Bus Rapid Transit

I-405 corridor

Transportation Technical Report

September 2020

SOUNDTRANSIT

Consultant Quality Control Form

Version	Title	Date	Originator/ Drafted by	Reviewed by	Approved by	Notes, as required
0	Transportation Technical Report – Draft Outline	11/01/2019	L. Shabe			
1	Transportation Technical Report – Draft	11/17/2019	L. Shabe	K Casseday, Tony Lo (content) Ed Reynolds (tech edit) Sandra Wise (QC)	Chris Wellander	Initial Draft
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7	Transportation Technical Report	09/02/20	Chris Ell	Tony Lo (content) Sandra Wise (QC)	Chris Wellander	Additional modifications per WSDOT comments

Summary

The transportation impacts related to the I-405 Bus Rapid Transit (BRT) Project are expected to be minimal and are anticipated to be offset by the expanded and improved transit service and mobility options provided in the corridor. For most station locations, the project would add six buses per direction per hour to study area intersections. In many cases, these buses would replace existing service at some or all of the intersections in each station area, resulting in little to no change from No Build traffic estimates.

In two locations, the Kingsgate Park-and-Ride and the South Renton Transit Center, expansion of existing park-and-ride lots would generate additional general-purpose traffic in addition to BRT trips. In most locations, the change in delay and level-of-service between Build and No Build conditions is within acceptable jurisdictional thresholds. South Renton is the only outlier where mitigation would be required due to project elements. Mitigation proposed in this report recommends minor changes to signal timing, phasing, and optimization to ensure delay and level-of-service impacts fall within Washington State Department of Transportation and City of Renton standards.

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Acronyms and Abbreviations

ADT	average daily traffic
API	Google Application Programming Interface
BAT	business access and transit
BRT	bus rapid transit
ETL	express toll lanes
GPS	Global Positioning System
LOS	level-of-service
LRT	light rail transit
Metro	King County Metro
NB	northbound
OBS	On-Board Systems
SB	southbound
TSP	transit signal priority
v/c	volume-to-capacity
WSDOT	Washington State Department of Transportation

1 INTRODUCTION

1.1 Purpose of report

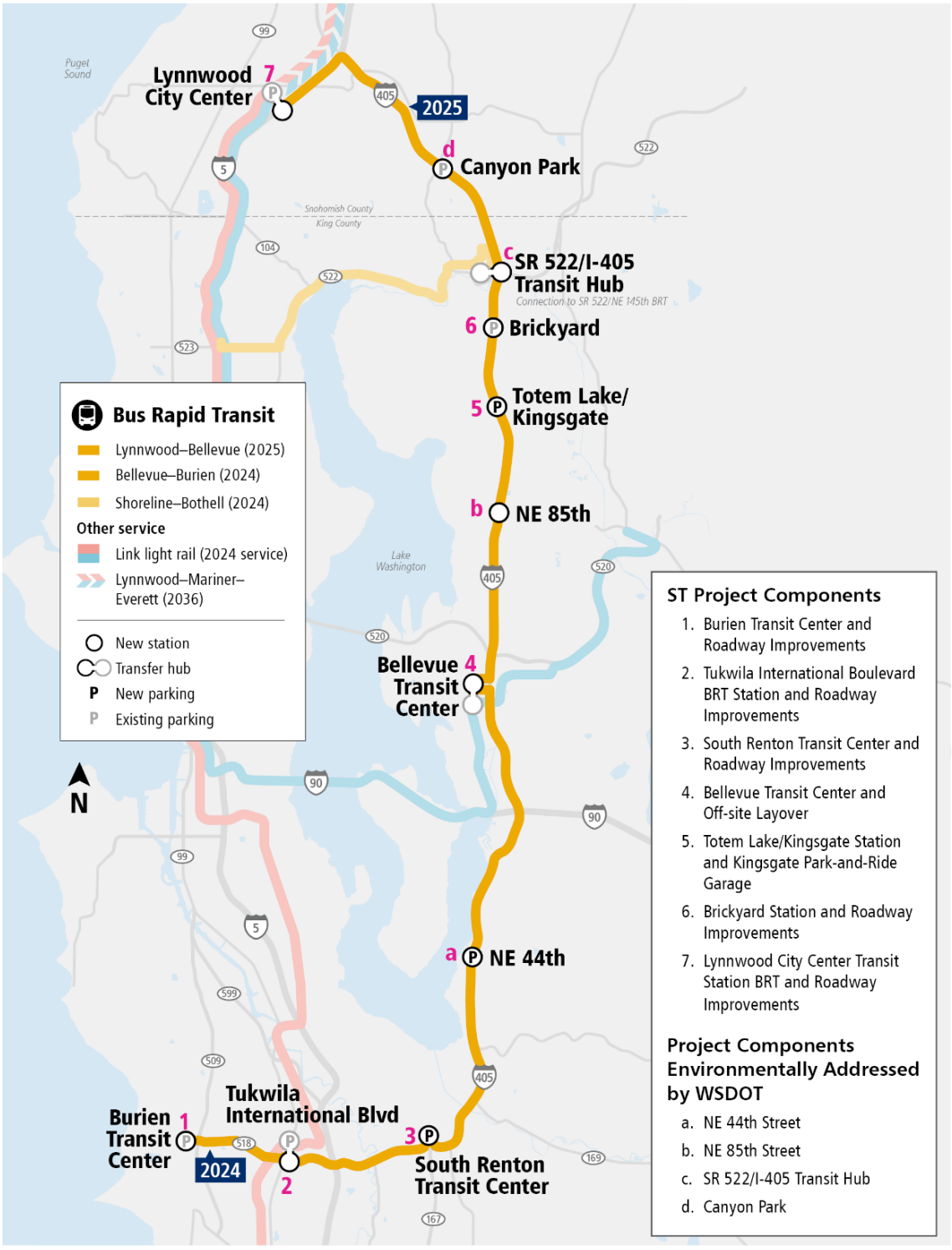
As identified in the Sound Transit 3 (ST3) System Plan, Sound Transit is planning to implement the I-405 Bus Rapid Transit (BRT) project (the project) along the Interstate 405 (I-405) and SR 518 corridors from Burien to Lynnwood. In support of the State Environmental Policy Act checklist for the project, traffic analysis was undertaken to evaluate the potential for roadway impacts in the study areas for each project component. **Figure 1-1** shows the overall I-405 BRT corridor, including the station areas, new park-and-rides, transit center subareas, and targeted freeway segments, all of which are described in Section 2.

This Transportation Technical Report identifies likely transportation impacts of the project at the following seven study areas along the I-405 BRT corridor:

- Burien Transit Center vicinity
- Tukwila/International Boulevard Station vicinity
- South Renton Transit Center vicinity
- Bellevue Transit Center
- Totem Lake/Kingsgate Station vicinity
- Brickyard Station area
- Lynnwood City Center Station vicinity

Environmental documentation for the other four BRT stations in the I-405 BRT Project Corridor is being conducted by the Washington State Department of Transportation (WSDOT) through the WSDOT I-405 Corridor Program and, therefore, they are not addressed in this document. These stations are as follows:

- NE 44th Street Station
- NE 85th Street Station
- SR 522/I-405 Transfer Hub
- Canyon Park (SR 527) Station



SOURCE: Sound Transit 2019

Figure 1-1 I-405 BRT Project and new parking locations

2 PROJECT DESCRIPTION

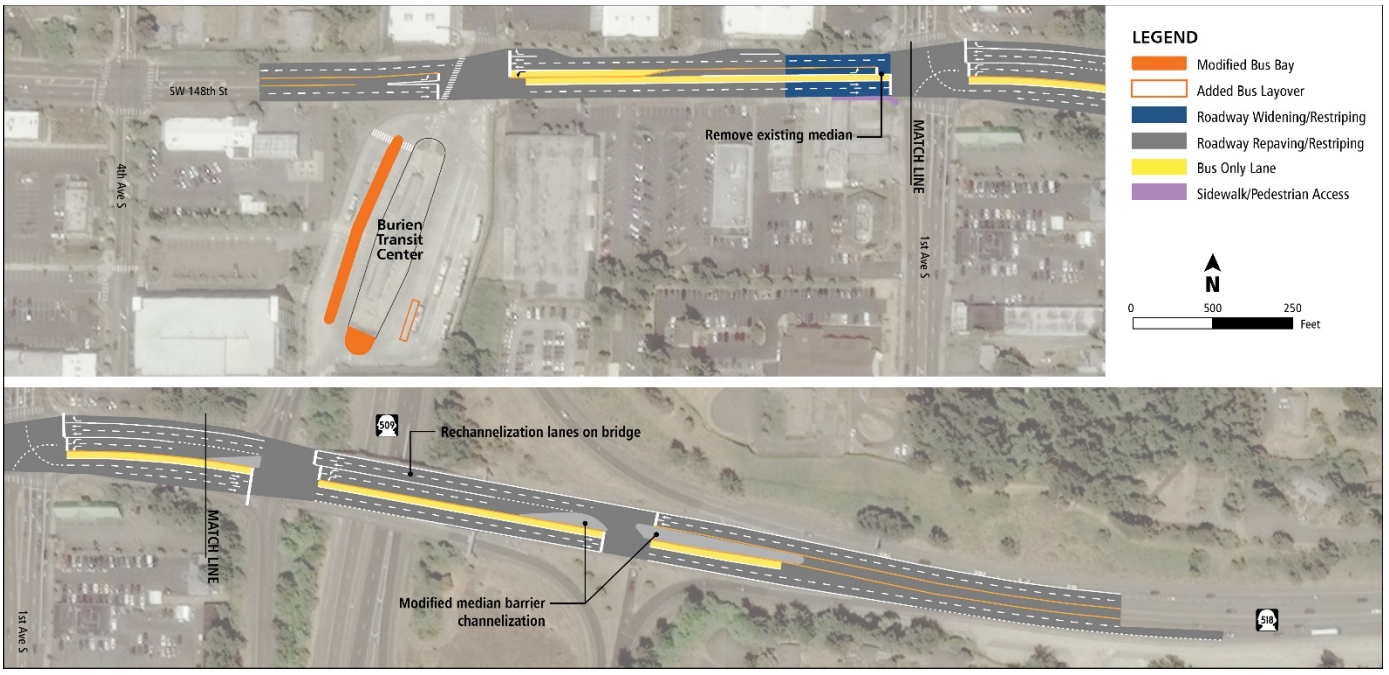
2.1 I-405 BRT operations

I-405 BRT service is planned to operate as two high-capacity transit lines that would connect at the Bellevue Transit Center near the future (2023) Link light rail station. The north BRT line would operate between the Bellevue Transit Center and the Lynnwood City Center Station, and the south BRT line would operate between the Bellevue Transit Center, the Tukwila International Boulevard BRT Station for the Link connection, and then terminate at the Burien Transit Center. BRT service would have 10-minute headways during peak periods and 15-minute headways the remainder of the day and on weekends. Assuming a similar pattern to the Sound Transit Express and Sound Transit service standards, peak periods would be from 6 a.m. to 9 a.m. and from 3 p.m. to 6 p.m. on weekdays. The span of service would be 19 hours on weekdays and Saturday and up to 17 hours on Sundays.

2.2 Project components

2.2.1 Burien Transit Center and roadway improvements

Figure 2-1 provides a graphic representation of the proposed Burien Transit Center and associated roadway improvements. The new station platform would be located in an area that currently includes a pedestrian walkway (from SW 148th Street into the transit center), landscaping, a streetlight fixture, and a sculpture. On the east side of the proposed BRT platform, an area that is currently paved would be modified to greenspace, which would provide a location in the transit center site to replace the landscaping removed for the new BRT lane and to relocate the light fixture and sculpture. Layover would be accommodated within the transit center.



SOURCE: Sound Transit 2019

Figure 2-1 Burien Transit Center and roadway improvements

To improve transit speed and reliability, a bus-only lane would be added east of the transit center entrance for eastbound buses along SW 148th Street that would extend east across the SR 509/SR 518 interchange and along SR 518 for approximately 400 feet. For westbound buses, a bus-only left-turn lane would be provided along SW 148th Street between 1st Avenue S and the Burien Transit Center. Between 1st Avenue S and the Burien Transit Center, the directional bus-only lanes on SW 148th Street would be accommodated by converting the center two-way turn lane, slightly widening the existing roadway, and restricting left turns on three driveways by adding c-curb (the access restrictions are shown in **Figure 2-2)**. To accommodate the eastbound bus-only lane on the SR 518 bridge over SR 509, the existing lane striping would be modified. Transit signal priority (TSP) with advanced green time for buses would be implemented at the existing traffic signals on SW 148th Street and 1st Avenue S, as well as the SR 518 intersections at the SR 509 on- and off-ramps with a queue jump at the SR 509 northbound off-ramp.

SOURCE: Sound Transit 2019

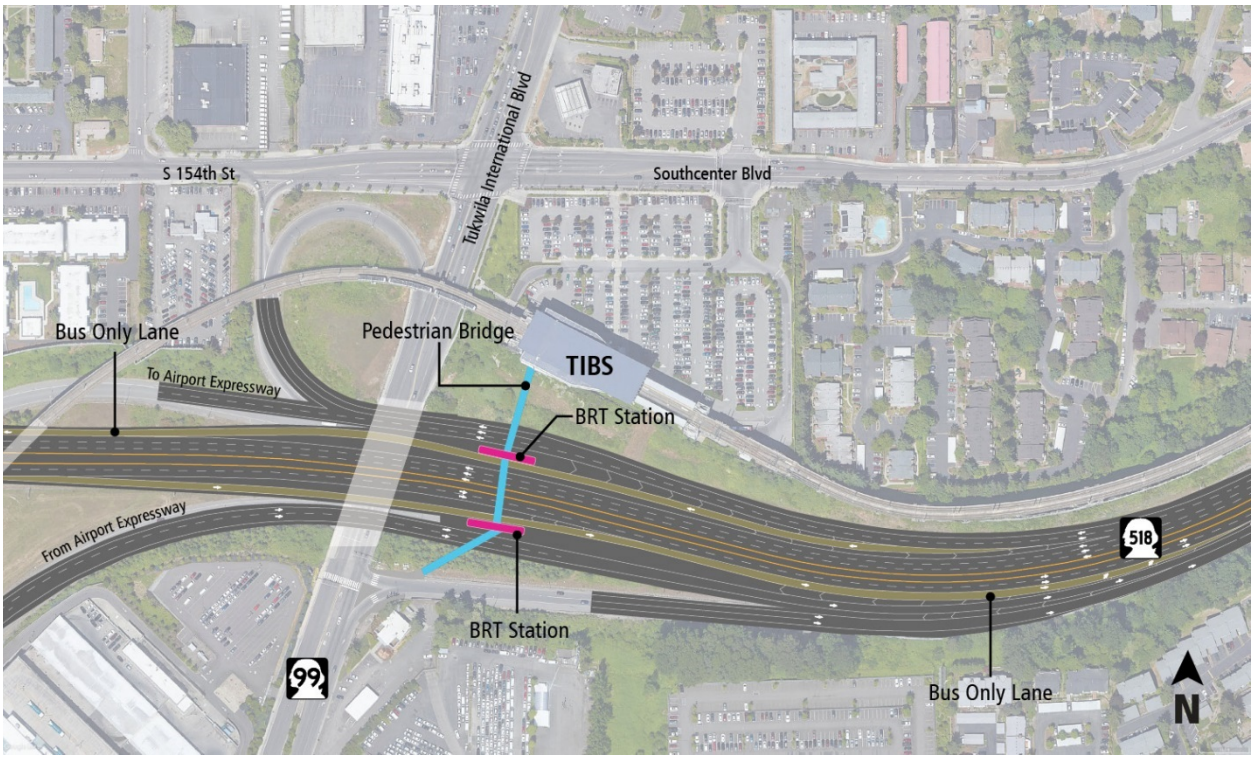
Figure 2-2 Burien Transit Center right-turn-only access

For this project area, all stormwater would be collected underground and detention would be provided, either above grade or below grade as required. For the Burien Transit Center flow control and water quality treatment would meet the requirements of the King County Surface Water Design Manual and agreements between the King County Metro Transit Division, the property owner, and the City of Burien Public Works Department. Roadway modifications to SW 148th Street would comply with City of Burien requirements, which follows the King County Surface Water Design Manual (King County 2016), for flow control and water quality treatment.

Stormwater facilities would ultimately tie into the existing conveyance systems. For the roadway modifications along SR 518, stormwater would meet the requirements of WSDOT's Highway Runoff Manual (WSDOT 2016) for flow control and water quality treatment. Stormwater facilities also would ultimately tie into the existing conveyance systems.

2.2.2 Tukwila International Boulevard BRT Station and roadway improvements

Figure 2-3 provides a graphic representation of the proposed Tukwila International Boulevard Station, the new pedestrian bridge, and associated roadway improvements.



SOURCE: Sound Transit 2019

Figure 2-3 Tukwila International Boulevard BRT Station and roadway improvements

Both the eastbound and westbound Tukwila International Boulevard BRT stations would be located at-grade within the SR 518 right-of-way in an existing area between the SR 518 travel lanes and the on- and off-ramps to SR 518. Approaching both the east and westbound stations, bus-only lanes would be added to allow for BRT vehicles to safely decelerate to pick-up/drop-off at the station, and an acceleration lane would be added for BRT vehicles to accelerate and merge back onto SR 518 with general-purpose traffic. In both the east and westbound directions, the addition of these bus-only lanes would require realigning, regrading, and repaving a portion of the existing SR 518 travel lanes and ramps; space for the BRT elements would be created by narrowing lane widths and shoulders. In the westbound direction, the bus-only lane would also require widening the existing westbound SR 518 bridge that passes over the SR 518 off-ramp heading south to Airport Expressway. BRT station elements would include a branded Stride shelter, raised platforms for level or near-level passenger boarding, closed circuit televisions (CCTV), security cameras, ticket vending machines (TVMs), and

rider information. Anticipated utilities needed to serve the BRT station include electric power, public agency telecommunications and commercial telecommunications, and water, which would be tied into utilities currently available near the project component.

A pedestrian bridge over SR 518 would connect the two BRT stations to the mezzanine level of the Link light rail station to the north. The surface of the pedestrian bridge would be approximately 25 feet above the level of SR 518, roughly level with the mezzanine level of the Link station and the existing Tukwila International Boulevard (SR 99) bridge over SR 518. From the BRT stations, access to the pedestrian bridge would be provided by stairs and an elevator. The pedestrian bridge would also extend to the south; connecting at grade to an existing sidewalk on the eastbound on-ramp to SR 518 that connects to sidewalks on Tukwila International Boulevard.

A new retaining wall, with an estimated height of 25 feet, would be constructed underneath the Tukwila International Boulevard/SR 99 bridge parallel to westbound SR 518. In addition, on the south side of SR 518 and adjacent to eastbound SR 518, there would be three segments of new retaining walls. Moving west to east, the first retaining wall would have a maximum height of between 10 and 15 feet; the second retaining wall would have a height of approximately 15 feet; and the third retaining wall would have a height of approximately 5 feet.

2.2.3 South Renton Transit Center and roadway improvements

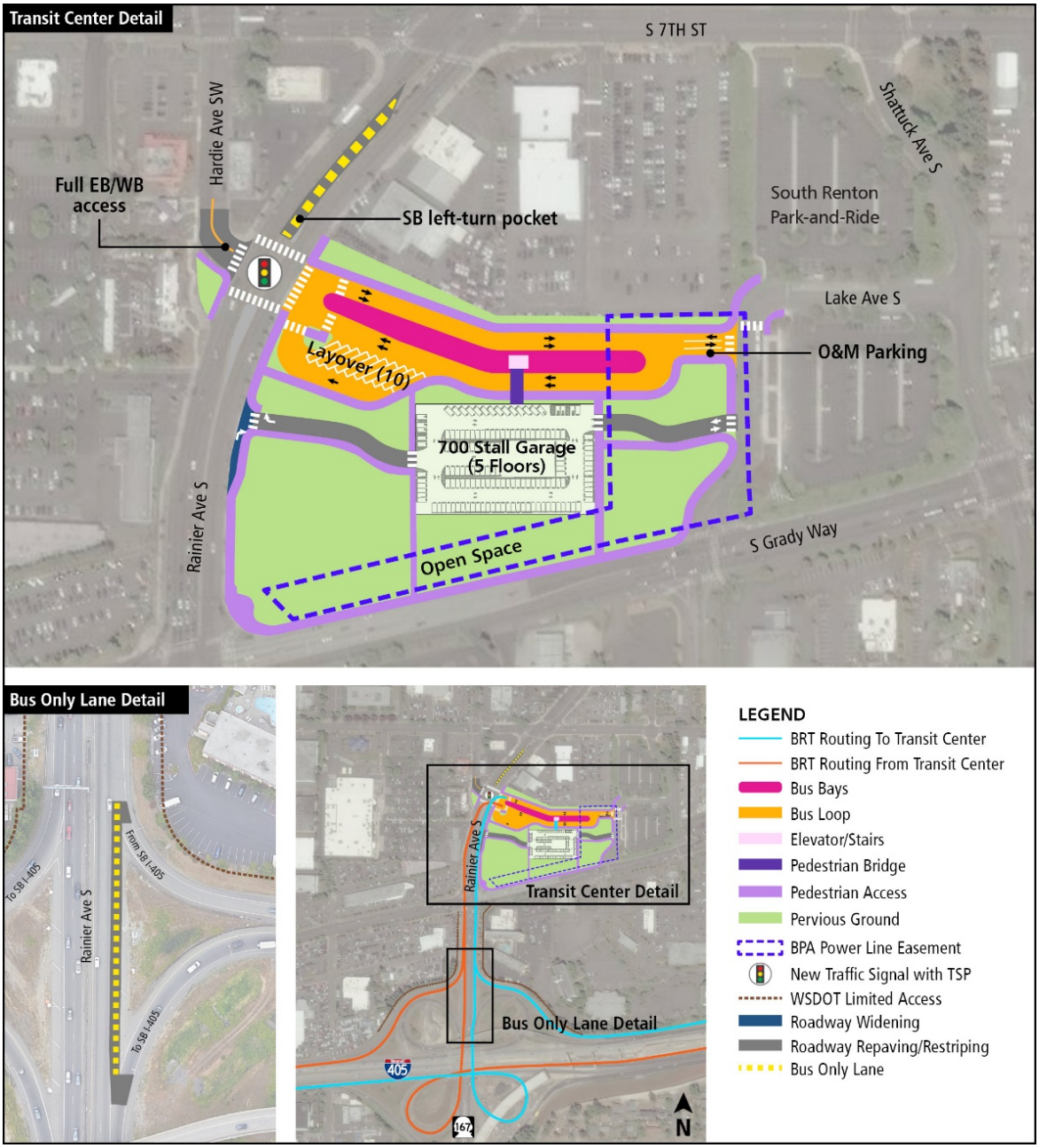
Figure 2-4 provides a graphic representation of the proposed South Renton Transit Center improvements.

The South Renton Transit Center would be located on the north side of I-405, in the northeast corner of the intersection of S Grady Way and Rainier Avenue S. To access the South Renton Transit Center, BRT vehicles heading westbound on I-405 would use the exit onto SR 167 north/Rainier Avenue S into an existing northbound, curbside business access and transit (BAT) lane. BRT buses would stay in the existing BAT lane across S Grady Way along Rainier Avenue S and then turn right into the transit center. BRT vehicles heading eastbound on I-405 would access the South Renton Transit Center using the existing exit onto SR 167 north/Rainier Avenue S.

To improve transit speed and reliability, eastbound BRT vehicles could potentially use a new short section of a northbound bus-only lane on SR 167 that would start at the existing loop ramp from SR 167 to westbound I-405 and would extend north to connect into the existing BAT lane. This modification is being explored as a potential improvement to BRT service.

BRT vehicles leaving the South Renton Transit Center would turn left onto Rainier Avenue S into an existing, southbound curbside BAT lane. BRT vehicles would then travel eastbound or westbound on I-405 using existing on-ramps. Signal timing improvements would be made to all signals along Rainier Avenue S, including adding TSP to the traffic signal owned by the City of Renton at the intersection of S Grady Way and southbound SR 167.

For King County Metro buses approaching the station from the north, a new southbound left-turn pocket would be added on SR 167 at the new traffic signal at the entrance to the transit center and Hardie Avenue SW. Additionally, for these buses approaching from the north, at the adjacent intersection on SR 167 at SW 7th Street, the intersection would be modified with TSP, including advanced green for buses for the southbound BAT lane.



SOURCE: Sound Transit 2020

Figure 2-4 South Renton Transit Center and roadway improvements

Pedestrian and bicycle access to the transit center is provided from the surrounding roadways, all of which have sidewalks. The new signal at Rainier Avenue SW and Hardie Avenue SW provides a controlled intersection crossing for pedestrians from commercial areas on the west side of Rainier Avenue S. Crosswalks and designated walkways would be developed throughout the new transit center to support safe and convenient access for all modes, including pedestrians, bicycles, bus transit, and drop-off/pick-up.

The South Renton Transit Center would include the following:

- A new transit center island with eight, 120-foot-long bus bays, including operational space provided for both BRT and other bus transit service. BRT station elements in the transit center island would include a large continuous shelter with Stride branding at the BRT bays, raised platforms for level or near-level passenger boarding, CCTV, security cameras, TVMs, and rider information. BRT buses would access the transit center from Rainier Avenue S, across from Hardie Avenue SW. Select King County Metro buses would access the new transit center from the adjacent South Renton Park-and-Ride via Lake Avenue S and by using the new southbound left-turn lane on Rainier Ave S at Hardie Avenue SW.

- A 700-stall park-and-ride garage with stalls for pick-up/drop-off on the first floor. The existing 373 spaces at the South Renton Park and Ride lot adjacent to the east would remain. Vehicles would have a separate right-turn only entrance and exit to and from the park-and-ride garage onto Rainier Avenue S, located south of the access to the transit center. In addition, vehicles would be able to access the park-and-ride garage from Lake Avenue S to the east. The access from Lake Avenue S would not be restricted to right-in/right-out turns.

- A pedestrian bridge connecting the park-and-ride garage to a staircase and elevator that connects to the middle of the transit center island.

- Ten 60-foot bus layover bays.

- New greenspace along the frontage with S Grady Way, beneath an existing overhead utility line easement.

- Land in the southwest portion of the site for potential future transit-oriented development.

2.2.3.1 Utilities and connections

Anticipated utilities include electric power (transmission and distribution), storm drainage, sanitary sewer, water, public agency telecommunications, and commercial telecommunications. Electric power and telecommunications would be tied into utilities currently available near the project component. Electrical service would be coordinated with the local electrical service provider (Puget Sound Energy) who would extend service to the site. The South Renton Transit Center would not alter, affect, or interfere with the existing BPA 230 kilovolt transmission line across the site, although there would be ground-level improvements and traffic operating in this area. Potential conflicts may exist between existing utilities and structure foundations, which would require relocating the existing utilities.

For this project component, stormwater within the transit center site would be collected underground and detention would be provided either above grade or below grade as required. Flow control and water quality treatment would be provided as required by the *City of Renton Surface Water Design Manual* (City of Renton 2018). Stormwater facilities would ultimately tie into existing conveyance systems. Within the Rainier Avenue S/SR 167 right-of-way, stormwater would be collected underground and detention would be provided either above grade or below grade as required. Flow control and water quality treatment would be provided as required by WSDOT's *Highway Runoff Manual* (WSDOT 2016), and stormwater facilities would tie into the existing conveyance systems.

2.2.3.2 Site work

Prior to construction, the existing buildings on-site would be removed and properly disposed of and on-site remediation would be completed as identified in the Phase 2 Environmental Site Assessment. The site would be cleared and graded as needed for the proposed transit center features and to provide adequate drainage.

Concrete paving would be used for all driveways and bus and large maintenance vehicle parking areas. Limited areas of asphalt paving would be provided in areas trafficked by personal vehicles. The site would be equipped with lighting to support operations and as needed for security. Landscaping would be provided in designated areas and in accordance with City of Renton requirements, including regulations relating to maintenance and irrigation.

2.2.4 Bellevue Transit Center and off-site layover

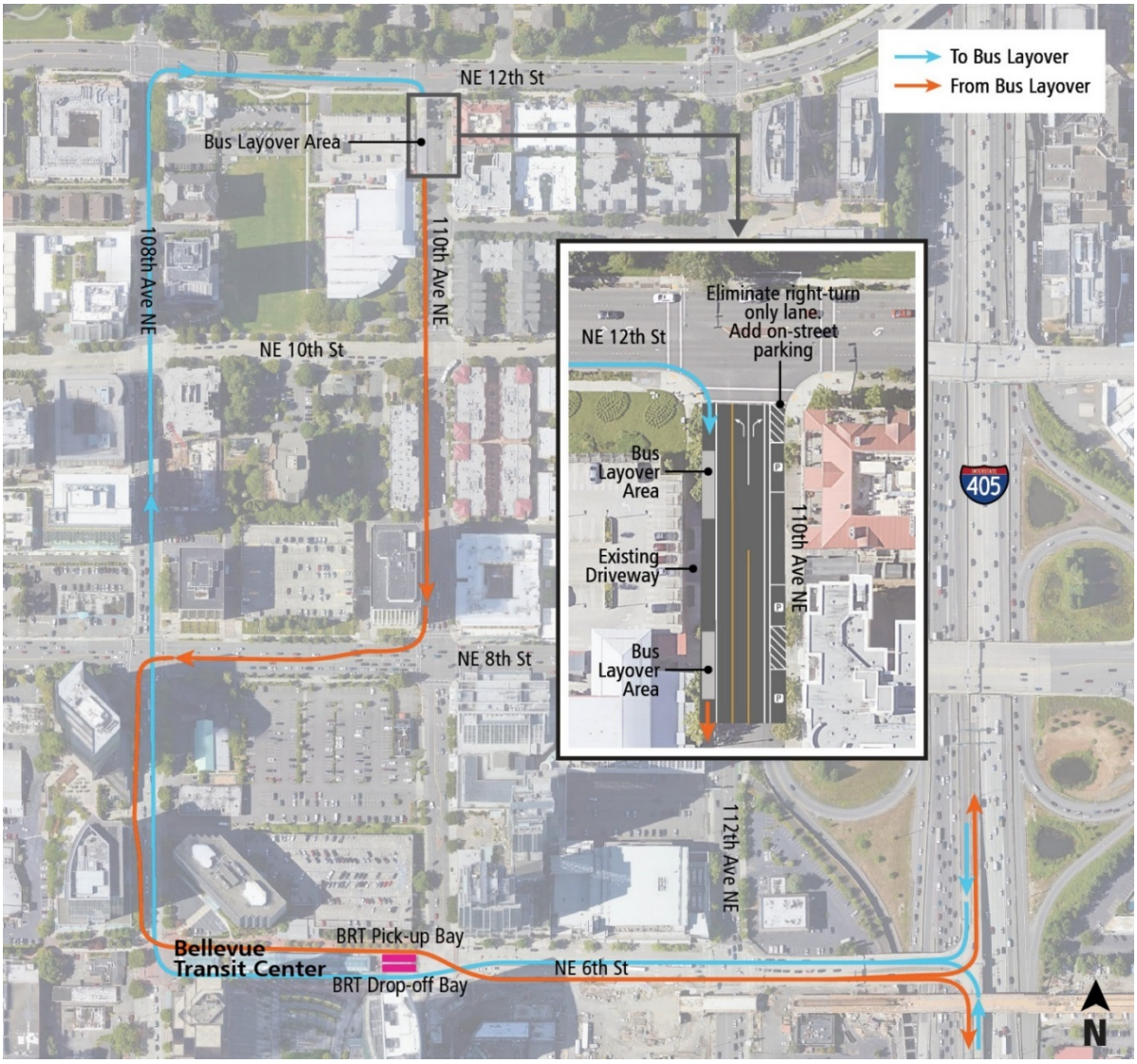
There are no proposed changes to the roadway along the I-405 BRT pathway to the freeway through downtown Bellevue. Furthermore, with I-405 BRT buses replacing ST Express 535 buses for the north end and the East Link Extension replacing ST Express 550 buses, the project would not contribute bus volume to the fairly congested downtown arterials.

Figure 2-5 provides a graphic representation of the proposed Bellevue Transit Center improvements and off-site layover space.

At the Bellevue Transit Center, three existing bus bays would be modified for the BRT service. Modifications would include adding TVMs and rider information. The existing shelter over the transit center island would remain, and a BRT branded pylon would be installed to identify the bays used for the BRT service. Anticipated utilities include electric power, storm drainage, public agency telecommunications, and commercial telecommunications. Electric power and telecommunications would be tied into utilities currently available near the project component.

Consistent with existing layover for Sound Transit Express buses, the BRT vehicles would layover on the street in front of the Bellevue Library, which is less than one-half mile north of the transit center. To access the layover space from the transit center, BRT vehicles would turn right onto 108th Avenue NE, then right onto NE 12th Street and then right onto 110th Avenue NE. On the west side of the street, 110th Avenue NE would be modified to remove six existing on-street parking spaces and provide two new layover bays, one north and one south of the existing driveway into the library parking garage. The one existing through lane would remain. On the east side of the street, the existing right-turn lane would be modified to accommodate on-street parking spaces. The current double left-turn-only lane from 110th Avenue NE to NE 12th Street would be modified to be one left-turn-only lane and one right-turn-only lane. From the layover space, BRT vehicles would access the Bellevue Transit Center by heading south on 110th Avenue NE, turning right onto NE 8th Street, left onto 108th Avenue NE, and then left onto NE 6th Street into the transit center.

For this project component, flow control and water quality treatment would be provided as required by the City of Bellevue. Stormwater would ultimately tie into the existing conveyance systems.



SOURCE: Sound Transit 2019

Figure 2-5 Bellevue Transit Center and off-site layover

2.2.5 Totem Lake/Kingsgate Station and Kingsgate Park-and-Ride garage

Figure 2-6 provides a graphic representation of the proposed Totem Lake/Kingsgate Station and Kingsgate Park-and-Ride garage.

At the existing Totem Lake Station, a bay in both the north and southbound directions would be modified for BRT service. Modifications would include adding TVMs and rider information. The existing shelter over the station platforms would remain, and a BRT branded pylon would be installed to identify the BRT station. TSP would be added at the intersection of the in-line ramp terminal and NE 128th Street to minimize bus delays at the signal.

SOURCE: Sound Transit 2019

Figure 2-6 Totem Lake/Kingsgate Station and Kingsgate Park-and-Ride garage

The existing Kingsgate Park-and-Ride lot, which consists of 502 surface parking stalls, is located west of the Totem Lake Station. This project component would add a 5-story garage structure with 570 park-and-ride stalls to the existing surface park-and-ride lot in the southern portion of the Kingsgate site. 332 of the 502 existing surface stalls would remain, which along with the new parking structure, would meet Sound Transit's ST3 intent of providing 400 net new parking stalls, for a total of 902 park-and-ride stalls on the Kingsgate site. Peak-hour bus volume would increase by two buses per hour per direction over the existing ST 535 service.

The two existing driveways from 116th Avenue NE to access the Kingsgate site would remain, as would the existing transit facilities. The access to the park-and-ride garage would be along the north side of the structure, in the northwest corner of the Phase 1 garage.

Additional work within the Kingsgate site includes providing stormwater management. Two detention vaults are proposed. For Phase 1 Sound Transit would construct a detention pond in place of the existing stormwater facility in the southeast corner of the site. WSDOT would construct the stormwater facilities needed as part of Phase 2.

2.2.5.1 Utilities and connections

Anticipated utilities include electric power (transmission and distribution), storm drainage, sanitary sewer, water, public agency telecommunications, and commercial telecommunications. Electric power and telecommunications would be tied into utilities currently available near the project component. Electrical service would be coordinated with the local electrical service provider (Puget Sound Energy) who would extend service to the site. Potential conflicts may exist between existing utilities and the proposed garage structure foundation, which would require relocation of the existing utilities.

For this project component (both the Totem Lake/Kingsgate Station and the Kingsgate Park-and-Ride garage), stormwater would be collected underground and detention would be provided either above grade or below grade as required. Flow control and water quality treatment would be provided as required by WSDOT's *Highway Runoff Manual* (WSDOT 2016). Stormwater would ultimately tie into the existing conveyance systems.

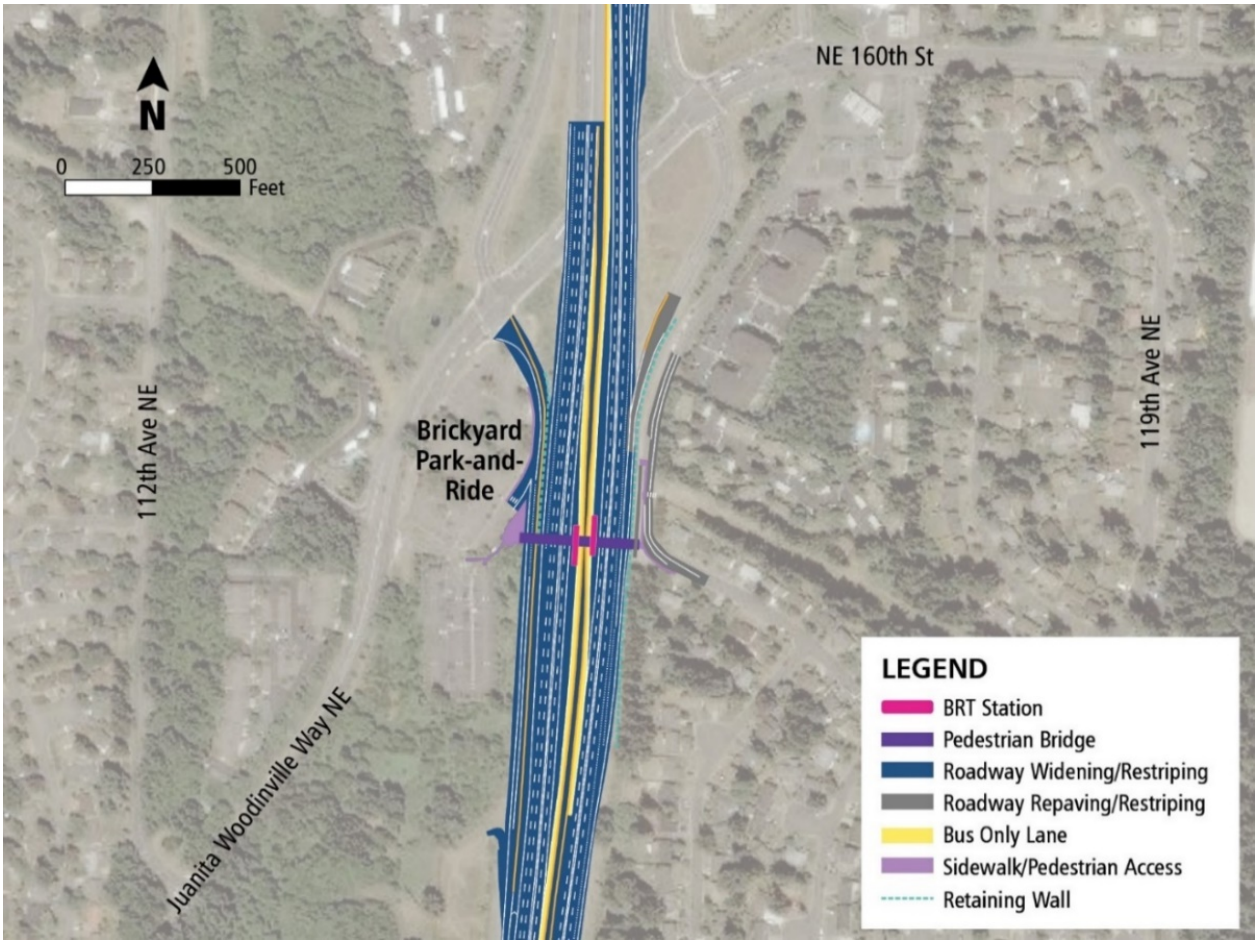
2.2.5.2 Site work

Prior to construction, the southern portion of the Kingsgate Park-and-Ride lot would be cleared of existing pavement and would be graded as needed for the garage structure and the drainage vault.

Concrete paving would be used for all driveways and bus and large maintenance vehicle parking areas. Asphalt paving would be provided in areas trafficked by personal vehicles. The park-and-ride garage would be equipped with lighting to support operations and as needed for safety and security. Landscaping would be provided in designated areas in accordance with City of Kirkland requirements. CCTVs are anticipated to be used in the vicinity of the garage structure.

2.2.6 Brickyard Station and roadway improvements

The proposed Brickyard Station (shown in **Figure 2-7**) would consist of an in-line station pair located in the center of I-405 just south of the NE 160th Street overcrossing of I-405. BRT vehicles would access the in-line station by short segments of bus-only lanes in both the northbound and southbound directions of the express toll lane (ETL) system. The bus-only lanes and platforms would require widening of the existing paved roadway for I-405. This widening would occur within WSDOT's existing right-of-way. A pedestrian bridge over I-405 would connect the two BRT platforms and would connect to the existing Brickyard Park-and-Ride lot to the west and to NE 155th Street on the east side of I-405.



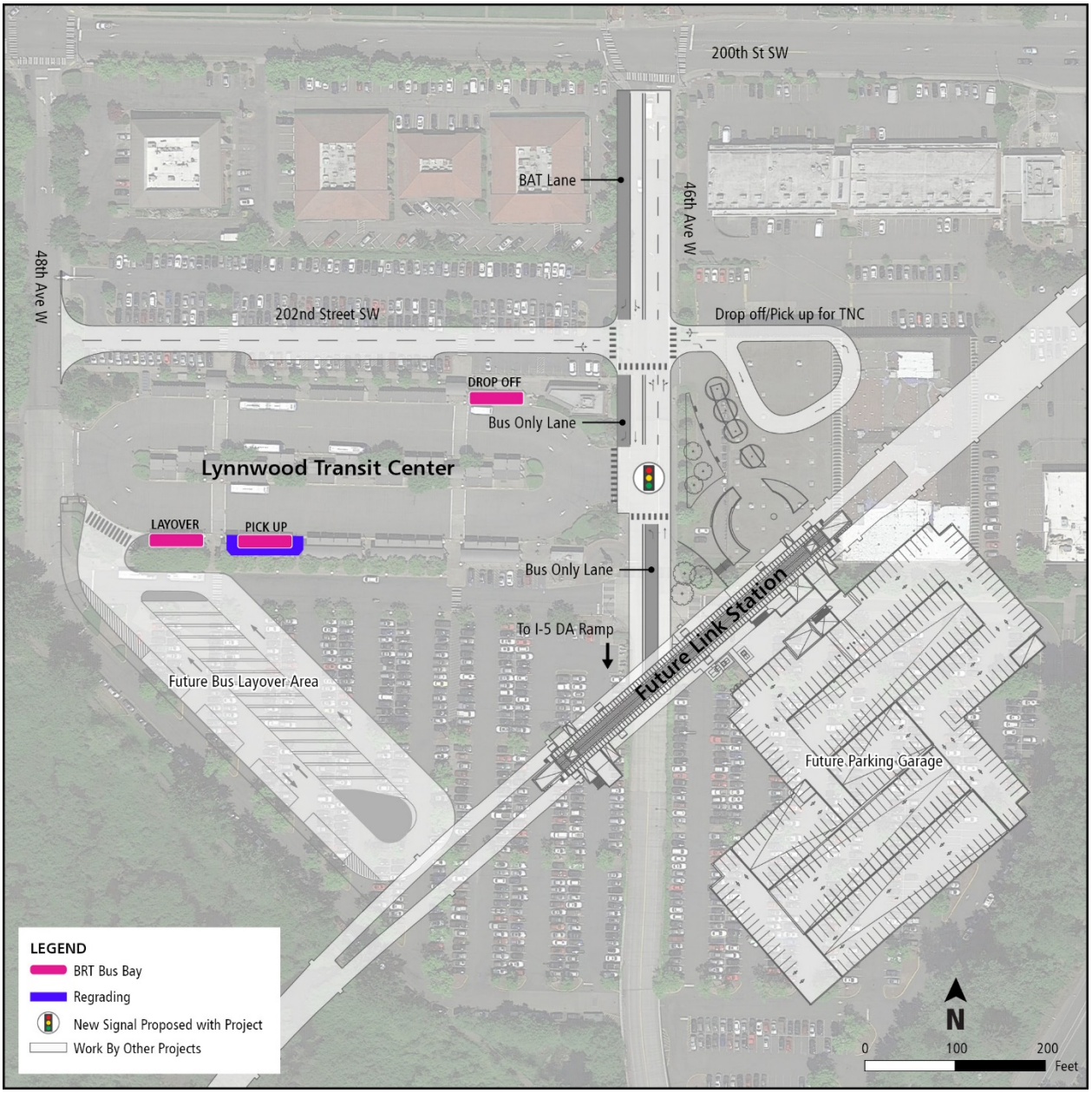
SOURCE: Sound Transit 2019

Figure 2-7 Brickyard Station and roadway improvements

2.2.7 Lynnwood City Center bus station and roadway improvements

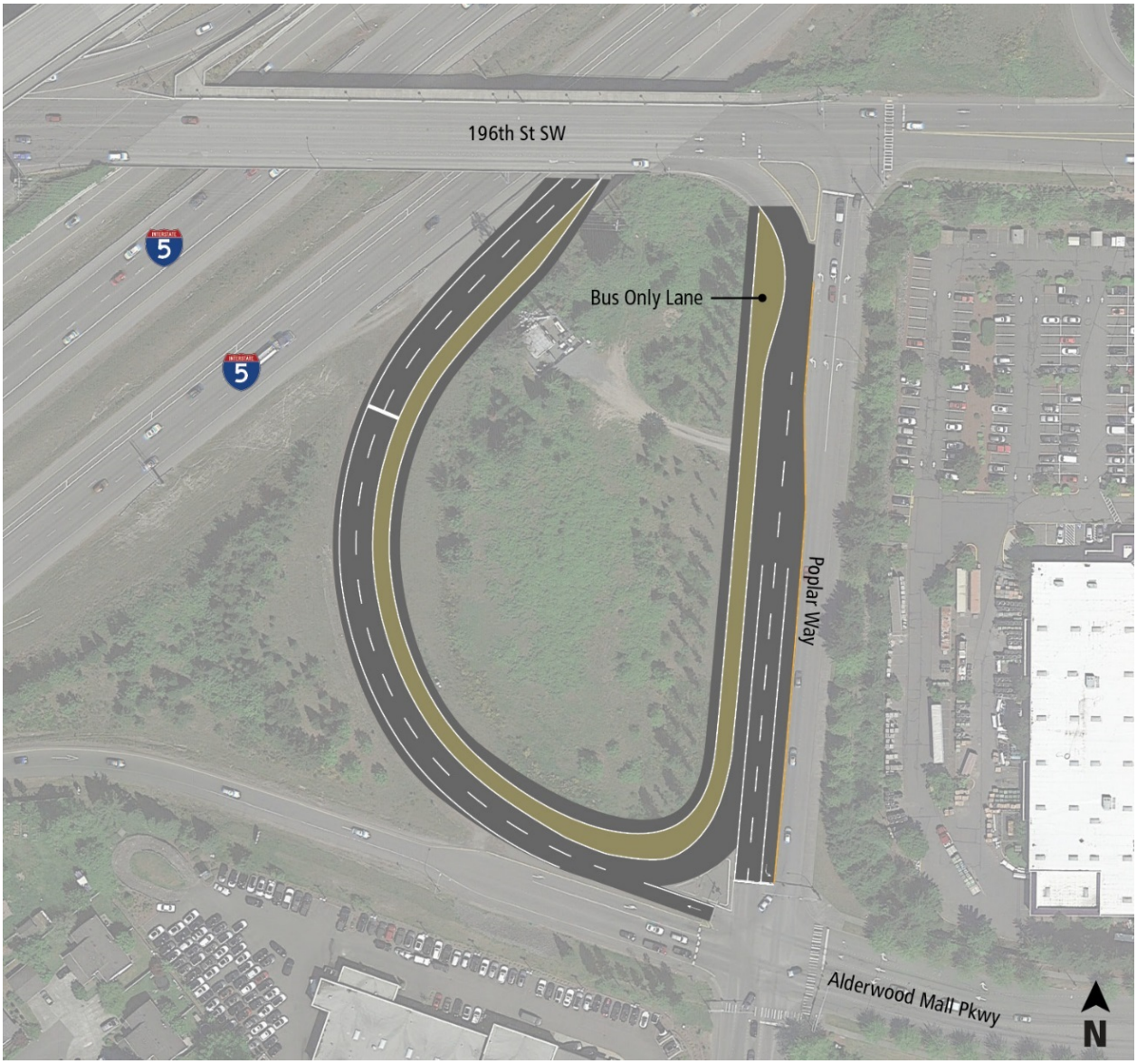
Figure 2-8 provides a graphical representation of the proposed Lynnwood City Center bus station (at Lynnwood City Center) station and roadway improvements. **Figure 2-8** also shows the Lynnwood Link light rail station, transit center bus layover area, and roadway improvements that will be constructed as part of Sound Transit's Lynnwood Link Extension project. **Figure 2-9** shows the proposed roadway improvements that would be constructed as part of the I-405 BRT Project on Poplar Way and the loop ramp onto I-5 northbound.

BRT buses would access the Lynnwood City Center bus station by using the existing Alderwood Mall Boulevard exit from I-5 south, traveling along 196th Street SW, turning left at 44th Avenue W, right at 200th Street SW, left onto 46th Avenue W, and then into the transit center. Along this routing, TSP would be added to existing traffic signals. To improve access to and from the transit center, a new traffic signal is proposed along 46th Avenue W at the entrance to the transit center.



SOURCE: Sound Transit 2019

Figure 2-8 Lynnwood City Center bus station and roadway improvements



SOURCE: Sound Transit 2019

Figure 2-9 Poplar Way loop ramp roadway improvements

Leaving the transit center, BRT vehicles would follow the same routing to 196th Street SW and then would use the Poplar Way on-ramp to access I-5 north and then I-405 south. Along Poplar Way (south of 196th Street SW) and the I-5 northbound on-ramp, the roadway and ramp would be widened for a bus-only lane for BRT vehicles to use to bypass congestion. Additional modifications in the area inside the Poplar Way loop ramp include adding a new ramp meter, modifications to the existing retaining wall for the proposed roadway widening, and a detention pond in the center of the ramp loop.

At the existing Lynnwood City Center bus station, one bay in the northeast portion of the transit center loop would be modified to accommodate the BRT service as a drop-off bay. In the southwest portion of the transit center loop, two bays would be modified to accommodate BRT pick-up. At these bays, modifications would include raised platforms for level or near-level passenger boarding and possibly TVMs and rider information. The existing shelters over the bays would remain, and a BRT branded pylon would be installed to identify the bays used for the BRT service. Anticipated utilities include electric power, storm drainage, public agency telecommunications, and commercial telecommunications. Electric power and telecommunications would be tied into utilities currently available near the project component. The layover for the BRT vehicles would occur at the bus layover area to the south of the transit center loop that will be built as part of the Lynnwood Link Extension project.

At the Lynnwood City Center bus station, stormwater would be collected underground and detention would be provided either above grade or below grade as required. Flow control and water quality treatment would be provided as required by *Washington State Department of Ecology Stormwater Management Manual for Western Washington* (Ecology 2019). Stormwater would ultimately tie into the existing conveyance systems. For the Poplar Way ramp modifications, stormwater flow control and water quality treatment would be provided as required by WSDOT's *Highway Runoff Manual* (WSDOT 2016).

3 REGULATORY CONTEXT

3.1 Level-of-service standards

Each local jurisdiction within the project area has developed transportation goals and level-of-service (LOS) standards through ongoing planning efforts. Six LOS designations, A through F, are used by each jurisdiction to characterize traffic operating conditions. LOS A designates the highest level-of-service and represents good traffic operations with no delay to motorists. LOS F is the lowest level-of-service and represents poor traffic operations with significant delays.

Each of the jurisdictions has determined the acceptable LOS designations for intersections throughout their road networks, and delay-based intersection LOS analysis has been accepted by each as a means to understand operational traffic impacts. Delay refers to average delay per vehicle in seconds experienced during an analysis hour. For each jurisdiction, if an intersection's operations with implementation of a project are equal to or better than the LOS standard for each agency they have established, then that intersection is considered to meet their standard and would not require mitigation as a result of a given project.

3.2 Requirements by jurisdictions

The LOS standards for the jurisdictions associated with the study areas of this Transportation Technical Report are listed in **Table 3-1**. The LOS standards vary by roadway type.

Table 3-1 LOS standard by jurisdiction and roadway type

Jurisdiction	Arterials and collectors	City center arterials	Non-city center arterials and non-state highways	Local streets (urban/rural)
City of Burien	D	E	D	C
City of Tukwila	E	E Mitigated*	D	C
City of Renton	D	E Mitigated*	N/A	N/A
City of Bellevue	LOS C-E+, Varies by land use context	LOS C-E+, Varies by land use context	LOS C-E+, Varies by land use context	LOS C-E+, Varies by land use context
City of Kirkland	E	E	E	E
City of Lynnwood	E	E	D	C/D
WSDOT	E	N/A	N/A	N/A

SOURCE: Sound Transit 2019
NOTES: *Denotes LOS E that has been achieved through mitigation
LOS = level-of-service; N/A = not applicable

If the No Build condition already results in a LOS that exceeds the governing standard, then the project would propose mitigation based on the following:

- If the Authority Having Jurisdiction does not have an adopted policy on how to address this situation, Sound Transit would provide proportionate mitigation if the project results in an additional 15 seconds or more of delay to a given intersection or corridor that is projected to exceed the established standard under the No Build conditions. The mitigation contribution would be based on the proportionate amount of delay that would be added by the project.
- For the City of Kirkland, mitigation is required if the LOS is E and the project would add a 15 percent proportional impact to the intersection, or LOS is at F and the project would add a 5 percent proportional share impact. The WSDOT freeway threshold for I-405 is LOS D.

4 METHODOLOGY

4.1 Traffic operations analysis

The traffic operations analysis followed the methodology outlined in the *Final Traffic Analysis Methodology and Assumptions Technical Memorandum* (Sound Transit 2019a). The analysis utilized existing travel time data combined with intersection level-of-service analysis reflecting existing (2018), year 2024/2025 conditions, and long-range (2042) conditions. The 2024/2025 horizon year reflects the year of opening for the I-405 BRT south segment (2024) and north segment (2025), and 2042 corresponds to the completion of all transit projects and elements included in the voter-approved ST3 program.

Freeway segment and arterial travel times for the study were generated by Google's Application Programming Interface (API) and the Washington State Transportation Center (TRAC); future freeway travel times will be generated by WSDOT's I-405 Corridor Program Vissim model. The intersection LOS analysis was conducted using Synchro (version 10) software and Sidra 8 for two roundabout locations. The traffic analysis for evaluation of the project elements used updated Synchro analysis files that incorporated 2042 traffic projections from a separate travel demand forecasting effort, as well as travel time estimates from the future conditions Vissim model developed for WSDOT's I-405 Corridor Program.

Potential transportation impacts assessed quantitatively in this report include changes to delays and LOS at identified intersections within the study areas for 2024 and 2042. In addition, where only freeway impacts were anticipated, average vehicle speed and travel times were used to measure impacts and performance. Qualitative impacts considered included potential modifications to transit connections, non-motorized movements, and site (station area) access.

4.2 Parking impact evaluation

Existing on-street parking was reviewed in Google Earth. Qualitative impacts considered included potential changes to the roadway that could result in parking loss, parking demand from the Bus Base North facility, and parking supply at Bus Base North.

4.3 Non-motorized impact evaluation

Existing non-motorized facilities, including sidewalks, ADA ramps, pedestrian access routes, crosswalks, and bicycle lanes, were reviewed in Google Earth. Impact assessment included potential changes to these facilities by the Bus Base North Project.

4.4 Data sources – Traffic operations analysis

4.4.1 Data sets

A variety of data were collected and assembled to conduct the traffic operations analysis work and assess the potential impacts. These data sets are as follows:

- Year 2018 traffic counts were conducted for most of the study area intersections and were augmented with AM and PM peak-period turning-movement counts (see Appendix A).
- Vehicle crash data was provided by WSDOT for the study area intersections and roadway segments for a five-year period, 2014 through 2018.
- Current transit routing and characteristics were provided by Sound Transit, Community Transit, and King County Metro for the study area, including planned RapidRide expansion as identified in METRO CONNECTS 2025 (King County Metro 2017).
- Traffic signal timing and phasing were obtained from the local agency and WSDOT for the study area intersections as input to the traffic intersection modeling.
- Transit volumes were based on the King County Metro Connect Worksheet, June 26, 2018, unless otherwise noted.

4.4.2 Peak-period intersection counts

Intersection turning-movement count data for the intersections identified for the study area were collected and compiled from the cities of Bellevue, Bothell, Burien, Kirkland, Lynnwood, Renton, and Tukwila, as well as WSDOT, Sound Transit, and Metro. Where recent count data was not available, manual turning-movement counts were conducted for a minimum of two hours during the weekday AM and PM peak periods.

For freeway segments on I-405 and SR 518, peak-period volume data from WSDOT's loop counters was used to generate existing mainline and ramp volumes. WSDOT's annual ramp and roadway report for King and Snohomish Counties (WSDOT 2017) was used to compile peak-period mainline and ramp volumes. All peak-period or peak-hour turning-movement counts used for analysis were factored and normalized to a common baseline analysis year (2018) using available historical data trends or travel demand model growth rates (as available).

4.4.3 Average daily traffic volumes

Similar to the process for collecting intersection turning-movement count data, average daily traffic (ADT) volumes for the relevant freeway segments were compiled from WSDOT's loop counter database or from the annual ramp and roadway report. ADT volumes for arterials were requested from local agencies. ADT counts collected were factored to a common base analysis year (2018).

4.4.4 Travel times

To assist in model calibration, existing general-purpose vehicle travel times for freeway segments and arterials serving the BRT station areas were generated by API or compiled from WSDOT freeway loop detector data. Travel times from API will reflect a data range capturing the variability and reliability of trip activity, including low, high, and best guess estimates of travel time.

4.4.5 Physical elements

Physical characteristics of the existing street system near the proposed BRT stations, including functional use, lane geometry, traffic signal timing and phasing patterns, and other parameters necessary to conduct traffic operations analysis (such as the proximity of bus stops, speed limits, presence of on-street parking, etc.) were documented and compiled. Aerial imagery (Google Earth or other) was also used to document arterial and intersection elements. Field verification to confirm physical elements was conducted for station areas.

4.5 Pedestrian and bicycle volumes – Traffic operations analysis

Pedestrian and bicycle volumes were documented in concert with vehicle turning-movement counts at study area intersections, which are areas with high pedestrian activity and where existing counts have been conducted by local jurisdictions. The data collection effort was limited to the study intersections. Pedestrian volumes are included in Appendix A. Additionally, where appropriate, future pedestrian volumes were developed independently of counts based on forecasted transit ridership by mode of access at specific station areas.

4.6 Transit

4.6.1 Transit routes

Existing transit route information and plans for new routes, and changes in service and layover at the proposed transit center and station areas were obtained from METRO CONNECTS 2025 (King County Metro 2017). This included updated information from King County Metro's North Eastside Mobility Project and Sound Transit. This task included compilation of information on selected routes that serve BRT stations, including high transfer routes to BRT. Bus route information included service areas, hours of service (including schedule/frequency), and passenger loads. Passenger load information was collected from Metro or Sound Transit at selected station areas.

4.6.2 Transit travel times and delay

In addition, On-Board Systems (OBS) Global Positioning System (GPS) tracking data from Metro was used to assess current bus route performance near the I-405 route for RapidRide or local Metro service, as well as ST Express service in the study area. OBS data were used to target routes along potential arterial pathways, such as the Route 101 to/from Seattle and the RapidRide F Line between Renton and Burien.

4.7 Local, regional, and state transportation plan consistency

Capital Improvement Programs and/or Transportation Facilities Plans, including planned and funded improvements in and around the BRT station areas and local streets within each jurisdiction, were reviewed to identify all committed improvements that were assumed to be in place in the year of opening and the horizon year, including arterial projects and I-405 widening efforts for future express toll lanes and direct access ramp facilities. Relevant projects include the following:

- WSDOT I-405 - Renton to Bellevue Widening and Express Toll Lanes
- WSDOT I-405 - SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project
- WSDOT/Sound Transit I-405/NE 85th Street Interchange and Inline BRT Station Project
- City of Lynnwood 196th Street SW BAT Lanes
- Sound Transit 200th Street Widening for Lynnwood Link Extension

5 AFFECTED ENVIRONMENT

This section presents a summary of existing conditions for the targeted study areas of the Project, organized by jurisdiction from south to north along the corridor. Study areas were determined by BRT pathways, locations were the roadway would be modified for the project, and in the case of park-and-ride expansion, intersections potentially affected by increased trip generation.

5.1 Burien Transit Center and roadway improvements

As described in Section 2.2.1, the I-405 BRT station would be located at the site of the existing Burien Transit Center in Burien. The Burien Transit Center is operated and maintained by King County Metro.

The following discussion of the study area includes an inventory of intersection and control types along the BRT pathway to the Burien Transit Center and existing conditions traffic operations, recent crash history along the proposed BRT route, existing transit operations and bus volumes, capacity and access to the existing park-and-ride facility, and non-motorized facilities and access to the existing transit center.

5.1.1 Transportation network and facilities

The study area intersections include ramp termini at SR 518 and SR 509 plus intersections along South 148th Street**,** as listed below and shown in **Figure 5-1**.

- BU1. SW 148th Street and Transit Center Driveway – Transit-only westbound entrance to Burien Transit Center
- BU2. SW 148th Street and 1st Avenue S – Signal
- BU3. SR 518 and SR 509 southbound (SB) ramps – Signal
- BU4. SR 518 and SR 509 northbound (NB) off-ramp – Signal

SOURCE: Sound Transit 2019

Figure 5-1 Burien Transit Center study area

5.1.2 Roadway traffic volumes and conditions

The existing traffic volumes are included in Appendix A. The existing traffic conditions, including delay and volume-to-capacity ratio (v/c), are shown by study intersection in **Table 5-1** and indicate that the LOS ranges from A to D. Generally, traffic operations are impeded by high levels of congestion with eastbound AM peak traffic directionality and westbound PM peak traffic directionality. Overall, the PM peak is more congested, particularly between 1st Avenue S and the SR 509 ramps due to lack of signal coordination.

Table 5-1 Existing traffic conditions – Burien Transit Center

Existing 2018						
	AM			PM		
Intersection name	Delay	LOS	v/c	Delay	LOS	v/c
Burien Transit Center Driveway and SW 148th Street	20	C	0.27	31	C	0.43
1st Avenue S and SW 148th Street	46	D	0.55	51	D	0.72
SR 509 SB ramps and SW 148th Street	44	D	0.75	41	D	0.84
SR 509 NB on-ramp and SW 148th Street	0	A	-	-	-	-
SR 509 NB off-ramp and SW 148th Street	8	A	0.72	19	B	0.87

SOURCE: Sound Transit 2019
NOTE: LOS = level-of-service; NB = northbound; SB = southbound; v/c = volume-to-capacity

5.1.3 Traffic safety

Figure 5-2 illustrates the location and types of vehicle crashes along SW 148th Street, SR 518, and intersecting streets within the general station vicinity. Vehicle crashes were categorized by pathway, year, and type, and are compiled in **Table 5-2**.

The data show a very high proportion of rear-end crashes, typically indicating high levels of congestion but also reflecting the speed transition area around the SR 509 interchange. Angle and sideswipe crashes also claim a high proportion of the total crashes. There have been a moderate number of bicycle and pedestrian crashes during the study period, indicating the potential need to improve bicycle and pedestrian facilities in the study area.

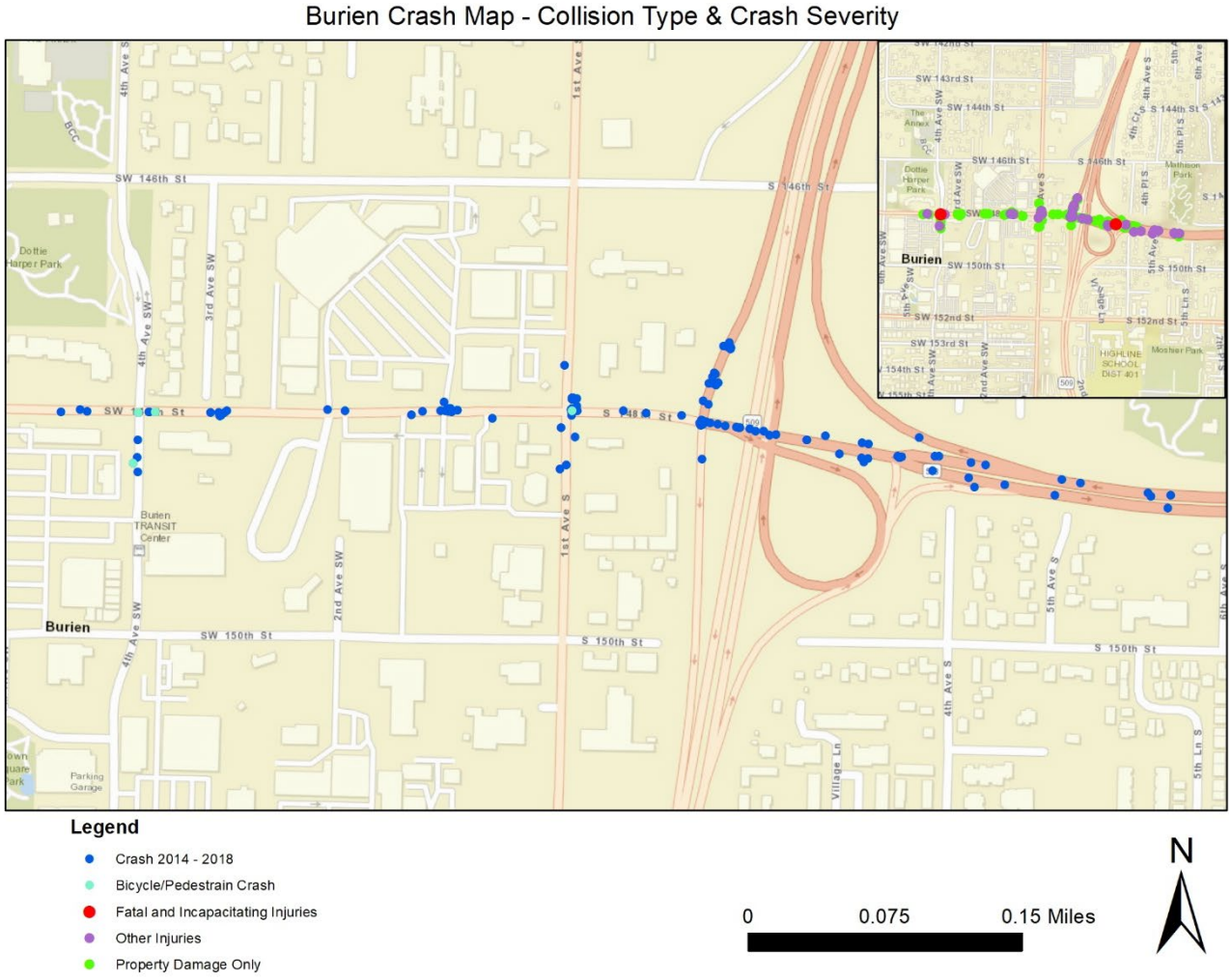
One fatality was noted for the study period; however, the crash reporting details indicate it was due to the influence of drugs and disregarding the traffic signal. Similarly, there was one suspected serious injury involving a vehicle collision with a pedestrian. The police report lists the cause of this crash as driver inattention.

5.1.4 Transit

The existing facility primarily serves King County Metro bus routes but also accommodates regional Sound Transit service (ST Express 560). The existing Burien Transit Center includes 6 active/layover bays (of varying lengths) around two transit islands and 11 spaces in layover lanes. The Burien Park-and-Ride provides connections to ST Express 560 and King County Metro F Line and routes 120, 121/122, 123, 131, 132, 166, 180, and 631.

Transit access for buses is currently via a dedicated transit-only driveway to/from SW 148th Street, although the planned King County Metro RapidRide H Line will access from the south via SW 150th Street.

The Burien Transit Center serves an average of 67 buses (arrivals) per hour during peak periods on a typical weekday based on 2018 data provided by King County Metro and Sound Transit. The project would modestly increase the number of bus arrivals per hour by six buses per hour during the peak period on a typical weekday.



SOURCE: Sound Transit 2019

Figure 5-2 Vehicle crashes, Burien Transit Center vicinity, 2014-2018

Table 5-2 Vehicle crashes, Burien Transit Center vicinity, 2014-2018

Year	Serious injury	Fatality	Fixed object	Rear end	Sideswipe	Angle	Opposite	Overturn	Other	Pedestrian/ bike
2014	0	0	5	20	6	11	4	0	3	0
2015	0	1	1	27	10	15	2	1	1	1
2016	1	0	1	21	8	13	3	0	4	2
2017	0	0	2	23	7	13	3	0	2	0
2018	0	0	1	16	11	9	2	0	4	2
Total	1	1	10	107	42	61	14	1	14	5

SOURCE: WSDOT 2019

5.1.5 Non-motorized facilities

Sidewalks are located along all roadways in the project area west of 1st Avenue S, and crosswalks are very well marked. As in other suburban stations within the study area, there are many vehicles entering and exiting parking lots across these sidewalks, creating potential hazards for pedestrians. There are no barriers to access in the western quadrants of the station area, providing passage to residential land uses ranging from single-family residences to high-density apartment buildings and commercial activities.

There are no bicycle lanes near the station. Based on the arterial nature of most streets in the station area, cyclists are generally relegated to sidewalks. For bicycle access east of SR 509, the sidewalks along SW/S 152nd Street are too narrow to accommodate bicycles, particularly if pedestrians are present. SW 148th Street has wide shoulders that are favorable to bicycle access.

5.1.6 Parking

The facility includes a park-and-ride lot for 488 general-purpose vehicles and includes electric vehicle charging stations.

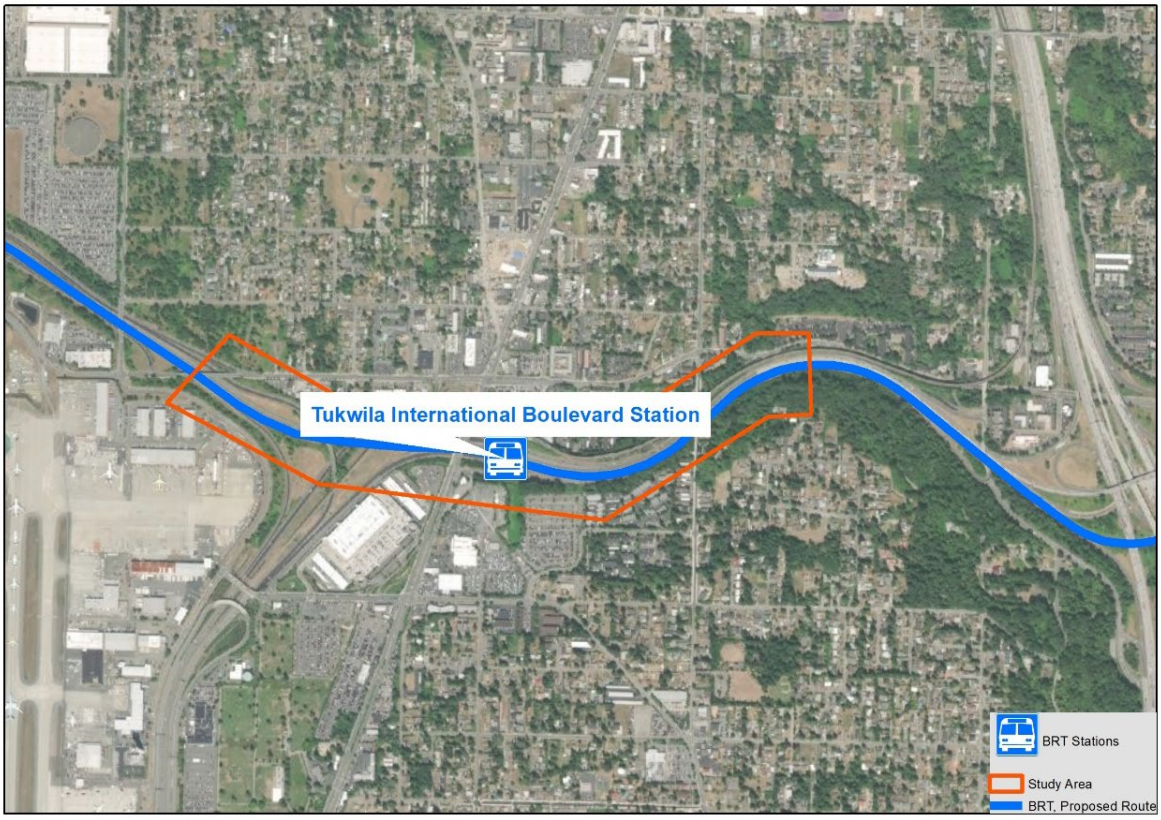
5.1.7 Site access

General traffic currently accesses the park-and-ride facility from the south via SW 150th Street and west via 4th Avenue SW.

5.2 Tukwila International Boulevard BRT Station and roadway improvements

As described in Section 2.2.2, the I-405 BRT station would be located in the center of SR 518 below the Tukwila International Boulevard overpass **Figure 5-3**.

The following discussion includes a description of the project elements along the BRT pathway to the Tukwila International Boulevard Station, existing conditions traffic operations, a review of recent crash history along the proposed BRT route, the existing park-and-ride facility, and site access.



SOURCE: Sound Transit 2019

Figure 5-3 Tukwila International Boulevard Station study area

5.2.1 Transportation network and facilities

The study area includes the SR 518 mainline within 0.5 mile of the station. BRT would operate on SR 518 to access the BRT stations within the SR 99 interchange area. The SR 518 mainline consists of two mainline lanes eastbound and three lanes westbound in the study area. On-/off-ramps for SR 518 are currently provided in the eastbound direction to South 154th Street and the North Airport Expressway, while westbound ramps connect to SR 99, South 154th Street, and the North Airport Expressway.

5.2.2 Roadway traffic volumes and conditions

The existing volumes in the study area are included in Appendix A. Eastbound freeway operations on SR 518 experience merging issues at ramps with heavy congestion and associated delays east of the proposed Tukwila International Boulevard Station. Westbound freeway operations generally perform better with some issues related to traffic weaving for the North Airport Expressway.

5.2.3 Traffic safety

Figure 5-4 shows the location and types of vehicle crashes along SR 518 in the vicinity of the proposed Tukwila International Boulevard Station. Vehicle crashes were categorized by year and type and are compiled in **Table 5-3**.

The SR 518 corridor has experienced an increasing trend in total crashes from 2014 to 2018. The high proportion of rear-end collisions indicate these collisions result from merging traffic and delays related to the congested freeway.

SOURCE: Sound Transit 2019

Figure 5-4 Vehicle crashes, SR 518 near Tukwila International Blvd, 2014-2018

Table 5-3 Vehicle crashes, SR 518 near Tukwila International Blvd, 2014-2018

Year	Serious injury	Fatality	Fixed object	Rear end	Sideswipe	Angle	Opposite	Overturn	Other	Pedestrian/ bike
2014	0	0	6	12	8	0	0	0	1	0
2015	0	0	4	15	8	0	0	1	1	0
2016	0	0	6	11	7	0	0	0	2	0
2017	0	0	7	20	7	0	0	0	1	0
2018	0	0	2	7	6	0	0	1	0	0
Total	0	0	25	65	36	0	0	2	5	0

SOURCE: WSDOT 2019

5.2.4 Transit

Frequent Link light rail transit (LRT) service is provided at the Tukwila International Boulevard LRT station adjacent to the proposed BRT station. Additionally, at the LRT station are connections to King County Metro RapidRide A and F Lines, and routes 124 and 128.

5.2.5 Non-motorized facilities

Pedestrian access to/from the Tukwila International Boulevard LRT station is provided along SR 99/Southcenter Boulevard. As in other suburban stations within the study area, there are many vehicles entering and exiting parking lots across these sidewalks, creating potential hazards for pedestrians.

There are no bicycle lanes near the station. Based on the arterial nature of most streets in the station area, cyclists are generally relegated to sidewalks. Passengers will enter the station from an elevator and stairs on the Tukwila International Boulevard overpass.

5.2.6 Parking

There is no parking at the proposed BRT station location on SR 518. However, a 600-stall major regional park-and-ride lot is provided at the nearby Tukwila International Boulevard LRT station, which could also serve BRT passengers.

5.2.7 Site access

There is no existing freeway station on SR 518 at Tukwila International Boulevard. The existing interchange at SR 99 provides access to the nearby Tukwila International Boulevard LRT station and associated park-and-ride lot.

5.3 South Renton Transit Center and roadway improvements[1]

The South Renton Transit Center and BRT Station has been defined in the *Technical Memorandum: South Renton Traffic Analysis Methods and Assumptions* (Sound Transit 2019a). As described in that document, a new transit center would be constructed near the existing South Renton Park-and-Ride lots northeast of the Rainier Avenue S/Grady Way intersection and would serve as a major regional transit hub for BRT routes (existing and future), as well as several local connecting bus routes. A parking structure would also be constructed with a capacity of 700 stalls along with a new intersection and signal at Rainier Avenue S/Hardie Avenue. Additional speed and reliability treatments would be implemented to enhance bus service into and out of the new transit center.

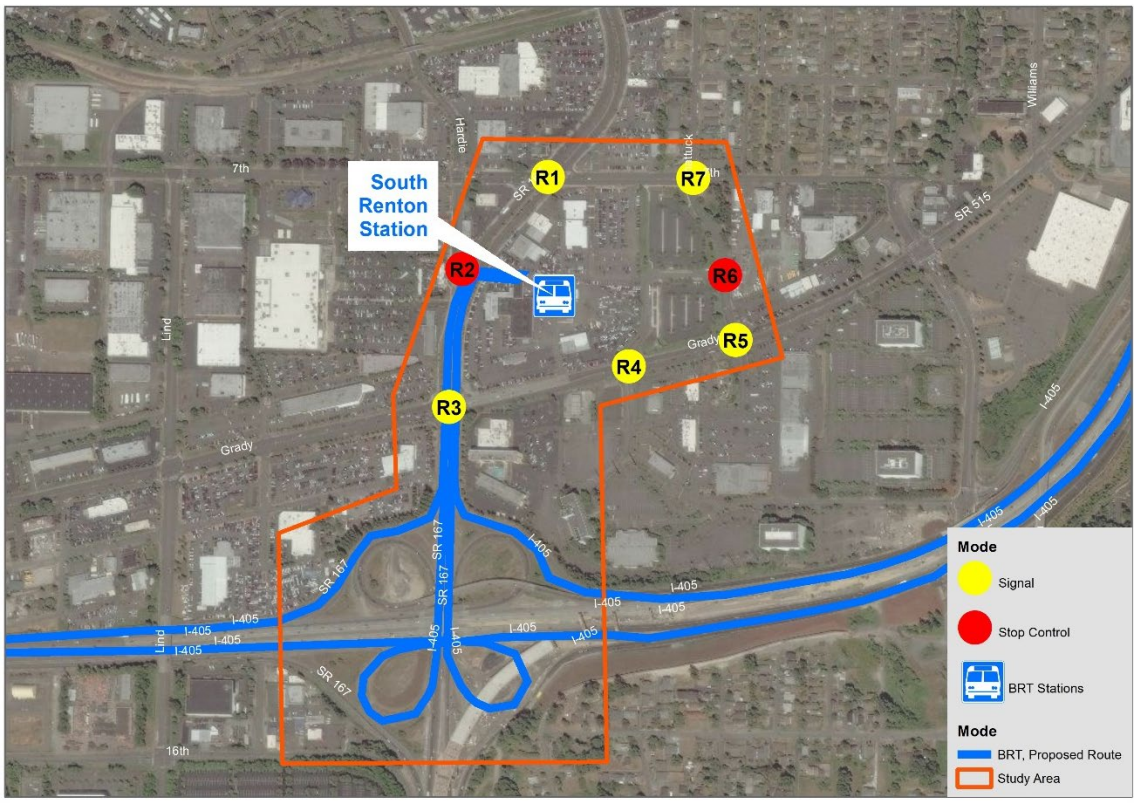
The following discussion includes an inventory of intersection and control types along the BRT pathway to the South Renton Transit Center, existing conditions traffic operations, a review of recent crash history along the proposed BRT route, existing transit operations and bus volumes, the existing park and-ride-facility, and site access.

5.3.1 Transportation network and facilities

The study intersections are listed below, and the study area is illustrated in **Figure 5-5**.

- R1. Rainier Avenue S at 7th Street – Signal
- R2. Rainier Avenue S and Hardie Avenue SW – Stop Control
- R3. Rainier Avenue S and Grady Way – Signal
- R4. Grady Way and Lake Avenue S – Stop Control
- R5. Grady Way and Shattuck Avenue S – Signal
- R6. Shattuck Avenue S and Lake Avenue S
- R7. 7th Street at Shattuck Avenue S – Signal

[1] Detailed traffic analysis methods for the South Renton Transit Center are provided in a separate memo: *Technical Memorandum: South Renton Traffic Analysis Methods and Assumptions* (Sound Transit 2019a).



SOURCE: Sound Transit 2019

Figure 5-5 South Renton study area

5.3.2 Roadway traffic volumes and conditions

The existing volumes are included in Appendix A. The existing traffic conditions. including delay and v/c ratio, are included by study intersection in **Table 5-4** and indicate that the LOS currently ranges from A to E. The study area is highly congested in both the AM and PM peak periods with the PM showing worse delays. The intersection of Rainier Avenue S and SW Grady Way, a critical point on the project pathway that would accommodate 24 BRT coaches in the opening year, was overcapacity in the PM peak in 2018.

Table 5-4 Existing traffic conditions – South Renton Transit Center

Existing 2018						
	AM			PM		
Intersection name	Delay	LOS	v/c	Delay	LOS	v/c
S 7th Street and Hardie Avenue SW	17	B	0.26	26	C	0.45
Rainier Avenue S and Hardie Avenue SW	1	A	0.29	19	B	1.17
Rainier Avenue S and SW Grady Way	46	D	0.83	77	E	1.01
Rainier Avenue S and S 7th Street	35	D	0.59	47	D	0.79
Shattuck Avenue S and SW Grady Way	20	B	0.64	21	C	0.69
Lake Avenue S and SW Grady Way	7	A	0.73	16	B	0.75
Talbot Road S and SW Grady Way	33	C	0.75	32	C	0.62
SR 515 and Renton Village/I-405 SB off-ramp	38	D	0.83	43	D	0.85
Shattuck Avenue S and S 7th Street	11	B	0.59	18	B	0.69
Talbot Road and S 7th Street	1	A	0.62	7	A	0.58
SR 515 and I-405 NB on-ramp	4	A	0.54	4	A	0.86
Shattuck Avenue S and Lake Avenue S	3	A	0.04	5	A	0.33

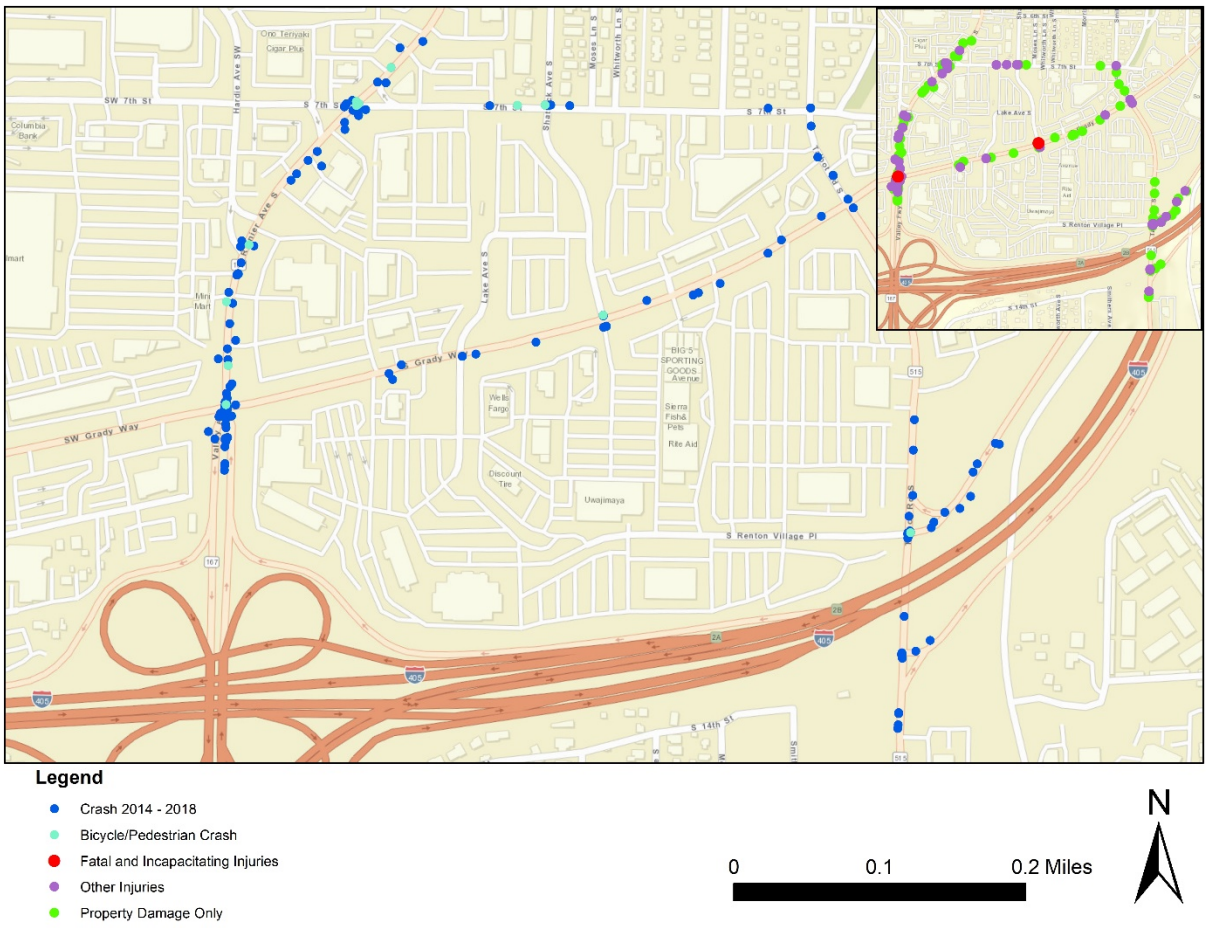
SOURCE: Sound Transit 2019
NOTE: LOS = level-of-service; NB = northbound; SB = southbound; v/c = volume-to-capacity

5.3.3 Traffic safety

Figure 5-6 shows the location and types of vehicle crashes in the vicinity of the existing South Renton Transit Center. Vehicle crashes were categorized by pathway, year, and type, and are compiled in **Table 5-5**.

The data show a very high proportion of rear-end crashes, indicating highly congested roadways. Angle and sideswipe crashes also claim a high proportion of the total crashes. There have been a moderate number of bicycle and pedestrian crashes during the study period, indicating the potential need to improve bicycle and pedestrian facilities in the study area.

S Renton Crash Map - Collision Type & Crash Severity



SOURCE: WSDOT 2019

Figure 5-6 Vehicle crashes, South Renton, 2014-2018

Table 5-5 Vehicle crashes, South Renton, 2014-2018

Year	Serious injury	Fatality	Fixed object	Rear end	Sideswipe	Angle	Opposite	Overturn	Other	Pedestrian/ bike
2014	0	1	3	27	14	13	6	0	3	3
2015	0	0	6	34	17	14	2	0	3	1
2016	0	1	4	33	16	13	10	0	4	4
2017	0	0	1	20	7	8	13	0	3	5
2018	0	0	5	36	8	15	10	0	2	1
Total	0	2	19	150	62	63	41	0	15	14

SOURCE: WSDOT 2019

5.3.4 Transit

The South Renton Park-and-Ride provides connections to ST 560 and 566 and King County Metro buses, including RapidRide F Line, and routes 101, 102, 148, 153, 167, and 169.

The existing bus stops at the South Renton Park-and-Ride lot serve a total volume of 54 buses per hour on a typical weekday. The existing site where the future transit center would be located is a former auto dealership and service facility that is currently vacant.

5.3.5 Non-motorized facilities

Although the area surrounding the park-and-ride is not generally oriented for pedestrians due to the multiple driveways, large parking lots, and long crossing distances at intersections, the pedestrian infrastructure is suitable for a transit station with sidewalks more than 6 feet in width. Crosswalks are marked and controlled at most intersections.,.

5.3.6 Parking

The existing South Renton Park-and-Ride accommodates 373 spaces for general-purpose vehicles. Based on count data, existing trips in the AM peak hour include 142 vehicles entering and 21 vehicles exiting the parking lot. Existing PM peak-hour trips include 30 vehicles entering the facility with 145 vehicles exiting.

5.3.7 Site access

Roadway access is currently provided via Rainier Avenue S and S Grady Way. Access is also provided on the east side of the site via Lake Ave S.

5.4 Bellevue Transit Center and off-site layover

As described in Section 2.2.4, the I-405 BRT station would be located at the existing Bellevue Transit Center station.

The following discussion includes a description of the project elements along the BRT pathway to the Bellevue Transit Center, existing conditions traffic operations at the site of proposed roadway modifications for layover, a review of recent crash history along the proposed BRT pathway, and site access.

5.4.1 Transportation network and facilities

The study intersection is listed below and shown in **Figure 5-7:**

- BE1. 110th Avenue NE and NE 12th Street

SOURCE: Sound Transit 2019

Figure 5-7 Bellevue study area

5.4.2 Roadway traffic volumes and conditions

The existing traffic conditions, including delay and v/c ratio at the study intersection, are shown in **Table 5-6** and indicate that the LOS is B.

Table 5-6 Existing traffic conditions – Bellevue Transit Center

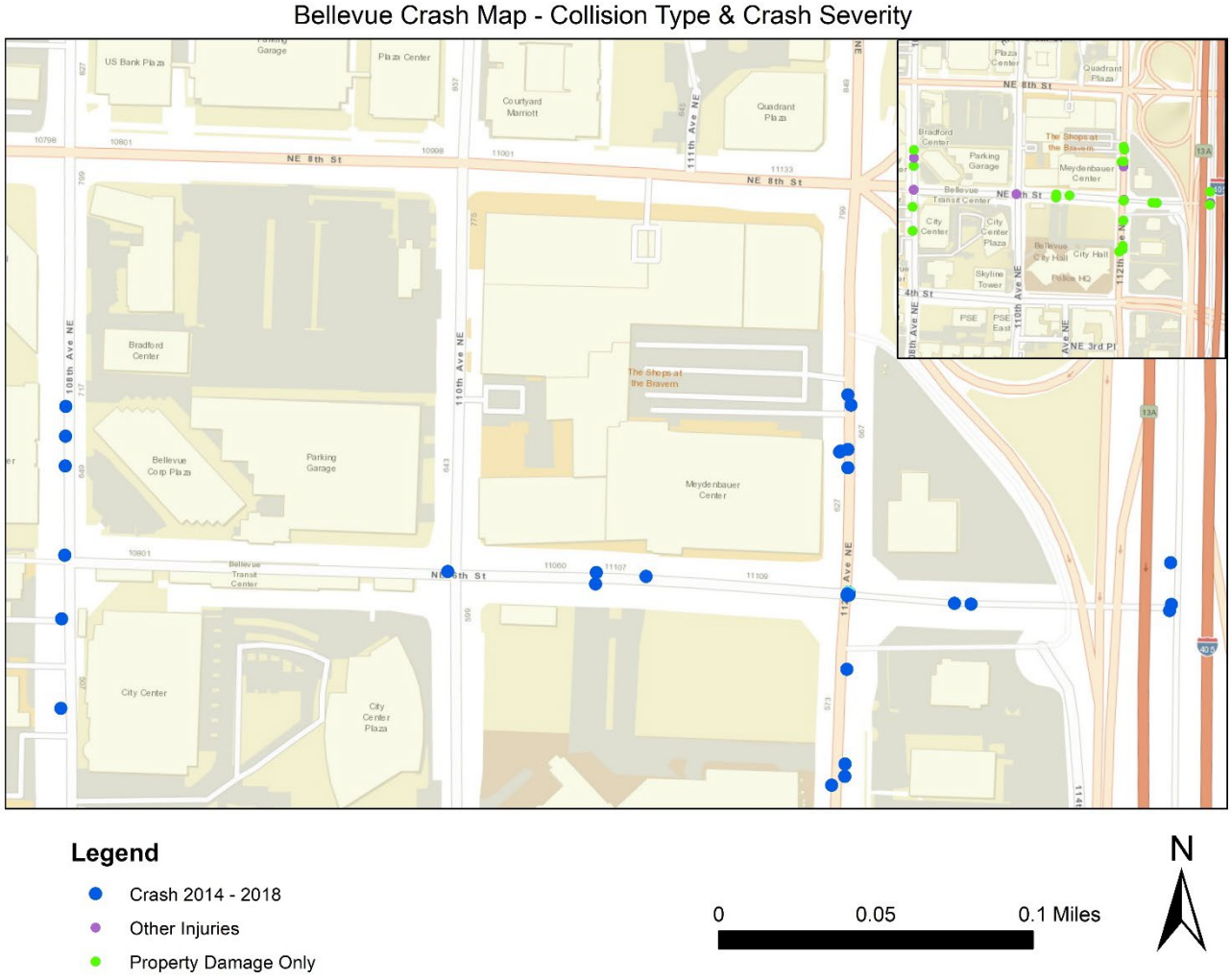
Existing 2018						
Intersection name	AM			PM		
	Delay	LOS	v/c	Delay	LOS	v/c
110th Avenue NE and NE 12th Street	14	B	0.41	13	B	0.43

SOURCE: Sound Transit 2020
NOTE: LOS = level-of-service

5.4.3 Traffic safety

Figure 5-8 shows the location and types of vehicle crashes in the vicinity of the existing Bellevue Transit Center. Vehicle crashes were categorized by pathway, year, and type, and are compiled in **Table 5-7**.

The proposed BRT pathway had a low number of overall crashes, which is to be expected given the small size of the study area. There were no fatalities or serious injuries during the 2014 to 2018 study period. There were, however, a high proportion of pedestrian crashes indicating the potential need to improve bicycle and pedestrian facilities in the study area.



SOURCE: WSDOT 2020

Figure 5-8 Vehicle crashes, Bellevue, 2014-2018

Table 5-7 Vehicle crashes, Bellevue, 2014-2018

Year	Serious injury	Fatality	Fixed object	Rear end	Sideswipe	Angle	Opposite	Overturn	Other	Pedestrian/ bike
2014	0	0	0	0	3	4	0	0	0	1
2015	0	0	3	2	1	1	0	1	0	0
2016	0	0	0	1	2	2	0	2	2	2
2017	0	0	1	2	1	1	0	2	4	0
2018	0	0	0	1	0	1	0	1	1	0
Total	0	0	4	6	7	9	0	6	7	3

SOURCE: WSDOT 2020

5.4.4 Transit

Currently 46 ST buses access the facility per direction per hour, including King County Metro routes 226/241, 232, 234, 235, 237, 240, 241, 246, 249, 271, 342, and RapidRide B Line. ST buses include 532, 535, 550, 555, 556, 560, and 567. The existing peak at the Bellevue Transit Center includes 91 buses per hour in the AM peak, and the PM peak is 83 buses per hour.

5.4.5 Non-motorized facilities

The station is in downtown Bellevue, which is the most pedestrian-oriented location in the project study areas. Sidewalks are wide and cover all streets leading to the station and all intersections near the station. With paths at midblock locations, the pedestrian network is more permeable than the street network. Bicycle infrastructure is limited in the station area with no bicycle lanes on streets leading to the station. The closest east-west facility to the station is a mixed buffered bike lane (north side) and sharrow (south side) along NE Second Street that switches to sharrow for both directions west of 110th Avenue NE. There are bicycle lanes connecting across I-405. Wide sidewalks on NE 10th Street and NE 4th Street could accommodate cyclists. The combination of unmarked ramp crossings, narrow sidewalks, and high-volume traffic with heavy merging make bicycle travel across the NE 8th Street bridge unadvisable.

5.4.6 Parking

There is no park-and-ride at this location. A public parking structure is adjacent to the bus station. Drop-off and pick-up are possible in some of the on-street parking spaces near the station, but it is likely that drivers dropping off transit users may use bus stops and block local buses when parking is at capacity.

5.4.7 Site access

Buses enter and exit the transit center from 108th Avenue NE and 110th Avenue NE. There are no existing drop-off/pick-up locations at either the existing downtown Bellevue bus station or the adjacent East Link station under construction. Curb space is limited on all surrounding streets with block faces devoted to transit lanes, bike lanes, no standing zones, or moving lanes. Some private drop-off/pick-up locations for private businesses are near the transit center.

5.5 Totem Lake/Kingsgate Station and Kingsgate Park-and-Ride garage

As described in Section 2.2.5, the Totem Lake/Kingsgate Station would be located at the existing Kingsgate Park-and-Ride in Kirkland.

The following discussion includes an inventory of intersection and control types in the vicinity of the Kingsgate Park-and-Ride and the BRT pathway through the Totem Lake Station, existing conditions traffic operations, a review of recent crash history within the area affected by park-and-ride trip generation, existing transit operations and bus volumes, the existing park-and-ride facility, and site access.

5.5.1 Transportation network and facilities

The study area intersections for the Totem Lake/Kingsgate Station include the ramp intersection and nearby intersections, plus access to the proposed Kingsgate parking garage. The study intersections are listed below, and the study area is illustrated in **Figure 5-9**.

- K1. NE 128th Street at Totem Lake Boulevard – Signal
- K2. NE 128th Street at 116th Street NE – Signal
- K3. NE 128th Street and I-405 direct access (center) ramps – TSP Treatments and ETL
- K4. Kingsgate Park-and-Ride entrance at 116th Street NE – No Control Type
- K5. Kingsgate Park-and-Ride exit at 116th Street NE – Stop Control
- K6. NE 132nd Street and 116th Avenue NE – Signal (existing); Roundabout (future conditions)
- K7. NE 132nd Street and Totem Lake Boulevard – Signal (existing); Roundabout (future conditions)

SOURCE: Sound Transit 2019

Figure 5-9 Totem Lake/Kingsgate study area

5.5.2 Roadway traffic volumes and conditions

The existing traffic volumes in the study area are included in Appendix A. The existing traffic conditions, including delay and v/c ratio, are shown by study intersection in **Table 5-8** and indicate an existing LOS of C at each intersection. The intersection of NE 132nd Street and 116th Avenue NE is the sole outlier with failing traffic conditions in the PM peak. Most movements at this intersection operate between LOS A and LOS C with severe failure of the northbound left-turn movement with over 300 seconds of delay.

Table 5-8 Existing traffic conditions – Totem Lake/Kingsgate

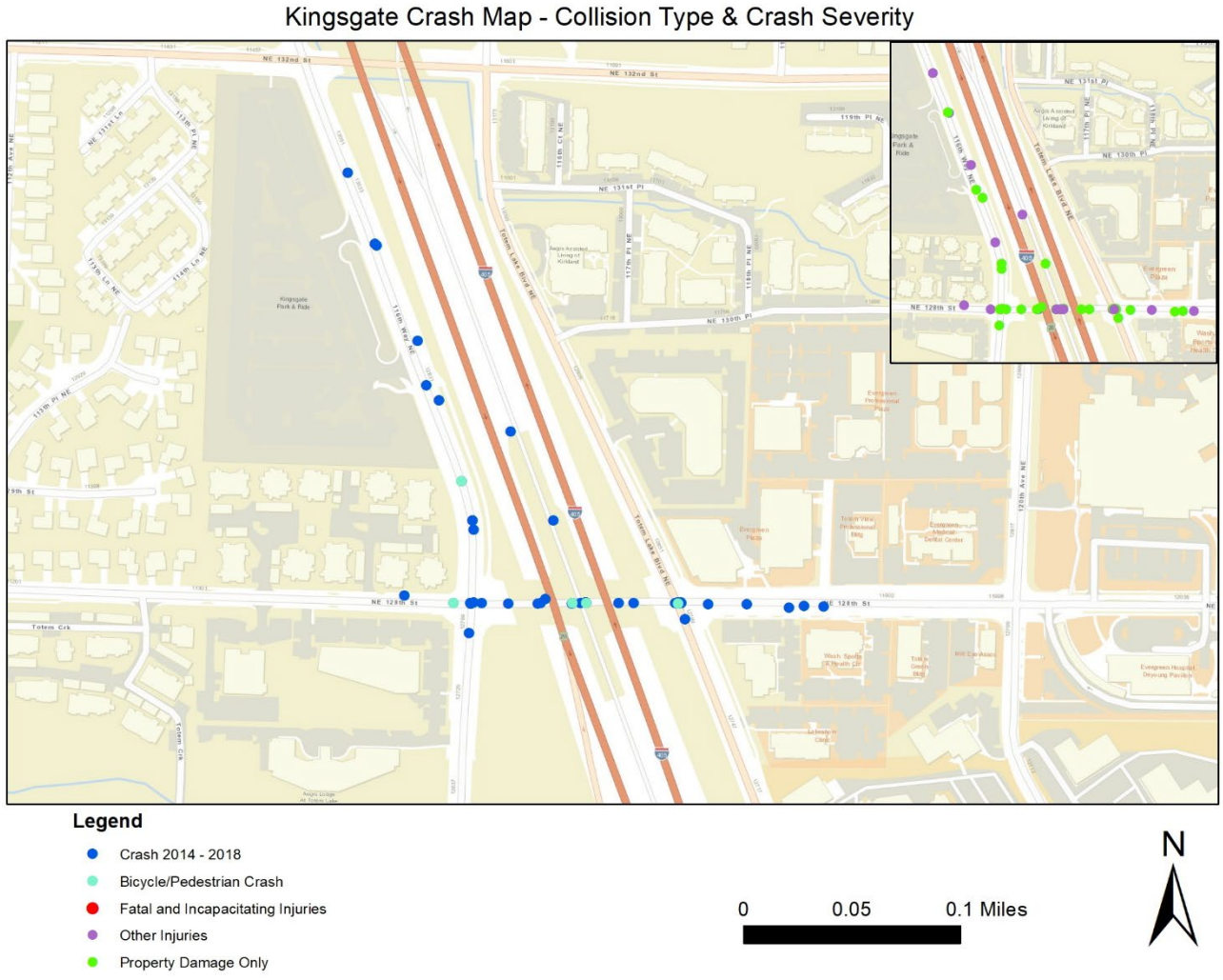
Existing 2018						
	AM			PM		
Intersection name	Delay	LOS	v/c	Delay	LOS	v/c
NE 128th Street and 116th Avenue NE	31	C	0.56	45	D	0.51
NE 128th Street and Totem Lake Boulevard	14	B	0.43	32	C	0.53
NE 128th Street and I-405 direct access ramp	27	C	0.62	38	D	0.64
NE 132nd Street and 116th Avenue NE	8	A	0.69	105	F	0.90
NE 132nd Street and Totem Lake Boulevard	28	C	0.90	26	C	0.79

SOURCE: Sound Transit 2019
NOTE: LOS = level-of-service; v/c volume-to-capacity

5.5.3 Traffic safety

Figure 5-10 shows the location and types of vehicle crashes in the vicinity of the existing Kingsgate Park-and-Ride Station. Vehicle crashes were categorized by year, type, and direction, and are compiled in **Table 5-9**.

Opposite direction crashes account for the largest proportion of crashes in the study area. A more detailed examination of crash data showed that these crashes were the result of left-turning vehicles crashing with oncoming traffic. Changes to signal phasing to prohibit permissive left turns could be expected to abate the frequency of these crashes. Rear-end crashes also account for a high proportion of crashes. There were five bicycle and pedestrian crashes during the study period, concentrated near the freeway station along NE 128th Street, which is a six-lane arterial lacking pedestrian refuge.



SOURCE: WSDOT 2019

Figure 5-10 Vehicle crashes, Totem Lake/Kingsgate, 2014-2018

Table 5-9 Vehicle crashes, Totem Lake/Kingsgate, 2014-2018

Year	Serious injury	Fatality	Fixed object	Rear end	Sideswipe	Angle	Opposite	Overturn	Other	Pedestrian/ bike
2014	0	0	1	7	5	4	6	0	1	2
2015	0	0	1	7	1	3	10	0	2	0
2016	0	0	1	3	2	2	3	0	0	1
2017	0	0	0	4	5	4	13	0	4	2
2018	0	0	0	5	1	2	2	0	1	0
Total	0	0	3	26	14	15	34	0	8	5

SOURCE: WSDOT 2019

5.5.4 Transit

The existing I-405 flyer and ST routes 532 and 535 stop at Kingsgate. Several King County Metro bus routes (235, 238, 244, etc.) provide service at the nearby Kingsgate Park-and-Ride lot off of 116th Avenue NE.

The Kingsgate Park-and-Ride serves an average of 20 buses (arrivals) per hour during peak periods on a typical weekday based on 2018 data provided by King County Metro and Sound Transit. Routes served include King County Metro 234/235, 238, 244, 252/257, 255, 277, and 930.

5.5.5 Non-motorized facilities

The road network near the station largely features sidewalks, and all intersections have marked crosswalks. However, many intersections feature large curb radii, which encourages higher speeds from turning motor vehicles and lengthening pedestrian crossing times and exposure to moving traffic.

There is a narrow bike lane with no buffer across the NE 128th Street bridge. Of additional concern, cyclists making left turns into the station are required to cross six lanes of vehicular traffic.

5.5.6 Parking

The existing Kingsgate Park-and-Ride lot accommodates 502 parking spaces for general-purpose vehicles based on King County Metro inventory data. Existing trips in the AM peak hour include 282 vehicles entering and 60 vehicles exiting the parking lot. Existing PM peak-hour trips include 63 vehicles entering the facility with 207 vehicles exiting.

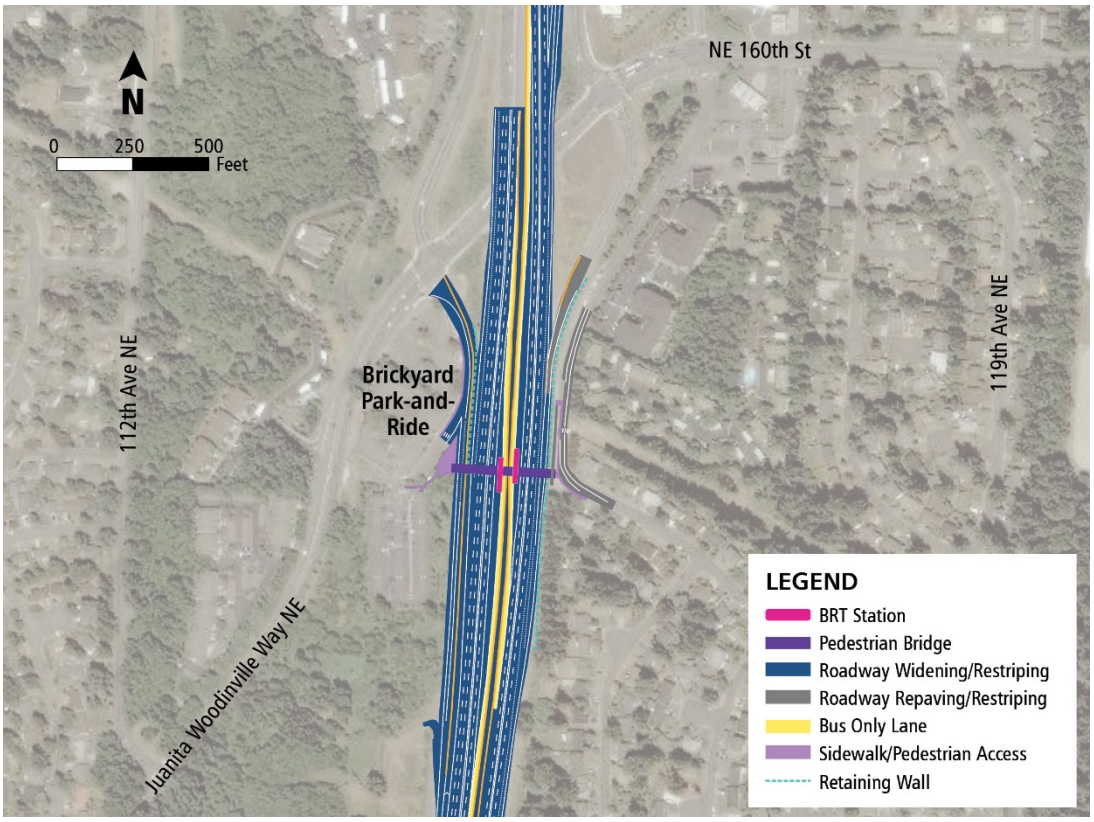
5.5.7 Site access

Access to the freeway flyer stops at Totem Lake is provided via the I-405 ETLs. Park-and-ride lot access is provided via 116th Avenue NE and NE 128th Street.

5.6 Brickyard Station and roadway improvements (NE 160th Street)

As described in Section 2.2.6, the I-405 BRT station would be located at the existing Brickyard Station (**Figure 5-11**). No quantitative analysis to access existing transportation conditions was performed for this location.

The following discussion includes a description of the project elements along the BRT pathway to the Brickyard Station, existing conditions traffic operations, a review of recent crash history along the proposed BRT pathway, the existing park-and-ride facility, and site access.



SOURCE: Sound Transit 2019

Figure 5-11 Brickyard study area

5.6.1 Transportation network and facilities

The proposed freeway station will not interfere with the local street network, so no intersections have been analyzed at Brickyard. BRT coaches would exit the ETL directly to the station.

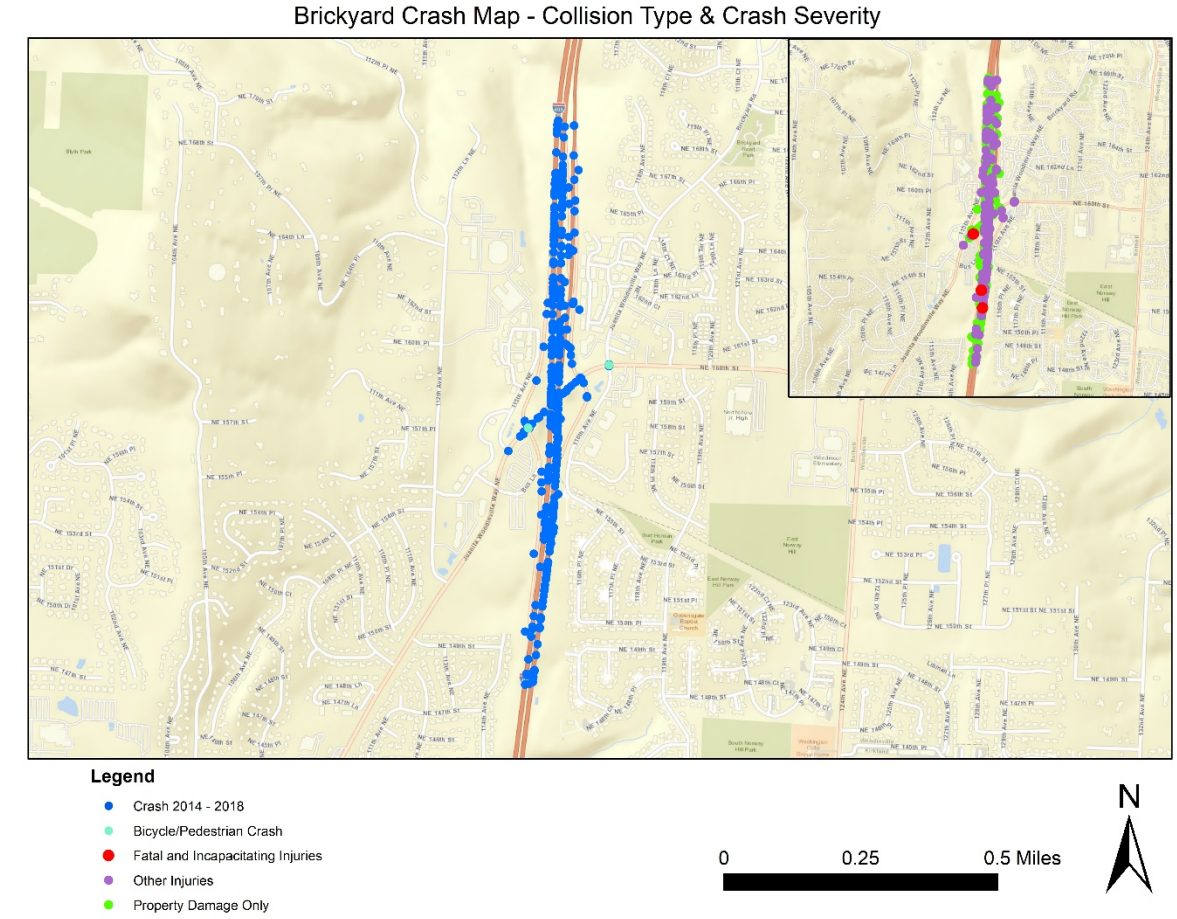
5.6.2 Roadway traffic volumes and conditions

Traffic analysis for the Brickyard Station was performed under a separate WSDOT I-405 ETL Expansion project.

5.6.3 Traffic safety

Figure 5-12 shows the location and types of vehicle crashes in the vicinity of the proposed Brickyard Station. Vehicle crashes were categorized by pathway, year, and type, and are compiled in **Table 5-10**.

The data shows a very high proportion of rear-end crashes, indicating highly congested freeway conditions. There were five bike/pedestrian crashes during the study period, including two on the southbound ramp, indicating that the current ST 535 stations, located at general-purpose ramp termini, may potentially need pedestrian and/or safety enhancements.



SOURCE: WSDOT 2019

Figure 5-12 Vehicle crashes, Brickyard, 2014-2018

Table 5-10 Vehicle crashes, Brickyard, 2014-2018

Year	Serious injury	Fatality	Fixed object	Rear end	Sideswipe	Angle	Opposite	Overturn	Other	Pedestrian / bike
2014	0	0	5	75	16	3	1	4	8	0
2015	0	0	13	70	17	4	0	2	7	0
2016	2	0	12	72	30	2	1	1	1	1
2017	1	0	6	57	15	4	0	0	5	0
2018	0	0	10	63	11	6	0	2	4	3
Total	3	0	46	337	89	19	2	9	25	4

SOURCE: WSDOT 2019

5.6.4 Transit

Brickyard is currently served by King County Metro local and express service. King County Metro service includes routes 236, 237, 255, 311, 342, and 952. Currently six ST buses access the facility per direction per hour from the ST Express 532 and 535 routes.

5.6.5 Non-motorized facilities

For park-and-ride users, pedestrians are required to cross the NE 160th Street bridge for half of their trips. A bike lane over the bridge has a substandard width and provides no buffer from vehicular traffic. Land uses are primarily low-density single-family residences, which would suggest low pedestrian volumes coming from the surrounding community.

5.6.6 Parking

The existing Brickyard Park-and-Ride surface lot has 242 parking stalls.

5.6.7 Site access

Access to the freeway ramp stations at Brickyard Station is provided via I-405. Park-and-ride lot access is provided via Juanita Woodinville Way NE.

5.7 Lynnwood City Center bus station and roadway improvements

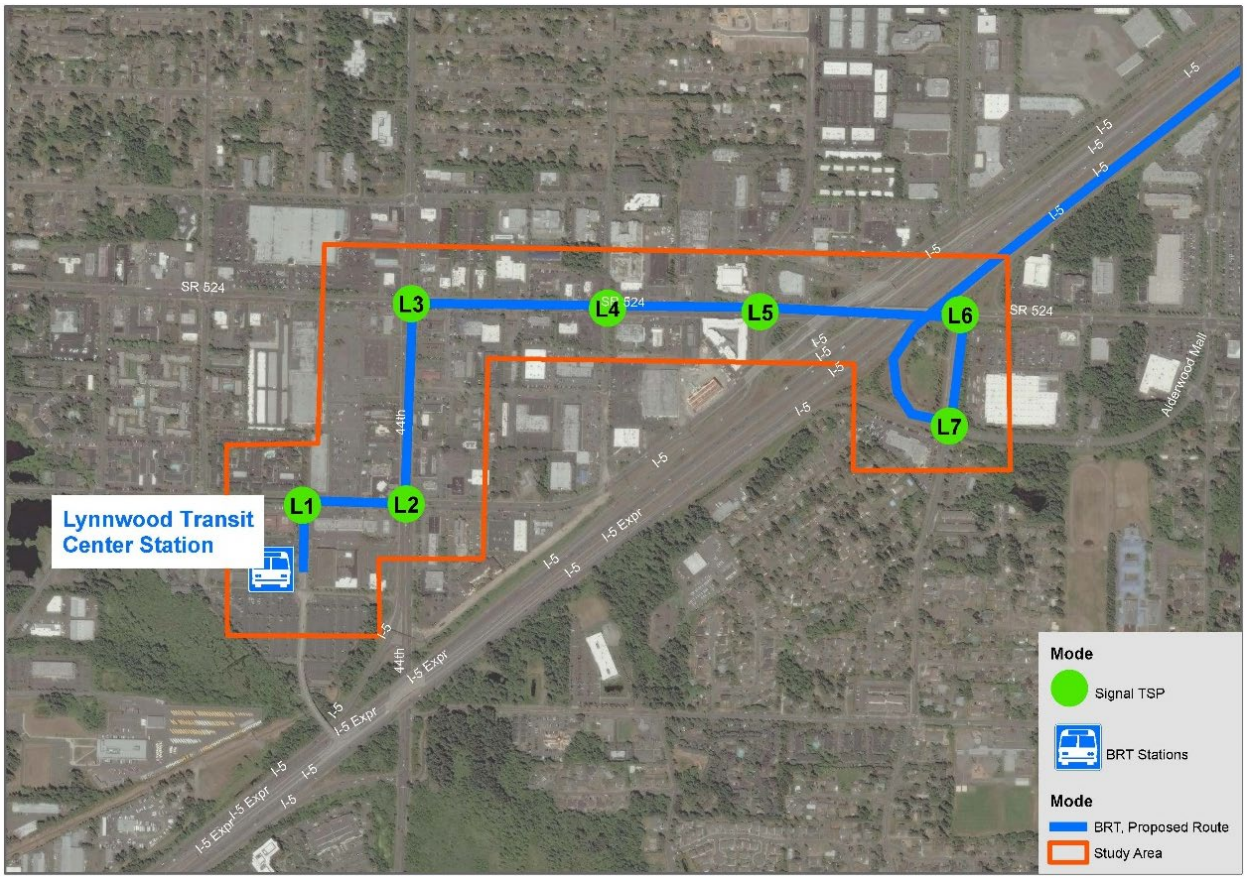
As described in Section 2.2.7, the Lynnwood I-405 BRT station would be located at the existing Lynnwood City Center Station in Lynnwood.

The following discussion includes an inventory of intersection and control types along the BRT pathway to the Lynnwood City Center Station, existing conditions traffic operations, a review of recent crash history along the proposed BRT route, existing transit operations and bus volumes, the existing park-and-ride facility, and site access.

5.7.1 Transportation network and facilities

Study intersections are listed below and the study area is shown in **Figure 5-13**.

- L1. 200th Street SW and 46th Avenue W – Signal
- L2. 200th Street SW and 44th Avenue W – Signal
- L3. 196th Street SW and 44th Avenue SW – Signal
- L4. 196th Street SW and 40th Avenue W – Signal
- L5. 196th Street SW and 36th Avenue W – Signal
- L6. 196th Street SW and Poplar Way – Signal
- L7. Poplar Way and Alderwood Mall Parkway – Signal/Queue Bypass



SOURCE: Sound Transit 2019

Figure 5-13 Lynnwood City Center Station study area

5.7.2 Roadway traffic volumes and conditions

Existing traffic volumes by study intersections are included in Appendix A. Traffic conditions, including delay and v/c ratio, are shown in **Table 5-11**.The existing traffic conditions indicate that the LOS ranges from A to D. Traffic operations generally perform well during the AM peak with some increased congestion in the PM peak. Eastbound traffic along 196th Street SW and southbound along Poplar Way experience delays in both peak periods due to merging issues with the I-5 southbound off-ramp and northbound on-ramp, respectively.

Table 5-11 Existing traffic conditions – Lynnwood City Center Station

Existing 2018						
	AM			PM		
Intersection name	Delay	LOS	v/c	Delay	LOS	v/c
196th Street SW and Poplar Way	5	A	1.02	6	A	0.92
Poplar Way and Alderwood Mall Parkway	27	C	0.69	21	C	0.71
44th Avenue W and 196th Street SW	28	C	0.78	39	D	0.86
196th Street SW and 40th Avenue W	21	C	0.79	24	C	0.87
196th Street SW and 36th Avenue W	31	C	0.65	37	D	0.76
200th Street SW and 46th Avenue W	12	B	0.44	26	C	0.55
44th Avenue W and 200th Street SW	48	D	0.66	35	C	0.73

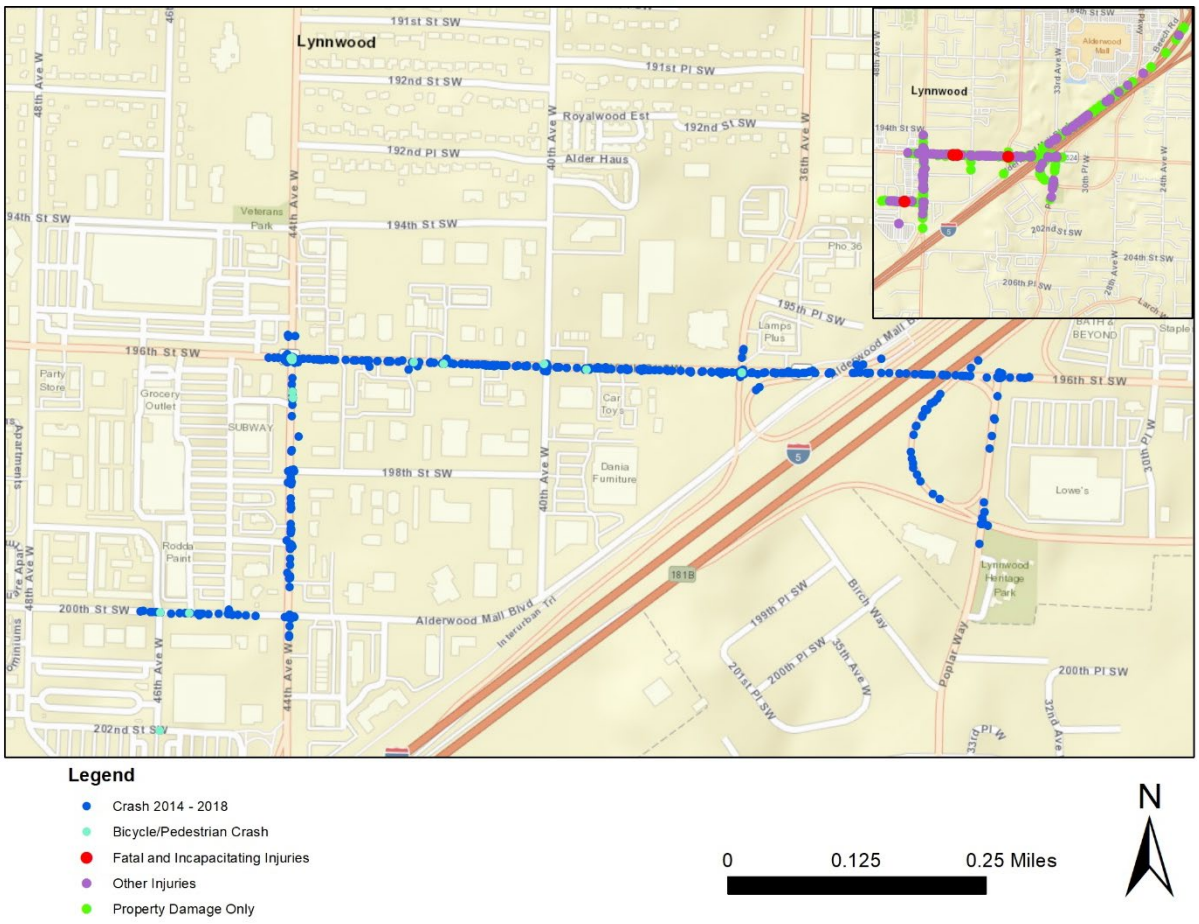
SOURCE: Sound Transit 2019
NOTE: LOS = level-of-service; v/c = volume-to-capacity

5.7.3 Traffic safety

Figure 5-14 shows the location and types of vehicle crashes in the vicinity of the existing Lynnwood City Center Station. Vehicle crashes were categorized by pathway, year, and type, and are compiled in **Table 5-12**.

The data show a very high proportion of rear-end crashes, indicating highly congested roadways reflective of stop-and-go conditions. Angle and sideswipe crashes also comprise a high proportion of the total crashes. Additionally, a high number of bicycle and pedestrian crashes were noted for the study period, indicating the potential need to improve bicycle and pedestrian facilities in the study area.

Lynnwood Crash Map - Collision Type & Crash Severity



SOURCE: WSDOT 2019

Figure 5-14 Vehicle crashes, Lynnwood, 2014-2018

Table 5-12 Vehicle crashes, Lynnwood, 2014-2018

Year	Serious injury	Fatality	Fixed object	Rear end	Sideswipe	Angle	Opposite	Overturn	Other	Pedestrian/ bike
2014	3	0	3	72	28	26	25	2	4	4
2015	0	0	3	78	35	25	23	1	8	1
2016	1	0	4	88	26	30	17	1	12	6
2017	0	0	5	56	21	23	19	0	4	3
2018	0	0	4	74	36	28	26	0	9	1
Total	4	0	19	368	146	132	110	4	37	15

SOURCE: WSDOT 2019

5.7.4 Transit

The Lynnwood City Center Station offers direct connections to the local and express bus system, including Community Transit routes 107, 112, 113, 115/116, 120, 130, 201, 202, 402, 421/422, 425, 810, 821, and 855, and ST routes 511/512 and 535.

5.7.5 Non-motorized facilities

The area adjacent to the station generally includes sidewalks and marked crosswalks. However, a very high number of curb cuts and vehicles entering and exiting parking lots impacts pedestrian safety. Lack of lighting and large parking lots are barriers to pedestrian access near the station.

The local street network currently has no dedicated bicycle infrastructure. With local roads being primarily high-volume arterials, cyclists are often relegated to the sidewalk, creating potential conflicts with pedestrians. However, the station is easily accessible by bicycle via the off-street Interurban Trail, an 11.8-mile paved path.

The Lynnwood Link LRT project will provide additional bus layover and general-purpose vehicle parking in the No Build condition as compared to the existing condition. Pedestrian improvements are being provided as part of the plans for the Lynnwood Link Station and the complete redesign of the park-and-ride facility and the area east of the station. A new multi-use trail spur from the Interurban Trail will connect to the station without interaction from vehicular traffic.

5.7.6 Parking

The Lynnwood City Center Station currently accommodates 1,368 spaces for general-purpose vehicles.

5.7.7 Site access

Access to the Lynnwood Park-and-Ride is currently through 46th Avenue W and 48th Avenue W. Changes to vehicle circulation from the Lynnwood Link project will limit local access to 48th Avenue W.

6 FUTURE CONDITIONS AND POTENTIAL IMPACTS

This section describes the potential transportation conditions at each of the identified study areas that would be likely to occur as a result of the I-405 BRT Project.

6.1 Burien Transit Center and roadway improvements

6.1.1 Construction traffic impacts

Truck volumes would be expected to vary over the course of construction. An estimated 67 truckloads (haul of excavated or fill materials, and deliveries of materials and/or concrete) would be required to complete construction activities, which would not affect the current level-of-service on SR 518, I-5, I-405, or other nearby roads. Maintenance of traffic plans will be prepared as needed for brief periods during construction.

SW 148th Street and 1st Avenue S are two designated haul routes that the contractor would be required to use during construction. Use of the designated haul routes for construction materials would minimize truck travel along local arterial streets and maximize the use of state routes and access to I-5 and I-405. Designated haul routes are shown in the graphics to the Construction Methods Technical Memorandum (Sound Transit 2019c). The final haul routes would be determined by the contractor and would be coordinated with the City of Burien.

6.1.2 Transportation network impacts

The project would generate six buses per direction, per hour along the BRT corridor in Burien (S 148th Street and SR 518).

For implementation of the BRT route, center-running eastbound and westbound bus lanes would be added east of the entrance to the Burien Transit Center for approximately 400 feet. The lanes would be accommodated by repurposing the center turn lane and slightly widening the roadway. No left turns from the center lane would be allowed within this area with left-turn access restrictions at three driveways between the transit center and 1st Avenue SW.

An eastbound center-running lane would continue past the 400 feet for eastbound BRT service. The existing striping would be rechannelized to accommodate the bus-only lane. At the intersection of SW 148th Street and1st Avenue, the eastbound left-turn lane would be maintained and would require left turns to cross over the dedicated bus lane.

No notable adverse impact is anticipated to the transportation network. All entrances and exits to surrounding stores would be maintained but would be restricted to right-in/right-out turning movements. A beneficial impact for transit could occur with the inclusion of TSP with advanced green time for buses entering general-purpose traffic at the eastern terminus of the bus-only lanes.

6.1.3 Roadway traffic volumes and conditions

The projected traffic volumes in the study area are included in Appendix A. The Build and No Build traffic conditions, including delay and v/c ratio, are shown in **Table 6-1** for 2024 and **Table 6-2** for 2042. Two findings of LOS F and one LOS E occur in 2042 in the PM peak due to increased future volumes. However, these conditions are similar to No Build conditions; there is no change in LOS in all scenarios between No Build and Build conditions and minimal changes to delay which are below the 15-second threshold required for mitigation. Detailed traffic analysis results are included in Appendix D.

Table 6-1 Intersection level-of-service, 2024 AM/PM peak hour Build vs. No Build – Burien Transit Center and roadway improvements

Intersection name	AM Peak						PM Peak					
	2024 No Build			2024 Build			2024 No Build			2024 Build		
	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c
Burien Transit Center driveway and SW 148th Street	17	B	0.32	20	B	0.33	20	B	0.46	20	C	0.46
1st Avenue S and SW 148th Street	32	C	0.60	30	C	0.59	40	D	0.79	38	D	0.79
SR 509 SB ramps and SW 148th Street	33	C	0.75	28	C	0.75	46	D	0.97	46	D	0.98
SR 509 NB on-ramp and SW 148th Street	0	A	-	0	A	-	0	A	-	0	A	-
SR 509 NB off-ramp and SW 148th Street	5	A	0.73	5	A	0.73	20	C	1.00	20	B	1.00

SOURCE: Sound Transit 2019
NOTE: LOS = level-of-service; NB = northbound; SB = southbound; v/c = volume-to-capacity

Table 6-2 Intersection level-of-service, 2042 AM/PM peak hour Build vs. No Build – Burien Transit Center and roadway improvements

Intersection name	AM Peak						PM Peak					
	2042 No Build			2042 Build			2042 No Build			2042 Build		
	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c
Burien Transit Center driveway and SW 148th Street	20	B	0.42	21	C	0.43	25	C	0.63	25	C	0.63
1st Avenue S and SW 148th Street	34	C	0.75	36	D	0.75	56	E	1.01	58	E	1.02
SR 509 SB ramps and SW 148th Street	37	D	0.89	37	D	0.89	128	F	1.30	130	F	1.31
SR 509 NB on-ramp and SW 148th Street	0	A	-	0	A	-	0	A	-	0	A	-
SR 509 NB off-ramp and SW 148th Street	7	A	0.83	9	A	0.83	115	F	1.32	115	F	1.32

SOURCE: Sound Transit 2019
NOTE: LOS = level-of-service; NB = northbound; SB = southbound; v/c = volume-to-capacity

6.1.4 Traffic safety

The addition of the center-running bus-only lane along eastbound SW 148th Street in Burien (continuing onto eastbound SR 518) would separate congested general-purpose traffic from bus traffic, improving the flow of traffic and concomitantly reducing crashes. The potential mode shift from drive alone to transit could be expected to further reduce congestion-related crashes.

6.1.5 Transit

In 2025, the Burien Park-and-Ride will provide connections to the King County Metro F and H Lines and routes 120, 121/122, 123, 131, 132, 631, 1514, and 3990. The project would not impact these King County Metro routes. It is assumed that I-405 BRT service would replace existing ST Express 560 buses in 2024. For ST 560 transit users accessing the airport, a transfer would be required to Link light rail at the Tukwila International Boulevard Station. Additionally, for ST 560 transit users that currently access Westwood Village in Seattle, a transfer from the King County Metro 120 route would be required at the Burien Transit Center.

6.1.6 Non-motorized facilities

Sidewalks adjacent to the portion of SW 148th Street with the 400-foot bidirectional center-running bus lanes would continue to maintain a sidewalk width compliant with the Americans with Disabilities Act. No other section of sidewalk would be modified in this area. No bike routes exist on the surrounding roadway.

6.1.7 Parking

Parking for general-purpose vehicles would be unchanged from the Existing and No Build conditions.

6.1.8 Site access

Site access would remain unchanged from the existing conditions.

6.1.9 Mitigation

No mitigation measures are proposed for this component. For roadway operations, intersection delays would not change more than 15 seconds between the Build and No Build scenarios. No adverse impacts are anticipated to transit, parking, or non-motorized traffic at this location, and there would be no impacts related to construction traffic.

6.2 Tukwila International Boulevard BRT Station and roadway improvements

6.2.1 Construction traffic impacts

Truck volumes would be expected to vary over the course of construction. To complete construction activities, an estimated 1,264 truckloads would be required, which would not affect the current level-of-service on SR 518, I-5, I-405, or other nearby roads as it amounts to less than ten trips per day over a six-month construction period. It is not anticipated that it would affect the current level-of-service on SR 518, I-405, or other nearby roads. Maintenance of traffic plans will be prepared as needed for brief periods during construction.

SR 99 and SR 518 are two designated haul routes that the contractor would be required to use during construction. Use of the designated haul routes for construction materials would minimize truck travel along local arterial streets and maximize the use of state routes. Designated haul routes are shown in the graphics to the Construction Methods Technical Memorandum (Sound Transit 2019c). The final haul routes would be determined by the contractor and would be coordinated with WSDOT and the City of Tukwila.

6.2.2 Transportation network impacts

As described in Section 2.2.2, the eastbound and westbound Tukwila International Boulevard BRT stations would be located at-grade within the SR 518 right-of-way in an existing area between the SR 518 travel lanes and the on- and off-ramps to SR 518. Approaching both the east and westbound stations, bus-only lanes would be added to allow BRT vehicles to safely decelerate to pick-up/drop-off at the station and accelerate to merge back onto SR 518 with general-purpose traffic.

In 2024 and 2042, six BRT vehicles are anticipated to access the facility per direction per hour. No noteworthy transportation network impacts are anticipated at this location as a result of the I-405 BRT Project.

Access to the LRT station is from service streets and the new BRT station would not impact or interfere with access of other buses to the facility. There would be no bus layover at the proposed station.

6.2.3 Roadway traffic volumes and conditions

The projected traffic volumes in the study area are included in Appendix A. Traffic analysis was performed separately as part of the WSDOT SR 518 project. The proposed BRT stations would not impact freeway operations.

6.2.4 Traffic safety

Safety is not expected to change from existing conditions. With the narrowing of travel lanes and shoulders for the Project while maintaining the existing speed limit, a statistical increase in traffic incidents could potentially occur. However, design refinements during the final project phases would be expected to abate any projected increase in traffic crashes. Additionally, the potential mode shift from drive alone to transit could be expected to reduce congestion-related crashes to some degree.

6.2.5 Transit

The new Tukwila International Boulevard BRT Station would solely serve I-405 BRT buses with transfers to Link light rail across the proposed pedestrian bridge.

6.2.6 Non-motorized facilities

A pedestrian bridge over SR 518 would connect the two BRT stations and would connect the BRT stations to the mezzanine level of the Link light rail station to the north. The surface of the pedestrian bridge would be approximately 25 feet above the level of SR 518, roughly level with the mezzanine level of the Link station and the existing Tukwila International Boulevard bridge over SR 518. From the BRT stations, access to the pedestrian bridge would be provided by stairs and an elevator. The pedestrian bridge would also extend to the south; connecting at-grade to an existing sidewalk on the eastbound on-ramp to SR 518 that connects to sidewalks on Tukwila International Boulevard.

6.2.7 Parking

There would be no changes to the existing park-and-ride at the Tukwila International Boulevard Station. Aforementioned enhancements to pedestrian access would make this parking available to BRT riders.

6.2.8 Site access

The new freeway stations would provide new site access for BRT coaches only on SR 518.

6.2.9 Mitigation

With no adverse impacts anticipated at this location as a result of the I-405 BRT Project, no mitigation is proposed.

6.3 South Renton Transit Center and roadway improvements

6.3.1 Construction traffic impacts

Although the magnitude of truck volumes required for materials delivery cannot be estimated at this stage, it is not anticipated that it would affect the current level-of-service on Rainier Avenue S, SR 167, I-405, or other adjacent local roads. Maintenance of traffic plans will be prepared as needed for brief periods during construction.

During the clearing and grading construction activity, an estimated 179 truckloads would be required. For trucks over 26,000 pounds gross vehicle weight, the City of Renton has designated truck routes. Designated truck routes near this project component include Rainier Avenue N and S and S and SW Grady Way. Designated haul routes are shown in the graphics to the Construction Methods Technical Memorandum (Sound Transit 2019c). The city-designated haul route on Rainier Avenue N and S is along the west side of the proposed South Renton Transit Center site and provides access to SR 167 and I-405. The city-designated haul route on S and SW Grady Way is along the south side of the site and provides a westbound and an eastbound route that the contractor may use.

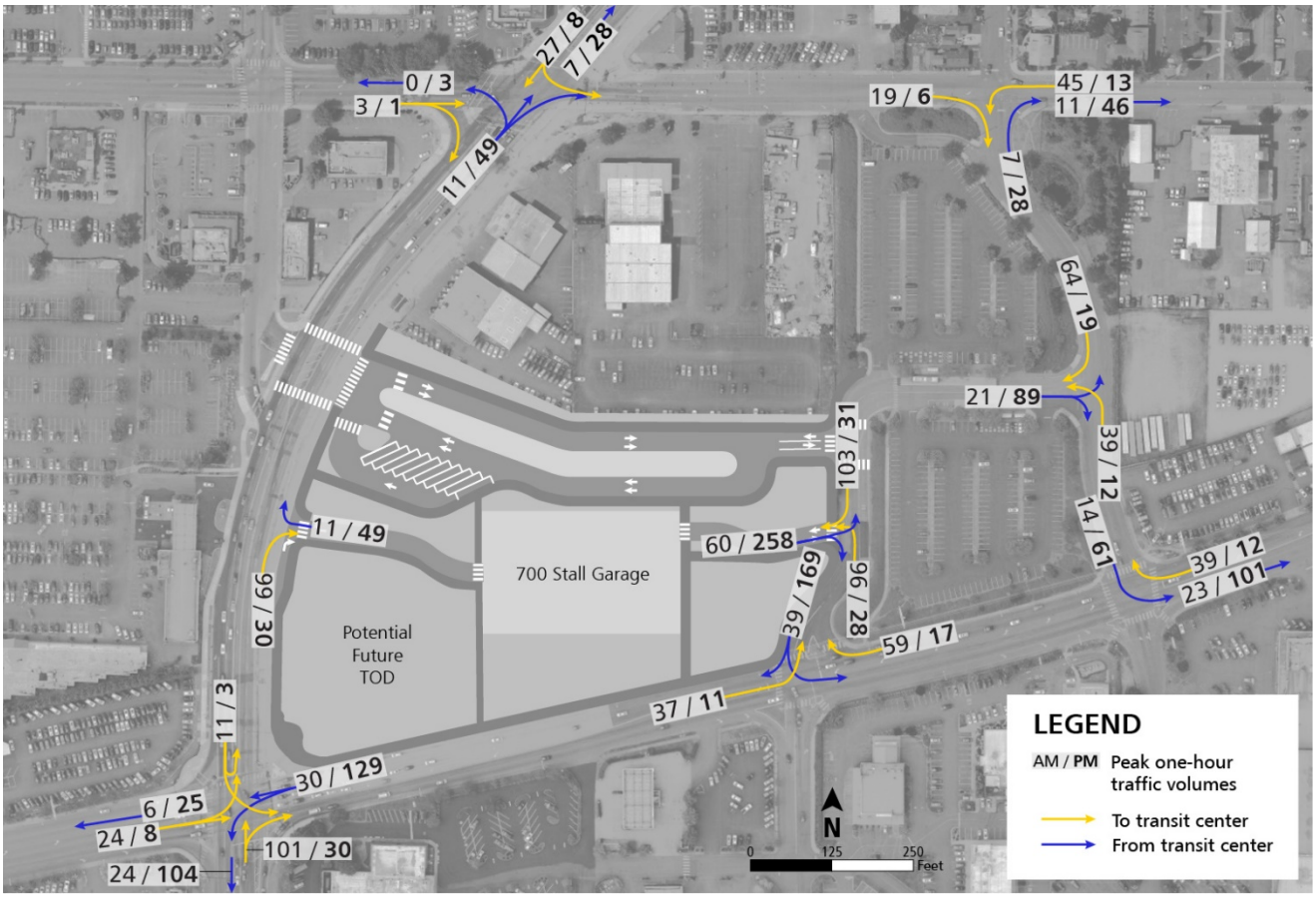
6.3.2 Transportation network impacts

As described in Section 2.2.3, modifications to the roadway network would include BRT usage in the existing Rainier Avenue S BAT lane northbound and southbound and potential use of a proposed bus-only lane on northbound SR 167 within the I-405 interchange area. The intersection of Rainer Avenue S and Hardie Avenue SW would be reconfigured to allow for crossing traffic and a new signal would be put in place. A new entrance and exit would be provided to the proposed parking garage south of the new transit center. Entering and exiting the garage would be limited to right turns only on Rainer Avenue S. The notable impacts anticipated from the implementation of these transportation elements may be abatable through signal timing mitigation measures. Additional investigation will explore potential countermeasures to offset any SR 167 bus lane implementation impacts.

In 2025, connection would be provided to ST 566 and King County Metro service, including RapidRide F and RapidRide I lines and routes 101, 102, 240, 169, 2022, 3162, 143, 907, 3221, and 3998.

In 2040, connection would be provided to ST 566 and King County Metro service, including RapidRide F and RapidRide I lines and routes 106, 143, 169, 240, 2022, 2614, 3162, and 3218.

The project would generate six buses per direction, per hour along the BRT corridor in South Renton (Rainier Avenue S). Additionally, the expanded park-and-ride would generate general-purpose traffic (**Figure 6-1**).



SOURCE: Sound Transit 2019

Figure 6-1 South Renton Transit Center and roadway improvements – Project-generated volumes

6.3.3 Roadway traffic volumes and conditions

The project traffic volumes are included in Appendix A. The anticipated traffic conditions, including delay and v/c ratio, with and without the I-405 BRT Project for opening year 2024 are shown in **Table 6-3** and for the horizon year 2042 in **Table 6-4**. Trips generated from the expanded park-and-ride are included in the Build condition traffic analysis. The augmented parking facility is expected to generate 268 additional inbound and 40 additional outbound trips in the AM peak hour and 56 entering and 273 exiting vehicles in the PM peak hour. Multiple findings of LOS E and LOS F occur in 2024 and 2042 in both the AM and PM peak periods. These failing intersections are due to volume growth at intersections that are already overcapacity in existing conditions. Detailed traffic analysis results are included in Appendix D.

Table 6-3 Intersection level-of-service, 2024 AM/PM peak hour Build vs. No Build – South Renton Transit Center and roadway improvements

Intersection name	AM Peak						PM Peak					
	2024 No Build			2024 Build			2024 No Build			2024 Build		
	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c
S 7th Street and Hardie Avenue SW	22	C	0.32	21	C	0.33	26	C	0.49	27	C	0.50
Rainier Avenue and Hardie Avenue SW	1	A	0.33	32	C	0.77	32	C	1.40	43	D	0.98
Rainier Avenue and Grady Way	63	E	0.88	65	E	0.94	82	F	1.11	85	F	1.14
Rainier Avenue and S 7th Street	39	D	0.66	41	D	0.66	49	D	0.86	43	D	0.87
Shattuck Avenue S and Grady Way	23	C	0.69	25	C	0.77	21	C	0.75	22	C	0.87
Lake Avenue S and Grady Way	7	A	0.79	8	A	0.87	18	B	0.82	39	D	0.95
Talbot Road and Grady Way	48	D	0.84	59	E	0.88	33	C	0.67	33	C	0.71
SR 515 and Renton Village/I-405 SB off-ramp	42	D	0.90	58	E	0.97	57	E	0.94	61	E	0.96
Shattuck Avenue S and S 7th Street	9	A	0.40	9	A	0.40	18	B	0.74	19	B	0.76
Talbot Road and S 7th Street	0	A	-	0	A	-	0	A	-	0	A	-
SR 515 and I-405 NB off-ramp	3	A	0.57	4	A	0.59	8	A	0.94	8	A	0.96
Shattuck Avenue S and Lake Avenue	3	A	0.14	5	A	0.14	5	A	0.37	5	A	0.64

SOURCE: Sound Transit 2019
NOTES: LOS = level-of-service; NB = northbound; SB = southbound; v/c = volume-to-capacity

Table 6-4 Intersection level-of-service, 2042 AM/PM peak hour Build vs. No Build – South Renton Transit Center and roadway improvements

Intersection name	AM Peak						PM Peak					
	2042 No Build			2042 Build			2042 No Build			2042 Build		
	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c
S 7th Street and Hardie Avenue SW	24	C	0.41	24	C	0.41	32	C	0.61	32	C	0.61
Rainier Avenue and Hardie Avenue SW	2	A	0.50	32	C	0.93	99	F	2.47	113	F	1.26
Rainier Avenue and Grady Way	100	F	1.13	116	F	1.20	165	F	1.40	177	F	1.47
Rainier Avenue and S 7th Street	42	D	0.87	41	D	0.88	99	F	1.12	96	F	1.12
Shattuck Avenue S and Grady Way	34	C	0.89	59	E	0.96	28	C	0.99	49	D	1.12
Lake Avenue S and Grady Way	13	B	1.00	15	B	1.13	36	D	1.07	75	E	1.30
Talbot Road and Grady Way	123	F	1.12	137	F	1.16	38	D	0.86	38	D	0.91
SR 515 and Renton Village/I-405 SB off-ramp	113	F	1.14	165	F	1.24	127	F	1.22	122	F	1.21
Shattuck Avenue S and S 7th Street	10	A	0.50	10	A	0.50	39	D	0.97	45	D	1.00
Talbot Road and S 7th Street	0	A	--	0	A	-	0	A	-	0	A	-
SR 515 and I-405 NB on-ramp	6	A	0.73	6	A	0.76	45	D	1.19	51	D	1.22
Shattuck Avenue S and Lake Avenue	3	A	0.06	5	A	0.18	7	A	0.53	21	C	0.90

SOURCE: Sound Transit 2019
NOTES: LOS = level-of-service; NB= northbound; SB = southbound; v/c = volume-to-capacity

6.3.4 Traffic safety

Project-related changes to Rainier Avenue S would have a positive influence on overall safety in the station area. The implementation of a new traffic signal at the intersection of Rainier Avenue S and Hardie Avenue SW would add greater access control to the corridor and effectively manage turning movements into and out of the transit center. This signal would also benefit pedestrians as four new crosswalks would be provided at this location, thus facilitating critical access opportunities (especially across Rainier Avenue S) for transit center patrons.

Conversely, the added park-and-ride capacity is expected to generate new traffic in the station area. If the crash rate per vehicle miles traveled remains constant, there would be a slight projected increase in traffic incidents from this new traffic.

6.3.5 Transit

In 2025, connection would be provided to ST 566 and King County Metro service, including RapidRide F and RapidRide I lines and routes 101, 102, 240, 169, 2022, 3162, 143, 907, 3221, and 3998. The project would not impact these King County Metro routes. It is assumed that I-405 BRT would replace existing ST Express 560 buses in 2024. For ST 560 transit users accessing the airport, a transfer would be required to Link light rail at the Tukwila International Boulevard Station. Additionally, for ST 560 transit users that currently access Westwood Village in Seattle, transfer from the King County Metro 120 route would be required at the Burien Transit Center.

6.3.6 Non-motorized facilities

Reconfiguration of the intersection of Rainer Avenue S and Hardie Avenue SW would have a beneficial effect on pedestrian facilities. Currently, pedestrians can only cross Rainer Avenue S at SW Grady Way and S 7th Street. No reconfiguration of existing sidewalk is anticipated. Additional sidewalk access would be provided to the proposed parking garage. No bike routes exist on the surrounding roadway.

6.3.7 Parking

The BRT project would have a beneficial effect on parking with the provision of new garage facilities, including a 700-stall, 5-floor park-and-ride garage with drop-off and stalls for transportation network companies on the first floor. Vehicles would have a separate right-turn-only entrance and exit to and from the park-and-ride garage onto Rainier Avenue S, located south of the access to the transit center. In addition, vehicles would be able to access the park-and-ride garage from Lake Avenue S to the east. This access point would not be restricted to right-in/right-out turns.

6.3.8 Site access

New site access would be provided at the intersection of Rainer Avenue S and Hardie Avenue SW. A new traffic signal would be added to allow access from Hardie Avenue SW to the transit center.

6.3.9 Mitigation

Several intersections would require mitigation in the South Renton study area; however, minor changes to the signal timing plans would be able to achieve compliance with LOS standards.

For the 2042 AM peak period at Rainier Avenue S and S Grady Way, changing the intersection signal offset from 86 seconds to 76 seconds could decrease Build delays to 115 seconds, which again is within the 15-second impact window between Build and No Build scenarios.

For the 2042 PM peak at Lake Avenue S and Grady Way, the eastbound and westbound left phases could be removed because of their relatively low volumes. Additional offset optimization could reduce the delay to 49 seconds, which is 13 seconds higher than the No Build delay.

For the 2042 AM peak period at SR 515 and the Renton Village/I-405 southbound off-ramp, shortening the westbound through/left and eastbound left phase to allow more green time for northbound through and northbound left could reduce the delay below 127 seconds, or about 14 seconds higher than the No Build condition without affecting off-ramp queues such that they spill back onto the southbound I-405 mainline.

6.4 Bellevue Transit Center and off-site layover

6.4.1 Construction traffic impacts

Construction of this project component is not anticipated to have high levels of truck volumes. Truck volumes associated with construction are not anticipated to affect the current level-of-service on local roads.

6.4.2 Transportation network impacts

As described in Section 2.2.4, the I-405 BRT station would be located at the existing Bellevue Transit Center station. The planned I-405 station would be in the same location and with the same configuration as the existing transit facility. No changes are planned to the physical roadway infrastructure.

Currently 46 ST buses access the facility per direction per hour. In 2024 and 2042, 12 BRT vehicles are anticipated to access the facility per direction per hour, replacing the current volumes from ST 535 and ST 550. As a result of this one-for-one replacement of traffic volumes, no quantitative analysis to determine potential transportation impacts was performed for the BRT pathway. However, traffic analysis was performed at the proposed curbside layover on the west side 110th Avenue NE south of NE 12th Street, which would require minor changes to the existing channelization.

ST Express 532, 554, and 567 would continue serving the Bellevue Transit Center in 2024.

No transportation network impacts are anticipated at this location as a result of the I-405 BRT Project. Likewise, no impacts to traffic safety, non-motorized facilities, parking, and site access are anticipated within this study area as a result of the I-405 BRT Project. As a result, no mitigation measures would be needed to address changes in the transportation environment within the Bellevue Transit Center area.

6.4.3 Roadway traffic volumes and conditions

The project traffic volumes are included in Appendix A. There are no changes to the primary roadway along the BRT pathway, and project-generated volumes would essentially replace existing bus service volumes. Despite no changes in traffic levels due to the project, traffic analysis was performed at the bus layover location to assess potential impacts from the changes to channelization. The anticipated traffic conditions, including delay and v/c ratio, with and without the I-405 BRT Project for opening year 2024 are shown in **Table 6-5** and for the horizon year 2042 in **Table 6-6**. Detailed traffic analysis results are included in Appendix D.

Table 6-5 Intersection level-of-service, 2024 AM/PM peak hour Build vs. No Build – Bellevue Transit Center and off-site layover area

Intersection name	AM Peak						PM Peak					
	2024 No Build			2024 Build			2024 No Build			2024 Build		
	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c
110th Avenue NE and NE 12th Street	15	B	0.43	15	B	0.43	14	B	0.46	14	B	0.62

SOURCE: Sound Transit 2020
NOTE: LOS = level-of-service; v/c = volume-to-capacity

Table 6-6 Intersection level-of-service, 2042 AM/PM peak hour Build vs. No Build – Bellevue Transit Center and off-site layover area

Intersection name	AM Peak						PM Peak					
	2042 No Build			2042 Build			2042 No Build			2042 Build		
	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c
110th Avenue NE and NE 12th Street	16	B	0.55	17	B	0.56	16	B	0.60	16	B	0.62

SOURCE: Sound Transit 2020
NOTE: LOS = level-of-service; v/c = volume-to-capacity

6.4.4 Traffic safety

With no changes to the roadway on the BRT pathway and minimal changes at the layover location, there are no expected changes to safety in the Bellevue Transit Center area. As a benefit from the BRT service, the potential mode shift from drive alone to transit may reduce congestion-related crashes in and around the station area.

6.4.5 Transit

In 2025, bus route connections would be provided to King County Metro routes 111, 271, 342, 3080, 3103, and 3989, and RapidRide B and K Lines. Planned ST routes include 532, 554, and 567. The project would not impact these King County Metro routes. As described in a previous section, it is assumed that I-405 BRT service would replace existing ST Express 560 buses in 2024. For ST 560 transit users accessing the airport, a transfer would be required to Link light rail at the Tukwila International Boulevard Station. Additionally, for ST 560 transit users that currently access Westwood Village in Seattle, transfer from the King County Metro 120 route (soon to become the RapidRide H Line) would be required at the Burien Transit Center.

6.4.6 Non-motorized facilities

Non-motorized facilities would not be changed as a result of the project.

6.4.7 Parking

By reconfiguring 110th Avenue NE approaching NE 12th Street, general-purpose parking capacity would be slightly expanded. In addition, three additional spaces of on-street parking would be dedicated for bus layover, thereby increasing bus layover capacity as well.

6.4.8 Site access

Site access would not change as a result of the project.

6.4.9 Mitigation

With no adverse impacts anticipated at this location as a result of the I-405 BRT Project, no mitigation is proposed.

6.5 Totem Lake/Kingsgate Station and Kingsgate Park-and-Ride garage

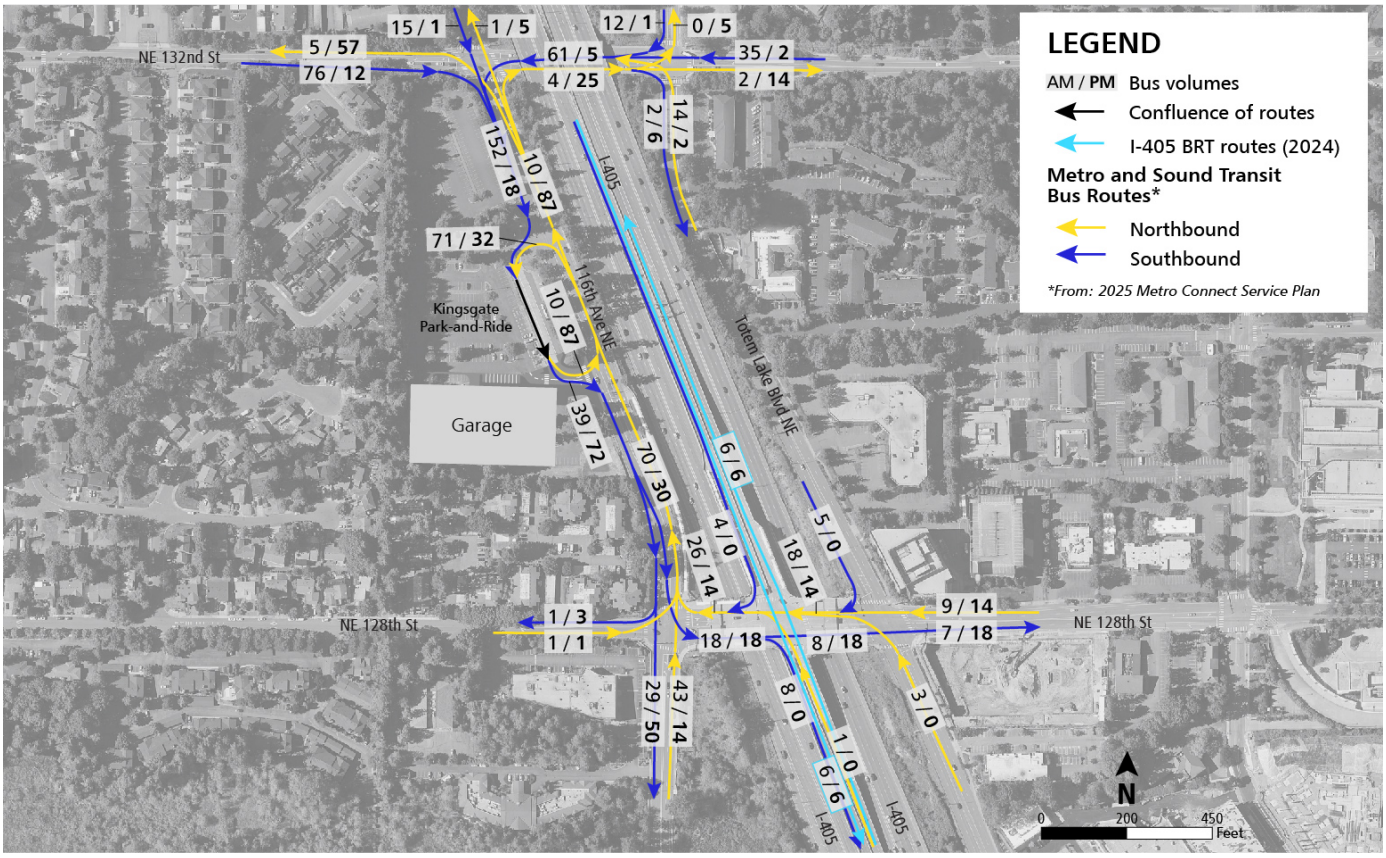
6.5.1 Construction traffic impacts

Truck volumes would be expected to vary over the course of construction. High levels of truck volume would likely occur in discrete, short periods during times of material delivery, such as for structural steel, precast concrete, large concrete pours, or during grading efforts. To complete construction activities, approximately 125 truckloads would be required, which would not affect the current level-of-service on 116th Avenue NE or other adjacent local roads. Maintenance of traffic plans will be prepared as needed for brief periods during construction.

During the clearing and grading construction activity, an estimated 125 truckloads would be required. The City of Kirkland's Transportation Master Plan designates NE 124th Street as a freight route. NE 124th Street is located south of this project component and provides access to I-405. Designated haul routes are shown in the graphics to the Construction Methods Technical Memorandum (Sound Transit 2019c). The final haul routes would be determined by the contractor and would be coordinated with the City of Kirkland.

6.5.2 Transportation network impacts

No roadway changes within the study area have been proposed. The project would generate six buses per direction, per hour at the Totem Lake Station. The additional 400 parking spaces at the park-and-ride would generate 220 additional inbound automobiles and 50 additional outbound automobiles in the AM peak hour. In the PM peak hour, the facility would generate an additional 50 inbound automobiles and an additional 160 outbound automobiles. Total vehicles entering and exiting (i.e., existing plus project-generated volumes) are described in the parking section (**Figure 6-2**).



SOURCE: Sound Transit 2019

Figure 6-2 Totem Lake/Kingsgate Station and Kingsgate Park-and-Ride garage – Project-generated volumes

6.5.3 Roadway traffic volumes and conditions

The projected traffic volumes in the study area are included in Appendix A. The anticipated traffic conditions, including delay and v/c ratio, by study intersection are shown in **Table 6-7** for 2024 and **Table 6-8** for 2042.. Traffic analysis for intersections on NE 132nd Street assume WSDOT I-405 Build conditions with new roundabouts at both intersections. Detailed traffic analysis results are included in Appendix D.

Table 6-7 Intersection level-of-service, 2024 AM/PM peak hour Build vs. No Build – Totem Lake/Kingsgate Station and Kingsgate Park-and-Ride garage

Intersection name	AM Peak						PM Peak					
	2024 No Build			2024 Build			2024 No Build			2024 Build		
	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c
NE 128th Street and 116th Avenue NE	51	D	0.73	56	E	0.79	58	E	0.76	64	E	0.79
NE 128th Street and Totem Lake Boulevard	16	B	0.52	17	B	0.52	36	D	0.74	36	D	0.75
NE 128th Street and I-405 Direct Access Ramp	44	D	0.83	46	D	0.85	50	D	0.87	51	D	0.88
NE 132nd Street and 116th Avenue NE	10	B	0.78	15	B	0.89	9	C	0.69	9	C	0.73
NE 132nd Street and Totem Lake Boulevard NE	14	B	0.94	16	B	1.00	23	C	0.95	24	C	0.97

SOURCE: Sound Transit 2019
NOTE: LOS = level-of-service; v/c = volume-to-capacity

Table 6-8 Intersection level-of-service, 2042 AM/PM peak hour Build vs. No Build – Totem Lake Station and Kingsgate Park-and-Ride garage

Intersection name	AM Peak						PM Peak					
	2042 No Build			2042 Build			2042 No Build			2042 Build		
	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c
NE 128th Street and 116th Avenue NE	58	E	0.78	64	E	0.83	63	E	0.82	69	E	0.85
NE 128th Street and Totem Lake Boulevard	18	B	0.56	18	B	0.57	39	D	0.83	39	D	0.83
NE 128th Street and I-405 Direct Access Ramp	54	D	0.88	59	E	0.87	67	E	0.99	70	E	1.00
NE 132nd Street and 116th Avenue NE	11	B	0.79	16	B	0.90	9	A	0.68	10	A	0.72
NE 132nd Street and Totem Lake Boulevard NE	13	B	0.92	16	B	0.99	24	C	0.91	26	C	0.92

SOURCE: Sound Transit 2019
NOTE: LOS = level-of-service; v/c = volume-to-capacity

Additional supporting SimTraffic analysis was performed for intersections along NE 128th Street to capture the effects of closely spaced intersections and potential spillback during periods of congestion. The results of the SimTraffic analysis indicated similar results as those generated from the Synchro analysis. A summary of the SimTraffic results is included in Appendix C.

6.5.4 Traffic safety

There are no planned changes to the roadway from the I-405 BRT Project. However, the added park-and-ride capacity is expected to generate new traffic. If the crash rate per vehicle miles traveled remains constant, there could be a slight projected increase in traffic incidents from this new traffic over existing conditions. This slight increase in traffic incidents would likely be abated by the mode shift from driving alone to transit.

6.5.5 Transit

In 2025, connection would be provided to King County Metro routes 930, 1025, 1027, 2998, and 3213 and ST 532. The project would not impact these bus routes.

6.5.6 Non-motorized facilities

Enhancements may potentially be made to the crosswalk at 116th Avenue NE and the park-and-ride exit for improved non-motorized access to the park-and-ride facility.

6.5.7 Parking

As described in Section 2.2.5, a new 570-stall park-and-ride garage is planned on part of the existing surface lot, which would result in a net gain of 400 parking spaces for a total of 902 parking spaces at this facility.

In total, the augmented facility would be expected to generate approximately 500 inbound and 110 outbound trips in the AM peak hour and 110 entering and 370 exiting vehicles in the PM peak hour. Estimates for trip generation were based on the 2019 24-hour automatic traffic recorder counts and by applying the proportion of existing vehicles entering and exiting the 502-stall parking lot to the proposed 902-stall facility. For detailed results from the data collection and proposed increased traffic, see Appendix E.

6.5.8 Site access

No change in roadway site access is planned.

6.5.9 Mitigation

There are no major delay changes (more than 15 seconds) between Build and No Build scenarios. Additionally, the project would not lower the LOS below an acceptable level in the City of Kirkland; therefore, no mitigation is required

With no adverse impacts anticipated at this location as a result of the I-405 BRT Project, no mitigation is proposed.

6.6 Brickyard Station and roadway improvements (NE 160th Street)

6.6.1 Construction traffic impacts

Construction impacts at Brickyard are being assessed under a separate WSDOT I-405 ETL Expansion environmental review. Information on the construction schedule, activities, grading quantities, haul routes, and truck volumes will be provided by WSDOT.

6.6.2 Transportation network impacts

As described in Section 2.2.6, the I-405 BRT station would be located at the existing Brickyard Park-and-Ride station. The planned I-405 station would be a center-running station in the same location and with the same configuration as the existing park-and–ride facility. No changes are planned to the physical roadway infrastructure.

Currently 12 ST buses access the facility per direction per hour. In 2024 and 2042, 12 BRT vehicles are anticipated to access the facility per direction per hour. The ST Express 535 route would be replaced by I-405 BRT. As a result of this one-for-one replacement of traffic volumes, no quantitative analysis to determine potential transportation impacts was performed for this location. No transportation network impacts are anticipated at this location as a result of the I-405 BRT Project.

6.6.3 Roadway traffic volumes and conditions

Traffic impacts at Brickyard Station are being assessed under a separate WSDOT I-405 ETL expansion environmental review. The proposed BRT stations would not impact freeway operations.

6.6.4 Traffic safety

Safety is expected to improve over existing conditions. Current ST 535 service requires buses to access stations via general-purpose ramps. BRT coaches would exit the freeway from the ETL directly to the new direct access ramp, thus avoiding weaving maneuvers in general-purpose traffic. ETL access would simplify traffic operations and reduce potential vehicle conflicts. New BRT stations would also demonstrate a significant safety benefit for transit riders when compared to existing bus stations at congested general-purpose ramp intersections, as a high number of pedestrian crashes were noted at these locations.

6.6.5 Transit

In 2025, Brickyard Station is planned to be served by King County Metro routes 3112 and 3116 and ST 532. In 2025, fewer express routes will be offered, as the I-405 BRT and Sound Transit express service will provide adequate connections, with the local service level being approximately the same. In 2040, an additional express route will be added, and one local route

will be removed from the service plan. This should provide faster and more direct service to the I-405 BRT station for riders coming from the surrounding area. The project would not impact these bus routes.

6.6.6 Non-motorized facilities

The current bus stations at Brickyard Station are along the existing freeway exits with passengers exposed to general-purpose traffic. The proposed center station accessed from the ETLs would greatly reduce the interaction between transit passengers and moving vehicles. There is a proposed pedestrian bridge across I-405 to access the in-line station, which would be a major improvement to non-motorized access and circulation.

6.6.7 Parking

No impacts to parking are anticipated at this location as a result of the I-405 BRT Project.

6.6.8 Site access

No changes to site access are expected as compared to the No Build condition.

6.6.9 Mitigation

With no adverse impacts anticipated at this location as a result of the I-405 BRT Project, no mitigation is proposed.

6.7 Lynnwood City Center bus station and roadway improvements

6.7.1 Construction traffic impacts

Truck volumes would be expected to vary over the course of construction. Based on initial clearing and grading requirements for the site, approximately 369 truckloads would be needed to complete the construction activities, which would not affect the current level-of-service on I-5, Poplar Way, or other adjacent local roads. Designated haul routes are shown in the graphics to the Construction Methods Technical Memorandum (Sound Transit 2019c). Maintenance of traffic plans would be prepared as needed for brief periods during construction.

6.7.2 Transportation network impacts

As described in Section 2.2.7, a new bus-only lane connecting southbound Poplar Way to a bus-on-shoulder ramp treatment to I-5 is planned at Lynnwood.

6.7.3 Roadway traffic volumes and conditions

The projected traffic volumes in the study area are included in Appendix A. The anticipated traffic conditions by study intersection are shown for 2024 in **Table 6-9** and for 2042 in **Table 6-10**. The 44th Avenue W and 196th Street SW intersection and 44th Avenue W and 200th Street SW intersection both show LOS E in No Build and Build conditions in 2042 due to forecasted future volume growth. Detailed traffic analysis results are included in Appendix D.

Table 6-9 Intersection level-of-service, 2024 AM/PM peak hour Build vs. No Build – Lynnwood City Center bus station and roadway improvements

Intersection name	AM Peak						PM Peak					
	2024 No Build			2024 Build			2024 No Build			2024 Build		
	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c
196th Street SW and Poplar Way	5	A	0.87	5	A	0.88	7	A	0.80	7	A	0.81
Poplar Way and Alderwood Mall Parkway	32	C	0.71	32	C	0.71	30	C	0.71	30	C	0.71
44th Avenue W and 196th Street SW	30	C	0.85	30	C	0.85	41	D	0.89	41	D	0.89
196th Street SW and 40th Avenue W	17	B	0.79	17	B	0.79	22	C	0.82	22	C	0.82
196th Street SW and 36th Avenue W	27	C	0.72	27	C	0.72	29	C	0.82	30	C	0.82
200th Street SW and 46th Avenue W	5	A	0.37	6	A	0.37	12	B	0.49	12	B	0.49
44th Avenue W and 200th Street SW	39	D	0.69	41	D	0.69	42	D	0.72	42	D	0.72

SOURCE: Sound Transit 2019
NOTE: LOS = level-of-service; v/c = volume-to-capacity

Table 6-10 Intersection level-of-service, 2042 AM/PM peak hour Build vs. No Build – Lynnwood City Center bus station and roadway improvements

Intersection name	AM Peak						PM Peak					
	2042 No Build			2042 Build			2042 No Build			2042 Build		
	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c
196th Street SW and Poplar Way	9	A	1.01	9	A	1.02	9	A	0.96	9	A	0.97
Poplar Way and Alderwood Mall Parkway	37	D	0.82	37	D	0.82	41	D	0.65	41	D	0.65
44th Avenue W and 196th Street SW	53	D	0.99	53	D	0.99	59	E	1.04	61	E	1.04
196th Street SW and 40th Avenue W	25	C	0.94	25	C	0.94	33	C	1.02	30	C	1.02
196th Street SW and 36th Avenue W	36	D	0.86	35	D	0.86	48	D	1.04	48	D	1.04
200th Street SW and 46th Avenue W	7	A	0.45	7	A	0.45	14	B	0.63	15	B	0.63
44th Avenue W and 200th Street SW	49	D	0.84	49	D	0.84	66	E	0.93	66	E	0.93

SOURCE: Sound Transit 2019
NOTE: LOS = level-of-service; v/c = volume-to-capacity

6.7.4 Traffic safety

Changes to the built environment in Lynnwood are expected to improve traffic operations in 2024. Although not part of the I-405 BRT Project, the BAT lanes on 196th Street SW between 44th Avenue W and 36th Avenue W will organize traffic by providing a buffer lane between vehicles entering/exiting business driveways and faster-moving through traffic. Additionally, these lanes would separate right-turning vehicle movements from through movements at intersections and driveways where a large number of crashes typically occur. The project's southbound bus-only lane on Poplar Way to the I-5 northbound on-ramp is expected to have a modest effect on crashes by separating bus traffic from congested general-purpose traffic in the adjacent lanes.

6.7.5 Transit

In 2025, the Lynnwood City Center Station is planned to serve Community Transit routes 107, 112, 113, 115, 116, 120, 130, 196, 201/202, and 410; new routes to Arlington and Snohomish County; and Sound Transit's Link light rail system. The peak hour in 2024 will consist of 91 inbound and 91 outbound buses per hour. The project would not impact these bus routes.

6.7.6 Non-motorized facilities

No planned changes are anticipated for non-motorized facilities in the area.

6.7.7 Parking

No changes to parking availability are expected as compared to the No Build condition.

6.7.8 Site access

No changes to site access are expected as compared to the No Build condition.

6.7.9 Mitigation

Based on the minimal changes in intersection delay and no changes in LOS between Build and No Build conditions, no mitigation measures are necessary.

No adverse impacts are anticipated at this location as a result of the I-405 BRT Project.

7 INDIRECT AND CUMULATIVE IMPACTS

The results of the transportation impact analysis indicate that no indirect or cumulative impacts associated with potential changes in transportation conditions are anticipated as a result of the I-405 BRT Project.

8 REFERENCES

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Sound Transit. 2019b. *Ridership Forecasting Assumptions and Results – Phase 1, Level 2*.

Sound Transit. 2019c. *Construction Methods Technical Memorandum*. December.

Washington State Department of Transportation (WSDOT). 2016. *Highway Runoff Manual.*

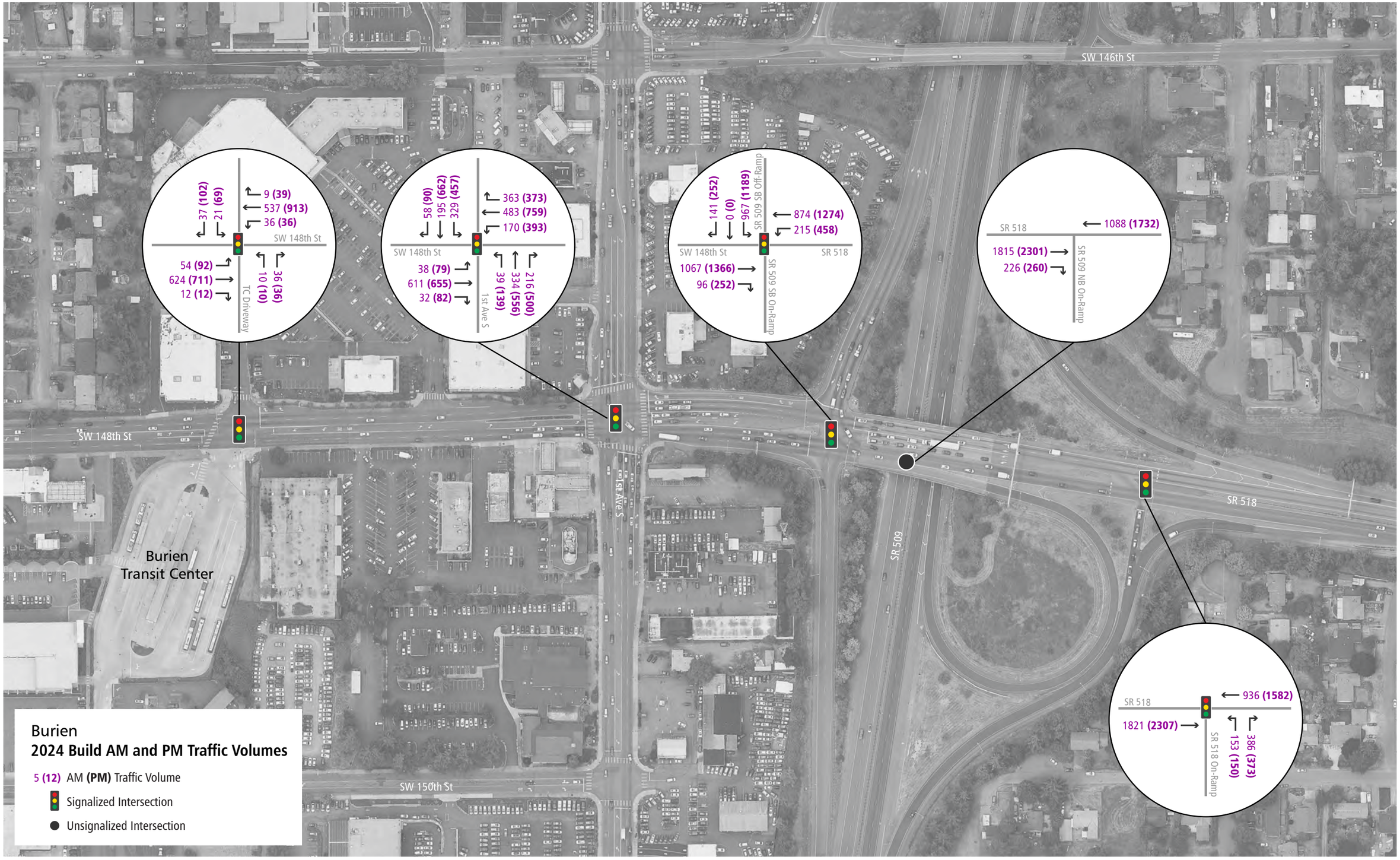
Washington State Department of Transportation (WSDOT). 2017. *Northwest Traffic Volume – Ramp and Roadway Report (King and Snohomish Counties, 2017).*

APPENDIX A

Existing and Future Traffic Volumes


SW 146th St
SW 148th St
SW 148th St
SW 150th St
Burien
Transit Center
1st Ave S
SR 509
SR 518
37 (98)
20 (69)
9 (38)
515 (835)
13 (16)
54 (88)
549 (632)
5 (10)
9 (4)
13 (13)
TC Driveway
48 (74)
184 (547)
283 (402)
348 (324)
450 (708)
160 (340)
29 (60)
528 (588)
25 (66)
40 (107)
331 (384)
191 (366)
93 (207)
1 (0)
1044 (1043)
SR 509 SB Off-Ramp
866 (1165)
212 (404)
892 (1150)
109 (206)
SR 509 SB On-Ramp
1077 (1569)
1734 (1994)
202 (199)
SR 509 NB On-Ramp
937 (1449)
1734 (1994)
140 (120)
324 (290)
SR 518 On-Ramp
Burien
Existing AM and PM Traffic Volumes
5 (12) AM (PM) Traffic Volume
Signalized Intersection
Unsignalized Intersection


SW 146th St
SW 148th St
SW 148th St
SW 150th St
37 (102)
21 (69)
9 (39)
537 (913)
30 (30)
54 (92)
624 (711)
12 (12)
10 (10)
30 (30)
TC Driveway
58 (90)
195 (662)
329 (457)
363 (373)
477 (753)
170 (393)
38 (79)
611 (655)
26 (76)
39 (139)
334 (556)
216 (500)
1st Ave S
141 (252)
0 (0)
967 (1189)
SR 509 SB Off-Ramp
868 (1268)
215 (458)
1067 (1366)
90 (246)
SR 509 SB On-Ramp
SR 518
1082 (1726)
1815 (2301)
220 (254)
SR 509 NB On-Ramp
SR 509
SR 518
SR 518
930 (1576)
1815 (2301)
153 (150)
386 (373)
SR 518 On-Ramp
Burien
Transit Center
Burien
2024 No Build AM and PM Traffic Volumes
5 (12) AM (PM) Traffic Volume
Signalized Intersection
Unsignalized Intersection

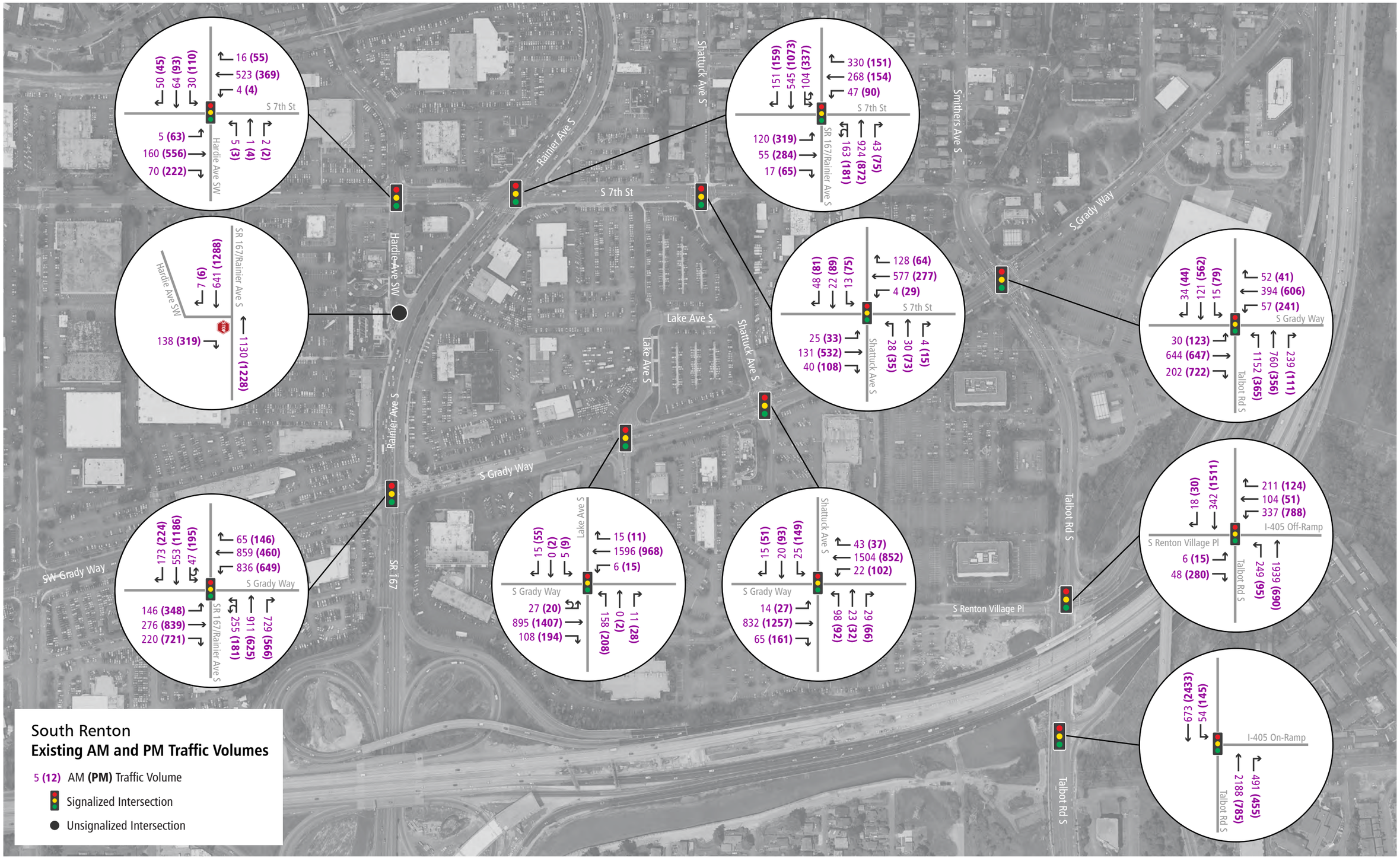

SW 146th St
SW 148th St
SW 148th St
SW 150th St
1st Ave S
SR 509
SR 518
Burien
Transit Center
37 (102)
21 (69)
9 (39)
537 (913)
36 (36)
SW 148th St
54 (92)
624 (711)
12 (12)
10 (10)
36 (36)
TC Driveway
58 (90)
195 (662)
329 (457)
363 (373)
483 (759)
170 (393)
SW 148th St
38 (79)
611 (655)
32 (82)
39 (139)
334 (556)
216 (500)
1st Ave S
141 (252)
0 (0)
967 (1189)
SR 509 SB Off-Ramp
874 (1274)
215 (458)
SW 148th St
SR 518
1067 (1366)
96 (252)
SR 509 SB On-Ramp
SR 518
1088 (1732)
1815 (2301)
226 (260)
SR 509 NB On-Ramp
SR 518
936 (1582)
1821 (2307)
153 (150)
386 (373)
SR 518 On-Ramp
Burien
2024 Build AM and PM Traffic Volumes
5 (12) AM (PM) Traffic Volume
Signalized Intersection
Unsignalized Intersection


SW 146th St
SW 148th St
SW 148th St
SW 150th St
1st Ave S
SR 509
SR 518
Burien
Transit Center
52 (141)
29 (96)
13 (55)
693 (1238)
41 (41)
SW 148th St
77 (126)
804 (968)
16 (16)
14 (14)
42 (41)
TC Driveway
86 (119)
290 (850)
372 (627)
356 (506)
590 (1054)
206 (534)
SW 148th St
52 (102)
780 (906)
43 (98)
71 (160)
487 (620)
293 (596)
1st Ave S
168 (344)
0 (0)
1163 (1610)
SR 509 SB Off-Ramp
984 (1750)
207 (621)
SW 148th St
SR 518
1270 (1806)
175 (322)
SR 509 SB On-Ramp
SR 518
1191 (2371)
2084 (3064)
349 (352)
SR 509 NB On-Ramp
SR 518
997 (2182)
SR 518
2084 (3064)
194 (190)
473 (462)
SR 518 On-Ramp
Burien
2042 No Build AM and PM Traffic Volumes
5 (12) AM (PM) Traffic Volume
Signalized Intersection
Unsignalized Intersection


SW 146th St
SW 148th St
SW 148th St
SW 150th St
Burien
Transit Center
1st Ave S
SR 509
SR 518
52 (141)
29 (96)
13 (55)
693 (1238)
47 (47)
77 (126)
804 (968)
16 (16)
14 (14)
48 (47)
TC Driveway
86 (119)
290 (850)
372 (627)
356 (506)
596 (1060)
206 (534)
52 (102)
780 (906)
49 (104)
71 (160)
487 (620)
293 (596)
168 (344)
0 (0)
1163 (1610)
SR 509 SB Off-Ramp
990 (1756)
207 (621)
1270 (1806)
181 (328)
SR 509 SB On-Ramp
1197 (2377)
2084 (3064)
355 (358)
SR 509 NB On-Ramp
1003 (2188)
2090 (3070)
194 (190)
473 (462)
SR 518 On-Ramp
Burien
2042 Build AM and PM Traffic Volumes
5 (12) AM (PM) Traffic Volume
Signalized Intersection
Unsignalized Intersection


S 150th St
S 152nd St
S 154th St
SR 518
24th Ave S
Tukwila International Blvd
Southcenter Blvd
TIBS
SR 99
Airport Expressway
260 (314)
On-Ramp from S 154th St
2001 (2923)
334 (480)
On-Ramp from Airport Expressway
1667 (2443)
Off-Ramp to SR 99 & Airport Expressway
2256 (1983)
1667 (2443)
2112 (2118)
212 (348)
Off-Ramp to S 154th St
1736 (1399)
376 (719)
Off-Ramp to Airport Expressway
1736 (1399)
On-Ramp from Airport Expressway
1110 (1281)
2846 (2680)
On-Ramp from SR 99
820 (582)
TIBS
Existing AM and PM Traffic Volumes
5 (12) AM (PM) Traffic Volume
Signalized Intersection
Unsignalized Intersection


S 150th St
S 152nd St
S 154th St
SR 518
24th Ave S
Tukwila International Blvd
Southcenter Blvd
TIBS
SR 99
Airport Expressway
Airport Expressway
274 (443)
On-Ramp from S 154th St
1948 (2940)
317 (821)
On-Ramp from Airport Expressway
1631 (2119)
Off-Ramp to SR 99 & Airport Expressway
2521 (2321)
1631 (2119)
2453 (2494)
213 (347)
Off-Ramp to S 154th St
1734 (1173)
719 (1321)
Off-Ramp to Airport Expressway
1734 (1173)
On-Ramp from Airport Expressway
1305 (1583)
3037 (2756)
On-Ramp from SR 99
806 (654)
TIBS
2045 AM and PM Traffic Volumes
5 (12) AM (PM) Traffic Volume
Signalized Intersection
Unsignalized Intersection

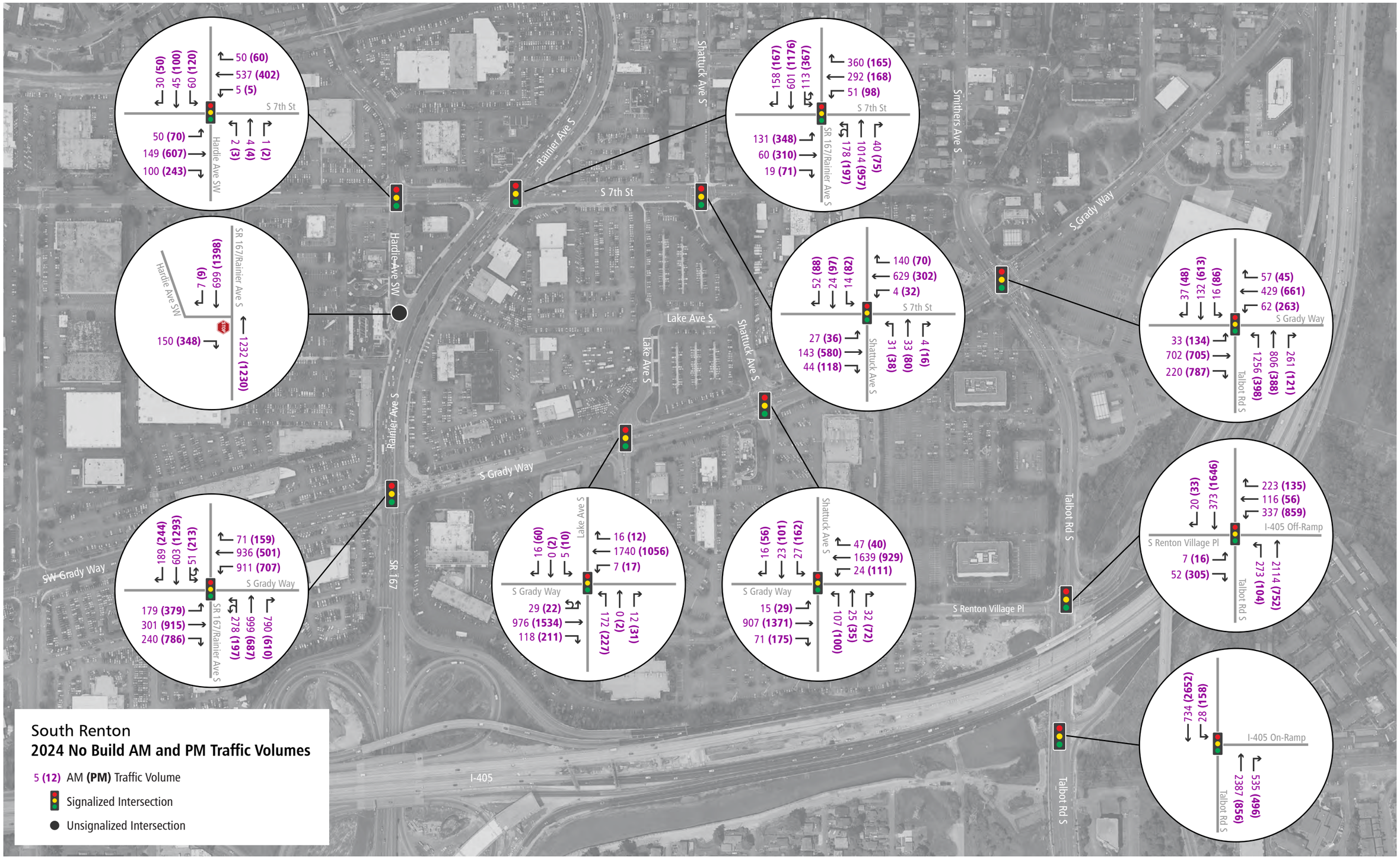


South Renton
Existing AM and PM Traffic Volumes

5 (12) AM **(PM)** Traffic Volume

Signalized Intersection

Unsignalized Intersection

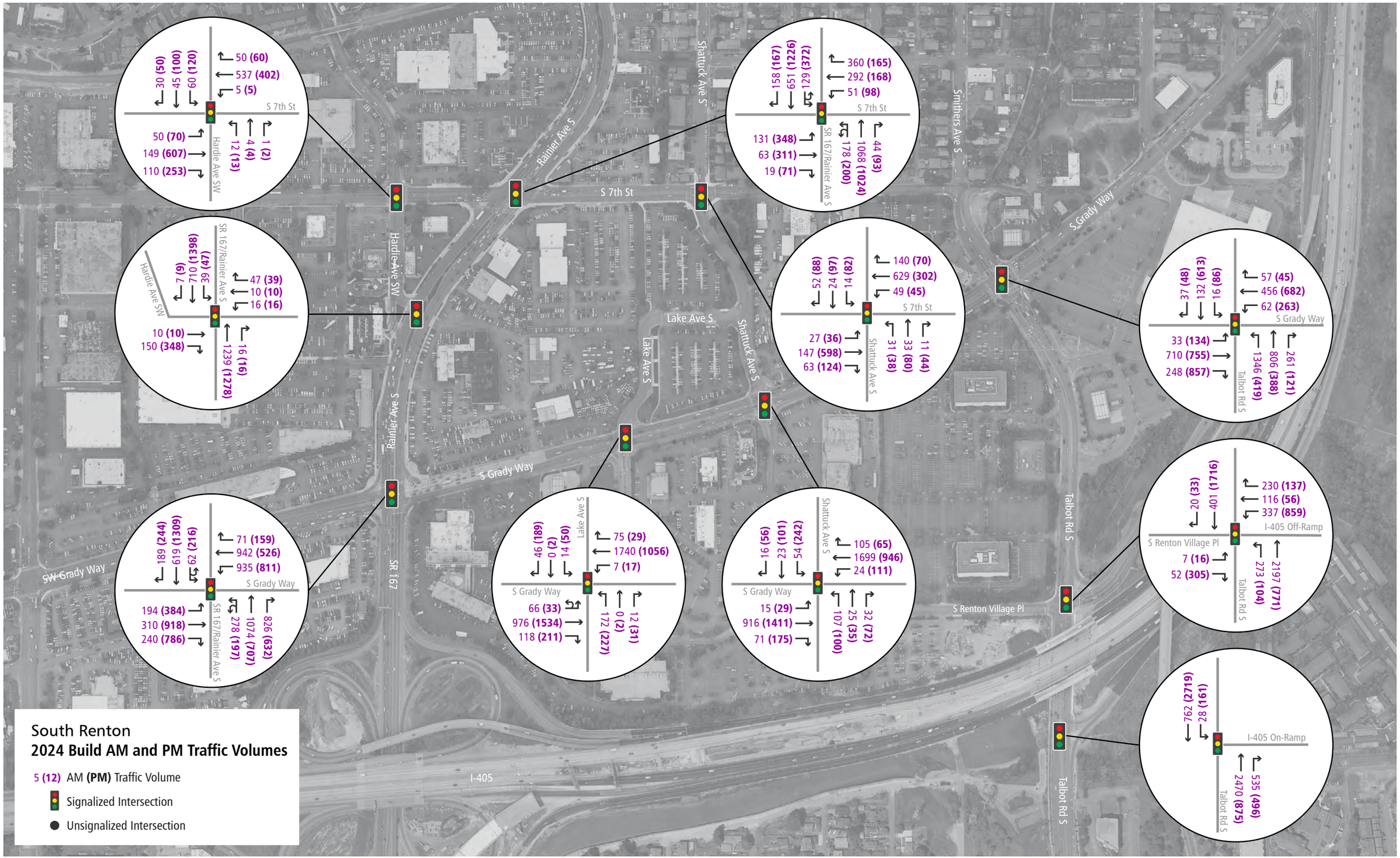


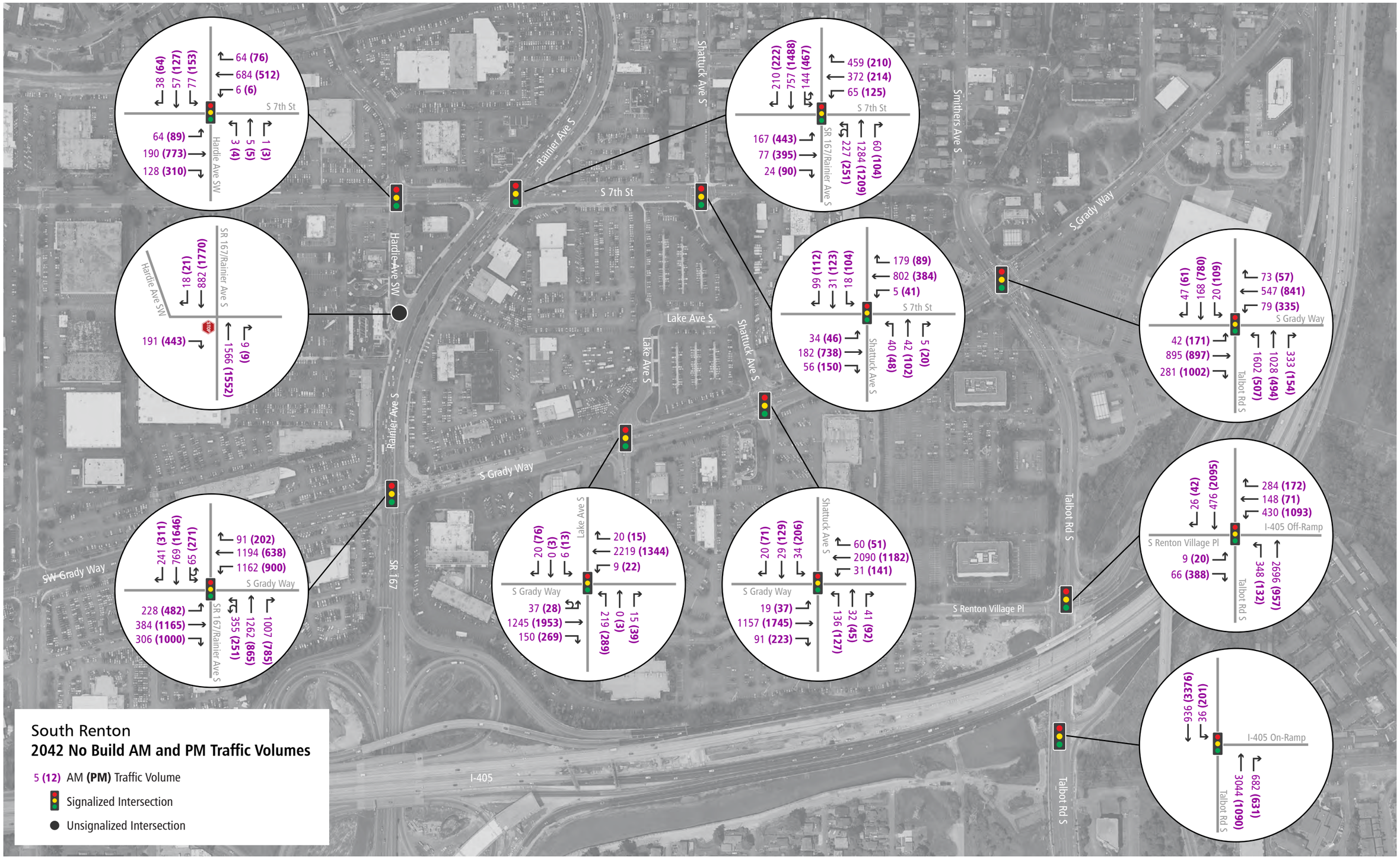
South Renton
2024 No Build AM and PM Traffic Volumes

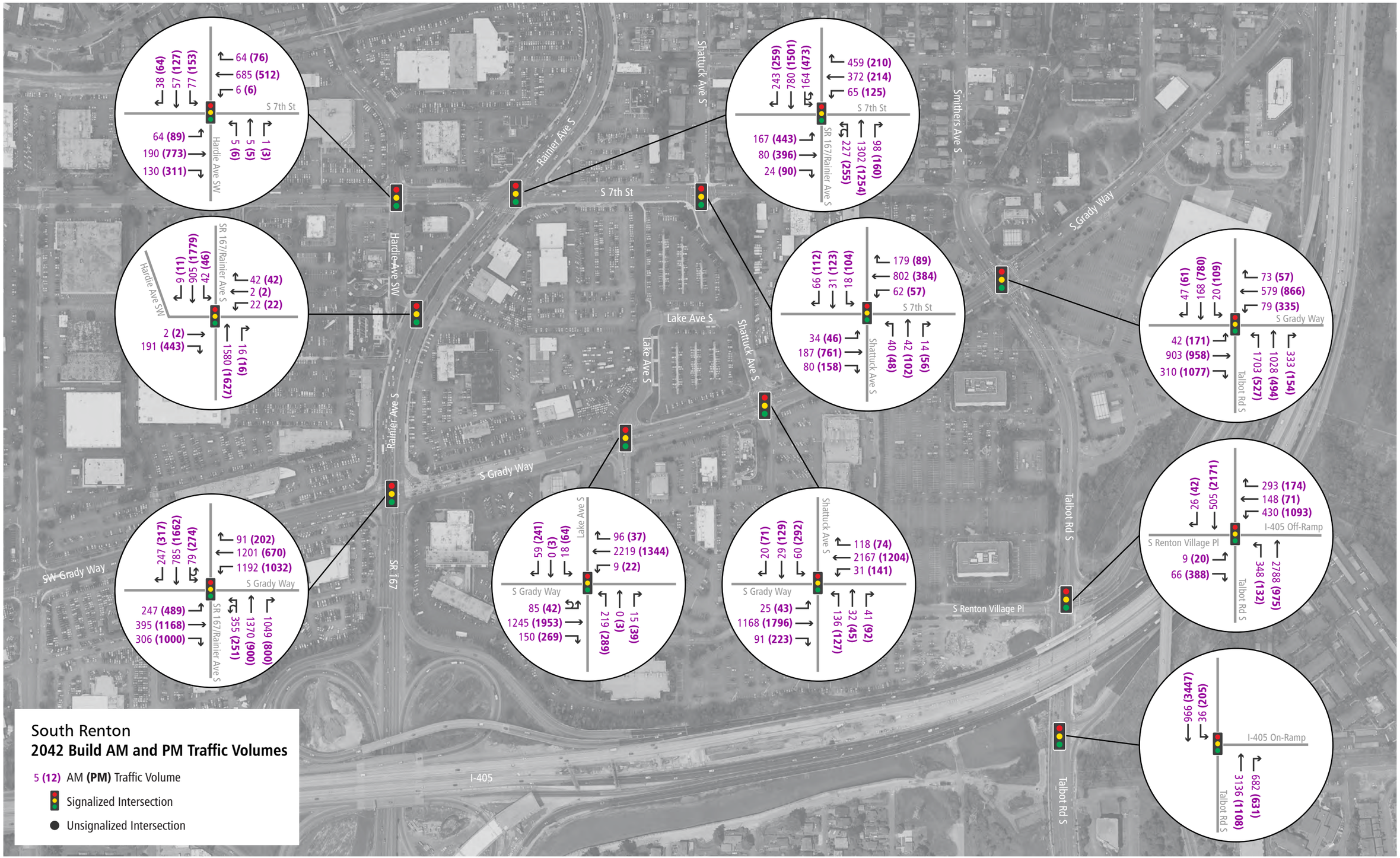
5 (12) AM **(PM)** Traffic Volume

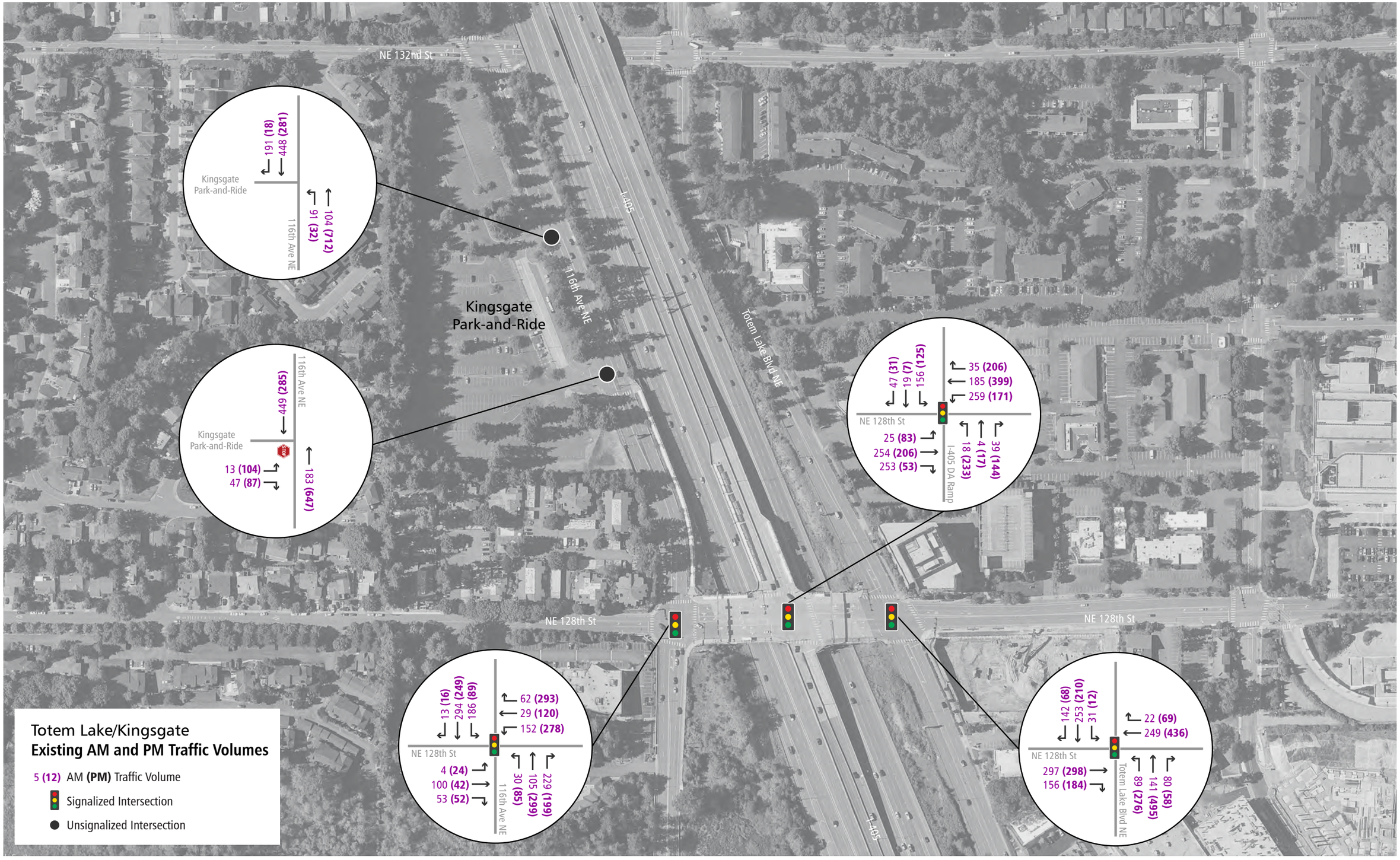
Signalized Intersection

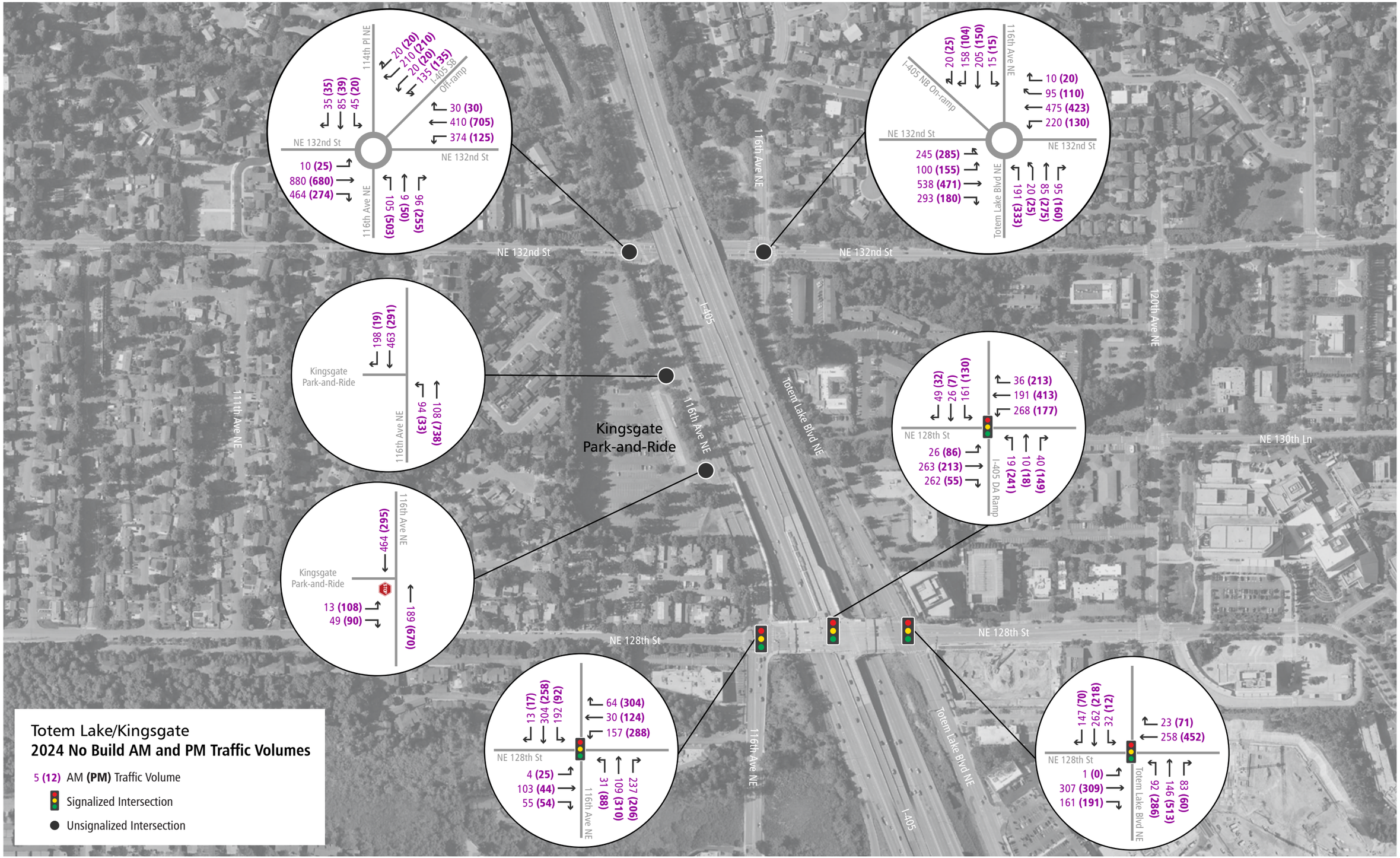
Unsignalized Intersection


S 7th St
Rainier Ave S
Shattuck Ave S
Smithers Ave S
S Grady Way
Lake Ave S
Hardie Ave SW
SR 167
Talbot Rd S
S Renton Village Pl
SW Grady Way
I-405
50 (60)
537 (402)
5 (5)
30 (50)
45 (100)
60 (120)
50 (70)
149 (607)
110 (253)
1 (2)
4 (4)
12 (13)
158 (167)
651 (1226)
129 (372)
360 (165)
292 (168)
51 (98)
131 (348)
63 (311)
19 (71)
44 (93)
1068 (1024)
178 (200)
SR 167/Rainier Ave S
Hardie Ave SW
7 (9)
710 (1398)
39 (47)
47 (39)
10 (10)
16 (16)
10 (10)
150 (348)
16 (16)
1239 (1278)
52 (88)
24 (97)
14 (82)
140 (70)
629 (302)
49 (45)
27 (36)
147 (598)
63 (124)
11 (44)
33 (80)
31 (38)
37 (48)
132 (613)
16 (86)
57 (45)
456 (682)
62 (263)
33 (134)
710 (755)
248 (857)
261 (121)
806 (388)
1346 (419)
189 (244)
619 (1309)
62 (216)
71 (159)
942 (526)
935 (811)
194 (384)
310 (918)
240 (786)
278 (197)
1074 (707)
826 (632)
46 (189)
0 (2)
14 (50)
75 (29)
1740 (1056)
7 (17)
66 (33)
976 (1534)
118 (211)
12 (31)
0 (2)
172 (227)
16 (56)
23 (101)
54 (242)
105 (65)
1699 (946)
24 (111)
15 (29)
916 (1411)
71 (175)
32 (72)
25 (35)
107 (100)
20 (33)
401 (1716)
230 (137)
116 (56)
337 (859)
7 (16)
52 (305)
273 (104)
2197 (771)
762 (2719)
28 (161)
535 (496)
2470 (875)
South Renton
2024 Build AM and PM Traffic Volumes
5 (12) AM (PM) Traffic Volume
Signalized Intersection
Unsignalized Intersection


S 7th St
Hardie Ave SW
Rainier Ave S
Shattuck Ave S
Smithers Ave S
S Grady Way
Lake Ave S
SR 167
Talbot Rd S
S Renton Village Pl
SW Grady Way
I-405
64 (76)
684 (512)
6 (6)
38 (64)
57 (127)
77 (153)
64 (89)
190 (773)
128 (310)
1 (3)
5 (5)
3 (4)
459 (210)
372 (214)
65 (125)
210 (222)
757 (1488)
144 (467)
167 (443)
77 (395)
24 (90)
60 (104)
1284 (1209)
227 (251)
179 (89)
802 (384)
5 (41)
99 (112)
31 (123)
18 (104)
34 (46)
182 (738)
56 (150)
5 (20)
40 (48)
42 (102)
73 (57)
547 (841)
79 (335)
47 (61)
168 (780)
20 (109)
42 (171)
895 (897)
281 (1002)
333 (154)
1028 (494)
1602 (507)
18 (21)
882 (1770)
191 (443)
9 (6)
1566 (1552)
91 (202)
1194 (638)
1162 (900)
241 (311)
769 (1646)
65 (271)
228 (482)
384 (1165)
306 (1000)
355 (251)
1262 (865)
1007 (785)
20 (76)
0 (3)
6 (13)
37 (28)
1245 (1953)
150 (269)
20 (15)
2219 (1344)
9 (22)
219 (289)
0 (3)
15 (39)
20 (71)
29 (129)
34 (206)
19 (37)
1157 (1745)
91 (223)
60 (51)
2090 (1182)
31 (141)
136 (1127)
32 (45)
41 (92)
26 (42)
476 (2095)
9 (20)
66 (388)
284 (172)
148 (71)
430 (1093)
348 (132)
2696 (957)
936 (3376)
36 (201)
682 (631)
3044 (1090)
South Renton
2042 No Build AM and PM Traffic Volumes
5 (12) AM (PM) Traffic Volume
Signalized Intersection
Unsignalized Intersection


S 7th St
Hardie Ave SW
38 (64)
57 (127)
77 (153)
64 (76)
685 (512)
6 (6)
64 (89)
190 (773)
130 (311)
5 (6)
5 (5)
1 (3)
Rainier Ave S
Shattuck Ave S
243 (259)
780 (1501)
164 (473)
459 (210)
372 (214)
65 (125)
SR 167/Rainier Ave S
167 (443)
80 (396)
24 (90)
227 (255)
1302 (1254)
98 (100)
Smithers Ave S
S Grady Way
Lake Ave S
Hardie Ave SW
9 (11)
905 (1779)
42 (46)
42 (42)
2 (2)
22 (22)
2 (2)
191 (443)
1580 (1627)
16 (16)
Rainier Ave S
66 (112)
31 (123)
18 (104)
179 (89)
802 (384)
62 (57)
34 (46)
187 (761)
80 (158)
40 (48)
42 (102)
14 (56)
47 (61)
168 (780)
20 (109)
73 (57)
579 (866)
79 (335)
42 (171)
903 (958)
310 (1077)
1703 (527)
1028 (494)
333 (154)
Talbot Rd S
SW Grady Way
247 (317)
785 (1662)
79 (274)
91 (202)
1201 (670)
1192 (1032)
247 (489)
395 (1168)
306 (1000)
355 (251)
1370 (900)
1049 (800)
SR 167
59 (241)
0 (3)
18 (64)
96 (37)
2219 (1344)
9 (22)
85 (42)
1245 (1953)
150 (269)
15 (39)
0 (3)
219 (289)
20 (71)
29 (129)
60 (292)
118 (74)
2167 (1204)
31 (141)
25 (43)
1168 (1796)
91 (223)
41 (92)
32 (45)
136 (127)
S Renton Village Pl
26 (42)
505 (2171)
293 (174)
148 (71)
430 (1093)
I-405 Off-Ramp
9 (20)
66 (388)
348 (132)
2788 (975)
966 (3447)
36 (205)
I-405 On-Ramp
682 (631)
3136 (1108)
I-405
South Renton
2042 Build AM and PM Traffic Volumes
5 (12) AM (PM) Traffic Volume
Signalized Intersection
Unsignalized Intersection


NE 132nd St
Kingsgate Park-and-Ride
116th Ave NE
I-405
Totem Lake Blvd NE
NE 128th St
I-405 DA Ramp
Totem Lake Blvd NE
191 (18)
448 (281)
104 (71)
91 (32)
449 (285)
13 (104)
47 (87)
183 (647)
47 (31)
19 (7)
156 (125)
35 (206)
185 (399)
259 (171)
25 (83)
254 (206)
253 (53)
18 (233)
4 (17)
39 (144)
13 (16)
294 (249)
186 (89)
62 (293)
29 (120)
152 (278)
4 (24)
100 (42)
53 (52)
30 (85)
105 (299)
229 (199)
142 (68)
253 (210)
31 (12)
22 (69)
249 (436)
297 (298)
156 (184)
89 (276)
141 (495)
80 (58)
Totem Lake/Kingsgate
Existing AM and PM Traffic Volumes
5 (12) AM (PM) Traffic Volume
Signalized Intersection
Unsignalized Intersection

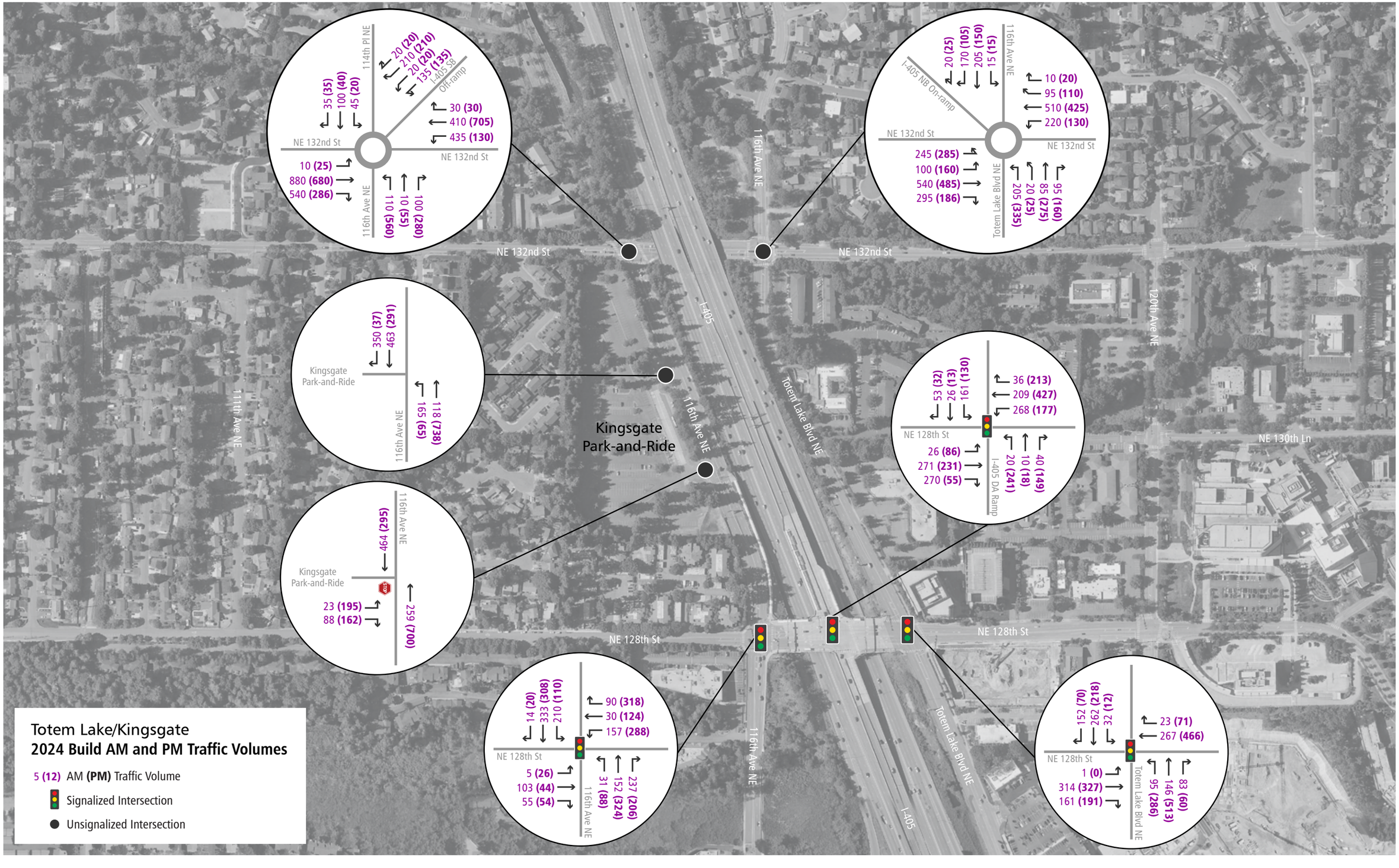


Totem Lake/Kingsgate
2024 No Build AM and PM Traffic Volumes

5 (12) AM **(PM)** Traffic Volume

Signalized Intersection

Unsignalized Intersection


NE 132nd St
116th Ave NE
I-405
Totem Lake Blvd NE
120th Ave NE
111th Ave NE
NE 130th Ln
NE 128th St
Kingsgate
Park-and-Ride
114th Pl NE
I-405 SB Off-ramp
I-405 NB On-ramp
I-405 DA Ramp
20 (20)
210 (210)
20 (20)
135 (135)
35 (35)
100 (40)
45 (20)
30 (30)
410 (705)
435 (130)
10 (25)
880 (680)
540 (286)
110 (60)
10 (55)
100 (280)
20 (25)
170 (105)
205 (150)
15 (15)
10 (20)
95 (110)
510 (425)
220 (130)
245 (285)
100 (160)
540 (485)
295 (186)
205 (335)
20 (25)
85 (275)
95 (160)
350 (37)
463 (291)
118 (738)
165 (55)
464 (295)
259 (700)
23 (195)
88 (162)
53 (32)
26 (13)
161 (130)
36 (213)
209 (427)
268 (177)
26 (86)
271 (231)
270 (55)
20 (241)
10 (18)
40 (149)
14 (20)
333 (308)
210 (110)
90 (318)
30 (124)
157 (288)
5 (26)
103 (44)
55 (54)
31 (88)
152 (324)
237 (206)
152 (70)
262 (218)
32 (12)
23 (71)
267 (466)
1 (0)
314 (327)
161 (191)
95 (286)
146 (513)
83 (60)
Totem Lake/Kingsgate
2024 Build AM and PM Traffic Volumes
5 (12) AM (PM) Traffic Volume
Signalized Intersection
Unsignalized Intersection

Totem Lake/Kingsgate
2042 No Build AM and PM Traffic Volumes

5 (12) AM **(PM)** Traffic Volume

Signalized Intersection

Unsignalized Intersection


NE 132nd St
116th Ave NE
I-405
Totem Lake Blvd NE
120th Ave NE
NE 130th Ln
111th Ave NE
Kingsgate Park-and-Ride
NE 128th St
114th Pl NE
I-405 SB Off-ramp
40 (40)
110 (40)
55 (20)
20 (20)
230 (230)
25 (25)
145 (150)
35 (30)
460 (765)
465 (140)
15 (25)
960 (725)
575 (310)
125 (680)
20 (70)
110 (300)
I-405 NB On-ramp
25 (25)
185 (115)
215 (164)
15 (15)
10 (20)
105 (115)
545 (465)
230 (145)
265 (295)
90 (155)
495 (445)
310 (180)
225 (370)
25 (25)
55 (290)
100 (175)
350 (40)
345 (334)
118 (935)
165 (70)
464 (339)
259 (800)
23 (211)
88 (175)
53 (37)
20 (14)
161 (149)
36 (245)
209 (488)
268 (203)
26 (99)
271 (260)
270 (63)
20 (277)
10 (21)
40 (171)
14 (25)
333 (340)
210 (124)
90 (363)
30 (142)
157 (331)
5 (30)
103 (51)
55 (62)
31 (101)
152 (370)
237 (237)
152 (80)
262 (250)
32 (14)
23 (82)
267 (533)
1 (0)
314 (365)
161 (225)
95 (328)
146 (589)
83 (69)
Totem Lake/Kingsgate
2042 Build AM and PM Traffic Volumes
5 (12) AM (PM) Traffic Volume
Signalized Intersection
Unsignalized Intersection

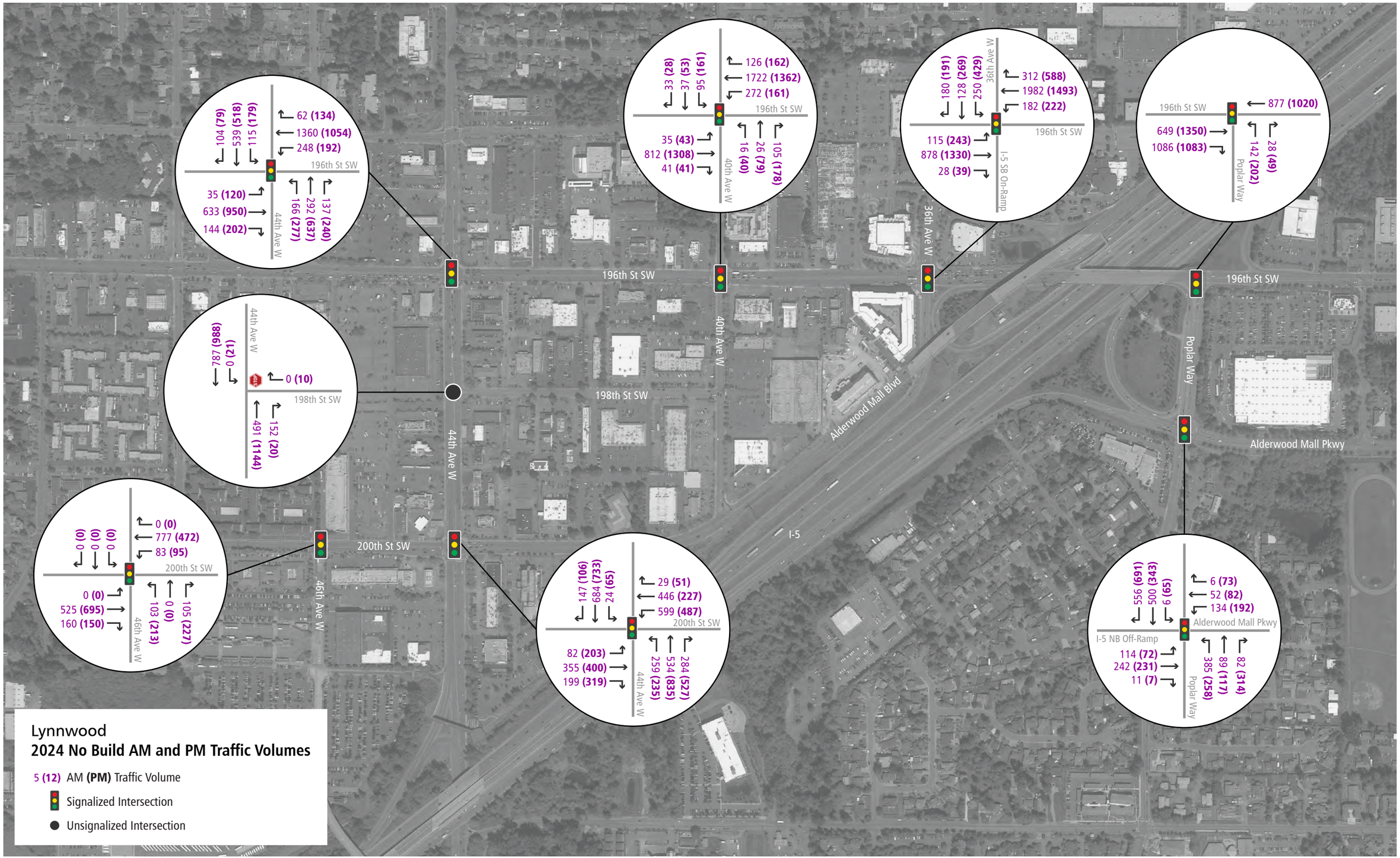
Lynnwood

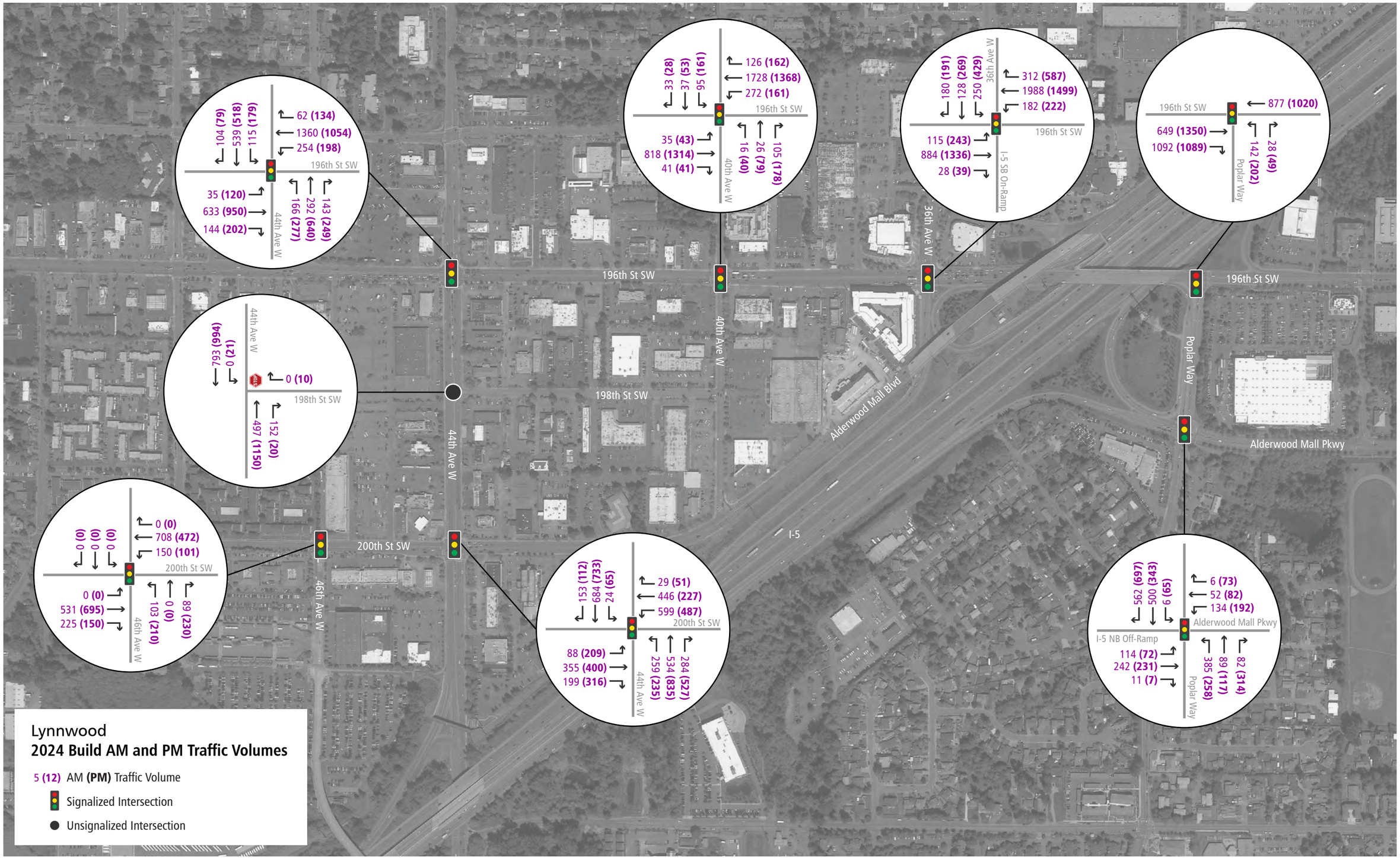
Existing AM and PM Traffic Volumes

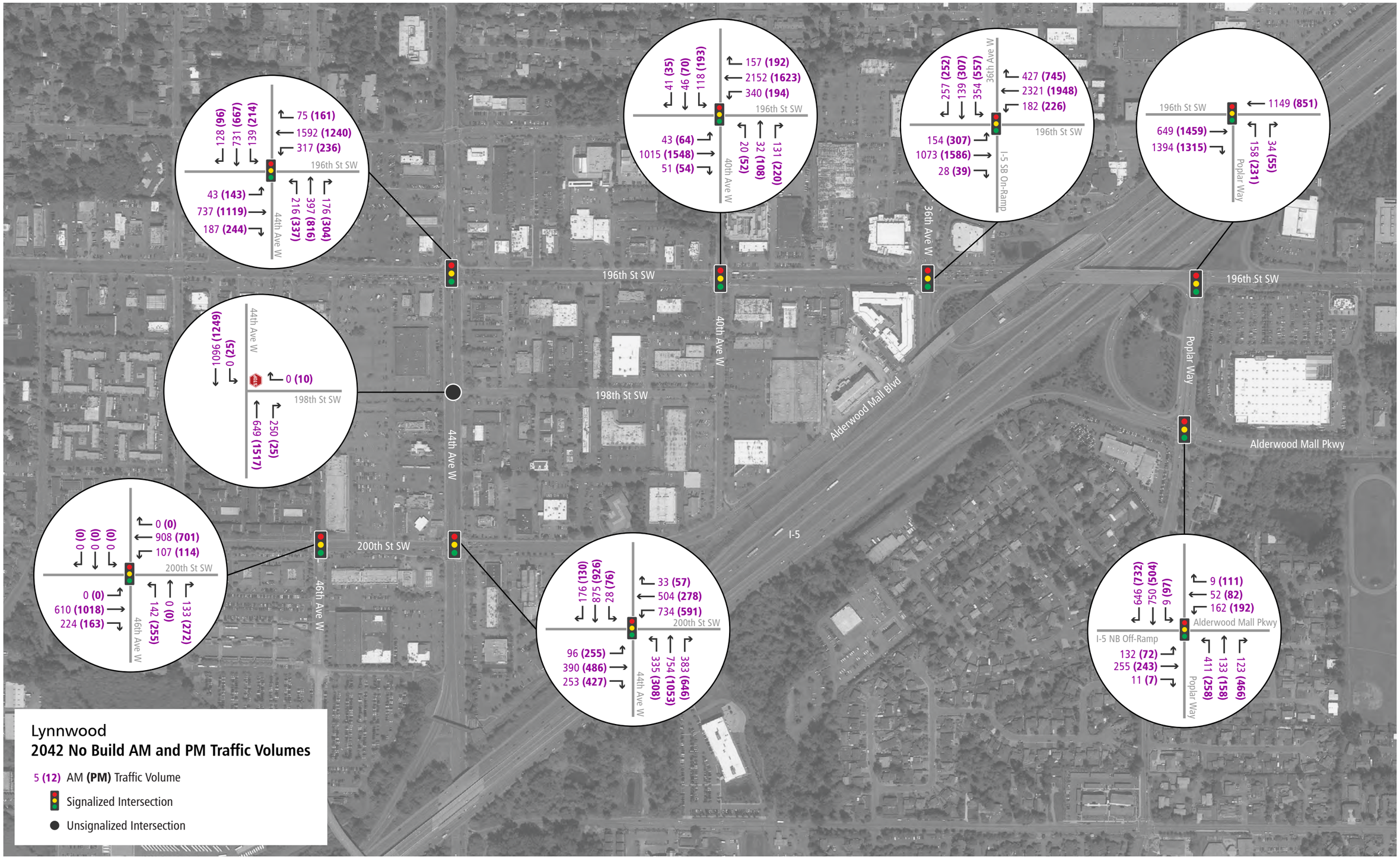
5 (12) AM **(PM)** Traffic Volume

Signalized Intersection

Unsignalized Intersection


196th St SW
198th St SW
200th St SW
44th Ave W
40th Ave W
36th Ave W
46th Ave W
Alderwood Mall Blvd
Poplar Way
Alderwood Mall Pkwy
I-5
I-5 SB On-Ramp
I-5 NB Off-Ramp
104 (79)
539 (518)
115 (179)
62 (134)
1360 (1054)
248 (192)
35 (120)
633 (950)
144 (202)
166 (277)
292 (637)
137 (240)
33 (28)
37 (53)
95 (161)
126 (162)
1722 (1362)
272 (161)
35 (43)
812 (1308)
41 (41)
16 (40)
26 (79)
105 (178)
180 (191)
128 (269)
250 (429)
312 (588)
1982 (1493)
182 (222)
115 (243)
878 (1330)
28 (39)
649 (1350)
1086 (1083)
877 (1020)
142 (202)
28 (49)
787 (988)
0 (21)
0 (10)
491 (1144)
152 (20)
0 (0)
777 (472)
83 (95)
525 (695)
160 (150)
103 (213)
0 (0)
105 (227)
147 (106)
684 (733)
24 (65)
29 (51)
446 (227)
599 (487)
82 (203)
355 (400)
199 (319)
259 (235)
534 (835)
284 (527)
556 (691)
500 (343)
6 (65)
6 (73)
52 (82)
134 (192)
114 (72)
242 (231)
11 (7)
385 (258)
89 (117)
82 (314)
Lynnwood
2024 No Build AM and PM Traffic Volumes
5 (12) AM (PM) Traffic Volume
Signalized Intersection
Unsignalized Intersection


104 (79)
539 (518)
115 (179)
62 (134)
1360 (1054)
254 (198)
196th St SW
35 (120)
633 (950)
144 (202)
166 (277)
292 (640)
143 (249)
44th Ave W
33 (28)
37 (53)
95 (161)
126 (162)
1728 (1368)
272 (161)
196th St SW
35 (43)
818 (1314)
41 (41)
16 (40)
26 (79)
105 (178)
40th Ave W
180 (191)
128 (269)
250 (429)
36th Ave W
312 (587)
1988 (1499)
182 (222)
196th St SW
115 (243)
884 (1336)
28 (39)
I-5 SB On-Ramp
196th St SW
649 (1350)
1092 (1089)
877 (1020)
142 (202)
28 (49)
Poplar Way
793 (994)
0 (21)
44th Ave W
0 (10)
198th St SW
497 (1150)
152 (20)
0 (0)
708 (472)
150 (101)
200th St SW
0 (0)
531 (695)
225 (150)
103 (210)
0 (0)
88 (230)
46th Ave W
153 (112)
684 (733)
24 (65)
29 (51)
446 (227)
599 (487)
200th St SW
88 (209)
355 (400)
199 (316)
259 (235)
534 (835)
284 (527)
44th Ave W
562 (697)
500 (343)
6 (65)
6 (73)
52 (82)
134 (192)
Alderwood Mall Pkwy
I-5 NB Off-Ramp
114 (72)
242 (231)
11 (7)
385 (258)
89 (117)
82 (314)
Poplar Way
196th St SW
198th St SW
200th St SW
Alderwood Mall Blvd
Alderwood Mall Pkwy
Poplar Way
I-5
36th Ave W
40th Ave W
44th Ave W
46th Ave W
Lynnwood
2024 Build AM and PM Traffic Volumes
5 (12) AM (PM) Traffic Volume
Signalized Intersection
Unsignalized Intersection



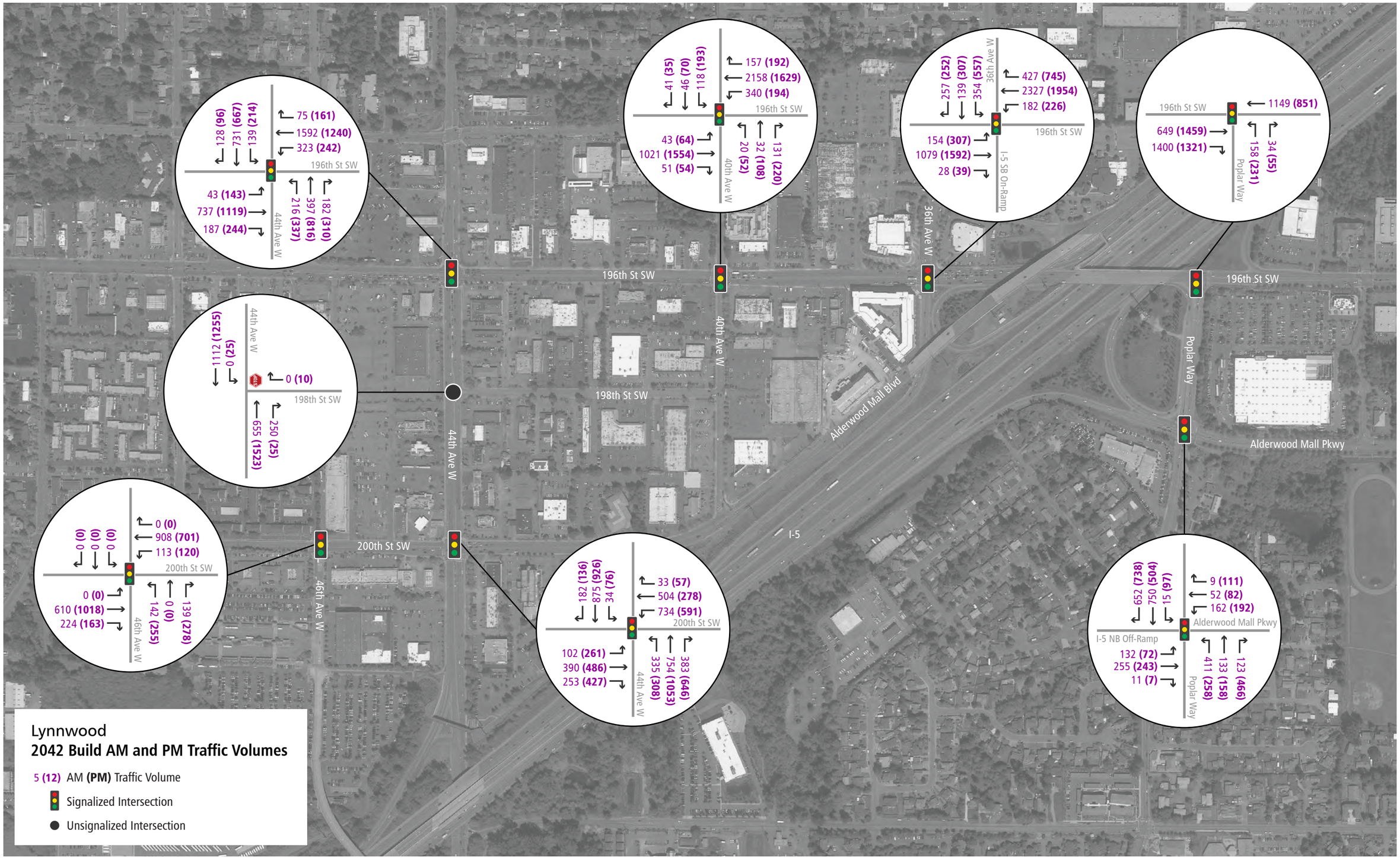
Lynnwood

2042 No Build AM and PM Traffic Volumes

5 (12) AM **(PM)** Traffic Volume

Signalized Intersection

Unsignalized Intersection


196th St SW
198th St SW
200th St SW
40th Ave W
44th Ave W
46th Ave W
36th Ave W
Poplar Way
Alderwood Mall Blvd
Alderwood Mall Pkwy
I-5
I-5 SB On-Ramp
I-5 NB Off-Ramp
128 (96)
731 (667)
139 (214)
75 (161)
1592 (1240)
323 (242)
43 (143)
737 (1119)
187 (244)
216 (337)
397 (816)
182 (310)
41 (35)
46 (70)
118 (193)
157 (192)
2158 (1629)
340 (194)
43 (64)
1021 (1554)
51 (54)
20 (52)
32 (108)
131 (220)
257 (252)
139 (307)
354 (557)
427 (745)
2327 (1954)
182 (226)
154 (307)
1079 (1592)
28 (39)
649 (1459)
1400 (1321)
1149 (851)
158 (231)
34 (55)
1112 (1255)
0 (25)
0 (10)
655 (1523)
250 (25)
0 (0)
0 (0)
0 (0)
908 (701)
113 (120)
0 (0)
610 (1018)
224 (163)
142 (255)
0 (0)
139 (278)
182 (136)
875 (926)
34 (76)
33 (57)
504 (278)
734 (591)
102 (261)
390 (486)
253 (427)
335 (308)
754 (1053)
383 (646)
652 (738)
750 (504)
15 (97)
9 (111)
52 (82)
162 (192)
132 (72)
255 (243)
11 (7)
411 (258)
133 (158)
123 (466)
Lynnwood
2042 Build AM and PM Traffic Volumes
5 (12) AM (PM) Traffic Volume
Signalized Intersection
Unsignalized Intersection

APPENDIX B

Crash Analysis

Burien Transit Center

Table B-1 Burien crashes – All roads

Year	Serious injury	Fatality	Fixed object	Rear end	Sideswipe	Angle	Opposite	Overturn	Other	Pedestrian/ bike
2014	0	0	5	20	6	11	4	0	3	0
2015	0	1	1	27	10	15	2	1	1	1
2016	1	0	1	21	8	13	3	0	4	2
2017	0	0	2	23	7	13	3	0	2	0
2018	0	0	1	16	11	9	2	0	4	2
Total	1	1	10	107	42	61	14	1	14	5

Table B-2 SR 518, 1st Avenue to SR 509 northbound ramps

Year	Serious injury	Fatality	Fixed object	Rear end	Sideswipe	Angle	Opposite	Overturn	Other	Pedestrian/ bike
2014	0	0	5	20	6	9	2	0	2	0
2015	0	1	1	22	8	13	1	1	1	1
2016	0	0	1	18	7	10	2	0	3	0
2017	0	0	1	20	7	8	3	0	2	0
2018	0	0	1	10	8	5	1	0	2	0
Total	0	1	9	90	36	45	9	1	10	1

Table B-3 SW 148th Street, Burien Transit Center to 1st Avenue

Year	Serious injury	Fatality	Fixed object	Rear end	Sideswipe	Angle	Opposite	Overturn	Other	Pedestrian/ bike
2014	0	0	0	0	0	2	2	0	1	0
2015	0	0	0	5	2	2	1	0	0	0
2016	1	0	0	3	1	3	1	0	1	2
2017	0	0	1	3	0	5	0	0	0	0
2018	0	0	0	6	3	4	1	0	2	2
Total	1	0	1	17	6	16	5	0	4	4

Tukwila International Boulevard Station

Table B-4 SR 518 crashes within a half mile of the proposed Tukwila International Boulevard BRT Station

Year	Serious injury	Fatality	Fixed object	Rear end	Sideswipe	Angle	Opposite	Overturn	Other	Pedestrian/ bike
2014	0	0	6	12	8	0	0	0	1	0
2015	0	0	4	15	8	0	0	1	1	0
2016	0	0	6	11	7	0	0	0	2	0
2017	0	0	7	20	7	0	0	0	1	0
2018	0	0	2	7	6	0	0	1	0	0
Total	0	0	25	65	36	0	0	2	5	0

South Renton Transit Center

Table B-5 South Renton Transit Center - All crashes

Year	Serious injury	Fatality	Fixed object	Rear end	Sideswipe	Angle	Opposite	Overturn	Other	Pedestrian/ bike
2014	0	1	3	27	14	13	6	0	3	3
2015	0	0	6	34	17	14	2	0	3	1
2016	0	1	4	33	16	13	10	0	4	4
2017	0	0	1	20	7	8	13	0	3	5
2018	0	0	5	36	8	15	10	0	2	1
Total	0	2	19	150	62	63	41	0	15	14

Table B-6 SR 167 on Rainier Avenue S from SR 167/I-405 interchange to S 7th Street

Year	Serious injury	Fatality	Fixed object	Rear end	Sideswipe	Angle	Opposite	Overturn	Other	Pedestrian/ bike
2014	0	1	0	14	8	4	0	0	2	3
2015	0	0	2	20	14	6	1	0	2	1
2016	0	0	2	19	12	4	1	0	1	2
2017	0	0	0	16	4	4	2	0	1	3
2018	0	0	5	24	6	6	1	0	2	1
Total	0	1	9	93	44	24	5	0	8	10

Table B-7 S 7th Street from Rainier Avenue S to Talbot Road

Year	Serious injury	Fatality	Fixed object	Rear end	Sideswipe	Angle	Opposite	Overturn	Other	Pedestrian/ bike
2014	0	0	1	0	0	6	0	0	1	0
2015	0	0	0	1	0	3	0	0	1	0
2016	0	0	0	0	0	4	0	0	1	1
2017	0	0	0	1	0	1	1	0	0	1
2018	0	0	0	0	1	1	0	0	0	0
Total	0	0	1	2	1	15	1	0	3	2

Table B-8 S Grady Way from Rainier Avenue S to Talbot Road

Year	Serious injury	Fatality	Fixed object	Rear end	Sideswipe	Angle	Opposite	Overturn	Other	Pedestrian/ bike
2014	0	0	1	3	2	0	6	0	0	0
2015	0	0	3	7	3	1	1	0	0	0
2016	0	1	1	4	3	2	7	0	1	0
2017	0	0	0	0	1	1	5	0	0	1
2018	0	0	0	4	0	4	3	0	0	0
Total	0	1	5	18	9	8	22	0	1	1

Table B-9 Shattuck Avenue S from S 7th Street to S Grady Way

Year	Serious injury	Fatality	Fixed object	Rear end	Sideswipe	Angle	Opposite	Overturn	Other	Pedestrian/ bike
2014	0	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	0
2016	0	0	0	0	0	0	0	0	0	0
2017	0	0	0	0	0	1	1	0	0	0
2018	0	0	0	0	0	1	1	0	0	0
Total	0	0	0	0	0	2	2	0	0	0

Table B-10 Talbot Road S from S Grady Way to S 7th Street

Year	Serious injury	Fatality	Fixed object	Rear end	Sideswipe	Angle	Opposite	Overturn	Other	Pedestrian/ bike
2014	0	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	0
2016	0	0	0	1	1	0	0	0	0	0
2017	0	0	0	0	0	1	0	0	0	0
2018	0	0	0	1	0	1	2	0	0	0
Total	0	0	0	2	1	2	2	0	0	0

Table B-11 SR 515 from I-405 northbound on-ramp to S Grady Way

Year	Serious injury	Fatality	Fixed object	Rear end	Sideswipe	Angle	Opposite	Overturn	Other	Pedestrian/ bike
2014	0	0	1	8	3	2	0	0	0	0
2015	0	0	1	3	0	3	0	0	0	0
2016	0	0	0	7	0	3	2	0	0	1
2017	0	0	0	1	1	0	4	0	2	0
2018	0	0	0	5	1	2	1	0	0	0
Total	0	0	2	24	5	10	7	0	2	1

Table B-12 I-405 northbound on-ramp from SR 515 to I-405 northbound

Year	Serious injury	Fatality	Fixed object	Rear end	Sideswipe	Angle	Opposite	Overturn	Other	Pedestrian/ bike
2014	0	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	0
2016	0	0	0	0	0	0	0	0	0	0
2017	0	0	1	0	1	0	0	0	0	0
2018	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	0	1	0	0	0	0	0

Table B-13 I-405 southbound off-ramp from I-405 southbound to SR 515

Year	Serious injury	Fatality	Fixed object	Rear end	Sideswipe	Angle	Opposite	Overturn	Other	Pedestrian/ bike
2014	0	0	0	2	1	0	0	0	0	0
2015	0	0	0	2	0	1	0	0	0	0
2016	0	0	1	1	0	0	0	0	1	0
2017	0	0	0	2	0	0	0	0	0	0
2018	0	0	0	2	0	0	1	0	0	0
Total	0	0	1	9	1	1	1	0	1	0

Table B-14 Lake Avenue S from S Grady Way to Shattuck Avenue S

Year	Serious injury	Fatality	Fixed object	Rear end	Sideswipe	Angle	Opposite	Overturn	Other	Pedestrian/ bike
2014	0	0	0	0	0	1	0	0	0	0
2015	0	0	0	1	0	0	0	0	0	0
2016	0	0	0	1	0	0	0	0	0	0
2017	0	0	0	0	0	0	0	0	0	0
2018	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	2	0	1	0	0	0	0

Kingsgate Park-and-Ride/Totem Lake Station

Table B-15 Totem Lake/Kingsgate - All crashes

Year	Serious injury	Fatality	Fixed object	Rear end	Sideswipe	Angle	Opposite	Overturn	Other	Pedestrian/ bike
2014	0	0	1	7	5	4	6	0	1	2
2015	0	0	1	7	1	3	10	0	2	0
2016	0	0	1	3	2	2	3	0	0	1
2017	0	0	0	4	5	4	13	0	4	2
2018	0	0	0	5	1	2	2	0	1	0
Total	0	0	3	26	14	15	34	0	8	5

Table B-16 NE 128th Street from 116th Avenue NE to Totem Lake Boulevard NE

Year	Serious injury	Fatality	Fixed object	Rear end	Sideswipe	Angle	Opposite	Overturn	Other	Pedestrian/ bike
2014	0	0	0	4	5	4	6	0	1	1
2015	0	0	1	4	1	3	10	0	2	0
2016	0	0	0	1	2	2	3	0	0	0
2017	0	0	0	3	5	4	12	0	4	1
2018	0	0	0	1	1	2	2	0	1	0
Total	0	0	1	13	14	15	33	0	8	2

Table B-17 116th Avenue NE from NE 128th Street to NE 132nd Street

Year	Serious injury	Fatality	Fixed object	Rear end	Sideswipe	Angle	Opposite	Overturn	Other	Pedestrian/ bike
2014	0	0	1	2	0	0	0	0	0	0
2015	0	0	0	2	0	0	0	0	0	0
2016	0	0	0	2	0	0	0	0	0	0
2017	0	0	0	0	0	0	0	0	0	1
2018	0	0	0	3	0	0	0	0	0	0
Total	0	0	1	9	0	0	0	0	0	1

APPENDIX C

SimTraffic Reports

40: 116th Avenue NE/116th Ave NE & NE 128th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	1126.3	1063.5	1095.2	0.2	0.0	0.0	0.0	0.0	9.8	0.0	0.0	0.0
Total Del/Veh (s)	686.1	775.8	733.6	112.4	91.7	5.1	84.5	90.6	298.1	301.4	88.9	122.7

40: 116th Avenue NE/116th Ave NE & NE 128th St Performance by movement

Movement	All
Denied Del/Veh (s)	222.9
Total Del/Veh (s)	220.0

Intersection: 40: 116th Avenue NE/116th Ave NE & NE 128th St

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	LT	R	L	T	TR	L	T	TR
Maximum Queue (ft)	144	743	182	173	150	125	687	712	225	608	625
Average Queue (ft)	42	713	130	139	34	36	462	631	223	522	393
95th Queue (ft)	143	734	192	179	89	96	855	743	229	710	696
Link Distance (ft)		704	144	144	144		665	665		571	571
Upstream Blk Time (%)		98	37	40	0		10	31		60	17
Queuing Penalty (veh)		0	61	66	0		27	86		255	73
Storage Bay Dist (ft)	120					100			200		
Storage Blk Time (%)	0	96				2	10		83	0	
Queuing Penalty (veh)	0	57				2	4		183	1	

41: I-405 HOV Ramps & NE 128th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.1	4.2	0.8	0.8	3.4
Total Del/Veh (s)	19.6	47.2	34.7	41.2	58.2	31.5	148.7	31.5	10.0	137.4	191.9	132.8

41: I-405 HOV Ramps & NE 128th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.5
Total Del/Veh (s)	69.3

Intersection: 41: I-405 HOV Ramps & NE 128th St

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	LT	R
Maximum Queue (ft)	12	143	164	165	139	149	150	125	936	125
Average Queue (ft)	3	64	155	141	55	102	31	22	475	100
95th Queue (ft)	11	142	163	196	131	186	95	73	887	160
Link Distance (ft)	144	144	144	140	140	140	923		902	
Upstream Blk Time (%)		0	42	30	0	24			1	
Queuing Penalty (veh)		0	124	74	0	58			0	
Storage Bay Dist (ft)								100		100
Storage Blk Time (%)							4	0	53	20
Queuing Penalty (veh)							1	0	61	64

42: Totem Lake Blvd & NE 128th St Performance by movement

Movement	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	12.3	18.6	0.0	0.0	0.0	0.0	0.0	0.0	3.0
Total Del/Veh (s)	22.4	5.5	144.8	238.6	108.1	61.5	62.8	21.4	29.2	80.0	72.5

Intersection: 42: Totem Lake Blvd & NE 128th St

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	T	T	R	T	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	141	115	109	1107	1112	175	1146	1152	124	272	372
Average Queue (ft)	63	52	34	508	558	96	271	334	26	94	144
95th Queue (ft)	119	102	81	1235	1316	202	773	809	85	211	295
Link Distance (ft)	140	140	140	1078	1078		1117	1117		531	531
Upstream Blk Time (%)	0			10	16		1	3			
Queuing Penalty (veh)	0			0	0		3	12			
Storage Bay Dist (ft)						150			100		
Storage Blk Time (%)						23	7			9	
Queuing Penalty (veh)						32	10			7	

40: 116th Avenue NE/116th Ave NE & NE 128th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	676.1	695.2	600.3	1.2	1.3	0.8	33.2	26.7	39.9	0.0	0.0	0.0
Total Del/Veh (s)	391.6	484.9	460.0	75.3	54.6	4.4	73.4	73.5	210.8	368.0	94.2	56.7

40: 116th Avenue NE/116th Ave NE & NE 128th St Performance by movement

Movement	All
Denied Del/Veh (s)	142.7
Total Del/Veh (s)	188.9

Intersection: 40: 116th Avenue NE/116th Ave NE & NE 128th St

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	LT	R	L	T	TR	L	T	TR
Maximum Queue (ft)	145	719	179	172	85	124	676	694	225	596	610
Average Queue (ft)	84	709	139	137	35	41	397	533	217	577	397
95th Queue (ft)	191	748	181	174	78	104	740	789	261	589	727
Link Distance (ft)		704	144	144	144		665	665		571	571
Upstream Blk Time (%)		89	23	29			1	10		79	11
Queuing Penalty (veh)		0	40	50			2	28		348	47
Storage Bay Dist (ft)	120					100			200		
Storage Blk Time (%)	0	92				0	16		84	13	
Queuing Penalty (veh)	0	55				0	7		193	52	

41: I-405 HOV Ramps & NE 128th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	4.1	8.2	7.6	11.6
Total Del/Veh (s)	34.1	43.5	29.4	45.7	53.0	37.7	159.5	59.6	10.2	144.5	139.9	113.8

41: I-405 HOV Ramps & NE 128th St Performance by movement

Movement	All
Denied Del/Veh (s)	2.5
Total Del/Veh (s)	68.4

Intersection: 41: I-405 HOV Ramps & NE 128th St

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	LT	R
Maximum Queue (ft)	34	143	171	164	157	150	152	75	936	125
Average Queue (ft)	5	62	153	141	58	81	43	25	507	91
95th Queue (ft)	18	122	167	200	139	166	107	62	974	167
Link Distance (ft)	144	144	144	140	140	140	923		902	
Upstream Blk Time (%)		0	38	27	5	20			18	
Queuing Penalty (veh)		0	115	67	14	49			0	
Storage Bay Dist (ft)								100		100
Storage Blk Time (%)							8		61	8
Queuing Penalty (veh)							3		72	25

42: Totem Lake Blvd & NE 128th St Performance by movement

Movement	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	9.7	6.3	0.0	0.0	0.0	0.0	0.0	0.0	1.9
Total Del/Veh (s)	22.2	4.9	104.1	155.3	63.8	34.7	28.1	19.1	30.1	55.2	47.2

Intersection: 42: Totem Lake Blvd & NE 128th St

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	T	T	R	T	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	141	139	88	1093	1130	175	761	717	124	197	253
Average Queue (ft)	58	58	30	223	372	102	146	194	19	84	115
95th Queue (ft)	119	114	75	787	944	194	406	417	71	178	230
Link Distance (ft)	140	140	140	1078	1078		1117	1117		531	531
Upstream Blk Time (%)	1	0		8	9						
Queuing Penalty (veh)	1	0		0	0						
Storage Bay Dist (ft)						150			100		
Storage Blk Time (%)						17	7			6	
Queuing Penalty (veh)						23	11			4	

40: 116th Avenue NE/116th Ave NE & NE 128th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	813.0	874.1	816.6	0.0	0.0	0.0	0.0	19.6	68.3	40.1	13.6	169.2
Total Del/Veh (s)	924.2	844.5	823.2	13.7	16.8	2.8	585.5	551.1	785.9	988.5	376.6	286.1

40: 116th Avenue NE/116th Ave NE & NE 128th St Performance by movement

Movement	All
Denied Del/Veh (s)	169.3
Total Del/Veh (s)	374.5

Intersection: 40: 116th Avenue NE/116th Ave NE & NE 128th St

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	LT	R	L	T	TR	L	T	TR
Maximum Queue (ft)	144	719	152	156	71	124	700	700	225	608	643
Average Queue (ft)	53	705	24	25	15	71	572	671	213	576	572
95th Queue (ft)	142	745	97	101	52	147	831	684	227	590	621
Link Distance (ft)		704	144	144	144		665	665		571	571
Upstream Blk Time (%)		91	1	1			29	88		92	66
Queuing Penalty (veh)		0	3	3			102	312		304	219
Storage Bay Dist (ft)	120					100			200		
Storage Blk Time (%)	0	96				36	76		96	8	
Queuing Penalty (veh)	0	29				58	49		190	19	

41: I-405 HOV Ramps & NE 128th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	1986.9	2282.9	2007.0	1685.2	1402.0	1904.5
Total Del/Veh (s)	15.7	1.4	0.9	4.7	4.2	2.4	3600.0	3600.0	3600.0	3594.9	3600.0	3576.4

41: I-405 HOV Ramps & NE 128th St Performance by movement

Movement	All
Denied Del/Veh (s)	805.8
Total Del/Veh (s)	260.4

Intersection: 41: I-405 HOV Ramps & NE 128th St

Movement	EB	WB	WB	NB	SB
Directions Served	L	L	TR	LT	LT
Maximum Queue (ft)	115	75	136	920	895
Average Queue (ft)	8	10	16	920	881
95th Queue (ft)	45	45	81	920	891
Link Distance (ft)	144	140	140	923	902
Upstream Blk Time (%)			0	100	0
Queuing Penalty (veh)			0	0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)				100	100
Queuing Penalty (veh)				135	75

42: Totem Lake Blvd & NE 128th St Performance by movement

Movement	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	120.8	108.8	5.4	10.2	15.0	0.1	0.0	0.0	43.3
Total Del/Veh (s)	22.4	3.9	219.8	247.6	193.0	199.0	195.3	32.2	27.3	20.0	161.8

Intersection: 42: Totem Lake Blvd & NE 128th St

Movement	EB	EB	EB	WB	WB	NB	NB	NB	B140	B140	SB	SB
Directions Served	T	T	R	T	TR	L	T	TR	T	T	L	T
Maximum Queue (ft)	115	132	64	1141	1141	175	1213	1218	165	207	124	227
Average Queue (ft)	19	19	4	912	1058	139	750	753	78	75	43	79
95th Queue (ft)	73	79	27	1390	1168	235	1490	1479	207	207	111	175
Link Distance (ft)	140	140	140	1078	1078		1117	1117	75	75		531
Upstream Blk Time (%)		0		21	56		47	44	38	32		
Queuing Penalty (veh)		0		0	0		293	273	237	198		
Storage Bay Dist (ft)						150					100	
Storage Blk Time (%)						16	44				2	6
Queuing Penalty (veh)						50	171				4	6

Intersection: 42: Totem Lake Blvd & NE 128th St

Movement	SB
Directions Served	TR
Maximum Queue (ft)	244
Average Queue (ft)	91
95th Queue (ft)	193
Link Distance (ft)	531
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

40: 116th Avenue NE/116th Ave NE & NE 128th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	835.1	998.6	961.0	0.0	0.0	0.0	0.0	62.8	32.1	145.2	92.7	0.0
Total Del/Veh (s)	932.4	1013.6	1003.3	9.3	10.2	3.2	828.7	691.3	860.4	1067.8	492.0	517.1

40: 116th Avenue NE/116th Ave NE & NE 128th St Performance by movement

Movement	All
Denied Del/Veh (s)	219.1
Total Del/Veh (s)	484.2

Intersection: 40: 116th Avenue NE/116th Ave NE & NE 128th St

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	LT	R	L	T	TR	L	T	TR
Maximum Queue (ft)	144	743	112	91	111	125	719	703	225	593	620
Average Queue (ft)	19	702	13	11	16	62	669	670	215	577	512
95th Queue (ft)	63	787	68	57	59	122	712	684	227	591	780
Link Distance (ft)		704	144	144	144		665	665		571	571
Upstream Blk Time (%)		88					80	91		94	65
Queuing Penalty (veh)		0					290	330		343	239
Storage Bay Dist (ft)	120					100			200		
Storage Blk Time (%)		96				38	79		97	29	
Queuing Penalty (veh)		31				65	51		213	75	

41: I-405 HOV Ramps & NE 128th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	1845.2	2173.9	2022.6	1618.6	1263.4	1771.2
Total Del/Veh (s)	10.0	1.4	1.0	6.6	3.8	2.2	3600.0		3600.0	3590.8	3600.0	3594.2

41: I-405 HOV Ramps & NE 128th St Performance by movement

Movement	All
Denied Del/Veh (s)	901.9
Total Del/Veh (s)	343.3

Intersection: 41: I-405 HOV Ramps & NE 128th St

Movement	EB	WB	WB	NB	SB
Directions Served	L	L	TR	LT	LT
Maximum Queue (ft)	74	142	82	934	908
Average Queue (ft)	9	11	3	934	895
95th Queue (ft)	41	62	28	934	899
Link Distance (ft)	144	140	140	923	902
Upstream Blk Time (%)		1		100	98
Queuing Penalty (veh)		3		0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)				100	100
Queuing Penalty (veh)				135	76

42: Totem Lake Blvd & NE 128th St Performance by movement

Movement	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	498.7	523.0	7.6	21.9	18.6	0.3	0.0	0.0	214.1
Total Del/Veh (s)	14.6	2.7	329.7	325.8	266.2	380.0	341.4	26.4	25.3	13.0	249.9

Intersection: 42: Totem Lake Blvd & NE 128th St

Movement	EB	EB	EB	WB	WB	NB	NB	NB	B140	B140	SB	SB
Directions Served	T	T	R	T	TR	L	T	TR	T	T	L	T
Maximum Queue (ft)	54	84	35	1112	1117	175	1224	1175	159	159	124	191
Average Queue (ft)	6	11	5	759	950	101	850	828	84	86	24	54
95th Queue (ft)	29	50	21	1494	1274	240	1512	1515	207	210	79	140
Link Distance (ft)	140	140	140	1078	1078		1117	1117	75	75		531
Upstream Blk Time (%)				45	59		55	55	48	50		
Queuing Penalty (veh)				0	0		346	342	297	314		
Storage Bay Dist (ft)						150					100	
Storage Blk Time (%)						15	67				0	4
Queuing Penalty (veh)						50	265				0	4

Intersection: 42: Totem Lake Blvd & NE 128th St

Movement	SB
Directions Served	TR
Maximum Queue (ft)	212
Average Queue (ft)	58
95th Queue (ft)	154
Link Distance (ft)	531
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

40: 116th Avenue NE/116th Ave NE & NE 128th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	304.2	278.0	346.9	1.6	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	348.6	378.7	377.1	87.0	78.5	5.3	60.3	64.0	160.7	396.5	214.2	358.9

40: 116th Avenue NE/116th Ave NE & NE 128th St Performance by movement

Movement	All
Denied Del/Veh (s)	59.7
Total Del/Veh (s)	189.0

Intersection: 40: 116th Avenue NE/116th Ave NE & NE 128th St

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	LT	R	L	T	TR	L	T	TR
Maximum Queue (ft)	144	738	185	181	98	124	665	677	225	610	591
Average Queue (ft)	81	621	143	150	37	36	193	390	223	580	483
95th Queue (ft)	184	941	181	180	84	94	506	694	232	595	764
Link Distance (ft)		704	144	144	144		665	665		571	571
Upstream Blk Time (%)		75	29	44			0	7		83	28
Queuing Penalty (veh)		0	54	82			0	20		371	124
Storage Bay Dist (ft)	120					100			200		
Storage Blk Time (%)	0	85				2	11		80	17	
Queuing Penalty (veh)	0	55				1	5		189	68	

41: I-405 HOV Ramps & NE 128th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.1	0.5	0.4	0.0	0.3	0.1	3.9	201.4	162.9	181.0
Total Del/Veh (s)	25.4	40.0	30.1	37.8	58.0	35.5	69.1	51.5	10.2	253.3	281.6	274.9

41: I-405 HOV Ramps & NE 128th St Performance by movement

Movement	All
Denied Del/Veh (s)	58.2
Total Del/Veh (s)	98.8

Intersection: 41: I-405 HOV Ramps & NE 128th St

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	LT	R
Maximum Queue (ft)	31	143	162	166	154	152	97	120	965	125
Average Queue (ft)	6	72	149	121	57	110	38	35	897	112
95th Queue (ft)	18	146	165	213	133	192	82	80	1007	157
Link Distance (ft)	144	144	144	140	140	140	923		902	
Upstream Blk Time (%)		0	30	17	1	29			63	
Queuing Penalty (veh)		2	95	44	1	75			0	
Storage Bay Dist (ft)								100		100
Storage Blk Time (%)							6	0	51	30
Queuing Penalty (veh)							3	0	69	108

42: Totem Lake Blvd & NE 128th St Performance by movement

Movement	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	128.3	130.3	0.0	0.0	0.0	0.0	0.0	0.0	28.8
Total Del/Veh (s)	23.1	4.1	208.3	372.1	113.9	99.2	112.9	20.1	29.1	81.9	99.5

Intersection: 42: Totem Lake Blvd & NE 128th St

Movement	EB	EB	EB	WB	WB	NB	NB	NB	B140	B140	SB	SB
Directions Served	T	T	R	T	TR	L	T	TR	T	T	L	T
Maximum Queue (ft)	141	134	86	1111	1093	175	1176	1170	159	115	124	299
Average Queue (ft)	73	65	26	568	649	104	430	528	11	16	25	85
95th Queue (ft)	127	127	69	1339	1330	198	1179	1240	76	76	84	206
Link Distance (ft)	140	140	140	1078	1078		1117	1117	75	75		531
Upstream Blk Time (%)	0	0		33	37		4	11	3	7		
Queuing Penalty (veh)	1	0		0	0		18	49	15	33		
Storage Bay Dist (ft)						150					100	
Storage Blk Time (%)						20	13					6
Queuing Penalty (veh)						30	21					4

Intersection: 42: Totem Lake Blvd & NE 128th St

Movement	SB
Directions Served	TR
Maximum Queue (ft)	335
Average Queue (ft)	144
95th Queue (ft)	294
Link Distance (ft)	531
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

40: 116th Avenue NE/116th Ave NE & NE 128th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	171.1	108.8	172.5	0.4	0.0	0.4	0.0	35.1	57.9	0.0	0.0	0.0
Total Del/Veh (s)	253.9	301.9	298.2	72.7	72.8	7.7	79.0	106.7	314.1	362.0	135.2	156.8

40: 116th Avenue NE/116th Ave NE & NE 128th St Performance by movement

Movement	All
Denied Del/Veh (s)	39.5
Total Del/Veh (s)	194.0

Intersection: 40: 116th Avenue NE/116th Ave NE & NE 128th St

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	LT	R	L	T	TR	L	T	TR
Maximum Queue (ft)	144	719	161	177	132	124	708	686	225	586	601
Average Queue (ft)	89	568	111	128	50	52	529	658	223	578	423
95th Queue (ft)	185	902	186	182	110	135	892	737	236	586	739
Link Distance (ft)		704	144	144	144		665	665		571	571
Upstream Blk Time (%)		42	17	26	0		18	55		78	23
Queuing Penalty (veh)		0	32	51	0		59	181		364	105
Storage Bay Dist (ft)	120					100			200		
Storage Blk Time (%)	3	80				0	28		90	6	
Queuing Penalty (veh)	8	53				1	14		222	24	

41: I-405 HOV Ramps & NE 128th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.4	0.0	0.0	0.3	0.3	4.0	98.2	99.2	112.3
Total Del/Veh (s)	27.5	35.3	25.3	43.0	34.0	26.2	59.3	69.4	10.6	259.7	285.6	243.3

41: I-405 HOV Ramps & NE 128th St Performance by movement

Movement	All
Denied Del/Veh (s)	29.1
Total Del/Veh (s)	94.3

Intersection: 41: I-405 HOV Ramps & NE 128th St

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	LT	R
Maximum Queue (ft)	34	143	162	165	146	146	166	125	965	125
Average Queue (ft)	8	57	151	123	33	75	46	31	908	79
95th Queue (ft)	25	118	168	205	102	165	103	67	1016	160
Link Distance (ft)	144	144	144	140	140	140	923		902	
Upstream Blk Time (%)		0	31	22	1	7			82	
Queuing Penalty (veh)		0	100	59	1	18			0	
Storage Bay Dist (ft)								100		100
Storage Blk Time (%)							1	0	67	11
Queuing Penalty (veh)							0	0	94	40

42: Totem Lake Blvd & NE 128th St Performance by movement

Movement	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	167.4	184.9	0.0	0.0	0.0	0.0	0.0	0.0	44.9
Total Del/Veh (s)	20.9	4.8	242.8	323.0	186.3	255.6	368.2	13.2	22.2	19.6	147.9

Intersection: 42: Totem Lake Blvd & NE 128th St

Movement	EB	EB	EB	WB	WB	NB	NB	NB	B140	B140	SB	SB
Directions Served	T	T	R	T	TR	L	T	TR	T	T	L	T
Maximum Queue (ft)	179	135	121	1125	1112	175	1176	1174	159	144	57	164
Average Queue (ft)	83	69	35	645	668	74	696	733	62	50	11	54
95th Queue (ft)	150	127	84	1382	1399	189	1549	1528	187	137	37	115
Link Distance (ft)	140	140	140	1078	1078		1117	1117	75	75		531
Upstream Blk Time (%)	1	0	0	38	42		40	50	36	45		
Queuing Penalty (veh)	4	0	0	0	0		181	224	161	201		
Storage Bay Dist (ft)						150					100	
Storage Blk Time (%)						3	40					1
Queuing Penalty (veh)						5	65					1

Intersection: 42: Totem Lake Blvd & NE 128th St

Movement	SB
Directions Served	TR
Maximum Queue (ft)	178
Average Queue (ft)	86
95th Queue (ft)	160
Link Distance (ft)	531
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

40: 116th Avenue NE/116th Ave NE & NE 128th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	1357.8	1305.9	1349.8	0.0	0.0	0.0	253.6	85.3	397.6	152.3	90.0	0.0
Total Del/Veh (s)	1340.0	1451.0	1276.5	4.7	10.9	3.6	1061.1	1111.7	1658.4	1434.5	687.0	520.2

40: 116th Avenue NE/116th Ave NE & NE 128th St Performance by movement

Movement	All
Denied Del/Veh (s)	399.2
Total Del/Veh (s)	589.9

Intersection: 40: 116th Avenue NE/116th Ave NE & NE 128th St

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	LT	R	L	T	TR	L	T	TR
Maximum Queue (ft)	143	738	48	153	149	116	707	687	225	584	638
Average Queue (ft)	17	705	3	9	8	35	565	669	208	573	579
95th Queue (ft)	75	722	23	63	56	67	892	677	220	578	607
Link Distance (ft)		704	144	144	144		665	665		571	571
Upstream Blk Time (%)		97		0	0		71	97		96	90
Queuing Penalty (veh)		0		2	1		277	376		336	314
Storage Bay Dist (ft)	120					100			200		
Storage Blk Time (%)		98				0	37		97	32	
Queuing Penalty (veh)		34				0	24		201	83	

41: I-405 HOV Ramps & NE 128th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.1	1712.2	1619.2	1579.2	1281.8	1148.4	1320.4
Total Del/Veh (s)	12.9	1.6	0.9	2.6	3.8	2.1	3578.3	3600.0	3570.0	3362.2	3398.6	2743.3

41: I-405 HOV Ramps & NE 128th St Performance by movement

Movement	All
Denied Del/Veh (s)	807.8
Total Del/Veh (s)	359.5

Intersection: 41: I-405 HOV Ramps & NE 128th St

Movement	EB	WB	WB	WB	NB	SB	SB
Directions Served	L	L	T	TR	LT	LT	R
Maximum Queue (ft)	118	72	42	125	938	911	124
Average Queue (ft)	6	3	1	5	930	849	4
95th Queue (ft)	44	25	14	42	932	1101	41
Link Distance (ft)	144	140	140	140	923	902	
Upstream Blk Time (%)				0	98	88	
Queuing Penalty (veh)				0	0	0	
Storage Bay Dist (ft)							100
Storage Blk Time (%)					100	100	0
Queuing Penalty (veh)					145	95	0

42: Totem Lake Blvd & NE 128th St Performance by movement

Movement	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	866.8	928.8	12.9	15.1	18.7	0.0	0.0	0.0	439.5
Total Del/Veh (s)	15.2	2.2	423.5	495.6	378.8	378.1	453.3	25.4	30.9	54.6	330.5

Intersection: 42: Totem Lake Blvd & NE 128th St

Movement	EB	EB	EB	WB	WB	NB	NB	NB	B140	B140	SB	SB
Directions Served	T	T	R	T	TR	L	T	TR	T	T	L	T
Maximum Queue (ft)	53	68	18	1093	1141	175	1195	1189	159	178	124	148
Average Queue (ft)	6	7	1	872	1093	104	1060	1012	73	76	19	49
95th Queue (ft)	29	37	6	1591	1122	243	1347	1365	183	193	71	125
Link Distance (ft)	140	140	140	1078	1078		1117	1117	75	75		531
Upstream Blk Time (%)				55	97		54	53	51	49		
Queuing Penalty (veh)				0	0		350	345	330	321		
Storage Bay Dist (ft)						150					100	
Storage Blk Time (%)						31	61				0	5
Queuing Penalty (veh)						100	268				0	5

Intersection: 42: Totem Lake Blvd & NE 128th St

Movement	SB
Directions Served	TR
Maximum Queue (ft)	394
Average Queue (ft)	64
95th Queue (ft)	212
Link Distance (ft)	531
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

40: 116th Avenue NE/116th Ave NE & NE 128th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	1551.0	1432.9	1476.2	0.0	0.0	0.0	51.3	126.3	294.6	131.1	39.3	43.5
Total Del/Veh (s)	1463.1	1500.1	1412.8	8.4	7.5	2.6	1382.0	910.7	1203.9	1536.7	555.0	505.4

40: 116th Avenue NE/116th Ave NE & NE 128th St Performance by movement

Movement	All
Denied Del/Veh (s)	474.3
Total Del/Veh (s)	633.4

Intersection: 40: 116th Avenue NE/116th Ave NE & NE 128th St

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	LT	R	L	T	TR	L	T	TR
Maximum Queue (ft)	144	719	110	154	89	124	702	698	225	594	621
Average Queue (ft)	18	706	4	8	10	42	599	668	216	573	584
95th Queue (ft)	88	720	36	61	49	102	812	679	227	581	606
Link Distance (ft)		704	144	144	144		665	665		571	571
Upstream Blk Time (%)		99		1			62	95		96	92
Queuing Penalty (veh)		0		3			246	375		369	355
Storage Bay Dist (ft)	120					100			200		
Storage Blk Time (%)		98				0	79		98	25	
Queuing Penalty (veh)		36				0	51		226	68	

41: I-405 HOV Ramps & NE 128th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	1745.3	1656.2	1943.3	1403.5	1634.6	1284.5
Total Del/Veh (s)	5.9	1.2	0.8	2.7	4.9	1.7	3596.6	3600.0	3597.0	3402.5	3222.4	3419.7

41: I-405 HOV Ramps & NE 128th St Performance by movement

Movement	All
Denied Del/Veh (s)	968.6
Total Del/Veh (s)	446.5

Intersection: 41: I-405 HOV Ramps & NE 128th St

Movement	EB	WB	WB	WB	NB	SB
Directions Served	L	L	T	TR	LT	LT
Maximum Queue (ft)	12	32	35	273	938	907
Average Queue (ft)	1	1	1	23	933	860
95th Queue (ft)	7	11	11	138	934	1044
Link Distance (ft)	144	140	140	140	923	902
Upstream Blk Time (%)				1	99	87
Queuing Penalty (veh)				4	0	0
Storage Bay Dist (ft)						
Storage Blk Time (%)					100	99
Queuing Penalty (veh)					145	95

42: Totem Lake Blvd & NE 128th St Performance by movement

Movement	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	887.5	850.4	16.8	36.0	119.6	0.3	0.0	0.0	466.6
Total Del/Veh (s)	17.2	2.6	594.8	650.7	490.4	583.6	660.9	29.2	31.9	37.1	440.1

Intersection: 42: Totem Lake Blvd & NE 128th St

Movement	EB	EB	EB	WB	WB	NB	NB	NB	B140	B140	SB	SB
Directions Served	T	T	R	T	TR	L	T	TR	T	T	L	T
Maximum Queue (ft)	75	86	19	1093	1130	175	1224	1194	159	183	124	398
Average Queue (ft)	6	7	1	983	1056	72	1159	1130	99	117	24	51
95th Queue (ft)	33	41	6	1359	1190	212	1223	1281	180	202	92	183
Link Distance (ft)	140	140	140	1078	1078		1117	1117	75	75		531
Upstream Blk Time (%)				32	84		84	71	78	67		
Queuing Penalty (veh)				0	0		546	463	508	437		
Storage Bay Dist (ft)						150					100	
Storage Blk Time (%)						23	73					5
Queuing Penalty (veh)						75	324					5

Intersection: 42: Totem Lake Blvd & NE 128th St

Movement	SB
Directions Served	TR
Maximum Queue (ft)	458
Average Queue (ft)	63
95th Queue (ft)	215
Link Distance (ft)	531
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

132: SR 515 #C/SR 515 #B #C & Renton Village Pl./I-405 SB Off-ramp #B Performance by movement

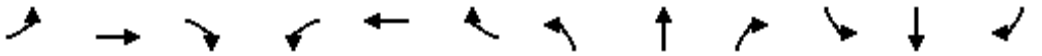
Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.2	175.3	162.5	189.9	0.0	0.0	0.0	0.0	46.3
Total Del/Veh (s)	298.4	771.0	405.6	393.4	402.3	116.6	42.9	17.8	23.1	149.9

Intersection: 132: SR 515 #C/SR 515 #B #C & Renton Village Pl./I-405 SB Off-ramp #B

Movement	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	L	L	T	R	L	T	T	T	T	TR
Maximum Queue (ft)	53	550	312	324	2280	425	355	413	392	103	159	176
Average Queue (ft)	13	405	200	217	2108	419	297	376	362	27	50	58
95th Queue (ft)	41	620	344	370	2566	453	423	404	399	78	122	144
Link Distance (ft)	1027	1027			2217			355	355		433	433
Upstream Blk Time (%)					57		7	26	22			
Queuing Penalty (veh)					0		0	406	343			
Storage Bay Dist (ft)			300	300		400	450			150		
Storage Blk Time (%)			2	20	0	64	7	26			0	
Queuing Penalty (veh)			7	89	0	371	100	90			0	

APPENDIX D

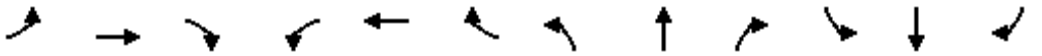
Synchro and Sidra Output Reports



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	624	12	30	537	9	10	0	30	21	0	37
Future Volume (vph)	54	624	12	30	537	9	10	0	30	21	0	37
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	4.5		4.5	4.5		4.5
Lane Util. Factor	1.00	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	0.96	1.00		1.00	1.00		0.93
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00		1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	1770	3433		902	3471	1553	902		808	1719		1424
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	1770	3433		902	3471	1553	902		808	1719		1424
Peak-hour factor, PHF	0.90	0.90	0.90	0.93	0.93	0.93	0.73	0.73	0.73	0.82	0.82	0.82
Adj. Flow (vph)	60	693	13	32	577	10	14	0	41	26	0	45
RTOR Reduction (vph)	0	1	0	0	0	5	0	0	39	0	0	36
Lane Group Flow (vph)	60	705	0	32	577	5	14	0	2	26	0	9
Confl. Peds. (#/hr)	6		9	9		6	44					44
Heavy Vehicles (%)	2%	3%	100%	100%	4%	0%	100%	100%	100%	5%	5%	5%
Turn Type	Prot	NA		Prot	NA	Perm	Prot		Prot	Prot		Perm
Protected Phases	5	2		1	6		7		7	8		
Permitted Phases						6						8
Actuated Green, G (s)	7.2	64.5		6.8	64.1	64.1	5.7		5.7	25.0		25.0
Effective Green, g (s)	7.2	64.5		6.8	64.1	64.1	5.7		5.7	25.0		25.0
Actuated g/C Ratio	0.06	0.54		0.06	0.53	0.53	0.05		0.05	0.21		0.21
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5		4.5	4.5		4.5
Vehicle Extension (s)	2.0	2.0		3.0	2.0	2.0	2.0		2.0	2.0		2.0
Lane Grp Cap (vph)	106	1845		51	1854	829	42		38	358		296
v/s Ratio Prot	0.03	c0.21		c0.04	0.17		c0.02		0.00	c0.02		
v/s Ratio Perm						0.00						0.01
v/c Ratio	0.57	0.38		0.63	0.31	0.01	0.33		0.05	0.07		0.03
Uniform Delay, d1	54.9	16.2		55.4	15.6	13.1	55.3		54.6	38.2		37.9
Progression Factor	1.00	1.00		1.37	0.12	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2	4.1	0.6		19.9	0.4	0.0	1.7		0.2	0.0		0.0
Delay (s)	59.0	16.8		95.7	2.2	13.1	57.0		54.8	38.2		37.9
Level of Service	E	B		F	A	B	E		D	D		D
Approach Delay (s)		20.1			7.2			55.3			38.0	
Approach LOS		C			A			E			D	

Intersection Summary			
HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		

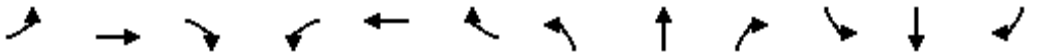
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	611	26	170	477	363	39	334	216	329	195	58
Future Volume (vph)	38	611	26	170	477	363	39	334	216	329	195	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	3448		3335	3438	1538	1752	3505	1568	3400	3505	1568
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1736	3448		3335	3438	1538	1752	3505	1568	3400	3505	1568
Peak-hour factor, PHF	0.90	0.90	0.90	0.84	0.84	0.84	0.90	0.90	0.90	0.83	0.83	0.83
Adj. Flow (vph)	42	679	29	202	568	432	43	371	240	396	235	70
RTOR Reduction (vph)	0	2	0	0	0	141	0	0	57	0	0	35
Lane Group Flow (vph)	42	706	0	202	568	291	43	371	183	396	235	35
Confl. Peds. (#/hr)	3		1	1		3	3		3	3		3
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Turn Type	Prot	NA		Prot	NA	pt+ov	Prot	NA	pt+ov	Prot	NA	pt+ov
Protected Phases	3	8		7	4	4 5	1	6	6 7	5	2	2 3
Permitted Phases												
Actuated Green, G (s)	10.6	29.8		10.8	30.0	48.4	14.8	41.0	56.8	18.4	44.6	60.2
Effective Green, g (s)	10.6	29.8		10.8	30.0	48.4	14.8	41.0	56.8	18.4	44.6	60.2
Actuated g/C Ratio	0.09	0.25		0.09	0.25	0.40	0.12	0.34	0.47	0.15	0.37	0.50
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	153	856		300	859	620	216	1197	742	521	1302	786
v/s Ratio Prot	0.02	c0.20		0.06	c0.17	0.19	0.02	c0.11	0.12	c0.12	0.07	0.02
v/s Ratio Perm												
v/c Ratio	0.27	0.82		0.67	0.66	0.47	0.20	0.31	0.25	0.76	0.18	0.04
Uniform Delay, d1	51.1	42.6		52.9	40.4	26.3	47.3	29.1	18.8	48.7	25.4	15.2
Progression Factor	0.65	0.67		1.18	0.69	0.45	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	5.9		4.2	1.3	0.2	0.2	0.7	0.1	5.8	0.3	0.0
Delay (s)	33.7	34.3		66.4	29.2	12.1	47.4	29.8	18.9	54.5	25.7	15.3
Level of Service	C	C		E	C	B	D	C	B	D	C	B
Approach Delay (s)		34.3			29.3			26.9			40.9	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	32.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		

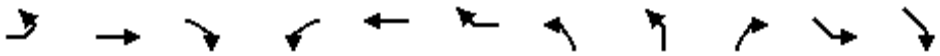
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1067	90	215	868	0	0	0	0	967	0	141
Future Volume (vph)	0	1067	90	215	868	0	0	0	0	967	0	141
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	4.0
Lane Util. Factor		0.91		0.97	0.95					0.95	0.91	0.95
Frpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	1.00
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	1.00
Frt		0.99		1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		4929		3367	3471					1665	1594	1490
Flt Permitted		1.00		0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		4929		3367	3471					1665	1594	1490
Peak-hour factor, PHF	0.96	0.96	0.96	0.89	0.89	0.89	0.25	0.25	0.25	0.93	0.93	0.93
Adj. Flow (vph)	0	1111	94	242	975	0	0	0	0	1040	0	152
RTOR Reduction (vph)	0	8	0	0	0	0	0	0	0	0	50	0
Lane Group Flow (vph)	0	1197	0	242	975	0	0	0	0	530	475	137
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	0%	0%	0%	3%	3%	3%
Turn Type		NA		Prot	NA					Perm	NA	Free
Protected Phases		2		1	6						4	
Permitted Phases										4		Free
Actuated Green, G (s)		42.6		12.1	60.7					47.3	47.3	120.0
Effective Green, g (s)		42.6		12.1	60.7					47.3	47.3	120.0
Actuated g/C Ratio		0.36		0.10	0.51					0.39	0.39	1.00
Clearance Time (s)		6.0		6.0	6.0					6.0	6.0	
Vehicle Extension (s)		2.0		2.5	2.5					4.0	4.0	
Lane Grp Cap (vph)		1749		339	1755					656	628	1490
v/s Ratio Prot		c0.24		0.07	c0.28							
v/s Ratio Perm										c0.32	0.30	0.09
v/c Ratio		0.68		0.71	0.56					0.81	0.76	0.09
Uniform Delay, d1		33.0		52.3	20.4					32.3	31.4	0.0
Progression Factor		0.98		1.03	1.06					1.00	1.00	1.00
Incremental Delay, d2		1.7		6.1	1.2					7.6	5.5	0.1
Delay (s)		34.0		60.2	22.8					39.9	36.9	0.1
Level of Service		C		E	C					D	D	A
Approach Delay (s)		34.0			30.2			0.0			34.0	
Approach LOS		C			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	32.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		

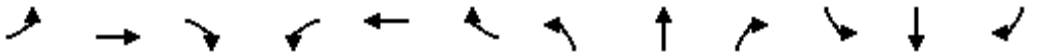
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Traffic Volume (vph)	0	1815	0	0	930	909	153	0	386	0	0
Future Volume (vph)	0	1815	0	0	930	909	153	0	386	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.6			5.6	4.0	5.6		4.0		
Lane Util. Factor		0.95			0.95	1.00	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	0.85	1.00		0.85		
Flt Protected		1.00			1.00	1.00	0.95		1.00		
Satd. Flow (prot)		3471			3438	1538	1719		1538		
Flt Permitted		1.00			1.00	1.00	0.95		1.00		
Satd. Flow (perm)		3471			3438	1538	1719		1538		
Peak-hour factor, PHF	0.97	0.97	0.97	0.90	0.90	0.90	0.88	0.88	0.88	0.25	0.25
Adj. Flow (vph)	0	1871	0	0	1033	1010	174	0	439	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1871	0	0	1033	1010	174	0	439	0	0
Confl. Peds. (#/hr)	1821										
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	5%	5%	5%	0%	0%
Turn Type		NA			NA	Free	Prot		Free		
Protected Phases		6			2		8				
Permitted Phases						Free			Free		
Actuated Green, G (s)		91.3			91.3	120.0	17.5		120.0		
Effective Green, g (s)		91.3			91.3	120.0	17.5		120.0		
Actuated g/C Ratio		0.76			0.76	1.00	0.15		1.00		
Clearance Time (s)		5.6			5.6		5.6				
Vehicle Extension (s)		4.0			4.0		3.5				
Lane Grp Cap (vph)		2640			2615	1538	250		1538		
v/s Ratio Prot		c0.54			0.30		0.10				
v/s Ratio Perm						c0.66			0.29		
v/c Ratio		0.71			0.40	0.66	0.70		0.29		
Uniform Delay, d1		7.4			4.9	0.0	48.7		0.0		
Progression Factor		0.32			1.00	1.00	1.00		1.00		
Incremental Delay, d2		1.2			0.4	2.2	8.4		0.5		
Delay (s)		3.6			5.4	2.2	57.2		0.5		
Level of Service		A			A	A	E		A		
Approach Delay (s)		3.6			3.8			16.6		0.0	
Approach LOS		A			A			B		A	

Intersection Summary			
HCM 2000 Control Delay	5.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.2
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	624	12	36	537	9	10	0	36	21	0	37
Future Volume (vph)	54	624	12	36	537	9	10	0	36	21	0	37
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	4.5		4.5	4.5		4.5
Lane Util. Factor	1.00	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	0.96	1.00		1.00	1.00		0.93
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00		1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	1770	3433		902	3471	1553	902		808	1719		1424
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	1770	3433		902	3471	1553	902		808	1719		1424
Peak-hour factor, PHF	0.90	0.90	0.90	0.93	0.93	0.93	0.73	0.73	0.73	0.82	0.82	0.82
Adj. Flow (vph)	60	693	13	39	577	10	14	0	49	26	0	45
RTOR Reduction (vph)	0	1	0	0	0	5	0	0	47	0	0	36
Lane Group Flow (vph)	60	705	0	39	577	5	14	0	2	26	0	9
Confl. Peds. (#/hr)	6		9	9		6	44					44
Heavy Vehicles (%)	2%	3%	100%	100%	4%	0%	100%	100%	100%	5%	5%	5%
Turn Type	Prot	NA		Prot	NA	Perm	Prot		Prot	Prot		Perm
Protected Phases	5	2		1	6		7		7	8		
Permitted Phases						6						8
Actuated Green, G (s)	7.2	63.9		7.4	64.1	64.1	5.7		5.7	25.0		25.0
Effective Green, g (s)	7.2	63.9		7.4	64.1	64.1	5.7		5.7	25.0		25.0
Actuated g/C Ratio	0.06	0.53		0.06	0.53	0.53	0.05		0.05	0.21		0.21
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5		4.5	4.5		4.5
Vehicle Extension (s)	2.0	2.0		3.0	2.0	2.0	2.0		2.0	2.0		2.0
Lane Grp Cap (vph)	106	1828		55	1854	829	42		38	358		296
v/s Ratio Prot	c0.03	c0.21		c0.04	0.17		c0.02		0.00	c0.02		
v/s Ratio Perm						0.00						0.01
v/c Ratio	0.57	0.39		0.71	0.31	0.01	0.33		0.06	0.07		0.03
Uniform Delay, d1	54.9	16.5		55.2	15.6	13.1	55.3		54.6	38.2		37.9
Progression Factor	1.00	1.00		0.54	0.46	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2	4.1	0.6		31.4	0.4	0.0	1.7		0.2	0.0		0.0
Delay (s)	59.0	17.1		61.0	7.6	13.1	57.0		54.8	38.2		37.9
Level of Service	E	B		E	A	B	E		D	D		D
Approach Delay (s)		20.4			11.1			55.3			38.0	
Approach LOS		C			B			E			D	

Intersection Summary			
HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

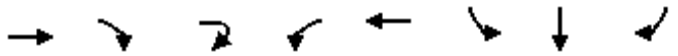
Movement	EBL	EBT	EBR	EBR2	WBL2	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	38	611	26	6	170	483	363	39	334	216	329	195
Future Volume (vph)	38	611	26	6	170	483	363	39	334	216	329	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1736	3448		808	3335	3438	1538	1752	3505	1568	3400	3505
Flt Permitted	0.95	1.00		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1736	3448		808	3335	3438	1538	1752	3505	1568	3400	3505
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.84	0.84	0.84	0.90	0.90	0.90	0.83	0.83
Adj. Flow (vph)	42	679	29	7	202	575	432	43	371	240	396	235
RTOR Reduction (vph)	0	0	0	5	0	0	124	0	0	83	0	0
Lane Group Flow (vph)	42	708	0	2	202	575	308	43	371	157	396	235
Confl. Peds. (#/hr)	3		1		1		3	3		3	3	
Heavy Vehicles (%)	4%	4%	4%	100%	5%	5%	5%	3%	3%	3%	3%	3%
Turn Type	Prot	NA		Prot	Prot	NA	pt+ov	Prot	NA	pt+ov	Prot	NA
Protected Phases	3	8		8	7	4	4 5	1	6	6 7	5	2
Permitted Phases												
Actuated Green, G (s)	5.8	29.1		29.1	11.8	35.1	55.5	14.7	38.7	55.5	20.4	44.4
Effective Green, g (s)	5.8	29.1		29.1	11.8	35.1	55.5	14.7	38.7	55.5	20.4	44.4
Actuated g/C Ratio	0.05	0.24		0.24	0.10	0.29	0.46	0.12	0.32	0.46	0.17	0.37
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0		2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	83	836		195	327	1005	711	214	1130	725	578	1296
v/s Ratio Prot	0.02	c0.21		0.00	0.06	c0.17	0.20	0.02	c0.11	0.10	c0.12	0.07
v/s Ratio Perm												
v/c Ratio	0.51	0.85		0.01	0.62	0.57	0.43	0.20	0.33	0.22	0.69	0.18
Uniform Delay, d1	55.7	43.3		34.5	51.9	36.1	21.7	47.4	30.8	19.3	46.8	25.5
Progression Factor	0.94	0.65		1.00	0.65	0.50	0.70	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.7	7.3		0.0	2.2	0.4	0.1	0.2	0.8	0.1	2.7	0.3
Delay (s)	54.2	35.4		34.5	35.8	18.4	15.4	47.5	31.6	19.3	49.5	25.8
Level of Service	D	D		C	D	B	B	D	C	B	D	C
Approach Delay (s)		36.5				20.2			28.1			38.7
Approach LOS		D				C			C			D

Intersection Summary			
HCM 2000 Control Delay	29.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR2
Lane Configurations	
Traffic Volume (vph)	58
Future Volume (vph)	58
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.0
Lane Util. Factor	1.00
Frpb, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1568
Flt Permitted	1.00
Satd. Flow (perm)	1568
Peak-hour factor, PHF	0.83
Adj. Flow (vph)	70
RTOR Reduction (vph)	41
Lane Group Flow (vph)	29
Confl. Peds. (#/hr)	3
Heavy Vehicles (%)	3%
Turn Type	pt+ov
Protected Phases	2 3
Permitted Phases	
Actuated Green, G (s)	50.2
Effective Green, g (s)	50.2
Actuated g/C Ratio	0.42
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	655
v/s Ratio Prot	0.02
v/s Ratio Perm	
v/c Ratio	0.04
Uniform Delay, d1	20.7
Progression Factor	1.00
Incremental Delay, d2	0.0
Delay (s)	20.7
Level of Service	C
Approach Delay (s)	
Approach LOS	

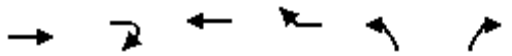
Intersection Summary



Movement	EBT	EBR	EBR2	WBL2	WBT	SBL	SBT	SBR2
Lane Configurations								
Traffic Volume (vph)	1067	90	6	215	874	967	0	141
Future Volume (vph)	1067	90	6	215	874	967	0	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0	6.0	6.0	6.0	4.0
Lane Util. Factor	0.91		1.00	0.97	0.95	0.95	0.91	0.95
Frpb, ped/bikes	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.99		0.85	1.00	1.00	1.00	1.00	0.85
Flt Protected	1.00		1.00	0.95	1.00	0.95	0.95	1.00
Satd. Flow (prot)	4929		808	3367	3471	1665	1594	1490
Flt Permitted	1.00		1.00	0.95	1.00	0.95	0.95	1.00
Satd. Flow (perm)	4929		808	3367	3471	1665	1594	1490
Peak-hour factor, PHF	0.96	0.96	0.92	0.89	0.89	0.93	0.93	0.93
Adj. Flow (vph)	1111	94	7	242	982	1040	0	152
RTOR Reduction (vph)	0	0	4	0	0	0	50	0
Lane Group Flow (vph)	1205	0	3	242	982	530	475	137
Confl. Peds. (#/hr)								
Heavy Vehicles (%)	4%	4%	100%	4%	4%	3%	3%	3%
Turn Type	NA		Perm	Prot	NA	Perm	NA	Free
Protected Phases	2			1	6		4	
Permitted Phases			2			4		Free
Actuated Green, G (s)	43.2		43.2	12.1	61.3	46.7	46.7	120.0
Effective Green, g (s)	43.2		43.2	12.1	61.3	46.7	46.7	120.0
Actuated g/C Ratio	0.36		0.36	0.10	0.51	0.39	0.39	1.00
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	2.0		2.0	2.5	2.5	4.0	4.0	
Lane Grp Cap (vph)	1774		290	339	1773	647	620	1490
v/s Ratio Prot	c0.24			c0.07	0.28			
v/s Ratio Perm			0.00			c0.32	0.30	0.09
v/c Ratio	0.68		0.01	0.71	0.55	0.82	0.77	0.09
Uniform Delay, d1	32.5		24.7	52.3	20.0	32.9	31.9	0.0
Progression Factor	0.52		1.00	1.01	1.01	1.00	1.00	1.00
Incremental Delay, d2	1.6		0.0	6.1	1.2	8.4	6.0	0.1
Delay (s)	18.6		24.7	59.1	21.4	41.2	37.9	0.1
Level of Service	B		C	E	C	D	D	A
Approach Delay (s)	18.7				28.9		35.0	
Approach LOS	B				C		D	

Intersection Summary			
HCM 2000 Control Delay	27.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		

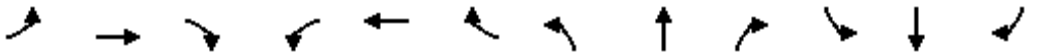
c Critical Lane Group



Movement	EBT	EBR2	WBT	WBR	NBL2	NBR
Lane Configurations						
Traffic Volume (vph)	1815	6	936	909	153	386
Future Volume (vph)	1815	6	936	909	153	386
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6	5.6	4.0	5.6	4.0
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	0.85
Flt Protected	1.00	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3471	808	3438	1538	1719	1538
Flt Permitted	1.00	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3471	808	3438	1538	1719	1538
Peak-hour factor, PHF	0.97	0.92	0.90	0.90	0.88	0.88
Adj. Flow (vph)	1871	7	1040	1010	174	439
RTOR Reduction (vph)	0	2	0	0	0	0
Lane Group Flow (vph)	1871	5	1040	1010	174	439
Confl. Peds. (#/hr)						
Heavy Vehicles (%)	4%	100%	5%	5%	5%	5%
Turn Type	NA	Perm	NA	Free	Prot	Free
Protected Phases	6		2		8	
Permitted Phases		6		Free		Free
Actuated Green, G (s)	91.3	91.3	91.3	120.0	17.5	120.0
Effective Green, g (s)	91.3	91.3	91.3	120.0	17.5	120.0
Actuated g/C Ratio	0.76	0.76	0.76	1.00	0.15	1.00
Clearance Time (s)	5.6	5.6	5.6		5.6	
Vehicle Extension (s)	4.0	4.0	4.0		3.5	
Lane Grp Cap (vph)	2640	614	2615	1538	250	1538
v/s Ratio Prot	c0.54		0.30		0.10	
v/s Ratio Perm		0.01		c0.66		0.29
v/c Ratio	0.71	0.01	0.40	0.66	0.70	0.29
Uniform Delay, d1	7.4	3.5	4.9	0.0	48.7	0.0
Progression Factor	0.32	0.23	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	0.0	0.5	2.2	8.4	0.5
Delay (s)	3.6	0.8	5.4	2.2	57.2	0.5
Level of Service	A	A	A	A	E	A
Approach Delay (s)	3.5		3.8			
Approach LOS	A		A			

Intersection Summary			
HCM 2000 Control Delay	5.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.2
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		

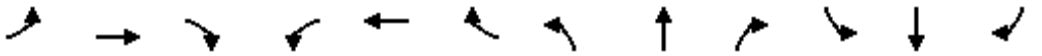
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	711	12	30	913	39	10	0	30	69	0	102
Future Volume (vph)	92	711	12	30	913	39	10	0	30	69	0	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0		5.0	5.0		5.0
Lane Util. Factor	1.00	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	0.90	1.00		1.00	1.00		0.70
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00		1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	1770	3468		902	3539	1417	902		808	1770		1110
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	1770	3468		902	3539	1417	902		808	1770		1110
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)	100	773	13	33	992	42	11	0	33	75	0	111
RTOR Reduction (vph)	0	1	0	0	0	19	0	0	32	0	0	91
Lane Group Flow (vph)	100	785	0	33	992	23	11	0	1	75	0	20
Confl. Peds. (#/hr)	20		30	30		20	180					180
Heavy Vehicles (%)	2%	2%	100%	100%	2%	2%	100%	100%	100%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Prot		Prot	Prot		Perm
Protected Phases	5	2		1	6		7		7	8		
Permitted Phases						6						8
Actuated Green, G (s)	11.6	69.1		12.4	69.9	69.9	4.5		4.5	24.0		24.0
Effective Green, g (s)	11.6	69.1		12.4	69.9	69.9	4.5		4.5	24.0		24.0
Actuated g/C Ratio	0.09	0.53		0.10	0.54	0.54	0.03		0.03	0.18		0.18
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0		5.0	5.0		5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0		2.0	2.0		2.0
Lane Grp Cap (vph)	157	1843		86	1902	761	31		27	326		204
v/s Ratio Prot	c0.06	0.23		0.04	c0.28		c0.01		0.00	c0.04		
v/s Ratio Perm						0.02						0.02
v/c Ratio	0.64	0.43		0.38	0.52	0.03	0.35		0.04	0.23		0.10
Uniform Delay, d1	57.2	18.4		55.2	19.3	14.1	61.3		60.7	45.1		44.0
Progression Factor	1.00	1.00		0.62	0.43	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2	6.1	0.7		0.9	0.9	0.1	2.5		0.2	0.1		0.1
Delay (s)	63.3	19.2		35.1	9.1	14.2	63.9		60.9	45.3		44.1
Level of Service	E	B		D	A	B	E		E	D		D
Approach Delay (s)		24.1			10.1			61.6			44.6	
Approach LOS		C			B			E			D	

Intersection Summary			
HCM 2000 Control Delay	19.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	60.2%	ICU Level of Service	B
Analysis Period (min)	15		

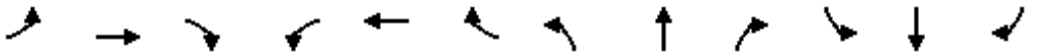
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	655	76	393	753	373	139	556	500	457	662	90
Future Volume (vph)	79	655	76	393	753	373	139	556	500	457	662	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3479		3467	3574	1599	1787	3574	1599	3467	3574	1599
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3479		3467	3574	1599	1787	3574	1599	3467	3574	1599
Peak-hour factor, PHF	0.96	0.96	0.96	0.98	0.98	0.98	0.96	0.96	0.96	0.94	0.94	0.94
Adj. Flow (vph)	82	682	79	401	768	381	145	579	521	486	704	96
RTOR Reduction (vph)	0	7	0	0	0	66	0	0	56	0	0	60
Lane Group Flow (vph)	82	754	0	401	768	315	145	579	465	486	704	36
Confl. Peds. (#/hr)			1	1			10		9	9		10
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA	pt+ov	Prot	NA	pt+ov	Prot	NA	pt+ov
Protected Phases	3	8		7	4	4 5	1	6	6 7	5	2	2 3
Permitted Phases												
Actuated Green, G (s)	9.8	31.2		20.2	41.6	67.8	20.3	37.4	57.6	21.2	38.3	48.1
Effective Green, g (s)	9.8	31.2		20.2	41.6	67.8	20.3	37.4	57.6	21.2	38.3	48.1
Actuated g/C Ratio	0.08	0.24		0.16	0.32	0.52	0.16	0.29	0.44	0.16	0.29	0.37
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0		3.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	133	834		538	1143	833	279	1028	708	565	1052	591
v/s Ratio Prot	0.05	c0.22		0.12	c0.21	0.20	0.08	0.16	c0.29	c0.14	c0.20	0.02
v/s Ratio Perm												
v/c Ratio	0.62	0.90		0.75	0.67	0.38	0.52	0.56	0.66	0.86	0.67	0.06
Uniform Delay, d1	58.3	48.0		52.4	38.3	18.5	50.4	39.4	28.4	53.0	40.3	26.4
Progression Factor	0.86	0.66		0.63	0.49	0.59	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.5	12.3		4.4	1.0	0.1	0.7	2.2	2.2	12.3	3.4	0.0
Delay (s)	55.7	44.0		37.3	19.8	11.1	51.1	41.6	30.6	65.2	43.7	26.4
Level of Service	E	D		D	B	B	D	D	C	E	D	C
Approach Delay (s)		45.1			22.2			38.1			50.5	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	37.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	87.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

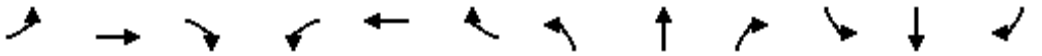


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1366	246	458	1268	0	0	0	0	1189	0	252
Future Volume (vph)	0	1366	246	458	1268	0	0	0	0	1189	0	252
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0					6.0	6.0	4.0
Lane Util. Factor		0.91		0.97	0.95					0.95	0.91	0.95
Frt		0.98		1.00	1.00					1.00	0.99	0.85
Flt Protected		1.00		0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		4969		3467	3574					1681	1607	1504
Flt Permitted		1.00		0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		4969		3467	3574					1681	1607	1504
Peak-hour factor, PHF	0.96	0.96	0.96	0.95	0.95	0.95	0.25	0.25	0.25	0.99	0.99	0.99
Adj. Flow (vph)	0	1423	256	482	1335	0	0	0	0	1201	0	255
RTOR Reduction (vph)	0	20	0	0	0	0	0	0	0	0	47	0
Lane Group Flow (vph)	0	1659	0	482	1335	0	0	0	0	613	567	229
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	0%	0%	0%	2%	2%	2%
Turn Type		NA		Prot	NA					Perm	NA	Free
Protected Phases		2		1	6						4	
Permitted Phases										4		Free
Actuated Green, G (s)		44.0		19.0	69.0					49.0	49.0	130.0
Effective Green, g (s)		44.0		19.0	69.0					49.0	49.0	130.0
Actuated g/C Ratio		0.34		0.15	0.53					0.38	0.38	1.00
Clearance Time (s)		6.0		6.0	6.0					6.0	6.0	
Vehicle Extension (s)		2.0		2.5	2.5					4.0	4.0	
Lane Grp Cap (vph)		1681		506	1896					633	605	1504
v/s Ratio Prot		c0.33		c0.14	0.37							
v/s Ratio Perm										c0.36	0.35	0.15
v/c Ratio		0.99		0.95	0.70					0.97	0.94	0.15
Uniform Delay, d1		42.7		55.1	22.9					39.7	39.0	0.0
Progression Factor		0.92		0.87	0.69					1.00	1.00	1.00
Incremental Delay, d2		14.3		24.3	1.8					27.8	22.3	0.2
Delay (s)		53.7		72.3	17.4					67.6	61.3	0.2
Level of Service		D		E	B					E	E	A
Approach Delay (s)		53.7			32.0			0.0			54.3	
Approach LOS		D			C			A			D	

Intersection Summary			
HCM 2000 Control Delay	45.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	95.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Traffic Volume (vph)	0	2301	0	0	1576	1378	150	0	373	0	0
Future Volume (vph)	0	2301	0	0	1576	1378	150	0	373	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.6			5.6	4.0	5.6		5.6		
Lane Util. Factor		0.95			0.95	1.00	1.00		1.00		
Frt		1.00			1.00	0.85	1.00		0.85		
Flt Protected		1.00			1.00	1.00	0.95		1.00		
Satd. Flow (prot)		3539			3574	1599	1736		1553		
Flt Permitted		1.00			1.00	1.00	0.95		1.00		
Satd. Flow (perm)		3539			3574	1599	1736		1553		
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.94	0.94	0.94	0.25	0.25
Adj. Flow (vph)	0	2372	0	0	1625	1421	160	0	397	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	17	0	0
Lane Group Flow (vph)	0	2372	0	0	1625	1421	160	0	380	0	0
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	4%	4%	4%	0%	0%
Turn Type		NA			NA	Free	Prot		Perm		
Protected Phases		6			2		8				
Permitted Phases						Free			8		
Actuated Green, G (s)		88.4			88.4	130.0	30.4		30.4		
Effective Green, g (s)		88.4			88.4	130.0	30.4		30.4		
Actuated g/C Ratio		0.68			0.68	1.00	0.23		0.23		
Clearance Time (s)		5.6			5.6		5.6		5.6		
Vehicle Extension (s)		4.0			4.0		3.5		3.5		
Lane Grp Cap (vph)		2406			2430	1599	405		363		
v/s Ratio Prot		c0.67			0.45		0.09				
v/s Ratio Perm						c0.89			0.24		
v/c Ratio		0.99			0.67	0.89	0.40		1.05		
Uniform Delay, d1		20.2			12.2	0.0	42.0		49.8		
Progression Factor		0.36			1.00	1.00	1.00		1.00		
Incremental Delay, d2		8.5			1.5	7.8	0.8		60.1		
Delay (s)		15.7			13.7	7.8	42.8		109.9		
Level of Service		B			B	A	D		F		
Approach Delay (s)		15.7			10.9			90.6		0.0	
Approach LOS		B			B			F		A	

Intersection Summary			
HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.2
Intersection Capacity Utilization	96.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	711	12	36	913	39	10	0	36	69	0	102
Future Volume (vph)	92	711	12	36	913	39	10	0	36	69	0	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0		5.0	5.0		5.0
Lane Util. Factor	1.00	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	0.90	1.00		1.00	1.00		0.70
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00		1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	1770	3468		902	3539	1417	902		808	1770		1110
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	1770	3468		902	3539	1417	902		808	1770		1110
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)	100	773	13	39	992	42	11	0	39	75	0	111
RTOR Reduction (vph)	0	1	0	0	0	20	0	0	37	0	0	91
Lane Group Flow (vph)	100	785	0	39	992	22	11	0	2	75	0	20
Confl. Peds. (#/hr)	20		30	30		20	180					180
Heavy Vehicles (%)	2%	2%	100%	100%	2%	2%	100%	100%	100%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Prot		Prot	Prot		Perm
Protected Phases	5	2		1	6		7		7	8		
Permitted Phases						6						8
Actuated Green, G (s)	11.6	67.9		12.6	68.9	68.9	5.5		5.5	24.0		24.0
Effective Green, g (s)	11.6	67.9		12.6	68.9	68.9	5.5		5.5	24.0		24.0
Actuated g/C Ratio	0.09	0.52		0.10	0.53	0.53	0.04		0.04	0.18		0.18
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0		5.0	5.0		5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0		2.0	2.0		2.0
Lane Grp Cap (vph)	157	1811		87	1875	751	38		34	326		204
v/s Ratio Prot	c0.06	0.23		0.04	c0.28		c0.01		0.00	c0.04		
v/s Ratio Perm						0.02						0.02
v/c Ratio	0.64	0.43		0.45	0.53	0.03	0.29		0.05	0.23		0.10
Uniform Delay, d1	57.2	19.2		55.4	20.0	14.6	60.4		59.7	45.1		44.0
Progression Factor	1.00	1.00		0.57	0.42	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2	6.1	0.8		1.1	0.9	0.1	1.5		0.2	0.1		0.1
Delay (s)	63.3	19.9		32.6	9.3	14.6	61.9		60.0	45.3		44.1
Level of Service	E	B		C	A	B	E		E	D		D
Approach Delay (s)		24.8			10.4			60.4			44.6	
Approach LOS		C			B			E			D	

Intersection Summary			
HCM 2000 Control Delay	20.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	60.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	EBR2	WBL2	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	79	655	76	6	393	759	373	139	556	500	457	662
Future Volume (vph)	79	655	76	6	393	759	373	139	556	500	457	662
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3479		808	3467	3574	1599	1787	3574	1599	3467	3574
Flt Permitted	0.95	1.00		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3479		808	3467	3574	1599	1787	3574	1599	3467	3574
Peak-hour factor, PHF	0.96	0.96	0.96	0.92	0.98	0.98	0.98	0.96	0.96	0.96	0.94	0.94
Adj. Flow (vph)	82	682	79	7	401	774	381	145	579	521	486	704
RTOR Reduction (vph)	0	0	0	5	0	0	65	0	0	57	0	0
Lane Group Flow (vph)	82	761	0	2	401	774	316	145	579	464	486	704
Confl. Peds. (#/hr)			1		1			10		9	9	
Heavy Vehicles (%)	2%	2%	2%	100%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot	NA		Prot	Prot	NA	pt+ov	Prot	NA	pt+ov	Prot	NA
Protected Phases	3	8		8	7	4	4 5	1	6	6 7	5	2
Permitted Phases												
Actuated Green, G (s)	9.8	31.8		31.8	19.8	41.8	68.0	20.2	37.2	57.0	21.2	38.2
Effective Green, g (s)	9.8	31.8		31.8	19.8	41.8	68.0	20.2	37.2	57.0	21.2	38.2
Actuated g/C Ratio	0.08	0.24		0.24	0.15	0.32	0.52	0.16	0.29	0.44	0.16	0.29
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	3.0	2.0		2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	133	851		197	528	1149	836	277	1022	701	565	1050
v/s Ratio Prot	0.05	c0.22		0.00	c0.12	0.22	0.20	0.08	0.16	c0.29	c0.14	c0.20
v/s Ratio Perm												
v/c Ratio	0.62	0.89		0.01	0.76	0.67	0.38	0.52	0.57	0.66	0.86	0.67
Uniform Delay, d1	58.3	47.5		37.2	52.8	38.2	18.4	50.5	39.5	28.9	53.0	40.4
Progression Factor	0.85	0.65		1.00	0.65	0.52	0.59	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.5	11.0		0.0	5.0	1.0	0.1	0.8	2.3	2.4	12.3	3.4
Delay (s)	55.1	41.7		37.2	39.3	20.7	11.0	51.3	41.8	31.2	65.2	43.8
Level of Service	E	D		D	D	C	B	D	D	C	E	D
Approach Delay (s)		43.0				23.1			38.5			50.6
Approach LOS		D				C			D			D

Intersection Summary			
HCM 2000 Control Delay	37.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	87.4%	ICU Level of Service	E
Analysis Period (min)	15		

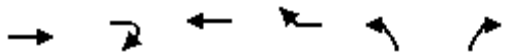
c Critical Lane Group

Movement	SBR2
Lane Configurations	
Traffic Volume (vph)	90
Future Volume (vph)	90
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.0
Lane Util. Factor	1.00
Frpb, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1599
Flt Permitted	1.00
Satd. Flow (perm)	1599
Peak-hour factor, PHF	0.94
Adj. Flow (vph)	96
RTOR Reduction (vph)	61
Lane Group Flow (vph)	35
Confl. Peds. (#/hr)	10
Heavy Vehicles (%)	1%
Turn Type	pt+ov
Protected Phases	2 3
Permitted Phases	
Actuated Green, G (s)	48.0
Effective Green, g (s)	48.0
Actuated g/C Ratio	0.37
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	590
v/s Ratio Prot	0.02
v/s Ratio Perm	
v/c Ratio	0.06
Uniform Delay, d1	26.4
Progression Factor	1.00
Incremental Delay, d2	0.0
Delay (s)	26.5
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

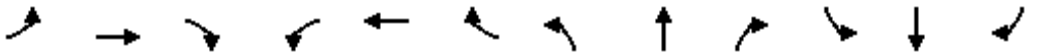
Movement	EBT	EBR	EBR2	WBL2	WBT	SBL	SBT	SBR2
Lane Configurations								
Traffic Volume (vph)	1366	246	6	458	1274	1189	0	252
Future Volume (vph)	1366	246	6	458	1274	1189	0	252
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0	6.0	6.0	6.0	4.0
Lane Util. Factor	0.91		1.00	0.97	0.95	0.95	0.91	0.95
Frt	0.98		0.85	1.00	1.00	1.00	0.99	0.85
Flt Protected	1.00		1.00	0.95	1.00	0.95	0.95	1.00
Satd. Flow (prot)	4969		808	3467	3574	1681	1607	1504
Flt Permitted	1.00		1.00	0.95	1.00	0.95	0.95	1.00
Satd. Flow (perm)	4969		808	3467	3574	1681	1607	1504
Peak-hour factor, PHF	0.96	0.96	0.92	0.95	0.95	0.99	0.99	0.99
Adj. Flow (vph)	1423	256	7	482	1341	1201	0	255
RTOR Reduction (vph)	0	0	5	0	0	0	49	0
Lane Group Flow (vph)	1679	0	2	482	1341	613	565	229
Heavy Vehicles (%)	2%	2%	100%	1%	1%	2%	2%	2%
Turn Type	NA		Perm	Prot	NA	Perm	NA	Free
Protected Phases	2			1	6		4	
Permitted Phases			2			4		Free
Actuated Green, G (s)	46.0		46.0	19.0	71.0	47.0	47.0	130.0
Effective Green, g (s)	46.0		46.0	19.0	71.0	47.0	47.0	130.0
Actuated g/C Ratio	0.35		0.35	0.15	0.55	0.36	0.36	1.00
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	2.0		2.0	2.5	2.5	4.0	4.0	
Lane Grp Cap (vph)	1758		285	506	1951	607	580	1504
v/s Ratio Prot	c0.34			c0.14	0.38			
v/s Ratio Perm			0.00			c0.36	0.35	0.15
v/c Ratio	0.96		0.01	0.95	0.69	1.01	0.97	0.15
Uniform Delay, d1	41.0		27.2	55.1	21.4	41.5	40.9	0.0
Progression Factor	0.90		1.00	0.87	0.67	1.00	1.00	1.00
Incremental Delay, d2	9.2		0.0	24.3	1.6	39.0	30.9	0.2
Delay (s)	46.1		27.3	72.4	15.9	80.5	71.8	0.2
Level of Service	D		C	E	B	F	E	A
Approach Delay (s)	46.0				30.8		64.2	
Approach LOS	D				C		E	

Intersection Summary			
HCM 2000 Control Delay	45.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	95.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBT	EBR2	WBT	WBR	NBL2	NBR
Lane Configurations						
Traffic Volume (vph)	2301	6	1582	1378	150	373
Future Volume (vph)	2301	6	1582	1378	150	373
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6	5.6	4.0	5.6	5.6
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	0.85
Flt Protected	1.00	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3539	808	3574	1599	1736	1553
Flt Permitted	1.00	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3539	808	3574	1599	1736	1553
Peak-hour factor, PHF	0.97	0.92	0.97	0.97	0.94	0.94
Adj. Flow (vph)	2372	7	1631	1421	160	397
RTOR Reduction (vph)	0	2	0	0	0	17
Lane Group Flow (vph)	2372	5	1631	1421	160	380
Heavy Vehicles (%)	2%	100%	1%	1%	4%	4%
Turn Type	NA	Prot	NA	Free	Prot	Perm
Protected Phases	6	6	2		8	
Permitted Phases				Free		8
Actuated Green, G (s)	88.4	88.4	88.4	130.0	30.4	30.4
Effective Green, g (s)	88.4	88.4	88.4	130.0	30.4	30.4
Actuated g/C Ratio	0.68	0.68	0.68	1.00	0.23	0.23
Clearance Time (s)	5.6	5.6	5.6		5.6	5.6
Vehicle Extension (s)	4.0	4.0	4.0		3.5	3.5
Lane Grp Cap (vph)	2406	549	2430	1599	405	363
v/s Ratio Prot	c0.67	0.01	0.46		0.09	
v/s Ratio Perm				c0.89		0.24
v/c Ratio	0.99	0.01	0.67	0.89	0.40	1.05
Uniform Delay, d1	20.2	6.7	12.2	0.0	42.0	49.8
Progression Factor	0.33	0.10	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.6	0.0	1.5	7.8	0.8	60.1
Delay (s)	15.3	0.7	13.7	7.8	42.8	109.9
Level of Service	B	A	B	A	D	F
Approach Delay (s)	15.2		11.0			
Approach LOS	B		B			

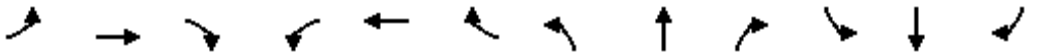
Intersection Summary			
HCM 2000 Control Delay	20.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.2
Intersection Capacity Utilization	96.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	804	16	41	693	13	14	0	42	29	0	52
Future Volume (vph)	77	804	16	41	693	13	14	0	42	29	0	52
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	4.5		4.5	4.5		4.5
Lane Util. Factor	1.00	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	0.95	1.00		1.00	1.00		0.90
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00		1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	1770	3427		902	3471	1538	902		808	1719		1389
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	1770	3427		902	3471	1538	902		808	1719		1389
Peak-hour factor, PHF	0.90	0.90	0.90	0.93	0.93	0.93	0.73	0.73	0.73	0.82	0.82	0.82
Adj. Flow (vph)	86	893	18	44	745	14	19	0	58	35	0	63
RTOR Reduction (vph)	0	1	0	0	0	6	0	0	55	0	0	53
Lane Group Flow (vph)	86	910	0	44	745	8	19	0	3	35	0	11
Confl. Peds. (#/hr)	9		12	12		9	60					60
Heavy Vehicles (%)	2%	3%	100%	100%	4%	0%	100%	100%	100%	5%	5%	5%
Turn Type	Prot	NA		Prot	NA	Perm	Prot		Prot	Prot		Perm
Protected Phases	5	2		1	6		7		7	8		
Permitted Phases						6						8
Actuated Green, G (s)	8.6	67.0		8.6	67.0	67.0	6.4		6.4	20.0		20.0
Effective Green, g (s)	8.6	67.0		8.6	67.0	67.0	6.4		6.4	20.0		20.0
Actuated g/C Ratio	0.07	0.56		0.07	0.56	0.56	0.05		0.05	0.17		0.17
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5		4.5	4.5		4.5
Vehicle Extension (s)	2.0	2.0		3.0	2.0	2.0	2.0		2.0	2.0		2.0
Lane Grp Cap (vph)	126	1913		64	1937	858	48		43	286		231
v/s Ratio Prot	0.05	c0.27		c0.05	0.21		c0.02		0.00	c0.02		
v/s Ratio Perm						0.01						0.01
v/c Ratio	0.68	0.48		0.69	0.38	0.01	0.40		0.07	0.12		0.05
Uniform Delay, d1	54.4	15.9		54.4	14.9	11.8	54.9		54.0	42.5		42.0
Progression Factor	1.00	1.00		1.10	0.46	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2	11.5	0.9		23.1	0.5	0.0	2.0		0.3	0.1		0.0
Delay (s)	65.9	16.8		83.1	7.4	11.8	56.9		54.2	42.6		42.0
Level of Service	E	B		F	A	B	E		D	D		D
Approach Delay (s)		21.0			11.6			54.9			42.2	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	19.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		

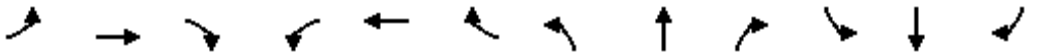
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	780	43	206	590	356	71	487	293	372	290	86
Future Volume (vph)	52	780	43	206	590	356	71	487	293	372	290	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	3441		3335	3438	1538	1752	3505	1568	3400	3505	1568
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1736	3441		3335	3438	1538	1752	3505	1568	3400	3505	1568
Peak-hour factor, PHF	0.90	0.90	0.90	0.84	0.84	0.84	0.90	0.90	0.90	0.83	0.83	0.83
Adj. Flow (vph)	58	867	48	245	702	424	79	541	326	448	349	104
RTOR Reduction (vph)	0	4	0	0	0	74	0	0	68	0	0	68
Lane Group Flow (vph)	58	911	0	245	702	350	79	541	258	448	349	36
Confl. Peds. (#/hr)	4		2	2		4	4		4	4		4
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Turn Type	Prot	NA		Prot	NA	pt+ov	Prot	NA	pt+ov	Prot	NA	pt+ov
Protected Phases	3	8		7	4	4 5	1	6	6 7	5	2	2 3
Permitted Phases												
Actuated Green, G (s)	8.2	35.3		11.1	38.2	62.4	20.3	34.4	45.5	19.2	33.3	41.5
Effective Green, g (s)	8.2	35.3		11.1	38.2	62.4	20.3	34.4	45.5	19.2	33.3	41.5
Actuated g/C Ratio	0.07	0.29		0.09	0.32	0.52	0.17	0.29	0.38	0.16	0.28	0.35
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	118	1012		308	1094	799	296	1004	594	544	972	542
v/s Ratio Prot	0.03	c0.26		c0.07	0.20	0.23	0.05	c0.15	0.16	c0.13	0.10	0.02
v/s Ratio Perm												
v/c Ratio	0.49	0.90		0.80	0.64	0.44	0.27	0.54	0.43	0.82	0.36	0.07
Uniform Delay, d1	53.9	40.7		53.3	35.0	17.9	43.4	36.1	27.7	48.8	34.8	26.3
Progression Factor	1.54	0.82		0.60	0.42	0.17	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	10.0		10.5	0.8	0.1	0.2	2.1	0.2	9.3	1.0	0.0
Delay (s)	84.1	43.3		42.4	15.4	3.1	43.6	38.2	27.9	58.1	35.8	26.3
Level of Service	F	D		D	B	A	D	D	C	E	D	C
Approach Delay (s)		45.7			16.4			35.1			45.8	
Approach LOS		D			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	33.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	82.0%	ICU Level of Service	E
Analysis Period (min)	15		

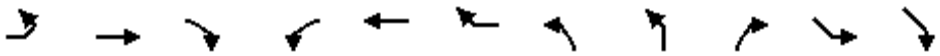
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1270	175	207	984	0	0	0	0	1163	0	168
Future Volume (vph)	0	1270	175	207	984	0	0	0	0	1163	0	168
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	4.0
Lane Util. Factor		0.91		0.97	0.95					0.95	0.91	0.95
Frpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	1.00
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	1.00
Frt		0.98		1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		4897		3367	3471					1665	1594	1490
Flt Permitted		1.00		0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		4897		3367	3471					1665	1594	1490
Peak-hour factor, PHF	0.96	0.96	0.96	0.89	0.89	0.89	0.25	0.25	0.25	0.93	0.93	0.93
Adj. Flow (vph)	0	1323	182	233	1106	0	0	0	0	1251	0	181
RTOR Reduction (vph)	0	14	0	0	0	0	0	0	0	0	47	0
Lane Group Flow (vph)	0	1491	0	233	1106	0	0	0	0	638	584	163
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	0%	0%	0%	3%	3%	3%
Turn Type		NA		Prot	NA					Perm	NA	Free
Protected Phases		2		1	6						4	
Permitted Phases										4		Free
Actuated Green, G (s)		41.2		10.0	57.2					50.8	50.8	120.0
Effective Green, g (s)		41.2		10.0	57.2					50.8	50.8	120.0
Actuated g/C Ratio		0.34		0.08	0.48					0.42	0.42	1.00
Clearance Time (s)		6.0		6.0	6.0					6.0	6.0	
Vehicle Extension (s)		2.0		2.5	2.5					4.0	4.0	
Lane Grp Cap (vph)		1681		280	1654					704	674	1490
v/s Ratio Prot		c0.30		0.07	c0.32							
v/s Ratio Perm										c0.38	0.37	0.11
v/c Ratio		0.89		0.83	0.67					0.91	0.87	0.11
Uniform Delay, d1		37.2		54.2	24.1					32.4	31.5	0.0
Progression Factor		0.84		1.00	0.98					1.00	1.00	1.00
Incremental Delay, d2		4.8		16.8	2.0					15.5	11.6	0.1
Delay (s)		35.8		70.8	25.6					47.9	43.1	0.1
Level of Service		D		E	C					D	D	A
Approach Delay (s)		35.8			33.5			0.0			40.4	
Approach LOS		D			C			A			D	

Intersection Summary			
HCM 2000 Control Delay	36.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		

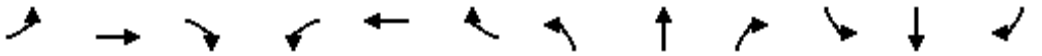
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Traffic Volume (vph)	0	2084	0	0	997	881	194	0	473	0	0
Future Volume (vph)	0	2084	0	0	997	881	194	0	473	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.6			5.6	4.0	5.6		4.0		
Lane Util. Factor		0.95			0.95	1.00	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	0.85	1.00		0.85		
Flt Protected		1.00			1.00	1.00	0.95		1.00		
Satd. Flow (prot)		3471			3438	1538	1719		1538		
Flt Permitted		1.00			1.00	1.00	0.95		1.00		
Satd. Flow (perm)		3471			3438	1538	1719		1538		
Peak-hour factor, PHF	0.97	0.97	0.97	0.90	0.90	0.90	0.88	0.88	0.88	0.25	0.25
Adj. Flow (vph)	0	2148	0	0	1108	979	220	0	538	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	2148	0	0	1108	979	220	0	538	0	0
Confl. Peds. (#/hr)	1821										
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	5%	5%	5%	0%	0%
Turn Type		NA			NA	Free	Prot		Free		
Protected Phases		6			2		8				
Permitted Phases						Free			Free		
Actuated Green, G (s)		89.2			89.2	120.0	19.6		120.0		
Effective Green, g (s)		89.2			89.2	120.0	19.6		120.0		
Actuated g/C Ratio		0.74			0.74	1.00	0.16		1.00		
Clearance Time (s)		5.6			5.6		5.6				
Vehicle Extension (s)		4.0			4.0		3.5				
Lane Grp Cap (vph)		2580			2555	1538	280		1538		
v/s Ratio Prot		c0.62			0.32		0.13				
v/s Ratio Perm						c0.64			0.35		
v/c Ratio		0.83			0.43	0.64	0.79		0.35		
Uniform Delay, d1		10.4			5.8	0.0	48.2		0.0		
Progression Factor		0.35			1.00	1.00	1.00		1.00		
Incremental Delay, d2		1.7			0.5	2.0	13.9		0.6		
Delay (s)		5.2			6.4	2.0	62.0		0.6		
Level of Service		A			A	A	E		A		
Approach Delay (s)		5.2			4.3			18.5		0.0	
Approach LOS		A			A			B		A	

Intersection Summary			
HCM 2000 Control Delay	6.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.2
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	804	16	47	693	13	14	0	48	29	0	52
Future Volume (vph)	77	804	16	47	693	13	14	0	48	29	0	52
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	4.5		4.5	4.5		4.5
Lane Util. Factor	1.00	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	0.95	1.00		1.00	1.00		0.90
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00		1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	1770	3427		902	3471	1538	902		808	1719		1389
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	1770	3427		902	3471	1538	902		808	1719		1389
Peak-hour factor, PHF	0.90	0.90	0.90	0.93	0.93	0.93	0.73	0.73	0.73	0.82	0.82	0.82
Adj. Flow (vph)	86	893	18	51	745	14	19	0	66	35	0	63
RTOR Reduction (vph)	0	1	0	0	0	6	0	0	62	0	0	53
Lane Group Flow (vph)	86	910	0	51	745	8	19	0	4	35	0	11
Confl. Peds. (#/hr)	9		12	12		9	60					60
Heavy Vehicles (%)	2%	3%	100%	100%	4%	0%	100%	100%	100%	5%	5%	5%
Turn Type	Prot	NA		Prot	NA	Perm	Prot		Prot	Prot		Perm
Protected Phases	5	2		1	6		7		7	8		
Permitted Phases						6						8
Actuated Green, G (s)	8.6	66.2		9.4	67.0	67.0	6.4		6.4	20.0		20.0
Effective Green, g (s)	8.6	66.2		9.4	67.0	67.0	6.4		6.4	20.0		20.0
Actuated g/C Ratio	0.07	0.55		0.08	0.56	0.56	0.05		0.05	0.17		0.17
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5		4.5	4.5		4.5
Vehicle Extension (s)	2.0	2.0		3.0	2.0	2.0	2.0		2.0	2.0		2.0
Lane Grp Cap (vph)	126	1890		70	1937	858	48		43	286		231
v/s Ratio Prot	0.05	c0.27		c0.06	0.21		c0.02		0.00	c0.02		
v/s Ratio Perm						0.01						0.01
v/c Ratio	0.68	0.48		0.73	0.38	0.01	0.40		0.08	0.12		0.05
Uniform Delay, d1	54.4	16.4		54.1	14.9	11.8	54.9		54.0	42.5		42.0
Progression Factor	1.00	1.00		1.10	0.51	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2	11.5	0.9		27.3	0.5	0.0	2.0		0.3	0.1		0.0
Delay (s)	65.9	17.3		86.9	8.0	11.8	56.9		54.3	42.6		42.0
Level of Service	E	B		F	A	B	E		D	D		D
Approach Delay (s)		21.5			13.1			54.9			42.2	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	20.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

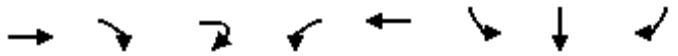
Movement	EBL	EBT	EBR	EBR2	WBL2	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	52	780	43	6	206	596	356	71	487	293	372	290
Future Volume (vph)	52	780	43	6	206	596	356	71	487	293	372	290
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1736	3441		808	3335	3438	1538	1752	3505	1568	3400	3505
Flt Permitted	0.95	1.00		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1736	3441		808	3335	3438	1538	1752	3505	1568	3400	3505
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.84	0.84	0.84	0.90	0.90	0.90	0.83	0.83
Adj. Flow (vph)	58	867	48	7	245	710	424	79	541	326	448	349
RTOR Reduction (vph)	0	0	0	5	0	0	74	0	0	68	0	0
Lane Group Flow (vph)	58	915	0	2	245	710	350	79	541	258	448	349
Confl. Peds. (#/hr)	4		2		2		4	4		4	4	
Heavy Vehicles (%)	4%	4%	4%	100%	5%	5%	5%	3%	3%	3%	3%	3%
Turn Type	Prot	NA		Prot	Prot	NA	pt+ov	Prot	NA	pt+ov	Prot	NA
Protected Phases	3	8		8	7	4	4 5	1	6	6 7	5	2
Permitted Phases												
Actuated Green, G (s)	8.2	35.3		35.3	11.1	38.2	62.4	20.3	34.4	45.5	19.2	33.3
Effective Green, g (s)	8.2	35.3		35.3	11.1	38.2	62.4	20.3	34.4	45.5	19.2	33.3
Actuated g/C Ratio	0.07	0.29		0.29	0.09	0.32	0.52	0.17	0.29	0.38	0.16	0.28
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0		2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	118	1012		237	308	1094	799	296	1004	594	544	972
v/s Ratio Prot	0.03	c0.27		0.00	0.07	c0.21	0.23	0.05	c0.15	0.16	c0.13	0.10
v/s Ratio Perm												
v/c Ratio	0.49	0.90		0.01	0.80	0.65	0.44	0.27	0.54	0.43	0.82	0.36
Uniform Delay, d1	53.9	40.7		30.0	53.3	35.1	17.9	43.4	36.1	27.7	48.8	34.8
Progression Factor	1.59	0.77		1.00	0.71	0.55	1.08	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	10.2		0.0	10.6	0.8	0.1	0.2	2.1	0.2	9.3	1.0
Delay (s)	86.6	41.4		30.0	48.6	20.2	19.4	43.6	38.2	27.9	58.1	35.8
Level of Service	F	D		C	D	C	B	D	D	C	E	D
Approach Delay (s)		44.0				25.0			35.1			45.8
Approach LOS		D				C			D			D

Intersection Summary			
HCM 2000 Control Delay	36.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	82.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR2
Lane Configurations	
Traffic Volume (vph)	86
Future Volume (vph)	86
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.0
Lane Util. Factor	1.00
Frpb, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1568
Flt Permitted	1.00
Satd. Flow (perm)	1568
Peak-hour factor, PHF	0.83
Adj. Flow (vph)	104
RTOR Reduction (vph)	68
Lane Group Flow (vph)	36
Confl. Peds. (#/hr)	4
Heavy Vehicles (%)	3%
Turn Type	pt+ov
Protected Phases	2 3
Permitted Phases	
Actuated Green, G (s)	41.5
Effective Green, g (s)	41.5
Actuated g/C Ratio	0.35
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	542
v/s Ratio Prot	0.02
v/s Ratio Perm	
v/c Ratio	0.07
Uniform Delay, d1	26.3
Progression Factor	1.00
Incremental Delay, d2	0.0
Delay (s)	26.3
Level of Service	C
Approach Delay (s)	
Approach LOS	

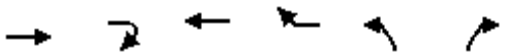
Intersection Summary



Movement	EBT	EBR	EBR2	WBL2	WBT	SBL	SBT	SBR2
Lane Configurations								
Traffic Volume (vph)	1270	175	6	207	990	1163	0	168
Future Volume (vph)	1270	175	6	207	990	1163	0	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0	6.0	6.0	6.0	4.0
Lane Util. Factor	0.91		1.00	0.97	0.95	0.95	0.91	0.95
Frpb, ped/bikes	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.98		0.85	1.00	1.00	1.00	1.00	0.85
Flt Protected	1.00		1.00	0.95	1.00	0.95	0.95	1.00
Satd. Flow (prot)	4897		808	3367	3471	1665	1594	1490
Flt Permitted	1.00		1.00	0.95	1.00	0.95	0.95	1.00
Satd. Flow (perm)	4897		808	3367	3471	1665	1594	1490
Peak-hour factor, PHF	0.96	0.96	0.92	0.89	0.89	0.93	0.93	0.93
Adj. Flow (vph)	1323	182	7	233	1112	1251	0	181
RTOR Reduction (vph)	0	0	4	0	0	0	48	0
Lane Group Flow (vph)	1505	0	3	233	1112	638	583	163
Confl. Peds. (#/hr)								
Heavy Vehicles (%)	4%	4%	100%	4%	4%	3%	3%	3%
Turn Type	NA		Prot	Prot	NA	Perm	NA	Free
Protected Phases	2		2	1	6		4	
Permitted Phases						4		Free
Actuated Green, G (s)	42.9		42.9	9.0	57.9	50.1	50.1	120.0
Effective Green, g (s)	42.9		42.9	9.0	57.9	50.1	50.1	120.0
Actuated g/C Ratio	0.36		0.36	0.08	0.48	0.42	0.42	1.00
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	2.0		2.0	2.5	2.5	4.0	4.0	
Lane Grp Cap (vph)	1750		288	252	1674	695	665	1490
v/s Ratio Prot	c0.31		0.00	c0.07	0.32			
v/s Ratio Perm						c0.38	0.37	0.11
v/c Ratio	0.86		0.01	0.92	0.66	0.92	0.88	0.11
Uniform Delay, d1	35.8		24.8	55.2	23.6	33.0	32.1	0.0
Progression Factor	0.84		1.00	1.02	0.88	1.00	1.00	1.00
Incremental Delay, d2	3.7		0.0	34.3	1.9	17.3	12.8	0.1
Delay (s)	33.7		24.9	90.5	22.6	50.3	44.9	0.1
Level of Service	C		C	F	C	D	D	A
Approach Delay (s)	33.7				34.4		42.2	
Approach LOS	C				C		D	

Intersection Summary			
HCM 2000 Control Delay	36.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		

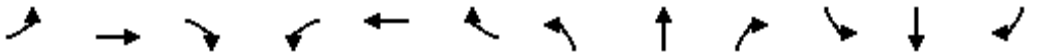
c Critical Lane Group



Movement	EBT	EBR2	WBT	WBR	NBL2	NBR
Lane Configurations						
Traffic Volume (vph)	2084	6	1003	881	194	473
Future Volume (vph)	2084	6	1003	881	194	473
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6	5.6	4.0	5.6	4.0
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	0.85
Flt Protected	1.00	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3471	808	3438	1538	1719	1538
Flt Permitted	1.00	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3471	808	3438	1538	1719	1538
Peak-hour factor, PHF	0.97	0.92	0.90	0.90	0.88	0.88
Adj. Flow (vph)	2148	7	1114	979	220	538
RTOR Reduction (vph)	0	2	0	0	0	0
Lane Group Flow (vph)	2148	5	1114	979	220	538
Confl. Peds. (#/hr)						
Heavy Vehicles (%)	4%	100%	5%	5%	5%	5%
Turn Type	NA	Prot	NA	Free	Prot	Free
Protected Phases	6	6	2		8	
Permitted Phases				Free		Free
Actuated Green, G (s)	89.2	89.2	89.2	120.0	19.6	120.0
Effective Green, g (s)	89.2	89.2	89.2	120.0	19.6	120.0
Actuated g/C Ratio	0.74	0.74	0.74	1.00	0.16	1.00
Clearance Time (s)	5.6	5.6	5.6		5.6	
Vehicle Extension (s)	4.0	4.0	4.0		3.5	
Lane Grp Cap (vph)	2580	600	2555	1538	280	1538
v/s Ratio Prot	c0.62	0.01	0.32		0.13	
v/s Ratio Perm				c0.64		0.35
v/c Ratio	0.83	0.01	0.44	0.64	0.79	0.35
Uniform Delay, d1	10.4	4.0	5.8	0.0	48.2	0.0
Progression Factor	0.87	1.74	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.7	0.0	0.5	2.0	13.9	0.6
Delay (s)	10.8	6.9	6.4	2.0	62.0	0.6
Level of Service	B	A	A	A	E	A
Approach Delay (s)	10.7		4.3			
Approach LOS	B		A			

Intersection Summary			
HCM 2000 Control Delay	9.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.2
Intersection Capacity Utilization	76.4%	ICU Level of Service	D
Analysis Period (min)	15		

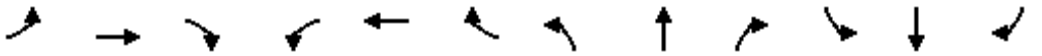
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	126	968	16	41	1238	55	14	0	41	96	0	141
Future Volume (vph)	126	968	16	41	1238	55	14	0	41	96	0	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0		5.0	5.0		5.0
Lane Util. Factor	1.00	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	0.90	1.00		1.00	1.00		0.70
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00		1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	1770	3471		902	3539	1417	902		808	1770		1110
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	1770	3471		902	3539	1417	902		808	1770		1110
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)	137	1052	17	45	1346	60	15	0	45	104	0	153
RTOR Reduction (vph)	0	1	0	0	0	29	0	0	43	0	0	125
Lane Group Flow (vph)	137	1068	0	45	1346	31	15	0	2	104	0	28
Confl. Peds. (#/hr)	20		30	30		20	180					180
Heavy Vehicles (%)	2%	2%	100%	100%	2%	2%	100%	100%	100%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Prot		Prot	Prot		Perm
Protected Phases	5	2		1	6		7		7	8		
Permitted Phases						6						8
Actuated Green, G (s)	12.7	63.1		16.9	67.3	67.3	6.0		6.0	24.0		24.0
Effective Green, g (s)	12.7	63.1		16.9	67.3	67.3	6.0		6.0	24.0		24.0
Actuated g/C Ratio	0.10	0.49		0.13	0.52	0.52	0.05		0.05	0.18		0.18
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0		5.0	5.0		5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0		2.0	2.0		2.0
Lane Grp Cap (vph)	172	1684		117	1832	733	41		37	326		204
v/s Ratio Prot	c0.08	0.31		0.05	c0.38		c0.02		0.00	c0.06		
v/s Ratio Perm						0.02						0.03
v/c Ratio	0.80	0.63		0.38	0.73	0.04	0.37		0.06	0.32		0.14
Uniform Delay, d1	57.4	24.9		51.8	24.4	15.5	60.2		59.3	45.9		44.3
Progression Factor	1.00	1.00		0.56	0.50	0.36	1.00		1.00	1.00		1.00
Incremental Delay, d2	20.7	1.8		0.5	1.8	0.1	2.0		0.2	0.2		0.1
Delay (s)	78.1	26.7		29.6	14.0	5.7	62.2		59.5	46.1		44.5
Level of Service	E	C		C	B	A	E		E	D		D
Approach Delay (s)		32.5			14.2			60.2			45.1	
Approach LOS		C			B			E			D	

Intersection Summary			
HCM 2000 Control Delay	25.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

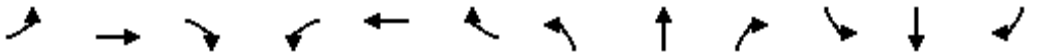
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	102	906	98	534	1054	506	160	620	596	627	850	119
Future Volume (vph)	102	906	98	534	1054	506	160	620	596	627	850	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3483		3467	3574	1599	1787	3574	1599	3467	3574	1599
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3483		3467	3574	1599	1787	3574	1599	3467	3574	1599
Peak-hour factor, PHF	0.96	0.96	0.96	0.98	0.98	0.98	0.96	0.96	0.96	0.94	0.94	0.94
Adj. Flow (vph)	106	944	102	545	1076	516	167	646	621	667	904	127
RTOR Reduction (vph)	0	7	0	0	0	42	0	0	61	0	0	65
Lane Group Flow (vph)	106	1039	0	545	1076	474	167	646	560	667	904	62
Confl. Peds. (#/hr)			1	1			10		9	9		10
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA	pt+ov	Prot	NA	pt+ov	Prot	NA	pt+ov
Protected Phases	3	8		7	4	4 5	1	6	6 7	5	2	2 3
Permitted Phases												
Actuated Green, G (s)	9.6	36.0		21.4	47.8	75.8	15.8	29.6	51.0	23.0	36.8	46.4
Effective Green, g (s)	9.6	36.0		21.4	47.8	75.8	15.8	29.6	51.0	23.0	36.8	46.4
Actuated g/C Ratio	0.07	0.28		0.16	0.37	0.58	0.12	0.23	0.39	0.18	0.28	0.36
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0		3.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	130	964		570	1314	932	217	813	627	613	1011	570
v/s Ratio Prot	0.06	c0.30		c0.16	0.30	0.30	0.09	0.18	c0.35	c0.19	c0.25	0.04
v/s Ratio Perm												
v/c Ratio	0.82	1.08		0.96	0.82	0.51	0.77	0.79	0.89	1.09	0.89	0.11
Uniform Delay, d1	59.3	47.0		53.8	37.2	16.1	55.3	47.3	36.9	53.5	44.7	28.0
Progression Factor	1.24	0.65		0.68	0.58	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	25.4	50.2		16.7	1.9	0.1	13.7	7.9	15.0	62.6	12.0	0.0
Delay (s)	99.2	80.5		53.5	23.7	1.5	69.0	55.2	51.9	116.1	56.7	28.0
Level of Service	F	F		D	C	A	E	E	D	F	E	C
Approach Delay (s)		82.2			25.9			55.4			77.9	
Approach LOS		F			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	56.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	103.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

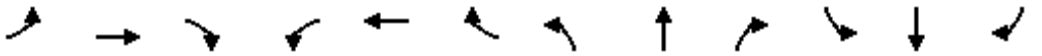


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1806	322	621	1750	0	0	0	0	1610	0	344
Future Volume (vph)	0	1806	322	621	1750	0	0	0	0	1610	0	344
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0					6.0	6.0	4.0
Lane Util. Factor		0.91		0.97	0.95					0.95	0.91	0.95
Frt		0.98		1.00	1.00					1.00	0.99	0.85
Flt Protected		1.00		0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		4970		3467	3574					1681	1607	1504
Flt Permitted		1.00		0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		4970		3467	3574					1681	1607	1504
Peak-hour factor, PHF	0.96	0.96	0.96	0.95	0.95	0.95	0.25	0.25	0.25	0.99	0.99	0.99
Adj. Flow (vph)	0	1881	335	654	1842	0	0	0	0	1626	0	347
RTOR Reduction (vph)	0	20	0	0	0	0	0	0	0	0	48	0
Lane Group Flow (vph)	0	2196	0	654	1842	0	0	0	0	829	784	312
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	0%	0%	0%	2%	2%	2%
Turn Type		NA		Prot	NA					Split	NA	Free
Protected Phases		2		1	6					4	4	
Permitted Phases												Free
Actuated Green, G (s)		45.0		19.0	70.0					48.0	48.0	130.0
Effective Green, g (s)		45.0		19.0	70.0					48.0	48.0	130.0
Actuated g/C Ratio		0.35		0.15	0.54					0.37	0.37	1.00
Clearance Time (s)		6.0		6.0	6.0					6.0	6.0	
Vehicle Extension (s)		2.0		2.5	2.5					4.0	4.0	
Lane Grp Cap (vph)		1720		506	1924					620	593	1504
v/s Ratio Prot		c0.44		c0.19	0.52					c0.49	0.49	
v/s Ratio Perm												0.21
v/c Ratio		1.28		1.29	0.96					1.34	1.32	0.21
Uniform Delay, d1		42.5		55.5	28.6					41.0	41.0	0.0
Progression Factor		0.85		0.81	0.63					1.00	1.00	1.00
Incremental Delay, d2		125.1		139.4	7.8					162.4	156.5	0.3
Delay (s)		161.1		184.6	25.8					203.4	197.5	0.3
Level of Service		F		F	C					F	F	A
Approach Delay (s)		161.1			67.4			0.0			168.8	
Approach LOS		F			E			A			F	

Intersection Summary			
HCM 2000 Control Delay	128.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.30		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	122.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Traffic Volume (vph)	0	3064	0	0	2182	1873	190	0	462	0	0
Future Volume (vph)	0	3064	0	0	2182	1873	190	0	462	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.6			5.6	4.0	5.6		5.6		
Lane Util. Factor		0.95			0.95	1.00	1.00		1.00		
Frt		1.00			1.00	0.85	1.00		0.85		
Flt Protected		1.00			1.00	1.00	0.95		1.00		
Satd. Flow (prot)		3539			3574	1599	1736		1553		
Flt Permitted		1.00			1.00	1.00	0.95		1.00		
Satd. Flow (perm)		3539			3574	1599	1736		1553		
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.94	0.94	0.94	0.25	0.25
Adj. Flow (vph)	0	3159	0	0	2249	1931	202	0	491	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	17	0	0
Lane Group Flow (vph)	0	3159	0	0	2249	1931	202	0	474	0	0
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	4%	4%	4%	0%	0%
Turn Type		NA			NA	Free	Prot		Perm		
Protected Phases		6			2		8				
Permitted Phases						Free			8		
Actuated Green, G (s)		90.4			90.4	130.0	28.4		28.4		
Effective Green, g (s)		90.4			90.4	130.0	28.4		28.4		
Actuated g/C Ratio		0.70			0.70	1.00	0.22		0.22		
Clearance Time (s)		5.6			5.6		5.6		5.6		
Vehicle Extension (s)		4.0			4.0		3.5		3.5		
Lane Grp Cap (vph)		2460			2485	1599	379		339		
v/s Ratio Prot		c0.89			0.63		0.12				
v/s Ratio Perm						c1.21			0.31		
v/c Ratio		1.28			0.91	1.21	0.53		1.40		
Uniform Delay, d1		19.8			16.3	65.0	44.9		50.8		
Progression Factor		0.29			1.00	1.00	1.00		1.00		
Incremental Delay, d2		128.2			6.0	99.6	1.6		196.0		
Delay (s)		134.0			22.3	164.6	46.6		246.8		
Level of Service		F			C	F	D		F		
Approach Delay (s)		134.0			88.0			188.4		0.0	
Approach LOS		F			F			F		A	

Intersection Summary			
HCM 2000 Control Delay	114.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.32		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.2
Intersection Capacity Utilization	122.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	126	968	16	47	1238	55	14	0	47	96	0	141
Future Volume (vph)	126	968	16	47	1238	55	14	0	47	96	0	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0		5.0	5.0		5.0
Lane Util. Factor	1.00	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	0.90	1.00		1.00	1.00		0.70
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00		1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	1770	3471		902	3539	1417	902		808	1770		1110
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	1770	3471		902	3539	1417	902		808	1770		1110
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)	137	1052	17	51	1346	60	15	0	51	104	0	153
RTOR Reduction (vph)	0	1	0	0	0	29	0	0	49	0	0	125
Lane Group Flow (vph)	137	1068	0	51	1346	31	15	0	2	104	0	28
Confl. Peds. (#/hr)	20		30	30		20	180					180
Heavy Vehicles (%)	2%	2%	100%	100%	2%	2%	100%	100%	100%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Prot		Prot	Prot		Perm
Protected Phases	5	2		1	6		7		7	8		
Permitted Phases						6						8
Actuated Green, G (s)	12.7	63.1		16.9	67.3	67.3	6.0		6.0	24.0		24.0
Effective Green, g (s)	12.7	63.1		16.9	67.3	67.3	6.0		6.0	24.0		24.0
Actuated g/C Ratio	0.10	0.49		0.13	0.52	0.52	0.05		0.05	0.18		0.18
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0		5.0	5.0		5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0		2.0	2.0		2.0
Lane Grp Cap (vph)	172	1684		117	1832	733	41		37	326		204
v/s Ratio Prot	c0.08	0.31		0.06	c0.38		c0.02		0.00	c0.06		
v/s Ratio Perm						0.02						0.03
v/c Ratio	0.80	0.63		0.44	0.73	0.04	0.37		0.06	0.32		0.14
Uniform Delay, d1	57.4	24.9		52.2	24.4	15.5	60.2		59.3	45.9		44.3
Progression Factor	1.00	1.00		0.58	0.49	0.38	1.00		1.00	1.00		1.00
Incremental Delay, d2	20.7	1.8		0.6	1.8	0.1	2.0		0.3	0.2		0.1
Delay (s)	78.1	26.7		30.9	13.8	6.0	62.2		59.6	46.1		44.5
Level of Service	E	C		C	B	A	E		E	D		D
Approach Delay (s)		32.5			14.0			60.2			45.1	
Approach LOS		C			B			E			D	

Intersection Summary			
HCM 2000 Control Delay	25.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

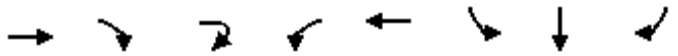
Movement	EBL	EBT	EBR	EBR2	WBL2	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	102	906	98	6	534	1060	506	160	620	596	627	850
Future Volume (vph)	102	906	98	6	534	1060	506	160	620	596	627	850
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3483		808	3467	3574	1599	1787	3574	1599	3467	3574
Flt Permitted	0.95	1.00		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3483		808	3467	3574	1599	1787	3574	1599	3467	3574
Peak-hour factor, PHF	0.96	0.96	0.96	0.92	0.98	0.98	0.98	0.96	0.96	0.96	0.94	0.94
Adj. Flow (vph)	106	944	102	7	545	1082	516	167	646	621	667	904
RTOR Reduction (vph)	0	0	0	5	0	0	44	0	0	62	0	0
Lane Group Flow (vph)	106	1046	0	2	545	1082	472	167	646	559	667	904
Confl. Peds. (#/hr)			1		1			10		9	9	
Heavy Vehicles (%)	2%	2%	2%	100%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot	NA		Prot	Prot	NA	pt+ov	Prot	NA	pt+ov	Prot	NA
Protected Phases	3	8		8	7	4	4 5	1	6	6 7	5	2
Permitted Phases												
Actuated Green, G (s)	10.2	37.0		37.0	19.0	45.8	73.8	16.6	31.0	50.0	23.0	37.4
Effective Green, g (s)	10.2	37.0		37.0	19.0	45.8	73.8	16.6	31.0	50.0	23.0	37.4
Actuated g/C Ratio	0.08	0.28		0.28	0.15	0.35	0.57	0.13	0.24	0.38	0.18	0.29
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0		2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	138	991		229	506	1259	907	228	852	615	613	1028
v/s Ratio Prot	0.06	c0.30		0.00	c0.16	0.30	0.30	0.09	0.18	c0.35	c0.19	0.25
v/s Ratio Perm												
v/c Ratio	0.77	1.06		0.01	1.08	0.86	0.52	0.73	0.76	0.91	1.09	0.88
Uniform Delay, d1	58.7	46.5		33.3	55.5	39.1	17.2	54.6	46.0	37.8	53.5	44.1
Progression Factor	1.24	0.65		1.00	0.70	0.60	0.09	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	17.1	41.9		0.0	51.0	2.9	0.1	10.0	6.3	16.9	62.6	10.7
Delay (s)	90.1	72.0		33.4	89.7	26.3	1.7	64.5	52.3	54.8	116.1	54.8
Level of Service	F	E		C	F	C	A	E	D	D	F	D
Approach Delay (s)		73.4				36.5			54.8			76.8
Approach LOS		E				D			D			E

Intersection Summary			
HCM 2000 Control Delay	57.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	103.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

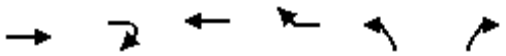
Movement	SBR2
Lane Configurations	
Traffic Volume (vph)	119
Future Volume (vph)	119
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.0
Lane Util. Factor	1.00
Frpb, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1599
Flt Permitted	1.00
Satd. Flow (perm)	1599
Peak-hour factor, PHF	0.94
Adj. Flow (vph)	127
RTOR Reduction (vph)	64
Lane Group Flow (vph)	63
Confl. Peds. (#/hr)	10
Heavy Vehicles (%)	1%
Turn Type	pt+ov
Protected Phases	2 3
Permitted Phases	
Actuated Green, G (s)	47.6
Effective Green, g (s)	47.6
Actuated g/C Ratio	0.37
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	585
v/s Ratio Prot	0.04
v/s Ratio Perm	
v/c Ratio	0.11
Uniform Delay, d1	27.2
Progression Factor	1.00
Incremental Delay, d2	0.0
Delay (s)	27.2
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary



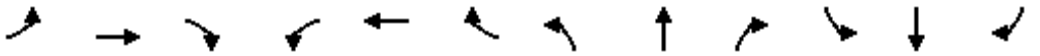
Movement	EBT	EBR	EBR2	WBL2	WBT	SBL	SBT	SBR2
Lane Configurations								
Traffic Volume (vph)	1806	322	6	621	1756	1610	0	344
Future Volume (vph)	1806	322	6	621	1756	1610	0	344
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0	6.0	6.0	6.0	4.0
Lane Util. Factor	0.91		1.00	0.97	0.95	0.95	0.91	0.95
Frt	0.98		0.85	1.00	1.00	1.00	0.99	0.85
Flt Protected	1.00		1.00	0.95	1.00	0.95	0.95	1.00
Satd. Flow (prot)	4970		808	3467	3574	1681	1607	1504
Flt Permitted	1.00		1.00	0.95	1.00	0.95	0.95	1.00
Satd. Flow (perm)	4970		808	3467	3574	1681	1607	1504
Peak-hour factor, PHF	0.96	0.96	0.92	0.95	0.95	0.99	0.99	0.99
Adj. Flow (vph)	1881	335	7	654	1848	1626	0	347
RTOR Reduction (vph)	0	0	5	0	0	0	48	0
Lane Group Flow (vph)	2216	0	2	654	1848	829	784	312
Heavy Vehicles (%)	2%	2%	100%	1%	1%	2%	2%	2%
Turn Type	NA		Prot	Prot	NA	Split	NA	Free
Protected Phases	2		2	1	6	4	4	
Permitted Phases								Free
Actuated Green, G (s)	45.0		45.0	19.0	70.0	48.0	48.0	130.0
Effective Green, g (s)	45.0		45.0	19.0	70.0	48.0	48.0	130.0
Actuated g/C Ratio	0.35		0.35	0.15	0.54	0.37	0.37	1.00
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	2.0		2.0	2.5	2.5	4.0	4.0	
Lane Grp Cap (vph)	1720		279	506	1924	620	593	1504
v/s Ratio Prot	c0.45		0.00	c0.19	0.52	c0.49	0.49	
v/s Ratio Perm								0.21
v/c Ratio	1.29		0.01	1.29	0.96	1.34	1.32	0.21
Uniform Delay, d1	42.5		27.9	55.5	28.7	41.0	41.0	0.0
Progression Factor	0.86		1.00	0.81	0.63	1.00	1.00	1.00
Incremental Delay, d2	130.2		0.0	139.4	8.1	162.4	156.5	0.3
Delay (s)	166.6		27.9	184.5	26.1	203.4	197.5	0.3
Level of Service	F		C	F	C	F	F	A
Approach Delay (s)	166.2				67.5		168.8	
Approach LOS	F				E		F	

Intersection Summary			
HCM 2000 Control Delay	130.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.31		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	122.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBT	EBR2	WBT	WBR	NBL2	NBR
Lane Configurations						
Traffic Volume (vph)	3064	6	2188	1873	190	462
Future Volume (vph)	3064	6	2188	1873	190	462
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6	5.6	4.0	5.6	5.6
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	0.85
Flt Protected	1.00	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3539	808	3574	1599	1736	1553
Flt Permitted	1.00	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3539	808	3574	1599	1736	1553
Peak-hour factor, PHF	0.97	0.92	0.97	0.97	0.94	0.94
Adj. Flow (vph)	3159	7	2256	1931	202	491
RTOR Reduction (vph)	0	2	0	0	0	17
Lane Group Flow (vph)	3159	5	2256	1931	202	474
Heavy Vehicles (%)	2%	100%	1%	1%	4%	4%
Turn Type	NA	Prot	NA	Free	Prot	Perm
Protected Phases	6	6	2		8	
Permitted Phases				Free		8
Actuated Green, G (s)	90.4	90.4	90.4	130.0	28.4	28.4
Effective Green, g (s)	90.4	90.4	90.4	130.0	28.4	28.4
Actuated g/C Ratio	0.70	0.70	0.70	1.00	0.22	0.22
Clearance Time (s)	5.6	5.6	5.6		5.6	5.6
Vehicle Extension (s)	4.0	4.0	4.0		3.5	3.5
Lane Grp Cap (vph)	2460	561	2485	1599	379	339
v/s Ratio Prot	c0.89	0.01	0.63		0.12	
v/s Ratio Perm				c1.21		0.31
v/c Ratio	1.28	0.01	0.91	1.21	0.53	1.40
Uniform Delay, d1	19.8	6.1	16.4	65.0	44.9	50.8
Progression Factor	0.29	0.24	1.00	1.00	1.00	1.00
Incremental Delay, d2	128.2	0.0	6.2	99.6	1.6	196.0
Delay (s)	133.9	1.4	22.6	164.6	46.6	246.8
Level of Service	F	A	C	F	D	F
Approach Delay (s)	133.6		88.1			
Approach LOS	F		F			

Intersection Summary			
HCM 2000 Control Delay	114.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.32		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.2
Intersection Capacity Utilization	122.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	102	392	93	485	845	69	97	158	283	31	114	72
Future Volume (vph)	102	392	93	485	845	69	97	158	283	31	114	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1735	3216		1769	3450		1631	3252	1429	1444	1743	1546
Flt Permitted	0.20	1.00		0.20	1.00		0.65	1.00	1.00	0.65	1.00	1.00
Satd. Flow (perm)	357	3216		371	3450		1115	3252	1429	983	1743	1546
Peak-hour factor, PHF	0.86	0.95	0.84	0.81	0.98	0.87	0.88	0.95	0.96	0.73	0.98	0.70
Adj. Flow (vph)	119	413	111	599	862	79	110	166	295	42	116	103
RTOR Reduction (vph)	0	20	0	0	7	0	0	0	217	0	0	79
Lane Group Flow (vph)	119	504	0	599	935	0	110	166	78	42	116	24
Confl. Peds. (#/hr)	7		1	1		7	6					6
Heavy Vehicles (%)	4%	9%	6%	2%	3%	5%	10%	11%	13%	25%	9%	2%
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA	Perm	D.P+P	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8			4			6		2	2		6
Actuated Green, G (s)	63.3	22.4		63.3	55.0		36.7	31.6	31.6	36.7	28.0	28.0
Effective Green, g (s)	63.3	22.4		63.3	55.0		36.7	31.6	31.6	36.7	28.0	28.0
Actuated g/C Ratio	0.53	0.19		0.53	0.46		0.31	0.26	0.26	0.31	0.23	0.23
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	283	600		672	1581		378	856	376	320	406	360
v/s Ratio Prot	0.03	0.16		c0.30	0.27		c0.02	0.05		0.01	0.07	
v/s Ratio Perm	0.19			c0.17			c0.07		c0.05	0.03		0.02
v/c Ratio	0.42	0.84		0.89	0.59		0.29	0.19	0.21	0.13	0.29	0.07
Uniform Delay, d1	16.4	47.1		28.0	24.1		31.0	34.3	34.4	29.8	37.8	35.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	9.6		13.8	0.4		0.2	0.5	1.2	0.1	1.8	0.4
Delay (s)	16.8	56.7		41.8	24.5		31.2	34.8	35.7	29.8	39.5	36.2
Level of Service	B	E		D	C		C	C	D	C	D	D
Approach Delay (s)		49.3			31.2			34.6			36.7	
Approach LOS		D			C			C			D	

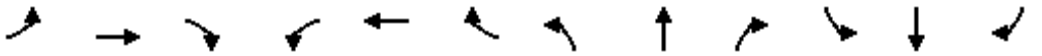
Intersection Summary			
HCM 2000 Control Delay	36.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	0
Turn Type					Prot	Perm
Protected Phases	4			8	2	
Permitted Phases						2
Actuated Green, G (s)						
Effective Green, g (s)						
Actuated g/C Ratio						
Clearance Time (s)						
Vehicle Extension (s)						
Lane Grp Cap (vph)						
v/s Ratio Prot						
v/s Ratio Perm						
v/c Ratio						
Uniform Delay, d1						
Progression Factor						
Incremental Delay, d2						
Delay (s)						
Level of Service						
Approach Delay (s)	0.0			0.0	0.0	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	0.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.00		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	0.0%	ICU Level of Service	A
Analysis Period (min)	15		

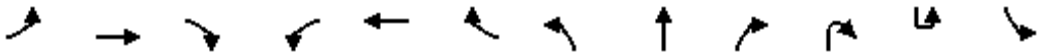
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	149	100	5	537	50	2	4	1	60	45	30
Future Volume (vph)	50	149	100	5	537	50	2	4	1	60	45	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	0.94		1.00	0.99			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00		0.97	1.00
Satd. Flow (prot)	1770	3326		1770	3494			1832	1583		1811	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.98	1.00		0.97	1.00
Satd. Flow (perm)	1770	3326		1770	3494			1832	1583		1811	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	162	109	5	584	54	2	4	1	65	49	33
RTOR Reduction (vph)	0	36	0	0	3	0	0	0	1	0	0	29
Lane Group Flow (vph)	54	235	0	5	635	0	0	6	0	0	114	4
Turn Type	Prot	NA		Prot	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases									4			3
Actuated Green, G (s)	8.9	103.9		1.4	96.4			11.6	11.6		19.1	19.1
Effective Green, g (s)	8.9	103.9		1.4	96.4			11.6	11.6		19.1	19.1
Actuated g/C Ratio	0.06	0.67		0.01	0.62			0.07	0.07		0.12	0.12
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	5.0		3.0	5.0			5.0	5.0		5.0	5.0
Lane Grp Cap (vph)	100	2215		15	2159			136	117		221	193
v/s Ratio Prot	c0.03	0.07		0.00	c0.18			c0.00			c0.06	
v/s Ratio Perm									0.00			0.00
v/c Ratio	0.54	0.11		0.33	0.29			0.04	0.00		0.52	0.02
Uniform Delay, d1	71.6	9.4		76.8	13.9			67.1	66.8		64.1	60.2
Progression Factor	1.00	1.00		1.08	0.70			1.80	1.00		1.00	1.00
Incremental Delay, d2	5.8	0.1		11.4	0.1			0.3	0.0		4.0	0.1
Delay (s)	77.4	9.5		94.2	9.9			121.1	66.8		68.1	60.3
Level of Service	E	A		F	A			F	E		E	E
Approach Delay (s)		20.7			10.5			113.4			66.4	
Approach LOS		C			B			F			E	

Intersection Summary			
HCM 2000 Control Delay	21.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	156.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	44.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR2	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBU	SBL2
Lane Configurations												
Traffic Volume (vph)	179	301	240	911	936	71	278	992	790	7	1	50
Future Volume (vph)	179	301	240	911	936	71	278	992	790	7	1	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	11	11	11	11	12	11	11	12	12	12
Total Lost time (s)	3.0	3.0	3.0	3.0	3.5		3.0	3.5	4.0			3.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		1.00	0.95	1.00			1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00			1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00			0.95
Satd. Flow (prot)	1478	3061	1351	3319	3381		1736	3355	1488			1736
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00			0.95
Satd. Flow (perm)	1478	3061	1351	3319	3381		1736	3355	1488			1736
Peak-hour factor, PHF	0.84	0.84	0.84	0.94	0.94	0.94	0.95	0.95	0.95	0.92	0.93	0.93
Adj. Flow (vph)	213	358	286	969	996	76	293	1044	832	8	1	54
RTOR Reduction (vph)	0	0	232	0	3	0	0	0	14	0	0	0
Lane Group Flow (vph)	213	358	54	969	1069	0	293	1044	826	0	0	55
Confl. Peds. (#/hr)	4		1	1		4	2		2			2
Heavy Vehicles (%)	14%	14%	14%	2%	2%	2%	4%	4%	4%	100%	4%	4%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	pt+ov		Prot	Prot
Protected Phases	7	4		3	8		5	2	2 3		1	1
Permitted Phases			4									
Actuated Green, G (s)	24.4	27.5	27.5	48.0	51.1		31.6	56.2	109.2			4.3
Effective Green, g (s)	26.4	29.5	29.5	50.0	52.6		33.6	57.7	110.2			6.3
Actuated g/C Ratio	0.17	0.19	0.19	0.32	0.34		0.22	0.37	0.71			0.04
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0				5.0
Vehicle Extension (s)	3.0	3.0	3.0	4.0	3.0		3.0	5.0				3.0
Lane Grp Cap (vph)	250	578	255	1063	1140		373	1240	1051			70
v/s Ratio Prot	c0.14	c0.12		0.29	c0.32		0.17	c0.31	0.55			c0.03
v/s Ratio Perm			0.04									
v/c Ratio	0.85	0.62	0.21	0.91	0.94		0.79	0.84	0.79			0.79
Uniform Delay, d1	62.9	58.1	53.4	50.9	50.1		57.8	45.0	15.1			74.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00			1.24
Incremental Delay, d2	23.3	2.0	0.4	11.8	14.0		10.4	7.0	4.2			41.0
Delay (s)	86.2	60.1	53.8	62.7	64.1		68.2	52.0	19.3			133.1
Level of Service	F	E	D	E	E		E	D	B			F
Approach Delay (s)		64.5			63.4			41.6				
Approach LOS		E			E			D				

Intersection Summary			
HCM 2000 Control Delay	62.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	156.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	93.0%	ICU Level of Service	F
Analysis Period (min)	15		
Description: INT 27			
DATA FROM RENTON			
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	603	189
Future Volume (vph)	603	189
Ideal Flow (vphpl)	1900	1900
Lane Width	11	12
Total Lost time (s)	3.5	4.0
Lane Util. Factor	0.91	1.00
Frpb, ped/bikes	1.00	0.98
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	4821	795
Flt Permitted	1.00	1.00
Satd. Flow (perm)	4821	795
Peak-hour factor, PHF	0.93	0.93
Adj. Flow (vph)	648	203
RTOR Reduction (vph)	0	164
Lane Group Flow (vph)	648	39
Confl. Peds. (#/hr)		2
Heavy Vehicles (%)	4%	100%
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	28.9	28.9
Effective Green, g (s)	30.4	29.9
Actuated g/C Ratio	0.19	0.19
Clearance Time (s)	5.0	5.0
Vehicle Extension (s)	5.0	5.0
Lane Grp Cap (vph)	939	152
v/s Ratio Prot	0.13	
v/s Ratio Perm		0.05
v/c Ratio	0.69	0.26
Uniform Delay, d1	58.4	53.6
Progression Factor	1.21	3.95
Incremental Delay, d2	3.9	3.8
Delay (s)	74.5	215.3
Level of Service	E	F
Approach Delay (s)	109.6	
Approach LOS	F	

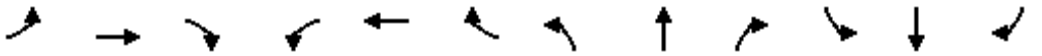
Intersection Summary

Movement	EBL	EBT	EBR2	WBL	WBT	WBR2	NBU	NBL2	NBT	NBR	NBR2	SBU
Lane Configurations												
Traffic Volume (vph)	131	60	19	51	292	360	36	142	1007	40	7	5
Future Volume (vph)	131	60	19	51	292	360	36	142	1007	40	7	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	11	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	3.0	4.0		
Lane Util. Factor	0.97	1.00		1.00	1.00	1.00		1.00	0.95	1.00		
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97		1.00	1.00	0.97		
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		
Frt	1.00	0.96		1.00	1.00	0.85		1.00	1.00	0.85		
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00		
Satd. Flow (prot)	2968	1546		1770	1863	1532		1715	3406	1303		
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00		
Satd. Flow (perm)	2968	1546		1770	1863	1532		1715	3406	1303		
Peak-hour factor, PHF	0.90	0.90	0.90	0.95	0.95	0.95	1.00	0.92	0.92	0.92	0.92	1.00
Adj. Flow (vph)	146	67	21	54	307	379	36	154	1095	43	8	5
RTOR Reduction (vph)	0	64	0	0	0	92	0	0	0	25	0	0
Lane Group Flow (vph)	146	24	0	54	307	287	0	190	1095	26	0	0
Confl. Peds. (#/hr)	18		6	6		18		7		8		
Heavy Vehicles (%)	18%	18%	18%	2%	2%	2%	2%	6%	6%	6%	100%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Prot	Prot	NA	Perm		Prot
Protected Phases	7	4		3	8		5	5	2			1
Permitted Phases						8				2		
Actuated Green, G (s)	13.8	41.0		7.3	34.5	34.5		27.9	77.7	77.7		
Effective Green, g (s)	14.8	42.0		8.3	35.5	35.5		28.9	79.7	78.7		
Actuated g/C Ratio	0.09	0.27		0.05	0.23	0.23		0.19	0.51	0.50		
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0	5.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		4.0	3.0	3.0		
Lane Grp Cap (vph)	281	416		94	423	348		317	1740	657		
v/s Ratio Prot	c0.05	0.02		0.03	0.16			0.11	c0.32			
v/s Ratio Perm						c0.19				0.02		
v/c Ratio	0.52	0.06		0.57	0.73	0.82		0.60	0.63	0.04		
Uniform Delay, d1	67.2	42.3		72.1	55.7	57.3		58.2	27.5	19.5		
Progression Factor	0.93	2.97		1.00	1.00	1.00		0.51	0.29	1.00		
Incremental Delay, d2	1.6	0.1		8.2	6.1	14.6		2.0	1.0	0.1		
Delay (s)	64.2	125.9		80.4	61.8	71.9		31.7	8.8	19.6		
Level of Service	E	F		F	E	E		C	A	B		
Approach Delay (s)		87.4			68.4				12.5			
Approach LOS		F			E				B			

Intersection Summary			
HCM 2000 Control Delay	38.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	156.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		
Description: INT 30			
DATA FROM RENTON			
c Critical Lane Group			

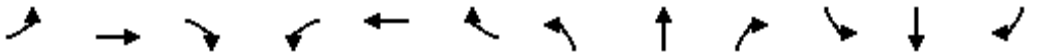
Movement	SBL2	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	108	594	158	7
Future Volume (vph)	108	594	158	7
Ideal Flow (vphpl)	1900	1900	1900	1900
Lane Width	12	11	12	12
Total Lost time (s)	4.0	3.0	4.0	
Lane Util. Factor	0.97	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	
Satd. Flow (prot)	3339	3323	1445	
Flt Permitted	0.95	1.00	1.00	
Satd. Flow (perm)	3339	3323	1445	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	117	646	172	8
RTOR Reduction (vph)	0	0	73	0
Lane Group Flow (vph)	122	646	107	0
Confl. Peds. (#/hr)	8		7	
Heavy Vehicles (%)	5%	5%	5%	100%
Turn Type	Prot	NA	Perm	
Protected Phases	1	6		
Permitted Phases			6	
Actuated Green, G (s)	10.0	59.8	59.8	
Effective Green, g (s)	11.0	61.8	60.8	
Actuated g/C Ratio	0.07	0.40	0.39	
Clearance Time (s)	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	
Lane Grp Cap (vph)	235	1316	563	
v/s Ratio Prot	0.04	c0.19		
v/s Ratio Perm			0.07	
v/c Ratio	0.52	0.49	0.19	
Uniform Delay, d1	69.9	35.3	31.4	
Progression Factor	1.00	1.00	1.00	
Incremental Delay, d2	1.9	1.3	0.8	
Delay (s)	71.9	36.6	32.1	
Level of Service	E	D	C	
Approach Delay (s)		40.3		
Approach LOS		D		

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	907	71	24	1639	47	107	25	32	27	23	16
Future Volume (vph)	15	907	71	24	1639	47	107	25	32	27	23	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	11	12	11	12	12	11	12	12	11	12
Total Lost time (s)	3.0	3.5	3.5	3.0	3.5		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.91	0.91		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		0.99	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.96		1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.98		0.95	1.00	
Satd. Flow (prot)	1719	3323	1452	1752	3373		1583	3000		1497	1421	
Flt Permitted	0.12	1.00	1.00	0.30	1.00		0.71	0.81		0.67	1.00	
Satd. Flow (perm)	219	3323	1452	558	3373		1188	2487		1055	1421	
Peak-hour factor, PHF	0.96	0.96	0.96	0.91	0.91	0.91	0.88	0.88	0.88	0.74	0.74	0.74
Adj. Flow (vph)	16	945	74	26	1801	52	122	28	36	36	31	22
RTOR Reduction (vph)	0	0	39	0	1	0	0	30	0	0	19	0
Lane Group Flow (vph)	16	945	35	26	1852	0	62	94	0	36	34	0
Confl. Peds. (#/hr)	3		3	3		3	9		7	7		9
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	3%	3%	3%	20%	20%	20%
Turn Type	custom	NA	custom	custom	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	5	2 9		1	6 11		3	8		7	4	
Permitted Phases	6		2	2			4			8		
Actuated Green, G (s)	33.0	81.0	54.7	57.8	82.1		15.9	16.1		15.9	12.7	
Effective Green, g (s)	37.0	82.5	56.2	61.8	83.6		19.9	20.1		19.9	14.7	
Actuated g/C Ratio	0.31	0.69	0.47	0.51	0.70		0.17	0.17		0.17	0.12	
Clearance Time (s)	5.0		5.0	5.0			5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0		5.0	3.0			2.5	3.0		2.5	3.0	
Lane Grp Cap (vph)	117	2284	680	338	2349		214	438		193	174	
v/s Ratio Prot	c0.00	0.28		0.00	c0.55		c0.01	0.01		0.01	0.02	
v/s Ratio Perm	0.04		0.02	0.04			c0.04	0.03		0.02		
v/c Ratio	0.14	0.41	0.05	0.08	0.79		0.29	0.21		0.19	0.19	
Uniform Delay, d1	31.0	8.2	17.4	14.8	12.2		43.5	43.1		42.8	47.3	
Progression Factor	1.00	0.57	1.00	1.33	2.28		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.1	0.1	0.0	0.9		0.5	0.2		0.3	0.5	
Delay (s)	31.6	4.8	17.5	19.8	28.7		44.0	43.4		43.1	47.9	
Level of Service	C	A	B	B	C		D	D		D	D	
Approach Delay (s)		6.1			28.6			43.6			45.9	
Approach LOS		A			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	22.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	66.0%	ICU Level of Service	C
Analysis Period (min)	15		
Description: INT 28			
DATA FROM RENTON			
c Critical Lane Group			



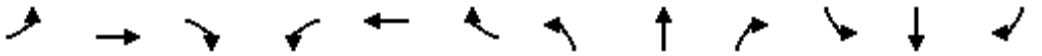
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	976	118	7	1740	16	172	0	12	5	0	16
Future Volume (veh/h)	29	976	118	7	1740	16	172	0	12	5	0	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1841	1870	1900	1870	537	1870	1885	1767	418	1900	1737
Adj Flow Rate, veh/h	35	1017	0	8	1851	0	205	0	0	7	0	23
Peak Hour Factor	0.84	0.96	0.61	0.83	0.94	0.80	0.84	0.25	0.58	0.75	0.25	0.71
Percent Heavy Veh, %	0	4	2	0	2	92	2	1	9	100	0	11
Cap, veh/h	293	2497		425	2483		303	0		87	20	228
Arrive On Green	0.03	0.71	0.00	0.03	1.00	0.00	0.17	0.00	0.00	0.17	0.00	0.17
Sat Flow, veh/h	1810	3497	1585	1810	3647	0	1428	0	1497	292	117	1344
Grp Volume(v), veh/h	35	1017	0	8	1851	0	205	0	0	30	0	0
Grp Sat Flow(s),veh/h/ln	1810	1749	1585	1810	1777	0	1428	0	1497	1753	0	0
Q Serve(g_s), s	0.6	14.1	0.0	0.1	0.0	0.0	14.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.6	14.1	0.0	0.1	0.0	0.0	16.6	0.0	0.0	1.8	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.23		0.77
Lane Grp Cap(c), veh/h	293	2497		425	2483		303	0		335	0	0
V/C Ratio(X)	0.12	0.41		0.02	0.75		0.68	0.00		0.09	0.00	0.00
Avail Cap(c_a), veh/h	312	2497		471	2483		379	0		421	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.61	0.61	0.00	0.61	0.61	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.5	6.9	0.0	5.1	0.0	0.0	48.0	0.0	0.0	42.1	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.3	0.0	0.0	1.3	0.0	3.4	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	4.7	0.0	0.0	0.4	0.0	6.2	0.0	0.0	0.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.6	7.2	0.0	5.2	1.3	0.0	51.4	0.0	0.0	42.2	0.0	0.0
LnGrp LOS	A	A		A	A		D	A		D	A	A
Approach Vol, veh/h		1052	A		1859	A		205	A		30	
Approach Delay, s/veh		7.1			1.3			51.4			42.2	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.9	89.7		24.4	7.8	87.9		24.4				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	4.0	75.0		26.0	4.0	75.0		26.0				
Max Q Clear Time (g_c+I1), s	2.1	16.1		3.8	2.6	2.0		18.6				
Green Ext Time (p_c), s	0.0	7.7		0.0	0.0	22.9		0.3				

Intersection Summary	
HCM 6th Ctrl Delay	6.9
HCM 6th LOS	A

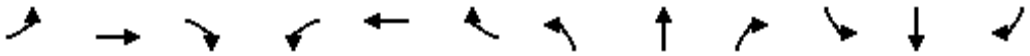
Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	976	118	7	1740	16	172	0	12	5	0	16
Future Volume (vph)	29	976	118	7	1740	16	172	0	12	5	0	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	11	12	11	12	12	11	12	12	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00			1.00	0.98		1.00	
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	1.00			1.00	0.85		0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.99	
Satd. Flow (prot)	1805	3355	1491	1805	3383			1711	1457		1277	
Flt Permitted	0.06	1.00	1.00	0.24	1.00			0.74	1.00		0.93	
Satd. Flow (perm)	106	3355	1491	460	3383			1328	1457		1201	
Peak-hour factor, PHF	0.84	0.96	0.61	0.83	0.94	0.80	0.84	0.25	0.58	0.75	0.25	0.71
Adj. Flow (vph)	35	1017	193	8	1851	20	205	0	21	7	0	23
RTOR Reduction (vph)	0	0	59	0	1	0	0	0	17	0	24	0
Lane Group Flow (vph)	35	1017	134	8	1870	0	0	205	4	0	6	0
Confl. Peds. (#/hr)	3		2	2		3			3	3		
Heavy Vehicles (%)	0%	4%	2%	0%	2%	92%	2%	1%	9%	100%	0%	11%
Turn Type	D.P+P	NA	Perm	D.P+P	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2			8		8	4		
Actuated Green, G (s)	82.9	82.1	82.1	82.9	80.1			22.1	22.1		22.1	
Effective Green, g (s)	84.9	83.1	83.1	84.9	81.1			23.1	23.1		23.1	
Actuated g/C Ratio	0.71	0.69	0.69	0.71	0.68			0.19	0.19		0.19	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0			5.0	5.0		5.0	
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	128	2323	1032	345	2286			255	280		231	
v/s Ratio Prot	c0.01	0.30		0.00	c0.55							
v/s Ratio Perm	0.18		0.09	0.02				c0.15	0.00		0.00	
v/c Ratio	0.27	0.44	0.13	0.02	0.82			0.80	0.01		0.02	
Uniform Delay, d1	14.3	8.1	6.2	5.7	14.1			46.3	39.2		39.3	
Progression Factor	1.00	1.00	1.00	0.24	0.64			1.00	1.00		1.19	
Incremental Delay, d2	1.2	0.6	0.3	0.0	2.4			16.6	0.0		0.0	
Delay (s)	15.5	8.7	6.5	1.4	11.4			62.9	39.3		46.7	
Level of Service	B	A	A	A	B			E	D		D	
Approach Delay (s)		8.6			11.4			60.7			46.7	
Approach LOS		A			B			E			D	

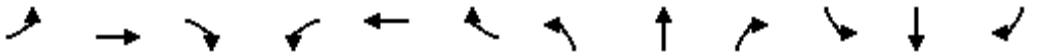
Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		
Description: INT 28A			
DATA FROM RENTON			
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	702	220	62	429	57	1256	806	261	16	132	37
Future Volume (vph)	33	702	220	62	429	57	1256	806	261	16	132	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		0.97	0.95		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.96		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1703	3406	1504	3367	3403		3433	3394		1805	4995	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1703	3406	1504	3367	3403		3433	3394		1805	4995	
Peak-hour factor, PHF	0.90	0.90	0.90	0.91	0.91	0.91	0.97	0.97	0.97	0.81	0.81	0.81
Adj. Flow (vph)	37	780	244	68	471	63	1295	831	269	20	163	46
RTOR Reduction (vph)	0	0	165	0	8	0	0	25	0	0	39	0
Lane Group Flow (vph)	37	780	79	68	526	0	1295	1075	0	20	170	0
Confl. Peds. (#/hr)	4		1	1		4	5		5	5		5
Heavy Vehicles (%)	6%	6%	6%	4%	4%	4%	2%	2%	2%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	2	6		5	1		3	8		7	4	
Permitted Phases			6									
Actuated Green, G (s)	6.7	36.9	36.9	5.1	35.3		40.9	55.7		2.3	17.1	
Effective Green, g (s)	8.7	38.9	38.9	7.1	37.3		42.9	57.7		4.3	19.1	
Actuated g/C Ratio	0.07	0.32	0.32	0.06	0.31		0.36	0.48		0.04	0.16	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		3.0	3.0		2.0	2.0	
Lane Grp Cap (vph)	123	1104	487	199	1057		1227	1631		64	795	
v/s Ratio Prot	0.02	c0.23		0.02	c0.15		c0.38	c0.32		0.01	0.03	
v/s Ratio Perm			0.05									
v/c Ratio	0.30	0.71	0.16	0.34	0.50		1.06	0.66		0.31	0.21	
Uniform Delay, d1	52.8	35.5	28.9	54.2	33.7		38.5	23.7		56.4	43.9	
Progression Factor	0.91	0.86	1.21	1.00	1.00		1.27	1.09		1.00	1.00	
Incremental Delay, d2	0.5	3.6	0.7	0.4	1.7		34.4	0.5		1.0	0.0	
Delay (s)	48.4	34.2	35.6	54.6	35.4		83.3	26.2		57.4	44.0	
Level of Service	D	C	D	D	D		F	C		E	D	
Approach Delay (s)		35.0			37.5			57.1			45.1	
Approach LOS		D			D			E			D	

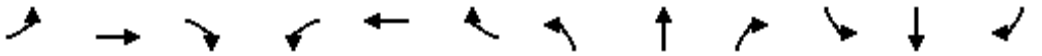
Intersection Summary			
HCM 2000 Control Delay	48.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	0	52	337	116	223	273	2114	0	0	373	20
Future Volume (vph)	7	0	52	337	116	223	273	2114	0	0	373	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	6.3	6.3	6.3	4.7	4.7			4.7	
Lane Util. Factor	1.00		1.00	0.97	1.00	1.00	1.00	0.95			0.91	
Frpb, ped/bikes	1.00		1.00	1.00	1.00	0.99	1.00	1.00			1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Frt	1.00		0.85	1.00	1.00	0.85	1.00	1.00			0.99	
Flt Protected	0.95		1.00	0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1770		1583	3433	1863	1560	1770	3539			5038	
Flt Permitted	0.95		1.00	0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (perm)	1770		1583	3433	1863	1560	1770	3539			5038	
Peak-hour factor, PHF	0.79	0.79	0.79	0.95	0.95	0.95	0.96	0.96	0.96	0.86	0.86	0.86
Adj. Flow (vph)	9	0	66	355	122	235	284	2202	0	0	434	23
RTOR Reduction (vph)	0	0	63	0	0	103	0	0	0	0	4	0
Lane Group Flow (vph)	9	0	3	355	122	132	284	2202	0	0	453	0
Confl. Peds. (#/hr)	2					2	5		3	3		5
Turn Type	Prot		Prot	Prot	NA	custom	Prot	NA			NA	
Protected Phases	4		7	8	3		5	2			6	
Permitted Phases						8						
Actuated Green, G (s)	3.0		4.0	21.7	22.7	21.7	23.6	76.8			47.5	
Effective Green, g (s)	4.0		5.0	21.7	22.7	21.7	24.6	77.8			48.5	
Actuated g/C Ratio	0.03		0.04	0.18	0.19	0.18	0.21	0.65			0.40	
Clearance Time (s)	5.5		5.5	6.3	6.3	6.3	5.7	5.7			5.7	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	4.0			4.0	
Lane Grp Cap (vph)	59		65	620	352	282	362	2294			2036	
v/s Ratio Prot	0.01		0.00	c0.10	c0.07		0.16	c0.62			0.09	
v/s Ratio Perm						0.08						
v/c Ratio	0.15		0.04	0.57	0.35	0.47	0.78	0.96			0.22	
Uniform Delay, d1	56.4		55.2	44.9	42.2	44.0	45.2	19.6			23.4	
Progression Factor	1.00		1.00	1.00	1.00	1.00	0.92	1.76			0.88	
Incremental Delay, d2	1.2		0.3	1.3	0.6	1.2	8.6	9.7			0.2	
Delay (s)	57.6		55.5	46.2	42.8	45.2	50.4	44.4			20.8	
Level of Service	E		E	D	D	D	D	D			C	
Approach Delay (s)		55.7			45.3			45.1			20.8	
Approach LOS		E			D			D			C	

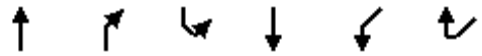
Intersection Summary			
HCM 2000 Control Delay	42.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.2
Intersection Capacity Utilization	88.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	143	44	4	629	140	31	33	4	14	24	52
Future Volume (vph)	27	143	44	4	629	140	31	33	4	14	24	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	3.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00			1.00	0.99		0.99	
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	0.97			1.00	0.85		0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.98	1.00		0.99	
Satd. Flow (prot)	1736	1827	1532	1786	3476			1683	1449		1703	
Flt Permitted	0.29	1.00	1.00	0.65	1.00			0.85	1.00		0.94	
Satd. Flow (perm)	521	1827	1532	1214	3476			1470	1449		1617	
Peak-hour factor, PHF	0.81	0.81	0.81	0.93	0.93	0.93	0.69	0.69	0.69	0.77	0.77	0.77
Adj. Flow (vph)	33	177	54	4	676	151	45	48	6	18	31	68
RTOR Reduction (vph)	0	0	25	0	19	0	0	0	5	0	54	0
Lane Group Flow (vph)	33	177	29	4	808	0	0	93	1	0	63	0
Confl. Peds. (#/hr)			2	2			8		1	1		8
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	10%	10%	10%	1%	1%	1%
Turn Type	D.P+P	NA	Perm	D.P+P	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	8		4	4			2		2	6		
Actuated Green, G (s)	24.5	24.9	24.9	25.5	22.6			8.6	8.6		8.6	
Effective Green, g (s)	26.5	25.9	25.9	27.5	23.6			9.6	9.6		9.6	
Actuated g/C Ratio	0.55	0.54	0.54	0.57	0.49			0.20	0.20		0.20	
Clearance Time (s)	5.0	5.0	5.0	4.0	5.0			5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	360	983	824	713	1705			293	289		322	
v/s Ratio Prot	c0.01	0.10		0.00	c0.23							
v/s Ratio Perm	0.04		0.02	0.00				c0.06	0.00		0.04	
v/c Ratio	0.09	0.18	0.04	0.01	0.47			0.32	0.00		0.19	
Uniform Delay, d1	5.1	5.7	5.2	4.4	8.1			16.5	15.4		16.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.1	0.1	0.0	0.0	0.2			0.6	0.0		0.3	
Delay (s)	5.2	5.8	5.2	4.4	8.3			17.1	15.4		16.3	
Level of Service	A	A	A	A	A			B	B		B	
Approach Delay (s)		5.6			8.3			17.0			16.3	
Approach LOS		A			A			B			B	

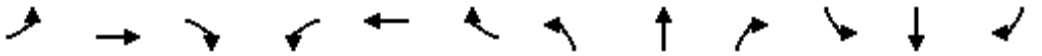
Intersection Summary			
HCM 2000 Control Delay	9.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	48.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	43.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	2387	535	28	734	0	0
Future Volume (vph)	2387	535	28	734	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.3	4.3	3.6	3.6		
Lane Util. Factor	0.91	1.00	1.00	0.95		
Frpb, ped/bikes	1.00	0.99	1.00	1.00		
Flpb, ped/bikes	1.00	1.00	1.00	1.00		
Frt	1.00	0.85	1.00	1.00		
Flt Protected	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	5085	1561	1770	3539		
Flt Permitted	1.00	1.00	0.95	1.00		
Satd. Flow (perm)	5085	1561	1770	3539		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2595	582	30	798	0	0
RTOR Reduction (vph)	0	92	0	0	0	0
Lane Group Flow (vph)	2595	490	30	798	0	0
Confl. Peds. (#/hr)		1	1			
Turn Type	NA	Perm	Prot	NA		
Protected Phases	2		1	1 2		
Permitted Phases		2				
Actuated Green, G (s)	100.1	100.1	10.0	120.0		
Effective Green, g (s)	101.1	101.1	11.0	115.7		
Actuated g/C Ratio	0.84	0.84	0.09	0.96		
Clearance Time (s)	5.3	5.3	4.6			
Vehicle Extension (s)	4.0	4.0	3.0			
Lane Grp Cap (vph)	4284	1315	162	3412		
v/s Ratio Prot	c0.51		0.02	c0.23		
v/s Ratio Perm		0.31				
v/c Ratio	0.61	0.37	0.19	0.23		
Uniform Delay, d1	3.0	2.2	50.4	0.1		
Progression Factor	1.00	1.00	1.04	1.00		
Incremental Delay, d2	0.6	0.8	0.5	0.0		
Delay (s)	3.7	3.0	53.0	0.1		
Level of Service	A	A	D	A		
Approach Delay (s)	3.6			2.0	0.0	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	3.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	7.9
Intersection Capacity Utilization	49.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	102	403	93	490	850	69	97	158	289	31	114	72
Future Volume (vph)	102	403	93	490	850	69	97	158	289	31	114	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1735	3218		1769	3450		1628	3252	1429	1444	1743	1541
Flt Permitted	0.10	1.00		0.20	1.00		0.67	1.00	1.00	0.65	1.00	1.00
Satd. Flow (perm)	177	3218		365	3450		1146	3252	1429	983	1743	1541
Peak-hour factor, PHF	0.86	0.95	0.84	0.81	0.98	0.87	0.88	0.95	0.96	0.73	0.98	0.70
Adj. Flow (vph)	119	424	111	605	867	79	110	166	301	42	116	103
RTOR Reduction (vph)	0	18	0	0	5	0	0	0	171	0	0	61
Lane Group Flow (vph)	119	517	0	605	941	0	110	166	130	42	116	42
Confl. Peds. (#/hr)	7		1	1		7	6					6
Heavy Vehicles (%)	4%	9%	6%	2%	3%	5%	10%	11%	13%	25%	9%	2%
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA	Perm	D.P+P	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8			4			6		2	2		6
Actuated Green, G (s)	60.3	30.8		60.3	50.0		71.7	65.8	65.8	71.7	61.7	61.7
Effective Green, g (s)	60.3	30.8		60.3	50.0		71.7	65.8	65.8	71.7	61.7	61.7
Actuated g/C Ratio	0.40	0.20		0.40	0.33		0.47	0.43	0.43	0.47	0.41	0.41
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	175	652		417	1134		572	1407	618	481	707	625
v/s Ratio Prot	0.05	0.16		c0.28	0.27		c0.01	0.05		0.00	0.07	
v/s Ratio Perm	0.22			c0.29			0.08		c0.09	0.04		0.03
v/c Ratio	0.68	0.79		1.45	0.83		0.19	0.12	0.21	0.09	0.16	0.07
Uniform Delay, d1	34.5	57.6		41.2	47.1		22.8	25.8	26.9	21.8	28.7	27.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.3	6.1		215.9	4.9		0.1	0.2	0.8	0.0	0.5	0.2
Delay (s)	42.9	63.7		257.1	52.0		22.8	25.9	27.7	21.9	29.2	27.8
Level of Service	D	E		F	D		C	C	C	C	C	C
Approach Delay (s)		59.9			132.0			26.2			27.5	
Approach LOS		E			F			C			C	

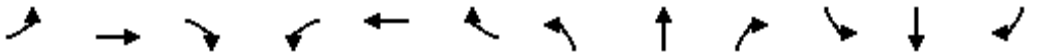
Intersection Summary			
HCM 2000 Control Delay	87.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	152.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	0
Turn Type					Prot	Perm
Protected Phases	4			8	2	
Permitted Phases						2
Actuated Green, G (s)						
Effective Green, g (s)						
Actuated g/C Ratio						
Clearance Time (s)						
Vehicle Extension (s)						
Lane Grp Cap (vph)						
v/s Ratio Prot						
v/s Ratio Perm						
v/c Ratio						
Uniform Delay, d1						
Progression Factor						
Incremental Delay, d2						
Delay (s)						
Level of Service						
Approach Delay (s)	0.0			0.0	0.0	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	0.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.00		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	0.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	149	110	5	537	50	12	4	1	60	45	30
Future Volume (vph)	50	149	110	5	537	50	12	4	1	60	45	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	0.94		1.00	0.99			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.97	1.00
Satd. Flow (prot)	1770	3313		1770	3494			1794	1583		1811	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.96	1.00		0.97	1.00
Satd. Flow (perm)	1770	3313		1770	3494			1794	1583		1811	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	162	120	5	584	54	13	4	1	65	49	33
RTOR Reduction (vph)	0	40	0	0	3	0	0	0	1	0	0	29
Lane Group Flow (vph)	54	242	0	5	635	0	0	17	0	0	114	4
Turn Type	Prot	NA		Prot	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases									4			3
Actuated Green, G (s)	8.9	103.7		1.4	96.2			11.8	11.8		19.1	19.1
Effective Green, g (s)	8.9	103.7		1.4	96.2			11.8	11.8		19.1	19.1
Actuated g/C Ratio	0.06	0.66		0.01	0.62			0.08	0.08		0.12	0.12
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	5.0		3.0	5.0			5.0	5.0		5.0	5.0
Lane Grp Cap (vph)	100	2202		15	2154			135	119		221	193
v/s Ratio Prot	c0.03	0.07		0.00	c0.18			c0.01			c0.06	
v/s Ratio Perm									0.00			0.00
v/c Ratio	0.54	0.11		0.33	0.29			0.13	0.00		0.52	0.02
Uniform Delay, d1	71.6	9.5		76.8	14.0			67.3	66.6		64.1	60.2
Progression Factor	1.00	1.00		1.07	0.66			1.08	1.00		1.00	1.00
Incremental Delay, d2	5.8	0.1		11.2	0.1			0.9	0.0		4.0	0.1
Delay (s)	77.4	9.6		93.4	9.4			73.4	66.7		68.1	60.3
Level of Service	E	A		F	A			E	E		E	E
Approach Delay (s)		20.5			10.1			73.1			66.4	
Approach LOS		C			B			E			E	

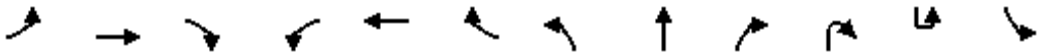
Intersection Summary			
HCM 2000 Control Delay	21.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	156.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	44.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL2	WBT	WBR	NBT	NBR	SBL	SBT	SBR	SBR2
Lane Configurations											
Traffic Volume (vph)	10	150	16	10	47	1239	16	39	710	0	7
Future Volume (vph)	10	150	16	10	47	1239	16	39	710	0	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00			1.00		0.95	1.00	1.00	0.95	1.00	
Frpb, ped/bikes	1.00			0.98		1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00			1.00		1.00	1.00	1.00	1.00	1.00	
Frt	0.87			0.91		1.00	0.85	1.00	1.00	0.85	
Flt Protected	1.00			0.99		1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1534			841		3438	808	902	3471	1583	
Flt Permitted	1.00			0.99		1.00	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1534			841		3438	808	902	3471	1583	
Peak-hour factor, PHF	0.92	0.74	0.92	0.92	0.92	0.93	0.92	0.92	0.89	0.92	0.75
Adj. Flow (vph)	11	203	17	11	51	1332	17	42	798	0	9
RTOR Reduction (vph)	0	0	0	0	0	0	8	0	0	3	0
Lane Group Flow (vph)	214	0	0	79	0	1332	9	42	798	6	0
Confl. Bikes (#/hr)					11						
Heavy Vehicles (%)	100%	3%	100%	100%	100%	5%	100%	100%	4%	2%	2%
Turn Type	NA		Split	NA		NA	Perm	Prot	NA	Perm	
Protected Phases	3		4	4		2		1	6		
Permitted Phases							2			6	
Actuated Green, G (s)	19.0			20.0		85.6	85.6	11.4	102.0	102.0	
Effective Green, g (s)	19.0			20.0		85.6	85.6	11.4	102.0	102.0	
Actuated g/C Ratio	0.12			0.13		0.55	0.55	0.07	0.65	0.65	
Clearance Time (s)	5.0			5.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0			3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	186			107		1886	443	65	2269	1035	
v/s Ratio Prot	c0.14			c0.09		c0.39		c0.05	0.23		
v/s Ratio Perm							0.01			0.00	
v/c Ratio	1.15			0.74		0.71	0.02	0.65	0.35	0.01	
Uniform Delay, d1	68.5			65.5		25.9	16.1	70.3	12.1	9.4	
Progression Factor	1.00			1.00		0.64	1.00	1.20	0.44	1.00	
Incremental Delay, d2	112.2			23.1		1.0	0.0	18.4	0.4	0.0	
Delay (s)	180.8			88.6		17.6	16.1	103.1	5.8	9.4	
Level of Service	F			F		B	B	F	A	A	
Approach Delay (s)	180.8			88.6		17.5			10.6		
Approach LOS	F			F		B			B		

Intersection Summary			
HCM 2000 Control Delay	31.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	156.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	60.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR2	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBU	SBL2
Lane Configurations												
Traffic Volume (vph)	194	310	240	935	942	71	278	1074	810	16	4	58
Future Volume (vph)	194	310	240	935	942	71	278	1074	810	16	4	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	11	11	11	11	12	11	11	12	12	12
Total Lost time (s)	3.0	3.0	3.0	3.0	3.5		3.0	3.5	4.0			3.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		1.00	0.95	1.00			1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00			1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00			0.95
Satd. Flow (prot)	1478	3061	1351	3319	3381		1736	3355	1475			1736
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00			0.95
Satd. Flow (perm)	1478	3061	1351	3319	3381		1736	3355	1475			1736
Peak-hour factor, PHF	0.84	0.84	0.84	0.94	0.94	0.94	0.95	0.95	0.95	0.92	0.93	0.93
Adj. Flow (vph)	231	369	286	995	1002	76	293	1131	853	17	4	62
RTOR Reduction (vph)	0	0	237	0	3	0	0	0	14	0	0	0
Lane Group Flow (vph)	231	369	49	995	1075	0	293	1131	856	0	0	66
Confl. Peds. (#/hr)	4		1	1		4	2		2			2
Heavy Vehicles (%)	14%	14%	14%	2%	2%	2%	4%	4%	4%	100%	4%	4%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	pt+ov		Prot	Prot
Protected Phases	7	4		3	8		5	2	2 3		1	1
Permitted Phases			4									
Actuated Green, G (s)	24.6	24.6	24.6	49.9	49.9		31.1	56.0	110.9			5.5
Effective Green, g (s)	26.6	26.6	26.6	51.9	51.4		33.1	57.5	111.9			7.5
Actuated g/C Ratio	0.17	0.17	0.17	0.33	0.33		0.21	0.37	0.72			0.05
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0				5.0
Vehicle Extension (s)	3.0	3.0	3.0	4.0	3.0		3.0	5.0				3.0
Lane Grp Cap (vph)	252	521	230	1104	1113		368	1236	1058			83
v/s Ratio Prot	c0.16	0.12		0.30	c0.32		0.17	c0.34	0.58			c0.04
v/s Ratio Perm			0.04									
v/c Ratio	0.92	0.71	0.21	0.90	0.97		0.80	0.92	0.81			0.80
Uniform Delay, d1	63.6	61.0	55.7	49.6	51.4		58.3	46.9	14.9			73.5
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00			1.15
Incremental Delay, d2	34.9	4.4	0.5	10.4	19.0		11.3	12.0	4.9			35.4
Delay (s)	98.5	65.4	56.1	60.0	70.5		69.6	58.9	19.8			119.6
Level of Service	F	E	E	E	E		E	E	B			F
Approach Delay (s)		71.0			65.4			45.4				
Approach LOS		E			E			D				

Intersection Summary			
HCM 2000 Control Delay	64.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	156.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	93.7%	ICU Level of Service	F
Analysis Period (min)	15		
Description: INT 27			
DATA FROM RENTON			
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	619	189
Future Volume (vph)	619	189
Ideal Flow (vphpl)	1900	1900
Lane Width	11	12
Total Lost time (s)	3.5	4.0
Lane Util. Factor	0.91	1.00
Frpb, ped/bikes	1.00	0.98
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	4821	1529
Flt Permitted	1.00	1.00
Satd. Flow (perm)	4821	1529
Peak-hour factor, PHF	0.93	0.93
Adj. Flow (vph)	666	203
RTOR Reduction (vph)	0	162
Lane Group Flow (vph)	666	41
Confl. Peds. (#/hr)		2
Heavy Vehicles (%)	4%	4%
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	30.4	30.4
Effective Green, g (s)	31.9	31.4
Actuated g/C Ratio	0.20	0.20
Clearance Time (s)	5.0	5.0
Vehicle Extension (s)	5.0	5.0
Lane Grp Cap (vph)	985	307
v/s Ratio Prot	0.14	
v/s Ratio Perm		0.03
v/c Ratio	0.68	0.13
Uniform Delay, d1	57.3	51.1
Progression Factor	1.21	4.05
Incremental Delay, d2	3.3	0.8
Delay (s)	72.8	208.0
Level of Service	E	F
Approach Delay (s)	105.4	
Approach LOS	F	

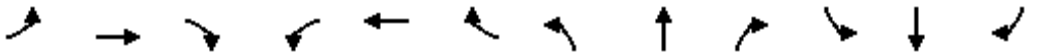
Intersection Summary

Movement	EBL	EBT	EBR2	WBL	WBT	WBR2	NBU	NBL2	NBT	NBR	NBR2	SBU
Lane Configurations												
Traffic Volume (vph)	131	63	19	51	292	360	36	142	1021	44	47	5
Future Volume (vph)	131	63	19	51	292	360	36	142	1021	44	47	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	11	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	3.0	4.0		
Lane Util. Factor	0.97	1.00		1.00	1.00	1.00		1.00	0.95	1.00		
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97		1.00	1.00	0.97		
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		
Frt	1.00	0.97		1.00	1.00	0.85		1.00	1.00	0.85		
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00		
Satd. Flow (prot)	2968	1548		1770	1863	1532		1715	3406	1019		
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00		
Satd. Flow (perm)	2968	1548		1770	1863	1532		1715	3406	1019		
Peak-hour factor, PHF	0.90	0.90	0.90	0.95	0.95	0.95	1.00	0.92	0.92	0.92	0.92	1.00
Adj. Flow (vph)	146	70	21	54	307	379	36	154	1110	48	51	5
RTOR Reduction (vph)	0	67	0	0	0	99	0	0	0	49	0	0
Lane Group Flow (vph)	146	24	0	54	307	280	0	190	1110	50	0	0
Confl. Peds. (#/hr)	18		6	6		18		7		8		
Heavy Vehicles (%)	18%	18%	18%	2%	2%	2%	2%	6%	6%	6%	100%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Prot	Prot	NA	Perm		Prot
Protected Phases	7	4		3	8		5	5	2			1
Permitted Phases						8				2		
Actuated Green, G (s)	14.0	40.7		7.3	34.0	34.0		27.8	77.2	77.2		
Effective Green, g (s)	15.0	41.7		8.3	35.0	35.0		28.8	79.2	78.2		
Actuated g/C Ratio	0.10	0.27		0.05	0.22	0.22		0.18	0.51	0.50		
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0	5.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		4.0	3.0	3.0		
Lane Grp Cap (vph)	285	413		94	417	343		316	1729	510		
v/s Ratio Prot	c0.05	0.02		0.03	0.16			0.11	c0.33			
v/s Ratio Perm						c0.18				0.05		
v/c Ratio	0.51	0.06		0.57	0.74	0.82		0.60	0.64	0.10		
Uniform Delay, d1	67.0	42.5		72.1	56.2	57.5		58.3	28.0	20.4		
Progression Factor	0.93	2.63		1.00	1.00	1.00		0.69	0.52	1.28		
Incremental Delay, d2	1.5	0.1		8.2	6.6	14.0		2.7	1.3	0.3		
Delay (s)	63.6	112.0		80.4	62.9	71.5		42.8	16.0	26.3		
Level of Service	E	F		F	E	E		D	B	C		
Approach Delay (s)		82.2			68.5				20.4			
Approach LOS		F			E				C			

Intersection Summary			
HCM 2000 Control Delay	41.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	156.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		
Description: INT 30			
DATA FROM RENTON			
c Critical Lane Group			

Movement	SBL2	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	124	612	158	39
Future Volume (vph)	124	612	158	39
Ideal Flow (vphpl)	1900	1900	1900	1900
Lane Width	12	11	12	12
Total Lost time (s)	4.0	3.0	4.0	
Lane Util. Factor	0.97	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	
Satd. Flow (prot)	3338	3323	1277	
Flt Permitted	0.95	1.00	1.00	
Satd. Flow (perm)	3338	3323	1277	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	135	665	172	42
RTOR Reduction (vph)	0	0	72	0
Lane Group Flow (vph)	140	665	142	0
Confl. Peds. (#/hr)	8		7	
Heavy Vehicles (%)	5%	5%	5%	100%
Turn Type	Prot	NA	Perm	
Protected Phases	1	6		
Permitted Phases			6	
Actuated Green, G (s)	10.8	60.2	60.2	
Effective Green, g (s)	11.8	62.2	61.2	
Actuated g/C Ratio	0.08	0.40	0.39	
Clearance Time (s)	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	
Lane Grp Cap (vph)	252	1324	500	
v/s Ratio Prot	0.04	c0.20		
v/s Ratio Perm			0.11	
v/c Ratio	0.56	0.50	0.28	
Uniform Delay, d1	69.6	35.3	32.4	
Progression Factor	1.00	1.00	1.00	
Incremental Delay, d2	2.6	1.4	1.4	
Delay (s)	72.2	36.6	33.8	
Level of Service	E	D	C	
Approach Delay (s)		40.9		
Approach LOS		D		

Intersection Summary

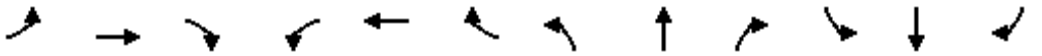


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	916	71	24	1699	105	107	25	32	54	23	16
Future Volume (vph)	15	916	71	24	1699	105	107	25	32	54	23	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	11	12	11	12	12	11	12	12	11	12
Total Lost time (s)	3.0	3.5	3.5	3.0	3.5		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.91	0.91		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		0.99	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.96		1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.98		0.95	1.00	
Satd. Flow (prot)	1719	3323	1452	1752	3293		1583	3000		1497	1421	
Flt Permitted	0.17	1.00	1.00	0.30	1.00		0.71	0.81		0.67	1.00	
Satd. Flow (perm)	303	3323	1452	553	3293		1184	2480		1055	1421	
Peak-hour factor, PHF	0.96	0.96	0.96	0.91	0.91	0.91	0.88	0.88	0.88	0.74	0.74	0.74
Adj. Flow (vph)	16	954	74	26	1867	115	122	28	36	73	31	22
RTOR Reduction (vph)	0	0	39	0	2	0	0	31	0	0	19	0
Lane Group Flow (vph)	16	954	35	26	1980	0	62	93	0	73	34	0
Confl. Peds. (#/hr)	3		3	3		3	9		7	7		9
Heavy Vehicles (%)	5%	5%	5%	3%	3%	37%	3%	3%	3%	20%	20%	20%
Turn Type	custom	NA	custom	custom	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	5	2 9		1	6 11		3	8		7	4	
Permitted Phases	6		2	2			4			8		
Actuated Green, G (s)	23.9	81.9	55.2	58.3	83.0		15.0	14.2		15.0	11.8	
Effective Green, g (s)	27.9	83.4	56.7	62.3	84.5		19.0	18.2		19.0	13.8	
Actuated g/C Ratio	0.23	0.70	0.47	0.52	0.70		0.16	0.15		0.16	0.12	
Clearance Time (s)	5.0		5.0	5.0			5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0		5.0	3.0			2.5	3.0		2.5	3.0	
Lane Grp Cap (vph)	117	2309	686	338	2318		204	398		189	163	
v/s Ratio Prot	c0.00	0.29		0.00	c0.60		0.01	0.01		c0.02	0.02	
v/s Ratio Perm	0.03		0.02	0.04			0.03	0.03		c0.04		
v/c Ratio	0.14	0.41	0.05	0.08	0.85		0.30	0.23		0.39	0.21	
Uniform Delay, d1	37.3	7.8	17.1	14.6	13.2		44.2	44.8		44.7	48.1	
Progression Factor	0.93	0.64	1.00	1.32	2.34		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.1	0.1	0.0	1.3		0.6	0.3		1.0	0.6	
Delay (s)	35.2	5.1	17.2	19.3	32.1		44.9	45.1		45.6	48.8	
Level of Service	D	A	B	B	C		D	D		D	D	
Approach Delay (s)		6.4			32.0			45.0			47.0	
Approach LOS		A			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	25.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		
Description: INT 28			
DATA FROM RENTON			
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
129: Shopping Ctr/Lake Av S #A #B #C & Grady Wy #A/Grady Wy #B #C

07/20/2020



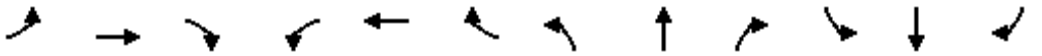
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	976	118	7	1740	75	172	0	12	14	0	46
Future Volume (veh/h)	66	976	118	7	1740	75	172	0	12	14	0	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1841	1870	1900	1870	537	1870	1885	1767	418	1900	1737
Adj Flow Rate, veh/h	79	1017	0	8	1851	0	205	0	0	19	0	65
Peak Hour Factor	0.84	0.96	0.61	0.83	0.94	0.80	0.84	0.25	0.58	0.75	0.25	0.71
Percent Heavy Veh, %	0	4	2	0	2	92	2	1	9	100	0	11
Cap, veh/h	304	2469		419	2426		300	0		88	20	242
Arrive On Green	0.04	0.71	0.00	0.03	1.00	0.00	0.18	0.00	0.00	0.18	0.00	0.18
Sat Flow, veh/h	1810	3497	1585	1810	3647	0	1346	0	1497	285	113	1361
Grp Volume(v), veh/h	79	1017	0	8	1851	0	205	0	0	84	0	0
Grp Sat Flow(s),veh/h/ln	1810	1749	1585	1810	1777	0	1346	0	1497	1758	0	0
Q Serve(g_s), s	1.5	14.5	0.0	0.1	0.0	0.0	12.4	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.5	14.5	0.0	0.1	0.0	0.0	17.7	0.0	0.0	5.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.23		0.77
Lane Grp Cap(c), veh/h	304	2469		419	2426		300	0		350	0	0
V/C Ratio(X)	0.26	0.41		0.02	0.76		0.68	0.00		0.24	0.00	0.00
Avail Cap(c_a), veh/h	308	2469		465	2426		352	0		410	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.53	0.53	0.00	0.50	0.50	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.8	7.3	0.0	5.5	0.0	0.0	47.8	0.0	0.0	42.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.3	0.0	0.0	1.2	0.0	4.4	0.0	0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	4.9	0.0	0.0	0.4	0.0	6.2	0.0	0.0	2.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.1	7.6	0.0	5.5	1.2	0.0	52.2	0.0	0.0	43.1	0.0	0.0
LnGrp LOS	A	A		A	A		D	A		D	A	A
Approach Vol, veh/h		1096	A		1859	A		205	A		84	
Approach Delay, s/veh		7.4			1.2			52.2			43.1	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.9	88.7		25.4	8.7	85.9		25.4				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	4.0	76.0		25.0	4.0	76.0		25.0				
Max Q Clear Time (g_c+I1), s	2.1	16.5		7.3	3.5	2.0		19.7				
Green Ext Time (p_c), s	0.0	7.7		0.2	0.0	23.0		0.3				

Intersection Summary		
HCM 6th Ctrl Delay	7.6	
HCM 6th LOS	A	

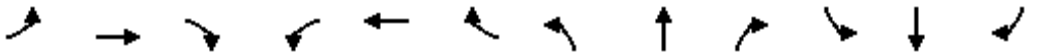
Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	976	118	7	1740	75	172	0	12	14	0	46
Future Volume (vph)	66	976	118	7	1740	75	172	0	12	14	0	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	11	12	11	12	12	11	12	12	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00			1.00	0.98		1.00	
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	0.99			1.00	0.85		0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.99	
Satd. Flow (prot)	1805	3355	1491	1805	3253			1711	1457		1282	
Flt Permitted	0.05	1.00	1.00	0.24	1.00			0.67	1.00		0.89	
Satd. Flow (perm)	96	3355	1491	458	3253			1198	1457		1159	
Peak-hour factor, PHF	0.84	0.96	0.61	0.83	0.94	0.80	0.84	0.25	0.58	0.75	0.25	0.71
Adj. Flow (vph)	79	1017	193	8	1851	94	205	0	21	19	0	65
RTOR Reduction (vph)	0	0	60	0	3	0	0	0	17	0	51	0
Lane Group Flow (vph)	79	1017	133	8	1942	0	0	205	4	0	33	0
Confl. Peds. (#/hr)	3		2	2		3			3	3		
Heavy Vehicles (%)	0%	4%	2%	0%	2%	92%	2%	1%	9%	100%	0%	11%
Turn Type	D.P+P	NA	Perm	D.P+P	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2			8		8	4		
Actuated Green, G (s)	82.2	81.4	81.4	82.2	78.5			22.8	22.8		22.8	
Effective Green, g (s)	84.2	82.4	82.4	84.2	79.5			23.8	23.8		23.8	
Actuated g/C Ratio	0.70	0.69	0.69	0.70	0.66			0.20	0.20		0.20	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0			5.0	5.0		5.0	
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	134	2303	1023	341	2155			237	288		229	
v/s Ratio Prot	c0.02	c0.30		0.00	c0.60							
v/s Ratio Perm	0.39		0.09	0.02				c0.17	0.00		0.03	
v/c Ratio	0.59	0.44	0.13	0.02	0.90			0.86	0.01		0.14	
Uniform Delay, d1	20.4	8.5	6.5	6.0	17.0			46.5	38.7		39.7	
Progression Factor	1.00	1.00	1.00	0.17	0.76			1.00	1.00		0.93	
Incremental Delay, d2	6.5	0.6	0.3	0.0	4.3			26.3	0.0		0.3	
Delay (s)	26.9	9.1	6.7	1.1	17.1			72.9	38.7		37.1	
Level of Service	C	A	A	A	B			E	D		D	
Approach Delay (s)		9.8			17.0			69.7			37.1	
Approach LOS		A			B			E			D	

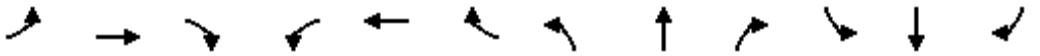
Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		
Description: INT 28A			
DATA FROM RENTON			
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	710	248	62	456	57	1346	806	261	16	132	37
Future Volume (vph)	33	710	248	62	456	57	1346	806	261	16	132	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		0.97	0.95		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.96		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1703	3406	1504	3367	3407		3433	3394		1805	4995	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1703	3406	1504	3367	3407		3433	3394		1805	4995	
Peak-hour factor, PHF	0.90	0.90	0.90	0.91	0.91	0.91	0.97	0.97	0.97	0.81	0.81	0.81
Adj. Flow (vph)	37	789	276	68	501	63	1388	831	269	20	163	46
RTOR Reduction (vph)	0	0	186	0	8	0	0	26	0	0	39	0
Lane Group Flow (vph)	37	789	90	68	556	0	1388	1074	0	20	170	0
Confl. Peds. (#/hr)	4		1	1		4	5		5	5		5
Heavy Vehicles (%)	6%	6%	6%	4%	4%	4%	2%	2%	2%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	2	6		5	1		3	8		7	4	
Permitted Phases			6									
Actuated Green, G (s)	6.4	37.2	37.2	5.1	35.9		40.6	55.4		2.3	17.1	
Effective Green, g (s)	8.4	39.2	39.2	7.1	37.9		42.6	57.4		4.3	19.1	
Actuated g/C Ratio	0.07	0.33	0.33	0.06	0.32		0.36	0.48		0.04	0.16	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		3.0	3.0		2.0	2.0	
Lane Grp Cap (vph)	119	1112	491	199	1076		1218	1623		64	795	
v/s Ratio Prot	0.02	c0.23		0.02	c0.16		c0.40	c0.32		0.01	0.03	
v/s Ratio Perm			0.06									
v/c Ratio	0.31	0.71	0.18	0.34	0.52		1.14	0.66		0.31	0.21	
Uniform Delay, d1	53.0	35.4	28.9	54.2	33.6		38.7	23.9		56.4	43.9	
Progression Factor	0.93	0.88	1.18	1.00	1.00		1.27	1.11		1.00	1.00	
Incremental Delay, d2	0.5	3.6	0.8	0.4	1.8		66.3	0.3		1.0	0.0	
Delay (s)	49.7	34.8	35.0	54.6	35.3		115.5	26.9		57.4	44.0	
Level of Service	D	C	D	D	D		F	C		E	D	
Approach Delay (s)		35.4			37.4			76.3			45.1	
Approach LOS		D			D			E			D	

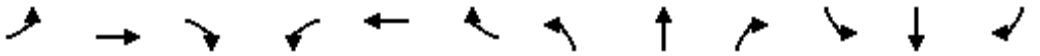
Intersection Summary			
HCM 2000 Control Delay	59.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	82.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	0	52	337	116	230	273	2197	0	0	401	20
Future Volume (vph)	7	0	52	337	116	230	273	2197	0	0	401	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	6.3	6.3	6.3	4.7	4.7			4.7	
Lane Util. Factor	1.00		1.00	0.97	1.00	1.00	1.00	0.95			0.91	
Frpb, ped/bikes	1.00		1.00	1.00	1.00	0.99	1.00	1.00			1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Frt	1.00		0.85	1.00	1.00	0.85	1.00	1.00			0.99	
Flt Protected	0.95		1.00	0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1770		1583	3433	1863	1560	1770	3539			5023	
Flt Permitted	0.95		1.00	0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (perm)	1770		1583	3433	1863	1560	1770	3539			5023	
Peak-hour factor, PHF	0.72	0.92	0.93	0.92	0.92	0.92	0.43	0.91	0.92	0.92	0.96	0.66
Adj. Flow (vph)	10	0	56	366	126	250	635	2414	0	0	418	30
RTOR Reduction (vph)	0	0	54	0	0	103	0	0	0	0	6	0
Lane Group Flow (vph)	10	0	2	366	126	147	635	2414	0	0	442	0
Confl. Peds. (#/hr)	2					2	5		3	3		5
Turn Type	Prot		Prot	Prot	NA	custom	Prot	NA			NA	
Protected Phases	4		7	8	3		5	2			6	
Permitted Phases						8						
Actuated Green, G (s)	3.0		4.0	22.2	23.2	22.2	46.8	76.3			23.8	
Effective Green, g (s)	4.0		5.0	22.2	23.2	22.2	47.8	77.3			24.8	
Actuated g/C Ratio	0.03		0.04	0.18	0.19	0.18	0.40	0.64			0.21	
Clearance Time (s)	5.5		5.5	6.3	6.3	6.3	5.7	5.7			5.7	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	4.0			4.0	
Lane Grp Cap (vph)	59		65	635	360	288	705	2279			1038	
v/s Ratio Prot	0.01		0.00	c0.11	c0.07		0.36	c0.68			0.09	
v/s Ratio Perm						0.09						
v/c Ratio	0.17		0.04	0.58	0.35	0.51	0.90	1.06			0.43	
Uniform Delay, d1	56.4		55.2	44.6	41.9	44.0	33.9	21.4			41.4	
Progression Factor	1.00		1.00	1.00	1.00	1.00	0.90	1.65			0.81	
Incremental Delay, d2	1.4		0.2	1.3	0.6	1.5	12.7	35.6			1.2	
Delay (s)	57.8		55.4	45.9	42.5	45.6	43.4	70.7			34.8	
Level of Service	E		E	D	D	D	D	E			C	
Approach Delay (s)		55.8			45.2			65.0			34.8	
Approach LOS		E			D			E			C	

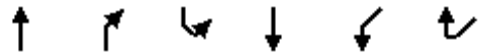
Intersection Summary			
HCM 2000 Control Delay	58.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.2
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	147	63	49	629	140	31	33	11	14	24	52
Future Volume (vph)	27	147	63	49	629	140	31	33	11	14	24	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	3.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00			1.00	0.99		0.99	
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	0.97			1.00	0.85		0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.98	1.00		0.99	
Satd. Flow (prot)	1736	1827	1532	1786	3476			1683	1449		1703	
Flt Permitted	0.28	1.00	1.00	0.64	1.00			0.85	1.00		0.94	
Satd. Flow (perm)	521	1827	1532	1209	3476			1470	1449		1617	
Peak-hour factor, PHF	0.81	0.81	0.81	0.93	0.93	0.93	0.69	0.69	0.69	0.77	0.77	0.77
Adj. Flow (vph)	33	181	78	53	676	151	45	48	16	18	31	68
RTOR Reduction (vph)	0	0	39	0	19	0	0	0	13	0	54	0
Lane Group Flow (vph)	33	181	39	53	808	0	0	93	3	0	63	0
Confl. Peds. (#/hr)			2	2			8		1	1		8
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	10%	10%	10%	1%	1%	1%
Turn Type	D.P+P	NA	Perm	D.P+P	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	8		4	4			2		2	6		
Actuated Green, G (s)	24.4	22.7	22.7	25.4	22.5			8.6	8.6		8.6	
Effective Green, g (s)	26.4	23.7	23.7	27.4	23.5			9.6	9.6		9.6	
Actuated g/C Ratio	0.55	0.49	0.49	0.57	0.49			0.20	0.20		0.20	
Clearance Time (s)	5.0	5.0	5.0	4.0	5.0			5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	359	902	756	734	1701			294	289		323	
v/s Ratio Prot	0.01	0.10		c0.01	c0.23							
v/s Ratio Perm	0.04		0.03	0.04				c0.06	0.00		0.04	
v/c Ratio	0.09	0.20	0.05	0.07	0.47			0.32	0.01		0.19	
Uniform Delay, d1	5.1	6.8	6.3	4.6	8.1			16.4	15.4		16.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.1	0.1	0.0	0.0	0.2			0.6	0.0		0.3	
Delay (s)	5.2	6.9	6.3	4.6	8.4			17.0	15.4		16.3	
Level of Service	A	A	A	A	A			B	B		B	
Approach Delay (s)		6.6			8.1			16.8			16.3	
Approach LOS		A			A			B			B	

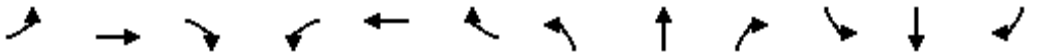
Intersection Summary			
HCM 2000 Control Delay	9.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	48.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	2470	535	28	762	0	0
Future Volume (vph)	2470	535	28	762	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.3	4.3	3.6	3.6		
Lane Util. Factor	0.91	1.00	1.00	0.95		
Frpb, ped/bikes	1.00	0.99	1.00	1.00		
Flpb, ped/bikes	1.00	1.00	1.00	1.00		
Frt	1.00	0.85	1.00	1.00		
Flt Protected	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	5085	1561	1770	3539		
Flt Permitted	1.00	1.00	0.95	1.00		
Satd. Flow (perm)	5085	1561	1770	3539		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2685	582	30	828	0	0
RTOR Reduction (vph)	0	94	0	0	0	0
Lane Group Flow (vph)	2685	488	30	828	0	0
Confl. Peds. (#/hr)		1	1			
Turn Type	NA	Perm	Prot	NA		
Protected Phases	2		1	1 2		
Permitted Phases		2				
Actuated Green, G (s)	99.7	99.7	10.4	120.0		
Effective Green, g (s)	100.7	100.7	11.4	115.7		
Actuated g/C Ratio	0.84	0.84	0.10	0.96		
Clearance Time (s)	5.3	5.3	4.6			
Vehicle Extension (s)	4.0	4.0	3.0			
Lane Grp Cap (vph)	4267	1309	168	3412		
v/s Ratio Prot	c0.53		0.02	c0.23		
v/s Ratio Perm		0.31				
v/c Ratio	0.63	0.37	0.18	0.24		
Uniform Delay, d1	3.3	2.3	50.0	0.1		
Progression Factor	1.00	1.00	1.50	1.00		
Incremental Delay, d2	0.7	0.8	0.5	0.0		
Delay (s)	4.0	3.1	75.6	0.1		
Level of Service	A	A	E	A		
Approach Delay (s)	3.8			2.8	0.0	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	3.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	7.9
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	189	1199	68	240	609	69	138	254	777	129	173	121
Future Volume (vph)	189	1199	68	240	609	69	138	254	777	129	173	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1735	3283		1770	3430		1633	3252	1429	1444	1743	1546
Flt Permitted	0.15	1.00		0.19	1.00		0.61	1.00	1.00	0.57	1.00	1.00
Satd. Flow (perm)	268	3283		345	3430		1046	3252	1429	870	1743	1546
Peak-hour factor, PHF	0.86	0.95	0.84	0.81	0.98	0.87	0.88	0.95	0.96	0.73	0.98	0.70
Adj. Flow (vph)	220	1262	81	296	621	79	157	267	809	177	177	173
RTOR Reduction (vph)	0	4	0	0	8	0	0	0	321	0	0	103
Lane Group Flow (vph)	220	1339	0	296	692	0	157	267	488	177	177	70
Confl. Peds. (#/hr)	7		4	4		7	6					6
Heavy Vehicles (%)	4%	9%	6%	2%	3%	5%	10%	11%	13%	25%	9%	2%
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA	Perm	D.P+P	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8			4			6		2	2		6
Actuated Green, G (s)	41.2	21.6		41.2	27.3		58.8	46.8	46.8	58.8	48.7	48.7
Effective Green, g (s)	41.2	21.6		41.2	27.3		58.8	46.8	46.8	58.8	48.7	48.7
Actuated g/C Ratio	0.34	0.18		0.34	0.23		0.49	0.39	0.39	0.49	0.41	0.41
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	261	590		351	780		561	1268	557	483	707	627
v/s Ratio Prot	0.10	c0.41		c0.14	c0.20		0.02	0.08		c0.04	0.10	
v/s Ratio Perm	0.19			0.15			0.11		c0.34	0.14		0.05
v/c Ratio	0.84	2.27		0.84	0.89		0.28	0.21	0.88	0.37	0.25	0.11
Uniform Delay, d1	31.6	49.2		32.6	44.9		17.3	24.3	33.9	17.8	23.6	22.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	20.4	576.6		16.0	11.6		0.1	0.4	17.3	0.2	0.8	0.4
Delay (s)	52.1	625.8		48.6	56.5		17.4	24.7	51.2	18.0	24.4	22.6
Level of Service	D	F		D	E		B	C	D	B	C	C
Approach Delay (s)		545.0			54.1			41.2			21.6	
Approach LOS		F			D			D			C	

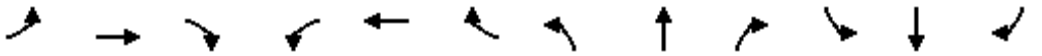
Intersection Summary			
HCM 2000 Control Delay	224.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	103.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	0
Turn Type					Prot	Perm
Protected Phases	4			8	2	
Permitted Phases						2
Actuated Green, G (s)						
Effective Green, g (s)						
Actuated g/C Ratio						
Clearance Time (s)						
Vehicle Extension (s)						
Lane Grp Cap (vph)						
v/s Ratio Prot						
v/s Ratio Perm						
v/c Ratio						
Uniform Delay, d1						
Progression Factor						
Incremental Delay, d2						
Delay (s)						
Level of Service						
Approach Delay (s)	0.0			0.0	0.0	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	0.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.00		
Actuated Cycle Length (s)	82.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	0.0%	ICU Level of Service	A
Analysis Period (min)	15		

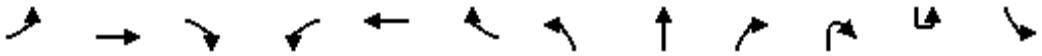
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	607	243	5	402	60	3	4	2	120	100	50
Future Volume (vph)	70	607	243	5	402	60	3	4	2	120	100	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	0.96		1.00	0.98			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00		0.97	1.00
Satd. Flow (prot)	1770	3388		1770	3470			1824	1583		1813	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.98	1.00		0.97	1.00
Satd. Flow (perm)	1770	3388		1770	3470			1824	1583		1813	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	76	660	264	5	437	65	3	4	2	130	109	54
RTOR Reduction (vph)	0	19	0	0	5	0	0	0	2	0	0	44
Lane Group Flow (vph)	76	905	0	5	497	0	0	7	0	0	239	10
Turn Type	Prot	NA		Prot	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases									4			3
Actuated Green, G (s)	12.0	95.4		1.4	84.8			11.6	11.6		27.6	27.6
Effective Green, g (s)	12.0	95.4		1.4	84.8			11.6	11.6		27.6	27.6
Actuated g/C Ratio	0.08	0.61		0.01	0.54			0.07	0.07		0.18	0.18
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	5.0		3.0	5.0			5.0	5.0		5.0	5.0
Lane Grp Cap (vph)	136	2071		15	1886			135	117		320	280
v/s Ratio Prot	c0.04	c0.27		0.00	0.14			c0.00			c0.13	
v/s Ratio Perm									0.00			0.01
v/c Ratio	0.56	0.44		0.33	0.26			0.05	0.00		0.75	0.03
Uniform Delay, d1	69.4	16.1		76.8	19.0			67.1	66.8		60.9	53.2
Progression Factor	1.00	1.00		1.37	0.54			1.19	1.00		1.00	1.00
Incremental Delay, d2	4.9	0.7		11.1	0.1			0.2	0.0		10.9	0.1
Delay (s)	74.4	16.7		116.5	10.5			79.8	66.8		71.8	53.3
Level of Service	E	B		F	B			E	E		E	D
Approach Delay (s)		21.1			11.5			76.9			68.4	
Approach LOS		C			B			E			E	

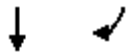
Intersection Summary			
HCM 2000 Control Delay	26.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	156.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



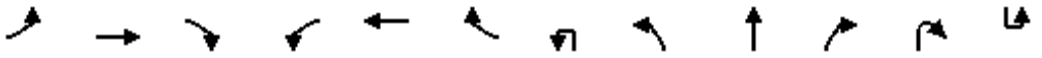
Movement	EBL	EBT	EBR2	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBU	SBL2
Lane Configurations												
Traffic Volume (vph)	379	915	786	707	501	159	197	680	610	7	8	205
Future Volume (vph)	379	915	786	707	501	159	197	680	610	7	8	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	11	11	11	11	12	11	11	12	12	12
Total Lost time (s)	3.0	3.0	2.0	3.0	3.5		3.0	3.5	4.0			3.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		1.00	0.95	1.00			1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	0.99		1.00	1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00			1.00
Frt	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00			0.95
Satd. Flow (prot)	1478	3061	1369	3319	3272		1736	3355	1484			1736
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00			0.95
Satd. Flow (perm)	1478	3061	1369	3319	3272		1736	3355	1484			1736
Peak-hour factor, PHF	0.84	0.84	0.84	0.94	0.94	0.94	0.95	0.95	0.95	0.92	0.93	0.93
Adj. Flow (vph)	451	1089	936	752	533	169	207	716	642	8	9	220
RTOR Reduction (vph)	0	0	0	0	20	0	0	0	26	0	0	0
Lane Group Flow (vph)	451	1089	936	752	682	0	207	716	624	0	0	229
Confl. Peds. (#/hr)	15					15	7		8			8
Heavy Vehicles (%)	14%	14%	14%	2%	2%	2%	4%	4%	4%	100%	4%	4%
Turn Type	Prot	NA	Free	Prot	NA		Prot	NA	pt+ov		Prot	Prot
Protected Phases	7	4		3	8		5	2	2 3		1	1
Permitted Phases			Free									
Actuated Green, G (s)	46.2	49.0	156.0	30.0	32.8		15.0	38.0	73.0			19.0
Effective Green, g (s)	48.2	51.0	156.0	32.0	34.3		17.0	39.5	74.0			21.0
Actuated g/C Ratio	0.31	0.33	1.00	0.21	0.22		0.11	0.25	0.47			0.13
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0				5.0
Vehicle Extension (s)	3.0	3.0		4.0	3.0		3.0	5.0				3.0
Lane Grp Cap (vph)	456	1000	1369	680	719		189	849	703			233
v/s Ratio Prot	0.31	c0.36		c0.23	0.21		c0.12	0.21	0.42			0.13
v/s Ratio Perm			c0.68									
v/c Ratio	0.99	1.09	0.68	1.11	0.95		1.10	0.84	0.89			0.98
Uniform Delay, d1	53.6	52.5	0.0	62.0	60.0		69.5	55.3	37.2			67.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00			1.29
Incremental Delay, d2	38.8	55.8	2.8	67.2	21.7		93.2	10.0	13.4			47.3
Delay (s)	92.5	108.3	2.8	129.2	81.7		162.7	65.3	50.6			134.1
Level of Service	F	F	A	F	F		F	E	D			F
Approach Delay (s)		65.6			106.3			72.0				
Approach LOS		E			F			E				

Intersection Summary			
HCM 2000 Control Delay	81.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	156.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	98.1%	ICU Level of Service	F
Analysis Period (min)	15		
Description: INT 27			
DATA FROM RENTON			
c Critical Lane Group			



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1293	244
Future Volume (vph)	1293	244
Ideal Flow (vphpl)	1900	1900
Lane Width	11	12
Total Lost time (s)	3.5	3.0
Lane Util. Factor	0.91	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	4821	1531
Flt Permitted	1.00	1.00
Satd. Flow (perm)	4821	1531
Peak-hour factor, PHF	0.93	0.93
Adj. Flow (vph)	1390	262
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	1390	262
Confl. Peds. (#/hr)		7
Heavy Vehicles (%)	4%	4%
Turn Type	NA	Free
Protected Phases	6	
Permitted Phases		Free
Actuated Green, G (s)	42.0	156.0
Effective Green, g (s)	43.5	156.0
Actuated g/C Ratio	0.28	1.00
Clearance Time (s)	5.0	
Vehicle Extension (s)	5.0	
Lane Grp Cap (vph)	1344	1531
v/s Ratio Prot	c0.29	
v/s Ratio Perm		0.17
v/c Ratio	1.03	0.17
Uniform Delay, d1	56.2	0.0
Progression Factor	1.26	1.00
Incremental Delay, d2	31.2	0.2
Delay (s)	102.0	0.2
Level of Service	F	A
Approach Delay (s)	91.8	
Approach LOS	F	

Intersection Summary

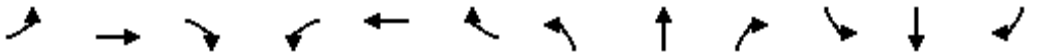


Movement	EBL	EBT	EBR2	WBL	WBT	WBR2	NBU	NBL2	NBT	NBR	NBR2	SBU
Lane Configurations												
Traffic Volume (vph)	348	310	71	98	168	165	65	132	950	75	7	12
Future Volume (vph)	348	310	71	98	168	165	65	132	950	75	7	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	11	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0		4.0	4.0	3.0		4.0	3.0	4.0		
Lane Util. Factor	0.97	1.00		1.00	1.00	1.00		1.00	0.95	1.00		
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98		1.00	1.00	0.97		
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		
Frt	1.00	0.97		1.00	1.00	0.85		1.00	1.00	0.85		
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00		
Satd. Flow (prot)	2968	1557		1770	1863	1555		1723	3406	1375		
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00		
Satd. Flow (perm)	2968	1557		1770	1863	1555		1723	3406	1375		
Peak-hour factor, PHF	0.90	0.90	0.90	0.95	0.95	0.95	1.00	0.92	0.92	0.92	0.92	1.00
Adj. Flow (vph)	387	344	79	103	177	174	65	143	1033	82	8	12
RTOR Reduction (vph)	0	88	0	0	0	0	0	0	0	53	0	0
Lane Group Flow (vph)	387	335	0	103	177	174	0	208	1033	37	0	0
Confl. Peds. (#/hr)	19		13	13		19		14		8		
Heavy Vehicles (%)	18%	18%	18%	2%	2%	2%	2%	6%	6%	6%	100%	2%
Turn Type	Prot	NA		Prot	NA	Free	Prot	Prot	NA	Perm		Prot
Protected Phases	7	4		3	8		5	5	2			1
Permitted Phases						Free				2		
Actuated Green, G (s)	26.8	39.1		10.7	23.0	156.0		17.0	63.8	63.8		
Effective Green, g (s)	27.8	40.1		11.7	24.0	156.0		18.0	65.8	64.8		
Actuated g/C Ratio	0.18	0.26		0.07	0.15	1.00		0.12	0.42	0.42		
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0	5.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0			4.0	3.0	3.0		
Lane Grp Cap (vph)	528	400		132	286	1555		198	1436	571		
v/s Ratio Prot	0.13	c0.21		c0.06	0.10			c0.12	0.30			
v/s Ratio Perm						0.11				0.03		
v/c Ratio	0.73	0.84		0.78	0.62	0.11		1.05	0.72	0.07		
Uniform Delay, d1	60.6	54.8		70.9	61.7	0.0		69.0	37.4	27.4		
Progression Factor	0.99	0.95		1.00	1.00	1.00		0.85	0.75	0.54		
Incremental Delay, d2	4.8	13.1		25.2	4.0	0.1		56.1	1.4	0.1		
Delay (s)	64.5	65.2		96.1	65.7	0.1		114.7	29.3	14.8		
Level of Service	E	E		F	E	A		F	C	B		
Approach Delay (s)		64.9			47.5				41.7			
Approach LOS		E			D				D			

Intersection Summary			
HCM 2000 Control Delay	49.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	156.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	87.5%	ICU Level of Service	E
Analysis Period (min)	15		
Description: INT 30			
DATA FROM RENTON			
c Critical Lane Group			

Movement	SBL2	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	355	1169	167	7
Future Volume (vph)	355	1169	167	7
Ideal Flow (vphpl)	1900	1900	1900	1900
Lane Width	12	11	12	12
Total Lost time (s)	4.0	3.0	4.0	
Lane Util. Factor	0.97	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	
Flpb, ped/bikes	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	
Satd. Flow (prot)	3338	3323	1432	
Flt Permitted	0.95	1.00	1.00	
Satd. Flow (perm)	3338	3323	1432	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	386	1271	182	8
RTOR Reduction (vph)	0	0	65	0
Lane Group Flow (vph)	398	1271	125	0
Confl. Peds. (#/hr)	8		14	
Heavy Vehicles (%)	5%	5%	5%	100%
Turn Type	Prot	NA	Perm	
Protected Phases	1	6		
Permitted Phases			6	
Actuated Green, G (s)	22.4	69.2	69.2	
Effective Green, g (s)	23.4	71.2	70.2	
Actuated g/C Ratio	0.15	0.46	0.45	
Clearance Time (s)	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	
Lane Grp Cap (vph)	500	1516	644	
v/s Ratio Prot	0.12	c0.38		
v/s Ratio Perm			0.09	
v/c Ratio	0.80	0.84	0.19	
Uniform Delay, d1	64.0	37.3	25.8	
Progression Factor	1.00	1.00	1.00	
Incremental Delay, d2	8.6	5.7	0.7	
Delay (s)	72.6	43.0	26.5	
Level of Service	E	D	C	
Approach Delay (s)		47.7		
Approach LOS		D		

Intersection Summary

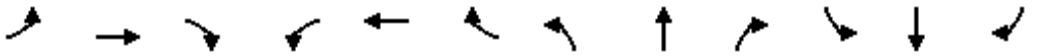


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	1371	175	111	929	40	100	35	72	162	101	56
Future Volume (vph)	29	1371	175	111	929	40	100	35	72	162	101	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	11	12	11	12	12	11	12	12	11	12
Total Lost time (s)	3.0	3.5	2.5	3.0	3.5		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.91	0.91		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.92		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.99		0.95	1.00	
Satd. Flow (prot)	1719	3323	1454	1752	3365		1589	2926		1500	1433	
Flt Permitted	0.27	1.00	1.00	0.18	1.00		0.38	0.83		0.65	1.00	
Satd. Flow (perm)	486	3323	1454	323	3365		634	2460		1023	1433	
Peak-hour factor, PHF	0.96	0.96	0.96	0.91	0.91	0.91	0.88	0.88	0.88	0.74	0.74	0.74
Adj. Flow (vph)	30	1428	182	122	1021	44	114	40	82	219	136	76
RTOR Reduction (vph)	0	0	0	0	2	0	0	63	0	0	18	0
Lane Group Flow (vph)	30	1428	182	122	1063	0	78	95	0	219	194	0
Confl. Peds. (#/hr)	2		4	4		2	14		4	4		14
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	3%	3%	3%	20%	20%	20%
Turn Type	custom	NA	Free	custom	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	5	2 9		1	6 11		3	8		7	4	
Permitted Phases	6		Free	2			4			8		
Actuated Green, G (s)	45.3	67.4	120.0	43.3	70.9		25.9	23.1		25.9	22.7	
Effective Green, g (s)	49.3	68.9	120.0	47.3	72.4		29.9	27.1		29.9	24.7	
Actuated g/C Ratio	0.41	0.57	1.00	0.39	0.60		0.25	0.23		0.25	0.21	
Clearance Time (s)	5.0			5.0			5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0			3.0			2.5	3.0		3.0	3.0	
Lane Grp Cap (vph)	253	1907	1454	230	2030		199	575		286	294	
v/s Ratio Prot	0.01	c0.43		c0.04	0.32		0.02	0.01		c0.05	0.14	
v/s Ratio Perm	0.04		c0.13	0.17			0.08	0.03		c0.14		
v/c Ratio	0.12	0.75	0.13	0.53	0.52		0.39	0.16		0.77	0.66	
Uniform Delay, d1	21.2	19.1	0.0	23.7	13.8		36.0	37.3		40.4	43.8	
Progression Factor	0.91	0.53	1.00	1.22	1.45		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	1.0	0.1	1.8	0.1		0.9	0.1		11.6	5.3	
Delay (s)	19.4	11.0	0.1	30.7	20.1		36.9	37.5		52.0	49.0	
Level of Service	B	B	A	C	C		D	D		D	D	
Approach Delay (s)		10.0			21.2			37.3			50.5	
Approach LOS		A			C			D			D	

Intersection Summary				
HCM 2000 Control Delay	20.6	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.75			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	78.5%	ICU Level of Service	D	
Analysis Period (min)	15			
Description: INT 28				
DATA FROM RENTON				
c Critical Lane Group				

HCM 6th Signalized Intersection Summary
129: Shopping Ctr/Lake Av S #A #B #C & Grady Wy #A/Grady Wy #B #C

07/20/2020



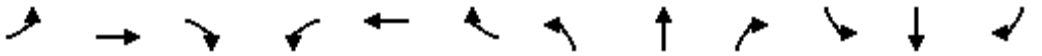
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	1534	211	17	1056	12	227	2	31	10	2	60
Future Volume (veh/h)	22	1534	211	17	1056	12	227	2	31	10	2	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1841	1870	1900	1870	537	1870	1885	1767	418	1900	1737
Adj Flow Rate, veh/h	26	1598	0	20	1123	0	270	8	0	13	8	85
Peak Hour Factor	0.84	0.96	0.61	0.83	0.94	0.80	0.84	0.25	0.58	0.75	0.25	0.71
Percent Heavy Veh, %	0	4	2	0	2	92	2	1	9	100	0	11
Cap, veh/h	345	2218		210	2243		359	9		65	52	339
Arrive On Green	0.03	0.63	0.00	0.02	0.63	0.00	0.24	0.24	0.00	0.24	0.24	0.24
Sat Flow, veh/h	1810	3497	1585	1810	3647	0	1245	37	1497	130	217	1406
Grp Volume(v), veh/h	26	1598	0	20	1123	0	278	0	0	106	0	0
Grp Sat Flow(s),veh/h/ln	1810	1749	1585	1810	1777	0	1282	0	1497	1753	0	0
Q Serve(g_s), s	0.6	36.9	0.0	0.5	20.4	0.0	19.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.6	36.9	0.0	0.5	20.4	0.0	25.4	0.0	0.0	6.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	0.97		1.00	0.12		0.80
Lane Grp Cap(c), veh/h	345	2218		210	2243		368	0		456	0	0
V/C Ratio(X)	0.08	0.72		0.10	0.50		0.76	0.00		0.23	0.00	0.00
Avail Cap(c_a), veh/h	370	2218		241	2243		457	0		564	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.00	0.86	0.86	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.9	14.8	0.0	13.1	11.9	0.0	44.5	0.0	0.0	36.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.2	0.7	0.0	5.5	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	13.4	0.0	0.2	7.7	0.0	8.5	0.0	0.0	2.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.9	15.0	0.0	13.3	12.6	0.0	50.0	0.0	0.0	37.2	0.0	0.0
LnGrp LOS	A	B		B	B		D	A		D	A	A
Approach Vol, veh/h		1624	A		1143	A		278	A		106	
Approach Delay, s/veh		14.9			12.6			50.0			37.2	
Approach LOS		B			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	80.1		32.9	7.3	79.7		32.9				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	4.0	65.0		36.0	4.0	65.0		36.0				
Max Q Clear Time (g_c+I1), s	2.5	38.9		8.2	2.6	22.4		27.4				
Green Ext Time (p_c), s	0.0	12.6		0.3	0.0	8.5		0.6				

Intersection Summary	
HCM 6th Ctrl Delay	17.9
HCM 6th LOS	B

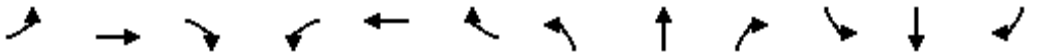
Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	1534	211	17	1056	12	227	2	31	10	2	60
Future Volume (vph)	22	1534	211	17	1056	12	227	2	31	10	2	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	11	12	11	12	12	11	12	12	12	12
Total Lost time (s)	4.0	4.0	3.0	4.0	4.0			4.0	3.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00			1.00	0.99		1.00	
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	1.00			1.00	0.85		0.89	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.99	
Satd. Flow (prot)	1804	3355	1499	1805	3373			1718	1462		1390	
Flt Permitted	0.18	1.00	1.00	0.07	1.00			0.62	1.00		0.95	
Satd. Flow (perm)	337	3355	1499	141	3373			1120	1462		1329	
Peak-hour factor, PHF	0.84	0.96	0.61	0.83	0.94	0.80	0.84	0.25	0.58	0.75	0.25	0.71
Adj. Flow (vph)	26	1598	346	20	1123	15	270	8	53	13	8	85
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	0	0	61	0
Lane Group Flow (vph)	26	1598	346	20	1137	0	0	278	53	0	45	0
Confl. Peds. (#/hr)	10		1	1		10			5	5		
Heavy Vehicles (%)	0%	4%	2%	0%	2%	92%	2%	1%	9%	100%	0%	11%
Turn Type	D.P+P	NA	Free	D.P+P	NA		Perm	NA	Free	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		Free	2			8		Free	4		
Actuated Green, G (s)	72.7	71.1	120.0	72.7	69.9			32.3	120.0		32.3	
Effective Green, g (s)	74.7	72.1	120.0	74.7	70.9			33.3	120.0		33.3	
Actuated g/C Ratio	0.62	0.60	1.00	0.62	0.59			0.28	1.00		0.28	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)	3.0	4.0		3.0	4.0			3.0			3.0	
Lane Grp Cap (vph)	256	2015	1499	123	1992			310	1462		368	
v/s Ratio Prot	0.00	c0.48		0.00	0.34							
v/s Ratio Perm	0.06		c0.23	0.10				c0.25	0.04		0.03	
v/c Ratio	0.10	0.79	0.23	0.16	0.57			0.90	0.04		0.12	
Uniform Delay, d1	10.5	18.3	0.0	15.1	15.2			41.7	0.0		32.4	
Progression Factor	1.00	1.00	1.00	0.35	0.32			1.00	1.00		0.69	
Incremental Delay, d2	0.2	3.3	0.4	0.6	1.1			26.5	0.0		0.1	
Delay (s)	10.7	21.6	0.4	5.8	5.9			68.2	0.0		22.6	
Level of Service	B	C	A	A	A			E	A		C	
Approach Delay (s)		17.7			5.9			57.3			22.6	
Approach LOS		B			A			E			C	

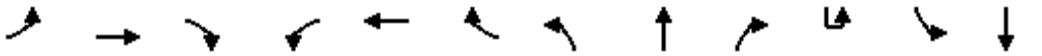
Intersection Summary			
HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		
Description: INT 28A			
DATA FROM RENTON			
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	134	705	787	263	661	45	398	388	121	86	613	48
Future Volume (vph)	134	705	787	263	661	45	398	388	121	86	613	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	2.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		0.97	0.95		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1703	3406	1504	3367	3433		3433	3400		1805	5124	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1703	3406	1504	3367	3433		3433	3400		1805	5124	
Peak-hour factor, PHF	0.90	0.90	0.90	0.91	0.91	0.91	0.97	0.97	0.97	0.81	0.81	0.81
Adj. Flow (vph)	149	783	874	289	726	49	410	400	125	106	757	59
RTOR Reduction (vph)	0	0	0	0	4	0	0	25	0	0	8	0
Lane Group Flow (vph)	149	783	874	289	771	0	410	500	0	106	808	0
Confl. Peds. (#/hr)	9		2	2		9	5		3	3		5
Heavy Vehicles (%)	6%	6%	6%	4%	4%	4%	2%	2%	2%	0%	0%	0%
Turn Type	Prot	NA	Free	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	2	6		5	1		3	8		7	4	
Permitted Phases			Free									
Actuated Green, G (s)	14.5	44.9	120.0	13.2	43.6		17.9	31.6		10.3	24.0	
Effective Green, g (s)	16.5	46.9	120.0	15.2	45.6		19.9	33.6		12.3	26.0	
Actuated g/C Ratio	0.14	0.39	1.00	0.13	0.38		0.17	0.28		0.10	0.22	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		3.0	3.0		2.0	2.0	
Lane Grp Cap (vph)	234	1331	1504	426	1304		569	952		185	1110	
v/s Ratio Prot	0.09	0.23		0.09	c0.22		c0.12	0.15		0.06	c0.16	
v/s Ratio Perm			c0.58									
v/c Ratio	0.64	0.59	0.58	0.68	0.59		0.72	0.53		0.57	0.73	
Uniform Delay, d1	48.9	28.9	0.0	50.1	29.8		47.4	36.5		51.3	43.7	
Progression Factor	1.01	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.0	1.4	1.2	3.4	2.0		4.5	0.5		2.7	2.0	
Delay (s)	52.5	30.2	1.2	53.4	31.7		51.9	37.0		54.0	45.8	
Level of Service	D	C	A	D	C		D	D		D	D	
Approach Delay (s)		18.0			37.6			43.5			46.7	
Approach LOS		B			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	33.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



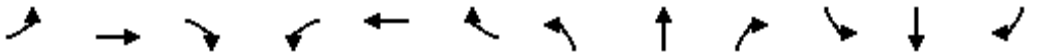
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	16	0	305	859	56	135	104	752	0	1	0	1646
Future Volume (vph)	16	0	305	859	56	135	104	752	0	1	0	1646
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	6.3	6.3	4.0	4.7	4.7				4.7
Lane Util. Factor	1.00		1.00	0.97	1.00	1.00	1.00	0.95				0.91
Frpb, ped/bikes	1.00		1.00	1.00	1.00	1.00	1.00	1.00				1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00	1.00	1.00				1.00
Frt	1.00		0.85	1.00	1.00	0.85	1.00	1.00				1.00
Flt Protected	0.95		1.00	0.95	1.00	1.00	0.95	1.00				1.00
Satd. Flow (prot)	1787		1599	3467	1881	1599	1770	3539				5117
Flt Permitted	0.95		1.00	0.95	1.00	1.00	0.95	1.00				0.94
Satd. Flow (perm)	1787		1599	3467	1881	1599	1770	3539				4809
Peak-hour factor, PHF	0.82	0.82	0.82	0.98	0.98	0.98	0.91	0.91	0.91	0.97	0.97	0.97
Adj. Flow (vph)	20	0	372	877	57	138	114	826	0	1	0	1697
RTOR Reduction (vph)	0	0	89	0	0	0	0	0	0	0	0	2
Lane Group Flow (vph)	20	0	283	877	57	138	114	826	0	0	0	1730
Confl. Peds. (#/hr)	2			4					2			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	1%	1%	1%
Turn Type	Prot		pt+ov	Prot	NA	Free	Prot	NA		Perm		NA
Protected Phases	7		4 5	3	8		5	2				6
Permitted Phases						Free				6		
Actuated Green, G (s)	3.5		34.3	31.1	48.5	130.8	7.9	61.3				47.7
Effective Green, g (s)	4.5		35.3	31.1	48.5	130.8	8.9	62.3				48.7
Actuated g/C Ratio	0.03		0.27	0.24	0.37	1.00	0.07	0.48				0.37
Clearance Time (s)	5.5			6.3	6.3		5.7	5.7				5.7
Vehicle Extension (s)	3.0			3.0	3.0		2.5	4.0				4.0
Lane Grp Cap (vph)	61		431	824	697	1599	120	1685				1790
v/s Ratio Prot	0.01		c0.18	c0.25	0.03		c0.06	0.23				
v/s Ratio Perm						0.09						c0.36
v/c Ratio	0.33		0.66	1.06	0.08	0.09	0.95	0.49				0.97
Uniform Delay, d1	61.7		42.4	49.9	26.7	0.0	60.7	23.4				40.3
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00	1.00				1.00
Incremental Delay, d2	3.1		3.6	49.9	0.1	0.1	65.7	0.3				14.1
Delay (s)	64.8		46.0	99.8	26.8	0.1	126.4	23.7				54.4
Level of Service	E		D	F	C	A	F	C				D
Approach Delay (s)		46.9			83.0			36.2				54.4
Approach LOS		D			F			D				D

Intersection Summary			
HCM 2000 Control Delay	57.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	130.8	Sum of lost time (s)	20.2
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	33
Future Volume (vph)	33
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.97
Adj. Flow (vph)	34
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	4
Heavy Vehicles (%)	1%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

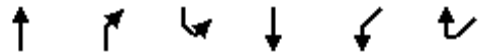
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	580	118	32	302	70	38	80	16	82	97	88
Future Volume (vph)	36	580	118	32	302	70	38	80	16	82	97	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	3.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00			1.00	0.99		1.00	
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	0.97			1.00	0.85		0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.98	1.00		0.98	
Satd. Flow (prot)	1734	1827	1531	1787	3459			1699	1449		1762	
Flt Permitted	0.50	1.00	1.00	0.17	1.00			0.80	1.00		0.84	
Satd. Flow (perm)	917	1827	1531	312	3459			1383	1449		1511	
Peak-hour factor, PHF	0.81	0.81	0.81	0.93	0.93	0.93	0.69	0.69	0.69	0.77	0.77	0.77
Adj. Flow (vph)	44	716	146	34	325	75	55	116	23	106	126	114
RTOR Reduction (vph)	0	0	75	0	23	0	0	0	16	0	20	0
Lane Group Flow (vph)	44	716	71	34	377	0	0	171	7	0	326	0
Confl. Peds. (#/hr)	1		2	2		1	2		1	1		2
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	10%	10%	10%	1%	1%	1%
Turn Type	D.P+P	NA	Perm	D.P+P	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	8		4	4			2		2	6		
Actuated Green, G (s)	34.7	33.3	33.3	35.7	32.3			20.7	20.7		20.7	
Effective Green, g (s)	36.7	34.3	34.3	37.7	33.3			21.7	21.7		21.7	
Actuated g/C Ratio	0.52	0.49	0.49	0.54	0.47			0.31	0.31		0.31	
Clearance Time (s)	5.0	5.0	5.0	4.0	5.0			5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	517	890	745	238	1636			426	446		465	
v/s Ratio Prot	0.00	c0.39		c0.01	0.11							
v/s Ratio Perm	0.04		0.05	0.07				0.12	0.00		c0.22	
v/c Ratio	0.09	0.80	0.10	0.14	0.23			0.40	0.02		0.70	
Uniform Delay, d1	8.3	15.2	9.7	10.7	11.0			19.2	16.9		21.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.1	5.3	0.1	0.3	0.1			0.6	0.0		4.7	
Delay (s)	8.4	20.6	9.8	11.0	11.0			19.8	16.9		26.2	
Level of Service	A	C	A	B	B			B	B		C	
Approach Delay (s)		18.2			11.0			19.5			26.2	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	70.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		

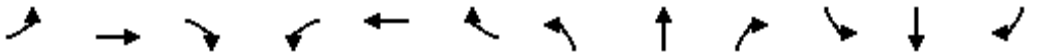
c Critical Lane Group



Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	856	496	158	2652	0	0
Future Volume (vph)	856	496	158	2652	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.3	4.3	3.6	3.6		
Lane Util. Factor	0.91	1.00	1.00	0.95		
Frpb, ped/bikes	1.00	0.99	1.00	1.00		
Flpb, ped/bikes	1.00	1.00	1.00	1.00		
Frt	1.00	0.85	1.00	1.00		
Flt Protected	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	5085	1561	1770	3539		
Flt Permitted	1.00	1.00	0.95	1.00		
Satd. Flow (perm)	5085	1561	1770	3539		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	930	539	172	2883	0	0
RTOR Reduction (vph)	0	353	0	0	0	0
Lane Group Flow (vph)	930	186	172	2883	0	0
Confl. Peds. (#/hr)		2	2			
Turn Type	NA	Perm	Prot	NA		
Protected Phases	2		1	1 2		
Permitted Phases		2				
Actuated Green, G (s)	19.7	19.7	30.4	60.0		
Effective Green, g (s)	20.7	20.7	31.4	55.7		
Actuated g/C Ratio	0.34	0.34	0.52	0.93		
Clearance Time (s)	5.3	5.3	4.6			
Vehicle Extension (s)	4.0	4.0	3.0			
Lane Grp Cap (vph)	1754	538	926	3285		
v/s Ratio Prot	0.18		0.10	c0.81		
v/s Ratio Perm		0.12				
v/c Ratio	0.53	0.35	0.19	0.88		
Uniform Delay, d1	15.8	14.6	7.6	0.8		
Progression Factor	1.00	1.00	1.00	1.00		
Incremental Delay, d2	1.2	1.8	0.1	3.0		
Delay (s)	16.9	16.4	7.6	3.8		
Level of Service	B	B	A	A		
Approach Delay (s)	16.7			4.0	0.0	
Approach LOS	B			A	A	

Intersection Summary			
HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.9
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	189	1199	68	244	621	65	138	254	781	114	173	121
Future Volume (vph)	189	1199	68	244	621	65	138	254	781	114	173	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1735	3283		1770	3435		1633	3252	1429	1444	1743	1546
Flt Permitted	0.14	1.00		0.18	1.00		0.61	1.00	1.00	0.57	1.00	1.00
Satd. Flow (perm)	258	3283		343	3435		1043	3252	1429	870	1743	1546
Peak-hour factor, PHF	0.86	0.95	0.84	0.81	0.98	0.87	0.88	0.95	0.96	0.73	0.98	0.70
Adj. Flow (vph)	220	1262	81	301	634	75	157	267	814	156	177	173
RTOR Reduction (vph)	0	4	0	0	7	0	0	0	330	0	0	104
Lane Group Flow (vph)	220	1339	0	301	702	0	157	267	484	156	177	69
Confl. Peds. (#/hr)	7		4	4		7	6					6
Heavy Vehicles (%)	4%	9%	6%	2%	3%	5%	10%	11%	13%	25%	9%	2%
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA	Perm	D.P+P	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8			4			6		2	2		6
Actuated Green, G (s)	42.1	21.7		42.1	28.3		57.9	46.9	46.9	57.9	47.8	47.8
Effective Green, g (s)	42.1	21.7		42.1	28.3		57.9	46.9	46.9	57.9	47.8	47.8
Actuated g/C Ratio	0.35	0.18		0.35	0.24		0.48	0.39	0.39	0.48	0.40	0.40
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	260	593		362	810		552	1270	558	472	694	615
v/s Ratio Prot	0.10	c0.41		c0.14	c0.20		0.02	0.08		c0.03	0.10	
v/s Ratio Perm	0.20			0.15			0.11		c0.34	0.13		0.04
v/c Ratio	0.85	2.26		0.83	0.87		0.28	0.21	0.87	0.33	0.26	0.11
Uniform Delay, d1	31.0	49.1		32.0	44.0		17.8	24.3	33.7	18.0	24.2	22.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	20.8	571.4		14.3	9.4		0.1	0.4	16.5	0.2	0.9	0.4
Delay (s)	51.9	620.6		46.3	53.4		17.9	24.6	50.2	18.2	25.1	23.1
Level of Service	D	F		D	D		B	C	D	B	C	C
Approach Delay (s)		540.5			51.3			40.6			22.3	
Approach LOS		F			D			D			C	

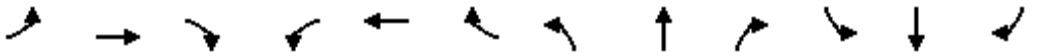
Intersection Summary			
HCM 2000 Control Delay	222.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	102.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	0
Turn Type					Prot	Perm
Protected Phases	4			8	2	
Permitted Phases						2
Actuated Green, G (s)						
Effective Green, g (s)						
Actuated g/C Ratio						
Clearance Time (s)						
Vehicle Extension (s)						
Lane Grp Cap (vph)						
v/s Ratio Prot						
v/s Ratio Perm						
v/c Ratio						
Uniform Delay, d1						
Progression Factor						
Incremental Delay, d2						
Delay (s)						
Level of Service						
Approach Delay (s)	0.0			0.0	0.0	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	0.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.00		
Actuated Cycle Length (s)	82.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	0.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	607	253	5	402	60	13	4	2	120	100	50
Future Volume (vph)	70	607	253	5	402	60	13	4	2	120	100	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	0.96		1.00	0.98			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.97	1.00
Satd. Flow (prot)	1770	3383		1770	3470			1793	1583		1813	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.96	1.00		0.97	1.00
Satd. Flow (perm)	1770	3383		1770	3470			1793	1583		1813	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	76	660	275	5	437	65	14	4	2	130	109	54
RTOR Reduction (vph)	0	20	0	0	5	0	0	0	2	0	0	44
Lane Group Flow (vph)	76	915	0	5	497	0	0	18	0	0	239	10
Turn Type	Prot	NA		Prot	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases									4			3
Actuated Green, G (s)	12.0	95.3		1.4	84.7			11.8	11.8		27.5	27.5
Effective Green, g (s)	12.0	95.3		1.4	84.7			11.8	11.8		27.5	27.5
Actuated g/C Ratio	0.08	0.61		0.01	0.54			0.08	0.08		0.18	0.18
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	5.0		3.0	5.0			5.0	5.0		5.0	5.0
Lane Grp Cap (vph)	136	2066		15	1884			135	119		319	279
v/s Ratio Prot	c0.04	c0.27		0.00	0.14			c0.01			c0.13	
v/s Ratio Perm									0.00			0.01
v/c Ratio	0.56	0.44		0.33	0.26			0.13	0.00		0.75	0.03
Uniform Delay, d1	69.4	16.2		76.8	19.0			67.3	66.7		61.0	53.2
Progression Factor	1.00	1.00		1.30	0.56			0.99	1.00		1.00	1.00
Incremental Delay, d2	4.9	0.7		10.7	0.1			0.9	0.0		11.1	0.1
Delay (s)	74.4	16.9		110.7	10.7			67.7	66.7		72.0	53.3
Level of Service	E	B		F	B			E	E		E	D
Approach Delay (s)		21.2			11.7			67.6			68.6	
Approach LOS		C			B			E			E	

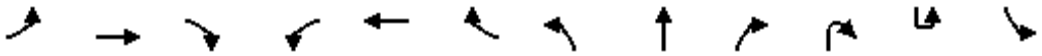
Intersection Summary			
HCM 2000 Control Delay	26.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	156.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL2	WBT	WBR	NBT	NBR	SBL	SBT	SBR	SBR2
Lane Configurations											
Traffic Volume (vph)	10	348	16	10	39	1278	16	47	1398	0	9
Future Volume (vph)	10	348	16	10	39	1278	16	47	1398	0	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00			1.00		0.95	1.00	1.00	0.95	1.00	
Frpb, ped/bikes	1.00			1.00		1.00	1.00	1.00	1.00	0.96	
Flpb, ped/bikes	1.00			1.00		1.00	1.00	1.00	1.00	1.00	
Frt	0.87			0.92		1.00	0.85	1.00	1.00	0.85	
Flt Protected	1.00			0.99		1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1568			863		3438	808	902	3471	1526	
Flt Permitted	1.00			0.99		1.00	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1568			863		3438	808	902	3471	1526	
Peak-hour factor, PHF	0.92	0.74	0.92	0.92	0.92	0.93	0.92	0.92	0.89	0.92	0.75
Adj. Flow (vph)	11	470	17	11	42	1374	17	51	1571	0	12
RTOR Reduction (vph)	0	0	0	0	0	0	10	0	0	6	0
Lane Group Flow (vph)	481	0	0	70	0	1374	7	51	1571	6	0
Confl. Peds. (#/hr)											6
Heavy Vehicles (%)	100%	3%	100%	100%	100%	5%	100%	100%	4%	2%	2%
Turn Type	NA		Split	NA		NA	Perm	Prot	NA	Perm	
Protected Phases	3		4	4		2		1	6		
Permitted Phases							2			6	
Actuated Green, G (s)	48.9			13.7		64.4	64.4	9.0	78.4	78.4	
Effective Green, g (s)	48.9			13.7		64.4	64.4	9.0	78.4	78.4	
Actuated g/C Ratio	0.31			0.09		0.41	0.41	0.06	0.50	0.50	
Clearance Time (s)	5.0			5.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0			3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	491			75		1419	333	52	1744	766	
v/s Ratio Prot	c0.31			c0.08		c0.40		0.06	c0.45		
v/s Ratio Perm							0.01			0.00	
v/c Ratio	0.98			0.93		0.97	0.02	0.98	0.90	0.01	
Uniform Delay, d1	53.1			70.7		44.8	27.1	73.4	35.3	19.4	
Progression Factor	1.07			1.00		0.61	1.00	1.29	0.53	1.00	
Incremental Delay, d2	33.9			80.8		10.2	0.1	88.1	4.9	0.0	
Delay (s)	90.5			151.5		37.4	27.2	182.5	23.5	19.4	
Level of Service	F			F		D	C	F	C	B	
Approach Delay (s)	90.5			151.5		37.3			28.5		
Approach LOS	F			F		D			C		

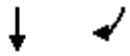
Intersection Summary			
HCM 2000 Control Delay	42.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	156.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	69.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR2	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBU	SBL2
Lane Configurations												
Traffic Volume (vph)	384	918	786	811	526	159	197	707	616	16	9	207
Future Volume (vph)	384	918	786	811	526	159	197	707	616	16	9	207
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	11	11	11	11	12	11	11	12	12	12
Total Lost time (s)	3.0	3.0	2.0	3.0	3.5		3.0	3.5	4.0			3.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		1.00	0.95	1.00			1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	0.99		1.00	1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00			1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00			0.95
Satd. Flow (prot)	1478	3061	1369	3319	3277		1736	3355	1467			1736
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00			0.95
Satd. Flow (perm)	1478	3061	1369	3319	3277		1736	3355	1467			1736
Peak-hour factor, PHF	0.84	0.84	0.84	0.94	0.94	0.94	0.95	0.95	0.95	0.92	0.93	0.93
Adj. Flow (vph)	457	1093	936	863	560	169	207	744	648	17	10	223
RTOR Reduction (vph)	0	0	0	0	18	0	0	0	25	0	0	0
Lane Group Flow (vph)	457	1093	936	863	711	0	207	744	640	0	0	233
Confl. Peds. (#/hr)	15					15	7		8			8
Heavy Vehicles (%)	14%	14%	14%	2%	2%	2%	4%	4%	4%	100%	4%	4%
Turn Type	Prot	NA	Free	Prot	NA		Prot	NA	pt+ov		Prot	Prot
Protected Phases	7	4		3	8		5	2	2 3		1	1
Permitted Phases			Free									
Actuated Green, G (s)	47.0	47.0	156.0	33.0	33.0		13.0	38.0	76.0			18.0
Effective Green, g (s)	49.0	49.0	156.0	35.0	34.5		15.0	39.5	77.0			20.0
Actuated g/C Ratio	0.31	0.31	1.00	0.22	0.22		0.10	0.25	0.49			0.13
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0				5.0
Vehicle Extension (s)	3.0	3.0		4.0	3.0		3.0	5.0				3.0
Lane Grp Cap (vph)	464	961	1369	744	724		166	849	724			222
v/s Ratio Prot	0.31	c0.36		c0.26	0.22		c0.12	0.22	0.44			0.13
v/s Ratio Perm			0.68									
v/c Ratio	0.98	1.14	0.68	1.16	0.98		1.25	0.88	0.88			1.05
Uniform Delay, d1	53.1	53.5	0.0	60.5	60.4		70.5	55.9	35.5			68.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00			1.24
Incremental Delay, d2	37.5	74.7	2.8	86.6	28.8		151.3	12.3	12.7			52.1
Delay (s)	90.7	128.2	2.8	147.1	89.3		221.8	68.2	48.2			136.4
Level of Service	F	F	A	F	F		F	E	D			F
Approach Delay (s)		74.1			120.6			79.7				
Approach LOS		E			F			E				

Intersection Summary			
HCM 2000 Control Delay	85.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	156.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	101.3%	ICU Level of Service	G
Analysis Period (min)	15		
Description: INT 27			
DATA FROM RENTON			
c Critical Lane Group			



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1309	244
Future Volume (vph)	1309	244
Ideal Flow (vphpl)	1900	1900
Lane Width	11	12
Total Lost time (s)	3.5	3.0
Lane Util. Factor	0.91	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	4821	1531
Flt Permitted	1.00	1.00
Satd. Flow (perm)	4821	1531
Peak-hour factor, PHF	0.93	0.93
Adj. Flow (vph)	1408	262
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	1408	262
Confl. Peds. (#/hr)		7
Heavy Vehicles (%)	4%	4%
Turn Type	NA	Free
Protected Phases	6	
Permitted Phases		Free
Actuated Green, G (s)	43.0	156.0
Effective Green, g (s)	44.5	156.0
Actuated g/C Ratio	0.29	1.00
Clearance Time (s)	5.0	
Vehicle Extension (s)	5.0	
Lane Grp Cap (vph)	1375	1531
v/s Ratio Prot	c0.29	
v/s Ratio Perm		0.17
v/c Ratio	1.02	0.17
Uniform Delay, d1	55.8	0.0
Progression Factor	1.03	1.00
Incremental Delay, d2	21.9	0.1
Delay (s)	79.2	0.1
Level of Service	E	A
Approach Delay (s)	75.3	
Approach LOS	E	

Intersection Summary

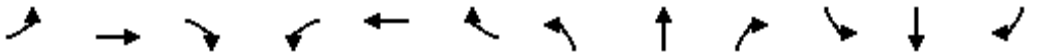
Movement	EBL	EBT	EBR2	WBL	WBT	WBR2	NBU	NBL2	NBT	NBR	NBR2	SBU
Lane Configurations												
Traffic Volume (vph)	348	311	71	98	168	165	65	135	985	93	39	12
Future Volume (vph)	348	311	71	98	168	165	65	135	985	93	39	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	11	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0		4.0	4.0	3.0		4.0	3.0	4.0		
Lane Util. Factor	0.97	1.00		1.00	1.00	1.00		1.00	0.95	1.00		
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98		1.00	1.00	0.97		
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		
Frt	1.00	0.97		1.00	1.00	0.85		1.00	1.00	0.85		
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00		
Satd. Flow (prot)	2968	1558		1770	1863	1555		1723	3406	1177		
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00		
Satd. Flow (perm)	2968	1558		1770	1863	1555		1723	3406	1177		
Peak-hour factor, PHF	0.90	0.90	0.90	0.95	0.95	0.95	1.00	0.92	0.92	0.92	0.92	1.00
Adj. Flow (vph)	387	346	79	103	177	174	65	147	1071	101	42	12
RTOR Reduction (vph)	0	88	0	0	0	0	0	0	0	70	0	0
Lane Group Flow (vph)	387	337	0	103	177	174	0	212	1071	73	0	0
Confl. Peds. (#/hr)	19		13	13		19		14		8		
Heavy Vehicles (%)	18%	18%	18%	2%	2%	2%	2%	6%	6%	6%	100%	2%
Turn Type	Prot	NA		Prot	NA	Free	Prot	Prot	NA	Perm		Prot
Protected Phases	7	4		3	8		5	5	2			1
Permitted Phases						Free				2		
Actuated Green, G (s)	27.0	39.3		10.7	23.0	156.0		18.1	63.5	63.5		
Effective Green, g (s)	28.0	40.3		11.7	24.0	156.0		19.1	65.5	64.5		
Actuated g/C Ratio	0.18	0.26		0.07	0.15	1.00		0.12	0.42	0.41		
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0	5.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0			4.0	3.0	3.0		
Lane Grp Cap (vph)	532	402		132	286	1555		210	1430	486		
v/s Ratio Prot	0.13	c0.22		c0.06	0.10			c0.12	0.31			
v/s Ratio Perm						0.11				0.06		
v/c Ratio	0.73	0.84		0.78	0.62	0.11		1.01	0.75	0.15		
Uniform Delay, d1	60.4	54.8		70.9	61.7	0.0		68.5	38.3	28.6		
Progression Factor	0.97	0.93		1.00	1.00	1.00		0.57	0.28	0.28		
Incremental Delay, d2	4.5	13.1		25.2	4.0	0.1		37.5	1.2	0.2		
Delay (s)	63.4	64.2		96.1	65.7	0.1		76.2	11.8	8.3		
Level of Service	E	E		F	E	A		E	B	A		
Approach Delay (s)		63.8			47.5				21.1			
Approach LOS		E			D				C			

Intersection Summary			
HCM 2000 Control Delay	43.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	156.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	88.0%	ICU Level of Service	E
Analysis Period (min)	15		

Description: INT 30
DATA FROM RENTON
c Critical Lane Group

Movement	SBL2	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	360	1179	167	47
Future Volume (vph)	360	1179	167	47
Ideal Flow (vphpl)	1900	1900	1900	1900
Lane Width	12	11	12	12
Total Lost time (s)	4.0	3.0	4.0	
Lane Util. Factor	0.97	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	
Flpb, ped/bikes	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	
Satd. Flow (prot)	3338	3323	1241	
Flt Permitted	0.95	1.00	1.00	
Satd. Flow (perm)	3338	3323	1241	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	391	1282	182	51
RTOR Reduction (vph)	0	0	66	0
Lane Group Flow (vph)	403	1282	167	0
Confl. Peds. (#/hr)	8		14	
Heavy Vehicles (%)	5%	5%	5%	100%
Turn Type	Prot	NA	Perm	
Protected Phases	1	6		
Permitted Phases			6	
Actuated Green, G (s)	22.5	67.9	67.9	
Effective Green, g (s)	23.5	69.9	68.9	
Actuated g/C Ratio	0.15	0.45	0.44	
Clearance Time (s)	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	
Lane Grp Cap (vph)	502	1488	548	
v/s Ratio Prot	0.12	c0.39		
v/s Ratio Perm			0.13	
v/c Ratio	0.80	0.86	0.30	
Uniform Delay, d1	64.0	38.7	28.1	
Progression Factor	1.00	1.00	1.00	
Incremental Delay, d2	9.0	6.8	1.4	
Delay (s)	73.0	45.5	29.5	
Level of Service	E	D	C	
Approach Delay (s)		49.3		
Approach LOS		D		

Intersection Summary

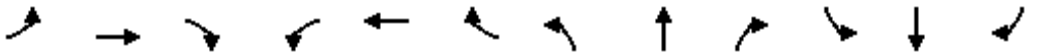


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	1411	175	111	946	65	100	35	72	242	101	56
Future Volume (vph)	29	1411	175	111	946	65	100	35	72	242	101	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	11	12	11	12	12	11	12	12	11	12
Total Lost time (s)	3.0	3.5	2.5	3.0	3.5		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.91	0.91		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.92		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.99		0.95	1.00	
Satd. Flow (prot)	1719	3323	1454	1752	3353		1588	2925		1500	1433	
Flt Permitted	0.26	1.00	1.00	0.16	1.00		0.40	0.86		0.65	1.00	
Satd. Flow (perm)	464	3323	1454	286	3353		675	2533		1023	1433	
Peak-hour factor, PHF	0.96	0.96	0.96	0.91	0.91	0.91	0.88	0.88	0.88	0.74	0.74	0.74
Adj. Flow (vph)	30	1470	182	122	1040	71	114	40	82	327	136	76
RTOR Reduction (vph)	0	0	0	0	3	0	0	66	0	0	19	0
Lane Group Flow (vph)	30	1470	182	122	1108	0	78	92	0	327	193	0
Confl. Peds. (#/hr)	2		4	4		2	14		4	4		14
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	3%	3%	3%	20%	20%	20%
Turn Type	custom	NA	Free	custom	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	5	2 9		1	6 11		3	8		7	4	
Permitted Phases	6		Free	2			4			8		
Actuated Green, G (s)	41.4	63.8	120.0	38.6	68.8		27.9	20.1		27.9	24.7	
Effective Green, g (s)	45.4	65.3	120.0	42.6	70.3		31.9	24.1		31.9	26.7	
Actuated g/C Ratio	0.38	0.54	1.00	0.36	0.59		0.27	0.20		0.27	0.22	
Clearance Time (s)	5.0			5.0			5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0			3.0			2.5	3.0		3.0	3.0	
Lane Grp Cap (vph)	230	1808	1454	227	1964		219	525		323	318	
v/s Ratio Prot	0.01	c0.44		c0.05	0.33		0.02	0.01		c0.11	0.13	
v/s Ratio Perm	0.04		0.13	0.14			0.08	0.03		c0.16		
v/c Ratio	0.13	0.81	0.13	0.54	0.56		0.36	0.18		1.01	0.61	
Uniform Delay, d1	23.6	22.4	0.0	26.9	15.4		34.4	39.7		42.5	41.9	
Progression Factor	0.82	0.12	1.00	0.94	1.31		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	1.3	0.1	1.9	0.2		0.7	0.2		53.2	3.3	
Delay (s)	19.5	3.9	0.1	27.3	20.3		35.1	39.9		95.8	45.2	
Level of Service	B	A	A	C	C		D	D		F	D	
Approach Delay (s)		3.8			21.0			38.3			75.9	
Approach LOS		A			C			D			E	

Intersection Summary			
HCM 2000 Control Delay	22.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		
Description: INT 28			
DATA FROM RENTON			
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
129: Shopping Ctr/Lake Av S #A #B #C & Grady Wy #A/Grady Wy #B #C

07/20/2020



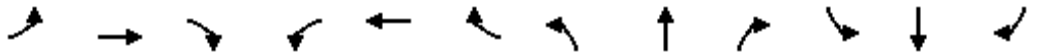
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	1534	211	17	1056	29	227	2	31	50	2	189
Future Volume (veh/h)	33	1534	211	17	1056	29	227	2	31	50	2	189
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1841	1870	1900	1870	537	1870	1885	1767	418	1900	1737
Adj Flow Rate, veh/h	39	1598	0	20	1123	0	270	8	0	67	8	266
Peak Hour Factor	0.84	0.96	0.61	0.83	0.94	0.80	0.84	0.25	0.58	0.75	0.25	0.71
Percent Heavy Veh, %	0	4	2	0	2	92	2	1	9	100	0	11
Cap, veh/h	236	1853		148	1855		352	9		138	36	489
Arrive On Green	0.03	0.53	0.00	0.01	0.17	0.00	0.35	0.35	0.00	0.35	0.35	0.35
Sat Flow, veh/h	1810	3497	1585	1810	3647	0	847	25	1497	296	103	1416
Grp Volume(v), veh/h	39	1598	0	20	1123	0	278	0	0	341	0	0
Grp Sat Flow(s),veh/h/ln	1810	1749	1585	1810	1777	0	872	0	1497	1816	0	0
Q Serve(g_s), s	1.2	47.5	0.0	0.6	35.0	0.0	19.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.2	47.5	0.0	0.6	35.0	0.0	38.1	0.0	0.0	18.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	0.97		1.00	0.20		0.78
Lane Grp Cap(c), veh/h	236	1853		148	1855		360	0		663	0	0
V/C Ratio(X)	0.17	0.86		0.14	0.61		0.77	0.00		0.51	0.00	0.00
Avail Cap(c_a), veh/h	253	1853		179	1855		384	0		696	0	0
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.00	0.83	0.83	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.7	24.4	0.0	22.4	38.2	0.0	41.3	0.0	0.0	32.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.0	0.3	1.2	0.0	8.8	0.0	0.0	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	18.6	0.0	0.3	17.0	0.0	8.7	0.0	0.0	8.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.7	25.0	0.0	22.8	39.5	0.0	50.0	0.0	0.0	32.6	0.0	0.0
LnGrp LOS	B	C		C	D		D	A		C	A	A
Approach Vol, veh/h		1637	A		1143	A		278	A		341	
Approach Delay, s/veh		24.8			39.2			50.0			32.6	
Approach LOS		C			D			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	67.6		45.5	7.9	66.6		45.5				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	4.0	58.0		43.0	4.0	58.0		43.0				
Max Q Clear Time (g_c+I1), s	2.6	49.5		20.5	3.2	37.0		40.1				
Green Ext Time (p_c), s	0.0	5.9		1.1	0.0	7.1		0.3				

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

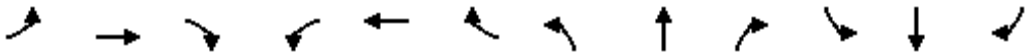
Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	1534	211	17	1056	29	227	2	31	50	2	189
Future Volume (vph)	33	1534	211	17	1056	29	227	2	31	50	2	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	11	12	11	12	12	11	12	12	12	12
Total Lost time (s)	4.0	4.0	3.0	4.0	4.0			4.0	3.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00			1.00	0.99		1.00	
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	1.00			1.00	0.85		0.89	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.99	
Satd. Flow (prot)	1805	3355	1499	1805	3310			1718	1462		1312	
Flt Permitted	0.13	1.00	1.00	0.07	1.00			0.43	1.00		0.82	
Satd. Flow (perm)	254	3355	1499	126	3310			769	1462		1087	
Peak-hour factor, PHF	0.84	0.96	0.61	0.83	0.94	0.80	0.84	0.25	0.58	0.75	0.25	0.71
Adj. Flow (vph)	39	1598	346	20	1123	36	270	8	53	67	8	266
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	0	0	48	0
Lane Group Flow (vph)	39	1598	346	20	1157	0	0	278	53	0	293	0
Confl. Peds. (#/hr)	10		1	1		10			5	5		
Heavy Vehicles (%)	0%	4%	2%	0%	2%	92%	2%	1%	9%	100%	0%	11%
Turn Type	D.P+P	NA	Free	D.P+P	NA		Perm	NA	Free	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		Free	2			8		Free	4		
Actuated Green, G (s)	60.9	59.3	120.0	60.9	58.5			44.1	120.0		44.1	
Effective Green, g (s)	62.9	60.3	120.0	62.9	59.5			45.1	120.0		45.1	
Actuated g/C Ratio	0.52	0.50	1.00	0.52	0.50			0.38	1.00		0.38	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)	3.0	4.0		3.0	4.0			3.0			3.0	
Lane Grp Cap (vph)	177	1685	1499	102	1641			289	1462		408	
v/s Ratio Prot	0.01	c0.48		0.00	0.35							
v/s Ratio Perm	0.11		c0.23	0.10				c0.36	0.04		0.27	
v/c Ratio	0.22	0.95	0.23	0.20	0.71			0.96	0.04		0.72	
Uniform Delay, d1	17.2	28.4	0.0	23.8	23.4			36.6	0.0		32.0	
Progression Factor	1.00	1.00	1.00	0.55	0.51			1.00	1.00		0.97	
Incremental Delay, d2	0.6	12.7	0.4	0.8	2.2			42.4	0.0		5.9	
Delay (s)	17.8	41.1	0.4	13.9	14.3			79.0	0.0		36.9	
Level of Service	B	D	A	B	B			E	A		D	
Approach Delay (s)		33.5			14.3			66.4			36.9	
Approach LOS		C			B			E			D	

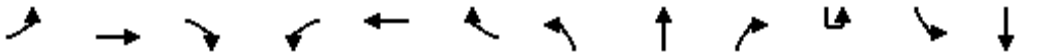
Intersection Summary			
HCM 2000 Control Delay	30.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		
Description: INT 28A			
DATA FROM RENTON			
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	134	755	857	263	682	45	419	388	121	86	613	48
Future Volume (vph)	134	755	857	263	682	45	419	388	121	86	613	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	2.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		0.97	0.95		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1703	3406	1504	3367	3434		3433	3400		1805	5124	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1703	3406	1504	3367	3434		3433	3400		1805	5124	
Peak-hour factor, PHF	0.90	0.90	0.90	0.91	0.91	0.91	0.97	0.97	0.97	0.81	0.81	0.81
Adj. Flow (vph)	149	839	952	289	749	49	432	400	125	106	757	59
RTOR Reduction (vph)	0	0	0	0	4	0	0	25	0	0	8	0
Lane Group Flow (vph)	149	839	952	289	794	0	432	500	0	106	808	0
Confl. Peds. (#/hr)	9		2	2		9	5		3	3		5
Heavy Vehicles (%)	6%	6%	6%	4%	4%	4%	2%	2%	2%	0%	0%	0%
Turn Type	Prot	NA	Free	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	2	6		5	1		3	8		7	4	
Permitted Phases			Free									
Actuated Green, G (s)	14.7	44.1	120.0	13.2	42.6		18.7	32.4		10.3	24.0	
Effective Green, g (s)	16.7	46.1	120.0	15.2	44.6		20.7	34.4		12.3	26.0	
Actuated g/C Ratio	0.14	0.38	1.00	0.13	0.37		0.17	0.29		0.10	0.22	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		3.0	3.0		2.0	2.0	
Lane Grp Cap (vph)	237	1308	1504	426	1276		592	974		185	1110	
v/s Ratio Prot	0.09	0.25		0.09	0.23		c0.13	0.15		0.06	c0.16	
v/s Ratio Perm			c0.63									
v/c Ratio	0.63	0.64	0.63	0.68	0.62		0.73	0.51		0.57	0.73	
Uniform Delay, d1	48.7	30.2	0.0	50.1	30.8		47.0	35.8		51.3	43.7	
Progression Factor	0.99	0.96	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.2	1.4	1.2	3.4	2.3		4.5	0.5		2.7	2.0	
Delay (s)	50.5	30.4	1.2	53.4	33.1		51.5	36.3		54.0	45.8	
Level of Service	D	C	A	D	C		D	D		D	D	
Approach Delay (s)		17.6			38.5			43.1			46.7	
Approach LOS		B			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	32.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



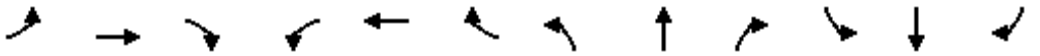
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	16	0	305	859	56	137	104	771	0	1	0	1716
Future Volume (vph)	16	0	305	859	56	137	104	771	0	1	0	1716
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	6.3	6.3	4.0	4.7	4.7				4.7
Lane Util. Factor	1.00		1.00	0.97	1.00	1.00	1.00	0.95				0.91
Frpb, ped/bikes	1.00		1.00	1.00	1.00	1.00	1.00	1.00				1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00	1.00	1.00				1.00
Frt	1.00		0.85	1.00	1.00	0.85	1.00	1.00				1.00
Flt Protected	0.95		1.00	0.95	1.00	1.00	0.95	1.00				1.00
Satd. Flow (prot)	1787		1599	3467	1881	1599	1770	3539				5118
Flt Permitted	0.95		1.00	0.95	1.00	1.00	0.95	1.00				0.94
Satd. Flow (perm)	1787		1599	3467	1881	1599	1770	3539				4810
Peak-hour factor, PHF	0.82	0.82	0.82	0.98	0.98	0.98	0.91	0.91	0.91	0.97	0.97	0.97
Adj. Flow (vph)	20	0	372	877	57	140	114	847	0	1	0	1769
RTOR Reduction (vph)	0	0	89	0	0	0	0	0	0	0	0	1
Lane Group Flow (vph)	20	0	283	877	57	140	114	847	0	0	0	1803
Confl. Peds. (#/hr)	2			4					2			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	1%	1%	1%
Turn Type	Prot		pt+ov	Prot	NA	Free	Prot	NA		Perm		NA
Protected Phases	7		4 5	3	8		5	2				6
Permitted Phases						Free				6		
Actuated Green, G (s)	3.5		34.3	31.1	48.5	130.8	7.9	61.3				47.7
Effective Green, g (s)	4.5		35.3	31.1	48.5	130.8	8.9	62.3				48.7
Actuated g/C Ratio	0.03		0.27	0.24	0.37	1.00	0.07	0.48				0.37
Clearance Time (s)	5.5			6.3	6.3		5.7	5.7				5.7
Vehicle Extension (s)	3.0			3.0	3.0		2.5	4.0				4.0
Lane Grp Cap (vph)	61		431	824	697	1599	120	1685				1790
v/s Ratio Prot	0.01		c0.18	c0.25	0.03		c0.06	0.24				
v/s Ratio Perm						0.09						c0.37
v/c Ratio	0.33		0.66	1.06	0.08	0.09	0.95	0.50				1.01
Uniform Delay, d1	61.7		42.4	49.9	26.7	0.0	60.7	23.6				41.1
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00	1.00				1.00
Incremental Delay, d2	3.1		3.6	49.9	0.1	0.1	65.7	0.3				23.0
Delay (s)	64.8		46.0	99.8	26.8	0.1	126.4	23.9				64.1
Level of Service	E		D	F	C	A	F	C				E
Approach Delay (s)		46.9			82.9			36.1				64.1
Approach LOS		D			F			D				E

Intersection Summary			
HCM 2000 Control Delay	60.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	130.8	Sum of lost time (s)	20.2
Intersection Capacity Utilization	92.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	33
Future Volume (vph)	33
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.97
Adj. Flow (vph)	34
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	4
Heavy Vehicles (%)	1%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

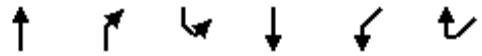
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	598	124	45	302	70	38	80	44	82	97	88
Future Volume (vph)	36	598	124	45	302	70	38	80	44	82	97	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	3.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00			1.00	0.99		1.00	
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	0.97			1.00	0.85		0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.98	1.00		0.98	
Satd. Flow (prot)	1734	1827	1531	1787	3459			1699	1449		1762	
Flt Permitted	0.50	1.00	1.00	0.15	1.00			0.80	1.00		0.84	
Satd. Flow (perm)	917	1827	1531	288	3459			1379	1449		1510	
Peak-hour factor, PHF	0.81	0.81	0.81	0.93	0.93	0.93	0.69	0.69	0.69	0.77	0.77	0.77
Adj. Flow (vph)	44	738	153	48	325	75	55	116	64	106	126	114
RTOR Reduction (vph)	0	0	78	0	22	0	0	0	44	0	20	0
Lane Group Flow (vph)	44	738	75	48	378	0	0	171	20	0	326	0
Confl. Peds. (#/hr)	1		2	2		1	2		1	1		2
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	10%	10%	10%	1%	1%	1%
Turn Type	D.P+P	NA	Perm	D.P+P	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	8		4	4			2		2	6		
Actuated Green, G (s)	35.6	34.2	34.2	36.6	33.2			20.9	20.9		20.9	
Effective Green, g (s)	37.6	35.2	35.2	38.6	34.2			21.9	21.9		21.9	
Actuated g/C Ratio	0.53	0.49	0.49	0.54	0.48			0.31	0.31		0.31	
Clearance Time (s)	5.0	5.0	5.0	4.0	5.0			5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	521	899	753	226	1654			422	443		462	
v/s Ratio Prot	0.00	c0.40		c0.01	0.11							
v/s Ratio Perm	0.04		0.05	0.10				0.12	0.01		c0.22	
v/c Ratio	0.08	0.82	0.10	0.21	0.23			0.41	0.04		0.71	
Uniform Delay, d1	8.3	15.5	9.7	11.2	10.9			19.6	17.4		21.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.1	6.1	0.1	0.5	0.1			0.6	0.0		4.9	
Delay (s)	8.3	21.5	9.8	11.6	11.0			20.3	17.5		26.8	
Level of Service	A	C	A	B	B			C	B		C	
Approach Delay (s)		19.0			11.1			19.5			26.8	
Approach LOS		B			B			B			C	

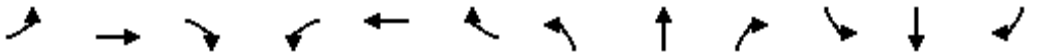
Intersection Summary			
HCM 2000 Control Delay	18.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	71.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	875	496	161	2719	0	0
Future Volume (vph)	875	496	161	2719	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.3	4.3	3.6	3.6		
Lane Util. Factor	0.91	1.00	1.00	0.95		
Frpb, ped/bikes	1.00	0.99	1.00	1.00		
Flpb, ped/bikes	1.00	1.00	1.00	1.00		
Frt	1.00	0.85	1.00	1.00		
Flt Protected	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	5085	1561	1770	3539		
Flt Permitted	1.00	1.00	0.95	1.00		
Satd. Flow (perm)	5085	1561	1770	3539		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	951	539	175	2955	0	0
RTOR Reduction (vph)	0	353	0	0	0	0
Lane Group Flow (vph)	951	186	175	2955	0	0
Confl. Peds. (#/hr)		2	2			
Turn Type	NA	Perm	Prot	NA		
Protected Phases	2		1	1 2		
Permitted Phases		2				
Actuated Green, G (s)	19.7	19.7	30.4	60.0		
Effective Green, g (s)	20.7	20.7	31.4	55.7		
Actuated g/C Ratio	0.34	0.34	0.52	0.93		
Clearance Time (s)	5.3	5.3	4.6			
Vehicle Extension (s)	4.0	4.0	3.0			
Lane Grp Cap (vph)	1754	538	926	3285		
v/s Ratio Prot	0.19		0.10	c0.83		
v/s Ratio Perm		0.12				
v/c Ratio	0.54	0.35	0.19	0.90		
Uniform Delay, d1	15.8	14.6	7.6	0.9		
Progression Factor	1.00	1.00	1.00	1.00		
Incremental Delay, d2	1.2	1.8	0.1	3.7		
Delay (s)	17.0	16.4	7.7	4.7		
Level of Service	B	B	A	A		
Approach Delay (s)	16.8			4.8	0.0	
Approach LOS	B			A	A	

Intersection Summary			
HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.9
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	500	119	618	1078	88	124	201	361	40	145	92
Future Volume (vph)	130	500	119	618	1078	88	124	201	361	40	145	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1735	3216		1770	3450		1635	3252	1429	1444	1743	1546
Flt Permitted	0.16	1.00		0.16	1.00		0.47	1.00	1.00	0.56	1.00	1.00
Satd. Flow (perm)	292	3216		293	3450		811	3252	1429	853	1743	1546
Peak-hour factor, PHF	0.86	0.95	0.84	0.81	0.98	0.87	0.88	0.95	0.96	0.73	0.98	0.70
Adj. Flow (vph)	151	526	142	763	1100	101	141	212	376	55	148	131
RTOR Reduction (vph)	0	20	0	0	5	0	0	0	318	0	0	114
Lane Group Flow (vph)	151	648	0	763	1196	0	141	212	58	55	148	17
Confl. Peds. (#/hr)	7		1	1		7	6					6
Heavy Vehicles (%)	4%	9%	6%	2%	3%	5%	10%	11%	13%	25%	9%	2%
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA	Perm	D.P+P	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8			4			6		2	2		6
Actuated Green, G (s)	77.6	25.4		77.6	69.8		22.4	18.4	18.4	22.4	15.2	15.2
Effective Green, g (s)	77.6	25.4		77.6	69.8		22.4	18.4	18.4	22.4	15.2	15.2
Actuated g/C Ratio	0.65	0.21		0.65	0.58		0.19	0.15	0.15	0.19	0.13	0.13
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	282	680		831	2006		200	498	219	178	220	195
v/s Ratio Prot	0.03	c0.20		c0.40	0.35		c0.04	c0.07		0.01	0.08	
v/s Ratio Perm	0.31			0.19			c0.09		0.04	0.05		0.01
v/c Ratio	0.54	0.95		0.92	0.60		0.70	0.43	0.26	0.31	0.67	0.09
Uniform Delay, d1	11.4	46.7		26.0	16.1		44.5	46.0	44.8	41.3	50.0	46.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	23.3		14.6	0.3		8.9	2.7	2.9	0.4	15.2	0.9
Delay (s)	12.3	70.0		40.6	16.4		53.4	48.7	47.7	41.6	65.3	47.1
Level of Service	B	E		D	B		D	D	D	D	E	D
Approach Delay (s)		59.4			25.8			49.1			54.3	
Approach LOS		E			C			D			D	

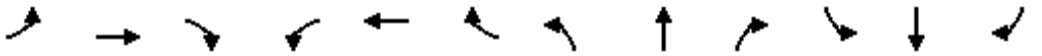
Intersection Summary			
HCM 2000 Control Delay	39.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	90.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	0
Turn Type					Prot	Perm
Protected Phases	4			8	2	
Permitted Phases						2
Actuated Green, G (s)						
Effective Green, g (s)						
Actuated g/C Ratio						
Clearance Time (s)						
Vehicle Extension (s)						
Lane Grp Cap (vph)						
v/s Ratio Prot						
v/s Ratio Perm						
v/c Ratio						
Uniform Delay, d1						
Progression Factor						
Incremental Delay, d2						
Delay (s)						
Level of Service						
Approach Delay (s)	0.0			0.0	0.0	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	0.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.00		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	0.0%	ICU Level of Service	A
Analysis Period (min)	15		

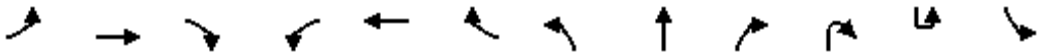
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	190	128	6	684	64	3	5	1	77	57	38
Future Volume (vph)	64	190	128	6	684	64	3	5	1	77	57	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	0.94		1.00	0.99			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00		0.97	1.00
Satd. Flow (prot)	1770	3326		1770	3494			1828	1583		1811	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.98	1.00		0.97	1.00
Satd. Flow (perm)	1770	3326		1770	3494			1828	1583		1811	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	70	207	139	7	743	70	3	5	1	84	62	41
RTOR Reduction (vph)	0	48	0	0	3	0	0	0	1	0	0	36
Lane Group Flow (vph)	70	298	0	7	810	0	0	8	0	0	146	5
Turn Type	Prot	NA		Prot	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases									4			3
Actuated Green, G (s)	11.5	102.4		1.5	92.4			11.6	11.6		20.5	20.5
Effective Green, g (s)	11.5	102.4		1.5	92.4			11.6	11.6		20.5	20.5
Actuated g/C Ratio	0.07	0.66		0.01	0.59			0.07	0.07		0.13	0.13
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	5.0		3.0	5.0			5.0	5.0		5.0	5.0
Lane Grp Cap (vph)	130	2183		17	2069			135	117		237	208
v/s Ratio Prot	c0.04	0.09		0.00	c0.23			c0.00			c0.08	
v/s Ratio Perm									0.00			0.00
v/c Ratio	0.54	0.14		0.41	0.39			0.06	0.00		0.62	0.03
Uniform Delay, d1	69.7	10.1		76.8	16.9			67.1	66.8		64.0	59.0
Progression Factor	1.00	1.00		1.11	0.84			1.57	1.00		1.00	1.00
Incremental Delay, d2	4.2	0.1		12.3	0.2			0.3	0.0		6.7	0.1
Delay (s)	73.9	10.2		97.9	14.3			105.6	66.8		70.7	59.2
Level of Service	E	B		F	B			F	E		E	E
Approach Delay (s)		21.0			15.0			101.3			68.2	
Approach LOS		C			B			F			E	

Intersection Summary			
HCM 2000 Control Delay	24.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	156.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR2	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBU	SBL2
Lane Configurations												
Traffic Volume (vph)	228	384	306	1162	1194	91	355	1262	1007	9	1	64
Future Volume (vph)	228	384	306	1162	1194	91	355	1262	1007	9	1	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	11	11	11	11	12	11	11	12	12	12
Total Lost time (s)	3.0	3.0	3.0	3.0	3.5		3.0	3.5	4.0			3.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		1.00	0.95	1.00			1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00			1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00			0.95
Satd. Flow (prot)	1478	3061	1350	3319	3381		1736	3355	1488			1736
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00			0.95
Satd. Flow (perm)	1478	3061	1350	3319	3381		1736	3355	1488			1736
Peak-hour factor, PHF	0.84	0.84	0.84	0.94	0.94	0.94	0.95	0.95	0.95	0.92	0.93	0.93
Adj. Flow (vph)	271	457	364	1236	1270	97	374	1328	1060	10	1	69
RTOR Reduction (vph)	0	0	252	0	4	0	0	0	13	0	0	0
Lane Group Flow (vph)	271	457	112	1236	1363	0	374	1328	1057	0	0	70
Confl. Peds. (#/hr)	4		1	1		4	2		2			2
Heavy Vehicles (%)	14%	14%	14%	2%	2%	2%	4%	4%	4%	100%	4%	4%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	pt+ov		Prot	Prot
Protected Phases	7	4		3	8		5	2	2 3		1	1
Permitted Phases			4									
Actuated Green, G (s)	22.0	22.0	22.0	53.0	53.0		30.1	56.0	114.0			5.0
Effective Green, g (s)	24.0	24.0	24.0	55.0	54.5		32.1	57.5	115.0			7.0
Actuated g/C Ratio	0.15	0.15	0.15	0.35	0.35		0.21	0.37	0.74			0.04
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0				5.0
Vehicle Extension (s)	3.0	3.0	3.0	4.0	3.0		3.0	5.0				3.0
Lane Grp Cap (vph)	227	470	207	1170	1181		357	1236	1096			77
v/s Ratio Prot	c0.18	0.15		0.37	c0.40		0.22	c0.40	0.71			c0.04
v/s Ratio Perm			0.08									
v/c Ratio	1.19	0.97	0.54	1.06	1.15		1.05	1.07	0.96			0.91
Uniform Delay, d1	66.0	65.7	60.9	50.5	50.8		62.0	49.2	18.6			74.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00			1.20
Incremental Delay, d2	122.1	34.2	2.9	42.6	79.4		60.6	48.1	19.2			66.0
Delay (s)	188.1	99.9	63.8	93.1	130.1		122.6	97.4	37.8			155.3
Level of Service	F	F	E	F	F		F	F	D			F
Approach Delay (s)		109.7			112.5			77.8				
Approach LOS		F			F			E				

Intersection Summary			
HCM 2000 Control Delay	100.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	156.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	108.5%	ICU Level of Service	G
Analysis Period (min)	15		
Description: INT 27			
DATA FROM RENTON			
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	769	241
Future Volume (vph)	769	241
Ideal Flow (vphpl)	1900	1900
Lane Width	11	12
Total Lost time (s)	3.5	4.0
Lane Util. Factor	0.91	1.00
Frpb, ped/bikes	1.00	0.98
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	4821	795
Flt Permitted	1.00	1.00
Satd. Flow (perm)	4821	795
Peak-hour factor, PHF	0.93	0.93
Adj. Flow (vph)	827	259
RTOR Reduction (vph)	0	160
Lane Group Flow (vph)	827	99
Confl. Peds. (#/hr)		2
Heavy Vehicles (%)	4%	100%
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	30.9	30.9
Effective Green, g (s)	32.4	31.9
Actuated g/C Ratio	0.21	0.20
Clearance Time (s)	5.0	5.0
Vehicle Extension (s)	5.0	5.0
Lane Grp Cap (vph)	1001	162
v/s Ratio Prot	0.17	
v/s Ratio Perm		0.12
v/c Ratio	0.83	0.61
Uniform Delay, d1	59.1	56.4
Progression Factor	1.44	3.15
Incremental Delay, d2	6.9	14.2
Delay (s)	92.0	192.2
Level of Service	F	F
Approach Delay (s)	118.3	
Approach LOS	F	

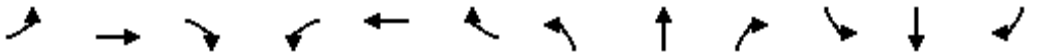
Intersection Summary

Movement	EBL	EBT	EBR2	WBL	WBT	WBR2	NBU	NBL2	NBT	NBR	NBR2	SBU
Lane Configurations												
Traffic Volume (vph)	167	77	24	65	372	459	46	181	1284	51	9	6
Future Volume (vph)	167	77	24	65	372	459	46	181	1284	51	9	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	11	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	3.0	4.0		
Lane Util. Factor	0.97	1.00		1.00	1.00	1.00		1.00	0.95	1.00		
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97		1.00	1.00	0.97		
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		
Frt	1.00	0.96		1.00	1.00	0.85		1.00	1.00	0.85		
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00		
Satd. Flow (prot)	2968	1546		1770	1863	1532		1715	3406	1306		
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00		
Satd. Flow (perm)	2968	1546		1770	1863	1532		1715	3406	1306		
Peak-hour factor, PHF	0.90	0.90	0.90	0.95	0.95	0.95	1.00	0.92	0.92	0.92	0.92	1.00
Adj. Flow (vph)	186	86	27	68	392	483	46	197	1396	55	10	6
RTOR Reduction (vph)	0	80	0	0	0	86	0	0	0	34	0	0
Lane Group Flow (vph)	186	33	0	68	392	397	0	243	1396	31	0	0
Confl. Peds. (#/hr)	18		6	6		18		7		8		
Heavy Vehicles (%)	18%	18%	18%	2%	2%	2%	2%	6%	6%	6%	100%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Prot	Prot	NA	Perm		Prot
Protected Phases	7	4		3	8		5	5	2			1
Permitted Phases						8				2		
Actuated Green, G (s)	11.6	44.5		9.9	42.8	42.8		29.4	72.4	72.4		
Effective Green, g (s)	12.6	45.5		10.9	43.8	43.8		30.4	74.4	73.4		
Actuated g/C Ratio	0.08	0.29		0.07	0.28	0.28		0.19	0.48	0.47		
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0	5.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		4.0	3.0	3.0		
Lane Grp Cap (vph)	239	450		123	523	430		334	1624	614		
v/s Ratio Prot	c0.06	0.02		0.04	0.21			0.14	c0.41			
v/s Ratio Perm						c0.26				0.02		
v/c Ratio	0.78	0.07		0.55	0.75	0.92		0.73	0.86	0.05		
Uniform Delay, d1	70.3	40.0		70.2	51.1	54.5		58.9	36.2	22.4		
Progression Factor	0.87	1.33		1.00	1.00	1.00		0.55	0.32	1.00		
Incremental Delay, d2	14.5	0.1		5.3	5.8	25.5		0.8	0.6	0.0		
Delay (s)	75.5	53.4		75.5	56.9	80.0		33.1	12.3	22.4		
Level of Service	E	D		E	E	E		C	B	C		
Approach Delay (s)		67.1			70.1				15.7			
Approach LOS		E			E				B			

Intersection Summary			
HCM 2000 Control Delay	41.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	156.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	89.7%	ICU Level of Service	E
Analysis Period (min)	15		
Description: INT 30			
DATA FROM RENTON			
c Critical Lane Group			

Movement	SBL2	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	138	757	201	9
Future Volume (vph)	138	757	201	9
Ideal Flow (vphpl)	1900	1900	1900	1900
Lane Width	12	11	12	12
Total Lost time (s)	4.0	3.0	4.0	
Lane Util. Factor	0.97	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	
Satd. Flow (prot)	3339	3323	1446	
Flt Permitted	0.95	1.00	1.00	
Satd. Flow (perm)	3339	3323	1446	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	150	823	218	10
RTOR Reduction (vph)	0	0	78	0
Lane Group Flow (vph)	156	823	150	0
Confl. Peds. (#/hr)	8		7	
Heavy Vehicles (%)	5%	5%	5%	100%
Turn Type	Prot	NA	Perm	
Protected Phases	1	6		
Permitted Phases			6	
Actuated Green, G (s)	9.2	52.2	52.2	
Effective Green, g (s)	10.2	54.2	53.2	
Actuated g/C Ratio	0.07	0.35	0.34	
Clearance Time (s)	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	
Lane Grp Cap (vph)	218	1154	493	
v/s Ratio Prot	0.05	c0.25		
v/s Ratio Perm			0.10	
v/c Ratio	0.72	0.71	0.30	
Uniform Delay, d1	71.5	44.2	37.8	
Progression Factor	1.00	1.00	1.00	
Incremental Delay, d2	10.6	3.8	1.6	
Delay (s)	82.1	47.9	39.4	
Level of Service	F	D	D	
Approach Delay (s)		50.7		
Approach LOS		D		

Intersection Summary

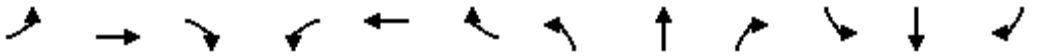


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	1157	91	31	2090	60	136	32	41	34	29	20
Future Volume (vph)	19	1157	91	31	2090	60	136	32	41	34	29	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	11	12	11	12	12	11	12	12	11	12
Total Lost time (s)	3.0	3.5	3.5	3.0	3.5		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.91	0.91		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		0.99	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.96		1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.98		0.95	1.00	
Satd. Flow (prot)	1719	3323	1454	1752	3373		1584	2998		1497	1423	
Flt Permitted	0.17	1.00	1.00	0.23	1.00		0.66	0.79		0.65	1.00	
Satd. Flow (perm)	302	3323	1454	431	3373		1104	2435		1022	1423	
Peak-hour factor, PHF	0.96	0.96	0.96	0.91	0.91	0.91	0.88	0.88	0.88	0.74	0.74	0.74
Adj. Flow (vph)	20	1205	95	34	2297	66	155	36	47	46	39	27
RTOR Reduction (vph)	0	0	29	0	1	0	0	40	0	0	24	0
Lane Group Flow (vph)	20	1205	66	34	2362	0	81	117	0	46	42	0
Confl. Peds. (#/hr)	3		3	3		3	9		7	7		9
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	3%	3%	3%	20%	20%	20%
Turn Type	custom	NA	Perm	custom	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	5	2 9		1	6 11		3	8		7	4	
Permitted Phases	6		2 9	2			4			8		
Actuated Green, G (s)	24.0	81.4	81.4	50.8	82.6		15.4	14.6		15.4	12.2	
Effective Green, g (s)	28.0	82.9	82.9	54.8	84.1		19.4	18.6		19.4	14.2	
Actuated g/C Ratio	0.23	0.69	0.69	0.46	0.70		0.16	0.16		0.16	0.12	
Clearance Time (s)	5.0			5.0			5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0			3.0			2.5	3.0		2.5	3.0	
Lane Grp Cap (vph)	117	2295	1004	254	2363		199	401		188	168	
v/s Ratio Prot	c0.01	0.36		0.01	c0.70		c0.02	0.01		0.01	0.03	
v/s Ratio Perm	0.03		0.05	0.06			c0.05	0.03		0.03		
v/c Ratio	0.17	0.53	0.07	0.13	1.00		0.41	0.29		0.24	0.25	
Uniform Delay, d1	49.8	9.0	6.0	19.2	17.9		44.5	44.9		43.5	48.1	
Progression Factor	0.86	0.61	0.38	1.10	2.37		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.2	0.0	0.0	5.4		1.0	0.4		0.5	0.8	
Delay (s)	43.3	5.7	2.3	21.3	47.8		45.5	45.3		44.0	48.9	
Level of Service	D	A	A	C	D		D	D		D	D	
Approach Delay (s)		6.0			47.4			45.3			46.9	
Approach LOS		A			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	33.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	79.5%	ICU Level of Service	D
Analysis Period (min)	15		
Description: INT 28			
DATA FROM RENTON			
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
129: Shopping Ctr/Lake Av S #A #B #C & Grady Wy #A/Grady Wy #B #C

07/20/2020



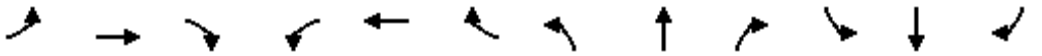
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	1245	150	9	2219	20	219	0	15	6	0	20
Future Volume (veh/h)	37	1245	150	9	2219	20	219	0	15	6	0	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1841	1870	1900	1870	537	1870	1885	1767	418	1900	1737
Adj Flow Rate, veh/h	44	1297	0	11	2361	0	261	0	0	8	0	28
Peak Hour Factor	0.84	0.96	0.61	0.83	0.94	0.80	0.84	0.25	0.58	0.75	0.25	0.71
Percent Heavy Veh, %	0	4	2	0	2	92	2	1	9	100	0	11
Cap, veh/h	223	2369		304	2352		350	0		97	21	282
Arrive On Green	0.03	0.68	0.00	0.04	1.00	0.00	0.20	0.00	0.00	0.20	0.00	0.20
Sat Flow, veh/h	1810	3497	1585	1810	3647	0	1422	0	1497	295	101	1384
Grp Volume(v), veh/h	44	1297	0	11	2361	0	261	0	0	36	0	0
Grp Sat Flow(s),veh/h/ln	1810	1749	1585	1810	1777	0	1422	0	1497	1779	0	0
Q Serve(g_s), s	0.9	22.8	0.0	0.2	0.0	0.0	19.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.9	22.8	0.0	0.2	0.0	0.0	21.4	0.0	0.0	2.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.22		0.78
Lane Grp Cap(c), veh/h	223	2369		304	2352		350	0		400	0	0
V/C Ratio(X)	0.20	0.55		0.04	1.00		0.75	0.00		0.09	0.00	0.00
Avail Cap(c_a), veh/h	237	2369		346	2352		356	0		406	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.17	0.17	0.00	0.24	0.24	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.7	9.9	0.0	7.7	0.0	0.0	46.3	0.0	0.0	38.9	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.2	0.0	0.0	10.0	0.0	8.2	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	7.9	0.0	0.1	3.3	0.0	8.3	0.0	0.0	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.8	10.1	0.0	7.7	10.0	0.0	54.4	0.0	0.0	39.0	0.0	0.0
LnGrp LOS	A	B		A	F		D	A		D	A	A
Approach Vol, veh/h		1341	A		2372	A		261	A		36	
Approach Delay, s/veh		9.9			10.0			54.4			39.0	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.2	85.3		28.5	8.1	83.4		28.5				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	4.0	77.0		24.0	4.0	77.0		24.0				
Max Q Clear Time (g_c+I1), s	2.2	24.8		4.1	2.9	2.0		23.4				
Green Ext Time (p_c), s	0.0	11.2		0.1	0.0	40.1		0.1				

Intersection Summary	
HCM 6th Ctrl Delay	13.1
HCM 6th LOS	B

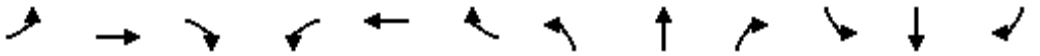
Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	1245	150	9	2219	20	219	0	15	6	0	20
Future Volume (vph)	37	1245	150	9	2219	20	219	0	15	6	0	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	11	12	11	12	12	11	12	12	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00			1.00	0.98		1.00	
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	1.00			1.00	0.85		0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.99	
Satd. Flow (prot)	1805	3355	1491	1805	3384			1711	1457		1285	
Flt Permitted	0.05	1.00	1.00	0.16	1.00			0.79	1.00		0.91	
Satd. Flow (perm)	95	3355	1491	310	3384			1431	1457		1186	
Peak-hour factor, PHF	0.84	0.96	0.61	0.83	0.94	0.80	0.84	0.25	0.58	0.75	0.25	0.71
Adj. Flow (vph)	44	1297	246	11	2361	25	261	0	26	8	0	28
RTOR Reduction (vph)	0	0	78	0	1	0	0	0	21	0	29	0
Lane Group Flow (vph)	44	1297	168	11	2385	0	0	261	5	0	7	0
Confl. Peds. (#/hr)	3		2	2		3			3	3		
Heavy Vehicles (%)	0%	4%	2%	0%	2%	92%	2%	1%	9%	100%	0%	11%
Turn Type	D.P+P	NA	Perm	D.P+P	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2			8		8	4		
Actuated Green, G (s)	81.8	81.0	81.0	81.8	78.6			23.2	23.2		23.2	
Effective Green, g (s)	83.8	82.0	82.0	83.8	79.6			24.2	24.2		24.2	
Actuated g/C Ratio	0.70	0.68	0.68	0.70	0.66			0.20	0.20		0.20	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0			5.0	5.0		5.0	
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	126	2292	1018	238	2244			288	293		239	
v/s Ratio Prot	c0.01	0.39		0.00	c0.70							
v/s Ratio Perm	0.23		0.11	0.03				c0.18	0.00		0.01	
v/c Ratio	0.35	0.57	0.17	0.05	1.06			0.91	0.02		0.03	
Uniform Delay, d1	30.0	9.8	6.8	7.1	20.2			46.8	38.4		38.5	
Progression Factor	1.00	1.00	1.00	0.19	0.85			1.00	1.00		0.75	
Incremental Delay, d2	1.7	1.0	0.3	0.0	33.0			29.8	0.0		0.0	
Delay (s)	31.7	10.8	7.1	1.3	50.2			76.6	38.4		28.8	
Level of Service	C	B	A	A	D			E	D		C	
Approach Delay (s)		10.8			50.0			73.1			28.8	
Approach LOS		B			D			E			C	

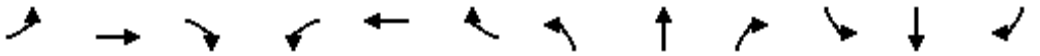
Intersection Summary			
HCM 2000 Control Delay	36.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	87.6%	ICU Level of Service	E
Analysis Period (min)	15		
Description: INT 28A			
DATA FROM RENTON			
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	895	281	79	547	73	1602	1028	333	20	168	47
Future Volume (vph)	42	895	281	79	547	73	1602	1028	333	20	168	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		0.97	0.95		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.96		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1703	3406	1504	3367	3403		3433	3394		1805	4996	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1703	3406	1504	3367	3403		3433	3394		1805	4996	
Peak-hour factor, PHF	0.90	0.90	0.90	0.91	0.91	0.91	0.97	0.97	0.97	0.81	0.81	0.81
Adj. Flow (vph)	47	994	312	87	601	80	1652	1060	343	25	207	58
RTOR Reduction (vph)	0	0	194	0	8	0	0	26	0	0	44	0
Lane Group Flow (vph)	47	994	118	87	673	0	1652	1377	0	25	221	0
Confl. Peds. (#/hr)	4		1	1		4	5		5	5		5
Heavy Vehicles (%)	6%	6%	6%	4%	4%	4%	2%	2%	2%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	2	6		5	1		3	8		7	4	
Permitted Phases			6									
Actuated Green, G (s)	9.1	38.2	38.2	5.4	34.5		34.2	53.4		3.0	22.2	
Effective Green, g (s)	11.1	40.2	40.2	7.4	36.5		36.2	55.4		5.0	24.2	
Actuated g/C Ratio	0.09	0.34	0.34	0.06	0.30		0.30	0.46		0.04	0.20	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		3.0	3.0		2.0	2.0	
Lane Grp Cap (vph)	157	1141	503	207	1035		1035	1566		75	1007	
v/s Ratio Prot	0.03	c0.29		0.03	c0.20		c0.48	c0.41		0.01	0.04	
v/s Ratio Perm			0.08									
v/c Ratio	0.30	0.87	0.23	0.42	0.65		1.60	0.88		0.33	0.22	
Uniform Delay, d1	50.8	37.5	28.8	54.2	36.2		41.9	29.3		55.9	40.0	
Progression Factor	0.91	0.85	1.19	1.00	1.00		1.28	1.02		1.00	1.00	
Incremental Delay, d2	0.4	8.4	1.0	0.5	3.2		268.7	0.6		1.0	0.0	
Delay (s)	46.8	40.4	35.3	54.7	39.4		322.3	30.4		56.8	40.1	
Level of Service	D	D	D	D	D		F	C		E	D	
Approach Delay (s)		39.4			41.1			188.2			41.5	
Approach LOS		D			D			F			D	

Intersection Summary			
HCM 2000 Control Delay	122.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	97.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



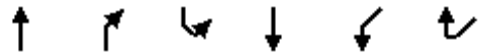
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	0	66	430	148	284	348	2696	0	0	476	26
Future Volume (vph)	9	0	66	430	148	284	348	2696	0	0	476	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	6.3	6.3	6.3	4.7	4.7			4.7	
Lane Util. Factor	1.00		1.00	0.97	1.00	1.00	1.00	0.95			0.91	
Frpb, ped/bikes	1.00		1.00	1.00	1.00	0.99	1.00	1.00			1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Frt	1.00		0.85	1.00	1.00	0.85	1.00	1.00			0.99	
Flt Protected	0.95		1.00	0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1770		1583	3433	1863	1560	1770	3539			5037	
Flt Permitted	0.95		1.00	0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (perm)	1770		1583	3433	1863	1560	1770	3539			5037	
Peak-hour factor, PHF	0.79	0.79	0.79	0.95	0.95	0.95	0.96	0.96	0.96	0.86	0.86	0.86
Adj. Flow (vph)	11	0	84	453	156	299	362	2808	0	0	553	30
RTOR Reduction (vph)	0	0	81	0	0	100	0	0	0	0	5	0
Lane Group Flow (vph)	11	0	4	453	156	199	363	2808	0	0	578	0
Confl. Peds. (#/hr)	2					2	5		3	3		5
Turn Type	Prot		Prot	Prot	NA	custom	Prot	NA			NA	
Protected Phases	4		7	8	3		5	2			6	
Permitted Phases						8						
Actuated Green, G (s)	2.6		4.0	24.7	26.1	24.7	29.1	73.8			39.0	
Effective Green, g (s)	3.6		5.0	24.7	26.1	24.7	30.1	74.8			40.0	
Actuated g/C Ratio	0.03		0.04	0.21	0.22	0.21	0.25	0.62			0.33	
Clearance Time (s)	5.5		5.5	6.3	6.3	6.3	5.7	5.7			5.7	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	4.0			4.0	
Lane Grp Cap (vph)	53		65	706	405	321	443	2205			1679	
v/s Ratio Prot	0.01		0.00	c0.13	c0.08		0.21	c0.79			0.11	
v/s Ratio Perm						0.13						
v/c Ratio	0.21		0.05	0.64	0.39	0.62	0.82	1.27			0.34	
Uniform Delay, d1	56.8		55.2	43.6	40.1	43.4	42.4	22.6			30.1	
Progression Factor	1.00		1.00	1.00	1.00	1.00	0.85	1.66			0.93	
Incremental Delay, d2	1.9		0.3	2.0	0.6	3.5	7.0	125.3			0.5	
Delay (s)	58.8		55.6	45.6	40.7	46.9	43.0	162.9			28.4	
Level of Service	E		E	D	D	D	D	F			C	
Approach Delay (s)		55.9			45.2			149.1			28.4	
Approach LOS		E			D			F			C	

Intersection Summary			
HCM 2000 Control Delay	112.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.2
Intersection Capacity Utilization	108.4%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	182	56	5	802	179	40	42	5	18	31	66
Future Volume (vph)	34	182	56	5	802	179	40	42	5	18	31	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	3.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00			1.00	0.99		0.99	
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	0.97			1.00	0.85		0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.98	1.00		0.99	
Satd. Flow (prot)	1736	1827	1532	1786	3477			1683	1449		1704	
Flt Permitted	0.20	1.00	1.00	0.62	1.00			0.81	1.00		0.94	
Satd. Flow (perm)	369	1827	1532	1162	3477			1389	1449		1610	
Peak-hour factor, PHF	0.81	0.81	0.81	0.93	0.93	0.93	0.69	0.69	0.69	0.77	0.77	0.77
Adj. Flow (vph)	42	225	69	5	862	192	58	61	7	23	40	86
RTOR Reduction (vph)	0	0	30	0	18	0	0	0	6	0	66	0
Lane Group Flow (vph)	42	225	39	5	1036	0	0	119	1	0	83	0
Confl. Peds. (#/hr)			2	2			8		1	1		8
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	10%	10%	10%	1%	1%	1%
Turn Type	D.P+P	NA	Perm	D.P+P	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	8		4	4			2		2	6		
Actuated Green, G (s)	28.8	29.2	29.2	29.8	27.3			9.8	9.8		9.8	
Effective Green, g (s)	30.8	30.2	30.2	31.8	28.3			10.8	10.8		10.8	
Actuated g/C Ratio	0.57	0.56	0.56	0.59	0.53			0.20	0.20		0.20	
Clearance Time (s)	5.0	5.0	5.0	4.0	5.0			5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	275	1029	863	708	1835			279	291		324	
v/s Ratio Prot	c0.01	0.12		0.00	c0.30							
v/s Ratio Perm	0.08		0.03	0.00				c0.09	0.00		0.05	
v/c Ratio	0.15	0.22	0.05	0.01	0.56			0.43	0.00		0.26	
Uniform Delay, d1	5.5	5.8	5.2	4.4	8.5			18.7	17.1		18.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.3	0.1	0.0	0.0	0.4			1.1	0.0		0.4	
Delay (s)	5.8	5.9	5.3	4.4	8.9			19.7	17.1		18.4	
Level of Service	A	A	A	A	A			B	B		B	
Approach Delay (s)		5.8			8.9			19.6			18.4	
Approach LOS		A			A			B			B	

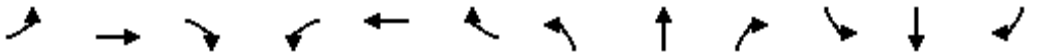
Intersection Summary			
HCM 2000 Control Delay	9.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	53.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	3044	682	36	936	0	0
Future Volume (vph)	3044	682	36	936	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.3	4.3	3.6	3.6		
Lane Util. Factor	0.91	1.00	1.00	0.95		
Frpb, ped/bikes	1.00	0.99	1.00	1.00		
Flpb, ped/bikes	1.00	1.00	1.00	1.00		
Frt	1.00	0.85	1.00	1.00		
Flt Protected	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	5085	1561	1770	3539		
Flt Permitted	1.00	1.00	0.95	1.00		
Satd. Flow (perm)	5085	1561	1770	3539		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3309	741	39	1017	0	0
RTOR Reduction (vph)	0	130	0	0	0	0
Lane Group Flow (vph)	3309	611	39	1017	0	0
Confl. Peds. (#/hr)		1	1			
Turn Type	NA	Perm	Prot	NA		
Protected Phases	2		1	1 2		
Permitted Phases		2				
Actuated Green, G (s)	98.0	98.0	12.1	120.0		
Effective Green, g (s)	99.0	99.0	13.1	115.7		
Actuated g/C Ratio	0.82	0.82	0.11	0.96		
Clearance Time (s)	5.3	5.3	4.6			
Vehicle Extension (s)	4.0	4.0	3.0			
Lane Grp Cap (vph)	4195	1287	193	3412		
v/s Ratio Prot	c0.65		0.02	c0.29		
v/s Ratio Perm		0.39				
v/c Ratio	0.79	0.48	0.20	0.30		
Uniform Delay, d1	5.3	3.0	48.7	0.1		
Progression Factor	1.00	1.00	1.00	1.00		
Incremental Delay, d2	1.6	1.3	0.5	0.0		
Delay (s)	6.8	4.3	49.2	0.2		
Level of Service	A	A	D	A		
Approach Delay (s)	6.4			2.0	0.0	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	5.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	7.9
Intersection Capacity Utilization	62.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	514	119	625	1084	88	124	201	369	40	145	92
Future Volume (vph)	130	514	119	625	1084	88	124	201	369	40	145	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	3217		1770	3450		1631	3252	1429	1444	1743	1541
Flt Permitted	0.07	1.00		0.21	1.00		0.60	1.00	1.00	0.60	1.00	1.00
Satd. Flow (perm)	127	3217		395	3450		1026	3252	1429	912	1743	1541
Peak-hour factor, PHF	0.86	0.95	0.84	0.81	0.98	0.87	0.88	0.95	0.96	0.73	0.98	0.70
Adj. Flow (vph)	151	541	142	772	1106	101	141	212	384	55	148	131
RTOR Reduction (vph)	0	16	0	0	5	0	0	0	253	0	0	92
Lane Group Flow (vph)	151	667	0	772	1202	0	141	212	131	55	148	39
Confl. Peds. (#/hr)	7		1	1		7	6					6
Heavy Vehicles (%)	4%	9%	6%	2%	3%	5%	10%	11%	13%	25%	9%	2%
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA	Perm	D.P+P	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8			4			6		2	2		6
Actuated Green, G (s)	73.3	46.5		73.3	57.5		58.7	51.9	51.9	58.7	45.8	45.8
Effective Green, g (s)	73.3	46.5		73.3	57.5		58.7	51.9	51.9	58.7	45.8	45.8
Actuated g/C Ratio	0.48	0.31		0.48	0.38		0.39	0.34	0.34	0.39	0.30	0.30
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	228	984		432	1305		447	1110	487	376	525	464
v/s Ratio Prot	0.07	0.21		c0.31	0.35		c0.03	0.07		0.01	0.08	
v/s Ratio Perm	0.25			c0.55			c0.09		0.09	0.05		0.03
v/c Ratio	0.66	0.68		1.79	0.92		0.32	0.19	0.27	0.15	0.28	0.09
Uniform Delay, d1	36.6	46.2		33.3	45.1		31.4	35.3	36.3	29.8	40.5	38.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.5	1.5		363.4	10.6		0.1	0.4	1.4	0.1	1.3	0.4
Delay (s)	42.1	47.7		396.7	55.7		31.6	35.6	37.7	29.8	41.9	38.4
Level of Service	D	D		F	E		C	D	D	C	D	D
Approach Delay (s)		46.7			188.7			35.9			38.5	
Approach LOS		D			F			D			D	

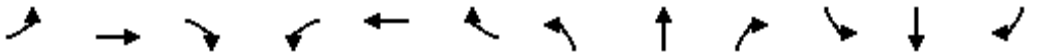
Intersection Summary			
HCM 2000 Control Delay	116.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	152.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	91.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	0
Turn Type					Prot	Perm
Protected Phases	4			8	2	
Permitted Phases						2
Actuated Green, G (s)						
Effective Green, g (s)						
Actuated g/C Ratio						
Clearance Time (s)						
Vehicle Extension (s)						
Lane Grp Cap (vph)						
v/s Ratio Prot						
v/s Ratio Perm						
v/c Ratio						
Uniform Delay, d1						
Progression Factor						
Incremental Delay, d2						
Delay (s)						
Level of Service						
Approach Delay (s)	0.0			0.0	0.0	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	0.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.00		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	0.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	190	130	6	685	64	5	5	1	77	57	38
Future Volume (vph)	64	190	130	6	685	64	5	5	1	77	57	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	0.94		1.00	0.99			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00		0.97	1.00
Satd. Flow (prot)	1770	3324		1770	3494			1817	1583		1811	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.98	1.00		0.97	1.00
Satd. Flow (perm)	1770	3324		1770	3494			1817	1583		1811	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	70	207	141	7	745	70	5	5	1	84	62	41
RTOR Reduction (vph)	0	49	0	0	3	0	0	0	1	0	0	36
Lane Group Flow (vph)	70	299	0	7	812	0	0	10	0	0	146	5
Turn Type	Prot	NA		Prot	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases									4			3
Actuated Green, G (s)	11.5	102.3		1.5	92.3			11.7	11.7		20.5	20.5
Effective Green, g (s)	11.5	102.3		1.5	92.3			11.7	11.7		20.5	20.5
Actuated g/C Ratio	0.07	0.66		0.01	0.59			0.07	0.07		0.13	0.13
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	5.0		3.0	5.0			5.0	5.0		5.0	5.0
Lane Grp Cap (vph)	130	2179		17	2067			136	118		237	208
v/s Ratio Prot	c0.04	0.09		0.00	c0.23			c0.01			c0.08	
v/s Ratio Perm									0.00			0.00
v/c Ratio	0.54	0.14		0.41	0.39			0.07	0.00		0.62	0.03
Uniform Delay, d1	69.7	10.2		76.8	16.9			67.1	66.7		64.0	59.0
Progression Factor	1.00	1.00		1.11	0.81			1.20	1.00		1.00	1.00
Incremental Delay, d2	4.2	0.1		12.2	0.2			0.5	0.0		6.7	0.1
Delay (s)	73.9	10.3		97.1	13.9			80.9	66.7		70.7	59.2
Level of Service	E	B		F	B			F	E		E	E
Approach Delay (s)		20.9			14.6			79.6			68.2	
Approach LOS		C			B			E			E	

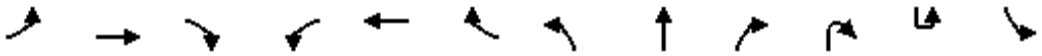
Intersection Summary			
HCM 2000 Control Delay	23.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	156.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL2	WBT	WBR	NBT	NBR	SBL	SBT	SBR	SBR2
Lane Configurations											
Traffic Volume (vph)	2	191	22	2	42	1580	16	42	905	0	9
Future Volume (vph)	2	191	22	2	42	1580	16	42	905	0	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00			1.00		0.95	1.00	1.00	0.95	1.00	
Frpb, ped/bikes	1.00			0.98		1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00			1.00		1.00	1.00	1.00	1.00	1.00	
Frt	0.87			0.91		1.00	0.85	1.00	1.00	0.85	
Flt Protected	1.00			0.98		1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1586			837		3438	808	902	3471	1583	
Flt Permitted	1.00			0.82		1.00	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1586			702		3438	808	902	3471	1583	
Peak-hour factor, PHF	0.92	0.74	0.92	0.92	0.92	0.93	0.92	0.92	0.89	0.92	0.75
Adj. Flow (vph)	2	258	24	2	46	1699	17	46	1017	0	12
RTOR Reduction (vph)	0	0	0	0	0	0	8	0	0	4	0
Lane Group Flow (vph)	260	0	0	72	0	1699	9	46	1017	8	0
Confl. Bikes (#/hr)					11						
Heavy Vehicles (%)	100%	3%	100%	100%	100%	5%	100%	100%	4%	2%	2%
Turn Type	NA		Perm	NA		NA	Perm	Prot	NA	Perm	
Protected Phases	3			4		2		1	6		
Permitted Phases			4				2			6	
Actuated Green, G (s)	19.0			20.8		84.1	84.1	12.1	101.2	101.2	
Effective Green, g (s)	19.0			20.8		84.1	84.1	12.1	101.2	101.2	
Actuated g/C Ratio	0.12			0.13		0.54	0.54	0.08	0.65	0.65	
Clearance Time (s)	5.0			5.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0			3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	193			93		1853	435	69	2251	1026	
v/s Ratio Prot	c0.16					c0.49		c0.05	0.29		
v/s Ratio Perm				c0.10			0.01			0.00	
v/c Ratio	1.35			0.77		0.92	0.02	0.67	0.45	0.01	
Uniform Delay, d1	68.5			65.3		32.8	16.8	70.0	13.6	9.7	
Progression Factor	1.06			1.00		0.26	1.00	1.40	0.31	1.00	
Incremental Delay, d2	186.3			32.2		0.9	0.0	17.2	0.5	0.0	
Delay (s)	259.1			97.5		9.4	16.8	115.2	4.7	9.7	
Level of Service	F			F		A	B	F	A	A	
Approach Delay (s)	259.1			97.5		9.5			9.5		
Approach LOS	F			F		A			A		

Intersection Summary			
HCM 2000 Control Delay	32.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	156.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR2	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBU	SBL2
Lane Configurations												
Traffic Volume (vph)	247	395	306	1192	1201	91	355	1370	1033	16	5	74
Future Volume (vph)	247	395	306	1192	1201	91	355	1370	1033	16	5	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	11	11	11	11	12	11	11	12	12	12
Total Lost time (s)	3.0	3.0	3.0	3.0	3.5		3.0	3.5	4.0			3.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		1.00	0.95	1.00			1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00			1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00			0.95
Satd. Flow (prot)	1478	3061	1350	3319	3381		1736	3355	1480			1736
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00			0.95
Satd. Flow (perm)	1478	3061	1350	3319	3381		1736	3355	1480			1736
Peak-hour factor, PHF	0.84	0.84	0.84	0.94	0.94	0.94	0.95	0.95	0.95	0.92	0.93	0.93
Adj. Flow (vph)	294	470	364	1268	1278	97	374	1442	1087	17	5	80
RTOR Reduction (vph)	0	0	270	0	3	0	0	0	13	0	0	0
Lane Group Flow (vph)	294	470	94	1268	1372	0	374	1442	1091	0	0	85
Confl. Peds. (#/hr)	4		1	1		4	2		2			2
Heavy Vehicles (%)	14%	14%	14%	2%	2%	2%	4%	4%	4%	100%	4%	4%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	pt+ov		Prot	Prot
Protected Phases	7	4		3	8		5	2	2 3		1	1
Permitted Phases			4									
Actuated Green, G (s)	23.0	22.0	22.0	52.0	51.0		32.0	57.0	114.0			5.0
Effective Green, g (s)	25.0	24.0	24.0	54.0	52.5		34.0	58.5	115.0			7.0
Actuated g/C Ratio	0.16	0.15	0.15	0.35	0.34		0.22	0.38	0.74			0.04
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0				5.0
Vehicle Extension (s)	3.0	3.0	3.0	4.0	3.0		3.0	5.0				3.0
Lane Grp Cap (vph)	236	470	207	1148	1137		378	1258	1091			77
v/s Ratio Prot	c0.20	0.15		0.38	c0.41		0.22	c0.43	0.74			c0.05
v/s Ratio Perm			0.07									
v/c Ratio	1.25	1.00	0.45	1.10	1.21		0.99	1.15	1.00			1.10
Uniform Delay, d1	65.5	66.0	60.0	51.0	51.8		60.8	48.8	20.5			74.5
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00			1.14
Incremental Delay, d2	140.9	41.5	1.6	60.0	101.4		43.0	75.6	27.3			121.2
Delay (s)	206.4	107.5	61.6	111.0	153.1		103.8	124.3	47.8			205.8
Level of Service	F	F	E	F	F		F	F	D			F
Approach Delay (s)		118.5			132.9			92.8				
Approach LOS		F			F			F				

Intersection Summary			
HCM 2000 Control Delay	116.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	156.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	109.4%	ICU Level of Service	H
Analysis Period (min)	15		
Description: INT 27			
DATA FROM RENTON			
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	785	247
Future Volume (vph)	785	247
Ideal Flow (vphpl)	1900	1900
Lane Width	11	12
Total Lost time (s)	3.5	4.0
Lane Util. Factor	0.91	1.00
Frpb, ped/bikes	1.00	0.98
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	4821	1529
Flt Permitted	1.00	1.00
Satd. Flow (perm)	4821	1529
Peak-hour factor, PHF	0.93	0.93
Adj. Flow (vph)	844	266
RTOR Reduction (vph)	0	212
Lane Group Flow (vph)	844	54
Confl. Peds. (#/hr)		2
Heavy Vehicles (%)	4%	4%
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	30.0	30.0
Effective Green, g (s)	31.5	31.0
Actuated g/C Ratio	0.20	0.20
Clearance Time (s)	5.0	5.0
Vehicle Extension (s)	5.0	5.0
Lane Grp Cap (vph)	973	303
v/s Ratio Prot	0.18	
v/s Ratio Perm		0.04
v/c Ratio	0.87	0.18
Uniform Delay, d1	60.2	51.9
Progression Factor	1.36	4.87
Incremental Delay, d2	8.3	1.0
Delay (s)	90.2	253.6
Level of Service	F	F
Approach Delay (s)	134.8	
Approach LOS	F	

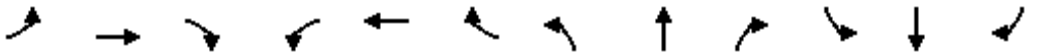
Intersection Summary

Movement	EBL	EBT	EBR2	WBL	WBT	WBR2	NBU	NBL2	NBT	NBR	NBR2	SBU
Lane Configurations												
Traffic Volume (vph)	167	80	24	65	372	459	46	181	1302	56	42	6
Future Volume (vph)	167	80	24	65	372	459	46	181	1302	56	42	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	11	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	3.0	4.0		
Lane Util. Factor	0.97	1.00		1.00	1.00	1.00		1.00	0.95	1.00		
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97		1.00	1.00	0.97		
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		
Frt	1.00	0.97		1.00	1.00	0.85		1.00	1.00	0.85		
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00		
Satd. Flow (prot)	2968	1547		1770	1863	1532		1715	3406	1508		
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00		
Satd. Flow (perm)	2968	1547		1770	1863	1532		1715	3406	1508		
Peak-hour factor, PHF	0.90	0.90	0.90	0.95	0.95	0.95	1.00	0.92	0.92	0.92	0.92	1.00
Adj. Flow (vph)	186	89	27	68	392	483	46	197	1415	61	46	6
RTOR Reduction (vph)	0	82	0	0	0	86	0	0	0	57	0	0
Lane Group Flow (vph)	186	34	0	68	392	397	0	243	1415	50	0	0
Confl. Peds. (#/hr)	18		6	6		18		7		8		
Heavy Vehicles (%)	18%	18%	18%	2%	2%	2%	2%	6%	6%	6%	2%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Prot	Prot	NA	Perm		Prot
Protected Phases	7	4		3	8		5	5	2			1
Permitted Phases						8				2		
Actuated Green, G (s)	11.6	44.5		9.9	42.8	42.8		29.1	71.5	71.5		
Effective Green, g (s)	12.6	45.5		10.9	43.8	43.8		30.1	73.5	72.5		
Actuated g/C Ratio	0.08	0.29		0.07	0.28	0.28		0.19	0.47	0.46		
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0	5.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		4.0	3.0	3.0		
Lane Grp Cap (vph)	239	451		123	523	430		330	1604	700		
v/s Ratio Prot	c0.06	0.02		0.04	0.21			0.14	c0.42			
v/s Ratio Perm						c0.26				0.03		
v/c Ratio	0.78	0.08		0.55	0.75	0.92		0.74	0.88	0.07		
Uniform Delay, d1	70.3	40.0		70.2	51.1	54.5		59.2	37.3	23.1		
Progression Factor	0.87	1.29		1.00	1.00	1.00		0.43	0.19	0.09		
Incremental Delay, d2	14.5	0.1		5.3	5.8	25.5		4.1	3.5	0.1		
Delay (s)	75.8	51.9		75.5	56.9	80.0		29.7	10.6	2.2		
Level of Service	E	D		E	E	E		C	B	A		
Approach Delay (s)		66.6			70.1				12.7			
Approach LOS		E			E				B			

Intersection Summary			
HCM 2000 Control Delay	40.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	156.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	90.7%	ICU Level of Service	E
Analysis Period (min)	15		
Description: INT 30			
DATA FROM RENTON			
c Critical Lane Group			

Movement	SBL2	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	158	780	201	42
Future Volume (vph)	158	780	201	42
Ideal Flow (vphpl)	1900	1900	1900	1900
Lane Width	12	11	12	12
Total Lost time (s)	4.0	3.0	4.0	
Lane Util. Factor	0.97	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	
Satd. Flow (prot)	3338	3323	1511	
Flt Permitted	0.95	1.00	1.00	
Satd. Flow (perm)	3338	3323	1511	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	172	848	218	46
RTOR Reduction (vph)	0	0	78	0
Lane Group Flow (vph)	178	848	186	0
Confl. Peds. (#/hr)	8		7	
Heavy Vehicles (%)	5%	5%	5%	2%
Turn Type	Prot	NA	Perm	
Protected Phases	1	6		
Permitted Phases			6	
Actuated Green, G (s)	10.1	52.5	52.5	
Effective Green, g (s)	11.1	54.5	53.5	
Actuated g/C Ratio	0.07	0.35	0.34	
Clearance Time (s)	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	
Lane Grp Cap (vph)	237	1160	518	
v/s Ratio Prot	0.05	c0.26		
v/s Ratio Perm			0.12	
v/c Ratio	0.75	0.73	0.36	
Uniform Delay, d1	71.1	44.3	38.4	
Progression Factor	1.00	1.00	1.00	
Incremental Delay, d2	12.6	4.1	1.9	
Delay (s)	83.7	48.4	40.3	
Level of Service	F	D	D	
Approach Delay (s)		51.6		
Approach LOS		D		

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	1168	91	31	2167	118	136	32	41	60	29	20
Future Volume (vph)	25	1168	91	31	2167	118	136	32	41	60	29	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	11	12	11	12	12	11	12	12	11	12
Total Lost time (s)	3.0	3.5	3.5	3.0	3.5		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.91	0.91		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		0.99	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.96		1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.98		0.95	1.00	
Satd. Flow (prot)	1719	3323	1452	1752	3303		1584	2998		1497	1423	
Flt Permitted	0.16	1.00	1.00	0.23	1.00		0.66	0.79		0.65	1.00	
Satd. Flow (perm)	288	3323	1452	426	3303		1104	2435		1022	1423	
Peak-hour factor, PHF	0.96	0.96	0.96	0.91	0.91	0.91	0.88	0.88	0.88	0.74	0.74	0.74
Adj. Flow (vph)	26	1217	95	34	2381	130	155	36	47	81	39	27
RTOR Reduction (vph)	0	0	56	0	2	0	0	40	0	0	24	0
Lane Group Flow (vph)	26	1217	39	34	2509	0	81	117	0	81	42	0
Confl. Peds. (#/hr)	3		3	3		3	9		7	7		9
Heavy Vehicles (%)	5%	5%	5%	3%	3%	37%	3%	3%	3%	20%	20%	20%
Turn Type	custom	NA	custom	custom	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	5	2 9		1	6 11		3	8		7	4	
Permitted Phases	6		2	2			4			8		
Actuated Green, G (s)	26.2	81.4	48.1	51.3	81.5		15.4	14.6		15.4	12.2	
Effective Green, g (s)	30.2	82.9	49.6	55.3	83.0		19.4	18.6		19.4	14.2	
Actuated g/C Ratio	0.25	0.69	0.41	0.46	0.69		0.16	0.16		0.16	0.12	
Clearance Time (s)	5.0		5.0	5.0			5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0		5.0	3.0			2.5	3.0		2.5	3.0	
Lane Grp Cap (vph)	133	2295	600	253	2284		199	401		188	168	
v/s Ratio Prot	c0.01	0.37		0.01	c0.76		0.02	0.01		c0.02	0.03	
v/s Ratio Perm	0.04		0.03	0.06			c0.05	0.03		0.05		
v/c Ratio	0.20	0.53	0.07	0.13	1.10		0.41	0.29		0.43	0.25	
Uniform Delay, d1	52.0	9.1	21.2	19.0	18.5		44.5	44.9		44.6	48.1	
Progression Factor	0.88	0.61	2.74	1.12	2.27		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.2	0.2	0.0	45.1		1.0	0.4		1.2	0.8	
Delay (s)	46.2	5.7	58.4	21.3	87.1		45.5	45.3		45.7	48.9	
Level of Service	D	A	E	C	F		D	D		D	D	
Approach Delay (s)		10.3			86.2			45.3			47.1	
Approach LOS		B			F			D			D	

Intersection Summary			
HCM 2000 Control Delay	58.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		
Description: INT 28			
DATA FROM RENTON			
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
129: Shopping Ctr/Lake Av S #A #B #C & Grady Wy #A/Grady Wy #B #C

07/20/2020

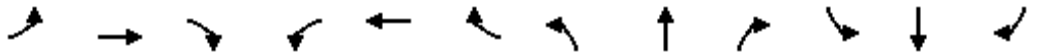
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	1245	150	9	2219	96	219	0	15	18	0	59
Future Volume (veh/h)	85	1245	150	9	2219	96	219	0	15	18	0	59
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1841	1870	1900	1870	537	1870	1885	1767	418	1900	1737
Adj Flow Rate, veh/h	101	1297	0	11	2361	0	261	0	0	24	0	83
Peak Hour Factor	0.84	0.96	0.61	0.83	0.94	0.80	0.84	0.25	0.58	0.75	0.25	0.71
Percent Heavy Veh, %	0	4	2	0	2	92	2	1	9	100	0	11
Cap, veh/h	235	2354		301	2310		325	0		101	21	293
Arrive On Green	0.04	0.67	0.00	0.04	1.00	0.00	0.21	0.00	0.00	0.21	0.00	0.21
Sat Flow, veh/h	1810	3497	1585	1810	3647	0	1274	0	1497	308	99	1408
Grp Volume(v), veh/h	101	1297	0	11	2361	0	261	0	0	107	0	0
Grp Sat Flow(s),veh/h/ln	1810	1749	1585	1810	1777	0	1274	0	1497	1815	0	0
Q Serve(g_s), s	2.2	23.1	0.0	0.2	0.0	0.0	18.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.2	23.1	0.0	0.2	0.0	0.0	24.5	0.0	0.0	6.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.22		0.78
Lane Grp Cap(c), veh/h	235	2354		301	2310		325	0		415	0	0
V/C Ratio(X)	0.43	0.55		0.04	1.02		0.80	0.00		0.26	0.00	0.00
Avail Cap(c_a), veh/h	235	2354		343	2310		325	0		415	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.00	0.09	0.09	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.0	10.2	0.0	7.9	0.0	0.0	47.6	0.0	0.0	40.2	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.0	12.5	0.0	13.4	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	8.1	0.0	0.1	4.0	0.0	8.9	0.0	0.0	2.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.2	10.3	0.0	7.9	12.5	0.0	61.1	0.0	0.0	40.5	0.0	0.0
LnGrp LOS	A	B		A	F		E	A		D	A	A
Approach Vol, veh/h		1398	A		2372	A		261	A		107	
Approach Delay, s/veh		10.0			12.5			61.1			40.5	
Approach LOS		A			B			E			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.2	84.8		29.0	9.0	82.0		29.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	4.0	77.0		24.0	4.0	77.0		24.0				
Max Q Clear Time (g_c+I1), s	2.2	25.1		8.5	4.2	2.0		26.5				
Green Ext Time (p_c), s	0.0	11.2		0.2	0.0	40.1		0.0				

Intersection Summary		
HCM 6th Ctrl Delay	15.4	
HCM 6th LOS	B	

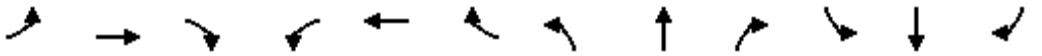
Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	1245	150	9	2219	96	219	0	15	18	0	59
Future Volume (vph)	85	1245	150	9	2219	96	219	0	15	18	0	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	11	12	11	12	12	11	12	12	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00			1.00	0.98		1.00	
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	0.99			1.00	0.85		0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.99	
Satd. Flow (prot)	1805	3355	1491	1805	3253			1711	1457		1284	
Flt Permitted	0.05	1.00	1.00	0.16	1.00			0.62	1.00		0.73	
Satd. Flow (perm)	97	3355	1491	306	3253			1117	1457		949	
Peak-hour factor, PHF	0.84	0.96	0.61	0.83	0.94	0.80	0.84	0.25	0.58	0.75	0.25	0.71
Adj. Flow (vph)	101	1297	246	11	2361	120	261	0	26	24	0	83
RTOR Reduction (vph)	0	0	80	0	3	0	0	0	21	0	51	0
Lane Group Flow (vph)	101	1297	166	11	2478	0	0	261	5	0	56	0
Confl. Peds. (#/hr)	3		2	2		3			3	3		
Heavy Vehicles (%)	0%	4%	2%	0%	2%	92%	2%	1%	9%	100%	0%	11%
Turn Type	D.P+P	NA	Perm	D.P+P	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2			8		8	4		
Actuated Green, G (s)	81.0	80.2	80.2	81.0	77.0			24.0	24.0		24.0	
Effective Green, g (s)	83.0	81.2	81.2	83.0	78.0			25.0	25.0		25.0	
Actuated g/C Ratio	0.69	0.68	0.68	0.69	0.65			0.21	0.21		0.21	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0			5.0	5.0		5.0	
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	138	2270	1008	234	2114			232	303		197	
v/s Ratio Prot	c0.03	c0.39		0.00	c0.76							
v/s Ratio Perm	0.47		0.11	0.03				c0.23	0.00		0.06	
v/c Ratio	0.73	0.57	0.17	0.05	1.17			1.12	0.02		0.29	
Uniform Delay, d1	31.0	10.2	7.1	7.4	21.0			47.5	37.7		40.0	
Progression Factor	1.00	1.00	1.00	0.13	0.76			1.00	1.00		0.92	
Incremental Delay, d2	18.0	1.1	0.4	0.0	78.0			96.8	0.0		0.8	
Delay (s)	49.1	11.3	7.4	1.0	93.9			144.3	37.8		37.5	
Level of Service	D	B	A	A	F			F	D		D	
Approach Delay (s)		13.0			93.5			134.7			37.5	
Approach LOS		B			F			F			D	

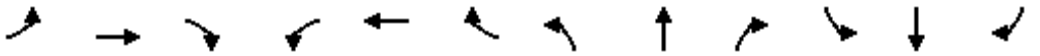
Intersection Summary			
HCM 2000 Control Delay	65.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	96.2%	ICU Level of Service	F
Analysis Period (min)	15		
Description: INT 28A			
DATA FROM RENTON			
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	903	310	79	579	73	1703	1028	333	20	168	47
Future Volume (vph)	42	903	310	79	579	73	1703	1028	333	20	168	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		0.97	0.95		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.96		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1703	3406	1504	3367	3407		3433	3394		1805	4996	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1703	3406	1504	3367	3407		3433	3394		1805	4996	
Peak-hour factor, PHF	0.90	0.90	0.90	0.91	0.91	0.91	0.97	0.97	0.97	0.81	0.81	0.81
Adj. Flow (vph)	47	1003	344	87	636	80	1756	1060	343	25	207	58
RTOR Reduction (vph)	0	0	211	0	8	0	0	26	0	0	44	0
Lane Group Flow (vph)	47	1003	133	87	708	0	1756	1377	0	25	221	0
Confl. Peds. (#/hr)	4		1	1		4	5		5	5		5
Heavy Vehicles (%)	6%	6%	6%	4%	4%	4%	2%	2%	2%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	2	6		5	1		3	8		7	4	
Permitted Phases			6									
Actuated Green, G (s)	8.7	37.7	37.7	5.4	34.4		34.6	53.9		3.0	22.3	
Effective Green, g (s)	10.7	39.7	39.7	7.4	36.4		36.6	55.9		5.0	24.3	
Actuated g/C Ratio	0.09	0.33	0.33	0.06	0.30		0.31	0.47		0.04	0.20	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		3.0	3.0		2.0	2.0	
Lane Grp Cap (vph)	151	1126	497	207	1033		1047	1581		75	1011	
v/s Ratio Prot	0.03	c0.29		0.03	c0.21		c0.51	c0.41		0.01	0.04	
v/s Ratio Perm			0.09									
v/c Ratio	0.31	0.89	0.27	0.42	0.69		1.68	0.87		0.33	0.22	
Uniform Delay, d1	51.2	38.1	29.5	54.2	36.8		41.7	28.8		55.9	39.9	
Progression Factor	0.92	0.88	1.16	1.00	1.00		1.29	1.03		1.00	1.00	
Incremental Delay, d2	0.4	9.7	1.2	0.5	3.7		305.1	0.5		1.0	0.0	
Delay (s)	47.7	43.4	35.5	54.7	40.5		358.8	30.1		56.8	40.0	
Level of Service	D	D	D	D	D		F	C		E	D	
Approach Delay (s)		41.6			42.0			212.8			41.4	
Approach LOS		D			D			F			D	

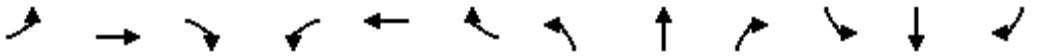
Intersection Summary			
HCM 2000 Control Delay	137.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	100.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	0	66	430	148	293	348	2788	0	0	505	26
Future Volume (vph)	9	0	66	430	148	293	348	2788	0	0	505	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	6.3	6.3	6.3	4.7	4.7			4.7	
Lane Util. Factor	1.00		1.00	0.97	1.00	1.00	1.00	0.95			0.91	
Frpb, ped/bikes	1.00		1.00	1.00	1.00	0.99	1.00	1.00			1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Frt	1.00		0.85	1.00	1.00	0.85	1.00	1.00			0.99	
Flt Protected	0.95		1.00	0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1770		1583	3433	1863	1560	1770	3539			5021	
Flt Permitted	0.95		1.00	0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (perm)	1770		1583	3433	1863	1560	1770	3539			5021	
Peak-hour factor, PHF	0.72	0.92	0.93	0.92	0.92	0.92	0.43	0.91	0.92	0.92	0.96	0.66
Adj. Flow (vph)	12	0	71	467	161	318	809	3064	0	0	526	39
RTOR Reduction (vph)	0	0	68	0	0	99	0	0	0	0	8	0
Lane Group Flow (vph)	13	0	3	467	161	219	809	3064	0	0	557	0
Confl. Peds. (#/hr)	2					2	5		3	3		5
Turn Type	Prot		Prot	Prot	NA	custom	Prot	NA			NA	
Protected Phases	4		7	8	3		5	2			6	
Permitted Phases						8						
Actuated Green, G (s)	2.6		4.0	25.3	26.7	25.3	39.4	73.2			28.1	
Effective Green, g (s)	3.6		5.0	25.3	26.7	25.3	40.4	74.2			29.1	
Actuated g/C Ratio	0.03		0.04	0.21	0.22	0.21	0.34	0.62			0.24	
Clearance Time (s)	5.5		5.5	6.3	6.3	6.3	5.7	5.7			5.7	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	4.0			4.0	
Lane Grp Cap (vph)	53		65	723	414	328	595	2188			1217	
v/s Ratio Prot	0.01		0.00	0.14	c0.09		0.46	c0.87			0.11	
v/s Ratio Perm						c0.14						
v/c Ratio	0.25		0.05	0.65	0.39	0.67	1.36	1.40			0.46	
Uniform Delay, d1	56.9		55.2	43.3	39.7	43.5	39.8	22.9			38.7	
Progression Factor	1.00		1.00	1.00	1.00	1.00	0.86	1.56			0.91	
Incremental Delay, d2	2.4		0.3	2.0	0.6	5.0	169.3	182.1			1.2	
Delay (s)	59.3		55.5	45.2	40.3	48.5	203.4	217.8			36.3	
Level of Service	E		E	D	D	D	F	F			D	
Approach Delay (s)		56.1			45.5			214.8			36.3	
Approach LOS		E			D			F			D	

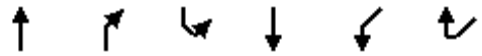
Intersection Summary			
HCM 2000 Control Delay	164.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.24		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.2
Intersection Capacity Utilization	111.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	187	80	62	802	179	40	42	14	18	31	66
Future Volume (vph)	34	187	80	62	802	179	40	42	14	18	31	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	3.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00			1.00	0.99		0.99	
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	0.97			1.00	0.85		0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.98	1.00		0.99	
Satd. Flow (prot)	1736	1827	1532	1786	3477			1683	1449		1704	
Flt Permitted	0.20	1.00	1.00	0.61	1.00			0.81	1.00		0.94	
Satd. Flow (perm)	367	1827	1532	1155	3477			1393	1449		1610	
Peak-hour factor, PHF	0.81	0.81	0.81	0.93	0.93	0.93	0.69	0.69	0.69	0.77	0.77	0.77
Adj. Flow (vph)	42	231	99	67	862	192	58	61	20	23	40	86
RTOR Reduction (vph)	0	0	47	0	19	0	0	0	16	0	65	0
Lane Group Flow (vph)	42	231	52	67	1035	0	0	119	4	0	84	0
Confl. Peds. (#/hr)			2	2			8		1	1		8
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	10%	10%	10%	1%	1%	1%
Turn Type	D.P+P	NA	Perm	D.P+P	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	8		4	4			2		2	6		
Actuated Green, G (s)	28.5	26.9	26.9	29.5	27.0			9.8	9.8		9.8	
Effective Green, g (s)	30.5	27.9	27.9	31.5	28.0			10.8	10.8		10.8	
Actuated g/C Ratio	0.57	0.52	0.52	0.59	0.53			0.20	0.20		0.20	
Clearance Time (s)	5.0	5.0	5.0	4.0	5.0			5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	274	956	801	725	1826			282	293		326	
v/s Ratio Prot	c0.01	0.13		0.01	c0.30							
v/s Ratio Perm	0.08		0.03	0.05				c0.09	0.00		0.05	
v/c Ratio	0.15	0.24	0.06	0.09	0.57			0.42	0.01		0.26	
Uniform Delay, d1	5.5	6.9	6.3	4.6	8.6			18.5	17.0		17.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.3	0.1	0.0	0.1	0.4			1.0	0.0		0.4	
Delay (s)	5.8	7.1	6.3	4.7	9.0			19.5	17.0		18.3	
Level of Service	A	A	A	A	A			B	B		B	
Approach Delay (s)		6.7			8.7			19.2			18.3	
Approach LOS		A			A			B			B	

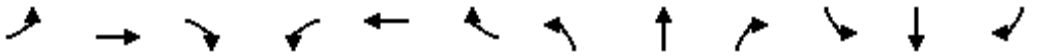
Intersection Summary			
HCM 2000 Control Delay	9.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	53.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	3136	682	36	966	0	0
Future Volume (vph)	3136	682	36	966	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.3	4.3	3.6	3.6		
Lane Util. Factor	0.91	1.00	1.00	0.95		
Frpb, ped/bikes	1.00	0.99	1.00	1.00		
Flpb, ped/bikes	1.00	1.00	1.00	1.00		
Frt	1.00	0.85	1.00	1.00		
Flt Protected	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	5085	1561	1770	3539		
Flt Permitted	1.00	1.00	0.95	1.00		
Satd. Flow (perm)	5085	1561	1770	3539		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3409	741	39	1050	0	0
RTOR Reduction (vph)	0	133	0	0	0	0
Lane Group Flow (vph)	3409	608	39	1050	0	0
Confl. Peds. (#/hr)		1	1			
Turn Type	NA	Perm	Prot	NA		
Protected Phases	2		1	1 2		
Permitted Phases		2				
Actuated Green, G (s)	97.4	97.4	12.7	120.0		
Effective Green, g (s)	98.4	98.4	13.7	115.7		
Actuated g/C Ratio	0.82	0.82	0.11	0.96		
Clearance Time (s)	5.3	5.3	4.6			
Vehicle Extension (s)	4.0	4.0	3.0			
Lane Grp Cap (vph)	4169	1280	202	3412		
v/s Ratio Prot	c0.67		0.02	c0.30		
v/s Ratio Perm		0.39				
v/c Ratio	0.82	0.47	0.19	0.31		
Uniform Delay, d1	5.9	3.2	48.1	0.1		
Progression Factor	1.00	1.00	1.00	1.00		
Incremental Delay, d2	1.9	1.3	0.4	0.0		
Delay (s)	7.8	4.4	48.4	0.2		
Level of Service	A	A	D	A		
Approach Delay (s)	7.2			1.9	0.0	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	6.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	7.9
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	241	1526	87	305	775	88	176	323	989	164	220	154
Future Volume (vph)	241	1526	87	305	775	88	176	323	989	164	220	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1735	3283		1770	3428		1634	3252	1429	1444	1743	1546
Flt Permitted	0.22	1.00		0.21	1.00		0.57	1.00	1.00	0.52	1.00	1.00
Satd. Flow (perm)	406	3283		392	3428		985	3252	1429	795	1743	1546
Peak-hour factor, PHF	0.86	0.95	0.84	0.81	0.98	0.87	0.88	0.95	0.96	0.73	0.98	0.70
Adj. Flow (vph)	280	1606	104	377	791	101	200	340	1030	225	224	220
RTOR Reduction (vph)	0	4	0	0	9	0	0	0	271	0	0	118
Lane Group Flow (vph)	280	1706	0	377	884	0	200	340	759	225	224	102
Confl. Peds. (#/hr)	7		4	4		7	6					6
Heavy Vehicles (%)	4%	9%	6%	2%	3%	5%	10%	11%	13%	25%	9%	2%
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA	Perm	D.P+P	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8			4			6		2	2		6
Actuated Green, G (s)	33.0	19.0		33.0	18.0		67.0	53.5	53.5	67.0	55.8	55.8
Effective Green, g (s)	33.0	19.0		33.0	18.0		67.0	53.5	53.5	67.0	55.8	55.8
Actuated g/C Ratio	0.28	0.16		0.28	0.15		0.56	0.45	0.45	0.56	0.46	0.46
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	277	519		268	514		610	1449	637	516	810	718
v/s Ratio Prot	0.13	c0.52		c0.16	0.26		0.03	0.10		c0.05	0.13	
v/s Ratio Perm	0.15			0.22			0.15		c0.53	0.19		0.07
v/c Ratio	1.01	3.29		1.41	1.72		0.33	0.23	1.19	0.44	0.28	0.14
Uniform Delay, d1	39.6	50.5		39.5	51.0		13.4	20.6	33.2	13.9	19.7	18.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	56.9	1034.0		203.9	331.7		0.1	0.4	101.2	0.2	0.8	0.4
Delay (s)	96.5	1084.5		243.4	382.7		13.5	21.0	134.4	14.1	20.6	18.8
Level of Service	F	F		F	F		B	C	F	B	C	B
Approach Delay (s)		945.5			341.3			94.5			17.8	
Approach LOS		F			F			F			B	

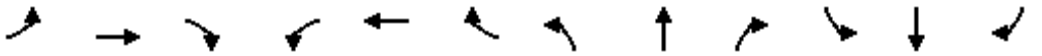
Intersection Summary			
HCM 2000 Control Delay	450.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.52		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	127.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	0
Turn Type					Prot	Perm
Protected Phases	4			8	2	
Permitted Phases						2
Actuated Green, G (s)						
Effective Green, g (s)						
Actuated g/C Ratio						
Clearance Time (s)						
Vehicle Extension (s)						
Lane Grp Cap (vph)						
v/s Ratio Prot						
v/s Ratio Perm						
v/c Ratio						
Uniform Delay, d1						
Progression Factor						
Incremental Delay, d2						
Delay (s)						
Level of Service						
Approach Delay (s)	0.0			0.0	0.0	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	0.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.00		
Actuated Cycle Length (s)	82.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	0.0%	ICU Level of Service	A
Analysis Period (min)	15		

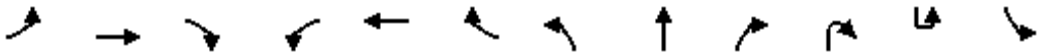
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	89	773	310	6	512	76	4	5	3	153	127	64
Future Volume (vph)	89	773	310	6	512	76	4	5	3	153	127	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	0.96		1.00	0.98			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00		0.97	1.00
Satd. Flow (prot)	1770	3387		1770	3470			1822	1583		1813	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.98	1.00		0.97	1.00
Satd. Flow (perm)	1770	3387		1770	3470			1822	1583		1813	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	97	840	337	7	557	83	4	5	3	166	138	70
RTOR Reduction (vph)	0	20	0	0	6	0	0	0	3	0	0	55
Lane Group Flow (vph)	97	1157	0	7	634	0	0	9	0	0	304	15
Turn Type	Prot	NA		Prot	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases									4			3
Actuated Green, G (s)	13.2	91.2		0.8	78.8			11.6	11.6		32.4	32.4
Effective Green, g (s)	13.2	91.2		0.8	78.8			11.6	11.6		32.4	32.4
Actuated g/C Ratio	0.08	0.58		0.01	0.51			0.07	0.07		0.21	0.21
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	5.0		3.0	5.0			5.0	5.0		5.0	5.0
Lane Grp Cap (vph)	149	1980		9	1752			135	117		376	328
v/s Ratio Prot	c0.05	c0.34		0.00	0.18			c0.00			c0.17	
v/s Ratio Perm									0.00			0.01
v/c Ratio	0.65	0.58		0.78	0.36			0.07	0.00		0.81	0.04
Uniform Delay, d1	69.2	20.4		77.5	23.4			67.2	66.8		58.8	49.4
Progression Factor	1.00	1.00		1.22	0.78			0.91	1.00		1.00	1.00
Incremental Delay, d2	9.8	1.3		137.8	0.2			0.0	0.0		13.6	0.1
Delay (s)	78.9	21.7		232.4	18.4			61.1	66.8		72.5	49.5
Level of Service	E	C		F	B			E	E		E	D
Approach Delay (s)		26.1			20.8			62.6			68.2	
Approach LOS		C			C			E			E	

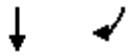
Intersection Summary			
HCM 2000 Control Delay	31.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	156.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	68.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



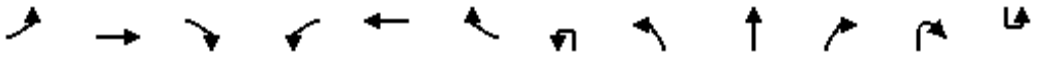
Movement	EBL	EBT	EBR2	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBU	SBL2
Lane Configurations												
Traffic Volume (vph)	482	1165	1000	900	638	202	251	865	776	9	10	261
Future Volume (vph)	482	1165	1000	900	638	202	251	865	776	9	10	261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	11	11	11	11	12	11	11	12	12	12
Total Lost time (s)	3.0	3.0	2.0	3.0	3.5		3.0	3.5	4.0			3.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		1.00	0.95	1.00			1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	0.99		1.00	1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00			1.00
Frt	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00			0.95
Satd. Flow (prot)	1478	3061	1369	3319	3272		1736	3355	1485			1736
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00			0.95
Satd. Flow (perm)	1478	3061	1369	3319	3272		1736	3355	1485			1736
Peak-hour factor, PHF	0.84	0.84	0.84	0.94	0.94	0.94	0.95	0.95	0.95	0.92	0.93	0.93
Adj. Flow (vph)	574	1387	1190	957	679	215	264	911	817	10	11	281
RTOR Reduction (vph)	0	0	0	0	19	0	0	0	43	0	0	0
Lane Group Flow (vph)	574	1387	1190	957	875	0	264	911	784	0	0	292
Confl. Peds. (#/hr)	15					15	7		8			8
Heavy Vehicles (%)	14%	14%	14%	2%	2%	2%	4%	4%	4%	100%	4%	4%
Turn Type	Prot	NA	Free	Prot	NA		Prot	NA	pt+ov		Prot	Prot
Protected Phases	7	4		3	8		5	2	2 3		1	1
Permitted Phases			Free									
Actuated Green, G (s)	37.0	47.0	156.0	29.0	39.0		17.0	42.0	76.0			18.0
Effective Green, g (s)	39.0	49.0	156.0	31.0	40.5		19.0	43.5	77.0			20.0
Actuated g/C Ratio	0.25	0.31	1.00	0.20	0.26		0.12	0.28	0.49			0.13
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0				5.0
Vehicle Extension (s)	3.0	3.0		4.0	3.0		3.0	5.0				3.0
Lane Grp Cap (vph)	369	961	1369	659	849		211	935	732			222
v/s Ratio Prot	c0.39	c0.45		c0.29	0.27		c0.15	0.27	0.53			0.17
v/s Ratio Perm			0.87									
v/c Ratio	1.56	1.44	0.87	1.45	1.03		1.25	0.97	1.07			1.32
Uniform Delay, d1	58.5	53.5	0.0	62.5	57.8		68.5	55.7	39.5			68.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00			1.20
Incremental Delay, d2	263.0	205.4	7.7	211.9	38.9		145.9	23.8	54.2			155.6
Delay (s)	321.5	258.9	7.7	274.4	96.7		214.4	79.5	93.7			237.4
Level of Service	F	F	A	F	F		F	E	F			F
Approach Delay (s)		175.4			188.6			103.2				
Approach LOS		F			F			F				

Intersection Summary			
HCM 2000 Control Delay	165.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.40		
Actuated Cycle Length (s)	156.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	116.9%	ICU Level of Service	H
Analysis Period (min)	15		
Description: INT 27			
DATA FROM RENTON			
c Critical Lane Group			



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1646	311
Future Volume (vph)	1646	311
Ideal Flow (vphpl)	1900	1900
Lane Width	11	12
Total Lost time (s)	3.5	3.0
Lane Util. Factor	0.91	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	4821	1531
Flt Permitted	1.00	1.00
Satd. Flow (perm)	4821	1531
Peak-hour factor, PHF	0.93	0.93
Adj. Flow (vph)	1770	334
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	1770	334
Confl. Peds. (#/hr)		7
Heavy Vehicles (%)	4%	4%
Turn Type	NA	Free
Protected Phases	6	
Permitted Phases		Free
Actuated Green, G (s)	43.0	156.0
Effective Green, g (s)	44.5	156.0
Actuated g/C Ratio	0.29	1.00
Clearance Time (s)	5.0	
Vehicle Extension (s)	5.0	
Lane Grp Cap (vph)	1375	1531
v/s Ratio Prot	c0.37	
v/s Ratio Perm		0.22
v/c Ratio	1.29	0.22
Uniform Delay, d1	55.8	0.0
Progression Factor	1.42	1.00
Incremental Delay, d2	131.8	0.1
Delay (s)	211.2	0.1
Level of Service	F	A
Approach Delay (s)	184.9	
Approach LOS	F	

Intersection Summary

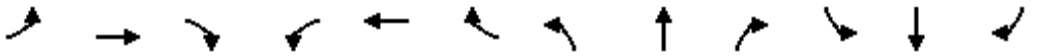


Movement	EBL	EBT	EBR2	WBL	WBT	WBR2	NBU	NBL2	NBT	NBR	NBR2	SBU
Lane Configurations												
Traffic Volume (vph)	443	395	90	125	214	210	83	168	1209	95	9	15
Future Volume (vph)	443	395	90	125	214	210	83	168	1209	95	9	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	11	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0		4.0	4.0	3.0		4.0	3.0	4.0		
Lane Util. Factor	0.97	1.00		1.00	1.00	1.00		1.00	0.95	1.00		
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98		1.00	1.00	0.97		
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		
Frt	1.00	0.97		1.00	1.00	0.85		1.00	1.00	0.85		
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00		
Satd. Flow (prot)	2968	1558		1770	1863	1555		1723	3406	1376		
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00		
Satd. Flow (perm)	2968	1558		1770	1863	1555		1723	3406	1376		
Peak-hour factor, PHF	0.90	0.90	0.90	0.95	0.95	0.95	1.00	0.92	0.92	0.92	0.92	1.00
Adj. Flow (vph)	492	439	100	132	225	221	83	183	1314	103	10	15
RTOR Reduction (vph)	0	82	0	0	0	0	0	0	0	72	0	0
Lane Group Flow (vph)	492	457	0	132	225	221	0	266	1314	41	0	0
Confl. Peds. (#/hr)	19		13	13		19		14		8		
Heavy Vehicles (%)	18%	18%	18%	2%	2%	2%	2%	6%	6%	6%	100%	2%
Turn Type	Prot	NA		Prot	NA	Free	Prot	Prot	NA	Perm		Prot
Protected Phases	7	4		3	8		5	5	2			1
Permitted Phases						Free				2		
Actuated Green, G (s)	32.9	48.0		11.0	26.1	156.0		17.0	56.0	56.0		
Effective Green, g (s)	33.9	49.0		12.0	27.1	156.0		18.0	58.0	57.0		
Actuated g/C Ratio	0.22	0.31		0.08	0.17	1.00		0.12	0.37	0.37		
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0	5.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0			4.0	3.0	3.0		
Lane Grp Cap (vph)	644	489		136	323	1555		198	1266	502		
v/s Ratio Prot	0.17	c0.29		c0.07	0.12			c0.15	0.39			
v/s Ratio Perm						0.14				0.03		
v/c Ratio	0.76	0.94		0.97	0.70	0.14		1.34	1.04	0.08		
Uniform Delay, d1	57.3	52.0		71.8	60.6	0.0		69.0	49.0	32.4		
Progression Factor	0.92	0.87		1.00	1.00	1.00		0.83	0.76	0.72		
Incremental Delay, d2	4.5	22.4		67.9	6.4	0.2		157.7	20.0	0.0		
Delay (s)	57.5	67.8		139.7	67.0	0.2		214.9	57.5	23.2		
Level of Service	E	E		F	E	A		F	E	C		
Approach Delay (s)		62.9			58.1				80.0			
Approach LOS		E			E				E			

Intersection Summary			
HCM 2000 Control Delay	98.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	156.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	104.5%	ICU Level of Service	G
Analysis Period (min)	15		
Description: INT 30			
DATA FROM RENTON			
c Critical Lane Group			

Movement	SBL2	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	452	1488	213	9
Future Volume (vph)	452	1488	213	9
Ideal Flow (vphpl)	1900	1900	1900	1900
Lane Width	12	11	12	12
Total Lost time (s)	4.0	3.0	4.0	
Lane Util. Factor	0.97	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	
Flpb, ped/bikes	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	
Satd. Flow (prot)	3338	3323	1433	
Flt Permitted	0.95	1.00	1.00	
Satd. Flow (perm)	3338	3323	1433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	491	1617	232	10
RTOR Reduction (vph)	0	0	72	0
Lane Group Flow (vph)	506	1617	170	0
Confl. Peds. (#/hr)	8		14	
Heavy Vehicles (%)	5%	5%	5%	100%
Turn Type	Prot	NA	Perm	
Protected Phases	1	6		
Permitted Phases			6	
Actuated Green, G (s)	21.0	60.0	60.0	
Effective Green, g (s)	22.0	62.0	61.0	
Actuated g/C Ratio	0.14	0.40	0.39	
Clearance Time (s)	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	
Lane Grp Cap (vph)	470	1320	560	
v/s Ratio Prot	0.15	c0.49		
v/s Ratio Perm			0.12	
v/c Ratio	1.08	1.23	0.30	
Uniform Delay, d1	67.0	47.0	32.8	
Progression Factor	1.00	1.00	1.00	
Incremental Delay, d2	63.6	108.2	1.4	
Delay (s)	130.6	155.2	34.2	
Level of Service	F	F	C	
Approach Delay (s)		137.6		
Approach LOS		F		

Intersection Summary

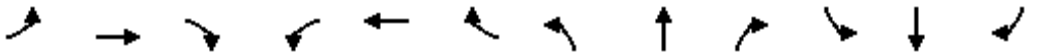


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	1745	223	141	1182	51	127	45	92	206	129	71
Future Volume (vph)	37	1745	223	141	1182	51	127	45	92	206	129	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	11	12	11	12	12	11	12	12	11	12
Total Lost time (s)	3.0	3.5	2.5	3.0	3.5		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.91	0.91		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.92		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.99		0.95	1.00	
Satd. Flow (prot)	1719	3323	1454	1752	3365		1591	2928		1501	1434	
Flt Permitted	0.20	1.00	1.00	0.11	1.00		0.29	0.73		0.62	1.00	
Satd. Flow (perm)	363	3323	1454	199	3365		487	2166		979	1434	
Peak-hour factor, PHF	0.96	0.96	0.96	0.91	0.91	0.91	0.88	0.88	0.88	0.74	0.74	0.74
Adj. Flow (vph)	39	1818	232	155	1299	56	144	51	105	278	174	96
RTOR Reduction (vph)	0	0	0	0	2	0	0	63	0	0	17	0
Lane Group Flow (vph)	39	1818	232	155	1353	0	98	139	0	278	253	0
Confl. Peds. (#/hr)	2		4	4		2	14		4	4		14
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	3%	3%	3%	20%	20%	20%
Turn Type	custom	NA	Free	custom	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	5	2 9		1	6 11		3	8		7	4	
Permitted Phases	6		Free	2			4			8		
Actuated Green, G (s)	37.6	63.3	120.0	43.2	68.6		28.5	27.5		28.5	24.5	
Effective Green, g (s)	41.6	64.8	120.0	47.2	70.1		32.5	31.5		32.5	26.5	
Actuated g/C Ratio	0.35	0.54	1.00	0.39	0.58		0.27	0.26		0.27	0.22	
Clearance Time (s)	5.0			5.0			5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0			3.0			2.5	3.0		3.0	3.0	
Lane Grp Cap (vph)	181	1794	1454	210	1965		187	606		295	316	
v/s Ratio Prot	0.01	c0.55		c0.06	0.40		0.03	0.01		c0.05	0.18	
v/s Ratio Perm	0.07		c0.16	0.23			0.12	0.05		c0.20		
v/c Ratio	0.22	1.01	0.16	0.74	0.69		0.52	0.23		0.94	0.80	
Uniform Delay, d1	26.2	27.6	0.0	28.8	17.4		34.8	34.7		41.4	44.2	
Progression Factor	0.96	0.20	1.00	0.76	1.48		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	14.0	0.1	7.1	0.4		2.0	0.2		37.1	13.5	
Delay (s)	25.3	19.5	0.1	29.1	26.2		36.9	34.9		78.5	57.7	
Level of Service	C	B	A	C	C		D	C		E	E	
Approach Delay (s)		17.5			26.5			35.5			68.3	
Approach LOS		B			C			D			E	

Intersection Summary			
HCM 2000 Control Delay	28.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	93.0%	ICU Level of Service	F
Analysis Period (min)	15		
Description: INT 28			
DATA FROM RENTON			
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
129: Shopping Ctr/Lake Av S #A #B #C & Grady Wy #A/Grady Wy #B #C

07/20/2020



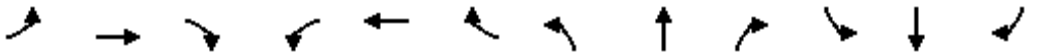
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	1953	269	22	1344	15	289	3	39	13	3	76
Future Volume (veh/h)	28	1953	269	22	1344	15	289	3	39	13	3	76
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1841	1870	1900	1870	537	1870	1885	1767	418	1900	1737
Adj Flow Rate, veh/h	33	2034	0	27	1430	0	344	12	0	17	12	107
Peak Hour Factor	0.84	0.96	0.61	0.83	0.94	0.80	0.84	0.25	0.58	0.75	0.25	0.71
Percent Heavy Veh, %	0	4	2	0	2	92	2	1	9	100	0	11
Cap, veh/h	202	2000		111	2024		415	12		79	69	423
Arrive On Green	0.03	0.57	0.00	0.02	0.38	0.00	0.30	0.30	0.00	0.30	0.30	0.30
Sat Flow, veh/h	1810	3497	1585	1810	3647	0	1186	41	1497	151	232	1411
Grp Volume(v), veh/h	33	2034	0	27	1430	0	356	0	0	136	0	0
Grp Sat Flow(s),veh/h/ln	1810	1749	1585	1810	1777	0	1227	0	1497	1794	0	0
Q Serve(g_s), s	0.9	68.6	0.0	0.7	40.9	0.0	26.9	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.9	68.6	0.0	0.7	40.9	0.0	34.4	0.0	0.0	7.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	0.97		1.00	0.12		0.79
Lane Grp Cap(c), veh/h	202	2000		111	2024		427	0		572	0	0
V/C Ratio(X)	0.16	1.02		0.24	0.71		0.83	0.00		0.24	0.00	0.00
Avail Cap(c_a), veh/h	222	2000		135	2024		427	0		572	0	0
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.00	0.70	0.70	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.4	25.7	0.0	29.6	28.6	0.0	42.2	0.0	0.0	32.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	11.0	0.0	0.8	1.5	0.0	13.2	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	29.1	0.0	0.5	18.6	0.0	11.8	0.0	0.0	3.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.4	36.7	0.0	30.4	30.1	0.0	55.4	0.0	0.0	32.2	0.0	0.0
LnGrp LOS	B	F		C	C		E	A		C	A	A
Approach Vol, veh/h		2067	A		1457	A		356	A		136	
Approach Delay, s/veh		36.4			30.1			55.4			32.2	
Approach LOS		D			C			E			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.4	72.6		40.0	7.7	72.3		40.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	4.0	66.0		35.0	4.0	66.0		35.0				
Max Q Clear Time (g_c+I1), s	2.7	70.6		9.5	2.9	42.9		36.4				
Green Ext Time (p_c), s	0.0	0.0		0.4	0.0	10.1		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		35.7	
HCM 6th LOS		D	

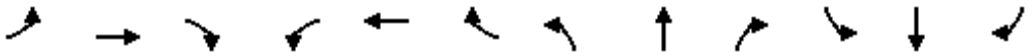
Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	1953	269	22	1344	15	289	3	39	13	3	76
Future Volume (vph)	28	1953	269	22	1344	15	289	3	39	13	3	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	11	12	11	12	12	11	12	12	12	12
Total Lost time (s)	4.0	4.0	3.0	4.0	4.0			4.0	3.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00			1.00	0.99		1.00	
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	1.00			1.00	0.85		0.89	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.99	
Satd. Flow (prot)	1805	3355	1499	1805	3373			1718	1462		1392	
Flt Permitted	0.09	1.00	1.00	0.06	1.00			0.58	1.00		0.90	
Satd. Flow (perm)	176	3355	1499	111	3373			1053	1462		1259	
Peak-hour factor, PHF	0.84	0.96	0.61	0.83	0.94	0.80	0.84	0.25	0.58	0.75	0.25	0.71
Adj. Flow (vph)	33	2034	441	27	1430	19	344	12	67	17	12	107
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	0	0	42	0
Lane Group Flow (vph)	33	2034	441	27	1448	0	0	356	67	0	94	0
Confl. Peds. (#/hr)	10		1	1		10			5	5		
Heavy Vehicles (%)	0%	4%	2%	0%	2%	92%	2%	1%	9%	100%	0%	11%
Turn Type	D.P+P	NA	Free	D.P+P	NA		Perm	NA	Free	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		Free	2			8		Free	4		
Actuated Green, G (s)	70.0	67.6	120.0	70.0	67.6			35.0	120.0		35.0	
Effective Green, g (s)	72.0	68.6	120.0	72.0	68.6			36.0	120.0		36.0	
Actuated g/C Ratio	0.60	0.57	1.00	0.60	0.57			0.30	1.00		0.30	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)	3.0	4.0		3.0	4.0			3.0			3.0	
Lane Grp Cap (vph)	151	1917	1499	114	1928			315	1462		377	
v/s Ratio Prot	0.01	c0.61		0.01	0.43							
v/s Ratio Perm	0.12		c0.29	0.13				c0.34	0.05		0.07	
v/c Ratio	0.22	1.06	0.29	0.24	0.75			1.13	0.05		0.25	
Uniform Delay, d1	15.0	25.7	0.0	27.4	19.3			42.0	0.0		31.8	
Progression Factor	1.00	1.00	1.00	0.62	0.36			1.00	1.00		0.83	
Incremental Delay, d2	0.7	39.0	0.5	0.8	2.1			90.6	0.1		0.3	
Delay (s)	15.8	64.7	0.5	17.9	9.0			132.6	0.1		26.6	
Level of Service	B	E	A	B	A			F	A		C	
Approach Delay (s)		52.7			9.1			111.6			26.6	
Approach LOS		D			A			F			C	

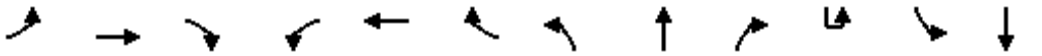
Intersection Summary			
HCM 2000 Control Delay	43.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		
Description: INT 28A			
DATA FROM RENTON			
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	171	897	1002	335	841	57	507	494	154	109	780	61
Future Volume (vph)	171	897	1002	335	841	57	507	494	154	109	780	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	2.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		0.97	0.95		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1703	3406	1504	3367	3433		3433	3400		1805	5124	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1703	3406	1504	3367	3433		3433	3400		1805	5124	
Peak-hour factor, PHF	0.90	0.90	0.90	0.91	0.91	0.91	0.97	0.97	0.97	0.81	0.81	0.81
Adj. Flow (vph)	190	997	1113	368	924	63	523	509	159	135	963	75
RTOR Reduction (vph)	0	0	0	0	4	0	0	24	0	0	8	0
Lane Group Flow (vph)	190	997	1113	368	983	0	523	644	0	135	1030	0
Confl. Peds. (#/hr)	9		2	2		9	5		3	3		5
Heavy Vehicles (%)	6%	6%	6%	4%	4%	4%	2%	2%	2%	0%	0%	0%
Turn Type	Prot	NA	Free	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	2	6		5	1		3	8		7	4	
Permitted Phases			Free									
Actuated Green, G (s)	14.3	40.5	120.0	13.8	40.0		19.7	33.2		12.5	26.0	
Effective Green, g (s)	16.3	42.5	120.0	15.8	42.0		21.7	35.2		14.5	28.0	
Actuated g/C Ratio	0.14	0.35	1.00	0.13	0.35		0.18	0.29		0.12	0.23	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		3.0	3.0		2.0	2.0	
Lane Grp Cap (vph)	231	1206	1504	443	1201		620	997		218	1195	
v/s Ratio Prot	0.11	c0.29		0.11	c0.29		c0.15	0.19		0.07	c0.20	
v/s Ratio Perm			c0.74									
v/c Ratio	0.82	0.83	0.74	0.83	0.82		0.84	0.65		0.62	0.86	
Uniform Delay, d1	50.4	35.4	0.0	50.8	35.5		47.5	37.0		50.1	44.1	
Progression Factor	0.96	0.92	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.1	2.5	1.2	12.0	6.3		10.2	1.4		3.7	6.4	
Delay (s)	56.4	35.2	1.2	62.8	41.8		57.7	38.4		53.8	50.5	
Level of Service	E	D	A	E	D		E	D		D	D	
Approach Delay (s)		20.5			47.5			46.9			50.9	
Approach LOS		C			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	37.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	81.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



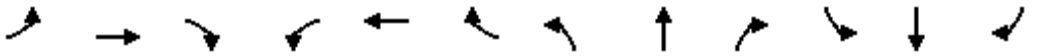
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	20	0	388	1093	71	172	132	957	0	1	0	2095
Future Volume (vph)	20	0	388	1093	71	172	132	957	0	1	0	2095
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	6.3	6.3	4.0	4.7	4.7				4.7
Lane Util. Factor	1.00		1.00	0.97	1.00	1.00	1.00	0.95				0.91
Frpb, ped/bikes	1.00		1.00	1.00	1.00	1.00	1.00	1.00				1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00	1.00	1.00				1.00
Frt	1.00		0.85	1.00	1.00	0.85	1.00	1.00				1.00
Flt Protected	0.95		1.00	0.95	1.00	1.00	0.95	1.00				1.00
Satd. Flow (prot)	1787		1599	3467	1881	1599	1770	3539				5117
Flt Permitted	0.95		1.00	0.95	1.00	1.00	0.95	1.00				0.94
Satd. Flow (perm)	1787		1599	3467	1881	1599	1770	3539				4809
Peak-hour factor, PHF	0.82	0.82	0.82	0.98	0.98	0.98	0.91	0.91	0.91	0.97	0.97	0.97
Adj. Flow (vph)	24	0	473	1115	72	176	145	1052	0	1	0	2160
RTOR Reduction (vph)	0	0	90	0	0	0	0	0	0	0	0	2
Lane Group Flow (vph)	24	0	383	1115	72	176	145	1052	0	0	0	2202
Confl. Peds. (#/hr)	2			4					2			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	1%	1%	1%
Turn Type	Prot		pt+ov	Prot	NA	Free	Prot	NA		Perm		NA
Protected Phases	7		4 5	3	8		5	2				6
Permitted Phases						Free				6		
Actuated Green, G (s)	3.5		34.0	28.7	47.4	132.2	6.3	63.8				51.8
Effective Green, g (s)	4.5		35.0	28.7	47.4	132.2	7.3	64.8				52.8
Actuated g/C Ratio	0.03		0.26	0.22	0.36	1.00	0.06	0.49				0.40
Clearance Time (s)	5.5			6.3	6.3		5.7	5.7				5.7
Vehicle Extension (s)	3.0			3.0	3.0		2.5	4.0				4.0
Lane Grp Cap (vph)	60		423	752	674	1599	97	1734				1920
v/s Ratio Prot	0.01		c0.24	c0.32	0.04		c0.08	0.30				
v/s Ratio Perm						0.11						c0.46
v/c Ratio	0.40		0.91	1.48	0.11	0.11	1.49	0.61				1.15
Uniform Delay, d1	62.5		47.0	51.7	28.3	0.0	62.4	24.5				39.7
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00	1.00				1.00
Incremental Delay, d2	4.3		22.5	224.3	0.1	0.1	269.1	0.7				72.8
Delay (s)	66.9		69.5	276.1	28.4	0.1	331.5	25.2				112.5
Level of Service	E		E	F	C	A	F	C				F
Approach Delay (s)		69.4			227.4			62.3				112.5
Approach LOS		E			F			E				F

Intersection Summary			
HCM 2000 Control Delay	126.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	132.2	Sum of lost time (s)	20.2
Intersection Capacity Utilization	112.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	42
Future Volume (vph)	42
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.97
Adj. Flow (vph)	43
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	4
Heavy Vehicles (%)	1%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

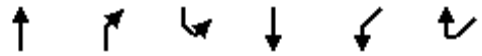
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	738	150	41	384	89	48	102	20	104	123	112
Future Volume (vph)	46	738	150	41	384	89	48	102	20	104	123	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	3.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00			1.00	0.99		1.00	
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	0.97			1.00	0.85		0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.98	1.00		0.98	
Satd. Flow (prot)	1735	1827	1531	1787	3458			1700	1449		1762	
Flt Permitted	0.42	1.00	1.00	0.09	1.00			0.73	1.00		0.72	
Satd. Flow (perm)	773	1827	1531	169	3458			1258	1449		1283	
Peak-hour factor, PHF	0.81	0.81	0.81	0.93	0.93	0.93	0.69	0.69	0.69	0.77	0.77	0.77
Adj. Flow (vph)	57	911	185	44	413	96	70	148	29	135	160	145
RTOR Reduction (vph)	0	0	87	0	22	0	0	0	19	0	19	0
Lane Group Flow (vph)	57	911	98	44	487	0	0	218	10	0	421	0
Confl. Peds. (#/hr)	1		2	2		1	2		1	1		2
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	10%	10%	10%	1%	1%	1%
Turn Type	D.P+P	NA	Perm	D.P+P	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	8		4	4			2		2	6		
Actuated Green, G (s)	45.4	43.5	43.5	46.4	42.5			28.1	28.1		28.1	
Effective Green, g (s)	47.4	44.5	44.5	48.4	43.5			29.1	29.1		29.1	
Actuated g/C Ratio	0.54	0.50	0.50	0.55	0.49			0.33	0.33		0.33	
Clearance Time (s)	5.0	5.0	5.0	4.0	5.0			5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	456	918	769	163	1699			413	476		421	
v/s Ratio Prot	0.01	c0.50		c0.01	0.14							
v/s Ratio Perm	0.06		0.06	0.14				0.17	0.01		c0.33	
v/c Ratio	0.12	0.99	0.13	0.27	0.29			0.53	0.02		1.00	
Uniform Delay, d1	10.0	21.8	11.7	18.8	13.3			24.1	20.1		29.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.1	27.7	0.1	0.9	0.1			1.2	0.0		43.2	
Delay (s)	10.1	49.5	11.8	19.7	13.4			25.3	20.1		72.9	
Level of Service	B	D	B	B	B			C	C		E	
Approach Delay (s)		41.5			13.9			24.7			72.9	
Approach LOS		D			B			C			E	

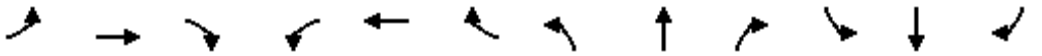
Intersection Summary			
HCM 2000 Control Delay	39.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	88.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	1090	631	201	3376	0	0
Future Volume (vph)	1090	631	201	3376	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.3	4.3	3.6	3.6		
Lane Util. Factor	0.91	1.00	1.00	0.95		
Frpb, ped/bikes	1.00	0.99	1.00	1.00		
Flpb, ped/bikes	1.00	1.00	1.00	1.00		
Frt	1.00	0.85	1.00	1.00		
Flt Protected	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	5085	1561	1770	3539		
Flt Permitted	1.00	1.00	0.95	1.00		
Satd. Flow (perm)	5085	1561	1770	3539		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1185	686	218	3670	0	0
RTOR Reduction (vph)	0	419	0	0	0	0
Lane Group Flow (vph)	1185	267	218	3670	0	0
Confl. Peds. (#/hr)		2	2			
Turn Type	NA	Perm	Prot	NA		
Protected Phases	2		1	1 2		
Permitted Phases		2				
Actuated Green, G (s)	19.7	19.7	30.4	60.0		
Effective Green, g (s)	20.7	20.7	31.4	55.7		
Actuated g/C Ratio	0.34	0.34	0.52	0.93		
Clearance Time (s)	5.3	5.3	4.6			
Vehicle Extension (s)	4.0	4.0	3.0			
Lane Grp Cap (vph)	1754	538	926	3285		
v/s Ratio Prot	0.23		0.12	c1.04		
v/s Ratio Perm		0.17				
v/c Ratio	0.68	0.50	0.24	1.12		
Uniform Delay, d1	16.8	15.5	7.8	2.1		
Progression Factor	1.00	1.00	1.00	1.00		
Incremental Delay, d2	2.1	3.2	0.1	57.5		
Delay (s)	18.9	18.8	7.9	59.7		
Level of Service	B	B	A	E		
Approach Delay (s)	18.8			56.8	0.0	
Approach LOS	B			E	A	

Intersection Summary			
HCM 2000 Control Delay	44.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.9
Intersection Capacity Utilization	96.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	241	1526	87	311	790	83	176	323	994	145	220	154
Future Volume (vph)	241	1526	87	311	790	83	176	323	994	145	220	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1735	3283		1770	3433		1634	3252	1429	1444	1743	1546
Flt Permitted	0.22	1.00		0.21	1.00		0.57	1.00	1.00	0.53	1.00	1.00
Satd. Flow (perm)	406	3283		392	3433		985	3252	1429	798	1743	1546
Peak-hour factor, PHF	0.86	0.95	0.84	0.81	0.98	0.87	0.88	0.95	0.96	0.73	0.98	0.70
Adj. Flow (vph)	280	1606	104	384	806	95	200	340	1035	199	224	220
RTOR Reduction (vph)	0	4	0	0	8	0	0	0	275	0	0	118
Lane Group Flow (vph)	280	1706	0	384	893	0	200	340	760	199	224	102
Confl. Peds. (#/hr)	7		4	4		7	6					6
Heavy Vehicles (%)	4%	9%	6%	2%	3%	5%	10%	11%	13%	25%	9%	2%
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA	Perm	D.P+P	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8			4			6		2	2		6
Actuated Green, G (s)	33.0	19.0		33.0	18.0		67.0	54.7	54.7	67.0	55.8	55.8
Effective Green, g (s)	33.0	19.0		33.0	18.0		67.0	54.7	54.7	67.0	55.8	55.8
Actuated g/C Ratio	0.28	0.16		0.28	0.15		0.56	0.46	0.46	0.56	0.46	0.46
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	277	519		268	514		610	1482	651	511	810	718
v/s Ratio Prot	0.13	c0.52		c0.17	0.26		0.03	0.10		c0.04	0.13	
v/s Ratio Perm	0.15			0.23			0.15		c0.53	0.18		0.07
v/c Ratio	1.01	3.29		1.43	1.74		0.33	0.23	1.17	0.39	0.28	0.14
Uniform Delay, d1	39.6	50.5		39.5	51.0		13.4	19.8	32.6	13.6	19.7	18.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	56.9	1034.0		214.9	340.2		0.1	0.4	91.1	0.2	0.8	0.4
Delay (s)	96.5	1084.5		254.4	391.2		13.5	20.2	123.7	13.8	20.6	18.8
Level of Service	F	F		F	F		B	C	F	B	C	B
Approach Delay (s)		945.5			350.3			87.4			17.9	
Approach LOS		F			F			F			B	

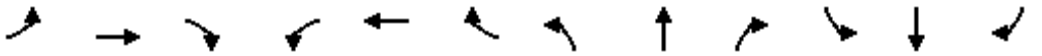
Intersection Summary			
HCM 2000 Control Delay	451.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.51		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	127.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	0
Turn Type					Prot	Perm
Protected Phases	4			8	2	
Permitted Phases						2
Actuated Green, G (s)						
Effective Green, g (s)						
Actuated g/C Ratio						
Clearance Time (s)						
Vehicle Extension (s)						
Lane Grp Cap (vph)						
v/s Ratio Prot						
v/s Ratio Perm						
v/c Ratio						
Uniform Delay, d1						
Progression Factor						
Incremental Delay, d2						
Delay (s)						
Level of Service						
Approach Delay (s)	0.0			0.0	0.0	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	0.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.00		
Actuated Cycle Length (s)	82.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	0.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



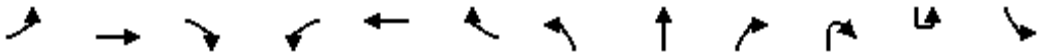
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	89	773	311	6	512	76	6	5	3	153	127	64
Future Volume (vph)	89	773	311	6	512	76	6	5	3	153	127	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	0.96		1.00	0.98			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00		0.97	1.00
Satd. Flow (prot)	1770	3387		1770	3470			1810	1583		1813	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.97	1.00		0.97	1.00
Satd. Flow (perm)	1770	3387		1770	3470			1810	1583		1813	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	97	840	338	7	557	83	7	5	3	166	138	70
RTOR Reduction (vph)	0	20	0	0	6	0	0	0	3	0	0	55
Lane Group Flow (vph)	97	1158	0	7	634	0	0	12	0	0	304	15
Turn Type	Prot	NA		Prot	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases									4			3
Actuated Green, G (s)	13.2	91.1		0.8	78.7			11.7	11.7		32.4	32.4
Effective Green, g (s)	13.2	91.1		0.8	78.7			11.7	11.7		32.4	32.4
Actuated g/C Ratio	0.08	0.58		0.01	0.50			0.07	0.07		0.21	0.21
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	5.0		3.0	5.0			5.0	5.0		5.0	5.0
Lane Grp Cap (vph)	149	1977		9	1750			135	118		376	328
v/s Ratio Prot	c0.05	c0.34		0.00	0.18			c0.01			c0.17	
v/s Ratio Perm									0.00			0.01
v/c Ratio	0.65	0.59		0.78	0.36			0.09	0.00		0.81	0.04
Uniform Delay, d1	69.2	20.5		77.5	23.4			67.2	66.7		58.8	49.4
Progression Factor	1.00	1.00		1.17	0.77			0.96	1.00		1.00	1.00
Incremental Delay, d2	9.8	1.3		133.6	0.2			0.6	0.0		13.6	0.1
Delay (s)	78.9	21.8		224.1	18.2			65.0	66.8		72.5	49.5
Level of Service	E	C		F	B			E	E		E	D
Approach Delay (s)		26.1			20.4			65.3			68.2	
Approach LOS		C			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	31.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	156.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

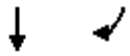
Movement	EBT	EBR	WBL2	WBT	WBR	NBT	NBR	SBL	SBT	SBR	SBR2
Lane Configurations											
Traffic Volume (vph)	2	443	22	2	42	1627	16	46	1779	0	11
Future Volume (vph)	2	443	22	2	42	1627	16	46	1779	0	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00			1.00		0.95	1.00	1.00	0.95	1.00	
Frpb, ped/bikes	1.00			1.00		1.00	1.00	1.00	1.00	0.96	
Flpb, ped/bikes	1.00			1.00		1.00	1.00	1.00	1.00	1.00	
Frt	0.87			0.91		1.00	0.85	1.00	1.00	0.85	
Flt Protected	1.00			0.98		1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1591			854		3438	808	902	3471	915	
Flt Permitted	1.00			0.69		1.00	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1591			597		3438	808	902	3471	915	
Peak-hour factor, PHF	0.92	0.74	0.92	0.92	0.92	0.93	0.92	0.92	0.89	0.92	0.75
Adj. Flow (vph)	2	599	24	2	46	1749	17	50	1999	0	15
RTOR Reduction (vph)	0	0	0	0	0	0	10	0	0	7	0
Lane Group Flow (vph)	601	0	0	72	0	1749	7	50	1999	8	0
Confl. Peds. (#/hr)											6
Heavy Vehicles (%)	100%	3%	100%	100%	100%	5%	100%	100%	4%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	100	0
Turn Type	NA		Perm	NA		NA	Perm	Prot	NA	Perm	
Protected Phases	3			4		2		1	6		
Permitted Phases			4				2			6	
Actuated Green, G (s)	46.0			15.0		67.0	67.0	8.0	80.0	80.0	
Effective Green, g (s)	46.0			15.0		67.0	67.0	8.0	80.0	80.0	
Actuated g/C Ratio	0.29			0.10		0.43	0.43	0.05	0.51	0.51	
Clearance Time (s)	5.0			5.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0			3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	469			57		1476	347	46	1780	469	
v/s Ratio Prot	c0.38					c0.51		0.06	c0.58		
v/s Ratio Perm				c0.12			0.01			0.01	
v/c Ratio	1.28			1.26		1.18	0.02	1.09	1.12	0.02	
Uniform Delay, d1	55.0			70.5		44.5	25.6	74.0	38.0	18.7	
Progression Factor	1.08			1.00		0.90	1.00	1.45	0.40	1.00	
Incremental Delay, d2	140.8			205.7		83.9	0.0	65.4	56.2	0.0	
Delay (s)	200.4			276.2		123.9	25.6	172.9	71.4	18.7	
Level of Service	F			F		F	C	F	E	B	
Approach Delay (s)	200.4			276.2		122.9			73.5		
Approach LOS	F			F		F			E		

Intersection Summary			
HCM 2000 Control Delay	113.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.24		
Actuated Cycle Length (s)	156.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	85.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



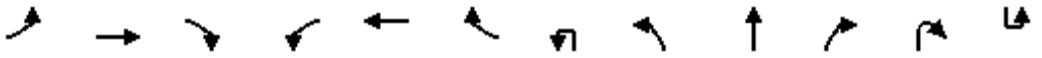
Movement	EBL	EBT	EBR2	WBL	WBT	WBR	NBL	NBT	NBR	NBR2	SBU	SBL2
Lane Configurations												
Traffic Volume (vph)	489	1168	1000	1032	670	202	251	900	784	16	11	263
Future Volume (vph)	489	1168	1000	1032	670	202	251	900	784	16	11	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	11	11	11	11	12	11	11	12	12	12
Total Lost time (s)	3.0	3.0	2.0	3.0	3.5		3.0	3.5	4.0			3.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		1.00	0.95	1.00			1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	0.99		1.00	1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00			1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00			0.95
Satd. Flow (prot)	1478	3061	1369	3319	3277		1736	3355	1474			1736
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00			0.95
Satd. Flow (perm)	1478	3061	1369	3319	3277		1736	3355	1474			1736
Peak-hour factor, PHF	0.84	0.84	0.84	0.94	0.94	0.94	0.95	0.95	0.95	0.92	0.93	0.93
Adj. Flow (vph)	582	1390	1190	1098	713	215	264	947	825	17	12	283
RTOR Reduction (vph)	0	0	0	0	18	0	0	0	42	0	0	0
Lane Group Flow (vph)	582	1390	1190	1098	910	0	264	947	800	0	0	295
Confl. Peds. (#/hr)	15					15	7		8			8
Heavy Vehicles (%)	14%	14%	14%	2%	2%	2%	4%	4%	4%	100%	4%	4%
Turn Type	Prot	NA	Free	Prot	NA		Prot	NA	pt+ov		Prot	Prot
Protected Phases	7	4		3	8		5	2	2 3		1	1
Permitted Phases			Free									
Actuated Green, G (s)	35.0	46.0	156.0	31.0	42.0		16.0	41.0	77.0			18.0
Effective Green, g (s)	37.0	48.0	156.0	33.0	43.5		18.0	42.5	78.0			20.0
Actuated g/C Ratio	0.24	0.31	1.00	0.21	0.28		0.12	0.27	0.50			0.13
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0				5.0
Vehicle Extension (s)	3.0	3.0		4.0	3.0		3.0	5.0				3.0
Lane Grp Cap (vph)	350	941	1369	702	913		200	914	737			222
v/s Ratio Prot	c0.39	c0.45		c0.33	0.28		c0.15	0.28	0.54			0.17
v/s Ratio Perm			0.87									
v/c Ratio	1.66	1.48	0.87	1.56	1.00		1.32	1.04	1.09			1.33
Uniform Delay, d1	59.5	54.0	0.0	61.5	56.2		69.0	56.8	39.0			68.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00			1.19
Incremental Delay, d2	310.7	220.5	7.7	260.8	28.8		174.6	39.5	58.8			150.9
Delay (s)	370.2	274.5	7.7	322.3	84.9		243.6	96.2	97.8			232.0
Level of Service	F	F	A	F	F		F	F	F			F
Approach Delay (s)		191.7			213.6			115.8				
Approach LOS		F			F			F				

Intersection Summary			
HCM 2000 Control Delay	176.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.47		
Actuated Cycle Length (s)	156.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	121.1%	ICU Level of Service	H
Analysis Period (min)	15		
Description: INT 27			
DATA FROM RENTON			
c Critical Lane Group			



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1662	317
Future Volume (vph)	1662	317
Ideal Flow (vphpl)	1900	1900
Lane Width	11	12
Total Lost time (s)	3.5	3.0
Lane Util. Factor	0.91	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	4821	1531
Flt Permitted	1.00	1.00
Satd. Flow (perm)	4821	1531
Peak-hour factor, PHF	0.93	0.93
Adj. Flow (vph)	1787	341
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	1787	341
Confl. Peds. (#/hr)		7
Heavy Vehicles (%)	4%	4%
Turn Type	NA	Free
Protected Phases	6	
Permitted Phases		Free
Actuated Green, G (s)	43.0	156.0
Effective Green, g (s)	44.5	156.0
Actuated g/C Ratio	0.29	1.00
Clearance Time (s)	5.0	
Vehicle Extension (s)	5.0	
Lane Grp Cap (vph)	1375	1531
v/s Ratio Prot	c0.37	
v/s Ratio Perm		0.22
v/c Ratio	1.30	0.22
Uniform Delay, d1	55.8	0.0
Progression Factor	1.22	1.00
Incremental Delay, d2	135.3	0.0
Delay (s)	203.5	0.0
Level of Service	F	A
Approach Delay (s)	178.3	
Approach LOS	F	

Intersection Summary

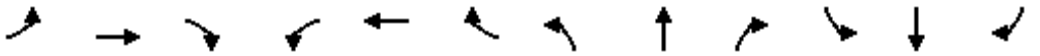


Movement	EBL	EBT	EBR2	WBL	WBT	WBR2	NBU	NBL2	NBT	NBR	NBR2	SBU
Lane Configurations												
Traffic Volume (vph)	443	396	90	125	214	210	83	172	1254	118	42	15
Future Volume (vph)	443	396	90	125	214	210	83	172	1254	118	42	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	11	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0		4.0	4.0	3.0		4.0	3.0	4.0		
Lane Util. Factor	0.97	1.00		1.00	1.00	1.00		1.00	0.95	1.00		
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98		1.00	1.00	0.97		
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		
Frt	1.00	0.97		1.00	1.00	0.85		1.00	1.00	0.85		
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00		
Satd. Flow (prot)	2968	1558		1770	1863	1555		1723	3406	1499		
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00		
Satd. Flow (perm)	2968	1558		1770	1863	1555		1723	3406	1499		
Peak-hour factor, PHF	0.90	0.90	0.90	0.95	0.95	0.95	1.00	0.92	0.92	0.92	0.92	1.00
Adj. Flow (vph)	492	440	100	132	225	221	83	187	1363	128	46	15
RTOR Reduction (vph)	0	82	0	0	0	0	0	0	0	75	0	0
Lane Group Flow (vph)	492	458	0	132	225	221	0	270	1363	99	0	0
Confl. Peds. (#/hr)	19		13	13		19		14		8		
Heavy Vehicles (%)	18%	18%	18%	2%	2%	2%	2%	6%	6%	6%	2%	2%
Turn Type	Prot	NA		Prot	NA	Free	Prot	Prot	NA	Perm		Prot
Protected Phases	7	4		3	8		5	5	2			1
Permitted Phases						Free				2		
Actuated Green, G (s)	32.9	48.0		11.0	26.1	156.0		17.0	57.0	57.0		
Effective Green, g (s)	33.9	49.0		12.0	27.1	156.0		18.0	59.0	58.0		
Actuated g/C Ratio	0.22	0.31		0.08	0.17	1.00		0.12	0.38	0.37		
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0	5.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0			4.0	3.0	3.0		
Lane Grp Cap (vph)	644	489		136	323	1555		198	1288	557		
v/s Ratio Prot	0.17	c0.29		c0.07	0.12			c0.16	0.40			
v/s Ratio Perm						0.14				0.07		
v/c Ratio	0.76	0.94		0.97	0.70	0.14		1.36	1.06	0.18		
Uniform Delay, d1	57.3	52.0		71.8	60.6	0.0		69.0	48.5	33.0		
Progression Factor	0.92	0.87		1.00	1.00	1.00		0.47	0.28	0.10		
Incremental Delay, d2	4.5	22.7		67.9	6.4	0.2		166.6	28.3	0.1		
Delay (s)	57.4	68.0		139.7	67.0	0.2		198.8	41.8	3.2		
Level of Service	E	E		F	E	A		F	D	A		
Approach Delay (s)		63.0			58.1				61.5			
Approach LOS		E			E				E			

Intersection Summary			
HCM 2000 Control Delay	95.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	156.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	105.1%	ICU Level of Service	G
Analysis Period (min)	15		
Description: INT 30			
DATA FROM RENTON			
c Critical Lane Group			

Movement	SBL2	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	458	1501	213	46
Future Volume (vph)	458	1501	213	46
Ideal Flow (vphpl)	1900	1900	1900	1900
Lane Width	12	11	12	12
Total Lost time (s)	4.0	3.0	4.0	
Lane Util. Factor	0.97	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	
Flpb, ped/bikes	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	
Satd. Flow (prot)	3338	3323	1494	
Flt Permitted	0.95	1.00	1.00	
Satd. Flow (perm)	3338	3323	1494	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	498	1632	232	50
RTOR Reduction (vph)	0	0	72	0
Lane Group Flow (vph)	513	1632	210	0
Confl. Peds. (#/hr)	8		14	
Heavy Vehicles (%)	5%	5%	5%	2%
Turn Type	Prot	NA	Perm	
Protected Phases	1	6		
Permitted Phases			6	
Actuated Green, G (s)	20.0	60.0	60.0	
Effective Green, g (s)	21.0	62.0	61.0	
Actuated g/C Ratio	0.13	0.40	0.39	
Clearance Time (s)	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	
Lane Grp Cap (vph)	449	1320	584	
v/s Ratio Prot	0.15	c0.49		
v/s Ratio Perm			0.14	
v/c Ratio	1.14	1.24	0.36	
Uniform Delay, d1	67.5	47.0	33.6	
Progression Factor	1.00	1.00	1.00	
Incremental Delay, d2	87.7	113.1	1.7	
Delay (s)	155.2	160.1	35.4	
Level of Service	F	F	D	
Approach Delay (s)		144.5		
Approach LOS		F		

Intersection Summary



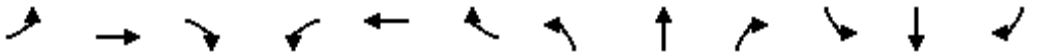
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	1796	223	141	1204	74	127	45	92	292	129	71
Future Volume (vph)	43	1796	223	141	1204	74	127	45	92	292	129	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	11	12	11	12	12	11	12	12	11	12
Total Lost time (s)	3.0	3.5	2.5	3.0	3.5		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.91	0.91		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.92		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.99		0.95	1.00	
Satd. Flow (prot)	1719	3323	1454	1752	3356		1591	2927		1501	1434	
Flt Permitted	0.19	1.00	1.00	0.12	1.00		0.30	0.77		0.62	1.00	
Satd. Flow (perm)	346	3323	1454	224	3356		507	2272		979	1434	
Peak-hour factor, PHF	0.96	0.96	0.96	0.91	0.91	0.91	0.88	0.88	0.88	0.74	0.74	0.74
Adj. Flow (vph)	45	1871	232	155	1323	81	144	51	105	395	174	96
RTOR Reduction (vph)	0	0	0	0	3	0	0	66	0	0	18	0
Lane Group Flow (vph)	45	1871	232	155	1401	0	98	136	0	395	252	0
Confl. Peds. (#/hr)	2		4	4		2	14		4	4		14
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	3%	3%	3%	20%	20%	20%
Turn Type	custom	NA	Free	custom	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	5	2 9		1	6 11		3	8		7	4	
Permitted Phases	6		Free	2			4			8		
Actuated Green, G (s)	33.1	59.9	120.0	40.8	65.2		30.3	26.3		30.3	25.3	
Effective Green, g (s)	37.1	61.4	120.0	44.8	66.7		34.3	30.3		34.3	27.3	
Actuated g/C Ratio	0.31	0.51	1.00	0.37	0.56		0.29	0.25		0.29	0.23	
Clearance Time (s)	5.0			5.0			5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0			3.0			2.5	3.0		3.0	3.0	
Lane Grp Cap (vph)	181	1700	1454	233	1865		208	611		327	326	
v/s Ratio Prot	0.01	c0.56		c0.07	0.42		0.03	0.01		c0.11	0.18	
v/s Ratio Perm	0.06		0.16	0.18			0.11	0.04		c0.23		
v/c Ratio	0.25	1.10	0.16	0.67	0.75		0.47	0.22		1.21	0.77	
Uniform Delay, d1	29.4	29.3	0.0	29.7	20.3		33.4	35.5		41.1	43.5	
Progression Factor	1.27	0.18	1.00	0.73	1.31		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	46.3	0.0	3.3	0.7		1.2	0.2		118.8	10.9	
Delay (s)	37.4	51.4	0.0	25.0	27.4		34.7	35.7		159.9	54.3	
Level of Service	D	D	A	C	C		C	D		F	D	
Approach Delay (s)		45.6			27.2			35.4			117.0	
Approach LOS		D			C			D			F	

Intersection Summary			
HCM 2000 Control Delay	49.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	97.3%	ICU Level of Service	F
Analysis Period (min)	15		

Description: INT 28
DATA FROM RENTON
c Critical Lane Group

HCM 6th Signalized Intersection Summary
129: Shopping Ctr/Lake Av S #A #B #C & Grady Wy #A/Grady Wy #B #C

07/20/2020



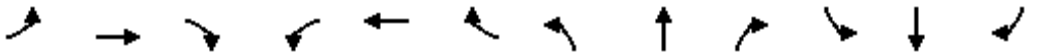
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	1953	269	22	1344	37	289	3	39	64	3	241
Future Volume (veh/h)	42	1953	269	22	1344	37	289	3	39	64	3	241
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1841	1870	1900	1870	537	1870	1885	1767	418	1900	1737
Adj Flow Rate, veh/h	50	2034	0	27	1430	0	344	12	0	85	12	339
Peak Hour Factor	0.84	0.96	0.61	0.83	0.94	0.80	0.84	0.25	0.58	0.75	0.25	0.71
Percent Heavy Veh, %	0	4	2	0	2	92	2	1	9	100	0	11
Cap, veh/h	166	1767		111	1770		324	9		151	35	528
Arrive On Green	0.04	0.51	0.00	0.01	0.16	0.00	0.37	0.37	0.00	0.37	0.37	0.37
Sat Flow, veh/h	1810	3497	1585	1810	3647	0	724	25	1497	315	97	1439
Grp Volume(v), veh/h	50	2034	0	27	1430	0	356	0	0	436	0	0
Grp Sat Flow(s),veh/h/ln	1810	1749	1585	1810	1777	0	749	0	1497	1851	0	0
Q Serve(g_s), s	1.6	60.6	0.0	0.9	46.5	0.0	20.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.6	60.6	0.0	0.9	46.5	0.0	44.0	0.0	0.0	23.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	0.97		1.00	0.19		0.78
Lane Grp Cap(c), veh/h	166	1767		111	1770		334	0		714	0	0
V/C Ratio(X)	0.30	1.15		0.24	0.81		1.07	0.00		0.61	0.00	0.00
Avail Cap(c_a), veh/h	177	1767		135	1770		334	0		714	0	0
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.00	0.62	0.62	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	23.8	29.7	0.0	29.1	44.6	0.0	45.2	0.0	0.0	31.9	0.0	0.0
Incr Delay (d2), s/veh	0.1	68.7	0.0	0.7	2.6	0.0	68.1	0.0	0.0	1.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	40.8	0.0	0.4	22.8	0.0	16.4	0.0	0.0	10.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.9	98.4	0.0	29.8	47.2	0.0	113.4	0.0	0.0	33.4	0.0	0.0
LnGrp LOS	C	F		C	D		F	A		C	A	A
Approach Vol, veh/h		2084	A		1457	A		356	A		436	
Approach Delay, s/veh		96.6			46.9			113.4			33.4	
Approach LOS		F			D			F			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.4	64.6		48.0	8.2	63.8		48.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	4.0	58.0		43.0	4.0	58.0		43.0				
Max Q Clear Time (g_c+I1), s	2.9	62.6		25.9	3.6	48.5		46.0				
Green Ext Time (p_c), s	0.0	0.0		1.4	0.0	5.8		0.0				

Intersection Summary		
HCM 6th Ctrl Delay	74.9	
HCM 6th LOS	E	

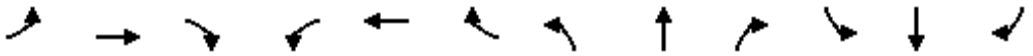
Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	1953	269	22	1344	37	289	3	39	64	3	241
Future Volume (vph)	42	1953	269	22	1344	37	289	3	39	64	3	241
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	11	12	11	12	12	11	12	12	12	12
Total Lost time (s)	4.0	4.0	3.0	4.0	4.0			4.0	3.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00			1.00	0.99		1.00	
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	1.00			1.00	0.85		0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.99	
Satd. Flow (prot)	1805	3355	1499	1805	3309			1718	1462		1314	
Flt Permitted	0.07	1.00	1.00	0.07	1.00			0.36	1.00		0.65	
Satd. Flow (perm)	127	3355	1499	125	3309			656	1462		867	
Peak-hour factor, PHF	0.84	0.96	0.61	0.83	0.94	0.80	0.84	0.25	0.58	0.75	0.25	0.71
Adj. Flow (vph)	50	2034	441	27	1430	46	344	12	67	85	12	339
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	0	0	32	0
Lane Group Flow (vph)	50	2034	441	27	1474	0	0	356	67	0	404	0
Confl. Peds. (#/hr)	10		1	1		10			5	5		
Heavy Vehicles (%)	0%	4%	2%	0%	2%	92%	2%	1%	9%	100%	0%	11%
Turn Type	D.P+P	NA	Free	D.P+P	NA		Perm	NA	Free	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		Free	2			8		Free	4		
Actuated Green, G (s)	62.0	59.6	120.0	62.0	58.8			43.0	120.0		43.0	
Effective Green, g (s)	64.0	60.6	120.0	64.0	59.8			44.0	120.0		44.0	
Actuated g/C Ratio	0.53	0.51	1.00	0.53	0.50			0.37	1.00		0.37	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)	3.0	4.0		3.0	4.0			3.0			3.0	
Lane Grp Cap (vph)	126	1694	1499	114	1648			240	1462		317	
v/s Ratio Prot	0.01	c0.61		0.01	0.45							
v/s Ratio Perm	0.20		c0.29	0.12				c0.54	0.05		0.47	
v/c Ratio	0.40	1.20	0.29	0.24	0.89			1.48	0.05		1.27	
Uniform Delay, d1	21.7	29.7	0.0	26.8	27.2			38.0	0.0		38.0	
Progression Factor	1.00	1.00	1.00	0.96	0.51			1.00	1.00		0.96	
Incremental Delay, d2	2.1	96.3	0.5	0.8	5.8			238.5	0.1		145.4	
Delay (s)	23.7	126.0	0.5	26.4	19.6			276.5	0.1		182.0	
Level of Service	C	F	A	C	B			F	A		F	
Approach Delay (s)		102.0			19.7			232.7			182.0	
Approach LOS		F			B			F			F	

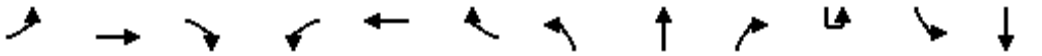
Intersection Summary			
HCM 2000 Control Delay	95.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.30		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	99.3%	ICU Level of Service	F
Analysis Period (min)	15		
Description: INT 28A			
DATA FROM RENTON			
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	171	958	1077	335	866	57	527	494	154	109	780	61
Future Volume (vph)	171	958	1077	335	866	57	527	494	154	109	780	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	2.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		0.97	0.95		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1703	3406	1504	3367	3434		3433	3400		1805	5124	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1703	3406	1504	3367	3434		3433	3400		1805	5124	
Peak-hour factor, PHF	0.90	0.90	0.90	0.91	0.91	0.91	0.97	0.97	0.97	0.81	0.81	0.81
Adj. Flow (vph)	190	1064	1197	368	952	63	543	509	159	135	963	75
RTOR Reduction (vph)	0	0	0	0	4	0	0	24	0	0	8	0
Lane Group Flow (vph)	190	1064	1197	368	1011	0	543	644	0	135	1030	0
Confl. Peds. (#/hr)	9		2	2		9	5		3	3		5
Heavy Vehicles (%)	6%	6%	6%	4%	4%	4%	2%	2%	2%	0%	0%	0%
Turn Type	Prot	NA	Free	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	2	6		5	1		3	8		7	4	
Permitted Phases			Free									
Actuated Green, G (s)	15.7	40.2	120.0	13.8	38.3		20.0	33.5		12.5	26.0	
Effective Green, g (s)	17.7	42.2	120.0	15.8	40.3		22.0	35.5		14.5	28.0	
Actuated g/C Ratio	0.15	0.35	1.00	0.13	0.34		0.18	0.30		0.12	0.23	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		3.0	3.0		2.0	2.0	
Lane Grp Cap (vph)	251	1197	1504	443	1153		629	1005		218	1195	
v/s Ratio Prot	0.11	c0.31		0.11	c0.29		c0.16	0.19		0.07	0.20	
v/s Ratio Perm			c0.80									
v/c Ratio	0.76	0.89	0.80	0.83	0.88		0.86	0.64		0.62	0.86	
Uniform Delay, d1	49.1	36.7	0.0	50.8	37.5		47.5	36.7		50.1	44.1	
Progression Factor	0.97	0.95	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.1	1.1	0.4	12.0	9.5		11.8	1.4		3.7	6.4	
Delay (s)	48.7	36.0	0.4	62.8	47.0		59.3	38.1		53.8	50.5	
Level of Service	D	D	A	E	D		E	D		D	D	
Approach Delay (s)		19.6			51.2			47.6			50.9	
Approach LOS		B			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	38.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	81.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



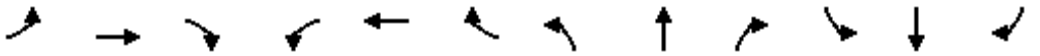
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	20	0	388	1093	71	174	132	975	0	1	0	2171
Future Volume (vph)	20	0	388	1093	71	174	132	975	0	1	0	2171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	6.3	6.3	4.0	4.7	4.7				4.7
Lane Util. Factor	1.00		1.00	0.97	1.00	1.00	1.00	0.95				0.91
Frpb, ped/bikes	1.00		1.00	1.00	1.00	1.00	1.00	1.00				1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00	1.00	1.00				1.00
Frt	1.00		0.85	1.00	1.00	0.85	1.00	1.00				1.00
Flt Protected	0.95		1.00	0.95	1.00	1.00	0.95	1.00				1.00
Satd. Flow (prot)	1787		1599	3467	1881	1599	1770	3539				5118
Flt Permitted	0.95		1.00	0.95	1.00	1.00	0.95	1.00				0.94
Satd. Flow (perm)	1787		1599	3467	1881	1599	1770	3539				4809
Peak-hour factor, PHF	0.82	0.82	0.82	0.98	0.98	0.98	0.91	0.91	0.91	0.97	0.97	0.97
Adj. Flow (vph)	24	0	473	1115	72	178	145	1071	0	1	0	2238
RTOR Reduction (vph)	0	0	82	0	0	0	0	0	0	0	0	1
Lane Group Flow (vph)	24	0	391	1115	72	178	145	1071	0	0	0	2281
Confl. Peds. (#/hr)	2			4					2			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	1%	1%	1%
Turn Type	Prot		pt+ov	Prot	NA	Free	Prot	NA		Perm		NA
Protected Phases	7		4 5	3	8		5	2				6
Permitted Phases						Free				6		
Actuated Green, G (s)	3.5		36.0	34.7	53.4	147.2	8.3	72.8				58.8
Effective Green, g (s)	4.5		37.0	34.7	53.4	147.2	9.3	73.8				59.8
Actuated g/C Ratio	0.03		0.25	0.24	0.36	1.00	0.06	0.50				0.41
Clearance Time (s)	5.5			6.3	6.3		5.7	5.7				5.7
Vehicle Extension (s)	3.0			3.0	3.0		2.5	4.0				4.0
Lane Grp Cap (vph)	54		401	817	682	1599	111	1774				1953
v/s Ratio Prot	0.01		c0.24	c0.32	0.04		c0.08	0.30				
v/s Ratio Perm						0.11						c0.47
v/c Ratio	0.44		0.98	1.36	0.11	0.11	1.31	0.60				1.17
Uniform Delay, d1	70.1		54.7	56.2	31.1	0.0	68.9	26.2				43.7
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00	1.00				1.00
Incremental Delay, d2	5.7		38.3	172.0	0.1	0.1	188.4	0.7				81.5
Delay (s)	75.9		92.9	228.3	31.1	0.1	257.4	26.9				125.2
Level of Service	E		F	F	C	A	F	C				F
Approach Delay (s)		92.1			188.1			54.4				125.2
Approach LOS		F			F			D				F

Intersection Summary			
HCM 2000 Control Delay	122.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.21		
Actuated Cycle Length (s)	147.2	Sum of lost time (s)	20.2
Intersection Capacity Utilization	114.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	42
Future Volume (vph)	42
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.97
Adj. Flow (vph)	43
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	4
Heavy Vehicles (%)	1%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

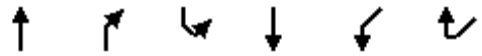
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	761	158	57	384	89	48	102	56	104	123	112
Future Volume (vph)	46	761	158	57	384	89	48	102	56	104	123	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	3.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00			1.00	0.99		1.00	
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	0.97			1.00	0.85		0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.98	1.00		0.98	
Satd. Flow (prot)	1735	1827	1531	1787	3458			1700	1449		1762	
Flt Permitted	0.42	1.00	1.00	0.09	1.00			0.72	1.00		0.70	
Satd. Flow (perm)	775	1827	1531	166	3458			1239	1449		1249	
Peak-hour factor, PHF	0.81	0.81	0.81	0.93	0.93	0.93	0.69	0.69	0.69	0.77	0.77	0.77
Adj. Flow (vph)	57	940	195	61	413	96	70	148	81	135	160	145
RTOR Reduction (vph)	0	0	90	0	22	0	0	0	56	0	20	0
Lane Group Flow (vph)	57	940	105	61	487	0	0	218	25	0	420	0
Confl. Peds. (#/hr)	1		2	2		1	2		1	1		2
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	10%	10%	10%	1%	1%	1%
Turn Type	D.P+P	NA	Perm	D.P+P	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	8		4	4			2		2	6		
Actuated Green, G (s)	47.2	44.3	44.3	48.2	43.3			27.0	27.0		27.0	
Effective Green, g (s)	49.2	45.3	45.3	50.2	44.3			28.0	28.0		28.0	
Actuated g/C Ratio	0.55	0.51	0.51	0.56	0.50			0.31	0.31		0.31	
Clearance Time (s)	5.0	5.0	5.0	4.0	5.0			5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	480	927	777	182	1717			388	454		392	
v/s Ratio Prot	0.01	c0.51		c0.02	0.14							
v/s Ratio Perm	0.06		0.07	0.17				0.18	0.02		c0.34	
v/c Ratio	0.12	1.01	0.14	0.34	0.28			0.56	0.06		1.07	
Uniform Delay, d1	9.4	22.0	11.6	18.7	13.2			25.5	21.4		30.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.1	33.1	0.1	1.1	0.1			1.9	0.1		65.9	
Delay (s)	9.5	55.0	11.7	19.8	13.2			27.4	21.4		96.5	
Level of Service	A	E	B	B	B			C	C		F	
Approach Delay (s)		45.8			13.9			25.7			96.5	
Approach LOS		D			B			C			F	

Intersection Summary			
HCM 2000 Control Delay	45.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	89.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	1108	631	205	3447	0	0
Future Volume (vph)	1108	631	205	3447	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.3	4.3	3.6	3.6		
Lane Util. Factor	0.91	1.00	1.00	0.95		
Frpb, ped/bikes	1.00	0.99	1.00	1.00		
Flpb, ped/bikes	1.00	1.00	1.00	1.00		
Frt	1.00	0.85	1.00	1.00		
Flt Protected	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	5085	1561	1770	3539		
Flt Permitted	1.00	1.00	0.95	1.00		
Satd. Flow (perm)	5085	1561	1770	3539		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1204	686	223	3747	0	0
RTOR Reduction (vph)	0	415	0	0	0	0
Lane Group Flow (vph)	1204	271	223	3747	0	0
Confl. Peds. (#/hr)		2	2			
Turn Type	NA	Perm	Prot	NA		
Protected Phases	2		1	1 2		
Permitted Phases		2				
Actuated Green, G (s)	19.7	19.7	30.4	60.0		
Effective Green, g (s)	20.7	20.7	31.4	55.7		
Actuated g/C Ratio	0.34	0.34	0.52	0.93		
Clearance Time (s)	5.3	5.3	4.6			
Vehicle Extension (s)	4.0	4.0	3.0			
Lane Grp Cap (vph)	1754	538	926	3285		
v/s Ratio Prot	0.24		0.13	c1.06		
v/s Ratio Perm		0.17				
v/c Ratio	0.69	0.50	0.24	1.14		
Uniform Delay, d1	16.9	15.6	7.8	2.1		
Progression Factor	1.00	1.00	1.00	1.00		
Incremental Delay, d2	2.2	3.4	0.1	67.5		
Delay (s)	19.1	18.9	7.9	69.6		
Level of Service	B	B	A	E		
Approach Delay (s)	19.0			66.1	0.0	
Approach LOS	B			E	A	

Intersection Summary			
HCM 2000 Control Delay	50.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.9
Intersection Capacity Utilization	98.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	506	99	226	968	33	62
Future Volume (vph)	506	99	226	968	33	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.99		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3282		1770	3539	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3282		1770	3539	1770	1583
Peak-hour factor, PHF	0.86	0.86	0.95	0.95	0.70	0.70
Adj. Flow (vph)	588	115	238	1019	47	89
RTOR Reduction (vph)	9	0	0	0	0	60
Lane Group Flow (vph)	694	0	238	1019	47	29
Confl. Peds. (#/hr)		22	22		9	3
Heavy Vehicles (%)	6%	6%	2%	2%	2%	2%
Turn Type	NA		Prot	NA	Prot	pt+ov
Protected Phases	2		1	6	3	1 8
Permitted Phases						
Actuated Green, G (s)	71.5		21.5	97.5	13.5	39.5
Effective Green, g (s)	71.5		21.5	97.5	13.5	39.5
Actuated g/C Ratio	0.60		0.18	0.81	0.11	0.33
Clearance Time (s)	4.5		4.5	4.5	4.5	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	1955		317	2875	199	521
v/s Ratio Prot	0.21		c0.13	c0.29	c0.03	0.02
v/s Ratio Perm						
v/c Ratio	0.35		0.75	0.35	0.24	0.06
Uniform Delay, d1	12.4		46.7	3.0	48.5	27.5
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5		9.6	0.3	0.6	0.0
Delay (s)	12.9		56.3	3.3	49.2	27.6
Level of Service	B		E	A	D	C
Approach Delay (s)	12.9			13.3	35.0	
Approach LOS	B			B	D	

Intersection Summary			
HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	47.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	506	111	226	968	33	62
Future Volume (vph)	506	111	226	968	33	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.99		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.97		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3215		1770	3539	1770	1385
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3215		1770	3539	1770	1385
Peak-hour factor, PHF	0.86	0.86	0.95	0.95	0.70	0.70
Adj. Flow (vph)	588	129	238	1019	47	89
RTOR Reduction (vph)	11	0	0	0	0	60
Lane Group Flow (vph)	706	0	238	1019	47	29
Confl. Peds. (#/hr)		22	22		9	3
Heavy Vehicles (%)	6%	16%	2%	2%	2%	2%
Parking (#/hr)						5
Turn Type	NA		Prot	NA	Prot	pt+ov
Protected Phases	2		1	6	3	1 8
Permitted Phases						
Actuated Green, G (s)	71.5		21.5	97.5	13.5	39.5
Effective Green, g (s)	71.5		21.5	97.5	13.5	39.5
Actuated g/C Ratio	0.60		0.18	0.81	0.11	0.33
Clearance Time (s)	4.5		4.5	4.5	4.5	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	1915		317	2875	199	455
v/s Ratio Prot	c0.22		c0.13	0.29	c0.03	0.02
v/s Ratio Perm						
v/c Ratio	0.37		0.75	0.35	0.24	0.06
Uniform Delay, d1	12.6		46.7	3.0	48.5	27.6
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5		9.6	0.3	0.6	0.1
Delay (s)	13.1		56.3	3.3	49.2	27.6
Level of Service	B		E	A	D	C
Approach Delay (s)	13.1			13.3	35.1	
Approach LOS	B			B	D	

Intersection Summary			
HCM 2000 Control Delay	14.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	47.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	834	80	113	1090	85	153
Future Volume (vph)	834	80	113	1090	85	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.99		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3460		1787	3574	1787	1599
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3460		1787	3574	1787	1599
Peak-hour factor, PHF	0.92	0.92	0.91	0.91	0.88	0.88
Adj. Flow (vph)	907	87	124	1198	97	174
RTOR Reduction (vph)	4	0	0	0	0	59
Lane Group Flow (vph)	990	0	124	1198	97	115
Confl. Peds. (#/hr)		36	36		9	12
Heavy Vehicles (%)	2%	2%	1%	1%	1%	1%
Turn Type	NA		Prot	NA	Prot	pt+ov
Protected Phases	2		1	6	3	1 8
Permitted Phases						
Actuated Green, G (s)	75.6		13.6	93.7	17.3	35.4
Effective Green, g (s)	75.6		13.6	93.7	17.3	35.4
Actuated g/C Ratio	0.63		0.11	0.78	0.14	0.29
Clearance Time (s)	4.5		4.5	4.5	4.5	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	2179		202	2790	257	471
v/s Ratio Prot	c0.29		c0.07	0.34	c0.05	0.07
v/s Ratio Perm						
v/c Ratio	0.45		0.61	0.43	0.38	0.25
Uniform Delay, d1	11.5		50.7	4.3	46.5	32.1
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7		5.4	0.5	0.9	0.3
Delay (s)	12.2		56.1	4.8	47.4	32.4
Level of Service	B		E	A	D	C
Approach Delay (s)	12.2			9.6	37.8	
Approach LOS	B			A	D	

Intersection Summary			
HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	48.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	834	92	113	1090	85	153
Future Volume (vph)	834	92	113	1090	85	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.99		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3406		1787	3574	1787	1399
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3406		1787	3574	1787	1399
Peak-hour factor, PHF	0.92	0.92	0.91	0.91	0.88	0.88
Adj. Flow (vph)	907	100	124	1198	97	174
RTOR Reduction (vph)	5	0	0	0	0	59
Lane Group Flow (vph)	1002	0	124	1198	97	115
Confl. Peds. (#/hr)		36	36		9	12
Heavy Vehicles (%)	2%	15%	1%	1%	1%	1%
Parking (#/hr)						5
Turn Type	NA		Prot	NA	Prot	pt+ov
Protected Phases	2		1	6	3	1 8
Permitted Phases						
Actuated Green, G (s)	75.6		13.6	93.7	17.3	35.4
Effective Green, g (s)	75.6		13.6	93.7	17.3	35.4
Actuated g/C Ratio	0.63		0.11	0.78	0.14	0.29
Clearance Time (s)	4.5		4.5	4.5	4.5	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	2145		202	2790	257	412
v/s Ratio Prot	c0.29		c0.07	0.34	c0.05	0.08
v/s Ratio Perm						
v/c Ratio	0.47		0.61	0.43	0.38	0.28
Uniform Delay, d1	11.6		50.7	4.3	46.5	32.5
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7		5.4	0.5	0.9	0.4
Delay (s)	12.4		56.1	4.8	47.4	32.9
Level of Service	B		E	A	D	C
Approach Delay (s)	12.4			9.6	38.1	
Approach LOS	B			A	D	

Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	48.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	662	129	296	1265	43	80
Future Volume (vph)	662	129	296	1265	43	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.99		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3273		1770	3539	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3273		1770	3539	1770	1583
Peak-hour factor, PHF	0.86	0.86	0.95	0.95	0.70	0.70
Adj. Flow (vph)	770	150	312	1332	61	114
RTOR Reduction (vph)	10	0	0	0	0	46
Lane Group Flow (vph)	910	0	312	1332	61	68
Confl. Peds. (#/hr)		29	29		12	4
Heavy Vehicles (%)	6%	6%	2%	2%	2%	2%
Turn Type	NA		Prot	NA	Prot	pt+ov
Protected Phases	2		1	6	3	1 8
Permitted Phases						
Actuated Green, G (s)	66.3		26.4	97.2	13.8	44.7
Effective Green, g (s)	66.3		26.4	97.2	13.8	44.7
Actuated g/C Ratio	0.55		0.22	0.81	0.12	0.37
Clearance Time (s)	4.5		4.5	4.5	4.5	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	1808		389	2866	203	589
v/s Ratio Prot	c0.28		c0.18	0.38	c0.03	0.04
v/s Ratio Perm						
v/c Ratio	0.50		0.80	0.46	0.30	0.12
Uniform Delay, d1	16.6		44.3	3.5	48.7	24.7
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0		11.3	0.5	0.8	0.1
Delay (s)	17.6		55.6	4.0	49.5	24.8
Level of Service	B		E	A	D	C
Approach Delay (s)	17.6			13.8	33.4	
Approach LOS	B			B	C	

Intersection Summary			
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	54.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	662	141	296	1265	43	80
Future Volume (vph)	662	141	296	1265	43	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.98		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.97		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3226		1770	3539	1770	1385
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3226		1770	3539	1770	1385
Peak-hour factor, PHF	0.86	0.86	0.95	0.95	0.70	0.70
Adj. Flow (vph)	770	164	312	1332	61	114
RTOR Reduction (vph)	11	0	0	0	0	46
Lane Group Flow (vph)	923	0	312	1332	61	68
Confl. Peds. (#/hr)		29	29		12	4
Heavy Vehicles (%)	6%	13%	2%	2%	2%	2%
Parking (#/hr)						5
Turn Type	NA		Prot	NA	Prot	pt+ov
Protected Phases	2		1	6	3	1 8
Permitted Phases						
Actuated Green, G (s)	66.3		26.4	97.2	13.8	44.7
Effective Green, g (s)	66.3		26.4	97.2	13.8	44.7
Actuated g/C Ratio	0.55		0.22	0.81	0.12	0.37
Clearance Time (s)	4.5		4.5	4.5	4.5	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	1782		389	2866	203	515
v/s Ratio Prot	c0.29		c0.18	0.38	c0.03	0.05
v/s Ratio Perm						
v/c Ratio	0.52		0.80	0.46	0.30	0.13
Uniform Delay, d1	16.8		44.3	3.5	48.7	24.9
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1		11.3	0.5	0.8	0.1
Delay (s)	17.9		55.6	4.0	49.5	25.0
Level of Service	B		E	A	D	C
Approach Delay (s)	17.9			13.8	33.5	
Approach LOS	B			B	C	

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)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1091	104	147	1425	111	200
Future Volume (vph)	1091	104	147	1425	111	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.99		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3452		1787	3574	1787	1599
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3452		1787	3574	1787	1599
Peak-hour factor, PHF	0.92	0.92	0.91	0.91	0.88	0.88
Adj. Flow (vph)	1186	113	162	1566	126	227
RTOR Reduction (vph)	5	0	0	0	0	28
Lane Group Flow (vph)	1294	0	162	1566	126	199
Confl. Peds. (#/hr)		47	47		12	16
Heavy Vehicles (%)	2%	2%	1%	1%	1%	1%
Turn Type	NA		Prot	NA	Prot	pt+ov
Protected Phases	2		1	6	3	1 8
Permitted Phases						
Actuated Green, G (s)	72.9		15.8	93.2	17.8	38.1
Effective Green, g (s)	72.9		15.8	93.2	17.8	38.1
Actuated g/C Ratio	0.61		0.13	0.78	0.15	0.32
Clearance Time (s)	4.5		4.5	4.5	4.5	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	2097		235	2775	265	507
v/s Ratio Prot	c0.37		c0.09	0.44	c0.07	0.12
v/s Ratio Perm						
v/c Ratio	0.62		0.69	0.56	0.48	0.39
Uniform Delay, d1	14.8		49.8	5.3	46.8	31.9
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.4		8.2	0.8	1.3	0.5
Delay (s)	16.2		57.9	6.2	48.2	32.4
Level of Service	B		E	A	D	C
Approach Delay (s)	16.2			11.0	38.0	
Approach LOS	B			B	D	

Intersection Summary			
HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		

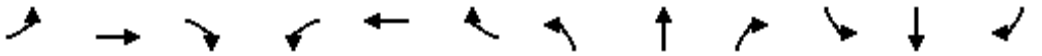
c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1091	116	147	1425	111	200
Future Volume (vph)	1091	116	147	1425	111	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.99		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3408		1787	3574	1787	1399
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3408		1787	3574	1787	1399
Peak-hour factor, PHF	0.92	0.92	0.91	0.91	0.88	0.88
Adj. Flow (vph)	1186	126	162	1566	126	227
RTOR Reduction (vph)	6	0	0	0	0	28
Lane Group Flow (vph)	1306	0	162	1566	126	199
Confl. Peds. (#/hr)		47	47		12	16
Heavy Vehicles (%)	2%	13%	1%	1%	1%	1%
Parking (#/hr)						5
Turn Type	NA		Prot	NA	Prot	pt+ov
Protected Phases	2		1	6	3	1 8
Permitted Phases						
Actuated Green, G (s)	72.1		16.6	93.2	17.8	38.9
Effective Green, g (s)	72.1		16.6	93.2	17.8	38.9
Actuated g/C Ratio	0.60		0.14	0.78	0.15	0.32
Clearance Time (s)	4.5		4.5	4.5	4.5	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	2047		247	2775	265	453
v/s Ratio Prot	c0.38		c0.09	0.44	0.07	c0.14
v/s Ratio Perm						
v/c Ratio	0.64		0.66	0.56	0.48	0.44
Uniform Delay, d1	15.5		49.0	5.3	46.8	32.0
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.5		6.1	0.8	1.3	0.7
Delay (s)	17.0		55.1	6.2	48.2	32.6
Level of Service	B		E	A	D	C
Approach Delay (s)	17.0			10.8	38.2	
Approach LOS	B			B	D	

Intersection Summary			
HCM 2000 Control Delay	16.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
40: 116th Avenue NE/116th Ave NE & NE 128th St

08/20/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	125	65	220	45	75	45	140	315	255	370	15
Future Volume (veh/h)	40	125	65	220	45	75	45	140	315	255	370	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.95	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1964	1964	1964	1826	1826	1826	1817	1817	1817	1850	1850	1850
Adj Flow Rate, veh/h	43	136	56	274	0	41	49	152	70	277	402	14
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	5	5	5	2	2	2	3	3	3
Cap, veh/h	305	212	87	619	0	543	62	432	188	319	1147	40
Arrive On Green	0.16	0.16	0.16	0.18	0.00	0.18	0.04	0.19	0.19	0.18	0.33	0.33
Sat Flow, veh/h	1870	1299	535	3478	0	1477	1731	2317	1011	1762	3461	120
Grp Volume(v), veh/h	43	0	192	274	0	41	49	111	111	277	204	212
Grp Sat Flow(s),veh/h/ln	1870	0	1834	1739	0	1477	1731	1726	1602	1762	1757	1824
Q Serve(g_s), s	1.6	0.0	7.9	5.7	0.0	1.5	2.3	4.5	4.9	12.4	7.1	7.1
Cycle Q Clear(g_c), s	1.6	0.0	7.9	5.7	0.0	1.5	2.3	4.5	4.9	12.4	7.1	7.1
Prop In Lane	1.00		0.29	1.00		1.00	1.00		0.63	1.00		0.07
Lane Grp Cap(c), veh/h	305	0	299	619	0	543	62	322	298	319	583	605
V/C Ratio(X)	0.14	0.00	0.64	0.44	0.00	0.08	0.79	0.35	0.37	0.87	0.35	0.35
Avail Cap(c_a), veh/h	462	0	453	1718	0	1010	427	639	593	435	651	676
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.0	0.0	31.7	29.7	0.0	17.1	38.7	28.7	28.8	32.2	20.5	20.5
Incr Delay (d2), s/veh	0.2	0.0	2.3	0.6	0.0	0.1	15.0	0.8	0.9	12.1	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	3.7	2.3	0.0	0.5	1.2	1.9	1.9	6.2	2.9	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.2	0.0	34.0	30.3	0.0	17.2	53.7	29.4	29.7	44.3	20.9	20.9
LnGrp LOS	C	A	C	C	A	B	D	C	C	D	C	C
Approach Vol, veh/h		235			315			271			693	
Approach Delay, s/veh		33.1			28.6			33.9			30.3	
Approach LOS		C			C			C			C	

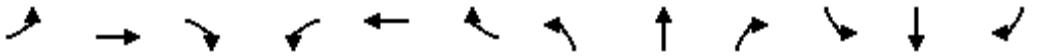
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		19.2	8.5	32.8		20.4	20.3	21.1				
Change Period (Y+Rc), s		6.0	5.6	6.0		6.0	5.6	6.0				
Max Green Setting (Gmax), s		20.0	20.0	30.0		40.0	20.0	30.0				
Max Q Clear Time (g_c+I1), s		9.9	4.3	9.1		7.7	14.4	6.9				
Green Ext Time (p_c), s		0.9	0.1	2.1		1.4	0.3	1.1				

Intersection Summary												
HCM 6th Ctrl Delay			31.0									
HCM 6th LOS			C									

Notes

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

User approved volume balancing among the lanes for turning movement.



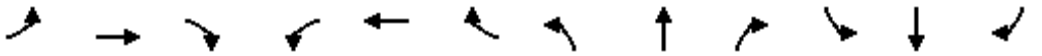
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	355	325	245	250	30	15	5	20	185	10	75
Future Volume (vph)	15	355	325	245	250	30	15	5	20	185	10	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	6.3		5.5	6.3			6.3	6.3		6.3	6.3
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	0.98		1.00	0.99			1.00	0.99		1.00	0.98
Flpb, ped/bikes	0.97	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Frt	1.00	0.93		1.00	0.98			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.95	1.00
Satd. Flow (prot)	1721	3233		1752	3414			1762	1532		1761	1544
Flt Permitted	0.56	1.00		0.19	1.00			0.96	1.00		0.95	1.00
Satd. Flow (perm)	1020	3233		356	3414			1762	1532		1761	1544
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)	17	394	361	272	278	33	17	6	22	206	11	83
RTOR Reduction (vph)	0	104	0	0	5	0	0	0	20	0	0	68
Lane Group Flow (vph)	17	651	0	272	306	0	0	23	2	0	217	15
Confl. Peds. (#/hr)	49		9	9		49	2		2	2		2
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	4%	4%	4%	3%	3%	3%
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	2			6					3			4
Actuated Green, G (s)	34.7	32.7		54.8	47.3			7.4	7.4		18.0	18.0
Effective Green, g (s)	34.7	32.7		54.8	47.3			7.4	7.4		18.0	18.0
Actuated g/C Ratio	0.35	0.33		0.55	0.48			0.07	0.07		0.18	0.18
Clearance Time (s)	5.5	6.3		5.5	6.3			6.3	6.3		6.3	6.3
Vehicle Extension (s)	3.0	4.0		3.0	4.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	371	1066		430	1629			131	114		319	280
v/s Ratio Prot	0.00	0.20		c0.11	0.09			c0.01			c0.12	
v/s Ratio Perm	0.02			c0.24					0.00			0.01
v/c Ratio	0.05	0.61		0.63	0.19			0.18	0.01		0.68	0.05
Uniform Delay, d1	21.1	27.9		14.5	14.9			43.0	42.5		37.9	33.5
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	0.1	1.2		3.0	0.1			0.6	0.1		5.9	0.1
Delay (s)	21.2	29.1		17.5	14.9			43.6	42.5		43.7	33.6
Level of Service	C	C		B	B			D	D		D	C
Approach Delay (s)		28.9			16.1			43.1			40.9	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	27.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	99.1	Sum of lost time (s)	24.4
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
42: Totem Lake Blvd & NE 128th St

08/20/2020



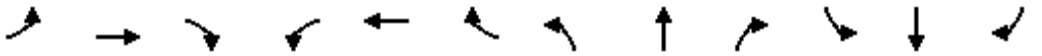
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	360	200	0	280	40	90	230	285	45	355	155
Future Volume (veh/h)	0	360	200	0	280	40	90	230	285	45	355	155
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.96	1.00		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1841	1841	0	1841	1841	1832	1832	1832	1894	1894	1894
Adj Flow Rate, veh/h	0	404	122	0	315	35	101	258	114	51	399	129
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	0	4	4	0	4	4	3	3	3	3	3	3
Cap, veh/h	0	1048	566	0	947	104	355	624	268	392	617	197
Arrive On Green	0.00	0.30	0.30	0.00	0.30	0.30	0.07	0.26	0.26	0.03	0.23	0.23
Sat Flow, veh/h	0	3589	1549	0	3255	348	1745	2365	1014	1804	2675	854
Grp Volume(v), veh/h	0	404	122	0	173	177	101	188	184	51	267	261
Grp Sat Flow(s),veh/h/ln	0	1749	1549	0	1749	1762	1745	1740	1638	1804	1800	1730
Q Serve(g_s), s	0.0	4.1	2.4	0.0	3.4	3.5	1.9	4.0	4.2	1.0	6.0	6.1
Cycle Q Clear(g_c), s	0.0	4.1	2.4	0.0	3.4	3.5	1.9	4.0	4.2	1.0	6.0	6.1
Prop In Lane	0.00		1.00	0.00		0.20	1.00		0.62	1.00		0.49
Lane Grp Cap(c), veh/h	0	1048	566	0	524	528	355	459	432	392	415	399
V/C Ratio(X)	0.00	0.39	0.22	0.00	0.33	0.34	0.28	0.41	0.43	0.13	0.64	0.65
Avail Cap(c_a), veh/h	0	2737	1314	0	1369	1379	1021	1557	1466	1142	1610	1547
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	12.4	9.8	0.0	12.2	12.2	12.2	13.6	13.7	12.6	15.5	15.6
Incr Delay (d2), s/veh	0.0	0.3	0.3	0.0	0.5	0.5	0.3	0.6	0.7	0.1	1.7	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.3	0.7	0.0	1.2	1.2	0.6	1.3	1.3	0.3	2.2	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.7	10.1	0.0	12.7	12.7	12.6	14.2	14.3	12.7	17.2	17.4
LnGrp LOS	A	B	B	A	B	B	B	B	B	B	B	B
Approach Vol, veh/h		526			350			473			579	
Approach Delay, s/veh		12.1			12.7			13.9			16.9	
Approach LOS		B			B			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		19.7	8.4	16.6		19.7	6.9	18.1				
Change Period (Y+Rc), s		6.3	5.5	6.3		6.3	5.5	6.3				
Max Green Setting (Gmax), s		35.0	20.0	40.0		35.0	20.0	40.0				
Max Q Clear Time (g_c+I1), s		6.1	3.9	8.1		5.5	3.0	6.2				
Green Ext Time (p_c), s		4.6	0.1	2.2		3.0	0.1	1.5				

Intersection Summary												
HCM 6th Ctrl Delay			14.1									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary
40: 116th Avenue NE/116th Ave NE & NE 128th St

08/20/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	55	45	420	105	390	60	295	275	95	310	20
Future Volume (veh/h)	25	55	45	420	105	390	60	295	275	95	310	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.96	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1964	1964	1964	1856	1856	1856	1817	1817	1817	1835	1835	1835
Adj Flow Rate, veh/h	26	58	23	276	343	173	63	311	152	100	326	17
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	3	3	3	2	2	2	4	4	4
Cap, veh/h	536	379	150	412	433	464	81	474	225	125	795	41
Arrive On Green	0.29	0.29	0.29	0.39	0.39	0.39	0.05	0.21	0.21	0.02	0.08	0.08
Sat Flow, veh/h	1870	1323	524	1767	1856	1506	1731	2238	1063	1747	3359	174
Grp Volume(v), veh/h	26	0	81	276	343	173	63	238	225	100	168	175
Grp Sat Flow(s),veh/h/ln	1870	0	1847	1767	1856	1506	1731	1726	1574	1747	1743	1791
Q Serve(g_s), s	1.2	0.0	3.9	15.5	19.6	9.4	4.3	15.1	15.8	6.8	11.0	11.2
Cycle Q Clear(g_c), s	1.2	0.0	3.9	15.5	19.6	9.4	4.3	15.1	15.8	6.8	11.0	11.2
Prop In Lane	1.00		0.28	1.00		1.00	1.00		0.68	1.00		0.10
Lane Grp Cap(c), veh/h	536	0	530	412	433	464	81	366	333	125	412	424
V/C Ratio(X)	0.05	0.00	0.15	0.67	0.79	0.37	0.78	0.65	0.68	0.80	0.41	0.41
Avail Cap(c_a), veh/h	536	0	530	412	433	464	208	417	380	210	421	433
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	0.82	0.82	0.82	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.0	0.0	31.9	32.8	34.1	25.7	56.6	43.2	43.5	57.7	47.3	47.4
Incr Delay (d2), s/veh	0.0	0.0	0.1	6.9	11.6	1.9	11.3	3.3	4.3	8.4	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	1.8	6.4	8.9	3.3	2.2	6.8	6.6	3.5	5.3	5.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.0	0.0	32.1	39.7	45.6	27.6	67.9	46.5	47.8	66.1	48.1	48.1
LnGrp LOS	C	A	C	D	D	C	E	D	D	E	D	D
Approach Vol, veh/h		107			792			526			443	
Approach Delay, s/veh		31.8			39.6			49.6			52.2	
Approach LOS		C			D			D			D	

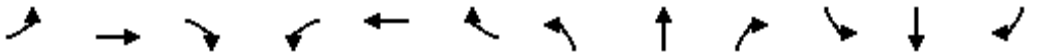
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		40.4	11.2	34.4		34.0	14.2	31.4				
Change Period (Y+Rc), s		6.0	5.6	6.0		6.0	5.6	6.0				
Max Green Setting (Gmax), s		25.0	14.4	29.0		28.0	14.4	29.0				
Max Q Clear Time (g_c+I1), s		5.9	6.3	13.2		21.6	8.8	17.8				
Green Ext Time (p_c), s		0.4	0.1	1.5		2.3	0.1	1.9				

Intersection Summary		
HCM 6th Ctrl Delay		45.0
HCM 6th LOS		D

Notes

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

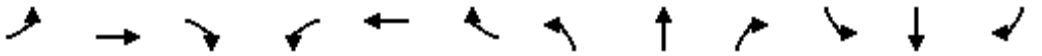
User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	295	50	140	580	175	290	15	105	75	10	45
Future Volume (vph)	80	295	50	140	580	175	290	15	105	75	10	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	6.3		5.5	6.3			6.3	6.3		6.3	6.3
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.94			1.00	0.98		1.00	1.00
Flpb, ped/bikes	0.99	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Frt	1.00	0.98		1.00	0.97			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.96	1.00
Satd. Flow (prot)	1729	3416		1750	3196			1744	1528		1750	1553
Flt Permitted	0.26	1.00		0.47	1.00			0.95	1.00		0.96	1.00
Satd. Flow (perm)	482	3416		865	3196			1744	1528		1750	1553
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)	85	314	53	149	617	186	309	16	112	80	11	48
RTOR Reduction (vph)	0	9	0	0	18	0	0	0	88	0	0	43
Lane Group Flow (vph)	85	358	0	149	785	0	0	325	24	0	91	5
Confl. Peds. (#/hr)	115		3	3		115			4	4		
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	4%	4%	4%	4%	4%	4%
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	2			6					3			4
Actuated Green, G (s)	54.5	47.2		61.7	50.8			25.9	25.9		11.6	11.6
Effective Green, g (s)	54.5	47.2		61.7	50.8			25.9	25.9		11.6	11.6
Actuated g/C Ratio	0.45	0.39		0.51	0.42			0.22	0.22		0.10	0.10
Clearance Time (s)	5.5	6.3		5.5	6.3			6.3	6.3		6.3	6.3
Vehicle Extension (s)	3.0	4.0		3.0	4.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	294	1343		525	1352			376	329		169	150
v/s Ratio Prot	0.02	0.10		c0.03	c0.25			c0.19			c0.05	
v/s Ratio Perm	0.11			0.12					0.02			0.00
v/c Ratio	0.29	0.27		0.28	0.58			0.86	0.07		0.54	0.03
Uniform Delay, d1	19.4	24.7		15.7	26.5			45.4	37.5		51.6	49.1
Progression Factor	1.59	1.59		0.95	1.08			1.00	1.00		1.00	1.00
Incremental Delay, d2	0.5	0.4		0.3	1.6			18.2	0.1		3.3	0.1
Delay (s)	31.3	39.7		15.2	30.2			63.6	37.6		54.9	49.2
Level of Service	C	D		B	C			E	D		D	D
Approach Delay (s)		38.1			27.8			56.9			52.9	
Approach LOS		D			C			E			D	

Intersection Summary			
HCM 2000 Control Delay	38.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	24.4
Intersection Capacity Utilization	73.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



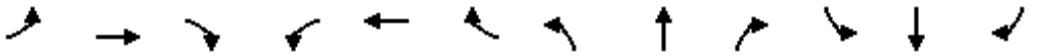
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	505	360	0	415	135	160	305	425	80	460	205
Future Volume (veh/h)	0	505	360	0	415	135	160	305	425	80	460	205
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.96	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1841	1841	0	1841	1841	1832	1832	1832	1894	1894	1894
Adj Flow Rate, veh/h	0	532	298	0	437	114	168	321	235	84	484	173
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	4	4	0	4	4	3	3	3	3	3	3
Cap, veh/h	0	1195	685	0	930	240	357	581	415	352	658	233
Arrive On Green	0.00	0.34	0.34	0.00	0.34	0.34	0.10	0.30	0.30	0.05	0.25	0.25
Sat Flow, veh/h	0	3589	1548	0	2816	703	1745	1929	1379	1804	2594	921
Grp Volume(v), veh/h	0	532	298	0	279	272	168	289	267	84	335	322
Grp Sat Flow(s),veh/h/ln	0	1749	1548	0	1749	1678	1745	1740	1567	1804	1800	1716
Q Serve(g_s), s	0.0	7.0	7.9	0.0	7.4	7.6	4.1	8.3	8.5	2.0	10.1	10.3
Cycle Q Clear(g_c), s	0.0	7.0	7.9	0.0	7.4	7.6	4.1	8.3	8.5	2.0	10.1	10.3
Prop In Lane	0.00		1.00	0.00		0.42	1.00		0.88	1.00		0.54
Lane Grp Cap(c), veh/h	0	1195	685	0	597	573	357	524	472	352	456	435
V/C Ratio(X)	0.00	0.45	0.44	0.00	0.47	0.47	0.47	0.55	0.57	0.24	0.73	0.74
Avail Cap(c_a), veh/h	0	2060	1068	0	1030	988	770	1172	1055	864	1211	1155
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	15.2	11.5	0.0	15.3	15.4	14.9	17.4	17.5	15.3	20.3	20.4
Incr Delay (d2), s/veh	0.0	0.4	0.6	0.0	0.8	0.9	0.7	0.9	1.1	0.3	2.3	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.5	2.4	0.0	2.7	2.7	1.5	3.1	2.9	0.8	4.1	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	15.6	12.1	0.0	16.1	16.2	15.6	18.3	18.6	15.6	22.6	22.9
LnGrp LOS	A	B	B	A	B	B	B	B	B	B	C	C
Approach Vol, veh/h		830			551			724			741	
Approach Delay, s/veh		14.3			16.2			17.8			21.9	
Approach LOS		B			B			B			C	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		26.6	11.5	21.4		26.6	8.6	24.2				
Change Period (Y+Rc), s		6.3	5.5	6.3		6.3	5.5	6.3				
Max Green Setting (Gmax), s		35.0	20.0	40.0		35.0	20.0	40.0				
Max Q Clear Time (g_c+I1), s		9.9	6.1	12.3		9.6	4.0	10.5				
Green Ext Time (p_c), s		7.0	0.3	2.8		4.9	0.2	2.4				

Intersection Summary												
HCM 6th Ctrl Delay			17.5									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary
40: 116th Avenue NE/116th Ave NE & NE 128th St

08/20/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	175	80	280	65	155	45	180	330	385	440	20
Future Volume (veh/h)	60	175	80	280	65	155	45	180	330	385	440	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.95	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1964	1964	1964	1826	1826	1826	1817	1817	1817	1850	1850	1850
Adj Flow Rate, veh/h	63	184	71	344	0	83	47	189	100	405	463	19
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	5	5	5	2	2	2	3	3	3
Cap, veh/h	333	236	91	653	0	602	60	418	210	372	1259	52
Arrive On Green	0.18	0.18	0.18	0.19	0.00	0.19	0.03	0.19	0.19	0.21	0.37	0.37
Sat Flow, veh/h	1870	1325	511	3478	0	1466	1731	2198	1103	1762	3436	141
Grp Volume(v), veh/h	63	0	255	344	0	83	47	146	143	405	236	246
Grp Sat Flow(s),veh/h/ln	1870	0	1836	1739	0	1466	1731	1726	1574	1762	1757	1819
Q Serve(g_s), s	2.9	0.0	13.4	9.0	0.0	3.7	2.7	7.6	8.2	21.4	10.0	10.0
Cycle Q Clear(g_c), s	2.9	0.0	13.4	9.0	0.0	3.7	2.7	7.6	8.2	21.4	10.0	10.0
Prop In Lane	1.00		0.28	1.00		1.00	1.00		0.70	1.00		0.08
Lane Grp Cap(c), veh/h	333	0	327	653	0	602	60	328	299	372	644	667
V/C Ratio(X)	0.19	0.00	0.78	0.53	0.00	0.14	0.78	0.45	0.48	1.09	0.37	0.37
Avail Cap(c_a), veh/h	387	0	380	1338	0	890	348	487	444	372	644	667
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.4	0.0	39.8	37.1	0.0	19.4	48.5	36.3	36.6	40.0	23.5	23.5
Incr Delay (d2), s/veh	0.3	0.0	8.6	0.8	0.0	0.1	14.9	1.1	1.4	72.8	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	6.9	3.8	0.0	1.3	1.4	3.3	3.3	16.7	4.2	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.7	0.0	48.4	37.9	0.0	19.5	63.4	37.5	38.0	112.8	23.9	23.9
LnGrp LOS	D	A	D	D	A	B	E	D	D	F	C	C
Approach Vol, veh/h		318			427			336			887	
Approach Delay, s/veh		45.9			34.3			41.3			64.5	
Approach LOS		D			C			D			E	

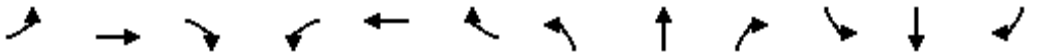
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		24.1	9.1	43.2		25.0	27.0	25.3				
Change Period (Y+Rc), s		6.0	5.6	6.0		6.0	5.6	6.0				
Max Green Setting (Gmax), s		21.0	20.4	29.6		39.0	21.4	28.6				
Max Q Clear Time (g_c+I1), s		15.4	4.7	12.0		11.0	23.4	10.2				
Green Ext Time (p_c), s		0.9	0.1	2.3		2.0	0.0	1.4				

Intersection Summary		
HCM 6th Ctrl Delay		51.0
HCM 6th LOS		D

Notes

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

User approved volume balancing among the lanes for turning movement.



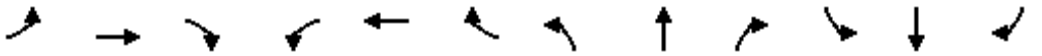
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	425	445	330	355	40	30	5	30	300	15	115
Future Volume (vph)	20	425	445	330	355	40	30	5	30	300	15	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	6.3		5.5	6.3			6.3	6.3		6.3	6.3
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	0.98		1.00	0.99			1.00	0.99		1.00	0.99
Flpb, ped/bikes	0.97	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Frt	1.00	0.92		1.00	0.98			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.95	1.00
Satd. Flow (prot)	1712	3199		1752	3404			1751	1531		1761	1545
Flt Permitted	0.51	1.00		0.10	1.00			0.96	1.00		0.95	1.00
Satd. Flow (perm)	916	3199		190	3404			1751	1531		1761	1545
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)	21	447	468	347	374	42	32	5	32	316	16	121
RTOR Reduction (vph)	0	120	0	0	4	0	0	0	29	0	0	92
Lane Group Flow (vph)	21	795	0	347	412	0	0	37	3	0	332	29
Confl. Peds. (#/hr)	60		11	11		60	2		2	2		2
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	4%	4%	4%	3%	3%	3%
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	2			6					3			4
Actuated Green, G (s)	41.9	39.3		68.6	60.5			10.8	10.8		25.4	25.4
Effective Green, g (s)	41.9	39.3		68.6	60.5			10.8	10.8		25.4	25.4
Actuated g/C Ratio	0.34	0.32		0.55	0.49			0.09	0.09		0.21	0.21
Clearance Time (s)	5.5	6.3		5.5	6.3			6.3	6.3		6.3	6.3
Vehicle Extension (s)	3.0	4.0		3.0	4.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	327	1016		405	1664			152	133		361	317
v/s Ratio Prot	0.00	0.25		c0.16	0.12			c0.02			c0.19	
v/s Ratio Perm	0.02			c0.31					0.00			0.02
v/c Ratio	0.06	0.78		0.86	0.25			0.24	0.02		0.92	0.09
Uniform Delay, d1	27.4	38.3		33.7	18.4			52.6	51.6		48.2	39.8
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	0.1	4.2		16.2	0.1			0.8	0.1		27.7	0.1
Delay (s)	27.5	42.5		49.8	18.5			53.5	51.7		75.8	39.9
Level of Service	C	D		D	B			D	D		E	D
Approach Delay (s)		42.2			32.7			52.6			66.2	
Approach LOS		D			C			D			E	

Intersection Summary			
HCM 2000 Control Delay	44.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	123.7	Sum of lost time (s)	24.4
Intersection Capacity Utilization	84.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
42: Totem Lake Blvd & NE 128th St

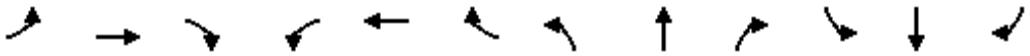
08/20/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	435	320	0	390	130	140	275	390	75	410	195
Future Volume (veh/h)	0	435	320	0	390	130	140	275	390	75	410	195
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.96	1.00		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1841	1841	0	1841	1841	1832	1832	1832	1894	1894	1894
Adj Flow Rate, veh/h	0	458	242	0	411	109	147	289	190	79	432	157
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	4	4	0	4	4	3	3	3	3	3	3
Cap, veh/h	0	1194	671	0	927	243	357	564	360	364	612	220
Arrive On Green	0.00	0.34	0.34	0.00	0.34	0.34	0.09	0.28	0.28	0.05	0.24	0.24
Sat Flow, veh/h	0	3589	1548	0	2808	711	1745	2029	1294	1804	2583	929
Grp Volume(v), veh/h	0	458	242	0	263	257	147	247	232	79	300	289
Grp Sat Flow(s),veh/h/ln	0	1749	1548	0	1749	1678	1745	1740	1582	1804	1800	1713
Q Serve(g_s), s	0.0	5.4	5.8	0.0	6.4	6.5	3.4	6.5	6.8	1.8	8.4	8.5
Cycle Q Clear(g_c), s	0.0	5.4	5.8	0.0	6.4	6.5	3.4	6.5	6.8	1.8	8.4	8.5
Prop In Lane	0.00		1.00	0.00		0.42	1.00		0.82	1.00		0.54
Lane Grp Cap(c), veh/h	0	1194	671	0	597	573	357	484	440	364	426	406
V/C Ratio(X)	0.00	0.38	0.36	0.00	0.44	0.45	0.41	0.51	0.53	0.22	0.70	0.71
Avail Cap(c_a), veh/h	0	2233	1131	0	1116	1071	834	1270	1154	931	1313	1250
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	13.7	10.4	0.0	14.0	14.0	14.3	16.6	16.7	14.8	19.2	19.2
Incr Delay (d2), s/veh	0.0	0.3	0.5	0.0	0.7	0.8	0.6	0.8	1.0	0.2	2.1	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.9	1.7	0.0	2.3	2.2	1.2	2.4	2.3	0.7	3.3	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	14.0	10.9	0.0	14.7	14.8	14.9	17.5	17.7	15.0	21.3	21.5
LnGrp LOS	A	B	B	A	B	B	B	B	B	B	C	C
Approach Vol, veh/h		700			520			626			668	
Approach Delay, s/veh		12.9			14.8			17.0			20.6	
Approach LOS		B			B			B			C	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		25.0	10.5	19.3		25.0	8.3	21.6				
Change Period (Y+Rc), s		6.3	5.5	6.3		6.3	5.5	6.3				
Max Green Setting (Gmax), s		35.0	20.0	40.0		35.0	20.0	40.0				
Max Q Clear Time (g_c+I1), s		7.8	5.4	10.5		8.5	3.8	8.8				
Green Ext Time (p_c), s		5.9	0.2	2.5		4.6	0.1	2.0				

Intersection Summary												
HCM 6th Ctrl Delay			16.4									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	175	80	280	65	181	45	224	330	404	459	21
Future Volume (veh/h)	60	175	80	280	65	181	45	224	330	404	459	21
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.95	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1964	1964	1964	1826	1826	1826	1817	1817	1817	1850	1850	1850
Adj Flow Rate, veh/h	63	184	71	344	0	111	47	236	100	425	483	20
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	5	5	5	2	2	2	3	3	3
Cap, veh/h	331	235	91	653	0	598	60	465	190	367	1272	53
Arrive On Green	0.18	0.18	0.18	0.19	0.00	0.19	0.03	0.20	0.20	0.21	0.37	0.37
Sat Flow, veh/h	1870	1325	511	3478	0	1466	1731	2366	966	1762	3434	142
Grp Volume(v), veh/h	63	0	255	344	0	111	47	170	166	425	247	256
Grp Sat Flow(s),veh/h/ln	1870	0	1836	1739	0	1466	1731	1726	1606	1762	1757	1819
Q Serve(g_s), s	2.9	0.0	13.6	9.2	0.0	5.1	2.8	9.0	9.5	21.4	10.6	10.6
Cycle Q Clear(g_c), s	2.9	0.0	13.6	9.2	0.0	5.1	2.8	9.0	9.5	21.4	10.6	10.6
Prop In Lane	1.00		0.28	1.00		1.00	1.00		0.60	1.00		0.08
Lane Grp Cap(c), veh/h	331	0	325	653	0	598	60	339	316	367	651	674
V/C Ratio(X)	0.19	0.00	0.78	0.53	0.00	0.19	0.78	0.50	0.53	1.16	0.38	0.38
Avail Cap(c_a), veh/h	383	0	376	1322	0	880	344	481	448	367	651	674
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.9	0.0	40.3	37.6	0.0	20.2	49.1	36.7	36.9	40.6	23.7	23.7
Incr Delay (d2), s/veh	0.3	0.0	9.1	0.8	0.0	0.2	14.8	1.4	1.6	96.9	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	7.0	3.9	0.0	1.8	1.4	3.9	3.9	19.1	4.5	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.2	0.0	49.4	38.4	0.0	20.4	64.0	38.1	38.6	137.5	24.1	24.1
LnGrp LOS	D	A	D	D	A	C	E	D	D	F	C	C
Approach Vol, veh/h		318			455			383			928	
Approach Delay, s/veh		46.8			34.0			41.5			76.0	
Approach LOS		D			C			D			E	

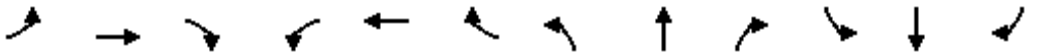
Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	24.2	9.2	44.0	25.3	27.0	26.2
Change Period (Y+Rc), s	6.0	5.6	6.0	6.0	5.6	6.0
Max Green Setting (Gmax), s	21.0	20.4	29.6	39.0	21.4	28.6
Max Q Clear Time (g_c+I1), s	15.6	4.8	12.6	11.2	23.4	11.5
Green Ext Time (p_c), s	0.8	0.1	2.4	2.1	0.0	1.6

Intersection Summary	
HCM 6th Ctrl Delay	56.1
HCM 6th LOS	E

Notes

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

User approved volume balancing among the lanes for turning movement.



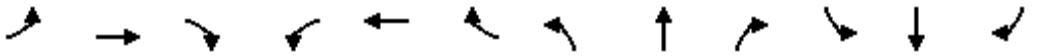
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	435	454	330	373	40	34	11	30	300	17	119
Future Volume (vph)	20	435	454	330	373	40	34	11	30	300	17	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	6.3		5.5	6.3			6.3	6.3		6.3	6.3
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	0.98		1.00	0.99			1.00	0.99		1.00	0.99
Flpb, ped/bikes	0.97	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Frt	1.00	0.92		1.00	0.99			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.95	1.00
Satd. Flow (prot)	1715	3200		1752	3408			1761	1531		1761	1545
Flt Permitted	0.50	1.00		0.09	1.00			0.96	1.00		0.95	1.00
Satd. Flow (perm)	901	3200		171	3408			1761	1531		1761	1545
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)	21	458	478	347	393	42	36	12	32	316	18	125
RTOR Reduction (vph)	0	120	0	0	4	0	0	0	29	0	0	92
Lane Group Flow (vph)	21	816	0	347	431	0	0	48	3	0	334	33
Confl. Peds. (#/hr)	60		11	11		60	2		2	2		2
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	4%	4%	4%	3%	3%	3%
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	2			6					3			4
Actuated Green, G (s)	41.9	39.3		68.6	60.5			11.3	11.3		25.4	25.4
Effective Green, g (s)	41.9	39.3		68.6	60.5			11.3	11.3		25.4	25.4
Actuated g/C Ratio	0.34	0.32		0.55	0.49			0.09	0.09		0.20	0.20
Clearance Time (s)	5.5	6.3		5.5	6.3			6.3	6.3		6.3	6.3
Vehicle Extension (s)	3.0	4.0		3.0	4.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	321	1012		397	1660			160	139		360	315
v/s Ratio Prot	0.00	0.25		c0.17	0.13			c0.03			c0.19	
v/s Ratio Perm	0.02			c0.31					0.00			0.02
v/c Ratio	0.07	0.81		0.87	0.26			0.30	0.02		0.93	0.10
Uniform Delay, d1	27.6	39.0		35.6	18.7			52.8	51.4		48.5	40.2
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	0.1	5.0		18.7	0.1			1.1	0.1		29.4	0.1
Delay (s)	27.7	44.0		54.3	18.8			53.8	51.5		77.9	40.3
Level of Service	C	D		D	B			D	D		E	D
Approach Delay (s)		43.6			34.6			52.9			67.7	
Approach LOS		D			C			D			E	

Intersection Summary			
HCM 2000 Control Delay	45.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	124.2	Sum of lost time (s)	24.4
Intersection Capacity Utilization	84.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
42: Totem Lake Blvd & NE 128th St

08/24/2020



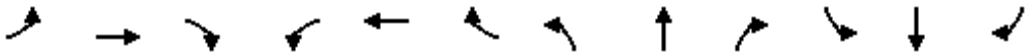
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	442	323	0	399	130	144	275	390	75	410	200
Future Volume (veh/h)	0	442	323	0	399	130	144	275	390	75	410	200
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.96	1.00		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1841	1841	0	1841	1841	1832	1832	1832	1894	1894	1894
Adj Flow Rate, veh/h	0	465	245	0	420	109	152	289	190	79	432	163
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	4	4	0	4	4	3	3	3	3	3	3
Cap, veh/h	0	1196	676	0	933	239	359	573	365	366	609	227
Arrive On Green	0.00	0.34	0.34	0.00	0.34	0.34	0.09	0.28	0.28	0.05	0.24	0.24
Sat Flow, veh/h	0	3589	1548	0	2821	700	1745	2029	1294	1804	2554	954
Grp Volume(v), veh/h	0	465	245	0	267	262	152	247	232	79	303	292
Grp Sat Flow(s),veh/h/ln	0	1749	1548	0	1749	1681	1745	1740	1583	1804	1800	1708
Q Serve(g_s), s	0.0	5.6	5.9	0.0	6.6	6.7	3.5	6.6	6.9	1.8	8.6	8.7
Cycle Q Clear(g_c), s	0.0	5.6	5.9	0.0	6.6	6.7	3.5	6.6	6.9	1.8	8.6	8.7
Prop In Lane	0.00		1.00	0.00		0.42	1.00		0.82	1.00		0.56
Lane Grp Cap(c), veh/h	0	1196	676	0	598	575	359	491	447	366	429	407
V/C Ratio(X)	0.00	0.39	0.36	0.00	0.45	0.46	0.42	0.50	0.52	0.22	0.71	0.72
Avail Cap(c_a), veh/h	0	2204	1122	0	1102	1059	823	1253	1140	926	1296	1230
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	13.9	10.5	0.0	14.2	14.2	14.4	16.7	16.8	14.9	19.4	19.4
Incr Delay (d2), s/veh	0.0	0.3	0.5	0.0	0.7	0.8	0.6	0.8	0.9	0.2	2.1	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.9	1.7	0.0	2.3	2.3	1.2	2.4	2.3	0.7	3.4	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	14.2	11.0	0.0	14.9	15.1	15.0	17.5	17.7	15.1	21.5	21.8
LnGrp LOS	A	B	B	A	B	B	B	B	B	B	C	C
Approach Vol, veh/h		710			529			631			674	
Approach Delay, s/veh		13.1			15.0			17.0			20.9	
Approach LOS		B			B			B			C	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	25.3	10.7	19.5	25.3	8.3	22.0
Change Period (Y+Rc), s	6.3	5.5	6.3	6.3	5.5	6.3
Max Green Setting (Gmax), s	35.0	20.0	40.0	35.0	20.0	40.0
Max Q Clear Time (g_c+I1), s	7.9	5.5	10.7	8.7	3.8	8.9
Green Ext Time (p_c), s	6.0	0.2	2.5	4.7	0.1	2.0

Intersection Summary	
HCM 6th Ctrl Delay	16.5
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
40: 116th Avenue NE/116th Ave NE & NE 128th St

08/20/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	120	65	495	160	510	65	325	320	235	395	30
Future Volume (veh/h)	30	120	65	495	160	510	65	325	320	235	395	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.95	1.00		0.96	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1964	1964	1964	1856	1856	1856	1817	1817	1817	1835	1835	1835
Adj Flow Rate, veh/h	32	126	54	344	415	259	68	342	186	247	416	28
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	3	3	3	2	2	2	4	4	4
Cap, veh/h	424	291	125	412	433	538	87	478	253	210	967	65
Arrive On Green	0.23	0.23	0.23	0.39	0.39	0.39	0.05	0.22	0.22	0.04	0.10	0.10
Sat Flow, veh/h	1870	1281	549	1767	1856	1496	1731	2141	1136	1747	3301	221
Grp Volume(v), veh/h	32	0	180	344	415	259	68	274	254	247	219	225
Grp Sat Flow(s),veh/h/ln	1870	0	1831	1767	1856	1496	1731	1726	1551	1747	1743	1779
Q Serve(g_s), s	1.6	0.0	10.1	21.1	26.1	15.0	4.7	17.6	18.3	14.4	14.2	14.3
Cycle Q Clear(g_c), s	1.6	0.0	10.1	21.1	26.1	15.0	4.7	17.6	18.3	14.4	14.2	14.3
Prop In Lane	1.00		0.30	1.00		1.00	1.00		0.73	1.00		0.12
Lane Grp Cap(c), veh/h	424	0	415	412	433	538	87	385	346	210	511	521
V/C Ratio(X)	0.08	0.00	0.43	0.83	0.96	0.48	0.78	0.71	0.73	1.18	0.43	0.43
Avail Cap(c_a), veh/h	424	0	415	412	433	538	208	417	375	210	511	521
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	0.40	0.40	0.40	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.5	0.0	39.8	34.5	36.1	23.8	56.3	43.0	43.3	57.6	44.7	44.8
Incr Delay (d2), s/veh	0.1	0.0	0.7	7.9	19.0	1.2	10.7	5.4	7.1	118.5	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	4.7	8.6	12.3	4.8	2.3	8.1	7.7	13.7	6.8	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.6	0.0	40.5	42.5	55.1	25.1	67.0	48.5	50.4	176.1	45.4	45.5
LnGrp LOS	D	A	D	D	E	C	E	D	D	F	D	D
Approach Vol, veh/h		212			1018			596			691	
Approach Delay, s/veh		39.9			43.2			51.4			92.1	
Approach LOS		D			D			D			F	

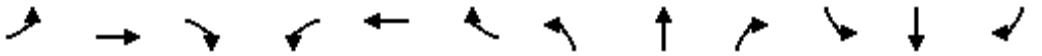
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		33.2	11.6	41.1		34.0	20.0	32.8				
Change Period (Y+Rc), s		6.0	5.6	6.0		6.0	5.6	6.0				
Max Green Setting (Gmax), s		25.0	14.4	29.0		28.0	14.4	29.0				
Max Q Clear Time (g_c+I1), s		12.1	6.7	16.3		28.1	16.4	20.3				
Green Ext Time (p_c), s		0.9	0.1	1.9		0.0	0.0	1.9				

Intersection Summary												
HCM 6th Ctrl Delay			58.3									
HCM 6th LOS			E									

Notes

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

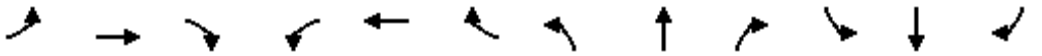
User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	485	75	195	715	245	375	20	135	125	10	75
Future Volume (vph)	115	485	75	195	715	245	375	20	135	125	10	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	6.3		5.5	6.3			6.3	6.3		6.3	6.3
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.93			1.00	0.98		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Frt	1.00	0.98		1.00	0.96			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.96	1.00
Satd. Flow (prot)	1748	3423		1752	3135			1744	1527		1746	1553
Flt Permitted	0.11	1.00		0.28	1.00			0.95	1.00		0.96	1.00
Satd. Flow (perm)	210	3423		521	3135			1744	1527		1746	1553
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)	121	511	79	205	753	258	395	21	142	132	11	79
RTOR Reduction (vph)	0	9	0	0	24	0	0	0	104	0	0	69
Lane Group Flow (vph)	121	581	0	205	987	0	0	416	38	0	143	10
Confl. Peds. (#/hr)	134		3	3		134			5	5		
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	4%	4%	4%	4%	4%	4%
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	2			6					3			4
Actuated Green, G (s)	48.6	38.3		55.8	41.9			28.7	28.7		14.7	14.7
Effective Green, g (s)	48.6	38.3		55.8	41.9			28.7	28.7		14.7	14.7
Actuated g/C Ratio	0.41	0.32		0.46	0.35			0.24	0.24		0.12	0.12
Clearance Time (s)	5.5	6.3		5.5	6.3			6.3	6.3		6.3	6.3
Vehicle Extension (s)	3.0	4.0		3.0	4.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	217	1092		384	1094			417	365		213	190
v/s Ratio Prot	0.05	0.17		c0.06	c0.31			c0.24			c0.08	
v/s Ratio Perm	0.18			0.19					0.02			0.01
v/c Ratio	0.56	0.53		0.53	0.90			1.00	0.10		0.67	0.05
Uniform Delay, d1	25.7	33.5		20.6	37.1			45.6	35.6		50.3	46.5
Progression Factor	1.37	1.52		0.85	0.89			1.00	1.00		1.00	1.00
Incremental Delay, d2	1.5	0.9		1.1	9.5			43.1	0.1		8.1	0.1
Delay (s)	36.7	51.7		18.5	42.6			88.7	35.7		58.4	46.6
Level of Service	D	D		B	D			F	D		E	D
Approach Delay (s)		49.2			38.5			75.3			54.2	
Approach LOS		D			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	50.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	24.4
Intersection Capacity Utilization	81.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	475	270	0	640	140	390	650	205	100	320	125
Future Volume (veh/h)	0	475	270	0	640	140	390	650	205	100	320	125
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.96	0.99		0.98	0.99		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1856	1856	0	1856	1856	1862	1862	1862	1909	1909	1909
Adj Flow Rate, veh/h	0	500	217	0	674	132	411	684	192	105	337	90
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	3	0	3	3	1	1	1	2	2	2
Cap, veh/h	0	1749	1095	0	1447	283	448	781	219	209	419	110
Arrive On Green	0.00	0.99	0.99	0.00	0.50	0.50	0.20	0.29	0.29	0.02	0.05	0.05
Sat Flow, veh/h	0	3618	1559	0	3008	570	1773	2712	761	1818	2814	738
Grp Volume(v), veh/h	0	500	217	0	407	399	411	446	430	105	215	212
Grp Sat Flow(s),veh/h/ln	0	1763	1559	0	1763	1723	1773	1769	1705	1818	1814	1738
Q Serve(g_s), s	0.0	0.2	0.1	0.0	18.2	18.2	22.8	28.8	28.8	5.8	14.1	14.5
Cycle Q Clear(g_c), s	0.0	0.2	0.1	0.0	18.2	18.2	22.8	28.8	28.8	5.8	14.1	14.5
Prop In Lane	0.00		1.00	0.00		0.33	1.00		0.45	1.00		0.42
Lane Grp Cap(c), veh/h	0	1749	1095	0	875	855	448	510	491	209	270	259
V/C Ratio(X)	0.00	0.29	0.20	0.00	0.47	0.47	0.92	0.88	0.88	0.50	0.80	0.82
Avail Cap(c_a), veh/h	0	1749	1095	0	875	855	448	510	491	462	434	416
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.00	0.87	0.87	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.2	0.1	0.0	19.8	19.8	32.6	40.7	40.7	42.0	55.3	55.5
Incr Delay (d2), s/veh	0.0	0.4	0.4	0.0	1.8	1.8	23.4	15.6	16.2	1.4	5.3	6.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.1	0.0	7.7	7.5	12.5	14.5	14.1	2.8	7.3	7.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.6	0.4	0.0	21.6	21.6	56.0	56.2	56.8	43.4	60.6	62.2
LnGrp LOS	A	A	A	A	C	C	E	E	E	D	E	E
Approach Vol, veh/h		717			806			1287			532	
Approach Delay, s/veh		0.5			21.6			56.3			57.8	
Approach LOS		A			C			E			E	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	65.8	30.0	24.2	65.8	13.3	40.9
Change Period (Y+Rc), s	6.3	5.5	6.3	6.3	5.5	6.3
Max Green Setting (Gmax), s	48.7	24.5	28.7	48.7	24.5	28.7
Max Q Clear Time (g_c+I1), s	2.2	24.8	16.5	20.2	7.8	30.8
Green Ext Time (p_c), s	6.8	0.0	1.4	8.0	0.2	0.0

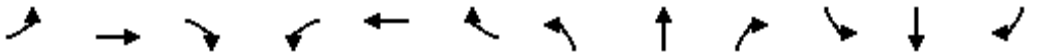
Intersection Summary	
HCM 6th Ctrl Delay	36.2
HCM 6th LOS	D

Notes

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

HCM 6th Signalized Intersection Summary
40: 116th Avenue NE/116th Ave NE & NE 128th St

08/24/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	120	65	495	160	526	65	339	320	257	441	34
Future Volume (veh/h)	32	120	65	495	160	526	65	339	320	257	441	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.95	1.00		0.96	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1964	1964	1964	1856	1856	1856	1817	1817	1817	1835	1835	1835
Adj Flow Rate, veh/h	34	126	54	344	415	276	68	357	186	271	464	32
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	3	3	3	2	2	2	4	4	4
Cap, veh/h	422	289	124	412	433	538	87	488	249	210	970	67
Arrive On Green	0.23	0.23	0.23	0.39	0.39	0.39	0.05	0.22	0.22	0.04	0.10	0.10
Sat Flow, veh/h	1870	1281	549	1767	1856	1496	1731	2176	1108	1747	3295	226
Grp Volume(v), veh/h	34	0	180	344	415	276	68	282	261	271	245	251
Grp Sat Flow(s),veh/h/ln	1870	0	1830	1767	1856	1496	1731	1726	1558	1747	1743	1778
Q Serve(g_s), s	1.7	0.0	10.1	21.1	26.1	16.5	4.7	18.1	18.8	14.4	15.9	16.1
Cycle Q Clear(g_c), s	1.7	0.0	10.1	21.1	26.1	16.5	4.7	18.1	18.8	14.4	15.9	16.1
Prop In Lane	1.00		0.30	1.00		1.00	1.00		0.71	1.00		0.13
Lane Grp Cap(c), veh/h	422	0	413	412	433	538	87	388	350	210	513	523
V/C Ratio(X)	0.08	0.00	0.44	0.83	0.96	0.51	0.78	0.73	0.75	1.29	0.48	0.48
Avail Cap(c_a), veh/h	422	0	413	412	433	538	208	417	376	210	513	523
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	0.37	0.37	0.37	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.7	0.0	39.9	34.5	36.1	24.2	56.3	43.1	43.4	57.6	45.4	45.5
Incr Delay (d2), s/veh	0.1	0.0	0.7	7.4	18.1	1.3	10.7	6.1	7.8	162.3	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	4.7	8.6	12.2	5.3	2.3	8.5	8.0	16.3	7.6	7.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.7	0.0	40.6	41.9	54.1	25.5	67.0	49.2	51.2	219.9	46.3	46.3
LnGrp LOS	D	A	D	D	D	C	E	D	D	F	D	D
Approach Vol, veh/h		214			1035			611			767	
Approach Delay, s/veh		40.0			42.4			52.0			107.6	
Approach LOS		D			D			D			F	

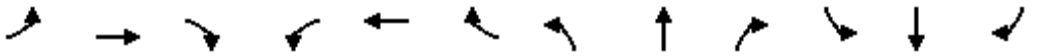
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		33.1	11.6	41.3		34.0	20.0	32.9				
Change Period (Y+Rc), s		6.0	5.6	6.0		6.0	5.6	6.0				
Max Green Setting (Gmax), s		25.0	14.4	29.0		28.0	14.4	29.0				
Max Q Clear Time (g_c+I1), s		12.1	6.7	18.1		28.1	16.4	20.8				
Green Ext Time (p_c), s		0.9	0.1	2.0		0.0	0.0	1.9				

Intersection Summary	
HCM 6th Ctrl Delay	63.5
HCM 6th LOS	E

Notes

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

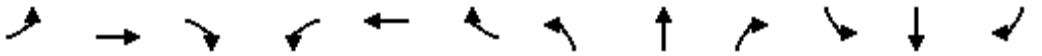
User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	117	503	77	195	729	245	376	20	135	125	10	76
Future Volume (vph)	117	503	77	195	729	245	376	20	135	125	10	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	6.3		5.5	6.3			6.3	6.3		6.3	6.3
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.93			1.00	0.98		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Frt	1.00	0.98		1.00	0.96			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.96	1.00
Satd. Flow (prot)	1748	3423		1752	3140			1744	1527		1746	1553
Flt Permitted	0.11	1.00		0.27	1.00			0.95	1.00		0.96	1.00
Satd. Flow (perm)	197	3423		499	3140			1744	1527		1746	1553
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)	123	529	81	205	767	258	396	21	142	132	11	80
RTOR Reduction (vph)	0	9	0	0	23	0	0	0	104	0	0	70
Lane Group Flow (vph)	123	601	0	205	1002	0	0	417	38	0	143	10
Confl. Peds. (#/hr)	134		3	3		134			5	5		
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	4%	4%	4%	4%	4%	4%
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	2			6					3			4
Actuated Green, G (s)	48.7	38.3		55.7	41.8			28.7	28.7		14.7	14.7
Effective Green, g (s)	48.7	38.3		55.7	41.8			28.7	28.7		14.7	14.7
Actuated g/C Ratio	0.41	0.32		0.46	0.35			0.24	0.24		0.12	0.12
Clearance Time (s)	5.5	6.3		5.5	6.3			6.3	6.3		6.3	6.3
Vehicle Extension (s)	3.0	4.0		3.0	4.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	214	1092		376	1093			417	365		213	190
v/s Ratio Prot	0.05	0.18		c0.06	c0.32			c0.24			c0.08	
v/s Ratio Perm	0.18			0.19					0.02			0.01
v/c Ratio	0.57	0.55		0.55	0.92			1.00	0.10		0.67	0.05
Uniform Delay, d1	25.9	33.7		20.8	37.4			45.6	35.6		50.3	46.5
Progression Factor	1.35	1.54		0.85	0.89			1.00	1.00		1.00	1.00
Incremental Delay, d2	1.4	0.8		1.2	10.6			44.1	0.1		8.1	0.1
Delay (s)	36.2	52.6		19.0	44.0			89.7	35.7		58.4	46.6
Level of Service	D	D		B	D			F	D		E	D
Approach Delay (s)		49.8			39.8			76.0			54.2	
Approach LOS		D			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	51.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	24.4
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	488	275	0	645	140	394	650	205	100	320	130
Future Volume (veh/h)	0	488	275	0	645	140	394	650	205	100	320	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.96	0.99		0.98	0.99		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1856	1856	0	1856	1856	1862	1862	1862	1909	1909	1909
Adj Flow Rate, veh/h	0	514	222	0	679	132	415	684	192	105	337	95
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	3	0	3	3	1	1	1	2	2	2
Cap, veh/h	0	1743	1092	0	1444	280	448	786	221	210	418	116
Arrive On Green	0.00	0.99	0.99	0.00	0.49	0.49	0.20	0.29	0.29	0.02	0.05	0.05
Sat Flow, veh/h	0	3618	1559	0	3012	567	1773	2712	761	1818	2777	768
Grp Volume(v), veh/h	0	514	222	0	410	401	415	446	430	105	218	214
Grp Sat Flow(s),veh/h/ln	0	1763	1559	0	1763	1724	1773	1769	1705	1818	1814	1731
Q Serve(g_s), s	0.0	0.3	0.2	0.0	18.4	18.4	23.1	28.7	28.8	5.8	14.3	14.7
Cycle Q Clear(g_c), s	0.0	0.3	0.2	0.0	18.4	18.4	23.1	28.7	28.8	5.8	14.3	14.7
Prop In Lane	0.00		1.00	0.00		0.33	1.00		0.45	1.00		0.44
Lane Grp Cap(c), veh/h	0	1743	1092	0	872	852	448	513	494	210	273	261
V/C Ratio(X)	0.00	0.29	0.20	0.00	0.47	0.47	0.93	0.87	0.87	0.50	0.80	0.82
Avail Cap(c_a), veh/h	0	1743	1092	0	872	852	448	513	494	464	434	414
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.00	0.85	0.85	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.3	0.1	0.0	20.0	20.0	32.5	40.4	40.5	41.8	55.2	55.4
Incr Delay (d2), s/veh	0.0	0.4	0.4	0.0	1.8	1.9	25.0	14.8	15.4	1.4	5.4	7.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.1	0.0	7.8	7.6	12.8	14.4	14.0	2.8	7.4	7.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.7	0.5	0.0	21.8	21.9	57.5	55.3	55.8	43.2	60.6	62.5
LnGrp LOS	A	A	A	A	C	C	E	E	E	D	E	E
Approach Vol, veh/h		736			811			1291			537	
Approach Delay, s/veh		0.6			21.8			56.2			58.0	
Approach LOS		A			C			E			E	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	65.6	30.0	24.4	65.6	13.3	41.1
Change Period (Y+Rc), s	6.3	5.5	6.3	6.3	5.5	6.3
Max Green Setting (Gmax), s	48.7	24.5	28.7	48.7	24.5	28.7
Max Q Clear Time (g_c+I1), s	2.3	25.1	16.7	20.4	7.8	30.8
Green Ext Time (p_c), s	7.0	0.0	1.4	8.0	0.2	0.0

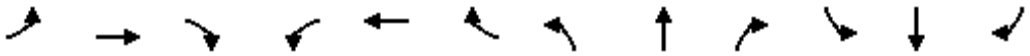
Intersection Summary	
HCM 6th Ctrl Delay	36.1
HCM 6th LOS	D

Notes

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

HCM 6th Signalized Intersection Summary
40: 116th Avenue NE/116th Ave NE & NE 128th St

08/20/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	180	80	305	70	180	50	195	370	400	475	20
Future Volume (veh/h)	65	180	80	305	70	180	50	195	370	400	475	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.95	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1964	1964	1964	1826	1826	1826	1817	1817	1817	1850	1850	1850
Adj Flow Rate, veh/h	68	189	71	374	0	102	53	205	150	421	500	19
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	5	5	5	2	2	2	3	3	3
Cap, veh/h	332	237	89	673	0	598	68	388	267	358	1260	48
Arrive On Green	0.18	0.18	0.18	0.19	0.00	0.19	0.04	0.20	0.20	0.20	0.37	0.37
Sat Flow, veh/h	1870	1335	501	3478	0	1463	1731	1925	1327	1762	3448	131
Grp Volume(v), veh/h	68	0	260	374	0	102	53	183	172	421	254	265
Grp Sat Flow(s),veh/h/ln	1870	0	1836	1739	0	1463	1731	1726	1526	1762	1757	1821
Q Serve(g_s), s	3.3	0.0	14.3	10.2	0.0	4.8	3.2	9.9	10.7	21.4	11.3	11.3
Cycle Q Clear(g_c), s	3.3	0.0	14.3	10.2	0.0	4.8	3.2	9.9	10.7	21.4	11.3	11.3
Prop In Lane	1.00		0.27	1.00		1.00	1.00		0.87	1.00		0.07
Lane Grp Cap(c), veh/h	332	0	326	673	0	598	68	348	308	358	642	666
V/C Ratio(X)	0.21	0.00	0.80	0.56	0.00	0.17	0.78	0.52	0.56	1.18	0.40	0.40
Avail Cap(c_a), veh/h	373	0	366	1289	0	857	336	469	415	358	642	666
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.0	0.0	41.5	38.4	0.0	20.6	50.1	37.5	37.8	41.9	24.8	24.8
Incr Delay (d2), s/veh	0.3	0.0	10.7	0.9	0.0	0.2	12.9	1.5	1.9	104.3	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	7.4	4.4	0.0	1.7	1.6	4.4	4.2	19.7	4.8	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.3	0.0	52.2	39.2	0.0	20.7	63.0	39.0	39.7	146.2	25.2	25.2
LnGrp LOS	D	A	D	D	A	C	E	D	D	F	C	C
Approach Vol, veh/h		328			476			408			940	
Approach Delay, s/veh		49.1			35.3			42.4			79.4	
Approach LOS		D			D			D			E	

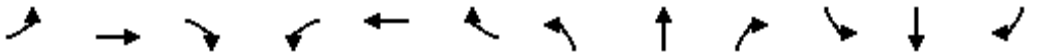
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		24.7	9.8	44.5		26.4	27.0	27.2				
Change Period (Y+Rc), s		6.0	5.6	6.0		6.0	5.6	6.0				
Max Green Setting (Gmax), s		21.0	20.4	29.6		39.0	21.4	28.6				
Max Q Clear Time (g_c+I1), s		16.3	5.2	13.3		12.2	23.4	12.7				
Green Ext Time (p_c), s		0.8	0.1	2.4		2.2	0.0	1.7				

Intersection Summary	
HCM 6th Ctrl Delay	58.0
HCM 6th LOS	E

Notes

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

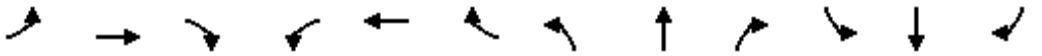
User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	465	450	340	370	70	50	5	55	345	15	135
Future Volume (vph)	35	465	450	340	370	70	50	5	55	345	15	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	6.3		5.5	6.3			6.3	6.3		6.3	6.3
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	0.98		1.00	0.98			1.00	0.99		1.00	0.98
Flpb, ped/bikes	0.97	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Frt	1.00	0.93		1.00	0.98			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.95	1.00
Satd. Flow (prot)	1716	3209		1752	3342			1747	1530		1760	1542
Flt Permitted	0.49	1.00		0.09	1.00			0.96	1.00		0.95	1.00
Satd. Flow (perm)	877	3209		170	3342			1747	1530		1760	1542
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)	37	489	474	358	389	74	53	5	58	363	16	142
RTOR Reduction (vph)	0	114	0	0	8	0	0	0	52	0	0	92
Lane Group Flow (vph)	37	849	0	358	455	0	0	58	6	0	379	50
Confl. Peds. (#/hr)	63		12	12		63	3		3	3		3
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	4%	4%	4%	3%	3%	3%
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	2			6					3			4
Actuated Green, G (s)	42.2	37.9		68.4	58.6			11.8	11.8		25.3	25.3
Effective Green, g (s)	42.2	37.9		68.4	58.6			11.8	11.8		25.3	25.3
Actuated g/C Ratio	0.34	0.30		0.55	0.47			0.09	0.09		0.20	0.20
Clearance Time (s)	5.5	6.3		5.5	6.3			6.3	6.3		6.3	6.3
Vehicle Extension (s)	3.0	4.0		3.0	4.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	326	977		411	1574			165	145		357	313
v/s Ratio Prot	0.00	0.26		c0.17	0.14			c0.03			c0.22	
v/s Ratio Perm	0.03			c0.30					0.00			0.03
v/c Ratio	0.11	0.87		0.87	0.29			0.35	0.04		1.06	0.16
Uniform Delay, d1	27.8	40.9		36.0	20.1			52.7	51.1		49.6	40.8
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	0.2	8.6		17.9	0.1			1.3	0.1		64.9	0.2
Delay (s)	27.9	49.5		53.9	20.3			54.0	51.3		114.4	41.0
Level of Service	C	D		D	C			D	D		F	D
Approach Delay (s)		48.7			34.9			52.6			94.4	
Approach LOS		D			C			D			F	

Intersection Summary			
HCM 2000 Control Delay	54.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	124.4	Sum of lost time (s)	24.4
Intersection Capacity Utilization	88.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



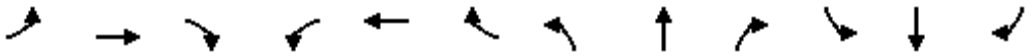
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	505	360	0	415	135	160	305	425	80	460	205
Future Volume (veh/h)	0	505	360	0	415	135	160	305	425	80	460	205
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.96	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1841	1841	0	1841	1841	1832	1832	1832	1894	1894	1894
Adj Flow Rate, veh/h	0	532	298	0	437	114	168	321	235	84	484	173
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	4	4	0	4	4	3	3	3	3	3	3
Cap, veh/h	0	1195	685	0	930	240	357	581	415	352	658	233
Arrive On Green	0.00	0.34	0.34	0.00	0.34	0.34	0.10	0.30	0.30	0.05	0.25	0.25
Sat Flow, veh/h	0	3589	1548	0	2816	703	1745	1929	1379	1804	2594	921
Grp Volume(v), veh/h	0	532	298	0	279	272	168	289	267	84	335	322
Grp Sat Flow(s),veh/h/ln	0	1749	1548	0	1749	1678	1745	1740	1567	1804	1800	1716
Q Serve(g_s), s	0.0	7.0	7.9	0.0	7.4	7.6	4.1	8.3	8.5	2.0	10.1	10.3
Cycle Q Clear(g_c), s	0.0	7.0	7.9	0.0	7.4	7.6	4.1	8.3	8.5	2.0	10.1	10.3
Prop In Lane	0.00		1.00	0.00		0.42	1.00		0.88	1.00		0.54
Lane Grp Cap(c), veh/h	0	1195	685	0	597	573	357	524	472	352	456	435
V/C Ratio(X)	0.00	0.45	0.44	0.00	0.47	0.47	0.47	0.55	0.57	0.24	0.73	0.74
Avail Cap(c_a), veh/h	0	2060	1068	0	1030	988	770	1172	1055	864	1211	1155
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	15.2	11.5	0.0	15.3	15.4	14.9	17.4	17.5	15.3	20.3	20.4
Incr Delay (d2), s/veh	0.0	0.4	0.6	0.0	0.8	0.9	0.7	0.9	1.1	0.3	2.3	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.5	2.4	0.0	2.7	2.7	1.5	3.1	2.9	0.8	4.1	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	15.6	12.1	0.0	16.1	16.2	15.6	18.3	18.6	15.6	22.6	22.9
LnGrp LOS	A	B	B	A	B	B	B	B	B	B	C	C
Approach Vol, veh/h		830			551			724			741	
Approach Delay, s/veh		14.3			16.2			17.8			21.9	
Approach LOS		B			B			B			C	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		26.6	11.5	21.4		26.6	8.6	24.2				
Change Period (Y+Rc), s		6.3	5.5	6.3		6.3	5.5	6.3				
Max Green Setting (Gmax), s		35.0	20.0	40.0		35.0	20.0	40.0				
Max Q Clear Time (g_c+I1), s		9.9	6.1	12.3		9.6	4.0	10.5				
Green Ext Time (p_c), s		7.0	0.3	2.8		4.9	0.2	2.4				

Intersection Summary												
HCM 6th Ctrl Delay			17.5									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary
40: 116th Avenue NE/116th Ave NE & NE 128th St

08/24/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	180	80	305	70	206	50	239	370	419	494	21
Future Volume (veh/h)	66	180	80	305	70	206	50	239	370	419	494	21
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.95	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1964	1964	1964	1826	1826	1826	1817	1817	1817	1850	1850	1850
Adj Flow Rate, veh/h	69	189	71	374	0	130	53	252	150	441	520	20
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	5	5	5	2	2	2	3	3	3
Cap, veh/h	330	235	88	672	0	594	68	434	248	354	1272	49
Arrive On Green	0.18	0.18	0.18	0.19	0.00	0.19	0.04	0.21	0.21	0.20	0.37	0.37
Sat Flow, veh/h	1870	1335	501	3478	0	1463	1731	2090	1193	1762	3446	132
Grp Volume(v), veh/h	69	0	260	374	0	130	53	206	196	441	265	275
Grp Sat Flow(s),veh/h/ln	1870	0	1836	1739	0	1463	1731	1726	1556	1762	1757	1821
Q Serve(g_s), s	3.4	0.0	14.5	10.3	0.0	6.3	3.2	11.4	12.1	21.4	11.9	12.0
Cycle Q Clear(g_c), s	3.4	0.0	14.5	10.3	0.0	6.3	3.2	11.4	12.1	21.4	11.9	12.0
Prop In Lane	1.00		0.27	1.00		1.00	1.00		0.77	1.00		0.07
Lane Grp Cap(c), veh/h	330	0	324	672	0	594	68	358	323	354	649	672
V/C Ratio(X)	0.21	0.00	0.80	0.56	0.00	0.22	0.78	0.58	0.61	1.24	0.41	0.41
Avail Cap(c_a), veh/h	369	0	362	1275	0	847	332	464	418	354	649	672
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.5	0.0	42.0	38.8	0.0	21.4	50.6	37.9	38.2	42.5	24.9	24.9
Incr Delay (d2), s/veh	0.3	0.0	11.2	0.9	0.0	0.2	12.9	1.8	2.2	131.8	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	7.6	4.4	0.0	2.2	1.7	5.0	4.8	22.3	5.1	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.8	0.0	53.3	39.7	0.0	21.6	63.6	39.7	40.4	174.3	25.4	25.4
LnGrp LOS	D	A	D	D	A	C	E	D	D	F	C	C
Approach Vol, veh/h		329			504			455			981	
Approach Delay, s/veh		50.0			35.0			42.8			92.3	
Approach LOS		D			D			D			F	

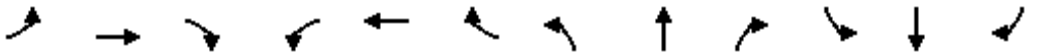
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		24.8	9.8	45.3		26.6	27.0	28.1				
Change Period (Y+Rc), s		6.0	5.6	6.0		6.0	5.6	6.0				
Max Green Setting (Gmax), s		21.0	20.4	29.6		39.0	21.4	28.6				
Max Q Clear Time (g_c+I1), s		16.5	5.2	14.0		12.3	23.4	14.1				
Green Ext Time (p_c), s		0.8	0.1	2.5		2.3	0.0	1.8				

Intersection Summary	
HCM 6th Ctrl Delay	63.5
HCM 6th LOS	E

Notes

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

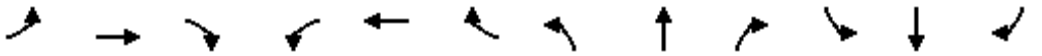
User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	480	452	340	388	70	54	11	55	345	17	139
Future Volume (vph)	37	480	452	340	388	70	54	11	55	345	17	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	6.3		5.5	6.3			6.3	6.3		6.3	6.3
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	0.98		1.00	0.98			1.00	0.99		1.00	0.98
Flpb, ped/bikes	0.97	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Frt	1.00	0.93		1.00	0.98			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.95	1.00
Satd. Flow (prot)	1718	3213		1752	3348			1754	1530		1761	1542
Flt Permitted	0.48	1.00		0.10	1.00			0.96	1.00		0.95	1.00
Satd. Flow (perm)	862	3213		176	3348			1754	1530		1761	1542
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)	39	505	476	358	408	74	57	12	58	363	18	146
RTOR Reduction (vph)	0	112	0	0	8	0	0	0	52	0	0	93
Lane Group Flow (vph)	39	869	0	358	474	0	0	69	6	0	381	53
Confl. Peds. (#/hr)	63		12	12		63	3		3	3		3
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	4%	4%	4%	3%	3%	3%
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	2			6					3			4
Actuated Green, G (s)	42.1	36.4		67.1	55.9			13.9	13.9		25.2	25.2
Effective Green, g (s)	42.1	36.4		67.1	55.9			13.9	13.9		25.2	25.2
Actuated g/C Ratio	0.34	0.29		0.54	0.45			0.11	0.11		0.20	0.20
Clearance Time (s)	5.5	6.3		5.5	6.3			6.3	6.3		6.3	6.3
Vehicle Extension (s)	3.0	4.0		3.0	4.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	329	934		411	1496			194	170		354	310
v/s Ratio Prot	0.01	c0.27		c0.18	0.14			c0.04			c0.22	
v/s Ratio Perm	0.03			0.29					0.00			0.03
v/c Ratio	0.12	0.93		0.87	0.32			0.36	0.04		1.08	0.17
Uniform Delay, d1	28.2	43.1		36.2	22.3			51.5	49.6		49.9	41.3
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	0.2	15.5		17.9	0.2			1.1	0.1		69.7	0.3
Delay (s)	28.3	58.6		54.1	22.5			52.6	49.7		119.6	41.6
Level of Service	C	E		D	C			D	D		F	D
Approach Delay (s)		57.5			36.0			51.3			98.0	
Approach LOS		E			D			D			F	

Intersection Summary			
HCM 2000 Control Delay	58.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	125.1	Sum of lost time (s)	24.4
Intersection Capacity Utilization	89.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



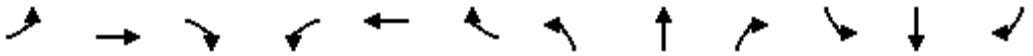
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	514	366	0	424	135	164	305	425	80	460	210
Future Volume (veh/h)	0	514	366	0	424	135	164	305	425	80	460	210
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.96	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1841	1841	0	1841	1841	1832	1832	1832	1894	1894	1894
Adj Flow Rate, veh/h	0	541	304	0	446	114	173	321	235	84	484	178
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	4	4	0	4	4	3	3	3	3	3	3
Cap, veh/h	0	1196	689	0	936	237	359	588	420	353	655	239
Arrive On Green	0.00	0.34	0.34	0.00	0.34	0.34	0.10	0.30	0.30	0.05	0.25	0.25
Sat Flow, veh/h	0	3589	1548	0	2828	692	1745	1929	1379	1804	2572	939
Grp Volume(v), veh/h	0	541	304	0	283	277	173	289	267	84	338	324
Grp Sat Flow(s),veh/h/ln	0	1749	1548	0	1749	1680	1745	1740	1568	1804	1800	1712
Q Serve(g_s), s	0.0	7.2	8.2	0.0	7.7	7.8	4.3	8.3	8.6	2.0	10.4	10.5
Cycle Q Clear(g_c), s	0.0	7.2	8.2	0.0	7.7	7.8	4.3	8.3	8.6	2.0	10.4	10.5
Prop In Lane	0.00		1.00	0.00		0.41	1.00		0.88	1.00		0.55
Lane Grp Cap(c), veh/h	0	1196	689	0	598	574	359	530	477	353	458	436
V/C Ratio(X)	0.00	0.45	0.44	0.00	0.47	0.48	0.48	0.54	0.56	0.24	0.74	0.74
Avail Cap(c_a), veh/h	0	2036	1061	0	1018	978	761	1158	1043	859	1197	1139
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	15.4	11.6	0.0	15.5	15.6	15.0	17.4	17.5	15.4	20.6	20.6
Incr Delay (d2), s/veh	0.0	0.4	0.6	0.0	0.8	0.9	0.7	0.9	1.0	0.3	2.3	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.6	2.4	0.0	2.8	2.7	1.5	3.1	2.9	0.8	4.2	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	15.8	12.2	0.0	16.4	16.5	15.7	18.3	18.6	15.7	22.9	23.1
LnGrp LOS	A	B	B	A	B	B	B	B	B	B	C	C
Approach Vol, veh/h		845			560			729			746	
Approach Delay, s/veh		14.5			16.4			17.8			22.2	
Approach LOS		B			B			B			C	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		26.9	11.7	21.6		26.9	8.7	24.6				
Change Period (Y+Rc), s		6.3	5.5	6.3		6.3	5.5	6.3				
Max Green Setting (Gmax), s		35.0	20.0	40.0		35.0	20.0	40.0				
Max Q Clear Time (g_c+I1), s		10.2	6.3	12.5		9.8	4.0	10.6				
Green Ext Time (p_c), s		7.1	0.3	2.8		5.0	0.2	2.4				

Intersection Summary												
HCM 6th Ctrl Delay			17.7									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary
40: 116th Avenue NE/116th Ave NE & NE 128th St

08/20/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	120	65	525	180	545	65	350	360	255	415	30
Future Volume (veh/h)	35	120	65	525	180	545	65	350	360	255	415	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.95	1.00		0.95	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1964	1964	1964	1856	1856	1856	1817	1817	1817	1835	1835	1835
Adj Flow Rate, veh/h	37	126	54	371	444	310	68	368	224	268	437	28
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	3	3	3	2	2	2	4	4	4
Cap, veh/h	410	281	120	412	433	536	87	470	280	210	995	63
Arrive On Green	0.22	0.22	0.22	0.39	0.39	0.39	0.05	0.23	0.23	0.04	0.10	0.10
Sat Flow, veh/h	1870	1278	548	1767	1856	1488	1731	2040	1216	1747	3313	211
Grp Volume(v), veh/h	37	0	180	371	444	310	68	310	282	268	229	236
Grp Sat Flow(s),veh/h/ln	1870	0	1826	1767	1856	1488	1731	1726	1530	1747	1743	1781
Q Serve(g_s), s	1.9	0.0	10.2	23.7	28.0	19.7	4.7	20.2	20.8	14.4	14.9	15.0
Cycle Q Clear(g_c), s	1.9	0.0	10.2	23.7	28.0	19.7	4.7	20.2	20.8	14.4	14.9	15.0
Prop In Lane	1.00		0.30	1.00		1.00	1.00		0.80	1.00		0.12
Lane Grp Cap(c), veh/h	410	0	401	412	433	536	87	398	353	210	523	535
V/C Ratio(X)	0.09	0.00	0.45	0.90	1.03	0.58	0.78	0.78	0.80	1.28	0.44	0.44
Avail Cap(c_a), veh/h	410	0	401	412	433	536	208	417	370	210	523	535
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.3	0.0	40.5	35.3	36.6	25.1	56.3	43.3	43.5	57.6	44.5	44.6
Incr Delay (d2), s/veh	0.1	0.0	0.8	3.3	20.1	0.4	10.7	9.1	11.7	156.6	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	4.7	9.0	13.2	6.1	2.3	9.7	9.1	15.9	7.1	7.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.4	0.0	41.3	38.6	56.7	25.5	67.0	52.4	55.2	214.3	45.2	45.3
LnGrp LOS	D	A	D	D	F	C	E	D	E	F	D	D
Approach Vol, veh/h		217			1125			660			733	
Approach Delay, s/veh		40.7			42.1			55.1			107.0	
Approach LOS		D			D			E			F	

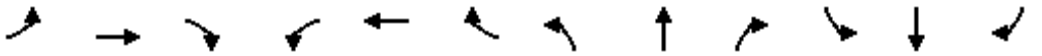
Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	32.3	11.6	42.0	34.0	20.0	33.7
Change Period (Y+Rc), s	6.0	5.6	6.0	6.0	5.6	6.0
Max Green Setting (Gmax), s	25.0	14.4	29.0	28.0	14.4	29.0
Max Q Clear Time (g_c+I1), s	12.2	6.7	17.0	30.0	16.4	22.8
Green Ext Time (p_c), s	0.9	0.1	1.9	0.0	0.0	1.8

Intersection Summary	
HCM 6th Ctrl Delay	62.5
HCM 6th LOS	E

Notes

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

User approved volume balancing among the lanes for turning movement.



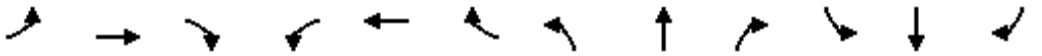
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	505	95	250	755	290	400	20	145	160	10	95
Future Volume (vph)	135	505	95	250	755	290	400	20	145	160	10	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	6.3		5.5	6.3			6.3	6.3		6.3	6.3
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.92			1.00	0.98		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Frt	1.00	0.98		1.00	0.96			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.96	1.00
Satd. Flow (prot)	1748	3407		1752	3083			1744	1527		1745	1553
Flt Permitted	0.12	1.00		0.23	1.00			0.95	1.00		0.96	1.00
Satd. Flow (perm)	213	3407		417	3083			1744	1527		1745	1553
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)	142	532	100	263	795	305	421	21	153	168	11	100
RTOR Reduction (vph)	0	12	0	0	30	0	0	0	104	0	0	87
Lane Group Flow (vph)	142	620	0	263	1070	0	0	442	49	0	179	14
Confl. Peds. (#/hr)	146		4	4		146			5	5		
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	4%	4%	4%	4%	4%	4%
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	2			6					3			4
Actuated Green, G (s)	46.1	34.6		55.3	39.2			28.7	28.7		16.2	16.2
Effective Green, g (s)	46.1	34.6		55.3	39.2			28.7	28.7		16.2	16.2
Actuated g/C Ratio	0.38	0.29		0.46	0.33			0.24	0.24		0.13	0.13
Clearance Time (s)	5.5	6.3		5.5	6.3			6.3	6.3		6.3	6.3
Vehicle Extension (s)	3.0	4.0		3.0	4.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	228	982		371	1007			417	365		235	209
v/s Ratio Prot	0.06	0.18		c0.10	c0.35			c0.25			c0.10	
v/s Ratio Perm	0.18			0.23					0.03			0.01
v/c Ratio	0.62	0.63		0.71	1.06			1.06	0.13		0.76	0.06
Uniform Delay, d1	28.4	37.2		22.5	40.4			45.6	35.9		50.0	45.3
Progression Factor	1.28	1.49		1.00	0.89			1.00	1.00		1.00	1.00
Incremental Delay, d2	1.9	1.1		4.1	41.9			60.8	0.2		13.6	0.1
Delay (s)	38.2	56.3		26.7	77.7			106.5	36.0		63.6	45.4
Level of Service	D	E		C	E			F	D		E	D
Approach Delay (s)		53.0			67.9			88.4			57.1	
Approach LOS		D			E			F			E	

Intersection Summary			
HCM 2000 Control Delay	67.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	24.4
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
42: Totem Lake Blvd & NE 128th St

08/20/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	515	295	0	705	150	440	655	205	100	330	150
Future Volume (veh/h)	0	515	295	0	705	150	440	655	205	100	330	150
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.95	0.99		0.98	0.99		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1856	1856	0	1856	1856	1862	1862	1862	1909	1909	1909
Adj Flow Rate, veh/h	0	542	257	0	742	143	463	689	191	105	347	112
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	3	0	3	3	1	1	1	2	2	2
Cap, veh/h	0	1712	1078	0	1419	273	448	814	226	216	427	135
Arrive On Green	0.00	0.97	0.97	0.00	0.49	0.49	0.20	0.30	0.30	0.02	0.05	0.05
Sat Flow, veh/h	0	3618	1558	0	3014	563	1773	2720	754	1818	2678	847
Grp Volume(v), veh/h	0	542	257	0	448	437	463	448	432	105	233	226
Grp Sat Flow(s),veh/h/ln	0	1763	1558	0	1763	1722	1773	1769	1705	1818	1814	1712
Q Serve(g_s), s	0.0	0.8	0.5	0.0	21.0	21.0	24.5	28.5	28.5	5.7	15.2	15.7
Cycle Q Clear(g_c), s	0.0	0.8	0.5	0.0	21.0	21.0	24.5	28.5	28.5	5.7	15.2	15.7
Prop In Lane	0.00		1.00	0.00		0.33	1.00		0.44	1.00		0.50
Lane Grp Cap(c), veh/h	0	1712	1078	0	856	836	448	529	510	216	289	273
V/C Ratio(X)	0.00	0.32	0.24	0.00	0.52	0.52	1.03	0.85	0.85	0.49	0.81	0.83
Avail Cap(c_a), veh/h	0	1712	1078	0	856	836	448	529	510	470	434	409
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.00	0.79	0.79	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.9	0.3	0.0	21.3	21.3	32.9	39.4	39.5	40.9	55.0	55.2
Incr Delay (d2), s/veh	0.0	0.4	0.4	0.0	2.3	2.3	51.4	12.1	12.5	1.3	6.6	8.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.3	0.2	0.0	9.0	8.8	16.9	13.9	13.5	2.7	8.0	7.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	1.3	0.7	0.0	23.6	23.6	84.3	51.5	52.0	42.1	61.6	63.8
LnGrp LOS	A	A	A	A	C	C	F	D	D	D	E	E
Approach Vol, veh/h		799			885			1343			564	
Approach Delay, s/veh		1.1			23.6			63.0			58.9	
Approach LOS		A			C			E			E	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	64.6	30.0	25.4	64.6	13.2	42.2
Change Period (Y+Rc), s	6.3	5.5	6.3	6.3	5.5	6.3
Max Green Setting (Gmax), s	48.7	24.5	28.7	48.7	24.5	28.7
Max Q Clear Time (g_c+I1), s	2.8	26.5	17.7	23.0	7.7	30.5
Green Ext Time (p_c), s	7.7	0.0	1.4	8.6	0.2	0.0

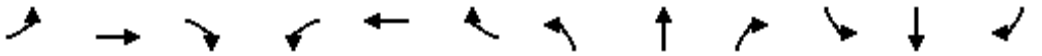
Intersection Summary	
HCM 6th Ctrl Delay	38.9
HCM 6th LOS	D

Notes

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

HCM 6th Signalized Intersection Summary
40: 116th Avenue NE/116th Ave NE & NE 128th St

08/24/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	120	65	525	180	561	65	364	360	277	461	34
Future Volume (veh/h)	37	120	65	525	180	561	65	364	360	277	461	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.95	1.00		0.95	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1964	1964	1964	1856	1856	1856	1817	1817	1817	1835	1835	1835
Adj Flow Rate, veh/h	39	126	54	371	444	327	68	383	224	292	485	32
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	3	3	3	2	2	2	4	4	4
Cap, veh/h	408	279	120	412	433	536	87	480	276	210	996	66
Arrive On Green	0.22	0.22	0.22	0.39	0.39	0.39	0.05	0.23	0.23	0.04	0.10	0.10
Sat Flow, veh/h	1870	1278	548	1767	1856	1488	1731	2073	1190	1747	3306	217
Grp Volume(v), veh/h	39	0	180	371	444	327	68	318	289	292	255	262
Grp Sat Flow(s),veh/h/ln	1870	0	1825	1767	1856	1488	1731	1726	1536	1747	1743	1780
Q Serve(g_s), s	2.0	0.0	10.3	23.7	28.0	21.5	4.7	20.8	21.4	14.4	16.6	16.7
Cycle Q Clear(g_c), s	2.0	0.0	10.3	23.7	28.0	21.5	4.7	20.8	21.4	14.4	16.6	16.7
Prop In Lane	1.00		0.30	1.00		1.00	1.00		0.77	1.00		0.12
Lane Grp Cap(c), veh/h	408	0	399	412	433	536	87	400	356	210	525	536
V/C Ratio(X)	0.10	0.00	0.45	0.90	1.03	0.61	0.78	0.79	0.81	1.39	0.49	0.49
Avail Cap(c_a), veh/h	408	0	399	412	433	536	208	417	371	210	525	536
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.4	0.0	40.7	35.3	36.6	25.5	56.3	43.4	43.6	57.6	45.2	45.3
Incr Delay (d2), s/veh	0.1	0.0	0.8	3.3	20.1	0.5	10.7	10.2	12.8	203.1	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	4.8	9.0	13.2	6.6	2.3	10.1	9.4	18.6	7.9	8.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.5	0.0	41.5	38.6	56.7	26.0	67.0	53.6	56.4	260.7	46.1	46.1
LnGrp LOS	D	A	D	D	F	C	E	D	E	F	D	D
Approach Vol, veh/h		219			1142			675			809	
Approach Delay, s/veh		40.8			42.0			56.1			123.6	
Approach LOS		D			D			E			F	

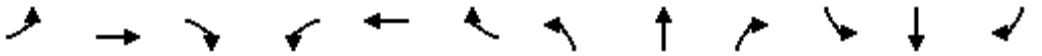
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		32.2	11.6	42.2		34.0	20.0	33.8				
Change Period (Y+Rc), s		6.0	5.6	6.0		6.0	5.6	6.0				
Max Green Setting (Gmax), s		25.0	14.4	29.0		28.0	14.4	29.0				
Max Q Clear Time (g_c+I1), s		12.3	6.7	18.7		30.0	16.4	23.4				
Green Ext Time (p_c), s		0.9	0.1	2.0		0.0	0.0	1.7				

Intersection Summary	
HCM 6th Ctrl Delay	68.5
HCM 6th LOS	E

Notes

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

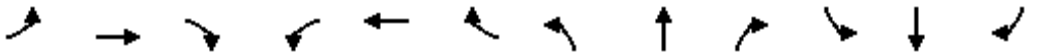
User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	137	523	97	250	769	290	401	20	145	160	10	96
Future Volume (vph)	137	523	97	250	769	290	401	20	145	160	10	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	6.3		5.5	6.3			6.3	6.3		6.3	6.3
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.92			1.00	0.98		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Frt	1.00	0.98		1.00	0.96			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.96	1.00
Satd. Flow (prot)	1748	3408		1752	3088			1744	1527		1745	1553
Flt Permitted	0.12	1.00		0.21	1.00			0.95	1.00		0.96	1.00
Satd. Flow (perm)	214	3408		390	3088			1744	1527		1745	1553
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)	144	551	102	263	809	305	422	21	153	168	11	101
RTOR Reduction (vph)	0	12	0	0	29	0	0	0	104	0	0	87
Lane Group Flow (vph)	144	641	0	263	1085	0	0	443	49	0	179	14
Confl. Peds. (#/hr)	146		4	4		146			5	5		
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	4%	4%	4%	4%	4%	4%
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	2			6					3			4
Actuated Green, G (s)	46.0	34.4		55.4	39.1			28.7	28.7		16.2	16.2
Effective Green, g (s)	46.0	34.4		55.4	39.1			28.7	28.7		16.2	16.2
Actuated g/C Ratio	0.38	0.29		0.46	0.33			0.24	0.24		0.13	0.13
Clearance Time (s)	5.5	6.3		5.5	6.3			6.3	6.3		6.3	6.3
Vehicle Extension (s)	3.0	4.0		3.0	4.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	230	976		365	1006			417	365		235	209
v/s Ratio Prot	0.06	0.19		c0.10	c0.35			c0.25			c0.10	
v/s Ratio Perm	0.18			0.23					0.03			0.01
v/c Ratio	0.63	0.66		0.72	1.08			1.06	0.13		0.76	0.07
Uniform Delay, d1	28.6	37.6		22.7	40.5			45.6	35.9		50.0	45.3
Progression Factor	1.29	1.50		1.03	0.89			1.00	1.00		1.00	1.00
Incremental Delay, d2	1.3	0.8		4.6	47.3			61.6	0.2		13.6	0.1
Delay (s)	38.3	57.2		27.9	83.3			107.2	36.0		63.6	45.4
Level of Service	D	E		C	F			F	D		E	D
Approach Delay (s)		53.8			72.8			89.0			57.0	
Approach LOS		D			E			F			E	

Intersection Summary			
HCM 2000 Control Delay	69.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	24.4
Intersection Capacity Utilization	85.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	528	300	0	710	150	444	655	205	100	330	155
Future Volume (veh/h)	0	528	300	0	710	150	444	655	205	100	330	155
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.95	0.99		0.98	0.99		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1856	1856	0	1856	1856	1862	1862	1862	1909	1909	1909
Adj Flow Rate, veh/h	0	556	262	0	747	143	467	689	191	105	347	117
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	3	0	3	3	1	1	1	2	2	2
Cap, veh/h	0	1706	1075	0	1415	271	448	819	227	217	426	141
Arrive On Green	0.00	0.97	0.97	0.00	0.48	0.48	0.20	0.30	0.30	0.02	0.05	0.05
Sat Flow, veh/h	0	3618	1558	0	3018	560	1773	2720	754	1818	2645	874
Grp Volume(v), veh/h	0	556	262	0	450	440	467	448	432	105	236	228
Grp Sat Flow(s),veh/h/ln	0	1763	1558	0	1763	1722	1773	1769	1705	1818	1814	1706
Q Serve(g_s), s	0.0	0.9	0.6	0.0	21.2	21.2	24.5	28.4	28.5	5.7	15.4	15.9
Cycle Q Clear(g_c), s	0.0	0.9	0.6	0.0	21.2	21.2	24.5	28.4	28.5	5.7	15.4	15.9
Prop In Lane	0.00		1.00	0.00		0.33	1.00		0.44	1.00		0.51
Lane Grp Cap(c), veh/h	0	1706	1075	0	853	833	448	533	513	217	292	275
V/C Ratio(X)	0.00	0.33	0.24	0.00	0.53	0.53	1.04	0.84	0.84	0.48	0.81	0.83
Avail Cap(c_a), veh/h	0	1706	1075	0	853	833	448	533	513	472	434	408
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.00	0.77	0.77	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	1.0	0.4	0.0	21.5	21.5	32.8	39.2	39.3	40.7	55.0	55.2
Incr Delay (d2), s/veh	0.0	0.4	0.4	0.0	2.3	2.4	54.0	11.6	12.0	1.2	6.8	8.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.3	0.2	0.0	9.1	8.9	17.2	13.8	13.4	2.7	8.1	8.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	1.4	0.8	0.0	23.8	23.9	86.7	50.8	51.2	41.9	61.7	64.1
LnGrp LOS	A	A	A	A	C	C	F	D	D	D	E	E
Approach Vol, veh/h		818			890			1347			569	
Approach Delay, s/veh		1.2			23.8			63.4			59.0	
Approach LOS		A			C			E			E	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		64.4	30.0	25.6		64.4	13.2	42.4				
Change Period (Y+Rc), s		6.3	5.5	6.3		6.3	5.5	6.3				
Max Green Setting (Gmax), s		48.7	24.5	28.7		48.7	24.5	28.7				
Max Q Clear Time (g_c+I1), s		2.9	26.5	17.9		23.2	7.7	30.5				
Green Ext Time (p_c), s		8.0	0.0	1.4		8.7	0.2	0.0				

Intersection Summary												
HCM 6th Ctrl Delay			39.0									
HCM 6th LOS			D									

Notes

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

MOVEMENT SUMMARY

Site: 1 [2024AM NE 132nd St at 116th Pl NE No Build]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: 116th Ave NE												
3	L2	107	8.0	0.208	9.6	LOS A	1.0	26.8	0.75	0.88	0.75	24.0
8	T1	9	8.0	0.179	4.2	LOS A	0.9	24.2	0.75	0.77	0.75	24.7
18	R2	98	8.0	0.179	4.7	LOS A	0.9	24.2	0.75	0.77	0.75	23.6
Approach		214	8.0	0.208	7.1	LOS A	1.0	26.8	0.75	0.83	0.75	23.9
East: NE 132nd Street												
1	L2	382	4.0	0.460	7.8	LOS A	2.9	75.8	0.39	0.54	0.39	27.9
6	T1	418	4.0	0.460	2.8	LOS A	2.9	75.8	0.36	0.42	0.36	28.4
16	R2	31	4.0	0.293	3.5	LOS A	1.5	38.6	0.34	0.34	0.34	27.7
Approach		831	4.0	0.460	5.1	LOS A	2.9	75.8	0.37	0.47	0.37	28.2
NorthEast: 405 SB Off												
1bx	L3	138	3.0	0.366	9.8	LOS A	1.8	44.8	0.67	0.82	0.72	9.4
1ax	L1	20	3.0	0.366	8.3	LOS A	1.8	44.8	0.67	0.82	0.72	23.8
16ax	R1	214	3.0	0.366	4.7	LOS A	1.8	44.8	0.66	0.76	0.68	23.5
16bx	R3	20	3.0	0.213	6.9	LOS A	0.8	21.4	0.64	0.69	0.64	22.9
Approach		393	3.0	0.366	6.8	LOS A	1.8	44.8	0.66	0.78	0.69	18.4
North: 114th Pl NE												
7	L2	46	3.0	0.284	10.4	LOS B	1.2	31.2	0.69	0.76	0.69	13.2
4	T1	87	3.0	0.284	5.2	LOS A	1.2	31.2	0.69	0.76	0.69	23.3
14	R2	36	3.0	0.284	6.1	LOS A	1.2	31.2	0.69	0.76	0.69	23.7
Approach		168	3.0	0.284	6.8	LOS A	1.2	31.2	0.69	0.76	0.69	20.4
West: NE 132nd Street												
5	L2	10	2.0	0.778	22.3	LOS C	10.8	273.3	0.97	1.25	1.60	28.9
2	T1	898	2.0	0.778	15.6	LOS B	11.8	300.8	0.97	1.23	1.58	18.8
12	R2	473	2.0	0.778	14.6	LOS B	11.8	300.8	0.97	1.19	1.55	28.6
Approach		1382	2.0	0.778	15.3	LOS B	11.8	300.8	0.97	1.22	1.57	22.4
All Vehicles		2988	3.2	0.778	10.3	LOS B	11.8	300.8	0.73	0.90	1.01	23.0

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2 [2024AM NE 132nd St at Totem Lake Blvd NE No Build]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: Totern Lake Blvd												
3	L2	199	5.0	0.460	10.5	LOS B	2.8	73.5	0.80	0.95	0.91	22.6
3a	L1	21	5.0	0.460	9.8	LOS A	2.8	73.5	0.80	0.95	0.91	23.3
8	T1	68	5.0	0.460	6.4	LOS A	2.8	73.5	0.80	0.95	0.91	23.3
18	R2	99	5.0	0.241	7.6	LOS A	1.1	27.8	0.72	0.81	0.72	23.2
Approach		386	5.0	0.460	9.0	LOS A	2.8	73.5	0.78	0.92	0.86	23.0
East: NE 132nd Street												
1	L2	229	4.0	0.539	15.3	LOS B	4.5	116.2	0.85	0.99	1.03	29.4
6	T1	495	4.0	0.539	10.0	LOS B	4.7	122.4	0.86	0.94	1.01	20.1
16a	R1	99	4.0	0.539	9.4	LOS A	4.7	122.4	0.86	0.92	1.00	30.7
16	R2	10	4.0	0.539	10.0	LOS B	4.7	122.4	0.86	0.92	1.00	30.0
Approach		833	4.0	0.539	11.4	LOS B	4.7	122.4	0.86	0.95	1.01	24.3
North: 116th Ave NE												
7	L2	16	1.0	0.938	35.7	LOS D	11.4	287.2	0.97	1.64	2.44	19.1
4	T1	214	1.0	0.938	31.5	LOS D	11.4	287.2	0.97	1.64	2.44	18.9
14	R2	165	1.0	0.938	31.8	LOS D	11.4	287.2	0.97	1.64	2.44	15.9
14b	R3	21	1.0	0.938	32.2	LOS D	11.4	287.2	0.97	1.64	2.44	18.5
Approach		415	1.0	0.938	31.8	LOS C	11.4	287.2	0.97	1.64	2.44	17.9
West: NE 132nd Street												
5b	L3	255	2.0	0.730	15.8	LOS B	9.1	231.8	0.89	0.97	1.15	27.3
5	L2	104	2.0	0.730	14.8	LOS B	9.1	231.8	0.89	0.97	1.15	26.9
2	T1	560	2.0	0.730	9.9	LOS A	9.1	231.8	0.85	0.94	1.07	27.6
12	R2	305	2.0	0.573	9.1	LOS A	4.9	124.5	0.78	0.86	0.91	27.8
Approach		1225	2.0	0.730	11.3	LOS B	9.1	231.8	0.85	0.93	1.05	27.5
All Vehicles		2859	2.8	0.938	14.0	LOS B	11.4	287.2	0.86	1.04	1.22	23.7

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [2024AM NE 132nd St at 116th Pl NE Build]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: 116th Ave NE												
3	L2	112	8.0	0.227	9.9	LOS A	1.1	29.9	0.76	0.89	0.76	23.9
8	T1	10	8.0	0.225	4.4	LOS A	1.2	31.7	0.77	0.80	0.77	24.7
18	R2	122	8.0	0.225	4.9	LOS A	1.2	31.7	0.77	0.80	0.77	23.5
Approach		245	8.0	0.227	7.2	LOS A	1.2	31.7	0.77	0.84	0.77	23.8
East: NE 132nd Street												
1	L2	444	4.0	0.497	7.9	LOS A	3.3	85.9	0.42	0.56	0.42	27.7
6	T1	418	4.0	0.497	2.8	LOS A	3.3	85.9	0.38	0.42	0.38	28.4
16	R2	31	4.0	0.316	3.5	LOS A	1.7	42.9	0.36	0.35	0.36	27.6
Approach		893	4.0	0.497	5.4	LOS A	3.3	85.9	0.40	0.48	0.40	28.0
NorthEast: 405 SB Off												
1bx	L3	138	3.0	0.380	10.2	LOS B	1.9	48.2	0.70	0.85	0.76	9.3
1ax	L1	20	3.0	0.380	8.8	LOS A	1.9	48.2	0.70	0.85	0.76	23.6
16ax	R1	214	3.0	0.380	5.1	LOS A	1.9	48.2	0.68	0.78	0.71	23.4
16bx	R3	20	3.0	0.221	7.2	LOS A	0.9	22.7	0.66	0.70	0.66	22.7
Approach		393	3.0	0.380	7.2	LOS A	1.9	48.2	0.68	0.81	0.73	18.3
North: 114th Pl NE												
7	L2	46	3.0	0.324	11.3	LOS B	1.5	38.1	0.72	0.80	0.78	13.1
4	T1	102	3.0	0.324	6.1	LOS A	1.5	38.1	0.72	0.80	0.78	23.1
14	R2	36	3.0	0.324	7.0	LOS A	1.5	38.1	0.72	0.80	0.78	23.5
Approach		184	3.0	0.324	7.5	LOS A	1.5	38.1	0.72	0.80	0.78	20.5
West: NE 132nd Street												
5	L2	10	2.0	0.886	33.1	LOS D	16.9	429.7	1.00	1.52	2.22	25.4
2	T1	898	2.0	0.886	26.1	LOS D	19.3	491.1	1.00	1.52	2.21	16.5
12	R2	551	2.0	0.886	24.3	LOS D	19.3	491.1	1.00	1.51	2.18	25.4
Approach		1459	2.0	0.886	25.5	LOS C	19.3	491.1	1.00	1.52	2.20	20.0
All Vehicles		3173	3.2	0.886	15.1	LOS B	19.3	491.1	0.76	1.04	1.32	21.7

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2 [2024AM NE 132nd St at Totem Lake Blvd NE Build]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: Totern Lake Blvd												
3	L2	214	5.0	0.485	10.8	LOS B	3.1	79.8	0.81	0.97	0.94	22.5
3a	L1	21	5.0	0.485	10.1	LOS B	3.1	79.8	0.81	0.97	0.94	23.2
8	T1	68	5.0	0.485	6.7	LOS A	3.1	79.8	0.81	0.97	0.94	23.2
18	R2	99	5.0	0.248	7.8	LOS A	1.1	28.5	0.73	0.81	0.73	23.2
Approach		401	5.0	0.485	9.3	LOS A	3.1	79.8	0.79	0.93	0.89	22.9
East: NE 132nd Street												
1	L2	229	4.0	0.563	16.0	LOS B	4.9	126.5	0.87	1.02	1.08	29.2
6	T1	521	4.0	0.563	10.7	LOS B	5.2	133.9	0.87	0.97	1.06	19.9
16a	R1	99	4.0	0.563	10.0	LOS A	5.2	133.9	0.87	0.95	1.05	30.4
16	R2	10	4.0	0.563	10.6	LOS B	5.2	133.9	0.87	0.95	1.05	29.8
Approach		859	4.0	0.563	12.0	LOS B	5.2	133.9	0.87	0.98	1.07	24.0
North: 116th Ave NE												
7	L2	16	1.0	1.001	49.8	LOS F	15.6	393.7	1.00	1.96	3.14	17.0
4	T1	214	1.0	1.001	45.6	LOS F	15.6	393.7	1.00	1.96	3.14	16.9
14	R2	177	1.0	1.001	45.9	LOS F	15.6	393.7	1.00	1.96	3.14	13.7
14b	R3	21	1.0	1.001	46.3	LOS F	15.6	393.7	1.00	1.96	3.14	16.6
Approach		427	1.0	1.001	45.9	LOS D	15.6	393.7	1.00	1.96	3.14	15.8
West: NE 132nd Street												
5b	L3	255	2.0	0.734	15.9	LOS B	9.3	235.3	0.89	0.98	1.16	27.3
5	L2	104	2.0	0.734	14.9	LOS B	9.3	235.3	0.89	0.98	1.16	26.9
2	T1	563	2.0	0.734	10.0	LOS A	9.3	235.3	0.86	0.94	1.08	27.6
12	R2	307	2.0	0.576	9.1	LOS A	5.0	126.1	0.79	0.87	0.91	27.8
Approach		1229	2.0	0.734	11.4	LOS B	9.3	235.3	0.85	0.93	1.06	27.5
All Vehicles		2917	2.9	1.001	16.3	LOS B	15.6	393.7	0.87	1.10	1.34	22.8

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [2024PM NE 132nd St at 116th Pl NE No Build]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: 116th Ave NE												
3	L2	529	2.0	0.637	10.8	LOS B	4.8	120.7	0.81	1.04	1.05	23.7
8	T1	53	2.0	0.495	5.6	LOS A	2.8	72.3	0.75	0.86	0.89	24.3
18	R2	268	2.0	0.495	6.2	LOS A	2.8	72.3	0.75	0.86	0.89	23.0
Approach		851	2.0	0.637	9.0	LOS A	4.8	120.7	0.78	0.97	0.99	23.6
East: NE 132nd Street												
1	L2	132	2.0	0.689	13.9	LOS B	6.2	157.9	0.83	0.99	1.06	29.7
6	T1	742	2.0	0.689	8.1	LOS A	6.2	157.9	0.78	0.91	0.95	29.7
16	R2	32	2.0	0.438	7.5	LOS A	2.5	63.3	0.70	0.77	0.76	29.1
Approach		905	2.0	0.689	8.9	LOS A	6.2	157.9	0.78	0.92	0.96	29.7
NorthEast: 405 SB Off												
1bx	L3	142	3.0	0.579	17.8	LOS B	4.0	102.6	0.89	1.10	1.25	8.4
1ax	L1	21	3.0	0.579	16.3	LOS B	4.0	102.6	0.89	1.10	1.25	21.1
16ax	R1	221	3.0	0.579	11.7	LOS B	4.0	102.6	0.85	1.00	1.10	21.1
16bx	R3	21	3.0	0.337	12.6	LOS B	1.6	41.4	0.81	0.87	0.90	20.9
Approach		405	3.0	0.579	14.1	LOS B	4.0	102.6	0.86	1.04	1.15	16.5
North: 114th Pl NE												
7	L2	21	5.0	0.302	18.6	LOS B	1.6	40.8	0.86	0.91	0.91	12.2
4	T1	41	5.0	0.302	13.4	LOS B	1.6	40.8	0.86	0.91	0.91	21.5
14	R2	37	5.0	0.302	14.3	LOS B	1.6	40.8	0.86	0.91	0.91	21.8
Approach		99	5.0	0.302	14.8	LOS B	1.6	40.8	0.86	0.91	0.91	19.5
West: NE 132nd Street												
5	L2	26	2.0	0.462	10.9	LOS B	3.2	80.4	0.64	0.55	0.64	32.8
2	T1	716	2.0	0.462	4.7	LOS A	3.3	84.0	0.63	0.55	0.63	21.5
12	R2	288	2.0	0.462	4.9	LOS A	3.3	84.0	0.62	0.56	0.62	32.0
Approach		1031	2.0	0.462	4.9	LOS A	3.3	84.0	0.63	0.56	0.63	24.9
All Vehicles		3291	2.2	0.689	8.5	LOS A	6.2	157.9	0.75	0.83	0.89	24.1

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2 [2024PM NE 132nd St at Totem Lake Blvd NE No Build]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: Totern Lake Blvd												
3	L2	351	1.0	0.950	26.8	LOS D	15.3	386.5	1.00	1.70	2.40	18.2
3a	L1	26	1.0	0.950	26.0	LOS D	15.3	386.5	1.00	1.70	2.40	20.2
8	T1	289	1.0	0.950	22.2	LOS D	15.3	386.5	1.00	1.70	2.40	20.2
18	R2	168	1.0	0.433	10.1	LOS B	2.1	52.2	0.75	0.89	0.89	22.6
Approach		835	1.0	0.950	21.8	LOS C	15.3	386.5	0.95	1.54	2.10	20.0
East: NE 132nd Street												
1	L2	137	3.0	0.865	55.5	LOS E	12.7	325.4	1.00	1.50	2.27	19.6
6	T1	445	3.0	0.865	48.2	LOS D	15.1	387.4	1.00	1.53	2.30	12.9
16a	R1	116	3.0	0.865	46.1	LOS D	15.1	387.4	1.00	1.55	2.33	20.5
16	R2	21	3.0	0.865	46.6	LOS D	15.1	387.4	1.00	1.55	2.33	20.2
Approach		719	3.0	0.865	49.2	LOS D	15.1	387.4	1.00	1.53	2.30	15.7
North: 116th Ave NE												
7	L2	16	1.0	0.755	23.5	LOS C	6.0	150.0	0.92	1.23	1.56	21.3
4	T1	158	1.0	0.755	19.0	LOS B	6.0	150.0	0.92	1.23	1.56	21.1
14	R2	109	1.0	0.755	19.6	LOS B	6.0	150.0	0.92	1.23	1.56	18.6
14b	R3	26	1.0	0.755	20.0	LOS C	6.0	150.0	0.92	1.23	1.56	20.6
Approach		309	1.0	0.755	19.5	LOS B	6.0	150.0	0.92	1.23	1.56	20.4
West: NE 132nd Street												
5b	L3	300	1.0	0.597	11.8	LOS B	5.2	131.5	0.69	0.73	0.72	29.2
5	L2	163	1.0	0.597	10.8	LOS B	5.2	131.5	0.69	0.73	0.72	28.8
2	T1	496	1.0	0.597	5.7	LOS A	5.2	131.5	0.66	0.67	0.67	29.8
12	R2	189	1.0	0.471	5.7	LOS A	3.3	82.4	0.63	0.63	0.63	29.4
Approach		1148	1.0	0.597	8.0	LOS A	5.2	131.5	0.67	0.69	0.68	29.4
All Vehicles		3012	1.5	0.950	22.9	LOS C	15.3	387.4	0.85	1.18	1.55	20.8

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [2024PM NE 132nd St at 116th Pl NE Build]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: 116th Ave NE												
3	L2	589	2.0	0.708	11.9	LOS B	6.0	151.1	0.85	1.10	1.18	23.4
8	T1	58	2.0	0.550	6.2	LOS A	3.4	86.4	0.77	0.91	0.96	24.2
18	R2	295	2.0	0.550	6.8	LOS A	3.4	86.4	0.77	0.91	0.96	22.8
Approach		942	2.0	0.708	9.9	LOS A	6.0	151.1	0.82	1.03	1.10	23.3
East: NE 132nd Street												
1	L2	137	2.0	0.731	15.2	LOS B	7.1	180.9	0.88	1.07	1.19	28.9
6	T1	742	2.0	0.731	9.1	LOS A	7.1	180.9	0.83	0.99	1.06	29.1
16	R2	32	2.0	0.465	8.2	LOS A	2.8	70.3	0.73	0.85	0.83	28.9
Approach		911	2.0	0.731	10.0	LOS B	7.1	180.9	0.83	0.99	1.07	29.1
NorthEast: 405 SB Off												
1bx	L3	142	3.0	0.621	20.4	LOS C	4.5	116.5	0.91	1.16	1.36	8.1
1ax	L1	21	3.0	0.621	18.9	LOS B	4.5	116.5	0.91	1.16	1.36	20.4
16ax	R1	221	3.0	0.621	13.8	LOS B	4.5	116.5	0.88	1.05	1.19	20.5
16bx	R3	21	3.0	0.361	14.2	LOS B	1.8	45.8	0.83	0.91	0.96	20.5
Approach		405	3.0	0.621	16.4	LOS B	4.5	116.5	0.89	1.09	1.25	16.0
North: 114th Pl NE												
7	L2	21	5.0	0.339	21.9	LOS C	1.9	48.1	0.88	0.96	1.01	11.9
4	T1	42	5.0	0.339	16.6	LOS B	1.9	48.1	0.88	0.96	1.01	20.9
14	R2	37	5.0	0.339	17.6	LOS B	1.9	48.1	0.88	0.96	1.01	21.2
Approach		100	5.0	0.339	18.1	LOS B	1.9	48.1	0.88	0.96	1.01	19.0
West: NE 132nd Street												
5	L2	26	2.0	0.470	11.0	LOS B	3.2	82.3	0.65	0.56	0.65	32.8
2	T1	716	2.0	0.470	4.8	LOS A	3.4	86.1	0.64	0.56	0.64	21.5
12	R2	300	2.0	0.470	5.0	LOS A	3.4	86.1	0.63	0.57	0.63	32.0
Approach		1042	2.0	0.470	5.0	LOS A	3.4	86.1	0.64	0.56	0.64	25.0
All Vehicles		3400	2.2	0.731	9.4	LOS A	7.1	180.9	0.78	0.88	0.97	23.8

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2 [2024PM NE 132nd St at Totem Lake Blvd NE Build]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: Totern Lake Blvd												
3	L2	353	1.0	0.968	30.2	LOS E	17.0	428.4	1.00	1.81	2.62	17.5
3a	L1	26	1.0	0.968	29.4	LOS E	17.0	428.4	1.00	1.81	2.62	19.6
8	T1	289	1.0	0.968	25.6	LOS E	17.0	428.4	1.00	1.81	2.62	19.6
18	R2	168	1.0	0.441	10.3	LOS B	2.1	53.5	0.76	0.90	0.91	22.6
Approach		837	1.0	0.968	24.6	LOS C	17.0	428.4	0.95	1.63	2.28	19.5
East: NE 132nd Street												
1	L2	137	3.0	0.876	58.2	LOS E	13.2	338.8	1.00	1.52	2.34	19.2
6	T1	447	3.0	0.876	50.8	LOS D	15.8	404.6	1.00	1.56	2.37	12.6
16a	R1	116	3.0	0.876	48.7	LOS D	15.8	404.6	1.00	1.58	2.40	20.0
16	R2	21	3.0	0.876	49.1	LOS D	15.8	404.6	1.00	1.58	2.40	19.8
Approach		721	3.0	0.876	51.8	LOS D	15.8	404.6	1.00	1.56	2.37	15.3
North: 116th Ave NE												
7	L2	16	1.0	0.760	23.8	LOS C	6.0	152.4	0.92	1.24	1.58	21.3
4	T1	158	1.0	0.760	19.4	LOS B	6.0	152.4	0.92	1.24	1.58	21.1
14	R2	111	1.0	0.760	20.0	LOS B	6.0	152.4	0.92	1.24	1.58	18.5
14b	R3	26	1.0	0.760	20.4	LOS C	6.0	152.4	0.92	1.24	1.58	20.5
Approach		311	1.0	0.760	19.9	LOS B	6.0	152.4	0.92	1.24	1.58	20.3
West: NE 132nd Street												
5b	L3	300	1.0	0.610	11.9	LOS B	5.5	138.8	0.70	0.74	0.74	29.2
5	L2	168	1.0	0.610	10.9	LOS B	5.5	138.8	0.70	0.74	0.74	28.8
2	T1	511	1.0	0.610	5.8	LOS A	5.5	138.8	0.67	0.68	0.68	29.7
12	R2	195	1.0	0.481	5.8	LOS A	3.4	85.0	0.64	0.63	0.64	29.4
Approach		1174	1.0	0.610	8.1	LOS A	5.5	138.8	0.68	0.69	0.70	29.4
All Vehicles		3042	1.5	0.968	24.2	LOS C	17.0	428.4	0.85	1.21	1.62	20.4

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [2042AM NE 132nd St at 116th Pl NE No Build]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: 116th Ave NE												
3	L2	117	8.0	0.235	9.7	LOS A	1.2	31.4	0.78	0.90	0.78	23.9
8	T1	9	8.0	0.211	3.9	LOS A	1.2	31.3	0.79	0.76	0.79	24.7
18	R2	129	8.0	0.211	4.5	LOS A	1.2	31.3	0.79	0.76	0.79	23.5
Approach		255	8.0	0.235	6.9	LOS A	1.2	31.4	0.79	0.82	0.79	23.8
East: NE 132nd Street												
1	L2	412	4.0	0.466	7.8	LOS A	3.1	78.8	0.40	0.53	0.40	28.0
6	T1	469	4.0	0.466	2.7	LOS A	3.1	78.8	0.37	0.42	0.37	28.4
16	R2	36	4.0	0.297	3.5	LOS A	1.5	39.9	0.35	0.34	0.35	27.6
Approach		917	4.0	0.466	5.0	LOS A	3.1	78.8	0.39	0.47	0.39	28.2
NorthEast: 405 SB Off												
1bx	L3	148	3.0	0.359	9.6	LOS A	1.8	46.3	0.69	0.80	0.72	9.4
1ax	L1	26	3.0	0.359	8.1	LOS A	1.8	46.3	0.69	0.80	0.72	23.8
16ax	R1	235	3.0	0.359	4.4	LOS A	1.8	46.3	0.68	0.76	0.69	23.6
16bx	R3	20	3.0	0.209	6.6	LOS A	0.9	22.1	0.65	0.70	0.65	23.0
Approach		429	3.0	0.359	6.5	LOS A	1.8	46.3	0.68	0.77	0.70	18.5
North: 114th Pl NE												
7	L2	56	3.0	0.293	10.6	LOS B	1.4	35.4	0.74	0.79	0.74	13.2
4	T1	92	3.0	0.293	5.4	LOS A	1.4	35.4	0.74	0.79	0.74	23.2
14	R2	41	3.0	0.293	6.3	LOS A	1.4	35.4	0.74	0.79	0.74	23.6
Approach		189	3.0	0.293	7.1	LOS A	1.4	35.4	0.74	0.79	0.74	20.1
West: NE 132nd Street												
5	L2	15	2.0	0.794	24.1	LOS C	11.9	302.8	1.00	1.32	1.73	28.3
2	T1	980	2.0	0.794	17.0	LOS B	13.7	348.7	1.00	1.29	1.71	18.5
12	R2	504	2.0	0.794	15.6	LOS B	13.7	348.7	1.00	1.24	1.66	28.3
Approach		1499	2.0	0.794	16.6	LOS B	13.7	348.7	1.00	1.27	1.69	22.0
All Vehicles		3289	3.2	0.794	10.7	LOS B	13.7	348.7	0.75	0.92	1.07	22.8

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2 [2042AM NE 132nd St at Totem Lake Blvd NE No Build]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: Totern Lake Blvd												
3	L2	209	5.0	0.446	10.2	LOS B	2.9	75.9	0.83	0.96	0.93	22.7
3a	L1	26	5.0	0.446	9.5	LOS A	2.9	75.9	0.83	0.96	0.93	23.3
8	T1	68	5.0	0.446	6.1	LOS A	2.9	75.9	0.83	0.96	0.93	23.4
18	R2	104	5.0	0.225	7.1	LOS A	1.1	27.9	0.75	0.83	0.75	23.4
Approach		407	5.0	0.446	8.7	LOS A	2.9	75.9	0.81	0.92	0.88	23.1
East: NE 132nd Street												
1	L2	240	4.0	0.538	15.4	LOS B	4.6	119.3	0.87	0.99	1.05	29.3
6	T1	531	4.0	0.538	9.8	LOS A	5.0	129.1	0.88	0.93	1.02	20.2
16a	R1	109	4.0	0.538	9.0	LOS A	5.0	129.1	0.88	0.91	1.01	30.8
16	R2	10	4.0	0.538	9.7	LOS A	5.0	129.1	0.88	0.91	1.01	30.2
Approach		891	4.0	0.538	11.2	LOS B	5.0	129.1	0.88	0.94	1.03	24.3
North: 116th Ave NE												
7	L2	16	1.0	0.919	33.6	LOS D	11.5	289.6	0.99	1.63	2.37	19.4
4	T1	224	1.0	0.919	29.4	LOS D	11.5	289.6	0.99	1.63	2.37	19.3
14	R2	180	1.0	0.919	29.7	LOS D	11.5	289.6	0.99	1.63	2.37	16.3
14b	R3	26	1.0	0.919	30.1	LOS D	11.5	289.6	0.99	1.63	2.37	18.8
Approach		446	1.0	0.919	29.7	LOS C	11.5	289.6	0.99	1.63	2.37	18.3
West: NE 132nd Street												
5b	L3	276	2.0	0.723	15.0	LOS B	9.2	234.4	0.88	0.94	1.12	27.8
5	L2	109	2.0	0.723	14.0	LOS B	9.2	234.4	0.88	0.94	1.12	27.4
2	T1	612	2.0	0.723	9.3	LOS A	9.2	234.4	0.85	0.92	1.05	27.9
12	R2	337	2.0	0.568	8.7	LOS A	4.9	125.0	0.79	0.85	0.90	28.0
Approach		1335	2.0	0.723	10.7	LOS B	9.2	234.4	0.85	0.91	1.03	27.9
All Vehicles		3079	2.8	0.919	13.3	LOS B	11.5	289.6	0.87	1.02	1.20	23.9

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [2042AM NE 132nd St at 114th Pl NE Build]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: 116th Ave NE												
3	L2	122	8.0	0.248	9.9	LOS A	1.3	33.7	0.79	0.90	0.79	23.9
8	T1	10	8.0	0.222	4.1	LOS A	1.3	33.5	0.80	0.78	0.80	24.7
18	R2	133	8.0	0.222	4.7	LOS A	1.3	33.5	0.80	0.78	0.80	23.5
Approach		265	8.0	0.248	7.1	LOS A	1.3	33.7	0.80	0.84	0.80	23.8
East: NE 132nd Street												
1	L2	474	4.0	0.501	7.9	LOS A	3.4	88.3	0.43	0.55	0.43	27.8
6	T1	469	4.0	0.501	2.8	LOS A	3.4	88.3	0.39	0.42	0.39	28.3
16	R2	36	4.0	0.319	3.5	LOS A	1.7	43.7	0.37	0.35	0.37	27.6
Approach		980	4.0	0.501	5.3	LOS A	3.4	88.3	0.41	0.48	0.41	28.0
NorthEast: 405 SB Off												
1bx	L3	148	3.0	0.374	10.0	LOS A	2.0	50.2	0.72	0.85	0.77	9.4
1ax	L1	26	3.0	0.374	8.5	LOS A	2.0	50.2	0.72	0.85	0.77	23.7
16ax	R1	235	3.0	0.374	4.8	LOS A	2.0	50.2	0.70	0.79	0.73	23.5
16bx	R3	20	3.0	0.218	6.9	LOS A	0.9	23.5	0.67	0.72	0.67	22.9
Approach		429	3.0	0.374	6.9	LOS A	2.0	50.2	0.71	0.81	0.74	18.4
North: 114th Pl NE												
7	L2	56	3.0	0.333	11.5	LOS B	1.7	43.1	0.77	0.84	0.82	13.1
4	T1	107	3.0	0.333	6.3	LOS A	1.7	43.1	0.77	0.84	0.82	23.0
14	R2	41	3.0	0.333	7.2	LOS A	1.7	43.1	0.77	0.84	0.82	23.4
Approach		204	3.0	0.333	7.9	LOS A	1.7	43.1	0.77	0.84	0.82	20.2
West: NE 132nd Street												
5	L2	15	2.0	0.902	36.7	LOS D	19.0	482.7	1.00	1.61	2.42	24.4
2	T1	980	2.0	0.902	29.3	LOS D	23.0	584.9	1.00	1.61	2.40	15.9
12	R2	582	2.0	0.902	27.0	LOS D	23.0	584.9	1.00	1.59	2.37	24.7
Approach		1577	2.0	0.902	28.5	LOS C	23.0	584.9	1.00	1.60	2.39	19.3
All Vehicles		3454	3.2	0.902	16.4	LOS B	23.0	584.9	0.77	1.08	1.41	21.3

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2 [2042AM NE 132nd St at Totem Lake Blvd NE Build]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: Totern Lake Blvd												
3	L2	224	5.0	0.469	10.5	LOS B	3.1	81.8	0.84	0.98	0.96	22.6
3a	L1	26	5.0	0.469	9.8	LOS A	3.1	81.8	0.84	0.98	0.96	23.3
8	T1	68	5.0	0.469	6.4	LOS A	3.1	81.8	0.84	0.98	0.96	23.3
18	R2	104	5.0	0.229	7.2	LOS A	1.1	28.4	0.75	0.83	0.75	23.3
Approach		422	5.0	0.469	9.0	LOS A	3.1	81.8	0.82	0.94	0.90	23.0
East: NE 132nd Street												
1	L2	240	4.0	0.567	16.2	LOS B	5.1	132.1	0.89	1.03	1.11	29.1
6	T1	568	4.0	0.567	10.5	LOS B	5.6	144.2	0.90	0.97	1.09	20.0
16a	R1	109	4.0	0.567	9.7	LOS A	5.6	144.2	0.90	0.94	1.08	30.5
16	R2	10	4.0	0.567	10.4	LOS B	5.6	144.2	0.90	0.94	1.08	29.9
Approach		927	4.0	0.567	11.9	LOS B	5.6	144.2	0.90	0.98	1.09	23.9
North: 116th Ave NE												
7	L2	16	1.0	0.990	48.3	LOS E	16.1	406.5	1.00	1.96	3.08	17.2
4	T1	224	1.0	0.990	44.1	LOS E	16.1	406.5	1.00	1.96	3.08	17.1
14	R2	193	1.0	0.990	44.4	LOS E	16.1	406.5	1.00	1.96	3.08	13.9
14b	R3	26	1.0	0.990	44.8	LOS E	16.1	406.5	1.00	1.96	3.08	16.7
Approach		458	1.0	0.990	44.4	LOS D	16.1	406.5	1.00	1.96	3.08	15.9
West: NE 132nd Street												
5b	L3	276	2.0	0.726	15.1	LOS B	9.3	236.6	0.88	0.94	1.12	27.8
5	L2	109	2.0	0.726	14.1	LOS B	9.3	236.6	0.88	0.94	1.12	27.4
2	T1	615	2.0	0.726	9.3	LOS A	9.3	236.6	0.86	0.92	1.06	27.9
12	R2	339	2.0	0.569	8.8	LOS A	5.0	125.9	0.79	0.85	0.90	28.0
Approach		1339	2.0	0.726	10.8	LOS B	9.3	236.6	0.85	0.91	1.04	27.8
All Vehicles		3146	2.8	0.990	15.8	LOS B	16.1	406.5	0.88	1.09	1.33	23.0

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [2042PM NE 132nd St at 116th Pl NE No Build]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: 116th Ave NE												
3	L2	573	2.0	0.623	10.1	LOS B	4.8	121.7	0.82	1.03	1.04	23.8
8	T1	62	2.0	0.496	5.4	LOS A	2.9	74.8	0.76	0.87	0.90	24.4
18	R2	289	2.0	0.496	5.9	LOS A	2.9	74.8	0.76	0.87	0.90	23.2
Approach		924	2.0	0.623	8.5	LOS A	4.8	121.7	0.79	0.97	0.99	23.7
East: NE 132nd Street												
1	L2	142	2.0	0.681	13.5	LOS B	6.4	162.2	0.84	0.97	1.06	29.7
6	T1	805	2.0	0.681	7.7	LOS A	6.4	162.2	0.79	0.89	0.96	29.7
16	R2	32	2.0	0.433	7.2	LOS A	2.5	64.7	0.71	0.75	0.77	29.0
Approach		979	2.0	0.681	8.6	LOS A	6.4	162.2	0.80	0.90	0.97	29.7
NorthEast: 405 SB Off												
1bx	L3	158	3.0	0.599	19.4	LOS B	4.7	121.2	0.94	1.17	1.37	8.2
1ax	L1	26	3.0	0.599	18.0	LOS B	4.7	121.2	0.94	1.17	1.37	20.6
16ax	R1	242	3.0	0.599	12.7	LOS B	4.7	121.2	0.90	1.06	1.18	20.8
16bx	R3	21	3.0	0.348	13.0	LOS B	1.8	47.2	0.85	0.91	0.95	20.8
Approach		447	3.0	0.599	15.4	LOS B	4.7	121.2	0.91	1.10	1.25	16.2
North: 114th Pl NE												
7	L2	21	5.0	0.334	23.0	LOS C	2.0	52.1	0.93	0.99	1.03	11.8
4	T1	40	5.0	0.334	17.8	LOS B	2.0	52.1	0.93	0.99	1.03	20.6
14	R2	42	5.0	0.334	18.7	LOS B	2.0	52.1	0.93	0.99	1.03	21.0
Approach		103	5.0	0.334	19.2	LOS B	2.0	52.1	0.93	0.99	1.03	18.8
West: NE 132nd Street												
5	L2	26	2.0	0.464	10.9	LOS B	3.3	82.8	0.66	0.55	0.66	32.7
2	T1	763	2.0	0.464	4.7	LOS A	3.5	88.7	0.65	0.55	0.65	21.5
12	R2	320	2.0	0.464	4.8	LOS A	3.5	88.7	0.64	0.55	0.64	31.9
Approach		1109	2.0	0.464	4.9	LOS A	3.5	88.7	0.65	0.55	0.65	24.9
All Vehicles		3563	2.2	0.681	8.6	LOS A	6.4	162.2	0.77	0.84	0.91	24.0

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2 [2042PM NE 132nd St at Totem Lake Blvd NE No Build]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: Totern Lake Blvd												
3	L2	366	1.0	0.896	20.4	LOS D	12.4	313.5	0.99	1.50	1.97	19.9
3a	L1	26	1.0	0.896	19.6	LOS D	12.4	313.5	0.99	1.50	1.97	21.4
8	T1	305	1.0	0.896	15.8	LOS D	12.4	313.5	0.99	1.50	1.97	21.4
18	R2	184	1.0	0.380	7.9	LOS A	1.9	47.4	0.75	0.87	0.84	23.1
Approach		882	1.0	0.896	16.2	LOS B	12.4	313.5	0.94	1.37	1.74	21.3
East: NE 132nd Street												
1	L2	153	3.0	0.906	67.5	LOS E	15.5	397.1	1.00	1.62	2.55	17.8
6	T1	493	3.0	0.906	59.3	LOS E	20.0	512.2	1.00	1.69	2.63	11.7
16a	R1	121	3.0	0.906	57.1	LOS E	20.0	512.2	1.00	1.72	2.67	18.6
16	R2	21	3.0	0.906	57.5	LOS E	20.0	512.2	1.00	1.72	2.67	18.4
Approach		787	3.0	0.906	60.5	LOS E	20.0	512.2	1.00	1.68	2.62	14.2
North: 116th Ave NE												
7	L2	16	1.0	0.750	23.8	LOS C	6.4	162.4	0.95	1.27	1.62	21.3
4	T1	173	1.0	0.750	19.3	LOS B	6.4	162.4	0.95	1.27	1.62	21.1
14	R2	121	1.0	0.750	19.9	LOS B	6.4	162.4	0.95	1.27	1.62	18.6
14b	R3	26	1.0	0.750	20.3	LOS C	6.4	162.4	0.95	1.27	1.62	20.5
Approach		336	1.0	0.750	19.8	LOS B	6.4	162.4	0.95	1.27	1.62	20.3
West: NE 132nd Street												
5b	L3	311	1.0	0.592	11.5	LOS B	5.2	131.0	0.70	0.71	0.71	29.3
5	L2	179	1.0	0.592	10.5	LOS B	5.2	131.0	0.70	0.71	0.71	28.9
2	T1	538	1.0	0.592	5.6	LOS A	5.2	131.0	0.67	0.67	0.68	29.7
12	R2	204	1.0	0.466	5.7	LOS A	3.3	82.7	0.64	0.63	0.64	29.4
Approach		1232	1.0	0.592	7.8	LOS A	5.2	131.0	0.68	0.68	0.69	29.5
All Vehicles		3237	1.5	0.906	24.2	LOS C	20.0	512.2	0.86	1.17	1.54	20.4

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [2042PM NE 132nd St at 114th Pl NE Build]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: 116th Ave NE												
3	L2	632	2.0	0.689	11.0	LOS B	5.9	150.2	0.85	1.09	1.15	23.6
8	T1	68	2.0	0.545	5.9	LOS A	3.4	87.5	0.78	0.91	0.97	24.3
18	R2	316	2.0	0.545	6.4	LOS A	3.4	87.5	0.78	0.91	0.97	23.0
Approach		1016	2.0	0.689	9.3	LOS A	5.9	150.2	0.83	1.02	1.08	23.5
East: NE 132nd Street												
1	L2	147	2.0	0.722	14.8	LOS B	7.3	186.6	0.89	1.06	1.20	29.1
6	T1	805	2.0	0.722	8.8	LOS A	7.3	186.6	0.84	0.98	1.07	29.3
16	R2	32	2.0	0.459	7.9	LOS A	2.8	72.1	0.75	0.82	0.84	28.8
Approach		984	2.0	0.722	9.6	LOS A	7.3	186.6	0.85	0.98	1.08	29.3
NorthEast: 405 SB Off												
1bx	L3	158	3.0	0.648	23.3	LOS C	5.5	141.9	0.96	1.25	1.52	7.8
1ax	L1	26	3.0	0.648	21.8	LOS C	5.5	141.9	0.96	1.25	1.52	19.6
16ax	R1	242	3.0	0.648	15.7	LOS B	5.5	141.9	0.92	1.12	1.29	20.0
16bx	R3	21	3.0	0.377	15.0	LOS B	2.1	53.2	0.87	0.95	1.02	20.2
Approach		447	3.0	0.648	18.7	LOS B	5.5	141.9	0.94	1.16	1.37	15.5
North: 114th Pl NE												
7	L2	21	5.0	0.394	28.9	LOS C	2.4	63.4	0.94	1.06	1.18	11.2
4	T1	42	5.0	0.394	23.7	LOS C	2.4	63.4	0.94	1.06	1.18	19.6
14	R2	42	5.0	0.394	24.6	LOS C	2.4	63.4	0.94	1.06	1.18	19.9
Approach		105	5.0	0.394	25.1	LOS C	2.4	63.4	0.94	1.06	1.18	17.9
West: NE 132nd Street												
5	L2	26	2.0	0.472	11.0	LOS B	3.3	84.8	0.67	0.56	0.67	32.7
2	T1	763	2.0	0.472	4.7	LOS A	3.6	91.0	0.66	0.56	0.66	21.4
12	R2	332	2.0	0.472	4.8	LOS A	3.6	91.0	0.65	0.56	0.65	31.9
Approach		1121	2.0	0.472	4.9	LOS A	3.6	91.0	0.66	0.56	0.66	25.0
All Vehicles		3674	2.2	0.722	9.6	LOS A	7.3	186.6	0.80	0.89	0.99	23.7

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2 [2042PM NE 132nd St at Totem Lake Blvd NE Build]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: Totern Lake Blvd												
3	L2	368	1.0	0.914	22.4	LOS D	13.6	341.6	1.00	1.57	2.12	19.4
3a	L1	26	1.0	0.914	21.6	LOS D	13.6	341.6	1.00	1.57	2.12	21.0
8	T1	305	1.0	0.914	17.8	LOS D	13.6	341.6	1.00	1.57	2.12	21.0
18	R2	184	1.0	0.387	8.1	LOS A	1.9	48.7	0.76	0.88	0.85	23.1
Approach		884	1.0	0.914	17.8	LOS B	13.6	341.6	0.95	1.43	1.85	20.9
East: NE 132nd Street												
1	L2	153	3.0	0.920	71.4	LOS E	16.3	417.2	1.00	1.65	2.64	17.2
6	T1	495	3.0	0.920	63.2	LOS E	21.1	540.6	1.00	1.72	2.72	11.3
16a	R1	121	3.0	0.920	60.9	LOS E	21.1	540.6	1.00	1.77	2.77	18.1
16	R2	21	3.0	0.920	61.3	LOS E	21.1	540.6	1.00	1.77	2.77	17.9
Approach		789	3.0	0.920	64.3	LOS E	21.1	540.6	1.00	1.72	2.72	13.7
North: 116th Ave NE												
7	L2	16	1.0	0.755	24.1	LOS C	6.5	164.9	0.95	1.28	1.64	21.2
4	T1	174	1.0	0.755	19.6	LOS B	6.5	164.9	0.95	1.28	1.64	21.0
14	R2	121	1.0	0.755	20.3	LOS C	6.5	164.9	0.95	1.28	1.64	18.5
14b	R3	26	1.0	0.755	20.7	LOS C	6.5	164.9	0.95	1.28	1.64	20.5
Approach		337	1.0	0.755	20.2	LOS C	6.5	164.9	0.95	1.28	1.64	20.3
West: NE 132nd Street												
5b	L3	311	1.0	0.605	11.7	LOS B	5.5	138.4	0.71	0.72	0.73	29.3
5	L2	184	1.0	0.605	10.7	LOS B	5.5	138.4	0.71	0.72	0.73	28.9
2	T1	553	1.0	0.605	5.7	LOS A	5.5	138.4	0.68	0.68	0.69	29.7
12	R2	211	1.0	0.477	5.7	LOS A	3.4	85.4	0.65	0.63	0.65	29.4
Approach		1258	1.0	0.605	7.9	LOS A	5.5	138.4	0.68	0.69	0.70	29.4
All Vehicles		3268	1.5	0.920	25.5	LOS C	21.1	540.6	0.86	1.20	1.60	20.1

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

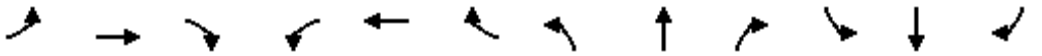
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	649	1086	0	877	142	28
Future Volume (veh/h)	649	1086	0	877	142	28
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1988	1870	1870
Adj Flow Rate, veh/h	705	0	0	953	154	30
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	2	2	2
Cap, veh/h	2741		0	2913	288	132
Arrive On Green	0.77	0.00	0.00	0.77	0.08	0.08
Sat Flow, veh/h	3647	1585	0	3976	3456	1585
Grp Volume(v), veh/h	705	0	0	953	154	30
Grp Sat Flow(s),veh/h/ln	1777	1585	0	1889	1728	1585
Q Serve(g_s), s	3.1	0.0	0.0	4.2	2.4	1.0
Cycle Q Clear(g_c), s	3.1	0.0	0.0	4.2	2.4	1.0
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	2741		0	2913	288	132
V/C Ratio(X)	0.26		0.00	0.33	0.53	0.23
Avail Cap(c_a), veh/h	2741		0	2913	1382	634
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.98	0.98
Uniform Delay (d), s/veh	1.8	0.0	0.0	1.9	24.2	23.6
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.3	1.5	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	0.4	1.0	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	2.0	0.0	0.0	2.2	25.7	24.4
LnGrp LOS	A		A	A	C	C
Approach Vol, veh/h	705	A		953	184	
Approach Delay, s/veh	2.0			2.2	25.5	
Approach LOS	A			A	C	

Timer - Assigned Phs	2				6	8
Phs Duration (G+Y+Rc), s	46.4				46.4	8.6
Change Period (Y+Rc), s	4.0				4.0	4.0
Max Green Setting (Gmax), s	25.0				25.0	22.0
Max Q Clear Time (g_c+I1), s	5.1				6.2	4.4
Green Ext Time (p_c), s	4.6				6.4	0.5

Intersection Summary	
HCM 6th Ctrl Delay	4.5
HCM 6th LOS	A

Notes

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



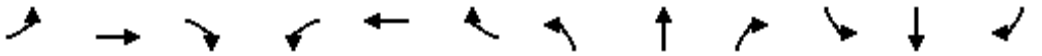
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	114	242	11	134	52	6	385	89	82	6	500	556
Future Volume (veh/h)	114	242	11	134	52	6	385	89	82	6	500	556
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	124	263	12	146	57	7	418	97	89	7	543	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	156	389	18	166	221	187	631	785	653	275	806	
Arrive On Green	0.09	0.11	0.11	0.09	0.12	0.12	0.35	0.43	0.43	0.15	0.23	0.00
Sat Flow, veh/h	1781	3462	157	1781	1870	1585	1781	1840	1531	1781	3554	1585
Grp Volume(v), veh/h	124	134	141	146	57	7	418	93	93	7	543	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1842	1781	1870	1585	1781	1777	1595	1781	1777	1585
Q Serve(g_s), s	5.1	5.5	5.5	6.1	2.1	0.2	14.9	2.4	2.7	0.3	10.5	0.0
Cycle Q Clear(g_c), s	5.1	5.5	5.5	6.1	2.1	0.2	14.9	2.4	2.7	0.3	10.5	0.0
Prop In Lane	1.00		0.09	1.00		1.00	1.00		0.96	1.00		1.00
Lane Grp Cap(c), veh/h	156	200	207	166	221	187	631	758	680	275	806	
V/C Ratio(X)	0.79	0.67	0.68	0.88	0.26	0.04	0.66	0.12	0.14	0.03	0.67	
Avail Cap(c_a), veh/h	166	379	393	166	399	338	631	758	680	275	806	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.59	0.59	0.00
Uniform Delay (d), s/veh	33.5	32.0	32.0	33.6	30.1	14.5	20.4	13.0	13.1	26.9	26.5	0.0
Incr Delay (d2), s/veh	21.6	3.9	3.9	37.5	0.6	0.1	2.6	0.3	0.4	0.0	2.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	2.5	2.6	4.3	0.9	0.1	6.2	1.0	1.0	0.1	4.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.1	35.9	35.8	71.1	30.7	14.6	23.0	13.3	13.5	27.0	29.1	0.0
LnGrp LOS	E	D	D	E	C	B	C	B	B	C	C	
Approach Vol, veh/h		399			210			604			550	A
Approach Delay, s/veh		41.8			58.2			20.1			29.1	
Approach LOS		D			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.6	36.0	11.0	12.4	30.6	21.0	10.6	12.9
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	4.0	32.0	7.0	16.0	19.0	17.0	7.0	16.0
Max Q Clear Time (g_c+I1), s	2.3	4.7	8.1	7.5	16.9	12.5	7.1	4.1
Green Ext Time (p_c), s	0.0	1.1	0.0	0.9	0.3	1.5	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	32.4
HCM 6th LOS	C

Notes

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



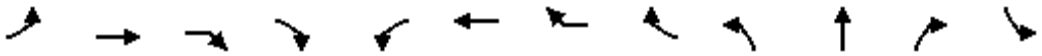
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	633	144	248	1360	62	166	292	137	115	539	104
Future Volume (veh/h)	35	633	144	248	1360	62	166	292	137	115	539	104
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		0.92	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1964	1964	1964	1862	1862	1862	1900	1900	1900
Adj Flow Rate, veh/h	37	666	152	258	1417	65	173	304	143	121	567	109
Peak Hour Factor	0.95	0.95	0.95	0.96	0.96	0.96	0.96	0.96	0.96	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	0	0	0
Cap, veh/h	77	860	550	473	1679	728	203	667	671	234	734	374
Arrive On Green	0.01	0.08	0.08	0.51	0.90	0.90	0.04	0.06	0.06	0.13	0.20	0.20
Sat Flow, veh/h	1795	3582	1529	1870	3731	1618	1773	3537	1444	1810	3610	1501
Grp Volume(v), veh/h	37	666	152	258	1417	65	173	304	143	121	567	109
Grp Sat Flow(s),veh/h/ln	1795	1791	1529	1870	1865	1618	1773	1769	1444	1810	1805	1501
Q Serve(g_s), s	2.2	20.1	3.4	10.4	17.4	0.3	10.7	9.1	0.0	6.9	16.3	6.5
Cycle Q Clear(g_c), s	2.2	20.1	3.4	10.4	17.4	0.3	10.7	9.1	0.0	6.9	16.3	6.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	77	860	550	473	1679	728	203	667	671	234	734	374
V/C Ratio(X)	0.48	0.77	0.28	0.55	0.84	0.09	0.85	0.46	0.21	0.52	0.77	0.29
Avail Cap(c_a), veh/h	114	1084	646	473	1679	728	206	804	727	234	755	383
HCM Platoon Ratio	0.33	0.33	0.33	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.89	0.89	0.45	0.45	0.45	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.0	47.7	11.5	22.9	3.9	1.1	52.0	46.1	22.1	44.7	41.4	33.7
Incr Delay (d2), s/veh	1.5	6.0	1.1	0.5	2.5	0.1	27.3	0.6	0.2	0.9	5.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	10.3	1.6	3.8	2.5	0.2	6.6	4.3	2.6	3.1	7.7	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.5	53.8	12.6	23.4	6.4	1.2	79.3	46.7	22.3	45.6	46.4	34.2
LnGrp LOS	D	D	B	C	A	A	E	D	C	D	D	C
Approach Vol, veh/h		855			1740			620			797	
Approach Delay, s/veh		46.5			8.7			50.2			44.6	
Approach LOS		D			A			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.4	25.9	33.0	31.6	17.8	27.6	9.9	54.7
Change Period (Y+Rc), s	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2
Max Green Setting (Gmax), s	* 11	* 25	* 20	* 33	* 13	* 23	* 7	* 46
Max Q Clear Time (g_c+I1), s	8.9	11.1	12.4	22.1	12.7	18.3	4.2	19.4
Green Ext Time (p_c), s	0.0	2.4	0.3	4.3	0.0	2.0	0.0	14.8

Intersection Summary	
HCM 6th Ctrl Delay	30.3
HCM 6th LOS	C

Notes

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



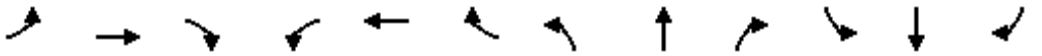
Movement	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL2
Lane Configurations												
Traffic Volume (vph)	35	812	0	41	272	1722	0	126	16	26	105	95
Future Volume (vph)	35	812	0	41	272	1722	0	126	16	26	105	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%				0%				3%		
Total Lost time (s)	4.7	5.2	5.2		4.7	5.2	5.2		4.7	5.2		4.7
Lane Util. Factor	1.00	0.95	1.00		1.00	0.95	1.00		1.00	1.00		1.00
Frpb, ped/bikes	1.00	1.00	0.98		1.00	1.00	0.94		1.00	0.97		1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00		0.99	1.00		0.99
Frt	1.00	1.00	0.85		1.00	1.00	0.85		1.00	0.88		1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00		0.95
Satd. Flow (prot)	1769	3539	1547		1787	3574	1499		1741	1588		1793
Flt Permitted	0.08	1.00	1.00		0.22	1.00	1.00		0.71	1.00		0.51
Satd. Flow (perm)	141	3539	1547		421	3574	1499		1299	1588		955
Peak-hour factor, PHF	0.95	0.95	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	37	855	0	43	286	1813	0	133	17	27	111	100
RTOR Reduction (vph)	0	0	22	0	0	0	58	0	0	0	0	0
Lane Group Flow (vph)	37	855	21	0	286	1813	75	0	17	138	0	100
Confl. Peds. (#/hr)	17			1	1			17	13		14	14
Confl. Bikes (#/hr)								1			1	
Heavy Vehicles (%)	1%	1%	2%	1%	1%	1%	2%	1%	1%	1%	1%	1%
Turn Type	pm+pt	NA	Perm		pm+pt	NA	Perm		pm+pt	NA		pm+pt
Protected Phases	7	4			3	8			5	2		1
Permitted Phases	4		4		8		8		2			6
Actuated Green, G (s)	56.9	52.7	52.7		70.9	62.0	62.0		21.0	19.0		27.0
Effective Green, g (s)	56.9	52.7	52.7		70.9	62.0	62.0		21.0	19.0		27.0
Actuated g/C Ratio	0.52	0.48	0.48		0.64	0.56	0.56		0.19	0.17		0.25
Clearance Time (s)	4.7	5.2	5.2		4.7	5.2	5.2		4.7	5.2		4.7
Vehicle Extension (s)	3.0	4.0	4.0		2.0	4.0	4.0		2.0	3.5		2.0
Lane Grp Cap (vph)	135	1695	741		438	2014	844		256	274		272
v/s Ratio Prot	0.01	0.24			c0.08	c0.51			0.00	c0.09		c0.02
v/s Ratio Perm	0.13		0.01		0.34		0.05		0.01			0.07
v/c Ratio	0.27	0.50	0.03		0.65	0.90	0.09		0.07	0.50		0.37
Uniform Delay, d1	20.7	19.7	15.1		11.2	21.3	11.0		36.4	41.2		33.3
Progression Factor	1.41	0.33	1.00		2.29	0.56	1.00		1.13	1.09		1.00
Incremental Delay, d2	1.0	0.9	0.1		1.8	4.8	0.1		0.0	1.7		0.3
Delay (s)	30.1	7.4	15.2		27.4	16.7	11.2		41.0	46.6		33.6
Level of Service	C	A	B		C	B	B		D	D		C
Approach Delay (s)		8.6				17.7				46.0		
Approach LOS		A				B				D		

Intersection Summary			
HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	19.8
Intersection Capacity Utilization	88.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	37	33
Future Volume (vph)	37	33
Ideal Flow (vphpl)	1900	1900
Grade (%)	-2%	
Total Lost time (s)	5.2	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.93	
Flt Protected	1.00	
Satd. Flow (prot)	1740	
Flt Permitted	1.00	
Satd. Flow (perm)	1740	
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	39	35
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	74	0
Confl. Peds. (#/hr)		13
Confl. Bikes (#/hr)		1
Heavy Vehicles (%)	1%	1%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	22.0	
Effective Green, g (s)	22.0	
Actuated g/C Ratio	0.20	
Clearance Time (s)	5.2	
Vehicle Extension (s)	3.5	
Lane Grp Cap (vph)	348	
v/s Ratio Prot	0.04	
v/s Ratio Perm		
v/c Ratio	0.21	
Uniform Delay, d1	36.8	
Progression Factor	1.00	
Incremental Delay, d2	0.4	
Delay (s)	37.1	
Level of Service	D	
Approach Delay (s)	35.1	
Approach LOS	D	

Intersection Summary



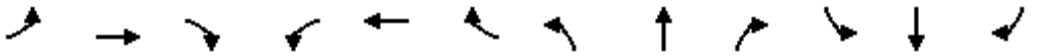
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	878	28	182	1982	312	0	0	0	250	128	180
Future Volume (veh/h)	115	878	28	182	1982	312	0	0	0	250	128	180
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99				1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	2003	2003	2003	1988	1988	1988				1949	1949	1949
Adj Flow Rate, veh/h	121	924	29	192	2086	328				263	135	189
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	2	2	2				2	2	2
Cap, veh/h	340	2204	977	227	2447	376				589	303	264
Arrive On Green	0.36	1.00	1.00	0.12	0.52	0.52				0.16	0.16	0.16
Sat Flow, veh/h	1908	3806	1686	1893	4737	727				3600	1851	1612
Grp Volume(v), veh/h	121	924	29	192	1582	832				263	135	189
Grp Sat Flow(s),veh/h/ln	1908	1903	1686	1893	1809	1846				1800	1851	1612
Q Serve(g_s), s	5.1	0.0	0.0	10.9	41.3	43.7				7.3	7.2	12.2
Cycle Q Clear(g_c), s	5.1	0.0	0.0	10.9	41.3	43.7				7.3	7.2	12.2
Prop In Lane	1.00		1.00	1.00		0.39				1.00		1.00
Lane Grp Cap(c), veh/h	340	2204	977	227	1869	954				589	303	264
V/C Ratio(X)	0.36	0.42	0.03	0.85	0.85	0.87				0.45	0.45	0.72
Avail Cap(c_a), veh/h	340	2204	977	356	1924	982				822	422	368
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.88	0.88	0.88	1.00	1.00	1.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	30.8	0.0	0.0	47.4	22.8	23.4				41.5	41.5	43.6
Incr Delay (d2), s/veh	0.6	0.5	0.0	10.5	4.9	10.9				0.5	1.0	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.2	0.0	5.7	17.7	20.5				3.2	3.4	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.3	0.5	0.0	57.9	27.8	34.3				42.0	42.5	47.6
LnGrp LOS	C	A	A	E	C	C				D	D	D
Approach Vol, veh/h		1074			2606						587	
Approach Delay, s/veh		4.0			32.1						43.9	
Approach LOS		A			C						D	

Timer - Assigned Phs	1	2		4	5	6
Phs Duration (G+Y+Rc), s	17.9	68.9		23.2	24.8	62.0
Change Period (Y+Rc), s	* 4.7	* 5.2		* 5.2	* 5.2	* 5.2
Max Green Setting (Gmax), s	* 21	* 49		* 25	* 11	* 59
Max Q Clear Time (g_c+I1), s	12.9	2.0		14.2	7.1	45.7
Green Ext Time (p_c), s	0.3	8.0		2.2	0.1	11.2

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

Notes

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



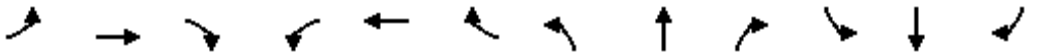
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	525	160	83	777	0	103	0	105	0	0	0
Future Volume (veh/h)	0	525	160	83	777	0	103	0	105	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	0.99		1.00	0.88		0.87	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1862	1862	1862	1870	1870	1870	1803	1803	1803	1979	1979	1979
Adj Flow Rate, veh/h	0	553	168	86	801	0	108	0	111	0	0	0
Peak Hour Factor	0.95	0.95	0.95	0.97	0.97	0.97	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	2	2	2	3	3	3	0	0	0
Cap, veh/h	509	1731	523	1250	2685	0	234	0	295	0	2	0
Arrive On Green	0.00	1.00	1.00	0.12	1.00	0.00	0.15	0.00	0.15	0.00	0.00	0.00
Sat Flow, veh/h	1773	2647	801	3456	3647	0	1513	0	1326	0	1979	0
Grp Volume(v), veh/h	0	369	352	86	801	0	108	0	111	0	0	0
Grp Sat Flow(s),veh/h/ln	1773	1769	1679	1728	1777	0	1513	0	1326	0	1979	0
Q Serve(g_s), s	0.0	0.0	0.0	0.7	0.0	0.0	7.1	0.0	7.9	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.7	0.0	0.0	7.1	0.0	7.9	0.0	0.0	0.0
Prop In Lane	1.00		0.48	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	509	1156	1098	1250	2685	0	234	0	295	0	2	0
V/C Ratio(X)	0.00	0.32	0.32	0.07	0.30	0.00	0.46	0.00	0.38	0.00	0.00	0.00
Avail Cap(c_a), veh/h	620	1156	1098	1307	2685	0	321	0	371	0	342	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.87	0.87	0.82	0.82	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	3.8	0.0	0.0	42.4	0.0	37.1	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.6	0.7	0.0	0.2	0.0	1.1	0.0	0.6	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.2	0.2	0.1	0.0	2.8	0.0	2.6	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.6	0.7	3.8	0.2	0.0	43.4	0.0	37.7	0.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	D	A	D	A	A	A
Approach Vol, veh/h		721			887			219			0	
Approach Delay, s/veh		0.7			0.6			40.5			0.0	
Approach LOS		A			A			D				

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		21.7	11.2	77.1		0.0	0.0	88.3				
Change Period (Y+Rc), s		* 4.7	* 4.7	* 5.2		4.5	* 4.7	* 5.2				
Max Green Setting (Gmax), s		* 23	* 8.3	* 40		19.0	* 7	* 42				
Max Q Clear Time (g_c+I1), s		9.9	2.7	2.0		0.0	0.0	2.0				
Green Ext Time (p_c), s		0.7	0.0	5.3		0.0	0.0	6.7				

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

Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	355	199	599	446	29	259	534	284	24	684	147
Future Volume (veh/h)	82	355	199	599	446	29	259	534	284	24	684	147
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1949	1949	1949	1862	1862	1862	2003	2003	2003
Adj Flow Rate, veh/h	86	374	209	631	469	31	273	562	299	25	712	153
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	1	1	1	1	1	1
Cap, veh/h	647	665	277	790	812	340	332	1320	929	65	1182	521
Arrive On Green	0.25	0.25	0.25	0.22	0.22	0.22	0.10	0.37	0.37	0.01	0.10	0.10
Sat Flow, veh/h	3456	3554	1480	3600	3702	1548	3440	3537	1561	1908	3806	1676
Grp Volume(v), veh/h	86	374	209	631	469	31	273	562	299	25	712	153
Grp Sat Flow(s),veh/h/ln	1728	1777	1480	1800	1851	1548	1720	1769	1561	1908	1903	1676
Q Serve(g_s), s	2.1	10.1	14.4	18.2	12.5	1.8	8.6	13.0	10.6	1.4	19.7	9.3
Cycle Q Clear(g_c), s	2.1	10.1	14.4	18.2	12.5	1.8	8.6	13.0	10.6	1.4	19.7	9.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	647	665	277	790	812	340	332	1320	929	65	1182	521
V/C Ratio(X)	0.13	0.56	0.75	0.80	0.58	0.09	0.82	0.43	0.32	0.39	0.60	0.29
Avail Cap(c_a), veh/h	848	872	363	884	909	380	344	1320	929	121	1182	521
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.93	0.93	0.93	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.4	37.4	39.0	40.6	38.4	34.2	48.8	25.7	11.3	53.2	42.9	38.2
Incr Delay (d2), s/veh	0.1	0.7	5.9	4.3	0.7	0.1	14.7	1.0	0.9	1.4	2.3	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	4.3	5.4	8.5	5.7	0.7	4.3	5.5	6.2	0.7	10.4	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.5	38.1	44.9	44.9	39.0	34.3	63.5	26.7	12.2	54.6	45.1	39.6
LnGrp LOS	C	D	D	D	D	C	E	C	B	D	D	D
Approach Vol, veh/h		669			1131			1134			890	
Approach Delay, s/veh		39.7			42.2			31.7			44.5	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.7	46.5		25.6	15.6	39.7		29.1				
Change Period (Y+Rc), s	5.0	5.5		5.0	5.0	5.5		5.0				
Max Green Setting (Gmax), s	7.0	28.5		27.0	11.0	24.5		27.0				
Max Q Clear Time (g_c+I1), s	3.4	15.0		16.4	10.6	21.7		20.2				
Green Ext Time (p_c), s	0.0	5.4		2.7	0.1	1.7		3.2				

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

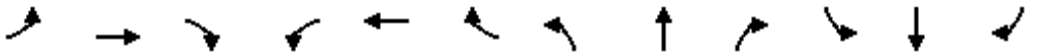
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	649	1092	0	877	142	28
Future Volume (veh/h)	649	1092	0	877	142	28
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1988	1870	1870
Adj Flow Rate, veh/h	705	0	0	953	154	30
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	2	2	2
Cap, veh/h	2741		0	2913	288	132
Arrive On Green	0.77	0.00	0.00	0.77	0.08	0.08
Sat Flow, veh/h	3647	1585	0	3976	3456	1585
Grp Volume(v), veh/h	705	0	0	953	154	30
Grp Sat Flow(s),veh/h/ln	1777	1585	0	1889	1728	1585
Q Serve(g_s), s	3.1	0.0	0.0	4.2	2.4	1.0
Cycle Q Clear(g_c), s	3.1	0.0	0.0	4.2	2.4	1.0
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	2741		0	2913	288	132
V/C Ratio(X)	0.26		0.00	0.33	0.53	0.23
Avail Cap(c_a), veh/h	2741		0	2913	1382	634
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.98	0.98
Uniform Delay (d), s/veh	1.8	0.0	0.0	1.9	24.2	23.6
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.3	1.5	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	0.4	1.0	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	2.0	0.0	0.0	2.2	25.7	24.4
LnGrp LOS	A		A	A	C	C
Approach Vol, veh/h	705	A		953	184	
Approach Delay, s/veh	2.0			2.2	25.5	
Approach LOS	A			A	C	

Timer - Assigned Phs	2				6	8
Phs Duration (G+Y+Rc), s	46.4				46.4	8.6
Change Period (Y+Rc), s	4.0				4.0	4.0
Max Green Setting (Gmax), s	25.0				25.0	22.0
Max Q Clear Time (g_c+I1), s	5.1				6.2	4.4
Green Ext Time (p_c), s	4.6				6.4	0.5

Intersection Summary	
HCM 6th Ctrl Delay	4.5
HCM 6th LOS	A

Notes

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



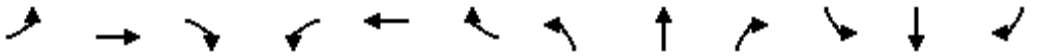
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	114	242	11	134	52	6	385	89	82	6	500	562
Future Volume (veh/h)	114	242	11	134	52	6	385	89	82	6	500	562
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	124	263	12	146	57	7	418	97	89	7	543	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	156	389	18	166	221	187	631	785	653	275	806	
Arrive On Green	0.09	0.11	0.11	0.09	0.12	0.12	0.35	0.43	0.43	0.15	0.23	0.00
Sat Flow, veh/h	1781	3462	157	1781	1870	1585	1781	1840	1531	1781	3554	1585
Grp Volume(v), veh/h	124	134	141	146	57	7	418	93	93	7	543	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1842	1781	1870	1585	1781	1777	1595	1781	1777	1585
Q Serve(g_s), s	5.1	5.5	5.5	6.1	2.1	0.2	14.9	2.4	2.7	0.3	10.5	0.0
Cycle Q Clear(g_c), s	5.1	5.5	5.5	6.1	2.1	0.2	14.9	2.4	2.7	0.3	10.5	0.0
Prop In Lane	1.00		0.09	1.00		1.00	1.00		0.96	1.00		1.00
Lane Grp Cap(c), veh/h	156	200	207	166	221	187	631	758	680	275	806	
V/C Ratio(X)	0.79	0.67	0.68	0.88	0.26	0.04	0.66	0.12	0.14	0.03	0.67	
Avail Cap(c_a), veh/h	166	379	393	166	399	338	631	758	680	275	806	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.58	0.58	0.00
Uniform Delay (d), s/veh	33.5	32.0	32.0	33.6	30.1	14.5	20.4	13.0	13.1	26.9	26.5	0.0
Incr Delay (d2), s/veh	21.6	3.9	3.9	37.5	0.6	0.1	2.6	0.3	0.4	0.0	2.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	2.5	2.6	4.3	0.9	0.1	6.2	1.0	1.0	0.1	4.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.1	35.9	35.8	71.1	30.7	14.6	23.0	13.3	13.5	27.0	29.1	0.0
LnGrp LOS	E	D	D	E	C	B	C	B	B	C	C	
Approach Vol, veh/h		399			210			604			550	A
Approach Delay, s/veh		41.8			58.2			20.1			29.1	
Approach LOS		D			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.6	36.0	11.0	12.4	30.6	21.0	10.6	12.9
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	4.0	32.0	7.0	16.0	19.0	17.0	7.0	16.0
Max Q Clear Time (g_c+I1), s	2.3	4.7	8.1	7.5	16.9	12.5	7.1	4.1
Green Ext Time (p_c), s	0.0	1.1	0.0	0.9	0.3	1.5	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	32.4
HCM 6th LOS	C

Notes

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



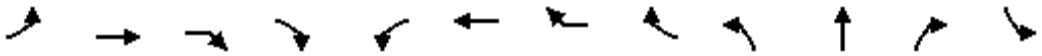
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	633	144	254	1360	62	166	292	143	115	539	104
Future Volume (veh/h)	35	633	144	254	1360	62	166	292	143	115	539	104
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		0.92	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1964	1964	1964	1862	1862	1862	1900	1900	1900
Adj Flow Rate, veh/h	37	666	152	265	1417	65	173	304	149	121	567	109
Peak Hour Factor	0.95	0.95	0.95	0.96	0.96	0.96	0.96	0.96	0.96	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	0	0	0
Cap, veh/h	77	857	549	475	1679	728	203	667	673	234	734	374
Arrive On Green	0.01	0.08	0.08	0.51	0.90	0.90	0.04	0.06	0.06	0.13	0.20	0.20
Sat Flow, veh/h	1795	3582	1529	1870	3731	1618	1773	3537	1444	1810	3610	1501
Grp Volume(v), veh/h	37	666	152	265	1417	65	173	304	149	121	567	109
Grp Sat Flow(s),veh/h/ln	1795	1791	1529	1870	1865	1618	1773	1769	1444	1810	1805	1501
Q Serve(g_s), s	2.2	20.1	3.4	10.7	17.4	0.3	10.7	9.1	0.0	6.9	16.3	6.5
Cycle Q Clear(g_c), s	2.2	20.1	3.4	10.7	17.4	0.3	10.7	9.1	0.0	6.9	16.3	6.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	77	857	549	475	1679	728	203	667	673	234	734	374
V/C Ratio(X)	0.48	0.78	0.28	0.56	0.84	0.09	0.85	0.46	0.22	0.52	0.77	0.29
Avail Cap(c_a), veh/h	114	1071	641	475	1679	728	206	804	728	234	755	383
HCM Platoon Ratio	0.33	0.33	0.33	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.89	0.89	0.45	0.45	0.45	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.0	47.8	11.5	22.9	3.9	1.1	52.0	46.1	22.2	44.7	41.4	33.7
Incr Delay (d2), s/veh	1.5	6.1	1.1	0.6	2.5	0.1	27.3	0.6	0.2	0.9	5.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	10.4	1.6	3.9	2.5	0.2	6.6	4.3	2.7	3.1	7.7	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.5	53.9	12.6	23.4	6.4	1.2	79.3	46.7	22.4	45.6	46.4	34.2
LnGrp LOS	D	D	B	C	A	A	E	D	C	D	D	C
Approach Vol, veh/h		855			1747			626			797	
Approach Delay, s/veh		46.6			8.8			49.9			44.6	
Approach LOS		D			A			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.4	25.9	33.1	31.5	17.8	27.6	9.9	54.7
Change Period (Y+Rc), s	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2
Max Green Setting (Gmax), s	* 11	* 25	* 21	* 33	* 13	* 23	* 7	* 46
Max Q Clear Time (g_c+I1), s	8.9	11.1	12.7	22.1	12.7	18.3	4.2	19.4
Green Ext Time (p_c), s	0.0	2.4	0.3	4.2	0.0	2.0	0.0	14.8

Intersection Summary	
HCM 6th Ctrl Delay	30.3
HCM 6th LOS	C

Notes

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



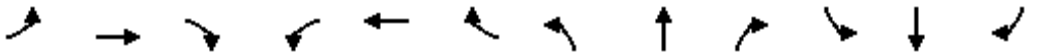
Movement	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL2
Lane Configurations												
Traffic Volume (vph)	35	812	6	41	272	1722	6	126	16	26	105	95
Future Volume (vph)	35	812	6	41	272	1722	6	126	16	26	105	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%				0%				3%		
Total Lost time (s)	4.7	5.2	5.2		4.7	5.2	5.2		4.7	5.2		4.7
Lane Util. Factor	1.00	0.95	1.00		1.00	0.95	1.00		1.00	1.00		1.00
Frpb, ped/bikes	1.00	1.00	0.98		1.00	1.00	0.94		1.00	0.97		1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00		0.99	1.00		0.99
Frt	1.00	1.00	0.85		1.00	1.00	0.85		1.00	0.88		1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00		0.95
Satd. Flow (prot)	1769	3539	1361		1787	3574	1429		1741	1588		1793
Flt Permitted	0.08	1.00	1.00		0.22	1.00	1.00		0.71	1.00		0.51
Satd. Flow (perm)	141	3539	1361		421	3574	1429		1299	1588		955
Peak-hour factor, PHF	0.95	0.95	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	37	855	7	43	286	1813	7	133	17	27	111	100
RTOR Reduction (vph)	0	0	26	0	0	0	58	0	0	0	0	0
Lane Group Flow (vph)	37	855	24	0	286	1813	82	0	17	138	0	100
Confl. Peds. (#/hr)	17			1	1			17	13		14	14
Confl. Bikes (#/hr)								1			1	
Heavy Vehicles (%)	1%	1%	100%	1%	1%	1%	100%	1%	1%	1%	1%	1%
Turn Type	pm+pt	NA	Perm		pm+pt	NA	Perm		pm+pt	NA		pm+pt
Protected Phases	7	4			3	8			5	2		1
Permitted Phases	4		4		8		8		2			6
Actuated Green, G (s)	56.9	52.7	52.7		70.9	62.0	62.0		21.0	19.0		27.0
Effective Green, g (s)	56.9	52.7	52.7		70.9	62.0	62.0		21.0	19.0		27.0
Actuated g/C Ratio	0.52	0.48	0.48		0.64	0.56	0.56		0.19	0.17		0.25
Clearance Time (s)	4.7	5.2	5.2		4.7	5.2	5.2		4.7	5.2		4.7
Vehicle Extension (s)	3.0	4.0	4.0		2.0	4.0	4.0		2.0	3.5		2.0
Lane Grp Cap (vph)	135	1695	652		438	2014	805		256	274		272
v/s Ratio Prot	0.01	0.24			c0.08	c0.51			0.00	c0.09		c0.02
v/s Ratio Perm	0.13		0.02		0.34		0.06		0.01			0.07
v/c Ratio	0.27	0.50	0.04		0.65	0.90	0.10		0.07	0.50		0.37
Uniform Delay, d1	20.7	19.7	15.2		11.2	21.3	11.1		36.4	41.2		33.3
Progression Factor	1.35	0.32	1.00		2.28	0.54	0.86		1.11	1.07		1.00
Incremental Delay, d2	1.0	0.9	0.1		1.8	4.8	0.2		0.0	1.7		0.3
Delay (s)	29.0	7.3	15.3		27.3	16.4	9.7		40.3	45.9		33.6
Level of Service	C	A	B		C	B	A		D	D		C
Approach Delay (s)		8.6				17.3				45.3		
Approach LOS		A				B				D		

Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	19.8
Intersection Capacity Utilization	88.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	37	33
Future Volume (vph)	37	33
Ideal Flow (vphpl)	1900	1900
Grade (%)	-2%	
Total Lost time (s)	5.2	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.93	
Flt Protected	1.00	
Satd. Flow (prot)	1740	
Flt Permitted	1.00	
Satd. Flow (perm)	1740	
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	39	35
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	74	0
Confl. Peds. (#/hr)		13
Confl. Bikes (#/hr)		1
Heavy Vehicles (%)	1%	1%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	22.0	
Effective Green, g (s)	22.0	
Actuated g/C Ratio	0.20	
Clearance Time (s)	5.2	
Vehicle Extension (s)	3.5	
Lane Grp Cap (vph)	348	
v/s Ratio Prot	0.04	
v/s Ratio Perm		
v/c Ratio	0.21	
Uniform Delay, d1	36.8	
Progression Factor	1.00	
Incremental Delay, d2	0.4	
Delay (s)	37.1	
Level of Service	D	
Approach Delay (s)	35.1	
Approach LOS	D	

Intersection Summary



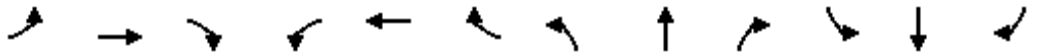
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	884	28	182	1988	312	0	0	0	250	128	180
Future Volume (veh/h)	115	884	28	182	1988	312	0	0	0	250	128	180
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99				1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	2003	2003	517	1988	1988	1988				1949	1949	1949
Adj Flow Rate, veh/h	121	931	29	192	2093	328				263	135	189
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	1	1	100	2	2	2				2	2	2
Cap, veh/h	338	2204	252	227	2451	375				589	303	264
Arrive On Green	0.35	1.00	1.00	0.12	0.52	0.52				0.16	0.16	0.16
Sat Flow, veh/h	1908	3806	435	1893	4739	725				3600	1851	1612
Grp Volume(v), veh/h	121	931	29	192	1586	835				263	135	189
Grp Sat Flow(s),veh/h/ln	1908	1903	435	1893	1809	1847				1800	1851	1612
Q Serve(g_s), s	5.2	0.0	0.0	10.9	41.4	43.9				7.3	7.2	12.2
Cycle Q Clear(g_c), s	5.2	0.0	0.0	10.9	41.4	43.9				7.3	7.2	12.2
Prop In Lane	1.00		1.00	1.00		0.39				1.00		1.00
Lane Grp Cap(c), veh/h	338	2204	252	227	1871	955				589	303	264
V/C Ratio(X)	0.36	0.42	0.12	0.85	0.85	0.87				0.45	0.45	0.72
Avail Cap(c_a), veh/h	338	2204	252	356	1924	982				822	422	368
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.88	0.88	0.88	1.00	1.00	1.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	30.8	0.0	0.0	47.4	22.8	23.4				41.5	41.5	43.6
Incr Delay (d2), s/veh	0.6	0.5	0.8	10.5	5.0	11.0				0.5	1.0	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.2	0.1	5.7	17.7	20.7				3.2	3.4	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.4	0.5	0.8	57.9	27.8	34.4				42.0	42.5	47.6
LnGrp LOS	C	A	A	E	C	C				D	D	D
Approach Vol, veh/h		1081			2613						587	
Approach Delay, s/veh		4.0			32.1						43.9	
Approach LOS		A			C						D	

Timer - Assigned Phs	1	2		4	5	6
Phs Duration (G+Y+Rc), s	17.9	68.9		23.2	24.7	62.1
Change Period (Y+Rc), s	* 4.7	* 5.2		* 5.2	* 5.2	* 5.2
Max Green Setting (Gmax), s	* 21	* 49		* 25	* 11	* 59
Max Q Clear Time (g_c+I1), s	12.9	2.0		14.2	7.2	45.9
Green Ext Time (p_c), s	0.3	8.1		2.2	0.1	11.0

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

Notes

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



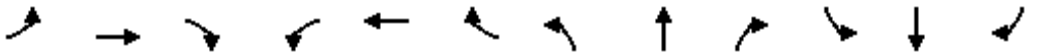
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	531	225	150	708	0	103	0	111	0	0	0
Future Volume (veh/h)	0	531	225	150	708	0	103	0	111	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	0.99		1.00	0.88		0.87	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1862	1862	1862	1870	1870	1870	1803	1803	1803	1979	1979	1979
Adj Flow Rate, veh/h	0	559	237	155	730	0	108	0	117	0	0	0
Peak Hour Factor	0.95	0.95	0.95	0.97	0.97	0.97	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	2	2	2	3	3	3	0	0	0
Cap, veh/h	535	1549	655	1196	2680	0	236	0	303	0	2	0
Arrive On Green	0.00	1.00	1.00	0.13	1.00	0.00	0.16	0.00	0.16	0.00	0.00	0.00
Sat Flow, veh/h	1773	2389	1010	3456	3647	0	1515	0	1328	0	1979	0
Grp Volume(v), veh/h	0	413	383	155	730	0	108	0	117	0	0	0
Grp Sat Flow(s),veh/h/ln	1773	1769	1631	1728	1777	0	1515	0	1328	0	1979	0
Q Serve(g_s), s	0.0	0.0	0.0	1.4	0.0	0.0	7.1	0.0	8.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	1.4	0.0	0.0	7.1	0.0	8.3	0.0	0.0	0.0
Prop In Lane	1.00		0.62	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	535	1147	1057	1196	2680	0	236	0	303	0	2	0
V/C Ratio(X)	0.00	0.36	0.36	0.13	0.27	0.00	0.46	0.00	0.39	0.00	0.00	0.00
Avail Cap(c_a), veh/h	647	1147	1057	1239	2680	0	321	0	378	0	342	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.80	0.80	0.82	0.82	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	3.9	0.0	0.0	42.2	0.0	36.8	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.7	0.8	0.0	0.2	0.0	1.0	0.0	0.6	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.2	0.4	0.1	0.0	2.8	0.0	2.7	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.7	0.8	4.0	0.2	0.0	43.2	0.0	37.4	0.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	D	A	D	A	A	A
Approach Vol, veh/h		796			885			225			0	
Approach Delay, s/veh		0.7			0.9			40.2			0.0	
Approach LOS		A			A			D				

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		21.8	11.6	76.5		0.0	0.0	88.2				
Change Period (Y+Rc), s		* 4.7	* 4.7	* 5.2		4.5	* 4.7	* 5.2				
Max Green Setting (Gmax), s		* 23	* 8.3	* 40		19.0	* 7	* 42				
Max Q Clear Time (g_c+I1), s		10.3	3.4	2.0		0.0	0.0	2.0				
Green Ext Time (p_c), s		0.7	0.1	6.1		0.0	0.0	6.0				

Intersection Summary	
HCM 6th Ctrl Delay	5.5
HCM 6th LOS	A

Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	355	199	599	446	29	259	534	284	24	684	153
Future Volume (veh/h)	88	355	199	599	446	29	259	534	284	24	684	153
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1949	1949	1949	1862	1862	1862	2003	2003	2003
Adj Flow Rate, veh/h	93	374	209	631	469	31	273	562	299	25	712	159
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	1	1	1	1	1	1
Cap, veh/h	666	685	286	790	812	340	332	1300	920	65	1161	511
Arrive On Green	0.06	0.06	0.06	0.22	0.22	0.22	0.10	0.37	0.37	0.01	0.10	0.10
Sat Flow, veh/h	3456	3554	1481	3600	3702	1548	3440	3537	1561	1908	3806	1676
Grp Volume(v), veh/h	93	374	209	631	469	31	273	562	299	25	712	159
Grp Sat Flow(s),veh/h/ln	1728	1777	1481	1800	1851	1548	1720	1769	1561	1908	1903	1676
Q Serve(g_s), s	2.8	11.2	15.2	18.2	12.5	1.8	8.6	13.1	10.8	1.4	19.7	9.7
Cycle Q Clear(g_c), s	2.8	11.2	15.2	18.2	12.5	1.8	8.6	13.1	10.8	1.4	19.7	9.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	666	685	286	790	812	340	332	1300	920	65	1161	511
V/C Ratio(X)	0.14	0.55	0.73	0.80	0.58	0.09	0.82	0.43	0.33	0.39	0.61	0.31
Avail Cap(c_a), veh/h	848	872	364	884	909	380	344	1300	920	121	1161	511
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.90	0.90	0.90	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.9	46.8	48.7	40.6	38.4	34.2	48.8	26.2	11.6	53.2	43.3	38.7
Incr Delay (d2), s/veh	0.1	0.6	5.0	4.3	0.7	0.1	14.7	1.1	0.9	1.4	2.4	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	5.4	6.5	8.5	5.7	0.7	4.3	5.6	6.2	0.7	10.4	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.0	47.4	53.7	44.9	39.0	34.3	63.5	27.2	12.6	54.6	45.7	40.3
LnGrp LOS	D	D	D	D	D	C	E	C	B	D	D	D
Approach Vol, veh/h		676			1131			1134			896	
Approach Delay, s/veh		48.8			42.2			32.1			45.0	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.7	45.9		26.2	15.6	39.0		29.1				
Change Period (Y+Rc), s	5.0	5.5		5.0	5.0	5.5		5.0				
Max Green Setting (Gmax), s	7.0	28.5		27.0	11.0	24.5		27.0				
Max Q Clear Time (g_c+I1), s	3.4	15.1		17.2	10.6	21.7		20.2				
Green Ext Time (p_c), s	0.0	5.4		2.6	0.1	1.7		3.2				

Intersection Summary			
HCM 6th Ctrl Delay		41.0	
HCM 6th LOS		D	

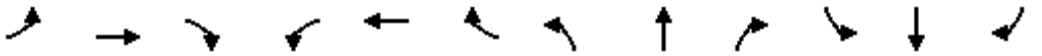
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1350	1083	0	1020	202	49
Future Volume (veh/h)	1350	1083	0	1020	202	49
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1988	1870	1870
Adj Flow Rate, veh/h	1467	0	0	1109	220	53
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	2	2	2
Cap, veh/h	2983		0	3171	303	139
Arrive On Green	0.84	0.00	0.00	0.84	0.09	0.09
Sat Flow, veh/h	3647	1585	0	3976	3456	1585
Grp Volume(v), veh/h	1467	0	0	1109	220	53
Grp Sat Flow(s),veh/h/ln	1777	1585	0	1889	1728	1585
Q Serve(g_s), s	12.4	0.0	0.0	7.3	6.8	3.5
Cycle Q Clear(g_c), s	12.4	0.0	0.0	7.3	6.8	3.5
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	2983		0	3171	303	139
V/C Ratio(X)	0.49		0.00	0.35	0.73	0.38
Avail Cap(c_a), veh/h	2983		0	3171	817	375
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.97	0.97
Uniform Delay (d), s/veh	2.4	0.0	0.0	2.0	48.9	47.4
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.3	3.2	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	0.0	1.6	3.1	1.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	3.0	0.0	0.0	2.3	52.1	49.0
LnGrp LOS	A		A	A	D	D
Approach Vol, veh/h	1467	A		1109	273	
Approach Delay, s/veh	3.0			2.3	51.5	
Approach LOS	A			A	D	

Timer - Assigned Phs	2				6	8
Phs Duration (G+Y+Rc), s	96.3				96.3	13.7
Change Period (Y+Rc), s	4.0				4.0	4.0
Max Green Setting (Gmax), s	76.0				76.0	26.0
Max Q Clear Time (g_c+I1), s	14.4				9.3	8.8
Green Ext Time (p_c), s	17.2				10.6	0.8

Intersection Summary	
HCM 6th Ctrl Delay	7.4
HCM 6th LOS	A

Notes

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



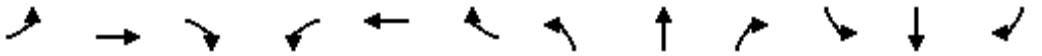
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	231	7	192	82	73	258	117	314	65	343	691
Future Volume (veh/h)	72	231	7	192	82	73	258	117	314	65	343	691
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	78	251	8	209	89	79	280	127	341	71	373	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	101	388	12	229	341	289	516	558	498	389	863	
Arrive On Green	0.06	0.11	0.11	0.13	0.18	0.18	0.29	0.31	0.31	0.22	0.24	0.00
Sat Flow, veh/h	1781	3515	112	1781	1870	1585	1781	1777	1585	1781	3554	1585
Grp Volume(v), veh/h	78	127	132	209	89	79	280	127	341	71	373	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1850	1781	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	3.0	4.8	4.8	8.1	2.9	1.8	9.3	3.7	13.2	2.3	6.2	0.0
Cycle Q Clear(g_c), s	3.0	4.8	4.8	8.1	2.9	1.8	9.3	3.7	13.2	2.3	6.2	0.0
Prop In Lane	1.00		0.06	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	101	196	204	229	341	289	516	558	498	389	863	
V/C Ratio(X)	0.78	0.65	0.65	0.91	0.26	0.27	0.54	0.23	0.68	0.18	0.43	
Avail Cap(c_a), veh/h	204	406	423	229	454	385	516	558	498	389	863	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.59	0.59	0.00
Uniform Delay (d), s/veh	32.6	29.8	29.8	30.1	24.6	8.7	20.9	17.7	21.0	22.3	22.4	0.0
Incr Delay (d2), s/veh	12.0	3.5	3.5	36.6	0.4	0.5	1.2	0.9	7.4	0.1	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	2.2	2.3	5.7	1.3	1.1	3.8	1.6	5.6	0.9	2.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.6	33.4	33.3	66.8	25.0	9.2	22.1	18.7	28.4	22.4	23.4	0.0
LnGrp LOS	D	C	C	E	C	A	C	B	C	C	C	
Approach Vol, veh/h		337			377			748			444	A
Approach Delay, s/veh		35.9			44.8			24.4			23.2	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.3	26.0	13.0	11.7	24.3	21.0	8.0	16.8
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	7.0	22.0	9.0	16.0	12.0	17.0	8.0	17.0
Max Q Clear Time (g_c+I1), s	4.3	15.2	10.1	6.8	11.3	8.2	5.0	4.9
Green Ext Time (p_c), s	0.0	1.7	0.0	0.9	0.1	1.5	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	30.2
HCM 6th LOS	C

Notes

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



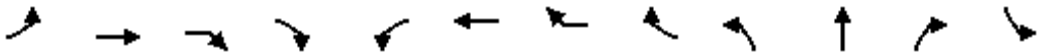
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	950	202	192	1054	134	277	637	240	179	518	79
Future Volume (veh/h)	120	950	202	192	1054	134	277	637	240	179	518	79
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		0.93	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1964	1964	1964	1862	1862	1862	1900	1900	1900
Adj Flow Rate, veh/h	126	1000	213	200	1098	140	289	664	250	188	545	83
Peak Hour Factor	0.95	0.95	0.95	0.96	0.96	0.96	0.96	0.96	0.96	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	0	0	0
Cap, veh/h	144	1080	464	252	1329	574	306	777	534	280	729	432
Arrive On Green	0.03	0.10	0.10	0.27	0.71	0.71	0.23	0.29	0.29	0.15	0.20	0.20
Sat Flow, veh/h	1795	3582	1539	1870	3731	1612	1773	3537	1460	1810	3610	1500
Grp Volume(v), veh/h	126	1000	213	200	1098	140	289	664	250	188	545	83
Grp Sat Flow(s),veh/h/ln	1795	1791	1539	1870	1865	1612	1773	1769	1460	1810	1805	1500
Q Serve(g_s), s	7.7	30.5	8.9	10.9	22.6	2.0	17.6	19.5	0.0	10.8	15.6	4.6
Cycle Q Clear(g_c), s	7.7	30.5	8.9	10.9	22.6	2.0	17.6	19.5	0.0	10.8	15.6	4.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	144	1080	464	252	1329	574	306	777	534	280	729	432
V/C Ratio(X)	0.88	0.93	0.46	0.79	0.83	0.24	0.94	0.85	0.47	0.67	0.75	0.19
Avail Cap(c_a), veh/h	144	1088	467	252	1329	574	306	859	567	280	755	442
HCM Platoon Ratio	0.33	0.33	0.33	2.00	2.00	2.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	0.50	0.50	0.50	0.54	0.54	0.54	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.0	48.3	15.6	38.8	13.4	4.0	41.8	37.3	24.3	43.8	41.3	30.0
Incr Delay (d2), s/veh	24.1	8.3	1.6	8.9	3.3	0.5	36.8	8.0	0.8	5.0	4.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	15.8	3.6	4.9	5.3	1.1	10.3	8.6	4.5	5.2	7.3	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.1	56.6	17.3	47.6	16.8	4.5	78.7	45.3	25.0	48.8	45.4	30.3
LnGrp LOS	E	E	B	D	B	A	E	D	C	D	D	C
Approach Vol, veh/h		1339			1438			1203			816	
Approach Delay, s/veh		52.3			19.9			49.1			44.7	
Approach LOS		D			B			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.2	29.4	20.0	38.4	24.2	27.4	14.0	44.4
Change Period (Y+Rc), s	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2
Max Green Setting (Gmax), s	* 15	* 27	* 14	* 33	* 19	* 23	* 8.8	* 38
Max Q Clear Time (g_c+I1), s	12.8	21.5	12.9	32.5	19.6	17.6	9.7	24.6
Green Ext Time (p_c), s	0.1	2.7	0.0	0.7	0.0	2.1	0.0	7.7

Intersection Summary	
HCM 6th Ctrl Delay	40.5
HCM 6th LOS	D

Notes

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



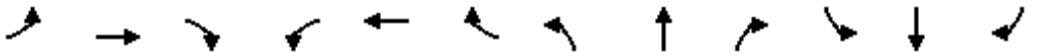
Movement	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL2
Lane Configurations												
Traffic Volume (vph)	43	1308	0	41	161	1362	0	162	40	79	178	161
Future Volume (vph)	43	1308	0	41	161	1362	0	162	40	79	178	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%				0%				3%		
Total Lost time (s)	4.7	5.2	5.2		4.7	5.2	5.2		4.7	5.2		4.7
Lane Util. Factor	1.00	0.95	1.00		1.00	0.95	1.00		1.00	1.00		1.00
Frpb, ped/bikes	1.00	1.00	0.98		1.00	1.00	0.94		1.00	0.98		1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00		0.99	1.00		1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85		1.00	0.90		1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00		0.95
Satd. Flow (prot)	1769	3539	1547		1787	3574	1499		1742	1625		1801
Flt Permitted	0.08	1.00	1.00		0.08	1.00	1.00		0.70	1.00		0.30
Satd. Flow (perm)	151	3539	1547		142	3574	1499		1287	1625		560
Peak-hour factor, PHF	0.95	0.95	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	45	1377	0	43	169	1434	0	171	42	83	187	169
RTOR Reduction (vph)	0	0	24	0	0	0	89	0	0	0	0	0
Lane Group Flow (vph)	45	1377	19	0	169	1434	82	0	42	270	0	169
Confl. Peds. (#/hr)	17			1	1			17	13		14	14
Confl. Bikes (#/hr)								1			1	
Heavy Vehicles (%)	1%	1%	2%	1%	1%	1%	2%	1%	1%	1%	1%	1%
Turn Type	pm+pt	NA	Perm		pm+pt	NA	Perm		pm+pt	NA		pm+pt
Protected Phases	7	4			3	8			5	2		1
Permitted Phases	4		4		8		8		2			6
Actuated Green, G (s)	54.8	49.2	49.2		62.2	52.9	52.9		27.3	24.2		36.1
Effective Green, g (s)	54.8	49.2	49.2		62.2	52.9	52.9		27.3	24.2		36.1
Actuated g/C Ratio	0.50	0.45	0.45		0.57	0.48	0.48		0.25	0.22		0.33
Clearance Time (s)	4.7	5.2	5.2		4.7	5.2	5.2		4.7	5.2		4.7
Vehicle Extension (s)	3.0	4.0	4.0		2.0	4.0	4.0		2.0	3.5		2.0
Lane Grp Cap (vph)	157	1582	691		219	1718	720		332	357		268
v/s Ratio Prot	0.01	0.39			c0.07	c0.40			0.00	c0.17		c0.04
v/s Ratio Perm	0.13		0.01		0.37		0.05		0.03			0.16
v/c Ratio	0.29	0.87	0.03		0.77	0.83	0.11		0.13	0.76		0.63
Uniform Delay, d1	19.5	27.5	17.0		25.5	24.8	15.7		31.9	40.1		28.7
Progression Factor	1.08	0.45	1.00		1.76	0.60	1.00		1.11	1.05		1.00
Incremental Delay, d2	0.6	4.5	0.0		8.0	2.7	0.2		0.1	9.1		3.5
Delay (s)	21.7	16.7	17.1		53.0	17.6	15.9		35.4	51.1		32.2
Level of Service	C	B	B		D	B	B		D	D		C
Approach Delay (s)		16.9				20.8				49.0		
Approach LOS		B				C				D		

Intersection Summary			
HCM 2000 Control Delay	22.4	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)	19.8
Intersection Capacity Utilization	88.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	53	28
Future Volume (vph)	53	28
Ideal Flow (vphpl)	1900	1900
Grade (%)	-2%	
Total Lost time (s)	5.2	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.95	
Flt Protected	1.00	
Satd. Flow (prot)	1785	
Flt Permitted	1.00	
Satd. Flow (perm)	1785	
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	56	29
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	85	0
Confl. Peds. (#/hr)		13
Confl. Bikes (#/hr)		1
Heavy Vehicles (%)	1%	1%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	28.6	
Effective Green, g (s)	28.6	
Actuated g/C Ratio	0.26	
Clearance Time (s)	5.2	
Vehicle Extension (s)	3.5	
Lane Grp Cap (vph)	464	
v/s Ratio Prot	0.05	
v/s Ratio Perm		
v/c Ratio	0.18	
Uniform Delay, d1	31.6	
Progression Factor	1.00	
Incremental Delay, d2	0.2	
Delay (s)	31.9	
Level of Service	C	
Approach Delay (s)	32.1	
Approach LOS	C	

Intersection Summary



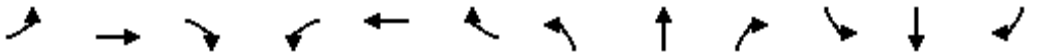
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	243	1330	39	222	1493	588	0	0	0	429	269	191
Future Volume (veh/h)	243	1330	39	222	1493	588	0	0	0	429	269	191
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99				1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	2003	2003	2003	1988	1988	1988				1949	1949	1949
Adj Flow Rate, veh/h	256	1400	41	234	1572	619				452	283	201
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	2	2	2				2	2	2
Cap, veh/h	396	2032	900	267	1782	678				676	391	268
Arrive On Green	0.42	1.00	1.00	0.14	0.46	0.46				0.19	0.19	0.19
Sat Flow, veh/h	1908	3806	1685	1893	3853	1465				3600	2080	1427
Grp Volume(v), veh/h	256	1400	41	234	1473	718				452	251	233
Grp Sat Flow(s),veh/h/ln	1908	1903	1685	1893	1809	1700				1800	1851	1656
Q Serve(g_s), s	11.8	0.0	0.0	13.3	40.6	43.3				12.8	14.0	14.6
Cycle Q Clear(g_c), s	11.8	0.0	0.0	13.3	40.6	43.3				12.8	14.0	14.6
Prop In Lane	1.00		1.00	1.00		0.86				1.00		0.86
Lane Grp Cap(c), veh/h	396	2032	900	267	1674	786				676	348	311
V/C Ratio(X)	0.65	0.69	0.05	0.88	0.88	0.91				0.67	0.72	0.75
Avail Cap(c_a), veh/h	396	2032	900	318	1697	797				818	421	376
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.47	0.47	0.47	1.00	1.00	1.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	28.9	0.0	0.0	46.3	26.8	27.5				41.5	42.0	42.2
Incr Delay (d2), s/veh	1.7	0.9	0.0	20.4	7.0	16.9				1.6	4.7	6.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	0.3	0.0	7.7	18.2	20.3				5.8	6.8	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.6	0.9	0.0	66.7	33.8	44.4				43.1	46.7	48.8
LnGrp LOS	C	A	A	E	C	D				D	D	D
Approach Vol, veh/h		1697			2425						936	
Approach Delay, s/veh		5.4			40.1						45.5	
Approach LOS		A			D						D	

Timer - Assigned Phs	1	2		4	5	6
Phs Duration (G+Y+Rc), s	20.2	63.9		25.9	28.1	56.1
Change Period (Y+Rc), s	* 4.7	* 5.2		* 5.2	* 5.2	* 5.2
Max Green Setting (Gmax), s	* 19	* 51		* 25	* 18	* 52
Max Q Clear Time (g_c+I1), s	15.3	2.0		16.6	13.8	45.3
Green Ext Time (p_c), s	0.2	15.4		3.0	0.3	5.6

Intersection Summary	
HCM 6th Ctrl Delay	29.4
HCM 6th LOS	C

Notes

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



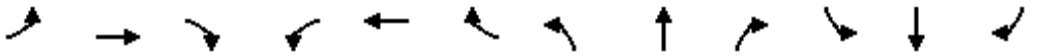
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	695	150	95	472	0	213	0	227	0	0	0
Future Volume (veh/h)	0	695	150	95	472	0	213	0	227	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	0.99		1.00	0.90		0.89	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1862	1862	1862	1870	1870	1870	1803	1803	1803	1979	1979	1979
Adj Flow Rate, veh/h	0	732	158	98	487	0	224	0	239	0	0	0
Peak Hour Factor	0.95	0.95	0.95	0.97	0.97	0.97	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	2	2	2	3	3	3	0	0	0
Cap, veh/h	626	1773	383	1080	2563	0	292	0	349	0	2	0
Arrive On Green	0.00	1.00	1.00	0.12	1.00	0.00	0.19	0.00	0.19	0.00	0.00	0.00
Sat Flow, veh/h	1773	2869	619	3456	3647	0	1550	0	1360	0	1979	0
Grp Volume(v), veh/h	0	451	439	98	487	0	224	0	239	0	0	0
Grp Sat Flow(s),veh/h/ln	1773	1769	1719	1728	1777	0	1550	0	1360	0	1979	0
Q Serve(g_s), s	0.0	0.0	0.0	0.9	0.0	0.0	15.1	0.0	17.6	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.9	0.0	0.0	15.1	0.0	17.6	0.0	0.0	0.0
Prop In Lane	1.00		0.36	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	626	1093	1063	1080	2563	0	292	0	349	0	2	0
V/C Ratio(X)	0.00	0.41	0.41	0.09	0.19	0.00	0.77	0.00	0.69	0.00	0.00	0.00
Avail Cap(c_a), veh/h	737	1093	1063	1195	2563	0	328	0	380	0	342	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.94	0.94	0.89	0.89	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	4.9	0.0	0.0	42.3	0.0	37.6	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.1	1.1	0.0	0.1	0.0	8.7	0.0	4.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.3	0.3	0.3	0.1	0.0	6.5	0.0	6.2	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	1.1	1.1	4.9	0.1	0.0	51.0	0.0	41.7	0.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	D	A	D	A	A	A
Approach Vol, veh/h		890			585			463			0	
Approach Delay, s/veh		1.1			0.9			46.2			0.0	
Approach LOS		A			A			D				

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	25.5	11.3	73.2	0.0	0.0	84.5
Change Period (Y+Rc), s	* 4.7	* 4.7	* 5.2	4.5	* 4.7	* 5.2
Max Green Setting (Gmax), s	* 23	* 10	* 38	19.0	* 7	* 42
Max Q Clear Time (g_c+I1), s	19.6	2.9	2.0	0.0	0.0	2.0
Green Ext Time (p_c), s	0.7	0.1	6.9	0.0	0.0	3.7

Intersection Summary	
HCM 6th Ctrl Delay	11.8
HCM 6th LOS	B

Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	203	400	319	487	227	51	235	835	527	65	733	106
Future Volume (veh/h)	203	400	319	487	227	51	235	835	527	65	733	106
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1949	1949	1949	1862	1862	1862	2003	2003	2003
Adj Flow Rate, veh/h	214	421	336	513	239	54	247	879	555	68	764	110
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	1	1	1	1	1	1
Cap, veh/h	837	861	361	688	707	295	281	1148	807	106	1136	500
Arrive On Green	0.32	0.32	0.32	0.19	0.19	0.19	0.08	0.32	0.32	0.02	0.10	0.10
Sat Flow, veh/h	3456	3554	1488	3600	3702	1543	3440	3537	1559	1908	3806	1675
Grp Volume(v), veh/h	214	421	336	513	239	54	247	879	555	68	764	110
Grp Sat Flow(s),veh/h/ln	1728	1777	1488	1800	1851	1543	1720	1769	1559	1908	1903	1675
Q Serve(g_s), s	5.0	10.5	24.1	14.8	6.1	3.2	7.8	24.6	29.5	3.9	21.3	6.7
Cycle Q Clear(g_c), s	5.0	10.5	24.1	14.8	6.1	3.2	7.8	24.6	29.5	3.9	21.3	6.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	837	861	361	688	707	295	281	1148	807	106	1136	500
V/C Ratio(X)	0.26	0.49	0.93	0.75	0.34	0.18	0.88	0.77	0.69	0.64	0.67	0.22
Avail Cap(c_a), veh/h	848	872	365	884	909	379	281	1148	807	121	1136	500
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.86	0.86	0.86	0.94	0.94	0.94	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.0	31.8	36.4	42.0	38.5	37.3	50.0	33.4	20.0	52.9	44.4	37.8
Incr Delay (d2), s/veh	0.1	0.4	27.2	2.4	0.3	0.3	25.6	4.9	4.7	5.6	3.2	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	4.3	10.8	6.8	2.8	1.2	4.3	11.0	16.2	2.1	11.4	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.1	32.2	63.6	44.4	38.7	37.6	75.6	38.3	24.8	58.5	47.6	38.8
LnGrp LOS	C	C	E	D	D	D	E	D	C	E	D	D
Approach Vol, veh/h		971			806			1681			942	
Approach Delay, s/veh		42.6			42.3			39.3			47.3	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.1	41.2		31.6	14.0	38.3		26.0				
Change Period (Y+Rc), s	5.0	5.5		5.0	5.0	5.5		5.0				
Max Green Setting (Gmax), s	7.0	28.5		27.0	9.0	26.5		27.0				
Max Q Clear Time (g_c+I1), s	5.9	31.5		26.1	9.8	23.3		16.8				
Green Ext Time (p_c), s	0.0	0.0		0.5	0.0	1.9		2.8				

Intersection Summary			
HCM 6th Ctrl Delay		42.3	
HCM 6th LOS		D	

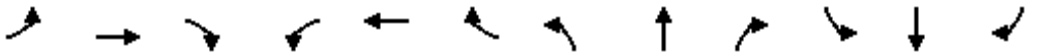
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1350	1089	0	1020	202	49
Future Volume (veh/h)	1350	1089	0	1020	202	49
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1988	1870	1870
Adj Flow Rate, veh/h	1467	0	0	1109	220	53
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	2	2	2
Cap, veh/h	2983		0	3171	303	139
Arrive On Green	0.84	0.00	0.00	0.84	0.09	0.09
Sat Flow, veh/h	3647	1585	0	3976	3456	1585
Grp Volume(v), veh/h	1467	0	0	1109	220	53
Grp Sat Flow(s),veh/h/ln	1777	1585	0	1889	1728	1585
Q Serve(g_s), s	12.4	0.0	0.0	7.3	6.8	3.5
Cycle Q Clear(g_c), s	12.4	0.0	0.0	7.3	6.8	3.5
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	2983		0	3171	303	139
V/C Ratio(X)	0.49		0.00	0.35	0.73	0.38
Avail Cap(c_a), veh/h	2983		0	3171	817	375
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.97	0.97
Uniform Delay (d), s/veh	2.4	0.0	0.0	2.0	48.9	47.4
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.3	3.2	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	0.0	1.6	3.1	1.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	3.0	0.0	0.0	2.3	52.1	49.0
LnGrp LOS	A		A	A	D	D
Approach Vol, veh/h	1467	A		1109	273	
Approach Delay, s/veh	3.0			2.3	51.5	
Approach LOS	A			A	D	

Timer - Assigned Phs	2				6	8
Phs Duration (G+Y+Rc), s	96.3				96.3	13.7
Change Period (Y+Rc), s	4.0				4.0	4.0
Max Green Setting (Gmax), s	76.0				76.0	26.0
Max Q Clear Time (g_c+I1), s	14.4				9.3	8.8
Green Ext Time (p_c), s	17.2				10.6	0.8

Intersection Summary	
HCM 6th Ctrl Delay	7.4
HCM 6th LOS	A

Notes

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



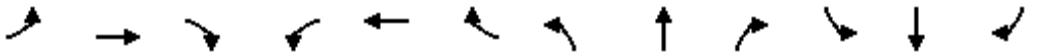
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	231	7	192	82	73	258	117	314	65	343	697
Future Volume (veh/h)	72	231	7	192	82	73	258	117	314	65	343	697
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	78	251	8	209	89	79	280	127	341	71	373	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	101	388	12	229	341	289	516	558	498	389	863	
Arrive On Green	0.06	0.11	0.11	0.13	0.18	0.18	0.29	0.31	0.31	0.22	0.24	0.00
Sat Flow, veh/h	1781	3515	112	1781	1870	1585	1781	1777	1585	1781	3554	1585
Grp Volume(v), veh/h	78	127	132	209	89	79	280	127	341	71	373	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1850	1781	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	3.0	4.8	4.8	8.1	2.9	1.8	9.3	3.7	13.2	2.3	6.2	0.0
Cycle Q Clear(g_c), s	3.0	4.8	4.8	8.1	2.9	1.8	9.3	3.7	13.2	2.3	6.2	0.0
Prop In Lane	1.00		0.06	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	101	196	204	229	341	289	516	558	498	389	863	
V/C Ratio(X)	0.78	0.65	0.65	0.91	0.26	0.27	0.54	0.23	0.68	0.18	0.43	
Avail Cap(c_a), veh/h	204	406	423	229	454	385	516	558	498	389	863	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.58	0.58	0.00
Uniform Delay (d), s/veh	32.6	29.8	29.8	30.1	24.6	8.7	20.9	17.7	21.0	22.3	22.4	0.0
Incr Delay (d2), s/veh	12.0	3.5	3.5	36.6	0.4	0.5	1.2	0.9	7.4	0.1	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	2.2	2.3	5.7	1.3	1.1	3.8	1.6	5.6	0.9	2.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.6	33.4	33.3	66.8	25.0	9.2	22.1	18.7	28.4	22.4	23.3	0.0
LnGrp LOS	D	C	C	E	C	A	C	B	C	C	C	
Approach Vol, veh/h		337			377			748			444	A
Approach Delay, s/veh		35.9			44.8			24.4			23.2	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.3	26.0	13.0	11.7	24.3	21.0	8.0	16.8
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	7.0	22.0	9.0	16.0	12.0	17.0	8.0	17.0
Max Q Clear Time (g_c+I1), s	4.3	15.2	10.1	6.8	11.3	8.2	5.0	4.9
Green Ext Time (p_c), s	0.0	1.7	0.0	0.9	0.1	1.5	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	30.2
HCM 6th LOS	C

Notes

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



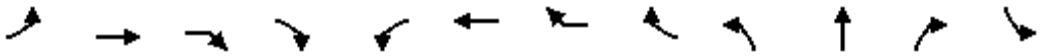
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	950	202	198	1054	134	277	637	246	179	518	79
Future Volume (veh/h)	120	950	202	198	1054	134	277	637	246	179	518	79
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		0.93	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1964	1964	1964	1862	1862	1862	1900	1900	1900
Adj Flow Rate, veh/h	126	1000	213	206	1098	140	289	664	256	188	545	83
Peak Hour Factor	0.95	0.95	0.95	0.96	0.96	0.96	0.96	0.96	0.96	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	0	0	0
Cap, veh/h	144	1080	464	252	1329	574	306	778	534	280	729	432
Arrive On Green	0.03	0.10	0.10	0.27	0.71	0.71	0.23	0.29	0.29	0.15	0.20	0.20
Sat Flow, veh/h	1795	3582	1539	1870	3731	1612	1773	3537	1460	1810	3610	1500
Grp Volume(v), veh/h	126	1000	213	206	1098	140	289	664	256	188	545	83
Grp Sat Flow(s),veh/h/ln	1795	1791	1539	1870	1865	1612	1773	1769	1460	1810	1805	1500
Q Serve(g_s), s	7.7	30.5	8.9	11.4	22.6	2.0	17.6	19.5	0.0	10.8	15.6	4.6
Cycle Q Clear(g_c), s	7.7	30.5	8.9	11.4	22.6	2.0	17.6	19.5	0.0	10.8	15.6	4.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	144	1080	464	252	1329	574	306	778	534	280	729	432
V/C Ratio(X)	0.88	0.93	0.46	0.82	0.83	0.24	0.94	0.85	0.48	0.67	0.75	0.19
Avail Cap(c_a), veh/h	144	1088	467	252	1329	574	306	859	567	280	755	442
HCM Platoon Ratio	0.33	0.33	0.33	2.00	2.00	2.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	0.50	0.50	0.50	0.54	0.54	0.54	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.0	48.3	15.6	38.9	13.4	4.0	41.8	37.2	24.4	43.9	41.3	30.0
Incr Delay (d2), s/veh	24.1	8.3	1.6	10.6	3.3	0.5	36.8	8.0	0.8	5.0	4.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	15.8	3.6	5.2	5.3	1.1	10.3	8.6	4.6	5.2	7.3	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.1	56.6	17.3	49.5	16.8	4.5	78.7	45.3	25.2	48.9	45.4	30.3
LnGrp LOS	E	E	B	D	B	A	E	D	C	D	D	C
Approach Vol, veh/h		1339			1444			1209			816	
Approach Delay, s/veh		52.3			20.2			49.0			44.7	
Approach LOS		D			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.2	29.4	20.0	38.4	24.2	27.4	14.0	44.4
Change Period (Y+Rc), s	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2
Max Green Setting (Gmax), s	* 15	* 27	* 14	* 33	* 19	* 23	* 8.8	* 38
Max Q Clear Time (g_c+I1), s	12.8	21.5	13.4	32.5	19.6	17.6	9.7	24.6
Green Ext Time (p_c), s	0.1	2.7	0.0	0.7	0.0	2.1	0.0	7.7

Intersection Summary	
HCM 6th Ctrl Delay	40.5
HCM 6th LOS	D

Notes

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



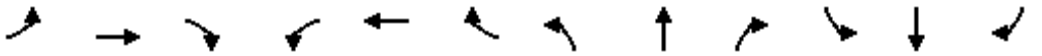
Movement	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL2
Lane Configurations												
Traffic Volume (vph)	43	1308	6	41	161	1362	6	162	40	79	178	161
Future Volume (vph)	43	1308	6	41	161	1362	6	162	40	79	178	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%				0%				3%		
Total Lost time (s)	4.7	5.2	5.2		4.7	5.2	5.2		4.7	5.2		4.7
Lane Util. Factor	1.00	0.95	1.00		1.00	0.95	1.00		1.00	1.00		1.00
Frpb, ped/bikes	1.00	1.00	0.98		1.00	1.00	0.94		1.00	0.98		1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00		0.99	1.00		1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85		1.00	0.90		1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00		0.95
Satd. Flow (prot)	1769	3539	1361		1787	3574	1444		1742	1625		1801
Flt Permitted	0.08	1.00	1.00		0.08	1.00	1.00		0.70	1.00		0.30
Satd. Flow (perm)	151	3539	1361		142	3574	1444		1287	1625		560
Peak-hour factor, PHF	0.95	0.95	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	45	1377	7	43	169	1434	7	171	42	83	187	169
RTOR Reduction (vph)	0	0	28	0	0	0	89	0	0	0	0	0
Lane Group Flow (vph)	45	1377	22	0	169	1434	89	0	42	270	0	169
Confl. Peds. (#/hr)	17			1	1			17	13		14	14
Confl. Bikes (#/hr)								1			1	
Heavy Vehicles (%)	1%	1%	100%	1%	1%	1%	100%	1%	1%	1%	1%	1%
Turn Type	pm+pt	NA	Perm		pm+pt	NA	Perm		pm+pt	NA		pm+pt
Protected Phases	7	4			3	8			5	2		1
Permitted Phases	4		4		8		8		2			6
Actuated Green, G (s)	54.8	49.2	49.2		62.2	52.9	52.9		27.3	24.2		36.1
Effective Green, g (s)	54.8	49.2	49.2		62.2	52.9	52.9		27.3	24.2		36.1
Actuated g/C Ratio	0.50	0.45	0.45		0.57	0.48	0.48		0.25	0.22		0.33
Clearance Time (s)	4.7	5.2	5.2		4.7	5.2	5.2		4.7	5.2		4.7
Vehicle Extension (s)	3.0	4.0	4.0		2.0	4.0	4.0		2.0	3.5		2.0
Lane Grp Cap (vph)	157	1582	608		219	1718	694		332	357		268
v/s Ratio Prot	0.01	0.39			c0.07	c0.40			0.00	c0.17		c0.04
v/s Ratio Perm	0.13		0.02		0.37		0.06		0.03			0.16
v/c Ratio	0.29	0.87	0.04		0.77	0.83	0.13		0.13	0.76		0.63
Uniform Delay, d1	19.5	27.5	17.1		25.5	24.8	15.8		31.9	40.1		28.7
Progression Factor	1.08	0.46	1.00		1.76	0.61	0.78		1.11	1.05		1.00
Incremental Delay, d2	0.6	4.4	0.1		8.0	2.7	0.2		0.1	9.1		3.5
Delay (s)	21.6	17.0	17.2		53.0	17.8	12.6		35.5	51.1		32.2
Level of Service	C	B	B		D	B	B		D	D		C
Approach Delay (s)		17.1				20.6				49.0		
Approach LOS		B				C				D		

Intersection Summary			
HCM 2000 Control Delay	22.4	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)	19.8
Intersection Capacity Utilization	88.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	53	28
Future Volume (vph)	53	28
Ideal Flow (vphpl)	1900	1900
Grade (%)	-2%	
Total Lost time (s)	5.2	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.95	
Flt Protected	1.00	
Satd. Flow (prot)	1785	
Flt Permitted	1.00	
Satd. Flow (perm)	1785	
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	56	29
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	85	0
Confl. Peds. (#/hr)		13
Confl. Bikes (#/hr)		1
Heavy Vehicles (%)	1%	1%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	28.6	
Effective Green, g (s)	28.6	
Actuated g/C Ratio	0.26	
Clearance Time (s)	5.2	
Vehicle Extension (s)	3.5	
Lane Grp Cap (vph)	464	
v/s Ratio Prot	0.05	
v/s Ratio Perm		
v/c Ratio	0.18	
Uniform Delay, d1	31.6	
Progression Factor	1.00	
Incremental Delay, d2	0.2	
Delay (s)	31.9	
Level of Service	C	
Approach Delay (s)	32.1	
Approach LOS	C	

Intersection Summary



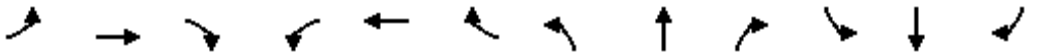
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	243	1336	39	222	1499	588	0	0	0	429	269	191
Future Volume (veh/h)	243	1336	39	222	1499	588	0	0	0	429	269	191
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99				1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	2003	2003	2003	1988	1988	1988				1949	1949	1949
Adj Flow Rate, veh/h	256	1406	41	234	1578	619				452	283	201
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	2	2	2				2	2	2
Cap, veh/h	396	2032	900	267	1786	676				676	391	268
Arrive On Green	0.41	1.00	1.00	0.14	0.46	0.46				0.19	0.19	0.19
Sat Flow, veh/h	1908	3806	1685	1893	3858	1461				3600	2080	1427
Grp Volume(v), veh/h	256	1406	41	234	1476	721				452	251	233
Grp Sat Flow(s),veh/h/ln	1908	1903	1685	1893	1809	1700				1800	1851	1656
Q Serve(g_s), s	11.8	0.0	0.0	13.3	40.7	43.4				12.8	14.0	14.6
Cycle Q Clear(g_c), s	11.8	0.0	0.0	13.3	40.7	43.4				12.8	14.0	14.6
Prop In Lane	1.00		1.00	1.00		0.86				1.00		0.86
Lane Grp Cap(c), veh/h	396	2032	900	267	1675	787				676	348	311
V/C Ratio(X)	0.65	0.69	0.05	0.88	0.88	0.92				0.67	0.72	0.75
Avail Cap(c_a), veh/h	396	2032	900	318	1697	798				818	421	376
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.47	0.47	0.47	1.00	1.00	1.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	29.0	0.0	0.0	46.3	26.8	27.5				41.5	42.0	42.2
Incr Delay (d2), s/veh	1.7	0.9	0.0	20.4	7.1	17.1				1.6	4.7	6.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	0.3	0.0	7.7	18.2	20.4				5.8	6.8	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.7	0.9	0.0	66.7	33.9	44.6				43.1	46.7	48.8
LnGrp LOS	C	A	A	E	C	D				D	D	D
Approach Vol, veh/h		1703			2431						936	
Approach Delay, s/veh		5.4			40.2						45.5	
Approach LOS		A			D						D	

Timer - Assigned Phs	1	2		4	5	6
Phs Duration (G+Y+Rc), s	20.2	63.9		25.9	28.0	56.1
Change Period (Y+Rc), s	* 4.7	* 5.2		* 5.2	* 5.2	* 5.2
Max Green Setting (Gmax), s	* 19	* 51		* 25	* 18	* 52
Max Q Clear Time (g_c+I1), s	15.3	2.0		16.6	13.8	45.4
Green Ext Time (p_c), s	0.2	15.5		3.0	0.3	5.5

Intersection Summary	
HCM 6th Ctrl Delay	29.5
HCM 6th LOS	C

Notes

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



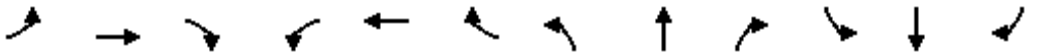
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	695	150	101	472	0	210	0	230	0	0	0
Future Volume (veh/h)	0	695	150	101	472	0	210	0	230	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	0.99		1.00	0.90		0.89	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1862	1862	1862	1870	1870	1870	1803	1803	1803	1979	1979	1979
Adj Flow Rate, veh/h	0	732	158	104	487	0	221	0	242	0	0	0
Peak Hour Factor	0.95	0.95	0.95	0.97	0.97	0.97	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	2	2	2	3	3	3	0	0	0
Cap, veh/h	625	1770	382	1080	2561	0	294	0	351	0	2	0
Arrive On Green	0.00	1.00	1.00	0.12	1.00	0.00	0.19	0.00	0.19	0.00	0.00	0.00
Sat Flow, veh/h	1773	2869	619	3456	3647	0	1551	0	1360	0	1979	0
Grp Volume(v), veh/h	0	451	439	104	487	0	221	0	242	0	0	0
Grp Sat Flow(s),veh/h/ln	1773	1769	1719	1728	1777	0	1551	0	1360	0	1979	0
Q Serve(g_s), s	0.0	0.0	0.0	1.0	0.0	0.0	14.8	0.0	17.8	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	1.0	0.0	0.0	14.8	0.0	17.8	0.0	0.0	0.0
Prop In Lane	1.00		0.36	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	625	1091	1061	1080	2561	0	294	0	351	0	2	0
V/C Ratio(X)	0.00	0.41	0.41	0.10	0.19	0.00	0.75	0.00	0.69	0.00	0.00	0.00
Avail Cap(c_a), veh/h	736	1091	1061	1193	2561	0	328	0	381	0	342	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.94	0.94	0.89	0.89	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	4.9	0.0	0.0	42.1	0.0	37.6	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.1	1.1	0.0	0.1	0.0	7.8	0.0	4.3	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.3	0.3	0.3	0.1	0.0	6.3	0.0	6.3	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	1.1	1.1	4.9	0.1	0.0	50.0	0.0	41.9	0.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	D	A	D	A	A	A
Approach Vol, veh/h		890			591			463			0	
Approach Delay, s/veh		1.1			1.0			45.8			0.0	
Approach LOS		A			A			D				

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		25.5	11.4	73.1		0.0	0.0	84.5				
Change Period (Y+Rc), s		* 4.7	* 4.7	* 5.2		4.5	* 4.7	* 5.2				
Max Green Setting (Gmax), s		* 23	* 10	* 38		19.0	* 7	* 42				
Max Q Clear Time (g_c+I1), s		19.8	3.0	2.0		0.0	0.0	2.0				
Green Ext Time (p_c), s		0.7	0.1	6.9		0.0	0.0	3.7				

Intersection Summary	
HCM 6th Ctrl Delay	11.7
HCM 6th LOS	B

Notes

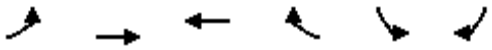
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	209	400	316	487	227	51	235	835	527	65	733	112
Future Volume (veh/h)	209	400	316	487	227	51	235	835	527	65	733	112
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1949	1949	1949	1862	1862	1862	2003	2003	2003
Adj Flow Rate, veh/h	220	421	333	513	239	54	247	879	555	68	764	117
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	1	1	1	1	1	1
Cap, veh/h	834	858	359	688	707	295	281	1152	809	106	1140	502
Arrive On Green	0.32	0.32	0.32	0.19	0.19	0.19	0.08	0.33	0.33	0.02	0.10	0.10
Sat Flow, veh/h	3456	3554	1488	3600	3702	1543	3440	3537	1559	1908	3806	1675
Grp Volume(v), veh/h	220	421	333	513	239	54	247	879	555	68	764	117
Grp Sat Flow(s),veh/h/ln	1728	1777	1488	1800	1851	1543	1720	1769	1559	1908	1903	1675
Q Serve(g_s), s	5.2	10.5	23.8	14.8	6.1	3.2	7.8	24.5	29.4	3.9	21.3	7.1
Cycle Q Clear(g_c), s	5.2	10.5	23.8	14.8	6.1	3.2	7.8	24.5	29.4	3.9	21.3	7.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	834	858	359	688	707	295	281	1152	809	106	1140	502
V/C Ratio(X)	0.26	0.49	0.93	0.75	0.34	0.18	0.88	0.76	0.69	0.64	0.67	0.23
Avail Cap(c_a), veh/h	848	872	365	884	909	379	281	1152	809	121	1140	502
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.86	0.86	0.86	0.94	0.94	0.94	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.1	31.9	36.4	42.0	38.5	37.3	50.0	33.3	20.0	52.9	44.3	37.9
Incr Delay (d2), s/veh	0.1	0.4	26.2	2.4	0.3	0.3	25.6	4.8	4.7	5.6	3.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	4.3	10.6	6.8	2.8	1.2	4.3	11.0	16.1	2.1	11.3	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.2	32.3	62.6	44.4	38.7	37.6	75.6	38.1	24.7	58.5	47.5	39.0
LnGrp LOS	C	C	E	D	D	D	E	D	C	E	D	D
Approach Vol, veh/h		974			806			1681			949	
Approach Delay, s/veh		42.2			42.3			39.2			47.2	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.1	41.3		31.5	14.0	38.4		26.0				
Change Period (Y+Rc), s	5.0	5.5		5.0	5.0	5.5		5.0				
Max Green Setting (Gmax), s	7.0	28.5		27.0	9.0	26.5		27.0				
Max Q Clear Time (g_c+I1), s	5.9	31.4		25.8	9.8	23.3		16.8				
Green Ext Time (p_c), s	0.0	0.0		0.6	0.0	1.9		2.8				

Intersection Summary			
HCM 6th Ctrl Delay		42.1	
HCM 6th LOS		D	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	193	745	464	48	51	240
Future Volume (veh/h)	193	745	464	48	51	240
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	0.97	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1964	1964
Adj Flow Rate, veh/h	203	784	488	51	54	253
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	1	1
Cap, veh/h	658	2591	1988	207	330	293
Arrive On Green	0.13	1.00	0.62	0.62	0.18	0.18
Sat Flow, veh/h	1781	3647	3285	332	1870	1664
Grp Volume(v), veh/h	203	784	271	268	54	253
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1747	1870	1664
Q Serve(g_s), s	4.5	0.0	7.5	7.5	2.7	16.2
Cycle Q Clear(g_c), s	4.5	0.0	7.5	7.5	2.7	16.2
Prop In Lane	1.00			0.19	1.00	1.00
Lane Grp Cap(c), veh/h	658	2591	1107	1088	330	293
V/C Ratio(X)	0.31	0.30	0.24	0.25	0.16	0.86
Avail Cap(c_a), veh/h	922	2591	1107	1088	575	511
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.77	0.77	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	5.6	0.0	9.2	9.2	38.4	44.0
Incr Delay (d2), s/veh	0.2	0.2	0.5	0.5	0.3	8.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.1	2.8	2.8	1.3	14.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	5.8	0.2	9.8	9.8	38.7	52.8
LnGrp LOS	A	A	A	A	D	D
Approach Vol, veh/h		987	539		307	
Approach Delay, s/veh		1.4	9.8		50.3	
Approach LOS		A	A		D	

Timer - Assigned Phs			4		6	7	8
Phs Duration (G+Y+Rc), s			85.4		24.6	11.7	73.7
Change Period (Y+Rc), s			* 5.2		5.2	* 4.7	* 5.2
Max Green Setting (Gmax), s			* 66		33.8	* 23	* 38
Max Q Clear Time (g_c+I1), s			2.0		18.2	6.5	9.5
Green Ext Time (p_c), s			10.1		1.2	0.5	4.8

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

Notes

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

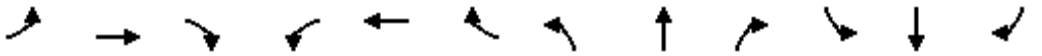
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	649	1394	0	1149	158	34
Future Volume (veh/h)	649	1394	0	1149	158	34
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1988	1870	1870
Adj Flow Rate, veh/h	705	0	0	1249	172	37
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	2	2	2
Cap, veh/h	3128		0	3324	230	105
Arrive On Green	0.88	0.00	0.00	0.88	0.07	0.07
Sat Flow, veh/h	3647	1585	0	3976	3456	1585
Grp Volume(v), veh/h	705	0	0	1249	172	37
Grp Sat Flow(s),veh/h/ln	1777	1585	0	1889	1728	1585
Q Serve(g_s), s	4.4	0.0	0.0	8.9	7.3	3.3
Cycle Q Clear(g_c), s	4.4	0.0	0.0	8.9	7.3	3.3
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	3128		0	3324	230	105
V/C Ratio(X)	0.23		0.00	0.38	0.75	0.35
Avail Cap(c_a), veh/h	3128		0	3324	691	317
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.97	0.97
Uniform Delay (d), s/veh	1.3	0.0	0.0	1.6	68.8	66.9
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.3	4.7	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.0	1.9	3.4	1.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	1.5	0.0	0.0	1.9	73.5	68.8
LnGrp LOS	A		A	A	E	E
Approach Vol, veh/h	705	A		1249	209	
Approach Delay, s/veh	1.5			1.9	72.6	
Approach LOS	A			A	E	

Timer - Assigned Phs	2			6	8
Phs Duration (G+Y+Rc), s	136.0			136.0	14.0
Change Period (Y+Rc), s	4.0			4.0	4.0
Max Green Setting (Gmax), s	112.0			112.0	30.0
Max Q Clear Time (g_c+I1), s	6.4			10.9	9.3
Green Ext Time (p_c), s	5.6			13.2	0.6

Intersection Summary	
HCM 6th Ctrl Delay	8.6
HCM 6th LOS	A

Notes

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



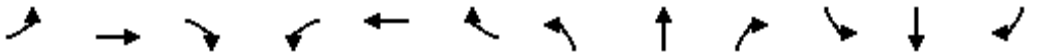
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	132	255	11	162	52	9	411	133	123	9	750	646
Future Volume (veh/h)	132	255	11	162	52	9	411	133	123	9	750	646
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	143	277	12	176	57	10	447	145	134	10	815	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	175	380	16	198	229	194	616	1074	919	18	908	
Arrive On Green	0.10	0.11	0.11	0.11	0.12	0.12	0.35	0.59	0.59	0.01	0.26	0.00
Sat Flow, veh/h	1781	3470	150	1781	1870	1585	1781	1815	1553	1781	3554	1585
Grp Volume(v), veh/h	143	141	148	176	57	10	447	142	137	10	815	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1843	1781	1870	1585	1781	1777	1591	1781	1777	1585
Q Serve(g_s), s	7.1	6.9	7.0	8.8	2.5	0.5	19.7	3.2	3.5	0.5	19.9	0.0
Cycle Q Clear(g_c), s	7.1	6.9	7.0	8.8	2.5	0.5	19.7	3.2	3.5	0.5	19.9	0.0
Prop In Lane	1.00		0.08	1.00		1.00	1.00		0.98	1.00		1.00
Lane Grp Cap(c), veh/h	175	195	202	198	229	194	616	1052	941	18	908	
V/C Ratio(X)	0.82	0.73	0.73	0.89	0.25	0.05	0.73	0.13	0.15	0.57	0.90	
Avail Cap(c_a), veh/h	198	316	328	198	333	282	616	1052	941	79	908	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.19	0.19	0.00
Uniform Delay (d), s/veh	39.8	38.8	38.8	39.5	35.8	34.9	25.7	8.1	8.2	44.4	32.4	0.0
Incr Delay (d2), s/veh	20.6	5.1	5.0	35.3	0.6	0.1	4.2	0.3	0.3	5.5	3.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	3.3	3.4	5.7	1.2	0.2	8.8	1.2	1.2	0.2	8.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.3	43.9	43.8	74.8	36.3	35.0	29.9	8.4	8.5	49.8	35.4	0.0
LnGrp LOS	E	D	D	E	D	D	C	A	A	D	D	
Approach Vol, veh/h		432			243			726			825	A
Approach Delay, s/veh		49.3			64.1			21.7			35.6	
Approach LOS		D			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.9	57.3	14.0	13.9	35.1	27.0	12.9	15.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	4.0	44.0	10.0	16.0	25.0	23.0	10.0	16.0
Max Q Clear Time (g_c+I1), s	2.5	5.5	10.8	9.0	21.7	21.9	9.1	4.5
Green Ext Time (p_c), s	0.0	1.8	0.0	0.9	0.5	0.6	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	36.8
HCM 6th LOS	D

Notes

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



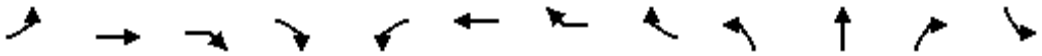
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	737	187	317	1592	75	216	397	176	139	731	128
Future Volume (veh/h)	43	737	187	317	1592	75	216	397	176	139	731	128
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.93	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1964	1964	1964	1862	1862	1862	1900	1900	1900
Adj Flow Rate, veh/h	45	776	197	330	1658	78	225	414	183	146	769	135
Peak Hour Factor	0.95	0.95	0.95	0.96	0.96	0.96	0.96	0.96	0.96	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	0	0	0
Cap, veh/h	73	1163	708	355	1769	768	230	878	665	170	767	385
Arrive On Green	0.04	0.32	0.32	0.19	0.47	0.47	0.13	0.25	0.25	0.09	0.21	0.21
Sat Flow, veh/h	1795	3582	1542	1870	3731	1620	1773	3537	1472	1810	3610	1506
Grp Volume(v), veh/h	45	776	197	330	1658	78	225	414	183	146	769	135
Grp Sat Flow(s),veh/h/ln	1795	1791	1542	1870	1865	1620	1773	1769	1472	1810	1805	1506
Q Serve(g_s), s	3.6	27.1	4.8	25.2	61.0	3.9	18.3	14.4	11.6	11.5	30.8	7.3
Cycle Q Clear(g_c), s	3.6	27.1	4.8	25.2	61.0	3.9	18.3	14.4	11.6	11.5	30.8	7.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	73	1163	708	355	1769	768	230	878	665	170	767	385
V/C Ratio(X)	0.62	0.67	0.28	0.93	0.94	0.10	0.98	0.47	0.28	0.86	1.00	0.35
Avail Cap(c_a), veh/h	87	1163	708	410	1769	768	230	878	665	255	767	385
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.21	0.21	0.21	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	68.5	42.2	9.3	57.8	36.1	21.1	62.9	46.4	26.1	64.8	57.1	22.9
Incr Delay (d2), s/veh	4.6	3.0	1.0	7.7	2.9	0.1	53.2	0.5	0.3	11.9	33.2	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	12.4	2.1	12.6	27.7	1.5	11.6	6.4	4.1	5.9	17.6	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.0	45.2	10.3	65.5	39.0	21.1	116.1	46.9	26.4	76.6	90.3	23.5
LnGrp LOS	E	D	B	E	D	C	F	D	C	E	F	C
Approach Vol, veh/h		1018			2066			822			1050	
Approach Delay, s/veh		39.7			42.5			61.3			79.8	
Approach LOS		D			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.8	41.2	32.7	52.3	24.0	36.0	11.1	73.9
Change Period (Y+Rc), s	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2
Max Green Setting (Gmax), s	* 20	* 29	* 32	* 43	* 19	* 31	* 7	* 68
Max Q Clear Time (g_c+I1), s	13.5	16.4	27.2	29.1	20.3	32.8	5.6	63.0
Green Ext Time (p_c), s	0.1	3.2	0.3	5.8	0.0	0.0	0.0	4.0

Intersection Summary	
HCM 6th Ctrl Delay	53.0
HCM 6th LOS	D

Notes

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



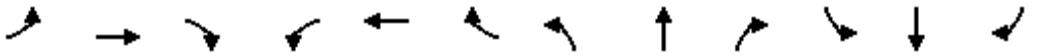
Movement	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL2
Lane Configurations												
Traffic Volume (vph)	43	1015	0	51	340	2152	0	157	20	32	131	118
Future Volume (vph)	43	1015	0	51	340	2152	0	157	20	32	131	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%				0%				3%		
Total Lost time (s)	4.7	5.2	5.2		4.7	5.2	5.2		4.7	5.2		4.7
Lane Util. Factor	1.00	0.95	1.00		1.00	0.95	1.00		1.00	1.00		1.00
Frpb, ped/bikes	1.00	1.00	0.98		1.00	1.00	0.92		1.00	0.97		1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00		0.99	1.00		0.99
Frt	1.00	1.00	0.85		1.00	1.00	0.85		1.00	0.88		1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00		0.95
Satd. Flow (prot)	1769	3539	1546		1787	3574	1475		1736	1580		1795
Flt Permitted	0.05	1.00	1.00		0.17	1.00	1.00		0.70	1.00		0.38
Satd. Flow (perm)	93	3539	1546		317	3574	1475		1275	1580		719
Peak-hour factor, PHF	0.95	0.95	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	45	1068	0	54	358	2265	0	165	21	34	138	124
RTOR Reduction (vph)	0	0	25	0	0	0	59	0	0	0	0	0
Lane Group Flow (vph)	45	1068	29	0	358	2265	106	0	21	172	0	124
Confl. Peds. (#/hr)	17			1	1			17	13		14	14
Confl. Bikes (#/hr)								1			1	
Heavy Vehicles (%)	1%	1%	2%	1%	1%	1%	2%	1%	1%	1%	1%	1%
Turn Type	pm+pt	NA	Perm		pm+pt	NA	Perm		pm+pt	NA		pm+pt
Protected Phases	7	4			3	8			5	2		1
Permitted Phases	4		4		8		8		2			6
Actuated Green, G (s)	85.4	79.8	79.8		106.9	96.6	96.6		25.9	22.9		30.1
Effective Green, g (s)	85.4	79.8	79.8		106.9	96.6	96.6		25.9	22.9		30.1
Actuated g/C Ratio	0.57	0.53	0.53		0.71	0.64	0.64		0.17	0.15		0.20
Clearance Time (s)	4.7	5.2	5.2		4.7	5.2	5.2		4.7	5.2		4.7
Vehicle Extension (s)	3.0	4.0	4.0		2.0	4.0	4.0		2.0	3.5		2.0
Lane Grp Cap (vph)	115	1882	822		445	2301	949		229	241		180
v/s Ratio Prot	0.01	0.30			c0.12	c0.63			0.00	0.11		c0.02
v/s Ratio Perm	0.21		0.02		0.45		0.07		0.01			c0.11
v/c Ratio	0.39	0.57	0.03		0.80	0.98	0.11		0.09	0.71		0.69
Uniform Delay, d1	33.9	23.5	16.7		21.9	26.0	10.2		52.0	60.4		56.1
Progression Factor	1.00	1.00	1.00		1.96	0.22	1.00		1.00	1.00		1.00
Incremental Delay, d2	2.2	1.2	0.1		5.1	10.2	0.1		0.1	9.9		8.4
Delay (s)	36.1	24.8	16.8		47.9	16.0	10.4		52.0	70.4		64.6
Level of Service	D	C	B		D	B	B		D	E		E
Approach Delay (s)		24.8				19.7				68.4		
Approach LOS		C				B				E		

Intersection Summary			
HCM 2000 Control Delay	25.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.8
Intersection Capacity Utilization	103.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	46	41
Future Volume (vph)	46	41
Ideal Flow (vphpl)	1900	1900
Grade (%)	-2%	
Total Lost time (s)	5.2	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.98	
Flpb, ped/bikes	1.00	
Frt	0.93	
Flt Protected	1.00	
Satd. Flow (prot)	1735	
Flt Permitted	1.00	
Satd. Flow (perm)	1735	
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	48	43
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	91	0
Confl. Peds. (#/hr)		13
Confl. Bikes (#/hr)		1
Heavy Vehicles (%)	1%	1%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	25.0	
Effective Green, g (s)	25.0	
Actuated g/C Ratio	0.17	
Clearance Time (s)	5.2	
Vehicle Extension (s)	3.5	
Lane Grp Cap (vph)	289	
v/s Ratio Prot	0.05	
v/s Ratio Perm		
v/c Ratio	0.31	
Uniform Delay, d1	55.0	
Progression Factor	1.00	
Incremental Delay, d2	0.7	
Delay (s)	55.7	
Level of Service	E	
Approach Delay (s)	60.8	
Approach LOS	E	

Intersection Summary



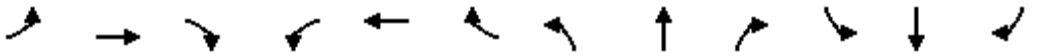
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	154	1073	28	182	2321	427	0	0	0	354	139	257
Future Volume (veh/h)	154	1073	28	182	2321	427	0	0	0	354	139	257
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99				1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	2003	2003	2003	1988	1988	1988				1949	1949	1949
Adj Flow Rate, veh/h	162	1129	29	192	2443	449				373	146	271
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	2	2	2				2	2	2
Cap, veh/h	237	2339	1037	219	2798	484				610	313	273
Arrive On Green	0.25	1.00	1.00	0.12	0.60	0.60				0.17	0.17	0.17
Sat Flow, veh/h	1908	3806	1687	1893	4647	804				3600	1851	1613
Grp Volume(v), veh/h	162	1129	29	192	1869	1023				373	146	271
Grp Sat Flow(s),veh/h/ln	1908	1903	1687	1893	1809	1833				1800	1851	1613
Q Serve(g_s), s	11.5	0.0	0.0	15.0	63.7	75.5				14.4	10.7	25.2
Cycle Q Clear(g_c), s	11.5	0.0	0.0	15.0	63.7	75.5				14.4	10.7	25.2
Prop In Lane	1.00		1.00	1.00		0.44				1.00		1.00
Lane Grp Cap(c), veh/h	237	2339	1037	219	2179	1104				610	313	273
V/C Ratio(X)	0.68	0.48	0.03	0.88	0.86	0.93				0.61	0.47	0.99
Avail Cap(c_a), veh/h	237	2339	1037	334	2200	1114				610	313	273
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.80	0.80	0.80	1.00	1.00	1.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	53.6	0.0	0.0	65.3	24.5	26.9				57.7	56.2	62.2
Incr Delay (d2), s/veh	6.3	0.6	0.0	15.4	4.6	14.4				1.8	1.1	52.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	0.2	0.0	8.1	27.4	35.6				6.7	5.1	14.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.9	0.6	0.0	80.8	29.2	41.3				59.5	57.3	114.3
LnGrp LOS	E	A	A	F	C	D				E	E	F
Approach Vol, veh/h		1320			3084						790	
Approach Delay, s/veh		7.8			36.4						77.9	
Approach LOS		A			D						E	

Timer - Assigned Phs	1	2		4	5	6
Phs Duration (G+Y+Rc), s	22.0	97.4		30.6	23.9	95.5
Change Period (Y+Rc), s	* 4.7	* 5.2		* 5.2	* 5.2	* 5.2
Max Green Setting (Gmax), s	* 27	* 83		* 25	* 18	* 91
Max Q Clear Time (g_c+I1), s	17.0	2.0		27.2	13.5	77.5
Green Ext Time (p_c), s	0.3	11.2		0.0	0.2	12.9

Intersection Summary	
HCM 6th Ctrl Delay	35.5
HCM 6th LOS	D

Notes

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



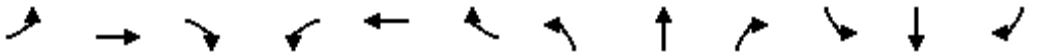
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	610	224	107	908	0	142	0	133	0	0	0
Future Volume (veh/h)	0	610	224	107	908	0	142	0	133	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	0.99		1.00	0.88		0.87	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1862	1862	1862	1870	1870	1870	1803	1803	1803	1979	1979	1979
Adj Flow Rate, veh/h	0	642	236	110	936	0	149	0	140	0	0	0
Peak Hour Factor	0.95	0.95	0.95	0.97	0.97	0.97	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	2	2	2	3	3	3	0	0	0
Cap, veh/h	459	1669	613	1125	2712	0	234	0	292	0	2	0
Arrive On Green	0.00	1.00	1.00	0.11	1.00	0.00	0.15	0.00	0.15	0.00	0.00	0.00
Sat Flow, veh/h	1773	2502	919	3456	3647	0	1513	0	1327	0	1979	0
Grp Volume(v), veh/h	0	454	424	110	936	0	149	0	140	0	0	0
Grp Sat Flow(s),veh/h/ln	1773	1769	1652	1728	1777	0	1513	0	1327	0	1979	0
Q Serve(g_s), s	0.0	0.0	0.0	1.0	0.0	0.0	11.1	0.0	11.2	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	1.0	0.0	0.0	11.1	0.0	11.2	0.0	0.0	0.0
Prop In Lane	1.00		0.56	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	459	1180	1102	1125	2712	0	234	0	292	0	2	0
V/C Ratio(X)	0.00	0.38	0.38	0.10	0.35	0.00	0.64	0.00	0.48	0.00	0.00	0.00
Avail Cap(c_a), veh/h	561	1180	1102	1167	2712	0	294	0	344	0	313	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.68	0.68	0.73	0.73	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	3.9	0.0	0.0	47.6	0.0	41.7	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.6	0.7	0.0	0.3	0.0	2.3	0.0	0.9	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.2	0.3	0.1	0.0	4.4	0.0	3.7	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.6	0.7	3.9	0.3	0.0	49.9	0.0	42.6	0.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	D	A	D	A	A	A
Approach Vol, veh/h		878			1046			289			0	
Approach Delay, s/veh		0.7			0.6			46.4			0.0	
Approach LOS		A			A			D				

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		23.2	11.5	85.2		0.0	0.0	96.8				
Change Period (Y+Rc), s		* 4.7	* 4.7	* 5.2		4.5	* 4.7	* 5.2				
Max Green Setting (Gmax), s		* 23	* 8.3	* 50		19.0	* 7	* 52				
Max Q Clear Time (g_c+I1), s		13.2	3.0	2.0		0.0	0.0	2.0				
Green Ext Time (p_c), s		0.9	0.1	7.1		0.0	0.0	8.5				

Intersection Summary	
HCM 6th Ctrl Delay	6.6
HCM 6th LOS	A

Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	96	390	253	734	504	33	335	754	383	28	875	176
Future Volume (veh/h)	96	390	253	734	504	33	335	754	383	28	875	176
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1949	1949	1949	1862	1862	1862	2003	2003	2003
Adj Flow Rate, veh/h	101	411	266	773	531	35	353	794	403	29	911	183
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	1	1	1	1	1	1
Cap, veh/h	726	747	312	810	833	348	373	1266	913	69	1087	478
Arrive On Green	0.07	0.07	0.07	0.22	0.22	0.22	0.11	0.36	0.36	0.04	0.29	0.29
Sat Flow, veh/h	3456	3554	1484	3600	3702	1549	3440	3537	1560	1908	3806	1674
Grp Volume(v), veh/h	101	411	266	773	531	35	353	794	403	29	911	183
Grp Sat Flow(s),veh/h/ln	1728	1777	1484	1800	1851	1549	1720	1769	1560	1908	1903	1674
Q Serve(g_s), s	3.3	13.4	21.3	25.4	15.6	2.2	12.2	22.3	17.4	1.8	27.0	10.5
Cycle Q Clear(g_c), s	3.3	13.4	21.3	25.4	15.6	2.2	12.2	22.3	17.4	1.8	27.0	10.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	726	747	312	810	833	348	373	1266	913	69	1087	478
V/C Ratio(X)	0.14	0.55	0.85	0.95	0.64	0.10	0.95	0.63	0.44	0.42	0.84	0.38
Avail Cap(c_a), veh/h	778	800	334	810	833	348	373	1266	913	111	1087	478
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.89	0.89	0.77	0.77	0.77	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.6	50.3	54.0	45.9	42.1	36.9	53.2	31.9	14.1	56.6	40.3	34.4
Incr Delay (d2), s/veh	0.1	0.6	16.2	17.8	1.3	0.1	33.3	2.4	1.5	1.5	7.8	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	6.5	9.9	13.3	7.3	0.8	7.0	9.8	10.3	0.9	13.6	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.7	51.0	70.2	63.7	43.3	37.0	86.5	34.3	15.6	58.1	48.0	36.7
LnGrp LOS	D	D	E	E	D	D	F	C	B	E	D	D
Approach Vol, veh/h		778			1339			1550			1123	
Approach Delay, s/veh		56.9			54.9			41.3			46.4	
Approach LOS		E			D			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.3	48.4		30.2	18.0	39.8		32.0				
Change Period (Y+Rc), s	5.0	5.5		5.0	5.0	5.5		5.0				
Max Green Setting (Gmax), s	7.0	38.5		27.0	13.0	32.5		27.0				
Max Q Clear Time (g_c+I1), s	3.8	24.3		23.3	14.2	29.0		27.4				
Green Ext Time (p_c), s	0.0	7.8		1.5	0.0	2.5		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		48.8	
HCM 6th LOS		D	

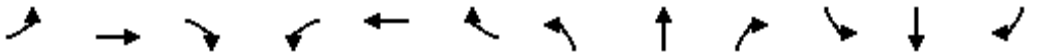
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	649	1400	0	1149	158	34
Future Volume (veh/h)	649	1400	0	1149	158	34
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1988	1870	1870
Adj Flow Rate, veh/h	705	0	0	1249	172	37
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	2	2	2
Cap, veh/h	3128		0	3324	230	105
Arrive On Green	0.88	0.00	0.00	0.88	0.07	0.07
Sat Flow, veh/h	3647	1585	0	3976	3456	1585
Grp Volume(v), veh/h	705	0	0	1249	172	37
Grp Sat Flow(s),veh/h/ln	1777	1585	0	1889	1728	1585
Q Serve(g_s), s	4.4	0.0	0.0	8.9	7.3	3.3
Cycle Q Clear(g_c), s	4.4	0.0	0.0	8.9	7.3	3.3
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	3128		0	3324	230	105
V/C Ratio(X)	0.23		0.00	0.38	0.75	0.35
Avail Cap(c_a), veh/h	3128		0	3324	691	317
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.97	0.97
Uniform Delay (d), s/veh	1.3	0.0	0.0	1.6	68.8	66.9
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.3	4.7	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.0	1.9	3.4	1.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	1.5	0.0	0.0	1.9	73.5	68.8
LnGrp LOS	A		A	A	E	E
Approach Vol, veh/h	705	A		1249	209	
Approach Delay, s/veh	1.5			1.9	72.6	
Approach LOS	A			A	E	

Timer - Assigned Phs	2			6	8
Phs Duration (G+Y+Rc), s	136.0			136.0	14.0
Change Period (Y+Rc), s	4.0			4.0	4.0
Max Green Setting (Gmax), s	112.0			112.0	30.0
Max Q Clear Time (g_c+I1), s	6.4			10.9	9.3
Green Ext Time (p_c), s	5.6			13.2	0.6

Intersection Summary	
HCM 6th Ctrl Delay	8.6
HCM 6th LOS	A

Notes

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



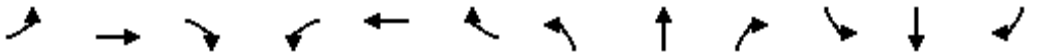
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	132	255	11	162	52	9	411	133	123	15	750	652
Future Volume (veh/h)	132	255	11	162	52	9	411	133	123	15	750	652
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	143	277	12	176	57	10	447	145	134	16	815	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	175	380	16	198	229	194	616	1065	911	26	908	
Arrive On Green	0.10	0.11	0.11	0.11	0.12	0.12	0.35	0.59	0.59	0.01	0.26	0.00
Sat Flow, veh/h	1781	3470	150	1781	1870	1585	1781	1815	1553	1781	3554	1585
Grp Volume(v), veh/h	143	141	148	176	57	10	447	142	137	16	815	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1843	1781	1870	1585	1781	1777	1591	1781	1777	1585
Q Serve(g_s), s	7.1	6.9	7.0	8.8	2.5	0.5	19.7	3.2	3.5	0.8	19.9	0.0
Cycle Q Clear(g_c), s	7.1	6.9	7.0	8.8	2.5	0.5	19.7	3.2	3.5	0.8	19.9	0.0
Prop In Lane	1.00		0.08	1.00		1.00	1.00		0.98	1.00		1.00
Lane Grp Cap(c), veh/h	175	195	202	198	229	194	616	1043	934	26	908	
V/C Ratio(X)	0.82	0.73	0.73	0.89	0.25	0.05	0.73	0.14	0.15	0.61	0.90	
Avail Cap(c_a), veh/h	198	316	328	198	333	282	616	1043	934	79	908	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.18	0.18	0.00
Uniform Delay (d), s/veh	39.8	38.8	38.8	39.5	35.8	34.9	25.7	8.3	8.4	44.1	32.4	0.0
Incr Delay (d2), s/veh	20.6	5.1	5.0	35.3	0.6	0.1	4.2	0.3	0.3	4.1	2.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	3.3	3.4	5.7	1.2	0.2	8.8	1.2	1.2	0.4	8.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.3	43.9	43.8	74.8	36.3	35.0	29.9	8.6	8.7	48.2	35.3	0.0
LnGrp LOS	E	D	D	E	D	D	C	A	A	D	D	
Approach Vol, veh/h		432			243			726			831	A
Approach Delay, s/veh		49.3			64.1			21.8			35.5	
Approach LOS		D			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.3	56.8	14.0	13.9	35.1	27.0	12.9	15.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	4.0	44.0	10.0	16.0	25.0	23.0	10.0	16.0
Max Q Clear Time (g_c+I1), s	2.8	5.5	10.8	9.0	21.7	21.9	9.1	4.5
Green Ext Time (p_c), s	0.0	1.8	0.0	0.9	0.5	0.6	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	36.8
HCM 6th LOS	D

Notes

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



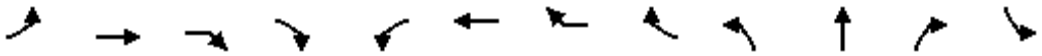
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	737	187	323	1592	75	216	397	182	139	731	128
Future Volume (veh/h)	43	737	187	323	1592	75	216	397	182	139	731	128
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		0.93	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1964	1964	1964	1862	1862	1862	1900	1900	1900
Adj Flow Rate, veh/h	45	776	197	336	1658	78	225	414	190	146	769	135
Peak Hour Factor	0.95	0.95	0.95	0.96	0.96	0.96	0.96	0.96	0.96	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	0	0	0
Cap, veh/h	73	1152	703	361	1769	768	230	878	670	170	767	385
Arrive On Green	0.04	0.32	0.32	0.19	0.47	0.47	0.13	0.25	0.25	0.09	0.21	0.21
Sat Flow, veh/h	1795	3582	1542	1870	3731	1620	1773	3537	1472	1810	3610	1506
Grp Volume(v), veh/h	45	776	197	336	1658	78	225	414	190	146	769	135
Grp Sat Flow(s),veh/h/ln	1795	1791	1542	1870	1865	1620	1773	1769	1472	1810	1805	1506
Q Serve(g_s), s	3.6	27.2	4.9	25.6	61.0	3.9	18.3	14.4	12.0	11.5	30.8	7.3
Cycle Q Clear(g_c), s	3.6	27.2	4.9	25.6	61.0	3.9	18.3	14.4	12.0	11.5	30.8	7.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	73	1152	703	361	1769	768	230	878	670	170	767	385
V/C Ratio(X)	0.62	0.67	0.28	0.93	0.94	0.10	0.98	0.47	0.28	0.86	1.00	0.35
Avail Cap(c_a), veh/h	87	1152	703	418	1769	768	230	878	670	255	767	385
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.21	0.21	0.21	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	68.5	42.6	9.4	57.6	36.1	21.1	62.9	46.4	26.0	64.8	57.1	22.9
Incr Delay (d2), s/veh	4.6	3.2	1.0	7.6	2.9	0.1	53.2	0.5	0.3	11.9	33.2	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	12.5	2.1	12.8	27.7	1.5	11.6	6.4	4.3	5.9	17.6	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.0	45.8	10.4	65.2	39.0	21.1	116.1	46.9	26.3	76.6	90.3	23.5
LnGrp LOS	E	D	B	E	D	C	F	D	C	E	F	C
Approach Vol, veh/h		1018			2072			829			1050	
Approach Delay, s/veh		40.1			42.6			60.9			79.8	
Approach LOS		D			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.8	41.2	33.2	51.8	24.0	36.0	11.1	73.9
Change Period (Y+Rc), s	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2
Max Green Setting (Gmax), s	* 20	* 29	* 32	* 42	* 19	* 31	* 7	* 68
Max Q Clear Time (g_c+I1), s	13.5	16.4	27.6	29.2	20.3	32.8	5.6	63.0
Green Ext Time (p_c), s	0.1	3.2	0.4	5.6	0.0	0.0	0.0	4.0

Intersection Summary	
HCM 6th Ctrl Delay	53.0
HCM 6th LOS	D

Notes

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



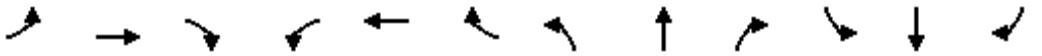
Movement	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL2
Lane Configurations												
Traffic Volume (vph)	43	1015	6	51	340	2152	6	157	20	32	131	118
Future Volume (vph)	43	1015	6	51	340	2152	6	157	20	32	131	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%				0%				3%		
Total Lost time (s)	4.7	5.2	5.2		4.7	5.2	5.2		4.7	5.2		4.7
Lane Util. Factor	1.00	0.95	1.00		1.00	0.95	1.00		1.00	1.00		1.00
Frpb, ped/bikes	1.00	1.00	0.98		1.00	1.00	0.92		1.00	0.97		1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00		0.99	1.00		0.99
Frt	1.00	1.00	0.85		1.00	1.00	0.85		1.00	0.88		1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00		0.95
Satd. Flow (prot)	1769	3539	1390		1787	3574	1419		1736	1580		1795
Flt Permitted	0.05	1.00	1.00		0.17	1.00	1.00		0.70	1.00		0.38
Satd. Flow (perm)	93	3539	1390		317	3574	1419		1275	1580		719
Peak-hour factor, PHF	0.95	0.95	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	45	1068	7	54	358	2265	7	165	21	34	138	124
RTOR Reduction (vph)	0	0	29	0	0	0	59	0	0	0	0	0
Lane Group Flow (vph)	45	1068	32	0	358	2265	113	0	21	172	0	124
Confl. Peds. (#/hr)	17			1	1			17	13		14	14
Confl. Bikes (#/hr)								1			1	
Heavy Vehicles (%)	1%	1%	100%	1%	1%	1%	100%	1%	1%	1%	1%	1%
Turn Type	pm+pt	NA	Perm		pm+pt	NA	Perm		pm+pt	NA		pm+pt
Protected Phases	7	4			3	8			5	2		1
Permitted Phases	4		4		8		8		2			6
Actuated Green, G (s)	85.4	79.8	79.8		106.9	96.6	96.6		25.9	22.9		30.1
Effective Green, g (s)	85.4	79.8	79.8		106.9	96.6	96.6		25.9	22.9		30.1
Actuated g/C Ratio	0.57	0.53	0.53		0.71	0.64	0.64		0.17	0.15		0.20
Clearance Time (s)	4.7	5.2	5.2		4.7	5.2	5.2		4.7	5.2		4.7
Vehicle Extension (s)	3.0	4.0	4.0		2.0	4.0	4.0		2.0	3.5		2.0
Lane Grp Cap (vph)	115	1882	739		445	2301	913		229	241		180
v/s Ratio Prot	0.01	0.30			c0.12	c0.63			0.00	0.11		c0.02
v/s Ratio Perm	0.21		0.02		0.45		0.08		0.01			c0.11
v/c Ratio	0.39	0.57	0.04		0.80	0.98	0.12		0.09	0.71		0.69
Uniform Delay, d1	33.9	23.5	16.8		21.9	26.0	10.3		52.0	60.4		56.1
Progression Factor	1.00	1.00	1.00		1.93	0.23	0.00		1.00	1.00		1.00
Incremental Delay, d2	2.2	1.2	0.1		5.1	10.2	0.1		0.1	9.9		8.4
Delay (s)	36.1	24.8	16.9		47.2	16.0	0.1		52.0	70.4		64.6
Level of Service	D	C	B		D	B	A		D	E		E
Approach Delay (s)		24.8				19.0				68.4		
Approach LOS		C				B				E		

Intersection Summary			
HCM 2000 Control Delay	24.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.8
Intersection Capacity Utilization	103.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	46	41
Future Volume (vph)	46	41
Ideal Flow (vphpl)	1900	1900
Grade (%)	-2%	
Total Lost time (s)	5.2	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.98	
Flpb, ped/bikes	1.00	
Frt	0.93	
Flt Protected	1.00	
Satd. Flow (prot)	1735	
Flt Permitted	1.00	
Satd. Flow (perm)	1735	
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	48	43
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	91	0
Confl. Peds. (#/hr)		13
Confl. Bikes (#/hr)		1
Heavy Vehicles (%)	1%	1%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	25.0	
Effective Green, g (s)	25.0	
Actuated g/C Ratio	0.17	
Clearance Time (s)	5.2	
Vehicle Extension (s)	3.5	
Lane Grp Cap (vph)	289	
v/s Ratio Prot	0.05	
v/s Ratio Perm		
v/c Ratio	0.31	
Uniform Delay, d1	55.0	
Progression Factor	1.00	
Incremental Delay, d2	0.7	
Delay (s)	55.7	
Level of Service	E	
Approach Delay (s)	60.8	
Approach LOS	E	

Intersection Summary



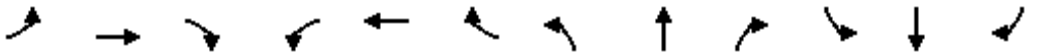
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	154	1079	28	182	2327	427	0	0	0	354	139	257
Future Volume (veh/h)	154	1079	28	182	2327	427	0	0	0	354	139	257
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99				1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	2003	2003	2003	1988	1988	1988				1949	1949	1949
Adj Flow Rate, veh/h	162	1136	29	192	2449	449				373	146	271
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	2	2	2				2	2	2
Cap, veh/h	235	2341	1038	219	2808	485				607	312	272
Arrive On Green	0.25	1.00	1.00	0.12	0.60	0.60				0.17	0.17	0.17
Sat Flow, veh/h	1908	3806	1687	1893	4649	802				3600	1851	1613
Grp Volume(v), veh/h	162	1136	29	192	1872	1026				373	146	271
Grp Sat Flow(s),veh/h/ln	1908	1903	1687	1893	1809	1833				1800	1851	1613
Q Serve(g_s), s	11.6	0.0	0.0	15.0	63.7	75.5				14.4	10.7	25.2
Cycle Q Clear(g_c), s	11.6	0.0	0.0	15.0	63.7	75.5				14.4	10.7	25.2
Prop In Lane	1.00		1.00	1.00		0.44				1.00		1.00
Lane Grp Cap(c), veh/h	235	2341	1038	219	2186	1107				607	312	272
V/C Ratio(X)	0.69	0.49	0.03	0.88	0.86	0.93				0.61	0.47	1.00
Avail Cap(c_a), veh/h	235	2341	1038	334	2207	1118				607	312	272
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.80	0.80	0.80	1.00	1.00	1.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	53.9	0.0	0.0	65.3	24.4	26.7				57.8	56.3	62.3
Incr Delay (d2), s/veh	6.6	0.6	0.0	15.4	4.6	14.3				1.8	1.1	53.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	0.2	0.0	8.1	27.3	35.6				6.7	5.1	14.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.5	0.6	0.0	80.8	28.9	41.0				59.7	57.4	115.7
LnGrp LOS	E	A	A	F	C	D				E	E	F
Approach Vol, veh/h		1327			3090						790	
Approach Delay, s/veh		7.9			36.2						78.5	
Approach LOS		A			D						E	

Timer - Assigned Phs	1	2		4	5	6
Phs Duration (G+Y+Rc), s	22.0	97.5		30.5	23.7	95.8
Change Period (Y+Rc), s	* 4.7	* 5.2		* 5.2	* 5.2	* 5.2
Max Green Setting (Gmax), s	* 27	* 83		* 25	* 18	* 92
Max Q Clear Time (g_c+I1), s	17.0	2.0		27.2	13.6	77.5
Green Ext Time (p_c), s	0.3	11.3		0.0	0.2	13.1

Intersection Summary		
HCM 6th Ctrl Delay		35.4
HCM 6th LOS		D

Notes

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



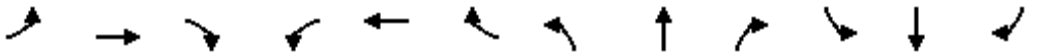
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	610	224	113	908	0	142	0	139	0	0	0
Future Volume (veh/h)	0	610	224	113	908	0	142	0	139	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	0.99		1.00	0.88		0.87	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1862	1862	1862	1870	1870	1870	1803	1803	1803	1979	1979	1979
Adj Flow Rate, veh/h	0	642	236	116	936	0	149	0	146	0	0	0
Peak Hour Factor	0.95	0.95	0.95	0.97	0.97	0.97	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	2	2	2	3	3	3	0	0	0
Cap, veh/h	458	1665	611	1124	2707	0	236	0	294	0	2	0
Arrive On Green	0.00	1.00	1.00	0.11	1.00	0.00	0.16	0.00	0.16	0.00	0.00	0.00
Sat Flow, veh/h	1773	2502	919	3456	3647	0	1515	0	1328	0	1979	0
Grp Volume(v), veh/h	0	454	424	116	936	0	149	0	146	0	0	0
Grp Sat Flow(s),veh/h/ln	1773	1769	1652	1728	1777	0	1515	0	1328	0	1979	0
Q Serve(g_s), s	0.0	0.0	0.0	1.1	0.0	0.0	11.0	0.0	11.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	1.1	0.0	0.0	11.0	0.0	11.7	0.0	0.0	0.0
Prop In Lane	1.00		0.56	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	458	1177	1099	1124	2707	0	236	0	294	0	2	0
V/C Ratio(X)	0.00	0.39	0.39	0.10	0.35	0.00	0.63	0.00	0.50	0.00	0.00	0.00
Avail Cap(c_a), veh/h	560	1177	1099	1168	2707	0	294	0	345	0	313	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.68	0.68	0.73	0.73	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	4.0	0.0	0.0	47.4	0.0	41.8	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.7	0.7	0.0	0.3	0.0	2.2	0.0	1.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.2	0.3	0.1	0.0	4.4	0.0	3.9	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.7	0.7	4.0	0.3	0.0	49.6	0.0	42.7	0.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	D	A	D	A	A	A
Approach Vol, veh/h		878			1052			295			0	
Approach Delay, s/veh		0.7			0.7			46.2			0.0	
Approach LOS		A			A			D				

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		23.4	11.6	85.0		0.0	0.0	96.6				
Change Period (Y+Rc), s		* 4.7	* 4.7	* 5.2		4.5	* 4.7	* 5.2				
Max Green Setting (Gmax), s		* 23	* 8.4	* 50		19.0	* 7	* 52				
Max Q Clear Time (g_c+I1), s		13.7	3.1	2.0		0.0	0.0	2.0				
Green Ext Time (p_c), s		0.9	0.1	7.1		0.0	0.0	8.5				

Intersection Summary	
HCM 6th Ctrl Delay	6.7
HCM 6th LOS	A

Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	390	253	734	504	33	335	754	383	34	875	182
Future Volume (veh/h)	102	390	253	734	504	33	335	754	383	34	875	182
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1949	1949	1949	1862	1862	1862	2003	2003	2003
Adj Flow Rate, veh/h	107	411	266	773	531	35	353	794	403	35	911	190
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	1	1	1	1	1	1
Cap, veh/h	727	747	312	810	833	348	373	1251	907	77	1087	478
Arrive On Green	0.07	0.07	0.07	0.22	0.22	0.22	0.11	0.35	0.35	0.04	0.29	0.29
Sat Flow, veh/h	3456	3554	1484	3600	3702	1549	3440	3537	1560	1908	3806	1674
Grp Volume(v), veh/h	107	411	266	773	531	35	353	794	403	35	911	190
Grp Sat Flow(s),veh/h/ln	1728	1777	1484	1800	1851	1549	1720	1769	1560	1908	1903	1674
Q Serve(g_s), s	3.5	13.4	21.3	25.4	15.6	2.2	12.2	22.4	17.6	2.2	27.0	11.0
Cycle Q Clear(g_c), s	3.5	13.4	21.3	25.4	15.6	2.2	12.2	22.4	17.6	2.2	27.0	11.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	727	747	312	810	833	348	373	1251	907	77	1087	478
V/C Ratio(X)	0.15	0.55	0.85	0.95	0.64	0.10	0.95	0.63	0.44	0.46	0.84	0.40
Avail Cap(c_a), veh/h	778	800	334	810	833	348	373	1251	907	111	1087	478
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.89	0.89	0.77	0.77	0.77	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.7	50.3	54.0	45.9	42.1	36.9	53.2	32.3	14.4	56.3	40.3	34.5
Incr Delay (d2), s/veh	0.1	0.6	16.2	17.8	1.3	0.1	33.3	2.5	1.6	1.6	7.8	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	6.5	9.9	13.3	7.3	0.8	7.0	9.9	10.4	1.1	13.6	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.8	51.0	70.2	63.7	43.3	37.0	86.5	34.8	15.9	57.9	48.0	37.0
LnGrp LOS	D	D	E	E	D	D	F	C	B	E	D	D
Approach Vol, veh/h		784			1339			1550			1136	
Approach Delay, s/veh		56.8			54.9			41.7			46.5	
Approach LOS		E			D			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.8	47.9		30.2	18.0	39.8		32.0				
Change Period (Y+Rc), s	5.0	5.5		5.0	5.0	5.5		5.0				
Max Green Setting (Gmax), s	7.0	38.5		27.0	13.0	32.5		27.0				
Max Q Clear Time (g_c+I1), s	4.2	24.4		23.3	14.2	29.0		27.4				
Green Ext Time (p_c), s	0.0	7.7		1.5	0.0	2.5		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			48.9									
HCM 6th LOS			D									

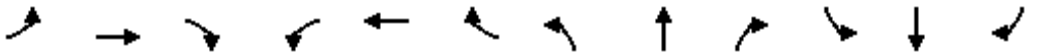
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1459	1315	0	851	231	55
Future Volume (veh/h)	1459	1315	0	851	231	55
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1988	1870	1870
Adj Flow Rate, veh/h	1586	0	0	925	251	60
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	2	2	2
Cap, veh/h	3003		0	3192	323	148
Arrive On Green	0.85	0.00	0.00	0.85	0.09	0.09
Sat Flow, veh/h	3647	1585	0	3976	3456	1585
Grp Volume(v), veh/h	1586	0	0	925	251	60
Grp Sat Flow(s),veh/h/ln	1777	1585	0	1889	1728	1585
Q Serve(g_s), s	16.2	0.0	0.0	6.5	9.2	4.6
Cycle Q Clear(g_c), s	16.2	0.0	0.0	6.5	9.2	4.6
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	3003		0	3192	323	148
V/C Ratio(X)	0.53		0.00	0.29	0.78	0.41
Avail Cap(c_a), veh/h	3003		0	3192	691	317
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.94	0.94
Uniform Delay (d), s/veh	2.8	0.0	0.0	2.1	57.6	55.5
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.2	3.8	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	0.0	1.6	4.2	1.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	3.5	0.0	0.0	2.3	61.4	57.2
LnGrp LOS	A		A	A	E	E
Approach Vol, veh/h	1586	A		925	311	
Approach Delay, s/veh	3.5			2.3	60.6	
Approach LOS	A			A	E	

Timer - Assigned Phs	2				6	8
Phs Duration (G+Y+Rc), s	113.9				113.9	16.1
Change Period (Y+Rc), s	4.0				4.0	4.0
Max Green Setting (Gmax), s	96.0				96.0	26.0
Max Q Clear Time (g_c+I1), s	18.2				8.5	11.2
Green Ext Time (p_c), s	20.9				8.1	0.9

Intersection Summary	
HCM 6th Ctrl Delay	9.4
HCM 6th LOS	A

Notes

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



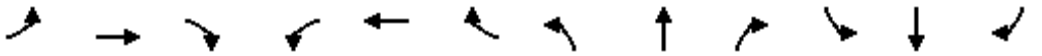
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	243	7	192	82	111	258	158	466	97	504	732
Future Volume (veh/h)	72	243	7	192	82	111	258	158	466	97	504	732
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	78	264	8	209	89	121	280	172	507	105	548	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	99	332	10	238	322	273	311	1024	913	130	1686	
Arrive On Green	0.06	0.09	0.09	0.13	0.17	0.17	0.17	0.58	0.58	0.07	0.47	0.00
Sat Flow, veh/h	1781	3522	106	1781	1870	1585	1781	1777	1585	1781	3554	1585
Grp Volume(v), veh/h	78	133	139	209	89	121	280	172	507	105	548	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1851	1781	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	5.6	9.5	9.6	15.0	5.4	8.9	20.0	5.9	25.9	7.6	12.5	0.0
Cycle Q Clear(g_c), s	5.6	9.5	9.6	15.0	5.4	8.9	20.0	5.9	25.9	7.6	12.5	0.0
Prop In Lane	1.00		0.06	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	99	167	174	238	322	273	311	1024	913	130	1686	
V/C Ratio(X)	0.79	0.79	0.80	0.88	0.28	0.44	0.90	0.17	0.56	0.81	0.33	
Avail Cap(c_a), veh/h	178	232	242	384	460	390	493	1024	913	233	1686	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.31	0.31	0.00
Uniform Delay (d), s/veh	60.6	57.6	57.7	55.3	46.8	48.2	52.5	12.9	17.2	59.4	21.2	0.0
Incr Delay (d2), s/veh	12.9	12.1	12.0	12.6	0.5	1.1	13.0	0.4	2.4	3.8	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	4.8	5.1	7.6	2.6	3.6	10.1	2.5	9.9	3.6	5.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.5	69.7	69.7	67.8	47.2	49.3	65.5	13.3	19.6	63.2	21.4	0.0
LnGrp LOS	E	E	E	E	D	D	E	B	B	E	C	
Approach Vol, veh/h		350			419			959			653	A
Approach Delay, s/veh		70.6			58.1			31.9			28.1	
Approach LOS		E			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.5	78.9	21.4	16.2	26.7	65.7	11.2	26.4
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	17.0	52.0	28.0	17.0	36.0	33.0	13.0	32.0
Max Q Clear Time (g_c+I1), s	9.6	27.9	17.0	11.6	22.0	14.5	7.6	10.9
Green Ext Time (p_c), s	0.1	5.0	0.4	0.7	0.7	3.5	0.1	0.8

Intersection Summary	
HCM 6th Ctrl Delay	41.1
HCM 6th LOS	D

Notes

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



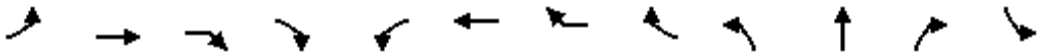
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	143	1119	0	236	1240	161	337	816	304	214	667	96
Future Volume (veh/h)	143	1119	0	236	1240	161	337	816	304	214	667	96
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.93	1.00		0.92
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1964	1964	1964	1862	1862	1862	1900	1900	1900
Adj Flow Rate, veh/h	151	1178	0	246	1292	168	351	850	317	225	702	101
Peak Hour Factor	0.95	0.95	0.95	0.96	0.96	0.96	0.96	0.96	0.96	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	0	0	0
Cap, veh/h	157	1204	537	243	1412	611	338	876	570	228	661	414
Arrive On Green	0.09	0.34	0.00	0.26	0.76	0.76	0.19	0.25	0.25	0.13	0.18	0.18
Sat Flow, veh/h	1795	3582	1598	1870	3731	1613	1773	3537	1471	1810	3610	1489
Grp Volume(v), veh/h	151	1178	0	246	1292	168	351	850	317	225	702	101
Grp Sat Flow(s),veh/h/ln	1795	1791	1598	1870	1865	1613	1773	1769	1471	1810	1805	1489
Q Serve(g_s), s	10.9	42.3	0.0	16.9	35.6	2.8	24.8	30.9	3.8	16.1	23.8	6.9
Cycle Q Clear(g_c), s	10.9	42.3	0.0	16.9	35.6	2.8	24.8	30.9	3.8	16.1	23.8	6.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	157	1204	537	243	1412	611	338	876	570	228	661	414
V/C Ratio(X)	0.96	0.98	0.00	1.01	0.92	0.28	1.04	0.97	0.56	0.99	1.06	0.24
Avail Cap(c_a), veh/h	157	1204	537	243	1412	611	338	876	570	228	661	414
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.16	0.16	0.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.1	42.7	0.0	48.1	14.1	4.6	52.6	48.4	31.5	56.7	53.1	37.1
Incr Delay (d2), s/veh	19.3	6.5	0.0	36.1	4.1	0.4	59.1	23.3	1.4	55.2	52.7	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	19.4	0.0	9.2	6.5	1.4	16.5	16.3	7.9	10.9	15.6	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.4	49.2	0.0	84.2	18.2	5.0	111.7	71.8	32.9	111.9	105.8	37.4
LnGrp LOS	E	D	A	F	B	A	F	E	C	F	F	D
Approach Vol, veh/h		1329			1706			1518			1028	
Approach Delay, s/veh		52.5			26.4			72.9			100.4	
Approach LOS		D			C			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.6	37.4	22.1	48.9	30.0	29.0	16.6	54.4
Change Period (Y+Rc), s	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2
Max Green Setting (Gmax), s	* 16	* 32	* 17	* 44	* 25	* 24	* 11	* 49
Max Q Clear Time (g_c+I1), s	18.1	32.9	18.9	44.3	26.8	25.8	12.9	37.6
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.9

Intersection Summary	
HCM 6th Ctrl Delay	58.9
HCM 6th LOS	E

Notes

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



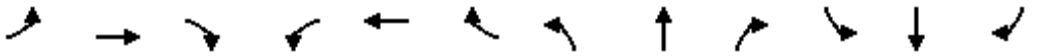
Movement	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL2
Lane Configurations												
Traffic Volume (vph)	64	1548	0	54	194	1623	0	192	52	108	220	193
Future Volume (vph)	64	1548	0	54	194	1623	0	192	52	108	220	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%				0%				3%		
Total Lost time (s)	4.7	5.2	5.2		4.7	5.2	5.2		4.7	5.2		4.7
Lane Util. Factor	1.00	0.95	1.00		1.00	0.95	1.00		1.00	1.00		1.00
Frpb, ped/bikes	1.00	1.00	0.98		1.00	1.00	0.93		1.00	0.98		1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00		0.99	1.00		1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85		1.00	0.90		1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00		0.95
Satd. Flow (prot)	1769	3539	1547		1787	3574	1487		1740	1628		1803
Flt Permitted	0.07	1.00	1.00		0.06	1.00	1.00		0.69	1.00		0.16
Satd. Flow (perm)	123	3539	1547		115	3574	1487		1255	1628		311
Peak-hour factor, PHF	0.95	0.95	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	67	1629	0	57	204	1708	0	202	55	114	232	203
RTOR Reduction (vph)	0	0	30	0	0	0	99	0	0	0	0	0
Lane Group Flow (vph)	67	1629	27	0	204	1708	103	0	55	346	0	203
Confl. Peds. (#/hr)	17			1	1			17	13		14	14
Confl. Bikes (#/hr)								1			1	
Heavy Vehicles (%)	1%	1%	2%	1%	1%	1%	2%	1%	1%	1%	1%	1%
Turn Type	pm+pt	NA	Perm		pm+pt	NA	Perm		pm+pt	NA		pm+pt
Protected Phases	7	4			3	8			5	2		1
Permitted Phases	4		4		8		8		2			6
Actuated Green, G (s)	66.3	60.7	60.7		76.3	66.0	66.0		32.9	28.8		43.3
Effective Green, g (s)	66.3	60.7	60.7		76.3	66.0	66.0		32.9	28.8		43.3
Actuated g/C Ratio	0.51	0.47	0.47		0.59	0.51	0.51		0.25	0.22		0.33
Clearance Time (s)	4.7	5.2	5.2		4.7	5.2	5.2		4.7	5.2		4.7
Vehicle Extension (s)	3.0	4.0	4.0		2.0	4.0	4.0		2.0	3.5		2.0
Lane Grp Cap (vph)	133	1652	722		207	1814	754		332	360		216
v/s Ratio Prot	0.02	0.46			c0.08	0.48			0.01	0.21		c0.07
v/s Ratio Perm	0.23		0.02		c0.49		0.07		0.04			c0.24
v/c Ratio	0.50	0.99	0.04		0.99	0.94	0.14		0.17	0.96		0.94
Uniform Delay, d1	27.9	34.2	18.8		42.1	30.2	16.9		37.4	50.0		37.4
Progression Factor	1.51	0.48	1.00		1.61	0.47	1.00		1.00	1.00		1.00
Incremental Delay, d2	1.4	12.1	0.0		15.3	1.4	0.0		0.1	37.3		43.6
Delay (s)	43.7	28.5	18.8		83.2	15.6	17.0		37.5	87.3		81.0
Level of Service	D	C	B		F	B	B		D	F		F
Approach Delay (s)		28.8				22.3				80.5		
Approach LOS		C				C				F		

Intersection Summary			
HCM 2000 Control Delay	32.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	19.8
Intersection Capacity Utilization	101.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	70	35
Future Volume (vph)	70	35
Ideal Flow (vphpl)	1900	1900
Grade (%)	-2%	
Total Lost time (s)	5.2	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.95	
Flt Protected	1.00	
Satd. Flow (prot)	1785	
Flt Permitted	1.00	
Satd. Flow (perm)	1785	
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	74	37
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	111	0
Confl. Peds. (#/hr)		13
Confl. Bikes (#/hr)		1
Heavy Vehicles (%)	1%	1%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	34.5	
Effective Green, g (s)	34.5	
Actuated g/C Ratio	0.27	
Clearance Time (s)	5.2	
Vehicle Extension (s)	3.5	
Lane Grp Cap (vph)	473	
v/s Ratio Prot	0.06	
v/s Ratio Perm		
v/c Ratio	0.23	
Uniform Delay, d1	37.4	
Progression Factor	1.00	
Incremental Delay, d2	0.3	
Delay (s)	37.7	
Level of Service	D	
Approach Delay (s)	65.7	
Approach LOS	E	

Intersection Summary



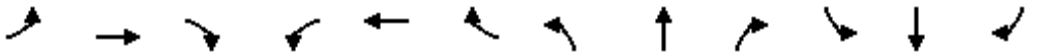
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	307	1586	39	226	1948	745	0	0	0	557	307	252
Future Volume (veh/h)	307	1586	39	226	1948	745	0	0	0	557	307	252
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99				1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	2003	2003	2003	1988	1988	1988				1949	1949	1949
Adj Flow Rate, veh/h	323	1669	41	238	2051	784				586	323	265
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	2	2	2				2	2	2
Cap, veh/h	365	2174	963	267	2059	702				682	366	293
Arrive On Green	0.38	1.00	1.00	0.14	0.52	0.52				0.19	0.19	0.19
Sat Flow, veh/h	1908	3806	1686	1893	3983	1359				3600	1934	1548
Grp Volume(v), veh/h	323	1669	41	238	1841	994				586	309	279
Grp Sat Flow(s),veh/h/ln	1908	1903	1686	1893	1809	1723				1800	1851	1632
Q Serve(g_s), s	20.6	0.0	0.0	16.1	65.0	67.2				20.5	21.1	21.8
Cycle Q Clear(g_c), s	20.6	0.0	0.0	16.1	65.0	67.2				20.5	21.1	21.8
Prop In Lane	1.00		1.00	1.00		0.79				1.00		0.95
Lane Grp Cap(c), veh/h	365	2174	963	267	1870	891				682	351	309
V/C Ratio(X)	0.89	0.77	0.04	0.89	0.98	1.12				0.86	0.88	0.90
Avail Cap(c_a), veh/h	365	2174	963	319	1870	891				692	356	314
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.17	0.17	0.17	1.00	1.00	1.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	38.8	0.0	0.0	54.9	30.9	31.4				51.0	51.3	51.5
Incr Delay (d2), s/veh	4.9	0.5	0.0	23.0	17.4	67.4				10.5	21.4	27.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.3	0.1	0.0	9.3	31.4	43.2				10.2	11.8	11.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.7	0.5	0.0	77.9	48.3	98.8				61.5	72.7	79.1
LnGrp LOS	D	A	A	E	D	F				E	E	E
Approach Vol, veh/h		2033			3073						1174	
Approach Delay, s/veh		7.3			66.9						68.6	
Approach LOS		A			E						E	

Timer - Assigned Phs	1	2		4	5	6
Phs Duration (G+Y+Rc), s	23.0	79.5		29.8	30.0	72.4
Change Period (Y+Rc), s	* 4.7	* 5.2		* 5.2	* 5.2	* 5.2
Max Green Setting (Gmax), s	* 22	* 68		* 25	* 23	* 67
Max Q Clear Time (g_c+I1), s	18.1	2.0		23.8	22.6	69.2
Green Ext Time (p_c), s	0.2	22.8		0.8	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	47.9
HCM 6th LOS	D

Notes

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



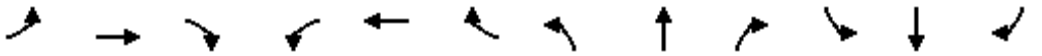
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1018	163	114	701	0	255	0	272	0	0	0
Future Volume (veh/h)	0	1018	163	114	701	0	255	0	272	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	0.99		1.00	0.91		0.90	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1862	1862	1862	1870	1870	1870	1803	1803	1803	1979	1979	1979
Adj Flow Rate, veh/h	0	1072	172	118	723	0	268	0	286	0	0	0
Peak Hour Factor	0.95	0.95	0.95	0.97	0.97	0.97	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	2	2	2	3	3	3	0	0	0
Cap, veh/h	516	1918	307	839	2564	0	316	0	358	0	2	0
Arrive On Green	0.00	1.00	1.00	0.11	1.00	0.00	0.20	0.00	0.20	0.00	0.00	0.00
Sat Flow, veh/h	1773	3033	485	3456	3647	0	1561	0	1370	0	1979	0
Grp Volume(v), veh/h	0	624	620	118	723	0	268	0	286	0	0	0
Grp Sat Flow(s),veh/h/ln	1773	1769	1750	1728	1777	0	1561	0	1370	0	1979	0
Q Serve(g_s), s	0.0	0.0	0.0	1.3	0.0	0.0	21.5	0.0	25.5	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	1.3	0.0	0.0	21.5	0.0	25.5	0.0	0.0	0.0
Prop In Lane	1.00		0.28	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	516	1118	1107	839	2564	0	316	0	358	0	2	0
V/C Ratio(X)	0.00	0.56	0.56	0.14	0.28	0.00	0.85	0.00	0.80	0.00	0.00	0.00
Avail Cap(c_a), veh/h	610	1118	1107	934	2564	0	316	0	358	0	289	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.86	0.86	0.78	0.78	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	5.7	0.0	0.0	49.9	0.0	45.6	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.7	1.8	0.0	0.2	0.0	18.7	0.0	11.7	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.5	0.5	0.5	0.1	0.0	10.1	0.0	9.8	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	1.7	1.8	5.7	0.2	0.0	68.6	0.0	57.2	0.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	E	A	E	A	A	A
Approach Vol, veh/h		1244			841			554			0	
Approach Delay, s/veh		1.7			1.0			62.7			0.0	
Approach LOS		A			A			E				

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		31.0	11.6	87.4		0.0	0.0	99.0				
Change Period (Y+Rc), s		* 4.7	* 4.7	* 5.2		4.5	* 4.7	* 5.2				
Max Green Setting (Gmax), s		* 26	* 11	* 55		19.0	* 7	* 59				
Max Q Clear Time (g_c+I1), s		27.5	3.3	2.0		0.0	0.0	2.0				
Green Ext Time (p_c), s		0.0	0.1	12.2		0.0	0.0	6.0				

Intersection Summary	
HCM 6th Ctrl Delay	14.3
HCM 6th LOS	B

Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	255	486	427	591	278	57	308	1053	646	76	926	130
Future Volume (veh/h)	255	486	427	591	278	57	308	1053	646	76	926	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1949	1949	1949	1862	1862	1862	2003	2003	2003
Adj Flow Rate, veh/h	268	512	449	622	293	60	324	1108	680	79	965	135
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	1	1	1	1	1	1
Cap, veh/h	797	820	343	711	731	305	344	1276	874	102	1195	527
Arrive On Green	0.08	0.08	0.08	0.20	0.20	0.20	0.10	0.36	0.36	0.02	0.10	0.10
Sat Flow, veh/h	3456	3554	1487	3600	3702	1544	3440	3537	1561	1908	3806	1676
Grp Volume(v), veh/h	268	512	449	622	293	60	324	1108	680	79	965	135
Grp Sat Flow(s),veh/h/ln	1728	1777	1487	1800	1851	1544	1720	1769	1561	1908	1903	1676
Q Serve(g_s), s	9.6	18.2	30.0	21.8	9.0	4.2	12.2	37.9	44.4	5.4	32.2	9.6
Cycle Q Clear(g_c), s	9.6	18.2	30.0	21.8	9.0	4.2	12.2	37.9	44.4	5.4	32.2	9.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	797	820	343	711	731	305	344	1276	874	102	1195	527
V/C Ratio(X)	0.34	0.62	1.31	0.87	0.40	0.20	0.94	0.87	0.78	0.78	0.81	0.26
Avail Cap(c_a), veh/h	797	820	343	748	769	321	344	1276	874	103	1195	527
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.72	0.72	0.72	0.89	0.89	0.89	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.6	54.6	60.0	50.6	45.5	43.6	58.1	38.7	22.5	63.1	54.4	44.3
Incr Delay (d2), s/veh	0.2	1.1	153.3	9.9	0.3	0.3	33.8	8.2	6.7	27.7	5.9	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	8.8	26.6	10.8	4.2	1.7	6.9	17.6	24.1	3.4	17.5	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.8	55.7	213.3	60.5	45.8	43.8	92.0	46.9	29.2	90.7	60.3	45.5
LnGrp LOS	D	E	F	E	D	D	F	D	C	F	E	D
Approach Vol, veh/h		1229			975			2112			1179	
Approach Delay, s/veh		112.2			55.0			48.1			60.7	
Approach LOS		F			E			D			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.9	52.4		35.0	18.0	46.3		30.7				
Change Period (Y+Rc), s	5.0	5.5		5.0	5.0	5.5		5.0				
Max Green Setting (Gmax), s	7.0	45.5		30.0	13.0	39.5		27.0				
Max Q Clear Time (g_c+I1), s	7.4	46.4		32.0	14.2	34.2		23.8				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	3.6		1.5				

Intersection Summary												
HCM 6th Ctrl Delay			66.4									
HCM 6th LOS			E									

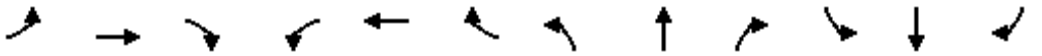
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1459	1321	0	851	231	55
Future Volume (veh/h)	1459	1321	0	851	231	55
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1988	1870	1870
Adj Flow Rate, veh/h	1586	0	0	925	251	60
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	2	2	2
Cap, veh/h	3003		0	3192	323	148
Arrive On Green	0.85	0.00	0.00	0.85	0.09	0.09
Sat Flow, veh/h	3647	1585	0	3976	3456	1585
Grp Volume(v), veh/h	1586	0	0	925	251	60
Grp Sat Flow(s),veh/h/ln	1777	1585	0	1889	1728	1585
Q Serve(g_s), s	16.2	0.0	0.0	6.5	9.2	4.6
Cycle Q Clear(g_c), s	16.2	0.0	0.0	6.5	9.2	4.6
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	3003		0	3192	323	148
V/C Ratio(X)	0.53		0.00	0.29	0.78	0.41
Avail Cap(c_a), veh/h	3003		0	3192	691	317
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.94	0.94
Uniform Delay (d), s/veh	2.8	0.0	0.0	2.1	57.6	55.5
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.2	3.8	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	0.0	1.6	4.2	1.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	3.5	0.0	0.0	2.3	61.4	57.2
LnGrp LOS	A		A	A	E	E
Approach Vol, veh/h	1586	A		925	311	
Approach Delay, s/veh	3.5			2.3	60.6	
Approach LOS	A			A	E	

Timer - Assigned Phs	2				6	8
Phs Duration (G+Y+Rc), s	113.9				113.9	16.1
Change Period (Y+Rc), s	4.0				4.0	4.0
Max Green Setting (Gmax), s	96.0				96.0	26.0
Max Q Clear Time (g_c+I1), s	18.2				8.5	11.2
Green Ext Time (p_c), s	20.9				8.1	0.9

Intersection Summary	
HCM 6th Ctrl Delay	9.4
HCM 6th LOS	A

Notes

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



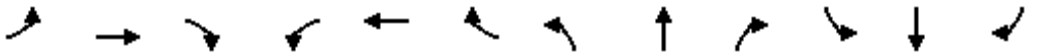
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	243	7	192	82	111	258	158	466	97	504	738
Future Volume (veh/h)	72	243	7	192	82	111	258	158	466	97	504	738
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	78	264	8	209	89	121	280	172	507	105	548	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	99	332	10	238	322	273	311	1024	913	130	1686	
Arrive On Green	0.06	0.09	0.09	0.13	0.17	0.17	0.17	0.58	0.58	0.07	0.47	0.00
Sat Flow, veh/h	1781	3522	106	1781	1870	1585	1781	1777	1585	1781	3554	1585
Grp Volume(v), veh/h	78	133	139	209	89	121	280	172	507	105	548	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1851	1781	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	5.6	9.5	9.6	15.0	5.4	8.9	20.0	5.9	25.9	7.6	12.5	0.0
Cycle Q Clear(g_c), s	5.6	9.5	9.6	15.0	5.4	8.9	20.0	5.9	25.9	7.6	12.5	0.0
Prop In Lane	1.00		0.06	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	99	167	174	238	322	273	311	1024	913	130	1686	
V/C Ratio(X)	0.79	0.79	0.80	0.88	0.28	0.44	0.90	0.17	0.56	0.81	0.33	
Avail Cap(c_a), veh/h	178	232	242	384	460	390	493	1024	913	233	1686	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.30	0.30	0.00
Uniform Delay (d), s/veh	60.6	57.6	57.7	55.3	46.8	48.2	52.5	12.9	17.2	59.4	21.2	0.0
Incr Delay (d2), s/veh	12.9	12.1	12.0	12.6	0.5	1.1	13.0	0.4	2.4	3.7	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	4.8	5.1	7.6	2.6	3.6	10.1	2.5	9.9	3.5	5.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.5	69.7	69.7	67.8	47.2	49.3	65.5	13.3	19.6	63.1	21.4	0.0
LnGrp LOS	E	E	E	E	D	D	E	B	B	E	C	
Approach Vol, veh/h		350			419			959			653	A
Approach Delay, s/veh		70.6			58.1			31.9			28.1	
Approach LOS		E			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.5	78.9	21.4	16.2	26.7	65.7	11.2	26.4
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	17.0	52.0	28.0	17.0	36.0	33.0	13.0	32.0
Max Q Clear Time (g_c+I1), s	9.6	27.9	17.0	11.6	22.0	14.5	7.6	10.9
Green Ext Time (p_c), s	0.1	5.0	0.4	0.7	0.7	3.5	0.1	0.8

Intersection Summary	
HCM 6th Ctrl Delay	41.1
HCM 6th LOS	D

Notes

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



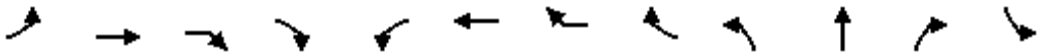
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	143	1119	0	242	1240	161	337	816	310	214	667	96
Future Volume (veh/h)	143	1119	0	242	1240	161	337	816	310	214	667	96
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.93	1.00		0.92
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1964	1964	1964	1862	1862	1862	1900	1900	1900
Adj Flow Rate, veh/h	151	1178	0	252	1292	168	351	850	323	225	702	101
Peak Hour Factor	0.95	0.95	0.95	0.96	0.96	0.96	0.96	0.96	0.96	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	0	0	0
Cap, veh/h	157	1179	526	256	1412	611	338	876	580	228	661	414
Arrive On Green	0.06	0.22	0.00	0.27	0.76	0.76	0.19	0.25	0.25	0.13	0.18	0.18
Sat Flow, veh/h	1795	3582	1598	1870	3731	1613	1773	3537	1471	1810	3610	1489
Grp Volume(v), veh/h	151	1178	0	252	1292	168	351	850	323	225	702	101
Grp Sat Flow(s),veh/h/ln	1795	1791	1598	1870	1865	1613	1773	1769	1471	1810	1805	1489
Q Serve(g_s), s	10.9	42.7	0.0	17.4	35.6	2.8	24.8	30.9	3.1	16.1	23.8	6.9
Cycle Q Clear(g_c), s	10.9	42.7	0.0	17.4	35.6	2.8	24.8	30.9	3.1	16.1	23.8	6.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	157	1179	526	256	1412	611	338	876	580	228	661	414
V/C Ratio(X)	0.96	1.00	0.00	0.98	0.92	0.28	1.04	0.97	0.56	0.99	1.06	0.24
Avail Cap(c_a), veh/h	157	1179	526	256	1412	611	338	876	580	228	661	414
HCM Platoon Ratio	0.67	0.67	0.67	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.11	0.11	0.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.9	50.6	0.0	47.1	14.1	4.6	52.6	48.4	31.0	56.7	53.1	37.1
Incr Delay (d2), s/veh	15.0	8.5	0.0	28.2	4.1	0.4	59.1	23.3	1.3	55.2	52.7	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	21.1	0.0	8.9	6.5	1.4	16.5	16.3	8.0	10.9	15.6	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	76.0	59.1	0.0	75.3	18.2	5.0	111.7	71.8	32.3	111.9	105.8	37.4
LnGrp LOS	E	E	A	E	B	A	F	E	C	F	F	D
Approach Vol, veh/h		1329			1712			1524			1028	
Approach Delay, s/veh		61.0			25.3			72.6			100.4	
Approach LOS		E			C			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.6	37.4	23.0	48.0	30.0	29.0	16.6	54.4
Change Period (Y+Rc), s	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2	* 5.2
Max Green Setting (Gmax), s	* 16	* 32	* 18	* 43	* 25	* 24	* 11	* 49
Max Q Clear Time (g_c+I1), s	18.1	32.9	19.4	44.7	26.8	25.8	12.9	37.6
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.9

Intersection Summary	
HCM 6th Ctrl Delay	60.5
HCM 6th LOS	E

Notes

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



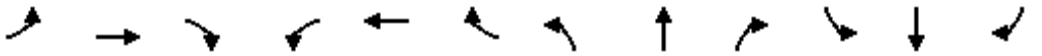
Movement	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL2
Lane Configurations												
Traffic Volume (vph)	64	1548	6	54	194	1623	6	192	52	108	220	193
Future Volume (vph)	64	1548	6	54	194	1623	6	192	52	108	220	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%				0%				3%		
Total Lost time (s)	4.7	5.2	5.2		4.7	5.2	5.2		4.7	5.2		4.7
Lane Util. Factor	1.00	0.95	1.00		1.00	0.95	1.00		1.00	1.00		1.00
Frpb, ped/bikes	1.00	1.00	0.98		1.00	1.00	0.93		1.00	0.98		1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00		0.99	1.00		1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85		1.00	0.90		1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00		0.95
Satd. Flow (prot)	1769	3539	1545		1787	3574	1487		1740	1628		1803
Flt Permitted	0.07	1.00	1.00		0.06	1.00	1.00		0.69	1.00		0.16
Satd. Flow (perm)	123	3539	1545		115	3574	1487		1255	1628		311
Peak-hour factor, PHF	0.95	0.95	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	67	1629	7	57	204	1708	7	202	55	114	232	203
RTOR Reduction (vph)	0	0	34	0	0	0	99	0	0	0	0	0
Lane Group Flow (vph)	67	1629	30	0	204	1708	110	0	55	346	0	203
Confl. Peds. (#/hr)	17			1	1			17	13		14	14
Confl. Bikes (#/hr)								1			1	
Heavy Vehicles (%)	1%	1%	2%	1%	1%	1%	2%	1%	1%	1%	1%	1%
Turn Type	pm+pt	NA	Perm		pm+pt	NA	Perm		pm+pt	NA		pm+pt
Protected Phases	7	4			3	8			5	2		1
Permitted Phases	4		4		8		8		2			6
Actuated Green, G (s)	66.3	60.7	60.7		76.3	66.0	66.0		32.9	28.8		43.3
Effective Green, g (s)	66.3	60.7	60.7		76.3	66.0	66.0		32.9	28.8		43.3
Actuated g/C Ratio	0.51	0.47	0.47		0.59	0.51	0.51		0.25	0.22		0.33
Clearance Time (s)	4.7	5.2	5.2		4.7	5.2	5.2		4.7	5.2		4.7
Vehicle Extension (s)	3.0	4.0	4.0		2.0	4.0	4.0		2.0	3.5		2.0
Lane Grp Cap (vph)	133	1652	721		207	1814	754		332	360		216
v/s Ratio Prot	0.02	0.46			c0.08	0.48			0.01	0.21		c0.07
v/s Ratio Perm	0.23		0.02		c0.49		0.07		0.04			c0.24
v/c Ratio	0.50	0.99	0.04		0.99	0.94	0.15		0.17	0.96		0.94
Uniform Delay, d1	27.9	34.2	18.8		42.1	30.2	17.0		37.4	50.0		37.4
Progression Factor	1.44	0.29	0.00		1.61	0.47	0.34		0.98	0.99		1.00
Incremental Delay, d2	1.3	11.8	0.0		15.3	1.4	0.0		0.1	36.5		43.6
Delay (s)	41.7	21.7	0.1		83.3	15.6	5.8		36.6	86.2		81.0
Level of Service	D	C	A		F	B	A		D	F		F
Approach Delay (s)		21.6				21.2				79.4		
Approach LOS		C				C				E		

Intersection Summary			
HCM 2000 Control Delay	29.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	19.8
Intersection Capacity Utilization	101.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	70	35
Future Volume (vph)	70	35
Ideal Flow (vphpl)	1900	1900
Grade (%)	-2%	
Total Lost time (s)	5.2	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.95	
Flt Protected	1.00	
Satd. Flow (prot)	1785	
Flt Permitted	1.00	
Satd. Flow (perm)	1785	
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	74	37
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	111	0
Confl. Peds. (#/hr)		13
Confl. Bikes (#/hr)		1
Heavy Vehicles (%)	1%	1%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	34.5	
Effective Green, g (s)	34.5	
Actuated g/C Ratio	0.27	
Clearance Time (s)	5.2	
Vehicle Extension (s)	3.5	
Lane Grp Cap (vph)	473	
v/s Ratio Prot	0.06	
v/s Ratio Perm		
v/c Ratio	0.23	
Uniform Delay, d1	37.4	
Progression Factor	1.00	
Incremental Delay, d2	0.3	
Delay (s)	37.7	
Level of Service	D	
Approach Delay (s)	65.7	
Approach LOS	E	

Intersection Summary



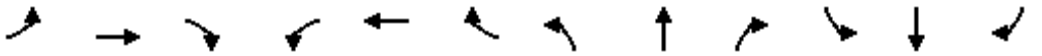
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	307	1592	39	226	1954	745	0	0	0	557	307	252
Future Volume (veh/h)	307	1592	39	226	1954	745	0	0	0	557	307	252
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99				1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	2003	2003	2003	1988	1988	1988				1949	1949	1949
Adj Flow Rate, veh/h	323	1676	41	238	2057	784				586	323	265
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	2	2	2				2	2	2
Cap, veh/h	365	2174	963	267	2061	701				682	366	293
Arrive On Green	0.38	1.00	1.00	0.14	0.52	0.52				0.19	0.19	0.19
Sat Flow, veh/h	1908	3806	1686	1893	3987	1355				3600	1934	1548
Grp Volume(v), veh/h	323	1676	41	238	1844	997				586	309	279
Grp Sat Flow(s),veh/h/ln	1908	1903	1686	1893	1809	1724				1800	1851	1632
Q Serve(g_s), s	20.6	0.0	0.0	16.1	65.3	67.2				20.5	21.1	21.8
Cycle Q Clear(g_c), s	20.6	0.0	0.0	16.1	65.3	67.2				20.5	21.1	21.8
Prop In Lane	1.00		1.00	1.00		0.79				1.00		0.95
Lane Grp Cap(c), veh/h	365	2174	963	267	1870	891				682	351	309
V/C Ratio(X)	0.89	0.77	0.04	0.89	0.99	1.12				0.86	0.88	0.90
Avail Cap(c_a), veh/h	365	2174	963	319	1870	891				692	356	314
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.17	0.17	0.17	1.00	1.00	1.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	38.8	0.0	0.0	54.9	30.9	31.4				51.0	51.3	51.5
Incr Delay (d2), s/veh	4.9	0.5	0.0	23.0	17.7	68.5				10.5	21.4	27.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.3	0.1	0.0	9.3	31.6	43.4				10.2	11.8	11.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.7	0.5	0.0	77.9	48.7	99.9				61.5	72.7	79.1
LnGrp LOS	D	A	A	E	D	F				E	E	E
Approach Vol, veh/h		2040			3079						1174	
Approach Delay, s/veh		7.3			67.5						68.6	
Approach LOS		A			E						E	

Timer - Assigned Phs	1	2		4	5	6
Phs Duration (G+Y+Rc), s	23.0	79.5		29.8	30.0	72.4
Change Period (Y+Rc), s	* 4.7	* 5.2		* 5.2	* 5.2	* 5.2
Max Green Setting (Gmax), s	* 22	* 68		* 25	* 23	* 67
Max Q Clear Time (g_c+I1), s	18.1	2.0		23.8	22.6	69.2
Green Ext Time (p_c), s	0.2	23.0		0.8	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	48.2
HCM 6th LOS	D

Notes

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



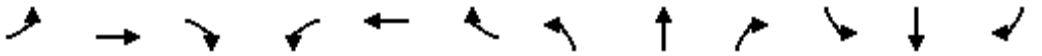
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1018	163	120	701	0	255	0	278	0	0	0
Future Volume (veh/h)	0	1018	163	120	701	0	255	0	278	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	0.99		1.00	0.91		0.90	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1862	1862	1862	1870	1870	1870	1803	1803	1803	1979	1979	1979
Adj Flow Rate, veh/h	0	1072	172	124	723	0	268	0	293	0	0	0
Peak Hour Factor	0.95	0.95	0.95	0.97	0.97	0.97	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	2	2	2	3	3	3	0	0	0
Cap, veh/h	516	1918	307	839	2564	0	316	0	358	0	2	0
Arrive On Green	0.00	1.00	1.00	0.11	1.00	0.00	0.20	0.00	0.20	0.00	0.00	0.00
Sat Flow, veh/h	1773	3033	485	3456	3647	0	1561	0	1370	0	1979	0
Grp Volume(v), veh/h	0	624	620	124	723	0	268	0	293	0	0	0
Grp Sat Flow(s),veh/h/ln	1773	1769	1750	1728	1777	0	1561	0	1370	0	1979	0
Q Serve(g_s), s	0.0	0.0	0.0	1.4	0.0	0.0	21.5	0.0	26.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	1.4	0.0	0.0	21.5	0.0	26.3	0.0	0.0	0.0
Prop In Lane	1.00		0.28	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	516	1118	1106	839	2564	0	316	0	358	0	2	0
V/C Ratio(X)	0.00	0.56	0.56	0.15	0.28	0.00	0.85	0.00	0.82	0.00	0.00	0.00
Avail Cap(c_a), veh/h	610	1118	1106	934	2564	0	316	0	358	0	289	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.86	0.86	0.78	0.78	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	5.7	0.0	0.0	49.9	0.0	45.8	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.7	1.8	0.0	0.2	0.0	18.7	0.0	13.4	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.5	0.5	0.5	0.1	0.0	10.1	0.0	10.3	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	1.7	1.8	5.7	0.2	0.0	68.6	0.0	59.2	0.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	E	A	E	A	A	A
Approach Vol, veh/h		1244			847			561			0	
Approach Delay, s/veh		1.8			1.0			63.7			0.0	
Approach LOS		A			A			E				

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	31.0	11.6	87.4	0.0	0.0	99.0
Change Period (Y+Rc), s	* 4.7	* 4.7	* 5.2	4.5	* 4.7	* 5.2
Max Green Setting (Gmax), s	* 26	* 11	* 55	19.0	* 7	* 59
Max Q Clear Time (g_c+I1), s	28.3	3.4	2.0	0.0	0.0	2.0
Green Ext Time (p_c), s	0.0	0.1	12.2	0.0	0.0	6.0

Intersection Summary	
HCM 6th Ctrl Delay	14.6
HCM 6th LOS	B

Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	261	486	427	591	278	57	308	1053	646	76	926	136
Future Volume (veh/h)	261	486	427	591	278	57	308	1053	646	76	926	136
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1949	1949	1949	1862	1862	1862	2003	2003	2003
Adj Flow Rate, veh/h	275	512	449	622	293	60	324	1108	680	79	965	142
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	1	1	1	1	1	1
Cap, veh/h	797	820	343	711	731	305	344	1276	874	102	1195	527
Arrive On Green	0.08	0.08	0.08	0.20	0.20	0.20	0.10	0.36	0.36	0.02	0.10	0.10
Sat Flow, veh/h	3456	3554	1487	3600	3702	1544	3440	3537	1561	1908	3806	1676
Grp Volume(v), veh/h	275	512	449	622	293	60	324	1108	680	79	965	142
Grp Sat Flow(s),veh/h/ln	1728	1777	1487	1800	1851	1544	1720	1769	1561	1908	1903	1676
Q Serve(g_s), s	9.8	18.2	30.0	21.8	9.0	4.2	12.2	37.9	44.4	5.4	32.2	10.2
Cycle Q Clear(g_c), s	9.8	18.2	30.0	21.8	9.0	4.2	12.2	37.9	44.4	5.4	32.2	10.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	797	820	343	711	731	305	344	1276	874	102	1195	527
V/C Ratio(X)	0.34	0.62	1.31	0.87	0.40	0.20	0.94	0.87	0.78	0.78	0.81	0.27
Avail Cap(c_a), veh/h	797	820	343	748	769	321	344	1276	874	103	1195	527
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.72	0.72	0.72	0.88	0.88	0.88	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.7	54.6	60.0	50.6	45.5	43.6	58.1	38.7	22.5	63.1	54.4	44.5
Incr Delay (d2), s/veh	0.2	1.1	153.3	9.8	0.3	0.3	33.8	8.2	6.7	27.7	5.9	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	8.8	26.6	10.8	4.2	1.7	6.9	17.6	24.1	3.4	17.5	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.9	55.7	213.3	60.4	45.8	43.8	92.0	46.9	29.2	90.7	60.3	45.8
LnGrp LOS	D	E	F	E	D	D	F	D	C	F	E	D
Approach Vol, veh/h		1236			975			2112			1186	
Approach Delay, s/veh		111.9			55.0			48.1			60.6	
Approach LOS		F			D			D			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.9	52.4		35.0	18.0	46.3		30.7				
Change Period (Y+Rc), s	5.0	5.5		5.0	5.0	5.5		5.0				
Max Green Setting (Gmax), s	7.0	45.5		30.0	13.0	39.5		27.0				
Max Q Clear Time (g_c+I1), s	7.4	46.4		32.0	14.2	34.2		23.8				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	3.6		1.5				

Intersection Summary												
HCM 6th Ctrl Delay			66.3									
HCM 6th LOS			E									

APPENDIX E

Kingsgate Park-and-Ride Trip Generation

Volume
Start Date: 8/14/2019
Start Time: 12:00:00 AM
Site Code: 6
Station ID:
Location 1: 116TH AVE NE PARK-N-RIDE DRIVEWAYS

Date	Time	ENTER	EXIT	Enter Rolling Peak Hour	Exit Rolling Peak Hour
8/14/2019	12:00 AM	13	2	90	40
8/14/2019	12:15 AM	19	1	111	83
8/14/2019	12:30 AM	31	27	107	113
8/14/2019	12:45 AM	27	10	80	100
8/14/2019	01:00 AM	34	45	53	90
8/14/2019	01:15 AM	15	31	19	45
8/14/2019	01:30 AM	4	14	4	14
8/14/2019	01:45 AM	0	0	0	0
8/14/2019	02:00 AM	0	0	0	0
8/14/2019	02:15 AM	0	0	0	0
8/14/2019	02:30 AM	0	0	0	0
8/14/2019	02:45 AM	0	0	1	0
8/14/2019	03:00 AM	0	0	2	1
8/14/2019	03:15 AM	0	0	5	1
8/14/2019	03:30 AM	1	0	7	2
8/14/2019	03:45 AM	1	1	12	3
8/14/2019	04:00 AM	3	0	18	3
8/14/2019	04:15 AM	2	1	27	7
8/14/2019	04:30 AM	6	1	27	8
8/14/2019	04:45 AM	7	1	54	11
8/14/2019	05:00 AM	12	4	**88**	20
8/14/2019	05:15 AM	2	2	127	24
8/14/2019	05:30 AM	33	4	182	34
8/14/2019	05:45 AM	41	10	195	38
8/14/2019	06:00 AM	51	8	**239**	45
8/14/2019	06:15 AM	57	12	267	56
8/14/2019	06:30 AM	46	8	279	58

Existing Parking Spaces 502

Existing		
	Peak Enter	Peak Exit
AM	**282**	**60**
PM	**63**	**207**

Net Increase Parking Spaces 400

Project Generated		
	Peak Enter	Peak Exit
AM	**220**	**50**
PM	**50**	**160**

Build Parking Spaces 902

Build		
	Peak Enter	Peak Exit
AM	**500**	**110**
PM	**110**	**370**

8/14/2019	06:45 AM	85	17	**282**	**60**
8/14/2019	07:00 AM	79	19	**237**	53
8/14/2019	07:15 AM	69	14	175	45
8/14/2019	07:30 AM	49	10	129	43
8/14/2019	07:45 AM	40	10	87	38
8/14/2019	08:00 AM	17	11	**57**	36
8/14/2019	08:15 AM	23	12	45	29
8/14/2019	08:30 AM	7	5	26	20
8/14/2019	08:45 AM	10	8	23	18
8/14/2019	09:00 AM	5	4	15	14
8/14/2019	09:15 AM	4	3	17	16
8/14/2019	09:30 AM	4	3	15	16
8/14/2019	09:45 AM	2	4	18	16
8/14/2019	10:00 AM	7	6	19	19
8/14/2019	10:15 AM	2	3	18	21
8/14/2019	10:30 AM	7	3	18	19
8/14/2019	10:45 AM	3	7	21	24
8/14/2019	11:00 AM	6	8	23	22
8/14/2019	11:15 AM	2	1	22	19
8/14/2019	11:30 AM	10	8	21	20
8/14/2019	11:45 AM	5	5	17	20
8/14/2019	12:00 PM	5	5	14	19
8/14/2019	12:15 PM	1	2	14	18
8/14/2019	12:30 PM	6	8	19	20
8/14/2019	12:45 PM	2	4	21	21
8/14/2019	01:00 PM	5	4	25	25
8/14/2019	01:15 PM	6	4	28	29
8/14/2019	01:30 PM	8	9	26	34
8/14/2019	01:45 PM	6	8	25	33
8/14/2019	02:00 PM	8	8	24	38
8/14/2019	02:15 PM	4	9	28	48
8/14/2019	02:30 PM	7	8	29	50
8/14/2019	02:45 PM	5	13	35	55
8/14/2019	03:00 PM	12	18	39	90
8/14/2019	03:15 PM	5	11	37	125
8/14/2019	03:30 PM	13	13	44	152

8/14/2019	03:45 PM	9	48	49	197
8/14/2019	04:00 PM	10	53	50	200
8/14/2019	04:15 PM	12	38	52	188
8/14/2019	04:30 PM	18	58	51	198
8/14/2019	04:45 PM	10	51	48	200
8/14/2019	05:00 PM	12	41	50	191
8/14/2019	05:15 PM	11	48	**63**	**207**
8/14/2019	05:30 PM	15	60	61	173
8/14/2019	05:45 PM	12	42	60	159
8/14/2019	06:00 PM	25	57	56	139
8/14/2019	06:15 PM	9	14	41	101
8/14/2019	06:30 PM	14	46	36	97
8/14/2019	06:45 PM	8	22	25	61
8/14/2019	07:00 PM	10	19	21	44
8/14/2019	07:15 PM	4	10	15	32
8/14/2019	07:30 PM	3	10	16	28
8/14/2019	07:45 PM	4	5	16	24
8/14/2019	08:00 PM	4	7	19	25
8/14/2019	08:15 PM	5	6	25	28
8/14/2019	08:30 PM	3	6	23	28
8/14/2019	08:45 PM	7	6	25	28
8/14/2019	09:00 PM	10	10	20	25
8/14/2019	09:15 PM	3	6	13	19
8/14/2019	09:30 PM	5	6	13	18
8/14/2019	09:45 PM	2	3	12	14
8/14/2019	10:00 PM	3	4	12	13
8/14/2019	10:15 PM	3	5	12	12
8/14/2019	10:30 PM	4	2	12	8
8/14/2019	10:45 PM	2	2	12	9
8/14/2019	11:00 PM	3	3	12	8
8/14/2019	11:15 PM	3	1		
8/14/2019	11:30 PM	4	3		
8/14/2019	11:45 PM	2	1		

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Sound Transit plans, builds, and operates regional transit systems and services to improve mobility for Central Puget Sound.
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