)	154	433	428		579			1550			1512	
v/s Ratio Prot	c0.01	c0.04			0.00			c0.16			c0.02	
v/s Ratio Perm			0.04		0.01						0.09	
v/c Ratio	0.22	0.12	0.12		0.03			0.52			0.23	
Uniform Delay, d1	50.6	28.3	28.3		24.1			31.0			17.2	
Progression Factor	1.00	1.00	1.00		1.00			1.00			0.95	
Incremental Delay, d2	3.3	0.6	0.6		0.1			1.3			0.3	
Delay (s)	53.9	28.9	28.9		24.2			32.2			16.5	
Level of Service	D	C	C		C			C			B	
Approach Delay (s)		35.0			24.2			32.2			16.5	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	28.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	909	1407	261	111
v/c Ratio	0.33	0.48	0.60	0.23
Control Delay	14.3	14.0	42.7	7.4
Queue Delay	0.7	2.8	0.6	0.0
Total Delay	14.9	16.8	43.3	7.4
Queue Length 50th (ft)	179	198	162	0
Queue Length 95th (ft)	203	235	251	43
Internal Link Dist (ft)	202	268	424	
Turn Bay Length (ft)				
Base Capacity (vph)	2790	2930	437	474
Starvation Cap Reductn	1408	1370	0	0
Spillback Cap Reductn	0	539	35	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.66	0.90	0.65	0.23

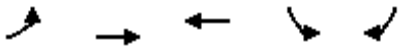
Intersection Summary



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	756	99	0	1323	245	104
Future Volume (vph)	756	99	0	1323	245	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0			6.0	6.0	6.0
Lane Util. Factor	0.91			0.91	1.00	1.00
Frpb, ped/bikes	0.98			1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	0.98			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	4796			5036	1719	1538
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	4796			5036	1719	1538
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	804	105	0	1407	261	111
RTOR Reduction (vph)	0	0	0	0	0	83
Lane Group Flow (vph)	909	0	0	1407	261	28
Confl. Peds. (#/hr)		53			50	129
Confl. Bikes (#/hr)		43				26
Heavy Vehicles (%)	4%	4%	3%	3%	5%	5%
Turn Type	NA			NA	Prot	Prot
Protected Phases	2			2	4	4
Permitted Phases						
Actuated Green, G (s)	64.0			64.0	28.0	28.0
Effective Green, g (s)	64.0			64.0	28.0	28.0
Actuated g/C Ratio	0.58			0.58	0.25	0.25
Clearance Time (s)	6.0			6.0	6.0	6.0
Lane Grp Cap (vph)	2790			2930	437	391
v/s Ratio Prot	0.19			c0.28	c0.15	0.02
v/s Ratio Perm						
v/c Ratio	0.33			0.48	0.60	0.07
Uniform Delay, d1	11.9			13.3	36.0	31.1
Progression Factor	1.17			1.00	1.00	1.00
Incremental Delay, d2	0.3			0.6	5.9	0.4
Delay (s)	14.2			13.9	42.0	31.5
Level of Service	B			B	D	C
Approach Delay (s)	14.2			13.9	38.8	
Approach LOS	B			B	D	

Intersection Summary			
HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		

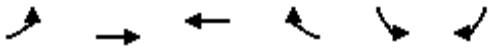
c Critical Lane Group



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	318	832	839	10	81
v/c Ratio	0.58	0.34	0.48	0.03	0.11
Control Delay	10.2	3.3	25.4	23.1	4.5
Queue Delay	3.2	0.0	0.0	0.0	0.0
Total Delay	13.4	3.4	25.4	23.1	4.5
Queue Length 50th (ft)	34	30	100	6	4
Queue Length 95th (ft)	48	36	144	m11	11
Internal Link Dist (ft)		484	340	163	
Turn Bay Length (ft)					
Base Capacity (vph)	549	2441	1737	357	768
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	143	148	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.78	0.36	0.48	0.03	0.11

Intersection Summary

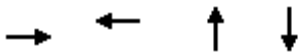
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	598	483	786	3	9	76
Future Volume (vph)	598	483	786	3	9	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		5.5	6.0
Lane Util. Factor	0.86	0.86	0.91		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	0.98	1.00		0.95	1.00
Satd. Flow (prot)	1476	4573	5032		1543	1380
Flt Permitted	0.26	0.66	1.00		0.95	1.00
Satd. Flow (perm)	403	3090	5032		1543	1380
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	636	514	836	3	10	81
RTOR Reduction (vph)	0	0	0	0	0	18
Lane Group Flow (vph)	318	832	839	0	10	63
Confl. Peds. (#/hr)	22			22	12	
Confl. Bikes (#/hr)				3		
Heavy Vehicles (%)	5%	5%	3%	3%	17%	17%
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	1	6	2		4	1
Permitted Phases	6					4
Actuated Green, G (s)	73.0	73.0	38.0		25.5	54.5
Effective Green, g (s)	73.0	73.0	38.0		25.5	54.5
Actuated g/C Ratio	0.66	0.66	0.35		0.23	0.50
Clearance Time (s)	6.0	6.0	6.0		5.5	6.0
Lane Grp Cap (vph)	550	2441	1738		357	759
v/s Ratio Prot	c0.15	0.09	0.17		0.01	c0.02
v/s Ratio Perm	c0.23	0.14				0.02
v/c Ratio	0.58	0.34	0.48		0.03	0.08
Uniform Delay, d1	17.8	8.0	28.3		32.7	14.6
Progression Factor	0.31	0.35	0.86		0.70	0.57
Incremental Delay, d2	3.7	0.3	0.9		0.1	0.2
Delay (s)	9.4	3.1	25.2		22.9	8.5
Level of Service	A	A	C		C	A
Approach Delay (s)		4.9	25.2		10.1	
Approach LOS		A	C		B	

Intersection Summary			
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		

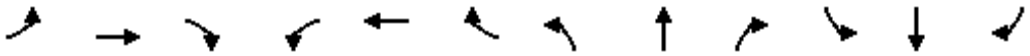
c Critical Lane Group



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	112	281	682	137
v/c Ratio	0.53	0.95	0.48	0.09
Control Delay	33.4	80.7	9.6	17.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	33.4	80.7	9.6	17.4
Queue Length 50th (ft)	35	203	112	20
Queue Length 95th (ft)	m91	m#357	131	37
Internal Link Dist (ft)	492	1267	654	413
Turn Bay Length (ft)				
Base Capacity (vph)	211	295	1415	1586
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.53	0.95	0.48	0.09

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	0	57	43	132	77	91	523	0	0	96	27
Future Volume (vph)	44	0	57	43	132	77	91	523	0	0	96	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5			5.0			5.0	
Lane Util. Factor		1.00			1.00			0.95			0.91	
Frpb, ped/bikes		0.90			0.90			1.00			0.90	
Flpb, ped/bikes		0.95			0.98			0.95			1.00	
Frt		0.92			0.96			1.00			0.97	
Flt Protected		0.98			0.99			0.99			1.00	
Satd. Flow (prot)		1391			1541			3291			4012	
Flt Permitted		0.56			0.93			0.88			1.00	
Satd. Flow (perm)		799			1440			2912			4012	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	49	0	63	48	147	86	101	581	0	0	107	30
RTOR Reduction (vph)	0	56	0	0	14	0	0	0	0	0	18	0
Lane Group Flow (vph)	0	56	0	0	267	0	0	682	0	0	119	0
Confl. Peds. (#/hr)	194		75	75		194	138		192	192		138
Confl. Bikes (#/hr)						9			8			12
Heavy Vehicles (%)	6%	6%	6%	3%	3%	3%	4%	4%	4%	13%	13%	13%
Turn Type	Perm	NA		Perm	NA		Prot	NA			NA	
Protected Phases		8			8		5	2			6	
Permitted Phases	8			8								
Actuated Green, G (s)		21.5			21.5			78.0			43.0	
Effective Green, g (s)		21.5			21.5			78.0			43.0	
Actuated g/C Ratio		0.20			0.20			0.71			0.39	
Clearance Time (s)		5.5			5.5			5.0			5.0	
Lane Grp Cap (vph)		156			281			2168			1568	
v/s Ratio Prot								c0.09			0.03	
v/s Ratio Perm		0.07			c0.19			c0.14				
v/c Ratio		0.36			0.95			0.31			0.08	
Uniform Delay, d1		38.3			43.7			6.0			21.0	
Progression Factor		1.37			1.03			0.67			1.05	
Incremental Delay, d2		5.9			38.0			0.3			0.1	
Delay (s)		58.4			82.9			4.3			22.1	
Level of Service		E			F			A			C	
Approach Delay (s)		58.4			82.9			4.3			22.1	
Approach LOS		E			F			A			C	

Intersection Summary			
HCM 2000 Control Delay	29.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	62.2%	ICU Level of Service	B
Analysis Period (min)	15		

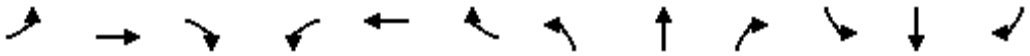
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	59	116	11	121	762	390
v/c Ratio	0.14	0.20	0.04	0.23	0.44	0.20
Control Delay	27.9	20.8	30.1	28.2	16.3	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.9	20.8	30.1	28.2	16.3	11.7
Queue Length 50th (ft)	26	35	6	62	148	38
Queue Length 95th (ft)	m44	m62	m7	m70	m192	58
Internal Link Dist (ft)		495		1267	413	291
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	409	588	281	527	1717	1938
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.20	0.04	0.23	0.44	0.20

Intersection Summary

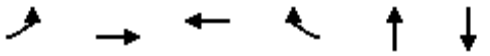
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	63	49	11	91	26	157	540	42	17	252	109
Future Volume (vph)	57	63	49	11	91	26	157	540	42	17	252	109
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	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.91			0.91	
Frpb, ped/bikes	1.00	0.85		1.00	0.94			0.98			0.95	
Flpb, ped/bikes	0.86	1.00		0.72	1.00			0.95			0.99	
Frt	1.00	0.93		1.00	0.97			0.99			0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1408	1377		1267	1673			4604			4380	
Flt Permitted	0.68	1.00		0.68	1.00			0.76			0.89	
Satd. Flow (perm)	1007	1377		910	1673			3551			3901	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	59	65	51	11	94	27	162	557	43	18	260	112
RTOR Reduction (vph)	0	25	0	0	10	0	0	6	0	0	58	0
Lane Group Flow (vph)	59	91	0	11	111	0	0	756	0	0	332	0
Confl. Peds. (#/hr)	146		245	245		146	135		123	123		135
Confl. Bikes (#/hr)			9			38			2			19
Heavy Vehicles (%)	10%	10%	10%	3%	3%	3%	3%	3%	3%	7%	7%	7%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	3	8			4			2			6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	45.0	45.0		34.0	34.0			53.0			53.0	
Effective Green, g (s)	45.0	45.0		34.0	34.0			53.0			53.0	
Actuated g/C Ratio	0.41	0.41		0.31	0.31			0.48			0.48	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	430	563		281	517			1710			1879	
v/s Ratio Prot	0.01	c0.07			c0.07							
v/s Ratio Perm	0.05			0.01				c0.21			0.09	
v/c Ratio	0.14	0.16		0.04	0.22			0.44			0.18	
Uniform Delay, d1	20.4	20.6		26.6	28.1			18.8			16.1	
Progression Factor	1.29	1.51		1.11	1.10			0.83			1.00	
Incremental Delay, d2	0.6	0.5		0.1	0.5			0.7			0.2	
Delay (s)	26.9	31.5		29.6	31.3			16.4			16.3	
Level of Service	C	C		C	C			B			B	
Approach Delay (s)		30.0			31.1			16.4			16.3	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	56.3%	ICU Level of Service	B
Analysis Period (min)	15		

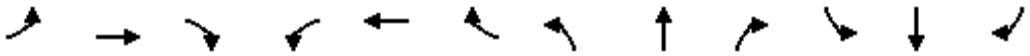
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	69	348	874	245	665	174
v/c Ratio	0.26	0.16	0.38	0.56	0.75	0.50
Control Delay	43.1	2.1	10.9	19.3	25.2	18.5
Queue Delay	0.0	0.0	0.0	0.0	10.0	0.0
Total Delay	43.1	2.1	10.9	19.3	35.1	18.5
Queue Length 50th (ft)	51	4	197	171	172	29
Queue Length 95th (ft)	m97	5	179	257	208	m48
Internal Link Dist (ft)		523	354		163	654
Turn Bay Length (ft)						
Base Capacity (vph)	265	2113	2288	441	884	346
Starvation Cap Reductn	0	0	0	0	193	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.16	0.38	0.56	0.96	0.50

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	290	16	0	769	216	53	527	5	42	73	38
Future Volume (vph)	61	290	16	0	769	216	53	527	5	42	73	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5			6.5	6.5		7.0			10.0	
Lane Util. Factor	1.00	0.91			0.91	1.00		0.91			0.95	
Frpb, ped/bikes	1.00	0.99			1.00	0.62		1.00			0.97	
Flpb, ped/bikes	1.00	1.00			1.00	1.00		0.99			0.98	
Frt	1.00	0.99			1.00	0.85		1.00			0.96	
Flt Protected	0.95	1.00			1.00	1.00		1.00			0.99	
Satd. Flow (prot)	1671	4697			5085	982		4775			2978	
Flt Permitted	0.95	1.00			1.00	1.00		0.88			0.58	
Satd. Flow (perm)	1671	4697			5085	982		4226			1749	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	69	330	18	0	874	245	60	599	6	48	83	43
RTOR Reduction (vph)	0	0	0	0	0	0	0	1	0	0	29	0
Lane Group Flow (vph)	69	348	0	0	874	245	0	664	0	0	145	0
Confl. Peds. (#/hr)	292		144	144		292	59		92	92		59
Confl. Bikes (#/hr)			31			133			4			4
Heavy Vehicles (%)	8%	8%	8%	2%	2%	2%	7%	7%	7%	10%	10%	10%
Turn Type	Prot	NA			NA	Perm	Perm	NA		Perm	NA	
Protected Phases	7	6			2			4			8	
Permitted Phases						2	4			8		
Actuated Green, G (s)	17.5	49.5			49.5	49.5		23.0			20.0	
Effective Green, g (s)	17.5	49.5			49.5	49.5		23.0			20.0	
Actuated g/C Ratio	0.16	0.45			0.45	0.45		0.21			0.18	
Clearance Time (s)	6.5	6.5			6.5	6.5		7.0			10.0	
Lane Grp Cap (vph)	265	2113			2288	441		883			318	
v/s Ratio Prot	c0.04	0.07			0.17							
v/s Ratio Perm						c0.25		c0.16			0.08	
v/c Ratio	0.26	0.16			0.38	0.56		0.75			0.46	
Uniform Delay, d1	40.6	18.0			20.1	22.2		40.8			40.2	
Progression Factor	0.99	0.11			0.52	0.65		0.48			0.42	
Incremental Delay, d2	2.1	0.1			0.4	4.1		5.4			4.4	
Delay (s)	42.4	2.1			10.8	18.6		25.0			21.2	
Level of Service	D	A			B	B		C			C	
Approach Delay (s)		8.7			12.5			25.0			21.2	
Approach LOS		A			B			C			C	

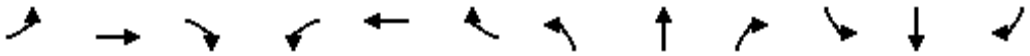
Intersection Summary			
HCM 2000 Control Delay	16.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	74.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1092	874	145	955	295
v/c Ratio	0.58	0.41	0.31	0.49	0.26
Control Delay	11.8	3.3	23.2	21.9	43.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.8	3.4	23.2	21.9	43.8
Queue Length 50th (ft)	44	12	61	164	68
Queue Length 95th (ft)	51	15	104	204	102
Internal Link Dist (ft)	516	484		438	368
Turn Bay Length (ft)					
Base Capacity (vph)	1883	2119	467	1964	1134
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	69	0	1	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.58	0.43	0.31	0.49	0.26

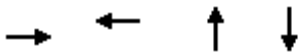
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	935	125	74	770	12	142	802	134	0	241	48
Future Volume (vph)	10	935	125	74	770	12	142	802	134	0	241	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5		6.5	6.5			6.5	
Lane Util. Factor		0.86			0.86		1.00	0.91			0.91	
Frpb, ped/bikes		0.99			1.00		1.00	0.96			0.97	
Flpb, ped/bikes		1.00			1.00		0.94	1.00			1.00	
Frt		0.98			1.00		1.00	0.98			0.98	
Flt Protected		1.00			1.00		0.95	1.00			1.00	
Satd. Flow (prot)		6104			6234		1535	4410			4129	
Flt Permitted		0.92			0.74		0.56	1.00			1.00	
Satd. Flow (perm)		5610			4621		912	4410			4129	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	10	954	128	76	786	12	145	818	137	0	246	49
RTOR Reduction (vph)	0	22	0	0	2	0	0	21	0	0	27	0
Lane Group Flow (vph)	0	1070	0	0	872	0	145	934	0	0	268	0
Confl. Peds. (#/hr)	35		53	53		35	104		165	165		104
Confl. Bikes (#/hr)			2			6			13			11
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	11%	11%	11%	19%	19%	19%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA			NA	
Protected Phases		6		5	2		3	8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)		36.5			48.5		48.5	48.5			29.5	
Effective Green, g (s)		36.5			48.5		48.5	48.5			29.5	
Actuated g/C Ratio		0.33			0.44		0.44	0.44			0.27	
Clearance Time (s)		6.5			6.5		6.5	6.5			6.5	
Lane Grp Cap (vph)		1861			2140		472	1944			1107	
v/s Ratio Prot					c0.03		0.03	c0.21			0.06	
v/s Ratio Perm		c0.19			0.15		0.10					
v/c Ratio		0.57			0.41		0.31	0.48			0.24	
Uniform Delay, d1		30.3			21.0		20.4	21.8			31.5	
Progression Factor		0.36			0.14		1.00	1.00			1.56	
Incremental Delay, d2		1.2			0.5		1.7	0.9			0.5	
Delay (s)		12.0			3.4		22.1	22.7			49.6	
Level of Service		B			A		C	C			D	
Approach Delay (s)		12.0			3.4			22.6			49.6	
Approach LOS		B			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	95.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	100	202	965	333
v/c Ratio	0.30	0.54	0.62	0.46
Control Delay	50.8	25.0	32.1	2.7
Queue Delay	0.0	0.0	1.3	0.0
Total Delay	50.8	25.0	33.4	2.7
Queue Length 50th (ft)	70	66	325	7
Queue Length 95th (ft)	127	m94	394	m13
Internal Link Dist (ft)	508	492	449	412
Turn Bay Length (ft)				
Base Capacity (vph)	332	373	1549	730
Starvation Cap Reductn	0	0	351	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.30	0.54	0.81	0.46

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	39	26	15	103	74	220	673	24	71	229	16
Future Volume (vph)	30	39	26	15	103	74	220	673	24	71	229	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5			5.5			5.5	
Lane Util. Factor		1.00			1.00			0.95			1.00	
Frpb, ped/bikes		0.94			0.89			0.98			0.97	
Flpb, ped/bikes		0.95			0.99			0.92			0.97	
Frt		0.96			0.95			1.00			0.99	
Flt Protected		0.98			1.00			0.99			0.99	
Satd. Flow (prot)		1525			1495			3050			1618	
Flt Permitted		0.86			0.97			0.76			0.68	
Satd. Flow (perm)		1330			1463			2349			1105	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	32	41	27	16	108	78	232	708	25	75	241	17
RTOR Reduction (vph)	0	12	0	0	20	0	0	2	0	0	2	0
Lane Group Flow (vph)	0	88	0	0	182	0	0	963	0	0	331	0
Confl. Peds. (#/hr)	166		127	127		166	254		341	341		254
Confl. Bikes (#/hr)			3			9			12			16
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	9%	9%	9%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		26.5			26.5			72.5			72.5	
Effective Green, g (s)		26.5			26.5			72.5			72.5	
Actuated g/C Ratio		0.24			0.24			0.66			0.66	
Clearance Time (s)		5.5			5.5			5.5			5.5	
Lane Grp Cap (vph)		320			352			1548			728	
v/s Ratio Prot												
v/s Ratio Perm		0.07			c0.12			c0.41			0.30	
v/c Ratio		0.27			0.52			0.62			0.46	
Uniform Delay, d1		33.9			36.2			10.8			9.1	
Progression Factor		1.68			0.65			2.76			0.15	
Incremental Delay, d2		1.8			3.8			1.5			1.3	
Delay (s)		58.7			27.5			31.4			2.7	
Level of Service		E			C			C			A	
Approach Delay (s)		58.7			27.5			31.4			2.7	
Approach LOS		E			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	26.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		

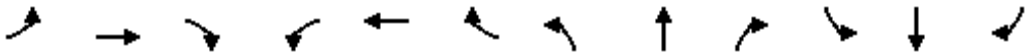
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	18	239	11	460	856	403
v/c Ratio	0.06	0.31	0.03	0.67	0.75	0.81
Control Delay	11.9	12.7	12.8	21.2	32.9	43.2
Queue Delay	0.0	0.0	0.0	0.1	0.2	0.0
Total Delay	11.9	12.7	12.8	21.2	33.1	43.2
Queue Length 50th (ft)	5	66	3	164	199	243
Queue Length 95th (ft)	m12	101	m11	218	274	#418
Internal Link Dist (ft)		509		495	412	353
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	284	778	320	685	1144	495
Starvation Cap Reductn	0	0	0	9	31	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.31	0.03	0.68	0.77	0.81

Intersection Summary

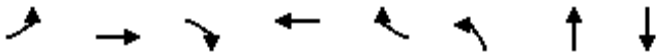
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	183	32	10	217	197	31	646	94	39	279	45
Future Volume (vph)	16	183	32	10	217	197	31	646	94	39	279	45
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	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			1.00	
Frpb, ped/bikes	1.00	0.92		1.00	0.84			0.91			0.94	
Flpb, ped/bikes	0.89	1.00		0.64	1.00			0.99			0.99	
Frt	1.00	0.98		1.00	0.93			0.98			0.98	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1514	1605		1093	1420			3002			1601	
Flt Permitted	0.37	1.00		0.58	1.00			0.92			0.75	
Satd. Flow (perm)	591	1605		666	1420			2774			1200	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	203	36	11	241	219	34	718	104	43	310	50
RTOR Reduction (vph)	0	6	0	0	1	0	0	10	0	0	5	0
Lane Group Flow (vph)	18	233	0	11	459	0	0	846	0	0	398	0
Confl. Peds. (#/hr)	226		273	273		226	172		593	593		172
Confl. Bikes (#/hr)			16			40			6			15
Heavy Vehicles (%)	6%	6%	6%	5%	5%	5%	7%	7%	7%	8%	8%	8%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	53.0	53.0		53.0	53.0			45.0			45.0	
Effective Green, g (s)	53.0	53.0		53.0	53.0			45.0			45.0	
Actuated g/C Ratio	0.48	0.48		0.48	0.48			0.41			0.41	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	284	773		320	684			1134			490	
v/s Ratio Prot		0.15			c0.32							
v/s Ratio Perm	0.03			0.02				0.30			c0.33	
v/c Ratio	0.06	0.30		0.03	0.67			0.75			0.81	
Uniform Delay, d1	15.2	17.3		15.0	21.8			27.6			28.8	
Progression Factor	0.73	0.70		0.82	0.71			1.06			1.00	
Incremental Delay, d2	0.4	0.9		0.2	5.1			3.7			13.7	
Delay (s)	11.6	13.0		12.5	20.6			33.0			42.5	
Level of Service	B	B		B	C			C			D	
Approach Delay (s)		12.9			20.4			33.0			42.5	
Approach LOS		B			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	29.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.8%	ICU Level of Service	E
Analysis Period (min)	15		

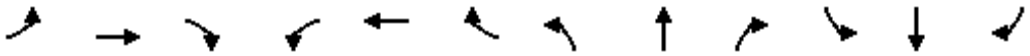
c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	142	394	108	810	159	212	785	239
v/c Ratio	0.71	0.50	0.39	0.66	0.69	0.87	0.55	0.36
Control Delay	63.9	40.8	42.2	42.4	56.9	90.3	38.1	38.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0
Total Delay	63.9	40.8	42.2	42.4	56.9	90.3	40.2	38.0
Queue Length 50th (ft)	108	136	70	130	70	159	296	86
Queue Length 95th (ft)	m#178	m183	m119	178	m#138	#292	361	130
Internal Link Dist (ft)		551		523			368	449
Turn Bay Length (ft)								
Base Capacity (vph)	201	791	275	1235	232	245	1427	664
Starvation Cap Reductn	0	0	0	0	0	0	478	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.50	0.39	0.66	0.69	0.87	0.83	0.36

Intersection Summary

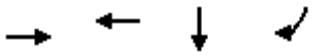
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	355	97	0	729	143	191	691	15	4	195	16
Future Volume (vph)	128	355	97	0	729	143	191	691	15	4	195	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.5	6.5		6.5	6.5	7.0	7.0			7.0	
Lane Util. Factor	1.00	0.95	1.00		0.91	1.00	1.00	0.95			0.95	
Frpb, ped/bikes	1.00	1.00	0.78		1.00	0.60	1.00	0.99			0.97	
Flpb, ped/bikes	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	0.85	1.00	1.00			0.99	
Flt Protected	0.95	1.00	1.00		1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1583	3167	1100		4940	930	1687	3338			3215	
Flt Permitted	0.95	1.00	1.00		1.00	1.00	0.95	1.00			0.94	
Satd. Flow (perm)	1583	3167	1100		4940	930	1687	3338			3018	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	142	394	108	0	810	159	212	768	17	4	217	18
RTOR Reduction (vph)	0	0	0	0	0	0	0	1	0	0	5	0
Lane Group Flow (vph)	142	394	108	0	810	159	212	784	0	0	234	0
Confl. Peds. (#/hr)	309		153	153		309	209		262	262		209
Confl. Bikes (#/hr)			35			127			13			14
Heavy Vehicles (%)	14%	14%	14%	5%	5%	5%	7%	7%	7%	8%	8%	8%
Turn Type	Prot	NA	Perm		NA	Perm	Prot	NA		Perm	NA	
Protected Phases	5	2			6		3	8			4	
Permitted Phases			2			6				4		
Actuated Green, G (s)	14.0	27.5	27.5		27.5	27.5	16.0	47.0			24.0	
Effective Green, g (s)	14.0	27.5	27.5		27.5	27.5	16.0	47.0			24.0	
Actuated g/C Ratio	0.13	0.25	0.25		0.25	0.25	0.15	0.43			0.22	
Clearance Time (s)	5.0	6.5	6.5		6.5	6.5	7.0	7.0			7.0	
Lane Grp Cap (vph)	201	791	275		1235	232	245	1426			658	
v/s Ratio Prot	c0.09	0.12			0.16		c0.13	c0.23				
v/s Ratio Perm			0.10			c0.17					0.08	
v/c Ratio	0.71	0.50	0.39		0.66	0.69	0.87	0.55			0.35	
Uniform Delay, d1	46.0	35.3	34.3		37.0	37.3	45.9	23.6			36.4	
Progression Factor	0.97	1.08	1.08		1.07	1.10	1.33	1.54			1.03	
Incremental Delay, d2	18.1	2.1	4.0		2.5	14.3	29.6	1.4			1.4	
Delay (s)	62.9	40.4	41.2		42.1	55.4	90.5	37.7			38.8	
Level of Service	E	D	D		D	E	F	D			D	
Approach Delay (s)		45.5			44.3			48.9			38.8	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	45.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	27.5
Intersection Capacity Utilization	78.9%	ICU Level of Service	D
Analysis Period (min)	15		

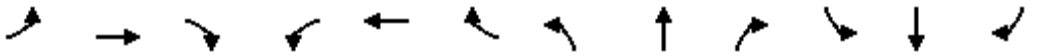
c Critical Lane Group



Lane Group	EBT	WBT	SBT	SBR
Lane Group Flow (vph)	1105	993	1230	129
v/c Ratio	0.41	0.38	0.81	0.25
Control Delay	21.1	7.3	12.7	0.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	21.1	7.3	12.7	0.9
Queue Length 50th (ft)	147	40	123	0
Queue Length 95th (ft)	177	48	145	m0
Internal Link Dist (ft)	334	516	582	
Turn Bay Length (ft)				
Base Capacity (vph)	2724	2636	1527	509
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.41	0.38	0.81	0.25

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1006	76	188	761	24	0	0	0	70	1136	126
Future Volume (vph)	0	1006	76	188	761	24	0	0	0	70	1136	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			6.0						6.5	6.5
Lane Util. Factor		0.86			0.86						0.91	1.00
Frpb, ped/bikes		0.99			1.00						1.00	0.88
Flpb, ped/bikes		1.00			1.00						1.00	1.00
Frt		0.99			1.00						1.00	0.85
Flt Protected		1.00			0.99						1.00	1.00
Satd. Flow (prot)		6159			6043						4870	1343
Flt Permitted		1.00			0.71						1.00	1.00
Satd. Flow (perm)		6159			4361						4870	1343
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1027	78	192	777	24	0	0	0	71	1159	129
RTOR Reduction (vph)	0	11	0	0	3	0	0	0	0	0	0	89
Lane Group Flow (vph)	0	1094	0	0	990	0	0	0	0	0	1230	40
Confl. Peds. (#/hr)	70		64	64		70	89		28	28		89
Confl. Bikes (#/hr)			3			3						
Heavy Vehicles (%)	4%	4%	4%	6%	6%	6%	0%	0%	0%	6%	6%	6%
Turn Type		NA		pm+pt	NA					Perm	NA	Perm
Protected Phases		6		5	2						4	
Permitted Phases				2						4		4
Actuated Green, G (s)		48.5			63.0						34.5	34.5
Effective Green, g (s)		48.5			63.0						34.5	34.5
Actuated g/C Ratio		0.44			0.57						0.31	0.31
Clearance Time (s)		5.5			6.0						6.5	6.5
Lane Grp Cap (vph)		2715			2635						1527	421
v/s Ratio Prot		c0.18			c0.03							
v/s Ratio Perm					0.18						0.25	0.03
v/c Ratio		0.40			0.38						0.81	0.10
Uniform Delay, d1		20.9			12.8						34.7	26.7
Progression Factor		1.00			0.53						0.28	0.04
Incremental Delay, d2		0.4			0.4						2.8	0.3
Delay (s)		21.4			7.1						12.6	1.2
Level of Service		C			A						B	A
Approach Delay (s)		21.4			7.1			0.0			11.5	
Approach LOS		C			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	13.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	SBT
Lane Group Flow (vph)	97	1365
v/c Ratio	0.14	0.57
Control Delay	24.8	6.2
Queue Delay	0.0	0.4
Total Delay	24.8	6.6
Queue Length 50th (ft)	56	45
Queue Length 95th (ft)	m89	90
Internal Link Dist (ft)	508	411
Turn Bay Length (ft)		
Base Capacity (vph)	697	2413
Starvation Cap Reductn	0	471
Spillback Cap Reductn	0	190
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.14	0.70

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	95	0	0	0	123	1214
Future Volume (vph)	95	0	0	0	123	1214
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5					5.5
Lane Util. Factor	1.00					0.91
Frpb, ped/bikes	1.00					1.00
Flpb, ped/bikes	0.97					0.96
Frt	1.00					1.00
Flt Protected	0.95					1.00
Satd. Flow (prot)	1725					4873
Flt Permitted	0.95					1.00
Satd. Flow (perm)	1725					4873
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	97	0	0	0	126	1239
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	97	0	0	0	0	1365
Confl. Peds. (#/hr)	16	419		125	125	
Turn Type	Perm				Perm	NA
Protected Phases						2
Permitted Phases	4				2	
Actuated Green, G (s)	44.5					54.5
Effective Green, g (s)	44.5					54.5
Actuated g/C Ratio	0.40					0.50
Clearance Time (s)	5.5					5.5
Lane Grp Cap (vph)	697					2414
v/s Ratio Prot						
v/s Ratio Perm	c0.06					0.28
v/c Ratio	0.14					0.57
Uniform Delay, d1	20.7					19.5
Progression Factor	1.16					0.28
Incremental Delay, d2	0.3					0.8
Delay (s)	24.4					6.2
Level of Service	C					A
Approach Delay (s)	24.4		0.0			6.2
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	7.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		

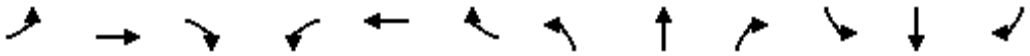
c Critical Lane Group



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	182	79	57	253	1408
v/c Ratio	0.23	0.16	0.14	0.32	0.67
Control Delay	20.4	13.2	17.9	18.3	25.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	20.4	13.2	17.9	18.3	25.5
Queue Length 50th (ft)	79	20	18	82	277
Queue Length 95th (ft)	128	51	m28	m129	331
Internal Link Dist (ft)	409			509	374
Turn Bay Length (ft)		100	100		
Base Capacity (vph)	797	502	394	789	2086
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.23	0.16	0.14	0.32	0.67

Intersection Summary

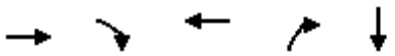
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	178	77	56	248	0	0	0	0	101	1212	67
Future Volume (vph)	0	178	77	56	248	0	0	0	0	101	1212	67
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	
Lane Util. Factor		1.00	1.00	1.00	1.00						0.91	
Frpb, ped/bikes		1.00	0.72	1.00	1.00						0.97	
Flpb, ped/bikes		1.00	1.00	0.79	1.00						0.96	
Frt		1.00	0.85	1.00	1.00						0.99	
Flt Protected		1.00	1.00	0.95	1.00						1.00	
Satd. Flow (prot)		1827	1113	1365	1810						4581	
Flt Permitted		1.00	1.00	0.63	1.00						1.00	
Satd. Flow (perm)		1827	1113	904	1810						4581	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	182	79	57	253	0	0	0	0	103	1237	68
RTOR Reduction (vph)	0	0	17	0	0	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	182	62	57	253	0	0	0	0	0	1403	0
Confl. Peds. (#/hr)	250		181	181		250	263		237	237		263
Confl. Bikes (#/hr)			18			42						7
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	0%	0%	0%	5%	5%	5%
Turn Type		NA	Perm	Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		48.0	48.0	48.0	48.0						50.0	
Effective Green, g (s)		48.0	48.0	48.0	48.0						50.0	
Actuated g/C Ratio		0.44	0.44	0.44	0.44						0.45	
Clearance Time (s)		6.0	6.0	6.0	6.0						6.0	
Lane Grp Cap (vph)		797	485	394	789						2082	
v/s Ratio Prot		0.10			c0.14							
v/s Ratio Perm			0.06	0.06							0.31	
v/c Ratio		0.23	0.13	0.14	0.32						0.67	
Uniform Delay, d1		19.4	18.5	18.7	20.3						23.6	
Progression Factor		1.00	1.00	0.90	0.85						1.00	
Incremental Delay, d2		0.7	0.5	0.5	0.8						1.8	
Delay (s)		20.1	19.1	17.4	18.0						25.4	
Level of Service		C	B	B	B						C	
Approach Delay (s)		19.8			17.9			0.0			25.4	
Approach LOS		B			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	23.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		

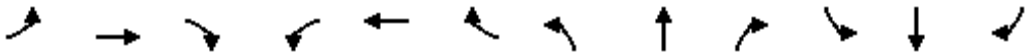
c Critical Lane Group



Lane Group	EBT	EBR	WBT	NBR	SBT
Lane Group Flow (vph)	508	148	990	42	1407
v/c Ratio	0.26	0.37	0.34	0.14	0.87
Control Delay	17.9	21.5	20.7	21.2	19.4
Queue Delay	0.0	0.0	0.0	0.0	0.4
Total Delay	17.9	21.5	20.7	21.2	19.8
Queue Length 50th (ft)	68	61	0	19	81
Queue Length 95th (ft)	85	113	m251	50	85
Internal Link Dist (ft)	516		551		235
Turn Bay Length (ft)					
Base Capacity (vph)	1954	401	2888	300	1622
Starvation Cap Reductn	0	0	0	0	32
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.26	0.37	0.34	0.14	0.88

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	407	203	0	921	0	0	0	39	114	1143	51
Future Volume (vph)	0	407	203	0	921	0	0	0	39	114	1143	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5		6.5				7.0		7.0	
Lane Util. Factor		0.86	0.86		0.86				1.00		0.91	
Frpb, ped/bikes		0.96	0.68		1.00				0.69		0.99	
Flpb, ped/bikes		1.00	1.00		1.00				1.00		0.97	
Frt		0.98	0.85		1.00				0.86		0.99	
Flt Protected		1.00	1.00		1.00				1.00		1.00	
Satd. Flow (prot)		4096	842		6052				870		4697	
Flt Permitted		1.00	1.00		1.00				1.00		1.00	
Satd. Flow (perm)		4096	842		6052				870		4697	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	438	218	0	990	0	0	0	42	123	1229	55
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	508	148	0	990	0	0	0	42	0	1407	0
Confl. Peds. (#/hr)	788		223	223		788	264		211	211		264
Confl. Bikes (#/hr)			38			121						7
Heavy Vehicles (%)	12%	12%	12%	8%	8%	8%	31%	31%	31%	5%	5%	5%
Turn Type		NA	Perm		NA				Perm	Perm	NA	
Protected Phases		2			6						8	
Permitted Phases			2						4	8		
Actuated Green, G (s)		52.5	52.5		52.5				38.0		38.0	
Effective Green, g (s)		52.5	52.5		52.5				38.0		38.0	
Actuated g/C Ratio		0.48	0.48		0.48				0.35		0.35	
Clearance Time (s)		6.5	6.5		6.5				7.0		7.0	
Lane Grp Cap (vph)		1954	401		2888				300		1622	
v/s Ratio Prot		0.12			0.16							
v/s Ratio Perm			c0.18						0.05		0.30	
v/c Ratio		0.26	0.37		0.34				0.14		0.87	
Uniform Delay, d1		17.2	18.2		18.0				24.8		33.6	
Progression Factor		1.01	0.99		1.13				0.79		0.39	
Incremental Delay, d2		0.3	2.6		0.2				1.0		5.8	
Delay (s)		17.7	20.7		20.6				20.6		19.0	
Level of Service		B	C		C				C		B	
Approach Delay (s)		18.4			20.6			20.6			19.0	
Approach LOS		B			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	19.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		

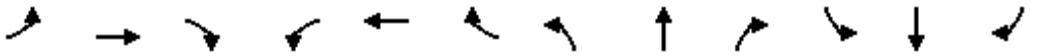
c Critical Lane Group



Lane Group	EBT	WBT	NBL	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	558	988	162	37	67	32	14
v/c Ratio	0.16	0.27	0.72	0.12	0.24	0.08	0.05
Control Delay	1.0	9.2	58.5	5.4	36.9	33.5	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.0	9.2	58.5	5.4	36.9	33.5	0.4
Queue Length 50th (ft)	0	211	106	0	38	18	0
Queue Length 95th (ft)	m0	m247	#209	17	79	44	0
Internal Link Dist (ft)	246	516				417	
Turn Bay Length (ft)							
Base Capacity (vph)	3405	3679	224	311	278	394	276
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.27	0.72	0.12	0.24	0.08	0.05

Intersection Summary

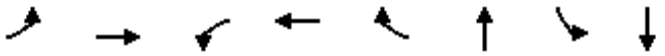
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	486	39	0	929	0	152	0	35	63	30	13
Future Volume (vph)	0	486	39	0	929	0	152	0	35	63	30	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5		7.0		7.0	7.0	7.0	7.0
Lane Util. Factor		0.86			0.86		1.00		1.00	1.00	1.00	1.00
Frpb, ped/bikes		0.99			1.00		1.00		0.75	1.00	1.00	0.70
Flpb, ped/bikes		1.00			1.00		0.72		1.00	0.74	1.00	1.00
Frt		0.99			1.00		1.00		0.85	1.00	1.00	0.85
Flt Protected		1.00			1.00		0.95		1.00	0.95	1.00	1.00
Satd. Flow (prot)		5549			5996		1227		1139	1178	1667	991
Flt Permitted		1.00			1.00		0.74		1.00	0.95	1.00	1.00
Satd. Flow (perm)		5549			5996		951		1139	1178	1667	991
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	517	41	0	988	0	162	0	37	67	32	14
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	28	0	0	11
Lane Group Flow (vph)	0	558	0	0	988	0	162	0	9	67	32	3
Confl. Peds. (#/hr)	655		85	85		655	177		155	155		177
Confl. Bikes (#/hr)			28			102			3			4
Heavy Vehicles (%)	15%	15%	15%	9%	9%	9%	6%	6%	6%	14%	14%	14%
Turn Type		NA			NA		Perm		Perm	Perm	NA	Perm
Protected Phases		2			6						8	
Permitted Phases							4		4	8		8
Actuated Green, G (s)		67.5			67.5		26.0		26.0	26.0	26.0	26.0
Effective Green, g (s)		67.5			67.5		26.0		26.0	26.0	26.0	26.0
Actuated g/C Ratio		0.61			0.61		0.24		0.24	0.24	0.24	0.24
Clearance Time (s)		6.5			6.5		7.0		7.0	7.0	7.0	7.0
Lane Grp Cap (vph)		3405			3679		224		269	278	394	234
v/s Ratio Prot		0.10			c0.16						0.02	
v/s Ratio Perm							c0.17		0.01	0.06		0.00
v/c Ratio		0.16			0.27		0.72		0.03	0.24	0.08	0.01
Uniform Delay, d1		9.1			9.8		38.7		32.3	34.0	32.7	32.2
Progression Factor		0.09			0.92		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		0.1			0.2		18.3		0.2	2.0	0.4	0.1
Delay (s)		1.0			9.2		57.0		32.5	36.1	33.1	32.3
Level of Service		A			A		E		C	D	C	C
Approach Delay (s)		1.0			9.2			52.4			34.8	
Approach LOS		A			A			D			C	

Intersection Summary			
HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



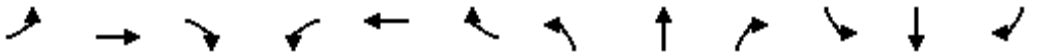
Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	218	427	12	839	352	6	167	54
v/c Ratio	1.00	0.26	0.05	0.70	1.75	0.02	0.89	0.12
Control Delay	117.1	21.8	61.3	14.7	381.5	30.0	94.6	8.2
Queue Delay	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0
Total Delay	117.1	21.8	61.3	16.1	381.5	30.0	94.6	8.2
Queue Length 50th (ft)	164	53	8	64	~382	2	61	1
Queue Length 95th (ft)	m#313	71	m26	126	#520	14	#126	29
Internal Link Dist (ft)		209		246		170		344
Turn Bay Length (ft)								
Base Capacity (vph)	219	1665	223	1193	201	338	187	433
Starvation Cap Reductn	0	0	0	182	0	0	0	0
Spillback Cap Reductn	0	0	0	14	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.00	0.26	0.05	0.83	1.75	0.02	0.89	0.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

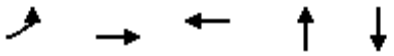
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	196	379	5	11	755	317	1	3	2	150	2	47
Future Volume (vph)	196	379	5	11	755	317	1	3	2	150	2	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0		5.0	6.0	6.0		7.0		7.0	7.0	
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00		1.00		0.97	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.38		0.93		1.00	0.87	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		0.98		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.95		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99		0.95	1.00	
Satd. Flow (prot)	1612	4579		1641	3282	554		1643		2943	1186	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.97		0.95	1.00	
Satd. Flow (perm)	1612	4579		1641	3282	554		1611		2943	1186	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	218	421	6	12	839	352	1	3	2	167	2	52
RTOR Reduction (vph)	0	0	0	0	0	0	0	2	0	0	35	0
Lane Group Flow (vph)	218	427	0	12	839	352	0	4	0	167	19	0
Confl. Peds. (#/hr)	345		257	257		345	74		144	144		74
Confl. Bikes (#/hr)			25			95						38
Heavy Vehicles (%)	12%	12%	12%	10%	10%	10%	0%	0%	0%	19%	19%	19%
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Prot	NA	
Protected Phases	1	6		1	2			4		3	8	
Permitted Phases		6			2	2	4					
Actuated Green, G (s)	15.0	40.0		15.0	40.0	40.0		23.0		7.0	37.0	
Effective Green, g (s)	15.0	40.0		15.0	40.0	40.0		23.0		7.0	37.0	
Actuated g/C Ratio	0.14	0.36		0.14	0.36	0.36		0.21		0.06	0.34	
Clearance Time (s)	5.0	6.0		5.0	6.0	6.0		7.0		7.0	7.0	
Lane Grp Cap (vph)	219	1665		223	1193	201		336		187	398	
v/s Ratio Prot	c0.14	0.09		0.01	0.26					c0.06	c0.02	
v/s Ratio Perm						c0.63		0.00				
v/c Ratio	1.00	0.26		0.05	0.70	1.75		0.01		0.89	0.05	
Uniform Delay, d1	47.5	24.6		41.3	29.9	35.0		34.5		51.1	24.6	
Progression Factor	1.25	0.87		1.46	0.37	0.85		1.00		1.00	1.00	
Incremental Delay, d2	58.4	0.4		0.4	3.4	357.1		0.1		42.6	0.2	
Delay (s)	117.8	21.7		60.7	14.5	387.0		34.6		93.8	24.9	
Level of Service	F	C		E	B	F		C		F	C	
Approach Delay (s)		54.2			124.0			34.6			76.9	
Approach LOS		D			F			C			E	

Intersection Summary			
HCM 2000 Control Delay	97.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		

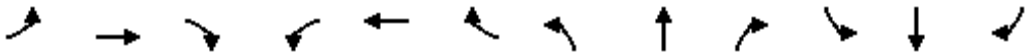
c Critical Lane Group



Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	179	1109	867	1773	67
v/c Ratio	0.70	0.51	0.65	0.90	0.07
Control Delay	69.7	7.2	39.8	35.1	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	69.7	7.2	39.8	35.1	5.1
Queue Length 50th (ft)	103	54	159	409	0
Queue Length 95th (ft)	m154	63	196	484	7
Internal Link Dist (ft)		1027	345	451	993
Turn Bay Length (ft)					
Base Capacity (vph)	254	2166	1333	1971	944
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.70	0.51	0.65	0.90	0.07

Intersection Summary

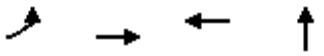
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	172	1049	15	9	779	45	150	1266	286	13	10	41
Future Volume (vph)	172	1049	15	9	779	45	150	1266	286	13	10	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.5			6.5			6.5			6.5	
Lane Util. Factor	1.00	0.91			0.86			0.91			0.95	
Frpb, ped/bikes	1.00	1.00			1.00			0.99			0.96	
Flpb, ped/bikes	1.00	1.00			1.00			0.99			1.00	
Frt	1.00	1.00			0.99			0.97			0.90	
Flt Protected	0.95	1.00			1.00			1.00			0.99	
Satd. Flow (prot)	1752	5013			6036			4843			2740	
Flt Permitted	0.95	1.00			0.91			0.90			0.74	
Satd. Flow (perm)	1752	5013			5502			4356			2047	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	179	1093	16	9	811	47	156	1319	298	14	10	43
RTOR Reduction (vph)	0	1	0	0	8	0	0	12	0	0	24	0
Lane Group Flow (vph)	179	1108	0	0	859	0	0	1761	0	0	43	0
Confl. Peds. (#/hr)	31		78	78		31	78		47	47		78
Confl. Bikes (#/hr)			1						3			
Heavy Vehicles (%)	3%	3%	3%	7%	7%	7%	2%	2%	2%	13%	13%	13%
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	6			2			8			4	
Permitted Phases				2			8			4		
Actuated Green, G (s)	16.0	47.5			26.5			49.5			49.5	
Effective Green, g (s)	16.0	47.5			26.5			49.5			49.5	
Actuated g/C Ratio	0.15	0.43			0.24			0.45			0.45	
Clearance Time (s)	5.0	6.5			6.5			6.5			6.5	
Lane Grp Cap (vph)	254	2164			1325			1960			921	
v/s Ratio Prot	c0.10	0.22										
v/s Ratio Perm					c0.16			c0.40			0.02	
v/c Ratio	0.70	0.51			0.65			0.90			0.05	
Uniform Delay, d1	44.8	22.8			37.6			27.9			17.0	
Progression Factor	1.29	0.29			1.00			1.00			0.62	
Incremental Delay, d2	11.1	0.6			2.5			7.1			0.1	
Delay (s)	69.0	7.2			40.0			35.0			10.6	
Level of Service	E	A			D			C			B	
Approach Delay (s)		15.8			40.0			35.0			10.6	
Approach LOS		B			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	29.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	93.7%	ICU Level of Service	F
Analysis Period (min)	15		

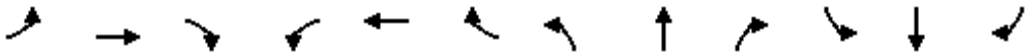
c Critical Lane Group



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	89	107	247	1504
v/c Ratio	0.27	0.15	0.42	0.66
Control Delay	39.3	36.2	26.0	17.5
Queue Delay	0.0	0.0	0.0	4.0
Total Delay	39.3	36.2	26.0	21.5
Queue Length 50th (ft)	51	60	119	361
Queue Length 95th (ft)	m81	m93	191	420
Internal Link Dist (ft)		379	152	314
Turn Bay Length (ft)	100			
Base Capacity (vph)	333	705	595	2266
Starvation Cap Reductn	0	0	0	664
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.27	0.15	0.42	0.94

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	104	0	0	144	96	50	1190	218	0	0	0
Future Volume (vph)	86	104	0	0	144	96	50	1190	218	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5			6.0				
Lane Util. Factor	1.00	1.00			1.00			0.91				
Frpb, ped/bikes	1.00	1.00			0.92			0.92				
Flpb, ped/bikes	0.89	1.00			1.00			0.99				
Frt	1.00	1.00			0.95			0.98				
Flt Protected	0.95	1.00			1.00			1.00				
Satd. Flow (prot)	1544	1827			1523			4408				
Flt Permitted	0.53	1.00			1.00			1.00				
Satd. Flow (perm)	863	1827			1523			4408				
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	89	107	0	0	148	99	52	1227	225	0	0	0
RTOR Reduction (vph)	0	0	0	0	7	0	0	23	0	0	0	0
Lane Group Flow (vph)	89	107	0	0	240	0	0	1481	0	0	0	0
Confl. Peds. (#/hr)	113		183	183		113	120		224	224		120
Confl. Bikes (#/hr)			5			11			5			
Heavy Vehicles (%)	4%	4%	4%	9%	9%	9%	5%	5%	5%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			4			2				
Permitted Phases	4						2					
Actuated Green, G (s)	42.5	42.5			42.5			56.0				
Effective Green, g (s)	42.5	42.5			42.5			56.0				
Actuated g/C Ratio	0.39	0.39			0.39			0.51				
Clearance Time (s)	5.5	5.5			5.5			6.0				
Lane Grp Cap (vph)	333	705			588			2244				
v/s Ratio Prot		0.06			c0.16							
v/s Ratio Perm	0.10							0.34				
v/c Ratio	0.27	0.15			0.41			0.66				
Uniform Delay, d1	23.1	22.0			24.6			20.0				
Progression Factor	1.58	1.60			1.00			0.84				
Incremental Delay, d2	1.5	0.4			2.1			1.0				
Delay (s)	38.0	35.6			26.7			17.8				
Level of Service	D	D			C			B				
Approach Delay (s)		36.7			26.7			17.8			0.0	
Approach LOS		D			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	20.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		

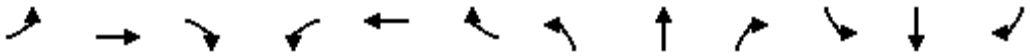
c Critical Lane Group



Lane Group	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	526	529	351	1641
v/c Ratio	0.24	0.28	0.86	0.72
Control Delay	6.8	2.0	29.7	14.7
Queue Delay	0.0	0.2	0.0	3.8
Total Delay	6.8	2.2	29.7	18.5
Queue Length 50th (ft)	52	5	52	383
Queue Length 95th (ft)	52	9	#375	445
Internal Link Dist (ft)	419	209		993
Turn Bay Length (ft)				
Base Capacity (vph)	2175	1917	409	2272
Starvation Cap Reductn	0	668	0	0
Spillback Cap Reductn	0	0	0	533
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.24	0.42	0.86	0.94

Intersection Summary

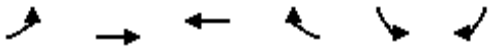
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	440	60	0	503	333	94	1325	140	0	0	0
Future Volume (vph)	0	440	60	0	503	333	94	1325	140	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5	6.5		7.0				
Lane Util. Factor		0.86			0.91	1.00		0.91				
Frpb, ped/bikes		0.96			1.00	0.69		0.97				
Flpb, ped/bikes		1.00			1.00	1.00		0.98				
Frt		0.98			1.00	0.85		0.99				
Flt Protected		1.00			1.00	1.00		1.00				
Satd. Flow (prot)		5500			4848	1036		4692				
Flt Permitted		1.00			1.00	1.00		1.00				
Satd. Flow (perm)		5500			4848	1036		4692				
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	463	63	0	529	351	99	1395	147	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	10	0	0	0	0
Lane Group Flow (vph)	0	526	0	0	529	351	0	1631	0	0	0	0
Confl. Peds. (#/hr)	261		351	351		261	228		163	163		228
Confl. Bikes (#/hr)			50			68			14			
Heavy Vehicles (%)	12%	12%	12%	7%	7%	7%	4%	4%	4%	0%	0%	0%
Turn Type		NA			NA	Perm	Perm	NA				
Protected Phases		2			2			4				
Permitted Phases						2	4					
Actuated Green, G (s)		43.5			43.5	43.5		53.0				
Effective Green, g (s)		43.5			43.5	43.5		53.0				
Actuated g/C Ratio		0.40			0.40	0.40		0.48				
Clearance Time (s)		6.5			6.5	6.5		7.0				
Lane Grp Cap (vph)		2175			1917	409		2260				
v/s Ratio Prot		0.10			0.11							
v/s Ratio Perm						c0.34		0.35				
v/c Ratio		0.24			0.28	0.86		0.72				
Uniform Delay, d1		22.2			22.6	30.4		22.6				
Progression Factor		0.29			0.08	0.38		0.60				
Incremental Delay, d2		0.3			0.3	15.7		1.1				
Delay (s)		6.8			2.0	27.4		14.7				
Level of Service		A			A	C		B				
Approach Delay (s)		6.8			12.1			14.7			0.0	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		

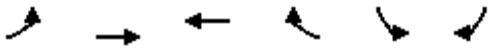
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	227	338	369	373	251	107
v/c Ratio	0.64	0.24	0.26	0.44	0.36	0.30
Control Delay	48.0	13.3	9.3	10.8	15.0	10.0
Queue Delay	1.6	0.0	0.0	1.0	4.2	2.4
Total Delay	49.6	13.3	9.3	11.7	19.2	12.4
Queue Length 50th (ft)	156	41	33	36	86	53
Queue Length 95th (ft)	225	53	45	51	109	m70
Internal Link Dist (ft)		238	419		144	
Turn Bay Length (ft)						
Base Capacity (vph)	356	1382	1435	847	690	352
Starvation Cap Reductn	40	0	0	0	355	151
Spillback Cap Reductn	0	0	0	246	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.24	0.26	0.62	0.75	0.53

Intersection Summary

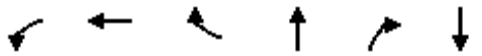
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	193	287	314	317	213	91
Future Volume (vph)	193	287	314	317	213	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	6.5	6.5	6.5	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	0.88	0.97	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.75	1.00	0.84
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1671	3343	3471	2049	3303	1281
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1671	3343	3471	2049	3303	1281
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	227	338	369	373	251	107
RTOR Reduction (vph)	0	0	0	0	0	85
Lane Group Flow (vph)	227	338	369	373	251	22
Confl. Peds. (#/hr)	161			161	611	87
Confl. Bikes (#/hr)				63		8
Heavy Vehicles (%)	8%	8%	4%	4%	6%	6%
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	1	2	2		4	
Permitted Phases				2		4
Actuated Green, G (s)	23.5	45.5	45.5	45.5	23.0	23.0
Effective Green, g (s)	23.5	45.5	45.5	45.5	23.0	23.0
Actuated g/C Ratio	0.21	0.41	0.41	0.41	0.21	0.21
Clearance Time (s)	5.5	6.5	6.5	6.5	6.0	6.0
Lane Grp Cap (vph)	356	1382	1435	847	690	267
v/s Ratio Prot	c0.14	0.10	0.11		c0.08	
v/s Ratio Perm				c0.18		0.02
v/c Ratio	0.64	0.24	0.26	0.44	0.36	0.08
Uniform Delay, d1	39.4	21.0	21.2	23.1	37.2	35.0
Progression Factor	0.99	0.61	0.41	0.39	0.37	1.15
Incremental Delay, d2	8.4	0.4	0.4	1.6	1.1	0.5
Delay (s)	47.3	13.2	9.2	10.6	14.9	40.6
Level of Service	D	B	A	B	B	D
Approach Delay (s)		26.9	9.9		22.5	
Approach LOS		C	A		C	

Intersection Summary			
HCM 2000 Control Delay	18.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	62.4%	ICU Level of Service	B
Analysis Period (min)	15		

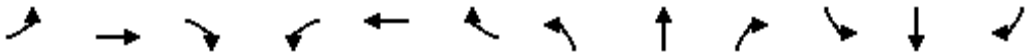
c Critical Lane Group



Lane Group	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	24	70	46	502	102	576
v/c Ratio	0.07	0.14	0.09	0.66	0.49	0.72
Control Delay	43.4	43.6	5.0	40.8	12.5	42.6
Queue Delay	0.0	0.0	0.0	16.6	3.1	0.2
Total Delay	43.4	43.6	5.0	57.4	15.5	42.8
Queue Length 50th (ft)	15	46	3	163	11	188
Queue Length 95th (ft)	m33	m82	m15	223	m30	252
Internal Link Dist (ft)		379		144		307
Turn Bay Length (ft)	200		65			
Base Capacity (vph)	352	514	522	759	210	801
Starvation Cap Reductn	0	0	0	248	48	0
Spillback Cap Reductn	0	0	0	0	0	18
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.14	0.09	0.98	0.63	0.74

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	22	64	42	67	395	94	126	297	107
Future Volume (vph)	0	0	0	22	64	42	67	395	94	126	297	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5	6.5		6.0	6.0		6.0	
Lane Util. Factor				1.00	1.00	1.00		0.95	1.00		0.95	
Frpb, ped/bikes				1.00	1.00	0.95		1.00	0.26		0.99	
Flpb, ped/bikes				0.72	1.00	1.00		1.00	1.00		1.00	
Frt				1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected				0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)				1193	1743	1414		3480	413		3304	
Flt Permitted				0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (perm)				1193	1743	1414		3480	413		3304	
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	24	70	46	73	429	102	137	323	116
RTOR Reduction (vph)	0	0	0	0	0	32	0	0	80	0	21	0
Lane Group Flow (vph)	0	0	0	24	70	14	0	502	22	0	555	0
Confl. Peds. (#/hr)	19		195	195		19	9		599	599		9
Confl. Bikes (#/hr)						10			4			5
Heavy Vehicles (%)	0%	0%	0%	9%	9%	9%	3%	3%	3%	4%	4%	4%
Turn Type				Perm	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases					4		2	2		1	1	
Permitted Phases				4		4			2			
Actuated Green, G (s)				32.5	32.5	32.5		24.0	24.0		26.0	
Effective Green, g (s)				32.5	32.5	32.5		24.0	24.0		26.0	
Actuated g/C Ratio				0.30	0.30	0.30		0.22	0.22		0.24	
Clearance Time (s)				6.5	6.5	6.5		6.0	6.0		6.0	
Lane Grp Cap (vph)				352	514	417		759	90		780	
v/s Ratio Prot					c0.04			c0.14			c0.17	
v/s Ratio Perm				0.02		0.01			0.05			
v/c Ratio				0.07	0.14	0.03		0.66	0.25		0.71	
Uniform Delay, d1				27.9	28.4	27.6		39.3	35.5		38.6	
Progression Factor				1.52	1.49	1.00		0.93	3.54		1.00	
Incremental Delay, d2				0.3	0.5	0.1		3.9	5.6		5.5	
Delay (s)				42.6	43.0	27.7		40.4	131.4		44.0	
Level of Service				D	D	C		D	F		D	
Approach Delay (s)		0.0			37.9			55.8			44.0	
Approach LOS		A			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	48.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		

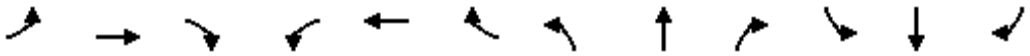
c Critical Lane Group



Lane Group	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	1091	863	145	2270	829
v/c Ratio	0.71	0.61	0.37	0.70	0.33
Control Delay	35.1	41.5	33.1	20.5	34.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	35.1	41.5	33.1	20.5	34.6
Queue Length 50th (ft)	244	236	90	329	218
Queue Length 95th (ft)	296	m280	m151	372	261
Internal Link Dist (ft)	320	1027		460	1159
Turn Bay Length (ft)					
Base Capacity (vph)	1533	1409	394	3220	2481
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.71	0.61	0.37	0.70	0.33

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	1031	38	9	830	159	0	2038	209	0	708	113
Future Volume (vph)	12	1031	38	9	830	159	0	2038	209	0	708	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5	4.5		4.5			4.5	
Lane Util. Factor		0.91			0.86	0.86		0.86			0.91	
Frpb, ped/bikes		1.00			1.00	0.82		0.98			0.98	
Flpb, ped/bikes		1.00			1.00	1.00		1.00			1.00	
Frt		0.99			1.00	0.85		0.99			0.98	
Flt Protected		1.00			1.00	1.00		1.00			1.00	
Satd. Flow (prot)		4981			4593	1077		6027			4632	
Flt Permitted		0.92			0.92	1.00		1.00			1.00	
Satd. Flow (perm)		4608			4247	1077		6027			4632	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	12	1041	38	9	838	161	0	2059	211	0	715	114
RTOR Reduction (vph)	0	3	0	0	1	37	0	15	0	0	20	0
Lane Group Flow (vph)	0	1088	0	0	862	108	0	2255	0	0	809	0
Confl. Peds. (#/hr)	133		97	97		133	87		163	163		87
Confl. Bikes (#/hr)			4			2			5			6
Heavy Vehicles (%)	3%	3%	3%	6%	6%	6%	5%	5%	5%	8%	8%	8%
Turn Type	Perm	NA		Perm	NA	Perm		NA			NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2						
Actuated Green, G (s)		36.5			36.5	36.5		58.5			58.5	
Effective Green, g (s)		36.5			36.5	36.5		58.5			58.5	
Actuated g/C Ratio		0.33			0.33	0.33		0.53			0.53	
Clearance Time (s)		4.5			4.5	4.5		4.5			4.5	
Lane Grp Cap (vph)		1529			1409	357		3205			2463	
v/s Ratio Prot								c0.37			0.17	
v/s Ratio Perm		c0.24			0.20	0.10						
v/c Ratio		0.71			0.61	0.30		0.70			0.33	
Uniform Delay, d1		32.1			30.8	27.3		19.3			14.6	
Progression Factor		1.00			1.29	1.78		1.00			2.46	
Incremental Delay, d2		2.8			1.5	1.6		1.3			0.3	
Delay (s)		35.0			41.3	50.3		20.6			36.2	
Level of Service		C			D	D		C			D	
Approach Delay (s)		35.0			42.6			20.6			36.2	
Approach LOS		C			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	30.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	88.3%	ICU Level of Service	E
Analysis Period (min)	15		

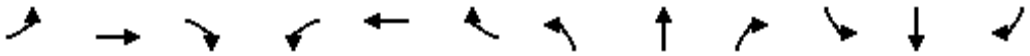
c Critical Lane Group



Lane Group	EBT	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	372	218	60	63	1901	804
v/c Ratio	0.39	0.22	0.16	0.19	1.00	0.28
Control Delay	27.6	55.1	56.2	6.4	41.0	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	1.0
Total Delay	27.6	55.1	56.2	6.4	41.0	11.0
Queue Length 50th (ft)	133	78	41	17	752	188
Queue Length 95th (ft)	m146	119	85	m25	#895	190
Internal Link Dist (ft)	394	249			1159	146
Turn Bay Length (ft)						
Base Capacity (vph)	945	996	382	329	1908	2829
Starvation Cap Reductn	0	0	0	0	0	1684
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.22	0.16	0.19	1.00	0.70

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	336	33	0	216	59	62	1680	202	0	783	13
Future Volume (vph)	0	336	33	0	216	59	62	1680	202	0	783	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5	6.5	6.5	6.5			6.5	
Lane Util. Factor		0.95			0.95	1.00	1.00	0.95			0.91	
Frpb, ped/bikes		0.97			1.00	0.86	1.00	0.96			1.00	
Flpb, ped/bikes		1.00			1.00	1.00	0.96	1.00			1.00	
Frt		0.99			1.00	0.85	1.00	0.98			1.00	
Flt Protected		1.00			1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)		3199			3374	1293	1648	3253			4824	
Flt Permitted		1.00			1.00	1.00	0.32	1.00			1.00	
Satd. Flow (perm)		3199			3374	1293	561	3253			4824	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	0	339	33	0	218	60	63	1697	204	0	791	13
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	372	0	0	218	60	63	1901	0	0	804	0
Confl. Peds. (#/hr)	75		346	346		75	112		287	287		112
Confl. Bikes (#/hr)			58			70			3			21
Heavy Vehicles (%)	8%	8%	8%	7%	7%	7%	5%	5%	5%	7%	7%	7%
Turn Type		NA			NA	Perm	Perm	NA			NA	
Protected Phases		8			4			6			2	
Permitted Phases						4	6					
Actuated Green, G (s)		32.5			32.5	32.5	64.5	64.5			64.5	
Effective Green, g (s)		32.5			32.5	32.5	64.5	64.5			64.5	
Actuated g/C Ratio		0.30			0.30	0.30	0.59	0.59			0.59	
Clearance Time (s)		6.5			6.5	6.5	6.5	6.5			6.5	
Lane Grp Cap (vph)		945			996	382	328	1907			2828	
v/s Ratio Prot		c0.12			0.06			c0.58			0.17	
v/s Ratio Perm						0.05	0.11					
v/c Ratio		0.39			0.22	0.16	0.19	1.00			0.28	
Uniform Delay, d1		30.9			29.2	28.6	10.6	22.6			11.3	
Progression Factor		0.86			1.85	1.89	0.49	1.05			0.86	
Incremental Delay, d2		0.6			0.5	0.9	0.9	16.9			0.2	
Delay (s)		27.3			54.6	55.0	6.1	40.6			9.9	
Level of Service		C			D	E	A	D			A	
Approach Delay (s)		27.3			54.7			39.5			9.9	
Approach LOS		C			D			D			A	

Intersection Summary			
HCM 2000 Control Delay	32.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	88.0%	ICU Level of Service	E
Analysis Period (min)	15		

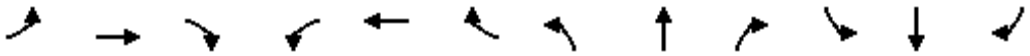
c Critical Lane Group



Lane Group	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	87	147	281	1494	855
v/c Ratio	0.23	0.40	0.48	0.48	0.55
Control Delay	31.7	33.6	10.5	6.7	31.6
Queue Delay	0.0	0.0	19.0	2.6	0.5
Total Delay	31.7	33.6	29.5	9.4	32.1
Queue Length 50th (ft)	46	83	47	90	178
Queue Length 95th (ft)	m73	m136	m49	m93	221
Internal Link Dist (ft)		580		146	270
Turn Bay Length (ft)					
Base Capacity (vph)	386	369	586	3128	1563
Starvation Cap Reductn	0	0	292	1470	0
Spillback Cap Reductn	0	0	0	0	315
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.23	0.40	0.96	0.90	0.69

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	95	66	69	275	1464	0	0	788	50
Future Volume (vph)	0	0	0	95	66	69	275	1464	0	0	788	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5		6.0	6.0			6.0	
Lane Util. Factor				0.95	0.95		1.00	0.91			0.91	
Frpb, ped/bikes				1.00	0.89		1.00	1.00			0.98	
Flpb, ped/bikes				0.92	0.99		0.99	1.00			1.00	
Frt				1.00	0.93		1.00	1.00			0.99	
Flt Protected				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)				1492	1400		1711	4988			4760	
Flt Permitted				0.95	1.00		0.25	1.00			1.00	
Satd. Flow (perm)				1492	1400		443	4988			4760	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	0	0	97	67	70	281	1494	0	0	804	51
RTOR Reduction (vph)	0	0	0	0	7	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	0	0	87	140	0	281	1494	0	0	849	0
Confl. Peds. (#/hr)	167		61	61		167	123		348	348		123
Confl. Bikes (#/hr)						8			3			17
Heavy Vehicles (%)	0%	0%	0%	6%	6%	6%	4%	4%	4%	6%	6%	6%
Turn Type				Perm	NA		pm+pt	NA			NA	
Protected Phases					4		5	2			6	
Permitted Phases				4			2					
Actuated Green, G (s)				28.5	28.5		69.0	69.0			36.0	
Effective Green, g (s)				28.5	28.5		69.0	69.0			36.0	
Actuated g/C Ratio				0.26	0.26		0.63	0.63			0.33	
Clearance Time (s)				6.5	6.5		6.0	6.0			6.0	
Lane Grp Cap (vph)				386	362		589	3128			1557	
v/s Ratio Prot							0.12	c0.30			c0.18	
v/s Ratio Perm				0.06	0.10		0.18					
v/c Ratio				0.23	0.39		0.48	0.48			0.55	
Uniform Delay, d1				32.1	33.6		19.5	10.9			30.3	
Progression Factor				0.94	0.96		0.47	0.60			1.00	
Incremental Delay, d2				1.1	2.6		0.9	0.2			1.4	
Delay (s)				31.2	34.9		10.0	6.7			31.7	
Level of Service				C	C		B	A			C	
Approach Delay (s)		0.0			33.5			7.2			31.7	
Approach LOS		A			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	72.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

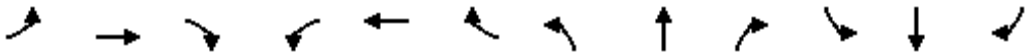


Lane Group	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	9	13	121	133	1235	78	357
v/c Ratio	0.12	0.07	0.58	0.26	1.02	0.47	0.20
Control Delay	53.8	36.5	54.6	14.8	63.8	56.9	12.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.8	36.5	54.6	14.8	63.8	56.9	12.9
Queue Length 50th (ft)	6	8	46	79	~471	53	64
Queue Length 95th (ft)	22	24	76	136	#585	99	86
Internal Link Dist (ft)	133				1023		200
Turn Bay Length (ft)				100			
Base Capacity (vph)	74	192	209	521	1212	165	1754
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.07	0.58	0.26	1.02	0.47	0.20

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	7	11	105	0	116	30	809	236	68	296	15
Future Volume (vph)	1	7	11	105	0	116	30	809	236	68	296	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5	6.5		6.5		6.5		5.0	6.5	
Lane Util. Factor		1.00	1.00	0.97		1.00		0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.73	1.00		1.00		0.96		1.00	0.97	
Flpb, ped/bikes		1.00	1.00	1.00		1.00		0.99		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		0.97		1.00	0.99	
Flt Protected		0.99	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1499	942	3072		1417		3217		1656	3190	
Flt Permitted		0.99	1.00	0.95		1.00		0.93		0.95	1.00	
Satd. Flow (perm)		1499	942	3072		1417		3000		1656	3190	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	1	8	13	121	0	133	34	930	271	78	340	17
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	9	13	121	0	133	0	1235	0	78	357	0
Confl. Peds. (#/hr)	4		150	150		4	390		114	114		390
Confl. Bikes (#/hr)			17			113			39			31
Heavy Vehicles (%)	26%	26%	26%	14%	14%	14%	3%	3%	3%	9%	9%	9%
Turn Type	Prot	NA	Perm	Prot		custom	Perm	NA		Prot	NA	
Protected Phases	3	8		7		7 4 1		2		1	6	
Permitted Phases			8				2					
Actuated Green, G (s)		22.5	22.5	7.5		42.0		44.5		11.0	60.5	
Effective Green, g (s)		22.5	22.5	7.5		42.0		44.5		11.0	60.5	
Actuated g/C Ratio		0.20	0.20	0.07		0.38		0.40		0.10	0.55	
Clearance Time (s)		6.5	6.5	6.5				6.5		5.0	6.5	
Lane Grp Cap (vph)		306	192	209		541		1213		165	1754	
v/s Ratio Prot		0.00		c0.04		c0.09				c0.05	0.11	
v/s Ratio Perm		0.00	c0.01					c0.41				
v/c Ratio		0.03	0.07	0.58		0.25		1.02		0.47	0.20	
Uniform Delay, d1		35.0	35.3	49.7		23.2		32.8		46.8	12.5	
Progression Factor		1.00	1.00	0.87		0.55		1.00		1.00	1.00	
Incremental Delay, d2		0.2	0.7	11.0		1.1		30.5		9.4	0.3	
Delay (s)		35.2	36.0	54.2		13.9		63.2		56.2	12.8	
Level of Service		D	D	D		B		E		E	B	
Approach Delay (s)		35.7			33.1			63.2			20.6	
Approach LOS		D			C			E			C	

Intersection Summary			
HCM 2000 Control Delay	49.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	81.7%	ICU Level of Service	D
Analysis Period (min)	15		

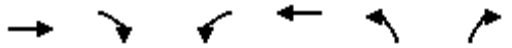
c Critical Lane Group



Lane Group	EBT	EBR	WBL	WBT	NBR
Lane Group Flow (vph)	348	2	634	1071	582
v/c Ratio	0.14	0.00	0.51	0.60	0.45
Control Delay	14.8	21.5	30.6	21.9	41.4
Queue Delay	0.0	0.0	3.5	1.2	0.0
Total Delay	14.8	21.5	34.1	23.1	41.4
Queue Length 50th (ft)	26	0	159	340	144
Queue Length 95th (ft)	m55	m3	213	423	194
Internal Link Dist (ft)	354			202	
Turn Bay Length (ft)					
Base Capacity (vph)	2468	519	1236	1784	1287
Starvation Cap Reductn	0	0	491	448	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.14	0.00	0.85	0.80	0.45

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	320	2	583	985	0	535
Future Volume (vph)	320	2	583	985	0	535
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0		7.0
Lane Util. Factor	0.91	1.00	0.97	0.95		0.76
Frpb, ped/bikes	1.00	0.68	1.00	1.00		1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00		1.00
Frt	1.00	0.85	1.00	1.00		0.85
Flt Protected	1.00	1.00	0.95	1.00		1.00
Satd. Flow (prot)	4848	1020	3400	3505		3541
Flt Permitted	1.00	1.00	0.95	1.00		1.00
Satd. Flow (perm)	4848	1020	3400	3505		3541
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	348	2	634	1071	0	582
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	348	2	634	1071	0	582
Confl. Peds. (#/hr)		146	146		17	
Confl. Bikes (#/hr)		46				4
Heavy Vehicles (%)	7%	7%	3%	3%	4%	4%
Turn Type	NA	Perm	Prot	NA		Prot
Protected Phases	2		7	6		4
Permitted Phases		2				
Actuated Green, G (s)	56.0	56.0	40.0	56.0		40.0
Effective Green, g (s)	56.0	56.0	40.0	56.0		40.0
Actuated g/C Ratio	0.51	0.51	0.36	0.51		0.36
Clearance Time (s)	7.0	7.0	7.0	7.0		7.0
Lane Grp Cap (vph)	2468	519	1236	1784		1287
v/s Ratio Prot	0.07		c0.19	c0.31		0.16
v/s Ratio Perm		0.00				
v/c Ratio	0.14	0.00	0.51	0.60		0.45
Uniform Delay, d1	14.3	13.3	27.4	19.1		26.7
Progression Factor	1.02	1.59	1.06	1.06		1.50
Incremental Delay, d2	0.1	0.0	1.4	1.3		1.1
Delay (s)	14.7	21.1	30.3	21.6		41.0
Level of Service	B	C	C	C		D
Approach Delay (s)	14.8			24.9	41.0	
Approach LOS	B			C	D	

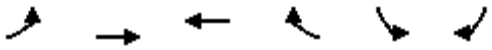
Intersection Summary			
HCM 2000 Control Delay	27.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	40.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	SBR
Lane Group Flow (vph)	781	115	5	1373
v/c Ratio	0.44	0.10	0.00	0.72
Control Delay	15.3	23.2	22.2	20.5
Queue Delay	1.8	0.0	0.0	3.3
Total Delay	17.1	23.2	22.2	23.9
Queue Length 50th (ft)	148	26	1	276
Queue Length 95th (ft)	194	46	5	345
Internal Link Dist (ft)		268	282	
Turn Bay Length (ft)				
Base Capacity (vph)	1784	1162	1209	1913
Starvation Cap Reductn	794	0	0	430
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.79	0.10	0.00	0.93

Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	750	110	5	0	0	1318
Future Volume (vph)	750	110	5	0	0	1318
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.5	6.5			7.0
Lane Util. Factor	0.97	0.95	0.95			0.76
Frpb, ped/bikes	1.00	1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	1.00	1.00	1.00			0.85
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3367	3471	3610			3610
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3367	3471	3610			3610
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	781	115	5	0	0	1373
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	781	115	5	0	0	1373
Confl. Peds. (#/hr)	44			44	2	2
Confl. Bikes (#/hr)				81		32
Heavy Vehicles (%)	4%	4%	0%	0%	2%	2%
Turn Type	Prot	NA	NA			Prot
Protected Phases	7	6	2			4
Permitted Phases						
Actuated Green, G (s)	53.0	33.5	33.5			53.0
Effective Green, g (s)	53.0	33.5	33.5			53.0
Actuated g/C Ratio	0.53	0.34	0.34			0.53
Clearance Time (s)	7.0	6.5	6.5			7.0
Lane Grp Cap (vph)	1784	1162	1209			1913
v/s Ratio Prot	0.23	c0.03	0.00			c0.38
v/s Ratio Perm						
v/c Ratio	0.44	0.10	0.00			0.72
Uniform Delay, d1	14.4	22.9	22.1			17.8
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	0.8	0.2	0.0			2.3
Delay (s)	15.2	23.0	22.1			20.2
Level of Service	B	C	C			C
Approach Delay (s)		16.2	22.1		20.2	
Approach LOS		B	C		C	

Intersection Summary			
HCM 2000 Control Delay	18.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBL	WBT	NBR
Lane Group Flow (vph)	573	115	293	20
v/c Ratio	0.18	0.31	0.13	0.06
Control Delay	11.0	50.9	4.3	34.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	11.0	50.9	4.3	34.7
Queue Length 50th (ft)	108	72	23	11
Queue Length 95th (ft)	m126	121	33	32
Internal Link Dist (ft)	249		238	
Turn Bay Length (ft)				
Base Capacity (vph)	3108	375	2328	358
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	73	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.19	0.31	0.13	0.06

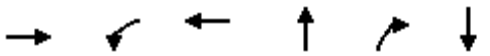
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	445	111	112	284	0	19
Future Volume (vph)	445	111	112	284	0	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		6.0	5.5		6.0
Lane Util. Factor	0.91		1.00	0.95		1.00
Frpb, ped/bikes	0.99		1.00	1.00		1.00
Flpb, ped/bikes	1.00		1.00	1.00		1.00
Frt	0.97		1.00	1.00		0.86
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	4590		1719	3438		1644
Flt Permitted	1.00		0.95	1.00		1.00
Satd. Flow (perm)	4590		1719	3438		1644
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	459	114	115	293	0	20
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	573	0	115	293	0	20
Confl. Peds. (#/hr)		3	3		97	1
Confl. Bikes (#/hr)		33				
Heavy Vehicles (%)	5%	5%	5%	5%	0%	0%
Parking (#/hr)	0	0				
Turn Type	NA		Prot	NA		Over
Protected Phases	2		4	6		4
Permitted Phases						
Actuated Green, G (s)	74.5		24.0	74.5		24.0
Effective Green, g (s)	74.5		24.0	74.5		24.0
Actuated g/C Ratio	0.68		0.22	0.68		0.22
Clearance Time (s)	5.5		6.0	5.5		6.0
Lane Grp Cap (vph)	3108		375	2328		358
v/s Ratio Prot	c0.12		c0.07	0.09		0.01
v/s Ratio Perm						
v/c Ratio	0.18		0.31	0.13		0.06
Uniform Delay, d1	6.5		36.0	6.3		34.0
Progression Factor	1.66		1.33	0.66		1.00
Incremental Delay, d2	0.1		2.1	0.1		0.3
Delay (s)	10.9		50.1	4.2		34.3
Level of Service	B		D	A		C
Approach Delay (s)	10.9			17.2	34.3	
Approach LOS	B			B	C	

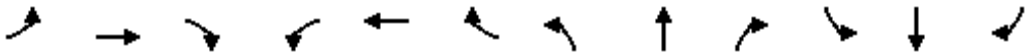
Intersection Summary			
HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.21		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	1288	327	1092	154	277	608
v/c Ratio	0.69	0.97	0.35	0.20	0.50	0.82
Control Delay	30.3	87.3	10.0	5.2	9.4	57.4
Queue Delay	10.3	0.0	0.0	0.0	2.3	0.0
Total Delay	40.6	87.3	10.0	5.2	11.7	57.4
Queue Length 50th (ft)	273	231	122	4	155	217
Queue Length 95th (ft)	327	#410	148	7	248	#291
Internal Link Dist (ft)	282		355	154		901
Turn Bay Length (ft)						
Base Capacity (vph)	1862	337	3081	752	556	741
Starvation Cap Reductn	557	0	0	0	164	0
Spillback Cap Reductn	117	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.97	0.35	0.20	0.71	0.82

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	1250	9	320	995	75	17	134	271	128	411	57
Future Volume (vph)	3	1250	9	320	995	75	17	134	271	128	411	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		5.0	6.0			6.5	6.5		6.5	
Lane Util. Factor		0.91		1.00	0.91			0.95	1.00		0.95	
Frpb, ped/bikes		1.00		1.00	0.97			1.00	0.87		0.98	
Flpb, ped/bikes		1.00		1.00	1.00			0.99	1.00		0.98	
Frt		1.00		1.00	0.99			1.00	0.85		0.99	
Flt Protected		1.00		0.95	1.00			0.99	1.00		0.99	
Satd. Flow (prot)		5075		1770	4902			3429	1356		3355	
Flt Permitted		0.94		0.95	1.00			0.84	1.00		0.84	
Satd. Flow (perm)		4759		1770	4902			2904	1356		2832	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	3	1276	9	327	1015	77	17	137	277	131	419	58
RTOR Reduction (vph)	0	1	0	0	8	0	0	0	205	0	7	0
Lane Group Flow (vph)	0	1287	0	327	1084	0	0	154	72	0	601	0
Confl. Peds. (#/hr)	361		47	47		361	139		80	80		139
Confl. Bikes (#/hr)			30			14			16			19
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	1%	1%	1%
Turn Type	Perm	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			4			4	
Permitted Phases	2						4		4	4		
Actuated Green, G (s)		43.0		21.0	69.0			28.5	28.5		28.5	
Effective Green, g (s)		43.0		21.0	69.0			28.5	28.5		28.5	
Actuated g/C Ratio		0.39		0.19	0.63			0.26	0.26		0.26	
Clearance Time (s)		6.0		5.0	6.0			6.5	6.5		6.5	
Lane Grp Cap (vph)		1860		337	3074			752	351		733	
v/s Ratio Prot				c0.18	0.22							
v/s Ratio Perm		c0.27						0.05	0.05		c0.21	
v/c Ratio		0.69		0.97	0.35			0.20	0.20		0.82	
Uniform Delay, d1		28.0		44.2	9.8			31.9	31.9		38.3	
Progression Factor		1.00		1.00	1.00			0.14	1.54		1.26	
Incremental Delay, d2		2.1		42.1	0.3			0.6	1.3		9.6	
Delay (s)		30.1		86.3	10.1			5.1	50.3		57.8	
Level of Service		C		F	B			A	D		E	
Approach Delay (s)		30.1			27.7			34.2			57.8	
Approach LOS		C			C			C			E	

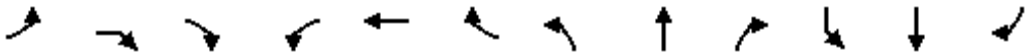
Intersection Summary			
HCM 2000 Control Delay	34.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	108.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBR	EBR2	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	90	110	137	41	161	197	364	765
v/c Ratio	0.52	0.38	0.34	0.15	0.48	0.19	0.68	0.38
Control Delay	52.9	44.1	9.2	39.6	45.7	1.2	45.1	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.9	44.1	9.2	39.6	45.7	1.2	45.1	10.8
Queue Length 50th (ft)	58	69	0	25	103	0	132	134
Queue Length 95th (ft)	113	125	52	57	170	21	187	180
Internal Link Dist (ft)					318		901	413
Turn Bay Length (ft)								
Base Capacity (vph)	172	287	399	270	338	1049	534	2008
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.38	0.34	0.15	0.48	0.19	0.68	0.38

Intersection Summary



Movement	EBL	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	107	133	40	156	191	37	214	102	332	366	45
Future Volume (vph)	87	107	133	40	156	191	37	214	102	332	366	45
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	5.0		6.0			6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		0.95			0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.96		0.97			0.97	
Flpb, ped/bikes	0.91	1.00	1.00	0.84	1.00	1.00		0.98			1.00	
Frt	1.00	0.85	0.85	1.00	1.00	0.85		0.96			0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99			0.98	
Satd. Flow (prot)	1607	1583	1583	1489	1863	1519		3219			3307	
Flt Permitted	0.56	1.00	1.00	0.95	1.00	1.00		0.79			0.59	
Satd. Flow (perm)	951	1583	1583	1489	1863	1519		2556			1998	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	90	110	137	41	161	197	38	221	105	342	377	46
RTOR Reduction (vph)	0	0	112	0	0	72	0	0	0	0	4	0
Lane Group Flow (vph)	90	110	25	41	161	125	0	364	0	0	761	0
Confl. Peds. (#/hr)	45		96	96		45	240		14	14		240
Confl. Bikes (#/hr)		2							21			9
Turn Type	Perm	Prot	Prot	Perm	NA	custom	Perm	NA		pm+pt	NA	
Protected Phases		4	4		8	5		6		5	2	
Permitted Phases	4	4	4	8		8	6			2		
Actuated Green, G (s)	20.0	20.0	20.0	20.0	20.0	70.0		23.0			78.0	
Effective Green, g (s)	20.0	20.0	20.0	20.0	20.0	70.0		23.0			78.0	
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.18	0.64		0.21			0.71	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	5.0		6.0			6.0	
Lane Grp Cap (vph)	172	287	287	270	338	966		534			2011	
v/s Ratio Prot		0.07	0.02		0.09	0.06					c0.17	
v/s Ratio Perm	c0.09			0.03		0.02		c0.14			0.10	
v/c Ratio	0.52	0.38	0.09	0.15	0.48	0.13		0.68			0.38	
Uniform Delay, d1	40.7	39.6	37.4	37.9	40.3	7.9		40.1			6.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		0.94			1.72	
Incremental Delay, d2	10.9	3.8	0.6	1.2	4.7	0.3		6.9			0.5	
Delay (s)	51.6	43.4	38.0	39.1	45.1	8.2		44.6			11.4	
Level of Service	D	D	D	D	D	A		D			B	
Approach Delay (s)					26.2			44.6			11.4	
Approach LOS					C			D			B	

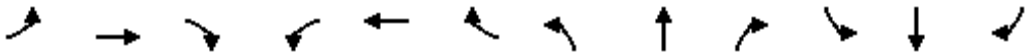
Intersection Summary			
HCM 2000 Control Delay	26.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	22	124	199	353	487	649
v/c Ratio	0.08	0.17	0.47	0.73	0.72	0.68
Control Delay	11.5	8.7	25.5	19.7	15.8	29.2
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0
Total Delay	11.5	8.7	25.5	19.7	16.1	29.2
Queue Length 50th (ft)	9	40	95	81	70	187
Queue Length 95th (ft)	m17	63	165	222	138	257
Internal Link Dist (ft)		1267		269	413	277
Turn Bay Length (ft)	100					
Base Capacity (vph)	272	751	422	485	677	955
Starvation Cap Reductn	0	0	0	0	17	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.17	0.47	0.73	0.74	0.68

Intersection Summary

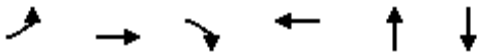
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	83	35	189	75	260	24	244	195	177	426	14
Future Volume (vph)	21	83	35	189	75	260	24	244	195	177	426	14
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	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			0.95	
Frpb, ped/bikes	1.00	0.90		1.00	0.50			0.91			0.99	
Flpb, ped/bikes	0.70	1.00		0.74	1.00			1.00			0.98	
Frt	1.00	0.96		1.00	0.88			0.94			1.00	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1251	1621		1303	818			1579			3425	
Flt Permitted	0.45	1.00		0.68	1.00			0.95			0.63	
Satd. Flow (perm)	599	1621		929	818			1499			2184	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	22	87	37	199	79	274	25	257	205	186	448	15
RTOR Reduction (vph)	0	14	0	0	113	0	0	24	0	0	2	0
Lane Group Flow (vph)	22	110	0	199	240	0	0	463	0	0	647	0
Confl. Peds. (#/hr)	408		195	195		408	131		121	121		131
Confl. Bikes (#/hr)			75			32			16			8
Heavy Vehicles (%)	1%	1%	1%	3%	3%	3%	3%	3%	3%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	50.0	50.0		50.0	50.0			48.0			48.0	
Effective Green, g (s)	50.0	50.0		50.0	50.0			48.0			48.0	
Actuated g/C Ratio	0.45	0.45		0.45	0.45			0.44			0.44	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	272	736		422	371			654			953	
v/s Ratio Prot		0.07			c0.29							
v/s Ratio Perm	0.04			0.21				c0.31			0.30	
v/c Ratio	0.08	0.15		0.47	0.65			0.71			0.68	
Uniform Delay, d1	17.0	17.6		20.8	23.2			25.3			24.8	
Progression Factor	0.62	0.59		1.00	1.00			0.42			1.00	
Incremental Delay, d2	0.5	0.4		3.7	8.4			5.8			3.9	
Delay (s)	11.1	10.7		24.6	31.6			16.3			28.7	
Level of Service	B	B		C	C			B			C	
Approach Delay (s)		10.8			29.0			16.3			28.7	
Approach LOS		B			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	24.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	91.9%	ICU Level of Service	F
Analysis Period (min)	15		

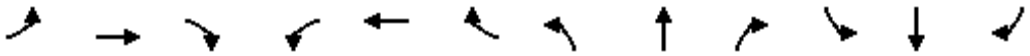
c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBT	NBT	SBT
Lane Group Flow (vph)	16	152	150	93	471	807
v/c Ratio	0.05	0.44	0.45	0.58	0.30	0.51
Control Delay	45.2	40.3	40.5	59.5	29.1	21.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	2.6
Total Delay	45.2	40.3	40.5	59.5	29.2	24.0
Queue Length 50th (ft)	5	96	95	60	91	131
Queue Length 95th (ft)	16	164	163	#122	121	m148
Internal Link Dist (ft)		282		633	181	154
Turn Bay Length (ft)						
Base Capacity (vph)	343	344	337	161	1548	1580
Starvation Cap Reductn	0	0	0	0	0	626
Spillback Cap Reductn	0	0	0	0	139	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.44	0.45	0.58	0.33	0.85

Intersection Summary

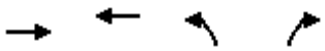
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	12	263	50	25	10	0	420	8	2	731	2
Future Volume (vph)	15	12	263	50	25	10	0	420	8	2	731	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.5	6.5		6.5			6.5			7.0	
Lane Util. Factor	0.97	0.95	0.95		1.00			0.91			0.95	
Frpb, ped/bikes	1.00	0.94	0.93		0.98			0.99			1.00	
Flpb, ped/bikes	1.00	1.00	1.00		0.99			1.00			1.00	
Frt	1.00	0.86	0.85		0.98			1.00			1.00	
Flt Protected	0.95	1.00	1.00		0.97			1.00			1.00	
Satd. Flow (prot)	3433	1431	1401		1492			4932			3465	
Flt Permitted	0.95	1.00	1.00		0.78			1.00			0.95	
Satd. Flow (perm)	3433	1431	1401		1196			4932			3309	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	16	13	289	55	27	11	0	462	9	2	803	2
RTOR Reduction (vph)	0	0	0	0	3	0	0	2	0	0	0	0
Lane Group Flow (vph)	16	152	150	0	90	0	0	469	0	0	807	0
Confl. Peds. (#/hr)	113		19	19		113	158		156	156		158
Confl. Bikes (#/hr)			38			35			81			31
Heavy Vehicles (%)	2%	2%	2%	18%	18%	18%	4%	4%	4%	4%	4%	4%
Turn Type	Prot	NA	Perm	Prot	NA			NA		pm+pt	NA	
Protected Phases	1	6		1	2			4		3	8	
Permitted Phases			6							8		
Actuated Green, G (s)	11.0	26.5	26.5		37.5			34.5			52.0	
Effective Green, g (s)	11.0	26.5	26.5		37.5			34.5			52.0	
Actuated g/C Ratio	0.10	0.24	0.24		0.34			0.31			0.47	
Clearance Time (s)	7.0	6.5	6.5		6.5			6.5			7.0	
Lane Grp Cap (vph)	343	344	337		437			1546			1579	
v/s Ratio Prot	0.00	0.11			c0.02			0.10			c0.05	
v/s Ratio Perm			c0.11		0.05						c0.19	
v/c Ratio	0.05	0.44	0.45		0.21			0.30			0.51	
Uniform Delay, d1	44.8	35.5	35.5		25.7			28.6			20.2	
Progression Factor	1.00	1.00	1.00		1.00			1.00			1.01	
Incremental Delay, d2	0.3	4.1	4.2		1.1			0.5			0.6	
Delay (s)	45.0	39.5	39.7		26.8			29.1			21.0	
Level of Service	D	D	D		C			C			C	
Approach Delay (s)		39.9			26.8			29.1			21.0	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	1866	1066	207	101
v/c Ratio	0.71	0.37	0.47	0.24
Control Delay	15.9	13.2	38.3	20.7
Queue Delay	5.2	1.1	0.3	0.0
Total Delay	21.2	14.2	38.6	20.7
Queue Length 50th (ft)	287	141	123	31
Queue Length 95th (ft)	315	171	197	77
Internal Link Dist (ft)	202	268	424	
Turn Bay Length (ft)				
Base Capacity (vph)	2642	2884	440	425
Starvation Cap Reductn	709	1471	0	0
Spillback Cap Reductn	0	117	38	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.97	0.75	0.51	0.24

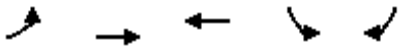
Intersection Summary



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1582	228	0	1034	201	98
Future Volume (vph)	1582	228	0	1034	201	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0			6.0	6.0	6.0
Lane Util. Factor	0.91			0.91	1.00	1.00
Frpb, ped/bikes	0.93			1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	0.98			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	4614			5036	1671	1495
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	4614			5036	1671	1495
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1631	235	0	1066	207	101
RTOR Reduction (vph)	0	0	0	0	0	32
Lane Group Flow (vph)	1866	0	0	1066	207	69
Confl. Peds. (#/hr)		174	174		90	206
Confl. Bikes (#/hr)		107				39
Heavy Vehicles (%)	3%	3%	3%	3%	8%	8%
Turn Type	NA			NA	Prot	Prot
Protected Phases	2			2	4	4
Permitted Phases						
Actuated Green, G (s)	63.0			63.0	29.0	29.0
Effective Green, g (s)	63.0			63.0	29.0	29.0
Actuated g/C Ratio	0.57			0.57	0.26	0.26
Clearance Time (s)	6.0			6.0	6.0	6.0
Lane Grp Cap (vph)	2642			2884	440	394
v/s Ratio Prot	c0.40			0.21	c0.12	0.05
v/s Ratio Perm						
v/c Ratio	0.71			0.37	0.47	0.18
Uniform Delay, d1	16.9			12.7	34.0	31.3
Progression Factor	0.85			1.00	1.00	1.00
Incremental Delay, d2	1.4			0.4	3.6	1.0
Delay (s)	15.7			13.1	37.6	32.2
Level of Service	B			B	D	C
Approach Delay (s)	15.7			13.1	35.9	
Approach LOS	B			B	D	

Intersection Summary			
HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		

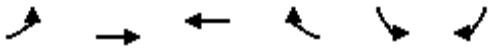
c Critical Lane Group



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	165	844	764	15	469
v/c Ratio	0.26	0.30	0.57	0.04	0.51
Control Delay	3.9	3.1	45.8	14.9	3.5
Queue Delay	0.0	0.0	0.0	0.0	1.2
Total Delay	3.9	3.1	45.8	14.9	4.7
Queue Length 50th (ft)	13	24	209	7	11
Queue Length 95th (ft)	m20	29	253	m7	m13
Internal Link Dist (ft)		484	340	163	
Turn Bay Length (ft)					
Base Capacity (vph)	628	2849	1336	376	913
Starvation Cap Reductn	0	0	0	0	240
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.26	0.30	0.57	0.04	0.70

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	222	757	733	8	15	455
Future Volume (vph)	222	757	733	8	15	455
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		5.5	6.0
Lane Util. Factor	0.86	0.86	0.91		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	0.99
Flpb, ped/bikes	0.99	1.00	1.00		0.87	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1482	4686	5071		1563	1588
Flt Permitted	0.26	0.85	1.00		0.95	1.00
Satd. Flow (perm)	407	3993	5071		1563	1588
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	229	780	756	8	15	469
RTOR Reduction (vph)	0	0	1	0	0	3
Lane Group Flow (vph)	165	844	763	0	15	466
Confl. Peds. (#/hr)	88			88	95	3
Confl. Bikes (#/hr)				1		
Heavy Vehicles (%)	4%	4%	2%	2%	1%	1%
Turn Type	pm+pt	NA	NA		Perm	pm+ov
Protected Phases	1	6	2			1
Permitted Phases	6				4	4
Actuated Green, G (s)	72.0	72.0	29.0		26.5	63.5
Effective Green, g (s)	72.0	72.0	29.0		26.5	63.5
Actuated g/C Ratio	0.65	0.65	0.26		0.24	0.58
Clearance Time (s)	6.0	6.0	6.0		5.5	6.0
Lane Grp Cap (vph)	627	2846	1336		376	1003
v/s Ratio Prot	0.09	0.10	c0.15			c0.16
v/s Ratio Perm	0.08	0.09			0.01	0.14
v/c Ratio	0.26	0.30	0.57		0.04	0.46
Uniform Delay, d1	14.3	8.1	35.1		32.0	13.4
Progression Factor	0.25	0.34	1.25		0.46	0.30
Incremental Delay, d2	0.8	0.2	1.7		0.0	0.1
Delay (s)	4.3	3.0	45.6		14.8	4.1
Level of Service	A	A	D		B	A
Approach Delay (s)		3.2	45.6		4.4	
Approach LOS		A	D		A	

Intersection Summary			
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		

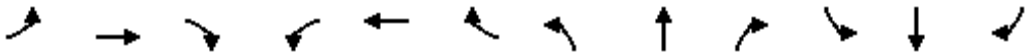
c Critical Lane Group

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	232	354	433	436
v/c Ratio	0.58	1.12	0.30	0.27
Control Delay	26.7	128.8	8.3	18.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	26.7	128.8	8.3	18.5
Queue Length 50th (ft)	72	~293	33	43
Queue Length 95th (ft)	155	#479	59	57
Internal Link Dist (ft)	492	1267	654	413
Turn Bay Length (ft)				
Base Capacity (vph)	403	315	1465	1618
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.58	1.12	0.30	0.27

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	0	153	139	136	55	52	351	0	0	366	39
Future Volume (vph)	62	0	153	139	136	55	52	351	0	0	366	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5			5.0			5.0	
Lane Util. Factor		1.00			1.00			0.95			0.91	
Frpb, ped/bikes		1.00			1.00			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.90			0.98			1.00			0.99	
Flt Protected		0.99			0.98			0.99			1.00	
Satd. Flow (prot)		1676			1779			3482			5047	
Flt Permitted		0.76			0.68			0.87			1.00	
Satd. Flow (perm)		1292			1234			3044			5047	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	67	0	165	149	146	59	56	377	0	0	394	42
RTOR Reduction (vph)	0	80	0	0	7	0	0	0	0	0	12	0
Lane Group Flow (vph)	0	152	0	0	347	0	0	433	0	0	424	0
Confl. Bikes (#/hr)						4			12			9
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	3%	3%	3%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Prot	NA			NA	
Protected Phases		8			8		5	2			6	
Permitted Phases	8			8								
Actuated Green, G (s)		27.5			27.5			72.0			35.0	
Effective Green, g (s)		27.5			27.5			72.0			35.0	
Actuated g/C Ratio		0.25			0.25			0.65			0.32	
Clearance Time (s)		5.5			5.5			5.0			5.0	
Lane Grp Cap (vph)		323			308			2119			1605	
v/s Ratio Prot								c0.06			c0.08	
v/s Ratio Perm		0.12			c0.28			0.07				
v/c Ratio		0.47			1.13			0.20			0.26	
Uniform Delay, d1		35.1			41.2			7.6			27.9	
Progression Factor		1.08			1.11			0.73			0.67	
Incremental Delay, d2		4.5			89.2			0.2			0.4	
Delay (s)		42.5			135.2			5.8			19.1	
Level of Service		D			F			A			B	
Approach Delay (s)		42.5			135.2			5.8			19.1	
Approach LOS		D			F			A			B	

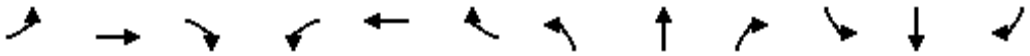
Intersection Summary			
HCM 2000 Control Delay	47.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	146	223	13	173	732	626
v/c Ratio	0.28	0.31	0.04	0.25	0.56	0.44
Control Delay	15.8	12.3	21.5	21.3	32.6	20.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.8	12.3	21.5	21.4	32.6	20.8
Queue Length 50th (ft)	54	87	6	74	147	91
Queue Length 95th (ft)	m85	140	m12	m120	m175	127
Internal Link Dist (ft)		495		1267	413	291
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	521	731	348	693	1305	1415
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	41	0	1
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.31	0.04	0.27	0.56	0.44

Intersection Summary

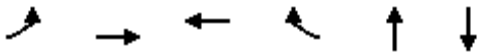
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	93	121	12	137	29	91	549	62	32	360	209
Future Volume (vph)	140	93	121	12	137	29	91	549	62	32	360	209
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	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.91			0.91	
Frpb, ped/bikes	1.00	0.82		1.00	0.95			0.95			0.86	
Flpb, ped/bikes	0.86	1.00		0.78	1.00			0.97			0.99	
Frt	1.00	0.92		1.00	0.97			0.99			0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1505	1378		1383	1716			4671			4124	
Flt Permitted	0.63	1.00		0.60	1.00			0.74			0.86	
Satd. Flow (perm)	1005	1378		870	1716			3476			3561	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	146	97	126	12	143	30	95	572	65	33	375	218
RTOR Reduction (vph)	0	18	0	0	7	0	0	11	0	0	88	0
Lane Group Flow (vph)	146	205	0	13	166	0	0	721	0	0	538	0
Confl. Peds. (#/hr)	173		202	202		173	279		186	186		279
Confl. Bikes (#/hr)			47			18			7			2
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	1%	1%	1%	2%	2%	2%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	3	8			4			2			6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	57.0	57.0		44.0	44.0			41.0			41.0	
Effective Green, g (s)	57.0	57.0		44.0	44.0			41.0			41.0	
Actuated g/C Ratio	0.52	0.52		0.40	0.40			0.37			0.37	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	552	714		348	686			1295			1327	
v/s Ratio Prot	0.02	c0.15			0.10							
v/s Ratio Perm	0.12			0.01				c0.21			0.15	
v/c Ratio	0.26	0.29		0.04	0.24			0.56			0.41	
Uniform Delay, d1	15.5	15.0		20.1	21.9			27.3			25.5	
Progression Factor	0.92	0.89		1.04	0.99			1.15			1.00	
Incremental Delay, d2	1.1	0.9		0.2	0.8			1.7			0.9	
Delay (s)	15.3	14.2		21.1	22.4			33.0			26.4	
Level of Service	B	B		C	C			C			C	
Approach Delay (s)		14.6			22.3			33.0			26.4	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	26.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



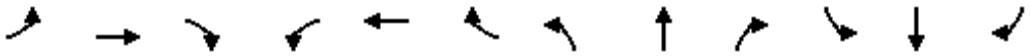
Lane Group	EBL	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	27	756	535	126	296	862
v/c Ratio	0.10	0.50	0.35	0.46	0.23	1.08
Control Delay	77.3	48.3	42.3	49.6	9.9	75.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	5.0
Total Delay	77.3	48.3	42.3	49.6	9.9	80.7
Queue Length 50th (ft)	20	208	96	62	23	~362
Queue Length 95th (ft)	m30	253	136	115	32	m#453
Internal Link Dist (ft)		523	354		163	654
Turn Bay Length (ft)						
Base Capacity (vph)	262	1502	1519	275	1271	797
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	9
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.50	0.35	0.46	0.23	1.09

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	681	30	0	503	118	38	231	9	282	441	87
Future Volume (vph)	25	681	30	0	503	118	38	231	9	282	441	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5			6.5	6.5		7.0			10.0	
Lane Util. Factor	1.00	0.91			0.91	1.00		0.91			0.95	
Frpb, ped/bikes	1.00	0.99			1.00	0.58		0.99			0.98	
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00			0.93	
Frt	1.00	0.99			1.00	0.85		0.99			0.98	
Flt Protected	0.95	1.00			1.00	1.00		0.99			0.98	
Satd. Flow (prot)	1752	4932			4988	905		4639			3168	
Flt Permitted	0.95	1.00			1.00	1.00		0.75			0.73	
Satd. Flow (perm)	1752	4932			4988	905		3490			2345	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	27	724	32	0	535	126	40	246	10	300	469	93
RTOR Reduction (vph)	0	0	0	0	0	0	0	3	0	0	9	0
Lane Group Flow (vph)	27	756	0	0	535	126	0	293	0	0	853	0
Confl. Peds. (#/hr)	442		190	190		442	78		160	160		78
Confl. Bikes (#/hr)			64			47			4			6
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	9%	9%	9%	1%	1%	1%
Turn Type	Prot	NA			NA	Perm	Perm	NA		Perm	NA	
Protected Phases	7	6			2			4			8	
Permitted Phases						2	4			8		
Actuated Green, G (s)	16.5	33.5			33.5	33.5		40.0			37.0	
Effective Green, g (s)	16.5	33.5			33.5	33.5		40.0			37.0	
Actuated g/C Ratio	0.15	0.30			0.30	0.30		0.36			0.34	
Clearance Time (s)	6.5	6.5			6.5	6.5		7.0			10.0	
Lane Grp Cap (vph)	262	1502			1519	275		1269			788	
v/s Ratio Prot	c0.02	c0.15			0.11							
v/s Ratio Perm						0.14		0.08			c0.36	
v/c Ratio	0.10	0.50			0.35	0.46		0.23			1.08	
Uniform Delay, d1	40.4	31.4			29.8	30.9		24.3			36.5	
Progression Factor	1.88	1.50			1.39	1.40		0.39			0.50	
Incremental Delay, d2	0.6	0.9			0.6	4.9		0.4			55.7	
Delay (s)	76.4	48.0			42.1	48.0		10.0			73.8	
Level of Service	E	D			D	D		A			E	
Approach Delay (s)		49.0			43.2			10.0			73.8	
Approach LOS		D			D			A			E	

Intersection Summary			
HCM 2000 Control Delay	51.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	79.1%	ICU Level of Service	D
Analysis Period (min)	15		

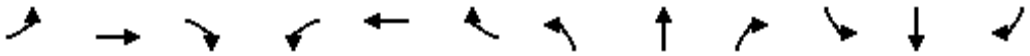
c Critical Lane Group



Lane Group	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1104	1169	73	652	599
v/c Ratio	0.69	0.45	0.26	0.38	0.59
Control Delay	9.4	11.0	28.3	24.1	24.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	9.4	11.0	28.3	24.1	24.0
Queue Length 50th (ft)	34	92	33	113	77
Queue Length 95th (ft)	m36	106	65	147	127
Internal Link Dist (ft)	516	484		438	368
Turn Bay Length (ft)					
Base Capacity (vph)	1608	2601	285	1722	1017
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.69	0.45	0.26	0.38	0.59

Intersection Summary

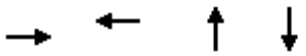
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	890	170	254	872	20	72	541	98	1	512	74
Future Volume (vph)	23	890	170	254	872	20	72	541	98	1	512	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5		6.5	6.5			6.5	
Lane Util. Factor		0.86			0.86		1.00	0.91			0.91	
Frpb, ped/bikes		0.96			1.00		1.00	0.94			0.95	
Flpb, ped/bikes		1.00			0.99		0.96	1.00			1.00	
Frt		0.98			1.00		1.00	0.98			0.98	
Flt Protected		1.00			0.99		0.95	1.00			1.00	
Satd. Flow (prot)		5945			6321		1629	4503			4258	
Flt Permitted		0.87			0.74		0.35	1.00			0.94	
Satd. Flow (perm)		5183			4698		608	4503			3999	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	23	908	173	259	890	20	73	552	100	1	522	76
RTOR Reduction (vph)	0	31	0	0	2	0	0	24	0	0	17	0
Lane Group Flow (vph)	0	1073	0	0	1167	0	73	628	0	0	582	0
Confl. Peds. (#/hr)	165		157	157		165	365		449	449		365
Confl. Bikes (#/hr)			7			2			21			14
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	6%	6%	6%	14%	14%	14%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		6		5	2		3	8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)		33.5			55.5		41.5	41.5			27.5	
Effective Green, g (s)		33.5			55.5		41.5	41.5			27.5	
Actuated g/C Ratio		0.30			0.50		0.38	0.38			0.25	
Clearance Time (s)		6.5			6.5		6.5	6.5			6.5	
Lane Grp Cap (vph)		1578			2621		298	1698			999	
v/s Ratio Prot					c0.07		0.02	c0.14				
v/s Ratio Perm		c0.21			0.16		0.08				c0.15	
v/c Ratio		0.68			0.45		0.24	0.37			0.58	
Uniform Delay, d1		33.6			17.4		27.3	24.8			36.2	
Progression Factor		0.23			0.63		1.00	1.00			0.63	
Incremental Delay, d2		1.8			0.5		1.9	0.6			2.0	
Delay (s)		9.6			11.5		29.3	25.4			24.7	
Level of Service		A			B		C	C			C	
Approach Delay (s)		9.6			11.5			25.8			24.7	
Approach LOS		A			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	16.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	95.0%	ICU Level of Service	F
Analysis Period (min)	15		

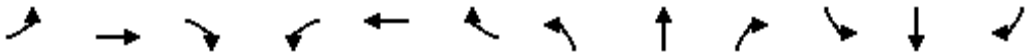
c Critical Lane Group



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	201	268	606	505
v/c Ratio	0.42	0.56	0.43	0.65
Control Delay	23.8	43.3	30.9	11.5
Queue Delay	0.0	0.0	0.0	1.8
Total Delay	23.8	43.3	30.9	13.4
Queue Length 50th (ft)	94	194	185	85
Queue Length 95th (ft)	164	m218	237	190
Internal Link Dist (ft)	508	492	449	412
Turn Bay Length (ft)				
Base Capacity (vph)	474	477	1422	779
Starvation Cap Reductn	0	0	0	141
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.42	0.56	0.43	0.79

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	76	61	48	100	106	55	469	51	50	375	54
Future Volume (vph)	54	76	61	48	100	106	55	469	51	50	375	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5			5.5			5.5	
Lane Util. Factor		1.00			1.00			0.95			1.00	
Frpb, ped/bikes		0.90			0.85			0.92			0.92	
Flpb, ped/bikes		0.95			0.96			0.98			0.97	
Frt		0.96			0.94			0.99			0.98	
Flt Protected		0.99			0.99			1.00			0.99	
Satd. Flow (prot)		1495			1445			3045			1608	
Flt Permitted		0.84			0.90			0.85			0.89	
Satd. Flow (perm)		1279			1318			2614			1432	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	57	80	64	51	105	112	58	494	54	53	395	57
RTOR Reduction (vph)	0	15	0	0	4	0	0	7	0	0	4	0
Lane Group Flow (vph)	0	186	0	0	264	0	0	599	0	0	501	0
Confl. Peds. (#/hr)	327		249	249		327	480		767	767		480
Confl. Bikes (#/hr)			2			2			27			11
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	5%	5%	5%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		39.5			39.5			59.5			59.5	
Effective Green, g (s)		39.5			39.5			59.5			59.5	
Actuated g/C Ratio		0.36			0.36			0.54			0.54	
Clearance Time (s)		5.5			5.5			5.5			5.5	
Lane Grp Cap (vph)		459			473			1413			774	
v/s Ratio Prot												
v/s Ratio Perm		0.15			c0.20			0.23			c0.35	
v/c Ratio		0.40			0.56			0.42			0.65	
Uniform Delay, d1		26.4			28.3			15.0			17.8	
Progression Factor		0.88			1.41			2.02			0.44	
Incremental Delay, d2		2.6			3.2			0.9			3.5	
Delay (s)		25.9			43.1			31.2			11.4	
Level of Service		C			D			C			B	
Approach Delay (s)		25.9			43.1			31.2			11.4	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	26.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	78.6%	ICU Level of Service	D
Analysis Period (min)	15		

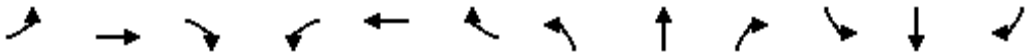
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	21	350	48	626	628	380
v/c Ratio	0.08	0.48	0.15	0.79	0.61	0.66
Control Delay	14.7	20.9	10.0	25.5	17.2	35.3
Queue Delay	0.0	0.0	0.0	2.0	0.0	0.3
Total Delay	14.7	20.9	10.0	27.5	17.2	35.7
Queue Length 50th (ft)	5	121	14	341	88	219
Queue Length 95th (ft)	m19	219	m32	455	146	328
Internal Link Dist (ft)		509		495	412	353
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	262	736	330	792	1031	579
Starvation Cap Reductn	0	0	0	70	0	0
Spillback Cap Reductn	0	0	0	0	0	24
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.48	0.15	0.87	0.61	0.68

Intersection Summary

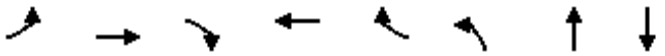
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	219	120	47	367	241	28	518	63	21	314	33
Future Volume (vph)	20	219	120	47	367	241	28	518	63	21	314	33
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	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			1.00	
Frpb, ped/bikes	1.00	0.78		1.00	0.86			0.91			0.95	
Flpb, ped/bikes	1.00	1.00		0.69	1.00			0.99			0.98	
Frt	1.00	0.95		1.00	0.94			0.98			0.99	
Flt Protected	0.95	1.00		0.95	1.00			1.00			1.00	
Satd. Flow (prot)	1770	1378		1215	1503			3049			1677	
Flt Permitted	0.27	1.00		0.49	1.00			0.92			0.94	
Satd. Flow (perm)	498	1378		626	1503			2816			1586	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	21	226	124	48	378	248	29	534	65	22	324	34
RTOR Reduction (vph)	0	10	0	0	0	0	0	8	0	0	3	0
Lane Group Flow (vph)	21	340	0	48	626	0	0	620	0	0	377	0
Confl. Peds. (#/hr)	353		388	388		353	366		872	872		366
Confl. Bikes (#/hr)			24			18			15			10
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	4%	4%	4%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	58.0	58.0		58.0	58.0			40.0			40.0	
Effective Green, g (s)	58.0	58.0		58.0	58.0			40.0			40.0	
Actuated g/C Ratio	0.53	0.53		0.53	0.53			0.36			0.36	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	262	726		330	792			1024			576	
v/s Ratio Prot		0.25			c0.42							
v/s Ratio Perm	0.04			0.08				0.22			c0.24	
v/c Ratio	0.08	0.47		0.15	0.79			0.61			0.65	
Uniform Delay, d1	12.8	16.3		13.3	21.1			28.6			29.2	
Progression Factor	1.05	1.19		0.65	0.80			0.52			1.00	
Incremental Delay, d2	0.6	2.1		0.9	7.7			2.4			5.7	
Delay (s)	14.1	21.5		9.6	24.6			17.3			34.9	
Level of Service	B	C		A	C			B			C	
Approach Delay (s)		21.1			23.5			17.3			34.9	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	23.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.8%	ICU Level of Service	E
Analysis Period (min)	15		

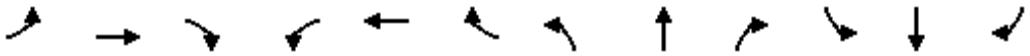
c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	108	713	191	523	140	115	500	458
v/c Ratio	0.52	0.71	0.63	0.35	0.50	0.91	0.40	0.61
Control Delay	65.3	23.5	27.6	30.7	40.0	92.4	7.2	38.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.3	23.5	27.6	30.7	40.0	92.4	7.2	38.1
Queue Length 50th (ft)	68	208	88	146	107	83	28	163
Queue Length 95th (ft)	m105	m304	m204	m178	m162	m#192	36	217
Internal Link Dist (ft)		551		523			368	449
Turn Bay Length (ft)								
Base Capacity (vph)	208	999	301	1490	278	126	1239	755
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.71	0.63	0.35	0.50	0.91	0.40	0.61

Intersection Summary

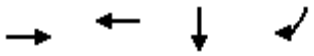
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	684	183	0	502	134	110	442	38	5	406	29
Future Volume (vph)	104	684	183	0	502	134	110	442	38	5	406	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.5	6.5		6.5	6.5	7.0	7.0			7.0	
Lane Util. Factor	1.00	0.95	1.00		0.91	1.00	1.00	0.95			0.95	
Frpb, ped/bikes	1.00	1.00	0.68		1.00	0.60	1.00	0.96			0.97	
Flpb, ped/bikes	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	0.85	1.00	0.99			0.99	
Flt Protected	0.95	1.00	1.00		1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1641	3282	991		4893	913	1736	3309			3351	
Flt Permitted	0.95	1.00	1.00		1.00	1.00	0.95	1.00			0.95	
Satd. Flow (perm)	1641	3282	991		4893	913	1736	3309			3178	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	108	712	191	0	523	140	115	460	40	5	423	30
RTOR Reduction (vph)	0	0	0	0	0	0	0	6	0	0	5	0
Lane Group Flow (vph)	108	713	191	0	523	140	115	494	0	0	453	0
Confl. Peds. (#/hr)	440		238	238		440	619		587	587		619
Confl. Bikes (#/hr)			51			43			24			16
Heavy Vehicles (%)	10%	10%	10%	6%	6%	6%	4%	4%	4%	3%	3%	3%
Turn Type	Prot	NA	Perm		NA	Perm	Prot	NA		Perm	NA	
Protected Phases	5	2			6		3	8			4	
Permitted Phases			2			6				4		
Actuated Green, G (s)	14.0	33.5	33.5		33.5	33.5	8.0	41.0			26.0	
Effective Green, g (s)	14.0	33.5	33.5		33.5	33.5	8.0	41.0			26.0	
Actuated g/C Ratio	0.13	0.30	0.30		0.30	0.30	0.07	0.37			0.24	
Clearance Time (s)	5.0	6.5	6.5		6.5	6.5	7.0	7.0			7.0	
Lane Grp Cap (vph)	208	999	301		1490	278	126	1233			751	
v/s Ratio Prot	c0.07	c0.22			0.11		c0.07	0.15				
v/s Ratio Perm			0.19			0.15					c0.14	
v/c Ratio	0.52	0.71	0.63		0.35	0.50	0.91	0.40			0.60	
Uniform Delay, d1	44.9	34.0	33.0		29.8	31.4	50.7	25.4			37.4	
Progression Factor	1.28	0.59	0.58		1.01	1.05	0.61	0.25			0.94	
Incremental Delay, d2	7.0	3.4	7.6		0.6	5.8	57.3	0.9			2.8	
Delay (s)	64.3	23.3	26.9		30.5	38.7	88.0	7.2			38.1	
Level of Service	E	C	C		C	D	F	A			D	
Approach Delay (s)		28.4			32.3			22.3			38.1	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	29.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	27.5
Intersection Capacity Utilization	74.5%	ICU Level of Service	D
Analysis Period (min)	15		

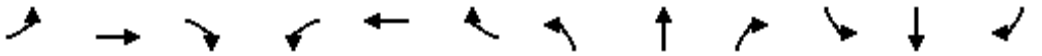
c Critical Lane Group



Lane Group	EBT	WBT	SBT	SBR
Lane Group Flow (vph)	1303	971	1714	248
v/c Ratio	0.61	0.94dl	0.93	0.50
Control Delay	29.1	5.0	26.4	9.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	29.1	5.0	26.4	9.4
Queue Length 50th (ft)	208	29	419	29
Queue Length 95th (ft)	247	35	m#441	m51
Internal Link Dist (ft)	334	516	582	
Turn Bay Length (ft)				
Base Capacity (vph)	2119	2549	1851	494
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.61	0.38	0.93	0.50

Intersection Summary

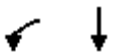
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.
dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1045	232	265	658	28	0	0	0	99	1581	243
Future Volume (vph)	0	1045	232	265	658	28	0	0	0	99	1581	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			6.0						6.5	6.5
Lane Util. Factor		0.86			0.86						0.91	1.00
Frpb, ped/bikes		0.94			0.99						1.00	0.76
Flpb, ped/bikes		1.00			0.99						0.99	1.00
Frt		0.97			1.00						1.00	0.85
Flt Protected		1.00			0.99						1.00	1.00
Satd. Flow (prot)		5801			6115						5029	1198
Flt Permitted		1.00			0.74						1.00	1.00
Satd. Flow (perm)		5801			4593						5029	1198
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.92	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1066	237	270	671	30	0	0	0	101	1613	248
RTOR Reduction (vph)	0	37	0	0	4	0	0	0	0	0	0	53
Lane Group Flow (vph)	0	1266	0	0	967	0	0	0	0	0	1714	195
Confl. Peds. (#/hr)	169		213	213		169	193		114	114		193
Confl. Bikes (#/hr)			10			2						
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	0%	0%	0%	2%	2%	2%
Turn Type		NA		pm+pt	NA					Perm	NA	Perm
Protected Phases		6		5	2						4	
Permitted Phases				2						4		4
Actuated Green, G (s)		39.5			57.0						40.5	40.5
Effective Green, g (s)		39.5			57.0						40.5	40.5
Actuated g/C Ratio		0.36			0.52						0.37	0.37
Clearance Time (s)		5.5			6.0						6.5	6.5
Lane Grp Cap (vph)		2083			2546						1851	441
v/s Ratio Prot		c0.22			c0.04							
v/s Ratio Perm					0.16						0.34	0.16
v/c Ratio		0.61			0.94dl						0.93	0.44
Uniform Delay, d1		28.9			15.9						33.3	26.2
Progression Factor		1.00			0.29						0.60	0.42
Incremental Delay, d2		1.3			0.4						5.6	1.7
Delay (s)		30.2			5.0						25.7	12.7
Level of Service		C			A						C	B
Approach Delay (s)		30.2			5.0			0.0			24.0	
Approach LOS		C			A			A			C	

Intersection Summary			
HCM 2000 Control Delay	21.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	91.1%	ICU Level of Service	F
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



Lane Group	WBL	SBT
Lane Group Flow (vph)	298	1577
v/c Ratio	0.47	0.58
Control Delay	29.3	11.0
Queue Delay	0.0	0.3
Total Delay	29.3	11.3
Queue Length 50th (ft)	172	317
Queue Length 95th (ft)	259	331
Internal Link Dist (ft)	508	411
Turn Bay Length (ft)		
Base Capacity (vph)	640	2709
Starvation Cap Reductn	0	508
Spillback Cap Reductn	0	236
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.47	0.72

Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	292	0	0	0	35	1510
Future Volume (vph)	292	0	0	0	35	1510
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5					5.5
Lane Util. Factor	1.00					0.91
Frpb, ped/bikes	1.00					1.00
Flpb, ped/bikes	1.00					0.99
Frt	1.00					1.00
Flt Protected	0.95					1.00
Satd. Flow (prot)	1784					5009
Flt Permitted	0.95					1.00
Satd. Flow (perm)	1784					5009
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	298	0	0	0	36	1541
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	298	0	0	0	0	1577
Confl. Peds. (#/hr)	1	423		318	318	
Heavy Vehicles (%)	1%	1%	0%	0%	2%	2%
Turn Type	Perm				Perm	NA
Protected Phases						2
Permitted Phases	4				2	
Actuated Green, G (s)	39.5					59.5
Effective Green, g (s)	39.5					59.5
Actuated g/C Ratio	0.36					0.54
Clearance Time (s)	5.5					5.5
Lane Grp Cap (vph)	640					2709
v/s Ratio Prot						
v/s Ratio Perm	c0.17					0.31
v/c Ratio	0.47					0.58
Uniform Delay, d1	27.1					16.9
Progression Factor	0.98					0.60
Incremental Delay, d2	2.3					0.8
Delay (s)	28.8					10.9
Level of Service	C					B
Approach Delay (s)	28.8		0.0			10.9
Approach LOS	C		A			B

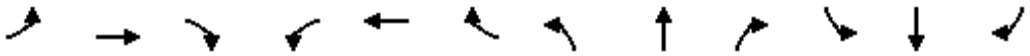
Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	58.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	243	178	137	340	1290
v/c Ratio	0.30	0.40	0.40	0.43	0.58
Control Delay	22.0	21.0	16.9	15.6	22.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	22.0	21.0	16.9	15.6	22.9
Queue Length 50th (ft)	110	70	64	165	236
Queue Length 95th (ft)	171	131	m78	m189	283
Internal Link Dist (ft)	409			509	374
Turn Bay Length (ft)		100	100		
Base Capacity (vph)	803	449	340	796	2217
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	34
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.30	0.40	0.40	0.43	0.59

Intersection Summary

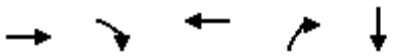
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	231	169	130	323	0	0	0	0	51	1128	47
Future Volume (vph)	0	231	169	130	323	0	0	0	0	51	1128	47
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	
Lane Util. Factor		1.00	1.00	1.00	1.00						0.91	
Frpb, ped/bikes		1.00	0.63	1.00	1.00						0.98	
Flpb, ped/bikes		1.00	1.00	0.77	1.00						0.98	
Frt		1.00	0.85	1.00	1.00						0.99	
Flt Protected		1.00	1.00	0.95	1.00						1.00	
Satd. Flow (prot)		1881	1012	1355	1863						4775	
Flt Permitted		1.00	1.00	0.56	1.00						1.00	
Satd. Flow (perm)		1881	1012	797	1863						4775	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	243	178	137	340	0	0	0	0	54	1187	49
RTOR Reduction (vph)	0	0	17	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	243	161	137	340	0	0	0	0	0	1286	0
Confl. Peds. (#/hr)	398		390	398		390	315		345	345		315
Confl. Bikes (#/hr)			26			18						2
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	3%	3%	3%
Turn Type		NA	Perm	Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		47.0	47.0	47.0	47.0						51.0	
Effective Green, g (s)		47.0	47.0	47.0	47.0						51.0	
Actuated g/C Ratio		0.43	0.43	0.43	0.43						0.46	
Clearance Time (s)		6.0	6.0	6.0	6.0						6.0	
Lane Grp Cap (vph)		803	432	340	796						2213	
v/s Ratio Prot		0.13			c0.18							
v/s Ratio Perm			0.16	0.17							0.27	
v/c Ratio		0.30	0.37	0.40	0.43						0.58	
Uniform Delay, d1		20.7	21.5	21.8	22.1						21.7	
Progression Factor		1.00	1.00	0.63	0.64						1.00	
Incremental Delay, d2		1.0	2.4	2.4	1.2						1.1	
Delay (s)		21.7	23.9	16.2	15.3						22.8	
Level of Service		C	C	B	B						C	
Approach Delay (s)		22.6			15.6			0.0			22.8	
Approach LOS		C			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.1%	ICU Level of Service	C
Analysis Period (min)	15		

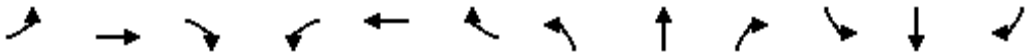
c Critical Lane Group



Lane Group	EBT	EBR	WBT	NBR	SBT
Lane Group Flow (vph)	1023	307	657	55	1690
v/c Ratio	0.65	0.93	0.27	0.15	0.83
Control Delay	23.0	59.1	38.6	17.5	17.5
Queue Delay	0.0	0.0	0.0	0.0	0.3
Total Delay	23.0	59.1	38.6	17.5	17.8
Queue Length 50th (ft)	139	254	89	25	117
Queue Length 95th (ft)	170	#441	m117	59	120
Internal Link Dist (ft)	516		551		235
Turn Bay Length (ft)					
Base Capacity (vph)	1562	330	2438	369	2026
Starvation Cap Reductn	0	0	0	0	60
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.65	0.93	0.27	0.15	0.86

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	736	567	0	644	0	0	0	54	169	1389	99
Future Volume (vph)	0	736	567	0	644	0	0	0	54	169	1389	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5		6.5				7.0		7.0	
Lane Util. Factor		0.86	0.86		0.86				1.00		0.91	
Frpb, ped/bikes		0.91	0.65		1.00				0.66		0.98	
Flpb, ped/bikes		1.00	1.00		1.00				1.00		0.97	
Frt		0.96	0.85		1.00				0.86		0.99	
Flt Protected		1.00	1.00		1.00				1.00		0.99	
Satd. Flow (prot)		3952	835		6166				865		4741	
Flt Permitted		1.00	1.00		1.00				1.00		0.99	
Satd. Flow (perm)		3952	835		6166				865		4741	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	751	579	0	657	0	0	0	55	172	1417	101
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1023	307	0	657	0	0	0	55	0	1690	0
Confl. Peds. (#/hr)	865		312	312		865	303		320	320		303
Confl. Bikes (#/hr)			47			35						7
Heavy Vehicles (%)	8%	8%	8%	6%	6%	6%	26%	26%	26%	2%	2%	2%
Turn Type		NA	Perm		NA				Perm	Perm	NA	
Protected Phases		2			6						8	
Permitted Phases			2						4	8		
Actuated Green, G (s)		43.5	43.5		43.5				47.0		47.0	
Effective Green, g (s)		43.5	43.5		43.5				47.0		47.0	
Actuated g/C Ratio		0.40	0.40		0.40				0.43		0.43	
Clearance Time (s)		6.5	6.5		6.5				7.0		7.0	
Lane Grp Cap (vph)		1562	330		2438				369		2025	
v/s Ratio Prot		0.26			0.11							
v/s Ratio Perm			c0.37						0.06		0.36	
v/c Ratio		0.65	0.93		0.27				0.15		0.83	
Uniform Delay, d1		27.1	31.8		22.5				19.3		28.0	
Progression Factor		0.77	0.78		1.70				0.84		0.49	
Incremental Delay, d2		1.9	31.6		0.2				0.8		3.6	
Delay (s)		22.7	56.4		38.5				17.0		17.4	
Level of Service		C	E		D				B		B	
Approach Delay (s)		30.5			38.5			17.0			17.4	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	25.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	89.5%	ICU Level of Service	E
Analysis Period (min)	15		

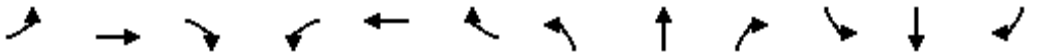
c Critical Lane Group



Lane Group	EBT	WBT	NBL	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1053	741	108	37	357	326	90
v/c Ratio	0.49	0.31	0.32	0.07	0.62	0.37	0.17
Control Delay	37.4	15.6	21.4	2.5	27.6	20.2	8.5
Queue Delay	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.6	15.7	21.4	2.5	27.6	20.2	8.5
Queue Length 50th (ft)	157	52	46	0	183	143	13
Queue Length 95th (ft)	m185	m54	90	11	289	212	43
Internal Link Dist (ft)	246	516				417	
Turn Bay Length (ft)							
Base Capacity (vph)	2149	2371	336	507	574	872	525
Starvation Cap Reductn	331	0	0	0	0	0	0
Spillback Cap Reductn	0	328	0	0	0	0	2
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.36	0.32	0.07	0.62	0.37	0.17

Intersection Summary

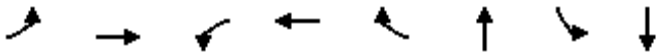
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	940	92	0	726	0	106	0	36	350	319	88
Future Volume (vph)	0	940	92	0	726	0	106	0	36	350	319	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5		7.0		7.0	7.0	7.0	7.0
Lane Util. Factor		0.86			0.86		1.00		1.00	1.00	1.00	1.00
Frpb, ped/bikes		0.96			1.00		1.00		0.69	1.00	1.00	0.67
Flpb, ped/bikes		1.00			1.00		0.82		1.00	0.69	1.00	1.00
Frt		0.99			1.00		1.00		0.85	1.00	1.00	0.85
Flt Protected		1.00			1.00		0.95		1.00	0.95	1.00	1.00
Satd. Flow (prot)		5694			6285		1353		1012	1215	1845	1051
Flt Permitted		1.00			1.00		0.50		1.00	0.95	1.00	1.00
Satd. Flow (perm)		5694			6285		712		1012	1215	1845	1051
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	959	94	0	741	0	108	0	37	357	326	90
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	20	0	0	29
Lane Group Flow (vph)	0	1053	0	0	741	0	108	0	17	357	326	61
Confl. Peds. (#/hr)	807		213	213		807	252		202	202		252
Confl. Bikes (#/hr)			82			7			6			5
Heavy Vehicles (%)	9%	9%	9%	4%	4%	4%	10%	10%	10%	3%	3%	3%
Turn Type		NA			NA		Perm		Perm	Perm	NA	Perm
Protected Phases		2			6						8	
Permitted Phases							4		4	8		8
Actuated Green, G (s)		41.5			41.5		52.0		52.0	52.0	52.0	52.0
Effective Green, g (s)		41.5			41.5		52.0		52.0	52.0	52.0	52.0
Actuated g/C Ratio		0.38			0.38		0.47		0.47	0.47	0.47	0.47
Clearance Time (s)		6.5			6.5		7.0		7.0	7.0	7.0	7.0
Lane Grp Cap (vph)		2148			2371		336		478	574	872	496
v/s Ratio Prot		c0.18			0.12						0.18	
v/s Ratio Perm							0.15		0.02	c0.29		0.06
v/c Ratio		0.49			0.31		0.32		0.04	0.62	0.37	0.12
Uniform Delay, d1		26.2			24.2		18.0		15.6	21.7	18.6	16.2
Progression Factor		1.40			0.63		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		0.6			0.3		2.5		0.1	5.0	1.2	0.5
Delay (s)		37.2			15.5		20.5		15.7	26.7	19.8	16.7
Level of Service		D			B		C		B	C	B	B
Approach Delay (s)		37.2			15.5			19.3			22.6	
Approach LOS		D			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	26.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



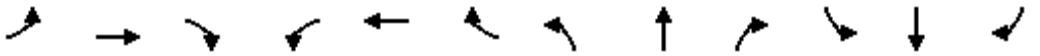
Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	132	607	6	691	256	13	489	158
v/c Ratio	0.80	0.45	0.04	0.69	1.84	0.05	0.87	0.29
Control Delay	90.8	25.2	64.0	23.3	426.5	29.2	61.0	4.4
Queue Delay	0.0	0.4	0.0	0.4	0.0	0.0	0.0	0.0
Total Delay	90.8	25.5	64.0	23.7	426.5	29.2	61.0	4.4
Queue Length 50th (ft)	100	79	4	275	~285	5	174	0
Queue Length 95th (ft)	#204	102	m12	337	#452	22	#261	38
Internal Link Dist (ft)		209		246		170		344
Turn Bay Length (ft)								
Base Capacity (vph)	164	1356	171	1000	139	263	565	553
Starvation Cap Reductn	0	296	0	67	0	0	0	0
Spillback Cap Reductn	0	0	0	22	0	0	0	1
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.57	0.04	0.74	1.84	0.05	0.87	0.29

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

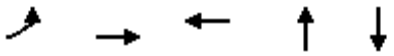
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	576	7	6	663	246	2	7	4	469	1	151
Future Volume (vph)	127	576	7	6	663	246	2	7	4	469	1	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0		5.0	6.0	6.0		7.0		7.0	7.0	
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00		1.00		0.97	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.31		0.92		1.00	0.69	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		0.96		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.96		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99		0.95	1.00	
Satd. Flow (prot)	1641	4664		1719	3438	480		1284		3273	1046	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.96		0.95	1.00	
Satd. Flow (perm)	1641	4664		1719	3438	480		1244		3273	1046	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	132	600	7	6	691	256	2	7	4	489	1	157
RTOR Reduction (vph)	0	0	0	0	0	0	0	3	0	0	87	0
Lane Group Flow (vph)	132	607	0	6	691	256	0	10	0	489	71	0
Confl. Peds. (#/hr)	530		382	382		530	214		170	170		214
Confl. Bikes (#/hr)			127			38						10
Heavy Vehicles (%)	10%	10%	10%	5%	5%	5%	25%	25%	25%	7%	7%	7%
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Prot	NA	
Protected Phases	1	6		1	2			4		3	8	
Permitted Phases						2	4					
Actuated Green, G (s)	11.0	32.0		11.0	32.0	32.0		23.0		19.0	49.0	
Effective Green, g (s)	11.0	32.0		11.0	32.0	32.0		23.0		19.0	49.0	
Actuated g/C Ratio	0.10	0.29		0.10	0.29	0.29		0.21		0.17	0.45	
Clearance Time (s)	5.0	6.0		5.0	6.0	6.0		7.0		7.0	7.0	
Lane Grp Cap (vph)	164	1356		171	1000	139		260		565	465	
v/s Ratio Prot	c0.08	0.13		0.00	0.20					c0.15	c0.07	
v/s Ratio Perm						c0.53		0.01				
v/c Ratio	0.80	0.45		0.04	0.69	1.84		0.04		0.87	0.15	
Uniform Delay, d1	48.4	31.8		44.7	34.6	39.0		34.7		44.3	18.1	
Progression Factor	1.22	0.76		1.42	0.56	0.62		1.00		1.00	1.00	
Incremental Delay, d2	31.3	1.0		0.4	3.8	404.5		0.3		16.2	0.7	
Delay (s)	90.6	25.0		63.6	23.1	428.6		35.0		60.4	18.8	
Level of Service	F	C		E	C	F		C		E	B	
Approach Delay (s)		36.7			132.3			35.0			50.3	
Approach LOS		D			F			C			D	

Intersection Summary			
HCM 2000 Control Delay	79.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	66.5%	ICU Level of Service	C
Analysis Period (min)	15		

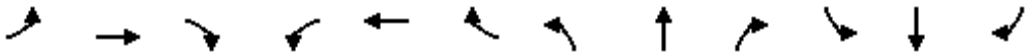
c Critical Lane Group



Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	164	980	1437	1348	242
v/c Ratio	0.69	0.34	0.78	0.99	0.32
Control Delay	39.3	11.1	32.6	60.4	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	39.3	11.1	32.6	60.4	12.6
Queue Length 50th (ft)	107	201	252	339	13
Queue Length 95th (ft)	m#167	243	300	#451	31
Internal Link Dist (ft)		1027	345	451	993
Turn Bay Length (ft)					
Base Capacity (vph)	238	2873	1838	1358	767
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.69	0.34	0.78	0.99	0.32

Intersection Summary

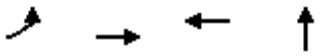
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	157	919	22	149	1181	50	54	911	329	11	121	101
Future Volume (vph)	157	919	22	149	1181	50	54	911	329	11	121	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.5			6.5			6.5			6.5	
Lane Util. Factor	1.00	0.91			0.86			0.91			0.95	
Frpb, ped/bikes	1.00	0.99			1.00			0.99			0.86	
Flpb, ped/bikes	1.00	1.00			0.99			0.99			1.00	
Frt	1.00	1.00			0.99			0.96			0.93	
Flt Protected	0.95	1.00			0.99			1.00			1.00	
Satd. Flow (prot)	1752	4976			6207			4828			2850	
Flt Permitted	0.95	1.00			0.74			0.91			0.80	
Satd. Flow (perm)	1752	4976			4636			4382			2279	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	164	957	23	155	1230	52	56	949	343	11	126	105
RTOR Reduction (vph)	0	2	0	0	5	0	0	24	0	0	73	0
Lane Group Flow (vph)	164	978	0	0	1432	0	0	1324	0	0	169	0
Confl. Peds. (#/hr)	24		265	265		24	292		31	31		292
Confl. Bikes (#/hr)			8						5			
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	1%	1%	1%	2%	2%	2%
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	6			2			8			4	
Permitted Phases				2			8			4		
Actuated Green, G (s)	15.0	63.5			43.5			33.5			33.5	
Effective Green, g (s)	15.0	63.5			43.5			33.5			33.5	
Actuated g/C Ratio	0.14	0.58			0.40			0.30			0.30	
Clearance Time (s)	5.0	6.5			6.5			6.5			6.5	
Lane Grp Cap (vph)	238	2872			1833			1334			694	
v/s Ratio Prot	c0.09	0.20										
v/s Ratio Perm					c0.31			c0.30			0.07	
v/c Ratio	0.69	0.34			0.78			0.99			0.24	
Uniform Delay, d1	45.3	12.2			29.1			38.1			28.7	
Progression Factor	0.58	0.89			1.00			1.00			0.70	
Incremental Delay, d2	11.9	0.2			3.4			23.0			0.8	
Delay (s)	38.2	11.1			32.5			61.1			21.0	
Level of Service	D	B			C			E			C	
Approach Delay (s)		15.0			32.5			61.1			21.0	
Approach LOS		B			C			E			C	

Intersection Summary			
HCM 2000 Control Delay	36.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	110.5%	ICU Level of Service	H
Analysis Period (min)	15		

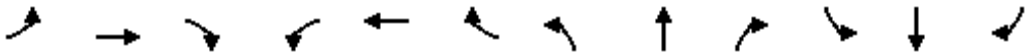
c Critical Lane Group



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	35	115	439	928
v/c Ratio	0.11	0.13	0.55	0.50
Control Delay	16.6	15.2	22.4	11.9
Queue Delay	0.0	0.0	0.0	0.2
Total Delay	16.6	15.2	22.4	12.1
Queue Length 50th (ft)	17	59	205	69
Queue Length 95th (ft)	m28	m77	303	86
Internal Link Dist (ft)		379	152	314
Turn Bay Length (ft)	75			
Base Capacity (vph)	311	905	791	1857
Starvation Cap Reductn	0	0	0	251
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.11	0.13	0.55	0.58

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	110	0	0	301	120	25	768	98	0	0	0
Future Volume (vph)	34	110	0	0	301	120	25	768	98	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5			6.0				
Lane Util. Factor	1.00	1.00			1.00			0.91				
Frpb, ped/bikes	1.00	1.00			0.91			0.94				
Flpb, ped/bikes	0.88	1.00			1.00			0.98				
Frt	1.00	1.00			0.96			0.98				
Flt Protected	0.95	1.00			1.00			1.00				
Satd. Flow (prot)	1522	1827			1592			4605				
Flt Permitted	0.39	1.00			1.00			1.00				
Satd. Flow (perm)	629	1827			1592			4605				
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	35	115	0	0	314	125	26	800	102	0	0	0
RTOR Reduction (vph)	0	0	0	0	3	0	0	14	0	0	0	0
Lane Group Flow (vph)	35	115	0	0	436	0	0	914	0	0	0	0
Confl. Peds. (#/hr)	258		274	274		258	356		343	343		356
Confl. Bikes (#/hr)			29			15			20			
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			4			2				
Permitted Phases	4						2					
Actuated Green, G (s)	54.5	54.5			54.5			44.0				
Effective Green, g (s)	54.5	54.5			54.5			44.0				
Actuated g/C Ratio	0.50	0.50			0.50			0.40				
Clearance Time (s)	5.5	5.5			5.5			6.0				
Lane Grp Cap (vph)	311	905			788			1842				
v/s Ratio Prot		0.06			c0.27							
v/s Ratio Perm	0.06							0.20				
v/c Ratio	0.11	0.13			0.55			0.50				
Uniform Delay, d1	14.8	14.9			19.3			24.7				
Progression Factor	1.04	0.99			1.00			0.46				
Incremental Delay, d2	0.6	0.2			2.8			0.8				
Delay (s)	16.0	15.0			22.1			12.1				
Level of Service	B	B			C			B				
Approach Delay (s)		15.2			22.1			12.1			0.0	
Approach LOS		B			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		

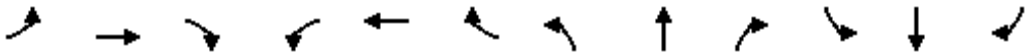
c Critical Lane Group



Lane Group	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	906	645	239	1235
v/c Ratio	0.34	0.29	0.54	0.61
Control Delay	8.4	4.3	11.9	8.8
Queue Delay	0.0	0.5	5.9	0.0
Total Delay	8.4	4.8	17.8	8.8
Queue Length 50th (ft)	31	20	21	156
Queue Length 95th (ft)	37	22	245	m172
Internal Link Dist (ft)	419	209		993
Turn Bay Length (ft)				
Base Capacity (vph)	2644	2244	440	2038
Starvation Cap Reductn	0	1089	146	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.34	0.56	0.81	0.61

Intersection Summary

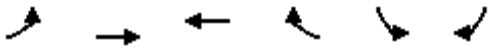
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	597	236	0	593	220	127	880	129	0	0	0
Future Volume (vph)	0	597	236	0	593	220	127	880	129	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5	6.5		7.0				
Lane Util. Factor		0.86			0.91	1.00		0.91				
Frpb, ped/bikes		1.00			1.00	0.63		0.96				
Flpb, ped/bikes		1.00			1.00	1.00		1.00				
Frt		0.96			1.00	0.85		0.98				
Flt Protected		1.00			1.00	1.00		0.99				
Satd. Flow (prot)		5879			4988	978		4738				
Flt Permitted		1.00			1.00	1.00		0.99				
Satd. Flow (perm)		5879			4988	978		4738				
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	649	257	0	645	239	138	957	140	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	15	0	0	0	0
Lane Group Flow (vph)	0	906	0	0	645	239	0	1220	0	0	0	0
Confl. Peds. (#/hr)	564					564	1		235	235		1
Confl. Bikes (#/hr)			6			6			24			
Heavy Vehicles (%)	6%	6%	6%	4%	4%	4%	3%	3%	3%	0%	0%	0%
Turn Type		NA			NA	Perm	Perm	NA				
Protected Phases		2			2			4				
Permitted Phases						2	4					
Actuated Green, G (s)		49.5			49.5	49.5		47.0				
Effective Green, g (s)		49.5			49.5	49.5		47.0				
Actuated g/C Ratio		0.45			0.45	0.45		0.43				
Clearance Time (s)		6.5			6.5	6.5		7.0				
Lane Grp Cap (vph)		2645			2244	440		2024				
v/s Ratio Prot		0.15			0.13							
v/s Ratio Perm						c0.24		0.26				
v/c Ratio		0.34			0.29	0.54		0.60				
Uniform Delay, d1		19.7			19.1	22.0		24.3				
Progression Factor		0.41			0.21	0.35		0.34				
Incremental Delay, d2		0.3			0.3	3.9		0.6				
Delay (s)		8.3			4.3	11.6		8.9				
Level of Service		A			A	B		A				
Approach Delay (s)		8.3			6.2			8.9			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	7.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		

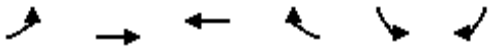
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	191	401	466	274	474	186
v/c Ratio	0.56	0.29	0.34	0.39	0.57	0.43
Control Delay	42.0	23.2	16.0	18.0	22.9	7.5
Queue Delay	0.8	0.6	0.1	0.4	55.7	5.6
Total Delay	42.8	23.9	16.0	18.4	78.6	13.2
Queue Length 50th (ft)	99	106	147	106	163	50
Queue Length 95th (ft)	168	141	171	149	m198	m60
Internal Link Dist (ft)		228	419		144	
Turn Bay Length (ft)						
Base Capacity (vph)	339	1372	1372	707	834	436
Starvation Cap Reductn	31	614	0	0	424	191
Spillback Cap Reductn	0	0	124	138	0	6
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.53	0.37	0.48	1.16	0.76

Intersection Summary

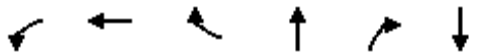
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	185	389	452	266	460	180
Future Volume (vph)	185	389	452	266	460	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	6.5	6.5	6.5	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	0.88	0.97	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.65	1.00	0.77
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1736	3471	3471	1788	3400	1207
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1736	3471	3471	1788	3400	1207
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	191	401	466	274	474	186
RTOR Reduction (vph)	0	0	0	0	0	140
Lane Group Flow (vph)	191	401	466	274	474	46
Confl. Peds. (#/hr)	328			328	669	133
Confl. Bikes (#/hr)				41		5
Heavy Vehicles (%)	4%	4%	4%	4%	3%	3%
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	1	2	2		4	
Permitted Phases				2		4
Actuated Green, G (s)	21.5	43.5	43.5	43.5	27.0	27.0
Effective Green, g (s)	21.5	43.5	43.5	43.5	27.0	27.0
Actuated g/C Ratio	0.20	0.40	0.40	0.40	0.25	0.25
Clearance Time (s)	5.5	6.5	6.5	6.5	6.0	6.0
Lane Grp Cap (vph)	339	1372	1372	707	834	296
v/s Ratio Prot	c0.11	0.12	0.13		c0.14	
v/s Ratio Perm				c0.15		0.04
v/c Ratio	0.56	0.29	0.34	0.39	0.57	0.15
Uniform Delay, d1	40.0	22.7	23.2	23.7	36.4	32.5
Progression Factor	0.87	0.99	0.65	0.68	0.57	1.05
Incremental Delay, d2	6.6	0.5	0.6	1.5	1.9	0.8
Delay (s)	41.4	23.0	15.8	17.7	22.7	35.0
Level of Service	D	C	B	B	C	D
Approach Delay (s)		29.0	16.5		26.2	
Approach LOS		C	B		C	

Intersection Summary			
HCM 2000 Control Delay	23.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		

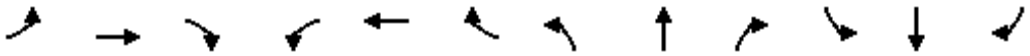
c Critical Lane Group



Lane Group	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	115	180	93	395	72	783
v/c Ratio	0.45	0.46	0.21	0.45	0.31	0.82
Control Delay	33.2	31.0	2.4	37.1	7.9	43.5
Queue Delay	0.0	0.0	0.0	3.0	1.0	39.4
Total Delay	33.2	31.0	2.4	40.1	8.9	82.9
Queue Length 50th (ft)	34	54	1	155	8	261
Queue Length 95th (ft)	91	123	15	204	m20	337
Internal Link Dist (ft)		379		144		303
Turn Bay Length (ft)	200		65			
Base Capacity (vph)	253	390	435	875	233	954
Starvation Cap Reductn	0	0	0	364	54	0
Spillback Cap Reductn	0	0	0	0	0	225
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.46	0.21	0.77	0.40	1.07

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	109	171	88	67	308	68	92	482	170
Future Volume (vph)	0	0	0	109	171	88	67	308	68	92	482	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5	6.5		6.0	6.0		6.0	
Lane Util. Factor				1.00	1.00	1.00		0.95	1.00		0.95	
Frpb, ped/bikes				1.00	1.00	0.96		1.00	0.30		0.99	
Flpb, ped/bikes				0.68	1.00	1.00		1.00	1.00		1.00	
Frt				1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected				0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)				1188	1827	1490		3440	468		3294	
Flt Permitted				0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (perm)				1188	1827	1490		3440	468		3294	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	115	180	93	71	324	72	97	507	179
RTOR Reduction (vph)	0	0	0	0	0	73	0	0	54	0	25	0
Lane Group Flow (vph)	0	0	0	115	180	20	0	395	18	0	758	0
Confl. Peds. (#/hr)	18		264	264		18	19		528	528		19
Confl. Bikes (#/hr)						3			4			1
Heavy Vehicles (%)	0%	0%	0%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Perm	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases					4		2	2		1	1	
Permitted Phases				4		4			2			
Actuated Green, G (s)				23.5	23.5	23.5		28.0	28.0		31.0	
Effective Green, g (s)				23.5	23.5	23.5		28.0	28.0		31.0	
Actuated g/C Ratio				0.21	0.21	0.21		0.25	0.25		0.28	
Clearance Time (s)				6.5	6.5	6.5		6.0	6.0		6.0	
Lane Grp Cap (vph)				253	390	318		875	119		928	
v/s Ratio Prot					c0.10			c0.11			c0.23	
v/s Ratio Perm				0.10		0.01			0.04			
v/c Ratio				0.45	0.46	0.06		0.45	0.15		0.82	
Uniform Delay, d1				37.7	37.7	34.5		34.5	31.8		36.8	
Progression Factor				0.72	0.72	1.26		1.02	1.00		1.00	
Incremental Delay, d2				5.2	3.5	0.3		1.5	2.5		7.9	
Delay (s)				32.5	30.6	43.8		36.8	34.3		44.7	
Level of Service				C	C	D		D	C		D	
Approach Delay (s)		0.0			34.3			36.4			44.7	
Approach LOS		A			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	39.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		

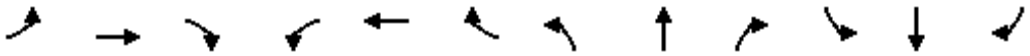
c Critical Lane Group



Lane Group	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	972	1256	73	1531	1513
v/c Ratio	0.68	0.90	0.22	0.49	0.60
Control Delay	34.2	31.1	8.0	16.3	37.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	34.2	31.1	8.0	16.3	37.0
Queue Length 50th (ft)	213	353	26	183	357
Queue Length 95th (ft)	263	m#423	m31	214	402
Internal Link Dist (ft)	320	1027		460	1159
Turn Bay Length (ft)					
Base Capacity (vph)	1430	1389	330	3103	2532
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.68	0.90	0.22	0.49	0.60

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	854	65	28	1170	78	0	1203	267	0	1246	206
Future Volume (vph)	13	854	65	28	1170	78	0	1203	267	0	1246	206
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5	4.5		4.5			4.5	
Lane Util. Factor		0.91			0.86	0.86		0.86			0.91	
Frpb, ped/bikes		0.98			1.00	0.65		0.94			0.96	
Flpb, ped/bikes		1.00			1.00	1.00		1.00			1.00	
Frt		0.99			1.00	0.85		0.97			0.98	
Flt Protected		1.00			1.00	1.00		1.00			1.00	
Satd. Flow (prot)		4915			4779	886		5781			4721	
Flt Permitted		0.87			0.87	1.00		1.00			1.00	
Satd. Flow (perm)		4282			4185	886		5781			4721	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	14	890	68	29	1219	81	0	1253	278	0	1298	215
RTOR Reduction (vph)	0	8	0	0	1	37	0	28	0	0	21	0
Lane Group Flow (vph)	0	964	0	0	1255	36	0	1503	0	0	1492	0
Confl. Peds. (#/hr)	411		258	258		411	255		450	450		255
Confl. Bikes (#/hr)			9						9			
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA	Perm		NA			NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2						
Actuated Green, G (s)		36.5			36.5	36.5		58.5			58.5	
Effective Green, g (s)		36.5			36.5	36.5		58.5			58.5	
Actuated g/C Ratio		0.33			0.33	0.33		0.53			0.53	
Clearance Time (s)		4.5			4.5	4.5		4.5			4.5	
Lane Grp Cap (vph)		1420			1388	293		3074			2510	
v/s Ratio Prot								0.26			c0.32	
v/s Ratio Perm		0.23			c0.30	0.04						
v/c Ratio		0.68			0.90	0.12		0.49			0.59	
Uniform Delay, d1		31.7			35.1	25.6		16.3			17.6	
Progression Factor		1.00			0.67	0.67		1.00			2.09	
Incremental Delay, d2		2.6			6.7	0.5		0.6			1.0	
Delay (s)		34.3			30.4	17.7		16.9			37.8	
Level of Service		C			C	B		B			D	
Approach Delay (s)		34.3			29.7			16.9			37.8	
Approach LOS		C			C			B			D	

Intersection Summary			
HCM 2000 Control Delay	29.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	80.8%	ICU Level of Service	D
Analysis Period (min)	15		

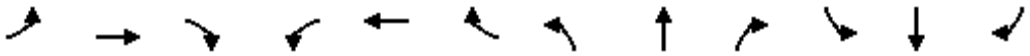
c Critical Lane Group



Lane Group	EBT	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	436	478	115	98	1334	1160
v/c Ratio	0.55	0.48	0.32	0.45	0.70	0.38
Control Delay	52.4	19.2	17.3	16.0	14.8	12.9
Queue Delay	0.0	0.4	0.0	0.0	0.0	0.5
Total Delay	52.4	19.6	17.3	16.0	14.8	13.4
Queue Length 50th (ft)	142	187	85	47	416	243
Queue Length 95th (ft)	m184	245	147	83	527	289
Internal Link Dist (ft)	394	259			1159	146
Turn Bay Length (ft)						
Base Capacity (vph)	790	1003	364	217	1913	3020
Starvation Cap Reductn	0	185	0	0	0	1256
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.58	0.32	0.45	0.70	0.66

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	266	148	0	454	109	93	1078	189	0	1094	8
Future Volume (vph)	0	266	148	0	454	109	93	1078	189	0	1094	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5	6.5	6.5	6.5			6.5	
Lane Util. Factor		0.95			0.95	1.00	1.00	0.95			0.91	
Frpb, ped/bikes		0.87			1.00	0.81	1.00	0.94			1.00	
Flpb, ped/bikes		1.00			1.00	1.00	0.96	1.00			1.00	
Frt		0.95			1.00	0.85	1.00	0.98			1.00	
Flt Protected		1.00			1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)		2761			3505	1272	1686	3212			5072	
Flt Permitted		1.00			1.00	1.00	0.21	1.00			1.00	
Satd. Flow (perm)		2761			3505	1272	366	3212			5072	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	280	156	0	478	115	98	1135	199	0	1152	8
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	436	0	0	478	115	98	1334	0	0	1160	0
Confl. Peds. (#/hr)	128		395	395		128	186		447	447		186
Confl. Bikes (#/hr)			75			50			15			1
Heavy Vehicles (%)	8%	8%	8%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Turn Type		NA			NA	Perm	Perm	NA			NA	
Protected Phases		8			4			6			2	
Permitted Phases						4	6					
Actuated Green, G (s)		31.5			31.5	31.5	65.5	65.5			65.5	
Effective Green, g (s)		31.5			31.5	31.5	65.5	65.5			65.5	
Actuated g/C Ratio		0.29			0.29	0.29	0.60	0.60			0.60	
Clearance Time (s)		6.5			6.5	6.5	6.5	6.5			6.5	
Lane Grp Cap (vph)		790			1003	364	217	1912			3020	
v/s Ratio Prot		c0.16			0.14			c0.42			0.23	
v/s Ratio Perm						0.09	0.27					
v/c Ratio		0.55			0.48	0.32	0.45	0.70			0.38	
Uniform Delay, d1		33.3			32.4	30.8	12.3	15.4			11.7	
Progression Factor		1.49			0.54	0.48	0.71	0.82			1.07	
Incremental Delay, d2		2.4			1.6	2.2	6.1	2.0			0.3	
Delay (s)		51.8			19.0	16.9	14.8	14.5			12.8	
Level of Service		D			B	B	B	B			B	
Approach Delay (s)		51.8			18.6			14.5			12.8	
Approach LOS		D			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		

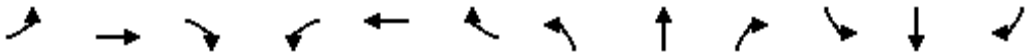
c Critical Lane Group



Lane Group	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	204	199	166	1205	1058
v/c Ratio	0.60	0.57	0.47	0.38	0.45
Control Delay	53.1	51.1	9.0	3.9	19.4
Queue Delay	0.0	0.0	4.8	0.6	0.2
Total Delay	53.1	51.1	13.8	4.5	19.6
Queue Length 50th (ft)	163	156	19	50	173
Queue Length 95th (ft)	m225	m218	m27	57	210
Internal Link Dist (ft)		580		146	270
Turn Bay Length (ft)					
Base Capacity (vph)	342	351	352	3158	2358
Starvation Cap Reductn	0	0	125	1428	0
Spillback Cap Reductn	0	0	0	0	437
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.60	0.57	0.73	0.70	0.55

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	264	50	57	153	1109	0	0	930	43
Future Volume (vph)	0	0	0	264	50	57	153	1109	0	0	930	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5		6.0	6.0			6.0	
Lane Util. Factor				0.95	0.95		1.00	0.91			0.91	
Frpb, ped/bikes				1.00	0.90		1.00	1.00			0.98	
Flpb, ped/bikes				0.79	0.91		0.98	1.00			1.00	
Frt				1.00	0.95		1.00	1.00			0.99	
Flt Protected				0.95	0.98		0.95	1.00			1.00	
Satd. Flow (prot)				1320	1345		1724	5036			4887	
Flt Permitted				0.95	0.98		0.22	1.00			1.00	
Satd. Flow (perm)				1320	1345		392	5036			4887	
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	287	54	62	166	1205	0	0	1011	47
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	0	0	204	196	0	166	1205	0	0	1053	0
Confl. Peds. (#/hr)	290		163	163		290	234		649	649		234
Confl. Bikes (#/hr)						9			19			2
Heavy Vehicles (%)	0%	0%	0%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type				Perm	NA		pm+pt	NA			NA	
Protected Phases					4		5	2			6	
Permitted Phases				4			2					
Actuated Green, G (s)				28.5	28.5		69.0	69.0			53.0	
Effective Green, g (s)				28.5	28.5		69.0	69.0			53.0	
Actuated g/C Ratio				0.26	0.26		0.63	0.63			0.48	
Clearance Time (s)				6.5	6.5		6.0	6.0			6.0	
Lane Grp Cap (vph)				342	348		366	3158			2354	
v/s Ratio Prot							c0.04	0.24			0.22	
v/s Ratio Perm				c0.15	0.15		c0.24					
v/c Ratio				0.60	0.56		0.45	0.38			0.45	
Uniform Delay, d1				35.7	35.4		18.1	10.0			18.8	
Progression Factor				1.29	1.29		0.31	0.35			1.00	
Incremental Delay, d2				6.0	5.2		3.2	0.3			0.6	
Delay (s)				51.9	50.9		8.9	3.8			19.4	
Level of Service				D	D		A	A			B	
Approach Delay (s)		0.0			51.4			4.4			19.4	
Approach LOS		A			D			A			B	

Intersection Summary			
HCM 2000 Control Delay	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		

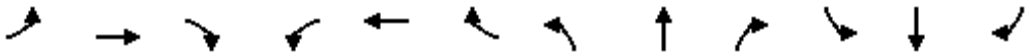
c Critical Lane Group



Lane Group	EBT	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	29	308	124	449	174	554
v/c Ratio	0.38	0.55	0.17	0.52	0.87	0.35
Control Delay	59.5	83.1	5.9	34.3	84.9	19.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.5	83.1	5.9	34.3	84.9	19.4
Queue Length 50th (ft)	18	120	15	137	123	126
Queue Length 95th (ft)	50	168	35	189	#247	168
Internal Link Dist (ft)	133			1023		200
Turn Bay Length (ft)			100			
Base Capacity (vph)	77	560	734	859	201	1581
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.55	0.17	0.52	0.87	0.35

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	4	0	293	0	118	5	280	142	165	522	5
Future Volume (vph)	24	4	0	293	0	118	5	280	142	165	522	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5		6.5		6.5		6.5		5.0	6.5	
Lane Util. Factor		1.00		0.97		1.00		0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00		1.00		0.91		1.00	0.99	
Flpb, ped/bikes		1.00		1.00		1.00		1.00		1.00	1.00	
Frt		1.00		1.00		0.85		0.95		1.00	1.00	
Flt Protected		0.96		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1817		3335		1538		2977		1703	3376	
Flt Permitted		0.96		0.95		1.00		0.95		0.95	1.00	
Satd. Flow (perm)		1817		3335		1538		2824		1703	3376	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	25	4	0	308	0	124	5	295	149	174	549	5
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	29	0	308	0	124	0	449	0	174	554	0
Confl. Peds. (#/hr)	2		243	243		2	731		183	183		731
Confl. Bikes (#/hr)			1			80			52			85
Heavy Vehicles (%)	0%	0%	0%	5%	5%	5%	4%	4%	4%	6%	6%	6%
Turn Type	Prot	NA	Perm	Prot		custom	Perm	NA		Prot	NA	
Protected Phases	3	8		7		7 4 1		2		1	6	
Permitted Phases			8				2					
Actuated Green, G (s)		20.5		18.5		54.0		33.5		13.0	51.5	
Effective Green, g (s)		20.5		18.5		54.0		33.5		13.0	51.5	
Actuated g/C Ratio		0.19		0.17		0.49		0.30		0.12	0.47	
Clearance Time (s)		6.5		6.5				6.5		5.0	6.5	
Lane Grp Cap (vph)		338		560		755		860		201	1580	
v/s Ratio Prot		c0.00		c0.09		c0.08				c0.10	0.16	
v/s Ratio Perm		0.01						c0.16				
v/c Ratio		0.09		0.55		0.16		0.52		0.87	0.35	
Uniform Delay, d1		37.0		41.9		15.5		31.6		47.6	18.6	
Progression Factor		1.00		1.88		0.33		1.00		1.00	1.00	
Incremental Delay, d2		0.5		3.5		0.4		2.3		36.1	0.6	
Delay (s)		37.5		82.5		5.5		33.9		83.8	19.2	
Level of Service		D		F		A		C		F	B	
Approach Delay (s)		37.5			60.4			33.9			34.7	
Approach LOS		D			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	41.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	69.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	EBR	WBL	WBT	NBR
Lane Group Flow (vph)	1064	4	675	682	925
v/c Ratio	0.51	0.01	0.44	0.47	0.56
Control Delay	21.0	11.8	16.8	31.5	16.6
Queue Delay	50.5	0.0	0.5	6.4	0.0
Total Delay	71.5	11.8	17.3	37.9	16.6
Queue Length 50th (ft)	293	1	182	187	279
Queue Length 95th (ft)	m321	m2	235	247	346
Internal Link Dist (ft)	354			202	
Turn Bay Length (ft)					
Base Capacity (vph)	2105	408	1545	1465	1640
Starvation Cap Reductn	724	0	454	721	0
Spillback Cap Reductn	1197	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.17	0.01	0.62	0.92	0.56

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	968	4	614	621	0	842
Future Volume (vph)	968	4	614	621	0	842
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0		7.0
Lane Util. Factor	0.91	1.00	0.97	0.95		0.76
Frpb, ped/bikes	1.00	0.62	1.00	1.00		1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00		1.00
Frt	1.00	0.85	1.00	1.00		0.85
Flt Protected	1.00	1.00	0.95	1.00		1.00
Satd. Flow (prot)	5036	978	3400	3505		3610
Flt Permitted	1.00	1.00	0.95	1.00		1.00
Satd. Flow (perm)	5036	978	3400	3505		3610
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	1064	4	675	682	0	925
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1064	4	675	682	0	925
Confl. Peds. (#/hr)		226	226		28	
Confl. Bikes (#/hr)		111				3
Heavy Vehicles (%)	3%	3%	3%	3%	2%	2%
Turn Type	NA	Perm	Prot	NA		Prot
Protected Phases	2		7	6		4
Permitted Phases		2				
Actuated Green, G (s)	46.0	46.0	50.0	46.0		50.0
Effective Green, g (s)	46.0	46.0	50.0	46.0		50.0
Actuated g/C Ratio	0.42	0.42	0.45	0.42		0.45
Clearance Time (s)	7.0	7.0	7.0	7.0		7.0
Lane Grp Cap (vph)	2105	408	1545	1465		1640
v/s Ratio Prot	c0.21		0.20	0.19		c0.26
v/s Ratio Perm		0.00				
v/c Ratio	0.51	0.01	0.44	0.47		0.56
Uniform Delay, d1	23.6	18.7	20.4	23.1		22.0
Progression Factor	0.85	0.62	0.77	1.30		0.69
Incremental Delay, d2	0.7	0.0	0.9	1.0		1.4
Delay (s)	20.8	11.5	16.6	31.1		16.5
Level of Service	C	B	B	C		B
Approach Delay (s)	20.8			23.9	16.5	
Approach LOS	C			C	B	

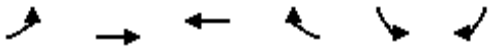
Intersection Summary			
HCM 2000 Control Delay	20.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	SBR
Lane Group Flow (vph)	1456	276	14	1052
v/c Ratio	0.80	0.23	0.01	0.54
Control Delay	23.5	24.6	22.4	16.9
Queue Delay	48.3	0.0	0.0	0.7
Total Delay	71.7	24.6	22.4	17.6
Queue Length 50th (ft)	371	66	3	184
Queue Length 95th (ft)	466	98	10	233
Internal Link Dist (ft)		268	282	
Turn Bay Length (ft)				
Base Capacity (vph)	1819	1185	999	1932
Starvation Cap Reductn	601	0	0	512
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.20	0.23	0.01	0.74

Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1412	268	14	0	0	1020
Future Volume (vph)	1412	268	14	0	0	1020
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.5	6.5			7.0
Lane Util. Factor	0.97	0.95	0.95			0.76
Frpb, ped/bikes	1.00	1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	1.00	1.00	1.00			0.85
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3433	3539	2983			3646
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3433	3539	2983			3646
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1456	276	14	0	0	1052
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1456	276	14	0	0	1052
Confl. Peds. (#/hr)	97			97		
Confl. Bikes (#/hr)				30		13
Heavy Vehicles (%)	2%	2%	21%	21%	1%	1%
Turn Type	Prot	NA	NA			Prot
Protected Phases	7	6	2			4
Permitted Phases						
Actuated Green, G (s)	53.0	33.5	33.5			53.0
Effective Green, g (s)	53.0	33.5	33.5			53.0
Actuated g/C Ratio	0.53	0.34	0.34			0.53
Clearance Time (s)	7.0	6.5	6.5			7.0
Lane Grp Cap (vph)	1819	1185	999			1932
v/s Ratio Prot	c0.42	c0.08	0.00			0.29
v/s Ratio Perm						
v/c Ratio	0.80	0.23	0.01			0.54
Uniform Delay, d1	19.2	24.0	22.2			15.5
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	3.8	0.5	0.0			1.1
Delay (s)	23.0	24.4	22.2			16.6
Level of Service	C	C	C			B
Approach Delay (s)		23.2	22.2		16.6	
Approach LOS		C	C		B	

Intersection Summary			
HCM 2000 Control Delay	20.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBL	WBT	NBR
Lane Group Flow (vph)	489	35	633	155
v/c Ratio	0.18	0.06	0.31	0.31
Control Delay	8.1	32.4	19.7	31.1
Queue Delay	0.0	0.0	1.3	0.0
Total Delay	8.1	32.4	21.0	31.1
Queue Length 50th (ft)	47	13	232	83
Queue Length 95th (ft)	51	35	291	140
Internal Link Dist (ft)	259		228	
Turn Bay Length (ft)				
Base Capacity (vph)	2763	541	2055	508
Starvation Cap Reductn	0	0	1154	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.18	0.06	0.70	0.31

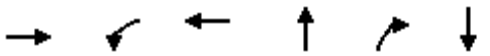
Intersection Summary



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	435	15	32	582	0	143
Future Volume (vph)	435	15	32	582	0	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		6.0	5.5		6.0
Lane Util. Factor	0.91		1.00	0.95		1.00
Frpb, ped/bikes	1.00		1.00	1.00		1.00
Flpb, ped/bikes	1.00		1.00	1.00		1.00
Frt	1.00		1.00	1.00		0.86
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	4713		1752	3505		1644
Flt Permitted	1.00		0.95	1.00		1.00
Satd. Flow (perm)	4713		1752	3505		1644
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	473	16	35	633	0	155
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	489	0	35	633	0	155
Confl. Peds. (#/hr)		35	35			5
Confl. Bikes (#/hr)		35				
Heavy Vehicles (%)	9%	9%	3%	3%	0%	0%
Turn Type	NA		Prot	NA		Over
Protected Phases	2		4	6		4
Permitted Phases						
Actuated Green, G (s)	64.5		34.0	64.5		34.0
Effective Green, g (s)	64.5		34.0	64.5		34.0
Actuated g/C Ratio	0.59		0.31	0.59		0.31
Clearance Time (s)	5.5		6.0	5.5		6.0
Lane Grp Cap (vph)	2763		541	2055		508
v/s Ratio Prot	0.10		0.02	c0.18		c0.09
v/s Ratio Perm						
v/c Ratio	0.18		0.06	0.31		0.31
Uniform Delay, d1	10.5		26.8	11.5		29.0
Progression Factor	0.76		1.19	1.67		1.00
Incremental Delay, d2	0.1		0.2	0.4		1.5
Delay (s)	8.1		32.0	19.5		30.5
Level of Service	A		C	B		C
Approach Delay (s)	8.1			20.2	30.5	
Approach LOS	A			C	C	

Intersection Summary			
HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		

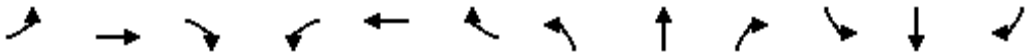
c Critical Lane Group



Lane Group	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	622	250	1751	474	341	228
v/c Ratio	0.39	0.79	0.67	0.49	0.52	0.28
Control Delay	28.8	62.3	17.7	7.0	8.0	27.8
Queue Delay	0.0	0.0	0.0	0.1	2.5	0.0
Total Delay	28.8	62.3	17.7	7.2	10.5	27.8
Queue Length 50th (ft)	122	170	290	14	63	52
Queue Length 95th (ft)	157	#296	343	18	130	90
Internal Link Dist (ft)	282		355	154		901
Turn Bay Length (ft)						
Base Capacity (vph)	1579	315	2624	966	651	807
Starvation Cap Reductn	0	0	0	74	195	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.79	0.67	0.53	0.75	0.28

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	606	2	245	1445	271	59	406	334	45	110	69
Future Volume (vph)	2	606	2	245	1445	271	59	406	334	45	110	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		5.0	6.0			6.5	6.5		6.5	
Lane Util. Factor		0.91		1.00	0.91			0.95	1.00		0.95	
Frpb, ped/bikes		1.00		1.00	0.95			1.00	0.84		0.98	
Flpb, ped/bikes		1.00		1.00	1.00			1.00	1.00		0.99	
Frt		1.00		1.00	0.98			1.00	0.85		0.95	
Flt Protected		1.00		0.95	1.00			0.99	1.00		0.99	
Satd. Flow (prot)		5032		1736	4613			3433	1303		3159	
Flt Permitted		0.93		0.95	1.00			0.87	1.00		0.78	
Satd. Flow (perm)		4695		1736	4613			2996	1303		2481	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	2	618	2	250	1474	277	60	414	341	46	112	70
RTOR Reduction (vph)	0	0	0	0	25	0	0	0	231	0	6	0
Lane Group Flow (vph)	0	622	0	250	1726	0	0	474	110	0	222	0
Confl. Peds. (#/hr)	236		19	19		236	39		112	112		39
Confl. Bikes (#/hr)			12			48			8			19
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Perm	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			4			4	
Permitted Phases	2						4		4	4		
Actuated Green, G (s)		37.0		20.0	62.0			35.5	35.5		35.5	
Effective Green, g (s)		37.0		20.0	62.0			35.5	35.5		35.5	
Actuated g/C Ratio		0.34		0.18	0.56			0.32	0.32		0.32	
Clearance Time (s)		6.0		5.0	6.0			6.5	6.5		6.5	
Lane Grp Cap (vph)		1579		315	2600			966	420		800	
v/s Ratio Prot				c0.14	c0.37							
v/s Ratio Perm		0.13						c0.16	0.08		0.09	
v/c Ratio		0.39		0.79	0.66			0.49	0.26		0.28	
Uniform Delay, d1		27.9		43.0	16.7			30.0	27.6		27.7	
Progression Factor		1.00		1.00	1.00			0.18	1.72		1.00	
Incremental Delay, d2		0.7		18.4	1.4			1.5	1.3		0.8	
Delay (s)		28.7		61.4	18.1			7.0	48.8		28.6	
Level of Service		C		E	B			A	D		C	
Approach Delay (s)		28.7			23.5			24.5			28.6	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	24.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	119.4%	ICU Level of Service	H
Analysis Period (min)	15		

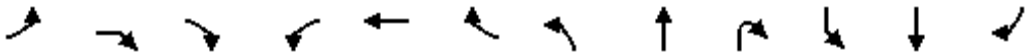
c Critical Lane Group



Lane Group	EBL	EBR	EBR2	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	53	99	68	147	267	449	540	414
v/c Ratio	0.26	0.24	0.14	0.35	0.54	0.44	0.88	0.24
Control Delay	36.4	33.7	6.3	35.9	39.7	7.2	52.6	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.5	0.9	0.0
Total Delay	36.4	33.7	6.3	35.9	39.7	7.7	53.5	7.7
Queue Length 50th (ft)	30	55	0	84	162	88	184	74
Queue Length 95th (ft)	67	102	28	144	248	140	#273	71
Internal Link Dist (ft)					301		901	413
Turn Bay Length (ft)								
Base Capacity (vph)	202	417	475	415	491	1019	615	1701
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	233	11	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.24	0.14	0.35	0.54	0.57	0.89	0.24

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR2	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	94	65	140	254	427	67	351	95	194	176	24
Future Volume (vph)	50	94	65	140	254	427	67	351	95	194	176	24
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	5.0		6.0			6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		0.95			0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.96		0.99			0.96	
Flpb, ped/bikes	0.96	1.00	1.00	0.89	1.00	1.00		0.96			1.00	
Frt	1.00	0.85	0.85	1.00	1.00	0.85		0.97			0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99			0.98	
Satd. Flow (prot)	1703	1583	1583	1577	1863	1524		3225			3290	
Flt Permitted	0.43	1.00	1.00	0.95	1.00	1.00		0.82			0.56	
Satd. Flow (perm)	768	1583	1583	1577	1863	1524		2648			1890	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	53	99	68	147	267	449	71	369	100	204	185	25
RTOR Reduction (vph)	0	0	50	0	0	38	0	62	0	0	4	0
Lane Group Flow (vph)	53	99	18	147	267	411	0	478	0	0	410	0
Confl. Peds. (#/hr)	25		66	66		25	364		15	15		364
Confl. Bikes (#/hr)						6			11			20
Turn Type	Perm	Prot	Prot	Perm	NA	custom	Perm	NA		pm+pt	NA	
Protected Phases		4	4		8	5		6		5	2	
Permitted Phases	4	4	4	8		8	6			2		
Actuated Green, G (s)	29.0	29.0	29.0	29.0	29.0	70.0		23.0			69.0	
Effective Green, g (s)	29.0	29.0	29.0	29.0	29.0	70.0		23.0			69.0	
Actuated g/C Ratio	0.26	0.26	0.26	0.26	0.26	0.64		0.21			0.63	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	5.0		6.0			6.0	
Lane Grp Cap (vph)	202	417	417	415	491	969		553			1707	
v/s Ratio Prot		0.06	0.01		c0.14	c0.16					0.09	
v/s Ratio Perm	0.07			0.09		0.11		c0.18			0.06	
v/c Ratio	0.26	0.24	0.04	0.35	0.54	0.42		0.86			0.24	
Uniform Delay, d1	32.0	31.8	30.2	32.9	34.8	10.0		42.0			9.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.06			0.87	
Incremental Delay, d2	3.1	1.3	0.2	2.4	4.3	1.4		14.0			0.3	
Delay (s)	35.2	33.2	30.4	35.3	39.1	11.3		58.6			8.1	
Level of Service	D	C	C	D	D	B		E			A	
Approach Delay (s)					24.0			58.6			8.1	
Approach LOS					C			E			A	

Intersection Summary			
HCM 2000 Control Delay	30.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	79.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



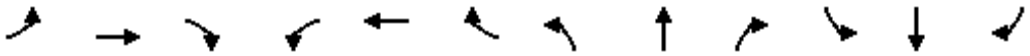
Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	20	61	234	401	796	344
v/c Ratio	0.12	0.10	0.68	1.04	0.91	0.29
Control Delay	21.3	14.6	41.9	80.7	38.2	14.6
Queue Delay	0.0	0.0	0.0	0.0	11.9	0.0
Total Delay	21.3	14.6	41.9	80.7	50.0	14.6
Queue Length 50th (ft)	9	20	139	~238	403	66
Queue Length 95th (ft)	m23	46	232	#422	m#700	95
Internal Link Dist (ft)		1267		269	413	277
Turn Bay Length (ft)	100					
Base Capacity (vph)	170	597	344	386	873	1186
Starvation Cap Reductn	0	0	0	0	77	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.10	0.68	1.04	1.00	0.29

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

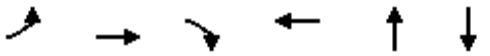
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	41	13	208	84	273	55	518	135	73	224	9
Future Volume (vph)	18	41	13	208	84	273	55	518	135	73	224	9
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	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			0.95	
Frpb, ped/bikes	1.00	0.92		1.00	0.51			0.97			0.99	
Flpb, ped/bikes	0.78	1.00		0.73	1.00			0.98			0.99	
Frt	1.00	0.96		1.00	0.89			0.97			1.00	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1379	1659		1289	838			1709			3409	
Flt Permitted	0.33	1.00		0.72	1.00			0.94			0.64	
Satd. Flow (perm)	483	1659		973	838			1613			2207	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	20	46	15	234	94	307	62	582	152	82	252	10
RTOR Reduction (vph)	0	10	0	0	90	0	0	8	0	0	2	0
Lane Group Flow (vph)	20	51	0	234	311	0	0	788	0	0	342	0
Confl. Peds. (#/hr)	364		179	179		364	163		128	128		163
Confl. Bikes (#/hr)			14			81			9			8
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	39.0	39.0		39.0	39.0			59.0			59.0	
Effective Green, g (s)	39.0	39.0		39.0	39.0			59.0			59.0	
Actuated g/C Ratio	0.35	0.35		0.35	0.35			0.54			0.54	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	171	588		344	297			865			1183	
v/s Ratio Prot		0.03			c0.37							
v/s Ratio Perm	0.04			0.24				c0.49			0.16	
v/c Ratio	0.12	0.09		0.68	1.05			0.91			0.29	
Uniform Delay, d1	23.9	23.6		30.2	35.5			23.1			14.0	
Progression Factor	0.80	0.75		1.00	1.00			1.07			1.00	
Incremental Delay, d2	1.3	0.3		10.4	65.4			12.8			0.6	
Delay (s)	20.4	18.1		40.6	100.9			37.6			14.6	
Level of Service	C	B		D	F			D			B	
Approach Delay (s)		18.7			78.7			37.6			14.6	
Approach LOS		B			E			D			B	

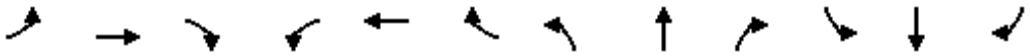
Intersection Summary			
HCM 2000 Control Delay	46.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	100.5%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBT	NBT	SBT
Lane Group Flow (vph)	37	58	58	18	881	385
v/c Ratio	0.24	0.13	0.14	0.20	0.57	0.25
Control Delay	54.6	29.6	29.6	51.5	33.2	17.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.9
Total Delay	54.6	29.6	29.6	51.5	33.2	18.5
Queue Length 50th (ft)	13	31	31	11	189	50
Queue Length 95th (ft)	30	66	66	35	230	m79
Internal Link Dist (ft)		282		633	181	154
Turn Bay Length (ft)						
Base Capacity (vph)	154	433	428	91	1551	1512
Starvation Cap Reductn	0	0	0	0	0	832
Spillback Cap Reductn	0	0	0	0	5	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.13	0.14	0.20	0.57	0.57

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	3	101	9	5	2	0	770	14	2	333	8
Future Volume (vph)	33	3	101	9	5	2	0	770	14	2	333	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.5	6.5		6.5			6.5			7.0	
Lane Util. Factor	0.97	0.95	0.95		1.00			0.91			0.95	
Frpb, ped/bikes	1.00	0.97	0.97		0.98			0.99			1.00	
Flpb, ped/bikes	1.00	1.00	1.00		1.00			1.00			1.00	
Frt	1.00	0.86	0.85		0.98			1.00			1.00	
Flt Protected	0.95	1.00	1.00		0.97			1.00			1.00	
Satd. Flow (prot)	3400	1465	1450		1789			4945			3317	
Flt Permitted	0.95	1.00	1.00		0.91			1.00			0.95	
Satd. Flow (perm)	3400	1465	1450		1675			4945			3167	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	37	3	113	10	6	2	0	865	16	2	374	9
RTOR Reduction (vph)	0	0	0	0	1	0	0	1	0	0	2	0
Lane Group Flow (vph)	37	58	58	0	17	0	0	880	0	0	383	0
Confl. Peds. (#/hr)	28		4	4		28	66		125	125		66
Confl. Bikes (#/hr)			14			140			26			43
Heavy Vehicles (%)	3%	3%	3%	0%	0%	0%	4%	4%	4%	8%	8%	8%
Turn Type	Prot	NA	Perm	Prot	NA			NA		pm+pt	NA	
Protected Phases	1	6		1	2			4		3	8	
Permitted Phases			6							8		
Actuated Green, G (s)	5.0	32.5	32.5		37.5			34.5			52.0	
Effective Green, g (s)	5.0	32.5	32.5		37.5			34.5			52.0	
Actuated g/C Ratio	0.05	0.30	0.30		0.34			0.31			0.47	
Clearance Time (s)	7.0	6.5	6.5		6.5			6.5			7.0	
Lane Grp Cap (vph)	154	432	428		576			1550			1512	
v/s Ratio Prot	c0.01	0.04			0.00			c0.18			c0.03	
v/s Ratio Perm			c0.04		0.01						0.09	
v/c Ratio	0.24	0.13	0.14		0.03			0.57			0.25	
Uniform Delay, d1	50.7	28.4	28.4		24.1			31.5			17.4	
Progression Factor	1.00	1.00	1.00		1.00			1.00			0.99	
Incremental Delay, d2	3.7	0.6	0.7		0.1			1.5			0.3	
Delay (s)	54.3	29.1	29.1		24.2			33.0			17.5	
Level of Service	D	C	C		C			C			B	
Approach Delay (s)		35.2			24.2			33.0			17.5	
Approach LOS		D			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	29.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	991	1532	284	120
v/c Ratio	0.36	0.52	0.69	0.29
Control Delay	14.0	14.6	47.1	7.9
Queue Delay	0.7	5.1	2.9	0.0
Total Delay	14.8	19.7	50.0	7.9
Queue Length 50th (ft)	194	224	182	0
Queue Length 95th (ft)	218	263	280	46
Internal Link Dist (ft)	202	268	424	
Turn Bay Length (ft)				
Base Capacity (vph)	2790	2930	411	411
Starvation Cap Reductn	1353	1320	0	0
Spillback Cap Reductn	0	551	57	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.69	0.95	0.80	0.29

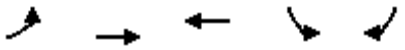
Intersection Summary



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	823	108	0	1440	267	113
Future Volume (vph)	823	108	0	1440	267	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0			6.0	6.0	6.0
Lane Util. Factor	0.91			0.91	1.00	1.00
Frpb, ped/bikes	0.98			1.00	1.00	0.82
Flpb, ped/bikes	1.00			1.00	0.94	1.00
Frt	0.98			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	4795			5036	1618	1264
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	4795			5036	1618	1264
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	876	115	0	1532	284	120
RTOR Reduction (vph)	0	0	0	0	0	89
Lane Group Flow (vph)	991	0	0	1532	284	31
Confl. Peds. (#/hr)		53			50	129
Confl. Bikes (#/hr)		43				26
Heavy Vehicles (%)	4%	4%	3%	3%	5%	5%
Turn Type	NA			NA	Perm	Perm
Protected Phases	2			2		
Permitted Phases					4	4
Actuated Green, G (s)	64.0			64.0	28.0	28.0
Effective Green, g (s)	64.0			64.0	28.0	28.0
Actuated g/C Ratio	0.58			0.58	0.25	0.25
Clearance Time (s)	6.0			6.0	6.0	6.0
Lane Grp Cap (vph)	2789			2930	411	321
v/s Ratio Prot	0.21			c0.30		
v/s Ratio Perm					c0.18	0.02
v/c Ratio	0.36			0.52	0.69	0.10
Uniform Delay, d1	12.1			13.8	37.1	31.3
Progression Factor	1.12			1.00	1.00	1.00
Incremental Delay, d2	0.3			0.7	9.2	0.6
Delay (s)	14.0			14.5	46.3	31.9
Level of Service	B			B	D	C
Approach Delay (s)	14.0			14.5	42.0	
Approach LOS	B			B	D	

Intersection Summary			
HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	61.2%	ICU Level of Service	B
Analysis Period (min)	15		

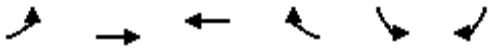
c Critical Lane Group



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	346	907	913	11	88
v/c Ratio	0.65	0.37	0.53	0.03	0.12
Control Delay	11.8	3.3	26.6	22.3	5.5
Queue Delay	12.3	0.0	0.0	0.0	0.0
Total Delay	24.1	3.3	26.6	22.3	5.5
Queue Length 50th (ft)	38	33	109	6	5
Queue Length 95th (ft)	53	39	164	m11	m17
Internal Link Dist (ft)		484	340	163	
Turn Bay Length (ft)					
Base Capacity (vph)	531	2448	1739	357	764
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	161	167	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.94	0.40	0.53	0.03	0.12

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	651	526	855	3	10	83
Future Volume (vph)	651	526	855	3	10	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		5.5	6.0
Lane Util. Factor	0.86	0.86	0.91		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	0.98	1.00		0.95	1.00
Satd. Flow (prot)	1477	4574	5033		1543	1380
Flt Permitted	0.23	0.67	1.00		0.95	1.00
Satd. Flow (perm)	356	3105	5033		1543	1380
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	693	560	910	3	11	88
RTOR Reduction (vph)	0	0	0	0	0	13
Lane Group Flow (vph)	346	907	913	0	11	75
Confl. Peds. (#/hr)	22			22	12	
Confl. Bikes (#/hr)				3		
Heavy Vehicles (%)	5%	5%	3%	3%	17%	17%
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	1	6	2		4	1
Permitted Phases	6					4
Actuated Green, G (s)	73.0	73.0	38.0		25.5	54.5
Effective Green, g (s)	73.0	73.0	38.0		25.5	54.5
Actuated g/C Ratio	0.66	0.66	0.35		0.23	0.50
Clearance Time (s)	6.0	6.0	6.0		5.5	6.0
Lane Grp Cap (vph)	531	2447	1738		357	759
v/s Ratio Prot	c0.17	0.10	0.18		0.01	c0.03
v/s Ratio Perm	c0.26	0.15				0.03
v/c Ratio	0.65	0.37	0.53		0.03	0.10
Uniform Delay, d1	19.4	8.3	28.8		32.7	14.7
Progression Factor	0.29	0.33	0.88		0.67	0.59
Incremental Delay, d2	5.0	0.4	1.1		0.1	0.2
Delay (s)	10.6	3.1	26.4		22.1	8.9
Level of Service	B	A	C		C	A
Approach Delay (s)		5.2	26.4		10.4	
Approach LOS		A	C		B	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

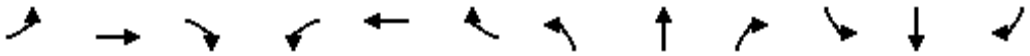
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	122	305	742	148
v/c Ratio	0.59	1.04	0.53	0.09
Control Delay	36.2	100.5	10.4	17.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	36.2	100.5	10.4	17.4
Queue Length 50th (ft)	41	~231	122	21
Queue Length 95th (ft)	m99	m#386	146	39
Internal Link Dist (ft)	492	1267	654	413
Turn Bay Length (ft)				
Base Capacity (vph)	206	293	1409	1591
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.59	1.04	0.53	0.09

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	0	62	47	144	84	99	569	0	0	104	29
Future Volume (vph)	48	0	62	47	144	84	99	569	0	0	104	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5			5.0			5.0	
Lane Util. Factor		1.00			1.00			0.95			0.91	
Frpb, ped/bikes		0.90			0.90			1.00			0.90	
Flpb, ped/bikes		1.00			0.98			0.96			1.00	
Frt		0.92			0.96			1.00			0.97	
Flt Protected		0.98			0.99			0.99			1.00	
Satd. Flow (prot)		1461			1543			3294			4019	
Flt Permitted		0.52			0.92			0.87			1.00	
Satd. Flow (perm)		774			1429			2896			4019	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	53	0	69	52	160	93	110	632	0	0	116	32
RTOR Reduction (vph)	0	56	0	0	14	0	0	0	0	0	19	0
Lane Group Flow (vph)	0	66	0	0	291	0	0	742	0	0	129	0
Confl. Peds. (#/hr)	194		75	75		194	138		192	192		138
Confl. Bikes (#/hr)						9			8			12
Heavy Vehicles (%)	6%	6%	6%	3%	3%	3%	4%	4%	4%	13%	13%	13%
Turn Type	Perm	NA		Perm	NA		Prot	NA			NA	
Protected Phases		8			8		5	2			6	
Permitted Phases	8			8								
Actuated Green, G (s)		21.5			21.5			78.0			43.0	
Effective Green, g (s)		21.5			21.5			78.0			43.0	
Actuated g/C Ratio		0.20			0.20			0.71			0.39	
Clearance Time (s)		5.5			5.5			5.0			5.0	
Lane Grp Cap (vph)		151			279			2162			1571	
v/s Ratio Prot								c0.09			0.03	
v/s Ratio Perm		0.09			c0.20			c0.15				
v/c Ratio		0.44			1.04			0.34			0.08	
Uniform Delay, d1		39.0			44.2			6.2			21.1	
Progression Factor		1.29			1.02			0.65			1.04	
Incremental Delay, d2		8.0			59.7			0.3			0.1	
Delay (s)		58.1			104.7			4.3			22.0	
Level of Service		E			F			A			C	
Approach Delay (s)		58.1			104.7			4.3			22.0	
Approach LOS		E			F			A			C	

Intersection Summary			
HCM 2000 Control Delay	34.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

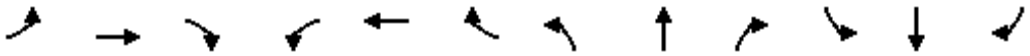
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	64	126	12	131	829	424
v/c Ratio	0.16	0.21	0.04	0.25	0.49	0.22
Control Delay	27.9	21.4	30.5	29.1	16.9	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.9	21.4	30.5	29.1	16.9	11.8
Queue Length 50th (ft)	28	39	6	68	168	42
Queue Length 95th (ft)	m46	m65	m7	m71	m210	63
Internal Link Dist (ft)		495		1267	413	291
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	408	589	280	526	1701	1932
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.21	0.04	0.25	0.49	0.22

Intersection Summary

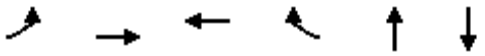
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	69	53	12	99	28	171	588	46	18	274	119
Future Volume (vph)	62	69	53	12	99	28	171	588	46	18	274	119
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	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.91			0.91	
Frpb, ped/bikes	1.00	0.85		1.00	0.94			0.98			0.95	
Flpb, ped/bikes	0.86	1.00		0.73	1.00			0.95			1.00	
Frt	1.00	0.93		1.00	0.97			0.99			0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1413	1380		1274	1674			4614			4379	
Flt Permitted	0.67	1.00		0.68	1.00			0.76			0.88	
Satd. Flow (perm)	1001	1380		907	1674			3523			3879	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	64	71	55	12	102	29	176	606	47	19	282	123
RTOR Reduction (vph)	0	25	0	0	9	0	0	6	0	0	64	0
Lane Group Flow (vph)	64	101	0	12	122	0	0	823	0	0	360	0
Confl. Peds. (#/hr)	146		245	245		146	135		123	123		135
Confl. Bikes (#/hr)			9			38			2			19
Heavy Vehicles (%)	10%	10%	10%	3%	3%	3%	3%	3%	3%	7%	7%	7%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	3	8			4			2			6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	45.0	45.0		34.0	34.0			53.0			53.0	
Effective Green, g (s)	45.0	45.0		34.0	34.0			53.0			53.0	
Actuated g/C Ratio	0.41	0.41		0.31	0.31			0.48			0.48	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	428	564		280	517			1697			1868	
v/s Ratio Prot	0.01	c0.07			c0.07							
v/s Ratio Perm	0.05			0.01				c0.23			0.09	
v/c Ratio	0.15	0.18		0.04	0.24			0.48			0.19	
Uniform Delay, d1	20.5	20.7		26.6	28.3			19.3			16.3	
Progression Factor	1.28	1.48		1.12	1.11			0.83			1.00	
Incremental Delay, d2	0.6	0.6		0.1	0.4			0.8			0.2	
Delay (s)	26.9	31.3		30.0	31.8			16.9			16.5	
Level of Service	C	C		C	C			B			B	
Approach Delay (s)		29.8			31.6			16.9			16.5	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	68.2%	ICU Level of Service	C
Analysis Period (min)	15		

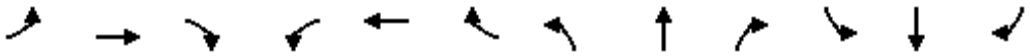
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	75	378	951	267	723	189
v/c Ratio	0.28	0.18	0.42	0.61	0.82	0.56
Control Delay	43.1	2.0	10.5	20.0	27.6	20.5
Queue Delay	0.0	0.0	0.0	0.0	27.5	0.0
Total Delay	43.1	2.0	10.5	20.0	55.1	20.5
Queue Length 50th (ft)	56	4	199	191	190	33
Queue Length 95th (ft)	m103	5	179	277	224	m53
Internal Link Dist (ft)		523	354		163	654
Turn Bay Length (ft)						
Base Capacity (vph)	265	2113	2288	441	881	335
Starvation Cap Reductn	0	0	0	0	186	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.18	0.42	0.61	1.04	0.56

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	316	17	0	837	235	58	573	5	46	79	41
Future Volume (vph)	66	316	17	0	837	235	58	573	5	46	79	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5			6.5	6.5		7.0			10.0	
Lane Util. Factor	1.00	0.91			0.91	1.00		0.91			0.95	
Frpb, ped/bikes	1.00	0.99			1.00	0.62		1.00			0.97	
Flpb, ped/bikes	1.00	1.00			1.00	1.00		0.99			0.99	
Frt	1.00	0.99			1.00	0.85		1.00			0.96	
Flt Protected	0.95	1.00			1.00	1.00		1.00			0.99	
Satd. Flow (prot)	1671	4700			5085	982		4776			2982	
Flt Permitted	0.95	1.00			1.00	1.00		0.88			0.56	
Satd. Flow (perm)	1671	4700			5085	982		4213			1681	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	75	359	19	0	951	267	66	651	6	52	90	47
RTOR Reduction (vph)	0	0	0	0	0	0	0	1	0	0	29	0
Lane Group Flow (vph)	75	378	0	0	951	267	0	722	0	0	160	0
Confl. Peds. (#/hr)	292		144	144		292	59		92	92		59
Confl. Bikes (#/hr)			31			133			4			4
Heavy Vehicles (%)	8%	8%	8%	2%	2%	2%	7%	7%	7%	10%	10%	10%
Turn Type	Prot	NA			NA	Perm	Perm	NA		Perm	NA	
Protected Phases	7	6			2			4			8	
Permitted Phases						2	4			8		
Actuated Green, G (s)	17.5	49.5			49.5	49.5		23.0			20.0	
Effective Green, g (s)	17.5	49.5			49.5	49.5		23.0			20.0	
Actuated g/C Ratio	0.16	0.45			0.45	0.45		0.21			0.18	
Clearance Time (s)	6.5	6.5			6.5	6.5		7.0			10.0	
Lane Grp Cap (vph)	265	2115			2288	441		880			305	
v/s Ratio Prot	c0.04	0.08			0.19							
v/s Ratio Perm						c0.27		c0.17			0.09	
v/c Ratio	0.28	0.18			0.42	0.61		0.82			0.52	
Uniform Delay, d1	40.7	18.1			20.5	22.9		41.5			40.7	
Progression Factor	0.99	0.10			0.49	0.63		0.47			0.43	
Incremental Delay, d2	2.3	0.2			0.4	4.8		7.6			5.7	
Delay (s)	42.4	2.0			10.4	19.3		27.1			23.1	
Level of Service	D	A			B	B		C			C	
Approach Delay (s)		8.7			12.4			27.1			23.1	
Approach LOS		A			B			C			C	

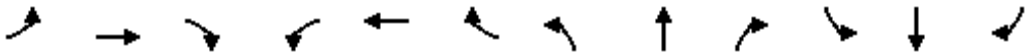
Intersection Summary			
HCM 2000 Control Delay	16.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	75.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1188	951	158	1040	320
v/c Ratio	0.63	0.46	0.34	0.53	0.28
Control Delay	12.3	3.5	24.1	22.7	44.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	12.3	3.5	24.1	22.7	44.5
Queue Length 50th (ft)	49	14	68	184	75
Queue Length 95th (ft)	m54	17	113	227	110
Internal Link Dist (ft)	516	484		438	368
Turn Bay Length (ft)					
Base Capacity (vph)	1877	2083	461	1966	1134
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	25	68	0	60	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.64	0.47	0.34	0.55	0.28

Intersection Summary

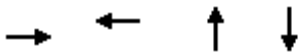
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1017	136	81	838	13	155	873	146	0	262	52
Future Volume (vph)	11	1017	136	81	838	13	155	873	146	0	262	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5		6.5	6.5			6.5	
Lane Util. Factor		0.86			0.86		1.00	0.91			0.91	
Frpb, ped/bikes		0.99			1.00		1.00	0.96			0.97	
Flpb, ped/bikes		1.00			1.00		0.95	1.00			1.00	
Frt		0.98			1.00		1.00	0.98			0.98	
Flt Protected		1.00			1.00		0.95	1.00			1.00	
Satd. Flow (prot)		6105			6235		1540	4410			4130	
Flt Permitted		0.92			0.72		0.55	1.00			1.00	
Satd. Flow (perm)		5595			4529		892	4410			4130	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	11	1038	139	83	855	13	158	891	149	0	267	53
RTOR Reduction (vph)	0	22	0	0	2	0	0	21	0	0	27	0
Lane Group Flow (vph)	0	1166	0	0	949	0	158	1019	0	0	293	0
Confl. Peds. (#/hr)	35		53	53		35	104		165	165		104
Confl. Bikes (#/hr)			2			6			13			11
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	11%	11%	11%	19%	19%	19%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA			NA	
Protected Phases		6		5	2		3	8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)		36.5			48.5		48.5	48.5			29.5	
Effective Green, g (s)		36.5			48.5		48.5	48.5			29.5	
Actuated g/C Ratio		0.33			0.44		0.44	0.44			0.27	
Clearance Time (s)		6.5			6.5		6.5	6.5			6.5	
Lane Grp Cap (vph)		1856			2105		466	1944			1107	
v/s Ratio Prot					c0.03		0.04	c0.23			0.07	
v/s Ratio Perm		c0.21			0.17		0.11					
v/c Ratio		0.63			0.45		0.34	0.52			0.26	
Uniform Delay, d1		31.0			21.5		20.9	22.4			31.7	
Progression Factor		0.36			0.14		1.00	1.00			1.56	
Incremental Delay, d2		1.5			0.6		2.0	1.0			0.5	
Delay (s)		12.5			3.6		22.9	23.4			49.9	
Level of Service		B			A		C	C			D	
Approach Delay (s)		12.5			3.6			23.3			49.9	
Approach LOS		B			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	17.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	97.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	108	220	1050	361
v/c Ratio	0.34	0.59	0.68	0.52
Control Delay	50.9	26.1	33.6	3.3
Queue Delay	0.0	0.0	2.3	0.9
Total Delay	50.9	26.1	35.9	4.2
Queue Length 50th (ft)	76	78	357	8
Queue Length 95th (ft)	m128	m98	442	m13
Internal Link Dist (ft)	508	492	449	412
Turn Bay Length (ft)				
Base Capacity (vph)	321	372	1536	695
Starvation Cap Reductn	0	0	340	139
Spillback Cap Reductn	0	0	20	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.34	0.59	0.88	0.65

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	42	28	16	112	81	239	732	26	77	249	17
Future Volume (vph)	33	42	28	16	112	81	239	732	26	77	249	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5			5.5			5.5	
Lane Util. Factor		1.00			1.00			0.95			1.00	
Frpb, ped/bikes		0.94			0.89			0.98			0.97	
Flpb, ped/bikes		0.95			0.99			0.93			0.98	
Frt		0.96			0.95			1.00			0.99	
Flt Protected		0.98			1.00			0.99			0.99	
Satd. Flow (prot)		1529			1496			3065			1627	
Flt Permitted		0.83			0.97			0.75			0.64	
Satd. Flow (perm)		1283			1463			2329			1054	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	35	44	29	17	118	85	252	771	27	81	262	18
RTOR Reduction (vph)	0	12	0	0	20	0	0	2	0	0	2	0
Lane Group Flow (vph)	0	96	0	0	200	0	0	1048	0	0	359	0
Confl. Peds. (#/hr)	166		127	127		166	254		341	341		254
Confl. Bikes (#/hr)			3			9			12			16
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	9%	9%	9%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		26.5			26.5			72.5			72.5	
Effective Green, g (s)		26.5			26.5			72.5			72.5	
Actuated g/C Ratio		0.24			0.24			0.66			0.66	
Clearance Time (s)		5.5			5.5			5.5			5.5	
Lane Grp Cap (vph)		309			352			1535			694	
v/s Ratio Prot												
v/s Ratio Perm		0.07			c0.14			c0.45			0.34	
v/c Ratio		0.31			0.57			0.68			0.52	
Uniform Delay, d1		34.3			36.7			11.6			9.7	
Progression Factor		1.63			0.66			2.65			0.20	
Incremental Delay, d2		2.1			4.2			1.9			1.2	
Delay (s)		57.9			28.4			32.7			3.2	
Level of Service		E			C			C			A	
Approach Delay (s)		57.9			28.4			32.7			3.2	
Approach LOS		E			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	27.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		

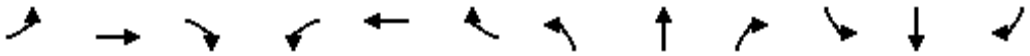
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	19	260	12	500	932	439
v/c Ratio	0.07	0.33	0.04	0.73	0.82	0.99
Control Delay	11.7	12.6	12.9	23.4	37.1	72.5
Queue Delay	0.0	0.0	0.0	0.1	0.4	0.0
Total Delay	11.7	12.6	12.9	23.4	37.5	72.5
Queue Length 50th (ft)	5	73	4	181	234	298
Queue Length 95th (ft)	m12	m107	m11	242	313	#514
Internal Link Dist (ft)		509		495	412	353
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	262	779	318	684	1138	445
Starvation Cap Reductn	0	0	0	4	28	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.33	0.04	0.74	0.84	0.99

Intersection Summary

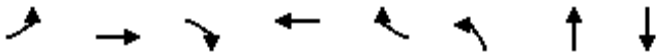
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	199	35	11	236	214	34	703	102	42	304	49
Future Volume (vph)	17	199	35	11	236	214	34	703	102	42	304	49
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	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			1.00	
Frpb, ped/bikes	1.00	0.92		1.00	0.84			0.91			0.94	
Flpb, ped/bikes	0.90	1.00		0.65	1.00			0.99			0.99	
Frt	1.00	0.98		1.00	0.93			0.98			0.98	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1539	1606		1125	1420			3004			1606	
Flt Permitted	0.34	1.00		0.56	1.00			0.92			0.67	
Satd. Flow (perm)	544	1606		660	1420			2757			1077	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	19	221	39	12	262	238	38	781	113	47	338	54
RTOR Reduction (vph)	0	6	0	0	1	0	0	10	0	0	5	0
Lane Group Flow (vph)	19	254	0	12	499	0	0	922	0	0	434	0
Confl. Peds. (#/hr)	226		273	273		226	172		593	593		172
Confl. Bikes (#/hr)			16			40			6			15
Heavy Vehicles (%)	6%	6%	6%	5%	5%	5%	7%	7%	7%	8%	8%	8%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	53.0	53.0		53.0	53.0			45.0			45.0	
Effective Green, g (s)	53.0	53.0		53.0	53.0			45.0			45.0	
Actuated g/C Ratio	0.48	0.48		0.48	0.48			0.41			0.41	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	262	773		318	684			1127			440	
v/s Ratio Prot		0.16			c0.35							
v/s Ratio Perm	0.03			0.02				0.33			c0.40	
v/c Ratio	0.07	0.33		0.04	0.73			0.82			0.99	
Uniform Delay, d1	15.3	17.5		15.0	22.8			28.9			32.2	
Progression Factor	0.71	0.67		0.83	0.71			1.10			1.00	
Incremental Delay, d2	0.5	1.0		0.2	6.6			5.2			39.8	
Delay (s)	11.3	12.9		12.7	22.7			37.1			72.0	
Level of Service	B	B		B	C			D			E	
Approach Delay (s)		12.7			22.4			37.1			72.0	
Approach LOS		B			C			D			E	

Intersection Summary			
HCM 2000 Control Delay	37.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		

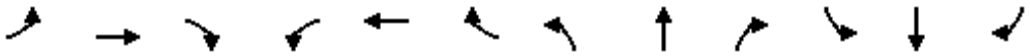
c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	154	429	118	881	173	231	854	259
v/c Ratio	0.77	0.54	0.43	0.71	0.75	0.94	0.60	0.40
Control Delay	68.6	42.0	43.4	46.0	62.9	102.3	38.8	37.1
Queue Delay	0.0	0.0	0.0	0.0	10.0	0.0	3.7	0.0
Total Delay	68.6	42.0	43.4	46.0	72.9	102.3	42.5	37.1
Queue Length 50th (ft)	117	150	77	150	81	173	322	95
Queue Length 95th (ft)	m#195	m196	m126	200	m#197	#325	388	140
Internal Link Dist (ft)		551		523			368	449
Turn Bay Length (ft)								
Base Capacity (vph)	201	791	275	1235	232	245	1428	648
Starvation Cap Reductn	0	0	0	0	0	0	471	0
Spillback Cap Reductn	0	0	0	0	37	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.54	0.43	0.71	0.89	0.94	0.89	0.40

Intersection Summary

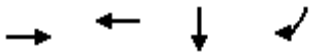
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	386	106	0	793	156	208	752	16	4	212	17
Future Volume (vph)	139	386	106	0	793	156	208	752	16	4	212	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.5	6.5		6.5	6.5	7.0	7.0			7.0	
Lane Util. Factor	1.00	0.95	1.00		0.91	1.00	1.00	0.95			0.95	
Frpb, ped/bikes	1.00	1.00	0.78		1.00	0.60	1.00	0.99			0.98	
Flpb, ped/bikes	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	0.85	1.00	1.00			0.99	
Flt Protected	0.95	1.00	1.00		1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1583	3167	1100		4940	930	1687	3339			3219	
Flt Permitted	0.95	1.00	1.00		1.00	1.00	0.95	1.00			0.91	
Satd. Flow (perm)	1583	3167	1100		4940	930	1687	3339			2944	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	154	429	118	0	881	173	231	836	18	4	236	19
RTOR Reduction (vph)	0	0	0	0	0	0	0	1	0	0	5	0
Lane Group Flow (vph)	154	429	118	0	881	173	231	853	0	0	254	0
Confl. Peds. (#/hr)	309		153	153		309	209		262	262		209
Confl. Bikes (#/hr)			35			127			13			14
Heavy Vehicles (%)	14%	14%	14%	5%	5%	5%	7%	7%	7%	8%	8%	8%
Turn Type	Prot	NA	Perm		NA	Perm	Prot	NA		Perm	NA	
Protected Phases	5	2			6		3	8			4	
Permitted Phases			2			6				4		
Actuated Green, G (s)	14.0	27.5	27.5		27.5	27.5	16.0	47.0			24.0	
Effective Green, g (s)	14.0	27.5	27.5		27.5	27.5	16.0	47.0			24.0	
Actuated g/C Ratio	0.13	0.25	0.25		0.25	0.25	0.15	0.43			0.22	
Clearance Time (s)	5.0	6.5	6.5		6.5	6.5	7.0	7.0			7.0	
Lane Grp Cap (vph)	201	791	275		1235	232	245	1426			642	
v/s Ratio Prot	c0.10	0.14			0.18		c0.14	c0.26				
v/s Ratio Perm			0.11			c0.19					0.09	
v/c Ratio	0.77	0.54	0.43		0.71	0.75	0.94	0.60			0.39	
Uniform Delay, d1	46.4	35.8	34.7		37.7	38.0	46.5	24.2			36.8	
Progression Factor	0.96	1.09	1.09		1.13	1.14	1.31	1.51			0.98	
Incremental Delay, d2	22.7	2.5	4.6		3.2	17.9	42.0	1.7			1.6	
Delay (s)	67.5	41.6	42.3		45.7	61.4	102.9	38.4			37.7	
Level of Service	E	D	D		D	E	F	D			D	
Approach Delay (s)		47.4			48.3			52.1			37.7	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	48.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	27.5
Intersection Capacity Utilization	81.3%	ICU Level of Service	D
Analysis Period (min)	15		

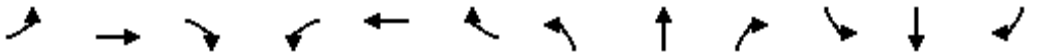
c Critical Lane Group



Lane Group	EBT	WBT	SBT	SBR
Lane Group Flow (vph)	1202	1081	1339	140
v/c Ratio	0.44	0.41	0.88	0.28
Control Delay	21.6	7.3	14.5	0.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	21.6	7.3	14.5	0.9
Queue Length 50th (ft)	164	45	139	0
Queue Length 95th (ft)	195	52	m158	m0
Internal Link Dist (ft)	334	516	582	
Turn Bay Length (ft)				
Base Capacity (vph)	2724	2643	1527	499
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.44	0.41	0.88	0.28

Intersection Summary

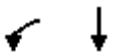
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1095	83	205	828	26	0	0	0	76	1236	137
Future Volume (vph)	0	1095	83	205	828	26	0	0	0	76	1236	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			6.0						6.5	6.5
Lane Util. Factor		0.86			0.86						0.91	1.00
Frpb, ped/bikes		0.99			1.00						1.00	0.88
Flpb, ped/bikes		1.00			1.00						1.00	1.00
Frt		0.99			1.00						1.00	0.85
Flt Protected		1.00			0.99						1.00	1.00
Satd. Flow (prot)		6159			6044						4869	1343
Flt Permitted		1.00			0.72						1.00	1.00
Satd. Flow (perm)		6159			4374						4869	1343
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1117	85	209	845	27	0	0	0	78	1261	140
RTOR Reduction (vph)	0	11	0	0	3	0	0	0	0	0	0	78
Lane Group Flow (vph)	0	1191	0	0	1078	0	0	0	0	0	1339	62
Confl. Peds. (#/hr)	70		64	64		70	89		28	28		89
Confl. Bikes (#/hr)			3			3						
Heavy Vehicles (%)	4%	4%	4%	6%	6%	6%	0%	0%	0%	6%	6%	6%
Turn Type		NA		pm+pt	NA					Perm	NA	Perm
Protected Phases		6		5	2						4	
Permitted Phases				2						4		4
Actuated Green, G (s)		48.5			63.0						34.5	34.5
Effective Green, g (s)		48.5			63.0						34.5	34.5
Actuated g/C Ratio		0.44			0.57						0.31	0.31
Clearance Time (s)		5.5			6.0						6.5	6.5
Lane Grp Cap (vph)		2715			2641						1527	421
v/s Ratio Prot		c0.19			c0.03							
v/s Ratio Perm					0.20						0.27	0.05
v/c Ratio		0.44			0.41						0.88	0.15
Uniform Delay, d1		21.3			13.1						35.7	27.2
Progression Factor		1.00			0.51						0.28	0.03
Incremental Delay, d2		0.5			0.4						3.8	0.4
Delay (s)		21.8			7.2						13.8	1.1
Level of Service		C			A						B	A
Approach Delay (s)		21.8			7.2			0.0			12.6	
Approach LOS		C			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	WBL	SBT
Lane Group Flow (vph)	105	1485
v/c Ratio	0.15	0.62
Control Delay	24.0	6.3
Queue Delay	0.0	0.5
Total Delay	24.0	6.8
Queue Length 50th (ft)	60	56
Queue Length 95th (ft)	m85	105
Internal Link Dist (ft)	508	411
Turn Bay Length (ft)		
Base Capacity (vph)	697	2413
Starvation Cap Reductn	0	469
Spillback Cap Reductn	0	216
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.15	0.76

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	103	0	0	0	134	1321
Future Volume (vph)	103	0	0	0	134	1321
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5					5.5
Lane Util. Factor	1.00					0.91
Frpb, ped/bikes	1.00					1.00
Flpb, ped/bikes	0.97					0.96
Frt	1.00					1.00
Flt Protected	0.95					1.00
Satd. Flow (prot)	1725					4873
Flt Permitted	0.95					1.00
Satd. Flow (perm)	1725					4873
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	105	0	0	0	137	1348
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	105	0	0	0	0	1485
Confl. Peds. (#/hr)	16	419		125	125	
Turn Type	Perm				Perm	NA
Protected Phases						2
Permitted Phases	4				2	
Actuated Green, G (s)	44.5					54.5
Effective Green, g (s)	44.5					54.5
Actuated g/C Ratio	0.40					0.50
Clearance Time (s)	5.5					5.5
Lane Grp Cap (vph)	697					2414
v/s Ratio Prot						
v/s Ratio Perm	c0.06					0.30
v/c Ratio	0.15					0.62
Uniform Delay, d1	20.8					20.1
Progression Factor	1.12					0.27
Incremental Delay, d2	0.3					0.9
Delay (s)	23.6					6.2
Level of Service	C					A
Approach Delay (s)	23.6		0.0			6.2
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	7.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	198	86	62	276	1532
v/c Ratio	0.25	0.17	0.16	0.35	0.73
Control Delay	20.7	13.7	18.1	18.6	27.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	20.7	13.7	18.1	18.6	27.1
Queue Length 50th (ft)	86	23	19	91	313
Queue Length 95th (ft)	138	56	m28	m132	372
Internal Link Dist (ft)	409			509	374
Turn Bay Length (ft)		100	100		
Base Capacity (vph)	797	502	386	789	2086
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	12
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.25	0.17	0.16	0.35	0.74

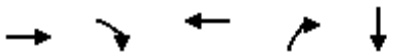
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	194	84	61	270	0	0	0	0	110	1319	73
Future Volume (vph)	0	194	84	61	270	0	0	0	0	110	1319	73
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	
Lane Util. Factor		1.00	1.00	1.00	1.00						0.91	
Frpb, ped/bikes		1.00	0.72	1.00	1.00						0.97	
Flpb, ped/bikes		1.00	1.00	0.80	1.00						0.96	
Frt		1.00	0.85	1.00	1.00						0.99	
Flt Protected		1.00	1.00	0.95	1.00						1.00	
Satd. Flow (prot)		1827	1113	1378	1810						4581	
Flt Permitted		1.00	1.00	0.61	1.00						1.00	
Satd. Flow (perm)		1827	1113	887	1810						4581	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	198	86	62	276	0	0	0	0	112	1346	74
RTOR Reduction (vph)	0	0	17	0	0	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	198	69	62	276	0	0	0	0	0	1527	0
Confl. Peds. (#/hr)	250		181	181		250	263		237	237		263
Confl. Bikes (#/hr)			18			42						7
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	0%	0%	0%	5%	5%	5%
Turn Type		NA	Perm	Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		48.0	48.0	48.0	48.0						50.0	
Effective Green, g (s)		48.0	48.0	48.0	48.0						50.0	
Actuated g/C Ratio		0.44	0.44	0.44	0.44						0.45	
Clearance Time (s)		6.0	6.0	6.0	6.0						6.0	
Lane Grp Cap (vph)		797	485	387	789						2082	
v/s Ratio Prot		0.11			c0.15							
v/s Ratio Perm			0.06	0.07							0.33	
v/c Ratio		0.25	0.14	0.16	0.35						0.73	
Uniform Delay, d1		19.6	18.6	18.8	20.6						24.5	
Progression Factor		1.00	1.00	0.90	0.85						1.00	
Incremental Delay, d2		0.7	0.6	0.5	0.7						2.3	
Delay (s)		20.3	19.2	17.5	18.3						26.9	
Level of Service		C	B	B	B						C	
Approach Delay (s)		20.0			18.2			0.0			26.9	
Approach LOS		C			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	24.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		

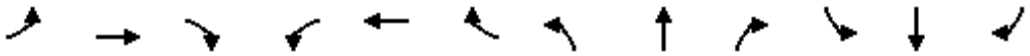
c Critical Lane Group



Lane Group	EBT	EBR	WBT	NBR	SBT
Lane Group Flow (vph)	552	162	1077	45	1530
v/c Ratio	0.28	0.40	0.37	0.15	0.94
Control Delay	17.9	21.9	21.5	21.2	25.6
Queue Delay	0.0	0.0	0.0	0.0	1.5
Total Delay	17.9	21.9	21.5	21.2	27.2
Queue Length 50th (ft)	74	69	235	21	89
Queue Length 95th (ft)	90	122	m268	54	#459
Internal Link Dist (ft)	516		551		235
Turn Bay Length (ft)					
Base Capacity (vph)	1954	401	2888	300	1623
Starvation Cap Reductn	0	0	0	0	31
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.28	0.40	0.37	0.15	0.96

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	443	221	0	1002	0	0	0	42	124	1244	55
Future Volume (vph)	0	443	221	0	1002	0	0	0	42	124	1244	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5		6.5				7.0		7.0	
Lane Util. Factor		0.86	0.86		0.86				1.00		0.91	
Frpb, ped/bikes		0.96	0.68		1.00				0.69		0.99	
Flpb, ped/bikes		1.00	1.00		1.00				1.00		0.97	
Frt		0.98	0.85		1.00				0.86		0.99	
Flt Protected		1.00	1.00		1.00				1.00		1.00	
Satd. Flow (prot)		4097	842		6052				870		4699	
Flt Permitted		1.00	1.00		1.00				1.00		1.00	
Satd. Flow (perm)		4097	842		6052				870		4699	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	476	238	0	1077	0	0	0	45	133	1338	59
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	552	162	0	1077	0	0	0	45	0	1530	0
Confl. Peds. (#/hr)	788		223	223		788	264		211	211		264
Confl. Bikes (#/hr)			38			121						7
Heavy Vehicles (%)	12%	12%	12%	8%	8%	8%	31%	31%	31%	5%	5%	5%
Turn Type		NA	Perm		NA				Perm	Perm	NA	
Protected Phases		2			6						8	
Permitted Phases			2						4	8		
Actuated Green, G (s)		52.5	52.5		52.5				38.0		38.0	
Effective Green, g (s)		52.5	52.5		52.5				38.0		38.0	
Actuated g/C Ratio		0.48	0.48		0.48				0.35		0.35	
Clearance Time (s)		6.5	6.5		6.5				7.0		7.0	
Lane Grp Cap (vph)		1955	401		2888				300		1623	
v/s Ratio Prot		0.13			0.18							
v/s Ratio Perm			c0.19						0.05		0.33	
v/c Ratio		0.28	0.40		0.37				0.15		0.94	
Uniform Delay, d1		17.4	18.6		18.3				24.9		34.9	
Progression Factor		1.00	0.97		1.16				0.79		0.39	
Incremental Delay, d2		0.4	3.0		0.2				1.0		10.8	
Delay (s)		17.8	21.1		21.4				20.7		24.4	
Level of Service		B	C		C				C		C	
Approach Delay (s)		18.5			21.4			20.7			24.4	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	22.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	82.7%	ICU Level of Service	E
Analysis Period (min)	15		

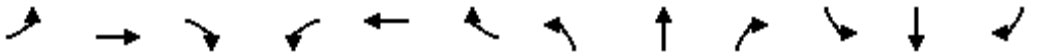
c Critical Lane Group



Lane Group	EBT	WBT	NBL	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	608	1076	176	40	73	35	15
v/c Ratio	0.18	0.29	0.79	0.13	0.26	0.09	0.05
Control Delay	1.0	9.3	64.7	6.4	37.3	33.6	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.0	9.3	64.7	6.4	37.3	33.6	0.4
Queue Length 50th (ft)	0	230	117	0	42	19	0
Queue Length 95th (ft)	m0	m266	#234	20	85	47	0
Internal Link Dist (ft)	246	516				417	
Turn Bay Length (ft)							
Base Capacity (vph)	3405	3679	224	311	278	394	276
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.29	0.79	0.13	0.26	0.09	0.05

Intersection Summary

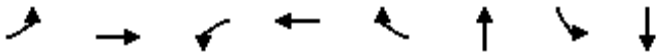
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	529	42	0	1011	0	165	0	38	69	33	14
Future Volume (vph)	0	529	42	0	1011	0	165	0	38	69	33	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5		7.0		7.0	7.0	7.0	7.0
Lane Util. Factor		0.86			0.86		1.00		1.00	1.00	1.00	1.00
Frpb, ped/bikes		0.99			1.00		1.00		0.75	1.00	1.00	0.70
Flpb, ped/bikes		1.00			1.00		0.72		1.00	0.74	1.00	1.00
Frt		0.99			1.00		1.00		0.85	1.00	1.00	0.85
Flt Protected		1.00			1.00		0.95		1.00	0.95	1.00	1.00
Satd. Flow (prot)		5548			5996		1229		1139	1178	1667	991
Flt Permitted		1.00			1.00		0.73		1.00	0.95	1.00	1.00
Satd. Flow (perm)		5548			5996		950		1139	1178	1667	991
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	563	45	0	1076	0	176	0	40	73	35	15
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	31	0	0	11
Lane Group Flow (vph)	0	608	0	0	1076	0	176	0	9	73	35	4
Confl. Peds. (#/hr)	655		85	85		655	177		155	155		177
Confl. Bikes (#/hr)			28			102			3			4
Heavy Vehicles (%)	15%	15%	15%	9%	9%	9%	6%	6%	6%	14%	14%	14%
Turn Type		NA			NA		Perm		Perm	Perm	NA	Perm
Protected Phases		2			6						8	
Permitted Phases							4		4	8		8
Actuated Green, G (s)		67.5			67.5		26.0		26.0	26.0	26.0	26.0
Effective Green, g (s)		67.5			67.5		26.0		26.0	26.0	26.0	26.0
Actuated g/C Ratio		0.61			0.61		0.24		0.24	0.24	0.24	0.24
Clearance Time (s)		6.5			6.5		7.0		7.0	7.0	7.0	7.0
Lane Grp Cap (vph)		3404			3679		224		269	278	394	234
v/s Ratio Prot		0.11			c0.18						0.02	
v/s Ratio Perm							c0.19		0.01	0.06		0.00
v/c Ratio		0.18			0.29		0.79		0.04	0.26	0.09	0.02
Uniform Delay, d1		9.2			10.0		39.4		32.3	34.2	32.8	32.2
Progression Factor		0.09			0.91		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		0.1			0.2		23.7		0.2	2.3	0.4	0.1
Delay (s)		1.0			9.3		63.0		32.6	36.5	33.2	32.3
Level of Service		A			A		E		C	D	C	C
Approach Delay (s)		1.0			9.3			57.4			35.0	
Approach LOS		A			A			E			D	

Intersection Summary			
HCM 2000 Control Delay	13.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



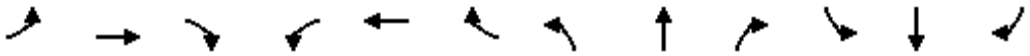
Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	237	464	13	913	383	6	181	59
v/c Ratio	1.08	0.28	0.06	0.77	1.91	0.02	0.97	0.14
Control Delay	136.9	21.9	61.6	19.1	447.7	30.0	110.3	7.9
Queue Delay	0.0	0.0	0.0	1.8	0.0	0.0	0.0	0.0
Total Delay	136.9	21.9	61.6	20.9	447.7	30.0	110.3	7.9
Queue Length 50th (ft)	~193	58	9	96	~411	2	67	1
Queue Length 95th (ft)	m#338	m77	m27	164	m#568	14	#139	30
Internal Link Dist (ft)		209		246		170		344
Turn Bay Length (ft)								
Base Capacity (vph)	219	1666	223	1193	201	338	187	436
Starvation Cap Reductn	0	0	0	145	0	0	0	0
Spillback Cap Reductn	0	0	0	15	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.08	0.28	0.06	0.87	1.91	0.02	0.97	0.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

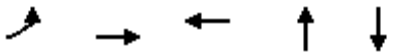
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	213	412	5	12	822	345	1	3	2	163	2	51
Future Volume (vph)	213	412	5	12	822	345	1	3	2	163	2	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0		5.0	6.0	6.0		7.0		7.0	7.0	
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00		1.00		0.97	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.38		0.93		1.00	0.87	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		0.98		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.95		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99		0.95	1.00	
Satd. Flow (prot)	1612	4583		1641	3282	554		1644		2943	1185	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.97		0.95	1.00	
Satd. Flow (perm)	1612	4583		1641	3282	554		1610		2943	1185	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	237	458	6	13	913	383	1	3	2	181	2	57
RTOR Reduction (vph)	0	0	0	0	0	0	0	2	0	0	38	0
Lane Group Flow (vph)	237	464	0	13	913	383	0	4	0	181	21	0
Confl. Peds. (#/hr)	345		257	257		345	74		144	144		74
Confl. Bikes (#/hr)			25			95						38
Heavy Vehicles (%)	12%	12%	12%	10%	10%	10%	0%	0%	0%	19%	19%	19%
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Prot	NA	
Protected Phases	1	6		1	2			4		3	8	
Permitted Phases		6			2	2	4					
Actuated Green, G (s)	15.0	40.0		15.0	40.0	40.0		23.0		7.0	37.0	
Effective Green, g (s)	15.0	40.0		15.0	40.0	40.0		23.0		7.0	37.0	
Actuated g/C Ratio	0.14	0.36		0.14	0.36	0.36		0.21		0.06	0.34	
Clearance Time (s)	5.0	6.0		5.0	6.0	6.0		7.0		7.0	7.0	
Lane Grp Cap (vph)	219	1666		223	1193	201		336		187	398	
v/s Ratio Prot	c0.15	0.10		0.01	0.28					c0.06	c0.02	
v/s Ratio Perm						c0.69		0.00				
v/c Ratio	1.08	0.28		0.06	0.77	1.91		0.01		0.97	0.05	
Uniform Delay, d1	47.5	24.8		41.4	30.9	35.0		34.5		51.4	24.7	
Progression Factor	1.24	0.86		1.46	0.47	0.84		1.00		1.00	1.00	
Incremental Delay, d2	82.8	0.4		0.5	4.5	424.7		0.1		57.9	0.3	
Delay (s)	141.8	21.8		61.0	18.9	454.0		34.6		109.3	24.9	
Level of Service	F	C		E	B	F		C		F	C	
Approach Delay (s)		62.3			146.6			34.6			88.6	
Approach LOS		E			F			C			F	

Intersection Summary			
HCM 2000 Control Delay	114.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		

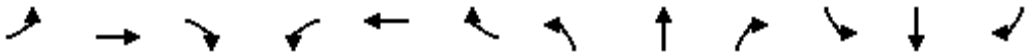
c Critical Lane Group



Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	195	1207	944	1929	73
v/c Ratio	0.77	0.56	0.71	0.98	0.08
Control Delay	73.0	7.1	41.3	46.5	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	73.0	7.1	41.3	46.5	5.3
Queue Length 50th (ft)	116	59	176	476	0
Queue Length 95th (ft)	m157	68	215	#606	7
Internal Link Dist (ft)		1027	345	451	993
Turn Bay Length (ft)					
Base Capacity (vph)	254	2166	1327	1965	920
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.77	0.56	0.71	0.98	0.08

Intersection Summary

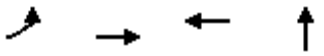
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	187	1142	16	10	848	49	163	1378	311	14	11	45
Future Volume (vph)	187	1142	16	10	848	49	163	1378	311	14	11	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.5			6.5			6.5			6.5	
Lane Util. Factor	1.00	0.91			0.86			0.91			0.95	
Frpb, ped/bikes	1.00	1.00			1.00			0.99			0.96	
Flpb, ped/bikes	1.00	1.00			1.00			0.99			1.00	
Frt	1.00	1.00			0.99			0.97			0.90	
Flt Protected	0.95	1.00			1.00			1.00			0.99	
Satd. Flow (prot)	1752	5013			6036			4844			2741	
Flt Permitted	0.95	1.00			0.91			0.89			0.72	
Satd. Flow (perm)	1752	5013			5476			4351			1988	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	195	1190	17	10	883	51	170	1435	324	15	11	47
RTOR Reduction (vph)	0	1	0	0	8	0	0	8	0	0	26	0
Lane Group Flow (vph)	195	1206	0	0	936	0	0	1921	0	0	47	0
Confl. Peds. (#/hr)	31		78	78		31	78		47	47		78
Confl. Bikes (#/hr)			1						3			
Heavy Vehicles (%)	3%	3%	3%	7%	7%	7%	2%	2%	2%	13%	13%	13%
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	6			2			8			4	
Permitted Phases				2			8			4		
Actuated Green, G (s)	16.0	47.5			26.5			49.5			49.5	
Effective Green, g (s)	16.0	47.5			26.5			49.5			49.5	
Actuated g/C Ratio	0.15	0.43			0.24			0.45			0.45	
Clearance Time (s)	5.0	6.5			6.5			6.5			6.5	
Lane Grp Cap (vph)	254	2164			1319			1957			894	
v/s Ratio Prot	c0.11	0.24										
v/s Ratio Perm					c0.17			c0.44			0.02	
v/c Ratio	0.77	0.56			0.71			0.98			0.05	
Uniform Delay, d1	45.2	23.4			38.2			29.8			17.0	
Progression Factor	1.31	0.27			1.00			1.00			0.66	
Incremental Delay, d2	13.2	0.7			3.3			16.4			0.1	
Delay (s)	72.6	7.1			41.5			46.2			11.3	
Level of Service	E	A			D			D			B	
Approach Delay (s)		16.2			41.5			46.2			11.3	
Approach LOS		B			D			D			B	

Intersection Summary			
HCM 2000 Control Delay	34.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	98.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	97	116	269	1635
v/c Ratio	0.30	0.16	0.45	0.72
Control Delay	39.5	35.8	27.2	18.1
Queue Delay	0.0	0.0	0.0	17.3
Total Delay	39.5	35.8	27.2	35.4
Queue Length 50th (ft)	56	65	134	408
Queue Length 95th (ft)	m84	m95	211	m463
Internal Link Dist (ft)		379	152	314
Turn Bay Length (ft)	100			
Base Capacity (vph)	319	705	594	2267
Starvation Cap Reductn	0	0	0	665
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.30	0.16	0.45	1.02

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	94	113	0	0	157	104	54	1295	237	0	0	0
Future Volume (vph)	94	113	0	0	157	104	54	1295	237	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5			6.0				
Lane Util. Factor	1.00	1.00			1.00			0.91				
Frpb, ped/bikes	1.00	1.00			0.92			0.92				
Flpb, ped/bikes	0.90	1.00			1.00			0.99				
Frt	1.00	1.00			0.95			0.98				
Flt Protected	0.95	1.00			1.00			1.00				
Satd. Flow (prot)	1556	1827			1525			4409				
Flt Permitted	0.50	1.00			1.00			1.00				
Satd. Flow (perm)	827	1827			1525			4409				
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	97	116	0	0	162	107	56	1335	244	0	0	0
RTOR Reduction (vph)	0	0	0	0	6	0	0	23	0	0	0	0
Lane Group Flow (vph)	97	116	0	0	263	0	0	1612	0	0	0	0
Confl. Peds. (#/hr)	113		183	183		113	120		224	224		120
Confl. Bikes (#/hr)			5			11			5			
Heavy Vehicles (%)	4%	4%	4%	9%	9%	9%	5%	5%	5%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			4			2				
Permitted Phases	4						2					
Actuated Green, G (s)	42.5	42.5			42.5			56.0				
Effective Green, g (s)	42.5	42.5			42.5			56.0				
Actuated g/C Ratio	0.39	0.39			0.39			0.51				
Clearance Time (s)	5.5	5.5			5.5			6.0				
Lane Grp Cap (vph)	319	705			589			2244				
v/s Ratio Prot		0.06			c0.17							
v/s Ratio Perm	0.12							0.37				
v/c Ratio	0.30	0.16			0.45			0.72				
Uniform Delay, d1	23.5	22.1			25.0			20.9				
Progression Factor	1.55	1.58			1.00			0.82				
Incremental Delay, d2	1.8	0.4			2.4			1.1				
Delay (s)	38.1	35.3			27.5			18.4				
Level of Service	D	D			C			B				
Approach Delay (s)		36.6			27.5			18.4			0.0	
Approach LOS		D			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	21.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	72.3%	ICU Level of Service	C
Analysis Period (min)	15		

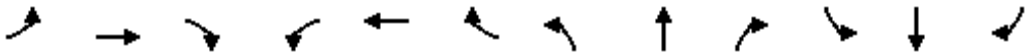
c Critical Lane Group



Lane Group	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	572	576	381	1785
v/c Ratio	0.26	0.30	0.93	0.79
Control Delay	6.7	2.1	36.7	15.3
Queue Delay	0.0	0.2	0.0	25.4
Total Delay	6.7	2.3	36.7	40.7
Queue Length 50th (ft)	57	5	133	435
Queue Length 95th (ft)	53	9	m#412	m453
Internal Link Dist (ft)	419	209		993
Turn Bay Length (ft)				
Base Capacity (vph)	2175	1917	409	2270
Starvation Cap Reductn	0	667	0	0
Spillback Cap Reductn	0	0	0	563
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.26	0.46	0.93	1.05

Intersection Summary

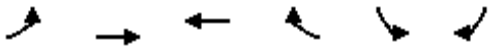
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	479	65	0	547	362	102	1442	152	0	0	0
Future Volume (vph)	0	479	65	0	547	362	102	1442	152	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5	6.5		7.0				
Lane Util. Factor		0.86			0.91	1.00		0.91				
Frpb, ped/bikes		0.96			1.00	0.69		0.97				
Flpb, ped/bikes		1.00			1.00	1.00		0.98				
Frt		0.98			1.00	0.85		0.99				
Flt Protected		1.00			1.00	1.00		1.00				
Satd. Flow (prot)		5503			4848	1036		4693				
Flt Permitted		1.00			1.00	1.00		1.00				
Satd. Flow (perm)		5503			4848	1036		4693				
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	504	68	0	576	381	107	1518	160	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	9	0	0	0	0
Lane Group Flow (vph)	0	572	0	0	576	381	0	1776	0	0	0	0
Confl. Peds. (#/hr)	261		351	351		261	228		163	163		228
Confl. Bikes (#/hr)			50			68			14			
Heavy Vehicles (%)	12%	12%	12%	7%	7%	7%	4%	4%	4%	0%	0%	0%
Turn Type		NA			NA	Perm	Perm	NA				
Protected Phases		2			2			4				
Permitted Phases						2	4					
Actuated Green, G (s)		43.5			43.5	43.5		53.0				
Effective Green, g (s)		43.5			43.5	43.5		53.0				
Actuated g/C Ratio		0.40			0.40	0.40		0.48				
Clearance Time (s)		6.5			6.5	6.5		7.0				
Lane Grp Cap (vph)		2176			1917	409		2261				
v/s Ratio Prot		0.10			0.12							
v/s Ratio Perm						c0.37		0.38				
v/c Ratio		0.26			0.30	0.93		0.79				
Uniform Delay, d1		22.4			22.8	31.8		23.8				
Progression Factor		0.29			0.08	0.32		0.59				
Incremental Delay, d2		0.3			0.3	23.0		1.2				
Delay (s)		6.7			2.0	33.1		15.3				
Level of Service		A			A	C		B				
Approach Delay (s)		6.7			14.4			15.3			0.0	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	13.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		

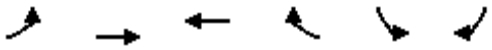
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	247	367	402	406	273	116
v/c Ratio	0.69	0.27	0.28	0.48	0.40	0.32
Control Delay	50.7	13.2	9.4	11.2	14.7	9.6
Queue Delay	2.2	0.0	0.0	1.7	6.1	2.7
Total Delay	52.9	13.2	9.4	12.9	20.8	12.3
Queue Length 50th (ft)	171	45	36	40	94	56
Queue Length 95th (ft)	243	57	48	53	m104	m59
Internal Link Dist (ft)		238	419		144	
Turn Bay Length (ft)						
Base Capacity (vph)	356	1382	1435	847	690	359
Starvation Cap Reductn	37	0	0	0	355	155
Spillback Cap Reductn	0	0	0	278	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.27	0.28	0.71	0.81	0.57

Intersection Summary

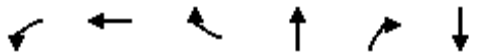
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	210	312	342	345	232	99
Future Volume (vph)	210	312	342	345	232	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	6.5	6.5	6.5	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	0.88	0.97	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.75	1.00	0.84
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1671	3343	3471	2049	3303	1281
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1671	3343	3471	2049	3303	1281
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	247	367	402	406	273	116
RTOR Reduction (vph)	0	0	0	0	0	92
Lane Group Flow (vph)	247	367	402	406	273	24
Confl. Peds. (#/hr)	161			161	611	87
Confl. Bikes (#/hr)				63		8
Heavy Vehicles (%)	8%	8%	4%	4%	6%	6%
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	1	2	2		4	
Permitted Phases				2		4
Actuated Green, G (s)	23.5	45.5	45.5	45.5	23.0	23.0
Effective Green, g (s)	23.5	45.5	45.5	45.5	23.0	23.0
Actuated g/C Ratio	0.21	0.41	0.41	0.41	0.21	0.21
Clearance Time (s)	5.5	6.5	6.5	6.5	6.0	6.0
Lane Grp Cap (vph)	356	1382	1435	847	690	267
v/s Ratio Prot	c0.15	0.11	0.12		c0.08	
v/s Ratio Perm				c0.20		0.02
v/c Ratio	0.69	0.27	0.28	0.48	0.40	0.09
Uniform Delay, d1	39.9	21.2	21.4	23.6	37.5	35.1
Progression Factor	0.99	0.59	0.41	0.39	0.36	1.14
Incremental Delay, d2	10.6	0.5	0.5	1.9	1.2	0.5
Delay (s)	49.9	13.1	9.3	11.0	14.6	40.4
Level of Service	D	B	A	B	B	D
Approach Delay (s)		27.9	10.2		22.3	
Approach LOS		C	B		C	

Intersection Summary			
HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	63.3%	ICU Level of Service	B
Analysis Period (min)	15		

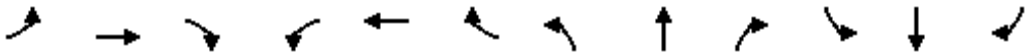
c Critical Lane Group



Lane Group	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	26	76	50	546	111	626
v/c Ratio	0.07	0.15	0.10	0.72	0.53	0.78
Control Delay	42.9	43.6	5.7	41.9	13.8	45.5
Queue Delay	0.0	0.0	0.0	29.6	4.1	0.4
Total Delay	42.9	43.6	5.7	71.6	17.8	45.8
Queue Length 50th (ft)	17	50	4	182	12	210
Queue Length 95th (ft)	m33	m87	m17	240	m31	277
Internal Link Dist (ft)		379		144		307
Turn Bay Length (ft)	200		65			
Base Capacity (vph)	352	514	522	759	210	801
Starvation Cap Reductn	0	0	0	232	48	0
Spillback Cap Reductn	0	0	0	0	0	20
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.15	0.10	1.04	0.69	0.80

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	24	70	46	73	430	102	137	323	116
Future Volume (vph)	0	0	0	24	70	46	73	430	102	137	323	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5	6.5		6.0	6.0		6.0	
Lane Util. Factor				1.00	1.00	1.00		0.95	1.00		0.95	
Frpb, ped/bikes				1.00	1.00	0.95		1.00	0.26		0.99	
Flpb, ped/bikes				0.72	1.00	1.00		1.00	1.00		1.00	
Frt				1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected				0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)				1193	1743	1414		3480	413		3304	
Flt Permitted				0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (perm)				1193	1743	1414		3480	413		3304	
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	26	76	50	79	467	111	149	351	126
RTOR Reduction (vph)	0	0	0	0	0	35	0	0	87	0	21	0
Lane Group Flow (vph)	0	0	0	26	76	15	0	546	24	0	605	0
Confl. Peds. (#/hr)	19		195	195		19	9		599	599		9
Confl. Bikes (#/hr)						10			4			5
Heavy Vehicles (%)	0%	0%	0%	9%	9%	9%	3%	3%	3%	4%	4%	4%
Turn Type				Perm	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases					4		2	2		1	1	
Permitted Phases				4		4			2			
Actuated Green, G (s)				32.5	32.5	32.5		24.0	24.0		26.0	
Effective Green, g (s)				32.5	32.5	32.5		24.0	24.0		26.0	
Actuated g/C Ratio				0.30	0.30	0.30		0.22	0.22		0.24	
Clearance Time (s)				6.5	6.5	6.5		6.0	6.0		6.0	
Lane Grp Cap (vph)				352	514	417		759	90		780	
v/s Ratio Prot					c0.04			c0.16			c0.18	
v/s Ratio Perm				0.02		0.01			0.06			
v/c Ratio				0.07	0.15	0.04		0.72	0.27		0.78	
Uniform Delay, d1				27.9	28.5	27.6		39.9	35.7		39.3	
Progression Factor				1.50	1.49	1.00		0.92	2.53		1.00	
Incremental Delay, d2				0.4	0.5	0.1		4.9	6.1		7.4	
Delay (s)				42.2	42.9	27.7		41.6	96.5		46.7	
Level of Service				D	D	C		D	F		D	
Approach Delay (s)		0.0			37.8			50.9			46.7	
Approach LOS		A			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	47.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	68.1%	ICU Level of Service	C
Analysis Period (min)	15		

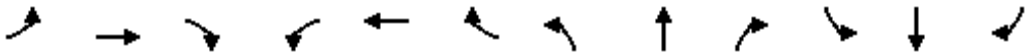
c Critical Lane Group



Lane Group	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	1187	940	157	2469	902
v/c Ratio	0.78	0.67	0.40	0.77	0.36
Control Delay	37.2	42.0	33.4	22.1	34.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	37.2	42.0	33.4	22.1	34.8
Queue Length 50th (ft)	273	257	100	378	238
Queue Length 95th (ft)	330	m300	m150	426	282
Internal Link Dist (ft)	320	1027		460	1159
Turn Bay Length (ft)					
Base Capacity (vph)	1528	1405	394	3220	2481
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.78	0.67	0.40	0.77	0.36

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	1122	41	10	903	173	0	2218	227	0	770	123
Future Volume (vph)	13	1122	41	10	903	173	0	2218	227	0	770	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5	4.5		4.5			4.5	
Lane Util. Factor		0.91			0.86	0.86		0.86			0.91	
Frpb, ped/bikes		1.00			1.00	0.82		0.98			0.98	
Flpb, ped/bikes		1.00			1.00	1.00		1.00			1.00	
Frt		0.99			1.00	0.85		0.99			0.98	
Flt Protected		1.00			1.00	1.00		1.00			1.00	
Satd. Flow (prot)		4982			4592	1077		6027			4632	
Flt Permitted		0.92			0.92	1.00		1.00			1.00	
Satd. Flow (perm)		4596			4230	1077		6027			4632	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	13	1133	41	10	912	175	0	2240	229	0	778	124
RTOR Reduction (vph)	0	3	0	0	2	37	0	15	0	0	20	0
Lane Group Flow (vph)	0	1184	0	0	938	120	0	2454	0	0	882	0
Confl. Peds. (#/hr)	133		97	97		133	87		163	163		87
Confl. Bikes (#/hr)			4			2			5			6
Heavy Vehicles (%)	3%	3%	3%	6%	6%	6%	5%	5%	5%	8%	8%	8%
Turn Type	Perm	NA		Perm	NA	Perm		NA			NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2						
Actuated Green, G (s)		36.5			36.5	36.5		58.5			58.5	
Effective Green, g (s)		36.5			36.5	36.5		58.5			58.5	
Actuated g/C Ratio		0.33			0.33	0.33		0.53			0.53	
Clearance Time (s)		4.5			4.5	4.5		4.5			4.5	
Lane Grp Cap (vph)		1525			1403	357		3205			2463	
v/s Ratio Prot								c0.41			0.19	
v/s Ratio Perm		c0.26			0.22	0.11						
v/c Ratio		0.78			0.67	0.34		0.77			0.36	
Uniform Delay, d1		33.1			31.6	27.6		20.3			14.9	
Progression Factor		1.00			1.27	1.69		1.00			2.41	
Incremental Delay, d2		3.9			1.7	1.7		1.8			0.4	
Delay (s)		37.0			41.8	48.5		22.1			36.3	
Level of Service		D			D	D		C			D	
Approach Delay (s)		37.0			42.8			22.1			36.3	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	31.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	92.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



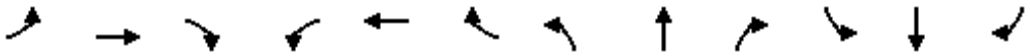
Lane Group	EBT	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	406	237	65	68	2068	875
v/c Ratio	0.43	0.24	0.17	0.23	1.08	0.31
Control Delay	27.7	55.4	56.1	6.6	68.8	10.1
Queue Delay	0.0	0.0	0.0	0.0	1.7	1.4
Total Delay	27.7	55.4	56.1	6.6	70.5	11.5
Queue Length 50th (ft)	148	86	45	18	~893	208
Queue Length 95th (ft)	m151	128	90	m24	#1030	194
Internal Link Dist (ft)	394	249			1159	146
Turn Bay Length (ft)						
Base Capacity (vph)	945	996	382	302	1907	2830
Starvation Cap Reductn	0	0	0	0	0	1684
Spillback Cap Reductn	0	0	0	0	7	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.24	0.17	0.23	1.09	0.76

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	366	36	0	235	64	67	1828	220	0	852	14
Future Volume (vph)	0	366	36	0	235	64	67	1828	220	0	852	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5	6.5	6.5	6.5			6.5	
Lane Util. Factor		0.95			0.95	1.00	1.00	0.95			0.91	
Frpb, ped/bikes		0.97			1.00	0.86	1.00	0.96			1.00	
Flpb, ped/bikes		1.00			1.00	1.00	0.96	1.00			1.00	
Frt		0.99			1.00	0.85	1.00	0.98			1.00	
Flt Protected		1.00			1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)		3200			3374	1293	1656	3253			4825	
Flt Permitted		1.00			1.00	1.00	0.30	1.00			1.00	
Satd. Flow (perm)		3200			3374	1293	516	3253			4825	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	0	370	36	0	237	65	68	1846	222	0	861	14
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	406	0	0	237	65	68	2068	0	0	875	0
Confl. Peds. (#/hr)	75		346	346		75	112		287	287		112
Confl. Bikes (#/hr)			58			70			3			21
Heavy Vehicles (%)	8%	8%	8%	7%	7%	7%	5%	5%	5%	7%	7%	7%
Turn Type		NA			NA	Perm	Perm	NA			NA	
Protected Phases		8			4			6			2	
Permitted Phases						4	6					
Actuated Green, G (s)		32.5			32.5	32.5	64.5	64.5			64.5	
Effective Green, g (s)		32.5			32.5	32.5	64.5	64.5			64.5	
Actuated g/C Ratio		0.30			0.30	0.30	0.59	0.59			0.59	
Clearance Time (s)		6.5			6.5	6.5	6.5	6.5			6.5	
Lane Grp Cap (vph)		945			996	382	302	1907			2829	
v/s Ratio Prot		c0.13			0.07			c0.64			0.18	
v/s Ratio Perm						0.05	0.13					
v/c Ratio		0.43			0.24	0.17	0.23	1.08			0.31	
Uniform Delay, d1		31.3			29.4	28.7	10.8	22.8			11.5	
Progression Factor		0.86			1.85	1.88	0.47	1.01			0.86	
Incremental Delay, d2		0.5			0.6	1.0	1.1	44.8			0.2	
Delay (s)		27.4			55.0	55.0	6.2	67.8			10.1	
Level of Service		C			E	D	A	E			B	
Approach Delay (s)		27.4			55.0			65.9			10.1	
Approach LOS		C			E			E			B	

Intersection Summary			
HCM 2000 Control Delay	47.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	92.6%	ICU Level of Service	F
Analysis Period (min)	15		

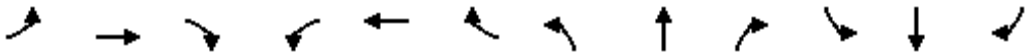
c Critical Lane Group



Lane Group	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	94	161	305	1626	931
v/c Ratio	0.24	0.44	0.54	0.52	0.60
Control Delay	31.8	34.7	12.6	7.6	32.5
Queue Delay	0.0	0.0	10.6	8.1	0.8
Total Delay	31.8	34.7	23.2	15.8	33.3
Queue Length 50th (ft)	50	94	51	100	198
Queue Length 95th (ft)	m74	m136	m49	m94	243
Internal Link Dist (ft)		580		146	270
Turn Bay Length (ft)					
Base Capacity (vph)	386	367	567	3128	1564
Starvation Cap Reductn	0	0	229	1469	0
Spillback Cap Reductn	0	0	0	0	323
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.24	0.44	0.90	0.98	0.75

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	103	72	75	299	1593	0	0	858	54
Future Volume (vph)	0	0	0	103	72	75	299	1593	0	0	858	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5		6.0	6.0			6.0	
Lane Util. Factor				0.95	0.95		1.00	0.91			0.91	
Frpb, ped/bikes				1.00	0.89		1.00	1.00			0.98	
Flpb, ped/bikes				0.92	0.99		0.99	1.00			1.00	
Frt				1.00	0.93		1.00	1.00			0.99	
Flt Protected				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)				1492	1399		1718	4988			4761	
Flt Permitted				0.95	1.00		0.22	1.00			1.00	
Satd. Flow (perm)				1492	1399		390	4988			4761	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	0	0	105	73	77	305	1626	0	0	876	55
RTOR Reduction (vph)	0	0	0	0	5	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	0	0	94	156	0	305	1626	0	0	925	0
Confl. Peds. (#/hr)	167		61	61		167	123		348	348		123
Confl. Bikes (#/hr)						8			3			17
Heavy Vehicles (%)	0%	0%	0%	6%	6%	6%	4%	4%	4%	6%	6%	6%
Turn Type				Perm	NA		pm+pt	NA			NA	
Protected Phases					4		5	2			6	
Permitted Phases				4			2					
Actuated Green, G (s)				28.5	28.5		69.0	69.0			36.0	
Effective Green, g (s)				28.5	28.5		69.0	69.0			36.0	
Actuated g/C Ratio				0.26	0.26		0.63	0.63			0.33	
Clearance Time (s)				6.5	6.5		6.0	6.0			6.0	
Lane Grp Cap (vph)				386	362		570	3128			1558	
v/s Ratio Prot							0.13	c0.33			c0.19	
v/s Ratio Perm				0.06	0.11		0.20					
v/c Ratio				0.24	0.43		0.54	0.52			0.59	
Uniform Delay, d1				32.2	34.0		20.7	11.3			30.9	
Progression Factor				0.93	0.95		0.53	0.66			1.00	
Incremental Delay, d2				1.2	3.0		0.3	0.1			1.7	
Delay (s)				31.3	35.4		11.3	7.6			32.6	
Level of Service				C	D		B	A			C	
Approach Delay (s)		0.0			33.9			8.1			32.6	
Approach LOS		A			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

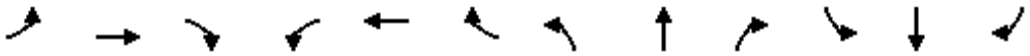


Lane Group	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	10	14	131	145	1344	85	388
v/c Ratio	0.13	0.07	0.63	0.28	1.11	0.52	0.22
Control Delay	54.1	36.7	56.3	15.9	94.3	58.8	13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.1	36.7	56.3	15.9	94.3	58.8	13.1
Queue Length 50th (ft)	7	8	51	88	~573	58	70
Queue Length 95th (ft)	25	26	81	148	#670	107	94
Internal Link Dist (ft)	133				1023		200
Turn Bay Length (ft)				100			
Base Capacity (vph)	75	192	209	521	1209	165	1756
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.07	0.63	0.28	1.11	0.52	0.22

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	8	12	114	0	126	33	880	257	74	322	16
Future Volume (vph)	1	8	12	114	0	126	33	880	257	74	322	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5	6.5		6.5		6.5		5.0	6.5	
Lane Util. Factor		1.00	1.00	0.97		1.00		0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.73	1.00		1.00		0.96		1.00	0.97	
Flpb, ped/bikes		1.00	1.00	1.00		1.00		0.99		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		0.97		1.00	0.99	
Flt Protected		1.00	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1499	942	3072		1417		3217		1656	3193	
Flt Permitted		1.00	1.00	0.95		1.00		0.93		0.95	1.00	
Satd. Flow (perm)		1499	942	3072		1417		2989		1656	3193	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	1	9	14	131	0	145	38	1011	295	85	370	18
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	10	14	131	0	145	0	1344	0	85	388	0
Confl. Peds. (#/hr)	4		150	150		4	390		114	114		390
Confl. Bikes (#/hr)			17			113			39			31
Heavy Vehicles (%)	26%	26%	26%	14%	14%	14%	3%	3%	3%	9%	9%	9%
Turn Type	Prot	NA	Perm	Prot		custom	Perm	NA		Prot	NA	
Protected Phases	3	8		7		7 4 1		2		1	6	
Permitted Phases			8				2					
Actuated Green, G (s)		22.5	22.5	7.5		42.0		44.5		11.0	60.5	
Effective Green, g (s)		22.5	22.5	7.5		42.0		44.5		11.0	60.5	
Actuated g/C Ratio		0.20	0.20	0.07		0.38		0.40		0.10	0.55	
Clearance Time (s)		6.5	6.5	6.5				6.5		5.0	6.5	
Lane Grp Cap (vph)		306	192	209		541		1209		165	1756	
v/s Ratio Prot		0.00		c0.04		c0.10				c0.05	0.12	
v/s Ratio Perm		0.00	c0.01					c0.45				
v/c Ratio		0.03	0.07	0.63		0.27		1.11		0.52	0.22	
Uniform Delay, d1		35.0	35.3	49.9		23.4		32.8		47.0	12.7	
Progression Factor		1.00	1.00	0.85		0.59		1.00		1.00	1.00	
Incremental Delay, d2		0.2	0.7	13.2		1.2		62.2		11.0	0.3	
Delay (s)		35.2	36.1	55.8		14.9		95.0		58.0	13.0	
Level of Service		D	D	E		B		F		E	B	
Approach Delay (s)		35.7			34.3			95.0			21.1	
Approach LOS		D			C			F			C	

Intersection Summary			
HCM 2000 Control Delay	69.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	84.5%	ICU Level of Service	E
Analysis Period (min)	15		

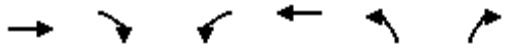
c Critical Lane Group



Lane Group	EBT	EBR	WBL	WBT	NBR
Lane Group Flow (vph)	378	2	689	1165	633
v/c Ratio	0.15	0.00	0.56	0.65	0.49
Control Delay	16.6	23.5	33.1	23.1	42.9
Queue Delay	0.0	0.0	6.0	1.6	0.1
Total Delay	16.6	23.5	39.1	24.7	43.1
Queue Length 50th (ft)	33	0	181	384	161
Queue Length 95th (ft)	m63	m3	234	473	213
Internal Link Dist (ft)	354			202	
Turn Bay Length (ft)					
Base Capacity (vph)	2468	519	1236	1784	1287
Starvation Cap Reductn	0	0	483	417	0
Spillback Cap Reductn	0	0	0	0	124
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.15	0.00	0.92	0.85	0.54

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	348	2	634	1072	0	582
Future Volume (vph)	348	2	634	1072	0	582
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0		7.0
Lane Util. Factor	0.91	1.00	0.97	0.95		0.76
Frpb, ped/bikes	1.00	0.68	1.00	1.00		1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00		1.00
Frt	1.00	0.85	1.00	1.00		0.85
Flt Protected	1.00	1.00	0.95	1.00		1.00
Satd. Flow (prot)	4848	1020	3400	3505		3541
Flt Permitted	1.00	1.00	0.95	1.00		1.00
Satd. Flow (perm)	4848	1020	3400	3505		3541
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	378	2	689	1165	0	633
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	378	2	689	1165	0	633
Confl. Peds. (#/hr)		146	146		17	
Confl. Bikes (#/hr)		46				4
Heavy Vehicles (%)	7%	7%	3%	3%	4%	4%
Turn Type	NA	Perm	Prot	NA		Prot
Protected Phases	2		7	6		4
Permitted Phases		2				
Actuated Green, G (s)	56.0	56.0	40.0	56.0		40.0
Effective Green, g (s)	56.0	56.0	40.0	56.0		40.0
Actuated g/C Ratio	0.51	0.51	0.36	0.51		0.36
Clearance Time (s)	7.0	7.0	7.0	7.0		7.0
Lane Grp Cap (vph)	2468	519	1236	1784		1287
v/s Ratio Prot	0.08		c0.20	c0.33		0.18
v/s Ratio Perm		0.00				
v/c Ratio	0.15	0.00	0.56	0.65		0.49
Uniform Delay, d1	14.4	13.3	27.9	19.9		27.1
Progression Factor	1.14	1.74	1.12	1.06		1.52
Incremental Delay, d2	0.1	0.0	1.6	1.6		1.3
Delay (s)	16.6	23.1	32.8	22.7		42.5
Level of Service	B	C	C	C		D
Approach Delay (s)	16.6			26.5	42.5	
Approach LOS	B			C	D	

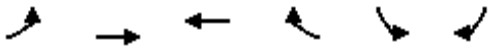
Intersection Summary			
HCM 2000 Control Delay	28.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	41.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	SBR
Lane Group Flow (vph)	850	125	5	1494
v/c Ratio	0.48	0.11	0.00	0.78
Control Delay	15.9	23.3	22.2	22.5
Queue Delay	2.4	0.0	0.0	9.7
Total Delay	18.3	23.3	22.2	32.2
Queue Length 50th (ft)	167	28	1	318
Queue Length 95th (ft)	215	50	5	396
Internal Link Dist (ft)		268	282	
Turn Bay Length (ft)				
Base Capacity (vph)	1784	1162	1209	1913
Starvation Cap Reductn	771	0	0	405
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.84	0.11	0.00	0.99

Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	816	120	5	0	0	1434
Future Volume (vph)	816	120	5	0	0	1434
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.5	6.5			7.0
Lane Util. Factor	0.97	0.95	0.95			0.76
Frpb, ped/bikes	1.00	1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	1.00	1.00	1.00			0.85
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3367	3471	3610			3610
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3367	3471	3610			3610
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	850	125	5	0	0	1494
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	850	125	5	0	0	1494
Confl. Peds. (#/hr)	44			44	2	2
Confl. Bikes (#/hr)				81		32
Heavy Vehicles (%)	4%	4%	0%	0%	2%	2%
Turn Type	Prot	NA	NA			Prot
Protected Phases	7	6	2			4
Permitted Phases						
Actuated Green, G (s)	53.0	33.5	33.5			53.0
Effective Green, g (s)	53.0	33.5	33.5			53.0
Actuated g/C Ratio	0.53	0.34	0.34			0.53
Clearance Time (s)	7.0	6.5	6.5			7.0
Lane Grp Cap (vph)	1784	1162	1209			1913
v/s Ratio Prot	0.25	c0.04	0.00			c0.41
v/s Ratio Perm						
v/c Ratio	0.48	0.11	0.00			0.78
Uniform Delay, d1	14.8	22.9	22.1			18.8
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	0.9	0.2	0.0			3.2
Delay (s)	15.7	23.1	22.1			22.1
Level of Service	B	C	C			C
Approach Delay (s)		16.6	22.1		22.1	
Approach LOS		B	C		C	

Intersection Summary			
HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBL	WBT	NBR
Lane Group Flow (vph)	624	126	319	22
v/c Ratio	0.20	0.34	0.14	0.06
Control Delay	11.3	51.2	4.2	34.8
Queue Delay	0.7	0.0	0.0	0.0
Total Delay	11.9	51.2	4.2	34.8
Queue Length 50th (ft)	118	79	25	12
Queue Length 95th (ft)	m133	131	35	34
Internal Link Dist (ft)	249		238	
Turn Bay Length (ft)				
Base Capacity (vph)	3108	375	2328	358
Starvation Cap Reductn	2035	0	0	0
Spillback Cap Reductn	120	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.58	0.34	0.14	0.06

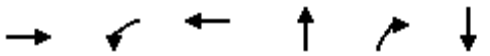
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	484	121	122	309	0	21
Future Volume (vph)	484	121	122	309	0	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		6.0	5.5		6.0
Lane Util. Factor	0.91		1.00	0.95		1.00
Frpb, ped/bikes	0.99		1.00	1.00		1.00
Flpb, ped/bikes	1.00		1.00	1.00		1.00
Frt	0.97		1.00	1.00		0.86
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	4588		1719	3438		1644
Flt Permitted	1.00		0.95	1.00		1.00
Satd. Flow (perm)	4588		1719	3438		1644
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	499	125	126	319	0	22
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	624	0	126	319	0	22
Confl. Peds. (#/hr)		3	3		97	1
Confl. Bikes (#/hr)		33				
Heavy Vehicles (%)	5%	5%	5%	5%	0%	0%
Parking (#/hr)	0	0				
Turn Type	NA		Prot	NA		Over
Protected Phases	2		4	6		4
Permitted Phases						
Actuated Green, G (s)	74.5		24.0	74.5		24.0
Effective Green, g (s)	74.5		24.0	74.5		24.0
Actuated g/C Ratio	0.68		0.22	0.68		0.22
Clearance Time (s)	5.5		6.0	5.5		6.0
Lane Grp Cap (vph)	3107		375	2328		358
v/s Ratio Prot	c0.14		c0.07	0.09		0.01
v/s Ratio Perm						
v/c Ratio	0.20		0.34	0.14		0.06
Uniform Delay, d1	6.6		36.3	6.3		34.1
Progression Factor	1.67		1.32	0.65		1.00
Incremental Delay, d2	0.1		2.3	0.1		0.3
Delay (s)	11.2		50.4	4.2		34.4
Level of Service	B		D	A		C
Approach Delay (s)	11.2			17.3	34.4	
Approach LOS	B			B	C	

Intersection Summary			
HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	48.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

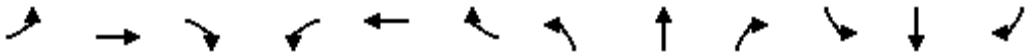


Lane Group	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	1395	354	1182	166	299	659
v/c Ratio	0.75	1.05	0.38	0.23	0.52	0.89
Control Delay	32.0	106.6	10.3	5.3	10.1	64.4
Queue Delay	29.6	1.1	0.0	0.0	3.1	0.1
Total Delay	61.6	107.7	10.3	5.3	13.2	64.5
Queue Length 50th (ft)	306	~273	135	5	170	240
Queue Length 95th (ft)	364	#455	163	8	268	#337
Internal Link Dist (ft)	282		355	154		901
Turn Bay Length (ft)						
Base Capacity (vph)	1860	337	3081	721	572	738
Starvation Cap Reductn	536	0	0	0	177	0
Spillback Cap Reductn	206	1	0	0	0	1
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.05	1.05	0.38	0.23	0.76	0.89

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	1354	10	347	1077	81	18	145	293	139	445	62
Future Volume (vph)	3	1354	10	347	1077	81	18	145	293	139	445	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		5.0	6.0			6.5	6.5		6.5	
Lane Util. Factor		0.91		1.00	0.91			0.95	1.00		0.95	
Frpb, ped/bikes		1.00		1.00	0.97			1.00	0.87		0.98	
Flpb, ped/bikes		1.00		1.00	1.00			0.99	1.00		0.98	
Frt		1.00		1.00	0.99			1.00	0.85		0.99	
Flt Protected		1.00		0.95	1.00			0.99	1.00		0.99	
Satd. Flow (prot)		5075		1770	4902			3432	1356		3356	
Flt Permitted		0.94		0.95	1.00			0.81	1.00		0.83	
Satd. Flow (perm)		4758		1770	4902			2785	1356		2820	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	3	1382	10	354	1099	83	18	148	299	142	454	63
RTOR Reduction (vph)	0	1	0	0	8	0	0	0	222	0	7	0
Lane Group Flow (vph)	0	1394	0	354	1174	0	0	166	77	0	652	0
Confl. Peds. (#/hr)	361		47	47		361	139		80	80		139
Confl. Bikes (#/hr)			30			14			16			19
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	1%	1%	1%
Turn Type	Perm	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			4			4	
Permitted Phases	2						4		4	4		
Actuated Green, G (s)		43.0		21.0	69.0			28.5	28.5		28.5	
Effective Green, g (s)		43.0		21.0	69.0			28.5	28.5		28.5	
Actuated g/C Ratio		0.39		0.19	0.63			0.26	0.26		0.26	
Clearance Time (s)		6.0		5.0	6.0			6.5	6.5		6.5	
Lane Grp Cap (vph)		1859		337	3074			721	351		730	
v/s Ratio Prot				c0.20	0.24							
v/s Ratio Perm		c0.29						0.06	0.06		c0.23	
v/c Ratio		0.75		1.05	0.38			0.23	0.22		0.89	
Uniform Delay, d1		28.9		44.5	10.0			32.1	32.0		39.3	
Progression Factor		1.00		1.00	1.00			0.14	1.70		1.28	
Incremental Delay, d2		2.8		62.9	0.4			0.7	1.4		14.9	
Delay (s)		31.7		107.4	10.4			5.3	56.0		65.0	
Level of Service		C		F	B			A	E		E	
Approach Delay (s)		31.7			32.8			37.9			65.0	
Approach LOS		C			C			D			E	

Intersection Summary			
HCM 2000 Control Delay	38.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	112.2%	ICU Level of Service	H
Analysis Period (min)	15		

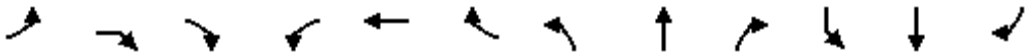
c Critical Lane Group



Lane Group	EBL	EBR	EBR2	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	97	120	148	44	174	213	393	830
v/c Ratio	0.60	0.42	0.36	0.16	0.51	0.20	0.75	0.42
Control Delay	57.8	45.0	9.1	39.9	46.8	1.4	48.5	11.2
Queue Delay	0.1	0.0	0.0	0.0	0.0	0.0	0.4	0.3
Total Delay	57.9	45.0	9.1	39.9	46.8	1.4	48.9	11.5
Queue Length 50th (ft)	63	76	0	26	112	2	145	153
Queue Length 95th (ft)	#131	134	54	59	183	23	202	198
Internal Link Dist (ft)					318		901	413
Turn Bay Length (ft)								
Base Capacity (vph)	163	287	408	270	338	1051	523	1994
Starvation Cap Reductn	0	0	0	0	0	0	0	516
Spillback Cap Reductn	1	0	0	0	0	6	13	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.42	0.36	0.16	0.51	0.20	0.77	0.56

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	94	116	144	43	169	207	40	232	110	360	396	49
Future Volume (vph)	94	116	144	43	169	207	40	232	110	360	396	49
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	5.0		6.0			6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		0.95			0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.96		0.97			0.97	
Flpb, ped/bikes	0.91	1.00	1.00	0.84	1.00	1.00		0.98			1.00	
Frt	1.00	0.85	0.85	1.00	1.00	0.85		0.96			0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99			0.98	
Satd. Flow (prot)	1613	1583	1583	1489	1863	1519		3225			3305	
Flt Permitted	0.53	1.00	1.00	0.95	1.00	1.00		0.77			0.58	
Satd. Flow (perm)	900	1583	1583	1489	1863	1519		2503			1949	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	97	120	148	44	174	213	41	239	113	371	408	51
RTOR Reduction (vph)	0	0	121	0	0	75	0	0	0	0	4	0
Lane Group Flow (vph)	97	120	27	44	174	138	0	393	0	0	826	0
Confl. Peds. (#/hr)	45		96	96		45	240		14	14		240
Confl. Bikes (#/hr)		2							21			9
Turn Type	Perm	Prot	Prot	Perm	NA	custom	Perm	NA		pm+pt	NA	
Protected Phases		4	4		8	5		6		5	2	
Permitted Phases	4	4	4	8		8	6			2		
Actuated Green, G (s)	20.0	20.0	20.0	20.0	20.0	70.0		23.0			78.0	
Effective Green, g (s)	20.0	20.0	20.0	20.0	20.0	70.0		23.0			78.0	
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.18	0.64		0.21			0.71	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	5.0		6.0			6.0	
Lane Grp Cap (vph)	163	287	287	270	338	966		523			1998	
v/s Ratio Prot		0.08	0.02		0.09	0.07					c0.19	
v/s Ratio Perm	c0.11			0.03		0.03		c0.16			0.11	
v/c Ratio	0.60	0.42	0.09	0.16	0.51	0.14		0.75			0.41	
Uniform Delay, d1	41.3	39.8	37.5	37.9	40.6	8.0		40.8			6.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		0.94			1.74	
Incremental Delay, d2	15.0	4.4	0.6	1.3	5.5	0.3		9.5			0.5	
Delay (s)	56.3	44.3	38.1	39.2	46.1	8.3		47.9			11.9	
Level of Service	E	D	D	D	D	A		D			B	
Approach Delay (s)					26.7			47.9			11.9	
Approach LOS					C			D			B	

Intersection Summary			
HCM 2000 Control Delay	28.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	24	135	216	382	527	703
v/c Ratio	0.09	0.18	0.51	0.79	0.78	0.75
Control Delay	10.8	8.5	26.8	24.5	19.2	32.2
Queue Delay	0.0	0.0	0.0	0.0	0.4	0.0
Total Delay	10.8	8.5	26.8	24.5	19.6	32.2
Queue Length 50th (ft)	9	42	106	105	85	213
Queue Length 95th (ft)	m16	m62	183	#305	404	292
Internal Link Dist (ft)		1267		269	413	277
Turn Bay Length (ft)	100					
Base Capacity (vph)	264	751	420	485	673	932
Starvation Cap Reductn	0	0	0	0	15	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.18	0.51	0.79	0.80	0.75

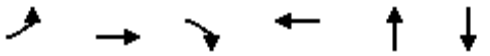
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	90	38	205	81	282	26	264	211	192	461	15
Future Volume (vph)	23	90	38	205	81	282	26	264	211	192	461	15
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	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			0.95	
Frpb, ped/bikes	1.00	0.90		1.00	0.50			0.91			0.99	
Flpb, ped/bikes	0.73	1.00		0.75	1.00			1.00			0.98	
Frt	1.00	0.96		1.00	0.88			0.94			1.00	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1297	1623		1310	817			1579			3431	
Flt Permitted	0.43	1.00		0.67	1.00			0.94			0.61	
Satd. Flow (perm)	582	1623		925	817			1490			2133	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	24	95	40	216	85	297	27	278	222	202	485	16
RTOR Reduction (vph)	0	14	0	0	115	0	0	24	0	0	2	0
Lane Group Flow (vph)	24	121	0	216	267	0	0	503	0	0	701	0
Confl. Peds. (#/hr)	408		195	195		408	131		121	121		131
Confl. Bikes (#/hr)			75			32			16			8
Heavy Vehicles (%)	1%	1%	1%	3%	3%	3%	3%	3%	3%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	50.0	50.0		50.0	50.0			48.0			48.0	
Effective Green, g (s)	50.0	50.0		50.0	50.0			48.0			48.0	
Actuated g/C Ratio	0.45	0.45		0.45	0.45			0.44			0.44	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	264	737		420	371			650			930	
v/s Ratio Prot		0.07			c0.33							
v/s Ratio Perm	0.04			0.23				c0.34			0.33	
v/c Ratio	0.09	0.16		0.51	0.72			0.77			0.75	
Uniform Delay, d1	17.1	17.7		21.4	24.3			26.4			26.0	
Progression Factor	0.58	0.55		1.00	1.00			0.44			1.00	
Incremental Delay, d2	0.6	0.4		4.4	11.5			7.7			5.6	
Delay (s)	10.5	10.1		25.8	35.8			19.3			31.7	
Level of Service	B	B		C	D			B			C	
Approach Delay (s)		10.2			32.2			19.3			31.7	
Approach LOS		B			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	26.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	106.5%	ICU Level of Service	G
Analysis Period (min)	15		

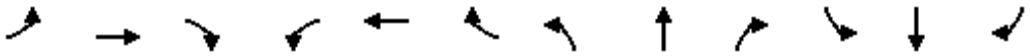
c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBT	NBT	SBT
Lane Group Flow (vph)	18	164	163	101	510	874
v/c Ratio	0.05	0.48	0.48	0.62	0.33	0.55
Control Delay	45.3	41.3	41.6	62.5	29.4	21.5
Queue Delay	0.0	0.0	0.0	0.0	0.1	4.9
Total Delay	45.3	41.3	41.6	62.5	29.5	26.5
Queue Length 50th (ft)	6	105	104	66	100	142
Queue Length 95th (ft)	17	177	176	#137	131	m151
Internal Link Dist (ft)		282		633	181	154
Turn Bay Length (ft)						
Base Capacity (vph)	343	344	337	162	1548	1581
Starvation Cap Reductn	0	0	0	0	0	626
Spillback Cap Reductn	0	0	0	0	171	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.48	0.48	0.62	0.37	0.92

Intersection Summary

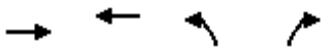
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	13	285	54	27	11	0	455	9	2	792	2
Future Volume (vph)	16	13	285	54	27	11	0	455	9	2	792	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.5	6.5		6.5			6.5			7.0	
Lane Util. Factor	0.97	0.95	0.95		1.00			0.91			0.95	
Frpb, ped/bikes	1.00	0.94	0.93		0.98			0.99			1.00	
Flpb, ped/bikes	1.00	1.00	1.00		0.99			1.00			1.00	
Frt	1.00	0.86	0.85		0.98			1.00			1.00	
Flt Protected	0.95	1.00	1.00		0.97			1.00			1.00	
Satd. Flow (prot)	3433	1431	1401		1493			4931			3466	
Flt Permitted	0.95	1.00	1.00		0.77			1.00			0.95	
Satd. Flow (perm)	3433	1431	1401		1182			4931			3310	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	18	14	313	59	30	12	0	500	10	2	870	2
RTOR Reduction (vph)	0	0	0	0	3	0	0	2	0	0	0	0
Lane Group Flow (vph)	18	164	163	0	98	0	0	508	0	0	874	0
Confl. Peds. (#/hr)	113		19	19		113	158		156	156		158
Confl. Bikes (#/hr)			38			35			81			31
Heavy Vehicles (%)	2%	2%	2%	18%	18%	18%	4%	4%	4%	4%	4%	4%
Turn Type	Prot	NA	Perm	Prot	NA			NA		pm+pt	NA	
Protected Phases	1	6		1	2			4		3	8	
Permitted Phases			6							8		
Actuated Green, G (s)	11.0	26.5	26.5		37.5			34.5			52.0	
Effective Green, g (s)	11.0	26.5	26.5		37.5			34.5			52.0	
Actuated g/C Ratio	0.10	0.24	0.24		0.34			0.31			0.47	
Clearance Time (s)	7.0	6.5	6.5		6.5			6.5			7.0	
Lane Grp Cap (vph)	343	344	337		434			1546			1580	
v/s Ratio Prot	0.01	0.11			c0.02			0.10			c0.06	
v/s Ratio Perm			c0.12		0.05						c0.21	
v/c Ratio	0.05	0.48	0.48		0.23			0.33			0.55	
Uniform Delay, d1	44.8	35.8	35.9		25.9			28.9			20.7	
Progression Factor	1.00	1.00	1.00		1.00			1.00			0.99	
Incremental Delay, d2	0.3	4.7	4.9		1.2			0.6			0.6	
Delay (s)	45.1	40.5	40.8		27.1			29.5			21.2	
Level of Service	D	D	D		C			C			C	
Approach Delay (s)		40.9			27.1			29.5			21.2	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	72.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	2021	1155	225	109
v/c Ratio	0.77	0.40	0.57	0.34
Control Delay	16.7	13.5	41.9	24.5
Queue Delay	24.7	1.3	1.4	0.0
Total Delay	41.5	14.9	43.3	24.5
Queue Length 50th (ft)	311	156	138	38
Queue Length 95th (ft)	346	188	220	90
Internal Link Dist (ft)	202	268	424	
Turn Bay Length (ft)				
Base Capacity (vph)	2641	2884	393	317
Starvation Cap Reductn	707	1436	0	0
Spillback Cap Reductn	0	185	59	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.04	0.80	0.67	0.34

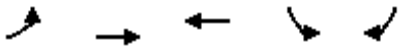
Intersection Summary



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1713	247	0	1120	218	106
Future Volume (vph)	1713	247	0	1120	218	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0			6.0	6.0	6.0
Lane Util. Factor	0.91			0.91	1.00	1.00
Frpb, ped/bikes	0.93			1.00	1.00	0.73
Flpb, ped/bikes	1.00			1.00	0.89	1.00
Frt	0.98			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	4613			5036	1494	1092
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	4613			5036	1494	1092
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1766	255	0	1155	225	109
RTOR Reduction (vph)	0	0	0	0	0	29
Lane Group Flow (vph)	2021	0	0	1155	225	80
Confl. Peds. (#/hr)		174	174		90	206
Confl. Bikes (#/hr)		107				39
Heavy Vehicles (%)	3%	3%	3%	3%	8%	8%
Turn Type	NA			NA	Perm	Perm
Protected Phases	2			2		
Permitted Phases					4	4
Actuated Green, G (s)	63.0			63.0	29.0	29.0
Effective Green, g (s)	63.0			63.0	29.0	29.0
Actuated g/C Ratio	0.57			0.57	0.26	0.26
Clearance Time (s)	6.0			6.0	6.0	6.0
Lane Grp Cap (vph)	2641			2884	393	287
v/s Ratio Prot	c0.44			0.23		
v/s Ratio Perm					c0.15	0.07
v/c Ratio	0.77			0.40	0.57	0.28
Uniform Delay, d1	17.9			13.0	35.1	32.2
Progression Factor	0.82			1.00	1.00	1.00
Incremental Delay, d2	1.8			0.4	6.0	2.4
Delay (s)	16.5			13.4	41.1	34.6
Level of Service	B			B	D	C
Approach Delay (s)	16.5			13.4	38.9	
Approach LOS	B			B	D	

Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	72.9%	ICU Level of Service	C
Analysis Period (min)	15		

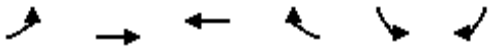
c Critical Lane Group



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	178	914	828	16	508
v/c Ratio	0.29	0.32	0.62	0.04	0.56
Control Delay	4.0	3.0	46.3	15.2	4.1
Queue Delay	0.0	0.0	0.0	0.0	1.7
Total Delay	4.0	3.0	46.3	15.2	5.9
Queue Length 50th (ft)	15	26	227	8	13
Queue Length 95th (ft)	m20	31	272	m7	m14
Internal Link Dist (ft)		484	340	163	
Turn Bay Length (ft)					
Base Capacity (vph)	613	2825	1336	376	912
Starvation Cap Reductn	0	0	0	0	243
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.29	0.32	0.62	0.04	0.76

Intersection Summary

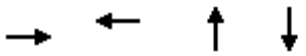
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	240	820	794	9	16	493
Future Volume (vph)	240	820	794	9	16	493
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		5.5	6.0
Lane Util. Factor	0.86	0.86	0.91		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	0.99
Flpb, ped/bikes	0.99	1.00	1.00		0.87	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1484	4687	5070		1563	1588
Flt Permitted	0.23	0.83	1.00		0.95	1.00
Satd. Flow (perm)	360	3920	5070		1563	1588
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	247	845	819	9	16	508
RTOR Reduction (vph)	0	0	1	0	0	3
Lane Group Flow (vph)	178	914	827	0	16	505
Confl. Peds. (#/hr)	88			88	95	3
Confl. Bikes (#/hr)				1		
Heavy Vehicles (%)	4%	4%	2%	2%	1%	1%
Turn Type	pm+pt	NA	NA		Perm	pm+ov
Protected Phases	1	6	2			1
Permitted Phases	6				4	4
Actuated Green, G (s)	72.0	72.0	29.0		26.5	63.5
Effective Green, g (s)	72.0	72.0	29.0		26.5	63.5
Actuated g/C Ratio	0.65	0.65	0.26		0.24	0.58
Clearance Time (s)	6.0	6.0	6.0		5.5	6.0
Lane Grp Cap (vph)	613	2823	1336		376	1003
v/s Ratio Prot	0.10	0.11	c0.16			c0.17
v/s Ratio Perm	0.09	0.10			0.01	0.15
v/c Ratio	0.29	0.32	0.62		0.04	0.50
Uniform Delay, d1	16.2	8.3	35.6		32.0	13.9
Progression Factor	0.22	0.33	1.24		0.47	0.34
Incremental Delay, d2	0.8	0.2	2.0		0.0	0.2
Delay (s)	4.4	2.9	46.1		15.1	4.8
Level of Service	A	A	D		B	A
Approach Delay (s)		3.2	46.1		5.1	
Approach LOS		A	D		A	

Intersection Summary			
HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	250	385	469	471
v/c Ratio	0.63	1.25	0.32	0.29
Control Delay	29.7	175.1	9.0	18.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	29.7	175.1	9.0	18.5
Queue Length 50th (ft)	86	~346	36	47
Queue Length 95th (ft)	m170	m#541	65	61
Internal Link Dist (ft)	492	1267	654	413
Turn Bay Length (ft)				
Base Capacity (vph)	399	307	1453	1618
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.63	1.25	0.32	0.29

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	0	166	151	147	60	56	380	0	0	396	42
Future Volume (vph)	67	0	166	151	147	60	56	380	0	0	396	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5			5.0			5.0	
Lane Util. Factor		1.00			1.00			0.95			0.91	
Frpb, ped/bikes		1.00			1.00			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.90			0.98			1.00			0.99	
Flt Protected		0.99			0.98			0.99			1.00	
Satd. Flow (prot)		1676			1778			3483			5047	
Flt Permitted		0.75			0.66			0.86			1.00	
Satd. Flow (perm)		1271			1204			3010			5047	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	72	0	178	162	158	65	60	409	0	0	426	45
RTOR Reduction (vph)	0	81	0	0	7	0	0	0	0	0	12	0
Lane Group Flow (vph)	0	169	0	0	378	0	0	469	0	0	459	0
Confl. Bikes (#/hr)						4			12			9
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	3%	3%	3%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Prot	NA			NA	
Protected Phases		8			8		5	2			6	
Permitted Phases	8			8								
Actuated Green, G (s)		27.5			27.5			72.0			35.0	
Effective Green, g (s)		27.5			27.5			72.0			35.0	
Actuated g/C Ratio		0.25			0.25			0.65			0.32	
Clearance Time (s)		5.5			5.5			5.0			5.0	
Lane Grp Cap (vph)		317			301			2107			1605	
v/s Ratio Prot								c0.06			c0.09	
v/s Ratio Perm		0.13			c0.31			0.08				
v/c Ratio		0.53			1.26			0.22			0.29	
Uniform Delay, d1		35.7			41.2			7.7			28.1	
Progression Factor		1.10			1.11			0.75			0.66	
Incremental Delay, d2		5.8			138.6			0.2			0.4	
Delay (s)		44.9			184.2			6.0			19.0	
Level of Service		D			F			A			B	
Approach Delay (s)		44.9			184.2			6.0			19.0	
Approach LOS		D			F			A			B	

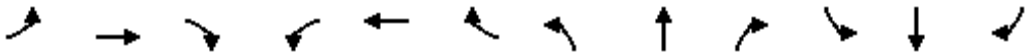
Intersection Summary			
HCM 2000 Control Delay	59.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	158	241	14	186	793	677
v/c Ratio	0.31	0.33	0.04	0.27	0.62	0.48
Control Delay	16.2	13.0	21.8	21.8	33.9	21.9
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	16.2	13.0	21.8	21.9	33.9	21.9
Queue Length 50th (ft)	58	98	6	82	164	104
Queue Length 95th (ft)	m88	m148	m12	m121	m194	142
Internal Link Dist (ft)		495		1267	413	291
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	516	729	341	693	1283	1400
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	50	11	14
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.33	0.04	0.29	0.62	0.49

Intersection Summary

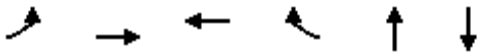
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	152	101	131	13	148	31	99	595	67	35	390	226
Future Volume (vph)	152	101	131	13	148	31	99	595	67	35	390	226
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	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.91			0.91	
Frpb, ped/bikes	1.00	0.82		1.00	0.95			0.95			0.87	
Flpb, ped/bikes	0.87	1.00		0.79	1.00			0.98			0.99	
Frt	1.00	0.92		1.00	0.97			0.99			0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1519	1378		1400	1718			4685			4130	
Flt Permitted	0.62	1.00		0.58	1.00			0.72			0.85	
Satd. Flow (perm)	991	1378		852	1718			3416			3523	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	158	105	136	14	154	32	103	620	70	36	406	235
RTOR Reduction (vph)	0	16	0	0	7	0	0	11	0	0	87	0
Lane Group Flow (vph)	158	225	0	14	179	0	0	782	0	0	590	0
Confl. Peds. (#/hr)	173		202	202		173	279		186	186		279
Confl. Bikes (#/hr)			47			18			7			2
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	1%	1%	1%	2%	2%	2%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	3	8			4			2			6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	57.0	57.0		44.0	44.0			41.0			41.0	
Effective Green, g (s)	57.0	57.0		44.0	44.0			41.0			41.0	
Actuated g/C Ratio	0.52	0.52		0.40	0.40			0.37			0.37	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	547	714		340	687			1273			1313	
v/s Ratio Prot	0.02	c0.16			0.10							
v/s Ratio Perm	0.13			0.02				c0.23			0.17	
v/c Ratio	0.29	0.32		0.04	0.26			0.61			0.45	
Uniform Delay, d1	16.0	15.3		20.1	22.1			28.1			26.0	
Progression Factor	0.92	0.89		1.05	0.99			1.14			1.00	
Incremental Delay, d2	1.2	1.0		0.2	0.8			2.1			1.1	
Delay (s)	15.9	14.6		21.4	22.8			34.2			27.1	
Level of Service	B	B		C	C			C			C	
Approach Delay (s)		15.1			22.7			34.2			27.1	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



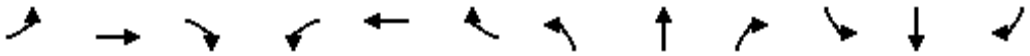
Lane Group	EBL	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	29	818	580	136	321	933
v/c Ratio	0.11	0.54	0.38	0.49	0.26	1.18
Control Delay	76.7	48.2	44.9	52.6	10.0	114.0
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.1
Total Delay	76.7	48.4	44.9	52.6	10.0	114.1
Queue Length 50th (ft)	21	225	109	70	24	~421
Queue Length 95th (ft)	m30	270	150	125	37	m#494
Internal Link Dist (ft)		523	354		163	654
Turn Bay Length (ft)						
Base Capacity (vph)	262	1502	1519	275	1228	790
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	122	0	0	0	18
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.59	0.38	0.49	0.26	1.21

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	737	32	0	545	128	41	250	10	305	478	94
Future Volume (vph)	27	737	32	0	545	128	41	250	10	305	478	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5			6.5	6.5		7.0			10.0	
Lane Util. Factor	1.00	0.91			0.91	1.00		0.91			0.95	
Frpb, ped/bikes	1.00	0.99			1.00	0.58		0.99			0.98	
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00			0.93	
Frt	1.00	0.99			1.00	0.85		0.99			0.98	
Flt Protected	0.95	1.00			1.00	1.00		0.99			0.98	
Satd. Flow (prot)	1752	4934			4988	905		4641			3178	
Flt Permitted	0.95	1.00			1.00	1.00		0.72			0.72	
Satd. Flow (perm)	1752	4934			4988	905		3369			2324	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	29	784	34	0	580	136	44	266	11	324	509	100
RTOR Reduction (vph)	0	0	0	0	0	0	0	3	0	0	9	0
Lane Group Flow (vph)	29	818	0	0	580	136	0	318	0	0	924	0
Confl. Peds. (#/hr)	442		190	190		442	78		160	160		78
Confl. Bikes (#/hr)			64			47			4			6
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	9%	9%	9%	1%	1%	1%
Turn Type	Prot	NA			NA	Perm	Perm	NA		Perm	NA	
Protected Phases	7	6			2			4			8	
Permitted Phases						2	4			8		
Actuated Green, G (s)	16.5	33.5			33.5	33.5		40.0			37.0	
Effective Green, g (s)	16.5	33.5			33.5	33.5		40.0			37.0	
Actuated g/C Ratio	0.15	0.30			0.30	0.30		0.36			0.34	
Clearance Time (s)	6.5	6.5			6.5	6.5		7.0			10.0	
Lane Grp Cap (vph)	262	1502			1519	275		1225			781	
v/s Ratio Prot	c0.02	c0.17			0.12							
v/s Ratio Perm						0.15		0.09			c0.40	
v/c Ratio	0.11	0.54			0.38	0.49		0.26			1.18	
Uniform Delay, d1	40.4	31.9			30.1	31.3		24.6			36.5	
Progression Factor	1.86	1.47			1.46	1.45		0.39			0.49	
Incremental Delay, d2	0.6	1.0			0.6	5.5		0.5			94.3	
Delay (s)	75.8	47.9			44.6	50.9		10.1			112.2	
Level of Service	E	D			D	D		B			F	
Approach Delay (s)		48.9			45.8			10.1			112.2	
Approach LOS		D			D			B			F	

Intersection Summary			
HCM 2000 Control Delay	64.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	82.7%	ICU Level of Service	E
Analysis Period (min)	15		

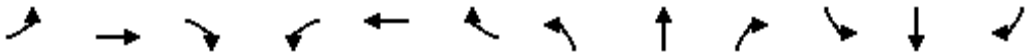
c Critical Lane Group



Lane Group	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1198	1266	80	706	648
v/c Ratio	0.76	0.48	0.29	0.41	0.64
Control Delay	10.2	10.9	29.8	24.6	26.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	10.2	10.9	29.8	24.6	26.7
Queue Length 50th (ft)	36	100	36	125	90
Queue Length 95th (ft)	m39	111	70	160	142
Internal Link Dist (ft)	516	484		438	368
Turn Bay Length (ft)					
Base Capacity (vph)	1585	2612	273	1722	1017
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.76	0.48	0.29	0.41	0.64

Intersection Summary

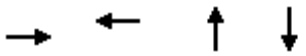
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	964	184	275	944	22	78	586	106	1	554	80
Future Volume (vph)	25	964	184	275	944	22	78	586	106	1	554	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5		6.5	6.5			6.5	
Lane Util. Factor		0.86			0.86		1.00	0.91			0.91	
Frpb, ped/bikes		0.96			1.00		1.00	0.94			0.95	
Flpb, ped/bikes		1.00			1.00		0.96	1.00			1.00	
Frt		0.98			1.00		1.00	0.98			0.98	
Flt Protected		1.00			0.99		0.95	1.00			1.00	
Satd. Flow (prot)		5945			6326		1643	4504			4259	
Flt Permitted		0.86			0.74		0.32	1.00			0.94	
Satd. Flow (perm)		5108			4725		561	4504			4000	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	26	984	188	281	963	22	80	598	108	1	565	82
RTOR Reduction (vph)	0	31	0	0	2	0	0	24	0	0	17	0
Lane Group Flow (vph)	0	1167	0	0	1264	0	80	682	0	0	631	0
Confl. Peds. (#/hr)	165		157	157		165	365		449	449		365
Confl. Bikes (#/hr)			7			2			21			14
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	6%	6%	6%	14%	14%	14%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		6		5	2		3	8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)		33.5			55.5		41.5	41.5			27.5	
Effective Green, g (s)		33.5			55.5		41.5	41.5			27.5	
Actuated g/C Ratio		0.30			0.50		0.38	0.38			0.25	
Clearance Time (s)		6.5			6.5		6.5	6.5			6.5	
Lane Grp Cap (vph)		1555			2631		285	1699			1000	
v/s Ratio Prot					c0.07		0.02	c0.15				
v/s Ratio Perm		c0.23			0.17		0.09				c0.16	
v/c Ratio		0.75			0.48		0.28	0.40			0.63	
Uniform Delay, d1		34.5			17.8		28.6	25.1			36.7	
Progression Factor		0.23			0.61		1.00	1.00			0.68	
Incremental Delay, d2		2.4			0.5		2.4	0.7			2.2	
Delay (s)		10.5			11.4		31.1	25.8			27.4	
Level of Service		B			B		C	C			C	
Approach Delay (s)		10.5			11.4			26.4			27.4	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	96.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	216	290	656	545
v/c Ratio	0.46	0.61	0.47	0.71
Control Delay	24.8	44.0	31.7	13.6
Queue Delay	0.0	0.0	0.0	3.1
Total Delay	24.8	44.0	31.7	16.7
Queue Length 50th (ft)	103	212	203	94
Queue Length 95th (ft)	177	m222	257	310
Internal Link Dist (ft)	508	492	449	412
Turn Bay Length (ft)				
Base Capacity (vph)	465	477	1402	772
Starvation Cap Reductn	0	0	0	136
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.46	0.61	0.47	0.86

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	82	66	52	108	115	60	508	55	54	406	58
Future Volume (vph)	58	82	66	52	108	115	60	508	55	54	406	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5			5.5			5.5	
Lane Util. Factor		1.00			1.00			0.95			1.00	
Frpb, ped/bikes		0.90			0.85			0.92			0.92	
Flpb, ped/bikes		0.95			0.96			0.98			0.97	
Frt		0.96			0.94			0.99			0.98	
Flt Protected		0.99			0.99			1.00			0.99	
Satd. Flow (prot)		1500			1448			3053			1615	
Flt Permitted		0.82			0.90			0.84			0.88	
Satd. Flow (perm)		1253			1321			2580			1422	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	61	86	69	55	114	121	63	535	58	57	427	61
RTOR Reduction (vph)	0	15	0	0	3	0	0	6	0	0	4	0
Lane Group Flow (vph)	0	201	0	0	287	0	0	650	0	0	541	0
Confl. Peds. (#/hr)	327		249	249		327	480		767	767		480
Confl. Bikes (#/hr)			2			2			27			11
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	5%	5%	5%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		39.5			39.5			59.5			59.5	
Effective Green, g (s)		39.5			39.5			59.5			59.5	
Actuated g/C Ratio		0.36			0.36			0.54			0.54	
Clearance Time (s)		5.5			5.5			5.5			5.5	
Lane Grp Cap (vph)		449			474			1395			769	
v/s Ratio Prot												
v/s Ratio Perm		0.16			c0.22			0.25			c0.38	
v/c Ratio		0.45			0.61			0.47			0.70	
Uniform Delay, d1		26.9			28.9			15.5			18.7	
Progression Factor		0.88			1.39			2.00			0.48	
Incremental Delay, d2		3.2			3.3			1.0			4.3	
Delay (s)		26.8			43.5			31.9			13.3	
Level of Service		C			D			C			B	
Approach Delay (s)		26.8			43.5			31.9			13.3	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	27.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		

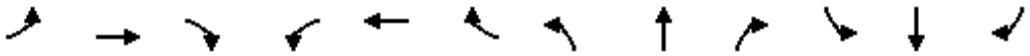
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	23	378	53	678	679	412
v/c Ratio	0.10	0.51	0.16	0.86	0.66	0.72
Control Delay	15.9	23.1	10.0	30.4	19.8	38.0
Queue Delay	0.0	0.0	0.0	4.0	0.0	0.7
Total Delay	15.9	23.1	10.0	34.4	19.8	38.7
Queue Length 50th (ft)	6	143	15	386	100	245
Queue Length 95th (ft)	m21	245	m34	#652	171	365
Internal Link Dist (ft)		509		495	412	353
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	225	735	324	791	1028	576
Starvation Cap Reductn	0	0	0	62	0	0
Spillback Cap Reductn	0	0	0	0	0	31
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.51	0.16	0.93	0.66	0.76

Intersection Summary

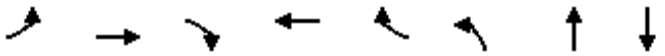
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	237	130	51	397	261	30	561	68	23	340	36
Future Volume (vph)	22	237	130	51	397	261	30	561	68	23	340	36
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	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			1.00	
Frpb, ped/bikes	1.00	0.78		1.00	0.86			0.91			0.95	
Flpb, ped/bikes	1.00	1.00		0.71	1.00			0.99			0.99	
Frt	1.00	0.95		1.00	0.94			0.98			0.99	
Flt Protected	0.95	1.00		0.95	1.00			1.00			1.00	
Satd. Flow (prot)	1770	1377		1256	1502			3054			1679	
Flt Permitted	0.23	1.00		0.46	1.00			0.92			0.94	
Satd. Flow (perm)	426	1377		614	1502			2803			1577	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	23	244	134	53	409	269	31	578	70	24	351	37
RTOR Reduction (vph)	0	9	0	0	0	0	0	8	0	0	3	0
Lane Group Flow (vph)	23	369	0	53	678	0	0	671	0	0	409	0
Confl. Peds. (#/hr)	353		388	388		353	366		872	872		366
Confl. Bikes (#/hr)			24			18			15			10
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	4%	4%	4%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	58.0	58.0		58.0	58.0			40.0			40.0	
Effective Green, g (s)	58.0	58.0		58.0	58.0			40.0			40.0	
Actuated g/C Ratio	0.53	0.53		0.53	0.53			0.36			0.36	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	224	726		323	791			1019			573	
v/s Ratio Prot		0.27			c0.45							
v/s Ratio Perm	0.05			0.09				0.24			c0.26	
v/c Ratio	0.10	0.51		0.16	0.86			0.66			0.71	
Uniform Delay, d1	13.0	16.8		13.5	22.4			29.3			30.1	
Progression Factor	1.10	1.26		0.64	0.80			0.58			1.00	
Incremental Delay, d2	0.9	2.5		1.1	11.3			3.0			7.4	
Delay (s)	15.2	23.5		9.6	29.2			19.9			37.5	
Level of Service	B	C		A	C			B			D	
Approach Delay (s)		23.1			27.7			19.9			37.5	
Approach LOS		C			C			B			D	

Intersection Summary			
HCM 2000 Control Delay	26.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	92.4%	ICU Level of Service	F
Analysis Period (min)	15		

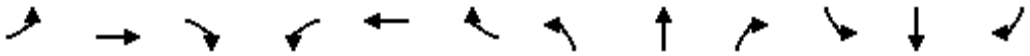
c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	118	772	206	567	151	124	542	495
v/c Ratio	0.57	0.77	0.68	0.38	0.54	0.98	0.44	0.65
Control Delay	67.1	25.1	29.4	31.5	41.6	108.7	7.2	38.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.1	25.1	29.4	31.5	41.6	108.7	7.2	38.2
Queue Length 50th (ft)	75	245	104	158	115	90	31	178
Queue Length 95th (ft)	m108	m332	m197	m190	m172	m#210	38	236
Internal Link Dist (ft)		551		523			368	449
Turn Bay Length (ft)								
Base Capacity (vph)	208	999	301	1490	278	126	1239	756
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.77	0.68	0.38	0.54	0.98	0.44	0.65

Intersection Summary

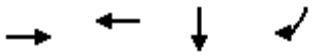
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	741	198	0	544	145	119	479	41	5	440	31
Future Volume (vph)	113	741	198	0	544	145	119	479	41	5	440	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.5	6.5		6.5	6.5	7.0	7.0			7.0	
Lane Util. Factor	1.00	0.95	1.00		0.91	1.00	1.00	0.95			0.95	
Frpb, ped/bikes	1.00	1.00	0.68		1.00	0.60	1.00	0.97			0.97	
Flpb, ped/bikes	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	0.85	1.00	0.99			0.99	
Flt Protected	0.95	1.00	1.00		1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1641	3282	991		4893	913	1736	3310			3354	
Flt Permitted	0.95	1.00	1.00		1.00	1.00	0.95	1.00			0.95	
Satd. Flow (perm)	1641	3282	991		4893	913	1736	3310			3181	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	118	772	206	0	567	151	124	499	43	5	458	32
RTOR Reduction (vph)	0	0	0	0	0	0	0	6	0	0	5	0
Lane Group Flow (vph)	118	772	206	0	567	151	124	536	0	0	490	0
Confl. Peds. (#/hr)	440		238	238		440	619		587	587		619
Confl. Bikes (#/hr)			51			43			24			16
Heavy Vehicles (%)	10%	10%	10%	6%	6%	6%	4%	4%	4%	3%	3%	3%
Turn Type	Prot	NA	Perm		NA	Perm	Prot	NA		Perm	NA	
Protected Phases	5	2			6		3	8			4	
Permitted Phases			2			6				4		
Actuated Green, G (s)	14.0	33.5	33.5		33.5	33.5	8.0	41.0			26.0	
Effective Green, g (s)	14.0	33.5	33.5		33.5	33.5	8.0	41.0			26.0	
Actuated g/C Ratio	0.13	0.30	0.30		0.30	0.30	0.07	0.37			0.24	
Clearance Time (s)	5.0	6.5	6.5		6.5	6.5	7.0	7.0			7.0	
Lane Grp Cap (vph)	208	999	301		1490	278	126	1233			751	
v/s Ratio Prot	c0.07	c0.24			0.12		c0.07	0.16				
v/s Ratio Perm			0.21			0.17					c0.15	
v/c Ratio	0.57	0.77	0.68		0.38	0.54	0.98	0.43			0.65	
Uniform Delay, d1	45.2	34.8	33.6		30.1	31.9	50.9	25.8			37.9	
Progression Factor	1.29	0.59	0.58		1.02	1.06	0.60	0.24			0.92	
Incremental Delay, d2	7.8	4.2	8.7		0.7	6.6	73.1	1.0			3.3	
Delay (s)	66.1	24.9	28.3		31.3	40.3	103.6	7.2			38.2	
Level of Service	E	C	C		C	D	F	A			D	
Approach Delay (s)		30.0			33.2			25.2			38.2	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	31.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	27.5
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBT	SBT	SBR
Lane Group Flow (vph)	1411	1054	1856	268
v/c Ratio	0.67	1.08dl	1.00	0.54
Control Delay	30.2	5.1	36.4	9.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	30.2	5.1	36.4	9.7
Queue Length 50th (ft)	232	32	~460	31
Queue Length 95th (ft)	273	38	m#571	m52
Internal Link Dist (ft)	334	516	582	
Turn Bay Length (ft)				
Base Capacity (vph)	2120	2562	1851	494
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.67	0.41	1.00	0.54

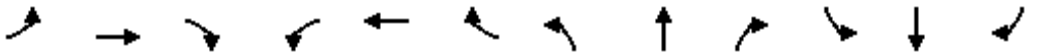
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1132	251	287	713	30	0	0	0	107	1712	263
Future Volume (vph)	0	1132	251	287	713	30	0	0	0	107	1712	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			6.0						6.5	6.5
Lane Util. Factor		0.86			0.86						0.91	1.00
Frpb, ped/bikes		0.94			0.99						1.00	0.76
Flpb, ped/bikes		1.00			0.99						0.99	1.00
Frt		0.97			1.00						1.00	0.85
Flt Protected		1.00			0.99						1.00	1.00
Satd. Flow (prot)		5802			6123						5029	1198
Flt Permitted		1.00			0.75						1.00	1.00
Satd. Flow (perm)		5802			4627						5029	1198
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.92	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1155	256	293	728	33	0	0	0	109	1747	268
RTOR Reduction (vph)	0	37	0	0	4	0	0	0	0	0	0	53
Lane Group Flow (vph)	0	1374	0	0	1050	0	0	0	0	0	1856	215
Confl. Peds. (#/hr)	169		213	213		169	193		114	114		193
Confl. Bikes (#/hr)			10			2						
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	0%	0%	0%	2%	2%	2%
Turn Type		NA		pm+pt	NA					Perm	NA	Perm
Protected Phases		6		5	2						4	
Permitted Phases				2						4		4
Actuated Green, G (s)		39.5			57.0						40.5	40.5
Effective Green, g (s)		39.5			57.0						40.5	40.5
Actuated g/C Ratio		0.36			0.52						0.37	0.37
Clearance Time (s)		5.5			6.0						6.5	6.5
Lane Grp Cap (vph)		2083			2560						1851	441
v/s Ratio Prot		c0.24			c0.04							
v/s Ratio Perm					0.17						0.37	0.18
v/c Ratio		0.66			1.08dl						1.00	0.49
Uniform Delay, d1		29.6			16.2						34.8	26.8
Progression Factor		1.00			0.28						0.59	0.42
Incremental Delay, d2		1.7			0.4						14.3	1.6
Delay (s)		31.3			5.0						35.0	12.8
Level of Service		C			A						C	B
Approach Delay (s)		31.3			5.0			0.0			32.2	
Approach LOS		C			A			A			C	

Intersection Summary			
HCM 2000 Control Delay	25.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	95.3%	ICU Level of Service	F
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

Lane Group	WBL	SBT
Lane Group Flow (vph)	322	1707
v/c Ratio	0.50	0.63
Control Delay	30.6	11.6
Queue Delay	0.0	0.5
Total Delay	30.6	12.1
Queue Length 50th (ft)	191	358
Queue Length 95th (ft)	282	377
Internal Link Dist (ft)	508	411
Turn Bay Length (ft)		
Base Capacity (vph)	640	2709
Starvation Cap Reductn	0	501
Spillback Cap Reductn	0	270
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.50	0.77

Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	316	0	0	0	38	1635
Future Volume (vph)	316	0	0	0	38	1635
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5					5.5
Lane Util. Factor	1.00					0.91
Frpb, ped/bikes	1.00					1.00
Flpb, ped/bikes	1.00					0.99
Frt	1.00					1.00
Flt Protected	0.95					1.00
Satd. Flow (prot)	1784					5009
Flt Permitted	0.95					1.00
Satd. Flow (perm)	1784					5009
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	322	0	0	0	39	1668
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	322	0	0	0	0	1707
Confl. Peds. (#/hr)	1	423		318	318	
Heavy Vehicles (%)	1%	1%	0%	0%	2%	2%
Turn Type	Perm				Perm	NA
Protected Phases						2
Permitted Phases	4				2	
Actuated Green, G (s)	39.5					59.5
Effective Green, g (s)	39.5					59.5
Actuated g/C Ratio	0.36					0.54
Clearance Time (s)	5.5					5.5
Lane Grp Cap (vph)	640					2709
v/s Ratio Prot						
v/s Ratio Perm	c0.18					0.34
v/c Ratio	0.50					0.63
Uniform Delay, d1	27.6					17.6
Progression Factor	0.99					0.60
Incremental Delay, d2	2.6					0.9
Delay (s)	30.0					11.5
Level of Service	C					B
Approach Delay (s)	30.0		0.0			11.5
Approach LOS	C		A			B

Intersection Summary			
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	61.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	263	193	148	368	1398
v/c Ratio	0.33	0.43	0.45	0.46	0.63
Control Delay	22.4	22.1	17.3	15.6	23.8
Queue Delay	0.0	0.0	0.0	0.0	0.1
Total Delay	22.4	22.1	17.3	15.6	23.9
Queue Length 50th (ft)	121	78	67	170	265
Queue Length 95th (ft)	185	144	m79	m193	315
Internal Link Dist (ft)	409			509	374
Turn Bay Length (ft)		100	100		
Base Capacity (vph)	803	449	331	796	2216
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	108
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.33	0.43	0.45	0.46	0.66

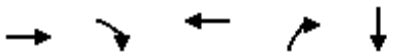
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	250	183	141	350	0	0	0	0	55	1222	51
Future Volume (vph)	0	250	183	141	350	0	0	0	0	55	1222	51
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	
Lane Util. Factor		1.00	1.00	1.00	1.00						0.91	
Frpb, ped/bikes		1.00	0.63	1.00	1.00						0.98	
Flpb, ped/bikes		1.00	1.00	0.78	1.00						0.98	
Frt		1.00	0.85	1.00	1.00						0.99	
Flt Protected		1.00	1.00	0.95	1.00						1.00	
Satd. Flow (prot)		1881	1012	1376	1863						4774	
Flt Permitted		1.00	1.00	0.54	1.00						1.00	
Satd. Flow (perm)		1881	1012	777	1863						4774	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	263	193	148	368	0	0	0	0	58	1286	54
RTOR Reduction (vph)	0	0	17	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	263	176	148	368	0	0	0	0	0	1394	0
Confl. Peds. (#/hr)	398		390	398		390	315		345	345		315
Confl. Bikes (#/hr)			26			18						2
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	3%	3%	3%
Turn Type		NA	Perm	Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		47.0	47.0	47.0	47.0						51.0	
Effective Green, g (s)		47.0	47.0	47.0	47.0						51.0	
Actuated g/C Ratio		0.43	0.43	0.43	0.43						0.46	
Clearance Time (s)		6.0	6.0	6.0	6.0						6.0	
Lane Grp Cap (vph)		803	432	331	796						2213	
v/s Ratio Prot		0.14			c0.20							
v/s Ratio Perm			0.17	0.19							0.29	
v/c Ratio		0.33	0.41	0.45	0.46						0.63	
Uniform Delay, d1		21.0	21.8	22.3	22.5						22.4	
Progression Factor		1.00	1.00	0.62	0.63						1.00	
Incremental Delay, d2		1.1	2.8	2.7	1.2						1.4	
Delay (s)		22.1	24.7	16.6	15.3						23.7	
Level of Service		C	C	B	B						C	
Approach Delay (s)		23.2			15.6			0.0			23.7	
Approach LOS		C			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



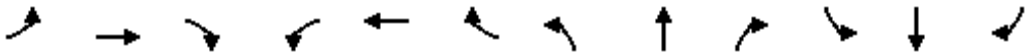
Lane Group	EBT	EBR	WBT	NBR	SBT
Lane Group Flow (vph)	1108	332	711	59	1831
v/c Ratio	0.71	1.01	0.29	0.16	0.90
Control Delay	23.9	75.4	39.8	17.4	20.5
Queue Delay	0.0	0.0	0.0	0.0	1.0
Total Delay	23.9	75.4	39.8	17.4	21.5
Queue Length 50th (ft)	153	~276	99	27	169
Queue Length 95th (ft)	187	#491	m126	61	174
Internal Link Dist (ft)	516		551		235
Turn Bay Length (ft)					
Base Capacity (vph)	1562	330	2438	369	2025
Starvation Cap Reductn	0	0	0	0	59
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.71	1.01	0.29	0.16	0.93

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	797	614	0	697	0	0	0	58	183	1504	107
Future Volume (vph)	0	797	614	0	697	0	0	0	58	183	1504	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5		6.5				7.0		7.0	
Lane Util. Factor		0.86	0.86		0.86				1.00		0.91	
Frpb, ped/bikes		0.91	0.65		1.00				0.66		0.98	
Flpb, ped/bikes		1.00	1.00		1.00				1.00		0.97	
Frt		0.96	0.85		1.00				0.86		0.99	
Flt Protected		1.00	1.00		1.00				1.00		0.99	
Satd. Flow (prot)		3951	835		6166				865		4741	
Flt Permitted		1.00	1.00		1.00				1.00		0.99	
Satd. Flow (perm)		3951	835		6166				865		4741	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	813	627	0	711	0	0	0	59	187	1535	109
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1108	332	0	711	0	0	0	59	0	1831	0
Confl. Peds. (#/hr)	865		312	312		865	303		320	320		303
Confl. Bikes (#/hr)			47			35						7
Heavy Vehicles (%)	8%	8%	8%	6%	6%	6%	26%	26%	26%	2%	2%	2%
Turn Type		NA	Perm		NA				Perm	Perm	NA	
Protected Phases		2			6						8	
Permitted Phases			2						4	8		
Actuated Green, G (s)		43.5	43.5		43.5				47.0		47.0	
Effective Green, g (s)		43.5	43.5		43.5				47.0		47.0	
Actuated g/C Ratio		0.40	0.40		0.40				0.43		0.43	
Clearance Time (s)		6.5	6.5		6.5				7.0		7.0	
Lane Grp Cap (vph)		1562	330		2438				369		2025	
v/s Ratio Prot		0.28			0.12							
v/s Ratio Perm			c0.40						0.07		0.39	
v/c Ratio		0.71	1.01		0.29				0.16		0.90	
Uniform Delay, d1		27.9	33.2		22.7				19.4		29.4	
Progression Factor		0.76	0.77		1.73				0.83		0.48	
Incremental Delay, d2		2.3	46.9		0.3				0.9		5.9	
Delay (s)		23.6	72.6		39.7				16.9		19.9	
Level of Service		C	E		D				B		B	
Approach Delay (s)		34.9			39.7			16.9			19.9	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	28.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	93.7%	ICU Level of Service	F
Analysis Period (min)	15		

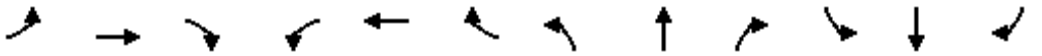
c Critical Lane Group



Lane Group	EBT	WBT	NBL	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1141	802	117	40	387	352	97
v/c Ratio	0.53	0.34	0.36	0.08	0.67	0.40	0.18
Control Delay	37.8	14.6	22.5	3.0	29.7	20.7	9.0
Queue Delay	0.2	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	38.0	14.7	22.5	3.0	29.7	20.7	9.0
Queue Length 50th (ft)	172	54	51	0	205	157	16
Queue Length 95th (ft)	m188	m55	100	13	323	232	47
Internal Link Dist (ft)	246	516				417	
Turn Bay Length (ft)							
Base Capacity (vph)	2148	2371	324	507	574	872	525
Starvation Cap Reductn	270	0	0	0	0	0	0
Spillback Cap Reductn	0	342	0	0	0	0	2
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.40	0.36	0.08	0.67	0.40	0.19

Intersection Summary

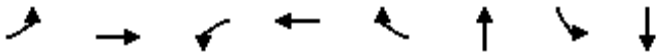
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1018	100	0	786	0	115	0	39	379	345	95
Future Volume (vph)	0	1018	100	0	786	0	115	0	39	379	345	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5		7.0		7.0	7.0	7.0	7.0
Lane Util. Factor		0.86			0.86		1.00		1.00	1.00	1.00	1.00
Frpb, ped/bikes		0.96			1.00		1.00		0.69	1.00	1.00	0.67
Flpb, ped/bikes		1.00			1.00		0.84		1.00	0.69	1.00	1.00
Frt		0.99			1.00		1.00		0.85	1.00	1.00	0.85
Flt Protected		1.00			1.00		0.95		1.00	0.95	1.00	1.00
Satd. Flow (prot)		5694			6285		1373		1012	1215	1845	1051
Flt Permitted		1.00			1.00		0.48		1.00	0.95	1.00	1.00
Satd. Flow (perm)		5694			6285		687		1012	1215	1845	1051
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1039	102	0	802	0	117	0	40	387	352	97
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	21	0	0	29
Lane Group Flow (vph)	0	1141	0	0	802	0	117	0	19	387	352	68
Confl. Peds. (#/hr)	807		213	213		807	252		202	202		252
Confl. Bikes (#/hr)			82			7			6			5
Heavy Vehicles (%)	9%	9%	9%	4%	4%	4%	10%	10%	10%	3%	3%	3%
Turn Type		NA			NA		Perm		Perm	Perm	NA	Perm
Protected Phases		2			6						8	
Permitted Phases							4		4	8		8
Actuated Green, G (s)		41.5			41.5		52.0		52.0	52.0	52.0	52.0
Effective Green, g (s)		41.5			41.5		52.0		52.0	52.0	52.0	52.0
Actuated g/C Ratio		0.38			0.38		0.47		0.47	0.47	0.47	0.47
Clearance Time (s)		6.5			6.5		7.0		7.0	7.0	7.0	7.0
Lane Grp Cap (vph)		2148			2371		324		478	574	872	496
v/s Ratio Prot		c0.20			0.13						0.19	
v/s Ratio Perm							0.17		0.02	c0.32		0.06
v/c Ratio		0.53			0.34		0.36		0.04	0.67	0.40	0.14
Uniform Delay, d1		26.7			24.4		18.4		15.6	22.4	18.9	16.4
Progression Factor		1.38			0.58		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		0.7			0.4		3.1		0.2	6.2	1.4	0.6
Delay (s)		37.6			14.5		21.5		15.7	28.7	20.3	16.9
Level of Service		D			B		C		B	C	C	B
Approach Delay (s)		37.6			14.5			20.1			23.8	
Approach LOS		D			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	26.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	83.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



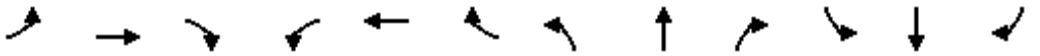
Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	144	658	6	748	277	14	529	172
v/c Ratio	0.88	0.49	0.04	0.75	1.99	0.05	0.94	0.31
Control Delay	100.7	25.6	65.0	25.0	491.5	29.2	70.5	4.4
Queue Delay	0.0	0.4	0.0	0.3	0.0	0.0	0.0	0.0
Total Delay	100.7	26.0	65.0	25.3	491.5	29.2	70.5	4.4
Queue Length 50th (ft)	109	86	4	298	~317	6	192	0
Queue Length 95th (ft)	m#223	115	m11	362	#491	23	#294	40
Internal Link Dist (ft)		209		246		170		344
Turn Bay Length (ft)								
Base Capacity (vph)	164	1355	171	1000	139	266	565	560
Starvation Cap Reductn	0	273	0	38	0	0	0	0
Spillback Cap Reductn	0	0	0	23	0	0	0	1
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.61	0.04	0.78	1.99	0.05	0.94	0.31

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

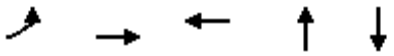
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	624	8	6	718	266	2	8	4	508	1	164
Future Volume (vph)	138	624	8	6	718	266	2	8	4	508	1	164
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0		5.0	6.0	6.0		7.0		7.0	7.0	
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00		1.00		0.97	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.31		0.93		1.00	0.69	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		0.97		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.96		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99		0.95	1.00	
Satd. Flow (prot)	1641	4661		1719	3438	480		1301		3273	1045	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.96		0.95	1.00	
Satd. Flow (perm)	1641	4661		1719	3438	480		1261		3273	1045	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	144	650	8	6	748	277	2	8	4	529	1	171
RTOR Reduction (vph)	0	0	0	0	0	0	0	3	0	0	95	0
Lane Group Flow (vph)	144	658	0	6	748	277	0	11	0	529	77	0
Confl. Peds. (#/hr)	530		382	382		530	214		170	170		214
Confl. Bikes (#/hr)			127			38						10
Heavy Vehicles (%)	10%	10%	10%	5%	5%	5%	25%	25%	25%	7%	7%	7%
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Prot	NA	
Protected Phases	1	6		1	2			4		3	8	
Permitted Phases						2	4					
Actuated Green, G (s)	11.0	32.0		11.0	32.0	32.0		23.0		19.0	49.0	
Effective Green, g (s)	11.0	32.0		11.0	32.0	32.0		23.0		19.0	49.0	
Actuated g/C Ratio	0.10	0.29		0.10	0.29	0.29		0.21		0.17	0.45	
Clearance Time (s)	5.0	6.0		5.0	6.0	6.0		7.0		7.0	7.0	
Lane Grp Cap (vph)	164	1355		171	1000	139		263		565	465	
v/s Ratio Prot	c0.09	0.14		0.00	0.22					c0.16	c0.07	
v/s Ratio Perm						c0.58		0.01				
v/c Ratio	0.88	0.49		0.04	0.75	1.99		0.04		0.94	0.17	
Uniform Delay, d1	48.8	32.2		44.7	35.3	39.0		34.7		44.9	18.3	
Progression Factor	1.21	0.75		1.44	0.56	0.61		1.00		1.00	1.00	
Incremental Delay, d2	41.5	1.2		0.4	4.9	470.5		0.3		25.0	0.8	
Delay (s)	100.8	25.4		64.6	24.8	494.3		35.0		69.9	19.0	
Level of Service	F	C		E	C	F		C		E	B	
Approach Delay (s)		39.0			151.1			35.0			57.4	
Approach LOS		D			F			C			E	

Intersection Summary			
HCM 2000 Control Delay	89.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	177	1061	1556	1459	263
v/c Ratio	0.74	0.37	0.88dl	1.08	0.36
Control Delay	41.7	10.8	35.9	85.8	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	41.7	10.8	35.9	85.8	12.8
Queue Length 50th (ft)	106	221	285	~418	17
Queue Length 95th (ft)	m#154	236	338	#515	37
Internal Link Dist (ft)		1027	345	451	993
Turn Bay Length (ft)					
Base Capacity (vph)	238	2873	1823	1350	724
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.74	0.37	0.85	1.08	0.36

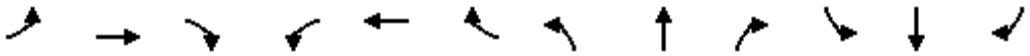
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

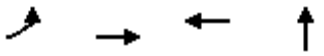
dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	995	24	161	1279	54	58	987	356	12	131	109
Future Volume (vph)	170	995	24	161	1279	54	58	987	356	12	131	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.5			6.5			6.5			6.5	
Lane Util. Factor	1.00	0.91			0.86			0.91			0.95	
Frpb, ped/bikes	1.00	0.99			1.00			0.99			0.86	
Flpb, ped/bikes	1.00	1.00			0.99			0.99			1.00	
Frt	1.00	1.00			0.99			0.96			0.93	
Flt Protected	0.95	1.00			0.99			1.00			1.00	
Satd. Flow (prot)	1752	4976			6213			4830			2850	
Flt Permitted	0.95	1.00			0.74			0.90			0.74	
Satd. Flow (perm)	1752	4976			4595			4372			2118	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	177	1036	25	168	1332	56	60	1028	371	12	136	114
RTOR Reduction (vph)	0	2	0	0	5	0	0	19	0	0	79	0
Lane Group Flow (vph)	177	1059	0	0	1551	0	0	1440	0	0	184	0
Confl. Peds. (#/hr)	24		265	265		24	292		31	31		292
Confl. Bikes (#/hr)			8						5			
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	1%	1%	1%	2%	2%	2%
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	6			2			8			4	
Permitted Phases				2			8			4		
Actuated Green, G (s)	15.0	63.5			43.5			33.5			33.5	
Effective Green, g (s)	15.0	63.5			43.5			33.5			33.5	
Actuated g/C Ratio	0.14	0.58			0.40			0.30			0.30	
Clearance Time (s)	5.0	6.5			6.5			6.5			6.5	
Lane Grp Cap (vph)	238	2872			1817			1331			645	
v/s Ratio Prot	c0.10	0.21										
v/s Ratio Perm					c0.34			c0.33			0.09	
v/c Ratio	0.74	0.37			0.88dl			1.08			0.28	
Uniform Delay, d1	45.7	12.5			30.3			38.2			29.1	
Progression Factor	0.58	0.84			1.00			1.00			0.68	
Incremental Delay, d2	13.6	0.3			5.3			49.9			1.0	
Delay (s)	40.1	10.8			35.7			88.1			21.0	
Level of Service	D	B			D			F			C	
Approach Delay (s)		14.9			35.7			88.1			21.0	
Approach LOS		B			D			F			C	

Intersection Summary			
HCM 2000 Control Delay	46.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	115.8%	ICU Level of Service	H
Analysis Period (min)	15		

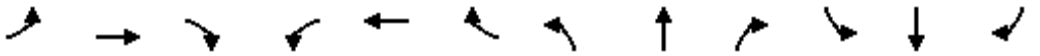
dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	39	124	475	1005
v/c Ratio	0.13	0.14	0.60	0.54
Control Delay	17.1	15.2	23.7	12.1
Queue Delay	0.0	0.0	0.0	0.2
Total Delay	17.1	15.2	23.7	12.3
Queue Length 50th (ft)	19	61	230	76
Queue Length 95th (ft)	m31	m80	339	92
Internal Link Dist (ft)		379	152	314
Turn Bay Length (ft)	75			
Base Capacity (vph)	291	905	791	1858
Starvation Cap Reductn	0	0	0	252
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.13	0.14	0.60	0.63

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	119	0	0	326	130	27	832	106	0	0	0
Future Volume (vph)	37	119	0	0	326	130	27	832	106	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5			6.0				
Lane Util. Factor	1.00	1.00			1.00			0.91				
Frpb, ped/bikes	1.00	1.00			0.91			0.94				
Flpb, ped/bikes	0.89	1.00			1.00			0.98				
Frt	1.00	1.00			0.96			0.98				
Flt Protected	0.95	1.00			1.00			1.00				
Satd. Flow (prot)	1546	1827			1592			4607				
Flt Permitted	0.36	1.00			1.00			1.00				
Satd. Flow (perm)	588	1827			1592			4607				
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	39	124	0	0	340	135	28	867	110	0	0	0
RTOR Reduction (vph)	0	0	0	0	3	0	0	14	0	0	0	0
Lane Group Flow (vph)	39	124	0	0	472	0	0	991	0	0	0	0
Confl. Peds. (#/hr)	258		274	274		258	356		343	343		356
Confl. Bikes (#/hr)			29			15			20			
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			4			2				
Permitted Phases	4						2					
Actuated Green, G (s)	54.5	54.5			54.5			44.0				
Effective Green, g (s)	54.5	54.5			54.5			44.0				
Actuated g/C Ratio	0.50	0.50			0.50			0.40				
Clearance Time (s)	5.5	5.5			5.5			6.0				
Lane Grp Cap (vph)	291	905			788			1842				
v/s Ratio Prot		0.07			c0.30							
v/s Ratio Perm	0.07							0.22				
v/c Ratio	0.13	0.14			0.60			0.54				
Uniform Delay, d1	15.0	15.0			19.9			25.2				
Progression Factor	1.05	0.98			1.00			0.45				
Incremental Delay, d2	0.7	0.2			3.4			0.9				
Delay (s)	16.4	15.0			23.3			12.3				
Level of Service	B	B			C			B				
Approach Delay (s)		15.3			23.3			12.3			0.0	
Approach LOS		B			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	15.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		

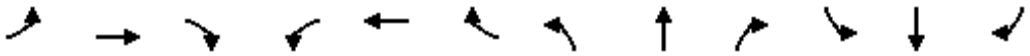
c Critical Lane Group



Lane Group	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	980	698	259	1338
v/c Ratio	0.37	0.31	0.59	0.66
Control Delay	8.4	4.3	12.7	9.1
Queue Delay	0.0	0.6	9.0	0.0
Total Delay	8.4	4.9	21.7	9.1
Queue Length 50th (ft)	34	21	23	199
Queue Length 95th (ft)	39	24	m250	m181
Internal Link Dist (ft)	419	209		993
Turn Bay Length (ft)				
Base Capacity (vph)	2644	2244	440	2038
Starvation Cap Reductn	0	1083	144	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.37	0.60	0.88	0.66

Intersection Summary

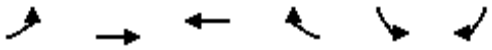
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	646	256	0	642	238	138	953	140	0	0	0
Future Volume (vph)	0	646	256	0	642	238	138	953	140	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5	6.5		7.0				
Lane Util. Factor		0.86			0.91	1.00		0.91				
Frpb, ped/bikes		1.00			1.00	0.63		0.96				
Flpb, ped/bikes		1.00			1.00	1.00		1.00				
Frt		0.96			1.00	0.85		0.98				
Flt Protected		1.00			1.00	1.00		0.99				
Satd. Flow (prot)		5879			4988	978		4738				
Flt Permitted		1.00			1.00	1.00		0.99				
Satd. Flow (perm)		5879			4988	978		4738				
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	702	278	0	698	259	150	1036	152	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	15	0	0	0	0
Lane Group Flow (vph)	0	980	0	0	698	259	0	1323	0	0	0	0
Confl. Peds. (#/hr)	564					564	1		235	235		1
Confl. Bikes (#/hr)			6			6			24			
Heavy Vehicles (%)	6%	6%	6%	4%	4%	4%	3%	3%	3%	0%	0%	0%
Turn Type		NA			NA	Perm	Perm	NA				
Protected Phases		2			2			4				
Permitted Phases						2	4					
Actuated Green, G (s)		49.5			49.5	49.5		47.0				
Effective Green, g (s)		49.5			49.5	49.5		47.0				
Actuated g/C Ratio		0.45			0.45	0.45		0.43				
Clearance Time (s)		6.5			6.5	6.5		7.0				
Lane Grp Cap (vph)		2645			2244	440		2024				
v/s Ratio Prot		0.17			0.14							
v/s Ratio Perm						c0.26		0.28				
v/c Ratio		0.37			0.31	0.59		0.65				
Uniform Delay, d1		20.0			19.3	22.6		25.0				
Progression Factor		0.40			0.21	0.35		0.35				
Incremental Delay, d2		0.4			0.3	4.4		0.5				
Delay (s)		8.3			4.3	12.4		9.2				
Level of Service		A			A	B		A				
Approach Delay (s)		8.3			6.5			9.2			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	63.7%	ICU Level of Service	B
Analysis Period (min)	15		

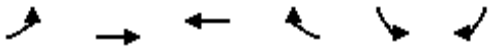
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	206	434	504	297	513	201
v/c Ratio	0.61	0.32	0.37	0.42	0.62	0.45
Control Delay	44.4	23.4	15.9	18.2	23.3	7.3
Queue Delay	1.0	0.7	0.3	0.5	55.5	6.8
Total Delay	45.4	24.1	16.2	18.7	78.8	14.1
Queue Length 50th (ft)	111	115	155	111	175	47
Queue Length 95th (ft)	185	151	180	156	m205	m59
Internal Link Dist (ft)		228	419		144	
Turn Bay Length (ft)						
Base Capacity (vph)	339	1372	1372	707	834	447
Starvation Cap Reductn	30	600	0	0	422	195
Spillback Cap Reductn	0	0	364	149	0	20
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.56	0.50	0.53	1.25	0.80

Intersection Summary

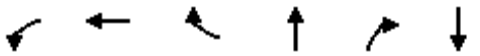
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	200	421	489	288	498	195
Future Volume (vph)	200	421	489	288	498	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	6.5	6.5	6.5	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	0.88	0.97	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.65	1.00	0.77
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1736	3471	3471	1788	3400	1207
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1736	3471	3471	1788	3400	1207
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	206	434	504	297	513	201
RTOR Reduction (vph)	0	0	0	0	0	152
Lane Group Flow (vph)	206	434	504	297	513	49
Confl. Peds. (#/hr)	328			328	669	133
Confl. Bikes (#/hr)				41		5
Heavy Vehicles (%)	4%	4%	4%	4%	3%	3%
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	1	2	2		4	
Permitted Phases				2		4
Actuated Green, G (s)	21.5	43.5	43.5	43.5	27.0	27.0
Effective Green, g (s)	21.5	43.5	43.5	43.5	27.0	27.0
Actuated g/C Ratio	0.20	0.40	0.40	0.40	0.25	0.25
Clearance Time (s)	5.5	6.5	6.5	6.5	6.0	6.0
Lane Grp Cap (vph)	339	1372	1372	707	834	296
v/s Ratio Prot	c0.12	0.13	0.15		c0.15	
v/s Ratio Perm				c0.17		0.04
v/c Ratio	0.61	0.32	0.37	0.42	0.62	0.17
Uniform Delay, d1	40.4	23.0	23.5	24.1	36.9	32.6
Progression Factor	0.89	0.98	0.64	0.67	0.57	1.05
Incremental Delay, d2	7.8	0.6	0.7	1.7	2.1	0.7
Delay (s)	43.8	23.2	15.8	17.9	23.1	34.9
Level of Service	D	C	B	B	C	C
Approach Delay (s)		29.8	16.6		26.4	
Approach LOS		C	B		C	

Intersection Summary			
HCM 2000 Control Delay	23.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	62.7%	ICU Level of Service	B
Analysis Period (min)	15		

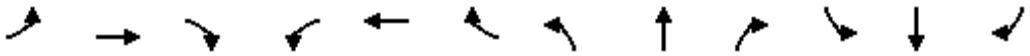
c Critical Lane Group



Lane Group	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	124	195	100	429	78	848
v/c Ratio	0.49	0.50	0.23	0.49	0.33	0.89
Control Delay	35.6	33.2	3.3	37.2	8.3	48.9
Queue Delay	0.0	0.0	0.0	3.7	1.1	48.0
Total Delay	35.6	33.2	3.3	40.9	9.4	96.9
Queue Length 50th (ft)	37	58	1	168	8	291
Queue Length 95th (ft)	106	144	m19	215	m21	#403
Internal Link Dist (ft)		379		144		303
Turn Bay Length (ft)	200		65			
Base Capacity (vph)	253	390	435	875	233	954
Starvation Cap Reductn	0	0	0	348	54	0
Spillback Cap Reductn	0	0	0	0	0	241
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.50	0.23	0.81	0.44	1.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	118	185	95	73	334	74	100	522	184
Future Volume (vph)	0	0	0	118	185	95	73	334	74	100	522	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5	6.5		6.0	6.0		6.0	
Lane Util. Factor				1.00	1.00	1.00		0.95	1.00		0.95	
Frpb, ped/bikes				1.00	1.00	0.96		1.00	0.30		0.99	
Flpb, ped/bikes				0.68	1.00	1.00		1.00	1.00		1.00	
Frt				1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected				0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)				1188	1827	1490		3440	468		3294	
Flt Permitted				0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (perm)				1188	1827	1490		3440	468		3294	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	124	195	100	77	352	78	105	549	194
RTOR Reduction (vph)	0	0	0	0	0	79	0	0	58	0	25	0
Lane Group Flow (vph)	0	0	0	124	195	21	0	429	20	0	823	0
Confl. Peds. (#/hr)	18		264	264		18	19		528	528		19
Confl. Bikes (#/hr)						3			4			1
Heavy Vehicles (%)	0%	0%	0%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Perm	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases					4		2	2		1	1	
Permitted Phases				4		4			2			
Actuated Green, G (s)				23.5	23.5	23.5		28.0	28.0		31.0	
Effective Green, g (s)				23.5	23.5	23.5		28.0	28.0		31.0	
Actuated g/C Ratio				0.21	0.21	0.21		0.25	0.25		0.28	
Clearance Time (s)				6.5	6.5	6.5		6.0	6.0		6.0	
Lane Grp Cap (vph)				253	390	318		875	119		928	
v/s Ratio Prot					c0.11			c0.12			c0.25	
v/s Ratio Perm				0.10		0.01			0.04			
v/c Ratio				0.49	0.50	0.07		0.49	0.17		0.89	
Uniform Delay, d1				38.0	38.1	34.5		34.9	31.9		37.8	
Progression Factor				0.77	0.76	1.36		1.01	1.00		1.00	
Incremental Delay, d2				5.8	3.9	0.4		1.7	2.7		12.2	
Delay (s)				34.8	32.7	47.2		36.9	34.6		50.1	
Level of Service				C	C	D		D	C		D	
Approach Delay (s)		0.0			36.8			36.6			50.1	
Approach LOS		A			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	43.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	74.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



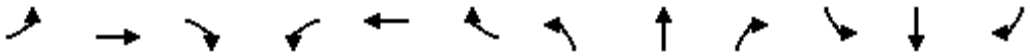
Lane Group	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	1052	1360	79	1658	1637
v/c Ratio	0.76	1.01	0.24	0.53	0.65
Control Delay	36.9	45.5	7.3	16.9	37.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	36.9	45.5	7.3	16.9	37.9
Queue Length 50th (ft)	239	~391	26	204	389
Queue Length 95th (ft)	294	m#495	m27	238	439
Internal Link Dist (ft)	320	1027		460	1159
Turn Bay Length (ft)					
Base Capacity (vph)	1379	1350	330	3103	2532
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.76	1.01	0.24	0.53	0.65

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	925	70	30	1267	84	0	1303	289	0	1349	223
Future Volume (vph)	14	925	70	30	1267	84	0	1303	289	0	1349	223
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5	4.5		4.5			4.5	
Lane Util. Factor		0.91			0.86	0.86		0.86			0.91	
Frpb, ped/bikes		0.98			1.00	0.65		0.94			0.96	
Flpb, ped/bikes		1.00			1.00	1.00		1.00			1.00	
Frt		0.99			1.00	0.85		0.97			0.98	
Flt Protected		1.00			1.00	1.00		1.00			1.00	
Satd. Flow (prot)		4917			4779	886		5782			4722	
Flt Permitted		0.84			0.85	1.00		1.00			1.00	
Satd. Flow (perm)		4133			4068	886		5782			4722	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	15	964	73	31	1320	88	0	1357	301	0	1405	232
RTOR Reduction (vph)	0	7	0	0	1	37	0	28	0	0	21	0
Lane Group Flow (vph)	0	1045	0	0	1359	42	0	1630	0	0	1616	0
Confl. Peds. (#/hr)	411		258	258		411	255		450	450		255
Confl. Bikes (#/hr)			9						9			
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA	Perm		NA			NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2						
Actuated Green, G (s)		36.5			36.5	36.5		58.5			58.5	
Effective Green, g (s)		36.5			36.5	36.5		58.5			58.5	
Actuated g/C Ratio		0.33			0.33	0.33		0.53			0.53	
Clearance Time (s)		4.5			4.5	4.5		4.5			4.5	
Lane Grp Cap (vph)		1371			1349	293		3074			2511	
v/s Ratio Prot								0.28			c0.34	
v/s Ratio Perm		0.25			c0.33	0.05						
v/c Ratio		0.76			1.01	0.14		0.53			0.64	
Uniform Delay, d1		32.9			36.8	25.8		16.8			18.3	
Progression Factor		1.00			0.66	0.57		1.00			2.04	
Incremental Delay, d2		4.0			19.8	0.6		0.7			1.2	
Delay (s)		36.9			44.2	15.3		17.5			38.6	
Level of Service		D			D	B		B			D	
Approach Delay (s)		36.9			42.6			17.5			38.6	
Approach LOS		D			D			B			D	

Intersection Summary			
HCM 2000 Control Delay	33.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	86.5%	ICU Level of Service	E
Analysis Period (min)	15		

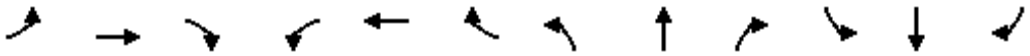
c Critical Lane Group



Lane Group	EBT	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	471	518	124	106	1444	1256
v/c Ratio	0.60	0.52	0.34	0.55	0.75	0.42
Control Delay	53.9	19.3	17.2	22.0	16.5	13.1
Queue Delay	0.0	0.5	0.0	0.0	0.0	0.5
Total Delay	53.9	19.8	17.2	22.0	16.5	13.6
Queue Length 50th (ft)	156	203	92	32	478	268
Queue Length 95th (ft)	m192	262	156	98	607	316
Internal Link Dist (ft)	394	259			1159	146
Turn Bay Length (ft)						
Base Capacity (vph)	790	1003	364	193	1913	3020
Starvation Cap Reductn	0	172	0	0	0	1151
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.62	0.34	0.55	0.75	0.67

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	288	160	0	492	118	101	1167	205	0	1185	9
Future Volume (vph)	0	288	160	0	492	118	101	1167	205	0	1185	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5	6.5	6.5	6.5			6.5	
Lane Util. Factor		0.95			0.95	1.00	1.00	0.95			0.91	
Frpb, ped/bikes		0.87			1.00	0.81	1.00	0.94			1.00	
Flpb, ped/bikes		1.00			1.00	1.00	0.97	1.00			1.00	
Frt		0.95			1.00	0.85	1.00	0.98			1.00	
Flt Protected		1.00			1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)		2763			3505	1272	1696	3211			5072	
Flt Permitted		1.00			1.00	1.00	0.18	1.00			1.00	
Satd. Flow (perm)		2763			3505	1272	324	3211			5072	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	303	168	0	518	124	106	1228	216	0	1247	9
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	471	0	0	518	124	106	1444	0	0	1256	0
Confl. Peds. (#/hr)	128		395	395		128	186		447	447		186
Confl. Bikes (#/hr)			75			50			15			1
Heavy Vehicles (%)	8%	8%	8%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Turn Type		NA			NA	Perm	Perm	NA			NA	
Protected Phases		8			4			6			2	
Permitted Phases						4	6					
Actuated Green, G (s)		31.5			31.5	31.5	65.5	65.5			65.5	
Effective Green, g (s)		31.5			31.5	31.5	65.5	65.5			65.5	
Actuated g/C Ratio		0.29			0.29	0.29	0.60	0.60			0.60	
Clearance Time (s)		6.5			6.5	6.5	6.5	6.5			6.5	
Lane Grp Cap (vph)		791			1003	364	192	1912			3020	
v/s Ratio Prot		c0.17			0.15			c0.45			0.25	
v/s Ratio Perm						0.10	0.33					
v/c Ratio		0.60			0.52	0.34	0.55	0.76			0.42	
Uniform Delay, d1		33.8			32.9	31.0	13.4	16.4			12.0	
Progression Factor		1.49			0.53	0.46	0.78	0.84			1.06	
Incremental Delay, d2		2.7			1.8	2.4	9.8	2.5			0.4	
Delay (s)		53.2			19.1	16.8	20.2	16.2			13.0	
Level of Service		D			B	B	C	B			B	
Approach Delay (s)		53.2			18.7			16.5			13.0	
Approach LOS		D			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		

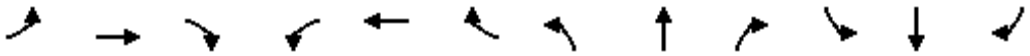
c Critical Lane Group



Lane Group	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	221	216	180	1305	1146
v/c Ratio	0.65	0.62	0.54	0.41	0.49
Control Delay	54.3	52.4	12.5	4.3	20.0
Queue Delay	0.0	0.0	11.7	0.8	0.2
Total Delay	54.3	52.4	24.2	5.1	20.2
Queue Length 50th (ft)	176	171	21	55	192
Queue Length 95th (ft)	m236	m229	m35	78	232
Internal Link Dist (ft)		580		146	270
Turn Bay Length (ft)					
Base Capacity (vph)	342	350	332	3158	2358
Starvation Cap Reductn	0	0	124	1423	0
Spillback Cap Reductn	0	0	0	0	464
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.65	0.62	0.87	0.75	0.61

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	286	54	62	166	1201	0	0	1007	47
Future Volume (vph)	0	0	0	286	54	62	166	1201	0	0	1007	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5		6.0	6.0			6.0	
Lane Util. Factor				0.95	0.95		1.00	0.91			0.91	
Frpb, ped/bikes				1.00	0.90		1.00	1.00			0.98	
Flpb, ped/bikes				0.79	0.91		0.99	1.00			1.00	
Frt				1.00	0.95		1.00	1.00			0.99	
Flt Protected				0.95	0.98		0.95	1.00			1.00	
Satd. Flow (prot)				1320	1346		1732	5036			4887	
Flt Permitted				0.95	0.98		0.19	1.00			1.00	
Satd. Flow (perm)				1320	1346		347	5036			4887	
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	311	59	67	180	1305	0	0	1095	51
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	0	0	221	214	0	180	1305	0	0	1141	0
Confl. Peds. (#/hr)	290		163	163		290	234		649	649		234
Confl. Bikes (#/hr)						9			19			2
Heavy Vehicles (%)	0%	0%	0%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type				Perm	NA		pm+pt	NA			NA	
Protected Phases					4		5	2			6	
Permitted Phases				4			2					
Actuated Green, G (s)				28.5	28.5		69.0	69.0			53.0	
Effective Green, g (s)				28.5	28.5		69.0	69.0			53.0	
Actuated g/C Ratio				0.26	0.26		0.63	0.63			0.48	
Clearance Time (s)				6.5	6.5		6.0	6.0			6.0	
Lane Grp Cap (vph)				342	348		343	3158			2354	
v/s Ratio Prot							c0.05	0.26			0.23	
v/s Ratio Perm				c0.17	0.16		c0.28					
v/c Ratio				0.65	0.61		0.52	0.41			0.48	
Uniform Delay, d1				36.3	35.9		21.4	10.3			19.3	
Progression Factor				1.27	1.28		0.38	0.38			1.00	
Incremental Delay, d2				6.9	5.9		4.3	0.3			0.7	
Delay (s)				53.0	51.8		12.4	4.3			20.0	
Level of Service				D	D		B	A			B	
Approach Delay (s)		0.0			52.4			5.3			20.0	
Approach LOS		A			D			A			B	

Intersection Summary			
HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		

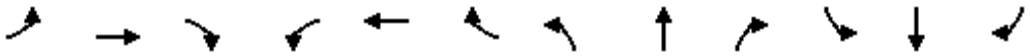
c Critical Lane Group



Lane Group	EBT	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	31	334	135	486	188	600
v/c Ratio	0.41	0.60	0.18	0.57	0.94	0.38
Control Delay	62.3	83.2	6.9	35.2	97.8	19.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.3	83.2	6.9	35.2	97.8	19.8
Queue Length 50th (ft)	20	131	16	151	134	140
Queue Length 95th (ft)	52	178	42	206	#272	184
Internal Link Dist (ft)	133			1023		200
Turn Bay Length (ft)			100			
Base Capacity (vph)	76	560	734	860	201	1581
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.60	0.18	0.57	0.94	0.38

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	4	0	317	0	128	5	303	154	179	565	5
Future Volume (vph)	26	4	0	317	0	128	5	303	154	179	565	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5		6.5		6.5		6.5		5.0	6.5	
Lane Util. Factor		1.00		0.97		1.00		0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00		1.00		0.91		1.00	0.99	
Flpb, ped/bikes		1.00		1.00		1.00		1.00		1.00	1.00	
Frt		1.00		1.00		0.85		0.95		1.00	1.00	
Flt Protected		0.96		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1816		3335		1538		2977		1703	3378	
Flt Permitted		0.96		0.95		1.00		0.95		0.95	1.00	
Satd. Flow (perm)		1816		3335		1538		2824		1703	3378	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	27	4	0	334	0	135	5	319	162	188	595	5
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	31	0	334	0	135	0	486	0	188	600	0
Confl. Peds. (#/hr)	2		243	243		2	731		183	183		731
Confl. Bikes (#/hr)			1			80			52			85
Heavy Vehicles (%)	0%	0%	0%	5%	5%	5%	4%	4%	4%	6%	6%	6%
Turn Type	Prot	NA	Perm	Prot		custom	Perm	NA		Prot	NA	
Protected Phases	3	8		7		7 4 1		2		1	6	
Permitted Phases			8				2					
Actuated Green, G (s)		20.5		18.5		54.0		33.5		13.0	51.5	
Effective Green, g (s)		20.5		18.5		54.0		33.5		13.0	51.5	
Actuated g/C Ratio		0.19		0.17		0.49		0.30		0.12	0.47	
Clearance Time (s)		6.5		6.5				6.5		5.0	6.5	
Lane Grp Cap (vph)		338		560		755		860		201	1581	
v/s Ratio Prot		c0.00		c0.10		c0.09				c0.11	0.18	
v/s Ratio Perm		0.01						c0.17				
v/c Ratio		0.09		0.60		0.18		0.57		0.94	0.38	
Uniform Delay, d1		37.0		42.3		15.6		32.1		48.1	18.9	
Progression Factor		1.00		1.86		0.38		1.00		1.00	1.00	
Incremental Delay, d2		0.5		4.0		0.4		2.7		48.5	0.7	
Delay (s)		37.6		82.5		6.4		34.8		96.6	19.6	
Level of Service		D		F		A		C		F	B	
Approach Delay (s)		37.6			60.6			34.8			38.0	
Approach LOS		D			E			C			D	

Intersection Summary			
HCM 2000 Control Delay	43.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	69.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	EBR	WBL	WBT	NBR
Lane Group Flow (vph)	1152	4	731	738	1002
v/c Ratio	0.55	0.01	0.47	0.50	0.61
Control Delay	21.5	11.5	17.0	33.1	17.3
Queue Delay	50.6	0.0	0.5	14.5	0.9
Total Delay	72.1	11.5	17.5	47.6	18.1
Queue Length 50th (ft)	317	1	201	208	309
Queue Length 95th (ft)	m339	m2	257	267	374
Internal Link Dist (ft)	354			202	
Turn Bay Length (ft)					
Base Capacity (vph)	2105	408	1545	1465	1640
Starvation Cap Reductn	724	0	406	716	338
Spillback Cap Reductn	1214	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.29	0.01	0.64	0.99	0.77

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1048	4	665	672	0	912
Future Volume (vph)	1048	4	665	672	0	912
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0		7.0
Lane Util. Factor	0.91	1.00	0.97	0.95		0.76
Frpb, ped/bikes	1.00	0.62	1.00	1.00		1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00		1.00
Frt	1.00	0.85	1.00	1.00		0.85
Flt Protected	1.00	1.00	0.95	1.00		1.00
Satd. Flow (prot)	5036	978	3400	3505		3610
Flt Permitted	1.00	1.00	0.95	1.00		1.00
Satd. Flow (perm)	5036	978	3400	3505		3610
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	1152	4	731	738	0	1002
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1152	4	731	738	0	1002
Confl. Peds. (#/hr)		226	226		28	
Confl. Bikes (#/hr)		111				3
Heavy Vehicles (%)	3%	3%	3%	3%	2%	2%
Turn Type	NA	Perm	Prot	NA		Prot
Protected Phases	2		7	6		4
Permitted Phases		2				
Actuated Green, G (s)	46.0	46.0	50.0	46.0		50.0
Effective Green, g (s)	46.0	46.0	50.0	46.0		50.0
Actuated g/C Ratio	0.42	0.42	0.45	0.42		0.45
Clearance Time (s)	7.0	7.0	7.0	7.0		7.0
Lane Grp Cap (vph)	2105	408	1545	1465		1640
v/s Ratio Prot	c0.23		0.22	0.21		c0.28
v/s Ratio Perm		0.00				
v/c Ratio	0.55	0.01	0.47	0.50		0.61
Uniform Delay, d1	24.1	18.7	20.8	23.6		22.7
Progression Factor	0.85	0.61	0.76	1.34		0.68
Incremental Delay, d2	0.7	0.0	1.0	1.2		1.7
Delay (s)	21.3	11.5	16.8	32.8		17.1
Level of Service	C	B	B	C		B
Approach Delay (s)	21.3			24.8	17.1	
Approach LOS	C			C	B	

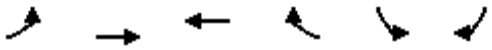
Intersection Summary			
HCM 2000 Control Delay	21.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	53.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	SBR
Lane Group Flow (vph)	1576	299	15	1139
v/c Ratio	0.87	0.25	0.02	0.59
Control Delay	26.9	24.9	22.4	17.6
Queue Delay	47.4	0.0	0.0	1.0
Total Delay	74.3	24.9	22.4	18.6
Queue Length 50th (ft)	427	72	3	207
Queue Length 95th (ft)	537	106	10	260
Internal Link Dist (ft)		268	282	
Turn Bay Length (ft)				
Base Capacity (vph)	1819	1185	999	1932
Starvation Cap Reductn	561	0	0	493
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.25	0.25	0.02	0.79

Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1529	290	15	0	0	1105
Future Volume (vph)	1529	290	15	0	0	1105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.5	6.5			7.0
Lane Util. Factor	0.97	0.95	0.95			0.76
Frpb, ped/bikes	1.00	1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	1.00	1.00	1.00			0.85
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3433	3539	2983			3646
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3433	3539	2983			3646
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1576	299	15	0	0	1139
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1576	299	15	0	0	1139
Confl. Peds. (#/hr)	97			97		
Confl. Bikes (#/hr)				30		13
Heavy Vehicles (%)	2%	2%	21%	21%	1%	1%
Turn Type	Prot	NA	NA			Prot
Protected Phases	7	6	2			4
Permitted Phases						
Actuated Green, G (s)	53.0	33.5	33.5			53.0
Effective Green, g (s)	53.0	33.5	33.5			53.0
Actuated g/C Ratio	0.53	0.34	0.34			0.53
Clearance Time (s)	7.0	6.5	6.5			7.0
Lane Grp Cap (vph)	1819	1185	999			1932
v/s Ratio Prot	c0.46	c0.08	0.01			0.31
v/s Ratio Perm						
v/c Ratio	0.87	0.25	0.02			0.59
Uniform Delay, d1	20.4	24.2	22.2			16.1
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	5.8	0.5	0.0			1.3
Delay (s)	26.3	24.7	22.3			17.4
Level of Service	C	C	C			B
Approach Delay (s)		26.0	22.3		17.4	
Approach LOS		C	C		B	

Intersection Summary			
HCM 2000 Control Delay	22.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	55.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBL	WBT	NBR
Lane Group Flow (vph)	529	38	685	168
v/c Ratio	0.19	0.07	0.33	0.33
Control Delay	7.6	33.9	20.0	31.5
Queue Delay	0.0	0.0	1.5	0.0
Total Delay	7.6	33.9	21.5	31.5
Queue Length 50th (ft)	47	14	252	91
Queue Length 95th (ft)	51	m38	314	151
Internal Link Dist (ft)	259		228	
Turn Bay Length (ft)				
Base Capacity (vph)	2763	541	2055	508
Starvation Cap Reductn	0	0	1125	0
Spillback Cap Reductn	0	0	121	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.19	0.07	0.74	0.33

Intersection Summary

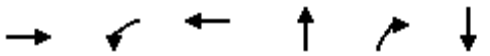
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	471	16	35	630	0	155
Future Volume (vph)	471	16	35	630	0	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		6.0	5.5		6.0
Lane Util. Factor	0.91		1.00	0.95		1.00
Frpb, ped/bikes	1.00		1.00	1.00		1.00
Flpb, ped/bikes	1.00		1.00	1.00		1.00
Frt	1.00		1.00	1.00		0.86
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	4714		1752	3505		1644
Flt Permitted	1.00		0.95	1.00		1.00
Satd. Flow (perm)	4714		1752	3505		1644
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	512	17	38	685	0	168
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	529	0	38	685	0	168
Confl. Peds. (#/hr)		35	35			5
Confl. Bikes (#/hr)		35				
Heavy Vehicles (%)	9%	9%	3%	3%	0%	0%
Turn Type	NA		Prot	NA		Over
Protected Phases	2		4	6		4
Permitted Phases						
Actuated Green, G (s)	64.5		34.0	64.5		34.0
Effective Green, g (s)	64.5		34.0	64.5		34.0
Actuated g/C Ratio	0.59		0.31	0.59		0.31
Clearance Time (s)	5.5		6.0	5.5		6.0
Lane Grp Cap (vph)	2764		541	2055		508
v/s Ratio Prot	0.11		0.02	c0.20		c0.10
v/s Ratio Perm						
v/c Ratio	0.19		0.07	0.33		0.33
Uniform Delay, d1	10.6		26.8	11.7		29.2
Progression Factor	0.70		1.24	1.66		1.00
Incremental Delay, d2	0.1		0.2	0.4		1.7
Delay (s)	7.6		33.5	19.8		31.0
Level of Service	A		C	B		C
Approach Delay (s)	7.6			20.6	31.0	
Approach LOS	A			C	C	

Intersection Summary			
HCM 2000 Control Delay	17.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		

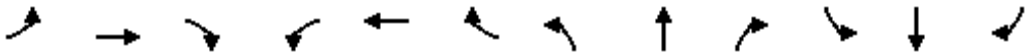
c Critical Lane Group



Lane Group	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	619	249	1743	471	339	225
v/c Ratio	0.39	0.79	0.66	0.49	0.52	0.28
Control Delay	28.8	62.0	17.7	2.4	6.4	30.4
Queue Delay	0.0	0.0	0.0	0.3	3.8	0.0
Total Delay	28.8	62.0	17.7	2.7	10.2	30.4
Queue Length 50th (ft)	121	170	288	7	64	48
Queue Length 95th (ft)	156	#293	340	10	132	68
Internal Link Dist (ft)	282		355	154		901
Turn Bay Length (ft)						
Base Capacity (vph)	1579	315	2624	968	650	813
Starvation Cap Reductn	0	0	0	116	224	0
Spillback Cap Reductn	0	0	0	0	0	9
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.79	0.66	0.55	0.80	0.28

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	603	2	244	1438	270	58	404	332	44	109	68
Future Volume (vph)	2	603	2	244	1438	270	58	404	332	44	109	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		5.0	6.0			6.5	6.5		6.5	
Lane Util. Factor		0.91		1.00	0.91			0.95	1.00		0.95	
Frpb, ped/bikes		1.00		1.00	0.95			1.00	0.84		0.98	
Flpb, ped/bikes		1.00		1.00	1.00			1.00	1.00		0.99	
Frt		1.00		1.00	0.98			1.00	0.85		0.95	
Flt Protected		1.00		0.95	1.00			0.99	1.00		0.99	
Satd. Flow (prot)		5032		1736	4613			3433	1303		3160	
Flt Permitted		0.93		0.95	1.00			0.87	1.00		0.78	
Satd. Flow (perm)		4695		1736	4613			3003	1303		2500	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	2	615	2	249	1467	276	59	412	339	45	111	69
RTOR Reduction (vph)	0	0	0	0	25	0	0	0	230	0	7	0
Lane Group Flow (vph)	0	619	0	249	1718	0	0	471	109	0	218	0
Confl. Peds. (#/hr)	236		19	19		236	39		112	112		39
Confl. Bikes (#/hr)			12			48			8			19
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Perm	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			4			4	
Permitted Phases	2						4		4	4		
Actuated Green, G (s)		37.0		20.0	62.0			35.5	35.5		35.5	
Effective Green, g (s)		37.0		20.0	62.0			35.5	35.5		35.5	
Actuated g/C Ratio		0.34		0.18	0.56			0.32	0.32		0.32	
Clearance Time (s)		6.0		5.0	6.0			6.5	6.5		6.5	
Lane Grp Cap (vph)		1579		315	2600			969	420		806	
v/s Ratio Prot				c0.14	c0.37							
v/s Ratio Perm		0.13						c0.16	0.08		0.09	
v/c Ratio		0.39		0.79	0.66			0.49	0.26		0.27	
Uniform Delay, d1		27.9		43.0	16.7			29.9	27.5		27.6	
Progression Factor		1.00		1.00	1.00			0.03	1.25		1.11	
Incremental Delay, d2		0.7		18.1	1.3			1.4	1.2		0.8	
Delay (s)		28.6		61.1	18.0			2.4	35.6		31.4	
Level of Service		C		E	B			A	D		C	
Approach Delay (s)		28.6			23.4			16.3			31.4	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	23.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	119.3%	ICU Level of Service	H
Analysis Period (min)	15		

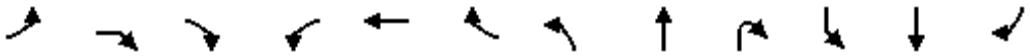
c Critical Lane Group



Lane Group	EBL	EBR	EBR2	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	53	98	68	147	265	446	538	412
v/c Ratio	0.26	0.24	0.14	0.35	0.54	0.44	0.87	0.24
Control Delay	36.2	33.7	6.3	35.9	39.6	7.1	46.5	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.4	0.8	0.0
Total Delay	36.2	33.7	6.3	35.9	39.6	7.5	47.3	7.7
Queue Length 50th (ft)	30	54	0	84	161	86	158	74
Queue Length 95th (ft)	67	101	28	144	245	139	#266	71
Internal Link Dist (ft)					301		901	413
Turn Bay Length (ft)								
Base Capacity (vph)	204	417	475	415	491	1020	616	1701
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	222	11	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.24	0.14	0.35	0.54	0.56	0.89	0.24

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR2	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	93	65	140	252	424	67	350	94	193	175	24
Future Volume (vph)	50	93	65	140	252	424	67	350	94	193	175	24
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	5.0		6.0			6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		0.95			0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.96		0.99			0.96	
Flpb, ped/bikes	0.96	1.00	1.00	0.89	1.00	1.00		0.96			1.00	
Frt	1.00	0.85	0.85	1.00	1.00	0.85		0.97			0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99			0.98	
Satd. Flow (prot)	1702	1583	1583	1577	1863	1524		3225			3289	
Flt Permitted	0.43	1.00	1.00	0.95	1.00	1.00		0.82			0.56	
Satd. Flow (perm)	774	1583	1583	1577	1863	1524		2648			1889	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	53	98	68	147	265	446	71	368	99	203	184	25
RTOR Reduction (vph)	0	0	50	0	0	39	0	62	0	0	4	0
Lane Group Flow (vph)	53	98	18	147	265	407	0	476	0	0	408	0
Confl. Peds. (#/hr)	25		66	66		25	364		15	15		364
Confl. Bikes (#/hr)						6			11			20
Turn Type	Perm	Prot	Prot	Perm	NA	custom	Perm	NA		pm+pt	NA	
Protected Phases		4	4		8	5		6		5	2	
Permitted Phases	4	4	4	8		8	6			2		
Actuated Green, G (s)	29.0	29.0	29.0	29.0	29.0	70.0		23.0			69.0	
Effective Green, g (s)	29.0	29.0	29.0	29.0	29.0	70.0		23.0			69.0	
Actuated g/C Ratio	0.26	0.26	0.26	0.26	0.26	0.64		0.21			0.63	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	5.0		6.0			6.0	
Lane Grp Cap (vph)	204	417	417	415	491	969		553			1706	
v/s Ratio Prot		0.06	0.01		c0.14	c0.16					0.09	
v/s Ratio Perm	0.07			0.09		0.11		c0.18			0.06	
v/c Ratio	0.26	0.24	0.04	0.35	0.54	0.42		0.86			0.24	
Uniform Delay, d1	32.0	31.8	30.2	32.9	34.8	9.9		41.9			9.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		0.90			0.87	
Incremental Delay, d2	3.1	1.3	0.2	2.4	4.2	1.3		13.8			0.3	
Delay (s)	35.1	33.1	30.4	35.3	39.0	11.3		51.3			8.1	
Level of Service	D	C	C	D	D	B		D			A	
Approach Delay (s)					23.9			51.3			8.1	
Approach LOS					C			D			A	

Intersection Summary			
HCM 2000 Control Delay	28.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	79.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



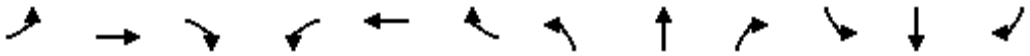
Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	20	61	233	399	792	343
v/c Ratio	0.12	0.10	0.68	1.03	0.91	0.29
Control Delay	21.5	14.7	41.7	78.4	37.9	14.6
Queue Delay	0.0	0.0	0.0	0.0	11.3	0.0
Total Delay	21.5	14.7	41.7	78.4	49.1	14.6
Queue Length 50th (ft)	9	20	138	~234	398	65
Queue Length 95th (ft)	m23	45	232	#418	m#694	94
Internal Link Dist (ft)		1267		269	413	277
Turn Bay Length (ft)	100					
Base Capacity (vph)	171	597	344	387	873	1186
Starvation Cap Reductn	0	0	0	0	78	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.10	0.68	1.03	1.00	0.29

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

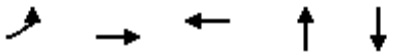
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	41	13	207	83	272	55	515	134	73	223	9
Future Volume (vph)	18	41	13	207	83	272	55	515	134	73	223	9
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	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			0.95	
Frpb, ped/bikes	1.00	0.92		1.00	0.51			0.97			0.99	
Flpb, ped/bikes	0.78	1.00		0.73	1.00			0.98			0.99	
Frt	1.00	0.96		1.00	0.88			0.97			1.00	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1376	1659		1289	837			1709			3408	
Flt Permitted	0.33	1.00		0.72	1.00			0.94			0.64	
Satd. Flow (perm)	485	1659		973	837			1613			2209	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	20	46	15	233	93	306	62	579	151	82	251	10
RTOR Reduction (vph)	0	10	0	0	90	0	0	8	0	0	2	0
Lane Group Flow (vph)	20	51	0	233	309	0	0	784	0	0	341	0
Confl. Peds. (#/hr)	364		179	179		364	163		128	128		163
Confl. Bikes (#/hr)			14			81			9			8
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	39.0	39.0		39.0	39.0			59.0			59.0	
Effective Green, g (s)	39.0	39.0		39.0	39.0			59.0			59.0	
Actuated g/C Ratio	0.35	0.35		0.35	0.35			0.54			0.54	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	171	588		344	296			865			1184	
v/s Ratio Prot		0.03			c0.37							
v/s Ratio Perm	0.04			0.24				c0.49			0.15	
v/c Ratio	0.12	0.09		0.68	1.04			0.91			0.29	
Uniform Delay, d1	23.9	23.6		30.2	35.5			23.0			14.0	
Progression Factor	0.81	0.76		1.00	1.00			1.08			1.00	
Incremental Delay, d2	1.3	0.3		10.3	63.9			12.4			0.6	
Delay (s)	20.7	18.2		40.4	99.4			37.2			14.6	
Level of Service	C	B		D	F			D			B	
Approach Delay (s)		18.8			77.6			37.2			14.6	
Approach LOS		B			E			D			B	

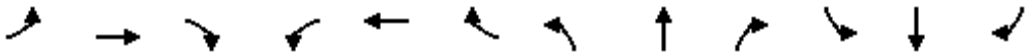
Intersection Summary			
HCM 2000 Control Delay	46.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	100.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	36	116	18	877	383
v/c Ratio	0.13	0.29	0.06	0.60	0.30
Control Delay	41.7	35.1	37.0	35.2	38.1
Queue Delay	0.0	0.0	0.0	0.0	1.5
Total Delay	41.7	35.1	37.0	35.2	39.7
Queue Length 50th (ft)	22	66	10	193	106
Queue Length 95th (ft)	52	116	31	235	m136
Internal Link Dist (ft)		282	633	181	154
Turn Bay Length (ft)					
Base Capacity (vph)	270	396	287	1461	1272
Starvation Cap Reductn	0	0	0	0	687
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.13	0.29	0.06	0.60	0.65

Intersection Summary

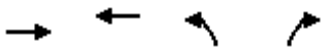
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	3	101	9	5	2	0	766	14	2	331	8
Future Volume (vph)	32	3	101	9	5	2	0	766	14	2	331	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.5			6.5			6.5			7.0	
Lane Util. Factor	1.00	1.00			1.00			0.91			0.95	
Frpb, ped/bikes	1.00	0.97			0.99			0.99			1.00	
Flpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Frt	1.00	0.85			0.98			1.00			1.00	
Flt Protected	0.95	1.00			0.97			1.00			1.00	
Satd. Flow (prot)	1752	1531			1792			4944			3317	
Flt Permitted	0.95	1.00			0.96			1.00			0.95	
Satd. Flow (perm)	1752	1531			1770			4944			3160	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	36	3	113	10	6	2	0	861	16	2	372	9
RTOR Reduction (vph)	0	0	0	0	1	0	0	1	0	0	2	0
Lane Group Flow (vph)	36	116	0	0	17	0	0	876	0	0	381	0
Confl. Peds. (#/hr)	28		4	4		28	66		125	125		66
Confl. Bikes (#/hr)			14			140			26			43
Heavy Vehicles (%)	3%	3%	3%	0%	0%	0%	4%	4%	4%	8%	8%	8%
Turn Type	Prot	NA		Prot	NA			NA		pm+pt	NA	
Protected Phases	1	6		1	2			4		3	8	
Permitted Phases										8		
Actuated Green, G (s)	17.0	28.5			45.5			32.5			44.0	
Effective Green, g (s)	17.0	28.5			45.5			32.5			44.0	
Actuated g/C Ratio	0.15	0.26			0.41			0.30			0.40	
Clearance Time (s)	7.0	6.5			6.5			6.5			7.0	
Lane Grp Cap (vph)	270	396			735			1460			1271	
v/s Ratio Prot	c0.02	c0.08			0.00			c0.18			c0.01	
v/s Ratio Perm					0.01						0.11	
v/c Ratio	0.13	0.29			0.02			0.60			0.30	
Uniform Delay, d1	40.1	32.7			19.1			33.2			22.5	
Progression Factor	1.00	1.00			1.00			1.00			1.67	
Incremental Delay, d2	1.0	1.9			0.1			1.8			0.5	
Delay (s)	41.2	34.5			19.1			35.0			38.0	
Level of Service	D	C			B			D			D	
Approach Delay (s)		36.1			19.1			35.0			38.0	
Approach LOS		D			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	35.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	50.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	984	1523	282	120
v/c Ratio	0.35	0.52	0.69	0.29
Control Delay	9.0	14.6	46.8	7.9
Queue Delay	0.3	4.9	59.6	0.0
Total Delay	9.3	19.4	106.5	7.9
Queue Length 50th (ft)	104	222	180	0
Queue Length 95th (ft)	123	261	277	46
Internal Link Dist (ft)	202	268	424	
Turn Bay Length (ft)				
Base Capacity (vph)	2790	2930	411	411
Starvation Cap Reductn	1079	1324	0	0
Spillback Cap Reductn	0	441	166	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.58	0.95	1.15	0.29

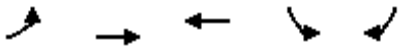
Intersection Summary



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	818	107	0	1432	265	113
Future Volume (vph)	818	107	0	1432	265	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0			6.0	6.0	6.0
Lane Util. Factor	0.91			0.91	1.00	1.00
Frpb, ped/bikes	0.98			1.00	1.00	0.82
Flpb, ped/bikes	1.00			1.00	0.94	1.00
Frt	0.98			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	4795			5036	1618	1264
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	4795			5036	1618	1264
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	870	114	0	1523	282	120
RTOR Reduction (vph)	0	0	0	0	0	89
Lane Group Flow (vph)	984	0	0	1523	282	31
Confl. Peds. (#/hr)		53			50	129
Confl. Bikes (#/hr)		43				26
Heavy Vehicles (%)	4%	4%	3%	3%	5%	5%
Turn Type	NA			NA	Perm	Perm
Protected Phases	2			2		
Permitted Phases					4	4
Actuated Green, G (s)	64.0			64.0	28.0	28.0
Effective Green, g (s)	64.0			64.0	28.0	28.0
Actuated g/C Ratio	0.58			0.58	0.25	0.25
Clearance Time (s)	6.0			6.0	6.0	6.0
Lane Grp Cap (vph)	2789			2930	411	321
v/s Ratio Prot	0.21			c0.30		
v/s Ratio Perm					c0.17	0.02
v/c Ratio	0.35			0.52	0.69	0.10
Uniform Delay, d1	12.1			13.8	37.0	31.3
Progression Factor	0.71			1.00	1.00	1.00
Incremental Delay, d2	0.3			0.7	9.0	0.6
Delay (s)	8.9			14.5	46.0	31.9
Level of Service	A			B	D	C
Approach Delay (s)	8.9			14.5	41.8	
Approach LOS	A			B	D	

Intersection Summary			
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		

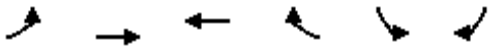
c Critical Lane Group



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	344	900	908	11	87
v/c Ratio	0.65	0.37	0.52	0.03	0.11
Control Delay	11.7	3.3	28.7	22.1	5.0
Queue Delay	10.8	0.0	0.0	0.0	0.0
Total Delay	22.5	3.3	28.7	22.1	5.0
Queue Length 50th (ft)	38	32	239	6	6
Queue Length 95th (ft)	52	39	m264	m11	m17
Internal Link Dist (ft)		484	340	163	
Turn Bay Length (ft)					
Base Capacity (vph)	532	2448	1739	357	764
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	159	165	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.92	0.39	0.52	0.03	0.11

Intersection Summary

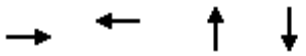
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	647	523	851	3	10	82
Future Volume (vph)	647	523	851	3	10	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		5.5	6.0
Lane Util. Factor	0.86	0.86	0.91		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	0.98	1.00		0.95	1.00
Satd. Flow (prot)	1477	4574	5033		1543	1380
Flt Permitted	0.23	0.67	1.00		0.95	1.00
Satd. Flow (perm)	359	3104	5033		1543	1380
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	688	556	905	3	11	87
RTOR Reduction (vph)	0	0	0	0	0	13
Lane Group Flow (vph)	344	900	908	0	11	74
Confl. Peds. (#/hr)	22			22	12	
Confl. Bikes (#/hr)				3		
Heavy Vehicles (%)	5%	5%	3%	3%	17%	17%
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	1	6	2		4	1
Permitted Phases	6					4
Actuated Green, G (s)	73.0	73.0	38.0		25.5	54.5
Effective Green, g (s)	73.0	73.0	38.0		25.5	54.5
Actuated g/C Ratio	0.66	0.66	0.35		0.23	0.50
Clearance Time (s)	6.0	6.0	6.0		5.5	6.0
Lane Grp Cap (vph)	532	2447	1738		357	759
v/s Ratio Prot	c0.17	0.10	0.18		0.01	c0.03
v/s Ratio Perm	c0.26	0.15				0.03
v/c Ratio	0.65	0.37	0.52		0.03	0.10
Uniform Delay, d1	19.3	8.2	28.8		32.7	14.7
Progression Factor	0.29	0.33	0.97		0.67	0.54
Incremental Delay, d2	4.9	0.3	0.8		0.1	0.2
Delay (s)	10.5	3.1	28.5		21.9	8.2
Level of Service	B	A	C		C	A
Approach Delay (s)		5.1	28.5		9.8	
Approach LOS		A	C		A	

Intersection Summary			
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



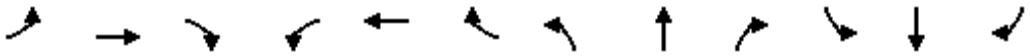
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	122	303	739	148
v/c Ratio	0.59	1.03	0.52	0.09
Control Delay	36.0	98.9	10.6	17.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	36.0	98.9	10.6	17.4
Queue Length 50th (ft)	40	~229	122	21
Queue Length 95th (ft)	m99	m#383	145	39
Internal Link Dist (ft)	492	1267	654	413
Turn Bay Length (ft)				
Base Capacity (vph)	207	293	1409	1591
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.59	1.03	0.52	0.09

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	0	62	47	143	83	99	566	0	0	104	29
Future Volume (vph)	48	0	62	47	143	83	99	566	0	0	104	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5			5.0			5.0	
Lane Util. Factor		1.00			1.00			0.95			0.91	
Frpb, ped/bikes		0.90			0.90			1.00			0.90	
Flpb, ped/bikes		1.00			0.98			0.96			1.00	
Frt		0.92			0.96			1.00			0.97	
Flt Protected		0.98			0.99			0.99			1.00	
Satd. Flow (prot)		1461			1544			3293			4019	
Flt Permitted		0.52			0.92			0.87			1.00	
Satd. Flow (perm)		779			1429			2895			4019	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	53	0	69	52	159	92	110	629	0	0	116	32
RTOR Reduction (vph)	0	56	0	0	14	0	0	0	0	0	19	0
Lane Group Flow (vph)	0	66	0	0	289	0	0	739	0	0	129	0
Confl. Peds. (#/hr)	194		75	75		194	138		192	192		138
Confl. Bikes (#/hr)						9			8			12
Heavy Vehicles (%)	6%	6%	6%	3%	3%	3%	4%	4%	4%	13%	13%	13%
Turn Type	Perm	NA		Perm	NA		Prot	NA			NA	
Protected Phases		8			8		5	2			6	
Permitted Phases	8			8								
Actuated Green, G (s)		21.5			21.5			78.0			43.0	
Effective Green, g (s)		21.5			21.5			78.0			43.0	
Actuated g/C Ratio		0.20			0.20			0.71			0.39	
Clearance Time (s)		5.5			5.5			5.0			5.0	
Lane Grp Cap (vph)		152			279			2161			1571	
v/s Ratio Prot								c0.09			0.03	
v/s Ratio Perm		0.09			c0.20			c0.15				
v/c Ratio		0.44			1.03			0.34			0.08	
Uniform Delay, d1		38.9			44.2			6.1			21.1	
Progression Factor		1.29			1.02			0.67			1.04	
Incremental Delay, d2		7.9			57.8			0.3			0.1	
Delay (s)		58.0			102.8			4.4			22.0	
Level of Service		E			F			A			C	
Approach Delay (s)		58.0			102.8			4.4			22.0	
Approach LOS		E			F			A			C	

Intersection Summary			
HCM 2000 Control Delay	34.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		

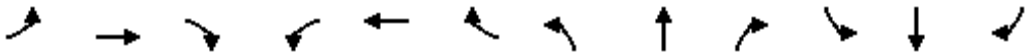
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	64	125	12	131	824	422
v/c Ratio	0.16	0.21	0.04	0.25	0.48	0.22
Control Delay	27.8	21.1	30.4	29.0	18.6	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	21.1	30.4	29.0	18.6	11.8
Queue Length 50th (ft)	28	38	6	68	176	42
Queue Length 95th (ft)	m45	m64	m7	m70	m209	63
Internal Link Dist (ft)		495		1267	413	291
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	408	589	280	526	1705	1934
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.21	0.04	0.25	0.48	0.22

Intersection Summary

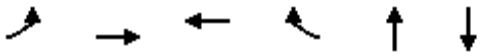
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	68	53	12	99	28	170	585	45	18	273	118
Future Volume (vph)	62	68	53	12	99	28	170	585	45	18	273	118
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	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.91			0.91	
Frpb, ped/bikes	1.00	0.85		1.00	0.94			0.98			0.95	
Flpb, ped/bikes	0.86	1.00		0.73	1.00			0.95			1.00	
Frt	1.00	0.93		1.00	0.97			0.99			0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1413	1377		1274	1674			4616			4381	
Flt Permitted	0.67	1.00		0.68	1.00			0.76			0.88	
Satd. Flow (perm)	1001	1377		907	1674			3526			3881	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	64	70	55	12	102	29	175	603	46	19	281	122
RTOR Reduction (vph)	0	26	0	0	9	0	0	6	0	0	63	0
Lane Group Flow (vph)	64	99	0	12	122	0	0	818	0	0	359	0
Confl. Peds. (#/hr)	146		245	245		146	135		123	123		135
Confl. Bikes (#/hr)			9			38			2			19
Heavy Vehicles (%)	10%	10%	10%	3%	3%	3%	3%	3%	3%	7%	7%	7%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	3	8			4			2			6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	45.0	45.0		34.0	34.0			53.0			53.0	
Effective Green, g (s)	45.0	45.0		34.0	34.0			53.0			53.0	
Actuated g/C Ratio	0.41	0.41		0.31	0.31			0.48			0.48	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	428	563		280	517			1698			1869	
v/s Ratio Prot	0.01	c0.07			c0.07							
v/s Ratio Perm	0.05			0.01				c0.23			0.09	
v/c Ratio	0.15	0.18		0.04	0.24			0.48			0.19	
Uniform Delay, d1	20.5	20.7		26.6	28.3			19.2			16.3	
Progression Factor	1.27	1.49		1.12	1.10			0.93			1.00	
Incremental Delay, d2	0.6	0.6		0.1	0.4			0.8			0.2	
Delay (s)	26.7	31.4		30.0	31.6			18.7			16.5	
Level of Service	C	C		C	C			B			B	
Approach Delay (s)		29.8			31.5			18.7			16.5	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

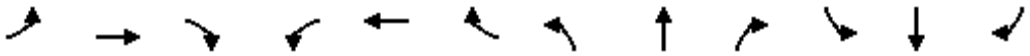
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	75	376	945	266	719	188
v/c Ratio	0.28	0.26	0.59	0.60	0.82	0.56
Control Delay	40.3	2.3	32.9	37.4	27.3	20.5
Queue Delay	0.0	0.0	0.8	0.0	26.2	0.0
Total Delay	40.3	2.3	33.6	37.4	53.5	20.5
Queue Length 50th (ft)	56	6	238	127	188	33
Queue Length 95th (ft)	m85	8	302	m195	221	m53
Internal Link Dist (ft)		523	354		163	654
Turn Bay Length (ft)				150		
Base Capacity (vph)	265	1471	1592	441	882	336
Starvation Cap Reductn	0	0	327	0	188	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.26	0.75	0.60	1.04	0.56

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	314	17	0	832	234	57	570	5	45	79	41
Future Volume (vph)	66	314	17	0	832	234	57	570	5	45	79	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5			6.5	6.5		7.0			10.0	
Lane Util. Factor	1.00	0.95			0.95	1.00		0.91			0.95	
Frpb, ped/bikes	1.00	0.99			1.00	0.62		1.00			0.97	
Flpb, ped/bikes	1.00	1.00			1.00	1.00		0.99			0.99	
Frt	1.00	0.99			1.00	0.85		1.00			0.96	
Flt Protected	0.95	1.00			1.00	1.00		1.00			0.99	
Satd. Flow (prot)	1671	3270			3539	982		4776			2982	
Flt Permitted	0.95	1.00			1.00	1.00		0.88			0.56	
Satd. Flow (perm)	1671	3270			3539	982		4216			1689	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	75	357	19	0	945	266	65	648	6	51	90	47
RTOR Reduction (vph)	0	0	0	0	0	0	0	1	0	0	29	0
Lane Group Flow (vph)	75	376	0	0	945	266	0	718	0	0	159	0
Confl. Peds. (#/hr)	292		144	144		292	59		92	92		59
Confl. Bikes (#/hr)			31			133			4			4
Heavy Vehicles (%)	8%	8%	8%	2%	2%	2%	7%	7%	7%	10%	10%	10%
Turn Type	Prot	NA			NA	Perm	Perm	NA		Perm	NA	
Protected Phases	7	6			2			4			8	
Permitted Phases						2	4			8		
Actuated Green, G (s)	17.5	49.5			49.5	49.5		23.0			20.0	
Effective Green, g (s)	17.5	49.5			49.5	49.5		23.0			20.0	
Actuated g/C Ratio	0.16	0.45			0.45	0.45		0.21			0.18	
Clearance Time (s)	6.5	6.5			6.5	6.5		7.0			10.0	
Lane Grp Cap (vph)	265	1471			1592	441		881			307	
v/s Ratio Prot	c0.04	0.11			0.27							
v/s Ratio Perm						c0.27		c0.17			0.09	
v/c Ratio	0.28	0.26			0.59	0.60		0.82			0.52	
Uniform Delay, d1	40.7	18.8			22.7	22.8		41.5			40.6	
Progression Factor	0.93	0.11			1.38	1.38		0.47			0.43	
Incremental Delay, d2	2.0	0.3			1.2	4.3		7.4			5.6	
Delay (s)	39.7	2.3			32.5	35.8		26.8			23.1	
Level of Service	D	A			C	D		C			C	
Approach Delay (s)		8.5			33.2			26.8			23.1	
Approach LOS		A			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	26.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		

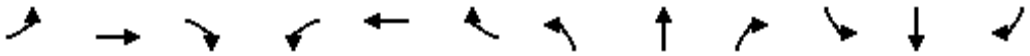
c Critical Lane Group



Lane Group	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1182	946	157	1034	319
v/c Ratio	0.63	0.45	0.34	0.53	0.28
Control Delay	12.3	3.7	24.0	22.7	45.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	12.3	3.7	24.0	22.7	45.6
Queue Length 50th (ft)	48	13	67	183	78
Queue Length 95th (ft)	m54	16	113	225	111
Internal Link Dist (ft)	516	484		438	368
Turn Bay Length (ft)					
Base Capacity (vph)	1876	2088	462	1966	1134
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	38	79	0	48	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.64	0.47	0.34	0.54	0.28

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1012	135	80	834	13	154	868	145	0	261	52
Future Volume (vph)	11	1012	135	80	834	13	154	868	145	0	261	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5		6.5	6.5			6.5	
Lane Util. Factor		0.86			0.86		1.00	0.91			0.91	
Frpb, ped/bikes		0.99			1.00		1.00	0.96			0.97	
Flpb, ped/bikes		1.00			1.00		0.95	1.00			1.00	
Frt		0.98			1.00		1.00	0.98			0.98	
Flt Protected		1.00			1.00		0.95	1.00			1.00	
Satd. Flow (prot)		6105			6235		1540	4410			4129	
Flt Permitted		0.92			0.72		0.55	1.00			1.00	
Satd. Flow (perm)		5596			4538		893	4410			4129	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	11	1033	138	82	851	13	157	886	148	0	266	53
RTOR Reduction (vph)	0	21	0	0	2	0	0	21	0	0	27	0
Lane Group Flow (vph)	0	1161	0	0	944	0	157	1013	0	0	292	0
Confl. Peds. (#/hr)	35		53	53		35	104		165	165		104
Confl. Bikes (#/hr)			2			6			13			11
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	11%	11%	11%	19%	19%	19%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA			NA	
Protected Phases		6		5	2		3	8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)		36.5			48.5		48.5	48.5			29.5	
Effective Green, g (s)		36.5			48.5		48.5	48.5			29.5	
Actuated g/C Ratio		0.33			0.44		0.44	0.44			0.27	
Clearance Time (s)		6.5			6.5		6.5	6.5			6.5	
Lane Grp Cap (vph)		1856			2108		467	1944			1107	
v/s Ratio Prot					c0.03		0.04	c0.23			0.07	
v/s Ratio Perm		c0.21			0.17		0.11					
v/c Ratio		0.63			0.45		0.34	0.52			0.26	
Uniform Delay, d1		31.0			21.4		20.9	22.3			31.7	
Progression Factor		0.36			0.15		1.00	1.00			1.60	
Incremental Delay, d2		1.4			0.6		1.9	1.0			0.5	
Delay (s)		12.5			3.8		22.8	23.3			51.2	
Level of Service		B			A		C	C			D	
Approach Delay (s)		12.5			3.8			23.3			51.2	
Approach LOS		B			A			C			D	

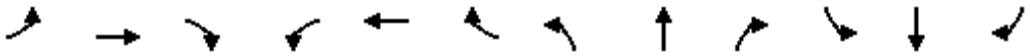
Intersection Summary			
HCM 2000 Control Delay	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	96.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	107	218	1045	360
v/c Ratio	0.33	0.59	0.68	0.52
Control Delay	50.8	26.8	32.0	3.3
Queue Delay	0.0	0.0	2.0	0.9
Total Delay	50.8	26.8	34.0	4.3
Queue Length 50th (ft)	76	78	362	8
Queue Length 95th (ft)	m128	m98	441	m13
Internal Link Dist (ft)	508	492	449	412
Turn Bay Length (ft)				
Base Capacity (vph)	324	372	1536	697
Starvation Cap Reductn	0	0	328	141
Spillback Cap Reductn	0	0	18	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.33	0.59	0.87	0.65

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	42	28	16	111	80	238	729	26	77	248	17
Future Volume (vph)	32	42	28	16	111	80	238	729	26	77	248	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5			5.5			5.5	
Lane Util. Factor		1.00			1.00			0.95			1.00	
Frpb, ped/bikes		0.94			0.90			0.98			0.97	
Flpb, ped/bikes		0.95			0.99			0.93			0.98	
Frt		0.96			0.95			1.00			0.99	
Flt Protected		0.98			1.00			0.99			0.99	
Satd. Flow (prot)		1529			1496			3064			1626	
Flt Permitted		0.83			0.97			0.75			0.64	
Satd. Flow (perm)		1297			1463			2329			1056	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	34	44	29	17	117	84	251	767	27	81	261	18
RTOR Reduction (vph)	0	12	0	0	20	0	0	2	0	0	2	0
Lane Group Flow (vph)	0	95	0	0	198	0	0	1043	0	0	358	0
Confl. Peds. (#/hr)	166		127	127		166	254		341	341		254
Confl. Bikes (#/hr)			3			9			12			16
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	9%	9%	9%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		26.5			26.5			72.5			72.5	
Effective Green, g (s)		26.5			26.5			72.5			72.5	
Actuated g/C Ratio		0.24			0.24			0.66			0.66	
Clearance Time (s)		5.5			5.5			5.5			5.5	
Lane Grp Cap (vph)		312			352			1535			696	
v/s Ratio Prot												
v/s Ratio Perm		0.07			c0.13			c0.45			0.34	
v/c Ratio		0.30			0.56			0.68			0.51	
Uniform Delay, d1		34.2			36.6			11.6			9.7	
Progression Factor		1.63			0.68			2.53			0.21	
Incremental Delay, d2		2.0			4.1			1.8			1.2	
Delay (s)		57.8			29.1			31.1			3.2	
Level of Service		E			C			C			A	
Approach Delay (s)		57.8			29.1			31.1			3.2	
Approach LOS		E			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	26.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		

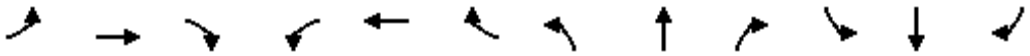
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	19	259	12	498	928	437
v/c Ratio	0.07	0.33	0.04	0.73	0.82	0.98
Control Delay	11.5	12.6	12.8	23.2	37.1	70.8
Queue Delay	0.0	0.0	0.0	0.1	0.4	0.0
Total Delay	11.5	12.6	12.8	23.2	37.5	70.8
Queue Length 50th (ft)	5	73	4	179	232	295
Queue Length 95th (ft)	m13	m107	m12	241	311	#512
Internal Link Dist (ft)		509		495	412	353
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	263	778	318	684	1137	446
Starvation Cap Reductn	0	0	0	4	28	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.33	0.04	0.73	0.84	0.98

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	198	35	11	235	213	34	699	102	42	302	49
Future Volume (vph)	17	198	35	11	235	213	34	699	102	42	302	49
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	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			1.00	
Frpb, ped/bikes	1.00	0.92		1.00	0.85			0.91			0.94	
Flpb, ped/bikes	0.90	1.00		0.65	1.00			0.99			0.99	
Frt	1.00	0.98		1.00	0.93			0.98			0.98	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1537	1605		1123	1420			3002			1605	
Flt Permitted	0.34	1.00		0.56	1.00			0.92			0.67	
Satd. Flow (perm)	546	1605		660	1420			2755			1081	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	19	220	39	12	261	237	38	777	113	47	336	54
RTOR Reduction (vph)	0	6	0	0	1	0	0	10	0	0	5	0
Lane Group Flow (vph)	19	253	0	12	497	0	0	918	0	0	432	0
Confl. Peds. (#/hr)	226		273	273		226	172		593	593		172
Confl. Bikes (#/hr)			16			40			6			15
Heavy Vehicles (%)	6%	6%	6%	5%	5%	5%	7%	7%	7%	8%	8%	8%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	53.0	53.0		53.0	53.0			45.0			45.0	
Effective Green, g (s)	53.0	53.0		53.0	53.0			45.0			45.0	
Actuated g/C Ratio	0.48	0.48		0.48	0.48			0.41			0.41	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	263	773		318	684			1127			442	
v/s Ratio Prot		0.16			c0.35							
v/s Ratio Perm	0.03			0.02				0.33			c0.40	
v/c Ratio	0.07	0.33		0.04	0.73			0.81			0.98	
Uniform Delay, d1	15.3	17.5		15.0	22.7			28.8			32.0	
Progression Factor	0.70	0.67		0.82	0.70			1.11			1.00	
Incremental Delay, d2	0.5	1.0		0.2	6.5			5.1			37.7	
Delay (s)	11.2	12.9		12.5	22.5			37.1			69.7	
Level of Service	B	B		B	C			D			E	
Approach Delay (s)		12.7			22.2			37.1			69.7	
Approach LOS		B			C			D			E	

Intersection Summary			
HCM 2000 Control Delay	37.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	91.2%	ICU Level of Service	F
Analysis Period (min)	15		

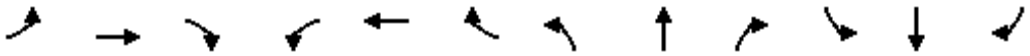
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	154	544	877	172	230	849	257
v/c Ratio	0.82	0.67	0.92	0.66	0.88	0.62	0.49
Control Delay	80.5	33.8	51.3	48.9	90.9	41.6	41.6
Queue Delay	0.0	0.5	0.0	4.1	0.0	3.6	0.0
Total Delay	80.5	34.3	51.3	53.0	90.9	45.2	41.6
Queue Length 50th (ft)	78	192	225	83	173	322	96
Queue Length 95th (ft)	#202	253	#412	m#144	#312	388	141
Internal Link Dist (ft)		265	523			368	449
Turn Bay Length (ft)				150			
Base Capacity (vph)	187	809	953	259	260	1367	523
Starvation Cap Reductn	0	56	0	0	0	414	0
Spillback Cap Reductn	0	0	0	39	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.72	0.92	0.78	0.88	0.89	0.49

Intersection Summary

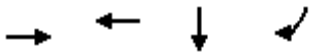
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	384	105	0	789	155	207	748	16	4	211	17
Future Volume (vph)	139	384	105	0	789	155	207	748	16	4	211	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.5			6.5	6.5	7.0	7.0			7.0	
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00	0.95			0.95	
Frpb, ped/bikes	1.00	0.95			1.00	0.61	1.00	0.99			0.98	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00			1.00	
Frt	1.00	0.97			1.00	0.85	1.00	1.00			0.99	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1583	2919			3438	937	1687	3339			3218	
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00			0.84	
Satd. Flow (perm)	1583	2919			3438	937	1687	3339			2715	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	154	427	117	0	877	172	230	831	18	4	234	19
RTOR Reduction (vph)	0	0	0	0	0	0	0	1	0	0	6	0
Lane Group Flow (vph)	154	544	0	0	877	172	230	848	0	0	251	0
Confl. Peds. (#/hr)	309		153	153		309	209		262	262		209
Confl. Bikes (#/hr)			35			127			13			14
Heavy Vehicles (%)	14%	14%	14%	5%	5%	5%	7%	7%	7%	8%	8%	8%
Turn Type	Prot	NA			NA	Perm	Prot	NA		Perm	NA	
Protected Phases	5	2			6		3	8			4	
Permitted Phases						6				4		
Actuated Green, G (s)	13.0	30.5			30.5	30.5	17.0	45.0			21.0	
Effective Green, g (s)	13.0	30.5			30.5	30.5	17.0	45.0			21.0	
Actuated g/C Ratio	0.12	0.28			0.28	0.28	0.15	0.41			0.19	
Clearance Time (s)	5.0	6.5			6.5	6.5	7.0	7.0			7.0	
Lane Grp Cap (vph)	187	809			953	259	260	1365			518	
v/s Ratio Prot	c0.10	0.19			c0.26		c0.14	c0.25				
v/s Ratio Perm						0.18					0.09	
v/c Ratio	0.82	0.67			0.92	0.66	0.88	0.62			0.49	
Uniform Delay, d1	47.4	35.3			38.6	35.2	45.5	25.7			39.7	
Progression Factor	1.02	0.82			0.98	1.06	1.33	1.53			0.99	
Incremental Delay, d2	31.1	4.3			12.8	10.3	30.5	1.9			2.8	
Delay (s)	79.4	33.4			50.7	47.5	91.2	41.2			42.2	
Level of Service	E	C			D	D	F	D			D	
Approach Delay (s)		43.6			50.2			51.9			42.2	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	48.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	27.5
Intersection Capacity Utilization	86.3%	ICU Level of Service	E
Analysis Period (min)	15		

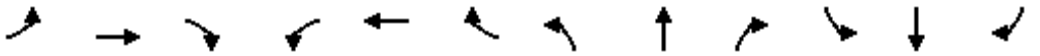
c Critical Lane Group



Lane Group	EBT	WBT	SBT	SBR
Lane Group Flow (vph)	1195	1076	1333	139
v/c Ratio	0.44	0.41	0.87	0.28
Control Delay	21.6	7.7	10.4	0.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	21.6	7.7	10.4	0.4
Queue Length 50th (ft)	163	44	56	0
Queue Length 95th (ft)	194	52	m55	m0
Internal Link Dist (ft)	334	516	582	
Turn Bay Length (ft)				
Base Capacity (vph)	2725	2643	1527	500
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.44	0.41	0.87	0.28

Intersection Summary

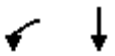
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1089	82	204	824	26	0	0	0	76	1230	136
Future Volume (vph)	0	1089	82	204	824	26	0	0	0	76	1230	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			6.0						6.5	6.5
Lane Util. Factor		0.86			0.86						0.91	1.00
Frpb, ped/bikes		0.99			1.00						1.00	0.88
Flpb, ped/bikes		1.00			1.00						1.00	1.00
Frt		0.99			1.00						1.00	0.85
Flt Protected		1.00			0.99						1.00	1.00
Satd. Flow (prot)		6159			6044						4869	1343
Flt Permitted		1.00			0.72						1.00	1.00
Satd. Flow (perm)		6159			4373						4869	1343
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1111	84	208	841	27	0	0	0	78	1255	139
RTOR Reduction (vph)	0	11	0	0	3	0	0	0	0	0	0	79
Lane Group Flow (vph)	0	1184	0	0	1073	0	0	0	0	0	1333	60
Confl. Peds. (#/hr)	70		64	64		70	89		28	28		89
Confl. Bikes (#/hr)			3			3						
Heavy Vehicles (%)	4%	4%	4%	6%	6%	6%	0%	0%	0%	6%	6%	6%
Turn Type		NA		pm+pt	NA					Perm	NA	Perm
Protected Phases		6		5	2						4	
Permitted Phases				2						4		4
Actuated Green, G (s)		48.5			63.0						34.5	34.5
Effective Green, g (s)		48.5			63.0						34.5	34.5
Actuated g/C Ratio		0.44			0.57						0.31	0.31
Clearance Time (s)		5.5			6.0						6.5	6.5
Lane Grp Cap (vph)		2715			2641						1527	421
v/s Ratio Prot		c0.19			c0.03							
v/s Ratio Perm					0.20						0.27	0.04
v/c Ratio		0.44			0.41						0.87	0.14
Uniform Delay, d1		21.3			13.1						35.7	27.1
Progression Factor		1.00			0.54						0.21	0.00
Incremental Delay, d2		0.5			0.4						2.4	0.2
Delay (s)		21.8			7.6						9.8	0.2
Level of Service		C			A						A	A
Approach Delay (s)		21.8			7.6			0.0			8.9	
Approach LOS		C			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	80.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	WBL	SBT
Lane Group Flow (vph)	105	1477
v/c Ratio	0.15	0.61
Control Delay	23.9	6.2
Queue Delay	0.0	0.5
Total Delay	23.9	6.8
Queue Length 50th (ft)	60	55
Queue Length 95th (ft)	m85	105
Internal Link Dist (ft)	508	411
Turn Bay Length (ft)		
Base Capacity (vph)	697	2413
Starvation Cap Reductn	0	469
Spillback Cap Reductn	0	392
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.15	0.76

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	103	0	0	0	133	1314
Future Volume (vph)	103	0	0	0	133	1314
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5					5.5
Lane Util. Factor	1.00					0.91
Frpb, ped/bikes	1.00					1.00
Flpb, ped/bikes	0.97					0.96
Frt	1.00					1.00
Flt Protected	0.95					1.00
Satd. Flow (prot)	1725					4873
Flt Permitted	0.95					1.00
Satd. Flow (perm)	1725					4873
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	105	0	0	0	136	1341
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	105	0	0	0	0	1477
Confl. Peds. (#/hr)	16	419		125	125	
Turn Type	Perm				Perm	NA
Protected Phases						2
Permitted Phases	4				2	
Actuated Green, G (s)	44.5					54.5
Effective Green, g (s)	44.5					54.5
Actuated g/C Ratio	0.40					0.50
Clearance Time (s)	5.5					5.5
Lane Grp Cap (vph)	697					2414
v/s Ratio Prot						
v/s Ratio Perm	c0.06					0.30
v/c Ratio	0.15					0.61
Uniform Delay, d1	20.8					20.1
Progression Factor	1.12					0.27
Incremental Delay, d2	0.3					0.9
Delay (s)	23.5					6.2
Level of Service	C					A
Approach Delay (s)	23.5		0.0			6.2
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	7.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	57.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	197	85	62	273	1524
v/c Ratio	0.25	0.17	0.16	0.35	0.73
Control Delay	20.6	13.6	18.0	18.6	26.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	20.6	13.6	18.0	18.6	26.9
Queue Length 50th (ft)	86	23	19	90	311
Queue Length 95th (ft)	137	55	m28	m132	369
Internal Link Dist (ft)	409			509	374
Turn Bay Length (ft)		100	100		
Base Capacity (vph)	797	502	387	789	2086
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	6
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.25	0.17	0.16	0.35	0.73

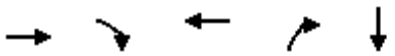
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	193	83	61	268	0	0	0	0	109	1312	73
Future Volume (vph)	0	193	83	61	268	0	0	0	0	109	1312	73
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	
Lane Util. Factor		1.00	1.00	1.00	1.00						0.91	
Frpb, ped/bikes		1.00	0.72	1.00	1.00						0.97	
Flpb, ped/bikes		1.00	1.00	0.80	1.00						0.96	
Frt		1.00	0.85	1.00	1.00						0.99	
Flt Protected		1.00	1.00	0.95	1.00						1.00	
Satd. Flow (prot)		1827	1113	1377	1810						4581	
Flt Permitted		1.00	1.00	0.61	1.00						1.00	
Satd. Flow (perm)		1827	1113	888	1810						4581	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	197	85	62	273	0	0	0	0	111	1339	74
RTOR Reduction (vph)	0	0	17	0	0	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	197	68	62	273	0	0	0	0	0	1519	0
Confl. Peds. (#/hr)	250		181	181		250	263		237	237		263
Confl. Bikes (#/hr)			18			42						7
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	0%	0%	0%	5%	5%	5%
Turn Type		NA	Perm	Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		48.0	48.0	48.0	48.0						50.0	
Effective Green, g (s)		48.0	48.0	48.0	48.0						50.0	
Actuated g/C Ratio		0.44	0.44	0.44	0.44						0.45	
Clearance Time (s)		6.0	6.0	6.0	6.0						6.0	
Lane Grp Cap (vph)		797	485	387	789						2082	
v/s Ratio Prot		0.11			c0.15							
v/s Ratio Perm			0.06	0.07							0.33	
v/c Ratio		0.25	0.14	0.16	0.35						0.73	
Uniform Delay, d1		19.6	18.6	18.8	20.6						24.5	
Progression Factor		1.00	1.00	0.90	0.85						1.00	
Incremental Delay, d2		0.7	0.6	0.5	0.7						2.3	
Delay (s)		20.3	19.2	17.5	18.3						26.8	
Level of Service		C	B	B	B						C	
Approach Delay (s)		20.0			18.1			0.0			26.8	
Approach LOS		B			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	24.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

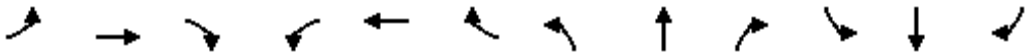


Lane Group	EBT	EBR	WBT	NBR	SBT
Lane Group Flow (vph)	498	213	1072	45	1521
v/c Ratio	0.32	0.47	0.62	0.17	1.05
Control Delay	16.7	21.1	21.2	27.1	54.3
Queue Delay	0.0	0.0	50.2	0.0	6.8
Total Delay	16.7	21.1	71.4	27.1	61.1
Queue Length 50th (ft)	96	84	277	29	~431
Queue Length 95th (ft)	119	120	347	66	#502
Internal Link Dist (ft)	516		206		235
Turn Bay Length (ft)		100			
Base Capacity (vph)	1550	457	1717	268	1452
Starvation Cap Reductn	0	0	788	0	24
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.32	0.47	1.15	0.17	1.07

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	441	220	0	997	0	0	0	42	123	1237	55
Future Volume (vph)	0	441	220	0	997	0	0	0	42	123	1237	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5		6.5				7.0		7.0	
Lane Util. Factor		0.91	0.91		0.95				1.00		0.91	
Frpb, ped/bikes		0.98	0.68		1.00				0.69		0.99	
Flpb, ped/bikes		1.00	1.00		1.00				1.00		0.97	
Frt		0.99	0.85		1.00				0.86		0.99	
Flt Protected		1.00	1.00		1.00				1.00		1.00	
Satd. Flow (prot)		3018	891		3343				870		4699	
Flt Permitted		1.00	1.00		1.00				1.00		1.00	
Satd. Flow (perm)		3018	891		3343				870		4699	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	474	237	0	1072	0	0	0	45	132	1330	59
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	498	213	0	1072	0	0	0	45	0	1521	0
Confl. Peds. (#/hr)	788		223	223		788	264		211	211		264
Confl. Bikes (#/hr)			38			121						7
Heavy Vehicles (%)	12%	12%	12%	8%	8%	8%	31%	31%	31%	5%	5%	5%
Turn Type		NA	Perm		NA				Perm	Perm	NA	
Protected Phases		2			6						8	
Permitted Phases			2						4	8		
Actuated Green, G (s)		56.5	56.5		56.5				34.0		34.0	
Effective Green, g (s)		56.5	56.5		56.5				34.0		34.0	
Actuated g/C Ratio		0.51	0.51		0.51				0.31		0.31	
Clearance Time (s)		6.5	6.5		6.5				7.0		7.0	
Lane Grp Cap (vph)		1550	457		1717				268		1452	
v/s Ratio Prot		0.17			c0.32							
v/s Ratio Perm			0.24						0.05		0.32	
v/c Ratio		0.32	0.47		0.62				0.17		1.05	
Uniform Delay, d1		15.6	17.1		19.2				27.7		38.0	
Progression Factor		1.03	0.99		1.00				0.91		0.44	
Incremental Delay, d2		0.5	3.3		1.7				1.3		35.3	
Delay (s)		16.5	20.3		20.9				26.4		51.9	
Level of Service		B	C		C				C		D	
Approach Delay (s)		17.7			20.9			26.4			51.9	
Approach LOS		B			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	34.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
Analysis Period (min)	15		

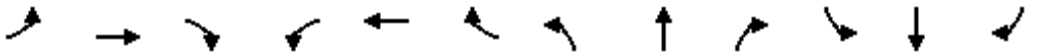
c Critical Lane Group



Lane Group	EBT	WBT	NBL	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	605	1070	176	40	72	34	15
v/c Ratio	0.29	0.68	0.50	0.09	0.16	0.05	0.04
Control Delay	2.6	11.1	32.5	4.2	24.4	22.6	0.1
Queue Delay	0.0	0.4	4.0	0.0	0.0	0.0	0.1
Total Delay	2.6	11.4	36.5	4.2	24.4	22.6	0.2
Queue Length 50th (ft)	5	334	95	0	34	15	0
Queue Length 95th (ft)	5	m409	166	16	68	37	0
Internal Link Dist (ft)	246	516				417	
Turn Bay Length (ft)							
Base Capacity (vph)	2100	1580	354	459	439	621	404
Starvation Cap Reductn	0	141	0	0	0	0	0
Spillback Cap Reductn	0	109	110	0	0	0	118
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.74	0.72	0.09	0.16	0.05	0.05

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	526	42	0	1006	0	165	0	38	68	32	14
Future Volume (vph)	0	526	42	0	1006	0	165	0	38	68	32	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5		7.0		7.0	7.0	7.0	7.0
Lane Util. Factor		0.91			0.95		1.00		1.00	1.00	1.00	1.00
Frpb, ped/bikes		0.99			1.00		1.00		0.75	1.00	1.00	0.70
Flpb, ped/bikes		1.00			1.00		0.72		1.00	0.74	1.00	1.00
Frt		0.99			1.00		1.00		0.85	1.00	1.00	0.85
Flt Protected		1.00			1.00		0.95		1.00	0.95	1.00	1.00
Satd. Flow (prot)		4401			3312		1228		1140	1178	1667	992
Flt Permitted		1.00			1.00		0.73		1.00	0.95	1.00	1.00
Satd. Flow (perm)		4401			3312		950		1140	1178	1667	992
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	560	45	0	1070	0	176	0	40	72	34	15
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	25	0	0	9
Lane Group Flow (vph)	0	605	0	0	1070	0	176	0	15	72	34	6
Confl. Peds. (#/hr)	655		85	85		655	177		155	155		177
Confl. Bikes (#/hr)			28			102			3			4
Heavy Vehicles (%)	15%	15%	15%	9%	9%	9%	6%	6%	6%	14%	14%	14%
Turn Type		NA			NA		Perm		Perm	Perm	NA	Perm
Protected Phases		2			6						8	
Permitted Phases							4		4	8		8
Actuated Green, G (s)		52.5			52.5		41.0		41.0	41.0	41.0	41.0
Effective Green, g (s)		52.5			52.5		41.0		41.0	41.0	41.0	41.0
Actuated g/C Ratio		0.48			0.48		0.37		0.37	0.37	0.37	0.37
Clearance Time (s)		6.5			6.5		7.0		7.0	7.0	7.0	7.0
Lane Grp Cap (vph)		2100			1580		354		424	439	621	369
v/s Ratio Prot		0.14			c0.32						0.02	
v/s Ratio Perm							c0.19		0.01	0.06		0.01
v/c Ratio		0.29			0.68		0.50		0.04	0.16	0.05	0.02
Uniform Delay, d1		17.4			22.2		26.6		21.9	23.0	22.1	21.8
Progression Factor		0.13			0.41		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		0.3			1.8		4.9		0.2	0.8	0.2	0.1
Delay (s)		2.6			10.9		31.5		22.1	23.9	22.3	21.8
Level of Service		A			B		C		C	C	C	C
Approach Delay (s)		2.6			10.9			29.7			23.2	
Approach LOS		A			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	11.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		

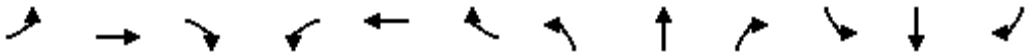
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	236	462	921	381	6	90	149
v/c Ratio	0.70	0.44	0.85	0.94	0.05	0.42	0.34
Control Delay	62.3	26.7	39.9	42.7	41.2	49.0	27.8
Queue Delay	7.6	0.5	5.1	0.0	0.0	0.0	0.0
Total Delay	69.9	27.2	45.0	42.7	41.2	49.0	27.8
Queue Length 50th (ft)	172	92	271	144	3	63	31
Queue Length 95th (ft)	m246	m120	331	#299	16	120	64
Internal Link Dist (ft)		209	246		170		344
Turn Bay Length (ft)							
Base Capacity (vph)	337	1047	1088	407	120	213	437
Starvation Cap Reductn	66	243	51	0	0	0	0
Spillback Cap Reductn	0	0	117	0	0	0	5
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.57	0.95	0.94	0.05	0.42	0.34

Intersection Summary

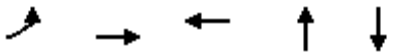
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	212	410	5	12	817	343	1	3	2	162	2	51
Future Volume (vph)	212	410	5	12	817	343	1	3	2	162	2	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0			6.0	7.0		7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00		0.91	0.91	
Frpb, ped/bikes	1.00	0.99			1.00	0.58		0.88		1.00	0.95	
Flpb, ped/bikes	1.00	1.00			1.00	1.00		0.99		1.00	0.93	
Frt	1.00	1.00			1.00	0.85		0.95		1.00	0.94	
Flt Protected	0.95	1.00			1.00	1.00		0.99		0.95	0.97	
Satd. Flow (prot)	1612	3201			3273	858		1566		1380	2339	
Flt Permitted	0.95	1.00			0.95	1.00		0.92		0.95	0.69	
Satd. Flow (perm)	1612	3201			3121	858		1448		1380	1666	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	236	456	6	13	908	381	1	3	2	180	2	57
RTOR Reduction (vph)	0	0	0	0	0	0	0	2	0	0	40	0
Lane Group Flow (vph)	236	462	0	0	921	381	0	4	0	90	109	0
Confl. Peds. (#/hr)	345		257	257		345	74		144	144		74
Confl. Bikes (#/hr)			25			95						38
Heavy Vehicles (%)	12%	12%	12%	10%	10%	10%	0%	0%	0%	19%	19%	19%
Turn Type	Prot	NA		Prot	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases	1	6		5	2	3		4		3	8	
Permitted Phases		6			2	2	4					
Actuated Green, G (s)	23.0	36.0			59.0	53.0		9.0		17.0	33.0	
Effective Green, g (s)	23.0	36.0			59.0	53.0		9.0		17.0	33.0	
Actuated g/C Ratio	0.21	0.33			0.54	0.48		0.08		0.15	0.30	
Clearance Time (s)	5.0	6.0			6.0	7.0		7.0		7.0	7.0	
Lane Grp Cap (vph)	337	1047			1705	413		118		213	603	
v/s Ratio Prot	c0.15	0.14			0.11	c0.14				0.07	0.03	
v/s Ratio Perm					0.18	0.30		0.00			c0.03	
v/c Ratio	0.70	0.44			0.54	0.92		0.04		0.42	0.18	
Uniform Delay, d1	40.3	29.1			16.6	26.6		46.5		42.1	28.5	
Progression Factor	1.26	0.87			2.33	0.43		1.00		1.00	1.00	
Incremental Delay, d2	10.5	1.2			1.0	24.0		0.6		6.0	0.7	
Delay (s)	61.3	26.4			39.7	35.5		47.1		48.1	29.2	
Level of Service	E	C			D	D		D		D	C	
Approach Delay (s)		38.2			38.5			47.1			36.3	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	38.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

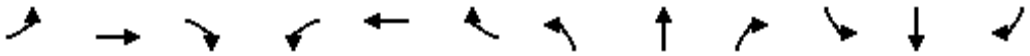
c Critical Lane Group



Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	194	1200	939	1919	72
v/c Ratio	0.76	0.55	0.71	0.98	0.08
Control Delay	72.8	7.1	41.2	45.1	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	72.8	7.1	41.2	45.1	5.0
Queue Length 50th (ft)	115	59	175	471	0
Queue Length 95th (ft)	m157	68	214	#599	7
Internal Link Dist (ft)		1027	345	451	993
Turn Bay Length (ft)					
Base Capacity (vph)	254	2166	1327	1968	920
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.76	0.55	0.71	0.98	0.08

Intersection Summary

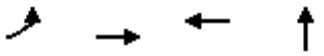
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	186	1136	16	10	843	49	162	1370	310	14	11	44
Future Volume (vph)	186	1136	16	10	843	49	162	1370	310	14	11	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.5			6.5			6.5			6.5	
Lane Util. Factor	1.00	0.91			0.86			0.91			0.95	
Frpb, ped/bikes	1.00	1.00			1.00			0.99			0.96	
Flpb, ped/bikes	1.00	1.00			1.00			0.99			1.00	
Frt	1.00	1.00			0.99			0.97			0.90	
Flt Protected	0.95	1.00			1.00			1.00			0.99	
Satd. Flow (prot)	1752	5013			6036			4843			2744	
Flt Permitted	0.95	1.00			0.91			0.89			0.72	
Satd. Flow (perm)	1752	5013			5476			4352			1992	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	194	1183	17	10	878	51	169	1427	323	15	11	46
RTOR Reduction (vph)	0	1	0	0	8	0	0	9	0	0	25	0
Lane Group Flow (vph)	194	1199	0	0	931	0	0	1910	0	0	47	0
Confl. Peds. (#/hr)	31		78	78		31	78		47	47		78
Confl. Bikes (#/hr)			1						3			
Heavy Vehicles (%)	3%	3%	3%	7%	7%	7%	2%	2%	2%	13%	13%	13%
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	6			2			8			4	
Permitted Phases				2			8			4		
Actuated Green, G (s)	16.0	47.5			26.5			49.5			49.5	
Effective Green, g (s)	16.0	47.5			26.5			49.5			49.5	
Actuated g/C Ratio	0.15	0.43			0.24			0.45			0.45	
Clearance Time (s)	5.0	6.5			6.5			6.5			6.5	
Lane Grp Cap (vph)	254	2164			1319			1958			896	
v/s Ratio Prot	c0.11	0.24										
v/s Ratio Perm					c0.17			c0.44			0.02	
v/c Ratio	0.76	0.55			0.71			0.98			0.05	
Uniform Delay, d1	45.2	23.3			38.2			29.7			17.0	
Progression Factor	1.31	0.27			1.00			1.00			0.61	
Incremental Delay, d2	13.1	0.7			3.2			15.3			0.1	
Delay (s)	72.3	7.1			41.4			45.0			10.6	
Level of Service	E	A			D			D			B	
Approach Delay (s)		16.2			41.4			45.0			10.6	
Approach LOS		B			D			D			B	

Intersection Summary			
HCM 2000 Control Delay	34.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	98.2%	ICU Level of Service	F
Analysis Period (min)	15		

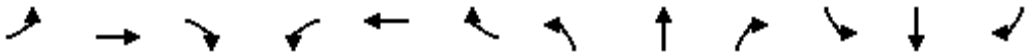
c Critical Lane Group



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	96	116	268	1627
v/c Ratio	0.30	0.16	0.45	0.72
Control Delay	41.1	37.2	27.2	18.0
Queue Delay	0.0	0.0	0.0	15.6
Total Delay	41.1	37.2	27.2	33.6
Queue Length 50th (ft)	59	70	134	405
Queue Length 95th (ft)	m86	m99	210	m460
Internal Link Dist (ft)		379	152	314
Turn Bay Length (ft)	100			
Base Capacity (vph)	319	705	594	2267
Starvation Cap Reductn	0	0	0	664
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.30	0.16	0.45	1.01

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	113	0	0	156	104	54	1288	236	0	0	0
Future Volume (vph)	93	113	0	0	156	104	54	1288	236	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5			6.0				
Lane Util. Factor	1.00	1.00			1.00			0.91				
Frpb, ped/bikes	1.00	1.00			0.92			0.92				
Flpb, ped/bikes	0.90	1.00			1.00			0.99				
Frt	1.00	1.00			0.95			0.98				
Flt Protected	0.95	1.00			1.00			1.00				
Satd. Flow (prot)	1555	1827			1524			4408				
Flt Permitted	0.51	1.00			1.00			1.00				
Satd. Flow (perm)	828	1827			1524			4408				
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	96	116	0	0	161	107	56	1328	243	0	0	0
RTOR Reduction (vph)	0	0	0	0	6	0	0	23	0	0	0	0
Lane Group Flow (vph)	96	116	0	0	262	0	0	1604	0	0	0	0
Confl. Peds. (#/hr)	113		183	183		113	120		224	224		120
Confl. Bikes (#/hr)			5			11			5			
Heavy Vehicles (%)	4%	4%	4%	9%	9%	9%	5%	5%	5%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			4			2				
Permitted Phases	4						2					
Actuated Green, G (s)	42.5	42.5			42.5			56.0				
Effective Green, g (s)	42.5	42.5			42.5			56.0				
Actuated g/C Ratio	0.39	0.39			0.39			0.51				
Clearance Time (s)	5.5	5.5			5.5			6.0				
Lane Grp Cap (vph)	319	705			588			2244				
v/s Ratio Prot		0.06			c0.17							
v/s Ratio Perm	0.12							0.36				
v/c Ratio	0.30	0.16			0.45			0.71				
Uniform Delay, d1	23.4	22.1			25.0			20.8				
Progression Factor	1.62	1.64			1.00			0.82				
Incremental Delay, d2	1.8	0.4			2.4			1.1				
Delay (s)	39.6	36.6			27.5			18.3				
Level of Service	D	D			C			B				
Approach Delay (s)		38.0			27.5			18.3			0.0	
Approach LOS		D			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	21.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		

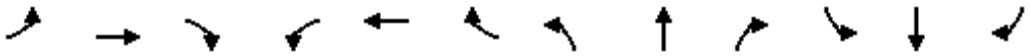
c Critical Lane Group



Lane Group	EBT	EBR	WBT	WBR	NBT
Lane Group Flow (vph)	501	68	573	379	1776
v/c Ratio	0.39	0.18	0.43	0.93	0.78
Control Delay	9.2	8.2	16.8	45.2	15.3
Queue Delay	0.0	0.0	3.4	47.0	20.4
Total Delay	9.2	8.2	20.2	92.2	35.7
Queue Length 50th (ft)	94	20	176	251	431
Queue Length 95th (ft)	122	38	m185	m#376	m453
Internal Link Dist (ft)	419		209		993
Turn Bay Length (ft)		100			
Base Capacity (vph)	1274	378	1334	409	2268
Starvation Cap Reductn	0	0	646	90	0
Spillback Cap Reductn	9	0	0	0	547
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.40	0.18	0.83	1.19	1.03

Intersection Summary

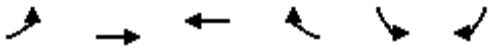
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	476	65	0	544	360	102	1434	152	0	0	0
Future Volume (vph)	0	476	65	0	544	360	102	1434	152	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5		6.5	6.5		7.0				
Lane Util. Factor		0.95	1.00		0.95	1.00		0.91				
Frpb, ped/bikes		1.00	0.66		1.00	0.69		0.97				
Flpb, ped/bikes		1.00	1.00		1.00	1.00		0.98				
Frt		1.00	0.85		1.00	0.85		0.99				
Flt Protected		1.00	1.00		1.00	1.00		1.00				
Satd. Flow (prot)		3223	957		3374	1036		4691				
Flt Permitted		1.00	1.00		1.00	1.00		1.00				
Satd. Flow (perm)		3223	957		3374	1036		4691				
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	501	68	0	573	379	107	1509	160	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	9	0	0	0	0
Lane Group Flow (vph)	0	501	68	0	573	379	0	1767	0	0	0	0
Confl. Peds. (#/hr)	261		351	351		261	228		163	163		228
Confl. Bikes (#/hr)			50			68			14			
Heavy Vehicles (%)	12%	12%	12%	7%	7%	7%	4%	4%	4%	0%	0%	0%
Turn Type		NA	Perm		NA	Perm	Perm	NA				
Protected Phases		2			2			4				
Permitted Phases			2			2	4					
Actuated Green, G (s)		43.5	43.5		43.5	43.5		53.0				
Effective Green, g (s)		43.5	43.5		43.5	43.5		53.0				
Actuated g/C Ratio		0.40	0.40		0.40	0.40		0.48				
Clearance Time (s)		6.5	6.5		6.5	6.5		7.0				
Lane Grp Cap (vph)		1274	378		1334	409		2260				
v/s Ratio Prot		0.16			0.17							
v/s Ratio Perm			0.07			c0.37		0.38				
v/c Ratio		0.39	0.18		0.43	0.93		0.78				
Uniform Delay, d1		23.8	21.6		24.2	31.7		23.7				
Progression Factor		0.35	0.32		0.66	0.74		0.59				
Incremental Delay, d2		0.9	1.0		0.6	19.3		1.2				
Delay (s)		9.2	8.0		16.6	42.9		15.3				
Level of Service		A	A		B	D		B				
Approach Delay (s)		9.0			27.1			15.3			0.0	
Approach LOS		A			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		

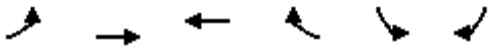
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	246	366	400	404	272	116
v/c Ratio	0.69	0.26	0.28	0.51	0.39	0.32
Control Delay	50.5	12.6	8.4	7.8	14.7	9.6
Queue Delay	2.2	0.0	0.0	1.7	6.0	2.7
Total Delay	52.7	12.6	8.4	9.4	20.7	12.3
Queue Length 50th (ft)	171	44	35	65	94	56
Queue Length 95th (ft)	243	54	44	85	m104	m59
Internal Link Dist (ft)		238	419		144	
Turn Bay Length (ft)				200		
Base Capacity (vph)	356	1382	1435	789	690	359
Starvation Cap Reductn	38	0	0	0	355	155
Spillback Cap Reductn	0	0	0	225	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.26	0.28	0.72	0.81	0.57

Intersection Summary

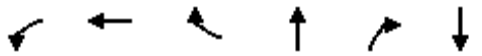
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	209	311	340	343	231	99
Future Volume (vph)	209	311	340	343	231	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	6.5	6.5	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.81	1.00	0.84
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1671	3343	3471	1259	3303	1281
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1671	3343	3471	1259	3303	1281
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	246	366	400	404	272	116
RTOR Reduction (vph)	0	0	0	0	0	92
Lane Group Flow (vph)	246	366	400	404	272	24
Confl. Peds. (#/hr)	161			161	611	87
Confl. Bikes (#/hr)				63		8
Heavy Vehicles (%)	8%	8%	4%	4%	6%	6%
Turn Type	Prot	NA	NA	pm+ov	Prot	Perm
Protected Phases	1	2	2	4	4	
Permitted Phases				2		4
Actuated Green, G (s)	23.5	45.5	45.5	68.5	23.0	23.0
Effective Green, g (s)	23.5	45.5	45.5	68.5	23.0	23.0
Actuated g/C Ratio	0.21	0.41	0.41	0.62	0.21	0.21
Clearance Time (s)	5.5	6.5	6.5	6.0	6.0	6.0
Lane Grp Cap (vph)	356	1382	1435	852	690	267
v/s Ratio Prot	c0.15	0.11	0.12	c0.10	0.08	
v/s Ratio Perm				0.22		0.02
v/c Ratio	0.69	0.26	0.28	0.47	0.39	0.09
Uniform Delay, d1	39.9	21.2	21.4	11.1	37.5	35.1
Progression Factor	0.98	0.57	0.37	0.70	0.36	1.14
Incremental Delay, d2	10.5	0.5	0.4	1.8	1.2	0.5
Delay (s)	49.7	12.5	8.3	9.5	14.6	40.3
Level of Service	D	B	A	A	B	D
Approach Delay (s)		27.4	8.9		22.3	
Approach LOS		C	A		C	

Intersection Summary			
HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		

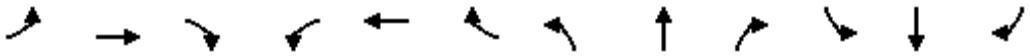
c Critical Lane Group



Lane Group	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	26	75	49	544	111	624
v/c Ratio	0.07	0.15	0.09	0.72	0.53	0.78
Control Delay	42.6	43.7	5.4	46.2	13.7	45.3
Queue Delay	0.0	0.0	0.0	54.1	0.8	0.3
Total Delay	42.6	43.7	5.4	100.3	14.5	45.7
Queue Length 50th (ft)	17	49	3	200	13	208
Queue Length 95th (ft)	m33	m85	m16	242	m26	276
Internal Link Dist (ft)		379		144		307
Turn Bay Length (ft)	200		65			
Base Capacity (vph)	352	514	522	759	210	801
Starvation Cap Reductn	0	0	0	319	16	0
Spillback Cap Reductn	0	0	0	0	0	19
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.15	0.09	1.24	0.57	0.80

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	24	69	45	73	428	102	136	322	116
Future Volume (vph)	0	0	0	24	69	45	73	428	102	136	322	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5	6.5		6.0	6.0		6.0	
Lane Util. Factor				1.00	1.00	1.00		0.95	1.00		0.95	
Frpb, ped/bikes				1.00	1.00	0.95		1.00	0.26		0.99	
Flpb, ped/bikes				0.72	1.00	1.00		1.00	1.00		1.00	
Frt				1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected				0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)				1193	1743	1414		3480	413		3304	
Flt Permitted				0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (perm)				1193	1743	1414		3480	413		3304	
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	26	75	49	79	465	111	148	350	126
RTOR Reduction (vph)	0	0	0	0	0	35	0	0	87	0	21	0
Lane Group Flow (vph)	0	0	0	26	75	14	0	544	24	0	603	0
Confl. Peds. (#/hr)	19		195	195		19	9		599	599		9
Confl. Bikes (#/hr)						10			4			5
Heavy Vehicles (%)	0%	0%	0%	9%	9%	9%	3%	3%	3%	4%	4%	4%
Turn Type				Perm	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases					4		2	2		1	1	
Permitted Phases				4		4			2			
Actuated Green, G (s)				32.5	32.5	32.5		24.0	24.0		26.0	
Effective Green, g (s)				32.5	32.5	32.5		24.0	24.0		26.0	
Actuated g/C Ratio				0.30	0.30	0.30		0.22	0.22		0.24	
Clearance Time (s)				6.5	6.5	6.5		6.0	6.0		6.0	
Lane Grp Cap (vph)				352	514	417		759	90		780	
v/s Ratio Prot					c0.04			c0.16			c0.18	
v/s Ratio Perm				0.02		0.01			0.06			
v/c Ratio				0.07	0.15	0.03		0.72	0.27		0.77	
Uniform Delay, d1				27.9	28.5	27.6		39.8	35.7		39.2	
Progression Factor				1.49	1.49	1.00		1.03	2.55		1.00	
Incremental Delay, d2				0.4	0.5	0.1		4.8	6.0		7.4	
Delay (s)				41.9	43.0	27.7		45.8	97.2		46.6	
Level of Service				D	D	C		D	F		D	
Approach Delay (s)		0.0			37.8			54.5			46.6	
Approach LOS		A			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	49.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

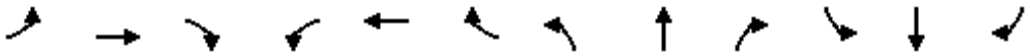
c Critical Lane Group



Lane Group	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	1181	934	157	2456	897
v/c Ratio	0.77	0.66	0.40	0.76	0.36
Control Delay	37.0	42.1	33.5	22.0	34.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	37.0	42.1	33.5	22.0	34.8
Queue Length 50th (ft)	272	255	101	375	210
Queue Length 95th (ft)	328	m298	m150	422	250
Internal Link Dist (ft)	320	1027		460	1159
Turn Bay Length (ft)					
Base Capacity (vph)	1528	1405	394	3220	2481
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.77	0.66	0.40	0.76	0.36

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	1116	41	10	898	172	0	2206	226	0	766	122
Future Volume (vph)	13	1116	41	10	898	172	0	2206	226	0	766	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5	4.5		4.5			4.5	
Lane Util. Factor		0.91			0.86	0.86		0.86			0.91	
Frpb, ped/bikes		1.00			1.00	0.82		0.98			0.98	
Flpb, ped/bikes		1.00			1.00	1.00		1.00			1.00	
Frt		0.99			1.00	0.85		0.99			0.98	
Flt Protected		1.00			1.00	1.00		1.00			1.00	
Satd. Flow (prot)		4982			4594	1077		6027			4632	
Flt Permitted		0.92			0.92	1.00		1.00			1.00	
Satd. Flow (perm)		4596			4232	1077		6027			4632	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	13	1127	41	10	907	174	0	2228	228	0	774	123
RTOR Reduction (vph)	0	3	0	0	1	37	0	15	0	0	20	0
Lane Group Flow (vph)	0	1178	0	0	933	120	0	2441	0	0	877	0
Confl. Peds. (#/hr)	133		97	97		133	87		163	163		87
Confl. Bikes (#/hr)			4			2			5			6
Heavy Vehicles (%)	3%	3%	3%	6%	6%	6%	5%	5%	5%	8%	8%	8%
Turn Type	Perm	NA		Perm	NA	Perm		NA			NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2						
Actuated Green, G (s)		36.5			36.5	36.5		58.5			58.5	
Effective Green, g (s)		36.5			36.5	36.5		58.5			58.5	
Actuated g/C Ratio		0.33			0.33	0.33		0.53			0.53	
Clearance Time (s)		4.5			4.5	4.5		4.5			4.5	
Lane Grp Cap (vph)		1525			1404	357		3205			2463	
v/s Ratio Prot								c0.40			0.19	
v/s Ratio Perm		c0.26			0.22	0.11						
v/c Ratio		0.77			0.66	0.34		0.76			0.36	
Uniform Delay, d1		33.0			31.5	27.6		20.3			14.9	
Progression Factor		1.00			1.27	1.70		1.00			2.41	
Incremental Delay, d2		3.9			1.7	1.7		1.8			0.4	
Delay (s)		36.9			41.8	48.6		22.0			36.3	
Level of Service		D			D	D		C			D	
Approach Delay (s)		36.9			42.8			22.0			36.3	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	31.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



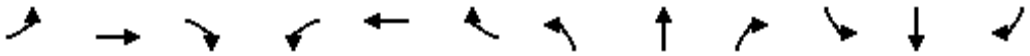
Lane Group	EBT	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	404	236	65	68	2058	871
v/c Ratio	0.49	0.27	0.20	0.21	1.02	0.29
Control Delay	16.2	47.4	47.8	2.8	32.3	1.7
Queue Delay	0.0	0.0	0.0	0.0	4.5	0.2
Total Delay	16.2	47.4	47.8	2.8	36.8	2.0
Queue Length 50th (ft)	94	93	49	4	~747	25
Queue Length 95th (ft)	m99	136	96	m5	#975	28
Internal Link Dist (ft)	394	249			1159	146
Turn Bay Length (ft)						
Base Capacity (vph)	828	874	332	327	2025	3005
Starvation Cap Reductn	0	0	0	0	0	1201
Spillback Cap Reductn	0	0	0	0	27	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.27	0.20	0.21	1.03	0.48

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	364	36	0	234	64	67	1819	219	0	848	14
Future Volume (vph)	0	364	36	0	234	64	67	1819	219	0	848	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5	6.5	6.5	6.5			6.5	
Lane Util. Factor		0.95			0.95	1.00	1.00	0.95			0.91	
Frpb, ped/bikes		0.97			1.00	0.85	1.00	0.96			1.00	
Flpb, ped/bikes		1.00			1.00	1.00	0.96	1.00			1.00	
Frt		0.99			1.00	0.85	1.00	0.98			1.00	
Flt Protected		1.00			1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)		3195			3374	1283	1654	3253			4825	
Flt Permitted		1.00			1.00	1.00	0.30	1.00			1.00	
Satd. Flow (perm)		3195			3374	1283	527	3253			4825	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	0	368	36	0	236	65	68	1837	221	0	857	14
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	404	0	0	236	65	68	2058	0	0	871	0
Confl. Peds. (#/hr)	75		346	346		75	112		287	287		112
Confl. Bikes (#/hr)			58			70			3			21
Heavy Vehicles (%)	8%	8%	8%	7%	7%	7%	5%	5%	5%	7%	7%	7%
Turn Type		NA			NA	Perm	Perm	NA			NA	
Protected Phases		8			4			6			2	
Permitted Phases						4	6					
Actuated Green, G (s)		28.5			28.5	28.5	68.5	68.5			68.5	
Effective Green, g (s)		28.5			28.5	28.5	68.5	68.5			68.5	
Actuated g/C Ratio		0.26			0.26	0.26	0.62	0.62			0.62	
Clearance Time (s)		6.5			6.5	6.5	6.5	6.5			6.5	
Lane Grp Cap (vph)		827			874	332	328	2025			3004	
v/s Ratio Prot		c0.13			0.07			c0.63			0.18	
v/s Ratio Perm						0.05	0.13					
v/c Ratio		0.49			0.27	0.20	0.21	1.02			0.29	
Uniform Delay, d1		34.6			32.5	31.8	9.0	20.8			9.6	
Progression Factor		0.44			1.42	1.43	0.19	0.47			0.16	
Incremental Delay, d2		0.9			0.8	1.3	1.0	20.5			0.2	
Delay (s)		16.0			47.0	46.8	2.7	30.2			1.7	
Level of Service		B			D	D	A	C			A	
Approach Delay (s)		16.0			47.0			29.3			1.7	
Approach LOS		B			D			C			A	

Intersection Summary			
HCM 2000 Control Delay	22.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		

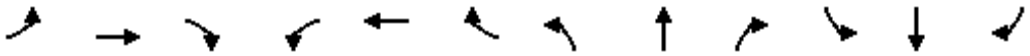
c Critical Lane Group



Lane Group	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	94	160	304	1617	925
v/c Ratio	0.24	0.44	0.54	0.52	0.59
Control Delay	31.7	34.5	11.6	2.1	32.4
Queue Delay	0.0	0.0	29.8	9.6	0.0
Total Delay	31.7	34.5	41.4	11.7	32.4
Queue Length 50th (ft)	50	93	56	41	196
Queue Length 95th (ft)	m73	m137	m58	m42	242
Internal Link Dist (ft)		580		146	270
Turn Bay Length (ft)					
Base Capacity (vph)	386	367	568	3128	1563
Starvation Cap Reductn	0	0	267	1492	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.24	0.44	1.01	0.99	0.59

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	103	71	75	298	1585	0	0	853	54
Future Volume (vph)	0	0	0	103	71	75	298	1585	0	0	853	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5		6.0	6.0			6.0	
Lane Util. Factor				0.95	0.95		1.00	0.91			0.91	
Frpb, ped/bikes				1.00	0.89		1.00	1.00			0.98	
Flpb, ped/bikes				0.92	0.99		0.99	1.00			1.00	
Frt				1.00	0.93		1.00	1.00			0.99	
Flt Protected				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)				1492	1397		1717	4988			4760	
Flt Permitted				0.95	1.00		0.22	1.00			1.00	
Satd. Flow (perm)				1492	1397		394	4988			4760	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	0	0	105	72	77	304	1617	0	0	870	55
RTOR Reduction (vph)	0	0	0	0	5	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	0	0	94	155	0	304	1617	0	0	919	0
Confl. Peds. (#/hr)	167		61	61		167	123		348	348		123
Confl. Bikes (#/hr)						8			3			17
Heavy Vehicles (%)	0%	0%	0%	6%	6%	6%	4%	4%	4%	6%	6%	6%
Turn Type				Perm	NA		pm+pt	NA			NA	
Protected Phases					4		5	2			6	
Permitted Phases				4			2					
Actuated Green, G (s)				28.5	28.5		69.0	69.0			36.0	
Effective Green, g (s)				28.5	28.5		69.0	69.0			36.0	
Actuated g/C Ratio				0.26	0.26		0.63	0.63			0.33	
Clearance Time (s)				6.5	6.5		6.0	6.0			6.0	
Lane Grp Cap (vph)				386	361		571	3128			1557	
v/s Ratio Prot							0.13	c0.32			c0.19	
v/s Ratio Perm				0.06	0.11		0.20					
v/c Ratio				0.24	0.43		0.53	0.52			0.59	
Uniform Delay, d1				32.2	34.0		20.6	11.3			30.8	
Progression Factor				0.93	0.95		0.46	0.17			1.00	
Incremental Delay, d2				1.2	3.0		1.0	0.2			1.7	
Delay (s)				31.1	35.1		10.5	2.1			32.5	
Level of Service				C	D		B	A			C	
Approach Delay (s)		0.0			33.7			3.4			32.5	
Approach LOS		A			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

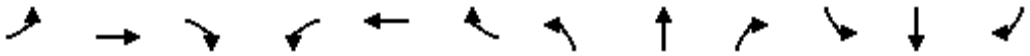


Lane Group	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	10	14	131	145	1337	85	386
v/c Ratio	0.13	0.07	0.63	0.29	1.06	0.63	0.22
Control Delay	54.1	36.7	62.3	30.0	73.6	70.1	13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.1	36.7	62.3	30.0	73.6	70.1	13.1
Queue Length 50th (ft)	7	8	49	94	~545	59	70
Queue Length 95th (ft)	25	26	79	152	#642	#121	93
Internal Link Dist (ft)	133				1023		200
Turn Bay Length (ft)				100			
Base Capacity (vph)	75	192	209	495	1265	135	1755
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.07	0.63	0.29	1.06	0.63	0.22

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

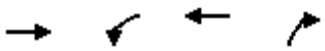
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	8	12	114	0	126	32	876	255	74	320	16
Future Volume (vph)	1	8	12	114	0	126	32	876	255	74	320	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5	6.5		6.5		6.5		5.0	6.5	
Lane Util. Factor		1.00	1.00	0.97		1.00		0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.73	1.00		1.00		0.96		1.00	0.97	
Flpb, ped/bikes		1.00	1.00	1.00		1.00		0.99		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		0.97		1.00	0.99	
Flt Protected		1.00	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1499	942	3072		1417		3219		1656	3192	
Flt Permitted		1.00	1.00	0.95		1.00		0.93		0.95	1.00	
Satd. Flow (perm)		1499	942	3072		1417		2994		1656	3192	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	1	9	14	131	0	145	37	1007	293	85	368	18
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	10	14	131	0	145	0	1337	0	85	386	0
Confl. Peds. (#/hr)	4		150	150		4	390		114	114		390
Confl. Bikes (#/hr)			17			113			39			31
Heavy Vehicles (%)	26%	26%	26%	14%	14%	14%	3%	3%	3%	9%	9%	9%
Turn Type	Prot	NA	Perm	Prot		custom	Perm	NA		Prot	NA	
Protected Phases	3	8		7		7 4 1		2		1	6	
Permitted Phases			8				2					
Actuated Green, G (s)		22.5	22.5	7.5		40.0		46.5		9.0	60.5	
Effective Green, g (s)		22.5	22.5	7.5		40.0		46.5		9.0	60.5	
Actuated g/C Ratio		0.20	0.20	0.07		0.36		0.42		0.08	0.55	
Clearance Time (s)		6.5	6.5	6.5				6.5		5.0	6.5	
Lane Grp Cap (vph)		306	192	209		515		1265		135	1755	
v/s Ratio Prot		0.00		c0.04		c0.10				c0.05	0.12	
v/s Ratio Perm		0.00	c0.01					c0.45				
v/c Ratio		0.03	0.07	0.63		0.28		1.06		0.63	0.22	
Uniform Delay, d1		35.0	35.3	49.9		24.8		31.8		48.9	12.7	
Progression Factor		1.00	1.00	0.98		1.08		1.00		1.00	1.00	
Incremental Delay, d2		0.2	0.7	13.1		1.3		41.8		20.2	0.3	
Delay (s)		35.2	36.1	61.9		28.1		73.6		69.1	13.0	
Level of Service		D	D	E		C		E		E	B	
Approach Delay (s)		35.7			44.1			73.6			23.1	
Approach LOS		D			D			E			C	

Intersection Summary			
HCM 2000 Control Delay	58.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBL	WBT	NBR
Lane Group Flow (vph)	378	686	1159	629
v/c Ratio	0.17	0.94	0.73	0.42
Control Delay	8.1	47.0	28.9	20.8
Queue Delay	0.0	8.7	49.3	0.0
Total Delay	8.1	55.7	78.2	20.8
Queue Length 50th (ft)	35	486	299	187
Queue Length 95th (ft)	m46	#715	367	242
Internal Link Dist (ft)	354		202	
Turn Bay Length (ft)				
Base Capacity (vph)	2197	732	1593	1480
Starvation Cap Reductn	0	41	571	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.17	0.99	1.13	0.42

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	346	2	631	1066	0	579
Future Volume (vph)	346	2	631	1066	0	579
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0		7.0	7.0		7.0
Lane Util. Factor	0.91		1.00	0.95		0.76
Frpb, ped/bikes	1.00		1.00	1.00		1.00
Flpb, ped/bikes	1.00		1.00	1.00		1.00
Frt	1.00		1.00	1.00		0.85
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	4835		1752	3505		3541
Flt Permitted	1.00		0.95	1.00		1.00
Satd. Flow (perm)	4835		1752	3505		3541
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	376	2	686	1159	0	629
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	378	0	686	1159	0	629
Confl. Peds. (#/hr)		146	146		17	
Confl. Bikes (#/hr)		46				4
Heavy Vehicles (%)	7%	7%	3%	3%	4%	4%
Turn Type	NA		Prot	NA		Prot
Protected Phases	2		7	6		4
Permitted Phases						
Actuated Green, G (s)	50.0		46.0	50.0		46.0
Effective Green, g (s)	50.0		46.0	50.0		46.0
Actuated g/C Ratio	0.45		0.42	0.45		0.42
Clearance Time (s)	7.0		7.0	7.0		7.0
Lane Grp Cap (vph)	2197		732	1593		1480
v/s Ratio Prot	0.08		c0.39	c0.33		0.18
v/s Ratio Perm						
v/c Ratio	0.17		0.94	0.73		0.42
Uniform Delay, d1	17.8		30.6	24.4		22.6
Progression Factor	0.44		0.88	1.06		0.87
Incremental Delay, d2	0.2		18.8	2.5		0.9
Delay (s)	8.0		45.7	28.5		20.6
Level of Service	A		D	C		C
Approach Delay (s)	8.0			34.9	20.6	
Approach LOS	A			C	C	

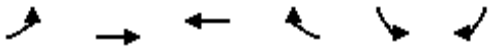
Intersection Summary			
HCM 2000 Control Delay	28.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	58.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	SBR
Lane Group Flow (vph)	846	124	5	1486
v/c Ratio	0.43	0.24	0.00	0.71
Control Delay	12.6	29.0	25.6	17.4
Queue Delay	1.8	0.0	0.0	3.8
Total Delay	14.4	29.0	25.6	21.2
Queue Length 50th (ft)	145	61	1	277
Queue Length 95th (ft)	188	109	5	344
Internal Link Dist (ft)		268	282	
Turn Bay Length (ft)				
Base Capacity (vph)	1952	520	1028	2093
Starvation Cap Reductn	895	0	0	509
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.80	0.24	0.00	0.94

Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	812	119	5	0	0	1427
Future Volume (vph)	812	119	5	0	0	1427
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.5	6.5			7.0
Lane Util. Factor	0.97	1.00	0.95			0.76
Frpb, ped/bikes	1.00	1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	1.00	1.00	1.00			0.85
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3367	1827	3610			3610
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3367	1827	3610			3610
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	846	124	5	0	0	1486
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	846	124	5	0	0	1486
Confl. Peds. (#/hr)	44			44	2	2
Confl. Bikes (#/hr)				81		32
Heavy Vehicles (%)	4%	4%	0%	0%	2%	2%
Turn Type	Prot	NA	NA			Prot
Protected Phases	7	6	2			4
Permitted Phases						
Actuated Green, G (s)	58.0	28.5	28.5			58.0
Effective Green, g (s)	58.0	28.5	28.5			58.0
Actuated g/C Ratio	0.58	0.28	0.28			0.58
Clearance Time (s)	7.0	6.5	6.5			7.0
Lane Grp Cap (vph)	1952	520	1028			2093
v/s Ratio Prot	0.25	c0.07	0.00			c0.41
v/s Ratio Perm						
v/c Ratio	0.43	0.24	0.00			0.71
Uniform Delay, d1	11.8	27.4	25.6			15.0
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	0.7	1.1	0.0			2.1
Delay (s)	12.5	28.5	25.6			17.1
Level of Service	B	C	C			B
Approach Delay (s)		14.5	25.6		17.1	
Approach LOS		B	C		B	

Intersection Summary			
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBL	WBT	NBR
Lane Group Flow (vph)	621	125	316	22
v/c Ratio	0.20	0.33	0.14	0.06
Control Delay	17.9	54.9	4.2	34.8
Queue Delay	0.6	0.0	0.0	0.0
Total Delay	18.5	54.9	4.2	34.8
Queue Length 50th (ft)	102	79	25	12
Queue Length 95th (ft)	m122	130	35	34
Internal Link Dist (ft)	249		238	
Turn Bay Length (ft)				
Base Capacity (vph)	3108	375	2328	358
Starvation Cap Reductn	2030	0	0	0
Spillback Cap Reductn	123	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.58	0.33	0.14	0.06

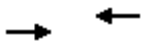
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	482	120	121	307	0	21
Future Volume (vph)	482	120	121	307	0	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		6.0	5.5		6.0
Lane Util. Factor	0.91		1.00	0.95		1.00
Frpb, ped/bikes	0.99		1.00	1.00		1.00
Flpb, ped/bikes	1.00		1.00	1.00		1.00
Frt	0.97		1.00	1.00		0.86
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	4589		1719	3438		1644
Flt Permitted	1.00		0.95	1.00		1.00
Satd. Flow (perm)	4589		1719	3438		1644
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	497	124	125	316	0	22
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	621	0	125	316	0	22
Confl. Peds. (#/hr)		3	3		97	1
Confl. Bikes (#/hr)		33				
Heavy Vehicles (%)	5%	5%	5%	5%	0%	0%
Parking (#/hr)	0	0				
Turn Type	NA		Prot	NA		Over
Protected Phases	2		4	6		4
Permitted Phases						
Actuated Green, G (s)	74.5		24.0	74.5		24.0
Effective Green, g (s)	74.5		24.0	74.5		24.0
Actuated g/C Ratio	0.68		0.22	0.68		0.22
Clearance Time (s)	5.5		6.0	5.5		6.0
Lane Grp Cap (vph)	3108		375	2328		358
v/s Ratio Prot	c0.14		c0.07	0.09		0.01
v/s Ratio Perm						
v/c Ratio	0.20		0.33	0.14		0.06
Uniform Delay, d1	6.6		36.3	6.3		34.1
Progression Factor	2.66		1.43	0.65		1.00
Incremental Delay, d2	0.1		2.3	0.1		0.3
Delay (s)	17.8		54.1	4.2		34.4
Level of Service	B		D	A		C
Approach Delay (s)	17.8			18.3	34.4	
Approach LOS	B			B	C	

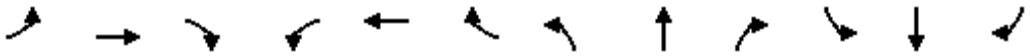
Intersection Summary			
HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	48.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	WBT
Lane Group Flow (vph)	671	17
v/c Ratio	0.33	0.01
Control Delay	9.5	1.9
Queue Delay	2.3	0.0
Total Delay	11.8	1.9
Queue Length 50th (ft)	122	1
Queue Length 95th (ft)	m154	m1
Internal Link Dist (ft)	206	265
Turn Bay Length (ft)		
Base Capacity (vph)	2042	2042
Starvation Cap Reductn	1197	0
Spillback Cap Reductn	75	655
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.79	0.01

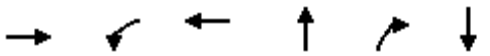
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑							
Traffic Volume (vph)	0	617	0	0	16	0	0	0	0	0	0	0
Future Volume (vph)	0	617	0	0	16	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3539			3539							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3539			3539							
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	671	0	0	17	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	671	0	0	17	0	0	0	0	0	0	0
Turn Type		NA			NA							
Protected Phases		4			8							
Permitted Phases												
Actuated Green, G (s)		63.5			63.5							
Effective Green, g (s)		63.5			63.5							
Actuated g/C Ratio		0.58			0.58							
Clearance Time (s)		6.5			6.5							
Lane Grp Cap (vph)		2042			2042							
v/s Ratio Prot		c0.19			0.00							
v/s Ratio Perm												
v/c Ratio		0.33			0.01							
Uniform Delay, d1		12.1			9.9							
Progression Factor		0.74			0.19							
Incremental Delay, d2		0.4			0.0							
Delay (s)		9.4			1.9							
Level of Service		A			A							
Approach Delay (s)		9.4			1.9			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	22.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



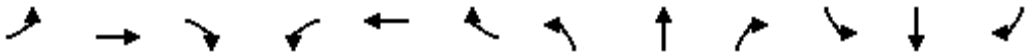
Lane Group	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	1491	379	1265	178	320	704
v/c Ratio	0.80	1.12	0.41	0.26	0.54	0.96
Control Delay	33.8	128.6	10.6	2.3	10.2	74.3
Queue Delay	48.2	0.9	0.0	0.0	7.1	1.3
Total Delay	82.0	129.5	10.6	2.3	17.3	75.6
Queue Length 50th (ft)	336	~309	148	4	200	259
Queue Length 95th (ft)	398	#496	178	m6	m308	#375
Internal Link Dist (ft)	282		355	154		901
Turn Bay Length (ft)						
Base Capacity (vph)	1860	337	3081	685	588	735
Starvation Cap Reductn	519	0	0	0	218	0
Spillback Cap Reductn	619	25	0	0	0	7
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.20	1.21	0.41	0.26	0.86	0.97

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	1448	10	371	1152	87	20	155	314	148	476	66
Future Volume (vph)	3	1448	10	371	1152	87	20	155	314	148	476	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		5.0	6.0			6.5	6.5		6.5	
Lane Util. Factor		0.91		1.00	0.91			0.95	1.00		0.95	
Frpb, ped/bikes		1.00		1.00	0.97			1.00	0.87		0.98	
Flpb, ped/bikes		1.00		1.00	1.00			0.99	1.00		0.98	
Frt		1.00		1.00	0.99			1.00	0.85		0.99	
Flt Protected		1.00		0.95	1.00			0.99	1.00		0.99	
Satd. Flow (prot)		5076		1770	4902			3433	1356		3358	
Flt Permitted		0.94		0.95	1.00			0.77	1.00		0.83	
Satd. Flow (perm)		4758		1770	4902			2645	1356		2811	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	3	1478	10	379	1176	89	20	158	320	151	486	67
RTOR Reduction (vph)	0	1	0	0	8	0	0	0	237	0	7	0
Lane Group Flow (vph)	0	1490	0	379	1257	0	0	178	83	0	697	0
Confl. Peds. (#/hr)	361		47	47		361	139		80	80		139
Confl. Bikes (#/hr)			30			14			16			19
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	1%	1%	1%
Turn Type	Perm	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			4			4	
Permitted Phases	2						4		4	4		
Actuated Green, G (s)		43.0		21.0	69.0			28.5	28.5		28.5	
Effective Green, g (s)		43.0		21.0	69.0			28.5	28.5		28.5	
Actuated g/C Ratio		0.39		0.19	0.63			0.26	0.26		0.26	
Clearance Time (s)		6.0		5.0	6.0			6.5	6.5		6.5	
Lane Grp Cap (vph)		1859		337	3074			685	351		728	
v/s Ratio Prot				c0.21	0.26							
v/s Ratio Perm		c0.31						0.07	0.06		c0.25	
v/c Ratio		0.80		1.12	0.41			0.26	0.24		0.96	
Uniform Delay, d1		29.7		44.5	10.3			32.4	32.2		40.1	
Progression Factor		1.00		1.00	1.00			0.05	1.76		1.29	
Incremental Delay, d2		3.8		87.1	0.4			0.9	1.5		23.4	
Delay (s)		33.5		131.6	10.7			2.3	58.0		75.1	
Level of Service		C		F	B			A	E		E	
Approach Delay (s)		33.5			38.6			38.1			75.1	
Approach LOS		C			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	42.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	115.6%	ICU Level of Service	H
Analysis Period (min)	15		

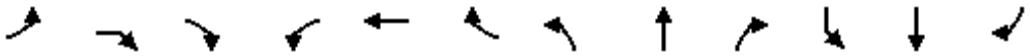
c Critical Lane Group



Lane Group	EBL	EBR	EBR2	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	104	128	159	47	187	228	422	888
v/c Ratio	0.68	0.45	0.38	0.17	0.55	0.22	0.82	0.45
Control Delay	65.0	45.7	9.0	40.0	48.0	2.0	53.5	11.5
Queue Delay	0.2	0.0	0.0	0.0	0.0	0.0	1.8	0.3
Total Delay	65.1	45.7	9.0	40.0	48.0	2.0	55.4	11.8
Queue Length 50th (ft)	69	81	0	28	121	9	158	170
Queue Length 95th (ft)	#151	142	56	63	195	32	#234	213
Internal Link Dist (ft)					318		901	413
Turn Bay Length (ft)								
Base Capacity (vph)	154	287	417	270	338	1044	512	1983
Starvation Cap Reductn	0	0	0	0	0	0	0	501
Spillback Cap Reductn	1	0	0	0	0	8	25	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.45	0.38	0.17	0.55	0.22	0.87	0.60

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	124	154	46	181	221	43	248	118	385	424	52
Future Volume (vph)	101	124	154	46	181	221	43	248	118	385	424	52
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	5.0		6.0			6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		0.95			0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.96		0.97			0.97	
Flpb, ped/bikes	0.92	1.00	1.00	0.84	1.00	1.00		0.98			1.00	
Frt	1.00	0.85	0.85	1.00	1.00	0.85		0.96			0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99			0.98	
Satd. Flow (prot)	1619	1583	1583	1489	1863	1519		3229			3308	
Flt Permitted	0.50	1.00	1.00	0.95	1.00	1.00		0.76			0.56	
Satd. Flow (perm)	849	1583	1583	1489	1863	1519		2451			1906	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	104	128	159	47	187	228	44	256	122	397	437	54
RTOR Reduction (vph)	0	0	130	0	0	67	0	0	0	0	4	0
Lane Group Flow (vph)	104	128	29	47	187	161	0	422	0	0	884	0
Confl. Peds. (#/hr)	45		96	96		45	240		14	14		240
Confl. Bikes (#/hr)		2							21			9
Turn Type	Perm	Prot	Prot	Perm	NA	custom	Perm	NA		pm+pt	NA	
Protected Phases		4	4		8	5		6		5	2	
Permitted Phases	4	4	4	8		8	6			2		
Actuated Green, G (s)	20.0	20.0	20.0	20.0	20.0	70.0		23.0			78.0	
Effective Green, g (s)	20.0	20.0	20.0	20.0	20.0	70.0		23.0			78.0	
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.18	0.64		0.21			0.71	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	5.0		6.0			6.0	
Lane Grp Cap (vph)	154	287	287	270	338	966		512			1988	
v/s Ratio Prot		0.08	0.02		0.10	0.08					c0.20	
v/s Ratio Perm	c0.12			0.03		0.03		c0.17			0.11	
v/c Ratio	0.68	0.45	0.10	0.17	0.55	0.17		0.82			0.44	
Uniform Delay, d1	42.0	40.1	37.5	38.0	40.9	8.1		41.6			6.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		0.94			1.73	
Incremental Delay, d2	21.2	5.0	0.7	1.4	6.4	0.4		13.9			0.6	
Delay (s)	63.2	45.0	38.2	39.4	47.3	8.5		52.8			12.3	
Level of Service	E	D	D	D	D	A		D			B	
Approach Delay (s)					27.4			52.8			12.3	
Approach LOS					C			D			B	

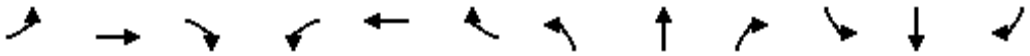
Intersection Summary			
HCM 2000 Control Delay	29.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	25	144	231	409	565	752
v/c Ratio	0.10	0.19	0.55	0.84	0.84	0.82
Control Delay	10.8	8.4	28.1	30.4	23.4	36.3
Queue Delay	0.0	0.0	0.0	0.0	0.7	0.0
Total Delay	10.8	8.4	28.1	30.4	24.1	36.3
Queue Length 50th (ft)	8	42	116	134	103	239
Queue Length 95th (ft)	m16	m63	200	#352	m#515	328
Internal Link Dist (ft)		1267		269	413	277
Turn Bay Length (ft)	100					
Base Capacity (vph)	256	750	418	485	670	913
Starvation Cap Reductn	0	0	0	0	15	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.19	0.55	0.84	0.86	0.82

Intersection Summary

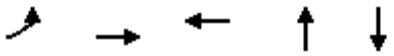
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	96	41	219	87	301	28	283	226	205	493	16
Future Volume (vph)	24	96	41	219	87	301	28	283	226	205	493	16
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	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			0.95	
Frpb, ped/bikes	1.00	0.90		1.00	0.50			0.91			0.99	
Flpb, ped/bikes	0.75	1.00		0.75	1.00			1.00			0.99	
Frt	1.00	0.96		1.00	0.88			0.94			1.00	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1339	1621		1316	819			1580			3437	
Flt Permitted	0.40	1.00		0.67	1.00			0.94			0.60	
Satd. Flow (perm)	565	1621		921	819			1482			2088	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	25	101	43	231	92	317	29	298	238	216	519	17
RTOR Reduction (vph)	0	14	0	0	113	0	0	24	0	0	2	0
Lane Group Flow (vph)	25	130	0	231	296	0	0	541	0	0	750	0
Confl. Peds. (#/hr)	408		195	195		408	131		121	121		131
Confl. Bikes (#/hr)			75			32			16			8
Heavy Vehicles (%)	1%	1%	1%	3%	3%	3%	3%	3%	3%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	50.0	50.0		50.0	50.0			48.0			48.0	
Effective Green, g (s)	50.0	50.0		50.0	50.0			48.0			48.0	
Actuated g/C Ratio	0.45	0.45		0.45	0.45			0.44			0.44	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	256	736		418	372			646			911	
v/s Ratio Prot		0.08			c0.36							
v/s Ratio Perm	0.04			0.25				c0.37			0.36	
v/c Ratio	0.10	0.18		0.55	0.80			0.84			0.82	
Uniform Delay, d1	17.1	17.8		21.9	25.6			27.5			27.3	
Progression Factor	0.57	0.53		1.00	1.00			0.46			1.00	
Incremental Delay, d2	0.7	0.5		5.2	16.1			10.5			8.3	
Delay (s)	10.5	10.0		27.0	41.7			23.1			35.6	
Level of Service	B	A		C	D			C			D	
Approach Delay (s)		10.0			36.4			23.1			35.6	
Approach LOS		B			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	30.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	110.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	19	350	109	544	935
v/c Ratio	0.15	0.63	0.91	0.41	0.75
Control Delay	50.7	34.5	109.8	34.1	28.4
Queue Delay	0.0	5.1	0.0	0.1	28.4
Total Delay	50.7	39.7	109.8	34.2	56.7
Queue Length 50th (ft)	13	201	74	115	175
Queue Length 95th (ft)	37	303	#183	150	m174
Internal Link Dist (ft)		282	633	181	154
Turn Bay Length (ft)					
Base Capacity (vph)	128	559	120	1324	1240
Starvation Cap Reductn	0	147	0	0	345
Spillback Cap Reductn	0	0	0	144	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.15	0.85	0.91	0.46	1.04

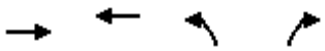
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	14	305	58	29	12	0	486	9	2	847	2
Future Volume (vph)	17	14	305	58	29	12	0	486	9	2	847	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.5			6.5			6.5			7.0	
Lane Util. Factor	1.00	1.00			1.00			0.91			0.95	
Frpb, ped/bikes	1.00	0.95			0.98			0.99			1.00	
Flpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Frt	1.00	0.86			0.98			1.00			1.00	
Flt Protected	0.95	1.00			0.97			1.00			1.00	
Satd. Flow (prot)	1770	1520			1500			4933			3466	
Flt Permitted	0.95	1.00			0.64			1.00			0.95	
Satd. Flow (perm)	1770	1520			982			4933			3309	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	19	15	335	64	32	13	0	534	10	2	931	2
RTOR Reduction (vph)	0	0	0	0	3	0	0	1	0	0	0	0
Lane Group Flow (vph)	19	350	0	0	106	0	0	543	0	0	935	0
Confl. Peds. (#/hr)	113		19	19		113	158		156	156		158
Confl. Bikes (#/hr)			38			35			81			31
Heavy Vehicles (%)	2%	2%	2%	18%	18%	18%	4%	4%	4%	4%	4%	4%
Turn Type	Prot	NA		Prot	NA			NA		pm+pt	NA	
Protected Phases	1	6		1	2			4		3	8	
Permitted Phases										8		
Actuated Green, G (s)	8.0	40.5			48.5			29.5			41.0	
Effective Green, g (s)	8.0	40.5			48.5			29.5			41.0	
Actuated g/C Ratio	0.07	0.37			0.44			0.27			0.37	
Clearance Time (s)	7.0	6.5			6.5			6.5			7.0	
Lane Grp Cap (vph)	128	559			470			1322			1240	
v/s Ratio Prot	0.01	c0.23			c0.02			0.11			c0.03	
v/s Ratio Perm					0.08						c0.25	
v/c Ratio	0.15	0.63			0.23			0.41			0.75	
Uniform Delay, d1	47.8	28.5			19.1			33.1			30.1	
Progression Factor	1.00	1.00			1.00			1.00			0.88	
Incremental Delay, d2	2.4	5.2			1.1			0.9			1.3	
Delay (s)	50.2	33.8			20.2			34.0			27.9	
Level of Service	D	C			C			C			C	
Approach Delay (s)		34.6			20.2			34.0			27.9	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	30.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	82.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	2161	1235	240	118
v/c Ratio	0.81	0.42	0.63	0.39
Control Delay	17.7	13.3	45.0	27.0
Queue Delay	1.6	1.6	0.1	0.0
Total Delay	19.3	14.9	45.1	27.0
Queue Length 50th (ft)	285	166	151	46
Queue Length 95th (ft)	309	199	239	101
Internal Link Dist (ft)	202	268	424	
Turn Bay Length (ft)				
Base Capacity (vph)	2684	2930	380	306
Starvation Cap Reductn	330	1438	0	0
Spillback Cap Reductn	0	713	4	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.92	0.83	0.64	0.39

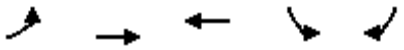
Intersection Summary



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1832	264	0	1198	233	114
Future Volume (vph)	1832	264	0	1198	233	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0			6.0	6.0	6.0
Lane Util. Factor	0.91			0.91	1.00	1.00
Frpb, ped/bikes	0.93			1.00	1.00	0.73
Flpb, ped/bikes	1.00			1.00	0.89	1.00
Frt	0.98			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	4615			5036	1494	1091
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	4615			5036	1494	1091
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1889	272	0	1235	240	118
RTOR Reduction (vph)	0	0	0	0	0	28
Lane Group Flow (vph)	2161	0	0	1235	240	90
Confl. Peds. (#/hr)		174	174		90	206
Confl. Bikes (#/hr)		107				39
Heavy Vehicles (%)	3%	3%	3%	3%	8%	8%
Turn Type	NA			NA	Perm	Perm
Protected Phases	2			2		
Permitted Phases					4	4
Actuated Green, G (s)	64.0			64.0	28.0	28.0
Effective Green, g (s)	64.0			64.0	28.0	28.0
Actuated g/C Ratio	0.58			0.58	0.25	0.25
Clearance Time (s)	6.0			6.0	6.0	6.0
Lane Grp Cap (vph)	2685			2930	380	277
v/s Ratio Prot	c0.47			0.25		
v/s Ratio Perm					c0.16	0.08
v/c Ratio	0.80			0.42	0.63	0.32
Uniform Delay, d1	18.1			12.7	36.4	33.3
Progression Factor	0.85			1.00	1.00	1.00
Incremental Delay, d2	2.0			0.4	7.8	3.1
Delay (s)	17.4			13.2	44.2	36.4
Level of Service	B			B	D	D
Approach Delay (s)	17.4			13.2	41.6	
Approach LOS	B			B	D	

Intersection Summary			
HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		

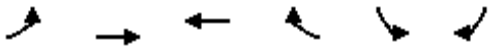
c Critical Lane Group



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	191	978	884	18	543
v/c Ratio	0.32	0.35	0.66	0.05	0.60
Control Delay	36.7	25.6	36.8	21.1	17.4
Queue Delay	0.0	0.0	0.0	0.0	27.6
Total Delay	36.7	25.6	36.8	21.1	45.0
Queue Length 50th (ft)	118	210	243	4	128
Queue Length 95th (ft)	m159	262	289	m3	m99
Internal Link Dist (ft)		484	340	163	
Turn Bay Length (ft)					
Base Capacity (vph)	602	2785	1337	376	911
Starvation Cap Reductn	0	0	0	0	382
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.32	0.35	0.66	0.05	1.03

Intersection Summary

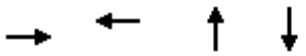
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	257	877	849	9	17	527
Future Volume (vph)	257	877	849	9	17	527
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		5.5	6.0
Lane Util. Factor	0.86	0.86	0.91		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00		0.87	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1486	4688	5071		1563	1588
Flt Permitted	0.21	0.81	1.00		0.95	1.00
Satd. Flow (perm)	321	3792	5071		1563	1588
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	265	904	875	9	18	543
RTOR Reduction (vph)	0	0	1	0	0	2
Lane Group Flow (vph)	191	978	883	0	18	541
Confl. Peds. (#/hr)	88			88	95	3
Confl. Bikes (#/hr)				1		
Heavy Vehicles (%)	4%	4%	2%	2%	1%	1%
Turn Type	pm+pt	NA	NA		Perm	pm+ov
Protected Phases	1	6	2			1
Permitted Phases	6				4	4
Actuated Green, G (s)	72.0	72.0	29.0		26.5	63.5
Effective Green, g (s)	72.0	72.0	29.0		26.5	63.5
Actuated g/C Ratio	0.65	0.65	0.26		0.24	0.58
Clearance Time (s)	6.0	6.0	6.0		5.5	6.0
Lane Grp Cap (vph)	601	2783	1336		376	1003
v/s Ratio Prot	0.11	0.12	c0.17			c0.18
v/s Ratio Perm	0.10	0.11			0.01	0.16
v/c Ratio	0.32	0.35	0.66		0.05	0.54
Uniform Delay, d1	16.8	8.5	36.1		32.1	14.3
Progression Factor	2.23	2.84	0.97		0.65	1.42
Incremental Delay, d2	0.8	0.2	1.7		0.0	0.2
Delay (s)	38.2	24.5	36.6		20.8	20.4
Level of Service	D	C	D		C	C
Approach Delay (s)		26.7	36.6		20.4	
Approach LOS		C	D		C	

Intersection Summary			
HCM 2000 Control Delay	28.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	73.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



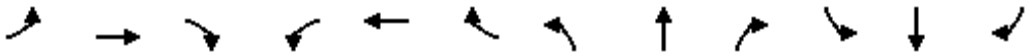
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	268	410	503	504
v/c Ratio	0.68	1.37	0.35	0.31
Control Delay	32.9	219.1	15.7	18.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	32.9	219.1	15.7	18.6
Queue Length 50th (ft)	101	~388	87	50
Queue Length 95th (ft)	m185	m#578	111	67
Internal Link Dist (ft)	492	1267	654	413
Turn Bay Length (ft)				
Base Capacity (vph)	395	300	1438	1618
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.68	1.37	0.35	0.31

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	0	178	161	157	63	60	407	0	0	424	45
Future Volume (vph)	72	0	178	161	157	63	60	407	0	0	424	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5			5.0			5.0	
Lane Util. Factor		1.00			1.00			0.95			0.91	
Frpb, ped/bikes		1.00			1.00			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.90			0.98			1.00			0.99	
Flt Protected		0.99			0.98			0.99			1.00	
Satd. Flow (prot)		1676			1779			3482			5048	
Flt Permitted		0.74			0.65			0.85			1.00	
Satd. Flow (perm)		1257			1176			2967			5048	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	77	0	191	173	169	68	65	438	0	0	456	48
RTOR Reduction (vph)	0	81	0	0	7	0	0	0	0	0	12	0
Lane Group Flow (vph)	0	187	0	0	403	0	0	503	0	0	492	0
Confl. Bikes (#/hr)						4			12			9
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	3%	3%	3%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Prot	NA			NA	
Protected Phases		8			8		5	2			6	
Permitted Phases	8			8								
Actuated Green, G (s)		27.5			27.5			72.0			35.0	
Effective Green, g (s)		27.5			27.5			72.0			35.0	
Actuated g/C Ratio		0.25			0.25			0.65			0.32	
Clearance Time (s)		5.5			5.5			5.0			5.0	
Lane Grp Cap (vph)		314			294			2091			1606	
v/s Ratio Prot								c0.07			c0.10	
v/s Ratio Perm		0.15			c0.34			0.09				
v/c Ratio		0.60			1.37			0.24			0.31	
Uniform Delay, d1		36.3			41.2			7.8			28.3	
Progression Factor		1.10			1.10			1.23			0.66	
Incremental Delay, d2		7.3			186.2			0.3			0.4	
Delay (s)		47.3			231.6			9.9			19.1	
Level of Service		D			F			A			B	
Approach Delay (s)		47.3			231.6			9.9			19.1	
Approach LOS		D			F			A			B	

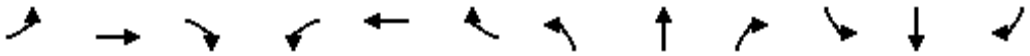
Intersection Summary			
HCM 2000 Control Delay	72.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	169	259	15	201	847	725
v/c Ratio	0.33	0.36	0.05	0.29	0.67	0.52
Control Delay	16.6	13.5	22.1	22.5	32.5	22.9
Queue Delay	0.0	0.0	0.0	0.1	0.1	0.0
Total Delay	16.6	13.5	22.1	22.6	32.6	22.9
Queue Length 50th (ft)	61	107	6	90	164	115
Queue Length 95th (ft)	m91	m157	m12	m125	m214	156
Internal Link Dist (ft)		495		1267	413	291
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	509	728	333	693	1268	1384
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	80	31	34
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.36	0.05	0.33	0.68	0.54

Intersection Summary

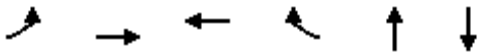
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	108	140	14	159	34	105	636	72	37	417	242
Future Volume (vph)	162	108	140	14	159	34	105	636	72	37	417	242
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	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.91			0.91	
Frpb, ped/bikes	1.00	0.82		1.00	0.95			0.95			0.87	
Flpb, ped/bikes	0.88	1.00		0.80	1.00			0.98			0.99	
Frt	1.00	0.92		1.00	0.97			0.99			0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1535	1379		1416	1716			4696			4132	
Flt Permitted	0.60	1.00		0.56	1.00			0.71			0.84	
Satd. Flow (perm)	974	1379		834	1716			3373			3481	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	169	112	146	15	166	35	109	662	75	39	434	252
RTOR Reduction (vph)	0	14	0	0	7	0	0	11	0	0	88	0
Lane Group Flow (vph)	169	245	0	15	194	0	0	836	0	0	637	0
Confl. Peds. (#/hr)	173		202	202		173	279		186	186		279
Confl. Bikes (#/hr)			47			18			7			2
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	1%	1%	1%	2%	2%	2%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	3	8			4			2			6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	57.0	57.0		44.0	44.0			41.0			41.0	
Effective Green, g (s)	57.0	57.0		44.0	44.0			41.0			41.0	
Actuated g/C Ratio	0.52	0.52		0.40	0.40			0.37			0.37	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	540	714		333	686			1257			1297	
v/s Ratio Prot	0.02	c0.18			0.11							
v/s Ratio Perm	0.14			0.02				c0.25			0.18	
v/c Ratio	0.31	0.34		0.05	0.28			0.67			0.49	
Uniform Delay, d1	16.7	15.5		20.2	22.3			28.8			26.5	
Progression Factor	0.91	0.88		1.06	1.01			1.05			1.00	
Incremental Delay, d2	1.3	1.1		0.2	0.9			2.7			1.3	
Delay (s)	16.5	14.8		21.7	23.4			32.8			27.8	
Level of Service	B	B		C	C			C			C	
Approach Delay (s)		15.5			23.3			32.8			27.8	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	26.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



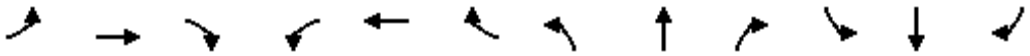
Lane Group	EBL	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	31	876	620	146	343	999
v/c Ratio	0.12	0.84	0.59	0.53	0.29	1.18
Control Delay	72.1	47.5	12.6	16.9	35.2	117.4
Queue Delay	0.0	3.3	0.0	0.0	0.0	0.3
Total Delay	72.1	50.8	12.6	16.9	35.2	117.6
Queue Length 50th (ft)	23	349	25	12	72	~436
Queue Length 95th (ft)	m24	m335	75	m41	118	m#512
Internal Link Dist (ft)		523	354		163	654
Turn Bay Length (ft)				150		
Base Capacity (vph)	262	1045	1057	275	1191	844
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	96	0	0	0	38
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.92	0.59	0.53	0.29	1.24

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	789	35	0	583	137	44	268	10	327	511	101
Future Volume (vph)	29	789	35	0	583	137	44	268	10	327	511	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5			6.5	6.5		7.0			7.0	
Lane Util. Factor	1.00	0.95			0.95	1.00		0.91			0.95	
Frpb, ped/bikes	1.00	0.99			1.00	0.58		0.99			0.98	
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00			0.94	
Frt	1.00	0.99			1.00	0.85		1.00			0.98	
Flt Protected	0.95	1.00			1.00	1.00		0.99			0.98	
Satd. Flow (prot)	1752	3433			3471	905		4658			3184	
Flt Permitted	0.95	1.00			1.00	1.00		0.70			0.71	
Satd. Flow (perm)	1752	3433			3471	905		3267			2299	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	31	839	37	0	620	146	47	285	11	348	544	107
RTOR Reduction (vph)	0	0	0	0	0	0	0	3	0	0	8	0
Lane Group Flow (vph)	31	876	0	0	620	146	0	340	0	0	991	0
Confl. Peds. (#/hr)	442		190	190		442	78		160	160		78
Confl. Bikes (#/hr)			64			47			4			6
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	9%	9%	9%	1%	1%	1%
Turn Type	Prot	NA			NA	Perm	Perm	NA		Perm	NA	
Protected Phases	7	6			2			4			8	
Permitted Phases						2	4			8		
Actuated Green, G (s)	16.5	33.5			33.5	33.5		40.0			40.0	
Effective Green, g (s)	16.5	33.5			33.5	33.5		40.0			40.0	
Actuated g/C Ratio	0.15	0.30			0.30	0.30		0.36			0.36	
Clearance Time (s)	6.5	6.5			6.5	6.5		7.0			7.0	
Lane Grp Cap (vph)	262	1045			1057	275		1188			836	
v/s Ratio Prot	c0.02	c0.26			0.18							
v/s Ratio Perm						0.16		0.10			c0.43	
v/c Ratio	0.12	0.84			0.59	0.53		0.29			1.19	
Uniform Delay, d1	40.5	35.7			32.4	31.7		24.9			35.0	
Progression Factor	1.76	1.26			0.33	0.35		1.40			0.65	
Incremental Delay, d2	0.2	2.0			1.8	5.3		0.6			94.0	
Delay (s)	71.3	47.1			12.4	16.5		35.4			116.6	
Level of Service	E	D			B	B		D			F	
Approach Delay (s)		47.9			13.2			35.4			116.6	
Approach LOS		D			B			D			F	

Intersection Summary			
HCM 2000 Control Delay	60.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

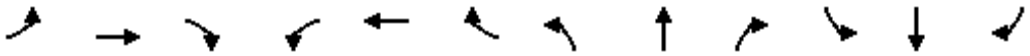


Lane Group	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1281	1354	85	756	694
v/c Ratio	0.82	0.93dl	0.32	0.44	0.68
Control Delay	11.3	23.1	31.4	25.1	21.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.3	23.1	31.4	25.1	21.6
Queue Length 50th (ft)	39	264	39	136	89
Queue Length 95th (ft)	m41	277	74	173	m114
Internal Link Dist (ft)	516	484		438	368
Turn Bay Length (ft)					
Base Capacity (vph)	1568	2621	262	1722	1017
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.82	0.52	0.32	0.44	0.68

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

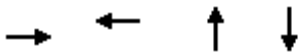
dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	1031	197	294	1010	23	83	627	114	1	593	86
Future Volume (vph)	27	1031	197	294	1010	23	83	627	114	1	593	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5		6.5	6.5			6.5	
Lane Util. Factor		0.86			0.86		1.00	0.91			0.91	
Frpb, ped/bikes		0.96			1.00		1.00	0.94			0.95	
Flpb, ped/bikes		1.00			1.00		0.97	1.00			1.00	
Frt		0.98			1.00		1.00	0.98			0.98	
Flt Protected		1.00			0.99		0.95	1.00			1.00	
Satd. Flow (prot)		5946			6331		1653	4503			4259	
Flt Permitted		0.85			0.74		0.30	1.00			0.94	
Satd. Flow (perm)		5052			4750		519	4503			3999	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	28	1052	201	300	1031	23	85	640	116	1	605	88
RTOR Reduction (vph)	0	31	0	0	2	0	0	24	0	0	17	0
Lane Group Flow (vph)	0	1250	0	0	1352	0	85	732	0	0	677	0
Confl. Peds. (#/hr)	165		157	157		165	365		449	449		365
Confl. Bikes (#/hr)			7			2			21			14
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	6%	6%	6%	14%	14%	14%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		6		5	2		3	8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)		33.5			55.5		41.5	41.5			27.5	
Effective Green, g (s)		33.5			55.5		41.5	41.5			27.5	
Actuated g/C Ratio		0.30			0.50		0.38	0.38			0.25	
Clearance Time (s)		6.5			6.5		6.5	6.5			6.5	
Lane Grp Cap (vph)		1538			2640		273	1698			999	
v/s Ratio Prot					c0.08		0.02	c0.16				
v/s Ratio Perm		c0.25			0.18		0.10				c0.17	
v/c Ratio		0.81			0.93dl		0.31	0.43			0.68	
Uniform Delay, d1		35.4			18.2		29.8	25.5			37.2	
Progression Factor		0.23			1.31		1.00	1.00			0.56	
Incremental Delay, d2		3.2			0.5		3.0	0.8			1.3	
Delay (s)		11.5			24.4		32.8	26.3			22.1	
Level of Service		B			C		C	C			C	
Approach Delay (s)		11.5			24.4			26.9			22.1	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	20.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	98.6%	ICU Level of Service	F
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	233	310	700	584
v/c Ratio	0.51	0.65	0.51	0.76
Control Delay	26.2	43.9	35.4	16.1
Queue Delay	0.0	0.0	0.0	6.0
Total Delay	26.2	43.9	35.4	22.1
Queue Length 50th (ft)	114	227	220	104
Queue Length 95th (ft)	194	m224	272	505
Internal Link Dist (ft)	508	492	449	412
Turn Bay Length (ft)				
Base Capacity (vph)	456	476	1385	767
Starvation Cap Reductn	0	0	0	134
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.51	0.65	0.51	0.92

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	88	71	56	116	123	63	543	59	58	435	62
Future Volume (vph)	62	88	71	56	116	123	63	543	59	58	435	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5			5.5			5.5	
Lane Util. Factor		1.00			1.00			0.95			1.00	
Frpb, ped/bikes		0.90			0.86			0.92			0.92	
Flpb, ped/bikes		0.96			0.96			0.98			0.97	
Frt		0.96			0.94			0.99			0.98	
Flt Protected		0.99			0.99			1.00			0.99	
Satd. Flow (prot)		1503			1451			3060			1621	
Flt Permitted		0.81			0.90			0.83			0.87	
Satd. Flow (perm)		1228			1316			2548			1410	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	65	93	75	59	122	129	66	572	62	61	458	65
RTOR Reduction (vph)	0	15	0	0	3	0	0	6	0	0	4	0
Lane Group Flow (vph)	0	218	0	0	307	0	0	694	0	0	580	0
Confl. Peds. (#/hr)	327		249	249		327	480		767	767		480
Confl. Bikes (#/hr)			2			2			27			11
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	5%	5%	5%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		39.5			39.5			59.5			59.5	
Effective Green, g (s)		39.5			39.5			59.5			59.5	
Actuated g/C Ratio		0.36			0.36			0.54			0.54	
Clearance Time (s)		5.5			5.5			5.5			5.5	
Lane Grp Cap (vph)		440			472			1378			762	
v/s Ratio Prot												
v/s Ratio Perm		0.18			c0.23			0.27			c0.41	
v/c Ratio		0.49			0.65			0.50			0.76	
Uniform Delay, d1		27.5			29.5			15.9			19.7	
Progression Factor		0.88			1.36			2.16			0.52	
Incremental Delay, d2		3.9			3.3			1.1			5.5	
Delay (s)		28.0			43.3			35.5			15.7	
Level of Service		C			D			D			B	
Approach Delay (s)		28.0			43.3			35.5			15.7	
Approach LOS		C			D			D			B	

Intersection Summary			
HCM 2000 Control Delay	29.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	88.0%	ICU Level of Service	E
Analysis Period (min)	15		

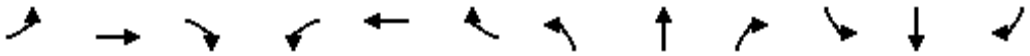
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	24	405	56	726	727	439
v/c Ratio	0.13	0.55	0.18	0.92	0.71	0.76
Control Delay	17.6	25.2	10.0	37.1	21.9	40.7
Queue Delay	0.0	0.0	0.0	8.5	0.0	1.6
Total Delay	17.6	25.2	10.0	45.6	21.9	42.3
Queue Length 50th (ft)	7	164	15	419	121	267
Queue Length 95th (ft)	m22	270	m33	#729	194	395
Internal Link Dist (ft)		509		495	412	353
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	190	735	317	791	1019	575
Starvation Cap Reductn	0	0	0	54	0	0
Spillback Cap Reductn	0	0	0	0	0	43
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.55	0.18	0.99	0.71	0.83

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	254	139	54	425	279	32	600	73	24	364	38
Future Volume (vph)	23	254	139	54	425	279	32	600	73	24	364	38
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	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			1.00	
Frpb, ped/bikes	1.00	0.78		1.00	0.86			0.91			0.95	
Flpb, ped/bikes	1.00	1.00		0.73	1.00			0.99			0.99	
Frt	1.00	0.95		1.00	0.94			0.98			0.99	
Flt Protected	0.95	1.00		0.95	1.00			1.00			1.00	
Satd. Flow (prot)	1770	1379		1293	1502			3056			1684	
Flt Permitted	0.19	1.00		0.44	1.00			0.91			0.93	
Satd. Flow (perm)	361	1379		601	1502			2781			1575	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	24	262	143	56	438	288	33	619	75	25	375	39
RTOR Reduction (vph)	0	8	0	0	0	0	0	8	0	0	3	0
Lane Group Flow (vph)	24	397	0	56	726	0	0	719	0	0	436	0
Confl. Peds. (#/hr)	353		388	388		353	366		872	872		366
Confl. Bikes (#/hr)			24			18			15			10
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	4%	4%	4%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	58.0	58.0		58.0	58.0			40.0			40.0	
Effective Green, g (s)	58.0	58.0		58.0	58.0			40.0			40.0	
Actuated g/C Ratio	0.53	0.53		0.53	0.53			0.36			0.36	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	190	727		316	791			1011			572	
v/s Ratio Prot		0.29			c0.48							
v/s Ratio Perm	0.07			0.09				0.26			c0.28	
v/c Ratio	0.13	0.55		0.18	0.92			0.71			0.76	
Uniform Delay, d1	13.2	17.3		13.6	23.8			30.0			30.8	
Progression Factor	1.16	1.31		0.62	0.79			0.61			1.00	
Incremental Delay, d2	1.3	2.8		1.2	16.8			3.7			9.3	
Delay (s)	16.6	25.4		9.6	35.6			22.0			40.1	
Level of Service	B	C		A	D			C			D	
Approach Delay (s)		24.9			33.7			22.0			40.1	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	29.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	97.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



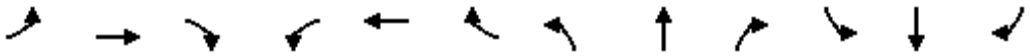
Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	125	1046	605	161	132	579	531
v/c Ratio	0.56	1.07	0.54	0.53	0.93	0.52	0.87
Control Delay	81.7	62.6	30.5	35.2	89.0	11.1	47.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.7	62.6	30.5	35.2	89.0	11.1	47.0
Queue Length 50th (ft)	89	~445	233	118	95	44	195
Queue Length 95th (ft)	149	#556	m278	m174	m#211	m54	#280
Internal Link Dist (ft)		245	523			368	449
Turn Bay Length (ft)				150			
Base Capacity (vph)	223	982	1130	303	142	1119	609
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	1.07	0.54	0.53	0.93	0.52	0.87

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

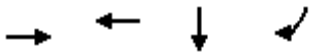
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	792	212	0	581	155	127	512	44	6	470	34
Future Volume (vph)	120	792	212	0	581	155	127	512	44	6	470	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.5			6.5	6.5	7.0	7.0			7.0	
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00	0.95			0.95	
Frpb, ped/bikes	1.00	0.93			1.00	0.60	1.00	0.96			0.97	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00			1.00	
Frt	1.00	0.97			1.00	0.85	1.00	0.99			0.99	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1641	2961			3406	914	1736	3310			3351	
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00			0.94	
Satd. Flow (perm)	1641	2961			3406	914	1736	3310			3167	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	125	825	221	0	605	161	132	533	46	6	490	35
RTOR Reduction (vph)	0	0	0	0	0	0	0	6	0	0	5	0
Lane Group Flow (vph)	125	1046	0	0	605	161	132	573	0	0	526	0
Confl. Peds. (#/hr)	440		238	238		440	619		587	587		619
Confl. Bikes (#/hr)			51			43			24			16
Heavy Vehicles (%)	10%	10%	10%	6%	6%	6%	4%	4%	4%	3%	3%	3%
Turn Type	Prot	NA			NA	Perm	Prot	NA		Perm	NA	
Protected Phases	5	2			6		3	8			4	
Permitted Phases						6				4		
Actuated Green, G (s)	15.0	36.5			36.5	36.5	9.0	37.0			21.0	
Effective Green, g (s)	15.0	36.5			36.5	36.5	9.0	37.0			21.0	
Actuated g/C Ratio	0.14	0.33			0.33	0.33	0.08	0.34			0.19	
Clearance Time (s)	5.0	6.5			6.5	6.5	7.0	7.0			7.0	
Lane Grp Cap (vph)	223	982			1130	303	142	1113			604	
v/s Ratio Prot	c0.08	c0.35			0.18		c0.08	0.17				
v/s Ratio Perm						0.18					c0.17	
v/c Ratio	0.56	1.07			0.54	0.53	0.93	0.51			0.87	
Uniform Delay, d1	44.4	36.8			29.9	29.8	50.2	29.3			43.2	
Progression Factor	1.63	0.39			0.96	0.98	0.58	0.33			0.81	
Incremental Delay, d2	8.0	45.1			1.4	5.0	55.5	1.6			11.4	
Delay (s)	80.5	59.3			30.2	34.1	84.6	11.2			46.6	
Level of Service	F	E			C	C	F	B			D	
Approach Delay (s)		61.6			31.0			24.8			46.6	
Approach LOS		E			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	43.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	27.5
Intersection Capacity Utilization	79.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBT	SBT	SBR
Lane Group Flow (vph)	1509	1126	1985	287
v/c Ratio	0.71	1.21dl	1.07	0.58
Control Delay	31.4	5.0	56.2	8.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	31.4	5.0	56.2	8.9
Queue Length 50th (ft)	254	34	~580	36
Queue Length 95th (ft)	298	40	m#468	m32
Internal Link Dist (ft)	334	516	582	
Turn Bay Length (ft)				
Base Capacity (vph)	2120	2589	1851	494
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.71	0.43	1.07	0.58

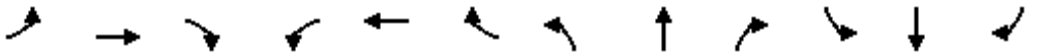
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1210	269	307	762	32	0	0	0	115	1831	281
Future Volume (vph)	0	1210	269	307	762	32	0	0	0	115	1831	281
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			6.0						6.5	6.5
Lane Util. Factor		0.86			0.86						0.91	1.00
Frpb, ped/bikes		0.94			0.99						1.00	0.76
Flpb, ped/bikes		1.00			1.00						0.99	1.00
Frt		0.97			1.00						1.00	0.85
Flt Protected		1.00			0.99						1.00	1.00
Satd. Flow (prot)		5802			6155						5029	1198
Flt Permitted		1.00			0.75						1.00	1.00
Satd. Flow (perm)		5802			4678						5029	1198
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.92	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1235	274	313	778	35	0	0	0	117	1868	287
RTOR Reduction (vph)	0	37	0	0	4	0	0	0	0	0	0	53
Lane Group Flow (vph)	0	1472	0	0	1122	0	0	0	0	0	1985	234
Confl. Peds. (#/hr)	169		213	213		169	193		114	114		193
Confl. Bikes (#/hr)			10			2						
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	0%	0%	0%	2%	2%	2%
Turn Type		NA		pm+pt	NA					Perm	NA	Perm
Protected Phases		6		5	2						4	
Permitted Phases				2						4		4
Actuated Green, G (s)		39.5			57.0						40.5	40.5
Effective Green, g (s)		39.5			57.0						40.5	40.5
Actuated g/C Ratio		0.36			0.52						0.37	0.37
Clearance Time (s)		5.5			6.0						6.5	6.5
Lane Grp Cap (vph)		2083			2585						1851	441
v/s Ratio Prot		c0.25			c0.05							
v/s Ratio Perm					0.18						0.39	0.20
v/c Ratio		0.71			1.21dl						1.07	0.53
Uniform Delay, d1		30.3			16.5						34.8	27.3
Progression Factor		1.00			0.27						0.60	0.42
Incremental Delay, d2		2.1			0.5						33.8	0.4
Delay (s)		32.3			4.9						54.6	12.0
Level of Service		C			A						D	B
Approach Delay (s)		32.3			4.9			0.0			49.2	
Approach LOS		C			A			A			D	

Intersection Summary			
HCM 2000 Control Delay	33.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	99.2%	ICU Level of Service	F
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

Lane Group	WBL	SBT
Lane Group Flow (vph)	345	1827
v/c Ratio	0.54	0.67
Control Delay	31.6	12.5
Queue Delay	0.0	0.7
Total Delay	31.6	13.2
Queue Length 50th (ft)	209	396
Queue Length 95th (ft)	m299	428
Internal Link Dist (ft)	508	411
Turn Bay Length (ft)		
Base Capacity (vph)	640	2709
Starvation Cap Reductn	0	493
Spillback Cap Reductn	0	359
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.54	0.82

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	338	0	0	0	41	1749
Future Volume (vph)	338	0	0	0	41	1749
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5					5.5
Lane Util. Factor	1.00					0.91
Frpb, ped/bikes	1.00					1.00
Flpb, ped/bikes	1.00					0.99
Frt	1.00					1.00
Flt Protected	0.95					1.00
Satd. Flow (prot)	1784					5009
Flt Permitted	0.95					1.00
Satd. Flow (perm)	1784					5009
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	345	0	0	0	42	1785
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	345	0	0	0	0	1827
Confl. Peds. (#/hr)	1	423		318	318	
Heavy Vehicles (%)	1%	1%	0%	0%	2%	2%
Turn Type	Perm				Perm	NA
Protected Phases						2
Permitted Phases	4				2	
Actuated Green, G (s)	39.5					59.5
Effective Green, g (s)	39.5					59.5
Actuated g/C Ratio	0.36					0.54
Clearance Time (s)	5.5					5.5
Lane Grp Cap (vph)	640					2709
v/s Ratio Prot						
v/s Ratio Perm	c0.19					0.36
v/c Ratio	0.54					0.67
Uniform Delay, d1	28.0					18.2
Progression Factor	1.00					0.62
Incremental Delay, d2	2.9					1.1
Delay (s)	31.0					12.4
Level of Service	C					B
Approach Delay (s)	31.0		0.0			12.4
Approach LOS	C		A			B

Intersection Summary			
HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	282	206	159	394	1494
v/c Ratio	0.35	0.46	0.49	0.49	0.67
Control Delay	22.8	23.0	17.8	15.6	24.8
Queue Delay	0.0	0.0	0.0	0.0	0.1
Total Delay	22.8	23.0	17.8	15.6	24.9
Queue Length 50th (ft)	132	86	70	176	291
Queue Length 95th (ft)	199	156	m82	m198	345
Internal Link Dist (ft)	409			509	374
Turn Bay Length (ft)		100	100		
Base Capacity (vph)	803	449	323	796	2217
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	121
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.35	0.46	0.49	0.49	0.71

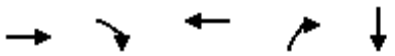
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	268	196	151	374	0	0	0	0	59	1306	54
Future Volume (vph)	0	268	196	151	374	0	0	0	0	59	1306	54
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	
Lane Util. Factor		1.00	1.00	1.00	1.00						0.91	
Frpb, ped/bikes		1.00	0.63	1.00	1.00						0.98	
Flpb, ped/bikes		1.00	1.00	0.79	1.00						0.98	
Frt		1.00	0.85	1.00	1.00						0.99	
Flt Protected		1.00	1.00	0.95	1.00						1.00	
Satd. Flow (prot)		1881	1012	1395	1863						4775	
Flt Permitted		1.00	1.00	0.52	1.00						1.00	
Satd. Flow (perm)		1881	1012	757	1863						4775	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	282	206	159	394	0	0	0	0	62	1375	57
RTOR Reduction (vph)	0	0	17	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	282	189	159	394	0	0	0	0	0	1490	0
Confl. Peds. (#/hr)	398		390	398		390	315		345	345		315
Confl. Bikes (#/hr)			26			18						2
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	3%	3%	3%
Turn Type		NA	Perm	Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		47.0	47.0	47.0	47.0						51.0	
Effective Green, g (s)		47.0	47.0	47.0	47.0						51.0	
Actuated g/C Ratio		0.43	0.43	0.43	0.43						0.46	
Clearance Time (s)		6.0	6.0	6.0	6.0						6.0	
Lane Grp Cap (vph)		803	432	323	796						2213	
v/s Ratio Prot		0.15			c0.21							
v/s Ratio Perm			0.19	0.21							0.31	
v/c Ratio		0.35	0.44	0.49	0.49						0.67	
Uniform Delay, d1		21.2	22.2	22.8	22.9						23.0	
Progression Factor		1.00	1.00	0.62	0.61						1.00	
Incremental Delay, d2		1.2	3.2	2.9	1.2						1.7	
Delay (s)		22.4	25.4	17.1	15.3						24.7	
Level of Service		C	C	B	B						C	
Approach Delay (s)		23.7			15.8			0.0			24.7	
Approach LOS		C			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

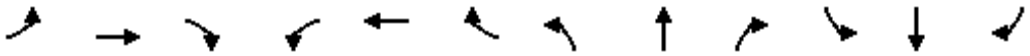


Lane Group	EBT	EBR	WBT	NBR	SBT
Lane Group Flow (vph)	1070	469	761	64	1959
v/c Ratio	0.87	1.25	0.53	0.18	1.03
Control Delay	29.8	155.4	31.7	20.5	45.6
Queue Delay	6.3	0.0	0.3	0.0	11.2
Total Delay	36.1	155.4	32.0	20.5	56.8
Queue Length 50th (ft)	230	~473	150	38	~552
Queue Length 95th (ft)	#266	#665	204	77	#624
Internal Link Dist (ft)	516		227		235
Turn Bay Length (ft)		100			
Base Capacity (vph)	1229	374	1439	346	1896
Starvation Cap Reductn	0	0	190	0	52
Spillback Cap Reductn	124	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.97	1.25	0.61	0.18	1.06

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	852	657	0	746	0	0	0	63	196	1609	115
Future Volume (vph)	0	852	657	0	746	0	0	0	63	196	1609	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5		6.5				7.0		7.0	
Lane Util. Factor		0.91	0.91		0.95				1.00		0.91	
Frpb, ped/bikes		0.93	0.65		1.00				0.66		0.98	
Flpb, ped/bikes		1.00	1.00		1.00				1.00		0.97	
Frt		0.97	0.85		1.00				0.86		0.99	
Flt Protected		1.00	1.00		1.00				1.00		0.99	
Satd. Flow (prot)		2907	885		3406				865		4741	
Flt Permitted		1.00	1.00		1.00				1.00		0.99	
Satd. Flow (perm)		2907	885		3406				865		4741	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	869	670	0	761	0	0	0	64	200	1642	117
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1070	469	0	761	0	0	0	64	0	1959	0
Confl. Peds. (#/hr)	865		312	312		865	303		320	320		303
Confl. Bikes (#/hr)			47			35						7
Heavy Vehicles (%)	8%	8%	8%	6%	6%	6%	26%	26%	26%	2%	2%	2%
Turn Type		NA	Perm		NA				Perm	Perm	NA	
Protected Phases		2			6						8	
Permitted Phases			2						4	8		
Actuated Green, G (s)		46.5	46.5		46.5				44.0		44.0	
Effective Green, g (s)		46.5	46.5		46.5				44.0		44.0	
Actuated g/C Ratio		0.42	0.42		0.42				0.40		0.40	
Clearance Time (s)		6.5	6.5		6.5				7.0		7.0	
Lane Grp Cap (vph)		1228	374		1439				346		1896	
v/s Ratio Prot		0.37			0.22							
v/s Ratio Perm			c0.53						0.07		0.41	
v/c Ratio		0.87	1.25		0.53				0.18		1.03	
Uniform Delay, d1		29.0	31.8		23.6				21.4		33.0	
Progression Factor		0.79	0.80		1.27				0.87		0.50	
Incremental Delay, d2		6.3	129.1		1.3				1.2		27.2	
Delay (s)		29.2	154.5		31.4				19.8		43.7	
Level of Service		C	F		C				B		D	
Approach Delay (s)		67.4			31.4			19.8			43.7	
Approach LOS		E			C			B			D	

Intersection Summary			
HCM 2000 Control Delay	49.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	106.7%	ICU Level of Service	G
Analysis Period (min)	15		

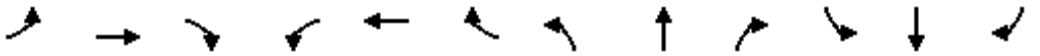
c Critical Lane Group



Lane Group	EBT	WBT	NBL	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1220	858	126	43	413	377	104
v/c Ratio	0.72	0.66	0.40	0.08	0.72	0.43	0.20
Control Delay	40.7	24.6	23.8	3.5	31.9	21.2	9.6
Queue Delay	4.5	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.1	24.6	23.8	3.5	31.9	21.2	9.6
Queue Length 50th (ft)	246	128	56	0	226	171	19
Queue Length 95th (ft)	287	m127	111	15	356	250	52
Internal Link Dist (ft)	246	516				417	
Turn Bay Length (ft)							
Base Capacity (vph)	1705	1309	312	507	574	872	525
Starvation Cap Reductn	404	0	0	0	0	0	0
Spillback Cap Reductn	0	3	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.66	0.40	0.08	0.72	0.43	0.20

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1089	107	0	841	0	123	0	42	405	369	102
Future Volume (vph)	0	1089	107	0	841	0	123	0	42	405	369	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5		7.0		7.0	7.0	7.0	7.0
Lane Util. Factor		0.91			0.95		1.00		1.00	1.00	1.00	1.00
Frpb, ped/bikes		0.96			1.00		1.00		0.69	1.00	1.00	0.67
Flpb, ped/bikes		1.00			1.00		0.85		1.00	0.69	1.00	1.00
Frt		0.99			1.00		1.00		0.85	1.00	1.00	0.85
Flt Protected		1.00			1.00		0.95		1.00	0.95	1.00	1.00
Satd. Flow (prot)		4519			3471		1392		1012	1215	1845	1051
Flt Permitted		1.00			1.00		0.45		1.00	0.95	1.00	1.00
Satd. Flow (perm)		4519			3471		661		1012	1215	1845	1051
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1111	109	0	858	0	126	0	43	413	377	104
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	23	0	0	29
Lane Group Flow (vph)	0	1220	0	0	858	0	126	0	20	413	377	75
Confl. Peds. (#/hr)	807		213	213		807	252		202	202		252
Confl. Bikes (#/hr)			82			7			6			5
Heavy Vehicles (%)	9%	9%	9%	4%	4%	4%	10%	10%	10%	3%	3%	3%
Turn Type		NA			NA		Perm		Perm	Perm	NA	Perm
Protected Phases		2			6						8	
Permitted Phases							4		4	8		8
Actuated Green, G (s)		41.5			41.5		52.0		52.0	52.0	52.0	52.0
Effective Green, g (s)		41.5			41.5		52.0		52.0	52.0	52.0	52.0
Actuated g/C Ratio		0.38			0.38		0.47		0.47	0.47	0.47	0.47
Clearance Time (s)		6.5			6.5		7.0		7.0	7.0	7.0	7.0
Lane Grp Cap (vph)		1704			1309		312		478	574	872	496
v/s Ratio Prot		c0.27			0.25						0.20	
v/s Ratio Perm							0.19		0.02	c0.34		0.07
v/c Ratio		0.72			0.66		0.40		0.04	0.72	0.43	0.15
Uniform Delay, d1		29.2			28.3		18.9		15.6	23.2	19.2	16.5
Progression Factor		1.32			0.79		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		1.8			2.1		3.9		0.2	7.6	1.6	0.6
Delay (s)		40.3			24.3		22.8		15.8	30.8	20.8	17.1
Level of Service		D			C		C		B	C	C	B
Approach Delay (s)		40.3			24.3			21.0			25.0	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	30.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	84.5%	ICU Level of Service	E
Analysis Period (min)	15		

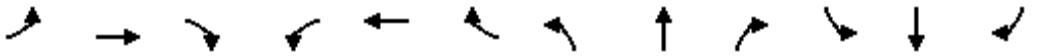
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	153	703	807	297	15	566	183
v/c Ratio	0.69	0.68	0.89	0.61	0.12	0.79	0.46
Control Delay	71.8	26.2	31.7	29.6	38.4	49.9	29.1
Queue Delay	0.0	0.7	2.5	0.0	0.0	2.6	0.0
Total Delay	71.8	26.9	34.1	29.6	38.4	52.5	29.1
Queue Length 50th (ft)	114	124	114	158	7	195	92
Queue Length 95th (ft)	m#190	149	#188	194	28	260	160
Internal Link Dist (ft)		209	246		170		344
Turn Bay Length (ft)							
Base Capacity (vph)	223	1032	907	487	121	714	402
Starvation Cap Reductn	0	105	0	0	0	0	0
Spillback Cap Reductn	0	0	40	0	0	68	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.76	0.93	0.61	0.12	0.88	0.46

Intersection Summary

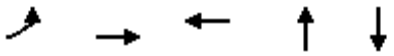
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	667	8	7	768	285	2	8	5	543	1	175
Future Volume (vph)	147	667	8	7	768	285	2	8	5	543	1	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0			6.0	7.0		7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00		0.97	1.00	
Frpb, ped/bikes	1.00	0.99			1.00	0.60		0.88		1.00	0.69	
Flpb, ped/bikes	1.00	1.00			1.00	1.00		0.97		1.00	1.00	
Frt	1.00	1.00			1.00	0.85		0.95		1.00	0.85	
Flt Protected	0.95	1.00			1.00	1.00		0.99		0.95	1.00	
Satd. Flow (prot)	1641	3247			3437	917		1235		3273	1045	
Flt Permitted	0.95	1.00			0.95	1.00		0.94		0.95	1.00	
Satd. Flow (perm)	1641	3247			3278	917		1165		3273	1045	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	153	695	8	7	800	297	2	8	5	566	1	182
RTOR Reduction (vph)	0	0	0	0	0	0	0	5	0	0	4	0
Lane Group Flow (vph)	153	703	0	0	807	297	0	11	0	566	179	0
Confl. Peds. (#/hr)	530		382	382		530	214		170	170		214
Confl. Bikes (#/hr)			127			38						10
Heavy Vehicles (%)	10%	10%	10%	5%	5%	5%	25%	25%	25%	7%	7%	7%
Turn Type	Prot	NA		Prot	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases	1	6		5	2	3		4		3	8	
Permitted Phases						2	4					
Actuated Green, G (s)	15.0	35.0			50.0	59.0		11.0		24.0	42.0	
Effective Green, g (s)	15.0	35.0			50.0	59.0		11.0		24.0	42.0	
Actuated g/C Ratio	0.14	0.32			0.45	0.54		0.10		0.22	0.38	
Clearance Time (s)	5.0	6.0			6.0	7.0		7.0		7.0	7.0	
Lane Grp Cap (vph)	223	1033			1511	491		116		714	399	
v/s Ratio Prot	c0.09	c0.22			0.07	0.13				c0.17	c0.17	
v/s Ratio Perm					0.17	0.19		0.01				
v/c Ratio	0.69	0.68			0.53	0.60		0.09		0.79	0.45	
Uniform Delay, d1	45.3	32.6			21.6	17.5		45.0		40.6	25.4	
Progression Factor	1.26	0.70			0.98	1.07		1.00		1.00	1.00	
Incremental Delay, d2	13.8	3.1			1.1	4.5		1.5		8.8	3.6	
Delay (s)	71.1	25.9			22.2	23.2		46.5		49.5	29.0	
Level of Service	E	C			C	C		D		D	C	
Approach Delay (s)		34.0			22.5			46.5			44.5	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	32.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	78.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	190	1134	1665	1562	282
v/c Ratio	0.80	0.39	1.02dl	1.16	0.41
Control Delay	45.0	10.4	41.0	117.7	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	45.0	10.4	41.0	117.7	11.6
Queue Length 50th (ft)	107	239	318	~478	17
Queue Length 95th (ft)	m#155	235	#388	#576	37
Internal Link Dist (ft)		1027	345	451	993
Turn Bay Length (ft)					
Base Capacity (vph)	238	2876	1810	1341	696
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.80	0.39	0.92	1.16	0.41

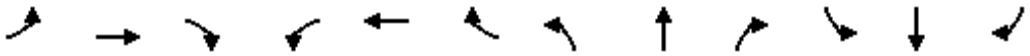
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

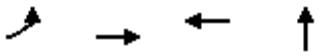
dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	182	1064	25	173	1368	58	63	1055	381	13	140	117
Future Volume (vph)	182	1064	25	173	1368	58	63	1055	381	13	140	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.5			6.5			6.5			6.5	
Lane Util. Factor	1.00	0.91			0.86			0.91			0.95	
Frpb, ped/bikes	1.00	0.99			1.00			0.99			0.86	
Flpb, ped/bikes	1.00	1.00			0.99			0.99			1.00	
Frt	1.00	1.00			0.99			0.96			0.94	
Flt Protected	0.95	1.00			0.99			1.00			1.00	
Satd. Flow (prot)	1752	4978			6218			4830			2852	
Flt Permitted	0.95	1.00			0.73			0.90			0.70	
Satd. Flow (perm)	1752	4978			4562			4352			2008	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	190	1108	26	180	1425	60	66	1099	397	14	146	122
RTOR Reduction (vph)	0	2	0	0	5	0	0	16	0	0	85	0
Lane Group Flow (vph)	190	1132	0	0	1660	0	0	1546	0	0	197	0
Confl. Peds. (#/hr)	24		265	265		24	292		31	31		292
Confl. Bikes (#/hr)			8						5			
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	1%	1%	1%	2%	2%	2%
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	6			2			8			4	
Permitted Phases				2			8			4		
Actuated Green, G (s)	15.0	63.5			43.5			33.5			33.5	
Effective Green, g (s)	15.0	63.5			43.5			33.5			33.5	
Actuated g/C Ratio	0.14	0.58			0.40			0.30			0.30	
Clearance Time (s)	5.0	6.5			6.5			6.5			6.5	
Lane Grp Cap (vph)	238	2873			1804			1325			611	
v/s Ratio Prot	c0.11	0.23										
v/s Ratio Perm					c0.36			c0.36			0.10	
v/c Ratio	0.80	0.39			1.02dl			1.17			0.32	
Uniform Delay, d1	46.0	12.7			31.6			38.2			29.5	
Progression Factor	0.60	0.80			1.00			1.00			0.59	
Incremental Delay, d2	15.4	0.2			9.2			83.6			1.3	
Delay (s)	43.1	10.4			40.8			121.8			18.7	
Level of Service	D	B			D			F			B	
Approach Delay (s)		15.1			40.8			121.8			18.7	
Approach LOS		B			D			F			B	

Intersection Summary			
HCM 2000 Control Delay	58.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	120.7%	ICU Level of Service	H
Analysis Period (min)	15		

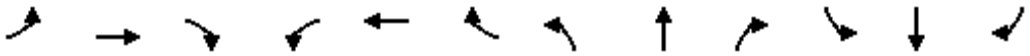
dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	41	132	509	1076
v/c Ratio	0.15	0.15	0.64	0.58
Control Delay	13.3	11.7	25.1	12.2
Queue Delay	0.0	0.0	0.0	0.3
Total Delay	13.3	11.7	25.1	12.5
Queue Length 50th (ft)	17	54	255	81
Queue Length 95th (ft)	m29	m71	374	105
Internal Link Dist (ft)		379	152	314
Turn Bay Length (ft)	75			
Base Capacity (vph)	272	905	790	1855
Starvation Cap Reductn	0	0	0	248
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.15	0.15	0.64	0.67

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	127	0	0	349	139	29	890	114	0	0	0
Future Volume (vph)	39	127	0	0	349	139	29	890	114	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5			6.0				
Lane Util. Factor	1.00	1.00			1.00			0.91				
Frpb, ped/bikes	1.00	1.00			0.91			0.94				
Flpb, ped/bikes	0.90	1.00			1.00			0.98				
Frt	1.00	1.00			0.96			0.98				
Flt Protected	0.95	1.00			1.00			1.00				
Satd. Flow (prot)	1568	1827			1592			4603				
Flt Permitted	0.33	1.00			1.00			1.00				
Satd. Flow (perm)	550	1827			1592			4603				
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	41	132	0	0	364	145	30	927	119	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	14	0	0	0	0
Lane Group Flow (vph)	41	132	0	0	507	0	0	1062	0	0	0	0
Confl. Peds. (#/hr)	258		274	274		258	356		343	343		356
Confl. Bikes (#/hr)			29			15			20			
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			4			2				
Permitted Phases	4						2					
Actuated Green, G (s)	54.5	54.5			54.5			44.0				
Effective Green, g (s)	54.5	54.5			54.5			44.0				
Actuated g/C Ratio	0.50	0.50			0.50			0.40				
Clearance Time (s)	5.5	5.5			5.5			6.0				
Lane Grp Cap (vph)	272	905			788			1841				
v/s Ratio Prot		0.07			c0.32							
v/s Ratio Perm	0.07							0.23				
v/c Ratio	0.15	0.15			0.64			0.58				
Uniform Delay, d1	15.1	15.1			20.6			25.7				
Progression Factor	0.79	0.75			1.00			0.45				
Incremental Delay, d2	0.8	0.2			4.0			0.9				
Delay (s)	12.8	11.5			24.6			12.4				
Level of Service	B	B			C			B				
Approach Delay (s)		11.8			24.6			12.4			0.0	
Approach LOS		B			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	15.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		

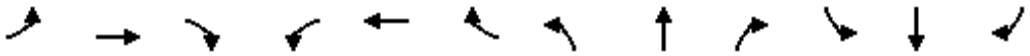
c Critical Lane Group



Lane Group	EBT	EBR	WBT	WBR	NBT
Lane Group Flow (vph)	751	297	747	277	1430
v/c Ratio	0.49	0.44	0.48	0.63	0.70
Control Delay	10.9	11.4	14.4	21.4	9.3
Queue Delay	0.0	0.0	11.9	10.6	0.0
Total Delay	10.9	11.4	26.3	31.9	9.3
Queue Length 50th (ft)	54	41	158	131	263
Queue Length 95th (ft)	62	54	m225	m201	m187
Internal Link Dist (ft)	419		209		993
Turn Bay Length (ft)		100			
Base Capacity (vph)	1532	675	1561	440	2038
Starvation Cap Reductn	0	0	792	133	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.49	0.44	0.97	0.90	0.70

Intersection Summary

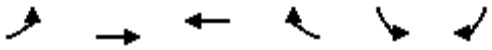
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	691	273	0	687	255	147	1019	149	0	0	0
Future Volume (vph)	0	691	273	0	687	255	147	1019	149	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5		6.5	6.5		7.0				
Lane Util. Factor		0.95	1.00		0.95	1.00		0.91				
Frpb, ped/bikes		1.00	0.99		1.00	0.63		0.96				
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00				
Frt		1.00	0.85		1.00	0.85		0.98				
Flt Protected		1.00	1.00		1.00	1.00		0.99				
Satd. Flow (prot)		3406	1501		3471	978		4738				
Flt Permitted		1.00	1.00		1.00	1.00		0.99				
Satd. Flow (perm)		3406	1501		3471	978		4738				
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	751	297	0	747	277	160	1108	162	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	15	0	0	0	0
Lane Group Flow (vph)	0	751	297	0	747	277	0	1415	0	0	0	0
Confl. Peds. (#/hr)	564					564	1		235	235		1
Confl. Bikes (#/hr)			6			6			24			
Heavy Vehicles (%)	6%	6%	6%	4%	4%	4%	3%	3%	3%	0%	0%	0%
Turn Type		NA	Perm		NA	Perm	Perm	NA				
Protected Phases		2			2			4				
Permitted Phases			2			2	4					
Actuated Green, G (s)		49.5	49.5		49.5	49.5		47.0				
Effective Green, g (s)		49.5	49.5		49.5	49.5		47.0				
Actuated g/C Ratio		0.45	0.45		0.45	0.45		0.43				
Clearance Time (s)		6.5	6.5		6.5	6.5		7.0				
Lane Grp Cap (vph)		1532	675		1561	440		2024				
v/s Ratio Prot		0.22			0.22							
v/s Ratio Perm			0.20			c0.28		0.30				
v/c Ratio		0.49	0.44		0.48	0.63		0.70				
Uniform Delay, d1		21.3	20.7		21.2	23.2		25.7				
Progression Factor		0.46	0.45		0.64	0.71		0.36				
Incremental Delay, d2		1.0	1.8		0.6	4.1		0.2				
Delay (s)		10.8	11.1		14.3	20.6		9.4				
Level of Service		B	B		B	C		A				
Approach Delay (s)		10.9			16.0			9.4			0.0	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		

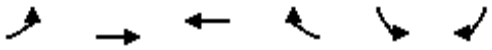
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	221	465	540	318	549	214
v/c Ratio	0.65	0.34	0.39	0.41	0.66	0.47
Control Delay	42.1	27.4	14.5	8.5	23.9	7.0
Queue Delay	1.2	0.7	0.4	0.3	55.2	8.5
Total Delay	43.3	28.1	14.9	8.7	79.1	15.5
Queue Length 50th (ft)	116	113	155	36	182	45
Queue Length 95th (ft)	197	152	188	43	m212	m57
Internal Link Dist (ft)		228	419		144	
Turn Bay Length (ft)				200		
Base Capacity (vph)	339	1372	1372	779	834	457
Starvation Cap Reductn	28	573	0	0	421	201
Spillback Cap Reductn	0	0	372	118	0	22
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.58	0.54	0.48	1.33	0.84

Intersection Summary

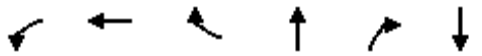
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	214	451	524	308	533	208
Future Volume (vph)	214	451	524	308	533	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	6.5	6.5	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.78	1.00	0.77
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1736	3471	3471	1209	3400	1207
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1736	3471	3471	1209	3400	1207
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	221	465	540	318	549	214
RTOR Reduction (vph)	0	0	0	0	0	161
Lane Group Flow (vph)	221	465	540	318	549	53
Confl. Peds. (#/hr)	328			328	669	133
Confl. Bikes (#/hr)				41		5
Heavy Vehicles (%)	4%	4%	4%	4%	3%	3%
Turn Type	Prot	NA	NA	pm+ov	Prot	Perm
Protected Phases	1	2	2	4	4	
Permitted Phases				2		4
Actuated Green, G (s)	21.5	43.5	43.5	70.5	27.0	27.0
Effective Green, g (s)	21.5	43.5	43.5	70.5	27.0	27.0
Actuated g/C Ratio	0.20	0.40	0.40	0.64	0.25	0.25
Clearance Time (s)	5.5	6.5	6.5	6.0	6.0	6.0
Lane Grp Cap (vph)	339	1372	1372	840	834	296
v/s Ratio Prot	c0.13	0.13	0.16	c0.09	c0.16	
v/s Ratio Perm				0.17		0.04
v/c Ratio	0.65	0.34	0.39	0.38	0.66	0.18
Uniform Delay, d1	40.8	23.2	23.8	9.4	37.3	32.7
Progression Factor	0.79	1.14	0.57	1.07	0.57	1.06
Incremental Delay, d2	9.3	0.7	0.7	1.1	2.2	0.7
Delay (s)	41.5	27.1	14.4	11.1	23.7	35.3
Level of Service	D	C	B	B	C	D
Approach Delay (s)		31.8	13.2		26.9	
Approach LOS		C	B		C	

Intersection Summary			
HCM 2000 Control Delay	23.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		

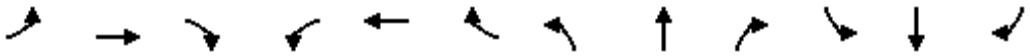
c Critical Lane Group



Lane Group	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	133	208	107	458	83	907
v/c Ratio	0.53	0.53	0.25	0.52	0.36	0.95
Control Delay	38.3	35.6	4.5	41.6	7.9	57.2
Queue Delay	0.0	0.0	0.0	37.4	0.3	44.3
Total Delay	38.3	35.6	4.5	79.0	8.2	101.6
Queue Length 50th (ft)	42	66	1	170	4	320
Queue Length 95th (ft)	m113	164	m23	202	m23	#452
Internal Link Dist (ft)		379		144		303
Turn Bay Length (ft)	200		65			
Base Capacity (vph)	253	390	435	875	233	954
Starvation Cap Reductn	0	0	0	439	18	0
Spillback Cap Reductn	0	0	0	0	0	259
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.53	0.25	1.05	0.39	1.31

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	126	198	102	78	357	79	107	558	197
Future Volume (vph)	0	0	0	126	198	102	78	357	79	107	558	197
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5	6.5		6.0	6.0		6.0	
Lane Util. Factor				1.00	1.00	1.00		0.95	1.00		0.95	
Frpb, ped/bikes				1.00	1.00	0.96		1.00	0.30		0.99	
Flpb, ped/bikes				0.68	1.00	1.00		1.00	1.00		1.00	
Frt				1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected				0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)				1188	1827	1490		3440	468		3294	
Flt Permitted				0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (perm)				1188	1827	1490		3440	468		3294	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	133	208	107	82	376	83	113	587	207
RTOR Reduction (vph)	0	0	0	0	0	84	0	0	62	0	25	0
Lane Group Flow (vph)	0	0	0	133	208	23	0	458	21	0	882	0
Confl. Peds. (#/hr)	18		264	264		18	19		528	528		19
Confl. Bikes (#/hr)						3			4			1
Heavy Vehicles (%)	0%	0%	0%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Perm	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases					4		2	2		1	1	
Permitted Phases				4		4			2			
Actuated Green, G (s)				23.5	23.5	23.5		28.0	28.0		31.0	
Effective Green, g (s)				23.5	23.5	23.5		28.0	28.0		31.0	
Actuated g/C Ratio				0.21	0.21	0.21		0.25	0.25		0.28	
Clearance Time (s)				6.5	6.5	6.5		6.0	6.0		6.0	
Lane Grp Cap (vph)				253	390	318		875	119		928	
v/s Ratio Prot					c0.11			c0.13			c0.27	
v/s Ratio Perm				0.11		0.02			0.05			
v/c Ratio				0.53	0.53	0.07		0.52	0.18		0.95	
Uniform Delay, d1				38.3	38.4	34.5		35.3	32.0		38.7	
Progression Factor				0.81	0.80	1.50		1.11	1.00		1.00	
Incremental Delay, d2				6.4	4.3	0.4		2.0	2.8		19.7	
Delay (s)				37.5	35.1	52.2		41.2	34.8		58.5	
Level of Service				D	D	D		D	C		E	
Approach Delay (s)		0.0			39.9			40.2			58.5	
Approach LOS		A			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	48.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	1124	1453	85	1773	1752
v/c Ratio	0.84	1.10	0.26	0.57	0.69
Control Delay	40.8	78.2	7.0	17.6	38.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	40.8	78.2	7.0	17.6	38.3
Queue Length 50th (ft)	265	~462	26	226	417
Queue Length 95th (ft)	326	m#532	m29	261	472
Internal Link Dist (ft)	320	1027		460	1159
Turn Bay Length (ft)					
Base Capacity (vph)	1334	1315	330	3102	2532
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.84	1.10	0.26	0.57	0.69

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	989	75	32	1355	90	0	1393	309	0	1443	239
Future Volume (vph)	15	989	75	32	1355	90	0	1393	309	0	1443	239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5	4.5		4.5			4.5	
Lane Util. Factor		0.91			0.86	0.86		0.86			0.91	
Frpb, ped/bikes		0.98			1.00	0.65		0.94			0.96	
Flpb, ped/bikes		1.00			1.00	1.00		1.00			1.00	
Frt		0.99			1.00	0.85		0.97			0.98	
Flt Protected		1.00			1.00	1.00		1.00			1.00	
Satd. Flow (prot)		4919			4781	886		5781			4721	
Flt Permitted		0.81			0.83	1.00		1.00			1.00	
Satd. Flow (perm)		3998			3961	886		5781			4721	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	16	1030	78	33	1411	94	0	1451	322	0	1503	249
RTOR Reduction (vph)	0	7	0	0	1	37	0	27	0	0	21	0
Lane Group Flow (vph)	0	1117	0	0	1452	48	0	1746	0	0	1731	0
Confl. Peds. (#/hr)	411		258	258		411	255		450	450		255
Confl. Bikes (#/hr)			9						9			
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA	Perm		NA			NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2						
Actuated Green, G (s)		36.5			36.5	36.5		58.5			58.5	
Effective Green, g (s)		36.5			36.5	36.5		58.5			58.5	
Actuated g/C Ratio		0.33			0.33	0.33		0.53			0.53	
Clearance Time (s)		4.5			4.5	4.5		4.5			4.5	
Lane Grp Cap (vph)		1326			1314	293		3074			2510	
v/s Ratio Prot								0.30			c0.37	
v/s Ratio Perm		0.28			c0.37	0.05						
v/c Ratio		0.84			1.11	0.16		0.57			0.69	
Uniform Delay, d1		34.1			36.8	26.0		17.3			19.0	
Progression Factor		1.00			0.66	0.52		1.00			1.97	
Incremental Delay, d2		6.6			52.9	0.5		0.8			1.5	
Delay (s)		40.7			77.2	14.0		18.0			38.9	
Level of Service		D			E	B		B			D	
Approach Delay (s)		40.7			73.7			18.0			38.9	
Approach LOS		D			E			B			D	

Intersection Summary			
HCM 2000 Control Delay	41.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	91.9%	ICU Level of Service	F
Analysis Period (min)	15		

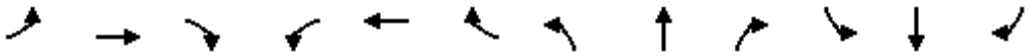
c Critical Lane Group



Lane Group	EBT	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	504	554	133	114	1546	1343
v/c Ratio	0.64	0.55	0.37	0.66	0.81	0.44
Control Delay	55.6	19.3	17.1	31.5	18.6	13.4
Queue Delay	0.0	0.6	0.0	0.0	0.0	0.5
Total Delay	55.6	19.9	17.1	31.5	18.6	13.9
Queue Length 50th (ft)	194	220	97	41	545	291
Queue Length 95th (ft)	251	278	165	#123	666	341
Internal Link Dist (ft)	394	259			1159	146
Turn Bay Length (ft)						
Base Capacity (vph)	790	1003	364	173	1913	3020
Starvation Cap Reductn	0	159	0	0	0	1111
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.66	0.37	0.66	0.81	0.70

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	308	171	0	526	126	108	1249	219	0	1267	9
Future Volume (vph)	0	308	171	0	526	126	108	1249	219	0	1267	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5	6.5	6.5	6.5			6.5	
Lane Util. Factor		0.95			0.95	1.00	1.00	0.95			0.91	
Frpb, ped/bikes		0.87			1.00	0.81	1.00	0.94			1.00	
Flpb, ped/bikes		1.00			1.00	1.00	0.97	1.00			1.00	
Frt		0.95			1.00	0.85	1.00	0.98			1.00	
Flt Protected		1.00			1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)		2762			3505	1272	1704	3212			5072	
Flt Permitted		1.00			1.00	1.00	0.16	1.00			1.00	
Satd. Flow (perm)		2762			3505	1272	290	3212			5072	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	324	180	0	554	133	114	1315	231	0	1334	9
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	504	0	0	554	133	114	1546	0	0	1343	0
Confl. Peds. (#/hr)	128		395	395		128	186		447	447		186
Confl. Bikes (#/hr)			75			50			15			1
Heavy Vehicles (%)	8%	8%	8%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Turn Type		NA			NA	Perm	Perm	NA			NA	
Protected Phases		8			4			6			2	
Permitted Phases						4	6					
Actuated Green, G (s)		31.5			31.5	31.5	65.5	65.5			65.5	
Effective Green, g (s)		31.5			31.5	31.5	65.5	65.5			65.5	
Actuated g/C Ratio		0.29			0.29	0.29	0.60	0.60			0.60	
Clearance Time (s)		6.5			6.5	6.5	6.5	6.5			6.5	
Lane Grp Cap (vph)		790			1003	364	172	1912			3020	
v/s Ratio Prot		c0.18			0.16			c0.48			0.26	
v/s Ratio Perm						0.10	0.39					
v/c Ratio		0.64			0.55	0.37	0.66	0.81			0.44	
Uniform Delay, d1		34.3			33.3	31.3	14.9	17.4			12.2	
Progression Factor		1.50			0.51	0.45	0.82	0.85			1.05	
Incremental Delay, d2		3.4			2.1	2.7	16.2	3.3			0.4	
Delay (s)		54.9			19.2	16.7	28.3	18.1			13.3	
Level of Service		D			B	B	C	B			B	
Approach Delay (s)		54.9			18.7			18.8			13.3	
Approach LOS		D			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	21.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		

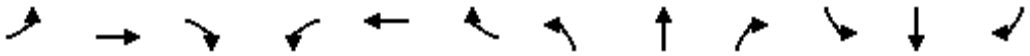
c Critical Lane Group



Lane Group	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	236	232	192	1396	1225
v/c Ratio	0.69	0.66	0.61	0.44	0.52
Control Delay	55.4	53.5	16.7	4.9	20.5
Queue Delay	0.0	0.0	8.6	1.1	0.3
Total Delay	55.4	53.5	25.3	6.0	20.8
Queue Length 50th (ft)	188	184	22	58	210
Queue Length 95th (ft)	m244	m238	m44	103	252
Internal Link Dist (ft)		580		146	270
Turn Bay Length (ft)					
Base Capacity (vph)	342	350	315	3158	2359
Starvation Cap Reductn	0	0	88	1419	0
Spillback Cap Reductn	0	0	0	0	488
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.69	0.66	0.85	0.80	0.65

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	306	58	66	177	1284	0	0	1077	50
Future Volume (vph)	0	0	0	306	58	66	177	1284	0	0	1077	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5		6.0	6.0			6.0	
Lane Util. Factor				0.95	0.95		1.00	0.91			0.91	
Frpb, ped/bikes				1.00	0.90		1.00	1.00			0.98	
Flpb, ped/bikes				0.79	0.91		0.99	1.00			1.00	
Frt				1.00	0.95		1.00	1.00			0.99	
Flt Protected				0.95	0.98		0.95	1.00			1.00	
Satd. Flow (prot)				1320	1345		1738	5036			4888	
Flt Permitted				0.95	0.98		0.17	1.00			1.00	
Satd. Flow (perm)				1320	1345		310	5036			4888	
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	333	63	72	192	1396	0	0	1171	54
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	0	0	236	230	0	192	1396	0	0	1220	0
Confl. Peds. (#/hr)	290		163	163		290	234		649	649		234
Confl. Bikes (#/hr)						9			19			2
Heavy Vehicles (%)	0%	0%	0%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type				Perm	NA		pm+pt	NA			NA	
Protected Phases					4		5	2			6	
Permitted Phases				4			2					
Actuated Green, G (s)				28.5	28.5		69.0	69.0			53.0	
Effective Green, g (s)				28.5	28.5		69.0	69.0			53.0	
Actuated g/C Ratio				0.26	0.26		0.63	0.63			0.48	
Clearance Time (s)				6.5	6.5		6.0	6.0			6.0	
Lane Grp Cap (vph)				342	348		324	3158			2355	
v/s Ratio Prot							c0.05	0.28			0.25	
v/s Ratio Perm				c0.18	0.17		c0.32					
v/c Ratio				0.69	0.66		0.59	0.44			0.52	
Uniform Delay, d1				36.8	36.4		24.7	10.6			19.7	
Progression Factor				1.26	1.27		0.45	0.43			1.00	
Incremental Delay, d2				7.7	6.7		5.5	0.3			0.8	
Delay (s)				54.2	52.9		16.6	4.8			20.5	
Level of Service				D	D		B	A			C	
Approach Delay (s)		0.0			53.5			6.2			20.5	
Approach LOS		A			D			A			C	

Intersection Summary			
HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

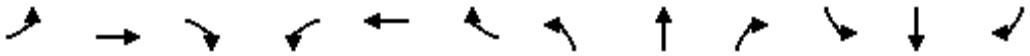
c Critical Lane Group



Lane Group	EBT	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	34	357	144	520	201	643
v/c Ratio	0.21	0.81	0.20	0.71	0.72	0.41
Control Delay	45.5	38.7	6.5	43.4	59.6	20.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.5	38.7	6.5	43.4	59.6	20.2
Queue Length 50th (ft)	21	43	19	176	136	152
Queue Length 95th (ft)	53	#178	m27	238	#238	199
Internal Link Dist (ft)	133			1023		200
Turn Bay Length (ft)			100			
Base Capacity (vph)	159	439	734	728	278	1580
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.81	0.20	0.71	0.72	0.41

Intersection Summary

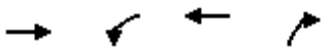
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	5	0	339	0	137	6	324	164	191	605	6
Future Volume (vph)	28	5	0	339	0	137	6	324	164	191	605	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5		6.5		6.5		6.5		5.0	6.5	
Lane Util. Factor		1.00		0.97		1.00		0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00		1.00		0.91		1.00	0.99	
Flpb, ped/bikes		1.00		1.00		1.00		1.00		1.00	1.00	
Frt		1.00		1.00		0.85		0.95		1.00	1.00	
Flt Protected		0.96		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1817		3335		1538		2973		1703	3375	
Flt Permitted		0.96		0.95		1.00		0.95		0.95	1.00	
Satd. Flow (perm)		1817		3335		1538		2812		1703	3375	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	29	5	0	357	0	144	6	341	173	201	637	6
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	34	0	357	0	144	0	520	0	201	643	0
Confl. Peds. (#/hr)	2		243	243		2	731		183	183		731
Confl. Bikes (#/hr)			1			80			52			85
Heavy Vehicles (%)	0%	0%	0%	5%	5%	5%	4%	4%	4%	6%	6%	6%
Turn Type	Prot	NA	Perm	Prot		custom	Perm	NA		Prot	NA	
Protected Phases	3	8		7		7 4 1		2		1	6	
Permitted Phases			8				2					
Actuated Green, G (s)		24.5		14.5		54.0		28.5		18.0	51.5	
Effective Green, g (s)		24.5		14.5		54.0		28.5		18.0	51.5	
Actuated g/C Ratio		0.22		0.13		0.49		0.26		0.16	0.47	
Clearance Time (s)		6.5		6.5				6.5		5.0	6.5	
Lane Grp Cap (vph)		404		439		755		728		278	1580	
v/s Ratio Prot		c0.01		c0.11		c0.09				c0.12	0.19	
v/s Ratio Perm		0.01						c0.18				
v/c Ratio		0.08		0.81		0.19		0.71		0.72	0.41	
Uniform Delay, d1		33.9		46.4		15.7		37.0		43.6	19.2	
Progression Factor		1.00		0.53		0.36		1.00		1.00	1.00	
Incremental Delay, d2		0.4		12.8		0.5		5.9		15.1	0.8	
Delay (s)		34.3		37.5		6.1		43.0		58.7	20.0	
Level of Service		C		D		A		D		E	B	
Approach Delay (s)		34.3			28.5			43.0			29.2	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	32.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBL	WBT	NBR
Lane Group Flow (vph)	1237	781	790	1071
v/c Ratio	0.73	0.83	0.67	0.55
Control Delay	13.0	44.0	27.7	30.1
Queue Delay	0.3	51.2	2.0	50.4
Total Delay	13.3	95.1	29.7	80.5
Queue Length 50th (ft)	114	505	262	263
Queue Length 95th (ft)	m160	635	331	323
Internal Link Dist (ft)	354		202	
Turn Bay Length (ft)				
Base Capacity (vph)	1689	939	1178	1936
Starvation Cap Reductn	108	382	241	608
Spillback Cap Reductn	0	0	0	1015
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.78	1.40	0.84	1.16

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1121	5	711	719	0	975
Future Volume (vph)	1121	5	711	719	0	975
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0		7.0	7.0		7.0
Lane Util. Factor	0.91		1.00	0.95		0.76
Frpb, ped/bikes	1.00		1.00	1.00		1.00
Flpb, ped/bikes	1.00		1.00	1.00		1.00
Frt	1.00		1.00	1.00		0.85
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	5025		1752	3505		3610
Flt Permitted	1.00		0.95	1.00		1.00
Satd. Flow (perm)	5025		1752	3505		3610
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	1232	5	781	790	0	1071
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1237	0	781	790	0	1071
Confl. Peds. (#/hr)		226	226		28	
Confl. Bikes (#/hr)		111				3
Heavy Vehicles (%)	3%	3%	3%	3%	2%	2%
Turn Type	NA		Prot	NA		Prot
Protected Phases	2		7	6		4
Permitted Phases						
Actuated Green, G (s)	37.0		59.0	37.0		59.0
Effective Green, g (s)	37.0		59.0	37.0		59.0
Actuated g/C Ratio	0.34		0.54	0.34		0.54
Clearance Time (s)	7.0		7.0	7.0		7.0
Lane Grp Cap (vph)	1690		939	1178		1936
v/s Ratio Prot	c0.25		c0.45	0.23		0.30
v/s Ratio Perm						
v/c Ratio	0.73		0.83	0.67		0.55
Uniform Delay, d1	32.1		21.3	31.3		16.8
Progression Factor	0.36		1.63	0.79		1.70
Incremental Delay, d2	1.2		7.9	2.8		1.1
Delay (s)	12.9		42.8	27.4		29.8
Level of Service	B		D	C		C
Approach Delay (s)	12.9			35.0	29.8	
Approach LOS	B			D	C	

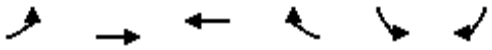
Intersection Summary			
HCM 2000 Control Delay	26.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	72.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	SBR
Lane Group Flow (vph)	1687	320	16	1218
v/c Ratio	0.85	0.60	0.02	0.58
Control Delay	22.6	36.6	25.9	14.6
Queue Delay	47.5	4.1	0.0	1.1
Total Delay	70.1	40.7	25.9	15.7
Queue Length 50th (ft)	427	176	3	200
Queue Length 95th (ft)	538	267	12	251
Internal Link Dist (ft)		268	282	
Turn Bay Length (ft)				
Base Capacity (vph)	1991	530	850	2114
Starvation Cap Reductn	607	137	0	594
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.22	0.81	0.02	0.80

Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1636	310	16	0	0	1181
Future Volume (vph)	1636	310	16	0	0	1181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.5	6.5			7.0
Lane Util. Factor	0.97	1.00	0.95			0.76
Frpb, ped/bikes	1.00	1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	1.00	1.00	1.00			0.85
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3433	1863	2983			3646
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3433	1863	2983			3646
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1687	320	16	0	0	1218
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1687	320	16	0	0	1218
Confl. Peds. (#/hr)	97			97		
Confl. Bikes (#/hr)				30		13
Heavy Vehicles (%)	2%	2%	21%	21%	1%	1%
Turn Type	Prot	NA	NA			Prot
Protected Phases	7	6	2			4
Permitted Phases						
Actuated Green, G (s)	58.0	28.5	28.5			58.0
Effective Green, g (s)	58.0	28.5	28.5			58.0
Actuated g/C Ratio	0.58	0.28	0.28			0.58
Clearance Time (s)	7.0	6.5	6.5			7.0
Lane Grp Cap (vph)	1991	530	850			2114
v/s Ratio Prot	c0.49	c0.17	0.01			0.33
v/s Ratio Perm						
v/c Ratio	0.85	0.60	0.02			0.58
Uniform Delay, d1	17.3	30.9	25.7			13.2
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	4.7	5.0	0.0			1.2
Delay (s)	22.0	35.9	25.7			14.4
Level of Service	C	D	C			B
Approach Delay (s)		24.3	25.7		14.4	
Approach LOS		C	C		B	

Intersection Summary			
HCM 2000 Control Delay	20.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	58.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBL	WBT	NBR
Lane Group Flow (vph)	566	40	733	180
v/c Ratio	0.20	0.07	0.36	0.26
Control Delay	7.2	34.2	19.7	0.9
Queue Delay	0.0	0.0	1.7	0.0
Total Delay	7.2	34.2	21.3	0.9
Queue Length 50th (ft)	47	16	263	0
Queue Length 95th (ft)	m51	m40	331	0
Internal Link Dist (ft)	259		228	
Turn Bay Length (ft)				
Base Capacity (vph)	2763	541	2055	699
Starvation Cap Reductn	0	0	1098	0
Spillback Cap Reductn	13	0	122	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.21	0.07	0.77	0.26

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	504	17	37	674	0	166
Future Volume (vph)	504	17	37	674	0	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		6.0	5.5		6.0
Lane Util. Factor	0.91		1.00	0.95		1.00
Frpb, ped/bikes	1.00		1.00	1.00		1.00
Flpb, ped/bikes	1.00		1.00	1.00		1.00
Frt	1.00		1.00	1.00		0.86
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	4714		1752	3505		1644
Flt Permitted	1.00		0.95	1.00		1.00
Satd. Flow (perm)	4714		1752	3505		1644
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	548	18	40	733	0	180
RTOR Reduction (vph)	0	0	0	0	0	124
Lane Group Flow (vph)	566	0	40	733	0	56
Confl. Peds. (#/hr)		35	35			5
Confl. Bikes (#/hr)		35				
Heavy Vehicles (%)	9%	9%	3%	3%	0%	0%
Turn Type	NA		Prot	NA		Over
Protected Phases	2		4	6		4
Permitted Phases						
Actuated Green, G (s)	64.5		34.0	64.5		34.0
Effective Green, g (s)	64.5		34.0	64.5		34.0
Actuated g/C Ratio	0.59		0.31	0.59		0.31
Clearance Time (s)	5.5		6.0	5.5		6.0
Lane Grp Cap (vph)	2764		541	2055		508
v/s Ratio Prot	0.12		0.02	c0.21		c0.03
v/s Ratio Perm						
v/c Ratio	0.20		0.07	0.36		0.11
Uniform Delay, d1	10.7		26.9	11.9		27.2
Progression Factor	0.66		1.25	1.60		1.00
Incremental Delay, d2	0.1		0.2	0.5		0.4
Delay (s)	7.2		33.8	19.5		27.6
Level of Service	A		C	B		C
Approach Delay (s)	7.2			20.2	27.6	
Approach LOS	A			C	C	

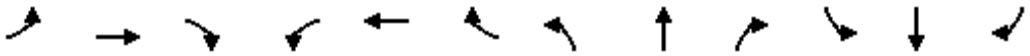
Intersection Summary			
HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBT
Lane Group Flow (vph)	1215	809
v/c Ratio	0.60	0.40
Control Delay	8.5	4.6
Queue Delay	10.2	0.1
Total Delay	18.7	4.7
Queue Length 50th (ft)	170	73
Queue Length 95th (ft)	m204	m86
Internal Link Dist (ft)	227	245
Turn Bay Length (ft)		
Base Capacity (vph)	2042	2042
Starvation Cap Reductn	806	319
Spillback Cap Reductn	354	2
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.98	0.47

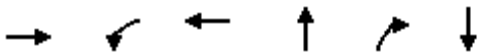
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑							
Traffic Volume (vph)	0	1118	0	0	744	0	0	0	0	0	0	0
Future Volume (vph)	0	1118	0	0	744	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3539			3539							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3539			3539							
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	1215	0	0	809	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1215	0	0	809	0	0	0	0	0	0	0
Turn Type		NA			NA							
Protected Phases		4			8							
Permitted Phases												
Actuated Green, G (s)		63.5			63.5							
Effective Green, g (s)		63.5			63.5							
Actuated g/C Ratio		0.58			0.58							
Clearance Time (s)		6.5			6.5							
Lane Grp Cap (vph)		2042			2042							
v/s Ratio Prot		c0.34			0.23							
v/s Ratio Perm												
v/c Ratio		0.60			0.40							
Uniform Delay, d1		15.0			12.7							
Progression Factor		0.51			0.32							
Incremental Delay, d2		0.7			0.5							
Delay (s)		8.4			4.6							
Level of Service		A			A							
Approach Delay (s)		8.4			4.6			0.0			0.0	
Approach LOS		A			A			A			A	

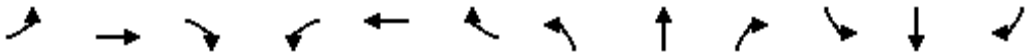
Intersection Summary			
HCM 2000 Control Delay	6.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	36.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	619	249	1743	471	339	225
v/c Ratio	0.39	0.79	0.66	0.49	0.52	0.28
Control Delay	28.8	62.0	17.7	2.4	6.4	30.4
Queue Delay	0.0	0.0	0.0	0.3	3.8	0.0
Total Delay	28.8	62.0	17.7	2.7	10.2	30.4
Queue Length 50th (ft)	121	170	288	7	64	48
Queue Length 95th (ft)	156	#293	340	10	132	68
Internal Link Dist (ft)	282		355	154		901
Turn Bay Length (ft)						
Base Capacity (vph)	1579	315	2624	968	650	813
Starvation Cap Reductn	0	0	0	116	224	0
Spillback Cap Reductn	0	0	0	0	0	9
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.79	0.66	0.55	0.80	0.28

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	603	2	244	1438	270	58	404	332	44	109	68
Future Volume (vph)	2	603	2	244	1438	270	58	404	332	44	109	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		5.0	6.0			6.5	6.5		6.5	
Lane Util. Factor		0.91		1.00	0.91			0.95	1.00		0.95	
Frpb, ped/bikes		1.00		1.00	0.95			1.00	0.84		0.98	
Flpb, ped/bikes		1.00		1.00	1.00			1.00	1.00		0.99	
Frt		1.00		1.00	0.98			1.00	0.85		0.95	
Flt Protected		1.00		0.95	1.00			0.99	1.00		0.99	
Satd. Flow (prot)		5032		1736	4613			3433	1303		3160	
Flt Permitted		0.93		0.95	1.00			0.87	1.00		0.78	
Satd. Flow (perm)		4695		1736	4613			3003	1303		2500	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	2	615	2	249	1467	276	59	412	339	45	111	69
RTOR Reduction (vph)	0	0	0	0	25	0	0	0	230	0	7	0
Lane Group Flow (vph)	0	619	0	249	1718	0	0	471	109	0	218	0
Confl. Peds. (#/hr)	236		19	19		236	39		112	112		39
Confl. Bikes (#/hr)			12			48			8			19
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Perm	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			4			4	
Permitted Phases	2						4		4	4		
Actuated Green, G (s)		37.0		20.0	62.0			35.5	35.5		35.5	
Effective Green, g (s)		37.0		20.0	62.0			35.5	35.5		35.5	
Actuated g/C Ratio		0.34		0.18	0.56			0.32	0.32		0.32	
Clearance Time (s)		6.0		5.0	6.0			6.5	6.5		6.5	
Lane Grp Cap (vph)		1579		315	2600			969	420		806	
v/s Ratio Prot				c0.14	c0.37							
v/s Ratio Perm		0.13						c0.16	0.08		0.09	
v/c Ratio		0.39		0.79	0.66			0.49	0.26		0.27	
Uniform Delay, d1		27.9		43.0	16.7			29.9	27.5		27.6	
Progression Factor		1.00		1.00	1.00			0.03	1.25		1.11	
Incremental Delay, d2		0.7		18.1	1.3			1.4	1.2		0.8	
Delay (s)		28.6		61.1	18.0			2.4	35.6		31.4	
Level of Service		C		E	B			A	D		C	
Approach Delay (s)		28.6			23.4			16.3			31.4	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	23.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	119.3%	ICU Level of Service	H
Analysis Period (min)	15		

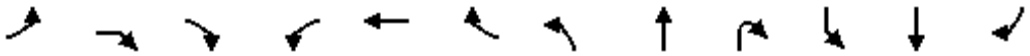
c Critical Lane Group



Lane Group	EBL	EBR	EBR2	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	53	98	68	147	265	446	538	412
v/c Ratio	0.26	0.24	0.14	0.35	0.54	0.44	0.87	0.24
Control Delay	36.2	33.7	6.3	35.9	39.6	7.1	46.5	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.4	0.8	0.0
Total Delay	36.2	33.7	6.3	35.9	39.6	7.5	47.3	7.7
Queue Length 50th (ft)	30	54	0	84	161	86	158	74
Queue Length 95th (ft)	67	101	28	144	245	139	#266	71
Internal Link Dist (ft)					301		901	413
Turn Bay Length (ft)								
Base Capacity (vph)	204	417	475	415	491	1020	616	1701
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	222	11	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.24	0.14	0.35	0.54	0.56	0.89	0.24

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR2	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	93	65	140	252	424	67	350	94	193	175	24
Future Volume (vph)	50	93	65	140	252	424	67	350	94	193	175	24
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	5.0		6.0			6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		0.95			0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.96		0.99			0.96	
Flpb, ped/bikes	0.96	1.00	1.00	0.89	1.00	1.00		0.96			1.00	
Frt	1.00	0.85	0.85	1.00	1.00	0.85		0.97			0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99			0.98	
Satd. Flow (prot)	1702	1583	1583	1577	1863	1524		3225			3289	
Flt Permitted	0.43	1.00	1.00	0.95	1.00	1.00		0.82			0.56	
Satd. Flow (perm)	774	1583	1583	1577	1863	1524		2648			1889	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	53	98	68	147	265	446	71	368	99	203	184	25
RTOR Reduction (vph)	0	0	50	0	0	39	0	62	0	0	4	0
Lane Group Flow (vph)	53	98	18	147	265	407	0	476	0	0	408	0
Confl. Peds. (#/hr)	25		66	66		25	364		15	15		364
Confl. Bikes (#/hr)						6			11			20
Turn Type	Perm	Prot	Prot	Perm	NA	custom	Perm	NA		pm+pt	NA	
Protected Phases		4	4		8	5		6		5	2	
Permitted Phases	4	4	4	8		8	6			2		
Actuated Green, G (s)	29.0	29.0	29.0	29.0	29.0	70.0		23.0			69.0	
Effective Green, g (s)	29.0	29.0	29.0	29.0	29.0	70.0		23.0			69.0	
Actuated g/C Ratio	0.26	0.26	0.26	0.26	0.26	0.64		0.21			0.63	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	5.0		6.0			6.0	
Lane Grp Cap (vph)	204	417	417	415	491	969		553			1706	
v/s Ratio Prot		0.06	0.01		c0.14	c0.16					0.09	
v/s Ratio Perm	0.07			0.09		0.11		c0.18			0.06	
v/c Ratio	0.26	0.24	0.04	0.35	0.54	0.42		0.86			0.24	
Uniform Delay, d1	32.0	31.8	30.2	32.9	34.8	9.9		41.9			9.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		0.90			0.87	
Incremental Delay, d2	3.1	1.3	0.2	2.4	4.2	1.3		13.8			0.3	
Delay (s)	35.1	33.1	30.4	35.3	39.0	11.3		51.3			8.1	
Level of Service	D	C	C	D	D	B		D			A	
Approach Delay (s)					23.9			51.3			8.1	
Approach LOS					C			D			A	

Intersection Summary			
HCM 2000 Control Delay	28.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	79.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



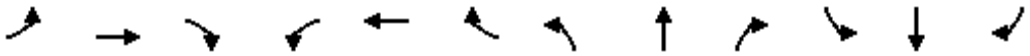
Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	20	61	233	399	792	343
v/c Ratio	0.12	0.10	0.68	1.03	0.91	0.29
Control Delay	21.5	14.7	41.7	78.4	37.9	14.6
Queue Delay	0.0	0.0	0.0	0.0	11.3	0.0
Total Delay	21.5	14.7	41.7	78.4	49.1	14.6
Queue Length 50th (ft)	9	20	138	~234	398	65
Queue Length 95th (ft)	m23	45	232	#418	m#694	94
Internal Link Dist (ft)		1267		269	413	277
Turn Bay Length (ft)	100					
Base Capacity (vph)	171	597	344	387	873	1186
Starvation Cap Reductn	0	0	0	0	78	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.10	0.68	1.03	1.00	0.29

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

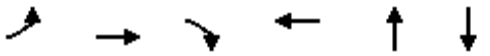
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	41	13	207	83	272	55	515	134	73	223	9
Future Volume (vph)	18	41	13	207	83	272	55	515	134	73	223	9
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	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			0.95	
Frpb, ped/bikes	1.00	0.92		1.00	0.51			0.97			0.99	
Flpb, ped/bikes	0.78	1.00		0.73	1.00			0.98			0.99	
Frt	1.00	0.96		1.00	0.88			0.97			1.00	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1376	1659		1289	837			1709			3408	
Flt Permitted	0.33	1.00		0.72	1.00			0.94			0.64	
Satd. Flow (perm)	485	1659		973	837			1613			2209	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	20	46	15	233	93	306	62	579	151	82	251	10
RTOR Reduction (vph)	0	10	0	0	90	0	0	8	0	0	2	0
Lane Group Flow (vph)	20	51	0	233	309	0	0	784	0	0	341	0
Confl. Peds. (#/hr)	364		179	179		364	163		128	128		163
Confl. Bikes (#/hr)			14			81			9			8
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	39.0	39.0		39.0	39.0			59.0			59.0	
Effective Green, g (s)	39.0	39.0		39.0	39.0			59.0			59.0	
Actuated g/C Ratio	0.35	0.35		0.35	0.35			0.54			0.54	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	171	588		344	296			865			1184	
v/s Ratio Prot		0.03			c0.37							
v/s Ratio Perm	0.04			0.24				c0.49			0.15	
v/c Ratio	0.12	0.09		0.68	1.04			0.91			0.29	
Uniform Delay, d1	23.9	23.6		30.2	35.5			23.0			14.0	
Progression Factor	0.81	0.76		1.00	1.00			1.08			1.00	
Incremental Delay, d2	1.3	0.3		10.3	63.9			12.4			0.6	
Delay (s)	20.7	18.2		40.4	99.4			37.2			14.6	
Level of Service	C	B		D	F			D			B	
Approach Delay (s)		18.8			77.6			37.2			14.6	
Approach LOS		B			E			D			B	

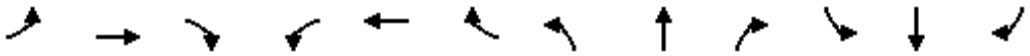
Intersection Summary			
HCM 2000 Control Delay	46.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	100.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBT	NBT	SBT
Lane Group Flow (vph)	36	3	113	18	877	383
v/c Ratio	0.13	0.01	0.29	0.06	0.60	0.30
Control Delay	41.7	30.3	35.0	37.0	35.2	38.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	1.5
Total Delay	41.7	30.3	35.0	37.0	35.2	39.7
Queue Length 50th (ft)	22	2	64	10	193	106
Queue Length 95th (ft)	52	9	114	31	235	m136
Internal Link Dist (ft)		282		633	181	154
Turn Bay Length (ft)						
Base Capacity (vph)	270	478	394	287	1461	1272
Starvation Cap Reductn	0	0	0	0	0	687
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.01	0.29	0.06	0.60	0.65

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	3	101	9	5	2	0	766	14	2	331	8
Future Volume (vph)	32	3	101	9	5	2	0	766	14	2	331	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.5	6.5		6.5			6.5			7.0	
Lane Util. Factor	1.00	1.00	1.00		1.00			0.91			0.95	
Frpb, ped/bikes	1.00	1.00	0.97		0.99			0.99			1.00	
Flpb, ped/bikes	1.00	1.00	1.00		1.00			1.00			1.00	
Frt	1.00	1.00	0.85		0.98			1.00			1.00	
Flt Protected	0.95	1.00	1.00		0.97			1.00			1.00	
Satd. Flow (prot)	1752	1845	1523		1791			4944			3317	
Flt Permitted	0.95	1.00	1.00		0.97			1.00			0.95	
Satd. Flow (perm)	1752	1845	1523		1788			4944			3160	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	36	3	113	10	6	2	0	861	16	2	372	9
RTOR Reduction (vph)	0	0	0	0	1	0	0	1	0	0	2	0
Lane Group Flow (vph)	36	3	113	0	17	0	0	876	0	0	381	0
Confl. Peds. (#/hr)	28		4	4		28	66		125	125		66
Confl. Bikes (#/hr)			14			140			26			43
Heavy Vehicles (%)	3%	3%	3%	0%	0%	0%	4%	4%	4%	8%	8%	8%
Turn Type	Prot	NA	Perm	Prot	NA			NA		pm+pt	NA	
Protected Phases	1	6		1	2			4		3	8	
Permitted Phases			6							8		
Actuated Green, G (s)	17.0	28.5	28.5		45.5			32.5			44.0	
Effective Green, g (s)	17.0	28.5	28.5		45.5			32.5			44.0	
Actuated g/C Ratio	0.15	0.26	0.26		0.41			0.30			0.40	
Clearance Time (s)	7.0	6.5	6.5		6.5			6.5			7.0	
Lane Grp Cap (vph)	270	478	394		740			1460			1271	
v/s Ratio Prot	c0.02	0.00			0.00			c0.18			c0.01	
v/s Ratio Perm			c0.07		0.01						0.11	
v/c Ratio	0.13	0.01	0.29		0.02			0.60			0.30	
Uniform Delay, d1	40.1	30.2	32.6		19.1			33.2			22.5	
Progression Factor	1.00	1.00	1.00		1.00			1.00			1.67	
Incremental Delay, d2	1.0	0.0	1.8		0.1			1.8			0.5	
Delay (s)	41.2	30.3	34.4		19.1			35.0			38.0	
Level of Service	D	C	C		B			D			D	
Approach Delay (s)		36.0			19.1			35.0			38.0	
Approach LOS		D			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	35.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	984	1523	282	120
v/c Ratio	0.51	0.52	0.69	0.29
Control Delay	10.1	14.6	46.8	7.9
Queue Delay	0.5	4.9	59.6	0.0
Total Delay	10.5	19.4	106.5	7.9
Queue Length 50th (ft)	151	222	180	0
Queue Length 95th (ft)	176	261	277	46
Internal Link Dist (ft)	202	268	424	
Turn Bay Length (ft)				
Base Capacity (vph)	1942	2930	411	411
Starvation Cap Reductn	481	1324	0	0
Spillback Cap Reductn	0	441	166	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.67	0.95	1.15	0.29

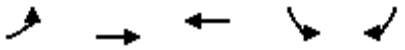
Intersection Summary



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	818	107	0	1432	265	113
Future Volume (vph)	818	107	0	1432	265	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0			6.0	6.0	6.0
Lane Util. Factor	0.95			0.91	1.00	1.00
Frpb, ped/bikes	0.98			1.00	1.00	0.82
Flpb, ped/bikes	1.00			1.00	0.94	1.00
Frt	0.98			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3337			5036	1618	1264
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3337			5036	1618	1264
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	870	114	0	1523	282	120
RTOR Reduction (vph)	0	0	0	0	0	89
Lane Group Flow (vph)	984	0	0	1523	282	31
Confl. Peds. (#/hr)		53			50	129
Confl. Bikes (#/hr)		43				26
Heavy Vehicles (%)	4%	4%	3%	3%	5%	5%
Turn Type	NA			NA	Perm	Perm
Protected Phases	2			2		
Permitted Phases					4	4
Actuated Green, G (s)	64.0			64.0	28.0	28.0
Effective Green, g (s)	64.0			64.0	28.0	28.0
Actuated g/C Ratio	0.58			0.58	0.25	0.25
Clearance Time (s)	6.0			6.0	6.0	6.0
Lane Grp Cap (vph)	1941			2930	411	321
v/s Ratio Prot	0.29			c0.30		
v/s Ratio Perm					c0.17	0.02
v/c Ratio	0.51			0.52	0.69	0.10
Uniform Delay, d1	13.6			13.8	37.0	31.3
Progression Factor	0.66			1.00	1.00	1.00
Incremental Delay, d2	0.9			0.7	9.0	0.6
Delay (s)	9.9			14.5	46.0	31.9
Level of Service	A			B	D	C
Approach Delay (s)	9.9			14.5	41.8	
Approach LOS	A			B	D	

Intersection Summary			
HCM 2000 Control Delay	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		

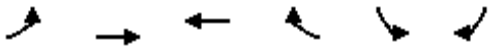
c Critical Lane Group



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	344	900	908	11	87
v/c Ratio	0.65	0.37	0.52	0.03	0.11
Control Delay	11.7	3.3	28.7	22.1	5.0
Queue Delay	10.8	0.0	0.0	0.0	0.0
Total Delay	22.5	3.3	28.7	22.1	5.0
Queue Length 50th (ft)	38	32	239	6	6
Queue Length 95th (ft)	52	39	m264	m11	m17
Internal Link Dist (ft)		484	340	163	
Turn Bay Length (ft)					
Base Capacity (vph)	532	2448	1739	357	764
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	159	165	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.92	0.39	0.52	0.03	0.11

Intersection Summary

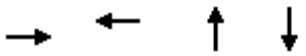
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	647	523	851	3	10	82
Future Volume (vph)	647	523	851	3	10	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		5.5	6.0
Lane Util. Factor	0.86	0.86	0.91		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	0.98	1.00		0.95	1.00
Satd. Flow (prot)	1477	4574	5033		1543	1380
Flt Permitted	0.23	0.67	1.00		0.95	1.00
Satd. Flow (perm)	359	3104	5033		1543	1380
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	688	556	905	3	11	87
RTOR Reduction (vph)	0	0	0	0	0	13
Lane Group Flow (vph)	344	900	908	0	11	74
Confl. Peds. (#/hr)	22			22	12	
Confl. Bikes (#/hr)				3		
Heavy Vehicles (%)	5%	5%	3%	3%	17%	17%
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	1	6	2		4	1
Permitted Phases	6					4
Actuated Green, G (s)	73.0	73.0	38.0		25.5	54.5
Effective Green, g (s)	73.0	73.0	38.0		25.5	54.5
Actuated g/C Ratio	0.66	0.66	0.35		0.23	0.50
Clearance Time (s)	6.0	6.0	6.0		5.5	6.0
Lane Grp Cap (vph)	532	2447	1738		357	759
v/s Ratio Prot	c0.17	0.10	0.18		0.01	c0.03
v/s Ratio Perm	c0.26	0.15				0.03
v/c Ratio	0.65	0.37	0.52		0.03	0.10
Uniform Delay, d1	19.3	8.2	28.8		32.7	14.7
Progression Factor	0.29	0.33	0.97		0.67	0.54
Incremental Delay, d2	4.9	0.3	0.8		0.1	0.2
Delay (s)	10.5	3.1	28.5		21.9	8.2
Level of Service	B	A	C		C	A
Approach Delay (s)		5.1	28.5		9.8	
Approach LOS		A	C		A	

Intersection Summary			
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



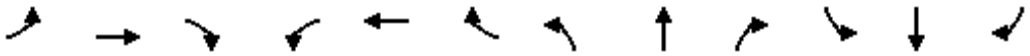
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	122	303	739	148
v/c Ratio	0.59	1.03	0.52	0.09
Control Delay	36.0	98.9	10.6	17.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	36.0	98.9	10.6	17.4
Queue Length 50th (ft)	40	~229	122	21
Queue Length 95th (ft)	m99	m#383	145	39
Internal Link Dist (ft)	492	1267	654	413
Turn Bay Length (ft)				
Base Capacity (vph)	207	293	1409	1591
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.59	1.03	0.52	0.09

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	0	62	47	143	83	99	566	0	0	104	29
Future Volume (vph)	48	0	62	47	143	83	99	566	0	0	104	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5			5.0			5.0	
Lane Util. Factor		1.00			1.00			0.95			0.91	
Frpb, ped/bikes		0.90			0.90			1.00			0.90	
Flpb, ped/bikes		1.00			0.98			0.96			1.00	
Frt		0.92			0.96			1.00			0.97	
Flt Protected		0.98			0.99			0.99			1.00	
Satd. Flow (prot)		1461			1544			3293			4019	
Flt Permitted		0.52			0.92			0.87			1.00	
Satd. Flow (perm)		779			1429			2895			4019	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	53	0	69	52	159	92	110	629	0	0	116	32
RTOR Reduction (vph)	0	56	0	0	14	0	0	0	0	0	19	0
Lane Group Flow (vph)	0	66	0	0	289	0	0	739	0	0	129	0
Confl. Peds. (#/hr)	194		75	75		194	138		192	192		138
Confl. Bikes (#/hr)						9			8			12
Heavy Vehicles (%)	6%	6%	6%	3%	3%	3%	4%	4%	4%	13%	13%	13%
Turn Type	Perm	NA		Perm	NA		Prot	NA			NA	
Protected Phases		8			8		5	2			6	
Permitted Phases	8			8								
Actuated Green, G (s)		21.5			21.5			78.0			43.0	
Effective Green, g (s)		21.5			21.5			78.0			43.0	
Actuated g/C Ratio		0.20			0.20			0.71			0.39	
Clearance Time (s)		5.5			5.5			5.0			5.0	
Lane Grp Cap (vph)		152			279			2161			1571	
v/s Ratio Prot								c0.09			0.03	
v/s Ratio Perm		0.09			c0.20			c0.15				
v/c Ratio		0.44			1.03			0.34			0.08	
Uniform Delay, d1		38.9			44.2			6.1			21.1	
Progression Factor		1.29			1.02			0.67			1.04	
Incremental Delay, d2		7.9			57.8			0.3			0.1	
Delay (s)		58.0			102.8			4.4			22.0	
Level of Service		E			F			A			C	
Approach Delay (s)		58.0			102.8			4.4			22.0	
Approach LOS		E			F			A			C	

Intersection Summary			
HCM 2000 Control Delay	34.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		

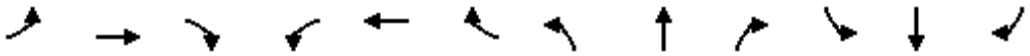
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	64	125	12	131	824	422
v/c Ratio	0.16	0.21	0.04	0.25	0.48	0.22
Control Delay	27.8	21.1	30.4	29.0	18.6	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	21.1	30.4	29.0	18.6	11.8
Queue Length 50th (ft)	28	38	6	68	176	42
Queue Length 95th (ft)	m45	m64	m7	m70	m209	63
Internal Link Dist (ft)		495		1267	413	291
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	408	589	280	526	1705	1934
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.21	0.04	0.25	0.48	0.22

Intersection Summary

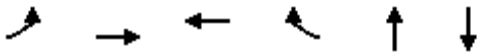
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	68	53	12	99	28	170	585	45	18	273	118
Future Volume (vph)	62	68	53	12	99	28	170	585	45	18	273	118
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	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.91			0.91	
Frpb, ped/bikes	1.00	0.85		1.00	0.94			0.98			0.95	
Flpb, ped/bikes	0.86	1.00		0.73	1.00			0.95			1.00	
Frt	1.00	0.93		1.00	0.97			0.99			0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1413	1377		1274	1674			4616			4381	
Flt Permitted	0.67	1.00		0.68	1.00			0.76			0.88	
Satd. Flow (perm)	1001	1377		907	1674			3526			3881	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	64	70	55	12	102	29	175	603	46	19	281	122
RTOR Reduction (vph)	0	26	0	0	9	0	0	6	0	0	63	0
Lane Group Flow (vph)	64	99	0	12	122	0	0	818	0	0	359	0
Confl. Peds. (#/hr)	146		245	245		146	135		123	123		135
Confl. Bikes (#/hr)			9			38			2			19
Heavy Vehicles (%)	10%	10%	10%	3%	3%	3%	3%	3%	3%	7%	7%	7%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	3	8			4			2			6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	45.0	45.0		34.0	34.0			53.0			53.0	
Effective Green, g (s)	45.0	45.0		34.0	34.0			53.0			53.0	
Actuated g/C Ratio	0.41	0.41		0.31	0.31			0.48			0.48	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	428	563		280	517			1698			1869	
v/s Ratio Prot	0.01	c0.07			c0.07							
v/s Ratio Perm	0.05			0.01				c0.23			0.09	
v/c Ratio	0.15	0.18		0.04	0.24			0.48			0.19	
Uniform Delay, d1	20.5	20.7		26.6	28.3			19.2			16.3	
Progression Factor	1.27	1.49		1.12	1.10			0.93			1.00	
Incremental Delay, d2	0.6	0.6		0.1	0.4			0.8			0.2	
Delay (s)	26.7	31.4		30.0	31.6			18.7			16.5	
Level of Service	C	C		C	C			B			B	
Approach Delay (s)		29.8			31.5			18.7			16.5	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

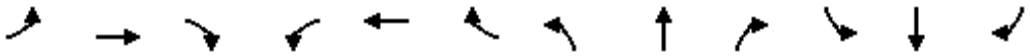
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	75	376	945	266	719	188
v/c Ratio	0.28	0.26	0.59	0.60	0.82	0.56
Control Delay	40.2	2.3	32.9	37.4	27.3	20.5
Queue Delay	0.0	0.0	0.8	0.0	26.2	0.0
Total Delay	40.2	2.3	33.6	37.4	53.5	20.5
Queue Length 50th (ft)	56	6	238	127	188	33
Queue Length 95th (ft)	m85	8	302	m195	221	m53
Internal Link Dist (ft)		523	354		163	654
Turn Bay Length (ft)				150		
Base Capacity (vph)	265	1471	1592	441	882	336
Starvation Cap Reductn	0	0	327	0	188	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.26	0.75	0.60	1.04	0.56

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	314	17	0	832	234	57	570	5	45	79	41
Future Volume (vph)	66	314	17	0	832	234	57	570	5	45	79	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5			6.5	6.5		7.0			10.0	
Lane Util. Factor	1.00	0.95			0.95	1.00		0.91			0.95	
Frpb, ped/bikes	1.00	0.99			1.00	0.62		1.00			0.97	
Flpb, ped/bikes	1.00	1.00			1.00	1.00		0.99			0.99	
Frt	1.00	0.99			1.00	0.85		1.00			0.96	
Flt Protected	0.95	1.00			1.00	1.00		1.00			0.99	
Satd. Flow (prot)	1671	3270			3539	982		4776			2982	
Flt Permitted	0.95	1.00			1.00	1.00		0.88			0.56	
Satd. Flow (perm)	1671	3270			3539	982		4216			1689	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	75	357	19	0	945	266	65	648	6	51	90	47
RTOR Reduction (vph)	0	0	0	0	0	0	0	1	0	0	29	0
Lane Group Flow (vph)	75	376	0	0	945	266	0	718	0	0	159	0
Confl. Peds. (#/hr)	292		144	144		292	59		92	92		59
Confl. Bikes (#/hr)			31			133			4			4
Heavy Vehicles (%)	8%	8%	8%	2%	2%	2%	7%	7%	7%	10%	10%	10%
Turn Type	Prot	NA			NA	Perm	Perm	NA		Perm	NA	
Protected Phases	7	6			2			4			8	
Permitted Phases						2	4			8		
Actuated Green, G (s)	17.5	49.5			49.5	49.5		23.0			20.0	
Effective Green, g (s)	17.5	49.5			49.5	49.5		23.0			20.0	
Actuated g/C Ratio	0.16	0.45			0.45	0.45		0.21			0.18	
Clearance Time (s)	6.5	6.5			6.5	6.5		7.0			10.0	
Lane Grp Cap (vph)	265	1471			1592	441		881			307	
v/s Ratio Prot	c0.04	0.11			0.27							
v/s Ratio Perm						c0.27		c0.17			0.09	
v/c Ratio	0.28	0.26			0.59	0.60		0.82			0.52	
Uniform Delay, d1	40.7	18.8			22.7	22.8		41.5			40.6	
Progression Factor	0.92	0.11			1.38	1.38		0.47			0.43	
Incremental Delay, d2	2.0	0.3			1.2	4.3		7.4			5.6	
Delay (s)	39.6	2.3			32.5	35.8		26.8			23.1	
Level of Service	D	A			C	D		C			C	
Approach Delay (s)		8.5			33.2			26.8			23.1	
Approach LOS		A			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	26.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		

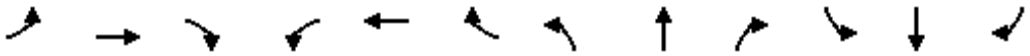
c Critical Lane Group



Lane Group	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1182	946	157	1034	319
v/c Ratio	0.63	0.45	0.34	0.53	0.28
Control Delay	12.3	3.7	24.0	22.7	45.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	12.3	3.7	24.0	22.7	45.7
Queue Length 50th (ft)	48	13	67	183	78
Queue Length 95th (ft)	m54	16	113	225	111
Internal Link Dist (ft)	516	484		438	368
Turn Bay Length (ft)					
Base Capacity (vph)	1876	2088	462	1966	1134
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	38	79	0	48	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.64	0.47	0.34	0.54	0.28

Intersection Summary

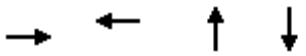
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1012	135	80	834	13	154	868	145	0	261	52
Future Volume (vph)	11	1012	135	80	834	13	154	868	145	0	261	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5		6.5	6.5			6.5	
Lane Util. Factor		0.86			0.86		1.00	0.91			0.91	
Frpb, ped/bikes		0.99			1.00		1.00	0.96			0.97	
Flpb, ped/bikes		1.00			1.00		0.95	1.00			1.00	
Frt		0.98			1.00		1.00	0.98			0.98	
Flt Protected		1.00			1.00		0.95	1.00			1.00	
Satd. Flow (prot)		6105			6235		1540	4410			4129	
Flt Permitted		0.92			0.72		0.55	1.00			1.00	
Satd. Flow (perm)		5596			4538		893	4410			4129	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	11	1033	138	82	851	13	157	886	148	0	266	53
RTOR Reduction (vph)	0	21	0	0	2	0	0	21	0	0	27	0
Lane Group Flow (vph)	0	1161	0	0	944	0	157	1013	0	0	292	0
Confl. Peds. (#/hr)	35		53	53		35	104		165	165		104
Confl. Bikes (#/hr)			2			6			13			11
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	11%	11%	11%	19%	19%	19%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA			NA	
Protected Phases		6		5	2		3	8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)		36.5			48.5		48.5	48.5			29.5	
Effective Green, g (s)		36.5			48.5		48.5	48.5			29.5	
Actuated g/C Ratio		0.33			0.44		0.44	0.44			0.27	
Clearance Time (s)		6.5			6.5		6.5	6.5			6.5	
Lane Grp Cap (vph)		1856			2108		467	1944			1107	
v/s Ratio Prot					c0.03		0.04	c0.23			0.07	
v/s Ratio Perm		c0.21			0.17		0.11					
v/c Ratio		0.63			0.45		0.34	0.52			0.26	
Uniform Delay, d1		31.0			21.4		20.9	22.3			31.7	
Progression Factor		0.36			0.15		1.00	1.00			1.60	
Incremental Delay, d2		1.4			0.6		1.9	1.0			0.5	
Delay (s)		12.5			3.8		22.8	23.3			51.3	
Level of Service		B			A		C	C			D	
Approach Delay (s)		12.5			3.8			23.3			51.3	
Approach LOS		B			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	96.9%	ICU Level of Service	F
Analysis Period (min)	15		

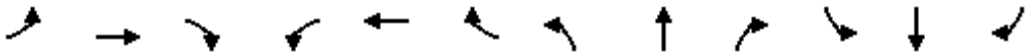
c Critical Lane Group



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	107	218	1045	360
v/c Ratio	0.33	0.59	0.68	0.52
Control Delay	50.8	26.8	32.1	3.3
Queue Delay	0.0	0.0	2.0	0.9
Total Delay	50.8	26.8	34.1	4.3
Queue Length 50th (ft)	76	78	362	8
Queue Length 95th (ft)	m128	m98	441	m13
Internal Link Dist (ft)	508	492	449	412
Turn Bay Length (ft)				
Base Capacity (vph)	324	372	1536	697
Starvation Cap Reductn	0	0	328	141
Spillback Cap Reductn	0	0	18	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.33	0.59	0.87	0.65

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	42	28	16	111	80	238	729	26	77	248	17
Future Volume (vph)	32	42	28	16	111	80	238	729	26	77	248	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5			5.5			5.5	
Lane Util. Factor		1.00			1.00			0.95			1.00	
Frpb, ped/bikes		0.94			0.90			0.98			0.97	
Flpb, ped/bikes		0.95			0.99			0.93			0.98	
Frt		0.96			0.95			1.00			0.99	
Flt Protected		0.98			1.00			0.99			0.99	
Satd. Flow (prot)		1529			1496			3064			1626	
Flt Permitted		0.83			0.97			0.75			0.64	
Satd. Flow (perm)		1297			1463			2329			1056	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	34	44	29	17	117	84	251	767	27	81	261	18
RTOR Reduction (vph)	0	12	0	0	20	0	0	2	0	0	2	0
Lane Group Flow (vph)	0	95	0	0	198	0	0	1043	0	0	358	0
Confl. Peds. (#/hr)	166		127	127		166	254		341	341		254
Confl. Bikes (#/hr)			3			9			12			16
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	9%	9%	9%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		26.5			26.5			72.5			72.5	
Effective Green, g (s)		26.5			26.5			72.5			72.5	
Actuated g/C Ratio		0.24			0.24			0.66			0.66	
Clearance Time (s)		5.5			5.5			5.5			5.5	
Lane Grp Cap (vph)		312			352			1535			696	
v/s Ratio Prot												
v/s Ratio Perm		0.07			c0.13			c0.45			0.34	
v/c Ratio		0.30			0.56			0.68			0.51	
Uniform Delay, d1		34.2			36.6			11.6			9.7	
Progression Factor		1.63			0.68			2.54			0.21	
Incremental Delay, d2		2.0			4.1			1.8			1.2	
Delay (s)		57.8			29.1			31.2			3.2	
Level of Service		E			C			C			A	
Approach Delay (s)		57.8			29.1			31.2			3.2	
Approach LOS		E			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	26.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		

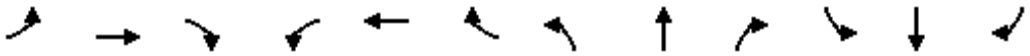
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	19	259	12	498	928	437
v/c Ratio	0.07	0.33	0.04	0.73	0.82	0.98
Control Delay	11.5	12.6	12.8	23.2	37.1	70.8
Queue Delay	0.0	0.0	0.0	0.1	0.4	0.0
Total Delay	11.5	12.6	12.8	23.2	37.5	70.8
Queue Length 50th (ft)	5	73	4	179	232	295
Queue Length 95th (ft)	m13	m107	m12	241	311	#512
Internal Link Dist (ft)		509		495	412	353
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	263	778	318	684	1137	446
Starvation Cap Reductn	0	0	0	4	28	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.33	0.04	0.73	0.84	0.98

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	198	35	11	235	213	34	699	102	42	302	49
Future Volume (vph)	17	198	35	11	235	213	34	699	102	42	302	49
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	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			1.00	
Frpb, ped/bikes	1.00	0.92		1.00	0.85			0.91			0.94	
Flpb, ped/bikes	0.90	1.00		0.65	1.00			0.99			0.99	
Frt	1.00	0.98		1.00	0.93			0.98			0.98	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1537	1605		1123	1420			3002			1605	
Flt Permitted	0.34	1.00		0.56	1.00			0.92			0.67	
Satd. Flow (perm)	546	1605		660	1420			2755			1081	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	19	220	39	12	261	237	38	777	113	47	336	54
RTOR Reduction (vph)	0	6	0	0	1	0	0	10	0	0	5	0
Lane Group Flow (vph)	19	253	0	12	497	0	0	918	0	0	432	0
Confl. Peds. (#/hr)	226		273	273		226	172		593	593		172
Confl. Bikes (#/hr)			16			40			6			15
Heavy Vehicles (%)	6%	6%	6%	5%	5%	5%	7%	7%	7%	8%	8%	8%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	53.0	53.0		53.0	53.0			45.0			45.0	
Effective Green, g (s)	53.0	53.0		53.0	53.0			45.0			45.0	
Actuated g/C Ratio	0.48	0.48		0.48	0.48			0.41			0.41	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	263	773		318	684			1127			442	
v/s Ratio Prot		0.16			c0.35							
v/s Ratio Perm	0.03			0.02				0.33			c0.40	
v/c Ratio	0.07	0.33		0.04	0.73			0.81			0.98	
Uniform Delay, d1	15.3	17.5		15.0	22.7			28.8			32.0	
Progression Factor	0.70	0.67		0.82	0.70			1.11			1.00	
Incremental Delay, d2	0.5	1.0		0.2	6.5			5.1			37.7	
Delay (s)	11.2	12.9		12.5	22.5			37.1			69.7	
Level of Service	B	B		B	C			D			E	
Approach Delay (s)		12.7			22.2			37.1			69.7	
Approach LOS		B			C			D			E	

Intersection Summary			
HCM 2000 Control Delay	37.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	91.2%	ICU Level of Service	F
Analysis Period (min)	15		

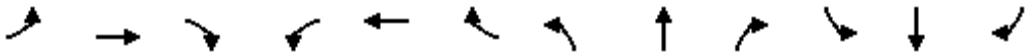
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	154	544	877	172	230	849	257
v/c Ratio	0.82	0.67	0.92	0.66	0.88	0.62	0.49
Control Delay	71.5	38.0	51.3	48.9	90.9	41.6	41.6
Queue Delay	0.0	0.6	0.0	4.3	0.0	3.6	0.0
Total Delay	71.5	38.6	51.3	53.2	90.9	45.2	41.6
Queue Length 50th (ft)	95	192	225	83	173	322	96
Queue Length 95th (ft)	#217	253	#412	m#144	#312	388	141
Internal Link Dist (ft)		265	523			368	449
Turn Bay Length (ft)				150			
Base Capacity (vph)	187	809	953	259	260	1367	523
Starvation Cap Reductn	0	67	0	0	0	414	0
Spillback Cap Reductn	0	0	0	40	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.73	0.92	0.79	0.88	0.89	0.49

Intersection Summary

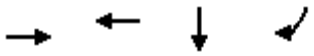
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	384	105	0	789	155	207	748	16	4	211	17
Future Volume (vph)	139	384	105	0	789	155	207	748	16	4	211	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.5			6.5	6.5	7.0	7.0			7.0	
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00	0.95			0.95	
Frpb, ped/bikes	1.00	0.95			1.00	0.61	1.00	0.99			0.98	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00			1.00	
Frt	1.00	0.97			1.00	0.85	1.00	1.00			0.99	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1583	2919			3438	937	1687	3339			3218	
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00			0.84	
Satd. Flow (perm)	1583	2919			3438	937	1687	3339			2715	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	154	427	117	0	877	172	230	831	18	4	234	19
RTOR Reduction (vph)	0	0	0	0	0	0	0	1	0	0	6	0
Lane Group Flow (vph)	154	544	0	0	877	172	230	848	0	0	251	0
Confl. Peds. (#/hr)	309		153	153		309	209		262	262		209
Confl. Bikes (#/hr)			35			127			13			14
Heavy Vehicles (%)	14%	14%	14%	5%	5%	5%	7%	7%	7%	8%	8%	8%
Turn Type	Prot	NA			NA	Perm	Prot	NA		Perm	NA	
Protected Phases	5	2			6		3	8			4	
Permitted Phases						6				4		
Actuated Green, G (s)	13.0	30.5			30.5	30.5	17.0	45.0			21.0	
Effective Green, g (s)	13.0	30.5			30.5	30.5	17.0	45.0			21.0	
Actuated g/C Ratio	0.12	0.28			0.28	0.28	0.15	0.41			0.19	
Clearance Time (s)	5.0	6.5			6.5	6.5	7.0	7.0			7.0	
Lane Grp Cap (vph)	187	809			953	259	260	1365			518	
v/s Ratio Prot	c0.10	0.19			c0.26		c0.14	c0.25				
v/s Ratio Perm						0.18					0.09	
v/c Ratio	0.82	0.67			0.92	0.66	0.88	0.62			0.49	
Uniform Delay, d1	47.4	35.3			38.6	35.2	45.5	25.7			39.7	
Progression Factor	0.81	0.94			0.98	1.06	1.33	1.53			0.99	
Incremental Delay, d2	31.4	4.3			12.8	10.3	30.5	1.9			2.8	
Delay (s)	69.8	37.6			50.7	47.5	91.2	41.2			42.2	
Level of Service	E	D			D	D	F	D			D	
Approach Delay (s)		44.7			50.2			51.9			42.2	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	48.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	27.5
Intersection Capacity Utilization	86.3%	ICU Level of Service	E
Analysis Period (min)	15		

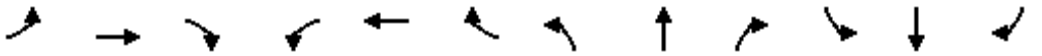
c Critical Lane Group



Lane Group	EBT	WBT	SBT	SBR
Lane Group Flow (vph)	1195	1076	1333	139
v/c Ratio	0.44	0.41	0.87	0.28
Control Delay	21.6	7.7	10.6	0.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	21.6	7.7	10.6	0.4
Queue Length 50th (ft)	163	44	56	0
Queue Length 95th (ft)	194	52	m55	m0
Internal Link Dist (ft)	334	516	582	
Turn Bay Length (ft)				
Base Capacity (vph)	2725	2643	1527	500
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.44	0.41	0.87	0.28

Intersection Summary

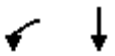
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1089	82	204	824	26	0	0	0	76	1230	136
Future Volume (vph)	0	1089	82	204	824	26	0	0	0	76	1230	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			6.0						6.5	6.5
Lane Util. Factor		0.86			0.86						0.91	1.00
Frpb, ped/bikes		0.99			1.00						1.00	0.88
Flpb, ped/bikes		1.00			1.00						1.00	1.00
Frt		0.99			1.00						1.00	0.85
Flt Protected		1.00			0.99						1.00	1.00
Satd. Flow (prot)		6159			6044						4869	1343
Flt Permitted		1.00			0.72						1.00	1.00
Satd. Flow (perm)		6159			4373						4869	1343
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1111	84	208	841	27	0	0	0	78	1255	139
RTOR Reduction (vph)	0	11	0	0	3	0	0	0	0	0	0	79
Lane Group Flow (vph)	0	1184	0	0	1073	0	0	0	0	0	1333	60
Confl. Peds. (#/hr)	70		64	64		70	89		28	28		89
Confl. Bikes (#/hr)			3			3						
Heavy Vehicles (%)	4%	4%	4%	6%	6%	6%	0%	0%	0%	6%	6%	6%
Turn Type		NA		pm+pt	NA					Perm	NA	Perm
Protected Phases		6		5	2						4	
Permitted Phases				2						4		4
Actuated Green, G (s)		48.5			63.0						34.5	34.5
Effective Green, g (s)		48.5			63.0						34.5	34.5
Actuated g/C Ratio		0.44			0.57						0.31	0.31
Clearance Time (s)		5.5			6.0						6.5	6.5
Lane Grp Cap (vph)		2715			2641						1527	421
v/s Ratio Prot		c0.19			c0.03							
v/s Ratio Perm					0.20						0.27	0.04
v/c Ratio		0.44			0.41						0.87	0.14
Uniform Delay, d1		21.3			13.1						35.7	27.1
Progression Factor		1.00			0.54						0.21	0.00
Incremental Delay, d2		0.5			0.4						2.4	0.2
Delay (s)		21.8			7.6						10.0	0.2
Level of Service		C			A						A	A
Approach Delay (s)		21.8			7.6			0.0			9.1	
Approach LOS		C			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	80.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	WBL	SBT
Lane Group Flow (vph)	105	1477
v/c Ratio	0.15	0.61
Control Delay	23.9	6.2
Queue Delay	0.0	0.5
Total Delay	23.9	6.8
Queue Length 50th (ft)	60	55
Queue Length 95th (ft)	m85	105
Internal Link Dist (ft)	508	411
Turn Bay Length (ft)		
Base Capacity (vph)	697	2413
Starvation Cap Reductn	0	469
Spillback Cap Reductn	0	392
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.15	0.76

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	103	0	0	0	133	1314
Future Volume (vph)	103	0	0	0	133	1314
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5					5.5
Lane Util. Factor	1.00					0.91
Frpb, ped/bikes	1.00					1.00
Flpb, ped/bikes	0.97					0.96
Frt	1.00					1.00
Flt Protected	0.95					1.00
Satd. Flow (prot)	1725					4873
Flt Permitted	0.95					1.00
Satd. Flow (perm)	1725					4873
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	105	0	0	0	136	1341
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	105	0	0	0	0	1477
Confl. Peds. (#/hr)	16	419		125	125	
Turn Type	Perm				Perm	NA
Protected Phases						2
Permitted Phases	4				2	
Actuated Green, G (s)	44.5					54.5
Effective Green, g (s)	44.5					54.5
Actuated g/C Ratio	0.40					0.50
Clearance Time (s)	5.5					5.5
Lane Grp Cap (vph)	697					2414
v/s Ratio Prot						
v/s Ratio Perm	c0.06					0.30
v/c Ratio	0.15					0.61
Uniform Delay, d1	20.8					20.1
Progression Factor	1.12					0.27
Incremental Delay, d2	0.3					0.9
Delay (s)	23.5					6.2
Level of Service	C					A
Approach Delay (s)	23.5		0.0			6.2
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	7.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	57.0%	ICU Level of Service	B
Analysis Period (min)	15		

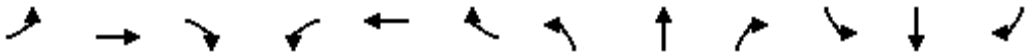
c Critical Lane Group



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	197	85	62	273	1524
v/c Ratio	0.25	0.17	0.16	0.35	0.73
Control Delay	20.6	13.6	18.0	18.6	26.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	20.6	13.6	18.0	18.6	26.9
Queue Length 50th (ft)	86	23	19	90	311
Queue Length 95th (ft)	137	55	m28	m132	369
Internal Link Dist (ft)	409			509	374
Turn Bay Length (ft)		100	100		
Base Capacity (vph)	797	502	387	789	2086
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	6
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.25	0.17	0.16	0.35	0.73

Intersection Summary

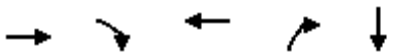
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	193	83	61	268	0	0	0	0	109	1312	73
Future Volume (vph)	0	193	83	61	268	0	0	0	0	109	1312	73
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	
Lane Util. Factor		1.00	1.00	1.00	1.00						0.91	
Frpb, ped/bikes		1.00	0.72	1.00	1.00						0.97	
Flpb, ped/bikes		1.00	1.00	0.80	1.00						0.96	
Frt		1.00	0.85	1.00	1.00						0.99	
Flt Protected		1.00	1.00	0.95	1.00						1.00	
Satd. Flow (prot)		1827	1113	1377	1810						4581	
Flt Permitted		1.00	1.00	0.61	1.00						1.00	
Satd. Flow (perm)		1827	1113	888	1810						4581	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	197	85	62	273	0	0	0	0	111	1339	74
RTOR Reduction (vph)	0	0	17	0	0	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	197	68	62	273	0	0	0	0	0	1519	0
Confl. Peds. (#/hr)	250		181	181		250	263		237	237		263
Confl. Bikes (#/hr)			18			42						7
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	0%	0%	0%	5%	5%	5%
Turn Type		NA	Perm	Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		48.0	48.0	48.0	48.0						50.0	
Effective Green, g (s)		48.0	48.0	48.0	48.0						50.0	
Actuated g/C Ratio		0.44	0.44	0.44	0.44						0.45	
Clearance Time (s)		6.0	6.0	6.0	6.0						6.0	
Lane Grp Cap (vph)		797	485	387	789						2082	
v/s Ratio Prot		0.11			c0.15							
v/s Ratio Perm			0.06	0.07							0.33	
v/c Ratio		0.25	0.14	0.16	0.35						0.73	
Uniform Delay, d1		19.6	18.6	18.8	20.6						24.5	
Progression Factor		1.00	1.00	0.90	0.85						1.00	
Incremental Delay, d2		0.7	0.6	0.5	0.7						2.3	
Delay (s)		20.3	19.2	17.5	18.3						26.8	
Level of Service		C	B	B	B						C	
Approach Delay (s)		20.0			18.1			0.0			26.8	
Approach LOS		B			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	24.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

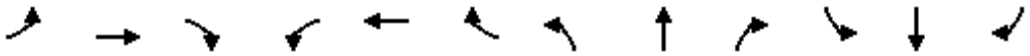


Lane Group	EBT	EBR	WBT	NBR	SBT
Lane Group Flow (vph)	498	213	1072	45	1521
v/c Ratio	0.32	0.47	0.62	0.17	1.05
Control Delay	16.3	20.7	21.3	27.1	54.3
Queue Delay	0.0	0.0	50.2	0.0	6.8
Total Delay	16.3	20.7	71.4	27.1	61.1
Queue Length 50th (ft)	91	80	277	29	~431
Queue Length 95th (ft)	113	115	347	66	#502
Internal Link Dist (ft)	516		206		235
Turn Bay Length (ft)		100			
Base Capacity (vph)	1550	457	1717	268	1452
Starvation Cap Reductn	0	0	788	0	24
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.32	0.47	1.15	0.17	1.07

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	441	220	0	997	0	0	0	42	123	1237	55
Future Volume (vph)	0	441	220	0	997	0	0	0	42	123	1237	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5		6.5				7.0		7.0	
Lane Util. Factor		0.91	0.91		0.95				1.00		0.91	
Frpb, ped/bikes		0.98	0.68		1.00				0.69		0.99	
Flpb, ped/bikes		1.00	1.00		1.00				1.00		0.97	
Frt		0.99	0.85		1.00				0.86		0.99	
Flt Protected		1.00	1.00		1.00				1.00		1.00	
Satd. Flow (prot)		3018	891		3343				870		4699	
Flt Permitted		1.00	1.00		1.00				1.00		1.00	
Satd. Flow (perm)		3018	891		3343				870		4699	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	474	237	0	1072	0	0	0	45	132	1330	59
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	498	213	0	1072	0	0	0	45	0	1521	0
Confl. Peds. (#/hr)	788		223	223		788	264		211	211		264
Confl. Bikes (#/hr)			38			121						7
Heavy Vehicles (%)	12%	12%	12%	8%	8%	8%	31%	31%	31%	5%	5%	5%
Turn Type		NA	Perm		NA				Perm	Perm	NA	
Protected Phases		2			6						8	
Permitted Phases			2						4	8		
Actuated Green, G (s)		56.5	56.5		56.5				34.0		34.0	
Effective Green, g (s)		56.5	56.5		56.5				34.0		34.0	
Actuated g/C Ratio		0.51	0.51		0.51				0.31		0.31	
Clearance Time (s)		6.5	6.5		6.5				7.0		7.0	
Lane Grp Cap (vph)		1550	457		1717				268		1452	
v/s Ratio Prot		0.17			c0.32							
v/s Ratio Perm			0.24						0.05		0.32	
v/c Ratio		0.32	0.47		0.62				0.17		1.05	
Uniform Delay, d1		15.6	17.1		19.2				27.7		38.0	
Progression Factor		1.00	0.97		1.00				0.91		0.44	
Incremental Delay, d2		0.5	3.3		1.7				1.3		35.3	
Delay (s)		16.1	19.9		21.0				26.4		51.9	
Level of Service		B	B		C				C		D	
Approach Delay (s)		17.3			21.0			26.4			51.9	
Approach LOS		B			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	34.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
Analysis Period (min)	15		

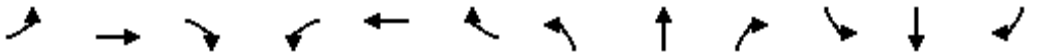
c Critical Lane Group



Lane Group	EBT	WBT	NBL	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	605	1070	176	40	72	34	15
v/c Ratio	0.29	0.68	0.50	0.09	0.16	0.05	0.04
Control Delay	1.1	11.1	32.5	4.2	24.4	22.6	0.1
Queue Delay	0.0	0.6	19.4	0.0	0.0	0.0	0.1
Total Delay	1.1	11.7	51.9	4.2	24.4	22.6	0.3
Queue Length 50th (ft)	0	334	95	0	34	15	0
Queue Length 95th (ft)	0	m409	166	16	68	37	0
Internal Link Dist (ft)	246	516				417	
Turn Bay Length (ft)							
Base Capacity (vph)	2100	1580	354	459	439	621	404
Starvation Cap Reductn	0	141	0	0	0	0	0
Spillback Cap Reductn	0	203	163	0	0	0	176
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.78	0.92	0.09	0.16	0.05	0.07

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	526	42	0	1006	0	165	0	38	68	32	14
Future Volume (vph)	0	526	42	0	1006	0	165	0	38	68	32	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5		7.0		7.0	7.0	7.0	7.0
Lane Util. Factor		0.91			0.95		1.00		1.00	1.00	1.00	1.00
Frpb, ped/bikes		0.99			1.00		1.00		0.75	1.00	1.00	0.70
Flpb, ped/bikes		1.00			1.00		0.72		1.00	0.74	1.00	1.00
Frt		0.99			1.00		1.00		0.85	1.00	1.00	0.85
Flt Protected		1.00			1.00		0.95		1.00	0.95	1.00	1.00
Satd. Flow (prot)		4401			3312		1228		1140	1178	1667	992
Flt Permitted		1.00			1.00		0.73		1.00	0.95	1.00	1.00
Satd. Flow (perm)		4401			3312		950		1140	1178	1667	992
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	560	45	0	1070	0	176	0	40	72	34	15
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	25	0	0	9
Lane Group Flow (vph)	0	605	0	0	1070	0	176	0	15	72	34	6
Confl. Peds. (#/hr)	655		85	85		655	177		155	155		177
Confl. Bikes (#/hr)			28			102			3			4
Heavy Vehicles (%)	15%	15%	15%	9%	9%	9%	6%	6%	6%	14%	14%	14%
Turn Type		NA			NA		Perm		Perm	Perm	NA	Perm
Protected Phases		2			6						8	
Permitted Phases							4		4	8		8
Actuated Green, G (s)		52.5			52.5		41.0		41.0	41.0	41.0	41.0
Effective Green, g (s)		52.5			52.5		41.0		41.0	41.0	41.0	41.0
Actuated g/C Ratio		0.48			0.48		0.37		0.37	0.37	0.37	0.37
Clearance Time (s)		6.5			6.5		7.0		7.0	7.0	7.0	7.0
Lane Grp Cap (vph)		2100			1580		354		424	439	621	369
v/s Ratio Prot		0.14			c0.32						0.02	
v/s Ratio Perm							c0.19		0.01	0.06		0.01
v/c Ratio		0.29			0.68		0.50		0.04	0.16	0.05	0.02
Uniform Delay, d1		17.4			22.2		26.6		21.9	23.0	22.1	21.8
Progression Factor		0.05			0.41		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		0.3			1.8		4.9		0.2	0.8	0.2	0.1
Delay (s)		1.1			10.9		31.5		22.1	23.9	22.3	21.8
Level of Service		A			B		C		C	C	C	C
Approach Delay (s)		1.1			10.9			29.7			23.2	
Approach LOS		A			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



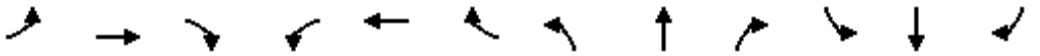
Lane Group	EBL	EBT	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	236	462	921	381	6	180	59
v/c Ratio	1.01	0.48	1.10	1.13	0.02	0.52	0.13
Control Delay	115.2	27.9	96.4	106.3	30.0	51.4	20.1
Queue Delay	0.0	0.6	2.0	0.0	0.0	0.0	0.0
Total Delay	115.2	28.5	98.4	106.3	30.0	51.4	20.1
Queue Length 50th (ft)	~181	92	~325	~189	2	62	23
Queue Length 95th (ft)	m#325	m126	#368	#325	14	98	52
Internal Link Dist (ft)		209	246		170		344
Turn Bay Length (ft)							
Base Capacity (vph)	234	956	840	336	338	347	469
Starvation Cap Reductn	0	199	0	0	0	0	0
Spillback Cap Reductn	0	0	72	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.61	1.20	1.13	0.02	0.52	0.13

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

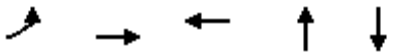
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	212	410	5	12	817	343	1	3	2	162	2	51
Future Volume (vph)	212	410	5	12	817	343	1	3	2	162	2	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0			6.0	7.0		7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00		0.97	1.00	
Frpb, ped/bikes	1.00	0.99			1.00	0.56		0.93		1.00	0.87	
Flpb, ped/bikes	1.00	1.00			1.00	1.00		0.98		1.00	1.00	
Frt	1.00	1.00			1.00	0.85		0.95		1.00	0.86	
Flt Protected	0.95	1.00			1.00	1.00		0.99		0.95	1.00	
Satd. Flow (prot)	1612	3190			3269	818		1644		2943	1189	
Flt Permitted	0.95	1.00			0.95	1.00		0.97		0.95	1.00	
Satd. Flow (perm)	1612	3190			3110	818		1610		2943	1189	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	236	456	6	13	908	381	1	3	2	180	2	57
RTOR Reduction (vph)	0	0	0	0	0	0	0	2	0	0	4	0
Lane Group Flow (vph)	236	462	0	0	921	381	0	4	0	180	55	0
Confl. Peds. (#/hr)	345		257	257		345	74		144	144		74
Confl. Bikes (#/hr)			25			95						38
Heavy Vehicles (%)	12%	12%	12%	10%	10%	10%	0%	0%	0%	19%	19%	19%
Turn Type	Prot	NA		Prot	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases	1	6		1	2	3		4		3	8	
Permitted Phases		6			2	2	4					
Actuated Green, G (s)	16.0	33.0			49.0	46.0		23.0		13.0	43.0	
Effective Green, g (s)	16.0	33.0			49.0	46.0		23.0		13.0	43.0	
Actuated g/C Ratio	0.15	0.30			0.45	0.42		0.21		0.12	0.39	
Clearance Time (s)	5.0	6.0			6.0	7.0		7.0		7.0	7.0	
Lane Grp Cap (vph)	234	957			1408	342		336		347	464	
v/s Ratio Prot	c0.15	0.14			0.10	c0.13				0.06	c0.05	
v/s Ratio Perm					0.20	0.33		0.00				
v/c Ratio	1.01	0.48			0.65	1.11		0.01		0.52	0.12	
Uniform Delay, d1	47.0	31.5			23.9	32.0		34.5		45.6	21.4	
Progression Factor	1.24	0.83			1.84	0.49		1.00		1.00	1.00	
Incremental Delay, d2	58.1	1.6			1.9	77.8		0.1		5.5	0.5	
Delay (s)	116.2	27.6			45.8	93.4		34.6		51.0	21.9	
Level of Service	F	C			D	F		C		D	C	
Approach Delay (s)		57.6			59.7			34.6			43.8	
Approach LOS		E			E			C			D	

Intersection Summary			
HCM 2000 Control Delay	57.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		

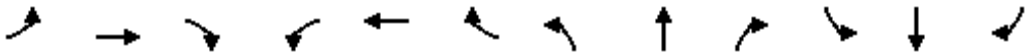
c Critical Lane Group



Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	194	1200	939	1919	72
v/c Ratio	0.76	0.55	0.71	0.98	0.08
Control Delay	72.8	7.1	41.2	45.1	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	72.8	7.1	41.2	45.1	5.0
Queue Length 50th (ft)	115	59	175	471	0
Queue Length 95th (ft)	m157	68	214	#599	7
Internal Link Dist (ft)		1027	345	451	993
Turn Bay Length (ft)					
Base Capacity (vph)	254	2166	1327	1968	920
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.76	0.55	0.71	0.98	0.08

Intersection Summary

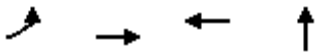
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	186	1136	16	10	843	49	162	1370	310	14	11	44
Future Volume (vph)	186	1136	16	10	843	49	162	1370	310	14	11	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.5			6.5			6.5			6.5	
Lane Util. Factor	1.00	0.91			0.86			0.91			0.95	
Frpb, ped/bikes	1.00	1.00			1.00			0.99			0.96	
Flpb, ped/bikes	1.00	1.00			1.00			0.99			1.00	
Frt	1.00	1.00			0.99			0.97			0.90	
Flt Protected	0.95	1.00			1.00			1.00			0.99	
Satd. Flow (prot)	1752	5013			6036			4843			2744	
Flt Permitted	0.95	1.00			0.91			0.89			0.72	
Satd. Flow (perm)	1752	5013			5476			4352			1992	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	194	1183	17	10	878	51	169	1427	323	15	11	46
RTOR Reduction (vph)	0	1	0	0	8	0	0	9	0	0	25	0
Lane Group Flow (vph)	194	1199	0	0	931	0	0	1910	0	0	47	0
Confl. Peds. (#/hr)	31		78	78		31	78		47	47		78
Confl. Bikes (#/hr)			1						3			
Heavy Vehicles (%)	3%	3%	3%	7%	7%	7%	2%	2%	2%	13%	13%	13%
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	6			2			8			4	
Permitted Phases				2			8			4		
Actuated Green, G (s)	16.0	47.5			26.5			49.5			49.5	
Effective Green, g (s)	16.0	47.5			26.5			49.5			49.5	
Actuated g/C Ratio	0.15	0.43			0.24			0.45			0.45	
Clearance Time (s)	5.0	6.5			6.5			6.5			6.5	
Lane Grp Cap (vph)	254	2164			1319			1958			896	
v/s Ratio Prot	c0.11	0.24										
v/s Ratio Perm					c0.17			c0.44			0.02	
v/c Ratio	0.76	0.55			0.71			0.98			0.05	
Uniform Delay, d1	45.2	23.3			38.2			29.7			17.0	
Progression Factor	1.31	0.27			1.00			1.00			0.61	
Incremental Delay, d2	13.1	0.7			3.2			15.3			0.1	
Delay (s)	72.3	7.1			41.4			45.0			10.6	
Level of Service	E	A			D			D			B	
Approach Delay (s)		16.2			41.4			45.0			10.6	
Approach LOS		B			D			D			B	

Intersection Summary			
HCM 2000 Control Delay	34.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	98.2%	ICU Level of Service	F
Analysis Period (min)	15		

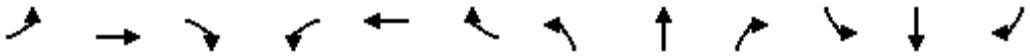
c Critical Lane Group



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	96	116	268	1627
v/c Ratio	0.30	0.16	0.45	0.72
Control Delay	41.0	37.2	27.2	18.0
Queue Delay	0.0	0.0	0.0	15.6
Total Delay	41.0	37.2	27.2	33.6
Queue Length 50th (ft)	60	71	134	405
Queue Length 95th (ft)	m86	m100	210	m460
Internal Link Dist (ft)		379	152	314
Turn Bay Length (ft)	100			
Base Capacity (vph)	319	705	594	2267
Starvation Cap Reductn	0	0	0	664
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.30	0.16	0.45	1.01

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	113	0	0	156	104	54	1288	236	0	0	0
Future Volume (vph)	93	113	0	0	156	104	54	1288	236	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5			6.0				
Lane Util. Factor	1.00	1.00			1.00			0.91				
Frpb, ped/bikes	1.00	1.00			0.92			0.92				
Flpb, ped/bikes	0.90	1.00			1.00			0.99				
Frt	1.00	1.00			0.95			0.98				
Flt Protected	0.95	1.00			1.00			1.00				
Satd. Flow (prot)	1555	1827			1524			4408				
Flt Permitted	0.51	1.00			1.00			1.00				
Satd. Flow (perm)	828	1827			1524			4408				
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	96	116	0	0	161	107	56	1328	243	0	0	0
RTOR Reduction (vph)	0	0	0	0	6	0	0	23	0	0	0	0
Lane Group Flow (vph)	96	116	0	0	262	0	0	1604	0	0	0	0
Confl. Peds. (#/hr)	113		183	183		113	120		224	224		120
Confl. Bikes (#/hr)			5			11			5			
Heavy Vehicles (%)	4%	4%	4%	9%	9%	9%	5%	5%	5%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			4			2				
Permitted Phases	4						2					
Actuated Green, G (s)	42.5	42.5			42.5			56.0				
Effective Green, g (s)	42.5	42.5			42.5			56.0				
Actuated g/C Ratio	0.39	0.39			0.39			0.51				
Clearance Time (s)	5.5	5.5			5.5			6.0				
Lane Grp Cap (vph)	319	705			588			2244				
v/s Ratio Prot		0.06			c0.17							
v/s Ratio Perm	0.12							0.36				
v/c Ratio	0.30	0.16			0.45			0.71				
Uniform Delay, d1	23.4	22.1			25.0			20.8				
Progression Factor	1.61	1.64			1.00			0.83				
Incremental Delay, d2	1.8	0.4			2.4			1.1				
Delay (s)	39.6	36.6			27.5			18.3				
Level of Service	D	D			C			B				
Approach Delay (s)		38.0			27.5			18.3			0.0	
Approach LOS		D			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	21.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		

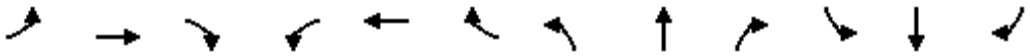
c Critical Lane Group



Lane Group	EBT	EBR	WBT	WBR	NBT
Lane Group Flow (vph)	501	68	573	379	1776
v/c Ratio	0.39	0.18	0.43	0.93	0.78
Control Delay	9.2	8.2	11.2	25.5	15.3
Queue Delay	0.0	0.0	4.4	47.5	20.4
Total Delay	9.2	8.2	15.6	73.0	35.7
Queue Length 50th (ft)	94	20	128	264	431
Queue Length 95th (ft)	122	38	m120	m233	m453
Internal Link Dist (ft)	419		209		993
Turn Bay Length (ft)		100			
Base Capacity (vph)	1274	378	1334	409	2268
Starvation Cap Reductn	0	0	669	104	0
Spillback Cap Reductn	9	0	0	0	547
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.40	0.18	0.86	1.24	1.03

Intersection Summary

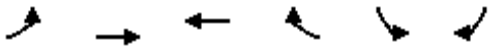
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	476	65	0	544	360	102	1434	152	0	0	0
Future Volume (vph)	0	476	65	0	544	360	102	1434	152	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5		6.5	6.5		7.0				
Lane Util. Factor		0.95	1.00		0.95	1.00		0.91				
Frpb, ped/bikes		1.00	0.66		1.00	0.69		0.97				
Flpb, ped/bikes		1.00	1.00		1.00	1.00		0.98				
Frt		1.00	0.85		1.00	0.85		0.99				
Flt Protected		1.00	1.00		1.00	1.00		1.00				
Satd. Flow (prot)		3223	957		3374	1036		4691				
Flt Permitted		1.00	1.00		1.00	1.00		1.00				
Satd. Flow (perm)		3223	957		3374	1036		4691				
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	501	68	0	573	379	107	1509	160	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	9	0	0	0	0
Lane Group Flow (vph)	0	501	68	0	573	379	0	1767	0	0	0	0
Confl. Peds. (#/hr)	261		351	351		261	228		163	163		228
Confl. Bikes (#/hr)			50			68			14			
Heavy Vehicles (%)	12%	12%	12%	7%	7%	7%	4%	4%	4%	0%	0%	0%
Turn Type		NA	Perm		NA	Perm	Perm	NA				
Protected Phases		2			2			4				
Permitted Phases			2			2	4					
Actuated Green, G (s)		43.5	43.5		43.5	43.5		53.0				
Effective Green, g (s)		43.5	43.5		43.5	43.5		53.0				
Actuated g/C Ratio		0.40	0.40		0.40	0.40		0.48				
Clearance Time (s)		6.5	6.5		6.5	6.5		7.0				
Lane Grp Cap (vph)		1274	378		1334	409		2260				
v/s Ratio Prot		0.16			0.17							
v/s Ratio Perm			0.07			c0.37		0.38				
v/c Ratio		0.39	0.18		0.43	0.93		0.78				
Uniform Delay, d1		23.8	21.6		24.2	31.7		23.7				
Progression Factor		0.35	0.32		0.45	0.58		0.59				
Incremental Delay, d2		0.9	1.0		0.1	4.4		1.2				
Delay (s)		9.2	8.0		11.1	22.7		15.3				
Level of Service		A	A		B	C		B				
Approach Delay (s)		9.0			15.7			15.3			0.0	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		

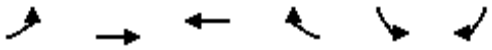
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	246	366	400	404	272	116
v/c Ratio	0.69	0.26	0.28	0.51	0.39	0.32
Control Delay	50.5	12.6	8.7	7.9	14.7	9.6
Queue Delay	2.2	0.0	0.0	1.7	6.0	2.7
Total Delay	52.7	12.6	8.7	9.6	20.7	12.3
Queue Length 50th (ft)	171	44	36	50	94	56
Queue Length 95th (ft)	243	54	44	81	m104	m59
Internal Link Dist (ft)		238	419		144	
Turn Bay Length (ft)				200		
Base Capacity (vph)	356	1382	1435	789	690	359
Starvation Cap Reductn	38	0	0	0	355	155
Spillback Cap Reductn	0	0	0	226	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.26	0.28	0.72	0.81	0.57

Intersection Summary

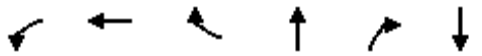
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	209	311	340	343	231	99
Future Volume (vph)	209	311	340	343	231	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	6.5	6.5	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.81	1.00	0.84
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1671	3343	3471	1259	3303	1281
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1671	3343	3471	1259	3303	1281
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	246	366	400	404	272	116
RTOR Reduction (vph)	0	0	0	0	0	92
Lane Group Flow (vph)	246	366	400	404	272	24
Confl. Peds. (#/hr)	161			161	611	87
Confl. Bikes (#/hr)				63		8
Heavy Vehicles (%)	8%	8%	4%	4%	6%	6%
Turn Type	Prot	NA	NA	pm+ov	Prot	Perm
Protected Phases	1	2	2	4	4	
Permitted Phases				2		4
Actuated Green, G (s)	23.5	45.5	45.5	68.5	23.0	23.0
Effective Green, g (s)	23.5	45.5	45.5	68.5	23.0	23.0
Actuated g/C Ratio	0.21	0.41	0.41	0.62	0.21	0.21
Clearance Time (s)	5.5	6.5	6.5	6.0	6.0	6.0
Lane Grp Cap (vph)	356	1382	1435	852	690	267
v/s Ratio Prot	c0.15	0.11	0.12	c0.10	0.08	
v/s Ratio Perm				0.22		0.02
v/c Ratio	0.69	0.26	0.28	0.47	0.39	0.09
Uniform Delay, d1	39.9	21.2	21.4	11.1	37.5	35.1
Progression Factor	0.98	0.57	0.38	0.71	0.36	1.14
Incremental Delay, d2	10.5	0.5	0.4	1.8	1.2	0.5
Delay (s)	49.7	12.5	8.6	9.6	14.6	40.3
Level of Service	D	B	A	A	B	D
Approach Delay (s)		27.4	9.1		22.3	
Approach LOS		C	A		C	

Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		

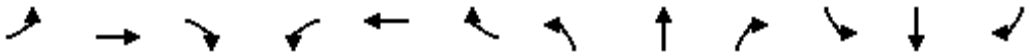
c Critical Lane Group



Lane Group	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	26	75	49	544	111	624
v/c Ratio	0.07	0.15	0.09	0.72	0.53	0.78
Control Delay	42.6	43.7	5.4	46.5	13.7	45.3
Queue Delay	0.0	0.0	0.0	54.1	0.8	0.3
Total Delay	42.6	43.7	5.4	100.5	14.5	45.7
Queue Length 50th (ft)	17	49	3	203	13	208
Queue Length 95th (ft)	m33	m85	m16	242	m26	276
Internal Link Dist (ft)		379		144		307
Turn Bay Length (ft)	200		65			
Base Capacity (vph)	352	514	522	759	210	801
Starvation Cap Reductn	0	0	0	319	16	0
Spillback Cap Reductn	0	0	0	0	0	19
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.15	0.09	1.24	0.57	0.80

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	24	69	45	73	428	102	136	322	116
Future Volume (vph)	0	0	0	24	69	45	73	428	102	136	322	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5	6.5		6.0	6.0		6.0	
Lane Util. Factor				1.00	1.00	1.00		0.95	1.00		0.95	
Frpb, ped/bikes				1.00	1.00	0.95		1.00	0.26		0.99	
Flpb, ped/bikes				0.72	1.00	1.00		1.00	1.00		1.00	
Frt				1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected				0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)				1193	1743	1414		3480	413		3304	
Flt Permitted				0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (perm)				1193	1743	1414		3480	413		3304	
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	26	75	49	79	465	111	148	350	126
RTOR Reduction (vph)	0	0	0	0	0	35	0	0	87	0	21	0
Lane Group Flow (vph)	0	0	0	26	75	14	0	544	24	0	603	0
Confl. Peds. (#/hr)	19		195	195		19	9		599	599		9
Confl. Bikes (#/hr)						10			4			5
Heavy Vehicles (%)	0%	0%	0%	9%	9%	9%	3%	3%	3%	4%	4%	4%
Turn Type				Perm	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases					4		2	2		1	1	
Permitted Phases				4		4			2			
Actuated Green, G (s)				32.5	32.5	32.5		24.0	24.0		26.0	
Effective Green, g (s)				32.5	32.5	32.5		24.0	24.0		26.0	
Actuated g/C Ratio				0.30	0.30	0.30		0.22	0.22		0.24	
Clearance Time (s)				6.5	6.5	6.5		6.0	6.0		6.0	
Lane Grp Cap (vph)				352	514	417		759	90		780	
v/s Ratio Prot					c0.04			c0.16			c0.18	
v/s Ratio Perm				0.02		0.01			0.06			
v/c Ratio				0.07	0.15	0.03		0.72	0.27		0.77	
Uniform Delay, d1				27.9	28.5	27.6		39.8	35.7		39.2	
Progression Factor				1.49	1.49	1.00		1.04	2.57		1.00	
Incremental Delay, d2				0.4	0.5	0.1		4.8	6.0		7.4	
Delay (s)				41.9	43.0	27.7		46.0	97.7		46.6	
Level of Service				D	D	C		D	F		D	
Approach Delay (s)		0.0			37.8			54.8			46.6	
Approach LOS		A			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	49.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

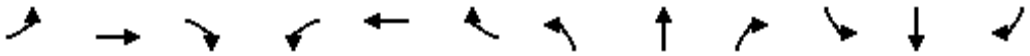
c Critical Lane Group



Lane Group	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	1181	934	157	2456	897
v/c Ratio	0.77	0.66	0.40	0.76	0.36
Control Delay	37.0	42.1	33.5	22.0	34.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	37.0	42.1	33.5	22.0	34.8
Queue Length 50th (ft)	272	255	101	375	210
Queue Length 95th (ft)	328	m298	m150	422	250
Internal Link Dist (ft)	320	1027		460	1159
Turn Bay Length (ft)					
Base Capacity (vph)	1528	1405	394	3220	2481
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.77	0.66	0.40	0.76	0.36

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	1116	41	10	898	172	0	2206	226	0	766	122
Future Volume (vph)	13	1116	41	10	898	172	0	2206	226	0	766	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5	4.5		4.5			4.5	
Lane Util. Factor		0.91			0.86	0.86		0.86			0.91	
Frpb, ped/bikes		1.00			1.00	0.82		0.98			0.98	
Flpb, ped/bikes		1.00			1.00	1.00		1.00			1.00	
Frt		0.99			1.00	0.85		0.99			0.98	
Flt Protected		1.00			1.00	1.00		1.00			1.00	
Satd. Flow (prot)		4982			4594	1077		6027			4632	
Flt Permitted		0.92			0.92	1.00		1.00			1.00	
Satd. Flow (perm)		4596			4232	1077		6027			4632	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	13	1127	41	10	907	174	0	2228	228	0	774	123
RTOR Reduction (vph)	0	3	0	0	1	37	0	15	0	0	20	0
Lane Group Flow (vph)	0	1178	0	0	933	120	0	2441	0	0	877	0
Confl. Peds. (#/hr)	133		97	97		133	87		163	163		87
Confl. Bikes (#/hr)			4			2			5			6
Heavy Vehicles (%)	3%	3%	3%	6%	6%	6%	5%	5%	5%	8%	8%	8%
Turn Type	Perm	NA		Perm	NA	Perm		NA			NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2						
Actuated Green, G (s)		36.5			36.5	36.5		58.5			58.5	
Effective Green, g (s)		36.5			36.5	36.5		58.5			58.5	
Actuated g/C Ratio		0.33			0.33	0.33		0.53			0.53	
Clearance Time (s)		4.5			4.5	4.5		4.5			4.5	
Lane Grp Cap (vph)		1525			1404	357		3205			2463	
v/s Ratio Prot								c0.40			0.19	
v/s Ratio Perm		c0.26			0.22	0.11						
v/c Ratio		0.77			0.66	0.34		0.76			0.36	
Uniform Delay, d1		33.0			31.5	27.6		20.3			14.9	
Progression Factor		1.00			1.27	1.70		1.00			2.41	
Incremental Delay, d2		3.9			1.7	1.7		1.8			0.4	
Delay (s)		36.9			41.8	48.6		22.0			36.3	
Level of Service		D			D	D		C			D	
Approach Delay (s)		36.9			42.8			22.0			36.3	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	31.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



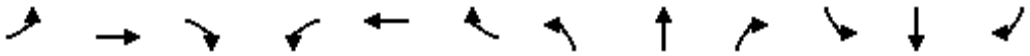
Lane Group	EBT	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	404	236	65	68	2058	871
v/c Ratio	0.49	0.27	0.20	0.21	1.02	0.29
Control Delay	16.2	47.4	47.9	2.8	32.3	1.7
Queue Delay	0.0	0.0	0.0	0.0	4.5	0.2
Total Delay	16.2	47.4	47.9	2.8	36.8	2.0
Queue Length 50th (ft)	94	93	49	4	~747	25
Queue Length 95th (ft)	m99	137	97	m5	#975	28
Internal Link Dist (ft)	394	249			1159	146
Turn Bay Length (ft)						
Base Capacity (vph)	828	874	332	327	2025	3005
Starvation Cap Reductn	0	0	0	0	0	1201
Spillback Cap Reductn	0	0	0	0	27	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.27	0.20	0.21	1.03	0.48

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	364	36	0	234	64	67	1819	219	0	848	14
Future Volume (vph)	0	364	36	0	234	64	67	1819	219	0	848	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5	6.5	6.5	6.5			6.5	
Lane Util. Factor		0.95			0.95	1.00	1.00	0.95			0.91	
Frpb, ped/bikes		0.97			1.00	0.85	1.00	0.96			1.00	
Flpb, ped/bikes		1.00			1.00	1.00	0.96	1.00			1.00	
Frt		0.99			1.00	0.85	1.00	0.98			1.00	
Flt Protected		1.00			1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)		3195			3374	1283	1654	3253			4825	
Flt Permitted		1.00			1.00	1.00	0.30	1.00			1.00	
Satd. Flow (perm)		3195			3374	1283	527	3253			4825	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	0	368	36	0	236	65	68	1837	221	0	857	14
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	404	0	0	236	65	68	2058	0	0	871	0
Confl. Peds. (#/hr)	75		346	346		75	112		287	287		112
Confl. Bikes (#/hr)			58			70			3			21
Heavy Vehicles (%)	8%	8%	8%	7%	7%	7%	5%	5%	5%	7%	7%	7%
Turn Type		NA			NA	Perm	Perm	NA			NA	
Protected Phases		8			4			6			2	
Permitted Phases						4	6					
Actuated Green, G (s)		28.5			28.5	28.5	68.5	68.5			68.5	
Effective Green, g (s)		28.5			28.5	28.5	68.5	68.5			68.5	
Actuated g/C Ratio		0.26			0.26	0.26	0.62	0.62			0.62	
Clearance Time (s)		6.5			6.5	6.5	6.5	6.5			6.5	
Lane Grp Cap (vph)		827			874	332	328	2025			3004	
v/s Ratio Prot		c0.13			0.07			c0.63			0.18	
v/s Ratio Perm						0.05	0.13					
v/c Ratio		0.49			0.27	0.20	0.21	1.02			0.29	
Uniform Delay, d1		34.6			32.5	31.8	9.0	20.8			9.6	
Progression Factor		0.44			1.43	1.43	0.19	0.47			0.16	
Incremental Delay, d2		0.9			0.8	1.3	1.0	20.5			0.2	
Delay (s)		16.0			47.1	46.9	2.7	30.2			1.7	
Level of Service		B			D	D	A	C			A	
Approach Delay (s)		16.0			47.0			29.3			1.7	
Approach LOS		B			D			C			A	

Intersection Summary			
HCM 2000 Control Delay	22.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		

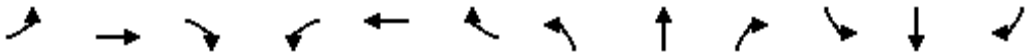
c Critical Lane Group



Lane Group	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	94	160	304	1617	925
v/c Ratio	0.24	0.44	0.54	0.52	0.59
Control Delay	31.7	34.5	11.6	2.1	32.4
Queue Delay	0.0	0.0	29.8	9.6	0.0
Total Delay	31.7	34.5	41.4	11.7	32.4
Queue Length 50th (ft)	50	93	56	41	196
Queue Length 95th (ft)	m73	m137	m58	m42	242
Internal Link Dist (ft)		580		146	270
Turn Bay Length (ft)					
Base Capacity (vph)	386	367	568	3128	1563
Starvation Cap Reductn	0	0	267	1492	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.24	0.44	1.01	0.99	0.59

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	103	71	75	298	1585	0	0	853	54
Future Volume (vph)	0	0	0	103	71	75	298	1585	0	0	853	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5		6.0	6.0			6.0	
Lane Util. Factor				0.95	0.95		1.00	0.91			0.91	
Frpb, ped/bikes				1.00	0.89		1.00	1.00			0.98	
Flpb, ped/bikes				0.92	0.99		0.99	1.00			1.00	
Frt				1.00	0.93		1.00	1.00			0.99	
Flt Protected				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)				1492	1397		1717	4988			4760	
Flt Permitted				0.95	1.00		0.22	1.00			1.00	
Satd. Flow (perm)				1492	1397		394	4988			4760	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	0	0	105	72	77	304	1617	0	0	870	55
RTOR Reduction (vph)	0	0	0	0	5	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	0	0	94	155	0	304	1617	0	0	919	0
Confl. Peds. (#/hr)	167		61	61		167	123		348	348		123
Confl. Bikes (#/hr)						8			3			17
Heavy Vehicles (%)	0%	0%	0%	6%	6%	6%	4%	4%	4%	6%	6%	6%
Turn Type				Perm	NA		pm+pt	NA			NA	
Protected Phases					4		5	2			6	
Permitted Phases				4			2					
Actuated Green, G (s)				28.5	28.5		69.0	69.0			36.0	
Effective Green, g (s)				28.5	28.5		69.0	69.0			36.0	
Actuated g/C Ratio				0.26	0.26		0.63	0.63			0.33	
Clearance Time (s)				6.5	6.5		6.0	6.0			6.0	
Lane Grp Cap (vph)				386	361		571	3128			1557	
v/s Ratio Prot							0.13	c0.32			c0.19	
v/s Ratio Perm				0.06	0.11		0.20					
v/c Ratio				0.24	0.43		0.53	0.52			0.59	
Uniform Delay, d1				32.2	34.0		20.6	11.3			30.8	
Progression Factor				0.93	0.95		0.46	0.17			1.00	
Incremental Delay, d2				1.2	3.0		1.0	0.2			1.7	
Delay (s)				31.2	35.2		10.5	2.1			32.5	
Level of Service				C	D		B	A			C	
Approach Delay (s)		0.0			33.7			3.4			32.5	
Approach LOS		A			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

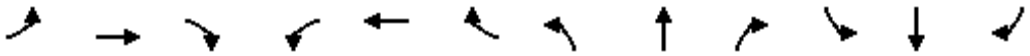


Lane Group	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	10	14	131	145	1337	85	386
v/c Ratio	0.13	0.07	0.63	0.29	1.06	0.63	0.22
Control Delay	54.1	36.7	62.3	30.0	73.6	70.1	13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.1	36.7	62.3	30.0	73.6	70.1	13.1
Queue Length 50th (ft)	7	8	49	94	~545	59	70
Queue Length 95th (ft)	25	26	79	152	#642	#121	93
Internal Link Dist (ft)	133				1023		200
Turn Bay Length (ft)				100			
Base Capacity (vph)	75	192	209	495	1265	135	1755
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.07	0.63	0.29	1.06	0.63	0.22

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	8	12	114	0	126	32	876	255	74	320	16
Future Volume (vph)	1	8	12	114	0	126	32	876	255	74	320	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5	6.5		6.5		6.5		5.0	6.5	
Lane Util. Factor		1.00	1.00	0.97		1.00		0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.73	1.00		1.00		0.96		1.00	0.97	
Flpb, ped/bikes		1.00	1.00	1.00		1.00		0.99		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		0.97		1.00	0.99	
Flt Protected		1.00	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1499	942	3072		1417		3219		1656	3192	
Flt Permitted		1.00	1.00	0.95		1.00		0.93		0.95	1.00	
Satd. Flow (perm)		1499	942	3072		1417		2994		1656	3192	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	1	9	14	131	0	145	37	1007	293	85	368	18
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	10	14	131	0	145	0	1337	0	85	386	0
Confl. Peds. (#/hr)	4		150	150		4	390		114	114		390
Confl. Bikes (#/hr)			17			113			39			31
Heavy Vehicles (%)	26%	26%	26%	14%	14%	14%	3%	3%	3%	9%	9%	9%
Turn Type	Prot	NA	Perm	Prot		custom	Perm	NA		Prot	NA	
Protected Phases	3	8		7		7 4 1		2		1	6	
Permitted Phases			8				2					
Actuated Green, G (s)		22.5	22.5	7.5		40.0		46.5		9.0	60.5	
Effective Green, g (s)		22.5	22.5	7.5		40.0		46.5		9.0	60.5	
Actuated g/C Ratio		0.20	0.20	0.07		0.36		0.42		0.08	0.55	
Clearance Time (s)		6.5	6.5	6.5				6.5		5.0	6.5	
Lane Grp Cap (vph)		306	192	209		515		1265		135	1755	
v/s Ratio Prot		0.00		c0.04		c0.10				c0.05	0.12	
v/s Ratio Perm		0.00	c0.01					c0.45				
v/c Ratio		0.03	0.07	0.63		0.28		1.06		0.63	0.22	
Uniform Delay, d1		35.0	35.3	49.9		24.8		31.8		48.9	12.7	
Progression Factor		1.00	1.00	0.98		1.08		1.00		1.00	1.00	
Incremental Delay, d2		0.2	0.7	13.1		1.3		41.8		20.2	0.3	
Delay (s)		35.2	36.1	61.9		28.1		73.6		69.1	13.0	
Level of Service		D	D	E		C		E		E	B	
Approach Delay (s)		35.7			44.1			73.6			23.1	
Approach LOS		D			D			E			C	

Intersection Summary			
HCM 2000 Control Delay	58.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBL	WBT	NBR
Lane Group Flow (vph)	378	686	1159	629
v/c Ratio	0.25	0.94	0.73	0.42
Control Delay	9.5	47.0	28.9	20.8
Queue Delay	0.0	8.7	49.3	0.0
Total Delay	9.5	55.7	78.2	20.8
Queue Length 50th (ft)	66	486	299	187
Queue Length 95th (ft)	m87	#715	367	242
Internal Link Dist (ft)	354		202	
Turn Bay Length (ft)				
Base Capacity (vph)	1529	732	1593	1480
Starvation Cap Reductn	0	41	571	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.25	0.99	1.13	0.42

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	346	2	631	1066	0	579
Future Volume (vph)	346	2	631	1066	0	579
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0		7.0	7.0		7.0
Lane Util. Factor	0.95		1.00	0.95		0.76
Frpb, ped/bikes	1.00		1.00	1.00		1.00
Flpb, ped/bikes	1.00		1.00	1.00		1.00
Frt	1.00		1.00	1.00		0.85
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	3365		1752	3505		3541
Flt Permitted	1.00		0.95	1.00		1.00
Satd. Flow (perm)	3365		1752	3505		3541
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	376	2	686	1159	0	629
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	378	0	686	1159	0	629
Confl. Peds. (#/hr)		146	146		17	
Confl. Bikes (#/hr)		46				4
Heavy Vehicles (%)	7%	7%	3%	3%	4%	4%
Turn Type	NA		Prot	NA		Prot
Protected Phases	2		7	6		4
Permitted Phases						
Actuated Green, G (s)	50.0		46.0	50.0		46.0
Effective Green, g (s)	50.0		46.0	50.0		46.0
Actuated g/C Ratio	0.45		0.42	0.45		0.42
Clearance Time (s)	7.0		7.0	7.0		7.0
Lane Grp Cap (vph)	1529		732	1593		1480
v/s Ratio Prot	0.11		c0.39	c0.33		0.18
v/s Ratio Perm						
v/c Ratio	0.25		0.94	0.73		0.42
Uniform Delay, d1	18.4		30.6	24.4		22.6
Progression Factor	0.49		0.88	1.06		0.87
Incremental Delay, d2	0.4		18.8	2.5		0.9
Delay (s)	9.4		45.7	28.5		20.6
Level of Service	A		D	C		C
Approach Delay (s)	9.4			34.9	20.6	
Approach LOS	A			C	C	

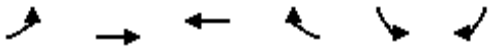
Intersection Summary			
HCM 2000 Control Delay	28.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	58.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	SBR
Lane Group Flow (vph)	846	124	5	1486
v/c Ratio	0.43	0.24	0.00	0.71
Control Delay	12.6	29.0	25.6	17.4
Queue Delay	1.8	0.0	0.0	3.8
Total Delay	14.4	29.0	25.6	21.2
Queue Length 50th (ft)	145	61	1	277
Queue Length 95th (ft)	188	109	5	344
Internal Link Dist (ft)		268	282	
Turn Bay Length (ft)				
Base Capacity (vph)	1952	520	1028	2093
Starvation Cap Reductn	895	0	0	509
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.80	0.24	0.00	0.94

Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	812	119	5	0	0	1427
Future Volume (vph)	812	119	5	0	0	1427
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.5	6.5			7.0
Lane Util. Factor	0.97	1.00	0.95			0.76
Frpb, ped/bikes	1.00	1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	1.00	1.00	1.00			0.85
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3367	1827	3610			3610
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3367	1827	3610			3610
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	846	124	5	0	0	1486
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	846	124	5	0	0	1486
Confl. Peds. (#/hr)	44			44	2	2
Confl. Bikes (#/hr)				81		32
Heavy Vehicles (%)	4%	4%	0%	0%	2%	2%
Turn Type	Prot	NA	NA			Prot
Protected Phases	7	6	2			4
Permitted Phases						
Actuated Green, G (s)	58.0	28.5	28.5			58.0
Effective Green, g (s)	58.0	28.5	28.5			58.0
Actuated g/C Ratio	0.58	0.28	0.28			0.58
Clearance Time (s)	7.0	6.5	6.5			7.0
Lane Grp Cap (vph)	1952	520	1028			2093
v/s Ratio Prot	0.25	c0.07	0.00			c0.41
v/s Ratio Perm						
v/c Ratio	0.43	0.24	0.00			0.71
Uniform Delay, d1	11.8	27.4	25.6			15.0
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	0.7	1.1	0.0			2.1
Delay (s)	12.5	28.5	25.6			17.1
Level of Service	B	C	C			B
Approach Delay (s)		14.5	25.6		17.1	
Approach LOS		B	C		B	

Intersection Summary			
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBL	WBT	NBR
Lane Group Flow (vph)	621	125	316	22
v/c Ratio	0.20	0.33	0.14	0.06
Control Delay	17.9	55.1	4.2	34.8
Queue Delay	0.6	0.0	0.0	0.0
Total Delay	18.5	55.1	4.2	34.8
Queue Length 50th (ft)	102	79	25	12
Queue Length 95th (ft)	m122	129	35	34
Internal Link Dist (ft)	249		238	
Turn Bay Length (ft)				
Base Capacity (vph)	3108	375	2328	358
Starvation Cap Reductn	2030	0	0	0
Spillback Cap Reductn	123	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.58	0.33	0.14	0.06

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



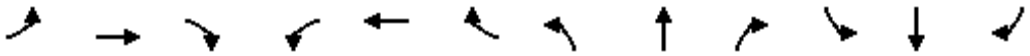
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	482	120	121	307	0	21
Future Volume (vph)	482	120	121	307	0	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		6.0	5.5		6.0
Lane Util. Factor	0.91		1.00	0.95		1.00
Frpb, ped/bikes	0.99		1.00	1.00		1.00
Flpb, ped/bikes	1.00		1.00	1.00		1.00
Frt	0.97		1.00	1.00		0.86
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	4589		1719	3438		1644
Flt Permitted	1.00		0.95	1.00		1.00
Satd. Flow (perm)	4589		1719	3438		1644
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	497	124	125	316	0	22
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	621	0	125	316	0	22
Confl. Peds. (#/hr)		3	3		97	1
Confl. Bikes (#/hr)		33				
Heavy Vehicles (%)	5%	5%	5%	5%	0%	0%
Parking (#/hr)	0	0				
Turn Type	NA		Prot	NA		Over
Protected Phases	2		4	6		4
Permitted Phases						
Actuated Green, G (s)	74.5		24.0	74.5		24.0
Effective Green, g (s)	74.5		24.0	74.5		24.0
Actuated g/C Ratio	0.68		0.22	0.68		0.22
Clearance Time (s)	5.5		6.0	5.5		6.0
Lane Grp Cap (vph)	3108		375	2328		358
v/s Ratio Prot	c0.14		c0.07	0.09		0.01
v/s Ratio Perm						
v/c Ratio	0.20		0.33	0.14		0.06
Uniform Delay, d1	6.6		36.3	6.3		34.1
Progression Factor	2.66		1.43	0.65		1.00
Incremental Delay, d2	0.1		2.3	0.1		0.3
Delay (s)	17.8		54.2	4.2		34.4
Level of Service	B		D	A		C
Approach Delay (s)	17.8			18.4	34.4	
Approach LOS	B			B	C	

Intersection Summary			
HCM 2000 Control Delay	18.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	48.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	WBT
Lane Group Flow (vph)	671	17
v/c Ratio	0.29	0.01
Control Delay	5.5	0.7
Queue Delay	1.9	0.0
Total Delay	7.4	0.7
Queue Length 50th (ft)	81	0
Queue Length 95th (ft)	m127	m0
Internal Link Dist (ft)	206	265
Turn Bay Length (ft)		
Base Capacity (vph)	2300	2300
Starvation Cap Reductn	1423	0
Spillback Cap Reductn	76	655
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.77	0.01

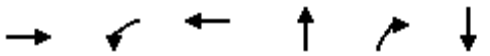
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑							
Traffic Volume (vph)	0	617	0	0	16	0	0	0	0	0	0	0
Future Volume (vph)	0	617	0	0	16	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3539			3539							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3539			3539							
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	671	0	0	17	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	671	0	0	17	0	0	0	0	0	0	0
Turn Type		NA			NA							
Protected Phases		4			8							
Permitted Phases												
Actuated Green, G (s)		71.5			71.5							
Effective Green, g (s)		71.5			71.5							
Actuated g/C Ratio		0.65			0.65							
Clearance Time (s)		6.5			6.5							
Lane Grp Cap (vph)		2300			2300							
v/s Ratio Prot		c0.19			0.00							
v/s Ratio Perm												
v/c Ratio		0.29			0.01							
Uniform Delay, d1		8.3			6.8							
Progression Factor		0.62			0.10							
Incremental Delay, d2		0.3			0.0							
Delay (s)		5.5			0.7							
Level of Service		A			A							
Approach Delay (s)		5.5			0.7			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	5.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	22.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

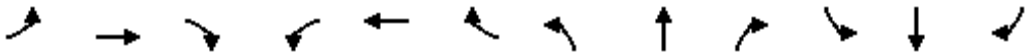


Lane Group	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	1491	379	1265	178	320	704
v/c Ratio	0.80	1.12	0.41	0.26	0.54	0.96
Control Delay	33.8	128.6	10.6	2.2	9.7	74.3
Queue Delay	48.2	0.9	0.0	0.0	6.4	8.6
Total Delay	82.0	129.5	10.6	2.2	16.1	82.9
Queue Length 50th (ft)	336	~309	148	4	203	259
Queue Length 95th (ft)	398	#496	178	6	313	#375
Internal Link Dist (ft)	282		355	154		901
Turn Bay Length (ft)						
Base Capacity (vph)	1860	337	3081	685	588	735
Starvation Cap Reductn	519	0	0	0	213	0
Spillback Cap Reductn	619	25	0	0	0	33
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.20	1.21	0.41	0.26	0.85	1.00

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	1448	10	371	1152	87	20	155	314	148	476	66
Future Volume (vph)	3	1448	10	371	1152	87	20	155	314	148	476	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		5.0	6.0			6.5	6.5		6.5	
Lane Util. Factor		0.91		1.00	0.91			0.95	1.00		0.95	
Frpb, ped/bikes		1.00		1.00	0.97			1.00	0.87		0.98	
Flpb, ped/bikes		1.00		1.00	1.00			0.99	1.00		0.98	
Frt		1.00		1.00	0.99			1.00	0.85		0.99	
Flt Protected		1.00		0.95	1.00			0.99	1.00		0.99	
Satd. Flow (prot)		5076		1770	4902			3433	1356		3358	
Flt Permitted		0.94		0.95	1.00			0.77	1.00		0.83	
Satd. Flow (perm)		4758		1770	4902			2645	1356		2811	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	3	1478	10	379	1176	89	20	158	320	151	486	67
RTOR Reduction (vph)	0	1	0	0	8	0	0	0	237	0	7	0
Lane Group Flow (vph)	0	1490	0	379	1257	0	0	178	83	0	697	0
Confl. Peds. (#/hr)	361		47	47		361	139		80	80		139
Confl. Bikes (#/hr)			30			14			16			19
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	1%	1%	1%
Turn Type	Perm	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			4			4	
Permitted Phases	2						4		4	4		
Actuated Green, G (s)		43.0		21.0	69.0			28.5	28.5		28.5	
Effective Green, g (s)		43.0		21.0	69.0			28.5	28.5		28.5	
Actuated g/C Ratio		0.39		0.19	0.63			0.26	0.26		0.26	
Clearance Time (s)		6.0		5.0	6.0			6.5	6.5		6.5	
Lane Grp Cap (vph)		1859		337	3074			685	351		728	
v/s Ratio Prot				c0.21	0.26							
v/s Ratio Perm		c0.31						0.07	0.06		c0.25	
v/c Ratio		0.80		1.12	0.41			0.26	0.24		0.96	
Uniform Delay, d1		29.7		44.5	10.3			32.4	32.2		40.1	
Progression Factor		1.00		1.00	1.00			0.04	1.62		1.29	
Incremental Delay, d2		3.8		87.1	0.4			0.9	1.5		23.4	
Delay (s)		33.5		131.6	10.7			2.2	53.7		75.1	
Level of Service		C		F	B			A	D		E	
Approach Delay (s)		33.5			38.6			35.3			75.1	
Approach LOS		C			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	42.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	115.6%	ICU Level of Service	H
Analysis Period (min)	15		

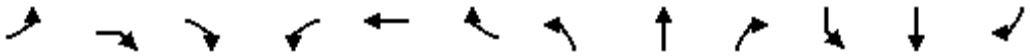
c Critical Lane Group



Lane Group	EBL	EBR	EBR2	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	104	128	159	47	187	228	422	888
v/c Ratio	0.68	0.45	0.38	0.17	0.55	0.22	0.82	0.45
Control Delay	65.0	45.7	9.0	40.0	48.0	2.0	53.4	11.5
Queue Delay	0.2	0.0	0.0	0.0	0.0	0.0	1.8	0.3
Total Delay	65.1	45.7	9.0	40.0	48.0	2.0	55.2	11.8
Queue Length 50th (ft)	69	81	0	28	121	9	157	170
Queue Length 95th (ft)	#151	142	56	63	195	32	#234	213
Internal Link Dist (ft)					318		901	413
Turn Bay Length (ft)								
Base Capacity (vph)	154	287	417	270	338	1044	512	1983
Starvation Cap Reductn	0	0	0	0	0	0	0	501
Spillback Cap Reductn	1	0	0	0	0	8	25	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.45	0.38	0.17	0.55	0.22	0.87	0.60

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	124	154	46	181	221	43	248	118	385	424	52
Future Volume (vph)	101	124	154	46	181	221	43	248	118	385	424	52
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	5.0		6.0			6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		0.95			0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.96		0.97			0.97	
Flpb, ped/bikes	0.92	1.00	1.00	0.84	1.00	1.00		0.98			1.00	
Frt	1.00	0.85	0.85	1.00	1.00	0.85		0.96			0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99			0.98	
Satd. Flow (prot)	1619	1583	1583	1489	1863	1519		3229			3308	
Flt Permitted	0.50	1.00	1.00	0.95	1.00	1.00		0.76			0.56	
Satd. Flow (perm)	849	1583	1583	1489	1863	1519		2451			1906	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	104	128	159	47	187	228	44	256	122	397	437	54
RTOR Reduction (vph)	0	0	130	0	0	67	0	0	0	0	4	0
Lane Group Flow (vph)	104	128	29	47	187	161	0	422	0	0	884	0
Confl. Peds. (#/hr)	45		96	96		45	240		14	14		240
Confl. Bikes (#/hr)		2							21			9
Turn Type	Perm	Prot	Prot	Perm	NA	custom	Perm	NA		pm+pt	NA	
Protected Phases		4	4		8	5		6		5	2	
Permitted Phases	4	4	4	8		8	6			2		
Actuated Green, G (s)	20.0	20.0	20.0	20.0	20.0	70.0		23.0			78.0	
Effective Green, g (s)	20.0	20.0	20.0	20.0	20.0	70.0		23.0			78.0	
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.18	0.64		0.21			0.71	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	5.0		6.0			6.0	
Lane Grp Cap (vph)	154	287	287	270	338	966		512			1988	
v/s Ratio Prot		0.08	0.02		0.10	0.08					c0.20	
v/s Ratio Perm	c0.12			0.03		0.03		c0.17			0.11	
v/c Ratio	0.68	0.45	0.10	0.17	0.55	0.17		0.82			0.44	
Uniform Delay, d1	42.0	40.1	37.5	38.0	40.9	8.1		41.6			6.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		0.93			1.73	
Incremental Delay, d2	21.2	5.0	0.7	1.4	6.4	0.4		13.9			0.6	
Delay (s)	63.2	45.0	38.2	39.4	47.3	8.5		52.6			12.3	
Level of Service	E	D	D	D	D	A		D			B	
Approach Delay (s)					27.4			52.6			12.3	
Approach LOS					C			D			B	

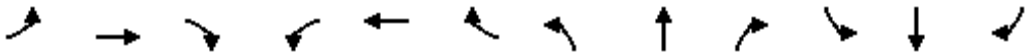
Intersection Summary			
HCM 2000 Control Delay	29.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	25	144	231	409	565	752
v/c Ratio	0.10	0.19	0.55	0.84	0.84	0.82
Control Delay	10.8	8.4	28.1	30.4	23.4	36.3
Queue Delay	0.0	0.0	0.0	0.0	0.7	0.0
Total Delay	10.8	8.4	28.1	30.4	24.1	36.3
Queue Length 50th (ft)	8	42	116	134	103	239
Queue Length 95th (ft)	m16	m63	200	#352	m#515	328
Internal Link Dist (ft)		1267		269	413	277
Turn Bay Length (ft)	100					
Base Capacity (vph)	256	750	418	485	670	913
Starvation Cap Reductn	0	0	0	0	15	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.19	0.55	0.84	0.86	0.82

Intersection Summary

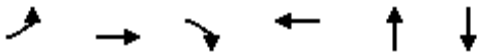
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	96	41	219	87	301	28	283	226	205	493	16
Future Volume (vph)	24	96	41	219	87	301	28	283	226	205	493	16
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	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			0.95	
Frpb, ped/bikes	1.00	0.90		1.00	0.50			0.91			0.99	
Flpb, ped/bikes	0.75	1.00		0.75	1.00			1.00			0.99	
Frt	1.00	0.96		1.00	0.88			0.94			1.00	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1339	1621		1316	819			1580			3437	
Flt Permitted	0.40	1.00		0.67	1.00			0.94			0.60	
Satd. Flow (perm)	565	1621		921	819			1482			2088	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	25	101	43	231	92	317	29	298	238	216	519	17
RTOR Reduction (vph)	0	14	0	0	113	0	0	24	0	0	2	0
Lane Group Flow (vph)	25	130	0	231	296	0	0	541	0	0	750	0
Confl. Peds. (#/hr)	408		195	195		408	131		121	121		131
Confl. Bikes (#/hr)			75			32			16			8
Heavy Vehicles (%)	1%	1%	1%	3%	3%	3%	3%	3%	3%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	50.0	50.0		50.0	50.0			48.0			48.0	
Effective Green, g (s)	50.0	50.0		50.0	50.0			48.0			48.0	
Actuated g/C Ratio	0.45	0.45		0.45	0.45			0.44			0.44	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	256	736		418	372			646			911	
v/s Ratio Prot		0.08			c0.36							
v/s Ratio Perm	0.04			0.25				c0.37			0.36	
v/c Ratio	0.10	0.18		0.55	0.80			0.84			0.82	
Uniform Delay, d1	17.1	17.8		21.9	25.6			27.5			27.3	
Progression Factor	0.57	0.53		1.00	1.00			0.46			1.00	
Incremental Delay, d2	0.7	0.5		5.2	16.1			10.5			8.3	
Delay (s)	10.5	10.0		27.0	41.7			23.1			35.6	
Level of Service	B	A		C	D			C			D	
Approach Delay (s)		10.0			36.4			23.1			35.6	
Approach LOS		B			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	30.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	110.0%	ICU Level of Service	H
Analysis Period (min)	15		

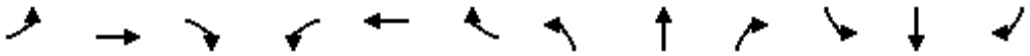
c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBT	NBT	SBT
Lane Group Flow (vph)	19	15	335	109	544	935
v/c Ratio	0.09	0.02	0.67	0.58	0.43	0.77
Control Delay	44.5	25.1	39.6	56.5	35.0	29.2
Queue Delay	0.0	0.0	4.7	0.0	0.1	36.6
Total Delay	44.5	25.1	44.3	56.5	35.1	65.8
Queue Length 50th (ft)	12	7	202	70	116	175
Queue Length 95th (ft)	35	22	307	130	152	m174
Internal Link Dist (ft)		282		633	181	154
Turn Bay Length (ft)						
Base Capacity (vph)	209	618	497	189	1279	1210
Starvation Cap Reductn	0	0	102	0	0	334
Spillback Cap Reductn	0	0	0	0	132	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.02	0.85	0.58	0.47	1.07

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	14	305	58	29	12	0	486	9	2	847	2
Future Volume (vph)	17	14	305	58	29	12	0	486	9	2	847	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.5	6.5		6.5			6.5			7.0	
Lane Util. Factor	1.00	1.00	1.00		1.00			0.91			0.95	
Frpb, ped/bikes	1.00	1.00	0.95		0.98			0.99			1.00	
Flpb, ped/bikes	1.00	1.00	1.00		0.99			1.00			1.00	
Frt	1.00	1.00	0.85		0.98			1.00			1.00	
Flt Protected	0.95	1.00	1.00		0.97			1.00			1.00	
Satd. Flow (prot)	1770	1863	1499		1488			4933			3466	
Flt Permitted	0.95	1.00	1.00		0.85			1.00			0.95	
Satd. Flow (perm)	1770	1863	1499		1296			4933			3309	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	19	15	335	64	32	13	0	534	10	2	931	2
RTOR Reduction (vph)	0	0	0	0	3	0	0	1	0	0	0	0
Lane Group Flow (vph)	19	15	335	0	106	0	0	543	0	0	935	0
Confl. Peds. (#/hr)	113		19	19		113	158		156	156		158
Confl. Bikes (#/hr)			38			35			81			31
Heavy Vehicles (%)	2%	2%	2%	18%	18%	18%	4%	4%	4%	4%	4%	4%
Turn Type	Prot	NA	Perm	Prot	NA			NA		pm+pt	NA	
Protected Phases	1	6		1	2			4		3	8	
Permitted Phases			6							8		
Actuated Green, G (s)	13.0	36.5	36.5		49.5			28.5			40.0	
Effective Green, g (s)	13.0	36.5	36.5		49.5			28.5			40.0	
Actuated g/C Ratio	0.12	0.33	0.33		0.45			0.26			0.36	
Clearance Time (s)	7.0	6.5	6.5		6.5			6.5			7.0	
Lane Grp Cap (vph)	209	618	497		605			1278			1210	
v/s Ratio Prot	0.01	0.01			c0.02			0.11			c0.04	
v/s Ratio Perm			c0.22		0.06						c0.25	
v/c Ratio	0.09	0.02	0.67		0.18			0.42			0.77	
Uniform Delay, d1	43.2	24.8	31.6		18.1			33.9			31.0	
Progression Factor	1.00	1.00	1.00		1.00			1.00			0.88	
Incremental Delay, d2	0.9	0.1	7.1		0.6			1.0			1.5	
Delay (s)	44.1	24.8	38.8		18.7			35.0			28.7	
Level of Service	D	C	D		B			C			C	
Approach Delay (s)		38.5			18.7			35.0			28.7	
Approach LOS		D			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	31.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	2161	1235	240	118
v/c Ratio	1.16	0.42	0.63	0.39
Control Delay	93.3	13.3	45.0	27.0
Queue Delay	0.4	1.6	0.9	0.0
Total Delay	93.7	14.9	46.0	27.0
Queue Length 50th (ft)	~939	166	151	46
Queue Length 95th (ft)	#1083	199	239	101
Internal Link Dist (ft)	202	268	424	
Turn Bay Length (ft)				
Base Capacity (vph)	1868	2930	380	306
Starvation Cap Reductn	229	1438	0	0
Spillback Cap Reductn	0	702	31	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.32	0.83	0.69	0.39

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

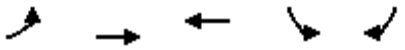
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1832	264	0	1198	233	114
Future Volume (vph)	1832	264	0	1198	233	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0			6.0	6.0	6.0
Lane Util. Factor	0.95			0.91	1.00	1.00
Frpb, ped/bikes	0.93			1.00	1.00	0.73
Flpb, ped/bikes	1.00			1.00	0.89	1.00
Frt	0.98			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3212			5036	1494	1091
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3212			5036	1494	1091
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1889	272	0	1235	240	118
RTOR Reduction (vph)	0	0	0	0	0	28
Lane Group Flow (vph)	2161	0	0	1235	240	90
Confl. Peds. (#/hr)		174	174		90	206
Confl. Bikes (#/hr)		107				39
Heavy Vehicles (%)	3%	3%	3%	3%	8%	8%
Turn Type	NA			NA	Perm	Perm
Protected Phases	2			2		
Permitted Phases					4	4
Actuated Green, G (s)	64.0			64.0	28.0	28.0
Effective Green, g (s)	64.0			64.0	28.0	28.0
Actuated g/C Ratio	0.58			0.58	0.25	0.25
Clearance Time (s)	6.0			6.0	6.0	6.0
Lane Grp Cap (vph)	1868			2930	380	277
v/s Ratio Prot	c0.67			0.25		
v/s Ratio Perm					c0.16	0.08
v/c Ratio	1.16			0.42	0.63	0.32
Uniform Delay, d1	23.0			12.7	36.4	33.3
Progression Factor	0.72			1.00	1.00	1.00
Incremental Delay, d2	73.9			0.4	7.8	3.1
Delay (s)	90.4			13.2	44.2	36.4
Level of Service	F			B	D	D
Approach Delay (s)	90.4			13.2	41.6	
Approach LOS	F			B	D	

Intersection Summary			
HCM 2000 Control Delay	60.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	93.3%	ICU Level of Service	F
Analysis Period (min)	15		

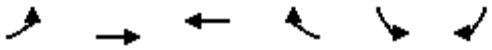
c Critical Lane Group



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	265	904	884	18	543
v/c Ratio	0.20	0.40	0.66	0.05	0.60
Control Delay	30.2	25.9	32.6	21.1	17.4
Queue Delay	0.0	0.2	0.0	0.0	27.6
Total Delay	30.2	26.1	32.6	21.1	45.0
Queue Length 50th (ft)	70	266	243	4	128
Queue Length 95th (ft)	m93	335	m266	m3	m99
Internal Link Dist (ft)		484	340	163	
Turn Bay Length (ft)					
Base Capacity (vph)	1357	2271	1337	376	911
Starvation Cap Reductn	0	0	0	0	382
Spillback Cap Reductn	0	606	0	15	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.20	0.54	0.66	0.05	1.03

Intersection Summary

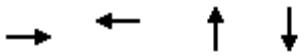
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	257	877	849	9	17	527
Future Volume (vph)	257	877	849	9	17	527
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		5.5	6.0
Lane Util. Factor	0.97	0.95	0.91		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00		0.87	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3353	3471	5071		1563	1588
Flt Permitted	0.21	1.00	1.00		0.95	1.00
Satd. Flow (perm)	725	3471	5071		1563	1588
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	265	904	875	9	18	543
RTOR Reduction (vph)	0	0	1	0	0	2
Lane Group Flow (vph)	265	904	883	0	18	541
Confl. Peds. (#/hr)	88			88	95	3
Confl. Bikes (#/hr)				1		
Heavy Vehicles (%)	4%	4%	2%	2%	1%	1%
Turn Type	pm+pt	NA	NA		Perm	pm+ov
Protected Phases	1	6	2			1
Permitted Phases	6				4	4
Actuated Green, G (s)	72.0	72.0	29.0		26.5	63.5
Effective Green, g (s)	72.0	72.0	29.0		26.5	63.5
Actuated g/C Ratio	0.65	0.65	0.26		0.24	0.58
Clearance Time (s)	6.0	6.0	6.0		5.5	6.0
Lane Grp Cap (vph)	1358	2271	1336		376	1003
v/s Ratio Prot	0.07	0.26	c0.17			c0.18
v/s Ratio Perm	0.06				0.01	0.16
v/c Ratio	0.20	0.40	0.66		0.05	0.54
Uniform Delay, d1	14.9	8.9	36.1		32.1	14.3
Progression Factor	2.63	2.84	0.86		0.65	1.42
Incremental Delay, d2	0.2	0.3	1.4		0.0	0.2
Delay (s)	39.4	25.5	32.4		20.8	20.4
Level of Service	D	C	C		C	C
Approach Delay (s)		28.7	32.4		20.4	
Approach LOS		C	C		C	

Intersection Summary			
HCM 2000 Control Delay	28.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



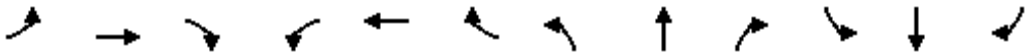
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	268	410	503	504
v/c Ratio	0.68	1.37	0.35	0.31
Control Delay	32.9	219.1	15.2	18.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	32.9	219.1	15.2	18.6
Queue Length 50th (ft)	101	~388	84	50
Queue Length 95th (ft)	m185	m#578	111	67
Internal Link Dist (ft)	492	1267	654	413
Turn Bay Length (ft)				
Base Capacity (vph)	395	300	1438	1618
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.68	1.37	0.35	0.31

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	0	178	161	157	63	60	407	0	0	424	45
Future Volume (vph)	72	0	178	161	157	63	60	407	0	0	424	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5			5.0			5.0	
Lane Util. Factor		1.00			1.00			0.95			0.91	
Frpb, ped/bikes		1.00			1.00			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.90			0.98			1.00			0.99	
Flt Protected		0.99			0.98			0.99			1.00	
Satd. Flow (prot)		1676			1779			3482			5048	
Flt Permitted		0.74			0.65			0.85			1.00	
Satd. Flow (perm)		1257			1176			2967			5048	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	77	0	191	173	169	68	65	438	0	0	456	48
RTOR Reduction (vph)	0	81	0	0	7	0	0	0	0	0	12	0
Lane Group Flow (vph)	0	187	0	0	403	0	0	503	0	0	492	0
Confl. Bikes (#/hr)						4			12			9
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	3%	3%	3%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Prot	NA			NA	
Protected Phases		8			8		5	2			6	
Permitted Phases	8			8								
Actuated Green, G (s)		27.5			27.5			72.0			35.0	
Effective Green, g (s)		27.5			27.5			72.0			35.0	
Actuated g/C Ratio		0.25			0.25			0.65			0.32	
Clearance Time (s)		5.5			5.5			5.0			5.0	
Lane Grp Cap (vph)		314			294			2091			1606	
v/s Ratio Prot								c0.07			c0.10	
v/s Ratio Perm		0.15			c0.34			0.09				
v/c Ratio		0.60			1.37			0.24			0.31	
Uniform Delay, d1		36.3			41.2			7.8			28.3	
Progression Factor		1.10			1.10			1.19			0.66	
Incremental Delay, d2		7.3			186.2			0.3			0.4	
Delay (s)		47.3			231.6			9.6			19.1	
Level of Service		D			F			A			B	
Approach Delay (s)		47.3			231.6			9.6			19.1	
Approach LOS		D			F			A			B	

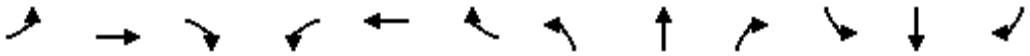
Intersection Summary			
HCM 2000 Control Delay	72.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	169	259	15	201	847	725
v/c Ratio	0.33	0.36	0.05	0.29	0.67	0.52
Control Delay	16.6	13.5	22.1	22.5	32.5	22.9
Queue Delay	0.0	0.0	0.0	0.1	0.1	0.0
Total Delay	16.6	13.5	22.1	22.6	32.6	22.9
Queue Length 50th (ft)	61	107	6	90	164	115
Queue Length 95th (ft)	m91	m157	m12	m125	m214	156
Internal Link Dist (ft)		495		1267	413	291
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	509	728	333	693	1268	1384
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	80	31	34
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.36	0.05	0.33	0.68	0.54

Intersection Summary

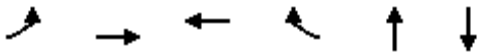
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	108	140	14	159	34	105	636	72	37	417	242
Future Volume (vph)	162	108	140	14	159	34	105	636	72	37	417	242
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	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.91			0.91	
Frpb, ped/bikes	1.00	0.82		1.00	0.95			0.95			0.87	
Flpb, ped/bikes	0.88	1.00		0.80	1.00			0.98			0.99	
Frt	1.00	0.92		1.00	0.97			0.99			0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1535	1379		1416	1716			4696			4132	
Flt Permitted	0.60	1.00		0.56	1.00			0.71			0.84	
Satd. Flow (perm)	974	1379		834	1716			3373			3481	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	169	112	146	15	166	35	109	662	75	39	434	252
RTOR Reduction (vph)	0	14	0	0	7	0	0	11	0	0	88	0
Lane Group Flow (vph)	169	245	0	15	194	0	0	836	0	0	637	0
Confl. Peds. (#/hr)	173		202	202		173	279		186	186		279
Confl. Bikes (#/hr)			47			18			7			2
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	1%	1%	1%	2%	2%	2%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	3	8			4			2			6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	57.0	57.0		44.0	44.0			41.0			41.0	
Effective Green, g (s)	57.0	57.0		44.0	44.0			41.0			41.0	
Actuated g/C Ratio	0.52	0.52		0.40	0.40			0.37			0.37	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	540	714		333	686			1257			1297	
v/s Ratio Prot	0.02	c0.18			0.11							
v/s Ratio Perm	0.14			0.02				c0.25			0.18	
v/c Ratio	0.31	0.34		0.05	0.28			0.67			0.49	
Uniform Delay, d1	16.7	15.5		20.2	22.3			28.8			26.5	
Progression Factor	0.91	0.88		1.06	1.01			1.05			1.00	
Incremental Delay, d2	1.3	1.1		0.2	0.9			2.7			1.3	
Delay (s)	16.5	14.8		21.7	23.4			32.8			27.8	
Level of Service	B	B		C	C			C			C	
Approach Delay (s)		15.5			23.3			32.8			27.8	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	26.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



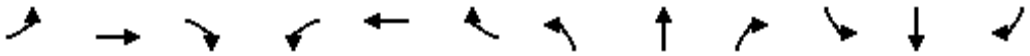
Lane Group	EBL	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	31	876	620	146	343	999
v/c Ratio	0.12	0.84	0.59	0.53	0.29	1.18
Control Delay	72.2	47.5	14.2	18.6	37.4	117.4
Queue Delay	0.0	3.3	0.0	0.0	0.0	0.3
Total Delay	72.2	50.8	14.2	18.6	37.4	117.6
Queue Length 50th (ft)	23	349	37	17	72	~436
Queue Length 95th (ft)	m24	m335	75	44	118	m#512
Internal Link Dist (ft)		523	354		163	654
Turn Bay Length (ft)				150		
Base Capacity (vph)	262	1045	1057	275	1191	844
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	96	0	0	0	38
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.92	0.59	0.53	0.29	1.24

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	789	35	0	583	137	44	268	10	327	511	101
Future Volume (vph)	29	789	35	0	583	137	44	268	10	327	511	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5			6.5	6.5		7.0			7.0	
Lane Util. Factor	1.00	0.95			0.95	1.00		0.91			0.95	
Frpb, ped/bikes	1.00	0.99			1.00	0.58		0.99			0.98	
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00			0.94	
Frt	1.00	0.99			1.00	0.85		1.00			0.98	
Flt Protected	0.95	1.00			1.00	1.00		0.99			0.98	
Satd. Flow (prot)	1752	3433			3471	905		4658			3184	
Flt Permitted	0.95	1.00			1.00	1.00		0.70			0.71	
Satd. Flow (perm)	1752	3433			3471	905		3267			2299	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	31	839	37	0	620	146	47	285	11	348	544	107
RTOR Reduction (vph)	0	0	0	0	0	0	0	3	0	0	8	0
Lane Group Flow (vph)	31	876	0	0	620	146	0	340	0	0	991	0
Confl. Peds. (#/hr)	442		190	190		442	78		160	160		78
Confl. Bikes (#/hr)			64			47			4			6
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	9%	9%	9%	1%	1%	1%
Turn Type	Prot	NA			NA	Perm	Perm	NA		Perm	NA	
Protected Phases	7	6			2			4			8	
Permitted Phases						2	4			8		
Actuated Green, G (s)	16.5	33.5			33.5	33.5		40.0			40.0	
Effective Green, g (s)	16.5	33.5			33.5	33.5		40.0			40.0	
Actuated g/C Ratio	0.15	0.30			0.30	0.30		0.36			0.36	
Clearance Time (s)	6.5	6.5			6.5	6.5		7.0			7.0	
Lane Grp Cap (vph)	262	1045			1057	275		1188			836	
v/s Ratio Prot	c0.02	c0.26			0.18							
v/s Ratio Perm						0.16		0.10			c0.43	
v/c Ratio	0.12	0.84			0.59	0.53		0.29			1.19	
Uniform Delay, d1	40.5	35.7			32.4	31.7		24.9			35.0	
Progression Factor	1.76	1.26			0.37	0.39		1.49			0.65	
Incremental Delay, d2	0.2	2.0			2.0	5.9		0.6			94.0	
Delay (s)	71.3	47.1			14.0	18.2		37.6			116.6	
Level of Service	E	D			B	B		D			F	
Approach Delay (s)		47.9			14.8			37.6			116.6	
Approach LOS		D			B			D			F	

Intersection Summary			
HCM 2000 Control Delay	61.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		

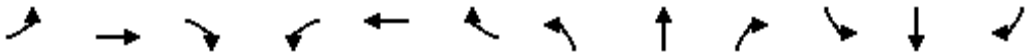
c Critical Lane Group



Lane Group	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1281	1354	85	756	694
v/c Ratio	0.82	0.93dl	0.32	0.44	0.68
Control Delay	11.3	23.1	31.4	25.1	21.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.3	23.1	31.4	25.1	21.6
Queue Length 50th (ft)	39	264	39	136	89
Queue Length 95th (ft)	m41	277	74	173	m113
Internal Link Dist (ft)	516	484		438	368
Turn Bay Length (ft)					
Base Capacity (vph)	1568	2621	262	1722	1017
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.82	0.52	0.32	0.44	0.68

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.
dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	1031	197	294	1010	23	83	627	114	1	593	86
Future Volume (vph)	27	1031	197	294	1010	23	83	627	114	1	593	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5		6.5	6.5			6.5	
Lane Util. Factor		0.86			0.86		1.00	0.91			0.91	
Frpb, ped/bikes		0.96			1.00		1.00	0.94			0.95	
Flpb, ped/bikes		1.00			1.00		0.97	1.00			1.00	
Frt		0.98			1.00		1.00	0.98			0.98	
Flt Protected		1.00			0.99		0.95	1.00			1.00	
Satd. Flow (prot)		5946			6331		1653	4503			4259	
Flt Permitted		0.85			0.74		0.30	1.00			0.94	
Satd. Flow (perm)		5052			4750		519	4503			3999	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	28	1052	201	300	1031	23	85	640	116	1	605	88
RTOR Reduction (vph)	0	31	0	0	2	0	0	24	0	0	17	0
Lane Group Flow (vph)	0	1250	0	0	1352	0	85	732	0	0	677	0
Confl. Peds. (#/hr)	165		157	157		165	365		449	449		365
Confl. Bikes (#/hr)			7			2			21			14
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	6%	6%	6%	14%	14%	14%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		6		5	2		3	8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)		33.5			55.5		41.5	41.5			27.5	
Effective Green, g (s)		33.5			55.5		41.5	41.5			27.5	
Actuated g/C Ratio		0.30			0.50		0.38	0.38			0.25	
Clearance Time (s)		6.5			6.5		6.5	6.5			6.5	
Lane Grp Cap (vph)		1538			2640		273	1698			999	
v/s Ratio Prot					c0.08		0.02	c0.16				
v/s Ratio Perm		c0.25			0.18		0.10				c0.17	
v/c Ratio		0.81			0.93dl		0.31	0.43			0.68	
Uniform Delay, d1		35.4			18.2		29.8	25.5			37.2	
Progression Factor		0.23			1.31		1.00	1.00			0.56	
Incremental Delay, d2		3.2			0.5		3.0	0.8			1.3	
Delay (s)		11.5			24.4		32.8	26.3			22.1	
Level of Service		B			C		C	C			C	
Approach Delay (s)		11.5			24.4			26.9			22.1	
Approach LOS		B			C			C			C	

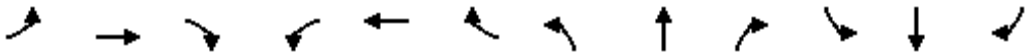
Intersection Summary			
HCM 2000 Control Delay	20.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	98.6%	ICU Level of Service	F
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	233	310	700	584
v/c Ratio	0.51	0.65	0.51	0.76
Control Delay	26.2	43.8	35.4	16.1
Queue Delay	0.0	0.0	0.0	6.0
Total Delay	26.2	43.8	35.4	22.1
Queue Length 50th (ft)	114	227	220	104
Queue Length 95th (ft)	194	m224	272	505
Internal Link Dist (ft)	508	492	449	412
Turn Bay Length (ft)				
Base Capacity (vph)	456	476	1385	767
Starvation Cap Reductn	0	0	0	134
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.51	0.65	0.51	0.92

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	88	71	56	116	123	63	543	59	58	435	62
Future Volume (vph)	62	88	71	56	116	123	63	543	59	58	435	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5			5.5			5.5	
Lane Util. Factor		1.00			1.00			0.95			1.00	
Frpb, ped/bikes		0.90			0.86			0.92			0.92	
Flpb, ped/bikes		0.96			0.96			0.98			0.97	
Frt		0.96			0.94			0.99			0.98	
Flt Protected		0.99			0.99			1.00			0.99	
Satd. Flow (prot)		1503			1451			3060			1621	
Flt Permitted		0.81			0.90			0.83			0.87	
Satd. Flow (perm)		1228			1316			2548			1410	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	65	93	75	59	122	129	66	572	62	61	458	65
RTOR Reduction (vph)	0	15	0	0	3	0	0	6	0	0	4	0
Lane Group Flow (vph)	0	218	0	0	307	0	0	694	0	0	580	0
Confl. Peds. (#/hr)	327		249	249		327	480		767	767		480
Confl. Bikes (#/hr)			2			2			27			11
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	5%	5%	5%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		39.5			39.5			59.5			59.5	
Effective Green, g (s)		39.5			39.5			59.5			59.5	
Actuated g/C Ratio		0.36			0.36			0.54			0.54	
Clearance Time (s)		5.5			5.5			5.5			5.5	
Lane Grp Cap (vph)		440			472			1378			762	
v/s Ratio Prot												
v/s Ratio Perm		0.18			c0.23			0.27			c0.41	
v/c Ratio		0.49			0.65			0.50			0.76	
Uniform Delay, d1		27.5			29.5			15.9			19.7	
Progression Factor		0.88			1.36			2.16			0.52	
Incremental Delay, d2		3.9			3.3			1.1			5.5	
Delay (s)		28.0			43.3			35.5			15.7	
Level of Service		C			D			D			B	
Approach Delay (s)		28.0			43.3			35.5			15.7	
Approach LOS		C			D			D			B	

Intersection Summary			
HCM 2000 Control Delay	29.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	88.0%	ICU Level of Service	E
Analysis Period (min)	15		

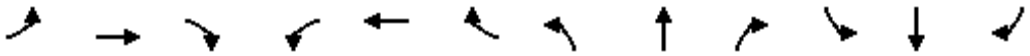
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	24	405	56	726	727	439
v/c Ratio	0.13	0.55	0.18	0.92	0.71	0.76
Control Delay	17.6	25.2	10.0	37.1	21.9	40.7
Queue Delay	0.0	0.0	0.0	8.5	0.0	1.6
Total Delay	17.6	25.2	10.0	45.6	21.9	42.3
Queue Length 50th (ft)	7	164	15	419	121	267
Queue Length 95th (ft)	m22	270	m33	#729	194	395
Internal Link Dist (ft)		509		495	412	353
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	190	735	317	791	1019	575
Starvation Cap Reductn	0	0	0	54	0	0
Spillback Cap Reductn	0	0	0	0	0	43
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.55	0.18	0.99	0.71	0.83

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	254	139	54	425	279	32	600	73	24	364	38
Future Volume (vph)	23	254	139	54	425	279	32	600	73	24	364	38
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	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			1.00	
Frpb, ped/bikes	1.00	0.78		1.00	0.86			0.91			0.95	
Flpb, ped/bikes	1.00	1.00		0.73	1.00			0.99			0.99	
Frt	1.00	0.95		1.00	0.94			0.98			0.99	
Flt Protected	0.95	1.00		0.95	1.00			1.00			1.00	
Satd. Flow (prot)	1770	1379		1293	1502			3056			1684	
Flt Permitted	0.19	1.00		0.44	1.00			0.91			0.93	
Satd. Flow (perm)	361	1379		601	1502			2781			1575	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	24	262	143	56	438	288	33	619	75	25	375	39
RTOR Reduction (vph)	0	8	0	0	0	0	0	8	0	0	3	0
Lane Group Flow (vph)	24	397	0	56	726	0	0	719	0	0	436	0
Confl. Peds. (#/hr)	353		388	388		353	366		872	872		366
Confl. Bikes (#/hr)			24			18			15			10
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	4%	4%	4%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	58.0	58.0		58.0	58.0			40.0			40.0	
Effective Green, g (s)	58.0	58.0		58.0	58.0			40.0			40.0	
Actuated g/C Ratio	0.53	0.53		0.53	0.53			0.36			0.36	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	190	727		316	791			1011			572	
v/s Ratio Prot		0.29			c0.48							
v/s Ratio Perm	0.07			0.09				0.26			c0.28	
v/c Ratio	0.13	0.55		0.18	0.92			0.71			0.76	
Uniform Delay, d1	13.2	17.3		13.6	23.8			30.0			30.8	
Progression Factor	1.16	1.31		0.62	0.79			0.61			1.00	
Incremental Delay, d2	1.3	2.8		1.2	16.8			3.7			9.3	
Delay (s)	16.6	25.4		9.6	35.6			22.0			40.1	
Level of Service	B	C		A	D			C			D	
Approach Delay (s)		24.9			33.7			22.0			40.1	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	29.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	97.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



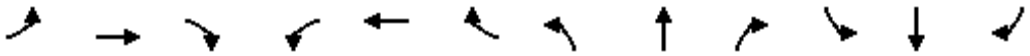
Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	125	1046	605	161	132	579	531
v/c Ratio	0.56	1.07	0.54	0.53	0.93	0.52	0.87
Control Delay	67.2	67.3	31.0	35.7	89.0	11.1	47.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.2	67.3	31.0	35.7	89.0	11.1	47.0
Queue Length 50th (ft)	75	~445	233	118	95	44	195
Queue Length 95th (ft)	123	#552	m278	m174	m#211	m54	#280
Internal Link Dist (ft)		245	523			368	449
Turn Bay Length (ft)				150			
Base Capacity (vph)	223	982	1130	303	142	1119	609
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	1.07	0.54	0.53	0.93	0.52	0.87

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

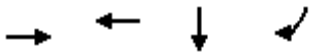
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	792	212	0	581	155	127	512	44	6	470	34
Future Volume (vph)	120	792	212	0	581	155	127	512	44	6	470	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.5			6.5	6.5	7.0	7.0			7.0	
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00	0.95			0.95	
Frpb, ped/bikes	1.00	0.93			1.00	0.60	1.00	0.96			0.97	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00			1.00	
Frt	1.00	0.97			1.00	0.85	1.00	0.99			0.99	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1641	2961			3406	914	1736	3310			3351	
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00			0.94	
Satd. Flow (perm)	1641	2961			3406	914	1736	3310			3167	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	125	825	221	0	605	161	132	533	46	6	490	35
RTOR Reduction (vph)	0	0	0	0	0	0	0	6	0	0	5	0
Lane Group Flow (vph)	125	1046	0	0	605	161	132	573	0	0	526	0
Confl. Peds. (#/hr)	440		238	238		440	619		587	587		619
Confl. Bikes (#/hr)			51			43			24			16
Heavy Vehicles (%)	10%	10%	10%	6%	6%	6%	4%	4%	4%	3%	3%	3%
Turn Type	Prot	NA			NA	Perm	Prot	NA		Perm	NA	
Protected Phases	5	2			6		3	8			4	
Permitted Phases						6				4		
Actuated Green, G (s)	15.0	36.5			36.5	36.5	9.0	37.0			21.0	
Effective Green, g (s)	15.0	36.5			36.5	36.5	9.0	37.0			21.0	
Actuated g/C Ratio	0.14	0.33			0.33	0.33	0.08	0.34			0.19	
Clearance Time (s)	5.0	6.5			6.5	6.5	7.0	7.0			7.0	
Lane Grp Cap (vph)	223	982			1130	303	142	1113			604	
v/s Ratio Prot	c0.08	c0.35			0.18		c0.08	0.17				
v/s Ratio Perm						0.18					c0.17	
v/c Ratio	0.56	1.07			0.54	0.53	0.93	0.51			0.87	
Uniform Delay, d1	44.4	36.8			29.9	29.8	50.2	29.3			43.2	
Progression Factor	1.30	0.52			0.98	0.99	0.58	0.33			0.81	
Incremental Delay, d2	8.5	45.8			1.4	5.0	55.5	1.6			11.4	
Delay (s)	66.2	64.9			30.7	34.5	84.6	11.2			46.6	
Level of Service	E	E			C	C	F	B			D	
Approach Delay (s)		65.1			31.5			24.8			46.6	
Approach LOS		E			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	44.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	27.5
Intersection Capacity Utilization	79.1%	ICU Level of Service	D
Analysis Period (min)	15		

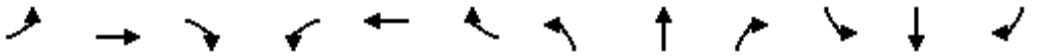
c Critical Lane Group



Lane Group	EBT	WBT	SBT	SBR
Lane Group Flow (vph)	1509	1126	1985	287
v/c Ratio	0.71	1.21dl	1.07	0.58
Control Delay	31.4	5.0	54.0	7.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	31.4	5.0	54.0	7.3
Queue Length 50th (ft)	254	34	~556	35
Queue Length 95th (ft)	298	40	m362	m30
Internal Link Dist (ft)	334	516	582	
Turn Bay Length (ft)				
Base Capacity (vph)	2120	2589	1851	494
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.71	0.43	1.07	0.58

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.
dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1210	269	307	762	32	0	0	0	115	1831	281
Future Volume (vph)	0	1210	269	307	762	32	0	0	0	115	1831	281
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			6.0						6.5	6.5
Lane Util. Factor		0.86			0.86						0.91	1.00
Frpb, ped/bikes		0.94			0.99						1.00	0.76
Flpb, ped/bikes		1.00			1.00						0.99	1.00
Frt		0.97			1.00						1.00	0.85
Flt Protected		1.00			0.99						1.00	1.00
Satd. Flow (prot)		5802			6155						5029	1198
Flt Permitted		1.00			0.75						1.00	1.00
Satd. Flow (perm)		5802			4678						5029	1198
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.92	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1235	274	313	778	35	0	0	0	117	1868	287
RTOR Reduction (vph)	0	37	0	0	4	0	0	0	0	0	0	53
Lane Group Flow (vph)	0	1472	0	0	1122	0	0	0	0	0	1985	234
Confl. Peds. (#/hr)	169		213	213		169	193		114	114		193
Confl. Bikes (#/hr)			10			2						
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	0%	0%	0%	2%	2%	2%
Turn Type		NA		pm+pt	NA					Perm	NA	Perm
Protected Phases		6		5	2						4	
Permitted Phases				2						4		4
Actuated Green, G (s)		39.5			57.0						40.5	40.5
Effective Green, g (s)		39.5			57.0						40.5	40.5
Actuated g/C Ratio		0.36			0.52						0.37	0.37
Clearance Time (s)		5.5			6.0						6.5	6.5
Lane Grp Cap (vph)		2083			2585						1851	441
v/s Ratio Prot		c0.25			c0.05							
v/s Ratio Perm					0.18						0.39	0.20
v/c Ratio		0.71			1.21dl						1.07	0.53
Uniform Delay, d1		30.3			16.5						34.8	27.3
Progression Factor		1.00			0.27						0.52	0.34
Incremental Delay, d2		2.1			0.5						33.8	0.4
Delay (s)		32.3			4.9						52.0	9.8
Level of Service		C			A						D	A
Approach Delay (s)		32.3			4.9			0.0			46.7	
Approach LOS		C			A			A			D	

Intersection Summary			
HCM 2000 Control Delay	32.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	99.2%	ICU Level of Service	F
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

Lane Group	WBL	SBT
Lane Group Flow (vph)	345	1827
v/c Ratio	0.54	0.67
Control Delay	31.6	12.5
Queue Delay	0.0	0.7
Total Delay	31.6	13.2
Queue Length 50th (ft)	209	396
Queue Length 95th (ft)	m299	428
Internal Link Dist (ft)	508	411
Turn Bay Length (ft)		
Base Capacity (vph)	640	2709
Starvation Cap Reductn	0	493
Spillback Cap Reductn	0	489
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.54	0.82

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	338	0	0	0	41	1749
Future Volume (vph)	338	0	0	0	41	1749
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5					5.5
Lane Util. Factor	1.00					0.91
Frpb, ped/bikes	1.00					1.00
Flpb, ped/bikes	1.00					0.99
Frt	1.00					1.00
Flt Protected	0.95					1.00
Satd. Flow (prot)	1784					5009
Flt Permitted	0.95					1.00
Satd. Flow (perm)	1784					5009
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	345	0	0	0	42	1785
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	345	0	0	0	0	1827
Confl. Peds. (#/hr)	1	423		318	318	
Heavy Vehicles (%)	1%	1%	0%	0%	2%	2%
Turn Type	Perm				Perm	NA
Protected Phases						2
Permitted Phases	4				2	
Actuated Green, G (s)	39.5					59.5
Effective Green, g (s)	39.5					59.5
Actuated g/C Ratio	0.36					0.54
Clearance Time (s)	5.5					5.5
Lane Grp Cap (vph)	640					2709
v/s Ratio Prot						
v/s Ratio Perm	c0.19					0.36
v/c Ratio	0.54					0.67
Uniform Delay, d1	28.0					18.2
Progression Factor	1.00					0.62
Incremental Delay, d2	2.9					1.1
Delay (s)	31.0					12.4
Level of Service	C					B
Approach Delay (s)	31.0		0.0			12.4
Approach LOS	C		A			B

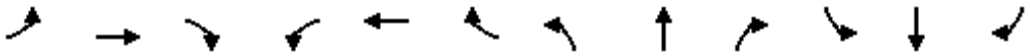
Intersection Summary			
HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	282	206	159	394	1494
v/c Ratio	0.35	0.46	0.49	0.49	0.67
Control Delay	22.8	23.0	17.8	15.6	24.8
Queue Delay	0.0	0.0	0.0	0.0	0.1
Total Delay	22.8	23.0	17.8	15.6	24.9
Queue Length 50th (ft)	132	86	70	176	291
Queue Length 95th (ft)	199	156	m82	m198	345
Internal Link Dist (ft)	409			509	374
Turn Bay Length (ft)		100	100		
Base Capacity (vph)	803	449	323	796	2217
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	121
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.35	0.46	0.49	0.49	0.71

Intersection Summary

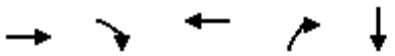
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	268	196	151	374	0	0	0	0	59	1306	54
Future Volume (vph)	0	268	196	151	374	0	0	0	0	59	1306	54
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	
Lane Util. Factor		1.00	1.00	1.00	1.00						0.91	
Frpb, ped/bikes		1.00	0.63	1.00	1.00						0.98	
Flpb, ped/bikes		1.00	1.00	0.79	1.00						0.98	
Frt		1.00	0.85	1.00	1.00						0.99	
Flt Protected		1.00	1.00	0.95	1.00						1.00	
Satd. Flow (prot)		1881	1012	1395	1863						4775	
Flt Permitted		1.00	1.00	0.52	1.00						1.00	
Satd. Flow (perm)		1881	1012	757	1863						4775	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	282	206	159	394	0	0	0	0	62	1375	57
RTOR Reduction (vph)	0	0	17	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	282	189	159	394	0	0	0	0	0	1490	0
Confl. Peds. (#/hr)	398		390	398		390	315		345	345		315
Confl. Bikes (#/hr)			26			18						2
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	3%	3%	3%
Turn Type		NA	Perm	Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		47.0	47.0	47.0	47.0						51.0	
Effective Green, g (s)		47.0	47.0	47.0	47.0						51.0	
Actuated g/C Ratio		0.43	0.43	0.43	0.43						0.46	
Clearance Time (s)		6.0	6.0	6.0	6.0						6.0	
Lane Grp Cap (vph)		803	432	323	796						2213	
v/s Ratio Prot		0.15			c0.21							
v/s Ratio Perm			0.19	0.21							0.31	
v/c Ratio		0.35	0.44	0.49	0.49						0.67	
Uniform Delay, d1		21.2	22.2	22.8	22.9						23.0	
Progression Factor		1.00	1.00	0.62	0.61						1.00	
Incremental Delay, d2		1.2	3.2	2.9	1.2						1.7	
Delay (s)		22.4	25.4	17.1	15.3						24.7	
Level of Service		C	C	B	B						C	
Approach Delay (s)		23.7			15.8			0.0			24.7	
Approach LOS		C			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

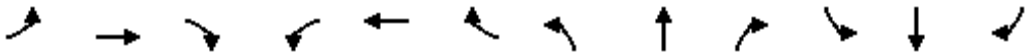


Lane Group	EBT	EBR	WBT	NBR	SBT
Lane Group Flow (vph)	1070	469	761	64	1959
v/c Ratio	0.85	1.23	0.52	0.19	1.06
Control Delay	25.9	142.8	19.9	23.6	54.9
Queue Delay	0.0	0.0	0.4	0.0	12.1
Total Delay	25.9	142.8	20.3	23.6	66.9
Queue Length 50th (ft)	205	~443	91	40	~564
Queue Length 95th (ft)	225	#674	231	79	#636
Internal Link Dist (ft)	516		227		235
Turn Bay Length (ft)		100			
Base Capacity (vph)	1255	382	1470	338	1853
Starvation Cap Reductn	0	0	274	0	50
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.85	1.23	0.64	0.19	1.09

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	852	657	0	746	0	0	0	63	196	1609	115
Future Volume (vph)	0	852	657	0	746	0	0	0	63	196	1609	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5		6.5				7.0		7.0	
Lane Util. Factor		0.91	0.91		0.95				1.00		0.91	
Frpb, ped/bikes		0.93	0.65		1.00				0.66		0.98	
Flpb, ped/bikes		1.00	1.00		1.00				1.00		0.97	
Frt		0.97	0.85		1.00				0.86		0.99	
Flt Protected		1.00	1.00		1.00				1.00		0.99	
Satd. Flow (prot)		2907	885		3406				865		4741	
Flt Permitted		1.00	1.00		1.00				1.00		0.99	
Satd. Flow (perm)		2907	885		3406				865		4741	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	869	670	0	761	0	0	0	64	200	1642	117
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1070	469	0	761	0	0	0	64	0	1959	0
Confl. Peds. (#/hr)	865		312	312		865	303		320	320		303
Confl. Bikes (#/hr)			47			35						7
Heavy Vehicles (%)	8%	8%	8%	6%	6%	6%	26%	26%	26%	2%	2%	2%
Turn Type		NA	Perm		NA				Perm	Perm	NA	
Protected Phases		2			6						8	
Permitted Phases			2						4	8		
Actuated Green, G (s)		47.5	47.5		47.5				43.0		43.0	
Effective Green, g (s)		47.5	47.5		47.5				43.0		43.0	
Actuated g/C Ratio		0.43	0.43		0.43				0.39		0.39	
Clearance Time (s)		6.5	6.5		6.5				7.0		7.0	
Lane Grp Cap (vph)		1255	382		1470				338		1853	
v/s Ratio Prot		0.37			0.22							
v/s Ratio Perm			c0.53						0.07		0.41	
v/c Ratio		0.85	1.23		0.52				0.19		1.06	
Uniform Delay, d1		28.1	31.2		22.9				22.0		33.5	
Progression Factor		0.71	0.73		0.81				0.98		0.52	
Incremental Delay, d2		5.4	118.0		1.2				1.2		35.5	
Delay (s)		25.3	140.8		19.7				22.9		52.8	
Level of Service		C	F		B				C		D	
Approach Delay (s)		60.5			19.7			22.9			52.8	
Approach LOS		E			B			C			D	

Intersection Summary			
HCM 2000 Control Delay	49.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	106.7%	ICU Level of Service	G
Analysis Period (min)	15		

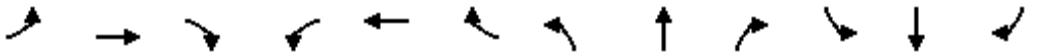
c Critical Lane Group



Lane Group	EBT	WBT	NBL	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1220	858	126	43	413	377	104
v/c Ratio	0.72	0.66	0.40	0.08	0.72	0.43	0.20
Control Delay	41.2	35.5	23.8	3.5	31.9	21.2	9.6
Queue Delay	4.5	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.6	35.5	23.8	3.5	31.9	21.2	9.6
Queue Length 50th (ft)	245	186	56	0	226	171	19
Queue Length 95th (ft)	m267	m179	111	15	356	250	52
Internal Link Dist (ft)	246	516				417	
Turn Bay Length (ft)							
Base Capacity (vph)	1705	1309	312	507	574	872	525
Starvation Cap Reductn	404	0	0	0	0	0	0
Spillback Cap Reductn	28	4	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.66	0.40	0.08	0.72	0.43	0.20

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1089	107	0	841	0	123	0	42	405	369	102
Future Volume (vph)	0	1089	107	0	841	0	123	0	42	405	369	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5		7.0		7.0	7.0	7.0	7.0
Lane Util. Factor		0.91			0.95		1.00		1.00	1.00	1.00	1.00
Frpb, ped/bikes		0.96			1.00		1.00		0.69	1.00	1.00	0.67
Flpb, ped/bikes		1.00			1.00		0.85		1.00	0.69	1.00	1.00
Frt		0.99			1.00		1.00		0.85	1.00	1.00	0.85
Flt Protected		1.00			1.00		0.95		1.00	0.95	1.00	1.00
Satd. Flow (prot)		4519			3471		1392		1012	1215	1845	1051
Flt Permitted		1.00			1.00		0.45		1.00	0.95	1.00	1.00
Satd. Flow (perm)		4519			3471		661		1012	1215	1845	1051
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1111	109	0	858	0	126	0	43	413	377	104
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	23	0	0	29
Lane Group Flow (vph)	0	1220	0	0	858	0	126	0	20	413	377	75
Confl. Peds. (#/hr)	807		213	213		807	252		202	202		252
Confl. Bikes (#/hr)			82			7			6			5
Heavy Vehicles (%)	9%	9%	9%	4%	4%	4%	10%	10%	10%	3%	3%	3%
Turn Type		NA			NA		Perm		Perm	Perm	NA	Perm
Protected Phases		2			6						8	
Permitted Phases							4		4	8		8
Actuated Green, G (s)		41.5			41.5		52.0		52.0	52.0	52.0	52.0
Effective Green, g (s)		41.5			41.5		52.0		52.0	52.0	52.0	52.0
Actuated g/C Ratio		0.38			0.38		0.47		0.47	0.47	0.47	0.47
Clearance Time (s)		6.5			6.5		7.0		7.0	7.0	7.0	7.0
Lane Grp Cap (vph)		1704			1309		312		478	574	872	496
v/s Ratio Prot		c0.27			0.25						0.20	
v/s Ratio Perm							0.19		0.02	c0.34		0.07
v/c Ratio		0.72			0.66		0.40		0.04	0.72	0.43	0.15
Uniform Delay, d1		29.2			28.3		18.9		15.6	23.2	19.2	16.5
Progression Factor		1.35			1.16		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		1.3			2.1		3.9		0.2	7.6	1.6	0.6
Delay (s)		40.8			35.1		22.8		15.8	30.8	20.8	17.1
Level of Service		D			D		C		B	C	C	B
Approach Delay (s)		40.8			35.1			21.0			25.0	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	33.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	84.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



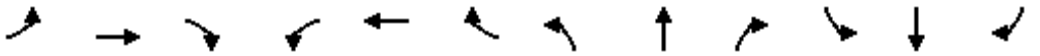
Lane Group	EBL	EBT	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	153	703	807	297	15	566	183
v/c Ratio	1.03	0.72	1.12	0.73	0.06	1.00	0.39
Control Delay	135.5	28.0	88.1	35.8	28.4	84.4	23.4
Queue Delay	0.0	0.9	0.2	0.0	0.0	33.4	0.0
Total Delay	135.5	28.9	88.3	35.8	28.4	117.8	23.4
Queue Length 50th (ft)	~118	126	~98	144	6	~208	84
Queue Length 95th (ft)	m#247	153	#372	#207	24	#325	144
Internal Link Dist (ft)		209	246		170		344
Turn Bay Length (ft)							
Base Capacity (vph)	149	973	723	408	263	565	466
Starvation Cap Reductn	0	93	0	0	0	0	0
Spillback Cap Reductn	0	0	24	0	0	53	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.03	0.80	1.15	0.73	0.06	1.11	0.39

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

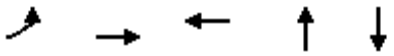
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	667	8	7	768	285	2	8	5	543	1	175
Future Volume (vph)	147	667	8	7	768	285	2	8	5	543	1	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0			6.0	7.0		7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00		0.97	1.00	
Frpb, ped/bikes	1.00	0.99			1.00	0.57		0.92		1.00	0.69	
Flpb, ped/bikes	1.00	1.00			1.00	1.00		0.97		1.00	1.00	
Frt	1.00	1.00			1.00	0.85		0.95		1.00	0.85	
Flt Protected	0.95	1.00			1.00	1.00		0.99		0.95	1.00	
Satd. Flow (prot)	1641	3247			3437	873		1280		3273	1045	
Flt Permitted	0.95	1.00			0.95	1.00		0.96		0.95	1.00	
Satd. Flow (perm)	1641	3247			3272	873		1242		3273	1045	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	153	695	8	7	800	297	2	8	5	566	1	182
RTOR Reduction (vph)	0	0	0	0	0	0	0	4	0	0	1	0
Lane Group Flow (vph)	153	703	0	0	807	297	0	11	0	566	182	0
Confl. Peds. (#/hr)	530		382	382		530	214		170	170		214
Confl. Bikes (#/hr)			127			38						10
Heavy Vehicles (%)	10%	10%	10%	5%	5%	5%	25%	25%	25%	7%	7%	7%
Turn Type	Prot	NA		Prot	NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases	1	6		1	2	3		4		3	8	
Permitted Phases						2	4					
Actuated Green, G (s)	10.0	33.0			43.0	52.0		23.0		19.0	49.0	
Effective Green, g (s)	10.0	33.0			43.0	52.0		23.0		19.0	49.0	
Actuated g/C Ratio	0.09	0.30			0.39	0.47		0.21		0.17	0.45	
Clearance Time (s)	5.0	6.0			6.0	7.0		7.0		7.0	7.0	
Lane Grp Cap (vph)	149	974			1294	412		259		565	465	
v/s Ratio Prot	c0.09	c0.22			0.06	0.12				c0.17	c0.17	
v/s Ratio Perm					0.19	0.22		0.01				
v/c Ratio	1.03	0.72			0.62	0.72		0.04		1.00	0.39	
Uniform Delay, d1	50.0	34.4			27.0	23.2		34.7		45.5	20.5	
Progression Factor	1.25	0.69			0.63	0.91		1.00		1.00	1.00	
Incremental Delay, d2	75.6	4.0			1.9	8.7		0.3		38.3	2.5	
Delay (s)	138.1	27.7			18.8	29.9		35.0		83.8	22.9	
Level of Service	F	C			B	C		D		F	C	
Approach Delay (s)		47.4			21.8			35.0			68.9	
Approach LOS		D			C			D			E	

Intersection Summary			
HCM 2000 Control Delay	42.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	82.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	190	1134	1665	1562	282
v/c Ratio	0.80	0.39	1.02dl	1.16	0.41
Control Delay	45.0	10.4	41.0	117.7	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	45.0	10.4	41.0	117.7	11.6
Queue Length 50th (ft)	107	239	318	~478	17
Queue Length 95th (ft)	m#155	235	#388	#576	37
Internal Link Dist (ft)		1027	345	451	993
Turn Bay Length (ft)					
Base Capacity (vph)	238	2876	1810	1341	696
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.80	0.39	0.92	1.16	0.41

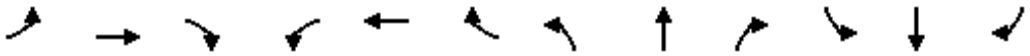
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

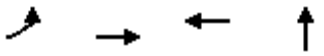
dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	182	1064	25	173	1368	58	63	1055	381	13	140	117
Future Volume (vph)	182	1064	25	173	1368	58	63	1055	381	13	140	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.5			6.5			6.5			6.5	
Lane Util. Factor	1.00	0.91			0.86			0.91			0.95	
Frpb, ped/bikes	1.00	0.99			1.00			0.99			0.86	
Flpb, ped/bikes	1.00	1.00			0.99			0.99			1.00	
Frt	1.00	1.00			0.99			0.96			0.94	
Flt Protected	0.95	1.00			0.99			1.00			1.00	
Satd. Flow (prot)	1752	4978			6218			4830			2852	
Flt Permitted	0.95	1.00			0.73			0.90			0.70	
Satd. Flow (perm)	1752	4978			4562			4352			2008	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	190	1108	26	180	1425	60	66	1099	397	14	146	122
RTOR Reduction (vph)	0	2	0	0	5	0	0	16	0	0	85	0
Lane Group Flow (vph)	190	1132	0	0	1660	0	0	1546	0	0	197	0
Confl. Peds. (#/hr)	24		265	265		24	292		31	31		292
Confl. Bikes (#/hr)			8						5			
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	1%	1%	1%	2%	2%	2%
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	6			2			8			4	
Permitted Phases				2			8			4		
Actuated Green, G (s)	15.0	63.5			43.5			33.5			33.5	
Effective Green, g (s)	15.0	63.5			43.5			33.5			33.5	
Actuated g/C Ratio	0.14	0.58			0.40			0.30			0.30	
Clearance Time (s)	5.0	6.5			6.5			6.5			6.5	
Lane Grp Cap (vph)	238	2873			1804			1325			611	
v/s Ratio Prot	c0.11	0.23										
v/s Ratio Perm					c0.36			c0.36			0.10	
v/c Ratio	0.80	0.39			1.02dl			1.17			0.32	
Uniform Delay, d1	46.0	12.7			31.6			38.2			29.5	
Progression Factor	0.60	0.80			1.00			1.00			0.59	
Incremental Delay, d2	15.4	0.2			9.2			83.6			1.3	
Delay (s)	43.1	10.4			40.8			121.8			18.7	
Level of Service	D	B			D			F			B	
Approach Delay (s)		15.1			40.8			121.8			18.7	
Approach LOS		B			D			F			B	

Intersection Summary			
HCM 2000 Control Delay	58.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	120.7%	ICU Level of Service	H
Analysis Period (min)	15		

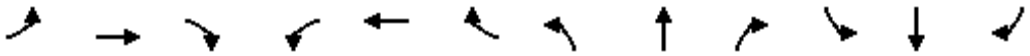
dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	41	132	509	1076
v/c Ratio	0.15	0.15	0.64	0.58
Control Delay	13.6	12.1	25.1	12.3
Queue Delay	0.0	0.0	0.0	0.3
Total Delay	13.6	12.1	25.1	12.5
Queue Length 50th (ft)	17	55	255	81
Queue Length 95th (ft)	m29	m71	374	105
Internal Link Dist (ft)		379	152	314
Turn Bay Length (ft)	75			
Base Capacity (vph)	272	905	790	1855
Starvation Cap Reductn	0	0	0	248
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.15	0.15	0.64	0.67

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	127	0	0	349	139	29	890	114	0	0	0
Future Volume (vph)	39	127	0	0	349	139	29	890	114	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5			6.0				
Lane Util. Factor	1.00	1.00			1.00			0.91				
Frpb, ped/bikes	1.00	1.00			0.91			0.94				
Flpb, ped/bikes	0.90	1.00			1.00			0.98				
Frt	1.00	1.00			0.96			0.98				
Flt Protected	0.95	1.00			1.00			1.00				
Satd. Flow (prot)	1568	1827			1592			4603				
Flt Permitted	0.33	1.00			1.00			1.00				
Satd. Flow (perm)	550	1827			1592			4603				
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	41	132	0	0	364	145	30	927	119	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	14	0	0	0	0
Lane Group Flow (vph)	41	132	0	0	507	0	0	1062	0	0	0	0
Confl. Peds. (#/hr)	258		274	274		258	356		343	343		356
Confl. Bikes (#/hr)			29			15			20			
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			4			2				
Permitted Phases	4						2					
Actuated Green, G (s)	54.5	54.5			54.5			44.0				
Effective Green, g (s)	54.5	54.5			54.5			44.0				
Actuated g/C Ratio	0.50	0.50			0.50			0.40				
Clearance Time (s)	5.5	5.5			5.5			6.0				
Lane Grp Cap (vph)	272	905			788			1841				
v/s Ratio Prot		0.07			c0.32							
v/s Ratio Perm	0.07							0.23				
v/c Ratio	0.15	0.15			0.64			0.58				
Uniform Delay, d1	15.1	15.1			20.6			25.7				
Progression Factor	0.81	0.78			1.00			0.45				
Incremental Delay, d2	0.8	0.2			4.0			0.9				
Delay (s)	13.0	12.0			24.6			12.4				
Level of Service	B	B			C			B				
Approach Delay (s)		12.2			24.6			12.4			0.0	
Approach LOS		B			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	15.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		

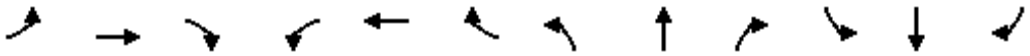
c Critical Lane Group



Lane Group	EBT	EBR	WBT	WBR	NBT
Lane Group Flow (vph)	751	297	747	277	1430
v/c Ratio	0.49	0.44	0.48	0.63	0.70
Control Delay	10.9	11.4	11.5	16.6	9.3
Queue Delay	0.0	0.0	15.9	12.6	0.0
Total Delay	10.9	11.4	27.3	29.3	9.3
Queue Length 50th (ft)	54	41	143	121	263
Queue Length 95th (ft)	62	54	m148	m135	m187
Internal Link Dist (ft)	419		209		993
Turn Bay Length (ft)		100			
Base Capacity (vph)	1532	675	1561	440	2038
Starvation Cap Reductn	0	0	808	139	0
Spillback Cap Reductn	1	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.49	0.44	0.99	0.92	0.70

Intersection Summary

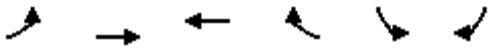
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	691	273	0	687	255	147	1019	149	0	0	0
Future Volume (vph)	0	691	273	0	687	255	147	1019	149	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5		6.5	6.5		7.0				
Lane Util. Factor		0.95	1.00		0.95	1.00		0.91				
Frpb, ped/bikes		1.00	0.99		1.00	0.63		0.96				
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00				
Frt		1.00	0.85		1.00	0.85		0.98				
Flt Protected		1.00	1.00		1.00	1.00		0.99				
Satd. Flow (prot)		3406	1501		3471	978		4738				
Flt Permitted		1.00	1.00		1.00	1.00		0.99				
Satd. Flow (perm)		3406	1501		3471	978		4738				
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	751	297	0	747	277	160	1108	162	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	15	0	0	0	0
Lane Group Flow (vph)	0	751	297	0	747	277	0	1415	0	0	0	0
Confl. Peds. (#/hr)	564					564	1		235	235		1
Confl. Bikes (#/hr)			6			6			24			
Heavy Vehicles (%)	6%	6%	6%	4%	4%	4%	3%	3%	3%	0%	0%	0%
Turn Type		NA	Perm		NA	Perm	Perm	NA				
Protected Phases		2			2			4				
Permitted Phases			2			2	4					
Actuated Green, G (s)		49.5	49.5		49.5	49.5		47.0				
Effective Green, g (s)		49.5	49.5		49.5	49.5		47.0				
Actuated g/C Ratio		0.45	0.45		0.45	0.45		0.43				
Clearance Time (s)		6.5	6.5		6.5	6.5		7.0				
Lane Grp Cap (vph)		1532	675		1561	440		2024				
v/s Ratio Prot		0.22			0.22							
v/s Ratio Perm			0.20			c0.28		0.30				
v/c Ratio		0.49	0.44		0.48	0.63		0.70				
Uniform Delay, d1		21.3	20.7		21.2	23.2		25.7				
Progression Factor		0.46	0.45		0.52	0.59		0.36				
Incremental Delay, d2		1.0	1.8		0.4	2.3		0.2				
Delay (s)		10.8	11.1		11.3	16.0		9.4				
Level of Service		B	B		B	B		A				
Approach Delay (s)		10.9			12.6			9.4			0.0	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	10.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		

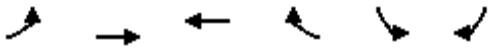
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	221	465	540	318	549	214
v/c Ratio	0.65	0.34	0.39	0.41	0.66	0.47
Control Delay	42.1	27.4	14.5	8.4	23.9	7.0
Queue Delay	1.2	0.7	0.3	0.3	55.2	8.5
Total Delay	43.3	28.1	14.8	8.7	79.1	15.5
Queue Length 50th (ft)	116	113	150	36	182	45
Queue Length 95th (ft)	197	152	188	43	m212	m57
Internal Link Dist (ft)		228	419		144	
Turn Bay Length (ft)				200		
Base Capacity (vph)	339	1372	1372	779	834	457
Starvation Cap Reductn	28	573	0	0	421	201
Spillback Cap Reductn	0	0	342	118	0	20
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.58	0.52	0.48	1.33	0.84

Intersection Summary

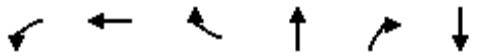
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	214	451	524	308	533	208
Future Volume (vph)	214	451	524	308	533	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	6.5	6.5	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.78	1.00	0.77
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1736	3471	3471	1209	3400	1207
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1736	3471	3471	1209	3400	1207
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	221	465	540	318	549	214
RTOR Reduction (vph)	0	0	0	0	0	161
Lane Group Flow (vph)	221	465	540	318	549	53
Confl. Peds. (#/hr)	328			328	669	133
Confl. Bikes (#/hr)				41		5
Heavy Vehicles (%)	4%	4%	4%	4%	3%	3%
Turn Type	Prot	NA	NA	pm+ov	Prot	Perm
Protected Phases	1	2	2	4	4	
Permitted Phases				2		4
Actuated Green, G (s)	21.5	43.5	43.5	70.5	27.0	27.0
Effective Green, g (s)	21.5	43.5	43.5	70.5	27.0	27.0
Actuated g/C Ratio	0.20	0.40	0.40	0.64	0.25	0.25
Clearance Time (s)	5.5	6.5	6.5	6.0	6.0	6.0
Lane Grp Cap (vph)	339	1372	1372	840	834	296
v/s Ratio Prot	c0.13	0.13	0.16	c0.09	c0.16	
v/s Ratio Perm				0.17		0.04
v/c Ratio	0.65	0.34	0.39	0.38	0.66	0.18
Uniform Delay, d1	40.8	23.2	23.8	9.4	37.3	32.7
Progression Factor	0.79	1.14	0.57	1.06	0.57	1.06
Incremental Delay, d2	9.3	0.7	0.7	1.1	2.2	0.7
Delay (s)	41.5	27.1	14.3	11.0	23.7	35.3
Level of Service	D	C	B	B	C	D
Approach Delay (s)		31.8	13.1		26.9	
Approach LOS		C	B		C	

Intersection Summary			
HCM 2000 Control Delay	23.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		

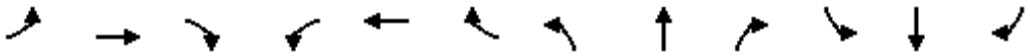
c Critical Lane Group



Lane Group	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	133	208	107	458	83	907
v/c Ratio	0.53	0.53	0.25	0.52	0.36	0.95
Control Delay	38.3	35.6	4.5	41.6	7.9	57.2
Queue Delay	0.0	0.0	0.0	37.4	0.3	44.3
Total Delay	38.3	35.6	4.5	79.0	8.2	101.6
Queue Length 50th (ft)	42	66	1	170	4	320
Queue Length 95th (ft)	m113	164	m23	202	m23	#452
Internal Link Dist (ft)		379		144		303
Turn Bay Length (ft)	200		65			
Base Capacity (vph)	253	390	435	875	233	954
Starvation Cap Reductn	0	0	0	439	18	0
Spillback Cap Reductn	0	0	0	0	0	259
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.53	0.25	1.05	0.39	1.31

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	126	198	102	78	357	79	107	558	197
Future Volume (vph)	0	0	0	126	198	102	78	357	79	107	558	197
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5	6.5		6.0	6.0		6.0	
Lane Util. Factor				1.00	1.00	1.00		0.95	1.00		0.95	
Frpb, ped/bikes				1.00	1.00	0.96		1.00	0.30		0.99	
Flpb, ped/bikes				0.68	1.00	1.00		1.00	1.00		1.00	
Frt				1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected				0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)				1188	1827	1490		3440	468		3294	
Flt Permitted				0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (perm)				1188	1827	1490		3440	468		3294	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	133	208	107	82	376	83	113	587	207
RTOR Reduction (vph)	0	0	0	0	0	84	0	0	62	0	25	0
Lane Group Flow (vph)	0	0	0	133	208	23	0	458	21	0	882	0
Confl. Peds. (#/hr)	18		264	264		18	19		528	528		19
Confl. Bikes (#/hr)						3			4			1
Heavy Vehicles (%)	0%	0%	0%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Perm	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases					4		2	2		1	1	
Permitted Phases				4		4			2			
Actuated Green, G (s)				23.5	23.5	23.5		28.0	28.0		31.0	
Effective Green, g (s)				23.5	23.5	23.5		28.0	28.0		31.0	
Actuated g/C Ratio				0.21	0.21	0.21		0.25	0.25		0.28	
Clearance Time (s)				6.5	6.5	6.5		6.0	6.0		6.0	
Lane Grp Cap (vph)				253	390	318		875	119		928	
v/s Ratio Prot					c0.11			c0.13			c0.27	
v/s Ratio Perm				0.11		0.02			0.05			
v/c Ratio				0.53	0.53	0.07		0.52	0.18		0.95	
Uniform Delay, d1				38.3	38.4	34.5		35.3	32.0		38.7	
Progression Factor				0.81	0.80	1.50		1.11	1.00		1.00	
Incremental Delay, d2				6.4	4.3	0.4		2.0	2.8		19.7	
Delay (s)				37.5	35.1	52.2		41.2	34.8		58.5	
Level of Service				D	D	D		D	C		E	
Approach Delay (s)		0.0			39.9			40.3			58.5	
Approach LOS		A			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	48.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



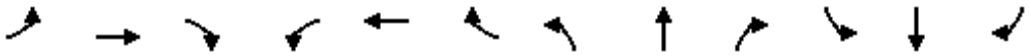
Lane Group	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	1124	1453	85	1773	1752
v/c Ratio	0.84	1.10	0.26	0.57	0.69
Control Delay	40.8	78.2	7.0	17.6	38.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	40.8	78.2	7.0	17.6	38.3
Queue Length 50th (ft)	265	~462	26	226	417
Queue Length 95th (ft)	326	m#532	m29	261	472
Internal Link Dist (ft)	320	1027		460	1159
Turn Bay Length (ft)					
Base Capacity (vph)	1334	1315	330	3102	2532
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.84	1.10	0.26	0.57	0.69

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

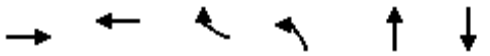
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	989	75	32	1355	90	0	1393	309	0	1443	239
Future Volume (vph)	15	989	75	32	1355	90	0	1393	309	0	1443	239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5	4.5		4.5			4.5	
Lane Util. Factor		0.91			0.86	0.86		0.86			0.91	
Frpb, ped/bikes		0.98			1.00	0.65		0.94			0.96	
Flpb, ped/bikes		1.00			1.00	1.00		1.00			1.00	
Frt		0.99			1.00	0.85		0.97			0.98	
Flt Protected		1.00			1.00	1.00		1.00			1.00	
Satd. Flow (prot)		4919			4781	886		5781			4721	
Flt Permitted		0.81			0.83	1.00		1.00			1.00	
Satd. Flow (perm)		3998			3961	886		5781			4721	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	16	1030	78	33	1411	94	0	1451	322	0	1503	249
RTOR Reduction (vph)	0	7	0	0	1	37	0	27	0	0	21	0
Lane Group Flow (vph)	0	1117	0	0	1452	48	0	1746	0	0	1731	0
Confl. Peds. (#/hr)	411		258	258		411	255		450	450		255
Confl. Bikes (#/hr)			9						9			
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA	Perm		NA			NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2						
Actuated Green, G (s)		36.5			36.5	36.5		58.5			58.5	
Effective Green, g (s)		36.5			36.5	36.5		58.5			58.5	
Actuated g/C Ratio		0.33			0.33	0.33		0.53			0.53	
Clearance Time (s)		4.5			4.5	4.5		4.5			4.5	
Lane Grp Cap (vph)		1326			1314	293		3074			2510	
v/s Ratio Prot								0.30			c0.37	
v/s Ratio Perm		0.28			c0.37	0.05						
v/c Ratio		0.84			1.11	0.16		0.57			0.69	
Uniform Delay, d1		34.1			36.8	26.0		17.3			19.0	
Progression Factor		1.00			0.66	0.52		1.00			1.97	
Incremental Delay, d2		6.6			52.9	0.5		0.8			1.5	
Delay (s)		40.7			77.2	14.0		18.0			38.9	
Level of Service		D			E	B		B			D	
Approach Delay (s)		40.7			73.7			18.0			38.9	
Approach LOS		D			E			B			D	

Intersection Summary			
HCM 2000 Control Delay	41.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	91.9%	ICU Level of Service	F
Analysis Period (min)	15		

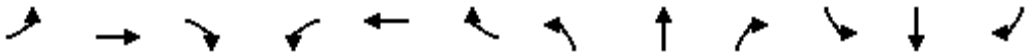
c Critical Lane Group



Lane Group	EBT	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	504	554	133	114	1546	1343
v/c Ratio	0.64	0.55	0.37	0.66	0.81	0.44
Control Delay	55.6	19.4	17.1	31.5	18.6	13.4
Queue Delay	0.0	0.6	0.0	0.0	0.0	0.5
Total Delay	55.6	19.9	17.1	31.5	18.6	13.9
Queue Length 50th (ft)	194	220	97	41	545	291
Queue Length 95th (ft)	251	278	165	#123	666	341
Internal Link Dist (ft)	394	259			1159	146
Turn Bay Length (ft)						
Base Capacity (vph)	790	1003	364	173	1913	3020
Starvation Cap Reductn	0	159	0	0	0	1111
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.66	0.37	0.66	0.81	0.70

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	308	171	0	526	126	108	1249	219	0	1267	9
Future Volume (vph)	0	308	171	0	526	126	108	1249	219	0	1267	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5	6.5	6.5	6.5			6.5	
Lane Util. Factor		0.95			0.95	1.00	1.00	0.95			0.91	
Frpb, ped/bikes		0.87			1.00	0.81	1.00	0.94			1.00	
Flpb, ped/bikes		1.00			1.00	1.00	0.97	1.00			1.00	
Frt		0.95			1.00	0.85	1.00	0.98			1.00	
Flt Protected		1.00			1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)		2762			3505	1272	1704	3212			5072	
Flt Permitted		1.00			1.00	1.00	0.16	1.00			1.00	
Satd. Flow (perm)		2762			3505	1272	290	3212			5072	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	324	180	0	554	133	114	1315	231	0	1334	9
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	504	0	0	554	133	114	1546	0	0	1343	0
Confl. Peds. (#/hr)	128		395	395		128	186		447	447		186
Confl. Bikes (#/hr)			75			50			15			1
Heavy Vehicles (%)	8%	8%	8%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Turn Type		NA			NA	Perm	Perm	NA			NA	
Protected Phases		8			4			6			2	
Permitted Phases						4	6					
Actuated Green, G (s)		31.5			31.5	31.5	65.5	65.5			65.5	
Effective Green, g (s)		31.5			31.5	31.5	65.5	65.5			65.5	
Actuated g/C Ratio		0.29			0.29	0.29	0.60	0.60			0.60	
Clearance Time (s)		6.5			6.5	6.5	6.5	6.5			6.5	
Lane Grp Cap (vph)		790			1003	364	172	1912			3020	
v/s Ratio Prot		c0.18			0.16			c0.48			0.26	
v/s Ratio Perm						0.10	0.39					
v/c Ratio		0.64			0.55	0.37	0.66	0.81			0.44	
Uniform Delay, d1		34.3			33.3	31.3	14.9	17.4			12.2	
Progression Factor		1.50			0.51	0.45	0.82	0.85			1.05	
Incremental Delay, d2		3.4			2.1	2.7	16.2	3.3			0.4	
Delay (s)		54.9			19.2	16.8	28.3	18.1			13.3	
Level of Service		D			B	B	C	B			B	
Approach Delay (s)		54.9			18.7			18.8			13.3	
Approach LOS		D			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	21.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		

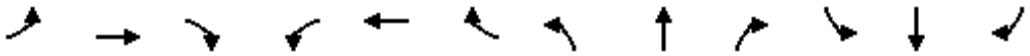
c Critical Lane Group



Lane Group	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	236	232	192	1396	1225
v/c Ratio	0.69	0.66	0.61	0.44	0.52
Control Delay	55.4	53.5	16.7	4.9	20.5
Queue Delay	0.0	0.0	8.6	1.1	0.3
Total Delay	55.4	53.5	25.3	6.0	20.8
Queue Length 50th (ft)	188	183	22	58	210
Queue Length 95th (ft)	m244	m238	m44	103	252
Internal Link Dist (ft)		580		146	270
Turn Bay Length (ft)					
Base Capacity (vph)	342	350	315	3158	2359
Starvation Cap Reductn	0	0	88	1419	0
Spillback Cap Reductn	0	0	0	0	488
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.69	0.66	0.85	0.80	0.65

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	306	58	66	177	1284	0	0	1077	50
Future Volume (vph)	0	0	0	306	58	66	177	1284	0	0	1077	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5		6.0	6.0			6.0	
Lane Util. Factor				0.95	0.95		1.00	0.91			0.91	
Frpb, ped/bikes				1.00	0.90		1.00	1.00			0.98	
Flpb, ped/bikes				0.79	0.91		0.99	1.00			1.00	
Frt				1.00	0.95		1.00	1.00			0.99	
Flt Protected				0.95	0.98		0.95	1.00			1.00	
Satd. Flow (prot)				1320	1345		1738	5036			4888	
Flt Permitted				0.95	0.98		0.17	1.00			1.00	
Satd. Flow (perm)				1320	1345		310	5036			4888	
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	333	63	72	192	1396	0	0	1171	54
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	0	0	236	230	0	192	1396	0	0	1220	0
Confl. Peds. (#/hr)	290		163	163		290	234		649	649		234
Confl. Bikes (#/hr)						9			19			2
Heavy Vehicles (%)	0%	0%	0%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type				Perm	NA		pm+pt	NA			NA	
Protected Phases					4		5	2			6	
Permitted Phases				4			2					
Actuated Green, G (s)				28.5	28.5		69.0	69.0			53.0	
Effective Green, g (s)				28.5	28.5		69.0	69.0			53.0	
Actuated g/C Ratio				0.26	0.26		0.63	0.63			0.48	
Clearance Time (s)				6.5	6.5		6.0	6.0			6.0	
Lane Grp Cap (vph)				342	348		324	3158			2355	
v/s Ratio Prot							c0.05	0.28			0.25	
v/s Ratio Perm				c0.18	0.17		c0.32					
v/c Ratio				0.69	0.66		0.59	0.44			0.52	
Uniform Delay, d1				36.8	36.4		24.7	10.6			19.7	
Progression Factor				1.26	1.27		0.45	0.43			1.00	
Incremental Delay, d2				7.7	6.7		5.5	0.3			0.8	
Delay (s)				54.2	52.9		16.6	4.8			20.5	
Level of Service				D	D		B	A			C	
Approach Delay (s)		0.0			53.5			6.2			20.5	
Approach LOS		A			D			A			C	

Intersection Summary			
HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

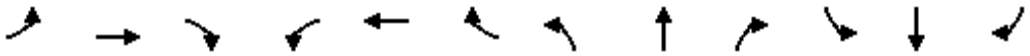
c Critical Lane Group



Lane Group	EBT	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	34	357	144	520	201	643
v/c Ratio	0.21	0.81	0.20	0.71	0.72	0.41
Control Delay	45.5	38.7	6.5	43.4	59.6	20.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.5	38.7	6.5	43.4	59.6	20.2
Queue Length 50th (ft)	21	43	19	176	136	152
Queue Length 95th (ft)	53	#178	m27	238	#238	199
Internal Link Dist (ft)	133			1023		200
Turn Bay Length (ft)			100			
Base Capacity (vph)	159	439	734	728	278	1580
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.81	0.20	0.71	0.72	0.41

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	5	0	339	0	137	6	324	164	191	605	6
Future Volume (vph)	28	5	0	339	0	137	6	324	164	191	605	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5		6.5		6.5		6.5		5.0	6.5	
Lane Util. Factor		1.00		0.97		1.00		0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00		1.00		0.91		1.00	0.99	
Flpb, ped/bikes		1.00		1.00		1.00		1.00		1.00	1.00	
Frt		1.00		1.00		0.85		0.95		1.00	1.00	
Flt Protected		0.96		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1817		3335		1538		2973		1703	3375	
Flt Permitted		0.96		0.95		1.00		0.95		0.95	1.00	
Satd. Flow (perm)		1817		3335		1538		2812		1703	3375	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	29	5	0	357	0	144	6	341	173	201	637	6
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	34	0	357	0	144	0	520	0	201	643	0
Confl. Peds. (#/hr)	2		243	243		2	731		183	183		731
Confl. Bikes (#/hr)			1			80			52			85
Heavy Vehicles (%)	0%	0%	0%	5%	5%	5%	4%	4%	4%	6%	6%	6%
Turn Type	Prot	NA	Perm	Prot		custom	Perm	NA		Prot	NA	
Protected Phases	3	8		7		7 4 1		2		1	6	
Permitted Phases			8				2					
Actuated Green, G (s)		24.5		14.5		54.0		28.5		18.0	51.5	
Effective Green, g (s)		24.5		14.5		54.0		28.5		18.0	51.5	
Actuated g/C Ratio		0.22		0.13		0.49		0.26		0.16	0.47	
Clearance Time (s)		6.5		6.5				6.5		5.0	6.5	
Lane Grp Cap (vph)		404		439		755		728		278	1580	
v/s Ratio Prot		c0.01		c0.11		c0.09				c0.12	0.19	
v/s Ratio Perm		0.01						c0.18				
v/c Ratio		0.08		0.81		0.19		0.71		0.72	0.41	
Uniform Delay, d1		33.9		46.4		15.7		37.0		43.6	19.2	
Progression Factor		1.00		0.53		0.36		1.00		1.00	1.00	
Incremental Delay, d2		0.4		12.8		0.5		5.9		15.1	0.8	
Delay (s)		34.3		37.5		6.1		43.0		58.7	20.0	
Level of Service		C		D		A		D		E	B	
Approach Delay (s)		34.3			28.5			43.0			29.2	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	32.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBL	WBT	NBR
Lane Group Flow (vph)	1237	781	790	1071
v/c Ratio	0.91	0.93	0.58	0.80
Control Delay	14.4	57.0	22.2	43.7
Queue Delay	0.7	47.9	0.9	53.1
Total Delay	15.1	104.9	23.2	96.8
Queue Length 50th (ft)	152	512	244	451
Queue Length 95th (ft)	m165	#721	308	529
Internal Link Dist (ft)	354		202	
Turn Bay Length (ft)				
Base Capacity (vph)	1366	844	1370	1342
Starvation Cap Reductn	24	328	311	442
Spillback Cap Reductn	0	0	0	837
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.92	1.51	0.75	2.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1121	5	711	719	0	975
Future Volume (vph)	1121	5	711	719	0	975
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0		7.0	7.0		7.0
Lane Util. Factor	0.95		1.00	0.95		0.88
Frpb, ped/bikes	1.00		1.00	1.00		1.00
Flpb, ped/bikes	1.00		1.00	1.00		1.00
Frt	1.00		1.00	1.00		0.85
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	3497		1752	3505		2787
Flt Permitted	1.00		0.95	1.00		1.00
Satd. Flow (perm)	3497		1752	3505		2787
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	1232	5	781	790	0	1071
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1237	0	781	790	0	1071
Confl. Peds. (#/hr)		226	226		28	
Confl. Bikes (#/hr)		111				3
Heavy Vehicles (%)	3%	3%	3%	3%	2%	2%
Turn Type	NA		Prot	NA		Prot
Protected Phases	2		7	6		4
Permitted Phases						
Actuated Green, G (s)	43.0		53.0	43.0		53.0
Effective Green, g (s)	43.0		53.0	43.0		53.0
Actuated g/C Ratio	0.39		0.48	0.39		0.48
Clearance Time (s)	7.0		7.0	7.0		7.0
Lane Grp Cap (vph)	1367		844	1370		1342
v/s Ratio Prot	c0.35		c0.45	0.23		0.38
v/s Ratio Perm						
v/c Ratio	0.90		0.93	0.58		0.80
Uniform Delay, d1	31.6		26.7	26.3		24.0
Progression Factor	0.27		1.51	0.77		1.58
Incremental Delay, d2	4.7		16.4	1.6		4.8
Delay (s)	13.3		56.6	22.0		42.8
Level of Service	B		E	C		D
Approach Delay (s)	13.3			39.2	42.8	
Approach LOS	B			D	D	

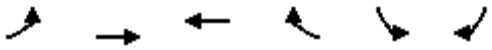
Intersection Summary			
HCM 2000 Control Delay	31.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	SBR
Lane Group Flow (vph)	1687	320	16	1218
v/c Ratio	0.85	0.60	0.02	0.58
Control Delay	22.6	36.6	25.9	14.6
Queue Delay	47.5	4.1	0.0	1.1
Total Delay	70.1	40.7	25.9	15.7
Queue Length 50th (ft)	427	176	3	200
Queue Length 95th (ft)	538	267	12	251
Internal Link Dist (ft)		268	282	
Turn Bay Length (ft)				
Base Capacity (vph)	1991	530	850	2114
Starvation Cap Reductn	607	137	0	594
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.22	0.81	0.02	0.80

Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1636	310	16	0	0	1181
Future Volume (vph)	1636	310	16	0	0	1181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.5	6.5			7.0
Lane Util. Factor	0.97	1.00	0.95			0.76
Frpb, ped/bikes	1.00	1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	1.00	1.00	1.00			0.85
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3433	1863	2983			3646
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3433	1863	2983			3646
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1687	320	16	0	0	1218
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1687	320	16	0	0	1218
Confl. Peds. (#/hr)	97			97		
Confl. Bikes (#/hr)				30		13
Heavy Vehicles (%)	2%	2%	21%	21%	1%	1%
Turn Type	Prot	NA	NA			Prot
Protected Phases	7	6	2			4
Permitted Phases						
Actuated Green, G (s)	58.0	28.5	28.5			58.0
Effective Green, g (s)	58.0	28.5	28.5			58.0
Actuated g/C Ratio	0.58	0.28	0.28			0.58
Clearance Time (s)	7.0	6.5	6.5			7.0
Lane Grp Cap (vph)	1991	530	850			2114
v/s Ratio Prot	c0.49	c0.17	0.01			0.33
v/s Ratio Perm						
v/c Ratio	0.85	0.60	0.02			0.58
Uniform Delay, d1	17.3	30.9	25.7			13.2
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	4.7	5.0	0.0			1.2
Delay (s)	22.0	35.9	25.7			14.4
Level of Service	C	D	C			B
Approach Delay (s)		24.3	25.7		14.4	
Approach LOS		C	C		B	

Intersection Summary			
HCM 2000 Control Delay	20.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	58.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBL	WBT	NBR
Lane Group Flow (vph)	566	40	733	180
v/c Ratio	0.20	0.07	0.36	0.26
Control Delay	7.2	34.2	19.6	0.9
Queue Delay	0.0	0.0	1.7	0.0
Total Delay	7.2	34.2	21.3	0.9
Queue Length 50th (ft)	47	16	260	0
Queue Length 95th (ft)	m51	m40	331	0
Internal Link Dist (ft)	259		228	
Turn Bay Length (ft)				
Base Capacity (vph)	2763	541	2055	699
Starvation Cap Reductn	0	0	1098	0
Spillback Cap Reductn	13	0	122	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.21	0.07	0.77	0.26

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	504	17	37	674	0	166
Future Volume (vph)	504	17	37	674	0	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		6.0	5.5		6.0
Lane Util. Factor	0.91		1.00	0.95		1.00
Frpb, ped/bikes	1.00		1.00	1.00		1.00
Flpb, ped/bikes	1.00		1.00	1.00		1.00
Frt	1.00		1.00	1.00		0.86
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	4714		1752	3505		1644
Flt Permitted	1.00		0.95	1.00		1.00
Satd. Flow (perm)	4714		1752	3505		1644
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	548	18	40	733	0	180
RTOR Reduction (vph)	0	0	0	0	0	124
Lane Group Flow (vph)	566	0	40	733	0	56
Confl. Peds. (#/hr)		35	35			5
Confl. Bikes (#/hr)		35				
Heavy Vehicles (%)	9%	9%	3%	3%	0%	0%
Turn Type	NA		Prot	NA		Over
Protected Phases	2		4	6		4
Permitted Phases						
Actuated Green, G (s)	64.5		34.0	64.5		34.0
Effective Green, g (s)	64.5		34.0	64.5		34.0
Actuated g/C Ratio	0.59		0.31	0.59		0.31
Clearance Time (s)	5.5		6.0	5.5		6.0
Lane Grp Cap (vph)	2764		541	2055		508
v/s Ratio Prot	0.12		0.02	c0.21		c0.03
v/s Ratio Perm						
v/c Ratio	0.20		0.07	0.36		0.11
Uniform Delay, d1	10.7		26.9	11.9		27.2
Progression Factor	0.66		1.25	1.60		1.00
Incremental Delay, d2	0.1		0.2	0.5		0.4
Delay (s)	7.2		33.7	19.4		27.6
Level of Service	A		C	B		C
Approach Delay (s)	7.2			20.2	27.6	
Approach LOS	A			C	C	

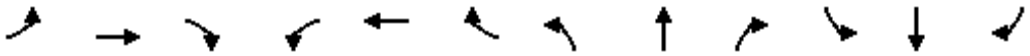
Intersection Summary			
HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBT
Lane Group Flow (vph)	1215	809
v/c Ratio	0.53	0.35
Control Delay	5.2	2.7
Queue Delay	1.3	0.1
Total Delay	6.5	2.8
Queue Length 50th (ft)	90	32
Queue Length 95th (ft)	m110	m42
Internal Link Dist (ft)	227	245
Turn Bay Length (ft)		
Base Capacity (vph)	2300	2300
Starvation Cap Reductn	813	573
Spillback Cap Reductn	427	79
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.82	0.47

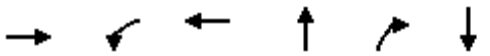
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑							
Traffic Volume (vph)	0	1118	0	0	744	0	0	0	0	0	0	0
Future Volume (vph)	0	1118	0	0	744	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3539			3539							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3539			3539							
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	1215	0	0	809	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1215	0	0	809	0	0	0	0	0	0	0
Turn Type		NA			NA							
Protected Phases		4			8							
Permitted Phases												
Actuated Green, G (s)		71.5			71.5							
Effective Green, g (s)		71.5			71.5							
Actuated g/C Ratio		0.65			0.65							
Clearance Time (s)		6.5			6.5							
Lane Grp Cap (vph)		2300			2300							
v/s Ratio Prot		c0.34			0.23							
v/s Ratio Perm												
v/c Ratio		0.53			0.35							
Uniform Delay, d1		10.3			8.7							
Progression Factor		0.45			0.26							
Incremental Delay, d2		0.5			0.3							
Delay (s)		5.1			2.6							
Level of Service		A			A							
Approach Delay (s)		5.1			2.6			0.0			0.0	
Approach LOS		A			A			A			A	

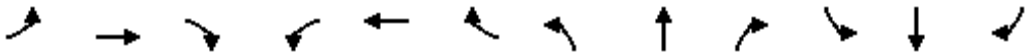
Intersection Summary			
HCM 2000 Control Delay	4.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	36.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	619	249	1743	471	339	225
v/c Ratio	0.39	0.79	0.66	0.49	0.52	0.28
Control Delay	28.8	62.0	17.7	6.1	8.2	30.4
Queue Delay	0.0	0.0	0.0	0.2	2.4	0.0
Total Delay	28.8	62.0	17.7	6.2	10.6	30.4
Queue Length 50th (ft)	121	170	288	8	193	48
Queue Length 95th (ft)	156	#293	340	11	303	68
Internal Link Dist (ft)	282		355	154		901
Turn Bay Length (ft)						
Base Capacity (vph)	1579	315	2624	968	650	813
Starvation Cap Reductn	0	0	0	81	192	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.79	0.66	0.53	0.74	0.28

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	603	2	244	1438	270	58	404	332	44	109	68
Future Volume (vph)	2	603	2	244	1438	270	58	404	332	44	109	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		5.0	6.0			6.5	6.5		6.5	
Lane Util. Factor		0.91		1.00	0.91			0.95	1.00		0.95	
Frpb, ped/bikes		1.00		1.00	0.95			1.00	0.84		0.98	
Flpb, ped/bikes		1.00		1.00	1.00			1.00	1.00		0.99	
Frt		1.00		1.00	0.98			1.00	0.85		0.95	
Flt Protected		1.00		0.95	1.00			0.99	1.00		0.99	
Satd. Flow (prot)		5032		1736	4613			3433	1303		3160	
Flt Permitted		0.93		0.95	1.00			0.87	1.00		0.78	
Satd. Flow (perm)		4695		1736	4613			3003	1303		2500	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	2	615	2	249	1467	276	59	412	339	45	111	69
RTOR Reduction (vph)	0	0	0	0	25	0	0	0	230	0	7	0
Lane Group Flow (vph)	0	619	0	249	1718	0	0	471	109	0	218	0
Confl. Peds. (#/hr)	236		19	19		236	39		112	112		39
Confl. Bikes (#/hr)			12			48			8			19
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Perm	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			4			4	
Permitted Phases	2						4		4	4		
Actuated Green, G (s)		37.0		20.0	62.0			35.5	35.5		35.5	
Effective Green, g (s)		37.0		20.0	62.0			35.5	35.5		35.5	
Actuated g/C Ratio		0.34		0.18	0.56			0.32	0.32		0.32	
Clearance Time (s)		6.0		5.0	6.0			6.5	6.5		6.5	
Lane Grp Cap (vph)		1579		315	2600			969	420		806	
v/s Ratio Prot				c0.14	c0.37							
v/s Ratio Perm		0.13						c0.16	0.08		0.09	
v/c Ratio		0.39		0.79	0.66			0.49	0.26		0.27	
Uniform Delay, d1		27.9		43.0	16.7			29.9	27.5		27.6	
Progression Factor		1.00		1.00	1.00			0.15	1.73		1.11	
Incremental Delay, d2		0.7		18.1	1.3			1.6	1.3		0.8	
Delay (s)		28.6		61.1	18.0			6.0	49.1		31.4	
Level of Service		C		E	B			A	D		C	
Approach Delay (s)		28.6			23.4			24.0			31.4	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	24.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	119.3%	ICU Level of Service	H
Analysis Period (min)	15		

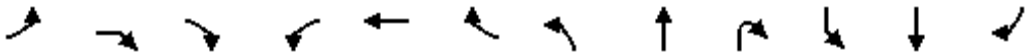
c Critical Lane Group



Lane Group	EBL	EBR	EBR2	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	53	98	68	147	265	446	538	412
v/c Ratio	0.26	0.24	0.14	0.35	0.54	0.44	0.87	0.24
Control Delay	36.2	33.7	6.3	35.9	39.6	7.1	47.1	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.4	0.8	0.0
Total Delay	36.2	33.7	6.3	35.9	39.6	7.5	48.0	7.7
Queue Length 50th (ft)	30	54	0	84	161	86	162	74
Queue Length 95th (ft)	67	101	28	144	245	139	#266	71
Internal Link Dist (ft)					301		901	413
Turn Bay Length (ft)								
Base Capacity (vph)	204	417	475	415	491	1020	616	1701
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	222	11	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.24	0.14	0.35	0.54	0.56	0.89	0.24

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR2	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	93	65	140	252	424	67	350	94	193	175	24
Future Volume (vph)	50	93	65	140	252	424	67	350	94	193	175	24
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	5.0		6.0			6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		0.95			0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.96		0.99			0.96	
Flpb, ped/bikes	0.96	1.00	1.00	0.89	1.00	1.00		0.96			1.00	
Frt	1.00	0.85	0.85	1.00	1.00	0.85		0.97			0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99			0.98	
Satd. Flow (prot)	1702	1583	1583	1577	1863	1524		3225			3289	
Flt Permitted	0.43	1.00	1.00	0.95	1.00	1.00		0.82			0.56	
Satd. Flow (perm)	774	1583	1583	1577	1863	1524		2648			1889	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	53	98	68	147	265	446	71	368	99	203	184	25
RTOR Reduction (vph)	0	0	50	0	0	39	0	62	0	0	4	0
Lane Group Flow (vph)	53	98	18	147	265	407	0	476	0	0	408	0
Confl. Peds. (#/hr)	25		66	66		25	364		15	15		364
Confl. Bikes (#/hr)						6			11			20
Turn Type	Perm	Prot	Prot	Perm	NA	custom	Perm	NA		pm+pt	NA	
Protected Phases		4	4		8	5		6		5	2	
Permitted Phases	4	4	4	8		8	6			2		
Actuated Green, G (s)	29.0	29.0	29.0	29.0	29.0	70.0		23.0			69.0	
Effective Green, g (s)	29.0	29.0	29.0	29.0	29.0	70.0		23.0			69.0	
Actuated g/C Ratio	0.26	0.26	0.26	0.26	0.26	0.64		0.21			0.63	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	5.0		6.0			6.0	
Lane Grp Cap (vph)	204	417	417	415	491	969		553			1706	
v/s Ratio Prot		0.06	0.01		c0.14	c0.16					0.09	
v/s Ratio Perm	0.07			0.09		0.11		c0.18			0.06	
v/c Ratio	0.26	0.24	0.04	0.35	0.54	0.42		0.86			0.24	
Uniform Delay, d1	32.0	31.8	30.2	32.9	34.8	9.9		41.9			9.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		0.92			0.87	
Incremental Delay, d2	3.1	1.3	0.2	2.4	4.2	1.3		13.8			0.3	
Delay (s)	35.1	33.1	30.4	35.3	39.0	11.3		52.1			8.1	
Level of Service	D	C	C	D	D	B		D			A	
Approach Delay (s)					23.9			52.1			8.1	
Approach LOS					C			D			A	

Intersection Summary			
HCM 2000 Control Delay	29.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	79.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



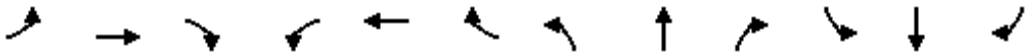
Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	20	61	233	399	792	343
v/c Ratio	0.12	0.10	0.68	1.03	0.91	0.29
Control Delay	21.5	14.7	41.7	78.4	37.9	14.6
Queue Delay	0.0	0.0	0.0	0.0	11.3	0.0
Total Delay	21.5	14.7	41.7	78.4	49.1	14.6
Queue Length 50th (ft)	9	20	138	~234	398	65
Queue Length 95th (ft)	m23	46	232	#418	m#694	94
Internal Link Dist (ft)		1267		269	413	277
Turn Bay Length (ft)	100					
Base Capacity (vph)	171	597	344	387	873	1186
Starvation Cap Reductn	0	0	0	0	78	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.10	0.68	1.03	1.00	0.29

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



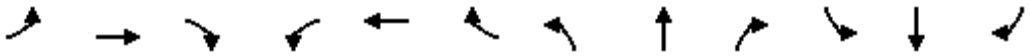
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	41	13	207	83	272	55	515	134	73	223	9
Future Volume (vph)	18	41	13	207	83	272	55	515	134	73	223	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			0.95	
Frpb, ped/bikes	1.00	0.92		1.00	0.51			0.97			0.99	
Flpb, ped/bikes	0.78	1.00		0.73	1.00			0.98			0.99	
Frt	1.00	0.96		1.00	0.88			0.97			1.00	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1376	1659		1289	837			1709			3408	
Flt Permitted	0.33	1.00		0.72	1.00			0.94			0.64	
Satd. Flow (perm)	485	1659		973	837			1613			2209	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	20	46	15	233	93	306	62	579	151	82	251	10
RTOR Reduction (vph)	0	10	0	0	90	0	0	8	0	0	2	0
Lane Group Flow (vph)	20	51	0	233	309	0	0	784	0	0	341	0
Confl. Peds. (#/hr)	364		179	179		364	163		128	128		163
Confl. Bikes (#/hr)			14			81			9			8
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	39.0	39.0		39.0	39.0			59.0			59.0	
Effective Green, g (s)	39.0	39.0		39.0	39.0			59.0			59.0	
Actuated g/C Ratio	0.35	0.35		0.35	0.35			0.54			0.54	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	171	588		344	296			865			1184	
v/s Ratio Prot		0.03			c0.37							
v/s Ratio Perm	0.04			0.24				c0.49			0.15	
v/c Ratio	0.12	0.09		0.68	1.04			0.91			0.29	
Uniform Delay, d1	23.9	23.6		30.2	35.5			23.0			14.0	
Progression Factor	0.81	0.76		1.00	1.00			1.08			1.00	
Incremental Delay, d2	1.3	0.3		10.3	63.9			12.4			0.6	
Delay (s)	20.7	18.2		40.4	99.4			37.2			14.6	
Level of Service	C	B		D	F			D			B	
Approach Delay (s)		18.8			77.6			37.2			14.6	
Approach LOS		B			E			D			B	

Intersection Summary			
HCM 2000 Control Delay	46.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	100.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBT	NBT	SBT
Lane Group Flow (vph)	39	113	18	877	383
v/c Ratio	0.06	0.48	0.03	0.49	0.26
Control Delay	17.2	50.5	19.4	28.6	34.5
Queue Delay	0.0	0.0	0.0	0.1	1.3
Total Delay	17.2	50.5	19.4	28.7	35.8
Queue Length 50th (ft)	15	74	7	175	106
Queue Length 95th (ft)	35	131	22	213	m136
Internal Link Dist (ft)	282		633	181	154
Turn Bay Length (ft)					
Base Capacity (vph)	668	235	690	1775	1472
Starvation Cap Reductn	0	0	0	0	855
Spillback Cap Reductn	0	0	0	122	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.06	0.48	0.03	0.53	0.62

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	3	101	9	5	2	0	766	14	2	331	8
Future Volume (vph)	32	3	101	9	5	2	0	766	14	2	331	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0	6.5		6.5			6.5			7.0	
Lane Util. Factor		1.00	1.00		1.00			0.91			0.95	
Frpb, ped/bikes		1.00	1.00		0.99			0.99			1.00	
Flpb, ped/bikes		0.97	1.00		1.00			1.00			1.00	
Frt		1.00	0.85		0.98			1.00			1.00	
Flt Protected		0.96	1.00		0.97			1.00			1.00	
Satd. Flow (prot)		1702	1568		1791			4945			3317	
Flt Permitted		0.83	1.00		0.91			1.00			0.95	
Satd. Flow (perm)		1471	1568		1670			4945			3161	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	36	3	113	10	6	2	0	861	16	2	372	9
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	39	113	0	18	0	0	877	0	0	383	0
Confl. Peds. (#/hr)	28		4	4		28	66		125	125		66
Confl. Bikes (#/hr)			14			140			26			43
Heavy Vehicles (%)	3%	3%	3%	0%	0%	0%	4%	4%	4%	8%	8%	8%
Turn Type	Perm	NA	custom	Perm	NA			NA		pm+pt	NA	
Protected Phases		6 5	5		2			4		3	8	
Permitted Phases	6 5			2						8		
Actuated Green, G (s)		45.5	16.5		45.5			39.5			51.0	
Effective Green, g (s)		45.5	16.5		45.5			39.5			51.0	
Actuated g/C Ratio		0.41	0.15		0.41			0.36			0.46	
Clearance Time (s)			6.5		6.5			6.5			7.0	
Lane Grp Cap (vph)		608	235		690			1775			1472	
v/s Ratio Prot			c0.07					c0.18			c0.01	
v/s Ratio Perm		c0.03			0.01						0.11	
v/c Ratio		0.06	0.48		0.03			0.49			0.26	
Uniform Delay, d1		19.4	42.8		19.1			27.5			18.0	
Progression Factor		1.00	1.00		1.00			1.00			1.88	
Incremental Delay, d2		0.2	6.9		0.1			1.0			0.3	
Delay (s)		19.6	49.7		19.2			28.5			34.1	
Level of Service		B	D		B			C			C	
Approach Delay (s)		42.0			19.2			28.5			34.1	
Approach LOS		D			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	31.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	EBR	WBT	NBL	NBR
Lane Group Flow (vph)	870	114	1523	282	120
v/c Ratio	0.44	0.43	0.53	0.53	0.29
Control Delay	7.7	39.8	15.2	34.6	29.9
Queue Delay	0.3	0.0	5.6	0.0	0.0
Total Delay	8.0	39.8	20.8	34.6	29.9
Queue Length 50th (ft)	62	76	227	162	63
Queue Length 95th (ft)	90	m134	268	248	113
Internal Link Dist (ft)	202		268	424	
Turn Bay Length (ft)		100			
Base Capacity (vph)	1987	268	2884	529	415
Starvation Cap Reductn	529	0	1292	0	0
Spillback Cap Reductn	0	0	1225	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.60	0.43	0.96	0.53	0.29

Intersection Summary

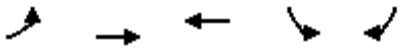
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	818	107	0	1432	265	113
Future Volume (vph)	818	107	0	1432	265	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.0	6.0		2.0	6.0	6.0
Lane Util. Factor	0.95	1.00		0.91	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.83
Flpb, ped/bikes	1.00	1.00		1.00	0.94	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	1.00	1.00		1.00	0.95	1.00
Satd. Flow (prot)	3471	1553		5036	1618	1270
Flt Permitted	1.00	1.00		1.00	0.95	1.00
Satd. Flow (perm)	3471	1553		5036	1618	1270
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	870	114	0	1523	282	120
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	870	114	0	1523	282	120
Confl. Peds. (#/hr)		53			50	129
Confl. Bikes (#/hr)		43				26
Heavy Vehicles (%)	4%	4%	3%	3%	5%	5%
Turn Type	NA	custom		NA	Perm	Perm
Protected Phases	2 1	1		2 1		
Permitted Phases					4	4
Actuated Green, G (s)	59.0	19.0		59.0	36.0	36.0
Effective Green, g (s)	59.0	19.0		59.0	36.0	36.0
Actuated g/C Ratio	0.54	0.17		0.54	0.33	0.33
Clearance Time (s)		6.0			6.0	6.0
Lane Grp Cap (vph)	1861	268		2701	529	415
v/s Ratio Prot	0.25	0.07		c0.30		
v/s Ratio Perm					c0.17	0.09
v/c Ratio	0.47	0.43		0.56	0.53	0.29
Uniform Delay, d1	15.8	40.6		16.9	30.2	27.5
Progression Factor	0.52	0.85		1.00	1.00	1.00
Incremental Delay, d2	0.8	4.5		0.9	3.8	1.8
Delay (s)	9.0	39.2		17.8	34.0	29.2
Level of Service	A	D		B	C	C
Approach Delay (s)	12.5			17.8	32.6	
Approach LOS	B			B	C	

Intersection Summary			
HCM 2000 Control Delay	18.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		

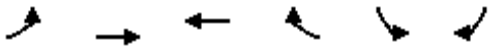
c Critical Lane Group



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	344	900	908	11	87
v/c Ratio	0.65	0.37	0.52	0.03	0.11
Control Delay	11.7	3.3	50.1	21.4	0.3
Queue Delay	0.1	0.0	0.0	0.0	0.0
Total Delay	11.7	3.3	50.1	21.4	0.3
Queue Length 50th (ft)	38	32	239	7	0
Queue Length 95th (ft)	52	39	286	m19	0
Internal Link Dist (ft)		484	340	163	
Turn Bay Length (ft)					
Base Capacity (vph)	532	2448	1739	357	764
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	5	6	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.65	0.37	0.52	0.03	0.11

Intersection Summary

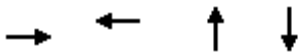
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	647	523	851	3	10	82
Future Volume (vph)	647	523	851	3	10	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		5.5	6.0
Lane Util. Factor	0.86	0.86	0.91		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	0.98	1.00		0.95	1.00
Satd. Flow (prot)	1477	4574	5033		1543	1380
Flt Permitted	0.23	0.67	1.00		0.95	1.00
Satd. Flow (perm)	359	3104	5033		1543	1380
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	688	556	905	3	11	87
RTOR Reduction (vph)	0	0	0	0	0	13
Lane Group Flow (vph)	344	900	908	0	11	74
Confl. Peds. (#/hr)	22			22	12	
Confl. Bikes (#/hr)				3		
Heavy Vehicles (%)	5%	5%	3%	3%	17%	17%
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	1	6	2		4	1
Permitted Phases	6					4
Actuated Green, G (s)	73.0	73.0	38.0		25.5	54.5
Effective Green, g (s)	73.0	73.0	38.0		25.5	54.5
Actuated g/C Ratio	0.66	0.66	0.35		0.23	0.50
Clearance Time (s)	6.0	6.0	6.0		5.5	6.0
Lane Grp Cap (vph)	532	2447	1738		357	759
v/s Ratio Prot	c0.17	0.10	0.18		0.01	c0.03
v/s Ratio Perm	c0.26	0.15				0.03
v/c Ratio	0.65	0.37	0.52		0.03	0.10
Uniform Delay, d1	19.3	8.2	28.8		32.7	14.7
Progression Factor	0.29	0.33	1.70		0.65	0.00
Incremental Delay, d2	4.9	0.3	1.0		0.1	0.2
Delay (s)	10.5	3.1	49.8		21.2	0.2
Level of Service	B	A	D		C	A
Approach Delay (s)		5.1	49.8		2.6	
Approach LOS		A	D		A	

Intersection Summary			
HCM 2000 Control Delay	23.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



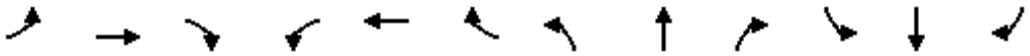
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	122	303	739	148
v/c Ratio	0.59	1.03	0.52	0.09
Control Delay	35.7	98.9	22.6	17.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	35.7	98.9	22.6	17.4
Queue Length 50th (ft)	40	~229	148	21
Queue Length 95th (ft)	m97	m#383	m217	39
Internal Link Dist (ft)	492	1267	654	413
Turn Bay Length (ft)				
Base Capacity (vph)	207	293	1409	1591
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.59	1.03	0.52	0.09

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	0	62	47	143	83	99	566	0	0	104	29
Future Volume (vph)	48	0	62	47	143	83	99	566	0	0	104	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5			5.0			5.0	
Lane Util. Factor		1.00			1.00			0.95			0.91	
Frpb, ped/bikes		0.90			0.90			1.00			0.90	
Flpb, ped/bikes		1.00			0.98			0.96			1.00	
Frt		0.92			0.96			1.00			0.97	
Flt Protected		0.98			0.99			0.99			1.00	
Satd. Flow (prot)		1461			1544			3293			4019	
Flt Permitted		0.52			0.92			0.87			1.00	
Satd. Flow (perm)		779			1429			2895			4019	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	53	0	69	52	159	92	110	629	0	0	116	32
RTOR Reduction (vph)	0	56	0	0	14	0	0	0	0	0	19	0
Lane Group Flow (vph)	0	66	0	0	289	0	0	739	0	0	129	0
Confl. Peds. (#/hr)	194		75	75		194	138		192	192		138
Confl. Bikes (#/hr)						9			8			12
Heavy Vehicles (%)	6%	6%	6%	3%	3%	3%	4%	4%	4%	13%	13%	13%
Turn Type	Perm	NA		Perm	NA		Prot	NA			NA	
Protected Phases		8			8		5	2			6	
Permitted Phases	8			8								
Actuated Green, G (s)		21.5			21.5			78.0			43.0	
Effective Green, g (s)		21.5			21.5			78.0			43.0	
Actuated g/C Ratio		0.20			0.20			0.71			0.39	
Clearance Time (s)		5.5			5.5			5.0			5.0	
Lane Grp Cap (vph)		152			279			2161			1571	
v/s Ratio Prot								c0.09			0.03	
v/s Ratio Perm		0.09			c0.20			c0.15				
v/c Ratio		0.44			1.03			0.34			0.08	
Uniform Delay, d1		38.9			44.2			6.1			21.1	
Progression Factor		1.27			1.02			1.51			1.04	
Incremental Delay, d2		7.9			57.8			0.3			0.1	
Delay (s)		57.3			102.8			9.5			22.0	
Level of Service		E			F			A			C	
Approach Delay (s)		57.3			102.8			9.5			22.0	
Approach LOS		E			F			A			C	

Intersection Summary			
HCM 2000 Control Delay	36.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	64	125	12	131	824	422
v/c Ratio	0.16	0.21	0.04	0.25	0.48	0.22
Control Delay	27.8	21.1	30.4	29.0	23.4	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	21.1	30.4	29.0	23.4	11.8
Queue Length 50th (ft)	28	38	6	68	190	42
Queue Length 95th (ft)	m45	m64	m7	m70	m220	63
Internal Link Dist (ft)		495		1267	413	291
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	408	589	280	526	1705	1934
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.21	0.04	0.25	0.48	0.22

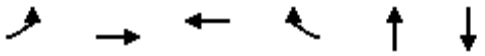
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	68	53	12	99	28	170	585	45	18	273	118
Future Volume (vph)	62	68	53	12	99	28	170	585	45	18	273	118
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	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.91			0.91	
Frpb, ped/bikes	1.00	0.85		1.00	0.94			0.98			0.95	
Flpb, ped/bikes	0.86	1.00		0.73	1.00			0.95			1.00	
Frt	1.00	0.93		1.00	0.97			0.99			0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1413	1377		1274	1674			4616			4381	
Flt Permitted	0.67	1.00		0.68	1.00			0.76			0.88	
Satd. Flow (perm)	1001	1377		907	1674			3526			3881	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	64	70	55	12	102	29	175	603	46	19	281	122
RTOR Reduction (vph)	0	26	0	0	9	0	0	6	0	0	63	0
Lane Group Flow (vph)	64	99	0	12	122	0	0	818	0	0	359	0
Confl. Peds. (#/hr)	146		245	245		146	135		123	123		135
Confl. Bikes (#/hr)			9			38			2			19
Heavy Vehicles (%)	10%	10%	10%	3%	3%	3%	3%	3%	3%	7%	7%	7%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	3	8			4			2			6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	45.0	45.0		34.0	34.0			53.0			53.0	
Effective Green, g (s)	45.0	45.0		34.0	34.0			53.0			53.0	
Actuated g/C Ratio	0.41	0.41		0.31	0.31			0.48			0.48	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	428	563		280	517			1698			1869	
v/s Ratio Prot	0.01	c0.07			c0.07							
v/s Ratio Perm	0.05			0.01				c0.23			0.09	
v/c Ratio	0.15	0.18		0.04	0.24			0.48			0.19	
Uniform Delay, d1	20.5	20.7		26.6	28.3			19.2			16.3	
Progression Factor	1.27	1.49		1.12	1.10			1.18			1.00	
Incremental Delay, d2	0.6	0.6		0.1	0.4			0.8			0.2	
Delay (s)	26.7	31.4		30.0	31.6			23.5			16.5	
Level of Service	C	C		C	C			C			B	
Approach Delay (s)		29.8			31.5			23.5			16.5	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	23.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

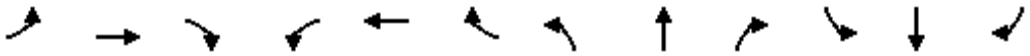
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	75	376	945	266	719	188
v/c Ratio	0.53	0.28	0.85	1.00	0.70	0.42
Control Delay	21.3	9.6	27.2	80.7	18.3	34.1
Queue Delay	0.0	0.0	0.9	0.0	1.5	0.0
Total Delay	21.3	9.6	28.2	80.7	19.8	34.1
Queue Length 50th (ft)	27	114	99	201	53	39
Queue Length 95th (ft)	m46	156	186	#356	86	m57
Internal Link Dist (ft)		523	354		163	654
Turn Bay Length (ft)				150		
Base Capacity (vph)	142	1322	1109	266	1033	446
Starvation Cap Reductn	0	0	41	0	152	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.28	0.88	1.00	0.82	0.42

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	314	17	0	832	234	57	570	5	45	79	41
Future Volume (vph)	66	314	17	0	832	234	57	570	5	45	79	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.5			6.5	6.5		7.0			7.0	
Lane Util. Factor	1.00	0.95			0.95	1.00		0.91			0.95	
Frpb, ped/bikes	1.00	0.99			1.00	1.00		1.00			0.97	
Flpb, ped/bikes	1.00	1.00			1.00	1.00		0.99			0.99	
Frt	1.00	0.99			1.00	0.85		1.00			0.96	
Flt Protected	0.95	1.00			1.00	1.00		1.00			0.99	
Satd. Flow (prot)	1671	3270			3539	1583		4776			2982	
Flt Permitted	0.10	1.00			1.00	1.00		0.88			0.60	
Satd. Flow (perm)	178	3270			3539	1583		4210			1823	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	75	357	19	0	945	266	65	648	6	51	90	47
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	75	376	0	0	945	266	0	719	0	0	188	0
Confl. Peds. (#/hr)	292		144	144		292	59		92	92		59
Confl. Bikes (#/hr)			31			133			4			4
Heavy Vehicles (%)	8%	8%	8%	2%	2%	2%	7%	7%	7%	10%	10%	10%
Turn Type	pm+pt	NA			NA	custom	Perm	NA		Perm	NA	
Protected Phases	5	6			2	7		4			8	
Permitted Phases	6						4			8		
Actuated Green, G (s)	44.5	44.5			34.5	18.5		27.0			27.0	
Effective Green, g (s)	44.5	44.5			34.5	18.5		27.0			27.0	
Actuated g/C Ratio	0.40	0.40			0.31	0.17		0.25			0.25	
Clearance Time (s)	5.0	6.5			6.5	6.5		7.0			7.0	
Lane Grp Cap (vph)	139	1322			1109	266		1033			447	
v/s Ratio Prot	c0.02	0.11			c0.27	c0.17						
v/s Ratio Perm	0.19							c0.17			0.10	
v/c Ratio	0.54	0.28			0.85	1.00		0.70			0.42	
Uniform Delay, d1	24.3	22.0			35.4	45.8		37.8			34.9	
Progression Factor	0.41	0.41			0.55	0.57		0.39			0.89	
Incremental Delay, d2	13.8	0.5			7.1	50.6		3.5			2.6	
Delay (s)	23.8	9.6			26.6	76.8		18.2			33.6	
Level of Service	C	A			C	E		B			C	
Approach Delay (s)		11.9			37.6			18.2			33.6	
Approach LOS		B			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	27.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		

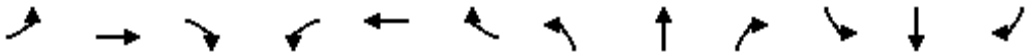
c Critical Lane Group



Lane Group	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1182	946	157	1034	319
v/c Ratio	0.63	0.45	0.34	0.53	0.28
Control Delay	12.3	5.0	24.0	22.7	41.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	12.3	5.0	24.0	22.7	41.5
Queue Length 50th (ft)	49	16	67	183	84
Queue Length 95th (ft)	m54	19	113	225	m115
Internal Link Dist (ft)	516	484		438	368
Turn Bay Length (ft)					
Base Capacity (vph)	1876	2088	462	1966	1134
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	44	0	78	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.63	0.46	0.34	0.55	0.28

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1012	135	80	834	13	154	868	145	0	261	52
Future Volume (vph)	11	1012	135	80	834	13	154	868	145	0	261	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5		6.5	6.5			6.5	
Lane Util. Factor		0.86			0.86		1.00	0.91			0.91	
Frpb, ped/bikes		0.99			1.00		1.00	0.96			0.97	
Flpb, ped/bikes		1.00			1.00		0.95	1.00			1.00	
Frt		0.98			1.00		1.00	0.98			0.98	
Flt Protected		1.00			1.00		0.95	1.00			1.00	
Satd. Flow (prot)		6105			6235		1540	4410			4129	
Flt Permitted		0.92			0.72		0.55	1.00			1.00	
Satd. Flow (perm)		5596			4538		893	4410			4129	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	11	1033	138	82	851	13	157	886	148	0	266	53
RTOR Reduction (vph)	0	21	0	0	2	0	0	21	0	0	27	0
Lane Group Flow (vph)	0	1161	0	0	944	0	157	1013	0	0	292	0
Confl. Peds. (#/hr)	35		53	53		35	104		165	165		104
Confl. Bikes (#/hr)			2			6			13			11
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	11%	11%	11%	19%	19%	19%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA			NA	
Protected Phases		6		5	2		3	8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)		36.5			48.5		48.5	48.5			29.5	
Effective Green, g (s)		36.5			48.5		48.5	48.5			29.5	
Actuated g/C Ratio		0.33			0.44		0.44	0.44			0.27	
Clearance Time (s)		6.5			6.5		6.5	6.5			6.5	
Lane Grp Cap (vph)		1856			2108		467	1944			1107	
v/s Ratio Prot					c0.03		0.04	c0.23			0.07	
v/s Ratio Perm		c0.21			0.17		0.11					
v/c Ratio		0.63			0.45		0.34	0.52			0.26	
Uniform Delay, d1		31.0			21.4		20.9	22.3			31.7	
Progression Factor		0.36			0.21		1.00	1.00			1.46	
Incremental Delay, d2		1.4			0.6		1.9	1.0			0.5	
Delay (s)		12.6			5.1		22.8	23.3			46.6	
Level of Service		B			A		C	C			D	
Approach Delay (s)		12.6			5.1			23.3			46.6	
Approach LOS		B			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	96.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	107	218	1045	360
v/c Ratio	0.33	0.59	0.68	0.52
Control Delay	50.8	28.9	31.0	3.3
Queue Delay	0.0	0.0	1.1	0.9
Total Delay	50.8	28.9	32.2	4.3
Queue Length 50th (ft)	76	79	356	8
Queue Length 95th (ft)	m128	m98	m409	m13
Internal Link Dist (ft)	508	492	449	412
Turn Bay Length (ft)				
Base Capacity (vph)	324	372	1536	697
Starvation Cap Reductn	0	0	262	141
Spillback Cap Reductn	0	0	18	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.33	0.59	0.82	0.65

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	42	28	16	111	80	238	729	26	77	248	17
Future Volume (vph)	32	42	28	16	111	80	238	729	26	77	248	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5			5.5			5.5	
Lane Util. Factor		1.00			1.00			0.95			1.00	
Frpb, ped/bikes		0.94			0.90			0.98			0.97	
Flpb, ped/bikes		0.95			0.99			0.93			0.98	
Frt		0.96			0.95			1.00			0.99	
Flt Protected		0.98			1.00			0.99			0.99	
Satd. Flow (prot)		1529			1496			3064			1626	
Flt Permitted		0.83			0.97			0.75			0.64	
Satd. Flow (perm)		1297			1463			2329			1056	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	34	44	29	17	117	84	251	767	27	81	261	18
RTOR Reduction (vph)	0	12	0	0	20	0	0	2	0	0	2	0
Lane Group Flow (vph)	0	95	0	0	198	0	0	1043	0	0	358	0
Confl. Peds. (#/hr)	166		127	127		166	254		341	341		254
Confl. Bikes (#/hr)			3			9			12			16
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	9%	9%	9%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		26.5			26.5			72.5			72.5	
Effective Green, g (s)		26.5			26.5			72.5			72.5	
Actuated g/C Ratio		0.24			0.24			0.66			0.66	
Clearance Time (s)		5.5			5.5			5.5			5.5	
Lane Grp Cap (vph)		312			352			1535			696	
v/s Ratio Prot												
v/s Ratio Perm		0.07			c0.13			c0.45			0.34	
v/c Ratio		0.30			0.56			0.68			0.51	
Uniform Delay, d1		34.2			36.6			11.6			9.7	
Progression Factor		1.63			0.75			2.47			0.21	
Incremental Delay, d2		2.0			4.1			1.6			1.2	
Delay (s)		57.8			31.6			30.2			3.2	
Level of Service		E			C			C			A	
Approach Delay (s)		57.8			31.6			30.2			3.2	
Approach LOS		E			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	26.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		

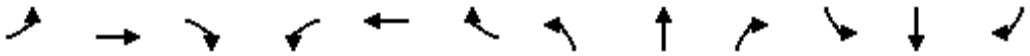
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	19	259	12	498	928	437
v/c Ratio	0.07	0.33	0.04	0.73	0.82	0.98
Control Delay	11.5	12.6	12.7	23.1	34.8	70.8
Queue Delay	0.0	0.0	0.0	0.1	0.4	0.0
Total Delay	11.5	12.6	12.7	23.2	35.1	70.8
Queue Length 50th (ft)	5	73	4	179	232	295
Queue Length 95th (ft)	m13	m107	m12	241	311	#512
Internal Link Dist (ft)		509		495	412	353
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	263	778	318	684	1137	446
Starvation Cap Reductn	0	0	0	4	28	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.33	0.04	0.73	0.84	0.98

Intersection Summary

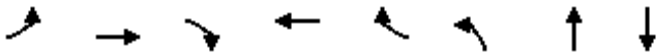
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	198	35	11	235	213	34	699	102	42	302	49
Future Volume (vph)	17	198	35	11	235	213	34	699	102	42	302	49
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	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			1.00	
Frpb, ped/bikes	1.00	0.92		1.00	0.85			0.91			0.94	
Flpb, ped/bikes	0.90	1.00		0.65	1.00			0.99			0.99	
Frt	1.00	0.98		1.00	0.93			0.98			0.98	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1537	1605		1123	1420			3002			1605	
Flt Permitted	0.34	1.00		0.56	1.00			0.92			0.67	
Satd. Flow (perm)	546	1605		660	1420			2755			1081	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	19	220	39	12	261	237	38	777	113	47	336	54
RTOR Reduction (vph)	0	6	0	0	1	0	0	10	0	0	5	0
Lane Group Flow (vph)	19	253	0	12	497	0	0	918	0	0	432	0
Confl. Peds. (#/hr)	226		273	273		226	172		593	593		172
Confl. Bikes (#/hr)			16			40			6			15
Heavy Vehicles (%)	6%	6%	6%	5%	5%	5%	7%	7%	7%	8%	8%	8%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	53.0	53.0		53.0	53.0			45.0			45.0	
Effective Green, g (s)	53.0	53.0		53.0	53.0			45.0			45.0	
Actuated g/C Ratio	0.48	0.48		0.48	0.48			0.41			0.41	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	263	773		318	684			1127			442	
v/s Ratio Prot		0.16			c0.35							
v/s Ratio Perm	0.03			0.02				0.33			c0.40	
v/c Ratio	0.07	0.33		0.04	0.73			0.81			0.98	
Uniform Delay, d1	15.3	17.5		15.0	22.7			28.8			32.0	
Progression Factor	0.70	0.67		0.81	0.70			1.03			1.00	
Incremental Delay, d2	0.5	1.0		0.2	6.5			5.1			37.7	
Delay (s)	11.2	12.9		12.4	22.4			34.7			69.7	
Level of Service	B	B		B	C			C			E	
Approach Delay (s)		12.7			22.2			34.7			69.7	
Approach LOS		B			C			C			E	

Intersection Summary			
HCM 2000 Control Delay	36.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	91.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



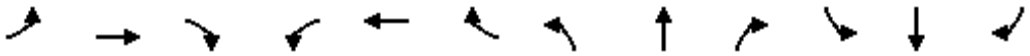
Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	154	427	117	877	172	230	849	257
v/c Ratio	1.13	0.28	0.30	0.73	0.77	0.88	0.68	0.75
Control Delay	154.6	17.1	32.8	55.7	73.2	81.0	35.6	48.0
Queue Delay	0.0	0.0	0.0	0.0	0.7	0.0	3.8	0.0
Total Delay	154.6	17.1	32.8	55.7	73.9	81.0	39.4	48.0
Queue Length 50th (ft)	~119	75	69	301	129	172	324	98
Queue Length 95th (ft)	m#235	m121	m119	m363	m156	#312	392	#154
Internal Link Dist (ft)		551		523			368	449
Turn Bay Length (ft)	200		200		150			
Base Capacity (vph)	136	1511	386	1203	223	260	1244	344
Starvation Cap Reductn	0	0	0	0	0	0	302	0
Spillback Cap Reductn	0	0	0	0	4	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.13	0.28	0.30	0.73	0.79	0.88	0.90	0.75

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

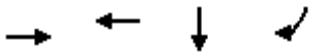
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	384	105	0	789	155	207	748	16	4	211	17
Future Volume (vph)	139	384	105	0	789	155	207	748	16	4	211	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.5	7.0		6.5	2.0	7.0	7.0			7.0	
Lane Util. Factor	1.00	0.95	1.00		0.95	1.00	1.00	0.95			0.95	
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	0.99			0.98	
Flpb, ped/bikes	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	0.85	1.00	1.00			0.99	
Flt Protected	0.95	1.00	1.00		1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1583	3167	1417		3438	1538	1687	3339			3218	
Flt Permitted	0.95	1.00	1.00		1.00	1.00	0.95	1.00			0.69	
Satd. Flow (perm)	1583	3167	1417		3438	1538	1687	3339			2232	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	154	427	117	0	877	172	230	831	18	4	234	19
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	154	427	117	0	877	172	230	849	0	0	257	0
Confl. Peds. (#/hr)	309		153	153		309	209		262	262		209
Confl. Bikes (#/hr)			35			127			13			14
Heavy Vehicles (%)	14%	14%	14%	5%	5%	5%	7%	7%	7%	8%	8%	8%
Turn Type	Prot	NA	custom		NA	custom	Prot	NA		Perm	NA	
Protected Phases	11	2 1	3 1		6 5	5	3	8			4	
Permitted Phases										4		
Actuated Green, G (s)	9.5	52.5	35.0		38.5	16.0	17.0	41.0			17.0	
Effective Green, g (s)	9.5	50.5	35.0		36.5	16.0	17.0	41.0			17.0	
Actuated g/C Ratio	0.09	0.46	0.32		0.33	0.15	0.15	0.37			0.15	
Clearance Time (s)	4.5					2.0	7.0	7.0			7.0	
Lane Grp Cap (vph)	136	1453	450		1140	223	260	1244			344	
v/s Ratio Prot	c0.10	c0.13	0.08		c0.26	c0.11	c0.14	c0.25				
v/s Ratio Perm											0.12	
v/c Ratio	1.13	0.29	0.26		0.77	0.77	0.88	0.68			0.75	
Uniform Delay, d1	50.2	18.6	27.9		33.0	45.2	45.5	29.0			44.4	
Progression Factor	0.80	0.95	0.95		1.70	1.32	1.09	1.12			0.78	
Incremental Delay, d2	115.1	0.5	1.3		2.8	13.0	30.5	2.8			12.2	
Delay (s)	155.5	18.1	27.9		58.7	72.8	80.3	35.2			47.1	
Level of Service	F	B	C		E	E	F	D			D	
Approach Delay (s)		50.1			61.0			44.8			47.1	
Approach LOS		D			E			D			D	

Intersection Summary			
HCM 2000 Control Delay	51.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		

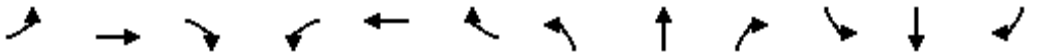
c Critical Lane Group



Lane Group	EBT	WBT	SBT	SBR
Lane Group Flow (vph)	1195	1076	1333	139
v/c Ratio	0.44	0.41	0.87	0.28
Control Delay	21.6	7.8	17.3	2.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	21.6	7.8	17.3	2.4
Queue Length 50th (ft)	163	44	273	4
Queue Length 95th (ft)	194	52	278	m6
Internal Link Dist (ft)	334	516	582	
Turn Bay Length (ft)				
Base Capacity (vph)	2725	2643	1527	500
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.44	0.41	0.87	0.28

Intersection Summary

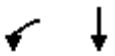
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1089	82	204	824	26	0	0	0	76	1230	136
Future Volume (vph)	0	1089	82	204	824	26	0	0	0	76	1230	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			6.0						6.5	6.5
Lane Util. Factor		0.86			0.86						0.91	1.00
Frpb, ped/bikes		0.99			1.00						1.00	0.88
Flpb, ped/bikes		1.00			1.00						1.00	1.00
Frt		0.99			1.00						1.00	0.85
Flt Protected		1.00			0.99						1.00	1.00
Satd. Flow (prot)		6159			6044						4869	1343
Flt Permitted		1.00			0.72						1.00	1.00
Satd. Flow (perm)		6159			4373						4869	1343
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1111	84	208	841	27	0	0	0	78	1255	139
RTOR Reduction (vph)	0	11	0	0	3	0	0	0	0	0	0	79
Lane Group Flow (vph)	0	1184	0	0	1073	0	0	0	0	0	1333	60
Confl. Peds. (#/hr)	70		64	64		70	89		28	28		89
Confl. Bikes (#/hr)			3			3						
Heavy Vehicles (%)	4%	4%	4%	6%	6%	6%	0%	0%	0%	6%	6%	6%
Turn Type		NA		pm+pt	NA					Perm	NA	Perm
Protected Phases		6		5	2						4	
Permitted Phases				2						4		4
Actuated Green, G (s)		48.5			63.0						34.5	34.5
Effective Green, g (s)		48.5			63.0						34.5	34.5
Actuated g/C Ratio		0.44			0.57						0.31	0.31
Clearance Time (s)		5.5			6.0						6.5	6.5
Lane Grp Cap (vph)		2715			2641						1527	421
v/s Ratio Prot		c0.19			c0.03							
v/s Ratio Perm					0.20						0.27	0.04
v/c Ratio		0.44			0.41						0.87	0.14
Uniform Delay, d1		21.3			13.1						35.7	27.1
Progression Factor		1.00			0.55						0.34	0.20
Incremental Delay, d2		0.5			0.4						4.7	0.4
Delay (s)		21.8			7.7						16.8	5.9
Level of Service		C			A						B	A
Approach Delay (s)		21.8			7.7			0.0			15.7	
Approach LOS		C			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	80.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	WBL	SBT
Lane Group Flow (vph)	105	1477
v/c Ratio	0.15	0.61
Control Delay	23.7	6.2
Queue Delay	0.0	0.5
Total Delay	23.7	6.8
Queue Length 50th (ft)	57	55
Queue Length 95th (ft)	m85	105
Internal Link Dist (ft)	508	411
Turn Bay Length (ft)		
Base Capacity (vph)	697	2413
Starvation Cap Reductn	0	469
Spillback Cap Reductn	0	4
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.15	0.76

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	103	0	0	0	133	1314
Future Volume (vph)	103	0	0	0	133	1314
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5					5.5
Lane Util. Factor	1.00					0.91
Frpb, ped/bikes	1.00					1.00
Flpb, ped/bikes	0.97					0.96
Frt	1.00					1.00
Flt Protected	0.95					1.00
Satd. Flow (prot)	1725					4873
Flt Permitted	0.95					1.00
Satd. Flow (perm)	1725					4873
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	105	0	0	0	136	1341
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	105	0	0	0	0	1477
Confl. Peds. (#/hr)	16	419		125	125	
Turn Type	Perm				Perm	NA
Protected Phases						2
Permitted Phases	4				2	
Actuated Green, G (s)	44.5					54.5
Effective Green, g (s)	44.5					54.5
Actuated g/C Ratio	0.40					0.50
Clearance Time (s)	5.5					5.5
Lane Grp Cap (vph)	697					2414
v/s Ratio Prot						
v/s Ratio Perm	c0.06					0.30
v/c Ratio	0.15					0.61
Uniform Delay, d1	20.8					20.1
Progression Factor	1.11					0.27
Incremental Delay, d2	0.3					0.9
Delay (s)	23.3					6.2
Level of Service	C					A
Approach Delay (s)	23.3		0.0			6.2
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	7.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	57.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	197	85	62	273	1524
v/c Ratio	0.25	0.17	0.16	0.35	0.73
Control Delay	20.6	13.6	18.0	18.7	26.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	20.6	13.6	18.0	18.7	26.9
Queue Length 50th (ft)	86	23	20	91	311
Queue Length 95th (ft)	137	55	m28	m132	369
Internal Link Dist (ft)	409			509	374
Turn Bay Length (ft)		100	100		
Base Capacity (vph)	797	502	387	789	2086
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	6
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.25	0.17	0.16	0.35	0.73

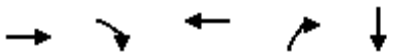
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	193	83	61	268	0	0	0	0	109	1312	73
Future Volume (vph)	0	193	83	61	268	0	0	0	0	109	1312	73
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	
Lane Util. Factor		1.00	1.00	1.00	1.00						0.91	
Frpb, ped/bikes		1.00	0.72	1.00	1.00						0.97	
Flpb, ped/bikes		1.00	1.00	0.80	1.00						0.96	
Frt		1.00	0.85	1.00	1.00						0.99	
Flt Protected		1.00	1.00	0.95	1.00						1.00	
Satd. Flow (prot)		1827	1113	1377	1810						4581	
Flt Permitted		1.00	1.00	0.61	1.00						1.00	
Satd. Flow (perm)		1827	1113	888	1810						4581	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	197	85	62	273	0	0	0	0	111	1339	74
RTOR Reduction (vph)	0	0	17	0	0	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	197	68	62	273	0	0	0	0	0	1519	0
Confl. Peds. (#/hr)	250		181	181		250	263		237	237		263
Confl. Bikes (#/hr)			18			42						7
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	0%	0%	0%	5%	5%	5%
Turn Type		NA	Perm	Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		48.0	48.0	48.0	48.0						50.0	
Effective Green, g (s)		48.0	48.0	48.0	48.0						50.0	
Actuated g/C Ratio		0.44	0.44	0.44	0.44						0.45	
Clearance Time (s)		6.0	6.0	6.0	6.0						6.0	
Lane Grp Cap (vph)		797	485	387	789						2082	
v/s Ratio Prot		0.11			c0.15							
v/s Ratio Perm			0.06	0.07							0.33	
v/c Ratio		0.25	0.14	0.16	0.35						0.73	
Uniform Delay, d1		19.6	18.6	18.8	20.6						24.5	
Progression Factor		1.00	1.00	0.90	0.86						1.00	
Incremental Delay, d2		0.7	0.6	0.5	0.7						2.3	
Delay (s)		20.3	19.2	17.5	18.3						26.8	
Level of Service		C	B	B	B						C	
Approach Delay (s)		20.0			18.2			0.0			26.8	
Approach LOS		B			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	24.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	EBR	WBT	NBR	SBT
Lane Group Flow (vph)	474	237	1072	45	1521
v/c Ratio	0.31	0.59	0.73	0.13	0.79
Control Delay	11.2	39.5	32.6	18.7	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.2
Total Delay	11.2	39.5	32.6	18.7	11.2
Queue Length 50th (ft)	82	61	375	26	78
Queue Length 95th (ft)	98	84	m441	58	78
Internal Link Dist (ft)	516		551		235
Turn Bay Length (ft)		100			
Base Capacity (vph)	1552	403	1473	355	1922
Starvation Cap Reductn	0	0	0	0	44
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.31	0.59	0.73	0.13	0.81

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	441	220	0	997	0	0	0	42	123	1237	55
Future Volume (vph)	0	441	220	0	997	0	0	0	42	123	1237	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0	6.5		6.5				7.0		7.0	
Lane Util. Factor		0.95	0.88		0.95				1.00		0.91	
Frpb, ped/bikes		1.00	1.00		1.00				0.69		0.99	
Flpb, ped/bikes		1.00	1.00		1.00				1.00		0.97	
Frt		1.00	0.85		1.00				0.86		0.99	
Flt Protected		1.00	1.00		1.00				1.00		1.00	
Satd. Flow (prot)		3223	2538		3343				870		4699	
Flt Permitted		1.00	1.00		1.00				1.00		1.00	
Satd. Flow (perm)		3223	2538		3343				870		4699	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	474	237	0	1072	0	0	0	45	132	1330	59
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	474	237	0	1072	0	0	0	45	0	1521	0
Confl. Peds. (#/hr)	788		223	223		788	264		211	211		264
Confl. Bikes (#/hr)			38			121						7
Heavy Vehicles (%)	12%	12%	12%	8%	8%	8%	31%	31%	31%	5%	5%	5%
Turn Type		NA	custom		NA				Perm	Perm	NA	
Protected Phases		2 9	9		6						8	
Permitted Phases									4	8		
Actuated Green, G (s)		48.5	17.5		48.5				45.0		45.0	
Effective Green, g (s)		48.5	17.5		48.5				45.0		45.0	
Actuated g/C Ratio		0.44	0.16		0.44				0.41		0.41	
Clearance Time (s)			6.5		6.5				7.0		7.0	
Lane Grp Cap (vph)		1421	403		1473				355		1922	
v/s Ratio Prot		0.15	0.09		c0.32							
v/s Ratio Perm									0.05		0.32	
v/c Ratio		0.33	0.59		0.73				0.13		0.79	
Uniform Delay, d1		20.2	42.9		25.3				20.3		28.4	
Progression Factor		0.61	0.77		1.19				0.86		0.28	
Incremental Delay, d2		0.6	6.1		2.0				0.7		2.9	
Delay (s)		12.9	39.1		32.1				18.2		11.0	
Level of Service		B	D		C				B		B	
Approach Delay (s)		21.7			32.1			18.2			11.0	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		

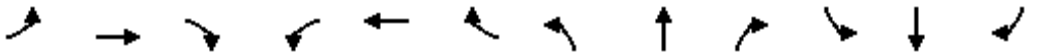
c Critical Lane Group



Lane Group	EBT	WBT	NBL	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	605	1070	176	40	72	34	15
v/c Ratio	0.24	0.57	0.66	0.12	0.22	0.07	0.05
Control Delay	5.9	9.6	48.3	30.8	32.4	29.7	29.6
Queue Delay	0.0	1.3	0.0	0.0	0.0	0.0	0.0
Total Delay	5.9	10.9	48.3	30.8	32.4	29.7	29.6
Queue Length 50th (ft)	42	370	110	21	39	18	8
Queue Length 95th (ft)	61	438	#196	50	79	43	24
Internal Link Dist (ft)	246	516				417	
Turn Bay Length (ft)							
Base Capacity (vph)	2501	1881	267	320	331	469	279
Starvation Cap Reductn	0	551	0	0	0	0	0
Spillback Cap Reductn	0	197	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.80	0.66	0.13	0.22	0.07	0.05

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	526	42	0	1006	0	165	0	38	68	32	14
Future Volume (vph)	0	526	42	0	1006	0	165	0	38	68	32	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5		7.0		7.0	7.0	7.0	7.0
Lane Util. Factor		0.91			0.95		1.00		1.00	1.00	1.00	1.00
Frpb, ped/bikes		0.99			1.00		1.00		0.75	1.00	1.00	0.70
Flpb, ped/bikes		1.00			1.00		0.72		1.00	0.74	1.00	1.00
Frt		0.99			1.00		1.00		0.85	1.00	1.00	0.85
Flt Protected		1.00			1.00		0.95		1.00	0.95	1.00	1.00
Satd. Flow (prot)		4402			3312		1228		1139	1178	1667	992
Flt Permitted		1.00			1.00		0.73		1.00	0.95	1.00	1.00
Satd. Flow (perm)		4402			3312		950		1139	1178	1667	992
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	560	45	0	1070	0	176	0	40	72	34	15
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	605	0	0	1070	0	176	0	40	72	34	15
Confl. Peds. (#/hr)	655		85	85		655	177		155	155		177
Confl. Bikes (#/hr)			28			102			3			4
Heavy Vehicles (%)	15%	15%	15%	9%	9%	9%	6%	6%	6%	14%	14%	14%
Turn Type		NA			NA		Perm		Perm	Perm	NA	Perm
Protected Phases		2			6						8	
Permitted Phases							4		4	8		8
Actuated Green, G (s)		62.5			62.5		31.0		31.0	31.0	31.0	31.0
Effective Green, g (s)		62.5			62.5		31.0		31.0	31.0	31.0	31.0
Actuated g/C Ratio		0.57			0.57		0.28		0.28	0.28	0.28	0.28
Clearance Time (s)		6.5			6.5		7.0		7.0	7.0	7.0	7.0
Lane Grp Cap (vph)		2501			1881		267		320	331	469	279
v/s Ratio Prot		0.14			c0.32						0.02	
v/s Ratio Perm							c0.19		0.04	0.06		0.02
v/c Ratio		0.24			0.57		0.66		0.12	0.22	0.07	0.05
Uniform Delay, d1		11.9			15.2		34.8		29.4	30.2	29.0	28.8
Progression Factor		0.47			0.57		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		0.2			0.8		12.1		0.8	1.5	0.3	0.4
Delay (s)		5.8			9.5		46.9		30.2	31.7	29.3	29.2
Level of Service		A			A		D		C	C	C	C
Approach Delay (s)		5.8			9.5			43.8			30.7	
Approach LOS		A			A			D			C	

Intersection Summary			
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		

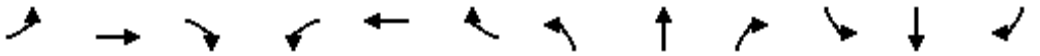
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	236	462	921	381	6	180	59
v/c Ratio	0.90	0.24	0.70	0.84	0.07	0.42	0.18
Control Delay	95.0	4.4	10.0	41.1	50.2	46.2	32.6
Queue Delay	0.4	0.4	0.9	7.8	0.0	0.0	0.6
Total Delay	95.4	4.7	10.9	48.8	50.2	46.2	33.2
Queue Length 50th (ft)	176	35	75	288	4	60	32
Queue Length 95th (ft)	m#273	m43	121	#430	18	95	67
Internal Link Dist (ft)		209	246		170		344
Turn Bay Length (ft)							
Base Capacity (vph)	263	1943	1321	453	92	428	321
Starvation Cap Reductn	1	931	167	47	0	0	0
Spillback Cap Reductn	0	0	70	0	0	0	107
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.46	0.80	0.94	0.07	0.42	0.28

Intersection Summary

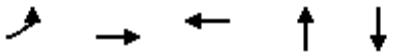
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	212	410	5	12	817	343	1	3	2	162	2	51
Future Volume (vph)	212	410	5	12	817	343	1	3	2	162	2	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			2.0	7.0		7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00		0.97	1.00	
Frpb, ped/bikes	1.00	0.99			1.00	1.00		0.87		1.00	0.86	
Flpb, ped/bikes	1.00	1.00			1.00	1.00		0.98		1.00	1.00	
Frt	1.00	1.00			1.00	0.85		0.95		1.00	0.86	
Flt Protected	0.95	1.00			1.00	1.00		0.99		0.95	1.00	
Satd. Flow (prot)	1612	3190			3264	1468		1546		2943	1179	
Flt Permitted	0.95	1.00			0.95	1.00		0.93		0.95	1.00	
Satd. Flow (perm)	1612	3190			3094	1468		1447		2943	1179	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	236	456	6	13	908	381	1	3	2	180	2	57
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	236	462	0	0	921	381	0	6	0	180	59	0
Confl. Peds. (#/hr)	345		257	257		345	74		144	144		74
Confl. Bikes (#/hr)			25			95						38
Heavy Vehicles (%)	12%	12%	12%	10%	10%	10%	0%	0%	0%	19%	19%	19%
Turn Type	Prot	NA		Perm	NA	custom	Perm	NA		Prot	NA	
Protected Phases	1	6			2 5	3 5		4		3	8	
Permitted Phases				2 5			4					
Actuated Green, G (s)	18.0	67.0			42.0	34.0		7.0		16.0	30.0	
Effective Green, g (s)	18.0	67.0			42.0	34.0		7.0		16.0	30.0	
Actuated g/C Ratio	0.16	0.61			0.38	0.31		0.06		0.15	0.27	
Clearance Time (s)	6.0	6.0						7.0		7.0	7.0	
Lane Grp Cap (vph)	263	1943			1181	453		92		428	321	
v/s Ratio Prot	c0.15	0.14				c0.26				0.06	c0.05	
v/s Ratio Perm					c0.30			0.00				
v/c Ratio	0.90	0.24			0.78	0.84		0.07		0.42	0.18	
Uniform Delay, d1	45.1	9.8			29.9	35.5		48.4		42.8	30.6	
Progression Factor	1.41	0.41			0.28	0.70		1.00		1.00	1.00	
Incremental Delay, d2	32.0	0.3			4.3	14.6		1.4		3.0	1.3	
Delay (s)	95.6	4.3			12.8	39.6		49.8		45.8	31.9	
Level of Service	F	A			B	D		D		D	C	
Approach Delay (s)		35.2			20.6			49.8			42.4	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	27.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

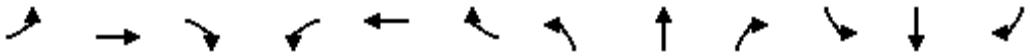
c Critical Lane Group



Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	194	1200	939	1919	72
v/c Ratio	0.76	0.55	0.71	0.98	0.08
Control Delay	72.8	7.1	41.2	45.1	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	72.8	7.1	41.2	45.1	0.2
Queue Length 50th (ft)	115	59	175	471	0
Queue Length 95th (ft)	m157	68	214	#599	0
Internal Link Dist (ft)		1027	345	451	993
Turn Bay Length (ft)					
Base Capacity (vph)	254	2166	1327	1968	920
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.76	0.55	0.71	0.98	0.08

Intersection Summary

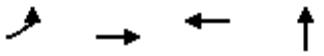
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	186	1136	16	10	843	49	162	1370	310	14	11	44
Future Volume (vph)	186	1136	16	10	843	49	162	1370	310	14	11	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.5			6.5			6.5			6.5	
Lane Util. Factor	1.00	0.91			0.86			0.91			0.95	
Frpb, ped/bikes	1.00	1.00			1.00			0.99			0.96	
Flpb, ped/bikes	1.00	1.00			1.00			0.99			1.00	
Frt	1.00	1.00			0.99			0.97			0.90	
Flt Protected	0.95	1.00			1.00			1.00			0.99	
Satd. Flow (prot)	1752	5013			6036			4843			2744	
Flt Permitted	0.95	1.00			0.91			0.89			0.72	
Satd. Flow (perm)	1752	5013			5476			4352			1992	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	194	1183	17	10	878	51	169	1427	323	15	11	46
RTOR Reduction (vph)	0	1	0	0	8	0	0	9	0	0	25	0
Lane Group Flow (vph)	194	1199	0	0	931	0	0	1910	0	0	47	0
Confl. Peds. (#/hr)	31		78	78		31	78		47	47		78
Confl. Bikes (#/hr)			1						3			
Heavy Vehicles (%)	3%	3%	3%	7%	7%	7%	2%	2%	2%	13%	13%	13%
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	6			2			8			4	
Permitted Phases				2			8			4		
Actuated Green, G (s)	16.0	47.5			26.5			49.5			49.5	
Effective Green, g (s)	16.0	47.5			26.5			49.5			49.5	
Actuated g/C Ratio	0.15	0.43			0.24			0.45			0.45	
Clearance Time (s)	5.0	6.5			6.5			6.5			6.5	
Lane Grp Cap (vph)	254	2164			1319			1958			896	
v/s Ratio Prot	c0.11	0.24										
v/s Ratio Perm					c0.17			c0.44			0.02	
v/c Ratio	0.76	0.55			0.71			0.98			0.05	
Uniform Delay, d1	45.2	23.3			38.2			29.7			17.0	
Progression Factor	1.31	0.27			1.00			1.00			0.00	
Incremental Delay, d2	13.1	0.7			3.2			15.3			0.1	
Delay (s)	72.3	7.1			41.4			45.0			0.1	
Level of Service	E	A			D			D			A	
Approach Delay (s)		16.2			41.4			45.0			0.1	
Approach LOS		B			D			D			A	

Intersection Summary			
HCM 2000 Control Delay	34.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	98.2%	ICU Level of Service	F
Analysis Period (min)	15		

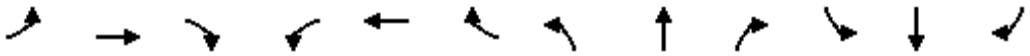
c Critical Lane Group



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	96	116	268	1627
v/c Ratio	0.30	0.16	0.45	0.72
Control Delay	40.6	36.8	27.2	6.6
Queue Delay	0.0	0.0	0.0	30.8
Total Delay	40.6	36.8	27.2	37.3
Queue Length 50th (ft)	62	75	134	39
Queue Length 95th (ft)	m86	m100	210	m33
Internal Link Dist (ft)		379	152	314
Turn Bay Length (ft)	100			
Base Capacity (vph)	319	705	594	2267
Starvation Cap Reductn	0	0	0	729
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.30	0.16	0.45	1.06

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	113	0	0	156	104	54	1288	236	0	0	0
Future Volume (vph)	93	113	0	0	156	104	54	1288	236	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5			6.0				
Lane Util. Factor	1.00	1.00			1.00			0.91				
Frpb, ped/bikes	1.00	1.00			0.92			0.92				
Flpb, ped/bikes	0.90	1.00			1.00			0.99				
Frt	1.00	1.00			0.95			0.98				
Flt Protected	0.95	1.00			1.00			1.00				
Satd. Flow (prot)	1555	1827			1524			4408				
Flt Permitted	0.51	1.00			1.00			1.00				
Satd. Flow (perm)	828	1827			1524			4408				
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	96	116	0	0	161	107	56	1328	243	0	0	0
RTOR Reduction (vph)	0	0	0	0	6	0	0	23	0	0	0	0
Lane Group Flow (vph)	96	116	0	0	262	0	0	1604	0	0	0	0
Confl. Peds. (#/hr)	113		183	183		113	120		224	224		120
Confl. Bikes (#/hr)			5			11			5			
Heavy Vehicles (%)	4%	4%	4%	9%	9%	9%	5%	5%	5%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			4			2				
Permitted Phases	4						2					
Actuated Green, G (s)	42.5	42.5			42.5			56.0				
Effective Green, g (s)	42.5	42.5			42.5			56.0				
Actuated g/C Ratio	0.39	0.39			0.39			0.51				
Clearance Time (s)	5.5	5.5			5.5			6.0				
Lane Grp Cap (vph)	319	705			588			2244				
v/s Ratio Prot		0.06			c0.17							
v/s Ratio Perm	0.12							0.36				
v/c Ratio	0.30	0.16			0.45			0.71				
Uniform Delay, d1	23.4	22.1			25.0			20.8				
Progression Factor	1.60	1.62			1.00			0.31				
Incremental Delay, d2	1.8	0.4			2.4			0.2				
Delay (s)	39.2	36.2			27.5			6.7				
Level of Service	D	D			C			A				
Approach Delay (s)		37.6			27.5			6.7			0.0	
Approach LOS		D			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



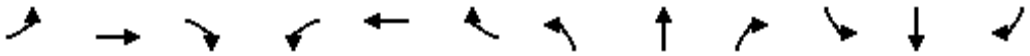
Lane Group	EBT	EBR	WBT	WBR	NBT
Lane Group Flow (vph)	501	68	573	379	1776
v/c Ratio	0.26	0.19	0.29	0.99	1.16
Control Delay	9.9	28.8	2.8	92.7	101.3
Queue Delay	0.0	0.0	0.2	16.9	0.4
Total Delay	9.9	28.8	3.0	109.6	101.7
Queue Length 50th (ft)	92	36	0	220	~551
Queue Length 95th (ft)	118	73	0	#447	m#590
Internal Link Dist (ft)	419		209		993
Turn Bay Length (ft)		200			
Base Capacity (vph)	1904	367	1993	384	1534
Starvation Cap Reductn	0	0	690	22	0
Spillback Cap Reductn	0	0	0	0	170
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.26	0.19	0.44	1.05	1.30

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

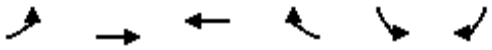
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	476	65	0	544	360	102	1434	152	0	0	0
Future Volume (vph)	0	476	65	0	544	360	102	1434	152	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0	2.0		2.0	2.0		7.0				
Lane Util. Factor		0.95	1.00		0.95	1.00		0.91				
Frpb, ped/bikes		1.00	1.00		1.00	1.00		0.97				
Flpb, ped/bikes		1.00	1.00		1.00	1.00		0.98				
Frt		1.00	0.85		1.00	0.85		0.99				
Flt Protected		1.00	1.00		1.00	1.00		1.00				
Satd. Flow (prot)		3223	1442		3374	1509		4690				
Flt Permitted		1.00	1.00		1.00	1.00		1.00				
Satd. Flow (perm)		3223	1442		3374	1509		4690				
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	501	68	0	573	379	107	1509	160	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	501	68	0	573	379	0	1776	0	0	0	0
Confl. Peds. (#/hr)	261		351	351		261	228		163	163		228
Confl. Bikes (#/hr)			50			68			14			
Heavy Vehicles (%)	12%	12%	12%	7%	7%	7%	4%	4%	4%	0%	0%	0%
Turn Type		NA	custom		NA	custom	Perm	NA				
Protected Phases		1 2	1		1 2	1		4				
Permitted Phases							4					
Actuated Green, G (s)		60.5	28.0		60.5	28.0		36.0				
Effective Green, g (s)		60.5	28.0		60.5	28.0		36.0				
Actuated g/C Ratio		0.55	0.25		0.55	0.25		0.33				
Clearance Time (s)			2.0			2.0		7.0				
Lane Grp Cap (vph)		1772	367		1855	384		1534				
v/s Ratio Prot		0.16	0.05		c0.17	c0.25						
v/s Ratio Perm								0.38				
v/c Ratio		0.28	0.19		0.31	0.99		1.16				
Uniform Delay, d1		13.2	32.1		13.4	40.8		37.0				
Progression Factor		0.87	0.85		0.22	1.40		0.71				
Incremental Delay, d2		0.4	1.1		0.3	36.4		74.6				
Delay (s)		11.8	28.3		3.3	93.7		100.7				
Level of Service		B	C		A	F		F				
Approach Delay (s)		13.8			39.3			100.7			0.0	
Approach LOS		B			D			F			A	

Intersection Summary			
HCM 2000 Control Delay	68.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		

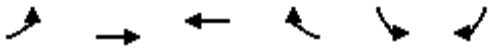
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	246	366	400	404	272	116
v/c Ratio	0.59	0.19	0.43	0.84	0.27	0.15
Control Delay	44.1	11.8	51.1	51.1	6.6	3.1
Queue Delay	2.0	0.0	0.0	22.3	0.6	0.4
Total Delay	46.1	11.8	51.1	73.4	7.3	3.4
Queue Length 50th (ft)	165	72	143	288	12	9
Queue Length 95th (ft)	235	76	m174	m#358	m14	m10
Internal Link Dist (ft)		238	419		144	
Turn Bay Length (ft)				200		
Base Capacity (vph)	417	1929	930	480	1020	756
Starvation Cap Reductn	74	0	0	0	443	335
Spillback Cap Reductn	62	0	0	81	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.19	0.43	1.01	0.47	0.28

Intersection Summary

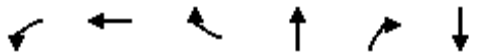
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	209	311	340	343	231	99
Future Volume (vph)	209	311	340	343	231	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	6.0	6.0	6.5
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.89
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1671	3343	3471	1553	3303	1363
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1671	3343	3471	1553	3303	1363
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	246	366	400	404	272	116
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	246	366	400	404	272	116
Confl. Peds. (#/hr)	161			161	611	87
Confl. Bikes (#/hr)				63		8
Heavy Vehicles (%)	8%	8%	4%	4%	6%	6%
Turn Type	Prot	NA	NA	Over	Prot	pm+ov
Protected Phases	1	6	2	4	4	1
Permitted Phases						4
Actuated Green, G (s)	27.5	63.5	29.5	34.0	34.0	61.5
Effective Green, g (s)	27.5	63.5	29.5	34.0	34.0	61.5
Actuated g/C Ratio	0.25	0.58	0.27	0.31	0.31	0.56
Clearance Time (s)	6.5	6.5	6.5	6.0	6.0	6.5
Lane Grp Cap (vph)	417	1929	930	480	1020	842
v/s Ratio Prot	c0.15	0.11	c0.12	c0.26	0.08	0.03
v/s Ratio Perm						0.05
v/c Ratio	0.59	0.19	0.43	0.84	0.27	0.14
Uniform Delay, d1	36.3	11.0	33.3	35.5	28.6	11.6
Progression Factor	1.03	1.04	1.48	0.97	0.21	0.30
Incremental Delay, d2	6.0	0.2	1.4	15.5	0.4	0.2
Delay (s)	43.4	11.7	50.7	50.0	6.6	3.7
Level of Service	D	B	D	D	A	A
Approach Delay (s)		24.4	50.3		5.7	
Approach LOS		C	D		A	

Intersection Summary			
HCM 2000 Control Delay	31.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	64.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	26	75	49	544	111	624
v/c Ratio	0.07	0.15	0.09	0.72	0.53	0.78
Control Delay	43.2	43.9	5.4	46.8	15.4	45.3
Queue Delay	0.0	0.0	0.0	53.1	4.8	0.0
Total Delay	43.2	43.9	5.4	99.9	20.2	45.3
Queue Length 50th (ft)	17	49	3	147	22	208
Queue Length 95th (ft)	m33	m86	m16	m208	m36	276
Internal Link Dist (ft)		379		144		307
Turn Bay Length (ft)	200		65			
Base Capacity (vph)	352	514	522	759	210	801
Starvation Cap Reductn	0	0	0	266	52	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.15	0.09	1.10	0.70	0.78

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	24	69	45	73	428	102	136	322	116
Future Volume (vph)	0	0	0	24	69	45	73	428	102	136	322	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5	6.5		6.0	6.0		6.0	
Lane Util. Factor				1.00	1.00	1.00		0.95	1.00		0.95	
Frpb, ped/bikes				1.00	1.00	0.95		1.00	0.26		0.99	
Flpb, ped/bikes				0.72	1.00	1.00		1.00	1.00		1.00	
Frt				1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected				0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)				1193	1743	1414		3480	413		3304	
Flt Permitted				0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (perm)				1193	1743	1414		3480	413		3304	
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	26	75	49	79	465	111	148	350	126
RTOR Reduction (vph)	0	0	0	0	0	35	0	0	87	0	21	0
Lane Group Flow (vph)	0	0	0	26	75	14	0	544	24	0	603	0
Confl. Peds. (#/hr)	19		195	195		19	9		599	599		9
Confl. Bikes (#/hr)						10			4			5
Heavy Vehicles (%)	0%	0%	0%	9%	9%	9%	3%	3%	3%	4%	4%	4%
Turn Type				Perm	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases					4		2	2		1	1	
Permitted Phases				4		4			2			
Actuated Green, G (s)				32.5	32.5	32.5		24.0	24.0		26.0	
Effective Green, g (s)				32.5	32.5	32.5		24.0	24.0		26.0	
Actuated g/C Ratio				0.30	0.30	0.30		0.22	0.22		0.24	
Clearance Time (s)				6.5	6.5	6.5		6.0	6.0		6.0	
Lane Grp Cap (vph)				352	514	417		759	90		780	
v/s Ratio Prot					c0.04			c0.16			c0.18	
v/s Ratio Perm				0.02		0.01			0.06			
v/c Ratio				0.07	0.15	0.03		0.72	0.27		0.77	
Uniform Delay, d1				27.9	28.5	27.6		39.8	35.7		39.2	
Progression Factor				1.51	1.50	1.00		1.07	3.91		1.00	
Incremental Delay, d2				0.4	0.5	0.1		3.8	4.7		7.4	
Delay (s)				42.5	43.3	27.7		46.4	144.5		46.6	
Level of Service				D	D	C		D	F		D	
Approach Delay (s)		0.0			38.1			63.0			46.6	
Approach LOS		A			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	53.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

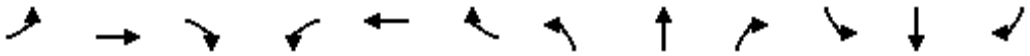
c Critical Lane Group



Lane Group	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	1181	934	157	2456	897
v/c Ratio	0.77	0.66	0.40	0.76	0.36
Control Delay	37.0	42.1	33.7	22.0	34.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	37.0	42.1	33.7	22.0	34.9
Queue Length 50th (ft)	272	260	103	375	209
Queue Length 95th (ft)	328	m303	m151	422	249
Internal Link Dist (ft)	320	1027		460	1159
Turn Bay Length (ft)					
Base Capacity (vph)	1528	1405	394	3220	2481
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.77	0.66	0.40	0.76	0.36

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	1116	41	10	898	172	0	2206	226	0	766	122
Future Volume (vph)	13	1116	41	10	898	172	0	2206	226	0	766	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5	4.5		4.5			4.5	
Lane Util. Factor		0.91			0.86	0.86		0.86			0.91	
Frpb, ped/bikes		1.00			1.00	0.82		0.98			0.98	
Flpb, ped/bikes		1.00			1.00	1.00		1.00			1.00	
Frt		0.99			1.00	0.85		0.99			0.98	
Flt Protected		1.00			1.00	1.00		1.00			1.00	
Satd. Flow (prot)		4982			4594	1077		6027			4632	
Flt Permitted		0.92			0.92	1.00		1.00			1.00	
Satd. Flow (perm)		4596			4232	1077		6027			4632	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	13	1127	41	10	907	174	0	2228	228	0	774	123
RTOR Reduction (vph)	0	3	0	0	1	37	0	15	0	0	20	0
Lane Group Flow (vph)	0	1178	0	0	933	120	0	2441	0	0	877	0
Confl. Peds. (#/hr)	133		97	97		133	87		163	163		87
Confl. Bikes (#/hr)			4			2			5			6
Heavy Vehicles (%)	3%	3%	3%	6%	6%	6%	5%	5%	5%	8%	8%	8%
Turn Type	Perm	NA		Perm	NA	Perm		NA			NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2						
Actuated Green, G (s)		36.5			36.5	36.5		58.5			58.5	
Effective Green, g (s)		36.5			36.5	36.5		58.5			58.5	
Actuated g/C Ratio		0.33			0.33	0.33		0.53			0.53	
Clearance Time (s)		4.5			4.5	4.5		4.5			4.5	
Lane Grp Cap (vph)		1525			1404	357		3205			2463	
v/s Ratio Prot								c0.40			0.19	
v/s Ratio Perm		c0.26			0.22	0.11						
v/c Ratio		0.77			0.66	0.34		0.76			0.36	
Uniform Delay, d1		33.0			31.5	27.6		20.3			14.9	
Progression Factor		1.00			1.27	1.71		1.00			2.42	
Incremental Delay, d2		3.9			1.7	1.7		1.8			0.4	
Delay (s)		36.9			41.8	48.9		22.0			36.4	
Level of Service		D			D	D		C			D	
Approach Delay (s)		36.9			42.8			22.0			36.4	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	31.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



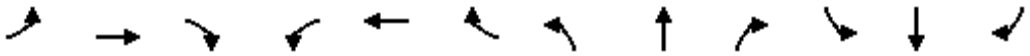
Lane Group	EBT	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	404	236	65	68	2058	871
v/c Ratio	0.44	0.24	0.18	0.22	1.06	0.30
Control Delay	18.0	46.0	46.1	4.6	51.3	1.3
Queue Delay	0.0	0.0	0.0	0.0	15.7	0.2
Total Delay	18.0	46.0	46.1	4.6	67.1	1.5
Queue Length 50th (ft)	84	88	47	6	~593	23
Queue Length 95th (ft)	m88	131	92	m8	#990	22
Internal Link Dist (ft)	394	249			1159	146
Turn Bay Length (ft)						
Base Capacity (vph)	916	966	369	310	1937	2874
Starvation Cap Reductn	0	0	0	0	0	1043
Spillback Cap Reductn	0	0	0	0	76	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.24	0.18	0.22	1.11	0.48

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	364	36	0	234	64	67	1819	219	0	848	14
Future Volume (vph)	0	364	36	0	234	64	67	1819	219	0	848	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5	6.5	6.5	6.5			6.5	
Lane Util. Factor		0.95			0.95	1.00	1.00	0.95			0.91	
Frpb, ped/bikes		0.97			1.00	0.86	1.00	0.96			1.00	
Flpb, ped/bikes		1.00			1.00	1.00	0.96	1.00			1.00	
Frt		0.99			1.00	0.85	1.00	0.98			1.00	
Flt Protected		1.00			1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)		3198			3374	1291	1655	3253			4825	
Flt Permitted		1.00			1.00	1.00	0.30	1.00			1.00	
Satd. Flow (perm)		3198			3374	1291	521	3253			4825	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	0	368	36	0	236	65	68	1837	221	0	857	14
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	404	0	0	236	65	68	2058	0	0	871	0
Confl. Peds. (#/hr)	75		346	346		75	112		287	287		112
Confl. Bikes (#/hr)			58			70			3			21
Heavy Vehicles (%)	8%	8%	8%	7%	7%	7%	5%	5%	5%	7%	7%	7%
Turn Type		NA			NA	Perm	Perm	NA			NA	
Protected Phases		8			4			6			2	
Permitted Phases						4	6					
Actuated Green, G (s)		31.5			31.5	31.5	65.5	65.5			65.5	
Effective Green, g (s)		31.5			31.5	31.5	65.5	65.5			65.5	
Actuated g/C Ratio		0.29			0.29	0.29	0.60	0.60			0.60	
Clearance Time (s)		6.5			6.5	6.5	6.5	6.5			6.5	
Lane Grp Cap (vph)		915			966	369	310	1937			2873	
v/s Ratio Prot		c0.13			0.07			c0.63			0.18	
v/s Ratio Perm						0.05	0.13					
v/c Ratio		0.44			0.24	0.18	0.22	1.06			0.30	
Uniform Delay, d1		32.1			30.1	29.5	10.4	22.2			11.0	
Progression Factor		0.54			1.50	1.50	0.32	0.56			0.09	
Incremental Delay, d2		0.7			0.6	1.0	1.1	36.3			0.2	
Delay (s)		17.9			45.7	45.2	4.4	48.7			1.3	
Level of Service		B			D	D	A	D			A	
Approach Delay (s)		17.9			45.6			47.3			1.3	
Approach LOS		B			D			D			A	

Intersection Summary			
HCM 2000 Control Delay	33.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		

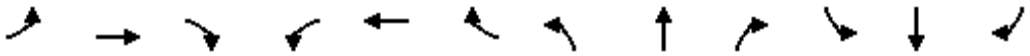
c Critical Lane Group



Lane Group	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	94	160	304	1617	925
v/c Ratio	0.24	0.44	0.54	0.52	0.59
Control Delay	31.6	34.3	14.3	2.5	32.4
Queue Delay	0.0	0.0	60.1	44.8	0.0
Total Delay	31.6	34.3	74.4	47.2	32.4
Queue Length 50th (ft)	49	92	77	87	196
Queue Length 95th (ft)	m73	m136	m69	m81	242
Internal Link Dist (ft)		580		146	270
Turn Bay Length (ft)					
Base Capacity (vph)	386	367	568	3128	1563
Starvation Cap Reductn	0	0	298	1646	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.24	0.44	1.13	1.09	0.59

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	103	71	75	298	1585	0	0	853	54
Future Volume (vph)	0	0	0	103	71	75	298	1585	0	0	853	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5		6.0	6.0			6.0	
Lane Util. Factor				0.95	0.95		1.00	0.91			0.91	
Frpb, ped/bikes				1.00	0.89		1.00	1.00			0.98	
Flpb, ped/bikes				0.92	0.99		0.99	1.00			1.00	
Frt				1.00	0.93		1.00	1.00			0.99	
Flt Protected				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)				1492	1397		1717	4988			4760	
Flt Permitted				0.95	1.00		0.22	1.00			1.00	
Satd. Flow (perm)				1492	1397		394	4988			4760	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	0	0	105	72	77	304	1617	0	0	870	55
RTOR Reduction (vph)	0	0	0	0	5	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	0	0	94	155	0	304	1617	0	0	919	0
Confl. Peds. (#/hr)	167		61	61		167	123		348	348		123
Confl. Bikes (#/hr)						8			3			17
Heavy Vehicles (%)	0%	0%	0%	6%	6%	6%	4%	4%	4%	6%	6%	6%
Turn Type				Perm	NA		pm+pt	NA			NA	
Protected Phases					4		5	2			6	
Permitted Phases				4			2					
Actuated Green, G (s)				28.5	28.5		69.0	69.0			36.0	
Effective Green, g (s)				28.5	28.5		69.0	69.0			36.0	
Actuated g/C Ratio				0.26	0.26		0.63	0.63			0.33	
Clearance Time (s)				6.5	6.5		6.0	6.0			6.0	
Lane Grp Cap (vph)				386	361		571	3128			1557	
v/s Ratio Prot							0.13	c0.32			c0.19	
v/s Ratio Perm				0.06	0.11		0.20					
v/c Ratio				0.24	0.43		0.53	0.52			0.59	
Uniform Delay, d1				32.2	34.0		20.6	11.3			30.8	
Progression Factor				0.92	0.94		0.61	0.21			1.00	
Incremental Delay, d2				1.2	3.0		0.3	0.1			1.7	
Delay (s)				31.0	35.0		12.8	2.4			32.5	
Level of Service				C	D		B	A			C	
Approach Delay (s)		0.0			33.5			4.1			32.5	
Approach LOS		A			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

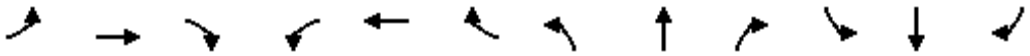


Lane Group	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	10	14	131	145	1337	85	386
v/c Ratio	0.16	0.08	0.63	0.29	1.06	0.57	0.22
Control Delay	57.1	37.6	67.4	34.5	73.6	63.4	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.1	37.6	67.4	34.5	73.6	63.4	12.6
Queue Length 50th (ft)	7	8	49	94	~545	59	68
Queue Length 95th (ft)	25	26	79	151	#642	108	91
Internal Link Dist (ft)	133				1023		200
Turn Bay Length (ft)				100			
Base Capacity (vph)	61	183	209	508	1265	150	1784
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.08	0.63	0.29	1.06	0.57	0.22

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	8	12	114	0	126	32	876	255	74	320	16
Future Volume (vph)	1	8	12	114	0	126	32	876	255	74	320	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5	6.5		6.5		6.5		5.0	6.5	
Lane Util. Factor		1.00	1.00	0.97		1.00		0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.73	1.00		1.00		0.96		1.00	0.97	
Flpb, ped/bikes		1.00	1.00	1.00		1.00		0.99		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		0.97		1.00	0.99	
Flt Protected		1.00	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1499	941	3072		1417		3219		1656	3192	
Flt Permitted		1.00	1.00	0.95		1.00		0.93		0.95	1.00	
Satd. Flow (perm)		1499	941	3072		1417		2994		1656	3192	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	1	9	14	131	0	145	37	1007	293	85	368	18
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	10	14	131	0	145	0	1337	0	85	386	0
Confl. Peds. (#/hr)	4		150	150		4	390		114	114		390
Confl. Bikes (#/hr)			17			113			39			31
Heavy Vehicles (%)	26%	26%	26%	14%	14%	14%	3%	3%	3%	9%	9%	9%
Turn Type	Prot	NA	Perm	Prot		custom	Perm	NA		Prot	NA	
Protected Phases	3	8		7		7 4 1		2		1	6	
Permitted Phases			8				2					
Actuated Green, G (s)		21.5	21.5	7.5		41.0		46.5		10.0	61.5	
Effective Green, g (s)		21.5	21.5	7.5		41.0		46.5		10.0	61.5	
Actuated g/C Ratio		0.20	0.20	0.07		0.37		0.42		0.09	0.56	
Clearance Time (s)		6.5	6.5	6.5				6.5		5.0	6.5	
Lane Grp Cap (vph)		292	183	209		528		1265		150	1784	
v/s Ratio Prot		0.00		c0.04		c0.10				c0.05	0.12	
v/s Ratio Perm		0.00	c0.01					c0.45				
v/c Ratio		0.03	0.08	0.63		0.27		1.06		0.57	0.22	
Uniform Delay, d1		35.8	36.1	49.9		24.1		31.8		47.9	12.2	
Progression Factor		1.00	1.00	1.08		1.29		1.00		1.00	1.00	
Incremental Delay, d2		0.2	0.8	13.2		1.3		41.8		14.6	0.3	
Delay (s)		36.1	37.0	66.9		32.4		73.6		62.5	12.4	
Level of Service		D	D	E		C		E		E	B	
Approach Delay (s)		36.6			48.8			73.6			21.5	
Approach LOS		D			D			E			C	

Intersection Summary			
HCM 2000 Control Delay	58.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBL	WBT	NBR
Lane Group Flow (vph)	378	686	1159	629
v/c Ratio	0.20	0.67	0.58	0.59
Control Delay	3.4	26.6	30.2	14.4
Queue Delay	0.0	2.5	50.0	0.0
Total Delay	3.4	29.2	80.2	14.4
Queue Length 50th (ft)	20	165	391	59
Queue Length 95th (ft)	27	222	460	73
Internal Link Dist (ft)	354		202	
Turn Bay Length (ft)		100		
Base Capacity (vph)	1927	1020	2007	1062
Starvation Cap Reductn	0	213	1013	0
Spillback Cap Reductn	0	0	40	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.20	0.85	1.17	0.59

Intersection Summary



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	346	2	631	1066	0	579
Future Volume (vph)	346	2	631	1066	0	579
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0		7.0	7.0		7.0
Lane Util. Factor	0.95		0.97	0.95		0.76
Frpb, ped/bikes	1.00		1.00	1.00		1.00
Flpb, ped/bikes	1.00		1.00	1.00		1.00
Frt	1.00		1.00	1.00		0.85
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	3365		3400	3505		3541
Flt Permitted	1.00		0.95	1.00		1.00
Satd. Flow (perm)	3365		3400	3505		3541
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	376	2	686	1159	0	629
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	378	0	686	1159	0	629
Confl. Peds. (#/hr)		146	146		17	
Confl. Bikes (#/hr)		46				4
Heavy Vehicles (%)	7%	7%	3%	3%	4%	4%
Turn Type	NA		Prot	NA		Prot
Protected Phases	2		7	6		4
Permitted Phases						
Actuated Green, G (s)	63.0		33.0	63.0		33.0
Effective Green, g (s)	63.0		33.0	63.0		33.0
Actuated g/C Ratio	0.57		0.30	0.57		0.30
Clearance Time (s)	7.0		7.0	7.0		7.0
Lane Grp Cap (vph)	1927		1020	2007		1062
v/s Ratio Prot	0.11		c0.20	c0.33		0.18
v/s Ratio Perm						
v/c Ratio	0.20		0.67	0.58		0.59
Uniform Delay, d1	11.3		33.8	15.0		32.8
Progression Factor	0.28		0.69	1.92		0.36
Incremental Delay, d2	0.2		3.1	1.1		2.3
Delay (s)	3.3		26.4	29.8		14.3
Level of Service	A		C	C		B
Approach Delay (s)	3.3			28.5	14.3	
Approach LOS	A			C	B	

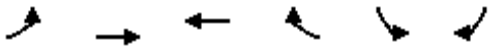
Intersection Summary			
HCM 2000 Control Delay	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	41.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	SBR
Lane Group Flow (vph)	846	124	5	1486
v/c Ratio	0.47	0.21	0.00	0.76
Control Delay	15.2	25.7	22.8	21.3
Queue Delay	2.2	0.0	0.0	7.4
Total Delay	17.4	25.7	22.8	28.6
Queue Length 50th (ft)	161	57	1	307
Queue Length 95th (ft)	209	102	5	382
Internal Link Dist (ft)		268	282	
Turn Bay Length (ft)				
Base Capacity (vph)	1818	593	1173	1949
Starvation Cap Reductn	797	0	0	427
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.83	0.21	0.00	0.98

Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	812	119	5	0	0	1427
Future Volume (vph)	812	119	5	0	0	1427
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.5	6.5			7.0
Lane Util. Factor	0.97	1.00	0.95			0.76
Frpb, ped/bikes	1.00	1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	1.00	1.00	1.00			0.85
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3367	1827	3610			3610
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3367	1827	3610			3610
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	846	124	5	0	0	1486
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	846	124	5	0	0	1486
Confl. Peds. (#/hr)	44			44	2	2
Confl. Bikes (#/hr)				81		32
Heavy Vehicles (%)	4%	4%	0%	0%	2%	2%
Turn Type	Prot	NA	NA			Prot
Protected Phases	7	6	2			4
Permitted Phases						
Actuated Green, G (s)	54.0	32.5	32.5			54.0
Effective Green, g (s)	54.0	32.5	32.5			54.0
Actuated g/C Ratio	0.54	0.32	0.32			0.54
Clearance Time (s)	7.0	6.5	6.5			7.0
Lane Grp Cap (vph)	1818	593	1173			1949
v/s Ratio Prot	0.25	c0.07	0.00			c0.41
v/s Ratio Perm						
v/c Ratio	0.47	0.21	0.00			0.76
Uniform Delay, d1	14.1	24.4	22.8			18.0
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	0.9	0.8	0.0			2.9
Delay (s)	15.0	25.2	22.8			20.9
Level of Service	B	C	C			C
Approach Delay (s)		16.3	22.8		20.9	
Approach LOS		B	C		C	

Intersection Summary			
HCM 2000 Control Delay	19.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBL	WBT	NBR
Lane Group Flow (vph)	621	125	316	22
v/c Ratio	0.20	0.33	0.14	0.06
Control Delay	7.9	65.3	8.4	34.8
Queue Delay	0.4	0.0	0.0	0.0
Total Delay	8.3	65.3	8.4	34.8
Queue Length 50th (ft)	43	84	63	12
Queue Length 95th (ft)	m71	142	88	34
Internal Link Dist (ft)	249		238	
Turn Bay Length (ft)				
Base Capacity (vph)	3108	375	2328	358
Starvation Cap Reductn	1875	0	0	0
Spillback Cap Reductn	100	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.50	0.33	0.14	0.06

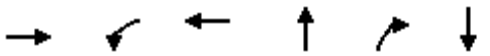
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	482	120	121	307	0	21
Future Volume (vph)	482	120	121	307	0	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		6.0	5.5		6.0
Lane Util. Factor	0.91		1.00	0.95		1.00
Frpb, ped/bikes	0.99		1.00	1.00		1.00
Flpb, ped/bikes	1.00		1.00	1.00		1.00
Frt	0.97		1.00	1.00		0.86
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	4589		1719	3438		1644
Flt Permitted	1.00		0.95	1.00		1.00
Satd. Flow (perm)	4589		1719	3438		1644
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	497	124	125	316	0	22
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	621	0	125	316	0	22
Confl. Peds. (#/hr)		3	3		97	1
Confl. Bikes (#/hr)		33				
Heavy Vehicles (%)	5%	5%	5%	5%	0%	0%
Parking (#/hr)	0	0				
Turn Type	NA		Prot	NA		Over
Protected Phases	2		4	6		4
Permitted Phases						
Actuated Green, G (s)	74.5		24.0	74.5		24.0
Effective Green, g (s)	74.5		24.0	74.5		24.0
Actuated g/C Ratio	0.68		0.22	0.68		0.22
Clearance Time (s)	5.5		6.0	5.5		6.0
Lane Grp Cap (vph)	3108		375	2328		358
v/s Ratio Prot	c0.14		c0.07	0.09		0.01
v/s Ratio Perm						
v/c Ratio	0.20		0.33	0.14		0.06
Uniform Delay, d1	6.6		36.3	6.3		34.1
Progression Factor	1.16		1.71	1.30		1.00
Incremental Delay, d2	0.1		2.3	0.1		0.3
Delay (s)	7.8		64.3	8.3		34.4
Level of Service	A		E	A		C
Approach Delay (s)	7.8			24.2	34.4	
Approach LOS	A			C	C	

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	48.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

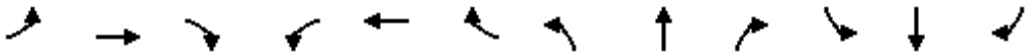


Lane Group	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	1491	379	1265	178	320	704
v/c Ratio	0.80	1.12	0.41	0.26	0.54	0.96
Control Delay	33.8	128.6	10.6	3.6	10.0	74.3
Queue Delay	48.2	0.8	0.0	0.0	5.3	42.4
Total Delay	82.0	129.5	10.6	3.6	15.3	116.7
Queue Length 50th (ft)	336	~309	148	4	112	259
Queue Length 95th (ft)	398	#496	178	6	184	#375
Internal Link Dist (ft)	282		355	154		901
Turn Bay Length (ft)						
Base Capacity (vph)	1860	337	3081	685	588	735
Starvation Cap Reductn	519	0	0	0	203	0
Spillback Cap Reductn	619	24	0	0	0	112
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.20	1.21	0.41	0.26	0.83	1.13

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	1448	10	371	1152	87	20	155	314	148	476	66
Future Volume (vph)	3	1448	10	371	1152	87	20	155	314	148	476	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		5.0	6.0			6.5	6.5		6.5	
Lane Util. Factor		0.91		1.00	0.91			0.95	1.00		0.95	
Frpb, ped/bikes		1.00		1.00	0.97			1.00	0.87		0.98	
Flpb, ped/bikes		1.00		1.00	1.00			0.99	1.00		0.98	
Frt		1.00		1.00	0.99			1.00	0.85		0.99	
Flt Protected		1.00		0.95	1.00			0.99	1.00		0.99	
Satd. Flow (prot)		5076		1770	4902			3433	1356		3358	
Flt Permitted		0.94		0.95	1.00			0.77	1.00		0.83	
Satd. Flow (perm)		4758		1770	4902			2645	1356		2811	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	3	1478	10	379	1176	89	20	158	320	151	486	67
RTOR Reduction (vph)	0	1	0	0	8	0	0	0	237	0	7	0
Lane Group Flow (vph)	0	1490	0	379	1257	0	0	178	83	0	697	0
Confl. Peds. (#/hr)	361		47	47		361	139		80	80		139
Confl. Bikes (#/hr)			30			14			16			19
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	1%	1%	1%
Turn Type	Perm	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			4			4	
Permitted Phases	2						4		4	4		
Actuated Green, G (s)		43.0		21.0	69.0			28.5	28.5		28.5	
Effective Green, g (s)		43.0		21.0	69.0			28.5	28.5		28.5	
Actuated g/C Ratio		0.39		0.19	0.63			0.26	0.26		0.26	
Clearance Time (s)		6.0		5.0	6.0			6.5	6.5		6.5	
Lane Grp Cap (vph)		1859		337	3074			685	351		728	
v/s Ratio Prot				c0.21	0.26							
v/s Ratio Perm		c0.31						0.07	0.06		c0.25	
v/c Ratio		0.80		1.12	0.41			0.26	0.24		0.96	
Uniform Delay, d1		29.7		44.5	10.3			32.4	32.2		40.1	
Progression Factor		1.00		1.00	1.00			0.08	1.72		1.29	
Incremental Delay, d2		3.8		87.1	0.4			0.8	1.4		23.4	
Delay (s)		33.5		131.6	10.7			3.5	56.8		75.1	
Level of Service		C		F	B			A	E		E	
Approach Delay (s)		33.5			38.6			37.8			75.1	
Approach LOS		C			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	42.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	115.6%	ICU Level of Service	H
Analysis Period (min)	15		

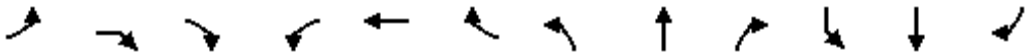
c Critical Lane Group



Lane Group	EBL	EBR	EBR2	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	104	128	159	47	187	228	422	888
v/c Ratio	0.68	0.45	0.38	0.17	0.55	0.22	0.82	0.45
Control Delay	65.0	45.7	9.0	40.0	48.0	2.0	52.5	11.5
Queue Delay	0.2	0.0	0.0	0.0	0.0	0.0	1.8	0.3
Total Delay	65.1	45.7	9.0	40.0	48.0	2.0	54.3	11.8
Queue Length 50th (ft)	69	81	0	28	121	9	158	170
Queue Length 95th (ft)	#151	142	56	63	195	32	#234	213
Internal Link Dist (ft)					318		901	413
Turn Bay Length (ft)								
Base Capacity (vph)	154	287	417	270	338	1044	512	1983
Starvation Cap Reductn	0	0	0	0	0	0	0	501
Spillback Cap Reductn	1	0	0	0	0	8	25	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.45	0.38	0.17	0.55	0.22	0.87	0.60

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	124	154	46	181	221	43	248	118	385	424	52
Future Volume (vph)	101	124	154	46	181	221	43	248	118	385	424	52
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	5.0		6.0			6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		0.95			0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.96		0.97			0.97	
Flpb, ped/bikes	0.92	1.00	1.00	0.84	1.00	1.00		0.98			1.00	
Frt	1.00	0.85	0.85	1.00	1.00	0.85		0.96			0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99			0.98	
Satd. Flow (prot)	1619	1583	1583	1489	1863	1519		3229			3308	
Flt Permitted	0.50	1.00	1.00	0.95	1.00	1.00		0.76			0.56	
Satd. Flow (perm)	849	1583	1583	1489	1863	1519		2451			1906	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	104	128	159	47	187	228	44	256	122	397	437	54
RTOR Reduction (vph)	0	0	130	0	0	67	0	0	0	0	4	0
Lane Group Flow (vph)	104	128	29	47	187	161	0	422	0	0	884	0
Confl. Peds. (#/hr)	45		96	96		45	240		14	14		240
Confl. Bikes (#/hr)		2							21			9
Turn Type	Perm	Prot	Prot	Perm	NA	custom	Perm	NA		pm+pt	NA	
Protected Phases		4	4		8	5		6		5	2	
Permitted Phases	4	4	4	8		8	6			2		
Actuated Green, G (s)	20.0	20.0	20.0	20.0	20.0	70.0		23.0			78.0	
Effective Green, g (s)	20.0	20.0	20.0	20.0	20.0	70.0		23.0			78.0	
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.18	0.64		0.21			0.71	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	5.0		6.0			6.0	
Lane Grp Cap (vph)	154	287	287	270	338	966		512			1988	
v/s Ratio Prot		0.08	0.02		0.10	0.08					c0.20	
v/s Ratio Perm	c0.12			0.03		0.03		c0.17			0.11	
v/c Ratio	0.68	0.45	0.10	0.17	0.55	0.17		0.82			0.44	
Uniform Delay, d1	42.0	40.1	37.5	38.0	40.9	8.1		41.6			6.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		0.91			1.73	
Incremental Delay, d2	21.2	5.0	0.7	1.4	6.4	0.4		13.9			0.6	
Delay (s)	63.2	45.0	38.2	39.4	47.3	8.5		51.7			12.3	
Level of Service	E	D	D	D	D	A		D			B	
Approach Delay (s)					27.4			51.7			12.3	
Approach LOS					C			D			B	

Intersection Summary			
HCM 2000 Control Delay	29.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	25	144	231	409	565	752
v/c Ratio	0.10	0.19	0.55	0.84	0.84	0.82
Control Delay	10.8	8.4	28.1	30.4	23.4	36.3
Queue Delay	0.0	0.0	0.0	0.0	0.7	0.0
Total Delay	10.8	8.4	28.1	30.4	24.1	36.3
Queue Length 50th (ft)	8	42	116	134	103	239
Queue Length 95th (ft)	m16	m63	200	#352	m#515	328
Internal Link Dist (ft)		1267		269	413	277
Turn Bay Length (ft)	100					
Base Capacity (vph)	256	750	418	485	670	913
Starvation Cap Reductn	0	0	0	0	15	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.19	0.55	0.84	0.86	0.82

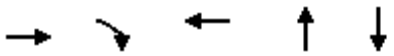
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	96	41	219	87	301	28	283	226	205	493	16
Future Volume (vph)	24	96	41	219	87	301	28	283	226	205	493	16
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	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			0.95	
Frpb, ped/bikes	1.00	0.90		1.00	0.50			0.91			0.99	
Flpb, ped/bikes	0.75	1.00		0.75	1.00			1.00			0.99	
Frt	1.00	0.96		1.00	0.88			0.94			1.00	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1339	1621		1316	819			1580			3437	
Flt Permitted	0.40	1.00		0.67	1.00			0.94			0.60	
Satd. Flow (perm)	565	1621		921	819			1482			2088	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	25	101	43	231	92	317	29	298	238	216	519	17
RTOR Reduction (vph)	0	14	0	0	113	0	0	24	0	0	2	0
Lane Group Flow (vph)	25	130	0	231	296	0	0	541	0	0	750	0
Confl. Peds. (#/hr)	408		195	195		408	131		121	121		131
Confl. Bikes (#/hr)			75			32			16			8
Heavy Vehicles (%)	1%	1%	1%	3%	3%	3%	3%	3%	3%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	50.0	50.0		50.0	50.0			48.0			48.0	
Effective Green, g (s)	50.0	50.0		50.0	50.0			48.0			48.0	
Actuated g/C Ratio	0.45	0.45		0.45	0.45			0.44			0.44	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	256	736		418	372			646			911	
v/s Ratio Prot		0.08			c0.36							
v/s Ratio Perm	0.04			0.25				c0.37			0.36	
v/c Ratio	0.10	0.18		0.55	0.80			0.84			0.82	
Uniform Delay, d1	17.1	17.8		21.9	25.6			27.5			27.3	
Progression Factor	0.57	0.53		1.00	1.00			0.46			1.00	
Incremental Delay, d2	0.7	0.5		5.2	16.1			10.5			8.3	
Delay (s)	10.5	10.0		27.0	41.7			23.1			35.6	
Level of Service	B	A		C	D			C			D	
Approach Delay (s)		10.0			36.4			23.1			35.6	
Approach LOS		B			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	30.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	110.0%	ICU Level of Service	H
Analysis Period (min)	15		

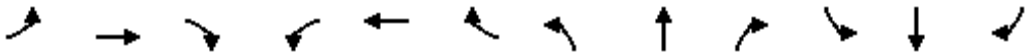
c Critical Lane Group



Lane Group	EBT	EBR	WBT	NBT	SBT
Lane Group Flow (vph)	34	335	109	544	935
v/c Ratio	0.04	0.72	0.16	0.46	0.81
Control Delay	10.5	44.6	14.0	37.1	31.9
Queue Delay	0.0	5.4	0.0	0.1	49.3
Total Delay	10.5	50.0	14.0	37.2	81.3
Queue Length 50th (ft)	10	211	38	120	176
Queue Length 95th (ft)	24	318	69	157	m175
Internal Link Dist (ft)	282		633	181	154
Turn Bay Length (ft)					
Base Capacity (vph)	873	467	676	1187	1150
Starvation Cap Reductn	0	82	0	0	328
Spillback Cap Reductn	0	0	0	63	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.04	0.87	0.16	0.48	1.14

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	14	305	58	29	12	0	486	9	2	847	2
Future Volume (vph)	17	14	305	58	29	12	0	486	9	2	847	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0	6.5		6.5			6.5			7.0	
Lane Util. Factor		1.00	1.00		1.00			0.91			0.95	
Frpb, ped/bikes		1.00	1.00		0.98			0.99			1.00	
Flpb, ped/bikes		0.93	1.00		0.99			1.00			1.00	
Frt		1.00	0.85		0.98			1.00			1.00	
Flt Protected		0.97	1.00		0.97			1.00			1.00	
Satd. Flow (prot)		1677	1583		1485			4933			3466	
Flt Permitted		0.89	1.00		0.83			1.00			0.95	
Satd. Flow (perm)		1526	1583		1271			4933			3308	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	19	15	335	64	32	13	0	534	10	2	931	2
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	34	335	0	109	0	0	544	0	0	935	0
Confl. Peds. (#/hr)	113		19	19		113	158		156	156		158
Confl. Bikes (#/hr)			38			35			81			31
Heavy Vehicles (%)	2%	2%	2%	18%	18%	18%	4%	4%	4%	4%	4%	4%
Turn Type	Perm	NA	custom	Perm	NA			NA		pm+pt	NA	
Protected Phases		6 5	5		2			4		3	8	
Permitted Phases	6 5			2						8		
Actuated Green, G (s)		58.5	32.5		58.5			26.5			38.0	
Effective Green, g (s)		58.5	32.5		58.5			26.5			38.0	
Actuated g/C Ratio		0.53	0.30		0.53			0.24			0.35	
Clearance Time (s)			6.5		6.5			6.5			7.0	
Lane Grp Cap (vph)		811	467		675			1188			1149	
v/s Ratio Prot			c0.21					0.11			c0.04	
v/s Ratio Perm		0.02			c0.09						c0.24	
v/c Ratio		0.04	0.72		0.16			0.46			0.81	
Uniform Delay, d1		12.3	34.6		13.2			35.6			32.8	
Progression Factor		1.00	1.00		1.00			1.00			0.90	
Incremental Delay, d2		0.1	9.1		0.5			1.3			2.0	
Delay (s)		12.4	43.8		13.7			36.9			31.4	
Level of Service		B	D		B			D			C	
Approach Delay (s)		40.9			13.7			36.9			31.4	
Approach LOS		D			B			D			C	

Intersection Summary			
HCM 2000 Control Delay	33.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	EBR	WBT	NBL	NBR
Lane Group Flow (vph)	1889	272	1235	240	118
v/c Ratio	0.84	0.74	0.38	0.63	0.43
Control Delay	11.1	40.1	9.6	45.0	40.0
Queue Delay	32.8	12.0	1.1	0.0	0.0
Total Delay	43.9	52.2	10.7	45.0	40.0
Queue Length 50th (ft)	193	156	137	151	70
Queue Length 95th (ft)	511	m240	164	239	128
Internal Link Dist (ft)	202		268	424	
Turn Bay Length (ft)		100			
Base Capacity (vph)	2262	370	3250	380	277
Starvation Cap Reductn	490	77	1675	0	0
Spillback Cap Reductn	0	0	719	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.07	0.93	0.78	0.63	0.43

Intersection Summary

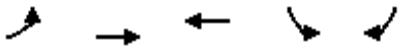
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1832	264	0	1198	233	114
Future Volume (vph)	1832	264	0	1198	233	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.0	6.0		2.0	6.0	6.0
Lane Util. Factor	0.95	1.00		0.91	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.73
Flpb, ped/bikes	1.00	1.00		1.00	0.89	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	1.00	1.00		1.00	0.95	1.00
Satd. Flow (prot)	3505	1568		5036	1494	1091
Flt Permitted	1.00	1.00		1.00	0.95	1.00
Satd. Flow (perm)	3505	1568		5036	1494	1091
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1889	272	0	1235	240	118
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1889	272	0	1235	240	118
Confl. Peds. (#/hr)		174	174		90	206
Confl. Bikes (#/hr)		107				39
Heavy Vehicles (%)	3%	3%	3%	3%	8%	8%
Turn Type	NA	custom		NA	Perm	Perm
Protected Phases	2 1	1		2 1		
Permitted Phases					4	4
Actuated Green, G (s)	67.0	26.0		67.0	28.0	28.0
Effective Green, g (s)	67.0	26.0		67.0	28.0	28.0
Actuated g/C Ratio	0.61	0.24		0.61	0.25	0.25
Clearance Time (s)		6.0			6.0	6.0
Lane Grp Cap (vph)	2134	370		3067	380	277
v/s Ratio Prot	c0.54	0.17		0.25		
v/s Ratio Perm					c0.16	0.11
v/c Ratio	0.89	0.74		0.40	0.63	0.43
Uniform Delay, d1	18.2	38.8		11.1	36.4	34.3
Progression Factor	0.55	0.80		1.00	1.00	1.00
Incremental Delay, d2	3.8	8.0		0.4	7.8	4.7
Delay (s)	13.9	39.2		11.5	44.2	39.0
Level of Service	B	D		B	D	D
Approach Delay (s)	17.1			11.5	42.5	
Approach LOS	B			B	D	

Intersection Summary			
HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	82.3%	ICU Level of Service	E
Analysis Period (min)	15		

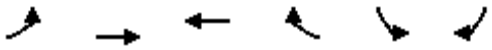
c Critical Lane Group



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	191	978	884	18	543
v/c Ratio	0.32	0.35	0.66	0.05	0.60
Control Delay	4.0	3.0	38.5	33.5	17.7
Queue Delay	0.0	0.0	0.0	0.0	25.9
Total Delay	4.0	3.0	38.5	33.5	43.6
Queue Length 50th (ft)	16	28	243	6	194
Queue Length 95th (ft)	m20	33	289	m6	m178
Internal Link Dist (ft)		484	340	163	
Turn Bay Length (ft)					
Base Capacity (vph)	602	2785	1337	376	911
Starvation Cap Reductn	0	0	0	0	379
Spillback Cap Reductn	0	0	0	53	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.32	0.35	0.66	0.06	1.02

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	257	877	849	9	17	527
Future Volume (vph)	257	877	849	9	17	527
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		5.5	6.0
Lane Util. Factor	0.86	0.86	0.91		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00		0.87	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1486	4688	5071		1563	1588
Flt Permitted	0.21	0.81	1.00		0.95	1.00
Satd. Flow (perm)	321	3792	5071		1563	1588
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	265	904	875	9	18	543
RTOR Reduction (vph)	0	0	1	0	0	2
Lane Group Flow (vph)	191	978	883	0	18	541
Confl. Peds. (#/hr)	88			88	95	3
Confl. Bikes (#/hr)				1		
Heavy Vehicles (%)	4%	4%	2%	2%	1%	1%
Turn Type	pm+pt	NA	NA		Perm	pm+ov
Protected Phases	1	6	2			1
Permitted Phases	6				4	4
Actuated Green, G (s)	72.0	72.0	29.0		26.5	63.5
Effective Green, g (s)	72.0	72.0	29.0		26.5	63.5
Actuated g/C Ratio	0.65	0.65	0.26		0.24	0.58
Clearance Time (s)	6.0	6.0	6.0		5.5	6.0
Lane Grp Cap (vph)	601	2783	1336		376	1003
v/s Ratio Prot	0.11	0.12	c0.17			c0.18
v/s Ratio Perm	0.10	0.11			0.01	0.16
v/c Ratio	0.32	0.35	0.66		0.05	0.54
Uniform Delay, d1	16.8	8.5	36.1		32.1	14.3
Progression Factor	0.20	0.32	1.00		1.03	1.44
Incremental Delay, d2	0.8	0.2	2.1		0.0	0.2
Delay (s)	4.2	2.9	38.3		33.1	20.8
Level of Service	A	A	D		C	C
Approach Delay (s)		3.1	38.3		21.2	
Approach LOS		A	D		C	

Intersection Summary			
HCM 2000 Control Delay	18.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	73.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

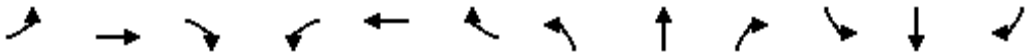
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	267	412	503	504
v/c Ratio	0.68	1.37	0.35	0.31
Control Delay	32.0	219.9	3.7	18.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	32.0	219.9	3.7	18.6
Queue Length 50th (ft)	101	~390	24	50
Queue Length 95th (ft)	m183	m#580	27	67
Internal Link Dist (ft)	492	1267	654	413
Turn Bay Length (ft)				
Base Capacity (vph)	394	301	1438	1618
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.68	1.37	0.35	0.31

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	0	177	161	158	64	60	407	0	0	424	45
Future Volume (vph)	72	0	177	161	158	64	60	407	0	0	424	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5			5.0			5.0	
Lane Util. Factor		1.00			1.00			0.95			0.91	
Frpb, ped/bikes		1.00			1.00			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.90			0.98			1.00			0.99	
Flt Protected		0.99			0.98			0.99			1.00	
Satd. Flow (prot)		1676			1779			3482			5048	
Flt Permitted		0.74			0.65			0.85			1.00	
Satd. Flow (perm)		1254			1179			2967			5048	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	77	0	190	173	170	69	65	438	0	0	456	48
RTOR Reduction (vph)	0	81	0	0	7	0	0	0	0	0	12	0
Lane Group Flow (vph)	0	186	0	0	405	0	0	503	0	0	492	0
Confl. Bikes (#/hr)						4			12			9
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	3%	3%	3%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Prot	NA			NA	
Protected Phases		8			8		5	2			6	
Permitted Phases	8			8								
Actuated Green, G (s)		27.5			27.5			72.0			35.0	
Effective Green, g (s)		27.5			27.5			72.0			35.0	
Actuated g/C Ratio		0.25			0.25			0.65			0.32	
Clearance Time (s)		5.5			5.5			5.0			5.0	
Lane Grp Cap (vph)		313			294			2091			1606	
v/s Ratio Prot								c0.07			c0.10	
v/s Ratio Perm		0.15			c0.34			0.09				
v/c Ratio		0.59			1.38			0.24			0.31	
Uniform Delay, d1		36.3			41.2			7.8			28.3	
Progression Factor		1.06			1.10			0.25			0.66	
Incremental Delay, d2		7.3			189.1			0.3			0.4	
Delay (s)		45.9			234.4			2.2			19.1	
Level of Service		D			F			A			B	
Approach Delay (s)		45.9			234.4			2.2			19.1	
Approach LOS		D			F			A			B	

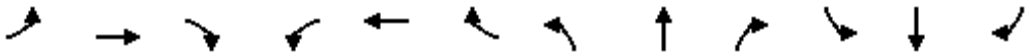
Intersection Summary			
HCM 2000 Control Delay	70.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	169	259	15	201	847	725
v/c Ratio	0.33	0.36	0.05	0.29	0.67	0.52
Control Delay	16.7	13.6	22.1	22.5	37.4	22.9
Queue Delay	0.0	0.0	0.0	0.1	0.1	0.0
Total Delay	16.7	13.6	22.1	22.6	37.4	22.9
Queue Length 50th (ft)	61	107	6	90	196	115
Queue Length 95th (ft)	m91	m157	m12	m125	m234	156
Internal Link Dist (ft)		495		1267	413	291
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	509	728	333	693	1268	1384
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	80	32	36
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.36	0.05	0.33	0.69	0.54

Intersection Summary

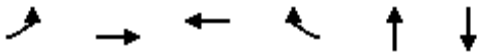
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	108	140	14	159	34	105	636	72	37	417	242
Future Volume (vph)	162	108	140	14	159	34	105	636	72	37	417	242
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	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.91			0.91	
Frpb, ped/bikes	1.00	0.82		1.00	0.95			0.95			0.87	
Flpb, ped/bikes	0.88	1.00		0.80	1.00			0.98			0.99	
Frt	1.00	0.92		1.00	0.97			0.99			0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1535	1379		1416	1716			4696			4132	
Flt Permitted	0.60	1.00		0.56	1.00			0.71			0.84	
Satd. Flow (perm)	974	1379		834	1716			3373			3481	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	169	112	146	15	166	35	109	662	75	39	434	252
RTOR Reduction (vph)	0	14	0	0	7	0	0	11	0	0	88	0
Lane Group Flow (vph)	169	245	0	15	194	0	0	836	0	0	637	0
Confl. Peds. (#/hr)	173		202	202		173	279		186	186		279
Confl. Bikes (#/hr)			47			18			7			2
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	1%	1%	1%	2%	2%	2%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	3	8			4			2			6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	57.0	57.0		44.0	44.0			41.0			41.0	
Effective Green, g (s)	57.0	57.0		44.0	44.0			41.0			41.0	
Actuated g/C Ratio	0.52	0.52		0.40	0.40			0.37			0.37	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	540	714		333	686			1257			1297	
v/s Ratio Prot	0.02	c0.18			0.11							
v/s Ratio Perm	0.14			0.02				c0.25			0.18	
v/c Ratio	0.31	0.34		0.05	0.28			0.67			0.49	
Uniform Delay, d1	16.7	15.5		20.2	22.3			28.8			26.5	
Progression Factor	0.92	0.89		1.06	1.01			1.22			1.00	
Incremental Delay, d2	1.3	1.1		0.2	0.9			2.7			1.3	
Delay (s)	16.6	14.9		21.7	23.4			37.6			27.8	
Level of Service	B	B		C	C			D			C	
Approach Delay (s)		15.6			23.3			37.6			27.8	
Approach LOS		B			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	28.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



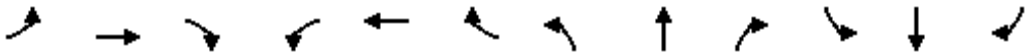
Lane Group	EBL	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	31	876	620	146	343	999
v/c Ratio	0.22	0.86	0.87	0.67	0.26	1.09
Control Delay	20.3	38.6	56.7	44.0	28.7	90.5
Queue Delay	0.0	48.7	0.0	0.0	0.0	4.5
Total Delay	20.3	87.3	56.7	44.0	28.7	95.1
Queue Length 50th (ft)	9	315	231	107	84	~431
Queue Length 95th (ft)	m16	#393	#315	#190	117	m#506
Internal Link Dist (ft)		523	354		163	654
Turn Bay Length (ft)				150		
Base Capacity (vph)	144	1014	709	218	1335	917
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	267	0	0	0	44
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	1.17	0.87	0.67	0.26	1.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	789	35	0	583	137	44	268	10	327	511	101
Future Volume (vph)	29	789	35	0	583	137	44	268	10	327	511	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.5			6.5	4.5		7.0			7.0	
Lane Util. Factor	1.00	0.95			0.95	1.00		0.91			0.95	
Frpb, ped/bikes	1.00	0.99			1.00	1.00		0.99			0.98	
Flpb, ped/bikes	0.99	1.00			1.00	1.00		1.00			0.94	
Frt	1.00	0.99			1.00	0.85		1.00			0.98	
Flt Protected	0.95	1.00			1.00	1.00		0.99			0.98	
Satd. Flow (prot)	1737	3433			3471	1553		4658			3184	
Flt Permitted	0.15	1.00			1.00	1.00		0.71			0.71	
Satd. Flow (perm)	267	3433			3471	1553		3341			2295	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	31	839	37	0	620	146	47	285	11	348	544	107
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	31	876	0	0	620	146	0	343	0	0	999	0
Confl. Peds. (#/hr)	442		190	190		442	78		160	160		78
Confl. Bikes (#/hr)			64			47			4			6
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	9%	9%	9%	1%	1%	1%
Turn Type	pm+pt	NA			NA	custom	Perm	NA		Perm	NA	
Protected Phases	5	6			2	7		4			8	
Permitted Phases	6						4			8		
Actuated Green, G (s)	32.5	32.5			22.5	15.5		44.0			44.0	
Effective Green, g (s)	32.5	32.5			22.5	15.5		44.0			44.0	
Actuated g/C Ratio	0.30	0.30			0.20	0.14		0.40			0.40	
Clearance Time (s)	5.0	6.5			6.5	4.5		7.0			7.0	
Lane Grp Cap (vph)	145	1014			709	218		1336			918	
v/s Ratio Prot	0.01	c0.26			0.18	c0.09						
v/s Ratio Perm	0.05							0.10			c0.44	
v/c Ratio	0.21	0.86			0.87	0.67		0.26			1.09	
Uniform Delay, d1	29.3	36.7			42.4	44.8		22.1			33.0	
Progression Factor	0.64	0.80			1.02	0.64		1.27			1.10	
Incremental Delay, d2	3.0	8.7			13.1	14.0		0.5			55.0	
Delay (s)	21.7	38.0			56.2	42.9		28.5			91.1	
Level of Service	C	D			E	D		C			F	
Approach Delay (s)		37.4			53.7			28.5			91.1	
Approach LOS		D			D			C			F	

Intersection Summary			
HCM 2000 Control Delay	58.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		

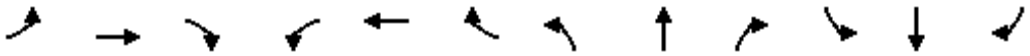
c Critical Lane Group



Lane Group	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1281	1354	85	756	694
v/c Ratio	0.82	0.93dl	0.32	0.44	0.68
Control Delay	11.3	8.6	31.4	25.1	23.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.3	8.6	31.4	25.1	23.9
Queue Length 50th (ft)	39	75	39	136	48
Queue Length 95th (ft)	m41	95	74	173	m80
Internal Link Dist (ft)	516	484		438	368
Turn Bay Length (ft)					
Base Capacity (vph)	1568	2621	262	1722	1017
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.82	0.52	0.32	0.44	0.68

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.
dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	1031	197	294	1010	23	83	627	114	1	593	86
Future Volume (vph)	27	1031	197	294	1010	23	83	627	114	1	593	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5		6.5	6.5			6.5	
Lane Util. Factor		0.86			0.86		1.00	0.91			0.91	
Frpb, ped/bikes		0.96			1.00		1.00	0.94			0.95	
Flpb, ped/bikes		1.00			1.00		0.97	1.00			1.00	
Frt		0.98			1.00		1.00	0.98			0.98	
Flt Protected		1.00			0.99		0.95	1.00			1.00	
Satd. Flow (prot)		5946			6331		1653	4503			4259	
Flt Permitted		0.85			0.74		0.30	1.00			0.94	
Satd. Flow (perm)		5052			4750		519	4503			3999	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	28	1052	201	300	1031	23	85	640	116	1	605	88
RTOR Reduction (vph)	0	31	0	0	2	0	0	24	0	0	17	0
Lane Group Flow (vph)	0	1250	0	0	1352	0	85	732	0	0	677	0
Confl. Peds. (#/hr)	165		157	157		165	365		449	449		365
Confl. Bikes (#/hr)			7			2			21			14
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	6%	6%	6%	14%	14%	14%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		6		5	2		3	8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)		33.5			55.5		41.5	41.5			27.5	
Effective Green, g (s)		33.5			55.5		41.5	41.5			27.5	
Actuated g/C Ratio		0.30			0.50		0.38	0.38			0.25	
Clearance Time (s)		6.5			6.5		6.5	6.5			6.5	
Lane Grp Cap (vph)		1538			2640		273	1698			999	
v/s Ratio Prot					c0.08		0.02	c0.16				
v/s Ratio Perm		c0.25			0.18		0.10				c0.17	
v/c Ratio		0.81			0.93dl		0.31	0.43			0.68	
Uniform Delay, d1		35.4			18.2		29.8	25.5			37.2	
Progression Factor		0.23			0.47		1.00	1.00			0.60	
Incremental Delay, d2		3.2			0.5		3.0	0.8			2.3	
Delay (s)		11.5			9.0		32.8	26.3			24.5	
Level of Service		B			A		C	C			C	
Approach Delay (s)		11.5			9.0			26.9			24.5	
Approach LOS		B			A			C			C	

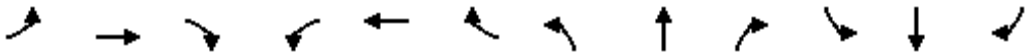
Intersection Summary			
HCM 2000 Control Delay	16.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	98.6%	ICU Level of Service	F
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	234	310	701	584
v/c Ratio	0.52	0.65	0.51	0.76
Control Delay	26.4	39.9	28.0	16.2
Queue Delay	0.0	0.0	0.0	6.1
Total Delay	26.4	39.9	28.0	22.3
Queue Length 50th (ft)	115	201	163	104
Queue Length 95th (ft)	195	m203	219	505
Internal Link Dist (ft)	508	492	449	412
Turn Bay Length (ft)				
Base Capacity (vph)	454	475	1380	765
Starvation Cap Reductn	0	0	0	133
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.52	0.65	0.51	0.92

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	88	71	56	116	123	64	543	59	58	434	63
Future Volume (vph)	63	88	71	56	116	123	64	543	59	58	434	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5			5.5			5.5	
Lane Util. Factor		1.00			1.00			0.95			1.00	
Frpb, ped/bikes		0.90			0.86			0.92			0.92	
Flpb, ped/bikes		0.95			0.96			0.98			0.97	
Frt		0.96			0.94			0.99			0.98	
Flt Protected		0.99			0.99			1.00			0.99	
Satd. Flow (prot)		1503			1451			3059			1619	
Flt Permitted		0.80			0.90			0.83			0.87	
Satd. Flow (perm)		1223			1316			2539			1408	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	66	93	75	59	122	129	67	572	62	61	457	66
RTOR Reduction (vph)	0	15	0	0	3	0	0	6	0	0	4	0
Lane Group Flow (vph)	0	219	0	0	307	0	0	695	0	0	580	0
Confl. Peds. (#/hr)	327		249	249		327	480		767	767		480
Confl. Bikes (#/hr)			2			2			27			11
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	5%	5%	5%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		39.5			39.5			59.5			59.5	
Effective Green, g (s)		39.5			39.5			59.5			59.5	
Actuated g/C Ratio		0.36			0.36			0.54			0.54	
Clearance Time (s)		5.5			5.5			5.5			5.5	
Lane Grp Cap (vph)		439			472			1373			761	
v/s Ratio Prot												
v/s Ratio Perm		0.18			c0.23			0.27			c0.41	
v/c Ratio		0.50			0.65			0.51			0.76	
Uniform Delay, d1		27.5			29.5			16.0			19.7	
Progression Factor		0.88			1.23			1.69			0.52	
Incremental Delay, d2		4.0			3.2			1.1			5.5	
Delay (s)		28.1			39.4			28.1			15.8	
Level of Service		C			D			C			B	
Approach Delay (s)		28.1			39.4			28.1			15.8	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	26.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	88.0%	ICU Level of Service	E
Analysis Period (min)	15		

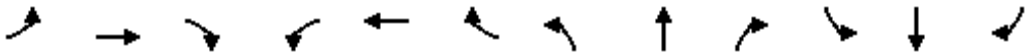
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	24	405	56	726	727	439
v/c Ratio	0.13	0.55	0.18	0.92	0.71	0.76
Control Delay	17.6	25.2	10.0	37.3	20.4	40.7
Queue Delay	0.0	0.0	0.0	8.5	0.0	1.6
Total Delay	17.6	25.2	10.0	45.8	20.4	42.3
Queue Length 50th (ft)	7	164	15	419	122	267
Queue Length 95th (ft)	m22	270	m33	#728	195	395
Internal Link Dist (ft)		509		495	412	353
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	190	735	317	791	1019	575
Starvation Cap Reductn	0	0	0	54	0	0
Spillback Cap Reductn	0	0	0	0	0	43
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.55	0.18	0.99	0.71	0.83

Intersection Summary

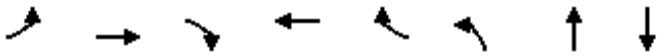
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	254	139	54	425	279	32	600	73	24	364	38
Future Volume (vph)	23	254	139	54	425	279	32	600	73	24	364	38
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	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			1.00	
Frpb, ped/bikes	1.00	0.78		1.00	0.86			0.91			0.95	
Flpb, ped/bikes	1.00	1.00		0.73	1.00			0.99			0.99	
Frt	1.00	0.95		1.00	0.94			0.98			0.99	
Flt Protected	0.95	1.00		0.95	1.00			1.00			1.00	
Satd. Flow (prot)	1770	1379		1293	1502			3056			1684	
Flt Permitted	0.19	1.00		0.44	1.00			0.91			0.93	
Satd. Flow (perm)	361	1379		601	1502			2781			1575	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	24	262	143	56	438	288	33	619	75	25	375	39
RTOR Reduction (vph)	0	8	0	0	0	0	0	8	0	0	3	0
Lane Group Flow (vph)	24	397	0	56	726	0	0	719	0	0	436	0
Confl. Peds. (#/hr)	353		388	388		353	366		872	872		366
Confl. Bikes (#/hr)			24			18			15			10
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	4%	4%	4%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	58.0	58.0		58.0	58.0			40.0			40.0	
Effective Green, g (s)	58.0	58.0		58.0	58.0			40.0			40.0	
Actuated g/C Ratio	0.53	0.53		0.53	0.53			0.36			0.36	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	190	727		316	791			1011			572	
v/s Ratio Prot		0.29			c0.48							
v/s Ratio Perm	0.07			0.09				0.26			c0.28	
v/c Ratio	0.13	0.55		0.18	0.92			0.71			0.76	
Uniform Delay, d1	13.2	17.3		13.6	23.8			30.0			30.8	
Progression Factor	1.16	1.31		0.62	0.80			0.56			1.00	
Incremental Delay, d2	1.3	2.8		1.2	16.8			3.6			9.3	
Delay (s)	16.6	25.4		9.6	35.8			20.4			40.1	
Level of Service	B	C		A	D			C			D	
Approach Delay (s)		24.9			33.9			20.4			40.1	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	29.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	97.0%	ICU Level of Service	F
Analysis Period (min)	15		

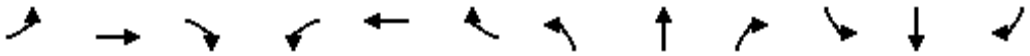
c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	125	825	221	605	161	132	579	531
v/c Ratio	0.70	0.51	0.52	0.52	0.78	0.76	0.49	0.88
Control Delay	72.3	15.3	41.3	36.8	78.5	53.8	12.4	50.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.3	15.3	41.3	36.8	78.5	53.8	12.4	50.0
Queue Length 50th (ft)	83	118	130	151	120	93	53	210
Queue Length 95th (ft)	m#144	m142	m194	m184	m138	m#187	m64	#283
Internal Link Dist (ft)		551		523			368	449
Turn Bay Length (ft)	200		200		150			
Base Capacity (vph)	179	1626	427	1161	207	173	1173	604
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.51	0.52	0.52	0.78	0.76	0.49	0.88

Intersection Summary

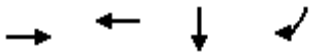
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	792	212	0	581	155	127	512	44	6	470	34
Future Volume (vph)	120	792	212	0	581	155	127	512	44	6	470	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.5	7.0		6.5	2.0	7.0	7.0			7.0	
Lane Util. Factor	1.00	0.95	1.00		0.95	1.00	1.00	0.95			0.95	
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	0.96			0.97	
Flpb, ped/bikes	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	0.85	1.00	0.99			0.99	
Flt Protected	0.95	1.00	1.00		1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1641	3282	1468		3406	1524	1736	3310			3351	
Flt Permitted	0.95	1.00	1.00		1.00	1.00	0.95	1.00			0.94	
Satd. Flow (perm)	1641	3282	1468		3406	1524	1736	3310			3167	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	125	825	221	0	605	161	132	533	46	6	490	35
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	125	825	221	0	605	161	132	579	0	0	531	0
Confl. Peds. (#/hr)	440		238	238		440	619		587	587		619
Confl. Bikes (#/hr)			51			43			24			16
Heavy Vehicles (%)	10%	10%	10%	6%	6%	6%	4%	4%	4%	3%	3%	3%
Turn Type	Prot	NA	custom		NA	custom	Prot	NA		Perm	NA	
Protected Phases	11	2 1	3 1		6 5	5	3	8			4	
Permitted Phases										4		
Actuated Green, G (s)	12.0	54.5	37.0		37.5	15.0	11.0	39.0			21.0	
Effective Green, g (s)	12.0	52.5	37.0		35.5	15.0	11.0	39.0			21.0	
Actuated g/C Ratio	0.11	0.48	0.34		0.32	0.14	0.10	0.35			0.19	
Clearance Time (s)	5.0					2.0	7.0	7.0			7.0	
Lane Grp Cap (vph)	179	1566	493		1099	207	173	1173			604	
v/s Ratio Prot	c0.08	c0.25	0.15		0.18	c0.11	c0.08	0.17				
v/s Ratio Perm											c0.17	
v/c Ratio	0.70	0.53	0.45		0.55	0.78	0.76	0.49			0.88	
Uniform Delay, d1	47.3	20.1	28.5		30.7	45.9	48.2	27.8			43.3	
Progression Factor	1.15	0.76	1.13		1.23	1.43	0.55	0.39			0.86	
Incremental Delay, d2	17.1	1.1	2.4		0.9	12.8	24.8	1.4			12.0	
Delay (s)	71.6	16.3	34.7		38.6	78.4	51.5	12.3			49.2	
Level of Service	E	B	C		D	E	D	B			D	
Approach Delay (s)		25.7			47.0			19.6			49.2	
Approach LOS		C			D			B			D	

Intersection Summary			
HCM 2000 Control Delay	33.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	29.5
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBT	SBT	SBR
Lane Group Flow (vph)	1509	1126	1985	287
v/c Ratio	0.71	1.21dl	1.07	0.58
Control Delay	31.4	6.6	55.0	10.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	31.4	6.6	55.0	10.2
Queue Length 50th (ft)	254	41	~593	76
Queue Length 95th (ft)	298	46	m#526	m65
Internal Link Dist (ft)	334	516	582	
Turn Bay Length (ft)				
Base Capacity (vph)	2120	2589	1851	494
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.71	0.43	1.07	0.58

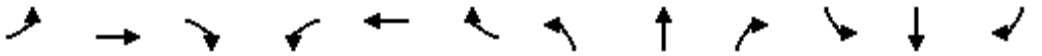
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1210	269	307	762	32	0	0	0	115	1831	281
Future Volume (vph)	0	1210	269	307	762	32	0	0	0	115	1831	281
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			6.0						6.5	6.5
Lane Util. Factor		0.86			0.86						0.91	1.00
Frpb, ped/bikes		0.94			0.99						1.00	0.76
Flpb, ped/bikes		1.00			1.00						0.99	1.00
Frt		0.97			1.00						1.00	0.85
Flt Protected		1.00			0.99						1.00	1.00
Satd. Flow (prot)		5802			6155						5029	1198
Flt Permitted		1.00			0.75						1.00	1.00
Satd. Flow (perm)		5802			4678						5029	1198
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.92	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1235	274	313	778	35	0	0	0	117	1868	287
RTOR Reduction (vph)	0	37	0	0	4	0	0	0	0	0	0	53
Lane Group Flow (vph)	0	1472	0	0	1122	0	0	0	0	0	1985	234
Confl. Peds. (#/hr)	169		213	213		169	193		114	114		193
Confl. Bikes (#/hr)			10			2						
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	0%	0%	0%	2%	2%	2%
Turn Type		NA		pm+pt	NA					Perm	NA	Perm
Protected Phases		6		5	2						4	
Permitted Phases				2						4		4
Actuated Green, G (s)		39.5			57.0						40.5	40.5
Effective Green, g (s)		39.5			57.0						40.5	40.5
Actuated g/C Ratio		0.36			0.52						0.37	0.37
Clearance Time (s)		5.5			6.0						6.5	6.5
Lane Grp Cap (vph)		2083			2585						1851	441
v/s Ratio Prot		c0.25			c0.05							
v/s Ratio Perm					0.18						0.39	0.20
v/c Ratio		0.71			1.21dl						1.07	0.53
Uniform Delay, d1		30.3			16.5						34.8	27.3
Progression Factor		1.00			0.37						0.56	0.49
Incremental Delay, d2		2.1			0.5						33.8	0.4
Delay (s)		32.3			6.5						53.2	13.8
Level of Service		C			A						D	B
Approach Delay (s)		32.3			6.5			0.0			48.3	
Approach LOS		C			A			A			D	

Intersection Summary			
HCM 2000 Control Delay	33.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	99.2%	ICU Level of Service	F
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

Lane Group	WBL	SBT
Lane Group Flow (vph)	345	1827
v/c Ratio	0.54	0.67
Control Delay	30.8	12.5
Queue Delay	0.0	0.7
Total Delay	30.8	13.2
Queue Length 50th (ft)	204	396
Queue Length 95th (ft)	m298	428
Internal Link Dist (ft)	508	411
Turn Bay Length (ft)		
Base Capacity (vph)	640	2709
Starvation Cap Reductn	0	493
Spillback Cap Reductn	0	386
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.54	0.82

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	338	0	0	0	41	1749
Future Volume (vph)	338	0	0	0	41	1749
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5					5.5
Lane Util. Factor	1.00					0.91
Frpb, ped/bikes	1.00					1.00
Flpb, ped/bikes	1.00					0.99
Frt	1.00					1.00
Flt Protected	0.95					1.00
Satd. Flow (prot)	1784					5009
Flt Permitted	0.95					1.00
Satd. Flow (perm)	1784					5009
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	345	0	0	0	42	1785
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	345	0	0	0	0	1827
Confl. Peds. (#/hr)	1	423		318	318	
Heavy Vehicles (%)	1%	1%	0%	0%	2%	2%
Turn Type	Perm				Perm	NA
Protected Phases						2
Permitted Phases	4				2	
Actuated Green, G (s)	39.5					59.5
Effective Green, g (s)	39.5					59.5
Actuated g/C Ratio	0.36					0.54
Clearance Time (s)	5.5					5.5
Lane Grp Cap (vph)	640					2709
v/s Ratio Prot						
v/s Ratio Perm	c0.19					0.36
v/c Ratio	0.54					0.67
Uniform Delay, d1	28.0					18.2
Progression Factor	0.98					0.62
Incremental Delay, d2	2.9					1.1
Delay (s)	30.2					12.4
Level of Service	C					B
Approach Delay (s)	30.2		0.0			12.4
Approach LOS	C		A			B

Intersection Summary			
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	282	206	159	394	1494
v/c Ratio	0.35	0.46	0.49	0.49	0.67
Control Delay	22.8	23.0	17.8	15.6	24.8
Queue Delay	0.0	0.0	0.0	0.0	0.1
Total Delay	22.8	23.0	17.8	15.6	24.9
Queue Length 50th (ft)	132	86	70	176	291
Queue Length 95th (ft)	199	156	m82	m198	345
Internal Link Dist (ft)	409			509	374
Turn Bay Length (ft)		100	100		
Base Capacity (vph)	803	449	323	796	2217
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	121
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.35	0.46	0.49	0.49	0.71

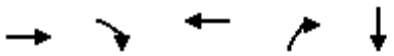
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	268	196	151	374	0	0	0	0	59	1306	54
Future Volume (vph)	0	268	196	151	374	0	0	0	0	59	1306	54
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	
Lane Util. Factor		1.00	1.00	1.00	1.00						0.91	
Frpb, ped/bikes		1.00	0.63	1.00	1.00						0.98	
Flpb, ped/bikes		1.00	1.00	0.79	1.00						0.98	
Frt		1.00	0.85	1.00	1.00						0.99	
Flt Protected		1.00	1.00	0.95	1.00						1.00	
Satd. Flow (prot)		1881	1012	1395	1863						4775	
Flt Permitted		1.00	1.00	0.52	1.00						1.00	
Satd. Flow (perm)		1881	1012	757	1863						4775	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	282	206	159	394	0	0	0	0	62	1375	57
RTOR Reduction (vph)	0	0	17	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	282	189	159	394	0	0	0	0	0	1490	0
Confl. Peds. (#/hr)	398		390	398		390	315		345	345		315
Confl. Bikes (#/hr)			26			18						2
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	3%	3%	3%
Turn Type		NA	Perm	Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		47.0	47.0	47.0	47.0						51.0	
Effective Green, g (s)		47.0	47.0	47.0	47.0						51.0	
Actuated g/C Ratio		0.43	0.43	0.43	0.43						0.46	
Clearance Time (s)		6.0	6.0	6.0	6.0						6.0	
Lane Grp Cap (vph)		803	432	323	796						2213	
v/s Ratio Prot		0.15			c0.21							
v/s Ratio Perm			0.19	0.21							0.31	
v/c Ratio		0.35	0.44	0.49	0.49						0.67	
Uniform Delay, d1		21.2	22.2	22.8	22.9						23.0	
Progression Factor		1.00	1.00	0.62	0.62						1.00	
Incremental Delay, d2		1.2	3.2	2.9	1.2						1.7	
Delay (s)		22.4	25.4	17.1	15.3						24.7	
Level of Service		C	C	B	B						C	
Approach Delay (s)		23.7			15.8			0.0			24.7	
Approach LOS		C			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



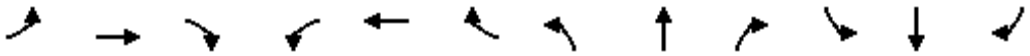
Lane Group	EBT	EBR	WBT	NBR	SBT
Lane Group Flow (vph)	869	670	761	64	1959
v/c Ratio	0.51	1.02	0.48	0.13	1.08
Control Delay	9.7	64.2	18.0	16.9	65.3
Queue Delay	0.0	0.0	0.0	0.0	7.5
Total Delay	9.7	64.2	18.0	16.9	72.9
Queue Length 50th (ft)	107	~207	100	27	~563
Queue Length 95th (ft)	144	m#398	m189	58	#648
Internal Link Dist (ft)	516		551		235
Turn Bay Length (ft)		100			
Base Capacity (vph)	1701	658	1594	497	1810
Starvation Cap Reductn	0	0	0	0	48
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.51	1.02	0.48	0.13	1.11

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	852	657	0	746	0	0	0	63	196	1609	115
Future Volume (vph)	0	852	657	0	746	0	0	0	63	196	1609	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0	6.5		6.5				7.0		7.0	
Lane Util. Factor		0.95	0.88		0.95				1.00		0.91	
Frpb, ped/bikes		1.00	1.00		1.00				1.00		0.98	
Flpb, ped/bikes		1.00	1.00		1.00				1.00		0.97	
Frt		1.00	0.85		1.00				0.86		0.99	
Flt Protected		1.00	1.00		1.00				1.00		0.99	
Satd. Flow (prot)		3343	2632		3406				1304		4741	
Flt Permitted		1.00	1.00		1.00				1.00		0.99	
Satd. Flow (perm)		3343	2632		3406				1304		4741	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	869	670	0	761	0	0	0	64	200	1642	117
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	869	670	0	761	0	0	0	64	0	1959	0
Confl. Peds. (#/hr)	865		312	312		865	303		320	320		303
Confl. Bikes (#/hr)			47			35						7
Heavy Vehicles (%)	8%	8%	8%	6%	6%	6%	26%	26%	26%	2%	2%	2%
Turn Type		NA	custom		NA				Prot	Perm	NA	
Protected Phases		2 9	9		6				4		8	
Permitted Phases										8		
Actuated Green, G (s)		51.5	27.5		51.5				42.0		42.0	
Effective Green, g (s)		51.5	27.5		51.5				42.0		42.0	
Actuated g/C Ratio		0.47	0.25		0.47				0.38		0.38	
Clearance Time (s)			6.5		6.5				7.0		7.0	
Lane Grp Cap (vph)		1565	658		1594				497		1810	
v/s Ratio Prot		c0.26	c0.25		0.22				0.05			
v/s Ratio Perm											0.41	
v/c Ratio		0.56	1.02		0.48				0.13		1.08	
Uniform Delay, d1		21.0	41.2		20.0				22.1		34.0	
Progression Factor		0.49	0.66		0.85				0.72		0.53	
Incremental Delay, d2		1.1	35.0		0.8				0.5		45.1	
Delay (s)		11.4	62.2		17.8				16.5		63.2	
Level of Service		B	E		B				B		E	
Approach Delay (s)		33.5			17.8			16.5			63.2	
Approach LOS		C			B			B			E	

Intersection Summary			
HCM 2000 Control Delay	44.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	95.9%	ICU Level of Service	F
Analysis Period (min)	15		

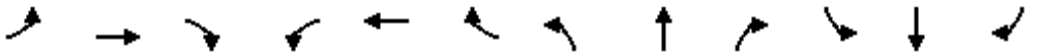
c Critical Lane Group



Lane Group	EBT	WBT	NBL	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1220	858	126	43	413	377	104
v/c Ratio	0.61	0.56	0.50	0.10	0.83	0.50	0.24
Control Delay	25.8	11.0	32.7	21.1	45.4	27.0	23.3
Queue Delay	1.3	0.4	0.0	0.0	0.0	0.0	0.0
Total Delay	27.0	11.3	32.7	21.1	45.4	27.0	23.3
Queue Length 50th (ft)	226	67	65	18	257	194	47
Queue Length 95th (ft)	m254	m155	130	43	#435	284	89
Internal Link Dist (ft)	246	516				417	
Turn Bay Length (ft)							
Base Capacity (vph)	1994	1530	252	414	497	754	429
Starvation Cap Reductn	516	0	0	0	0	0	0
Spillback Cap Reductn	0	231	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.66	0.50	0.10	0.83	0.50	0.24

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1089	107	0	841	0	123	0	42	405	369	102
Future Volume (vph)	0	1089	107	0	841	0	123	0	42	405	369	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5		7.0		7.0	7.0	7.0	7.0
Lane Util. Factor		0.91			0.95		1.00		1.00	1.00	1.00	1.00
Frpb, ped/bikes		0.96			1.00		1.00		0.69	1.00	1.00	0.67
Flpb, ped/bikes		1.00			1.00		0.86		1.00	0.69	1.00	1.00
Frt		0.99			1.00		1.00		0.85	1.00	1.00	0.85
Flt Protected		1.00			1.00		0.95		1.00	0.95	1.00	1.00
Satd. Flow (prot)		4522			3471		1407		1012	1215	1845	1051
Flt Permitted		1.00			1.00		0.42		1.00	0.95	1.00	1.00
Satd. Flow (perm)		4522			3471		616		1012	1215	1845	1051
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1111	109	0	858	0	126	0	43	413	377	104
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1220	0	0	858	0	126	0	43	413	377	104
Confl. Peds. (#/hr)	807		213	213		807	252		202	202		252
Confl. Bikes (#/hr)			82			7			6			5
Heavy Vehicles (%)	9%	9%	9%	4%	4%	4%	10%	10%	10%	3%	3%	3%
Turn Type		NA			NA		Perm		Perm	Perm	NA	Perm
Protected Phases		2			6						8	
Permitted Phases							4		4	8		8
Actuated Green, G (s)		48.5			48.5		45.0		45.0	45.0	45.0	45.0
Effective Green, g (s)		48.5			48.5		45.0		45.0	45.0	45.0	45.0
Actuated g/C Ratio		0.44			0.44		0.41		0.41	0.41	0.41	0.41
Clearance Time (s)		6.5			6.5		7.0		7.0	7.0	7.0	7.0
Lane Grp Cap (vph)		1993			1530		252		414	497	754	429
v/s Ratio Prot		c0.27			0.25						0.20	
v/s Ratio Perm							0.20		0.04	c0.34		0.10
v/c Ratio		0.61			0.56		0.50		0.10	0.83	0.50	0.24
Uniform Delay, d1		23.5			22.8		24.1		20.1	29.1	24.1	21.3
Progression Factor		1.04			0.42		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		1.1			1.3		6.9		0.5	14.9	2.4	1.3
Delay (s)		25.5			10.9		31.1		20.6	44.0	26.5	22.7
Level of Service		C			B		C		C	D	C	C
Approach Delay (s)		25.5			10.9			28.4			34.1	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	24.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	84.5%	ICU Level of Service	E
Analysis Period (min)	15		

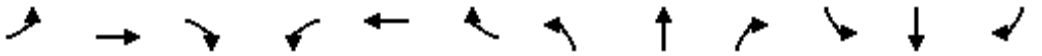
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	153	703	807	297	15	566	183
v/c Ratio	0.57	0.40	0.68	0.66	0.16	0.91	0.52
Control Delay	67.9	14.1	24.7	34.3	51.4	63.4	35.9
Queue Delay	0.2	0.5	0.7	12.6	0.0	0.0	0.0
Total Delay	68.0	14.6	25.3	46.9	51.4	63.4	35.9
Queue Length 50th (ft)	109	99	264	200	10	203	103
Queue Length 95th (ft)	m166	m122	333	291	32	#302	177
Internal Link Dist (ft)		209	246		170		344
Turn Bay Length (ft)							
Base Capacity (vph)	268	1770	1184	447	93	624	351
Starvation Cap Reductn	5	618	128	127	0	0	0
Spillback Cap Reductn	0	195	10	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.61	0.76	0.93	0.16	0.91	0.52

Intersection Summary

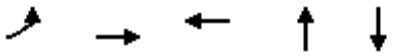
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	667	8	7	768	285	2	8	5	543	1	175
Future Volume (vph)	147	667	8	7	768	285	2	8	5	543	1	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			2.0	7.0		7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00		0.97	1.00	
Frpb, ped/bikes	1.00	0.99			1.00	1.00		0.88		1.00	0.69	
Flpb, ped/bikes	1.00	1.00			1.00	1.00		0.97		1.00	1.00	
Frt	1.00	1.00			1.00	0.85		0.95		1.00	0.85	
Flt Protected	0.95	1.00			1.00	1.00		0.99		0.95	1.00	
Satd. Flow (prot)	1641	3247			3428	1538		1225		3273	1044	
Flt Permitted	0.95	1.00			0.95	1.00		0.93		0.95	1.00	
Satd. Flow (perm)	1641	3247			3258	1538		1141		3273	1044	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	153	695	8	7	800	297	2	8	5	566	1	182
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	153	703	0	0	807	297	0	15	0	566	183	0
Confl. Peds. (#/hr)	530		382	382		530	214		170	170		214
Confl. Bikes (#/hr)			127			38						10
Heavy Vehicles (%)	10%	10%	10%	5%	5%	5%	25%	25%	25%	7%	7%	7%
Turn Type	Prot	NA		Perm	NA	custom	Perm	NA		Prot	NA	
Protected Phases	1	6			2 5	3 5		4		3	8	
Permitted Phases				2 5			4					
Actuated Green, G (s)	18.0	60.0			36.0	32.0		9.0		21.0	37.0	
Effective Green, g (s)	18.0	60.0			36.0	26.0		9.0		21.0	37.0	
Actuated g/C Ratio	0.16	0.55			0.33	0.24		0.08		0.19	0.34	
Clearance Time (s)	6.0	6.0						7.0		7.0	7.0	
Lane Grp Cap (vph)	268	1771			1066	363		93		624	351	
v/s Ratio Prot	c0.09	0.22				0.19				c0.17	c0.18	
v/s Ratio Perm					c0.25			0.01				
v/c Ratio	0.57	0.40			0.76	0.82		0.16		0.91	0.52	
Uniform Delay, d1	42.4	14.5			33.1	39.8		47.0		43.5	29.4	
Progression Factor	1.39	0.92			0.73	0.79		1.00		1.00	1.00	
Incremental Delay, d2	7.7	0.6			4.4	16.2		3.7		19.3	5.4	
Delay (s)	66.8	13.9			28.5	47.5		50.7		62.8	34.8	
Level of Service	E	B			C	D		D		E	C	
Approach Delay (s)		23.4			33.6			50.7			56.0	
Approach LOS		C			C			D			E	

Intersection Summary			
HCM 2000 Control Delay	36.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	190	1134	1665	1562	282
v/c Ratio	0.80	0.39	1.02dl	1.16	0.41
Control Delay	51.6	22.4	41.0	117.7	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	51.6	22.4	41.0	117.7	12.6
Queue Length 50th (ft)	140	253	318	~478	96
Queue Length 95th (ft)	m#181	298	#388	#576	m151
Internal Link Dist (ft)		1027	345	451	993
Turn Bay Length (ft)					
Base Capacity (vph)	238	2876	1810	1341	696
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.80	0.39	0.92	1.16	0.41

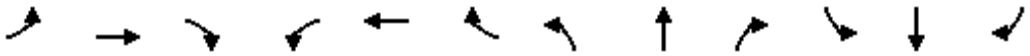
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

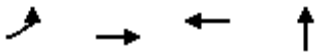
dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	182	1064	25	173	1368	58	63	1055	381	13	140	117
Future Volume (vph)	182	1064	25	173	1368	58	63	1055	381	13	140	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.5			6.5			6.5			6.5	
Lane Util. Factor	1.00	0.91			0.86			0.91			0.95	
Frpb, ped/bikes	1.00	0.99			1.00			0.99			0.86	
Flpb, ped/bikes	1.00	1.00			0.99			0.99			1.00	
Frt	1.00	1.00			0.99			0.96			0.94	
Flt Protected	0.95	1.00			0.99			1.00			1.00	
Satd. Flow (prot)	1752	4978			6218			4830			2852	
Flt Permitted	0.95	1.00			0.73			0.90			0.70	
Satd. Flow (perm)	1752	4978			4562			4352			2008	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	190	1108	26	180	1425	60	66	1099	397	14	146	122
RTOR Reduction (vph)	0	2	0	0	5	0	0	16	0	0	85	0
Lane Group Flow (vph)	190	1132	0	0	1660	0	0	1546	0	0	197	0
Confl. Peds. (#/hr)	24		265	265		24	292		31	31		292
Confl. Bikes (#/hr)			8						5			
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	1%	1%	1%	2%	2%	2%
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	6			2			8			4	
Permitted Phases				2			8			4		
Actuated Green, G (s)	15.0	63.5			43.5			33.5			33.5	
Effective Green, g (s)	15.0	63.5			43.5			33.5			33.5	
Actuated g/C Ratio	0.14	0.58			0.40			0.30			0.30	
Clearance Time (s)	5.0	6.5			6.5			6.5			6.5	
Lane Grp Cap (vph)	238	2873			1804			1325			611	
v/s Ratio Prot	c0.11	0.23										
v/s Ratio Perm					c0.36			c0.36			0.10	
v/c Ratio	0.80	0.39			1.02dl			1.17			0.32	
Uniform Delay, d1	46.0	12.7			31.6			38.2			29.5	
Progression Factor	0.75	1.74			1.00			1.00			0.67	
Incremental Delay, d2	15.4	0.2			9.2			83.6			1.0	
Delay (s)	50.1	22.3			40.8			121.8			20.8	
Level of Service	D	C			D			F			C	
Approach Delay (s)		26.3			40.8			121.8			20.8	
Approach LOS		C			D			F			C	

Intersection Summary			
HCM 2000 Control Delay	61.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	120.7%	ICU Level of Service	H
Analysis Period (min)	15		

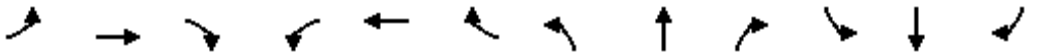
dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	41	132	509	1076
v/c Ratio	0.15	0.15	0.64	0.58
Control Delay	14.1	12.9	25.1	10.9
Queue Delay	0.0	0.0	0.0	0.7
Total Delay	14.1	12.9	25.1	11.6
Queue Length 50th (ft)	18	59	255	53
Queue Length 95th (ft)	m29	m71	374	m60
Internal Link Dist (ft)		379	152	314
Turn Bay Length (ft)	75			
Base Capacity (vph)	272	905	790	1855
Starvation Cap Reductn	0	0	0	413
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.15	0.15	0.64	0.75

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	127	0	0	349	139	29	890	114	0	0	0
Future Volume (vph)	39	127	0	0	349	139	29	890	114	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5			6.0				
Lane Util. Factor	1.00	1.00			1.00			0.91				
Frpb, ped/bikes	1.00	1.00			0.91			0.94				
Flpb, ped/bikes	0.90	1.00			1.00			0.98				
Frt	1.00	1.00			0.96			0.98				
Flt Protected	0.95	1.00			1.00			1.00				
Satd. Flow (prot)	1568	1827			1592			4603				
Flt Permitted	0.33	1.00			1.00			1.00				
Satd. Flow (perm)	550	1827			1592			4603				
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	41	132	0	0	364	145	30	927	119	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	14	0	0	0	0
Lane Group Flow (vph)	41	132	0	0	507	0	0	1062	0	0	0	0
Confl. Peds. (#/hr)	258		274	274		258	356		343	343		356
Confl. Bikes (#/hr)			29			15			20			
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			4			2				
Permitted Phases	4						2					
Actuated Green, G (s)	54.5	54.5			54.5			44.0				
Effective Green, g (s)	54.5	54.5			54.5			44.0				
Actuated g/C Ratio	0.50	0.50			0.50			0.40				
Clearance Time (s)	5.5	5.5			5.5			6.0				
Lane Grp Cap (vph)	272	905			788			1841				
v/s Ratio Prot		0.07			c0.32							
v/s Ratio Perm	0.07							0.23				
v/c Ratio	0.15	0.15			0.64			0.58				
Uniform Delay, d1	15.1	15.1			20.6			25.7				
Progression Factor	0.83	0.83			1.00			0.41				
Incremental Delay, d2	0.8	0.2			4.0			0.5				
Delay (s)	13.4	12.7			24.6			11.0				
Level of Service	B	B			C			B				
Approach Delay (s)		12.9			24.6			11.0			0.0	
Approach LOS		B			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		

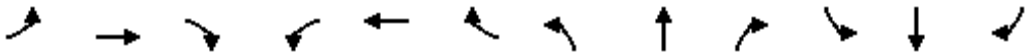
c Critical Lane Group



Lane Group	EBT	EBR	WBT	WBR	NBT
Lane Group Flow (vph)	751	297	747	277	1430
v/c Ratio	0.36	0.72	0.35	0.65	0.98
Control Delay	6.6	41.6	3.4	40.9	23.6
Queue Delay	0.0	0.0	0.3	2.5	0.0
Total Delay	6.6	41.6	3.7	43.4	23.6
Queue Length 50th (ft)	91	162	26	110	292
Queue Length 95th (ft)	114	271	45	185	m209
Internal Link Dist (ft)	419		209		993
Turn Bay Length (ft)		200			
Base Capacity (vph)	2074	415	2114	423	1463
Starvation Cap Reductn	0	0	706	65	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.36	0.72	0.53	0.77	0.98

Intersection Summary

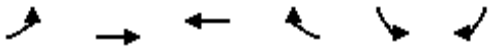
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	691	273	0	687	255	147	1019	149	0	0	0
Future Volume (vph)	0	691	273	0	687	255	147	1019	149	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0	2.0		2.0	2.0		7.0				
Lane Util. Factor		0.95	1.00		0.95	1.00		0.91				
Frpb, ped/bikes		1.00	1.00		1.00	1.00		0.96				
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00				
Frt		1.00	0.85		1.00	0.85		0.98				
Flt Protected		1.00	1.00		1.00	1.00		0.99				
Satd. Flow (prot)		3406	1524		3471	1553		4737				
Flt Permitted		1.00	1.00		1.00	1.00		0.99				
Satd. Flow (perm)		3406	1524		3471	1553		4737				
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	751	297	0	747	277	160	1108	162	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	751	297	0	747	277	0	1430	0	0	0	0
Confl. Peds. (#/hr)	564					564	1		235	235		1
Confl. Bikes (#/hr)			6			6			24			
Heavy Vehicles (%)	6%	6%	6%	4%	4%	4%	3%	3%	3%	0%	0%	0%
Turn Type		NA	custom		NA	custom	Perm	NA				
Protected Phases		1 2	1		1 2	1		4				
Permitted Phases							4					
Actuated Green, G (s)		62.5	30.0		62.5	30.0		34.0				
Effective Green, g (s)		62.5	30.0		62.5	30.0		34.0				
Actuated g/C Ratio		0.57	0.27		0.57	0.27		0.31				
Clearance Time (s)			2.0			2.0		7.0				
Lane Grp Cap (vph)		1935	415		1972	423		1464				
v/s Ratio Prot		c0.22	c0.19		0.22	0.18						
v/s Ratio Perm								0.30				
v/c Ratio		0.39	0.72		0.38	0.65		0.98				
Uniform Delay, d1		13.2	36.1		13.1	35.4		37.6				
Progression Factor		0.56	0.86		0.28	0.96		0.49				
Incremental Delay, d2		0.6	9.6		0.4	6.1		3.5				
Delay (s)		7.9	40.7		4.1	40.1		21.9				
Level of Service		A	D		A	D		C				
Approach Delay (s)		17.2			13.8			21.9			0.0	
Approach LOS		B			B			C			A	

Intersection Summary			
HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	62.1%	ICU Level of Service	B
Analysis Period (min)	15		

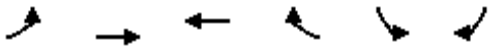
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	221	465	540	318	549	214
v/c Ratio	0.55	0.23	0.54	0.66	0.52	0.30
Control Delay	46.4	14.5	20.5	54.7	17.5	8.8
Queue Delay	1.5	0.5	0.2	0.5	3.0	0.9
Total Delay	47.9	15.0	20.7	55.2	20.6	9.7
Queue Length 50th (ft)	116	81	88	220	58	42
Queue Length 95th (ft)	236	107	m125	m285	m72	m55
Internal Link Dist (ft)		228	419		144	
Turn Bay Length (ft)				200		
Base Capacity (vph)	402	2003	993	480	1050	706
Starvation Cap Reductn	70	1066	0	0	383	271
Spillback Cap Reductn	4	0	79	23	0	76
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.50	0.59	0.70	0.82	0.49

Intersection Summary

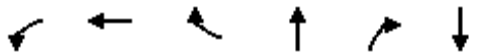
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	214	451	524	308	533	208
Future Volume (vph)	214	451	524	308	533	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	6.0	6.0	6.5
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.84
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1736	3471	3471	1553	3400	1315
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1736	3471	3471	1553	3400	1315
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	221	465	540	318	549	214
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	221	465	540	318	549	214
Confl. Peds. (#/hr)	328			328	669	133
Confl. Bikes (#/hr)				41		5
Heavy Vehicles (%)	4%	4%	4%	4%	3%	3%
Turn Type	Prot	NA	NA	Over	Prot	pm+ov
Protected Phases	1	6	2	4	4	1
Permitted Phases						4
Actuated Green, G (s)	25.5	63.5	31.5	34.0	34.0	59.5
Effective Green, g (s)	25.5	63.5	31.5	34.0	34.0	59.5
Actuated g/C Ratio	0.23	0.58	0.29	0.31	0.31	0.54
Clearance Time (s)	6.5	6.5	6.5	6.0	6.0	6.5
Lane Grp Cap (vph)	402	2003	993	480	1050	789
v/s Ratio Prot	c0.13	0.13	c0.16	c0.20	0.16	0.06
v/s Ratio Perm						0.10
v/c Ratio	0.55	0.23	0.54	0.66	0.52	0.27
Uniform Delay, d1	37.2	11.3	33.2	33.0	31.3	13.6
Progression Factor	1.09	1.24	0.56	1.43	0.52	0.76
Incremental Delay, d2	5.2	0.3	1.9	6.4	1.0	0.5
Delay (s)	45.6	14.4	20.4	53.5	17.4	10.7
Level of Service	D	B	C	D	B	B
Approach Delay (s)		24.4	32.6		15.5	
Approach LOS		C	C		B	

Intersection Summary			
HCM 2000 Control Delay	24.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		

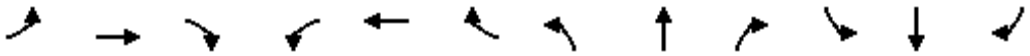
c Critical Lane Group



Lane Group	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	133	208	107	458	83	907
v/c Ratio	0.53	0.53	0.25	0.52	0.36	0.95
Control Delay	37.4	34.7	4.1	39.0	9.1	57.2
Queue Delay	0.0	0.0	0.0	3.7	1.3	0.0
Total Delay	37.4	34.7	4.1	42.8	10.4	57.2
Queue Length 50th (ft)	41	65	1	109	11	320
Queue Length 95th (ft)	m113	164	m22	150	m28	#452
Internal Link Dist (ft)		379		144		303
Turn Bay Length (ft)	200		65			
Base Capacity (vph)	253	390	435	875	233	954
Starvation Cap Reductn	0	0	0	321	53	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.53	0.25	0.83	0.46	0.95

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	126	198	102	78	357	79	107	558	197
Future Volume (vph)	0	0	0	126	198	102	78	357	79	107	558	197
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5	6.5		6.0	6.0		6.0	
Lane Util. Factor				1.00	1.00	1.00		0.95	1.00		0.95	
Frpb, ped/bikes				1.00	1.00	0.96		1.00	0.30		0.99	
Flpb, ped/bikes				0.68	1.00	1.00		1.00	1.00		1.00	
Frt				1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected				0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)				1188	1827	1490		3440	468		3294	
Flt Permitted				0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (perm)				1188	1827	1490		3440	468		3294	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	133	208	107	82	376	83	113	587	207
RTOR Reduction (vph)	0	0	0	0	0	84	0	0	62	0	25	0
Lane Group Flow (vph)	0	0	0	133	208	23	0	458	21	0	882	0
Confl. Peds. (#/hr)	18		264	264		18	19		528	528		19
Confl. Bikes (#/hr)						3			4			1
Heavy Vehicles (%)	0%	0%	0%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Perm	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases					4		2	2		1	1	
Permitted Phases				4		4			2			
Actuated Green, G (s)				23.5	23.5	23.5		28.0	28.0		31.0	
Effective Green, g (s)				23.5	23.5	23.5		28.0	28.0		31.0	
Actuated g/C Ratio				0.21	0.21	0.21		0.25	0.25		0.28	
Clearance Time (s)				6.5	6.5	6.5		6.0	6.0		6.0	
Lane Grp Cap (vph)				253	390	318		875	119		928	
v/s Ratio Prot					c0.11			c0.13			c0.27	
v/s Ratio Perm				0.11		0.02			0.05			
v/c Ratio				0.53	0.53	0.07		0.52	0.18		0.95	
Uniform Delay, d1				38.3	38.4	34.5		35.3	32.0		38.7	
Progression Factor				0.79	0.78	1.35		1.05	1.00		1.00	
Incremental Delay, d2				6.4	4.3	0.4		1.8	2.6		19.7	
Delay (s)				36.6	34.2	47.1		38.7	34.6		58.5	
Level of Service				D	C	D		D	C		E	
Approach Delay (s)		0.0			38.0			38.1			58.5	
Approach LOS		A			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	47.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



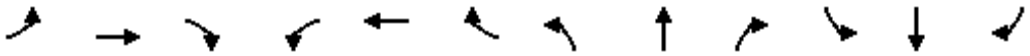
Lane Group	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	1124	1453	85	1773	1752
v/c Ratio	0.84	1.10	0.26	0.57	0.69
Control Delay	40.8	69.6	1.4	17.6	26.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	40.8	69.6	1.4	17.6	26.3
Queue Length 50th (ft)	265	~456	0	226	426
Queue Length 95th (ft)	326	m#501	m0	261	479
Internal Link Dist (ft)	320	1027		460	1159
Turn Bay Length (ft)					
Base Capacity (vph)	1334	1315	330	3102	2532
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.84	1.10	0.26	0.57	0.69

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	989	75	32	1355	90	0	1393	309	0	1443	239
Future Volume (vph)	15	989	75	32	1355	90	0	1393	309	0	1443	239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5	4.5		4.5			4.5	
Lane Util. Factor		0.91			0.86	0.86		0.86			0.91	
Frpb, ped/bikes		0.98			1.00	0.65		0.94			0.96	
Flpb, ped/bikes		1.00			1.00	1.00		1.00			1.00	
Frt		0.99			1.00	0.85		0.97			0.98	
Flt Protected		1.00			1.00	1.00		1.00			1.00	
Satd. Flow (prot)		4919			4781	886		5781			4721	
Flt Permitted		0.81			0.83	1.00		1.00			1.00	
Satd. Flow (perm)		3998			3961	886		5781			4721	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	16	1030	78	33	1411	94	0	1451	322	0	1503	249
RTOR Reduction (vph)	0	7	0	0	1	37	0	27	0	0	21	0
Lane Group Flow (vph)	0	1117	0	0	1452	48	0	1746	0	0	1731	0
Confl. Peds. (#/hr)	411		258	258		411	255		450	450		255
Confl. Bikes (#/hr)			9						9			
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA	Perm		NA			NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2						
Actuated Green, G (s)		36.5			36.5	36.5		58.5			58.5	
Effective Green, g (s)		36.5			36.5	36.5		58.5			58.5	
Actuated g/C Ratio		0.33			0.33	0.33		0.53			0.53	
Clearance Time (s)		4.5			4.5	4.5		4.5			4.5	
Lane Grp Cap (vph)		1326			1314	293		3074			2510	
v/s Ratio Prot								0.30			c0.37	
v/s Ratio Perm		0.28			c0.37	0.05						
v/c Ratio		0.84			1.11	0.16		0.57			0.69	
Uniform Delay, d1		34.1			36.8	26.0		17.3			19.0	
Progression Factor		1.00			0.36	0.05		1.00			1.33	
Incremental Delay, d2		6.6			52.9	0.5		0.8			1.5	
Delay (s)		40.7			66.2	1.9		18.0			26.7	
Level of Service		D			E	A		B			C	
Approach Delay (s)		40.7			62.7			18.0			26.7	
Approach LOS		D			E			B			C	

Intersection Summary			
HCM 2000 Control Delay	35.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	91.9%	ICU Level of Service	F
Analysis Period (min)	15		

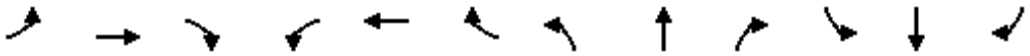
c Critical Lane Group



Lane Group	EBT	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	504	554	133	114	1546	1343
v/c Ratio	0.53	0.46	0.31	0.78	0.89	0.49
Control Delay	46.0	18.2	15.9	61.6	38.0	13.5
Queue Delay	0.0	0.4	0.0	0.0	0.0	0.5
Total Delay	46.0	18.7	15.9	61.6	38.0	14.0
Queue Length 50th (ft)	160	220	63	83	603	291
Queue Length 95th (ft)	m188	278	123	#181	683	341
Internal Link Dist (ft)	394	259			1159	146
Turn Bay Length (ft)						
Base Capacity (vph)	947	1194	436	146	1737	2743
Starvation Cap Reductn	0	246	0	0	0	834
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.58	0.31	0.78	0.89	0.70

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	308	171	0	526	126	108	1249	219	0	1267	9
Future Volume (vph)	0	308	171	0	526	126	108	1249	219	0	1267	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5	6.5	6.5	6.5			6.5	
Lane Util. Factor		0.95			0.95	1.00	1.00	0.95			0.91	
Frpb, ped/bikes		0.88			1.00	0.82	1.00	0.94			1.00	
Flpb, ped/bikes		1.00			1.00	1.00	0.97	1.00			1.00	
Frt		0.95			1.00	0.85	1.00	0.98			1.00	
Flt Protected		1.00			1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)		2781			3505	1279	1706	3212			5072	
Flt Permitted		1.00			1.00	1.00	0.15	1.00			1.00	
Satd. Flow (perm)		2781			3505	1279	272	3212			5072	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	324	180	0	554	133	114	1315	231	0	1334	9
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	504	0	0	554	133	114	1546	0	0	1343	0
Confl. Peds. (#/hr)	128		395	395		128	186		447	447		186
Confl. Bikes (#/hr)			75			50			15			1
Heavy Vehicles (%)	8%	8%	8%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Turn Type		NA			NA	Perm	Perm	NA			NA	
Protected Phases		8			4			6			2	
Permitted Phases						4	6					
Actuated Green, G (s)		37.5			37.5	37.5	59.5	59.5			59.5	
Effective Green, g (s)		37.5			37.5	37.5	59.5	59.5			59.5	
Actuated g/C Ratio		0.34			0.34	0.34	0.54	0.54			0.54	
Clearance Time (s)		6.5			6.5	6.5	6.5	6.5			6.5	
Lane Grp Cap (vph)		948			1194	436	147	1737			2743	
v/s Ratio Prot		c0.18			0.16			c0.48			0.26	
v/s Ratio Perm						0.10	0.42					
v/c Ratio		0.53			0.46	0.31	0.78	0.89			0.49	
Uniform Delay, d1		29.2			28.4	26.7	20.0	22.4			15.8	
Progression Factor		1.50			0.59	0.52	1.36	1.38			0.82	
Incremental Delay, d2		1.7			1.2	1.7	28.7	6.5			0.5	
Delay (s)		45.4			18.1	15.6	55.8	37.4			13.4	
Level of Service		D			B	B	E	D			B	
Approach Delay (s)		45.4			17.6			38.7			13.4	
Approach LOS		D			B			D			B	

Intersection Summary			
HCM 2000 Control Delay	27.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		

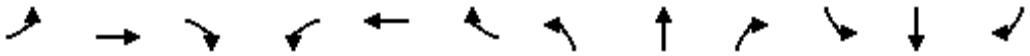
c Critical Lane Group



Lane Group	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	236	232	192	1396	1225
v/c Ratio	0.69	0.66	0.61	0.44	0.52
Control Delay	54.2	52.3	15.3	4.6	20.5
Queue Delay	0.0	0.0	8.6	1.1	0.3
Total Delay	54.2	52.3	23.9	5.7	20.8
Queue Length 50th (ft)	183	177	18	48	210
Queue Length 95th (ft)	m240	m233	m34	m85	252
Internal Link Dist (ft)		580		146	270
Turn Bay Length (ft)					
Base Capacity (vph)	342	350	315	3158	2359
Starvation Cap Reductn	0	0	88	1419	0
Spillback Cap Reductn	0	0	0	0	488
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.69	0.66	0.85	0.80	0.65

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	306	58	66	177	1284	0	0	1077	50
Future Volume (vph)	0	0	0	306	58	66	177	1284	0	0	1077	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5		6.0	6.0			6.0	
Lane Util. Factor				0.95	0.95		1.00	0.91			0.91	
Frpb, ped/bikes				1.00	0.90		1.00	1.00			0.98	
Flpb, ped/bikes				0.79	0.91		0.99	1.00			1.00	
Frt				1.00	0.95		1.00	1.00			0.99	
Flt Protected				0.95	0.98		0.95	1.00			1.00	
Satd. Flow (prot)				1320	1345		1738	5036			4888	
Flt Permitted				0.95	0.98		0.17	1.00			1.00	
Satd. Flow (perm)				1320	1345		310	5036			4888	
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	333	63	72	192	1396	0	0	1171	54
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	0	0	236	230	0	192	1396	0	0	1220	0
Confl. Peds. (#/hr)	290		163	163		290	234		649	649		234
Confl. Bikes (#/hr)						9			19			2
Heavy Vehicles (%)	0%	0%	0%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type				Perm	NA		pm+pt	NA			NA	
Protected Phases					4		5	2			6	
Permitted Phases				4			2					
Actuated Green, G (s)				28.5	28.5		69.0	69.0			53.0	
Effective Green, g (s)				28.5	28.5		69.0	69.0			53.0	
Actuated g/C Ratio				0.26	0.26		0.63	0.63			0.48	
Clearance Time (s)				6.5	6.5		6.0	6.0			6.0	
Lane Grp Cap (vph)				342	348		324	3158			2355	
v/s Ratio Prot							c0.05	0.28			0.25	
v/s Ratio Perm				c0.18	0.17		c0.32					
v/c Ratio				0.69	0.66		0.59	0.44			0.52	
Uniform Delay, d1				36.8	36.4		24.7	10.6			19.7	
Progression Factor				1.23	1.23		0.41	0.40			1.00	
Incremental Delay, d2				7.7	6.7		4.9	0.3			0.8	
Delay (s)				53.0	51.7		15.2	4.5			20.5	
Level of Service				D	D		B	A			C	
Approach Delay (s)		0.0			52.3			5.8			20.5	
Approach LOS		A			D			A			C	

Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

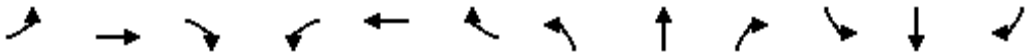
c Critical Lane Group



Lane Group	EBT	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	34	357	144	520	201	643
v/c Ratio	0.31	0.64	0.20	0.62	1.00	0.42
Control Delay	52.5	64.6	3.7	37.4	113.1	20.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.5	64.6	3.7	37.4	113.1	20.9
Queue Length 50th (ft)	22	109	15	166	144	155
Queue Length 95th (ft)	55	m156	m19	226	#295	203
Internal Link Dist (ft)	133			1023		200
Turn Bay Length (ft)			100			
Base Capacity (vph)	109	560	720	832	201	1549
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.64	0.20	0.63	1.00	0.42

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	5	0	339	0	137	6	324	164	191	605	6
Future Volume (vph)	28	5	0	339	0	137	6	324	164	191	605	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5		6.5		6.5		6.5		5.0	6.5	
Lane Util. Factor		1.00		0.97		1.00		0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00		1.00		0.91		1.00	0.99	
Flpb, ped/bikes		1.00		1.00		1.00		1.00		1.00	1.00	
Frt		1.00		1.00		0.85		0.95		1.00	1.00	
Flt Protected		0.96		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1817		3335		1538		2976		1703	3375	
Flt Permitted		0.96		0.95		1.00		0.95		0.95	1.00	
Satd. Flow (perm)		1817		3335		1538		2817		1703	3375	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	29	5	0	357	0	144	6	341	173	201	637	6
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	34	0	357	0	144	0	520	0	201	643	0
Confl. Peds. (#/hr)	2		243	243		2	731		183	183		731
Confl. Bikes (#/hr)			1			80			52			85
Heavy Vehicles (%)	0%	0%	0%	5%	5%	5%	4%	4%	4%	6%	6%	6%
Turn Type	Prot	NA	Perm	Prot		custom	Perm	NA		Prot	NA	
Protected Phases	3	8		7		7 4 1		2		1	6	
Permitted Phases			8				2					
Actuated Green, G (s)		21.5		18.5		53.0		32.5		13.0	50.5	
Effective Green, g (s)		21.5		18.5		53.0		32.5		13.0	50.5	
Actuated g/C Ratio		0.20		0.17		0.48		0.30		0.12	0.46	
Clearance Time (s)		6.5		6.5				6.5		5.0	6.5	
Lane Grp Cap (vph)		355		560		741		832		201	1549	
v/s Ratio Prot		c0.01		c0.11		c0.09				c0.12	0.19	
v/s Ratio Perm		0.01						c0.18				
v/c Ratio		0.10		0.64		0.19		0.62		1.00	0.42	
Uniform Delay, d1		36.3		42.6		16.3		33.5		48.5	19.9	
Progression Factor		1.00		1.39		0.18		1.00		1.00	1.00	
Incremental Delay, d2		0.5		4.8		0.5		3.5		63.5	0.8	
Delay (s)		36.8		64.1		3.4		37.0		112.0	20.7	
Level of Service		D		E		A		D		F	C	
Approach Delay (s)		36.8			46.7			37.0			42.4	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	42.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBL	WBT	NBR
Lane Group Flow (vph)	1237	781	790	1071
v/c Ratio	0.68	0.65	0.44	0.84
Control Delay	7.9	30.2	13.9	33.6
Queue Delay	2.3	2.3	2.2	2.4
Total Delay	10.1	32.5	16.1	36.0
Queue Length 50th (ft)	115	250	131	349
Queue Length 95th (ft)	m158	315	161	410
Internal Link Dist (ft)	354		202	
Turn Bay Length (ft)		100		
Base Capacity (vph)	1811	1205	1816	1279
Starvation Cap Reductn	51	285	851	3
Spillback Cap Reductn	418	0	0	111
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.89	0.85	0.82	0.92

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1121	5	711	719	0	975
Future Volume (vph)	1121	5	711	719	0	975
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0		7.0	7.0		7.0
Lane Util. Factor	0.95		0.97	0.95		0.76
Frpb, ped/bikes	1.00		1.00	1.00		1.00
Flpb, ped/bikes	1.00		1.00	1.00		1.00
Frt	1.00		1.00	1.00		0.85
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	3497		3400	3505		3610
Flt Permitted	1.00		0.95	1.00		1.00
Satd. Flow (perm)	3497		3400	3505		3610
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	1232	5	781	790	0	1071
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1237	0	781	790	0	1071
Confl. Peds. (#/hr)		226	226		28	
Confl. Bikes (#/hr)		111				3
Heavy Vehicles (%)	3%	3%	3%	3%	2%	2%
Turn Type	NA		Prot	NA		Prot
Protected Phases	2		7	6		4
Permitted Phases						
Actuated Green, G (s)	57.0		39.0	57.0		39.0
Effective Green, g (s)	57.0		39.0	57.0		39.0
Actuated g/C Ratio	0.52		0.35	0.52		0.35
Clearance Time (s)	7.0		7.0	7.0		7.0
Lane Grp Cap (vph)	1812		1205	1816		1279
v/s Ratio Prot	c0.35		0.23	0.23		c0.30
v/s Ratio Perm						
v/c Ratio	0.68		0.65	0.44		0.84
Uniform Delay, d1	19.8		29.7	16.5		32.6
Progression Factor	0.35		0.92	0.79		0.82
Incremental Delay, d2	0.9		2.5	0.7		6.5
Delay (s)	7.8		29.9	13.7		33.1
Level of Service	A		C	B		C
Approach Delay (s)	7.8			21.8	33.1	
Approach LOS	A			C	C	

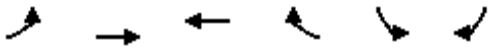
Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	SBR
Lane Group Flow (vph)	1686	320	16	1218
v/c Ratio	0.79	0.70	0.02	0.54
Control Delay	17.8	43.9	28.9	11.9
Queue Delay	47.8	4.3	0.0	0.9
Total Delay	65.6	48.2	28.9	12.8
Queue Length 50th (ft)	379	187	4	178
Queue Length 95th (ft)	477	284	13	223
Internal Link Dist (ft)		268	282	
Turn Bay Length (ft)				
Base Capacity (vph)	2128	456	730	2260
Starvation Cap Reductn	673	77	0	687
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.16	0.84	0.02	0.77

Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1635	310	16	0	0	1181
Future Volume (vph)	1635	310	16	0	0	1181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.5	6.5			7.0
Lane Util. Factor	0.97	1.00	0.95			0.76
Frpb, ped/bikes	1.00	1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	1.00	1.00	1.00			0.85
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3433	1863	2983			3646
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3433	1863	2983			3646
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1686	320	16	0	0	1218
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1686	320	16	0	0	1218
Confl. Peds. (#/hr)	97			97		
Confl. Bikes (#/hr)				30		13
Heavy Vehicles (%)	2%	2%	21%	21%	1%	1%
Turn Type	Prot	NA	NA			Prot
Protected Phases	7	6	2			4
Permitted Phases						
Actuated Green, G (s)	62.0	24.5	24.5			62.0
Effective Green, g (s)	62.0	24.5	24.5			62.0
Actuated g/C Ratio	0.62	0.24	0.24			0.62
Clearance Time (s)	7.0	6.5	6.5			7.0
Lane Grp Cap (vph)	2128	456	730			2260
v/s Ratio Prot	c0.49	c0.17	0.01			0.33
v/s Ratio Perm						
v/c Ratio	0.79	0.70	0.02			0.54
Uniform Delay, d1	14.2	34.4	28.7			10.8
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	3.1	8.7	0.1			0.9
Delay (s)	17.3	43.1	28.7			11.8
Level of Service	B	D	C			B
Approach Delay (s)		21.4	28.7		11.8	
Approach LOS		C	C		B	

Intersection Summary			
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBL	WBT	NBR
Lane Group Flow (vph)	566	40	733	180
v/c Ratio	0.20	0.07	0.36	0.35
Control Delay	7.3	14.6	23.7	32.0
Queue Delay	0.0	0.0	3.4	0.0
Total Delay	7.3	14.6	27.2	32.0
Queue Length 50th (ft)	47	9	254	98
Queue Length 95th (ft)	m52	m21	311	161
Internal Link Dist (ft)	259		228	
Turn Bay Length (ft)				
Base Capacity (vph)	2763	541	2055	508
Starvation Cap Reductn	0	0	1199	0
Spillback Cap Reductn	47	0	83	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.21	0.07	0.86	0.35

Intersection Summary

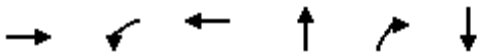
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	504	17	37	674	0	166
Future Volume (vph)	504	17	37	674	0	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		6.0	5.5		6.0
Lane Util. Factor	0.91		1.00	0.95		1.00
Frpb, ped/bikes	1.00		1.00	1.00		1.00
Flpb, ped/bikes	1.00		1.00	1.00		1.00
Frt	1.00		1.00	1.00		0.86
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	4714		1752	3505		1644
Flt Permitted	1.00		0.95	1.00		1.00
Satd. Flow (perm)	4714		1752	3505		1644
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	548	18	40	733	0	180
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	566	0	40	733	0	180
Confl. Peds. (#/hr)		35	35			5
Confl. Bikes (#/hr)		35				
Heavy Vehicles (%)	9%	9%	3%	3%	0%	0%
Turn Type	NA		Prot	NA		Over
Protected Phases	2		4	6		4
Permitted Phases						
Actuated Green, G (s)	64.5		34.0	64.5		34.0
Effective Green, g (s)	64.5		34.0	64.5		34.0
Actuated g/C Ratio	0.59		0.31	0.59		0.31
Clearance Time (s)	5.5		6.0	5.5		6.0
Lane Grp Cap (vph)	2764		541	2055		508
v/s Ratio Prot	0.12		0.02	c0.21		c0.11
v/s Ratio Perm						
v/c Ratio	0.20		0.07	0.36		0.35
Uniform Delay, d1	10.7		26.9	11.9		29.5
Progression Factor	0.67		0.53	1.94		1.00
Incremental Delay, d2	0.1		0.2	0.4		1.9
Delay (s)	7.3		14.4	23.5		31.4
Level of Service	A		B	C		C
Approach Delay (s)	7.3			23.0	31.4	
Approach LOS	A			C	C	

Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		

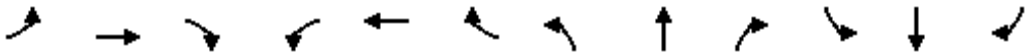
c Critical Lane Group



Lane Group	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	619	249	1743	471	339	225
v/c Ratio	0.39	0.79	0.66	0.49	0.52	0.28
Control Delay	28.8	62.0	17.7	6.1	8.2	30.4
Queue Delay	0.0	0.0	0.0	0.2	2.4	0.0
Total Delay	28.8	62.0	17.7	6.2	10.6	30.4
Queue Length 50th (ft)	121	170	288	8	193	48
Queue Length 95th (ft)	156	#293	340	11	303	68
Internal Link Dist (ft)	282		355	154		901
Turn Bay Length (ft)						
Base Capacity (vph)	1579	315	2624	968	650	813
Starvation Cap Reductn	0	0	0	81	192	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.79	0.66	0.53	0.74	0.28

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	603	2	244	1438	270	58	404	332	44	109	68
Future Volume (vph)	2	603	2	244	1438	270	58	404	332	44	109	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		5.0	6.0			6.5	6.5		6.5	
Lane Util. Factor		0.91		1.00	0.91			0.95	1.00		0.95	
Frpb, ped/bikes		1.00		1.00	0.95			1.00	0.84		0.98	
Flpb, ped/bikes		1.00		1.00	1.00			1.00	1.00		0.99	
Frt		1.00		1.00	0.98			1.00	0.85		0.95	
Flt Protected		1.00		0.95	1.00			0.99	1.00		0.99	
Satd. Flow (prot)		5032		1736	4613			3433	1303		3160	
Flt Permitted		0.93		0.95	1.00			0.87	1.00		0.78	
Satd. Flow (perm)		4695		1736	4613			3003	1303		2500	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	2	615	2	249	1467	276	59	412	339	45	111	69
RTOR Reduction (vph)	0	0	0	0	25	0	0	0	230	0	7	0
Lane Group Flow (vph)	0	619	0	249	1718	0	0	471	109	0	218	0
Confl. Peds. (#/hr)	236		19	19		236	39		112	112		39
Confl. Bikes (#/hr)			12			48			8			19
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Perm	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			4			4	
Permitted Phases	2						4		4	4		
Actuated Green, G (s)		37.0		20.0	62.0			35.5	35.5		35.5	
Effective Green, g (s)		37.0		20.0	62.0			35.5	35.5		35.5	
Actuated g/C Ratio		0.34		0.18	0.56			0.32	0.32		0.32	
Clearance Time (s)		6.0		5.0	6.0			6.5	6.5		6.5	
Lane Grp Cap (vph)		1579		315	2600			969	420		806	
v/s Ratio Prot				c0.14	c0.37							
v/s Ratio Perm		0.13						c0.16	0.08		0.09	
v/c Ratio		0.39		0.79	0.66			0.49	0.26		0.27	
Uniform Delay, d1		27.9		43.0	16.7			29.9	27.5		27.6	
Progression Factor		1.00		1.00	1.00			0.15	1.73		1.11	
Incremental Delay, d2		0.7		18.1	1.3			1.6	1.3		0.8	
Delay (s)		28.6		61.1	18.0			6.0	49.1		31.4	
Level of Service		C		E	B			A	D		C	
Approach Delay (s)		28.6			23.4			24.0			31.4	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	24.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	119.3%	ICU Level of Service	H
Analysis Period (min)	15		

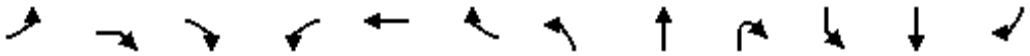
c Critical Lane Group



Lane Group	EBL	EBR	EBR2	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	53	98	68	147	265	446	538	412
v/c Ratio	0.26	0.24	0.14	0.35	0.54	0.44	0.87	0.24
Control Delay	36.2	33.7	6.3	35.9	39.6	7.1	47.1	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.4	0.8	0.0
Total Delay	36.2	33.7	6.3	35.9	39.6	7.5	48.0	7.8
Queue Length 50th (ft)	30	54	0	84	161	86	162	74
Queue Length 95th (ft)	67	101	28	144	245	139	#266	71
Internal Link Dist (ft)					301		901	413
Turn Bay Length (ft)								
Base Capacity (vph)	204	417	475	415	491	1020	616	1701
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	222	11	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.24	0.14	0.35	0.54	0.56	0.89	0.24

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR2	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	93	65	140	252	424	67	350	94	193	175	24
Future Volume (vph)	50	93	65	140	252	424	67	350	94	193	175	24
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	5.0		6.0			6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		0.95			0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.96		0.99			0.96	
Flpb, ped/bikes	0.96	1.00	1.00	0.89	1.00	1.00		0.96			1.00	
Frt	1.00	0.85	0.85	1.00	1.00	0.85		0.97			0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99			0.98	
Satd. Flow (prot)	1702	1583	1583	1577	1863	1524		3225			3289	
Flt Permitted	0.43	1.00	1.00	0.95	1.00	1.00		0.82			0.56	
Satd. Flow (perm)	774	1583	1583	1577	1863	1524		2648			1889	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	53	98	68	147	265	446	71	368	99	203	184	25
RTOR Reduction (vph)	0	0	50	0	0	39	0	62	0	0	4	0
Lane Group Flow (vph)	53	98	18	147	265	407	0	476	0	0	408	0
Confl. Peds. (#/hr)	25		66	66		25	364		15	15		364
Confl. Bikes (#/hr)						6			11			20
Turn Type	Perm	Prot	Prot	Perm	NA	custom	Perm	NA		pm+pt	NA	
Protected Phases		4	4		8	5		6		5	2	
Permitted Phases	4	4	4	8		8	6			2		
Actuated Green, G (s)	29.0	29.0	29.0	29.0	29.0	70.0		23.0			69.0	
Effective Green, g (s)	29.0	29.0	29.0	29.0	29.0	70.0		23.0			69.0	
Actuated g/C Ratio	0.26	0.26	0.26	0.26	0.26	0.64		0.21			0.63	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	5.0		6.0			6.0	
Lane Grp Cap (vph)	204	417	417	415	491	969		553			1706	
v/s Ratio Prot		0.06	0.01		c0.14	c0.16					0.09	
v/s Ratio Perm	0.07			0.09		0.11		c0.18			0.06	
v/c Ratio	0.26	0.24	0.04	0.35	0.54	0.42		0.86			0.24	
Uniform Delay, d1	32.0	31.8	30.2	32.9	34.8	9.9		41.9			9.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		0.92			0.87	
Incremental Delay, d2	3.1	1.3	0.2	2.4	4.2	1.3		13.8			0.3	
Delay (s)	35.1	33.1	30.4	35.3	39.0	11.3		52.1			8.1	
Level of Service	D	C	C	D	D	B		D			A	
Approach Delay (s)					23.9			52.1			8.1	
Approach LOS					C			D			A	

Intersection Summary			
HCM 2000 Control Delay	29.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	79.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



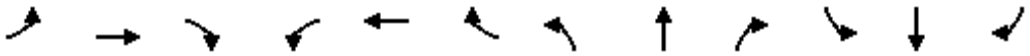
Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	20	61	233	399	792	343
v/c Ratio	0.12	0.10	0.68	1.03	0.91	0.29
Control Delay	21.7	14.8	41.7	78.4	37.9	14.6
Queue Delay	0.0	0.0	0.0	0.0	11.3	0.0
Total Delay	21.7	14.8	41.7	78.4	49.1	14.6
Queue Length 50th (ft)	9	20	138	~234	398	65
Queue Length 95th (ft)	m23	45	232	#418	m#694	94
Internal Link Dist (ft)		1267		269	413	277
Turn Bay Length (ft)	100					
Base Capacity (vph)	171	597	344	387	873	1186
Starvation Cap Reductn	0	0	0	0	78	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.10	0.68	1.03	1.00	0.29

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



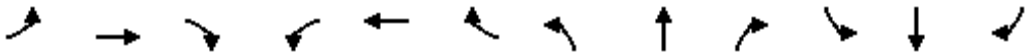
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	41	13	207	83	272	55	515	134	73	223	9
Future Volume (vph)	18	41	13	207	83	272	55	515	134	73	223	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			0.95	
Frpb, ped/bikes	1.00	0.92		1.00	0.51			0.97			0.99	
Flpb, ped/bikes	0.78	1.00		0.73	1.00			0.98			0.99	
Frt	1.00	0.96		1.00	0.88			0.97			1.00	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1376	1659		1289	837			1709			3408	
Flt Permitted	0.33	1.00		0.72	1.00			0.94			0.64	
Satd. Flow (perm)	485	1659		973	837			1613			2209	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	20	46	15	233	93	306	62	579	151	82	251	10
RTOR Reduction (vph)	0	10	0	0	90	0	0	8	0	0	2	0
Lane Group Flow (vph)	20	51	0	233	309	0	0	784	0	0	341	0
Confl. Peds. (#/hr)	364		179	179		364	163		128	128		163
Confl. Bikes (#/hr)			14			81			9			8
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	39.0	39.0		39.0	39.0			59.0			59.0	
Effective Green, g (s)	39.0	39.0		39.0	39.0			59.0			59.0	
Actuated g/C Ratio	0.35	0.35		0.35	0.35			0.54			0.54	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	171	588		344	296			865			1184	
v/s Ratio Prot		0.03			c0.37							
v/s Ratio Perm	0.04			0.24				c0.49			0.15	
v/c Ratio	0.12	0.09		0.68	1.04			0.91			0.29	
Uniform Delay, d1	23.9	23.6		30.2	35.5			23.0			14.0	
Progression Factor	0.82	0.76		1.00	1.00			1.08			1.00	
Incremental Delay, d2	1.3	0.3		10.3	63.9			12.4			0.6	
Delay (s)	20.9	18.3		40.4	99.4			37.2			14.6	
Level of Service	C	B		D	F			D			B	
Approach Delay (s)		18.9			77.6			37.2			14.6	
Approach LOS		B			E			D			B	

Intersection Summary			
HCM 2000 Control Delay	46.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	100.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBT	NBT	SBT
Lane Group Flow (vph)	39	113	18	877	383
v/c Ratio	0.06	0.48	0.03	0.49	0.26
Control Delay	17.2	50.5	19.4	28.6	34.5
Queue Delay	0.0	0.0	0.0	0.1	1.3
Total Delay	17.2	50.5	19.4	28.7	35.8
Queue Length 50th (ft)	15	74	7	175	106
Queue Length 95th (ft)	35	131	22	213	m136
Internal Link Dist (ft)	282		633	181	154
Turn Bay Length (ft)					
Base Capacity (vph)	668	235	690	1775	1472
Starvation Cap Reductn	0	0	0	0	855
Spillback Cap Reductn	0	0	0	122	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.06	0.48	0.03	0.53	0.62

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	3	101	9	5	2	0	766	14	2	331	8
Future Volume (vph)	32	3	101	9	5	2	0	766	14	2	331	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0	6.5		6.5			6.5			7.0	
Lane Util. Factor		1.00	1.00		1.00			0.91			0.95	
Frpb, ped/bikes		1.00	1.00		0.99			0.99			1.00	
Flpb, ped/bikes		0.97	1.00		1.00			1.00			1.00	
Frt		1.00	0.85		0.98			1.00			1.00	
Flt Protected		0.96	1.00		0.97			1.00			1.00	
Satd. Flow (prot)		1702	1568		1791			4945			3317	
Flt Permitted		0.83	1.00		0.91			1.00			0.95	
Satd. Flow (perm)		1471	1568		1670			4945			3161	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	36	3	113	10	6	2	0	861	16	2	372	9
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	39	113	0	18	0	0	877	0	0	383	0
Confl. Peds. (#/hr)	28		4	4		28	66		125	125		66
Confl. Bikes (#/hr)			14			140			26			43
Heavy Vehicles (%)	3%	3%	3%	0%	0%	0%	4%	4%	4%	8%	8%	8%
Turn Type	Perm	NA	custom	Perm	NA			NA		pm+pt	NA	
Protected Phases		6 5	5		2			4		3	8	
Permitted Phases	6 5			2						8		
Actuated Green, G (s)		45.5	16.5		45.5			39.5			51.0	
Effective Green, g (s)		45.5	16.5		45.5			39.5			51.0	
Actuated g/C Ratio		0.41	0.15		0.41			0.36			0.46	
Clearance Time (s)			6.5		6.5			6.5			7.0	
Lane Grp Cap (vph)		608	235		690			1775			1472	
v/s Ratio Prot			c0.07					c0.18			c0.01	
v/s Ratio Perm		c0.03			0.01						0.11	
v/c Ratio		0.06	0.48		0.03			0.49			0.26	
Uniform Delay, d1		19.4	42.8		19.1			27.5			18.0	
Progression Factor		1.00	1.00		1.00			1.00			1.88	
Incremental Delay, d2		0.2	6.9		0.1			1.0			0.3	
Delay (s)		19.6	49.7		19.2			28.5			34.1	
Level of Service		B	D		B			C			C	
Approach Delay (s)		42.0			19.2			28.5			34.1	
Approach LOS		D			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	31.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	EBR	WBT	NBL	NBR
Lane Group Flow (vph)	870	114	1523	282	120
v/c Ratio	0.41	0.28	0.50	0.69	0.37
Control Delay	2.8	16.7	12.7	46.8	37.9
Queue Delay	0.5	0.0	3.4	4.3	0.0
Total Delay	3.3	16.7	16.1	51.1	37.9
Queue Length 50th (ft)	2	53	205	180	70
Queue Length 95th (ft)	86	92	242	277	126
Internal Link Dist (ft)	202		268	424	
Turn Bay Length (ft)					
Base Capacity (vph)	2114	409	3067	411	321
Starvation Cap Reductn	763	0	1416	0	0
Spillback Cap Reductn	0	0	1331	71	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.64	0.28	0.92	0.83	0.37

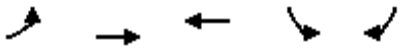
Intersection Summary



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	818	107	0	1432	265	113
Future Volume (vph)	818	107	0	1432	265	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	2.0		6.0	6.0	6.0
Lane Util. Factor	0.95	1.00		0.91	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.82
Flpb, ped/bikes	1.00	1.00		1.00	0.94	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	1.00	1.00		1.00	0.95	1.00
Satd. Flow (prot)	3471	1553		5036	1618	1264
Flt Permitted	1.00	1.00		1.00	0.95	1.00
Satd. Flow (perm)	3471	1553		5036	1618	1264
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	870	114	0	1523	282	120
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	870	114	0	1523	282	120
Confl. Peds. (#/hr)		53			50	129
Confl. Bikes (#/hr)		43				26
Heavy Vehicles (%)	4%	4%	3%	3%	5%	5%
Turn Type	NA	custom		NA	Perm	Perm
Protected Phases	2 1	1		2 1		
Permitted Phases					4	4
Actuated Green, G (s)	71.0	29.0		71.0	28.0	28.0
Effective Green, g (s)	71.0	29.0		71.0	28.0	28.0
Actuated g/C Ratio	0.65	0.26		0.65	0.25	0.25
Clearance Time (s)		2.0			6.0	6.0
Lane Grp Cap (vph)	2240	409		3250	411	321
v/s Ratio Prot	0.25	0.07		c0.30		
v/s Ratio Perm					c0.17	0.09
v/c Ratio	0.39	0.28		0.47	0.69	0.37
Uniform Delay, d1	9.2	32.2		9.9	37.0	33.8
Progression Factor	0.20	0.46		1.00	1.00	1.00
Incremental Delay, d2	0.5	1.6		0.5	9.0	3.3
Delay (s)	2.3	16.4		10.4	46.0	37.1
Level of Service	A	B		B	D	D
Approach Delay (s)	3.9			10.4	43.4	
Approach LOS	A			B	D	

Intersection Summary			
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		

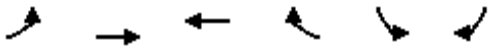
c Critical Lane Group



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	344	900	908	11	87
v/c Ratio	0.65	0.37	0.52	0.03	0.11
Control Delay	11.7	3.3	49.8	39.2	10.3
Queue Delay	0.4	0.0	0.0	0.0	0.0
Total Delay	12.1	3.3	49.8	39.2	10.3
Queue Length 50th (ft)	38	32	223	8	16
Queue Length 95th (ft)	52	39	269	m26	71
Internal Link Dist (ft)		484	340	163	
Turn Bay Length (ft)					
Base Capacity (vph)	532	2448	1739	357	764
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	29	84	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.68	0.38	0.52	0.03	0.11

Intersection Summary

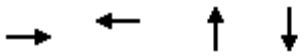
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	647	523	851	3	10	82
Future Volume (vph)	647	523	851	3	10	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		5.5	6.0
Lane Util. Factor	0.86	0.86	0.91		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	0.98	1.00		0.95	1.00
Satd. Flow (prot)	1477	4574	5033		1543	1380
Flt Permitted	0.23	0.67	1.00		0.95	1.00
Satd. Flow (perm)	359	3104	5033		1543	1380
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	688	556	905	3	11	87
RTOR Reduction (vph)	0	0	0	0	0	13
Lane Group Flow (vph)	344	900	908	0	11	74
Confl. Peds. (#/hr)	22			22	12	
Confl. Bikes (#/hr)				3		
Heavy Vehicles (%)	5%	5%	3%	3%	17%	17%
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	1	6	2		4	1
Permitted Phases	6					4
Actuated Green, G (s)	73.0	73.0	38.0		25.5	54.5
Effective Green, g (s)	73.0	73.0	38.0		25.5	54.5
Actuated g/C Ratio	0.66	0.66	0.35		0.23	0.50
Clearance Time (s)	6.0	6.0	6.0		5.5	6.0
Lane Grp Cap (vph)	532	2447	1738		357	759
v/s Ratio Prot	c0.17	0.10	0.18		0.01	c0.03
v/s Ratio Perm	c0.26	0.15				0.03
v/c Ratio	0.65	0.37	0.52		0.03	0.10
Uniform Delay, d1	19.3	8.2	28.8		32.7	14.7
Progression Factor	0.29	0.33	1.69		1.18	1.15
Incremental Delay, d2	4.9	0.3	0.9		0.2	0.2
Delay (s)	10.5	3.1	49.5		38.9	17.1
Level of Service	B	A	D		D	B
Approach Delay (s)		5.1	49.5		19.5	
Approach LOS		A	D		B	

Intersection Summary			
HCM 2000 Control Delay	23.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



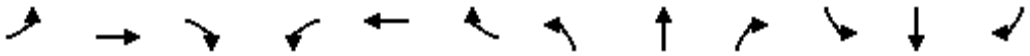
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	122	303	739	148
v/c Ratio	0.59	1.03	0.52	0.09
Control Delay	34.3	98.9	22.5	17.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	34.3	98.9	22.5	17.4
Queue Length 50th (ft)	37	~229	141	21
Queue Length 95th (ft)	m99	m#383	m183	39
Internal Link Dist (ft)	492	1267	654	413
Turn Bay Length (ft)				
Base Capacity (vph)	207	293	1409	1591
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.59	1.03	0.52	0.09

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	0	62	47	143	83	99	566	0	0	104	29
Future Volume (vph)	48	0	62	47	143	83	99	566	0	0	104	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5			5.0			5.0	
Lane Util. Factor		1.00			1.00			0.95			0.91	
Frpb, ped/bikes		0.90			0.90			1.00			0.90	
Flpb, ped/bikes		1.00			0.98			0.96			1.00	
Frt		0.92			0.96			1.00			0.97	
Flt Protected		0.98			0.99			0.99			1.00	
Satd. Flow (prot)		1461			1544			3293			4019	
Flt Permitted		0.52			0.92			0.87			1.00	
Satd. Flow (perm)		779			1429			2895			4019	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	53	0	69	52	159	92	110	629	0	0	116	32
RTOR Reduction (vph)	0	56	0	0	14	0	0	0	0	0	19	0
Lane Group Flow (vph)	0	66	0	0	289	0	0	739	0	0	129	0
Confl. Peds. (#/hr)	194		75	75		194	138		192	192		138
Confl. Bikes (#/hr)						9			8			12
Heavy Vehicles (%)	6%	6%	6%	3%	3%	3%	4%	4%	4%	13%	13%	13%
Turn Type	Perm	NA		Perm	NA		Prot	NA			NA	
Protected Phases		8			8		5	2			6	
Permitted Phases	8			8								
Actuated Green, G (s)		21.5			21.5			78.0			43.0	
Effective Green, g (s)		21.5			21.5			78.0			43.0	
Actuated g/C Ratio		0.20			0.20			0.71			0.39	
Clearance Time (s)		5.5			5.5			5.0			5.0	
Lane Grp Cap (vph)		152			279			2161			1571	
v/s Ratio Prot								c0.09			0.03	
v/s Ratio Perm		0.09			c0.20			c0.15				
v/c Ratio		0.44			1.03			0.34			0.08	
Uniform Delay, d1		38.9			44.2			6.1			21.1	
Progression Factor		1.20			1.02			1.49			1.04	
Incremental Delay, d2		7.9			57.8			0.3			0.1	
Delay (s)		54.7			102.8			9.5			22.0	
Level of Service		D			F			A			C	
Approach Delay (s)		54.7			102.8			9.5			22.0	
Approach LOS		D			F			A			C	

Intersection Summary			
HCM 2000 Control Delay	36.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		

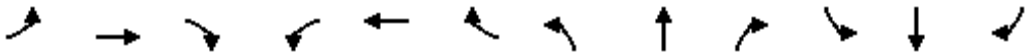
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	64	125	12	131	824	422
v/c Ratio	0.16	0.21	0.04	0.25	0.48	0.22
Control Delay	27.8	21.1	30.4	29.0	22.2	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	21.1	30.4	29.0	22.2	11.8
Queue Length 50th (ft)	28	38	6	68	173	42
Queue Length 95th (ft)	m45	m64	m7	m70	m206	63
Internal Link Dist (ft)		495		1267	413	291
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	408	589	280	526	1705	1934
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.21	0.04	0.25	0.48	0.22

Intersection Summary

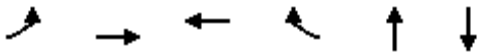
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	68	53	12	99	28	170	585	45	18	273	118
Future Volume (vph)	62	68	53	12	99	28	170	585	45	18	273	118
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	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.91			0.91	
Frpb, ped/bikes	1.00	0.85		1.00	0.94			0.98			0.95	
Flpb, ped/bikes	0.86	1.00		0.73	1.00			0.95			1.00	
Frt	1.00	0.93		1.00	0.97			0.99			0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1413	1377		1274	1674			4616			4381	
Flt Permitted	0.67	1.00		0.68	1.00			0.76			0.88	
Satd. Flow (perm)	1001	1377		907	1674			3526			3881	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	64	70	55	12	102	29	175	603	46	19	281	122
RTOR Reduction (vph)	0	26	0	0	9	0	0	6	0	0	63	0
Lane Group Flow (vph)	64	99	0	12	122	0	0	818	0	0	359	0
Confl. Peds. (#/hr)	146		245	245		146	135		123	123		135
Confl. Bikes (#/hr)			9			38			2			19
Heavy Vehicles (%)	10%	10%	10%	3%	3%	3%	3%	3%	3%	7%	7%	7%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	3	8			4			2			6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	45.0	45.0		34.0	34.0			53.0			53.0	
Effective Green, g (s)	45.0	45.0		34.0	34.0			53.0			53.0	
Actuated g/C Ratio	0.41	0.41		0.31	0.31			0.48			0.48	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	428	563		280	517			1698			1869	
v/s Ratio Prot	0.01	c0.07			c0.07							
v/s Ratio Perm	0.05			0.01				c0.23			0.09	
v/c Ratio	0.15	0.18		0.04	0.24			0.48			0.19	
Uniform Delay, d1	20.5	20.7		26.6	28.3			19.2			16.3	
Progression Factor	1.27	1.49		1.12	1.10			1.11			1.00	
Incremental Delay, d2	0.6	0.6		0.1	0.4			0.8			0.2	
Delay (s)	26.7	31.4		30.0	31.6			22.2			16.5	
Level of Service	C	C		C	C			C			B	
Approach Delay (s)		29.8			31.5			22.2			16.5	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	22.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

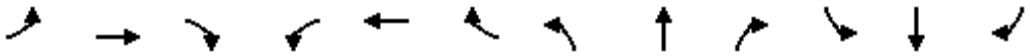
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	234	376	945	266	719	188
v/c Ratio	0.54	0.20	0.88	0.91	0.55	0.31
Control Delay	28.2	22.4	24.5	45.5	44.1	40.6
Queue Delay	0.0	0.0	1.1	0.0	2.8	0.0
Total Delay	28.2	22.4	25.6	45.5	46.9	40.6
Queue Length 50th (ft)	130	109	79	42	144	53
Queue Length 95th (ft)	245	157	#237	m#260	186	m74
Internal Link Dist (ft)		523	354		163	654
Turn Bay Length (ft)				150		
Base Capacity (vph)	431	1857	1077	292	1302	609
Starvation Cap Reductn	0	0	33	0	452	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.20	0.91	0.91	0.85	0.31

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	206	314	17	0	832	234	57	570	5	45	79	41
Future Volume (vph)	206	314	17	0	832	234	57	570	5	45	79	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.5			6.5	6.5		7.0			7.0	
Lane Util. Factor	1.00	0.95			0.95	1.00		0.91			0.95	
Frpb, ped/bikes	1.00	0.99			1.00	0.61		1.00			0.97	
Flpb, ped/bikes	1.00	1.00			1.00	1.00		0.99			0.99	
Frt	1.00	0.99			1.00	0.85		1.00			0.96	
Flt Protected	0.95	1.00			1.00	1.00		1.00			0.99	
Satd. Flow (prot)	1671	3271			3539	961		4776			2980	
Flt Permitted	0.10	1.00			1.00	1.00		0.88			0.65	
Satd. Flow (perm)	183	3271			3539	961		4215			1973	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	234	357	19	0	945	266	65	648	6	51	90	47
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	234	376	0	0	945	266	0	719	0	0	188	0
Confl. Peds. (#/hr)	292		144	144		292	59		92	92		59
Confl. Bikes (#/hr)			31			133			4			4
Heavy Vehicles (%)	8%	8%	8%	2%	2%	2%	7%	7%	7%	10%	10%	10%
Turn Type	pm+pt	NA			NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	6			2			4			8	
Permitted Phases	6					2	4			8		
Actuated Green, G (s)	62.5	62.5			33.5	33.5		34.0			34.0	
Effective Green, g (s)	62.5	62.5			33.5	33.5		34.0			34.0	
Actuated g/C Ratio	0.57	0.57			0.30	0.30		0.31			0.31	
Clearance Time (s)	5.0	6.5			6.5	6.5		7.0			7.0	
Lane Grp Cap (vph)	428	1858			1077	292		1302			609	
v/s Ratio Prot	c0.12	0.11			0.27							
v/s Ratio Perm	0.19					c0.28		c0.17			0.10	
v/c Ratio	0.55	0.20			0.88	0.91		0.55			0.31	
Uniform Delay, d1	21.5	11.6			36.3	36.8		31.7			29.0	
Progression Factor	1.24	1.89			0.47	0.49		1.33			1.34	
Incremental Delay, d2	4.6	0.2			6.5	24.0		1.5			1.2	
Delay (s)	31.3	22.2			23.6	42.0		43.8			40.0	
Level of Service	C	C			C	D		D			D	
Approach Delay (s)		25.7			27.7			43.8			40.0	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	32.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	85.7%	ICU Level of Service	E
Analysis Period (min)	15		

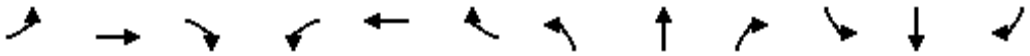
c Critical Lane Group



Lane Group	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1182	946	157	1034	319
v/c Ratio	0.63	0.45	0.34	0.53	0.28
Control Delay	12.3	2.6	24.0	22.7	22.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	12.3	2.6	24.0	22.7	22.2
Queue Length 50th (ft)	49	4	67	183	18
Queue Length 95th (ft)	m54	8	113	225	39
Internal Link Dist (ft)	516	484		438	368
Turn Bay Length (ft)					
Base Capacity (vph)	1876	2088	462	1966	1134
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.63	0.45	0.34	0.53	0.28

Intersection Summary

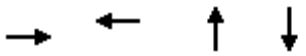
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1012	135	80	834	13	154	868	145	0	261	52
Future Volume (vph)	11	1012	135	80	834	13	154	868	145	0	261	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5		6.5	6.5			6.5	
Lane Util. Factor		0.86			0.86		1.00	0.91			0.91	
Frpb, ped/bikes		0.99			1.00		1.00	0.96			0.97	
Flpb, ped/bikes		1.00			1.00		0.95	1.00			1.00	
Frt		0.98			1.00		1.00	0.98			0.98	
Flt Protected		1.00			1.00		0.95	1.00			1.00	
Satd. Flow (prot)		6105			6235		1540	4410			4129	
Flt Permitted		0.92			0.72		0.55	1.00			1.00	
Satd. Flow (perm)		5596			4538		893	4410			4129	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	11	1033	138	82	851	13	157	886	148	0	266	53
RTOR Reduction (vph)	0	21	0	0	2	0	0	21	0	0	27	0
Lane Group Flow (vph)	0	1161	0	0	944	0	157	1013	0	0	292	0
Confl. Peds. (#/hr)	35		53	53		35	104		165	165		104
Confl. Bikes (#/hr)			2			6			13			11
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	11%	11%	11%	19%	19%	19%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA			NA	
Protected Phases		6		5	2		3	8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)		36.5			48.5		48.5	48.5			29.5	
Effective Green, g (s)		36.5			48.5		48.5	48.5			29.5	
Actuated g/C Ratio		0.33			0.44		0.44	0.44			0.27	
Clearance Time (s)		6.5			6.5		6.5	6.5			6.5	
Lane Grp Cap (vph)		1856			2108		467	1944			1107	
v/s Ratio Prot					c0.03		0.04	c0.23			0.07	
v/s Ratio Perm		c0.21			0.17		0.11					
v/c Ratio		0.63			0.45		0.34	0.52			0.26	
Uniform Delay, d1		31.0			21.4		20.9	22.3			31.7	
Progression Factor		0.36			0.09		1.00	1.00			0.77	
Incremental Delay, d2		1.4			0.6		1.9	1.0			0.5	
Delay (s)		12.6			2.6		22.8	23.3			24.8	
Level of Service		B			A		C	C			C	
Approach Delay (s)		12.6			2.6			23.3			24.8	
Approach LOS		B			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	96.9%	ICU Level of Service	F
Analysis Period (min)	15		

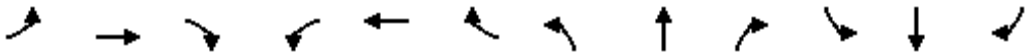
c Critical Lane Group



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	107	218	1045	360
v/c Ratio	0.33	0.59	0.68	0.52
Control Delay	50.8	28.3	10.4	3.3
Queue Delay	0.0	0.0	0.3	0.9
Total Delay	50.8	28.3	10.7	4.3
Queue Length 50th (ft)	76	77	235	8
Queue Length 95th (ft)	m128	m98	217	m13
Internal Link Dist (ft)	508	492	449	412
Turn Bay Length (ft)				
Base Capacity (vph)	324	372	1536	697
Starvation Cap Reductn	0	0	113	141
Spillback Cap Reductn	0	0	83	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.33	0.59	0.73	0.65

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	42	28	16	111	80	238	729	26	77	248	17
Future Volume (vph)	32	42	28	16	111	80	238	729	26	77	248	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5			5.5			5.5	
Lane Util. Factor		1.00			1.00			0.95			1.00	
Frpb, ped/bikes		0.94			0.90			0.98			0.97	
Flpb, ped/bikes		0.95			0.99			0.93			0.98	
Frt		0.96			0.95			1.00			0.99	
Flt Protected		0.98			1.00			0.99			0.99	
Satd. Flow (prot)		1529			1496			3064			1626	
Flt Permitted		0.83			0.97			0.75			0.64	
Satd. Flow (perm)		1297			1463			2329			1056	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	34	44	29	17	117	84	251	767	27	81	261	18
RTOR Reduction (vph)	0	12	0	0	20	0	0	2	0	0	2	0
Lane Group Flow (vph)	0	95	0	0	198	0	0	1043	0	0	358	0
Confl. Peds. (#/hr)	166		127	127		166	254		341	341		254
Confl. Bikes (#/hr)			3			9			12			16
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	9%	9%	9%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		26.5			26.5			72.5			72.5	
Effective Green, g (s)		26.5			26.5			72.5			72.5	
Actuated g/C Ratio		0.24			0.24			0.66			0.66	
Clearance Time (s)		5.5			5.5			5.5			5.5	
Lane Grp Cap (vph)		312			352			1535			696	
v/s Ratio Prot												
v/s Ratio Perm		0.07			c0.13			c0.45			0.34	
v/c Ratio		0.30			0.56			0.68			0.51	
Uniform Delay, d1		34.2			36.6			11.6			9.7	
Progression Factor		1.63			0.73			0.70			0.21	
Incremental Delay, d2		2.0			4.1			2.0			1.2	
Delay (s)		57.8			30.9			10.1			3.2	
Level of Service		E			C			B			A	
Approach Delay (s)		57.8			30.9			10.1			3.2	
Approach LOS		E			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		

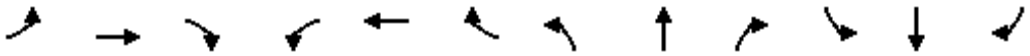
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	19	259	12	498	928	437
v/c Ratio	0.07	0.33	0.04	0.73	0.82	0.98
Control Delay	11.5	12.6	12.9	23.2	48.5	70.8
Queue Delay	0.0	0.0	0.0	0.1	0.4	0.0
Total Delay	11.5	12.6	12.9	23.3	48.9	70.8
Queue Length 50th (ft)	5	73	4	180	314	295
Queue Length 95th (ft)	m13	m107	m12	241	433	#512
Internal Link Dist (ft)		509		495	412	353
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	263	778	318	684	1137	446
Starvation Cap Reductn	0	0	0	4	28	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.33	0.04	0.73	0.84	0.98

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	198	35	11	235	213	34	699	102	42	302	49
Future Volume (vph)	17	198	35	11	235	213	34	699	102	42	302	49
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	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			1.00	
Frpb, ped/bikes	1.00	0.92		1.00	0.85			0.91			0.94	
Flpb, ped/bikes	0.90	1.00		0.65	1.00			0.99			0.99	
Frt	1.00	0.98		1.00	0.93			0.98			0.98	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1537	1605		1123	1420			3002			1605	
Flt Permitted	0.34	1.00		0.56	1.00			0.92			0.67	
Satd. Flow (perm)	546	1605		660	1420			2755			1081	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	19	220	39	12	261	237	38	777	113	47	336	54
RTOR Reduction (vph)	0	6	0	0	1	0	0	10	0	0	5	0
Lane Group Flow (vph)	19	253	0	12	497	0	0	918	0	0	432	0
Confl. Peds. (#/hr)	226		273	273		226	172		593	593		172
Confl. Bikes (#/hr)			16			40			6			15
Heavy Vehicles (%)	6%	6%	6%	5%	5%	5%	7%	7%	7%	8%	8%	8%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	53.0	53.0		53.0	53.0			45.0			45.0	
Effective Green, g (s)	53.0	53.0		53.0	53.0			45.0			45.0	
Actuated g/C Ratio	0.48	0.48		0.48	0.48			0.41			0.41	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	263	773		318	684			1127			442	
v/s Ratio Prot		0.16			c0.35							
v/s Ratio Perm	0.03			0.02				0.33			c0.40	
v/c Ratio	0.07	0.33		0.04	0.73			0.81			0.98	
Uniform Delay, d1	15.3	17.5		15.0	22.7			28.8			32.0	
Progression Factor	0.70	0.67		0.82	0.71			1.51			1.00	
Incremental Delay, d2	0.5	1.0		0.2	6.5			5.1			37.7	
Delay (s)	11.2	12.9		12.6	22.6			48.6			69.7	
Level of Service	B	B		B	C			D			E	
Approach Delay (s)		12.7			22.3			48.6			69.7	
Approach LOS		B			C			D			E	

Intersection Summary			
HCM 2000 Control Delay	42.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	91.2%	ICU Level of Service	F
Analysis Period (min)	15		

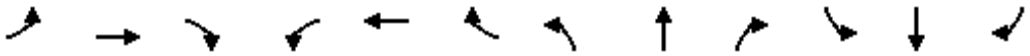
c Critical Lane Group



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	581	117	877	172	230	849	257
v/c Ratio	0.42	0.28	0.58	0.41	0.88	0.62	0.50
Control Delay	21.1	38.5	17.8	15.5	61.2	11.5	42.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.1	38.5	17.8	15.5	61.2	11.5	42.9
Queue Length 50th (ft)	102	68	320	111	161	71	64
Queue Length 95th (ft)	117	m116	m375	m141	#305	84	108
Internal Link Dist (ft)	551		523			368	449
Turn Bay Length (ft)				150			
Base Capacity (vph)	1396	412	1515	424	260	1366	518
Starvation Cap Reductn	0	0	0	0	0	27	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.28	0.58	0.41	0.88	0.63	0.50

Intersection Summary

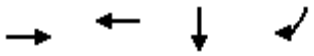
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	523	105	0	789	155	207	748	16	4	211	17
Future Volume (vph)	0	523	105	0	789	155	207	748	16	4	211	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	7.0		6.5	6.5	7.0	7.0			7.0	
Lane Util. Factor		0.95	1.00		0.95	1.00	1.00	0.95			0.95	
Frpb, ped/bikes		1.00	1.00		1.00	0.63	1.00	0.99			0.98	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00			1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00			0.99	
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)		3167	1417		3438	962	1687	3339			3218	
Flt Permitted		1.00	1.00		1.00	1.00	0.95	1.00			0.84	
Satd. Flow (perm)		3167	1417		3438	962	1687	3339			2715	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	581	117	0	877	172	230	831	18	4	234	19
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	581	117	0	877	172	230	849	0	0	257	0
Confl. Peds. (#/hr)	309		153	153		309	209		262	262		209
Confl. Bikes (#/hr)			35			127			13			14
Heavy Vehicles (%)	14%	14%	14%	5%	5%	5%	7%	7%	7%	8%	8%	8%
Turn Type		NA	custom		NA	Perm	Prot	NA		Perm	NA	
Protected Phases		2 1	3 1		6		3	8			4	
Permitted Phases						6				4		
Actuated Green, G (s)		48.5	37.0		48.5	48.5	17.0	45.0			21.0	
Effective Green, g (s)		46.5	37.0		48.5	48.5	17.0	45.0			21.0	
Actuated g/C Ratio		0.42	0.34		0.44	0.44	0.15	0.41			0.19	
Clearance Time (s)					6.5	6.5	7.0	7.0			7.0	
Lane Grp Cap (vph)		1338	476		1515	424	260	1365			518	
v/s Ratio Prot		0.18	0.08		c0.26		c0.14	c0.25				
v/s Ratio Perm						0.18					0.09	
v/c Ratio		0.43	0.25		0.58	0.41	0.88	0.62			0.50	
Uniform Delay, d1		22.4	26.4		23.1	20.9	45.5	25.8			39.8	
Progression Factor		0.95	1.20		0.72	0.64	0.62	0.36			0.99	
Incremental Delay, d2		1.0	1.2		0.9	1.5	30.5	2.0			3.0	
Delay (s)		22.3	32.8		17.6	15.0	58.6	11.3			42.4	
Level of Service		C	C		B	B	E	B			D	
Approach Delay (s)		24.1			17.1			21.4			42.4	
Approach LOS		C			B			C			D	

Intersection Summary			
HCM 2000 Control Delay	22.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		

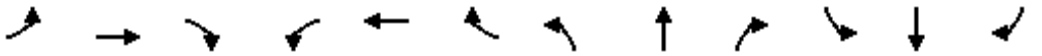
c Critical Lane Group



Lane Group	EBT	WBT	SBT	SBR
Lane Group Flow (vph)	1195	1076	1333	139
v/c Ratio	0.44	0.41	0.87	0.28
Control Delay	21.6	7.0	17.3	2.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	21.6	7.0	17.3	2.4
Queue Length 50th (ft)	163	44	273	4
Queue Length 95th (ft)	194	52	278	m5
Internal Link Dist (ft)	334	516	582	
Turn Bay Length (ft)				
Base Capacity (vph)	2725	2643	1527	500
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.44	0.41	0.87	0.28

Intersection Summary

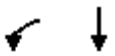
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1089	82	204	824	26	0	0	0	76	1230	136
Future Volume (vph)	0	1089	82	204	824	26	0	0	0	76	1230	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			6.0						6.5	6.5
Lane Util. Factor		0.86			0.86						0.91	1.00
Frpb, ped/bikes		0.99			1.00						1.00	0.88
Flpb, ped/bikes		1.00			1.00						1.00	1.00
Frt		0.99			1.00						1.00	0.85
Flt Protected		1.00			0.99						1.00	1.00
Satd. Flow (prot)		6159			6044						4869	1343
Flt Permitted		1.00			0.72						1.00	1.00
Satd. Flow (perm)		6159			4373						4869	1343
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1111	84	208	841	27	0	0	0	78	1255	139
RTOR Reduction (vph)	0	11	0	0	3	0	0	0	0	0	0	79
Lane Group Flow (vph)	0	1184	0	0	1073	0	0	0	0	0	1333	60
Confl. Peds. (#/hr)	70		64	64		70	89		28	28		89
Confl. Bikes (#/hr)			3			3						
Heavy Vehicles (%)	4%	4%	4%	6%	6%	6%	0%	0%	0%	6%	6%	6%
Turn Type		NA		pm+pt	NA					Perm	NA	Perm
Protected Phases		6		5	2						4	
Permitted Phases				2						4		4
Actuated Green, G (s)		48.5			63.0						34.5	34.5
Effective Green, g (s)		48.5			63.0						34.5	34.5
Actuated g/C Ratio		0.44			0.57						0.31	0.31
Clearance Time (s)		5.5			6.0						6.5	6.5
Lane Grp Cap (vph)		2715			2641						1527	421
v/s Ratio Prot		c0.19			c0.03							
v/s Ratio Perm					0.20						0.27	0.04
v/c Ratio		0.44			0.41						0.87	0.14
Uniform Delay, d1		21.3			13.1						35.7	27.1
Progression Factor		1.00			0.49						0.34	0.20
Incremental Delay, d2		0.5			0.4						4.7	0.4
Delay (s)		21.8			6.9						16.8	5.9
Level of Service		C			A						B	A
Approach Delay (s)		21.8			6.9			0.0			15.7	
Approach LOS		C			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	80.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	WBL	SBT
Lane Group Flow (vph)	105	1477
v/c Ratio	0.15	0.61
Control Delay	18.6	6.2
Queue Delay	0.0	0.5
Total Delay	18.6	6.7
Queue Length 50th (ft)	45	54
Queue Length 95th (ft)	m69	105
Internal Link Dist (ft)	508	411
Turn Bay Length (ft)		
Base Capacity (vph)	697	2413
Starvation Cap Reductn	0	469
Spillback Cap Reductn	0	4
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.15	0.76

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	103	0	0	0	133	1314
Future Volume (vph)	103	0	0	0	133	1314
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5					5.5
Lane Util. Factor	1.00					0.91
Frpb, ped/bikes	1.00					1.00
Flpb, ped/bikes	0.97					0.96
Frt	1.00					1.00
Flt Protected	0.95					1.00
Satd. Flow (prot)	1725					4873
Flt Permitted	0.95					1.00
Satd. Flow (perm)	1725					4873
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	105	0	0	0	136	1341
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	105	0	0	0	0	1477
Confl. Peds. (#/hr)	16	419		125	125	
Turn Type	Perm				Perm	NA
Protected Phases						2
Permitted Phases	4				2	
Actuated Green, G (s)	44.5					54.5
Effective Green, g (s)	44.5					54.5
Actuated g/C Ratio	0.40					0.50
Clearance Time (s)	5.5					5.5
Lane Grp Cap (vph)	697					2414
v/s Ratio Prot						
v/s Ratio Perm	c0.06					0.30
v/c Ratio	0.15					0.61
Uniform Delay, d1	20.8					20.1
Progression Factor	0.86					0.26
Incremental Delay, d2	0.3					0.9
Delay (s)	18.3					6.1
Level of Service	B					A
Approach Delay (s)	18.3		0.0			6.1
Approach LOS	B		A			A

Intersection Summary			
HCM 2000 Control Delay	6.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	57.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	197	85	62	273	1524
v/c Ratio	0.25	0.17	0.16	0.35	0.73
Control Delay	20.6	13.6	18.1	18.8	26.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	20.6	13.6	18.1	18.8	26.9
Queue Length 50th (ft)	86	23	20	92	311
Queue Length 95th (ft)	137	55	m28	m132	369
Internal Link Dist (ft)	409			509	374
Turn Bay Length (ft)		100	100		
Base Capacity (vph)	797	502	387	789	2086
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	6
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.25	0.17	0.16	0.35	0.73

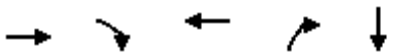
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	193	83	61	268	0	0	0	0	109	1312	73
Future Volume (vph)	0	193	83	61	268	0	0	0	0	109	1312	73
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	
Lane Util. Factor		1.00	1.00	1.00	1.00						0.91	
Frpb, ped/bikes		1.00	0.72	1.00	1.00						0.97	
Flpb, ped/bikes		1.00	1.00	0.80	1.00						0.96	
Frt		1.00	0.85	1.00	1.00						0.99	
Flt Protected		1.00	1.00	0.95	1.00						1.00	
Satd. Flow (prot)		1827	1113	1377	1810						4581	
Flt Permitted		1.00	1.00	0.61	1.00						1.00	
Satd. Flow (perm)		1827	1113	888	1810						4581	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	197	85	62	273	0	0	0	0	111	1339	74
RTOR Reduction (vph)	0	0	17	0	0	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	197	68	62	273	0	0	0	0	0	1519	0
Confl. Peds. (#/hr)	250		181	181		250	263		237	237		263
Confl. Bikes (#/hr)			18			42						7
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	0%	0%	0%	5%	5%	5%
Turn Type		NA	Perm	Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		48.0	48.0	48.0	48.0						50.0	
Effective Green, g (s)		48.0	48.0	48.0	48.0						50.0	
Actuated g/C Ratio		0.44	0.44	0.44	0.44						0.45	
Clearance Time (s)		6.0	6.0	6.0	6.0						6.0	
Lane Grp Cap (vph)		797	485	387	789						2082	
v/s Ratio Prot		0.11			c0.15							
v/s Ratio Perm			0.06	0.07							0.33	
v/c Ratio		0.25	0.14	0.16	0.35						0.73	
Uniform Delay, d1		19.6	18.6	18.8	20.6						24.5	
Progression Factor		1.00	1.00	0.91	0.86						1.00	
Incremental Delay, d2		0.7	0.6	0.5	0.7						2.3	
Delay (s)		20.3	19.2	17.6	18.4						26.8	
Level of Service		C	B	B	B						C	
Approach Delay (s)		20.0			18.3			0.0			26.8	
Approach LOS		B			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	24.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.0%	ICU Level of Service	C
Analysis Period (min)	15		

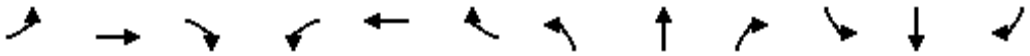
c Critical Lane Group



Lane Group	EBT	EBR	WBT	NBR	SBT
Lane Group Flow (vph)	474	237	1072	45	1521
v/c Ratio	0.31	0.59	0.73	0.13	0.79
Control Delay	18.3	51.1	11.1	18.4	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.2
Total Delay	18.3	51.1	11.1	18.4	11.2
Queue Length 50th (ft)	101	71	53	25	78
Queue Length 95th (ft)	143	108	m177	58	78
Internal Link Dist (ft)	516		551		235
Turn Bay Length (ft)		100			
Base Capacity (vph)	1552	403	1473	355	1922
Starvation Cap Reductn	0	0	0	0	44
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.31	0.59	0.73	0.13	0.81

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	441	220	0	997	0	0	0	42	123	1237	55
Future Volume (vph)	0	441	220	0	997	0	0	0	42	123	1237	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0	6.5		6.5				7.0		7.0	
Lane Util. Factor		0.95	0.88		0.95				1.00		0.91	
Frpb, ped/bikes		1.00	1.00		1.00				0.69		0.99	
Flpb, ped/bikes		1.00	1.00		1.00				1.00		0.97	
Frt		1.00	0.85		1.00				0.86		0.99	
Flt Protected		1.00	1.00		1.00				1.00		1.00	
Satd. Flow (prot)		3223	2538		3343				870		4699	
Flt Permitted		1.00	1.00		1.00				1.00		1.00	
Satd. Flow (perm)		3223	2538		3343				870		4699	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	474	237	0	1072	0	0	0	45	132	1330	59
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	474	237	0	1072	0	0	0	45	0	1521	0
Confl. Peds. (#/hr)	788		223	223		788	264		211	211		264
Confl. Bikes (#/hr)			38			121						7
Heavy Vehicles (%)	12%	12%	12%	8%	8%	8%	31%	31%	31%	5%	5%	5%
Turn Type		NA	custom		NA				Perm	Perm	NA	
Protected Phases		2 9	9		6						8	
Permitted Phases									4	8		
Actuated Green, G (s)		48.5	17.5		48.5				45.0		45.0	
Effective Green, g (s)		48.5	17.5		48.5				45.0		45.0	
Actuated g/C Ratio		0.44	0.16		0.44				0.41		0.41	
Clearance Time (s)			6.5		6.5				7.0		7.0	
Lane Grp Cap (vph)		1421	403		1473				355		1922	
v/s Ratio Prot		0.15	0.09		c0.32							
v/s Ratio Perm									0.05		0.32	
v/c Ratio		0.33	0.59		0.73				0.13		0.79	
Uniform Delay, d1		20.2	42.9		25.3				20.3		28.4	
Progression Factor		1.02	1.04		0.33				0.85		0.28	
Incremental Delay, d2		0.6	6.0		2.5				0.7		2.9	
Delay (s)		21.1	50.6		10.9				17.9		10.9	
Level of Service		C	D		B				B		B	
Approach Delay (s)		30.9			10.9			17.9			10.9	
Approach LOS		C			B			B			B	

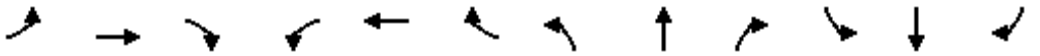
Intersection Summary			
HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	EBR	WBT	NBL	NBR	SBL	SBR
Lane Group Flow (vph)	560	45	1070	176	40	72	34	15
v/c Ratio	0.33	0.34	0.64	0.54	0.10	0.18	0.06	0.04
Control Delay	6.2	45.0	6.7	36.2	25.4	26.6	24.6	24.6
Queue Delay	0.4	0.0	1.2	0.0	0.0	0.0	0.0	0.0
Total Delay	6.6	45.0	7.8	36.2	25.4	26.6	24.6	24.6
Queue Length 50th (ft)	56	27	149	99	19	35	16	7
Queue Length 95th (ft)	72	63	240	174	45	71	39	22
Internal Link Dist (ft)	246		516				417	
Turn Bay Length (ft)								
Base Capacity (vph)	1712	134	1671	328	393	406	575	342
Starvation Cap Reductn	661	0	352	0	0	0	0	0
Spillback Cap Reductn	0	0	54	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.34	0.81	0.54	0.10	0.18	0.06	0.04

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	526	42	0	1006	0	165	0	38	68	32	14
Future Volume (vph)	0	526	42	0	1006	0	165	0	38	68	32	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0	6.5		6.5		7.0		7.0	7.0	7.0	7.0
Lane Util. Factor		0.95	1.00		0.95		1.00		1.00	1.00	1.00	1.00
Frpb, ped/bikes		1.00	1.00		1.00		1.00		0.75	1.00	1.00	0.70
Flpb, ped/bikes		1.00	1.00		1.00		0.72		1.00	0.74	1.00	1.00
Frt		1.00	0.85		1.00		1.00		0.85	1.00	1.00	0.85
Flt Protected		1.00	1.00		1.00		0.95		1.00	0.95	1.00	1.00
Satd. Flow (prot)		3139	1404		3312		1228		1140	1178	1667	992
Flt Permitted		1.00	1.00		1.00		0.73		1.00	0.95	1.00	1.00
Satd. Flow (perm)		3139	1404		3312		950		1140	1178	1667	992
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	560	45	0	1070	0	176	0	40	72	34	15
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	560	45	0	1070	0	176	0	40	72	34	15
Confl. Peds. (#/hr)	655		85	85		655	177		155	155		177
Confl. Bikes (#/hr)			28			102			3			4
Heavy Vehicles (%)	15%	15%	15%	9%	9%	9%	6%	6%	6%	14%	14%	14%
Turn Type		NA	custom		NA		Perm		Perm	Perm	NA	Perm
Protected Phases		2 1	1		6						8	
Permitted Phases							4		4	8		8
Actuated Green, G (s)		55.5	10.5		55.5		38.0		38.0	38.0	38.0	38.0
Effective Green, g (s)		55.5	10.5		55.5		38.0		38.0	38.0	38.0	38.0
Actuated g/C Ratio		0.50	0.10		0.50		0.35		0.35	0.35	0.35	0.35
Clearance Time (s)			6.5		6.5		7.0		7.0	7.0	7.0	7.0
Lane Grp Cap (vph)		1583	134		1671		328		393	406	575	342
v/s Ratio Prot		0.18	0.03		c0.32						0.02	
v/s Ratio Perm							c0.19		0.04	0.06		0.02
v/c Ratio		0.35	0.34		0.64		0.54		0.10	0.18	0.06	0.04
Uniform Delay, d1		16.4	46.5		19.9		28.9		24.4	25.1	24.1	23.9
Progression Factor		0.41	0.82		0.27		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		0.6	6.5		1.3		6.2		0.5	1.0	0.2	0.2
Delay (s)		7.3	44.4		6.6		35.1		24.9	26.1	24.3	24.2
Level of Service		A	D		A		D		C	C	C	C
Approach Delay (s)		10.0			6.6			33.2			25.3	
Approach LOS		B			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	11.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		

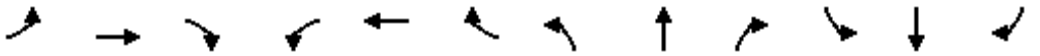
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	236	462	946	343	6	180	59
v/c Ratio	0.73	0.24	0.87	0.71	0.07	0.42	0.18
Control Delay	70.5	4.0	31.2	14.0	50.2	46.2	32.6
Queue Delay	7.7	0.4	5.0	0.0	0.0	0.0	0.0
Total Delay	78.1	4.4	36.2	14.0	50.2	46.2	32.6
Queue Length 50th (ft)	169	31	158	45	4	60	32
Queue Length 95th (ft)	m#240	m37	#305	142	18	95	67
Internal Link Dist (ft)		209	246		170		344
Turn Bay Length (ft)							
Base Capacity (vph)	322	1943	1091	486	92	428	321
Starvation Cap Reductn	54	960	99	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.47	0.95	0.71	0.07	0.42	0.18

Intersection Summary

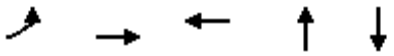
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	212	410	5	0	817	343	1	3	2	162	2	51
Future Volume (vph)	212	410	5	0	817	343	1	3	2	162	2	51
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	7.0		7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95			0.91	0.91		1.00		0.97	1.00	
Frpb, ped/bikes	1.00	0.99			0.98	0.74		0.87		1.00	0.86	
Flpb, ped/bikes	1.00	1.00			1.00	1.00		0.98		1.00	1.00	
Frt	1.00	1.00			0.99	0.85		0.95		1.00	0.86	
Flt Protected	0.95	1.00			1.00	1.00		0.99		0.95	1.00	
Satd. Flow (prot)	1612	3190			3078	989		1546		2943	1179	
Flt Permitted	0.95	1.00			1.00	1.00		0.93		0.95	1.00	
Satd. Flow (perm)	1612	3190			3078	989		1447		2943	1179	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	236	456	6	0	908	381	1	3	2	180	2	57
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	236	462	0	0	946	343	0	6	0	180	59	0
Confl. Peds. (#/hr)	345		257	257		345	74		144	144		74
Confl. Bikes (#/hr)			25			95						38
Heavy Vehicles (%)	12%	12%	12%	10%	10%	10%	0%	0%	0%	19%	19%	19%
Turn Type	Prot	NA			NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases	1	6			2	3		4		3	8	
Permitted Phases						2	4					
Actuated Green, G (s)	22.0	67.0			39.0	55.0		7.0		16.0	30.0	
Effective Green, g (s)	22.0	67.0			39.0	55.0		7.0		16.0	30.0	
Actuated g/C Ratio	0.20	0.61			0.35	0.50		0.06		0.15	0.27	
Clearance Time (s)	6.0	6.0			6.0	7.0		7.0		7.0	7.0	
Lane Grp Cap (vph)	322	1943			1091	494		92		428	321	
v/s Ratio Prot	c0.15	0.14			c0.31	c0.10				0.06	c0.05	
v/s Ratio Perm						0.25		0.00				
v/c Ratio	0.73	0.24			0.87	0.69		0.07		0.42	0.18	
Uniform Delay, d1	41.2	9.8			33.1	21.1		48.4		42.8	30.6	
Progression Factor	1.38	0.38			0.69	0.35		1.00		1.00	1.00	
Incremental Delay, d2	12.7	0.3			7.6	6.3		1.4		3.0	1.3	
Delay (s)	69.7	4.0			30.5	13.8		49.8		45.8	31.9	
Level of Service	E	A			C	B		D		D	C	
Approach Delay (s)		26.2			26.1			49.8			42.4	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	27.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	74.1%	ICU Level of Service	D
Analysis Period (min)	15		

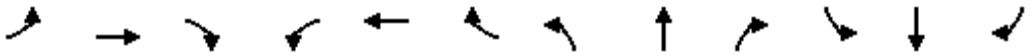
c Critical Lane Group



Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	194	1200	939	1919	72
v/c Ratio	0.76	0.55	0.71	0.98	0.08
Control Delay	72.8	7.1	41.2	45.1	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	72.8	7.1	41.2	45.1	0.2
Queue Length 50th (ft)	115	59	175	471	0
Queue Length 95th (ft)	m157	68	214	#599	0
Internal Link Dist (ft)		1027	345	451	993
Turn Bay Length (ft)					
Base Capacity (vph)	254	2166	1327	1968	920
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.76	0.55	0.71	0.98	0.08

Intersection Summary

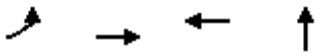
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	186	1136	16	10	843	49	162	1370	310	14	11	44
Future Volume (vph)	186	1136	16	10	843	49	162	1370	310	14	11	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.5			6.5			6.5			6.5	
Lane Util. Factor	1.00	0.91			0.86			0.91			0.95	
Frpb, ped/bikes	1.00	1.00			1.00			0.99			0.96	
Flpb, ped/bikes	1.00	1.00			1.00			0.99			1.00	
Frt	1.00	1.00			0.99			0.97			0.90	
Flt Protected	0.95	1.00			1.00			1.00			0.99	
Satd. Flow (prot)	1752	5013			6036			4843			2744	
Flt Permitted	0.95	1.00			0.91			0.89			0.72	
Satd. Flow (perm)	1752	5013			5476			4352			1992	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	194	1183	17	10	878	51	169	1427	323	15	11	46
RTOR Reduction (vph)	0	1	0	0	8	0	0	9	0	0	25	0
Lane Group Flow (vph)	194	1199	0	0	931	0	0	1910	0	0	47	0
Confl. Peds. (#/hr)	31		78	78		31	78		47	47		78
Confl. Bikes (#/hr)			1						3			
Heavy Vehicles (%)	3%	3%	3%	7%	7%	7%	2%	2%	2%	13%	13%	13%
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	6			2			8			4	
Permitted Phases				2			8			4		
Actuated Green, G (s)	16.0	47.5			26.5			49.5			49.5	
Effective Green, g (s)	16.0	47.5			26.5			49.5			49.5	
Actuated g/C Ratio	0.15	0.43			0.24			0.45			0.45	
Clearance Time (s)	5.0	6.5			6.5			6.5			6.5	
Lane Grp Cap (vph)	254	2164			1319			1958			896	
v/s Ratio Prot	c0.11	0.24										
v/s Ratio Perm					c0.17			c0.44			0.02	
v/c Ratio	0.76	0.55			0.71			0.98			0.05	
Uniform Delay, d1	45.2	23.3			38.2			29.7			17.0	
Progression Factor	1.31	0.27			1.00			1.00			0.00	
Incremental Delay, d2	13.1	0.7			3.2			15.3			0.1	
Delay (s)	72.3	7.1			41.4			45.0			0.1	
Level of Service	E	A			D			D			A	
Approach Delay (s)		16.2			41.4			45.0			0.1	
Approach LOS		B			D			D			A	

Intersection Summary			
HCM 2000 Control Delay	34.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	98.2%	ICU Level of Service	F
Analysis Period (min)	15		

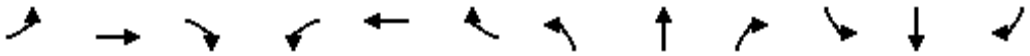
c Critical Lane Group



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	96	116	268	1627
v/c Ratio	0.30	0.16	0.45	0.72
Control Delay	43.2	39.2	27.2	11.5
Queue Delay	0.0	0.0	0.0	6.8
Total Delay	43.2	39.2	27.2	18.2
Queue Length 50th (ft)	62	75	134	245
Queue Length 95th (ft)	m89	m102	210	m83
Internal Link Dist (ft)		379	152	314
Turn Bay Length (ft)	100			
Base Capacity (vph)	319	705	594	2267
Starvation Cap Reductn	0	0	0	596
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.30	0.16	0.45	0.97

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	113	0	0	156	104	54	1288	236	0	0	0
Future Volume (vph)	93	113	0	0	156	104	54	1288	236	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5			6.0				
Lane Util. Factor	1.00	1.00			1.00			0.91				
Frpb, ped/bikes	1.00	1.00			0.92			0.92				
Flpb, ped/bikes	0.90	1.00			1.00			0.99				
Frt	1.00	1.00			0.95			0.98				
Flt Protected	0.95	1.00			1.00			1.00				
Satd. Flow (prot)	1555	1827			1524			4408				
Flt Permitted	0.51	1.00			1.00			1.00				
Satd. Flow (perm)	828	1827			1524			4408				
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	96	116	0	0	161	107	56	1328	243	0	0	0
RTOR Reduction (vph)	0	0	0	0	6	0	0	23	0	0	0	0
Lane Group Flow (vph)	96	116	0	0	262	0	0	1604	0	0	0	0
Confl. Peds. (#/hr)	113		183	183		113	120		224	224		120
Confl. Bikes (#/hr)			5			11			5			
Heavy Vehicles (%)	4%	4%	4%	9%	9%	9%	5%	5%	5%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			4			2				
Permitted Phases	4						2					
Actuated Green, G (s)	42.5	42.5			42.5			56.0				
Effective Green, g (s)	42.5	42.5			42.5			56.0				
Actuated g/C Ratio	0.39	0.39			0.39			0.51				
Clearance Time (s)	5.5	5.5			5.5			6.0				
Lane Grp Cap (vph)	319	705			588			2244				
v/s Ratio Prot		0.06			c0.17							
v/s Ratio Perm	0.12							0.36				
v/c Ratio	0.30	0.16			0.45			0.71				
Uniform Delay, d1	23.4	22.1			25.0			20.8				
Progression Factor	1.70	1.73			1.00			0.52				
Incremental Delay, d2	1.8	0.4			2.4			0.9				
Delay (s)	41.7	38.6			27.5			11.6				
Level of Service	D	D			C			B				
Approach Delay (s)		40.0			27.5			11.6			0.0	
Approach LOS		D			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		

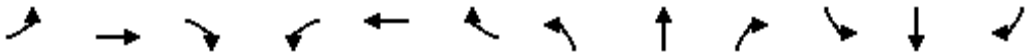
c Critical Lane Group



Lane Group	EBT	EBR	WBT	WBR	NBT
Lane Group Flow (vph)	501	68	573	379	1776
v/c Ratio	0.31	0.37	0.37	0.79	0.91
Control Delay	14.7	42.9	3.6	16.5	27.3
Queue Delay	0.0	0.0	0.4	1.0	9.5
Total Delay	14.7	42.9	4.0	17.5	36.8
Queue Length 50th (ft)	102	40	14	17	464
Queue Length 95th (ft)	131	84	m16	m42	m482
Internal Link Dist (ft)	419		209		993
Turn Bay Length (ft)		200			
Base Capacity (vph)	1611	183	1548	477	1960
Starvation Cap Reductn	0	0	513	18	0
Spillback Cap Reductn	9	0	0	0	186
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.31	0.37	0.55	0.83	1.00

Intersection Summary

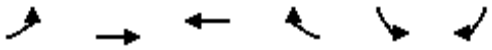
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	476	65	0	544	360	102	1434	152	0	0	0
Future Volume (vph)	0	476	65	0	544	360	102	1434	152	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0	2.0		6.5	6.5		7.0				
Lane Util. Factor		0.95	1.00		0.95	1.00		0.91				
Frpb, ped/bikes		1.00	1.00		1.00	0.69		0.97				
Flpb, ped/bikes		1.00	1.00		1.00	1.00		0.98				
Frt		1.00	0.85		1.00	0.85		0.99				
Flt Protected		1.00	1.00		1.00	1.00		1.00				
Satd. Flow (prot)		3223	1442		3374	1041		4691				
Flt Permitted		1.00	1.00		1.00	1.00		1.00				
Satd. Flow (perm)		3223	1442		3374	1041		4691				
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	501	68	0	573	379	107	1509	160	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	501	68	0	573	379	0	1776	0	0	0	0
Confl. Peds. (#/hr)	261		351	351		261	228		163	163		228
Confl. Bikes (#/hr)			50			68			14			
Heavy Vehicles (%)	12%	12%	12%	7%	7%	7%	4%	4%	4%	0%	0%	0%
Turn Type		NA	custom		NA	Perm	Perm	NA				
Protected Phases		1 2	1		6			4				
Permitted Phases						6	4					
Actuated Green, G (s)		50.5	14.0		50.5	50.5		46.0				
Effective Green, g (s)		50.5	14.0		50.5	50.5		46.0				
Actuated g/C Ratio		0.46	0.13		0.46	0.46		0.42				
Clearance Time (s)			2.0		6.5	6.5		7.0				
Lane Grp Cap (vph)		1479	183		1548	477		1961				
v/s Ratio Prot		0.16	0.05		0.17							
v/s Ratio Perm						c0.36		0.38				
v/c Ratio		0.34	0.37		0.37	0.79		0.91				
Uniform Delay, d1		19.1	44.0		19.4	25.3		30.0				
Progression Factor		0.86	0.83		0.16	0.31		0.77				
Incremental Delay, d2		0.6	5.6		0.4	7.2		3.6				
Delay (s)		17.0	42.2		3.5	15.0		26.7				
Level of Service		B	D		A	B		C				
Approach Delay (s)		20.1			8.1			26.7			0.0	
Approach LOS		C			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	20.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		

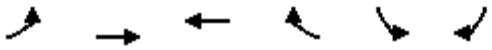
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	246	366	400	404	272	116
v/c Ratio	0.75	0.18	0.31	0.49	0.31	0.19
Control Delay	61.9	10.8	29.8	14.3	8.9	5.6
Queue Delay	1.7	0.0	0.0	3.2	1.5	0.5
Total Delay	63.6	10.8	29.8	17.5	10.4	6.1
Queue Length 50th (ft)	173	64	91	130	12	9
Queue Length 95th (ft)	#257	66	m117	m177	m17	m11
Internal Link Dist (ft)		238	419		144	
Turn Bay Length (ft)				200		
Base Capacity (vph)	326	2081	1277	823	870	617
Starvation Cap Reductn	19	0	0	0	416	252
Spillback Cap Reductn	0	0	0	313	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.18	0.31	0.79	0.60	0.32

Intersection Summary

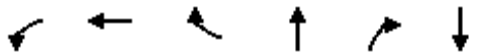
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	209	311	340	343	231	99
Future Volume (vph)	209	311	340	343	231	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	6.0	6.0	6.5
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.83	1.00	0.89
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1671	3343	3471	1295	3303	1357
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1671	3343	3471	1295	3303	1357
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	246	366	400	404	272	116
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	246	366	400	404	272	116
Confl. Peds. (#/hr)	161			161	611	87
Confl. Bikes (#/hr)				63		8
Heavy Vehicles (%)	8%	8%	4%	4%	6%	6%
Turn Type	Prot	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	1	6	2	4	4	1
Permitted Phases				2		4
Actuated Green, G (s)	21.5	68.5	40.5	69.5	29.0	50.5
Effective Green, g (s)	21.5	68.5	40.5	69.5	29.0	50.5
Actuated g/C Ratio	0.20	0.62	0.37	0.63	0.26	0.46
Clearance Time (s)	6.5	6.5	6.5	6.0	6.0	6.5
Lane Grp Cap (vph)	326	2081	1277	888	870	703
v/s Ratio Prot	c0.15	0.11	0.12	c0.12	0.08	0.03
v/s Ratio Perm				0.19		0.05
v/c Ratio	0.75	0.18	0.31	0.45	0.31	0.17
Uniform Delay, d1	41.8	8.8	24.8	10.5	32.5	17.4
Progression Factor	1.10	1.20	1.17	1.62	0.25	0.35
Incremental Delay, d2	14.9	0.2	0.6	1.6	0.7	0.4
Delay (s)	61.0	10.7	29.5	18.6	8.9	6.5
Level of Service	E	B	C	B	A	A
Approach Delay (s)		30.9	24.0		8.1	
Approach LOS		C	C		A	

Intersection Summary			
HCM 2000 Control Delay	23.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	64.1%	ICU Level of Service	C
Analysis Period (min)	15		

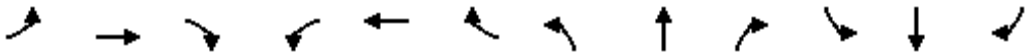
c Critical Lane Group



Lane Group	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	26	75	49	544	111	624
v/c Ratio	0.07	0.15	0.09	0.72	0.53	0.78
Control Delay	42.5	43.4	5.4	51.4	15.6	45.3
Queue Delay	0.0	0.0	0.0	54.9	0.7	0.0
Total Delay	42.5	43.4	5.4	106.3	16.3	45.3
Queue Length 50th (ft)	16	49	3	182	8	208
Queue Length 95th (ft)	m33	m85	m16	257	m38	276
Internal Link Dist (ft)		379		144		307
Turn Bay Length (ft)	200		65			
Base Capacity (vph)	352	514	522	759	210	801
Starvation Cap Reductn	0	0	0	354	14	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.15	0.09	1.34	0.57	0.78

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	24	69	45	73	428	102	136	322	116
Future Volume (vph)	0	0	0	24	69	45	73	428	102	136	322	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5	6.5		6.0	6.0		6.0	
Lane Util. Factor				1.00	1.00	1.00		0.95	1.00		0.95	
Frpb, ped/bikes				1.00	1.00	0.95		1.00	0.26		0.99	
Flpb, ped/bikes				0.72	1.00	1.00		1.00	1.00		1.00	
Frt				1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected				0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)				1193	1743	1414		3480	413		3304	
Flt Permitted				0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (perm)				1193	1743	1414		3480	413		3304	
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	26	75	49	79	465	111	148	350	126
RTOR Reduction (vph)	0	0	0	0	0	35	0	0	87	0	21	0
Lane Group Flow (vph)	0	0	0	26	75	14	0	544	24	0	603	0
Confl. Peds. (#/hr)	19		195	195		19	9		599	599		9
Confl. Bikes (#/hr)						10			4			5
Heavy Vehicles (%)	0%	0%	0%	9%	9%	9%	3%	3%	3%	4%	4%	4%
Turn Type				Perm	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases					4		2	2		1	1	
Permitted Phases				4		4			2			
Actuated Green, G (s)				32.5	32.5	32.5		24.0	24.0		26.0	
Effective Green, g (s)				32.5	32.5	32.5		24.0	24.0		26.0	
Actuated g/C Ratio				0.30	0.30	0.30		0.22	0.22		0.24	
Clearance Time (s)				6.5	6.5	6.5		6.0	6.0		6.0	
Lane Grp Cap (vph)				352	514	417		759	90		780	
v/s Ratio Prot					c0.04			c0.16			c0.18	
v/s Ratio Perm				0.02		0.01			0.06			
v/c Ratio				0.07	0.15	0.03		0.72	0.27		0.77	
Uniform Delay, d1				27.9	28.5	27.6		39.8	35.7		39.2	
Progression Factor				1.48	1.48	1.00		1.16	3.41		1.00	
Incremental Delay, d2				0.4	0.5	0.1		4.7	5.9		7.4	
Delay (s)				41.8	42.8	27.7		51.0	127.5		46.6	
Level of Service				D	D	C		D	F		D	
Approach Delay (s)		0.0			37.7			63.9			46.6	
Approach LOS		A			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	53.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

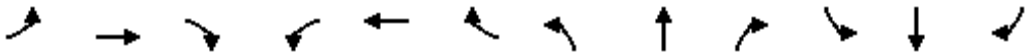
c Critical Lane Group



Lane Group	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	1181	934	157	2456	897
v/c Ratio	0.77	0.66	0.40	0.76	0.36
Control Delay	37.0	41.9	33.5	22.0	34.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	37.0	41.9	33.5	22.0	34.9
Queue Length 50th (ft)	272	258	100	375	209
Queue Length 95th (ft)	328	m303	m148	422	250
Internal Link Dist (ft)	320	1027		460	1159
Turn Bay Length (ft)					
Base Capacity (vph)	1528	1405	394	3220	2481
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.77	0.66	0.40	0.76	0.36

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	1116	41	10	898	172	0	2206	226	0	766	122
Future Volume (vph)	13	1116	41	10	898	172	0	2206	226	0	766	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5	4.5		4.5			4.5	
Lane Util. Factor		0.91			0.86	0.86		0.86			0.91	
Frpb, ped/bikes		1.00			1.00	0.82		0.98			0.98	
Flpb, ped/bikes		1.00			1.00	1.00		1.00			1.00	
Frt		0.99			1.00	0.85		0.99			0.98	
Flt Protected		1.00			1.00	1.00		1.00			1.00	
Satd. Flow (prot)		4982			4594	1077		6027			4632	
Flt Permitted		0.92			0.92	1.00		1.00			1.00	
Satd. Flow (perm)		4596			4232	1077		6027			4632	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	13	1127	41	10	907	174	0	2228	228	0	774	123
RTOR Reduction (vph)	0	3	0	0	1	37	0	15	0	0	20	0
Lane Group Flow (vph)	0	1178	0	0	933	120	0	2441	0	0	877	0
Confl. Peds. (#/hr)	133		97	97		133	87		163	163		87
Confl. Bikes (#/hr)			4			2			5			6
Heavy Vehicles (%)	3%	3%	3%	6%	6%	6%	5%	5%	5%	8%	8%	8%
Turn Type	Perm	NA		Perm	NA	Perm		NA			NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2						
Actuated Green, G (s)		36.5			36.5	36.5		58.5			58.5	
Effective Green, g (s)		36.5			36.5	36.5		58.5			58.5	
Actuated g/C Ratio		0.33			0.33	0.33		0.53			0.53	
Clearance Time (s)		4.5			4.5	4.5		4.5			4.5	
Lane Grp Cap (vph)		1525			1404	357		3205			2463	
v/s Ratio Prot								c0.40			0.19	
v/s Ratio Perm		c0.26			0.22	0.11						
v/c Ratio		0.77			0.66	0.34		0.76			0.36	
Uniform Delay, d1		33.0			31.5	27.6		20.3			14.9	
Progression Factor		1.00			1.27	1.70		1.00			2.42	
Incremental Delay, d2		3.9			1.7	1.7		1.8			0.4	
Delay (s)		36.9			41.6	48.6		22.0			36.4	
Level of Service		D			D	D		C			D	
Approach Delay (s)		36.9			42.6			22.0			36.4	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	31.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



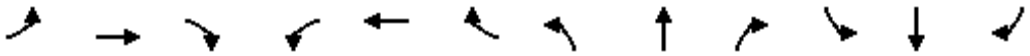
Lane Group	EBT	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	404	236	65	68	2058	871
v/c Ratio	0.44	0.24	0.18	0.22	1.06	0.30
Control Delay	18.0	41.0	41.7	4.6	51.3	1.3
Queue Delay	0.0	0.0	0.0	0.0	15.7	0.2
Total Delay	18.0	41.0	41.7	4.6	67.1	1.4
Queue Length 50th (ft)	84	92	48	6	~593	23
Queue Length 95th (ft)	m88	135	95	m8	#990	22
Internal Link Dist (ft)	394	249			1159	146
Turn Bay Length (ft)						
Base Capacity (vph)	916	966	369	310	1937	2874
Starvation Cap Reductn	0	0	0	0	0	1043
Spillback Cap Reductn	0	0	0	0	76	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.24	0.18	0.22	1.11	0.48

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	364	36	0	234	64	67	1819	219	0	848	14
Future Volume (vph)	0	364	36	0	234	64	67	1819	219	0	848	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5	6.5	6.5	6.5			6.5	
Lane Util. Factor		0.95			0.95	1.00	1.00	0.95			0.91	
Frpb, ped/bikes		0.97			1.00	0.86	1.00	0.96			1.00	
Flpb, ped/bikes		1.00			1.00	1.00	0.96	1.00			1.00	
Frt		0.99			1.00	0.85	1.00	0.98			1.00	
Flt Protected		1.00			1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)		3198			3374	1291	1655	3253			4825	
Flt Permitted		1.00			1.00	1.00	0.30	1.00			1.00	
Satd. Flow (perm)		3198			3374	1291	521	3253			4825	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	0	368	36	0	236	65	68	1837	221	0	857	14
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	404	0	0	236	65	68	2058	0	0	871	0
Confl. Peds. (#/hr)	75		346	346		75	112		287	287		112
Confl. Bikes (#/hr)			58			70			3			21
Heavy Vehicles (%)	8%	8%	8%	7%	7%	7%	5%	5%	5%	7%	7%	7%
Turn Type		NA			NA	Perm	Perm	NA			NA	
Protected Phases		8			4			6			2	
Permitted Phases						4	6					
Actuated Green, G (s)		31.5			31.5	31.5	65.5	65.5			65.5	
Effective Green, g (s)		31.5			31.5	31.5	65.5	65.5			65.5	
Actuated g/C Ratio		0.29			0.29	0.29	0.60	0.60			0.60	
Clearance Time (s)		6.5			6.5	6.5	6.5	6.5			6.5	
Lane Grp Cap (vph)		915			966	369	310	1937			2873	
v/s Ratio Prot		c0.13			0.07			c0.63			0.18	
v/s Ratio Perm						0.05	0.13					
v/c Ratio		0.44			0.24	0.18	0.22	1.06			0.30	
Uniform Delay, d1		32.1			30.1	29.5	10.4	22.2			11.0	
Progression Factor		0.54			1.33	1.35	0.32	0.56			0.09	
Incremental Delay, d2		0.7			0.6	1.0	1.1	36.3			0.2	
Delay (s)		17.9			40.7	40.8	4.4	48.7			1.3	
Level of Service		B			D	D	A	D			A	
Approach Delay (s)		17.9			40.7			47.3			1.3	
Approach LOS		B			D			D			A	

Intersection Summary			
HCM 2000 Control Delay	32.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		

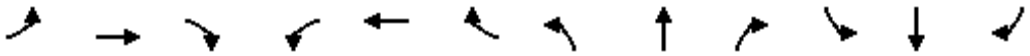
c Critical Lane Group



Lane Group	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	94	160	304	1617	925
v/c Ratio	0.24	0.44	0.54	0.52	0.59
Control Delay	31.4	34.4	14.2	2.4	32.4
Queue Delay	0.0	0.0	60.1	44.8	0.0
Total Delay	31.4	34.4	74.3	47.2	32.4
Queue Length 50th (ft)	49	92	77	86	196
Queue Length 95th (ft)	m73	m136	m69	m79	242
Internal Link Dist (ft)		580		146	270
Turn Bay Length (ft)					
Base Capacity (vph)	386	367	568	3128	1563
Starvation Cap Reductn	0	0	298	1646	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.24	0.44	1.13	1.09	0.59

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	103	71	75	298	1585	0	0	853	54
Future Volume (vph)	0	0	0	103	71	75	298	1585	0	0	853	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5		6.0	6.0			6.0	
Lane Util. Factor				0.95	0.95		1.00	0.91			0.91	
Frpb, ped/bikes				1.00	0.89		1.00	1.00			0.98	
Flpb, ped/bikes				0.92	0.99		0.99	1.00			1.00	
Frt				1.00	0.93		1.00	1.00			0.99	
Flt Protected				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)				1492	1397		1717	4988			4760	
Flt Permitted				0.95	1.00		0.22	1.00			1.00	
Satd. Flow (perm)				1492	1397		394	4988			4760	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	0	0	105	72	77	304	1617	0	0	870	55
RTOR Reduction (vph)	0	0	0	0	5	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	0	0	94	155	0	304	1617	0	0	919	0
Confl. Peds. (#/hr)	167		61	61		167	123		348	348		123
Confl. Bikes (#/hr)						8			3			17
Heavy Vehicles (%)	0%	0%	0%	6%	6%	6%	4%	4%	4%	6%	6%	6%
Turn Type				Perm	NA		pm+pt	NA			NA	
Protected Phases					4		5	2			6	
Permitted Phases				4			2					
Actuated Green, G (s)				28.5	28.5		69.0	69.0			36.0	
Effective Green, g (s)				28.5	28.5		69.0	69.0			36.0	
Actuated g/C Ratio				0.26	0.26		0.63	0.63			0.33	
Clearance Time (s)				6.5	6.5		6.0	6.0			6.0	
Lane Grp Cap (vph)				386	361		571	3128			1557	
v/s Ratio Prot							0.13	c0.32			c0.19	
v/s Ratio Perm				0.06	0.11		0.20					
v/c Ratio				0.24	0.43		0.53	0.52			0.59	
Uniform Delay, d1				32.2	34.0		20.6	11.3			30.8	
Progression Factor				0.92	0.94		0.60	0.21			1.00	
Incremental Delay, d2				1.2	3.0		0.3	0.1			1.7	
Delay (s)				30.8	35.1		12.8	2.4			32.5	
Level of Service				C	D		B	A			C	
Approach Delay (s)		0.0			33.5			4.0			32.5	
Approach LOS		A			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

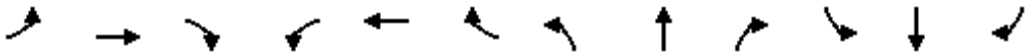


Lane Group	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	10	14	131	145	1337	85	386
v/c Ratio	0.16	0.08	0.63	0.29	1.06	0.57	0.22
Control Delay	57.1	37.6	67.6	34.7	73.6	63.4	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.1	37.6	67.6	34.7	73.6	63.4	12.6
Queue Length 50th (ft)	7	8	49	94	~545	59	68
Queue Length 95th (ft)	25	26	79	151	#642	108	91
Internal Link Dist (ft)	133				1023		200
Turn Bay Length (ft)				100			
Base Capacity (vph)	61	183	209	508	1265	150	1784
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.08	0.63	0.29	1.06	0.57	0.22

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	8	12	114	0	126	32	876	255	74	320	16
Future Volume (vph)	1	8	12	114	0	126	32	876	255	74	320	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5	6.5		6.5		6.5		5.0	6.5	
Lane Util. Factor		1.00	1.00	0.97		1.00		0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.73	1.00		1.00		0.96		1.00	0.97	
Flpb, ped/bikes		1.00	1.00	1.00		1.00		0.99		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		0.97		1.00	0.99	
Flt Protected		1.00	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1499	941	3072		1417		3219		1656	3192	
Flt Permitted		1.00	1.00	0.95		1.00		0.93		0.95	1.00	
Satd. Flow (perm)		1499	941	3072		1417		2994		1656	3192	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	1	9	14	131	0	145	37	1007	293	85	368	18
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	10	14	131	0	145	0	1337	0	85	386	0
Confl. Peds. (#/hr)	4		150	150		4	390		114	114		390
Confl. Bikes (#/hr)			17			113			39			31
Heavy Vehicles (%)	26%	26%	26%	14%	14%	14%	3%	3%	3%	9%	9%	9%
Turn Type	Prot	NA	Perm	Prot		custom	Perm	NA		Prot	NA	
Protected Phases	3	8		7		7 4 1		2		1	6	
Permitted Phases			8				2					
Actuated Green, G (s)		21.5	21.5	7.5		41.0		46.5		10.0	61.5	
Effective Green, g (s)		21.5	21.5	7.5		41.0		46.5		10.0	61.5	
Actuated g/C Ratio		0.20	0.20	0.07		0.37		0.42		0.09	0.56	
Clearance Time (s)		6.5	6.5	6.5				6.5		5.0	6.5	
Lane Grp Cap (vph)		292	183	209		528		1265		150	1784	
v/s Ratio Prot		0.00		c0.04		c0.10				c0.05	0.12	
v/s Ratio Perm		0.00	c0.01					c0.45				
v/c Ratio		0.03	0.08	0.63		0.27		1.06		0.57	0.22	
Uniform Delay, d1		35.8	36.1	49.9		24.1		31.8		47.9	12.2	
Progression Factor		1.00	1.00	1.08		1.30		1.00		1.00	1.00	
Incremental Delay, d2		0.2	0.8	13.2		1.3		41.8		14.6	0.3	
Delay (s)		36.1	37.0	67.2		32.5		73.6		62.5	12.4	
Level of Service		D	D	E		C		E		E	B	
Approach Delay (s)		36.6			49.0			73.6			21.5	
Approach LOS		D			D			E			C	

Intersection Summary			
HCM 2000 Control Delay	58.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBL	WBT	NBR
Lane Group Flow (vph)	378	686	1159	629
v/c Ratio	0.27	0.84	0.81	0.38
Control Delay	18.1	27.1	38.6	7.7
Queue Delay	0.0	0.0	49.4	0.0
Total Delay	18.1	27.1	88.0	7.7
Queue Length 50th (ft)	147	215	425	52
Queue Length 95th (ft)	197	#642	502	65
Internal Link Dist (ft)	354		202	
Turn Bay Length (ft)				
Base Capacity (vph)	1376	812	1433	1641
Starvation Cap Reductn	0	0	552	0
Spillback Cap Reductn	0	0	50	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.27	0.84	1.32	0.38

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	346	2	631	1066	0	579
Future Volume (vph)	346	2	631	1066	0	579
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0		7.0	7.0		7.0
Lane Util. Factor	0.95		1.00	0.95		0.76
Frpb, ped/bikes	1.00		1.00	1.00		1.00
Flpb, ped/bikes	1.00		1.00	1.00		1.00
Frt	1.00		1.00	1.00		0.85
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	3365		1752	3505		3541
Flt Permitted	1.00		0.95	1.00		1.00
Satd. Flow (perm)	3365		1752	3505		3541
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	376	2	686	1159	0	629
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	378	0	686	1159	0	629
Confl. Peds. (#/hr)		146	146		17	
Confl. Bikes (#/hr)		46				4
Heavy Vehicles (%)	7%	7%	3%	3%	4%	4%
Turn Type	NA		Prot	NA		Prot
Protected Phases	2		7	6		4
Permitted Phases						
Actuated Green, G (s)	45.0		51.0	45.0		51.0
Effective Green, g (s)	45.0		51.0	45.0		51.0
Actuated g/C Ratio	0.41		0.46	0.41		0.46
Clearance Time (s)	7.0		7.0	7.0		7.0
Lane Grp Cap (vph)	1376		812	1433		1641
v/s Ratio Prot	0.11		c0.39	c0.33		0.18
v/s Ratio Perm						
v/c Ratio	0.27		0.84	0.81		0.38
Uniform Delay, d1	21.6		26.0	28.7		19.2
Progression Factor	0.80		0.64	1.17		0.36
Incremental Delay, d2	0.5		9.3	4.4		0.7
Delay (s)	17.9		26.0	38.1		7.6
Level of Service	B		C	D		A
Approach Delay (s)	17.9			33.6	7.6	
Approach LOS	B			C	A	

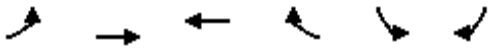
Intersection Summary			
HCM 2000 Control Delay	25.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	58.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	SBR
Lane Group Flow (vph)	846	124	5	1486
v/c Ratio	0.44	0.22	0.00	0.75
Control Delay	12.9	26.4	23.6	20.2
Queue Delay	1.8	0.0	0.0	6.1
Total Delay	14.8	26.4	23.6	26.3
Queue Length 50th (ft)	147	58	1	300
Queue Length 95th (ft)	191	104	5	373
Internal Link Dist (ft)		268	282	
Turn Bay Length (ft)				
Base Capacity (vph)	1936	575	1137	1985
Starvation Cap Reductn	883	0	0	447
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.80	0.22	0.00	0.97

Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	812	119	5	0	0	1427
Future Volume (vph)	812	119	5	0	0	1427
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.5	6.5			7.0
Lane Util. Factor	0.97	1.00	0.95			0.76
Frpb, ped/bikes	1.00	1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	1.00	1.00	1.00			0.85
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3367	1827	3610			3610
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3367	1827	3610			3610
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	846	124	5	0	0	1486
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	846	124	5	0	0	1486
Confl. Peds. (#/hr)	44			44	2	2
Confl. Bikes (#/hr)				81		32
Heavy Vehicles (%)	4%	4%	0%	0%	2%	2%
Turn Type	Prot	NA	NA			Prot
Protected Phases	7	6	2			4
Permitted Phases						
Actuated Green, G (s)	57.5	31.5	31.5			55.0
Effective Green, g (s)	57.5	31.5	31.5			55.0
Actuated g/C Ratio	0.58	0.32	0.32			0.55
Clearance Time (s)	4.5	6.5	6.5			7.0
Lane Grp Cap (vph)	1936	575	1137			1985
v/s Ratio Prot	0.25	c0.07	0.00			c0.41
v/s Ratio Perm						
v/c Ratio	0.44	0.22	0.00			0.75
Uniform Delay, d1	12.1	25.2	23.5			17.2
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	0.7	0.9	0.0			2.6
Delay (s)	12.8	26.0	23.5			19.9
Level of Service	B	C	C			B
Approach Delay (s)		14.5	23.5		19.9	
Approach LOS		B	C		B	

Intersection Summary			
HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBL	WBT	NBR
Lane Group Flow (vph)	621	125	316	22
v/c Ratio	0.20	0.33	0.14	0.06
Control Delay	7.9	59.9	6.1	34.8
Queue Delay	0.4	0.0	0.0	0.0
Total Delay	8.3	59.9	6.1	34.8
Queue Length 50th (ft)	43	89	21	12
Queue Length 95th (ft)	m71	149	32	34
Internal Link Dist (ft)	249		238	
Turn Bay Length (ft)				
Base Capacity (vph)	3108	375	2328	358
Starvation Cap Reductn	1875	0	0	0
Spillback Cap Reductn	128	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.50	0.33	0.14	0.06

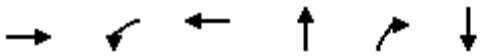
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	482	120	121	307	0	21
Future Volume (vph)	482	120	121	307	0	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		6.0	5.5		6.0
Lane Util. Factor	0.91		1.00	0.95		1.00
Frpb, ped/bikes	0.99		1.00	1.00		1.00
Flpb, ped/bikes	1.00		1.00	1.00		1.00
Frt	0.97		1.00	1.00		0.86
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	4589		1719	3438		1644
Flt Permitted	1.00		0.95	1.00		1.00
Satd. Flow (perm)	4589		1719	3438		1644
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	497	124	125	316	0	22
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	621	0	125	316	0	22
Confl. Peds. (#/hr)		3	3		97	1
Confl. Bikes (#/hr)		33				
Heavy Vehicles (%)	5%	5%	5%	5%	0%	0%
Parking (#/hr)	0	0				
Turn Type	NA		Prot	NA		Over
Protected Phases	2		4	6		4
Permitted Phases						
Actuated Green, G (s)	74.5		24.0	74.5		24.0
Effective Green, g (s)	74.5		24.0	74.5		24.0
Actuated g/C Ratio	0.68		0.22	0.68		0.22
Clearance Time (s)	5.5		6.0	5.5		6.0
Lane Grp Cap (vph)	3108		375	2328		358
v/s Ratio Prot	c0.14		c0.07	0.09		0.01
v/s Ratio Perm						
v/c Ratio	0.20		0.33	0.14		0.06
Uniform Delay, d1	6.6		36.3	6.3		34.1
Progression Factor	1.16		1.56	0.94		1.00
Incremental Delay, d2	0.1		2.3	0.1		0.3
Delay (s)	7.8		58.9	6.0		34.4
Level of Service	A		E	A		C
Approach Delay (s)	7.8			21.0	34.4	
Approach LOS	A			C	C	

Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	48.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

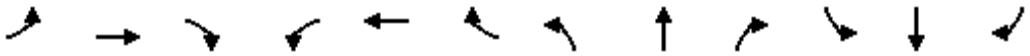


Lane Group	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	1491	379	1265	178	320	704
v/c Ratio	0.80	1.12	0.41	0.26	0.54	0.96
Control Delay	33.8	128.6	10.6	3.6	9.6	74.3
Queue Delay	48.2	0.8	0.0	0.0	5.3	35.5
Total Delay	82.0	129.5	10.6	3.6	14.9	109.7
Queue Length 50th (ft)	336	~309	148	4	111	259
Queue Length 95th (ft)	398	#496	178	6	186	#375
Internal Link Dist (ft)	282		355	154		901
Turn Bay Length (ft)						
Base Capacity (vph)	1860	337	3081	685	588	735
Starvation Cap Reductn	519	0	0	0	203	0
Spillback Cap Reductn	619	24	0	0	0	85
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.20	1.21	0.41	0.26	0.83	1.08

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	1448	10	371	1152	87	20	155	314	148	476	66
Future Volume (vph)	3	1448	10	371	1152	87	20	155	314	148	476	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		5.0	6.0			6.5	6.5		6.5	
Lane Util. Factor		0.91		1.00	0.91			0.95	1.00		0.95	
Frpb, ped/bikes		1.00		1.00	0.97			1.00	0.87		0.98	
Flpb, ped/bikes		1.00		1.00	1.00			0.99	1.00		0.98	
Frt		1.00		1.00	0.99			1.00	0.85		0.99	
Flt Protected		1.00		0.95	1.00			0.99	1.00		0.99	
Satd. Flow (prot)		5076		1770	4902			3433	1356		3358	
Flt Permitted		0.94		0.95	1.00			0.77	1.00		0.83	
Satd. Flow (perm)		4758		1770	4902			2645	1356		2811	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	3	1478	10	379	1176	89	20	158	320	151	486	67
RTOR Reduction (vph)	0	1	0	0	8	0	0	0	237	0	7	0
Lane Group Flow (vph)	0	1490	0	379	1257	0	0	178	83	0	697	0
Confl. Peds. (#/hr)	361		47	47		361	139		80	80		139
Confl. Bikes (#/hr)			30			14			16			19
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	1%	1%	1%
Turn Type	Perm	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			4			4	
Permitted Phases	2						4		4	4		
Actuated Green, G (s)		43.0		21.0	69.0			28.5	28.5		28.5	
Effective Green, g (s)		43.0		21.0	69.0			28.5	28.5		28.5	
Actuated g/C Ratio		0.39		0.19	0.63			0.26	0.26		0.26	
Clearance Time (s)		6.0		5.0	6.0			6.5	6.5		6.5	
Lane Grp Cap (vph)		1859		337	3074			685	351		728	
v/s Ratio Prot				c0.21	0.26							
v/s Ratio Perm		c0.31						0.07	0.06		c0.25	
v/c Ratio		0.80		1.12	0.41			0.26	0.24		0.96	
Uniform Delay, d1		29.7		44.5	10.3			32.4	32.2		40.1	
Progression Factor		1.00		1.00	1.00			0.08	1.62		1.29	
Incremental Delay, d2		3.8		87.1	0.4			0.8	1.5		23.4	
Delay (s)		33.5		131.6	10.7			3.6	53.6		75.1	
Level of Service		C		F	B			A	D		E	
Approach Delay (s)		33.5			38.6			35.8			75.1	
Approach LOS		C			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	42.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	115.6%	ICU Level of Service	H
Analysis Period (min)	15		

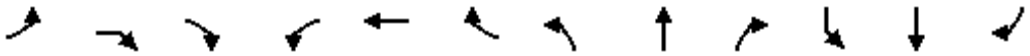
c Critical Lane Group



Lane Group	EBL	EBR	EBR2	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	104	128	159	47	187	228	422	888
v/c Ratio	0.68	0.45	0.38	0.17	0.55	0.22	0.82	0.45
Control Delay	65.0	45.7	9.0	40.0	48.0	2.0	52.8	11.5
Queue Delay	0.2	0.0	0.0	0.0	0.0	0.0	1.9	0.3
Total Delay	65.1	45.7	9.0	40.0	48.0	2.0	54.7	11.8
Queue Length 50th (ft)	69	81	0	28	121	9	158	170
Queue Length 95th (ft)	#151	142	56	63	195	32	#234	213
Internal Link Dist (ft)					318		901	413
Turn Bay Length (ft)								
Base Capacity (vph)	154	287	417	270	338	1044	512	1983
Starvation Cap Reductn	0	0	0	0	0	0	0	501
Spillback Cap Reductn	1	0	0	0	0	8	26	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.45	0.38	0.17	0.55	0.22	0.87	0.60

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	124	154	46	181	221	43	248	118	385	424	52
Future Volume (vph)	101	124	154	46	181	221	43	248	118	385	424	52
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	5.0		6.0			6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		0.95			0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.96		0.97			0.97	
Flpb, ped/bikes	0.92	1.00	1.00	0.84	1.00	1.00		0.98			1.00	
Frt	1.00	0.85	0.85	1.00	1.00	0.85		0.96			0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99			0.98	
Satd. Flow (prot)	1619	1583	1583	1489	1863	1519		3229			3308	
Flt Permitted	0.50	1.00	1.00	0.95	1.00	1.00		0.76			0.56	
Satd. Flow (perm)	849	1583	1583	1489	1863	1519		2451			1906	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	104	128	159	47	187	228	44	256	122	397	437	54
RTOR Reduction (vph)	0	0	130	0	0	67	0	0	0	0	4	0
Lane Group Flow (vph)	104	128	29	47	187	161	0	422	0	0	884	0
Confl. Peds. (#/hr)	45		96	96		45	240		14	14		240
Confl. Bikes (#/hr)		2							21			9
Turn Type	Perm	Prot	Prot	Perm	NA	custom	Perm	NA		pm+pt	NA	
Protected Phases		4	4		8	5		6		5	2	
Permitted Phases	4	4	4	8		8	6			2		
Actuated Green, G (s)	20.0	20.0	20.0	20.0	20.0	70.0		23.0			78.0	
Effective Green, g (s)	20.0	20.0	20.0	20.0	20.0	70.0		23.0			78.0	
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.18	0.64		0.21			0.71	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	5.0		6.0			6.0	
Lane Grp Cap (vph)	154	287	287	270	338	966		512			1988	
v/s Ratio Prot		0.08	0.02		0.10	0.08					c0.20	
v/s Ratio Perm	c0.12			0.03		0.03		c0.17			0.11	
v/c Ratio	0.68	0.45	0.10	0.17	0.55	0.17		0.82			0.44	
Uniform Delay, d1	42.0	40.1	37.5	38.0	40.9	8.1		41.6			6.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		0.92			1.73	
Incremental Delay, d2	21.2	5.0	0.7	1.4	6.4	0.4		13.9			0.6	
Delay (s)	63.2	45.0	38.2	39.4	47.3	8.5		52.0			12.3	
Level of Service	E	D	D	D	D	A		D			B	
Approach Delay (s)					27.4			52.0			12.3	
Approach LOS					C			D			B	

Intersection Summary			
HCM 2000 Control Delay	29.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	25	144	231	409	565	752
v/c Ratio	0.10	0.19	0.55	0.84	0.84	0.82
Control Delay	10.8	8.4	28.1	30.4	23.4	36.3
Queue Delay	0.0	0.0	0.0	0.0	0.7	0.0
Total Delay	10.8	8.4	28.1	30.4	24.1	36.3
Queue Length 50th (ft)	8	42	116	134	103	239
Queue Length 95th (ft)	m16	m63	200	#352	m#515	328
Internal Link Dist (ft)		1267		269	413	277
Turn Bay Length (ft)	100					
Base Capacity (vph)	256	750	418	485	670	913
Starvation Cap Reductn	0	0	0	0	15	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.19	0.55	0.84	0.86	0.82

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	96	41	219	87	301	28	283	226	205	493	16
Future Volume (vph)	24	96	41	219	87	301	28	283	226	205	493	16
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	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			0.95	
Frpb, ped/bikes	1.00	0.90		1.00	0.50			0.91			0.99	
Flpb, ped/bikes	0.75	1.00		0.75	1.00			1.00			0.99	
Frt	1.00	0.96		1.00	0.88			0.94			1.00	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1339	1621		1316	819			1580			3437	
Flt Permitted	0.40	1.00		0.67	1.00			0.94			0.60	
Satd. Flow (perm)	565	1621		921	819			1482			2088	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	25	101	43	231	92	317	29	298	238	216	519	17
RTOR Reduction (vph)	0	14	0	0	113	0	0	24	0	0	2	0
Lane Group Flow (vph)	25	130	0	231	296	0	0	541	0	0	750	0
Confl. Peds. (#/hr)	408		195	195		408	131		121	121		131
Confl. Bikes (#/hr)			75			32			16			8
Heavy Vehicles (%)	1%	1%	1%	3%	3%	3%	3%	3%	3%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	50.0	50.0		50.0	50.0			48.0			48.0	
Effective Green, g (s)	50.0	50.0		50.0	50.0			48.0			48.0	
Actuated g/C Ratio	0.45	0.45		0.45	0.45			0.44			0.44	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	256	736		418	372			646			911	
v/s Ratio Prot		0.08			c0.36							
v/s Ratio Perm	0.04			0.25				c0.37			0.36	
v/c Ratio	0.10	0.18		0.55	0.80			0.84			0.82	
Uniform Delay, d1	17.1	17.8		21.9	25.6			27.5			27.3	
Progression Factor	0.57	0.53		1.00	1.00			0.46			1.00	
Incremental Delay, d2	0.7	0.5		5.2	16.1			10.5			8.3	
Delay (s)	10.5	9.9		27.0	41.7			23.1			35.6	
Level of Service	B	A		C	D			C			D	
Approach Delay (s)		10.0			36.4			23.1			35.6	
Approach LOS		A			D			C			D	

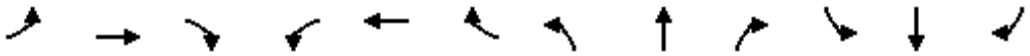
Intersection Summary			
HCM 2000 Control Delay	30.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	110.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBT	NBT	SBT
Lane Group Flow (vph)	34	335	109	544	935
v/c Ratio	0.04	0.74	0.16	0.44	0.79
Control Delay	10.9	46.8	14.6	36.1	30.8
Queue Delay	0.0	5.4	0.0	0.1	49.5
Total Delay	10.9	52.2	14.6	36.2	80.3
Queue Length 50th (ft)	10	214	39	119	176
Queue Length 95th (ft)	25	#325	70	155	m175
Internal Link Dist (ft)	282		633	181	154
Turn Bay Length (ft)					
Base Capacity (vph)	860	453	663	1233	1180
Starvation Cap Reductn	0	71	0	0	339
Spillback Cap Reductn	0	0	0	68	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.04	0.88	0.16	0.47	1.11

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	14	305	58	29	12	0	486	9	2	847	2
Future Volume (vph)	17	14	305	58	29	12	0	486	9	2	847	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0	6.5		6.5			6.5			7.0	
Lane Util. Factor		1.00	1.00		1.00			0.91			0.95	
Frpb, ped/bikes		1.00	1.00		0.98			0.99			1.00	
Flpb, ped/bikes		0.93	1.00		0.99			1.00			1.00	
Frt		1.00	0.85		0.98			1.00			1.00	
Flt Protected		0.97	1.00		0.97			1.00			1.00	
Satd. Flow (prot)		1677	1583		1485			4933			3466	
Flt Permitted		0.89	1.00		0.83			1.00			0.95	
Satd. Flow (perm)		1526	1583		1270			4933			3308	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	19	15	335	64	32	13	0	534	10	2	931	2
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	34	335	0	109	0	0	544	0	0	935	0
Confl. Peds. (#/hr)	113		19	19		113	158		156	156		158
Confl. Bikes (#/hr)			38			35			81			31
Heavy Vehicles (%)	2%	2%	2%	18%	18%	18%	4%	4%	4%	4%	4%	4%
Turn Type	Perm	NA	custom	Perm	NA			NA		pm+pt	NA	
Protected Phases		6 5	5		2			4		3	8	
Permitted Phases	6 5			2						8		
Actuated Green, G (s)		57.5	31.5		57.5			27.5			39.0	
Effective Green, g (s)		57.5	31.5		57.5			27.5			39.0	
Actuated g/C Ratio		0.52	0.29		0.52			0.25			0.35	
Clearance Time (s)			6.5		6.5			6.5			7.0	
Lane Grp Cap (vph)		797	453		663			1233			1180	
v/s Ratio Prot			c0.21					0.11			c0.04	
v/s Ratio Perm		0.02			c0.09						c0.24	
v/c Ratio		0.04	0.74		0.16			0.44			0.79	
Uniform Delay, d1		12.8	35.5		13.7			34.8			31.9	
Progression Factor		1.00	1.00		1.00			1.00			0.90	
Incremental Delay, d2		0.1	10.4		0.5			1.1			1.7	
Delay (s)		12.9	45.9		14.2			35.9			30.4	
Level of Service		B	D		B			D			C	
Approach Delay (s)		42.9			14.2			35.9			30.4	
Approach LOS		D			B			D			C	

Intersection Summary			
HCM 2000 Control Delay	33.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	EBR	WBT	NBL	NBR
Lane Group Flow (vph)	1889	272	1235	240	118
v/c Ratio	0.89	0.64	0.40	0.63	0.43
Control Delay	15.9	35.9	11.6	45.0	40.0
Queue Delay	46.4	8.5	1.4	1.0	0.0
Total Delay	62.4	44.4	13.0	46.0	40.0
Queue Length 50th (ft)	412	172	154	151	70
Queue Length 95th (ft)	511	m232	184	239	128
Internal Link Dist (ft)	202		268	424	
Turn Bay Length (ft)					
Base Capacity (vph)	2134	427	3067	380	277
Starvation Cap Reductn	462	118	1540	0	0
Spillback Cap Reductn	0	0	445	33	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.13	0.88	0.81	0.69	0.43

Intersection Summary

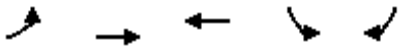
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1832	264	0	1198	233	114
Future Volume (vph)	1832	264	0	1198	233	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	2.0		6.0	6.0	6.0
Lane Util. Factor	0.95	1.00		0.91	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.73
Flpb, ped/bikes	1.00	1.00		1.00	0.89	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	1.00	1.00		1.00	0.95	1.00
Satd. Flow (prot)	3505	1568		5036	1494	1091
Flt Permitted	1.00	1.00		1.00	0.95	1.00
Satd. Flow (perm)	3505	1568		5036	1494	1091
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1889	272	0	1235	240	118
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1889	272	0	1235	240	118
Confl. Peds. (#/hr)		174	174		90	206
Confl. Bikes (#/hr)		107				39
Heavy Vehicles (%)	3%	3%	3%	3%	8%	8%
Turn Type	NA	custom		NA	Perm	Perm
Protected Phases	2 1	1		2 1		
Permitted Phases					4	4
Actuated Green, G (s)	71.0	30.0		71.0	28.0	28.0
Effective Green, g (s)	71.0	30.0		71.0	28.0	28.0
Actuated g/C Ratio	0.65	0.27		0.65	0.25	0.25
Clearance Time (s)		2.0			6.0	6.0
Lane Grp Cap (vph)	2262	427		3250	380	277
v/s Ratio Prot	c0.54	0.17		0.25		
v/s Ratio Perm					c0.16	0.11
v/c Ratio	0.84	0.64		0.38	0.63	0.43
Uniform Delay, d1	15.0	35.2		9.2	36.4	34.3
Progression Factor	0.63	0.87		1.00	1.00	1.00
Incremental Delay, d2	2.5	4.6		0.3	7.8	4.7
Delay (s)	12.0	35.2		9.5	44.2	39.0
Level of Service	B	D		A	D	D
Approach Delay (s)	14.9			9.5	42.5	
Approach LOS	B			A	D	

Intersection Summary			
HCM 2000 Control Delay	15.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	84.0%	ICU Level of Service	E
Analysis Period (min)	15		

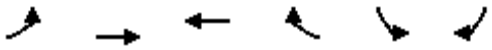
c Critical Lane Group



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	191	978	884	18	543
v/c Ratio	0.32	0.35	0.66	0.05	0.60
Control Delay	4.0	3.0	36.8	17.4	9.3
Queue Delay	0.0	0.0	0.0	0.0	3.6
Total Delay	4.0	3.0	36.8	17.4	12.9
Queue Length 50th (ft)	16	28	243	5	68
Queue Length 95th (ft)	m20	33	m239	m6	m93
Internal Link Dist (ft)		484	340	163	
Turn Bay Length (ft)					
Base Capacity (vph)	602	2785	1337	376	911
Starvation Cap Reductn	0	0	0	0	272
Spillback Cap Reductn	0	0	0	15	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.32	0.35	0.66	0.05	0.85

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	257	877	849	9	17	527
Future Volume (vph)	257	877	849	9	17	527
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		5.5	6.0
Lane Util. Factor	0.86	0.86	0.91		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00		0.87	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1486	4688	5071		1563	1588
Flt Permitted	0.21	0.81	1.00		0.95	1.00
Satd. Flow (perm)	321	3792	5071		1563	1588
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	265	904	875	9	18	543
RTOR Reduction (vph)	0	0	1	0	0	2
Lane Group Flow (vph)	191	978	883	0	18	541
Confl. Peds. (#/hr)	88			88	95	3
Confl. Bikes (#/hr)				1		
Heavy Vehicles (%)	4%	4%	2%	2%	1%	1%
Turn Type	pm+pt	NA	NA		Perm	pm+ov
Protected Phases	1	6	2			1
Permitted Phases	6				4	4
Actuated Green, G (s)	72.0	72.0	29.0		26.5	63.5
Effective Green, g (s)	72.0	72.0	29.0		26.5	63.5
Actuated g/C Ratio	0.65	0.65	0.26		0.24	0.58
Clearance Time (s)	6.0	6.0	6.0		5.5	6.0
Lane Grp Cap (vph)	601	2783	1336		376	1003
v/s Ratio Prot	0.11	0.12	c0.17			c0.18
v/s Ratio Perm	0.10	0.11			0.01	0.16
v/c Ratio	0.32	0.35	0.66		0.05	0.54
Uniform Delay, d1	16.8	8.5	36.1		32.1	14.3
Progression Factor	0.20	0.32	0.99		0.53	0.68
Incremental Delay, d2	0.8	0.2	1.0		0.1	0.8
Delay (s)	4.2	2.9	36.7		17.2	10.5
Level of Service	A	A	D		B	B
Approach Delay (s)		3.1	36.7		10.7	
Approach LOS		A	D		B	

Intersection Summary			
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	73.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

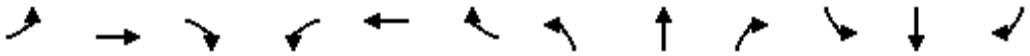
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	267	412	503	504
v/c Ratio	0.68	1.37	0.35	0.31
Control Delay	32.5	219.9	13.1	18.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	32.5	219.9	13.1	18.6
Queue Length 50th (ft)	101	~390	63	50
Queue Length 95th (ft)	m183	m#580	m88	67
Internal Link Dist (ft)	492	1267	654	413
Turn Bay Length (ft)				
Base Capacity (vph)	394	301	1438	1618
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.68	1.37	0.35	0.31

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	0	177	161	158	64	60	407	0	0	424	45
Future Volume (vph)	72	0	177	161	158	64	60	407	0	0	424	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5			5.0			5.0	
Lane Util. Factor		1.00			1.00			0.95			0.91	
Frpb, ped/bikes		1.00			1.00			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.90			0.98			1.00			0.99	
Flt Protected		0.99			0.98			0.99			1.00	
Satd. Flow (prot)		1676			1779			3482			5048	
Flt Permitted		0.74			0.65			0.85			1.00	
Satd. Flow (perm)		1254			1179			2967			5048	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	77	0	190	173	170	69	65	438	0	0	456	48
RTOR Reduction (vph)	0	81	0	0	7	0	0	0	0	0	12	0
Lane Group Flow (vph)	0	186	0	0	405	0	0	503	0	0	492	0
Confl. Bikes (#/hr)						4			12			9
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	3%	3%	3%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Prot	NA			NA	
Protected Phases		8			8		5	2			6	
Permitted Phases	8			8								
Actuated Green, G (s)		27.5			27.5			72.0			35.0	
Effective Green, g (s)		27.5			27.5			72.0			35.0	
Actuated g/C Ratio		0.25			0.25			0.65			0.32	
Clearance Time (s)		5.5			5.5			5.0			5.0	
Lane Grp Cap (vph)		313			294			2091			1606	
v/s Ratio Prot								c0.07			c0.10	
v/s Ratio Perm		0.15			c0.34			0.09				
v/c Ratio		0.59			1.38			0.24			0.31	
Uniform Delay, d1		36.3			41.2			7.8			28.3	
Progression Factor		1.08			1.10			1.02			0.66	
Incremental Delay, d2		7.3			189.1			0.2			0.4	
Delay (s)		46.6			234.4			8.2			19.1	
Level of Service		D			F			A			B	
Approach Delay (s)		46.6			234.4			8.2			19.1	
Approach LOS		D			F			A			B	

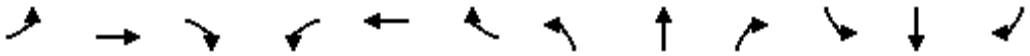
Intersection Summary			
HCM 2000 Control Delay	72.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	169	259	15	201	847	725
v/c Ratio	0.33	0.36	0.05	0.29	0.67	0.52
Control Delay	16.7	13.6	22.1	22.5	33.9	22.9
Queue Delay	0.0	0.0	0.0	0.1	0.1	0.0
Total Delay	16.7	13.6	22.1	22.6	34.0	22.9
Queue Length 50th (ft)	61	107	6	90	164	115
Queue Length 95th (ft)	m91	m157	m12	m125	m214	156
Internal Link Dist (ft)		495		1267	413	291
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	509	728	333	693	1268	1384
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	80	31	34
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.36	0.05	0.33	0.68	0.54

Intersection Summary

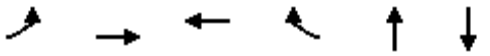
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	108	140	14	159	34	105	636	72	37	417	242
Future Volume (vph)	162	108	140	14	159	34	105	636	72	37	417	242
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	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.91			0.91	
Frpb, ped/bikes	1.00	0.82		1.00	0.95			0.95			0.87	
Flpb, ped/bikes	0.88	1.00		0.80	1.00			0.98			0.99	
Frt	1.00	0.92		1.00	0.97			0.99			0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1535	1379		1416	1716			4696			4132	
Flt Permitted	0.60	1.00		0.56	1.00			0.71			0.84	
Satd. Flow (perm)	974	1379		834	1716			3373			3481	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	169	112	146	15	166	35	109	662	75	39	434	252
RTOR Reduction (vph)	0	14	0	0	7	0	0	11	0	0	88	0
Lane Group Flow (vph)	169	245	0	15	194	0	0	836	0	0	637	0
Confl. Peds. (#/hr)	173		202	202		173	279		186	186		279
Confl. Bikes (#/hr)			47			18			7			2
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	1%	1%	1%	2%	2%	2%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	3	8			4			2			6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	57.0	57.0		44.0	44.0			41.0			41.0	
Effective Green, g (s)	57.0	57.0		44.0	44.0			41.0			41.0	
Actuated g/C Ratio	0.52	0.52		0.40	0.40			0.37			0.37	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	540	714		333	686			1257			1297	
v/s Ratio Prot	0.02	c0.18			0.11							
v/s Ratio Perm	0.14			0.02				c0.25			0.18	
v/c Ratio	0.31	0.34		0.05	0.28			0.67			0.49	
Uniform Delay, d1	16.7	15.5		20.2	22.3			28.8			26.5	
Progression Factor	0.92	0.89		1.06	1.01			1.09			1.00	
Incremental Delay, d2	1.3	1.1		0.2	0.9			2.7			1.3	
Delay (s)	16.6	14.9		21.7	23.4			34.2			27.8	
Level of Service	B	B		C	C			C			C	
Approach Delay (s)		15.6			23.3			34.2			27.8	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		

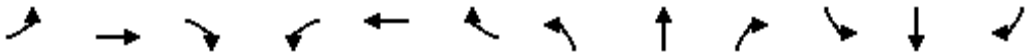
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	265	876	620	146	343	999
v/c Ratio	0.81	0.62	0.77	0.70	0.22	0.94
Control Delay	59.5	17.8	30.9	41.4	17.3	40.0
Queue Delay	0.0	0.1	0.0	0.0	0.0	2.1
Total Delay	59.5	17.9	30.9	41.4	17.3	42.1
Queue Length 50th (ft)	125	112	207	93	76	391
Queue Length 95th (ft)	#247	118	268	#181	97	m#448
Internal Link Dist (ft)		523	354		163	654
Turn Bay Length (ft)				150		
Base Capacity (vph)	327	1420	804	208	1593	1061
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	66	0	0	0	22
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.65	0.77	0.70	0.22	0.96

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	249	789	35	0	583	137	44	268	10	327	511	101
Future Volume (vph)	249	789	35	0	583	137	44	268	10	327	511	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.5			6.5	6.5		7.0			7.0	
Lane Util. Factor	1.00	0.95			0.95	1.00		0.91			0.95	
Frpb, ped/bikes	1.00	0.99			1.00	0.58		0.99			0.98	
Flpb, ped/bikes	0.99	1.00			1.00	1.00		1.00			0.94	
Frt	1.00	0.99			1.00	0.85		1.00			0.98	
Flt Protected	0.95	1.00			1.00	1.00		0.99			0.98	
Satd. Flow (prot)	1731	3434			3471	899		4646			3184	
Flt Permitted	0.18	1.00			1.00	1.00		0.73			0.71	
Satd. Flow (perm)	331	3434			3471	899		3438			2289	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	265	839	37	0	620	146	47	285	11	348	544	107
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	265	876	0	0	620	146	0	343	0	0	999	0
Confl. Peds. (#/hr)	442		190	190		442	78		160	160		78
Confl. Bikes (#/hr)			64			47			4			6
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	9%	9%	9%	1%	1%	1%
Turn Type	pm+pt	NA			NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	6			2			4			8	
Permitted Phases	6					2	4			8		
Actuated Green, G (s)	45.5	45.5			25.5	25.5		51.0			51.0	
Effective Green, g (s)	45.5	45.5			25.5	25.5		51.0			51.0	
Actuated g/C Ratio	0.41	0.41			0.23	0.23		0.46			0.46	
Clearance Time (s)	5.0	6.5			6.5	6.5		7.0			7.0	
Lane Grp Cap (vph)	327	1420			804	208		1593			1061	
v/s Ratio Prot	c0.11	0.26			0.18							
v/s Ratio Perm	c0.22					0.16		0.10			c0.44	
v/c Ratio	0.81	0.62			0.77	0.70		0.22			0.94	
Uniform Delay, d1	24.4	25.4			39.5	38.8		17.6			28.1	
Progression Factor	1.93	0.63			0.62	0.61		0.96			0.84	
Incremental Delay, d2	16.4	1.7			6.2	15.9		0.3			15.2	
Delay (s)	63.4	17.6			30.7	39.5		17.2			38.9	
Level of Service	E	B			C	D		B			D	
Approach Delay (s)		28.2			32.4			17.2			38.9	
Approach LOS		C			C			B			D	

Intersection Summary			
HCM 2000 Control Delay	31.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	93.6%	ICU Level of Service	F
Analysis Period (min)	15		

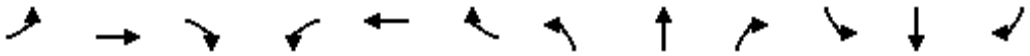
c Critical Lane Group



Lane Group	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1281	1354	85	756	694
v/c Ratio	0.82	0.93dl	0.32	0.44	0.68
Control Delay	11.3	6.9	31.4	25.1	36.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.3	6.9	31.4	25.1	36.5
Queue Length 50th (ft)	39	77	39	136	94
Queue Length 95th (ft)	m41	95	74	173	144
Internal Link Dist (ft)	516	484		438	368
Turn Bay Length (ft)					
Base Capacity (vph)	1568	2621	262	1722	1017
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.82	0.52	0.32	0.44	0.68

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.
dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	1031	197	294	1010	23	83	627	114	1	593	86
Future Volume (vph)	27	1031	197	294	1010	23	83	627	114	1	593	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5		6.5	6.5			6.5	
Lane Util. Factor		0.86			0.86		1.00	0.91			0.91	
Frpb, ped/bikes		0.96			1.00		1.00	0.94			0.95	
Flpb, ped/bikes		1.00			1.00		0.97	1.00			1.00	
Frt		0.98			1.00		1.00	0.98			0.98	
Flt Protected		1.00			0.99		0.95	1.00			1.00	
Satd. Flow (prot)		5946			6331		1653	4503			4259	
Flt Permitted		0.85			0.74		0.30	1.00			0.94	
Satd. Flow (perm)		5052			4750		519	4503			3999	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	28	1052	201	300	1031	23	85	640	116	1	605	88
RTOR Reduction (vph)	0	31	0	0	2	0	0	24	0	0	17	0
Lane Group Flow (vph)	0	1250	0	0	1352	0	85	732	0	0	677	0
Confl. Peds. (#/hr)	165		157	157		165	365		449	449		365
Confl. Bikes (#/hr)			7			2			21			14
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	6%	6%	6%	14%	14%	14%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		6		5	2		3	8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)		33.5			55.5		41.5	41.5			27.5	
Effective Green, g (s)		33.5			55.5		41.5	41.5			27.5	
Actuated g/C Ratio		0.30			0.50		0.38	0.38			0.25	
Clearance Time (s)		6.5			6.5		6.5	6.5			6.5	
Lane Grp Cap (vph)		1538			2640		273	1698			999	
v/s Ratio Prot					c0.08		0.02	c0.16				
v/s Ratio Perm		c0.25			0.18		0.10				c0.17	
v/c Ratio		0.81			0.93dl		0.31	0.43			0.68	
Uniform Delay, d1		35.4			18.2		29.8	25.5			37.2	
Progression Factor		0.23			0.37		1.00	1.00			0.93	
Incremental Delay, d2		3.2			0.5		3.0	0.8			2.8	
Delay (s)		11.5			7.2		32.8	26.3			37.4	
Level of Service		B			A		C	C			D	
Approach Delay (s)		11.5			7.2			26.9			37.4	
Approach LOS		B			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	98.6%	ICU Level of Service	F
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	234	310	701	584
v/c Ratio	0.52	0.65	0.51	0.76
Control Delay	26.4	42.2	38.1	16.2
Queue Delay	0.0	0.0	0.0	6.1
Total Delay	26.4	42.2	38.1	22.3
Queue Length 50th (ft)	115	224	239	104
Queue Length 95th (ft)	195	m218	304	505
Internal Link Dist (ft)	508	492	449	412
Turn Bay Length (ft)				
Base Capacity (vph)	454	475	1380	765
Starvation Cap Reductn	0	0	0	133
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.52	0.65	0.51	0.92

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	88	71	56	116	123	64	543	59	58	434	63
Future Volume (vph)	63	88	71	56	116	123	64	543	59	58	434	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5			5.5			5.5	
Lane Util. Factor		1.00			1.00			0.95			1.00	
Frpb, ped/bikes		0.90			0.86			0.92			0.92	
Flpb, ped/bikes		0.95			0.96			0.98			0.97	
Frt		0.96			0.94			0.99			0.98	
Flt Protected		0.99			0.99			1.00			0.99	
Satd. Flow (prot)		1503			1451			3059			1619	
Flt Permitted		0.80			0.90			0.83			0.87	
Satd. Flow (perm)		1223			1316			2539			1408	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	66	93	75	59	122	129	67	572	62	61	457	66
RTOR Reduction (vph)	0	15	0	0	3	0	0	6	0	0	4	0
Lane Group Flow (vph)	0	219	0	0	307	0	0	695	0	0	580	0
Confl. Peds. (#/hr)	327		249	249		327	480		767	767		480
Confl. Bikes (#/hr)			2			2			27			11
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	5%	5%	5%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		39.5			39.5			59.5			59.5	
Effective Green, g (s)		39.5			39.5			59.5			59.5	
Actuated g/C Ratio		0.36			0.36			0.54			0.54	
Clearance Time (s)		5.5			5.5			5.5			5.5	
Lane Grp Cap (vph)		439			472			1373			761	
v/s Ratio Prot												
v/s Ratio Perm		0.18			c0.23			0.27			c0.41	
v/c Ratio		0.50			0.65			0.51			0.76	
Uniform Delay, d1		27.5			29.5			16.0			19.7	
Progression Factor		0.88			1.30			2.32			0.52	
Incremental Delay, d2		4.0			3.2			1.2			5.5	
Delay (s)		28.1			41.6			38.3			15.8	
Level of Service		C			D			D			B	
Approach Delay (s)		28.1			41.6			38.3			15.8	
Approach LOS		C			D			D			B	

Intersection Summary			
HCM 2000 Control Delay	30.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	88.0%	ICU Level of Service	E
Analysis Period (min)	15		

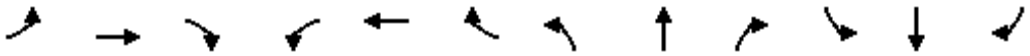
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	24	405	56	726	727	439
v/c Ratio	0.13	0.55	0.18	0.92	0.71	0.76
Control Delay	17.6	25.2	10.0	37.1	22.3	40.7
Queue Delay	0.0	0.0	0.0	8.5	0.0	1.6
Total Delay	17.6	25.2	10.0	45.6	22.3	42.3
Queue Length 50th (ft)	7	164	15	419	122	267
Queue Length 95th (ft)	m22	270	m33	#729	195	395
Internal Link Dist (ft)		509		495	412	353
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	190	735	317	791	1019	575
Starvation Cap Reductn	0	0	0	54	0	0
Spillback Cap Reductn	0	0	0	0	0	43
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.55	0.18	0.99	0.71	0.83

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	254	139	54	425	279	32	600	73	24	364	38
Future Volume (vph)	23	254	139	54	425	279	32	600	73	24	364	38
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	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			1.00	
Frpb, ped/bikes	1.00	0.78		1.00	0.86			0.91			0.95	
Flpb, ped/bikes	1.00	1.00		0.73	1.00			0.99			0.99	
Frt	1.00	0.95		1.00	0.94			0.98			0.99	
Flt Protected	0.95	1.00		0.95	1.00			1.00			1.00	
Satd. Flow (prot)	1770	1379		1293	1502			3056			1684	
Flt Permitted	0.19	1.00		0.44	1.00			0.91			0.93	
Satd. Flow (perm)	361	1379		601	1502			2781			1575	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	24	262	143	56	438	288	33	619	75	25	375	39
RTOR Reduction (vph)	0	8	0	0	0	0	0	8	0	0	3	0
Lane Group Flow (vph)	24	397	0	56	726	0	0	719	0	0	436	0
Confl. Peds. (#/hr)	353		388	388		353	366		872	872		366
Confl. Bikes (#/hr)			24			18			15			10
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	4%	4%	4%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	58.0	58.0		58.0	58.0			40.0			40.0	
Effective Green, g (s)	58.0	58.0		58.0	58.0			40.0			40.0	
Actuated g/C Ratio	0.53	0.53		0.53	0.53			0.36			0.36	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Lane Grp Cap (vph)	190	727		316	791			1011			572	
v/s Ratio Prot		0.29			c0.48							
v/s Ratio Perm	0.07			0.09				0.26			c0.28	
v/c Ratio	0.13	0.55		0.18	0.92			0.71			0.76	
Uniform Delay, d1	13.2	17.3		13.6	23.8			30.0			30.8	
Progression Factor	1.16	1.31		0.62	0.79			0.62			1.00	
Incremental Delay, d2	1.3	2.8		1.2	16.8			3.6			9.3	
Delay (s)	16.6	25.4		9.6	35.6			22.3			40.1	
Level of Service	B	C		A	D			C			D	
Approach Delay (s)		24.9			33.7			22.3			40.1	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	29.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	97.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	950	221	605	161	132	579	531
v/c Ratio	0.66	0.47	0.40	0.40	0.64	0.43	0.74
Control Delay	18.4	32.0	20.6	23.0	39.9	5.8	37.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.4	32.0	20.6	23.0	39.9	5.8	37.8
Queue Length 50th (ft)	236	108	94	48	91	30	193
Queue Length 95th (ft)	m298	m136	m158	m85	m#163	m36	240
Internal Link Dist (ft)	551		523			368	449
Turn Bay Length (ft)				150			
Base Capacity (vph)	1447	467	1501	404	205	1353	720
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.47	0.40	0.40	0.64	0.43	0.74

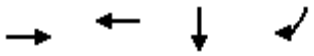
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	912	212	0	581	155	127	512	44	6	470	34
Future Volume (vph)	0	912	212	0	581	155	127	512	44	6	470	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	7.0		6.5	6.5	7.0	7.0			7.0	
Lane Util. Factor		0.95	1.00		0.95	1.00	1.00	0.95			0.95	
Frpb, ped/bikes		1.00	1.00		1.00	0.60	1.00	0.96			0.97	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00			1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.99			0.99	
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)		3282	1468		3406	918	1736	3310			3351	
Flt Permitted		1.00	1.00		1.00	1.00	0.95	1.00			0.95	
Satd. Flow (perm)		3282	1468		3406	918	1736	3310			3171	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	950	221	0	605	161	132	533	46	6	490	35
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	950	221	0	605	161	132	579	0	0	531	0
Confl. Peds. (#/hr)	440		238	238		440	619		587	587		619
Confl. Bikes (#/hr)			51			43			24			16
Heavy Vehicles (%)	10%	10%	10%	6%	6%	6%	4%	4%	4%	3%	3%	3%
Turn Type		NA	custom		NA	Perm	Prot	NA		Perm	NA	
Protected Phases		2 1	3 1		6		3	8			4	
Permitted Phases						6				4		
Actuated Green, G (s)		48.5	40.0		48.5	48.5	13.0	45.0			25.0	
Effective Green, g (s)		46.5	40.0		48.5	48.5	13.0	45.0			25.0	
Actuated g/C Ratio		0.42	0.36		0.44	0.44	0.12	0.41			0.23	
Clearance Time (s)					6.5	6.5	7.0	7.0			7.0	
Lane Grp Cap (vph)		1387	533		1501	404	205	1354			720	
v/s Ratio Prot		c0.29	0.15		0.18		c0.08	0.17				
v/s Ratio Perm						0.18					c0.17	
v/c Ratio		0.68	0.41		0.40	0.40	0.64	0.43			0.74	
Uniform Delay, d1		25.8	26.2		20.9	20.9	46.3	23.3			39.5	
Progression Factor		0.67	0.95		0.95	0.98	0.55	0.21			0.83	
Incremental Delay, d2		2.3	2.0		0.5	1.8	13.4	0.9			4.6	
Delay (s)		19.6	26.8		20.4	22.2	39.0	5.7			37.5	
Level of Service		B	C		C	C	D	A			D	
Approach Delay (s)		21.0			20.8			11.9			37.5	
Approach LOS		C			C			B			D	

Intersection Summary			
HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	73.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBT	SBT	SBR
Lane Group Flow (vph)	1509	1126	1985	287
v/c Ratio	0.71	1.21dl	1.07	0.58
Control Delay	31.4	6.0	55.0	10.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	31.4	6.0	55.0	10.2
Queue Length 50th (ft)	254	41	~593	76
Queue Length 95th (ft)	298	46	m#527	m65
Internal Link Dist (ft)	334	516	582	
Turn Bay Length (ft)				
Base Capacity (vph)	2120	2589	1851	494
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.71	0.43	1.07	0.58

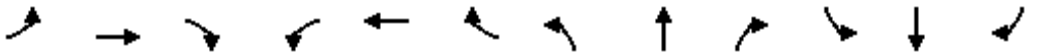
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

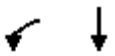
dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1210	269	307	762	32	0	0	0	115	1831	281
Future Volume (vph)	0	1210	269	307	762	32	0	0	0	115	1831	281
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			6.0						6.5	6.5
Lane Util. Factor		0.86			0.86						0.91	1.00
Frpb, ped/bikes		0.94			0.99						1.00	0.76
Flpb, ped/bikes		1.00			1.00						0.99	1.00
Frt		0.97			1.00						1.00	0.85
Flt Protected		1.00			0.99						1.00	1.00
Satd. Flow (prot)		5802			6155						5029	1198
Flt Permitted		1.00			0.75						1.00	1.00
Satd. Flow (perm)		5802			4678						5029	1198
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.92	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1235	274	313	778	35	0	0	0	117	1868	287
RTOR Reduction (vph)	0	37	0	0	4	0	0	0	0	0	0	53
Lane Group Flow (vph)	0	1472	0	0	1122	0	0	0	0	0	1985	234
Confl. Peds. (#/hr)	169		213	213		169	193		114	114		193
Confl. Bikes (#/hr)			10			2						
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	0%	0%	0%	2%	2%	2%
Turn Type		NA		pm+pt	NA					Perm	NA	Perm
Protected Phases		6		5	2						4	
Permitted Phases				2						4		4
Actuated Green, G (s)		39.5			57.0						40.5	40.5
Effective Green, g (s)		39.5			57.0						40.5	40.5
Actuated g/C Ratio		0.36			0.52						0.37	0.37
Clearance Time (s)		5.5			6.0						6.5	6.5
Lane Grp Cap (vph)		2083			2585						1851	441
v/s Ratio Prot		c0.25			c0.05							
v/s Ratio Perm					0.18						0.39	0.20
v/c Ratio		0.71			1.21dl						1.07	0.53
Uniform Delay, d1		30.3			16.5						34.8	27.3
Progression Factor		1.00			0.33						0.56	0.49
Incremental Delay, d2		2.1			0.5						33.8	0.4
Delay (s)		32.3			5.9						53.2	13.8
Level of Service		C			A						D	B
Approach Delay (s)		32.3			5.9			0.0			48.2	
Approach LOS		C			A			A			D	

Intersection Summary			
HCM 2000 Control Delay	33.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	99.2%	ICU Level of Service	F
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



Lane Group	WBL	SBT
Lane Group Flow (vph)	345	1827
v/c Ratio	0.54	0.67
Control Delay	31.4	12.5
Queue Delay	0.0	0.7
Total Delay	31.4	13.2
Queue Length 50th (ft)	210	396
Queue Length 95th (ft)	m299	428
Internal Link Dist (ft)	508	411
Turn Bay Length (ft)		
Base Capacity (vph)	640	2709
Starvation Cap Reductn	0	493
Spillback Cap Reductn	0	386
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.54	0.82

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	338	0	0	0	41	1749
Future Volume (vph)	338	0	0	0	41	1749
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5					5.5
Lane Util. Factor	1.00					0.91
Frpb, ped/bikes	1.00					1.00
Flpb, ped/bikes	1.00					0.99
Frt	1.00					1.00
Flt Protected	0.95					1.00
Satd. Flow (prot)	1784					5009
Flt Permitted	0.95					1.00
Satd. Flow (perm)	1784					5009
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	345	0	0	0	42	1785
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	345	0	0	0	0	1827
Confl. Peds. (#/hr)	1	423		318	318	
Heavy Vehicles (%)	1%	1%	0%	0%	2%	2%
Turn Type	Perm				Perm	NA
Protected Phases						2
Permitted Phases	4				2	
Actuated Green, G (s)	39.5					59.5
Effective Green, g (s)	39.5					59.5
Actuated g/C Ratio	0.36					0.54
Clearance Time (s)	5.5					5.5
Lane Grp Cap (vph)	640					2709
v/s Ratio Prot						
v/s Ratio Perm	c0.19					0.36
v/c Ratio	0.54					0.67
Uniform Delay, d1	28.0					18.2
Progression Factor	1.00					0.62
Incremental Delay, d2	2.9					1.1
Delay (s)	30.8					12.4
Level of Service	C					B
Approach Delay (s)	30.8		0.0			12.4
Approach LOS	C		A			B

Intersection Summary			
HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	282	206	159	394	1494
v/c Ratio	0.35	0.46	0.49	0.49	0.67
Control Delay	22.8	23.0	17.8	15.6	24.8
Queue Delay	0.0	0.0	0.0	0.0	0.1
Total Delay	22.8	23.0	17.8	15.6	24.9
Queue Length 50th (ft)	132	86	70	176	291
Queue Length 95th (ft)	199	156	m82	m198	345
Internal Link Dist (ft)	409			509	374
Turn Bay Length (ft)		100	100		
Base Capacity (vph)	803	449	323	796	2217
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	121
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.35	0.46	0.49	0.49	0.71

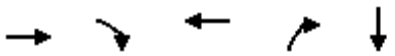
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	268	196	151	374	0	0	0	0	59	1306	54
Future Volume (vph)	0	268	196	151	374	0	0	0	0	59	1306	54
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	
Lane Util. Factor		1.00	1.00	1.00	1.00						0.91	
Frpb, ped/bikes		1.00	0.63	1.00	1.00						0.98	
Flpb, ped/bikes		1.00	1.00	0.79	1.00						0.98	
Frt		1.00	0.85	1.00	1.00						0.99	
Flt Protected		1.00	1.00	0.95	1.00						1.00	
Satd. Flow (prot)		1881	1012	1395	1863						4775	
Flt Permitted		1.00	1.00	0.52	1.00						1.00	
Satd. Flow (perm)		1881	1012	757	1863						4775	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	282	206	159	394	0	0	0	0	62	1375	57
RTOR Reduction (vph)	0	0	17	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	282	189	159	394	0	0	0	0	0	1490	0
Confl. Peds. (#/hr)	398		390	398		390	315		345	345		315
Confl. Bikes (#/hr)			26			18						2
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	3%	3%	3%
Turn Type		NA	Perm	Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		47.0	47.0	47.0	47.0						51.0	
Effective Green, g (s)		47.0	47.0	47.0	47.0						51.0	
Actuated g/C Ratio		0.43	0.43	0.43	0.43						0.46	
Clearance Time (s)		6.0	6.0	6.0	6.0						6.0	
Lane Grp Cap (vph)		803	432	323	796						2213	
v/s Ratio Prot		0.15			c0.21							
v/s Ratio Perm			0.19	0.21							0.31	
v/c Ratio		0.35	0.44	0.49	0.49						0.67	
Uniform Delay, d1		21.2	22.2	22.8	22.9						23.0	
Progression Factor		1.00	1.00	0.62	0.62						1.00	
Incremental Delay, d2		1.2	3.2	2.9	1.2						1.7	
Delay (s)		22.4	25.4	17.1	15.3						24.7	
Level of Service		C	C	B	B						C	
Approach Delay (s)		23.7			15.8			0.0			24.7	
Approach LOS		C			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

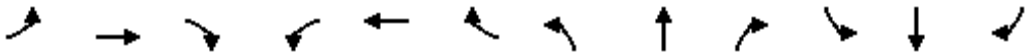


Lane Group	EBT	EBR	WBT	NBR	SBT
Lane Group Flow (vph)	869	670	761	64	1959
v/c Ratio	0.51	1.02	0.48	0.13	1.08
Control Delay	14.2	68.5	20.5	16.8	65.3
Queue Delay	0.0	0.0	0.0	0.0	7.5
Total Delay	14.2	68.5	20.5	16.8	72.9
Queue Length 50th (ft)	144	~236	159	27	~562
Queue Length 95th (ft)	204	#407	152	58	#648
Internal Link Dist (ft)	516		551		235
Turn Bay Length (ft)		100			
Base Capacity (vph)	1701	658	1594	497	1810
Starvation Cap Reductn	0	0	0	0	48
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.51	1.02	0.48	0.13	1.11

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	852	657	0	746	0	0	0	63	196	1609	115
Future Volume (vph)	0	852	657	0	746	0	0	0	63	196	1609	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0	6.5		6.5				7.0		7.0	
Lane Util. Factor		0.95	0.88		0.95				1.00		0.91	
Frpb, ped/bikes		1.00	1.00		1.00				1.00		0.98	
Flpb, ped/bikes		1.00	1.00		1.00				1.00		0.97	
Frt		1.00	0.85		1.00				0.86		0.99	
Flt Protected		1.00	1.00		1.00				1.00		0.99	
Satd. Flow (prot)		3343	2632		3406				1304		4741	
Flt Permitted		1.00	1.00		1.00				1.00		0.99	
Satd. Flow (perm)		3343	2632		3406				1304		4741	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	869	670	0	761	0	0	0	64	200	1642	117
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	869	670	0	761	0	0	0	64	0	1959	0
Confl. Peds. (#/hr)	865		312	312		865	303		320	320		303
Confl. Bikes (#/hr)			47			35						7
Heavy Vehicles (%)	8%	8%	8%	6%	6%	6%	26%	26%	26%	2%	2%	2%
Turn Type		NA	custom		NA				Prot	Perm	NA	
Protected Phases		2 9	9		6				4		8	
Permitted Phases										8		
Actuated Green, G (s)		51.5	27.5		51.5				42.0		42.0	
Effective Green, g (s)		51.5	27.5		51.5				42.0		42.0	
Actuated g/C Ratio		0.47	0.25		0.47				0.38		0.38	
Clearance Time (s)			6.5		6.5				7.0		7.0	
Lane Grp Cap (vph)		1565	658		1594				497		1810	
v/s Ratio Prot		c0.26	c0.25		0.22				0.05			
v/s Ratio Perm											0.41	
v/c Ratio		0.56	1.02		0.48				0.13		1.08	
Uniform Delay, d1		21.0	41.2		20.0				22.1		34.0	
Progression Factor		0.74	0.82		0.97				0.72		0.53	
Incremental Delay, d2		1.0	33.4		0.9				0.5		45.1	
Delay (s)		16.5	67.4		20.3				16.5		63.2	
Level of Service		B	E		C				B		E	
Approach Delay (s)		38.7			20.3			16.5			63.2	
Approach LOS		D			C			B			E	

Intersection Summary			
HCM 2000 Control Delay	46.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	95.9%	ICU Level of Service	F
Analysis Period (min)	15		

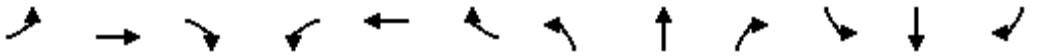
c Critical Lane Group



Lane Group	EBT	EBR	WBT	NBL	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1111	109	858	126	43	413	377	104
v/c Ratio	0.72	0.60	0.58	0.47	0.10	0.80	0.48	0.23
Control Delay	30.9	60.0	7.4	29.7	19.8	40.6	25.2	21.8
Queue Delay	2.5	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Total Delay	33.4	60.0	7.6	29.7	19.8	40.6	25.2	21.8
Queue Length 50th (ft)	310	77	45	62	18	248	188	46
Queue Length 95th (ft)	431	m118	m53	124	42	#419	275	86
Internal Link Dist (ft)	246		516				417	
Turn Bay Length (ft)								
Base Capacity (vph)	1535	181	1467	269	432	519	788	449
Starvation Cap Reductn	293	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	139	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.60	0.65	0.47	0.10	0.80	0.48	0.23

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1089	107	0	841	0	123	0	42	405	369	102
Future Volume (vph)	0	1089	107	0	841	0	123	0	42	405	369	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0	6.5		6.5		7.0		7.0	7.0	7.0	7.0
Lane Util. Factor		0.95	1.00		0.95		1.00		1.00	1.00	1.00	1.00
Frpb, ped/bikes		1.00	1.00		1.00		1.00		0.69	1.00	1.00	0.67
Flpb, ped/bikes		1.00	1.00		1.00		0.85		1.00	0.69	1.00	1.00
Frt		1.00	0.85		1.00		1.00		0.85	1.00	1.00	0.85
Flt Protected		1.00	1.00		1.00		0.95		1.00	0.95	1.00	1.00
Satd. Flow (prot)		3312	1482		3471		1403		1012	1215	1845	1051
Flt Permitted		1.00	1.00		1.00		0.43		1.00	0.95	1.00	1.00
Satd. Flow (perm)		3312	1482		3471		630		1012	1215	1845	1051
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1111	109	0	858	0	126	0	43	413	377	104
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1111	109	0	858	0	126	0	43	413	377	104
Confl. Peds. (#/hr)	807		213	213		807	252		202	202		252
Confl. Bikes (#/hr)			82			7			6			5
Heavy Vehicles (%)	9%	9%	9%	4%	4%	4%	10%	10%	10%	3%	3%	3%
Turn Type		NA	custom		NA		Perm		Perm	Perm	NA	Perm
Protected Phases		2 1	1		6						8	
Permitted Phases							4		4	8		8
Actuated Green, G (s)		46.5	13.5		46.5		47.0		47.0	47.0	47.0	47.0
Effective Green, g (s)		46.5	13.5		46.5		47.0		47.0	47.0	47.0	47.0
Actuated g/C Ratio		0.42	0.12		0.42		0.43		0.43	0.43	0.43	0.43
Clearance Time (s)			6.5		6.5		7.0		7.0	7.0	7.0	7.0
Lane Grp Cap (vph)		1400	181		1467		269		432	519	788	449
v/s Ratio Prot		c0.34	0.07		0.25						0.20	
v/s Ratio Perm							0.20		0.04	c0.34		0.10
v/c Ratio		0.79	0.60		0.58		0.47		0.10	0.80	0.48	0.23
Uniform Delay, d1		27.6	45.7		24.3		22.6		18.8	27.3	22.7	20.0
Progression Factor		1.18	1.04		0.24		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		3.8	11.4		1.4		5.8		0.5	12.0	2.1	1.2
Delay (s)		36.3	59.1		7.3		28.3		19.3	39.3	24.8	21.2
Level of Service		D	E		A		C		B	D	C	C
Approach Delay (s)		38.3			7.3			26.0			31.1	
Approach LOS		D			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	85.0%	ICU Level of Service	E
Analysis Period (min)	15		

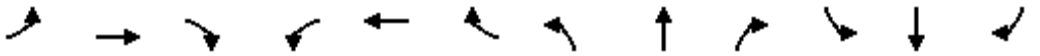
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	153	703	800	297	15	566	183
v/c Ratio	0.54	0.41	0.69	0.64	0.16	0.83	0.49
Control Delay	66.0	14.1	20.5	24.5	51.4	53.2	33.4
Queue Delay	0.6	0.6	1.0	0.0	0.0	0.2	0.0
Total Delay	66.6	14.7	21.4	24.5	51.4	53.3	33.4
Queue Length 50th (ft)	109	100	218	102	10	198	100
Queue Length 95th (ft)	m165	m123	304	178	32	#279	172
Internal Link Dist (ft)		209	246		170		344
Turn Bay Length (ft)							
Base Capacity (vph)	283	1711	1156	464	93	684	370
Starvation Cap Reductn	20	603	148	0	0	0	0
Spillback Cap Reductn	0	447	0	0	0	5	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.63	0.79	0.64	0.16	0.83	0.49

Intersection Summary

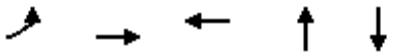
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	667	8	0	768	285	2	8	5	543	1	175
Future Volume (vph)	147	667	8	0	768	285	2	8	5	543	1	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			2.0	7.0		7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00		0.97	1.00	
Frpb, ped/bikes	1.00	0.99			1.00	0.58		0.88		1.00	0.69	
Flpb, ped/bikes	1.00	1.00			1.00	1.00		0.97		1.00	1.00	
Frt	1.00	1.00			1.00	0.85		0.95		1.00	0.85	
Flt Protected	0.95	1.00			1.00	1.00		0.99		0.95	1.00	
Satd. Flow (prot)	1641	3247			3438	893		1225		3273	1044	
Flt Permitted	0.95	1.00			1.00	1.00		0.93		0.95	1.00	
Satd. Flow (perm)	1641	3247			3438	893		1141		3273	1044	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	153	695	8	0	800	297	2	8	5	566	1	182
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	153	703	0	0	800	297	0	15	0	566	183	0
Confl. Peds. (#/hr)	530		382	382		530	214		170	170		214
Confl. Bikes (#/hr)			127			38						10
Heavy Vehicles (%)	10%	10%	10%	5%	5%	5%	25%	25%	25%	7%	7%	7%
Turn Type	Prot	NA			NA	pm+ov	Perm	NA		Prot	NA	
Protected Phases	1	6			2	3		4		3	8	
Permitted Phases						2	4					
Actuated Green, G (s)	19.0	58.0			37.0	60.0		9.0		23.0	39.0	
Effective Green, g (s)	19.0	58.0			37.0	60.0		9.0		23.0	39.0	
Actuated g/C Ratio	0.17	0.53			0.34	0.55		0.08		0.21	0.35	
Clearance Time (s)	6.0	6.0			2.0	7.0		7.0		7.0	7.0	
Lane Grp Cap (vph)	283	1712			1156	487		93		684	370	
v/s Ratio Prot	c0.09	0.22			c0.23	0.13				c0.17	c0.18	
v/s Ratio Perm						0.21		0.01				
v/c Ratio	0.54	0.41			0.69	0.61		0.16		0.83	0.49	
Uniform Delay, d1	41.5	15.7			31.6	17.0		47.0		41.6	27.8	
Progression Factor	1.41	0.85			0.55	0.74		1.00		1.00	1.00	
Incremental Delay, d2	6.5	0.7			2.9	4.8		3.7		11.0	4.7	
Delay (s)	65.0	13.9			20.3	17.4		50.7		52.7	32.5	
Level of Service	E	B			C	B		D		D	C	
Approach Delay (s)		23.1			19.5			50.7			47.7	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	28.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	65.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	190	1134	1665	1562	282
v/c Ratio	0.80	0.39	1.02dl	1.16	0.41
Control Delay	51.6	22.4	41.0	117.7	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	51.6	22.4	41.0	117.7	13.4
Queue Length 50th (ft)	140	253	318	~478	95
Queue Length 95th (ft)	m#181	298	#388	#576	151
Internal Link Dist (ft)		1027	345	451	993
Turn Bay Length (ft)					
Base Capacity (vph)	238	2876	1810	1341	696
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.80	0.39	0.92	1.16	0.41

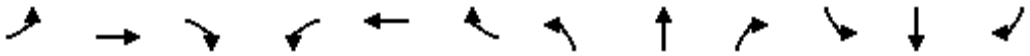
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

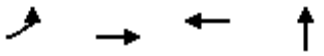
dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	182	1064	25	173	1368	58	63	1055	381	13	140	117
Future Volume (vph)	182	1064	25	173	1368	58	63	1055	381	13	140	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.5			6.5			6.5			6.5	
Lane Util. Factor	1.00	0.91			0.86			0.91			0.95	
Frpb, ped/bikes	1.00	0.99			1.00			0.99			0.86	
Flpb, ped/bikes	1.00	1.00			0.99			0.99			1.00	
Frt	1.00	1.00			0.99			0.96			0.94	
Flt Protected	0.95	1.00			0.99			1.00			1.00	
Satd. Flow (prot)	1752	4978			6218			4830			2852	
Flt Permitted	0.95	1.00			0.73			0.90			0.70	
Satd. Flow (perm)	1752	4978			4562			4352			2008	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	190	1108	26	180	1425	60	66	1099	397	14	146	122
RTOR Reduction (vph)	0	2	0	0	5	0	0	16	0	0	85	0
Lane Group Flow (vph)	190	1132	0	0	1660	0	0	1546	0	0	197	0
Confl. Peds. (#/hr)	24		265	265		24	292		31	31		292
Confl. Bikes (#/hr)			8						5			
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	1%	1%	1%	2%	2%	2%
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	6			2			8			4	
Permitted Phases				2			8			4		
Actuated Green, G (s)	15.0	63.5			43.5			33.5			33.5	
Effective Green, g (s)	15.0	63.5			43.5			33.5			33.5	
Actuated g/C Ratio	0.14	0.58			0.40			0.30			0.30	
Clearance Time (s)	5.0	6.5			6.5			6.5			6.5	
Lane Grp Cap (vph)	238	2873			1804			1325			611	
v/s Ratio Prot	c0.11	0.23										
v/s Ratio Perm					c0.36			c0.36			0.10	
v/c Ratio	0.80	0.39			1.02dl			1.17			0.32	
Uniform Delay, d1	46.0	12.7			31.6			38.2			29.5	
Progression Factor	0.75	1.74			1.00			1.00			0.72	
Incremental Delay, d2	15.4	0.2			9.2			83.6			1.0	
Delay (s)	50.1	22.3			40.8			121.8			22.1	
Level of Service	D	C			D			F			C	
Approach Delay (s)		26.3			40.8			121.8			22.1	
Approach LOS		C			D			F			C	

Intersection Summary			
HCM 2000 Control Delay	61.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	120.7%	ICU Level of Service	H
Analysis Period (min)	15		

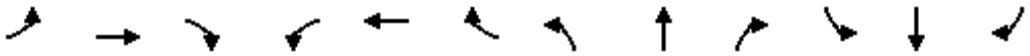
dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	41	132	509	1076
v/c Ratio	0.15	0.15	0.64	0.58
Control Delay	16.2	14.4	25.1	8.2
Queue Delay	0.0	0.0	0.0	0.8
Total Delay	16.2	14.4	25.1	9.0
Queue Length 50th (ft)	18	58	255	50
Queue Length 95th (ft)	m33	m82	374	m54
Internal Link Dist (ft)		379	152	314
Turn Bay Length (ft)	75			
Base Capacity (vph)	272	905	790	1855
Starvation Cap Reductn	0	0	0	432
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.15	0.15	0.64	0.76

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	127	0	0	349	139	29	890	114	0	0	0
Future Volume (vph)	39	127	0	0	349	139	29	890	114	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5			6.0				
Lane Util. Factor	1.00	1.00			1.00			0.91				
Frpb, ped/bikes	1.00	1.00			0.91			0.94				
Flpb, ped/bikes	0.90	1.00			1.00			0.98				
Frt	1.00	1.00			0.96			0.98				
Flt Protected	0.95	1.00			1.00			1.00				
Satd. Flow (prot)	1568	1827			1592			4603				
Flt Permitted	0.33	1.00			1.00			1.00				
Satd. Flow (perm)	550	1827			1592			4603				
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	41	132	0	0	364	145	30	927	119	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	14	0	0	0	0
Lane Group Flow (vph)	41	132	0	0	507	0	0	1062	0	0	0	0
Confl. Peds. (#/hr)	258		274	274		258	356		343	343		356
Confl. Bikes (#/hr)			29			15			20			
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			4			2				
Permitted Phases	4						2					
Actuated Green, G (s)	54.5	54.5			54.5			44.0				
Effective Green, g (s)	54.5	54.5			54.5			44.0				
Actuated g/C Ratio	0.50	0.50			0.50			0.40				
Clearance Time (s)	5.5	5.5			5.5			6.0				
Lane Grp Cap (vph)	272	905			788			1841				
v/s Ratio Prot		0.07			c0.32							
v/s Ratio Perm	0.07							0.23				
v/c Ratio	0.15	0.15			0.64			0.58				
Uniform Delay, d1	15.1	15.1			20.6			25.7				
Progression Factor	0.97	0.92			1.00			0.30				
Incremental Delay, d2	0.8	0.2			4.0			0.6				
Delay (s)	15.5	14.2			24.6			8.3				
Level of Service	B	B			C			A				
Approach Delay (s)		14.5			24.6			8.3			0.0	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		

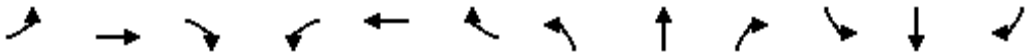
c Critical Lane Group



Lane Group	EBT	EBR	WBT	WBR	NBT
Lane Group Flow (vph)	751	297	747	277	1430
v/c Ratio	0.36	0.69	0.37	0.44	1.01
Control Delay	6.7	40.2	4.1	5.7	29.2
Queue Delay	0.0	0.0	0.3	0.6	0.0
Total Delay	6.7	40.2	4.4	6.2	29.2
Queue Length 50th (ft)	87	158	30	22	~306
Queue Length 95th (ft)	114	264	48	40	m209
Internal Link Dist (ft)	419		209		993
Turn Bay Length (ft)		200			
Base Capacity (vph)	2105	429	2003	626	1420
Starvation Cap Reductn	0	0	602	114	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.36	0.69	0.53	0.54	1.01

Intersection Summary

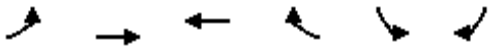
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	691	273	0	687	255	147	1019	149	0	0	0
Future Volume (vph)	0	691	273	0	687	255	147	1019	149	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0	2.0		6.5	6.5		7.0				
Lane Util. Factor		0.95	1.00		0.95	1.00		0.91				
Frpb, ped/bikes		1.00	1.00		1.00	0.70		0.96				
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00				
Frt		1.00	0.85		1.00	0.85		0.98				
Flt Protected		1.00	1.00		1.00	1.00		0.99				
Satd. Flow (prot)		3406	1524		3471	1086		4737				
Flt Permitted		1.00	1.00		1.00	1.00		0.99				
Satd. Flow (perm)		3406	1524		3471	1086		4737				
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	751	297	0	747	277	160	1108	162	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	751	297	0	747	277	0	1430	0	0	0	0
Confl. Peds. (#/hr)	564					564	1		235	235		1
Confl. Bikes (#/hr)			6			6			24			
Heavy Vehicles (%)	6%	6%	6%	4%	4%	4%	3%	3%	3%	0%	0%	0%
Turn Type		NA	custom		NA	Perm	Perm	NA				
Protected Phases		1 2	1		6			4				
Permitted Phases						6	4					
Actuated Green, G (s)		63.5	31.0		63.5	63.5		33.0				
Effective Green, g (s)		63.5	31.0		63.5	63.5		33.0				
Actuated g/C Ratio		0.58	0.28		0.58	0.58		0.30				
Clearance Time (s)			2.0		6.5	6.5		7.0				
Lane Grp Cap (vph)		1966	429		2003	626		1421				
v/s Ratio Prot		0.22	c0.19		0.22							
v/s Ratio Perm						c0.25		0.30				
v/c Ratio		0.38	0.69		0.37	0.44		1.01				
Uniform Delay, d1		12.6	35.2		12.5	13.2		38.5				
Progression Factor		0.60	0.88		0.29	0.28		0.47				
Incremental Delay, d2		0.5	8.5		0.4	1.8		8.8				
Delay (s)		8.1	39.4		4.1	5.5		27.0				
Level of Service		A	D		A	A		C				
Approach Delay (s)		17.0			4.5			27.0			0.0	
Approach LOS		B			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

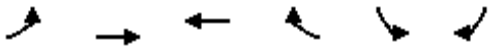
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	221	465	540	318	549	214
v/c Ratio	0.65	0.25	0.54	0.39	0.47	0.31
Control Delay	50.8	14.7	19.1	4.3	14.8	8.1
Queue Delay	1.3	0.6	0.2	0.0	1.9	0.7
Total Delay	52.0	15.3	19.3	4.3	16.7	8.8
Queue Length 50th (ft)	116	82	84	35	52	38
Queue Length 95th (ft)	238	110	m114	m37	m65	m51
Internal Link Dist (ft)		228	419		144	
Turn Bay Length (ft)				200		
Base Capacity (vph)	339	1877	993	825	1174	690
Starvation Cap Reductn	29	984	0	0	448	233
Spillback Cap Reductn	1	0	81	21	0	75
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.52	0.59	0.40	0.76	0.47

Intersection Summary

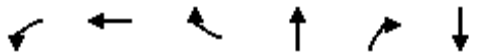
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	214	451	524	308	533	208
Future Volume (vph)	214	451	524	308	533	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	6.0	6.0	6.5
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.84	1.00	0.82
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1736	3471	3471	1300	3400	1286
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1736	3471	3471	1300	3400	1286
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	221	465	540	318	549	214
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	221	465	540	318	549	214
Confl. Peds. (#/hr)	328			328	669	133
Confl. Bikes (#/hr)				41		5
Heavy Vehicles (%)	4%	4%	4%	4%	3%	3%
Turn Type	Prot	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	1	6	2	4	4	1
Permitted Phases				2		4
Actuated Green, G (s)	21.5	59.5	31.5	69.5	38.0	59.5
Effective Green, g (s)	21.5	59.5	31.5	69.5	38.0	59.5
Actuated g/C Ratio	0.20	0.54	0.29	0.63	0.35	0.54
Clearance Time (s)	6.5	6.5	6.5	6.0	6.0	6.5
Lane Grp Cap (vph)	339	1877	993	892	1174	771
v/s Ratio Prot	c0.13	0.13	c0.16	0.12	c0.16	0.05
v/s Ratio Perm				0.12		0.11
v/c Ratio	0.65	0.25	0.54	0.36	0.47	0.28
Uniform Delay, d1	40.8	13.4	33.2	9.6	28.1	13.6
Progression Factor	1.00	1.07	0.51	0.44	0.50	0.68
Incremental Delay, d2	9.2	0.3	1.9	1.0	0.7	0.5
Delay (s)	50.0	14.6	18.9	5.2	14.7	9.8
Level of Service	D	B	B	A	B	A
Approach Delay (s)		26.0	13.8		13.3	
Approach LOS		C	B		B	

Intersection Summary			
HCM 2000 Control Delay	17.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		

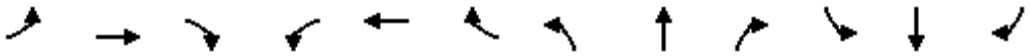
c Critical Lane Group



Lane Group	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	133	208	107	458	83	907
v/c Ratio	0.53	0.53	0.25	0.52	0.36	0.95
Control Delay	38.5	35.7	4.5	24.9	4.5	57.2
Queue Delay	0.0	0.0	0.0	3.7	0.2	0.0
Total Delay	38.5	35.7	4.5	28.6	4.8	57.2
Queue Length 50th (ft)	42	66	1	108	0	320
Queue Length 95th (ft)	m113	164	m23	154	m5	#452
Internal Link Dist (ft)		379		144		303
Turn Bay Length (ft)	200		65			
Base Capacity (vph)	253	390	435	875	233	954
Starvation Cap Reductn	0	0	0	321	15	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.53	0.25	0.83	0.38	0.95

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	126	198	102	78	357	79	107	558	197
Future Volume (vph)	0	0	0	126	198	102	78	357	79	107	558	197
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5	6.5		6.0	6.0		6.0	
Lane Util. Factor				1.00	1.00	1.00		0.95	1.00		0.95	
Frpb, ped/bikes				1.00	1.00	0.96		1.00	0.30		0.99	
Flpb, ped/bikes				0.68	1.00	1.00		1.00	1.00		1.00	
Frt				1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected				0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)				1188	1827	1490		3440	468		3294	
Flt Permitted				0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (perm)				1188	1827	1490		3440	468		3294	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	133	208	107	82	376	83	113	587	207
RTOR Reduction (vph)	0	0	0	0	0	84	0	0	62	0	25	0
Lane Group Flow (vph)	0	0	0	133	208	23	0	458	21	0	882	0
Confl. Peds. (#/hr)	18		264	264		18	19		528	528		19
Confl. Bikes (#/hr)						3			4			1
Heavy Vehicles (%)	0%	0%	0%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Perm	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases					4		2	2		1	1	
Permitted Phases				4		4			2			
Actuated Green, G (s)				23.5	23.5	23.5		28.0	28.0		31.0	
Effective Green, g (s)				23.5	23.5	23.5		28.0	28.0		31.0	
Actuated g/C Ratio				0.21	0.21	0.21		0.25	0.25		0.28	
Clearance Time (s)				6.5	6.5	6.5		6.0	6.0		6.0	
Lane Grp Cap (vph)				253	390	318		875	119		928	
v/s Ratio Prot					c0.11			c0.13			c0.27	
v/s Ratio Perm				0.11		0.02			0.05			
v/c Ratio				0.53	0.53	0.07		0.52	0.18		0.95	
Uniform Delay, d1				38.3	38.4	34.5		35.3	32.0		38.7	
Progression Factor				0.82	0.81	1.52		0.64	1.00		1.00	
Incremental Delay, d2				6.4	4.3	0.4		2.0	2.9		19.7	
Delay (s)				37.7	35.2	53.0		24.7	34.9		58.5	
Level of Service				D	D	D		C	C		E	
Approach Delay (s)		0.0			40.2			26.2			58.5	
Approach LOS		A			D			C			E	

Intersection Summary			
HCM 2000 Control Delay	45.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



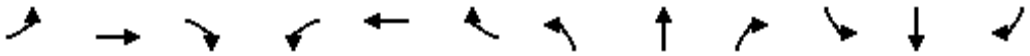
Lane Group	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	1124	1453	85	1773	1752
v/c Ratio	0.84	1.10	0.26	0.57	0.69
Control Delay	40.8	69.5	1.4	17.6	26.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	40.8	69.5	1.4	17.6	26.3
Queue Length 50th (ft)	265	~456	0	226	426
Queue Length 95th (ft)	326	m#501	m0	261	479
Internal Link Dist (ft)	320	1027		460	1159
Turn Bay Length (ft)					
Base Capacity (vph)	1334	1315	330	3102	2532
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.84	1.10	0.26	0.57	0.69

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	989	75	32	1355	90	0	1393	309	0	1443	239
Future Volume (vph)	15	989	75	32	1355	90	0	1393	309	0	1443	239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5	4.5		4.5			4.5	
Lane Util. Factor		0.91			0.86	0.86		0.86			0.91	
Frpb, ped/bikes		0.98			1.00	0.65		0.94			0.96	
Flpb, ped/bikes		1.00			1.00	1.00		1.00			1.00	
Frt		0.99			1.00	0.85		0.97			0.98	
Flt Protected		1.00			1.00	1.00		1.00			1.00	
Satd. Flow (prot)		4919			4781	886		5781			4721	
Flt Permitted		0.81			0.83	1.00		1.00			1.00	
Satd. Flow (perm)		3998			3961	886		5781			4721	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	16	1030	78	33	1411	94	0	1451	322	0	1503	249
RTOR Reduction (vph)	0	7	0	0	1	37	0	27	0	0	21	0
Lane Group Flow (vph)	0	1117	0	0	1452	48	0	1746	0	0	1731	0
Confl. Peds. (#/hr)	411		258	258		411	255		450	450		255
Confl. Bikes (#/hr)			9						9			
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA	Perm		NA			NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2						
Actuated Green, G (s)		36.5			36.5	36.5		58.5			58.5	
Effective Green, g (s)		36.5			36.5	36.5		58.5			58.5	
Actuated g/C Ratio		0.33			0.33	0.33		0.53			0.53	
Clearance Time (s)		4.5			4.5	4.5		4.5			4.5	
Lane Grp Cap (vph)		1326			1314	293		3074			2510	
v/s Ratio Prot								0.30			c0.37	
v/s Ratio Perm		0.28			c0.37	0.05						
v/c Ratio		0.84			1.11	0.16		0.57			0.69	
Uniform Delay, d1		34.1			36.8	26.0		17.3			19.0	
Progression Factor		1.00			0.36	0.05		1.00			1.33	
Incremental Delay, d2		6.6			52.9	0.5		0.8			1.5	
Delay (s)		40.7			66.2	1.9		18.0			26.7	
Level of Service		D			E	A		B			C	
Approach Delay (s)		40.7			62.7			18.0			26.7	
Approach LOS		D			E			B			C	

Intersection Summary			
HCM 2000 Control Delay	35.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	91.9%	ICU Level of Service	F
Analysis Period (min)	15		

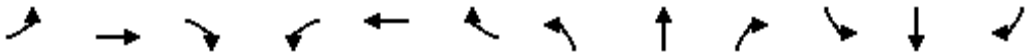
c Critical Lane Group



Lane Group	EBT	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	504	554	133	114	1546	1343
v/c Ratio	0.53	0.46	0.31	0.78	0.89	0.49
Control Delay	46.0	18.4	16.1	61.6	38.0	13.5
Queue Delay	0.0	0.4	0.0	0.0	0.0	0.5
Total Delay	46.0	18.8	16.1	61.6	38.0	14.0
Queue Length 50th (ft)	160	219	63	83	603	291
Queue Length 95th (ft)	m188	276	125	#181	683	341
Internal Link Dist (ft)	394	259			1159	146
Turn Bay Length (ft)						
Base Capacity (vph)	947	1194	436	146	1737	2743
Starvation Cap Reductn	0	246	0	0	0	834
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.58	0.31	0.78	0.89	0.70

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	308	171	0	526	126	108	1249	219	0	1267	9
Future Volume (vph)	0	308	171	0	526	126	108	1249	219	0	1267	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5	6.5	6.5	6.5			6.5	
Lane Util. Factor		0.95			0.95	1.00	1.00	0.95			0.91	
Frpb, ped/bikes		0.88			1.00	0.82	1.00	0.94			1.00	
Flpb, ped/bikes		1.00			1.00	1.00	0.97	1.00			1.00	
Frt		0.95			1.00	0.85	1.00	0.98			1.00	
Flt Protected		1.00			1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)		2781			3505	1279	1706	3212			5072	
Flt Permitted		1.00			1.00	1.00	0.15	1.00			1.00	
Satd. Flow (perm)		2781			3505	1279	272	3212			5072	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	324	180	0	554	133	114	1315	231	0	1334	9
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	504	0	0	554	133	114	1546	0	0	1343	0
Confl. Peds. (#/hr)	128		395	395		128	186		447	447		186
Confl. Bikes (#/hr)			75			50			15			1
Heavy Vehicles (%)	8%	8%	8%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Turn Type		NA			NA	Perm	Perm	NA			NA	
Protected Phases		8			4			6			2	
Permitted Phases						4	6					
Actuated Green, G (s)		37.5			37.5	37.5	59.5	59.5			59.5	
Effective Green, g (s)		37.5			37.5	37.5	59.5	59.5			59.5	
Actuated g/C Ratio		0.34			0.34	0.34	0.54	0.54			0.54	
Clearance Time (s)		6.5			6.5	6.5	6.5	6.5			6.5	
Lane Grp Cap (vph)		948			1194	436	147	1737			2743	
v/s Ratio Prot		c0.18			0.16			c0.48			0.26	
v/s Ratio Perm						0.10	0.42					
v/c Ratio		0.53			0.46	0.31	0.78	0.89			0.49	
Uniform Delay, d1		29.2			28.4	26.7	20.0	22.4			15.8	
Progression Factor		1.50			0.60	0.53	1.36	1.38			0.82	
Incremental Delay, d2		1.7			1.2	1.7	28.7	6.5			0.5	
Delay (s)		45.4			18.2	15.8	55.8	37.4			13.4	
Level of Service		D			B	B	E	D			B	
Approach Delay (s)		45.4			17.8			38.7			13.4	
Approach LOS		D			B			D			B	

Intersection Summary			
HCM 2000 Control Delay	28.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		

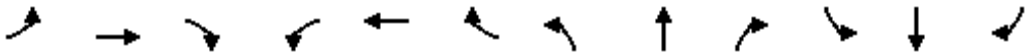
c Critical Lane Group



Lane Group	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	236	232	192	1396	1225
v/c Ratio	0.69	0.66	0.61	0.44	0.52
Control Delay	55.2	53.2	15.3	4.5	20.5
Queue Delay	0.0	0.0	8.6	1.1	0.3
Total Delay	55.2	53.2	23.9	5.7	20.8
Queue Length 50th (ft)	183	177	18	48	210
Queue Length 95th (ft)	m241	m233	m33	m85	252
Internal Link Dist (ft)		580		146	270
Turn Bay Length (ft)					
Base Capacity (vph)	342	350	315	3158	2359
Starvation Cap Reductn	0	0	88	1419	0
Spillback Cap Reductn	0	0	0	0	488
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.69	0.66	0.85	0.80	0.65

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	306	58	66	177	1284	0	0	1077	50
Future Volume (vph)	0	0	0	306	58	66	177	1284	0	0	1077	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5		6.0	6.0			6.0	
Lane Util. Factor				0.95	0.95		1.00	0.91			0.91	
Frpb, ped/bikes				1.00	0.90		1.00	1.00			0.98	
Flpb, ped/bikes				0.79	0.91		0.99	1.00			1.00	
Frt				1.00	0.95		1.00	1.00			0.99	
Flt Protected				0.95	0.98		0.95	1.00			1.00	
Satd. Flow (prot)				1320	1345		1738	5036			4888	
Flt Permitted				0.95	0.98		0.17	1.00			1.00	
Satd. Flow (perm)				1320	1345		310	5036			4888	
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	333	63	72	192	1396	0	0	1171	54
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	0	0	236	230	0	192	1396	0	0	1220	0
Confl. Peds. (#/hr)	290		163	163		290	234		649	649		234
Confl. Bikes (#/hr)						9			19			2
Heavy Vehicles (%)	0%	0%	0%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type				Perm	NA		pm+pt	NA			NA	
Protected Phases					4		5	2			6	
Permitted Phases				4			2					
Actuated Green, G (s)				28.5	28.5		69.0	69.0			53.0	
Effective Green, g (s)				28.5	28.5		69.0	69.0			53.0	
Actuated g/C Ratio				0.26	0.26		0.63	0.63			0.48	
Clearance Time (s)				6.5	6.5		6.0	6.0			6.0	
Lane Grp Cap (vph)				342	348		324	3158			2355	
v/s Ratio Prot							c0.05	0.28			0.25	
v/s Ratio Perm				c0.18	0.17		c0.32					
v/c Ratio				0.69	0.66		0.59	0.44			0.52	
Uniform Delay, d1				36.8	36.4		24.7	10.6			19.7	
Progression Factor				1.26	1.26		0.41	0.40			1.00	
Incremental Delay, d2				7.7	6.7		4.9	0.3			0.8	
Delay (s)				53.9	52.5		15.2	4.5			20.5	
Level of Service				D	D		B	A			C	
Approach Delay (s)		0.0			53.2			5.8			20.5	
Approach LOS		A			D			A			C	

Intersection Summary			
HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

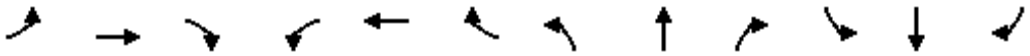
c Critical Lane Group



Lane Group	EBT	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	34	357	144	520	201	643
v/c Ratio	0.31	0.64	0.20	0.62	1.00	0.42
Control Delay	52.5	64.5	3.9	37.4	113.1	20.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.5	64.5	3.9	37.4	113.1	20.9
Queue Length 50th (ft)	22	109	15	166	144	155
Queue Length 95th (ft)	55	m156	m20	226	#295	203
Internal Link Dist (ft)	133			1023		200
Turn Bay Length (ft)			100			
Base Capacity (vph)	109	560	720	832	201	1549
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.64	0.20	0.63	1.00	0.42

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	5	0	339	0	137	6	324	164	191	605	6
Future Volume (vph)	28	5	0	339	0	137	6	324	164	191	605	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5		6.5		6.5		6.5		5.0	6.5	
Lane Util. Factor		1.00		0.97		1.00		0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00		1.00		0.91		1.00	0.99	
Flpb, ped/bikes		1.00		1.00		1.00		1.00		1.00	1.00	
Frt		1.00		1.00		0.85		0.95		1.00	1.00	
Flt Protected		0.96		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1817		3335		1538		2976		1703	3375	
Flt Permitted		0.96		0.95		1.00		0.95		0.95	1.00	
Satd. Flow (perm)		1817		3335		1538		2817		1703	3375	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	29	5	0	357	0	144	6	341	173	201	637	6
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	34	0	357	0	144	0	520	0	201	643	0
Confl. Peds. (#/hr)	2		243	243		2	731		183	183		731
Confl. Bikes (#/hr)			1			80			52			85
Heavy Vehicles (%)	0%	0%	0%	5%	5%	5%	4%	4%	4%	6%	6%	6%
Turn Type	Prot	NA	Perm	Prot		custom	Perm	NA		Prot	NA	
Protected Phases	3	8		7		7 4 1		2		1	6	
Permitted Phases			8				2					
Actuated Green, G (s)		21.5		18.5		53.0		32.5		13.0	50.5	
Effective Green, g (s)		21.5		18.5		53.0		32.5		13.0	50.5	
Actuated g/C Ratio		0.20		0.17		0.48		0.30		0.12	0.46	
Clearance Time (s)		6.5		6.5				6.5		5.0	6.5	
Lane Grp Cap (vph)		355		560		741		832		201	1549	
v/s Ratio Prot		c0.01		c0.11		c0.09				c0.12	0.19	
v/s Ratio Perm		0.01						c0.18				
v/c Ratio		0.10		0.64		0.19		0.62		1.00	0.42	
Uniform Delay, d1		36.3		42.6		16.3		33.5		48.5	19.9	
Progression Factor		1.00		1.39		0.19		1.00		1.00	1.00	
Incremental Delay, d2		0.5		4.8		0.5		3.5		63.5	0.8	
Delay (s)		36.8		64.0		3.6		37.0		112.0	20.7	
Level of Service		D		E		A		D		F	C	
Approach Delay (s)		36.8			46.6			37.0			42.4	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	42.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBL	WBT	NBR
Lane Group Flow (vph)	1237	781	790	1071
v/c Ratio	0.79	1.04	0.51	0.69
Control Delay	21.8	72.5	25.3	21.7
Queue Delay	48.7	0.0	8.8	1.1
Total Delay	70.5	72.5	34.2	22.8
Queue Length 50th (ft)	227	~604	180	344
Queue Length 95th (ft)	m300	#842	244	402
Internal Link Dist (ft)	354		202	
Turn Bay Length (ft)				
Base Capacity (vph)	1557	748	1561	1542
Starvation Cap Reductn	33	0	732	244
Spillback Cap Reductn	485	0	0	65
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.15	1.04	0.95	0.83

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1121	5	711	719	0	975
Future Volume (vph)	1121	5	711	719	0	975
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0		7.0	7.0		7.0
Lane Util. Factor	0.95		1.00	0.95		0.76
Frpb, ped/bikes	1.00		1.00	1.00		1.00
Flpb, ped/bikes	1.00		1.00	1.00		1.00
Frt	1.00		1.00	1.00		0.85
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	3497		1752	3505		3610
Flt Permitted	1.00		0.95	1.00		1.00
Satd. Flow (perm)	3497		1752	3505		3610
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	1232	5	781	790	0	1071
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1237	0	781	790	0	1071
Confl. Peds. (#/hr)		226	226		28	
Confl. Bikes (#/hr)		111				3
Heavy Vehicles (%)	3%	3%	3%	3%	2%	2%
Turn Type	NA		Prot	NA		Prot
Protected Phases	2		7	6		4
Permitted Phases						
Actuated Green, G (s)	49.0		47.0	49.0		47.0
Effective Green, g (s)	49.0		47.0	49.0		47.0
Actuated g/C Ratio	0.45		0.43	0.45		0.43
Clearance Time (s)	7.0		7.0	7.0		7.0
Lane Grp Cap (vph)	1557		748	1561		1542
v/s Ratio Prot	c0.35		c0.45	0.23		0.30
v/s Ratio Perm						
v/c Ratio	0.79		1.04	0.51		0.69
Uniform Delay, d1	26.2		31.5	21.8		25.7
Progression Factor	0.70		0.88	1.10		0.74
Incremental Delay, d2	3.1		43.8	1.1		2.5
Delay (s)	21.5		71.4	25.1		21.4
Level of Service	C		E	C		C
Approach Delay (s)	21.5			48.1	21.4	
Approach LOS	C			D	C	

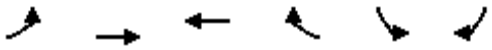
Intersection Summary			
HCM 2000 Control Delay	32.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	SBR
Lane Group Flow (vph)	1686	320	16	1218
v/c Ratio	0.79	0.70	0.02	0.54
Control Delay	17.8	43.9	28.9	11.9
Queue Delay	47.8	4.3	0.0	0.9
Total Delay	65.6	48.2	28.9	12.8
Queue Length 50th (ft)	379	187	4	178
Queue Length 95th (ft)	477	284	13	223
Internal Link Dist (ft)		268	282	
Turn Bay Length (ft)				
Base Capacity (vph)	2128	456	730	2260
Starvation Cap Reductn	673	77	0	687
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.16	0.84	0.02	0.77

Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1635	310	16	0	0	1181
Future Volume (vph)	1635	310	16	0	0	1181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.5	6.5			7.0
Lane Util. Factor	0.97	1.00	0.95			0.76
Frpb, ped/bikes	1.00	1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	1.00	1.00	1.00			0.85
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3433	1863	2983			3646
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3433	1863	2983			3646
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1686	320	16	0	0	1218
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1686	320	16	0	0	1218
Confl. Peds. (#/hr)	97			97		
Confl. Bikes (#/hr)				30		13
Heavy Vehicles (%)	2%	2%	21%	21%	1%	1%
Turn Type	Prot	NA	NA			Prot
Protected Phases	7	6	2			4
Permitted Phases						
Actuated Green, G (s)	62.0	24.5	24.5			62.0
Effective Green, g (s)	62.0	24.5	24.5			62.0
Actuated g/C Ratio	0.62	0.24	0.24			0.62
Clearance Time (s)	7.0	6.5	6.5			7.0
Lane Grp Cap (vph)	2128	456	730			2260
v/s Ratio Prot	c0.49	c0.17	0.01			0.33
v/s Ratio Perm						
v/c Ratio	0.79	0.70	0.02			0.54
Uniform Delay, d1	14.2	34.4	28.7			10.8
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	3.1	8.7	0.1			0.9
Delay (s)	17.3	43.1	28.7			11.8
Level of Service	B	D	C			B
Approach Delay (s)		21.4	28.7		11.8	
Approach LOS		C	C		B	

Intersection Summary			
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBL	WBT	NBR
Lane Group Flow (vph)	566	40	733	180
v/c Ratio	0.20	0.07	0.36	0.35
Control Delay	7.3	13.9	23.7	32.0
Queue Delay	0.0	0.0	3.5	0.0
Total Delay	7.3	13.9	27.2	32.0
Queue Length 50th (ft)	47	8	252	98
Queue Length 95th (ft)	m52	m21	308	161
Internal Link Dist (ft)	259		228	
Turn Bay Length (ft)				
Base Capacity (vph)	2763	541	2055	508
Starvation Cap Reductn	0	0	1202	0
Spillback Cap Reductn	48	0	83	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.21	0.07	0.86	0.35

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	504	17	37	674	0	166
Future Volume (vph)	504	17	37	674	0	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		6.0	5.5		6.0
Lane Util. Factor	0.91		1.00	0.95		1.00
Frpb, ped/bikes	1.00		1.00	1.00		1.00
Flpb, ped/bikes	1.00		1.00	1.00		1.00
Frt	1.00		1.00	1.00		0.86
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	4714		1752	3505		1644
Flt Permitted	1.00		0.95	1.00		1.00
Satd. Flow (perm)	4714		1752	3505		1644
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	548	18	40	733	0	180
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	566	0	40	733	0	180
Confl. Peds. (#/hr)		35	35			5
Confl. Bikes (#/hr)		35				
Heavy Vehicles (%)	9%	9%	3%	3%	0%	0%
Turn Type	NA		Prot	NA		Over
Protected Phases	2		4	6		4
Permitted Phases						
Actuated Green, G (s)	64.5		34.0	64.5		34.0
Effective Green, g (s)	64.5		34.0	64.5		34.0
Actuated g/C Ratio	0.59		0.31	0.59		0.31
Clearance Time (s)	5.5		6.0	5.5		6.0
Lane Grp Cap (vph)	2764		541	2055		508
v/s Ratio Prot	0.12		0.02	c0.21		c0.11
v/s Ratio Perm						
v/c Ratio	0.20		0.07	0.36		0.35
Uniform Delay, d1	10.7		26.9	11.9		29.5
Progression Factor	0.67		0.50	1.93		1.00
Incremental Delay, d2	0.1		0.2	0.4		1.9
Delay (s)	7.3		13.8	23.4		31.4
Level of Service	A		B	C		C
Approach Delay (s)	7.3			22.9	31.4	
Approach LOS	A			C	C	

Intersection Summary			
HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group


NO TURNS



APPENDIX C
FUTURE CONDITIONS GROWTH RATES

KITTELSON & ASSOCIATES
300 M STREET SE, SUITE 810
WASHINGTON, DC 20003
P 202.450.3710

MEMORANDUM

Date:	March 22, 2018	Project #: 20812
To:	Robyn Jackson, EIT, LEED AP District Department of Transportation 55 M Street SE, Suite 400 Washington, DC 20003	
From:	Alek Pochowski, AICP, PE; Adam Vest, PE, PTOE; Jesus Cuellar	
Project:	Pennsylvania Avenue East of the White House Transportation Study	
Subject:	Growth Rate Determination	

As part of the Pennsylvania Avenue East of the White House Transportation Study, Kittelson & Associates, Inc. (Kittelson) used the Metropolitan Washington Council of Governments/Transportation Planning Board (MWCOG/TPB) travel demand model (TDM) to establish a corridor-wide vehicular volume growth rate. Kittelson will apply the identified "build" and "no-build" growth rates to the existing conditions analysis to determine future-year traffic conditions with and without proposed modifications to Pennsylvania Avenue NW between 3rd Street NW and 15th Street NW.

METHODOLOGY

Kittelson reviewed the methodology used to identify the growth rates for the Downtown West Transportation Planning Study and utilized the same methodology for the development of growth for the Pennsylvania Avenue East of the White House Transportation Study. The Downtown West Transportation Planning Study reviewed five different datasets for use in developing growth rates: three sub-jurisdictional datasets (one area immediately surrounding the corridor, one area comprising the approximate downtown district, and one area comprising the downtown district and nearby high-density mixed land-uses); one jurisdictional dataset (the entire District); and a screen line dataset (consisting of screenlines around the downtown district).

After reviewing the five datasets, the Downtown West Transportation Planning Study utilized the growth rates from the approximate downtown district. For the Pennsylvania Avenue East of the White House Transportation Study, an area of approximately the same size was used, but was shifted slightly such that Pennsylvania Avenue NW between 3rd Street NW and 15th Street NW was approximately in the center of the revised area, bounded to the south by I-695, to the north by P Street NW, to the east by 11th Street NE, and to the west by the Potomac River. Figure 1 displays the area used to develop the growth rate.

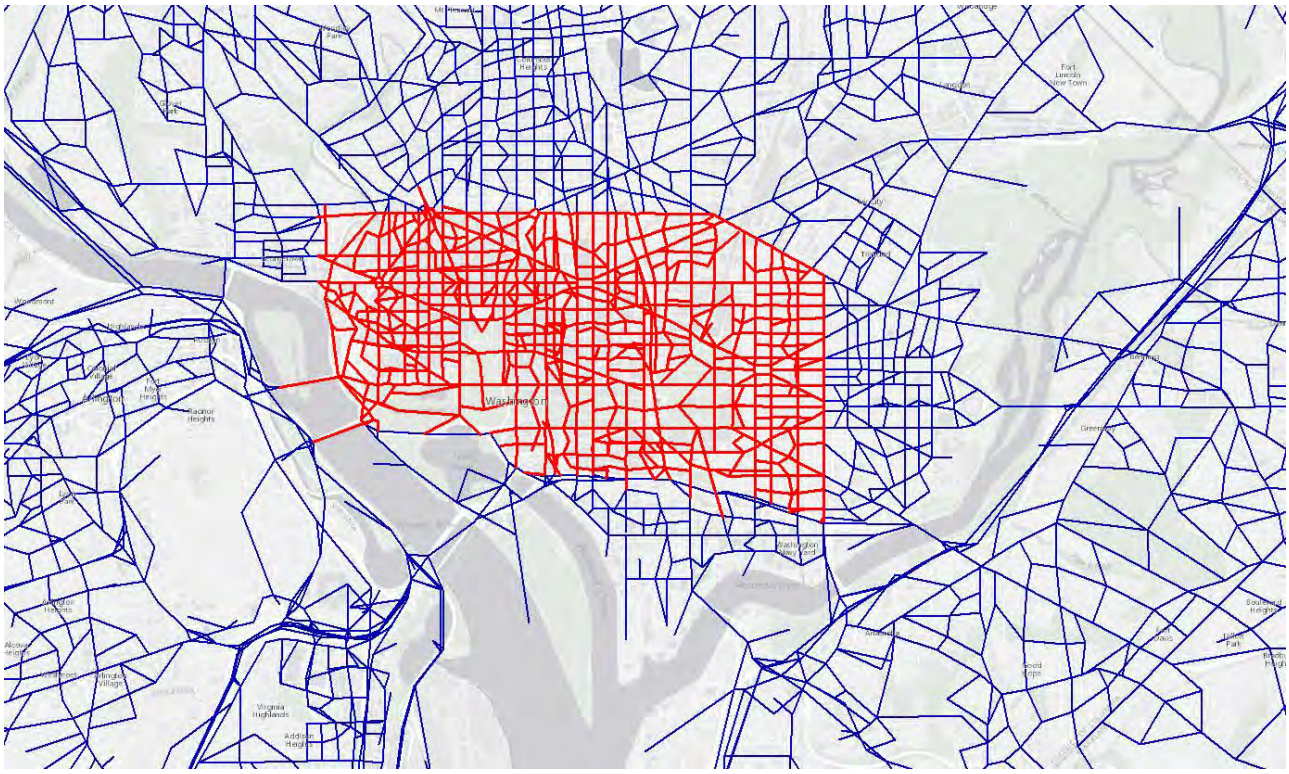


Figure 1. Shifted Approximate Downtown Area Used for Growth Rate Development

Prior to running the MWCOG TDM, Kittelson reviewed the number of weekday a.m. and p.m. peak hour travel lanes and slightly adjusted the model in the Pennsylvania Avenue East of the White House study area to reflect the correct number of lanes. Kittelson then ran the 2015 and 2020 MWCOG TDMs with these changes. For the 2040 no-build MWCOG TDM, Kittelson incorporated other approved projects in the District, including adjustments to Maryland Avenue NE, C Street NE and Florida Avenue NE, along with the proposed number of lanes associated with the Downtown West Transportation Planning Study. Lastly, Kittelson reduced the number of through lanes on Pennsylvania Avenue NW between 3rd Street NW and 15th Street NW to four (two in each direction) in the 2040 no-build MWCOG TDM to develop the 2040 Build MWCOG TDM. Table 1 displays the results of the four model runs.

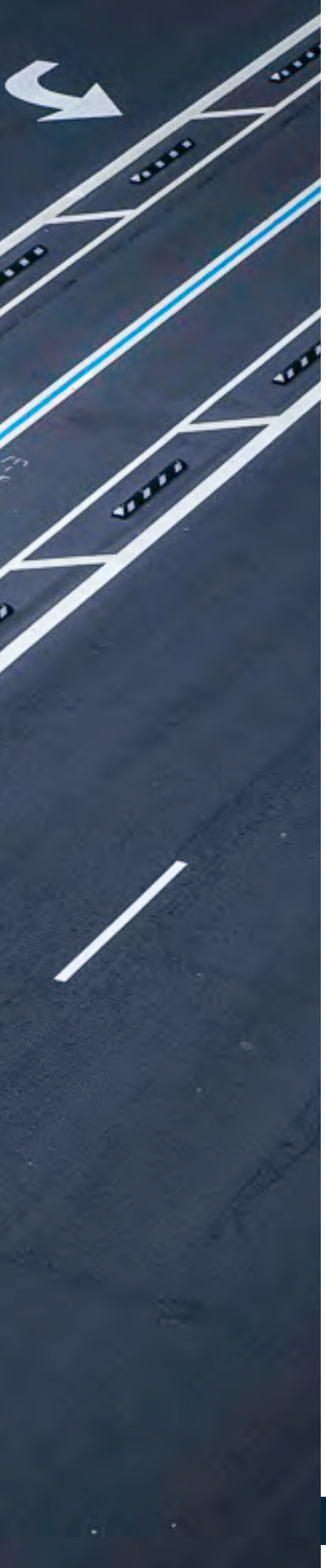
Table 1. Growth Rates Based on Model Scenario and Time of Day

Scenario	AM			PM			Daily		
	Total Volume	**Growth** (over *X* years)	**Growth Rate** (per year)	**Total Volume**	**Growth** (over *X* years)	**Growth Rate** (per year)	**Total Volume**	**Growth** (over *X* years)	**Growth Rate** (per year)
2015	1,367,053	-	-	1,494,992	-	-	17,469,113	-	-
2020	1,385,360	*1.34%*	*0.27%*	1,517,101	*1.48%*	*0.29%*	17,686,500	*1.24%*	*0.25%*
2040 No-Build	1,487,623	*8.82%*	*0.34%*	1,618,970	*8.29%*	*0.32%*	18,914,370	*8.27%*	*0.32%*
2040 Build	1,479,865	*8.25%*	*0.32%*	1,608,860	*7.62%*	*0.29%*	18,806,881	*7.66%*	*0.30%*

CONCLUSION

As shown in Table 1, the annual growth rates for the 2040 no-build MWCOG TDM are 0.34% and 0.32% during the weekday a.m. and p.m. peak hours, respectively. For the 2040 build scenario the growth rates are slightly less at 0.32% and 0.29% during the weekday a.m. and p.m. peak hours, respectively. By comparison, the growth rates used for the Downtown West Transportation Planning Study were 0.31% and 0.29% during the weekday a.m. and p.m. peak hours, which is in line with the growth rates developed for the Pennsylvania Avenue East of the White House Transportation Study. Therefore, the team will use the calculated growth rates determined for the 2040 Build scenario, applying them to all existing turning movement counts to assess future conditions.

BUS
ONLY



APPENDIX D
PLANNING LEVEL COST ESTIMATES

Pennsylvania Avenue Traffic Analysis

Option

Option 1: Center Bike Lanes

Engineer's Conceptual Estimate

Prepared by: RIN — *Date: February 2018*

This Estimate has a Rating of: **2B** *(See rating scale guide below.)*

ITEM	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
GRANITE CURB AND BRICK GUTTER	LF	8,900	$75.00	$667,500
MEDIAN CURB	LF		$25.00	$0
SALVAGE STONE CURB	LF		$18.00	$0
PERVIOUS PCC SIDEWALK	SY	11,256	$75.00	$844,204
SIDEWALK RAMP	EA	66	$2,000.00	$132,000
BLOCK PAVERS	SY	6,226	$150.00	$933,877
ENGINEERS OFFICE	LS	1	$20,000.00	$20,000
HARD SURFACE EXCAVATION	CY		$35.00	$0
BORROW	CY		$40.00	$0
BIORETENTION	SY		$500.00	$0
PAVEMENT MILLING AND OVERLAY	SY	0	$13.00	$0
FULL DEPTH PAVEMENT (2" hma Surface, 10" PCC Base, 6" GAB)	SY	36388	$150.00	$5,458,247
PAVEMENT MARKING 24"	LF	5892	$8.00	$47,134
PAVEMENT MARKING 12"	LF		$4.00	$0
PAVEMENT MARKING 6"	LF		$2.15	$0
PAVEMENT MARKING 4"	LF		$1.00	$0
PAVEMENT ARROWS	EA		$125.00	$0
PAVEMENT SYMBOLS	EA		$180.00	$0
PAVEMENT LETTERS	EA		$82.00	$0
STREET FURNISHINGS	LS	1	$0.00	$0
BUFFER PLANTING	LS	1	$589,000.00	$589,000
INTERSECTION SIGNAL RECONSTRUCTION	EA	12	$400,000.00	$4,800,000
LIGHTING	EA	76	$13,000.00	$988,000
FURNISH/INSTALL MULTISPACE METER	EA		$10,000.00	$0
BUS STOP WITH SHELTER	EA	11	$27,500.00	$302,500
BUS STOP WITHOUT SHELTER	EA		$25,000.00	$0
RELOCATE/REMOVE SIGN	EA		$105.00	$0
NEW SIGN	EA	30	$50.00	$1,500
			SUBTOTAL	$ 14,783,962
UTILITIES AND LANDSCAPING				
LANDSCAPING (5% of Total)	LS	1	$739,200.00	$739,200
SWM, PIPES AND STRUCTURES (25% of Total)	LS	1	$3,696,000.00	$3,696,000
EROSION CONTROL (2% of Total)	LS	1	$295,700.00	$295,700
UTILITY ADJUSTMENT AND RELOCATION (120% of Curb & Gutter Cost)	LS	1	$801,000.00	$801,000
CONSTRUCTION STAKEOUT (1% of Total)	LS	1	$147,800.00	$147,800
			SUBTOTAL	$ 5,679,700
MOT AND MOBILIZATION				
MAINTENANCE OF TRAFFIC (15% of total)	LS	1	$3,069,500.00	$3,069,500
MOBILIZATION (10% of total)	LS	1	$2,046,400.00	$2,046,400
			SUBTOTAL	$ 5,115,900
			TOTAL ENGINEERING AND CONSTRUCTION SUBTOTAL	$ 25,579,600
			30% Contingency	$ 7,673,880
			TOTAL ESTIMATED ENGINEERING AND CONSTRUCTION COST	$ 33,253,480

PROPERTY IMPACTS		
Potential New Right-of-way Needed	SF	0
Total Number of Lots Impacted	EA	0
Number of Commercial Properties	EA	0
Number of Residential Properties	EA	0

Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Pennsylvania Avenue Traffic Analysis

Option

Option 2: Center Walkway

Engineer's Conceptual Estimate

Prepared by: RIN | *Date: February 2018*

This Estimate has a Rating of: **2B** *(See rating scale guide below.)*

ITEM	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
GRANITE CURB AND BRICK GUTTER	LF	1,213	$75.00	$90,975
MEDIAN CURB	LF		$25.00	$0
SALVAGE STONE CURB	LF		$18.00	$0
PERVIOUS PCC SIDEWALK	SY	2,176	$75.00	$163,230
SIDEWALK RAMP	EA	27	$2,000.00	$54,000
BLOCK PAVERS	SY	8,715	$150.00	$1,307,265
ENGINEERS OFFICE	LS	1	$20,000.00	$20,000
HARD SURFACE EXCAVATION	CY		$35.00	$0
BORROW	CY		$40.00	$0
BIORETENTION	SY		$500.00	$0
PAVEMENT MILLING AND OVERLAY	SY	7181	$13.00	$93,354
FULL DEPTH PAVEMENT (2" hma Surface, 10" PCC Base, 6" GAB)	SY	35076	$150.00	$5,261,440
PAVEMENT MARKING 24"	LF	6022	$8.00	$48,176
PAVEMENT MARKING 12"	LF		$4.00	$0
PAVEMENT MARKING 6"	LF		$2.15	$0
PAVEMENT MARKING 4"	LF		$1.00	$0
PAVEMENT ARROWS	EA		$125.00	$0
PAVEMENT SYMBOLS	EA		$180.00	$0
PAVEMENT LETTERS	EA		$82.00	$0
STREET FURNISHINGS	LS	1	$309,500.00	$309,500
BUFFER PLANTING	LS	1	$602,000.00	$602,000
INTERSECTION SIGNAL RECONSTRUCTION	EA	12	$400,000.00	$4,800,000
LIGHTING	EA	76	$13,000.00	$988,000
FURNISH/INSTALL MULTISPACE METER	EA		$10,000.00	$0
BUS STOP WITH SHELTER	EA	11	$27,500.00	$302,500
BUS STOP WITHOUT SHELTER	EA		$25,000.00	$0
RELOCATE/REMOVE SIGN	EA		$105.00	$0
NEW SIGN	EA	30	$50.00	$1,500
			SUBTOTAL	$ 14,041,940
UTILITIES AND LANDSCAPING				
LANDSCAPING (5% of Total)	LS	1	$702,100.00	$702,100
SWM, PIPES AND STRUCTURES (25% of Total)	LS	1	$3,510,500.00	$3,510,500
EROSION CONTROL (2% of Total)	LS	1	$280,800.00	$280,800
UTILITY ADJUSTMENT AND RELOCATION (120% of Curb & Gutter Cost)	LS	1	$109,200.00	$109,200
CONSTRUCTION STAKEOUT (1% of Total)	LS	1	$140,400.00	$140,400
			SUBTOTAL	$ 4,743,000
MOT AND MOBILIZATION				
MAINTENANCE OF TRAFFIC (15% of total)	LS	1	$2,817,700.00	$2,817,700
MOBILIZATION (10% of total)	LS	1	$1,878,500.00	$1,878,500
			SUBTOTAL	$ 4,696,200
			TOTAL ENGINEERING AND CONSTRUCTION SUBTOTAL	$ 23,481,100
			30% Contingency	$ 7,044,330
			TOTAL ESTIMATED ENGINEERING AND CONSTRUCTION COST	$ 30,525,430

PROPERTY IMPACTS		
Potential New Right-of-way Needed	SF	0
Total Number of Lots Impacted	EA	0
Number of Commercial Properties	EA	0
Number of Residential Properties	EA	0

Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Pennsylvania Avenue Traffic Analysis

Option

Option 3: One Way Protected Bike Lanes

Engineer's Conceptual Estimate

Prepared by: RIN — *Date: February 2018*

This Estimate has a Rating of: **2B** *(See rating scale guide below.)*

ITEM	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
GRANITE CURB AND BRICK GUTTER	LF	8,900	$75.00	$667,500
MEDIAN CURB	LF		$25.00	$0
SALVAGE STONE CURB	LF		$18.00	$0
PERVIOUS PCC SIDEWALK	SY	11,412	$75.00	$855,900
SIDEWALK RAMP	EA	53	$2,000.00	$106,000
BLOCK PAVERS	SY	5,390	$150.00	$808,462
ENGINEERS OFFICE	LS	1	$20,000.00	$20,000
HARD SURFACE EXCAVATION	CY		$35.00	$0
BORROW	CY		$40.00	$0
BIORETENTION	SY		$500.00	$0
PAVEMENT MILLING AND OVERLAY	SY	0	$13.00	$0
FULL DEPTH PAVEMENT (2" hma Surface, 10" PCC Base, 6" GAB)	SY	37322	$150.00	$5,598,301
PAVEMENT MARKING 24"	LF	9522	$8.00	$76,179
PAVEMENT MARKING 12"	LF		$4.00	$0
PAVEMENT MARKING 6"	LF		$2.15	$0
PAVEMENT MARKING 4"	LF		$1.00	$0
PAVEMENT ARROWS	EA		$125.00	$0
PAVEMENT SYMBOLS	EA		$180.00	$0
PAVEMENT LETTERS	EA		$82.00	$0
STREET FURNISHINGS	LS		$0.00	$0
BUFFER PLANTING	LS		$0.00	$0
INTERSECTION SIGNAL RECONSTRUCTION	EA	11	$400,000.00	$4,400,000
LIGHTING	EA	76	$13,000.00	$988,000
FURNISH/INSTALL MULTISPACE METER	EA		$10,000.00	$0
BUS STOP WITH SHELTER	EA	11	$27,500.00	$302,500
BUS STOP WITHOUT SHELTER	EA		$25,000.00	$0
RELOCATE/REMOVE SIGN	EA		$105.00	$0
NEW SIGN	EA	30	$50.00	$1,500
			SUBTOTAL	$ 13,824,342
UTILITIES AND LANDSCAPING				
LANDSCAPING (5% of Total)	LS	1	$691,200.00	$691,200
SWM, PIPES AND STRUCTURES (25% of Total)	LS	1	$3,456,100.00	$3,456,100
EROSION CONTROL (2% of Total)	LS	1	$276,500.00	$276,500
UTILITY ADJUSTMENT AND RELOCATION (120% of Curb & Gutter Cost)	LS	1	$801,000.00	$801,000
CONSTRUCTION STAKEOUT (1% of Total)	LS	1	$138,200.00	$138,200
			SUBTOTAL	$ 5,363,000
MOT AND MOBILIZATION				
MAINTENANCE OF TRAFFIC (15% of total)	LS	1	$2,878,100.00	$2,878,100
MOBILIZATION (10% of total)	LS	1	$1,918,700.00	$1,918,700
			SUBTOTAL	$ 4,796,800
			TOTAL ENGINEERING AND CONSTRUCTION SUBTOTAL	$ 23,984,100
			30% Contingency	$ 7,195,230
			TOTAL ESTIMATED ENGINEERING AND CONSTRUCTION COST	$ 31,179,330

PROPERTY IMPACTS		
Potential New Right-of-way Needed	SF	0
Total Number of Lots Impacted	EA	0
Number of Commercial Properties	EA	0
Number of Residential Properties	EA	0

Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Pennsylvania Avenue Traffic Analysis

Option

Option 4: Two Way Protected Bike Lanes

KITTELSON & ASSOCIATES

Engineer's Conceptual Estimate

Prepared by: RIN — *Date: February 2018*

This Estimate has a Rating of: **2B** *(See rating scale guide below.)*

ITEM	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
GRANITE CURB AND BRICK GUTTER	LF	8,900	$75.00	$667,500
MEDIAN CURB	LF		$25.00	$0
SALVAGE STONE CURB	LF		$18.00	$0
PERVIOUS PCC SIDEWALK	SY	14,964	$75.00	$1,122,309
SIDEWALK RAMP	EA	58	$2,000.00	$116,000
BLOCK PAVERS	SY	5,176	$150.00	$776,335
ENGINEERS OFFICE	LS	1	$20,000.00	$20,000
HARD SURFACE EXCAVATION	CY		$35.00	$0
BORROW	CY		$40.00	$0
BIORETENTION	SY		$500.00	$0
PAVEMENT MILLING AND OVERLAY	SY	0	$13.00	$0
FULL DEPTH PAVEMENT (2" hma Surface, 10" PCC Base, 6" GAB)	SY	35473	$150.00	$5,320,968
PAVEMENT MARKING 24"	LF	6586	$8.00	$52,690
PAVEMENT MARKING 12"	LF		$4.00	$0
PAVEMENT MARKING 6"	LF		$2.15	$0
PAVEMENT MARKING 4"	LF		$1.00	$0
PAVEMENT ARROWS	EA		$125.00	$0
PAVEMENT SYMBOLS	EA		$180.00	$0
PAVEMENT LETTERS	EA		$82.00	$0
STREET FURNISHINGS	LS		$0.00	$0
BUFFER PLANTING	LS		$0.00	$0
INTERSECTION SIGNAL RECONSTRUCTION	EA	11	$400,000.00	$4,400,000
LIGHTING	EA	76	$13,000.00	$988,000
FURNISH/INSTALL MULTISPACE METER	EA		$10,000.00	$0
BUS STOP WITH SHELTER	EA	11	$27,500.00	$302,500
BUS STOP WITHOUT SHELTER	EA		$25,000.00	$0
RELOCATE/REMOVE SIGN	EA		$105.00	$0
NEW SIGN	EA	30	$50.00	$1,500
			SUBTOTAL	$ 13,767,802
UTILITIES AND LANDSCAPING				
LANDSCAPING (5% of Total)	LS	1	$688,400.00	$688,400
SWM, PIPES AND STRUCTURES (25% of Total)	LS	1	$3,442,000.00	$3,442,000
EROSION CONTROL (2% of Total)	LS	1	$275,400.00	$275,400
UTILITY ADJUSTMENT AND RELOCATION (120% of Curb & Gutter Cost)	LS	1	$801,000.00	$801,000
CONSTRUCTION STAKEOUT (1% of Total)	LS	1	$137,700.00	$137,700
			SUBTOTAL	$ 5,344,500
MOT AND MOBILIZATION				
MAINTENANCE OF TRAFFIC (15% of total)	LS	1	$2,866,800.00	$2,866,800
MOBILIZATION (10% of total)	LS	1	$1,911,200.00	$1,911,200
			SUBTOTAL	$ 4,778,000
			TOTAL ENGINEERING AND CONSTRUCTION SUBTOTAL	$ 23,890,300
			30% Contingency	$ 7,167,090
			TOTAL ESTIMATED ENGINEERING AND CONSTRUCTION COST	$ 31,057,390

PROPERTY IMPACTS		
Potential New Right-of-way Needed	SF	0
Total Number of Lots Impacted	EA	0
Number of Commercial Properties	EA	0
Number of Residential Properties	EA	0

Scope Accuracy:

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