

RENEWS:

Coho Point Mixed-Use Building

Transportation Impact

Study

Milwaukie, Oregon

Date: April 9, 2021

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Executive Summary

- 1. The proposed Coho Point Mixed-Use Building will include the construction of a six-story building, consisting of 195 apartment units and up to 6,733 square feet of retail space, on five lots located at 11103 SE Main Street in Milwaukie, Oregon.
- 2. The trip generation calculations show that the proposed development is projected to generate 58 trips during the morning peak hour, 86 trips during the evening peak hour, and 1,046 average weekday trips.
- 3. No significant trends or crash patterns were identified at any of the study intersections that were indicative of safety concerns. In addition, none of the study intersections exhibit crash rates near or above the 1.00 CMEV threshold nor do any of the study intersections along OR-99E have a crash rate exceeding ODOT's 90th percentile rate.
- 4. Adequate sight distances are currently available at the site access intersection to ensure safe and efficient operation along SE Washington Street.
- 5. Due to insufficient main and side-street traffic volumes, traffic signal warrants are not projected to be met at the intersection of SE Washington Street at SE Main Street under any of the analysis scenarios.
- 6. All study intersections are currently operating acceptably per City of Milwaukie and ODOT standards and are projected to continue operating acceptably through the 2022 buildout year of the site.
- 7. The projected 95th percentile queues which may result from site entering trips are not projected to extend back to the adjacent study intersections along SE Washington Street.



Project Description

Introduction

The proposed Coho Point Mixed-Use Building will include the construction of a six-story building, consisting of 195 apartment units and up to 6,733 square feet of retail space, on five lots located at 11103 SE Main Street in Milwaukie, Oregon. Based on correspondence with City of Milwaukie and Oregon Department of Transportation (ODOT) staff, the report conducts safety and capacity/level of service analyses at the following intersections.

- 1. SE Harrison Street at SE McLoughlin Boulevard (OR-99E);
- 2. SE Monroe Street at OR-99E;
- 3. SE Washington Street at OR-99E;
- 4. SE Washington Street at SE Main Street; and
- 5. SE Washington Street at SE 21st Avenue.

The purpose of this study is to determine whether the transportation system within the vicinity of the site is capable of safely and efficiently supporting the existing and proposed uses and to determine any mitigation that may be necessary to do so. Detailed information on traffic counts, trip generation calculations, safety analyses, and level of service calculations is included in the appendix to this report.

Location Description

The project site is located south of SE Washington Street, east of OR-99E, and west of SE Main Street in Milwaukie, Oregon. The subject site is located within downtown Milwaukie, with a mix of commercial and residential uses to the north and east, a public dog park to the south, Milwaukie Bay Park to the west (across the highway). Two notable land uses of significance within the site vicinity include a high school and elementary school to the east.

The project site includes five tax lots (lots 1100, 1200, 1300, 1301, and 1302) which encompass an approximate total of 0.94 acres. The northeastern lot (1200) is currently developed with a commercial office building while the remaining lots are utilized for off-street vehicle parking. Existing access to the site is currently provided along SE Washington Street and OR-99E; however, upon redevelopment of the site access to OR-99E will be closed while the current access onto SE Washington Street will be maintained.

Vicinity Streets

The proposed development is expected to impact seven roadways near the site. Table 1 provides a description of each of the vicinity roadways.



Street Name	Jurisdiction	Functional Classification	Speed (MPH)	On-Street Parking	Curbs & Sidewalks	Bicycle Lanes
SE Harrison Street	City of Milwaukie	Arterial	25	Partially Both Sides Permitted		Partial Both Sides
SE 17th Avenue	ODOT/City of Milwaukie	Arterial	35	Not Permitted Partial Both Sides		Both Sides
SE Monroe Street	City of Milwaukie	Collector	25	Partially Permitted	Both Sides	None
SE Washington Street	City of Milwaukie	Collector	25	Partially Permitted	Both Sides	None
OR-99E	ODOT	Arterial/ District Hwy	30	Not Permitted	Partial Both Sides	Partial Both Sides
SE Main Street	City of Milwaukie	Collector/ Local Street	20/35	Partially Permitted	Partial Both Sides	Sharrow Streets
SE 21st Avenue	City of Milwaukie	Arterial	20	Partially Permitted	Both Sides	Sharrow Streets

Table Notes: Functional classification based on City of Milwaukie TSP and ODOT OHP. Juri sdiction based on Milwaukie Road Jurisdiction Map and ODOT OHP.

In accordance with comments received by the City of Milwaukie's transportation consultant, a review of the cross-sections of adjacent roadways to the site was conducted. The adjacent roadways of SE Washington Street and SE Main Street are both classified as Collectors. According to the City's Transportation System Plan (TSP), collector cross-sections may contain the following:

- Pedestrian Zone with a minimum 5-foot width (if next to a Green Zone) or minimum 6-foot width if next to a Street Zone;
- Green Zone with a minimum 5-foot width; and
- Street Zone consisting of a Parking Zone (6-8 feet), Bicycle Zone (5-6 feet), and Motor Vehicle Zone (9-12 feet per travel lane).

Specific to Collectors, the Green Zone, Parking Zone and Bicycle Zone are optional if right-of-way width is limited. Additionally, a center turn lane is only required when warranted. However, variations to the cross-sections may be allowed under specific circumstances.



Additionally, the roadways are located the City's downtown plan area, where standard drawing number 506A would be applicable. Per this standard detail, dimensions pertaining to each roadway are presented in Table 2.

Street Name	Right-of- Way	Curb-to- Curb	Sidewalk	Landscape	Parking	Bike Lane	Travel Lane	Median or Turn Lane
SE Washington Street	60 ft	36 ft - 40 ft	10 ft - 12 ft	0 ft to 5 ft	0 ft to 7 ft	0 ft	11 ft	0 ft to 11 ft lane
SE Main Street	60 ft - 80 ft	22 ft - 54 ft	12 ft - 16 ft	0 ft to 7 ft	0 ft to 7 ft	0 ft	11 ft - 14 ft	None

Table 2: Downtowr	n Street Cross Se	ections (Standard	Drawing 506A)
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SE Washington Street along site frontage generally has four vehicular travel lanes (two travel lanes in the eastbound direction and two travel lanes in the westbound direction), all of which are approximately 10 feet in width. Near the intersection with SE Main Street, the westbound direction of travel is reduced to a single travel lane with a width of approximately 12 feet, in order to accommodate a curb extension at the intersection. Just west of the curb extension is a 60 foot "No Parking Loading Zone". No Green Zone or Bicycle Zone are provided, and sidewalks are at least 6 feet wide.

SE Main Street along site frontage has no Green Zone or Bicycle Zone but has temporary asphalt sidewalks of at least 6 feet wide. On-street parking is available along both sides of the roadway: angled parking is available along the east side of the road with a width of approximately 11 feet while parallel parking is available along the west side of the road with a width of approximately 9 feet. The roadway has one vehicular travel lane in the northbound direction and one lane in the southbound direction of travel, each of which are 11 feet wide.

It should be noted that both roadways have recently undergone reconstruction/redesign. Based on a review of these adjacent roadways in conjunction with the reconstruction/redesign projects, both are consistent with the applicable roadway cross-section standards identified in the TSP.

Study Intersections

A majority of site trips generated by the proposed development are expected to impact five nearby intersections of significance. A summarized description of the study intersections, under their existing lane configurations, is provided in Table 3.



Table 3: Study Intersection Descriptions

Number	Intersection	Geometry	Traffic Control	Phasing/Stopped Approaches
1	SE Harrison Street at OR- 99E	Four-Legged	Traffic Signal	Protected NB/SB Left-turns, Split EB/WB Approaches, Overlap EB Right-turn
2	SE Monroe Street at OR- 99E	Three-Legged	Traffic Signal	Permitted NB/SB & WB Approaches, Restricted SB Left-turn
3	SE Washington Street at OR-99E	Four-Legged	Traffic Signal	FYA SB Left-turn, Permitted EB/WB Approaches, Restricted SB Right-turn, NB Left-turn
4	SE Washington Street at SE Main Street	Four-Legged	Stop- Controlled	All-Way Stop-Controlled
5	SE Washington Street at SE 21st Avenue	Four-Legged	⊤raffic Signal	Permitted NB/SB & EB/WB Approaches

Table Notes: Flashing-Yellow-Arrow denoted as FYA.

Site Access Configuration

According to the City of Milwaukie Municipal Code Section *12.16.040 Access Requirements and Standards*, spacing for accessways along Collector and Arterial roadways shall be a minimum of 300 feet and 600 feet, respectively, measured between the nearest edge of driveway aprons between accessways or the nearest edge of the driveway apron to the nearest face of curb of the intersecting street (or nearest edge of pavement if no curb is available).

Based on an assessment of the adjacent roadways to the site, there are no locations along OR-99E, SE Washington Street, or SE Main Street where access spacing standards can be met (i.e. spacing with driveways and intersecting roadways along either sides of the adjacent streets). Accordingly, the proposed public access along SE Washington Street is planned near its current existing location, offset slightly to the east further away from OR-99E. However, in the event that City staff require turning-movements be restricted at the site access intersection, the following three access scenarios were analyzed: full-movement, restricted left-turn site egress, and right-in/right-out only. Note that the current public access driveway was planned and constructed as part of the City's South Downtown Improvements project.

Proposed Parking

As part of the proposed development, below grade vehicle parking as well as bicycle parking will be available for residents. In total 101 below grade parking stalls and 232 bicycle parking spaces will be provided. For customers of the retail uses, existing at grade parking may be utilized.



Transit

The project site is located near 11 TriMet transit lines, all of which have stops located within a quarter-mile walking/biking distance of the site. Complete sidewalks and adequate crossing measures are available between the site and the nearest stops which serve each transit line. A summarized description of each transit line is shown in Table 4.

Transit Line	E an ian Anna		Service Ti	me	Typical	No successful Change
(TriMet)	Service Area	Day	То	From	Headways (Minutes)	Nearest Stops
MAXO	Milwaukie, Portland State	Wk	4:00 AM	12:30 PM	15 to 30	Northwest of SE Lake
MAX Orange LRL	University, Portland City	Sat	5:00 AM	1:30 AM	15 to 30	Road at SE 21st
	Center	Sun	5:00 AM	1:30 AM	15 to 30	Avenue
Bus Line #29 -		Wk	5:35 AM	7:55 PM	75 to 90	SE Washington
Lake/Webster	Milwaukie, Clackamas Town Center	Sat	-	-	-	Street at SE 21st
Rd		Sun	-	-	-	Avenue
	Clackamas Town Center,	Wk	4:30 AM	9:20 PM	30 to 60	SE Jackson Street
Bus Line #30 - Estacada	Estacada, Milwaukie, Portland City Center	Sat	8:20 AM	7:20 PM	60	between Main Street
		Sun	-	-	-	and 21st Avenue
	Milwaukie, Gladstone, Oregon City, CCC	Wk	4:45 AM	9:55 PM	15 to 60	SE Washington
Bus Line #32 - Oatfield		Sat	9:40 AM	5:30 PM	60	Street at SE 21st
		Sun	-	-	-	Avenue
Bus Line #33 -	Clackamas Town Center,	Wk	4:15 AM	1:55 AM	15 to 60	
McLoughlin/	Milwaukie, Gladstone,	Sat	5:30 AM	1:50 AM	15 to 60	SE Jefferson Street at SE Main Street
King Rd	Oregon City, CCC	Sun	5:30 AM	1:50 AM	15 to 60	
Bus Line #34 -	Clackamas Town Center,	Wk	5:55 AM	8:05 PM	30 to 40	
Linwood/ River	Milwaukie, Gladstone,	Sat	-	-	-	SE Jefferson Street at SE Main Street
Road	Oregon City TC	Sun	-	-	-	
Bus Line #70 -	Columbia River	Wk	5:00 AM	11:10 PM	10 to 45	SE Jackson Street
12th/NE 33rd	Correctional Facility, Lloyd	Sat	8:40 AM	11:05 PM	20 to 30	between Main Street
Ave	Center, Milwaukie	Sun	8:45 AM	7:50 PM	20 to 35	and 21st Avenue

Table 4: Transit Line Descriptions

Table Notes: Light Rail Line denoted as LRL.

BOLDED text indicates frequent service.



Transit Line	Comies Area		Service Ti	me	Typical		
(TriMet)	Service Area	Day	То	From	Headways (Minutes)	Nearest Stops	
Bus Line #75 -	St. Johns Neighborhood, N	Wk	4:45 AM	1:30 AM	15 to 30	SE Jackson Street	
Cesar Chavez/	Lombard TC, Hollywood	Sat	5:30 AM	1:40 AM	15 to 40	between Main Street	
Lombard	TC, Milwaukie	Sun	5:30 AM	1:40 AM	15 to 40	and 21st Avenue	
Bus Line #99 - Macadam/ McLoughlin	Portland City Center, Milwaukie, Oregon City TC, CCC	Wk	5:15 AM	7:20 PM	15 to 30	SE Jackson Street	
		Sat	-	-	-	between Main Street	
		Sun	-	_	-	and 21st Avenue	
		Wk	6:30 AM	6:35 PM	30 to 40	SE Jackson Street	
Bus Line #152 - Milwaukie	Milwaukie, Clackamas Town Center	Sat	-	-	-	between Main Street	
	rown center	Sun	-	-	-	and 21st Avenue	
Bus Line #291 -	Milwaukie, Portland State	Wk	11:45 PM	1:20 AM	60	SE Jackson Street	
Orange Night	University, Portland City	Sat	12:45 PM	1:20 AM	-	between Main Street	
Bus	Center	Sun	12:45 PM	1:20 AM	-	and 21st Avenue	

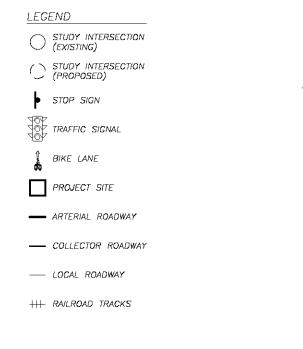
Table 4: Transit Line Descriptions (Continued)

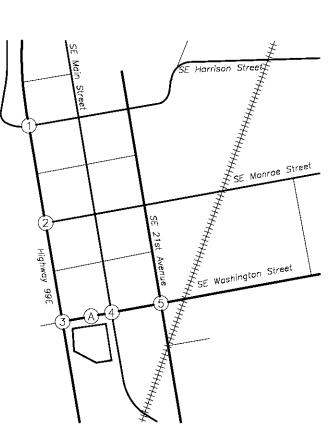
Table Notes: Light Rail Line denoted as LRL.

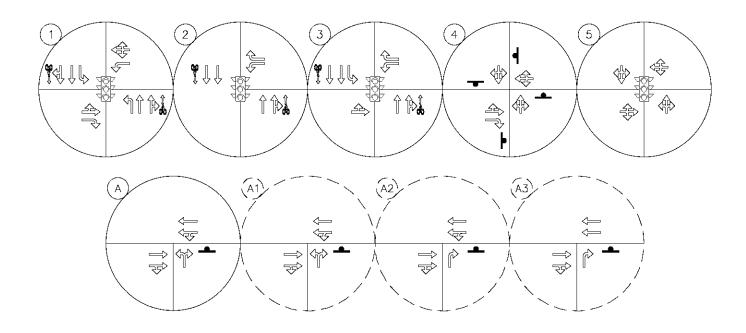
BOLDED text indicates frequent service.

A vicinity map displaying the project site, vicinity streets, and the study intersections with their associated lane configurations is shown in Figure 1.













VICINITY MAP

Figure 1 Coho Point 4/9/2021

Site Trips

Trip Generation

The proposed Coho Point Mixed-Use Building will include the construction of a six-story building, consisting of 195 apartment units and up to 6,733 square feet of retail space, replacing an existing office building of approximately 7,706 square feet. To estimate the number of trips generated by the existing and proposed uses, trip rates from the *Trip Generation Manual*¹ were used. Data from land use code 221, *Multifamily Housing (Mid-Rise)*, and code 820, *Shopping Center*, was used to estimate the proposed development's trip generation based on the number of dwelling units and square footage of gross building floor area, respectively. To estimate the existing office building's trip generation, data from land use code 710, *General Office Building*, was used based on the square-footage of gross building floor area.

Pass-by Trips

The retail portion of the proposed development is expected to attract pass-by and diverted trips to the site. Pass-by trips are trips that leave the adjacent roadway to patronize a land use and then continue in their original direction of travel. Similar to pass-by trips, diverted trips are trips that divert from the nearby roadway not adjacent to the site to patronize a land use before continuing to their original destination. Pass-by trips do not add additional vehicles to the surrounding transportation system; however, they do add additional turning movements at site access intersections. Diverted trips may add turning movements at both site access and other nearby intersections.

Pass-by and diverted trip rates were determined using data provided within the *Trip Generation Handbook*². Data from land use code 820 was used to determine an evening peak hour pass-by rate for the retail portion of the proposed mixed-use building. It is assumed that the morning peak hour and weekday rates would approximately match the evening peak hour rate. For the purposes of this analysis, pass-by trips were drawn from SE Washington Street while diverted trips were treated as primary trips.

Multi-Modal Split Reduction

The proposed mixed-use building is located within a multi-modal area of downtown Milwaukie, which provides well-connected pedestrian/bicycle facilities with multiple transit services nearby. Due to the variety of alternative modes of travel to and from the site, and to maintain consistency with the *Project Galaxy Transportation Impact Analysis* (TIA), dated May 5th, 2017, a ten percent transit reduction to the site trips generated by the residential portion of the proposed use was taken.

Analysis Results

The trip generation calculations show that the proposed development is projected to generate 58 trips during the morning peak hour, 86 trips during the evening peak hour, and 1,046 average weekday trips. The trip generation estimates are summarized in Table 5. Detailed trip generation calculations are included in the technical appendix to this report.



¹ Institute of Transportation Engineers (ITE), *Trip Generation Manual*, 10th Edition, 2017.

² Institute of Transportation Engineers (ITE), *Trip Generation Handbook*, 3rd Edition, 2014.

	ITE	Morning Peak Hour		Evening Peak Hour			Weekday			
	Code	Size/Rate	Enter	Exit	Total	Enter	Exit	Total	Total	
Exisiting Conditions										
Office Building	710	7,706 SF	8	1	9	1	8	9	76	
Proposed Conditions										
Apartments	221	195 units	18	52	70	52	34	86	1,060	
Transit Reduction		10%	2	5	7	5	4	9	106	
Net Total			16	47	63	47	30	77	954	
Retail Space	820	6,733 SF	4	2	6	12	14	26	254	
Pass-by Trips		34%	1	1	2	4	4	8	86	
Net Total	820	34% (34%)	3	1	4	8	10	18	168	
Net New Trips			11	47	58	54	32	86	1,046	

Table 5: Trip Generation Summary

Trip Distribution

The directional distribution of site trips to/from the project site was estimated based on the locations of likely trip destinations, locations of major transportation facilities in the site vicinity, and existing travel patterns at the study intersections.

The following trip distribution was estimated and used for analysis:

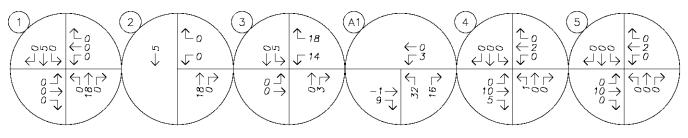
- Approximately 40 percent of site trips will travel to/from the north along OR-99E;
- Approximately 30 percent of site trips will travel to/from the south along OR-99E;
- Approximately 20 percent of site trips will travel to/from the east along SE Washington Street; and
- Approximately 10 percent of site trips will travel to/from the south along SE Lake Street.

The trip distribution and assignment for the site trips generated by the proposed development during the morning and evening peak hours are shown in the following figures for each of the three access configuration scenarios, as described in the *Site Access Configuration* section:

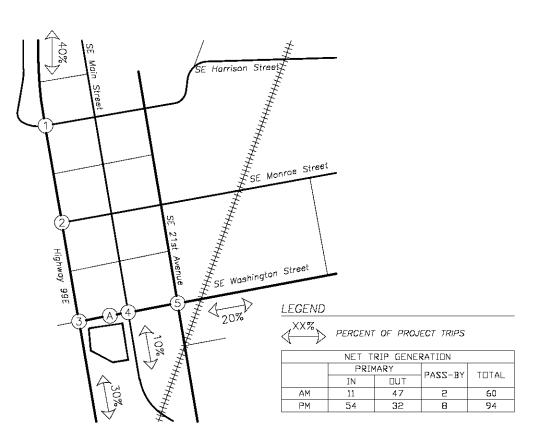
- Figure 2: Full-Movement Access;
- Figure 3: Restricted Left-turn Egress Access; and
- Figure 4: Right-in/Right-out Access.

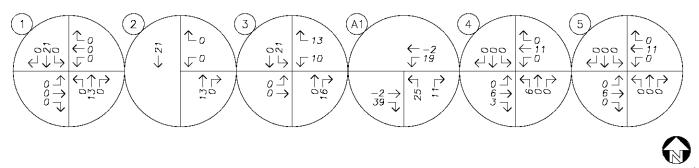
Note that Figures 2 through 4 depict the combined trip generation associated with both pass-by trips and primary trips.





AM PEAK HOUR





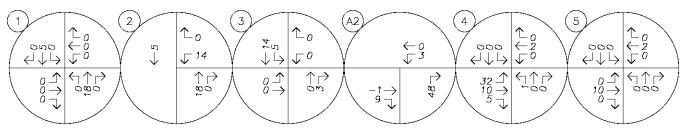
no scale



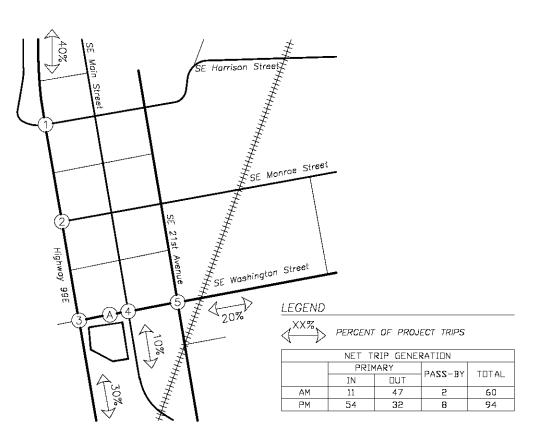
SITE TRIP DISTRIBUTION & ASSIGNMENT

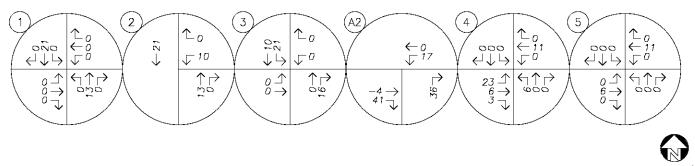
Net Site Trips plus Pass-by Trips - Full Movement AM & PM Peak Hours

Figure 2 Coho Point 4/9/2021



AM PEAK HOUR





no scale

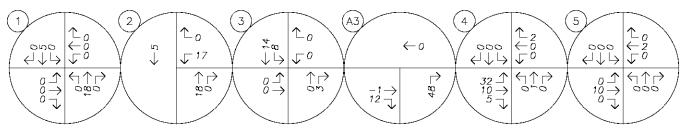


SITE TRIP DISTRIBUTION & ASSIGNMENT

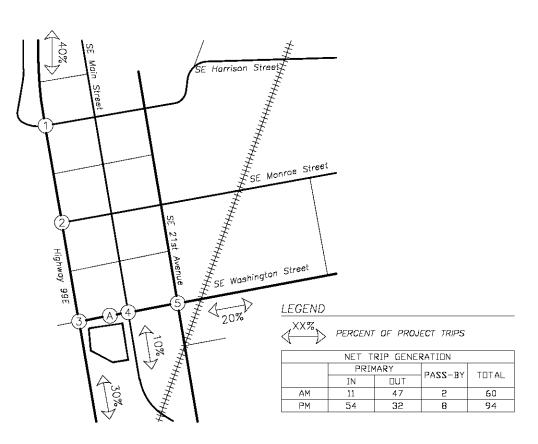
Figure 3

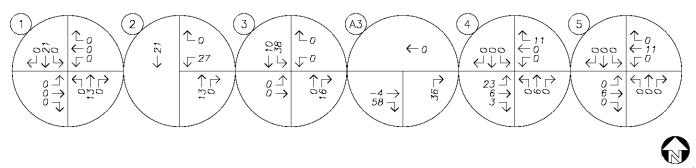
Net Site Trips plus Pass-by Trips - Restricted Left-turn Egress AM & PM Peak Hours

Coho Point 4/9/2021



AM PEAK HOUR





no scale



SITE TRIP DISTRIBUTION & ASSIGNMENT

Figure 4

Net Site Trips plus Pass-by Trips - Right-in/Right-out AM & PM Peak Hours

Coho Point 4/9/2021

Traffic Volumes

Existing Conditions

Traffic counts were conducted at the study intersections on Thursday, March 5th, 2019, from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM. Data was used from each intersection's respective morning and evening peak hours.

It should be noted that the traffic counts at the study intersections were collected prior to COVID-19 significantly impacting traffic conditions and general operations through the Portland Metropolitan Area. To reflect existing year 2020 conditions without the impact of COVID-19, the collected 2019 traffic counts were grown by applying a compounded growth rate of two percent per year over a one-year period to the non-ODOT study intersections. For the ODOT study intersections, a linear growth rate of approximately 0.70 percent per year was calculated for the traffic volumes along OR-99E using data from ODOT's 2038 Future Volume Tables. This growth rate was applied to the to through traffic volumes along OR-99E over a one-year period.

At the time of data collection, SE Main Street between SE Adams Street and SE 21st Avenue was closed due to roadway construction work. Based on correspondence with the City's transportation consultant, a percentage of traffic traveling along SE 21st Avenue, south of SE Washington Street, was rerouted to SE Main Street at follows:

- Approximately 30 percent of traffic traveling to/from the north of the SE Washington Street at SE 21st Avenue intersection was rerouted to SE Main Street.
- Approximately 25 percent of traffic turning to/from the west of the SE Washington Street at SE 21st Avenue intersection was rerouted to SE Main Street.
- Approximately 5 percent of traffic turning to/from the east of the SE Washington Street at SE 21st Avenue intersection was rerouted to SE Main Street.

To determine traffic volumes at the existing site access intersection along SE Washington Street, volumes were balanced with the adjacent intersections of SE Washington Street at OR-99E and SE Washington Street at SE Main Street. To determine turning volumes to and from the site access, the trip generation for the existing office building and the estimated distribution, as described in the *Site Trips* section of this report, were utilized.

Figure 5 shows the existing traffic volumes at the study intersections during the morning and evening peak hours.

Background Conditions

To provide an analysis of the impact of the proposed development on the nearby transportation facilities, an estimate of future traffic volumes is required. In order to calculate the future traffic volumes for non-ODOT facilities, a compounded growth rate of two percent per year for an assumed buildout condition of two years was applied to the measured existing traffic volumes to approximate year 2022 background conditions.

To estimate the future traffic volumes for ODOT facilities, a linear growth rate of approximately 0.70 percent per year was calculated for the traffic volumes along OR-99E using data from ODOT's 2038 Future Volume Tables. This growth rate was applied to the measured existing traffic volumes over a two-year period to determine year



2022 background volumes for the through traffic traveling along OR-99E. A compounded growth rate of two percent per year for an assumed buildout condition of two years was applied to all other turning movement traffic volumes.

In addition to the traffic volume growth described above, there are four nearby in-process development projects that are currently approved for construction and are expected to impact nearby study intersections. These projects include the following:

- Axeltree (11125 SE 21st Avenue), which includes the construction of 110 apartment units with 7,000 square feet of retail/restaurant space
- Northwest Housing Alternatives (2316 SE Willard Street), which includes the construction of a temporary shelter for eight families, 28 affordable housing units, and a 12,500 square-foot office building.
- Cereghino Farms (located southeast of the intersection of SE Lake Road at SE Kuehn Road), which includes the construction of a 55-lot residential subdivision.
- Waverly Woods Apartments (located at 10415 SE Waverly Court), which includes the construction of a 132-unit apartment facility.
- Monroe Apartments (located southwest of the intersection of SE Monroe Street at SE 37th Avenue), which includes the construction of a 234-unit apartment facility.

These in-process development projects are currently not fully contributing trips to the transportation system but may potentially be by the 2022 buildout year of the site. Additional trips corresponding to these uses were added to the existing year traffic volumes in addition to the two years of traffic growth at each of the applicable study intersections. To maintain a conservative analysis of operation at the study intersections, all in-process development projects were assumed to be constructed and occupied by year 2022.

Additionally, in-process development impacts associated with the nearby Milwaukie High School reconstruction project were considered. Based on a review of the project's traffic study/application materials and subsequent correspondence with the City and their transportation consultant, minimal impacts to the study intersections are expected from this in-process project.

Figure 6 shows the projected year 2022 background traffic volumes at the study intersections during the morning and evening peak hours. In-process development morning and evening peak hour trips applied to the study intersections are included in Figure A in the appendix.

Buildout Conditions

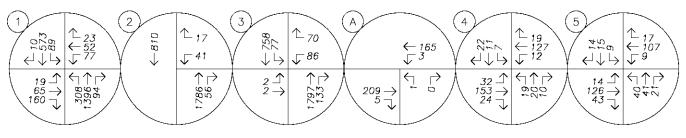
Peak hour trips calculated to be generated by the proposed development, as described earlier within the *Site Trips* section, were added to the projected year 2022 background traffic volumes to obtain the expected year 2022 buildout volumes. Additionally, site trips associated with the existing office building were rerouted to through the transportation system to coincide with the potential changes to the allowed turning movements at the site access intersection.



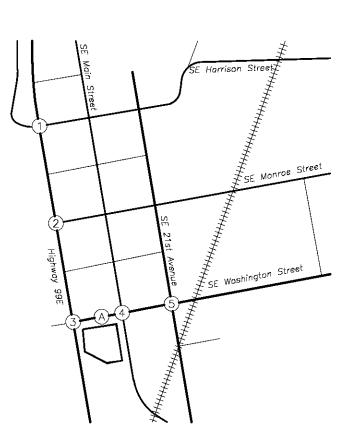
The projected 2022 site buildout year traffic volumes at the study intersections during the morning and evening peak hours are shown in the following figures for each of the three access configuration scenarios, as described in the *Site Access Configuration* section:

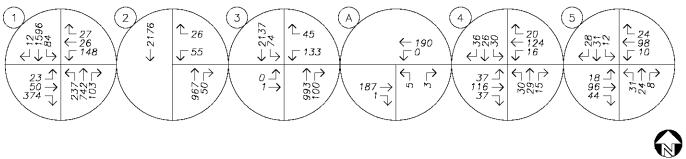
- Figure 7: Full-Movement Access;
- Figure 8: Restricted Left-turn Egress Access; and
- Figure 9: Right-in/Right-out Access.





AM PEAK HOUR

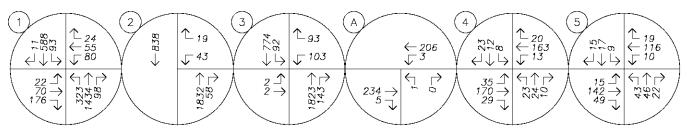


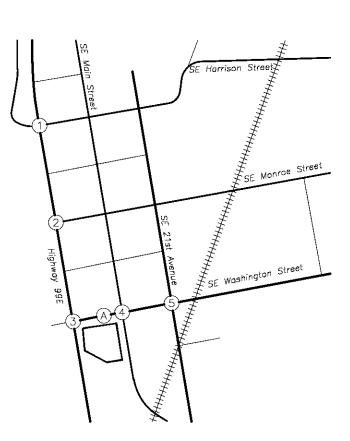


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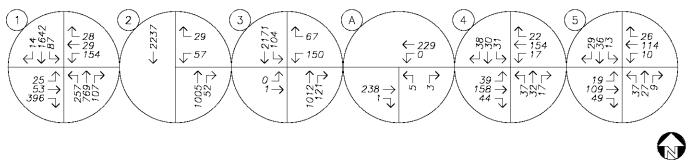


TRAFFIC VOLUMES 2020 Existing Conditions AM & PM Peak Hours Figure 5 Coho Point 4/9/2021





PM PEAK HOUR



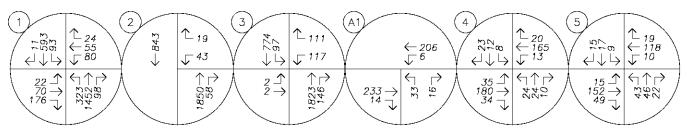
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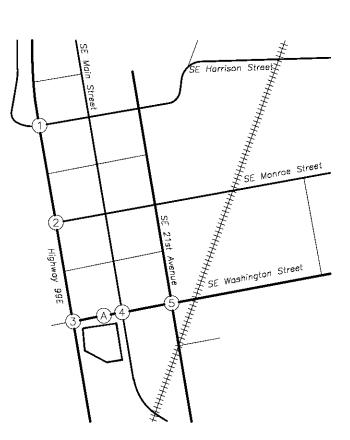
TRAFFIC VOLUMES

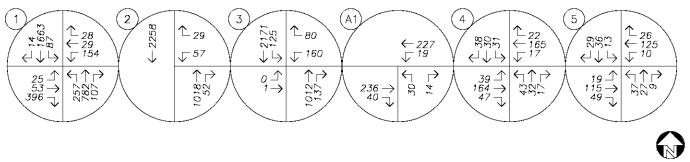
2022 Background Conditions AM & PM Peak Hours Figure 6 Coho Point

4/9/2021



AM PEAK HOUR





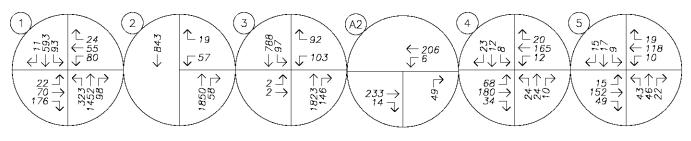
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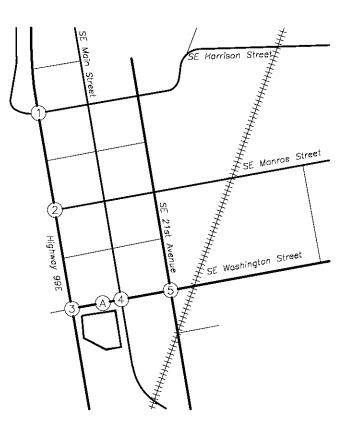
TRAFFIC VOLUMES 2022 Buildout Conditions - Full Movement

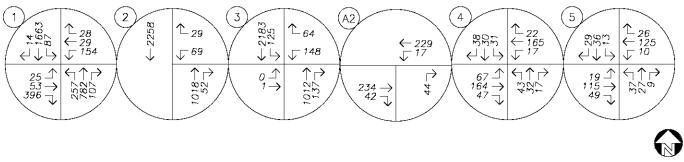
AM & PM Peak Hours

Figure 7 Coho Point 4/9/2021



AM PEAK HOUR





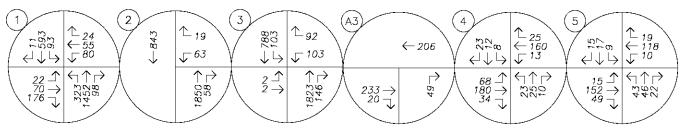
no scale

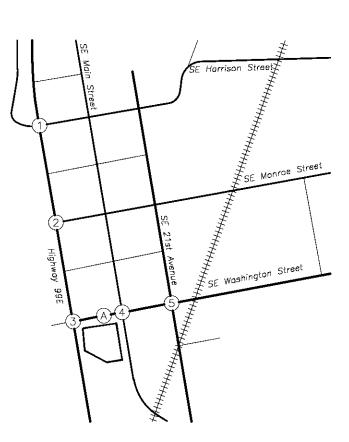


TRAFFIC VOLUMES

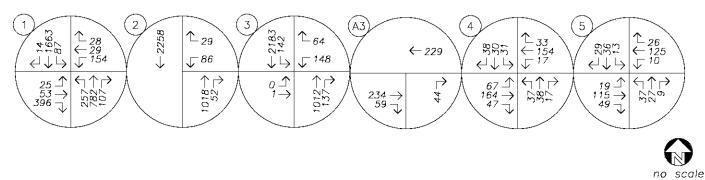
2022 Buildout Conditions - Restricted Left-turn Egress AM & PM Peak Hours Figure 8

Coho Point 4/9/2021





PM PEAK HOUR



lancaster mobley

TRAFFIC VOLUMES

2022 Buildout Conditions - Right-in/Right-out AM & PM Peak Hours Figure 9

Coho Point 4/9/2021

Safety Analysis

Crash History Review

Using data obtained from ODOT's Crash Analysis and Reporting Unit, a review of the most recent available five years of crash history (January 2014 to December 2018) at the study intersections was performed. The crash data was evaluated based on the number of crashes, the type of collisions, the severity of the collisions, and the resulting crash rate for the intersection. Crash rates provide the ability to compare safety risks at different intersections by accounting for both the number of crashes that have occurred during the study period and the number of vehicles that typically travel through the intersection. Crash rates were calculated using the common assumption that traffic counted during the evening peak hour represents approximately 10 percent of the annual average daily traffic (AADT) at the intersection. Crash rates in excess of 1.00 crashes per million entering vehicles (CMEV) may be indicative of design deficiencies and therefore require a need for further investigation and possible mitigation.

With regard to crash severity, ODOT classifies crashes in the following categories:

- Property Damage Only (PDO);
- Possible Injury Complaint of Pain (Injury C);
- Non-Incapacitating Injury (Injury B);
- Incapacitating Injury Bleeding, Broken Bones (Injury A); and
- Fatality or Fatal Injury.

The study intersections along OR-99E are ODOT facilities which adhere to the crash analysis methodologies within ODOT's *Analysis Procedures Manual* (APM). According to *Exhibit 4-1: Intersection Crash Rates per MEV by Land Type and Traffic Control* of the APM, intersections which experience crash rates in excess of the 90th percentile crash rate should be "flagged for further analysis". For signalized intersections in urban settings, the 90th percentile rates for three-legged and four-legged intersections are 0.509 CMEV and 0.860 CMEV, respectively.

Table 6 provides a summary of crash types while Table 7 summarizes crash severities and rates for each of the study intersections. Detailed crash data is provided in the appendix to this report.



Table 6: Crash Type Summary

		Crash Type							
Number	Intersection	Rear End	Turn	Angle	Fixed Object	Side swipe	Ped/ Bike	Other	Total
1	SE Harrison Street at OR-99E	11	6	4	0	0	1	1	23
2	SE Monroe Street at OR-99E	5	2	0	0	1	0	0	8
3	SE Washington Street at OR-99E	9	4	0	0	0	1	0	14
4	SE Washington Street at SE Main Street	1	2	2	0	0	0	0	5
5	SE Washington Street at SE 21st Avenue	0	2	0	1	0	2	0	5

Table 7: Crash Severity and Rate Summary

	Intersection	Crash Severity								
Number		PDO	С	В	A	Fatal	Unknown	Total Crashes	AADT	Crash Rate
1	SE Harrison Street at OR-99E	9	11	3	0	0	0	23	34,220	0.37
2	SE Monroe Street at OR-99E	4	3	1	0	0	0	8	32,740	0.13
3	SE Washington Street at OR-99E	9	4	1	0	0	0	14	34,830	0.22
4	SE Washington Street at SE Main Street	4	1	0	0	0	0	5	5,160	0.53
5	SE Washington Street at SE 21st Avenue	3	0	2	0	0	0	5	4,240	0.65

Table Notes: **BOLDED** text indicates a crash rate in excess of 1.00 CMEV.



As shown in Table 5 above, there were four crashes at the study intersection which involved either a pedestrian or bicyclist. An in-depth analysis of these crashes is detailed in the following sections.

SE Harrison Street at OR-99E

The intersection of SE Harrison Street at OR-99E had one crash which involved a bicyclist. The crash occurred when the driver of an eastbound passenger car failed to yield right-of-way to a north/south traveling bicyclist. The bicyclist sustained injuries consistent with *Injury B* classification.

SE Washington Street at OR-99E

The intersection of SE Washington Street at OR-99E had one crash which involved a bicyclist. The crash occurred when the driver of a westbound, left-turning passenger car failed to yield right-of-way to an east/west traveling bicyclist who was utilizing an intersection crosswalk. The bicyclist sustained injuries consistent with *Injury C* classification.

SE Washington Street at SE 21st Avenue

The intersection of SE Washington Street at SE 21st Avenue had two crashes which involved a pedestrian. One of the crashes occurred when a north/south traveling pedestrian disregarded the traffic signal, illegally crossed through the intersection, and was struck by a southbound passenger car. The other crash occurred when the driver of a southbound left-turning passenger car failed to yield right-of-way to a north/south pedestrian who was crossing at the intersection. In both crashes, the pedestrian sustained injuries consistent with *Injury B* classification.

Analysis Conclusions

Based on a review of the most recent five years of available crash data, no significant trends or crash patterns were identified at any of the study intersections that were indicative of safety concerns. In addition, none of the study intersections exhibit crash rates near or above the 1.00 CMEV threshold nor do any of the study intersections along OR-99E have a crash rate exceeding ODOT's 90th percentile rate. Accordingly, no safety mitigation is recommended per the crash data analysis.

Sight Distance Evaluation

Intersection sight distance was measured for the site access intersection located along SE Washington Street. Sight distance was measured and evaluated in accordance with standards established in *A Policy on Geometric Design of Highways and Streets*³. According to AASHTO, the driver's eye is assumed to be 15 feet from the near edge of the nearest travel lane of the intersecting street and at a height of 3.5 feet above the minor-street approach pavement. The vehicle driver's eye-height along the major-street approach is assumed to be 3.5 feet above the cross-street pavement.

Based on a posted speed of 25 mph, the minimum recommended intersection sight distance to provide efficient operation of the proposed access intersection is 280 feet to the east and west along the major street. The minimum required stopping sight distance to ensure safe operation is 155 feet in both directions, assuming a travel speed of 25 mph. However, in instances where vehicles may be turning onto SE Washington Street from a



³ American Association of State Highway and Transportation Officials (AASHTO), *A Policy on Geometric Design of Highways and Streets*, 6th Edition, 2011.

cross-street a vehicle may conduct such a maneuver at a conservative 20 mph, requiring a minimum stopping sight distance of 115 feet.

Under existing conditions, sight distance at the site access intersection were measured back to SE 21st Avenue to the east (approximately 400 feet away) and back to OR-99E to the west (approximately 140 feet away). To determine whether sufficient sight distances will be available with buildout of the site (i.e. the proposed building will not obstruct sight lines below minimum safe standards), sight lines were reviewed based on the proposed development's site plan. With buildout of the proposed development, from the garage to the west sight distances will be available back to OR-99E (approximately 140 feet away). To the east, sight distances would be limited to 209 feet, approximately 64 feet beyond the all-way stop-controlled intersection of SE Washington Street at SW Main Street (i.e. will be traveling at 0 mph when stopped), sufficient sight distance is available to ensure safe and efficient operation of the roadway to the east.

Based on the sight distance analysis, adequate sight distances will be available at the site access intersection to ensure safe and efficient operation along SE Washington Street. No sight distance mitigation is necessary or recommended.

An exhibit depicting sight distances with buildout of the proposed development is presented in Figure B in the technical appendix.

Warrant Analysis

Preliminary traffic signal warrants were examined for the intersection of SE Washington Street at SE Main Street to determine whether the installation of a new traffic signal will be warranted upon completion of the proposed development. Based on the preliminary signal warrant analysis, traffic signal warrants are not projected to be met at the unsignalized study intersection under any of the analysis scenarios.

Safe Pedestrian Routes to Vicinity School

According to the North Clackamas School District's school boundary maps, there are four nearby public schools which may reasonably serve the site:

- Milwaukie High School & Milwaukie Academy of the Arts;
- Milwaukie El Puente Elementary; and
- Rowe Middle School.

Milwaukie High School & Milwaukie Academy of the Arts

Milwaukie High School & Milwaukie Academy of the Arts are located within a 0.25-mile walking/biking distance to the east of the site. Pedestrian travel between the school and site is available utilizing multiple routes of travel by way of SE Washington Street, SE Main Street/SE Lake Road, and/or SE 21st Avenue. Complete sidewalks are available along both sides of these roadways, with marked crossings at the applicable intersections of SE Washington Street at SE Main Street, SE Washington Street at SE 21st Avenue, SE Washington Street at SE 23rd Avenue, SE Adams Street at SE 21st Avenue, and SE Lake Road at SE 21st Avenue.



Milwaukie El Puente Elementary

Milwaukie El Puente Elementary is located within an approximate 0.50-mile walking/biking distance to the east of the site. Pedestrian travel between the school and site is available by way of either SE Washington Street and SE 27th Avenue or by SE Main Street/SE Lake Road and SE 27th Avenue. Complete sidewalks are available along both sides of these roadways. Relevant marked crossings are available across all intermittent intersections along these routes. Additionally, multiple mid-block crossings are available along SE Main Street/SE Lake Road, SE Washington Street, and SE 27th Avenue.

Rowe Middle School

Rowe Middle School is located within a 1.00-mile walking/biking distance to the southeast of the site. Pedestrian travel between the school and site is available by way of SE Main Street/SE Lake Road. Sidewalks are complete along both sides of these roadways and relevant marked crossings are generally available at intermittent intersections as well as across SE Main Street/SE Lake Road.

Figure 10 depicts the available pedestrian routes to the nearby public schools which may serve residents of the site.



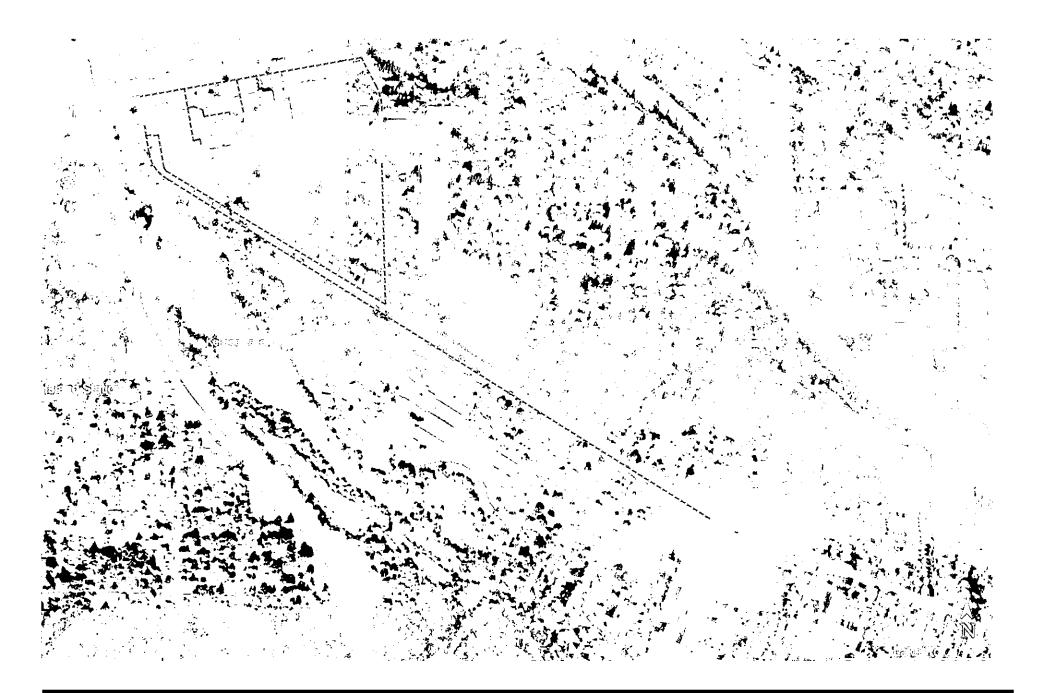




Figure 10 Coho Point 4/9/2021

Operational Analysis

Intersection Capacity Analysis

A capacity and delay analysis were conducted for each of the study intersections per the signalized and unsignalized intersection analysis methodologies in the *Highway Capacity Manual* (HCM)⁴. Intersections are generally evaluated based on the average control delay experienced by vehicles and are assigned a grade according to their operation. The level of service (LOS) of an intersection can range from LOS A, which indicates very little or no delay experienced by vehicles, to LOS F, which indicates a high degree of congestion and delay. The volume-to-capacity (v/c) ratio is a measure that compares the traffic volumes (demand) against the available capacity of an intersection.

Performance Standards

According to City of Milwaukie's TSP Article 13, intersections under City jurisdiction are required to operate at LOS D or better. For intersections under ODOT jurisdiction (i.e. intersections along OR-99E), per *Table 7: Volume to Capacity Ratio Targets within Portland Metropolitan Region* of the *Oregon Highway Plan* (OHP) intersections are required to operate with v/c ratios of 0.99 or less.

Delay & Capacity Analysis

The LOS, delay, and v/c results of the capacity analysis are shown in Table 8 for the morning and evening peak hours. Due to the lane configurations of SE Harrison Street at OR-99E and SE Washington Street at OR-99E, the HCM 6th Edition, utilizing Synchro software, does not provide capacity outputs. Therefore, HCM 2000 methodologies and capacity results were reported at these intersections in lieu of the HCM 6th Edition. Additionally, the Synchro software does not report the overall v/c ratio of signalized intersections in the HCM 6th Edition capacity reports. For these intersections, the v/c ratio was calculated utilizing methods detailed in ODOT's APM *Section 13 Signalized Intersection Analysis*.

Detailed calculations as well as tables showing the relationship between delay and LOS are included in the appendix to this report.



⁴ Transportation Research Board, *Highway Capacity Manual 6th Edition*, 2016.

Table 8: Capacity Analysis Summary

Table 6. Capacity Analysis Summary	A	M Peak Hou	ır	P	PM Peak Hour							
	LOS	Delay (s)	v/c	LOS	Delay (s)	v/c						
1.	1. SE Harrison Street at OR-99E											
2020 Existing Conditions	С	30	0.76	E	55	0.91						
2022 Background Conditions	С	31	0.78	E	69	0.95						
2022 Buildout Conditions (Full Movement Access)	С	31	0.79	E	72	0.96						
2022 Buildout Conditions (No LT Egress Access)	С	31	0.79	E	72	0.96						
2022 Buildout Conditions (RIRO Access)	С	31	0.79	E	72	0.96						
2.	SE Monro	e Street at C	DR-99E									
2020 Existing Conditions	А	2	0.59	А	4	0.69						
2022 Background Conditions	А	2	0.60	А	4	0.71						
2022 Buildout Conditions (Full Movement Access)	А	2	0.61	А	4	0.72						
2022 Buildout Conditions (No LT Egress Access)	А	3	0.62	А	4	0.73						
2022 Buildout Conditions (RIRO Access)	А	3	0.62	А	5	0.74						
3. SI	E Washing	ton Street a	t OR-99E									
2020 Existing Conditions	В	13	0.75	В	10	0.83						
2022 Background Conditions	В	16	0.79	В	12	0.85						
2022 Buildout Conditions (Full Movement Access)	В	17	0.81	В	14	0.86						
2022 Buildout Conditions (No LT Egress Access)	В	16	0.79	В	13	0.85						
2022 Buildout Conditions (RIRO Access)	В	16	0.80	В	13	0.85						

Table Notes: BOLDED text indicates interseciton operation above jurisdictional standards.

Table 6. Capacity Analysis Summary (CO		M Peak Hou	1r		PM Peak Hour						
	LOS	Delay (s)	v/c	LOS	Delay (s)	v/c					
A. Site	Access a	t SE Washing	gton Stree	t							
2020 Existing Conditions	А	10	<0.01	А	10	0.01					
2022 Background Conditions	В	10	< 0.01	В	10	0.01					
2022 Buildout Conditions (Full Movement Access)	В	11	0.08	В	11	0.08					
2022 Buildout Conditions (No LT Egress Access)	A	9	0.06	А	9	0.06					
2022 Buildout Conditions (RIRO Access)	А	9	0.06	А	9	0.06					
4. SE Washington Street at SE Main Street											
2020 Existing Conditions	А	9	-	А	9	-					
2022 Background Conditions	А	10	-	А	10	-					
2022 Buildout Conditions (Full Movement Access)	А	10	-	А	10	-					
2022 Buildout Conditions (No LT Egress Access)	В	10	-	В	10	-					
2022 Buildout Conditions (RIRO Access)	В	10	-	В	10	-					
5. SE Was	hington	Street at SE	21st Aven	ue							
2020 Existing Conditions	А	7	0.25	А	7	0.17					
2022 Background Conditions	А	7	0.27	А	7	0.19					
2022 Buildout Conditions (Full Movement Access)	А	7	0.28	А	7	0.20					
2022 Buildout Conditions (No LT Egress Access)	А	7	0.28	А	7	0.20					
2022 Buildout Conditions (RIRO Access)	А	7	0.28	А	7	0.20					

Table 8: Capacity Analysis Summary (Continued)

Table Notes: **BOLDED** text indicates interseciton operation above jurisdictional standards.

Based on the results of the operational analysis, all study intersections are currently operating acceptably per City of Milwaukie and ODOT standards and are projected to continue operating acceptable through the 2022 site buildout year. No operational mitigation is necessary or recommended at these intersections.



Queuing Analysis

To determine whether queue lengths from site entering traffic would extend back to the adjacent study intersections along SE Washington Street, a queuing analysis was conducted. The queue lengths were projected based on the results of a Synchro/SimTraffic simulation, with the reported values based on the 95th percentile queue is a statistical measurement which indicates there is a 5 percent chance that the queue may exceed this length during the analysis period; however, given this is a probability, the 95th percentile queue length may theoretically never be met or observed in the field.

The projected 95th percentile queue lengths reported in the simulation are presented in Table 9 for the morning and evening peak hours. Reported queue lengths were rounded up to the nearest five feet. Note, the queuing analysis takes in account potential queues which may form due to the site access and does not take into consideration extended queues which may result from the adjacent intersections of along SE Washington Street. Detailed queuing analysis worksheets are included in the technical appendix to this report.

	Available Storage	Full Movement Access		Restricted Left- out Access		Right-in/Right- out Access	
	(Feet)	AM	PM	AM	PM	AM	PM
EB Through Lane/Right-turn Lane	125	0	5	0	5	0	0
WB Left-turn/Through Lane	55	15	30	15	25	_	-

Table 9: Site Access Queuing Analysis Summary

BOLDED text indicates queue extends beyond available lane storage.

Based on the analysis, the projected 95th percentile queues which may result from site entering trips are not projected to extend back to the adjacent study intersections along SE Washington Street. Accordingly, no queuing-related issues are expected to occur, and no mitigation is necessary or recommended.



Conclusions

No significant trends or crash patterns were identified at any of the study intersections that were indicative of safety concerns. In addition, none of the study intersections exhibit crash rates near or above the 1.00 CMEV threshold nor do any of the study intersections along OR-99E have a crash rate exceeding ODOT's 90th percentile rate.

Adequate sight distances are currently available at the site access intersection to ensure safe and efficient operation along SE Washington Street.

Due to insufficient main and side-street traffic volumes, traffic signal warrants are not projected to be met at the intersection of SE Washington Street at SE Main Street under any of the analysis scenarios.

All study intersections are currently operating acceptably per City of Milwaukie and ODOT standards and are projected to continue operating acceptably through the 2022 buildout year of the site.

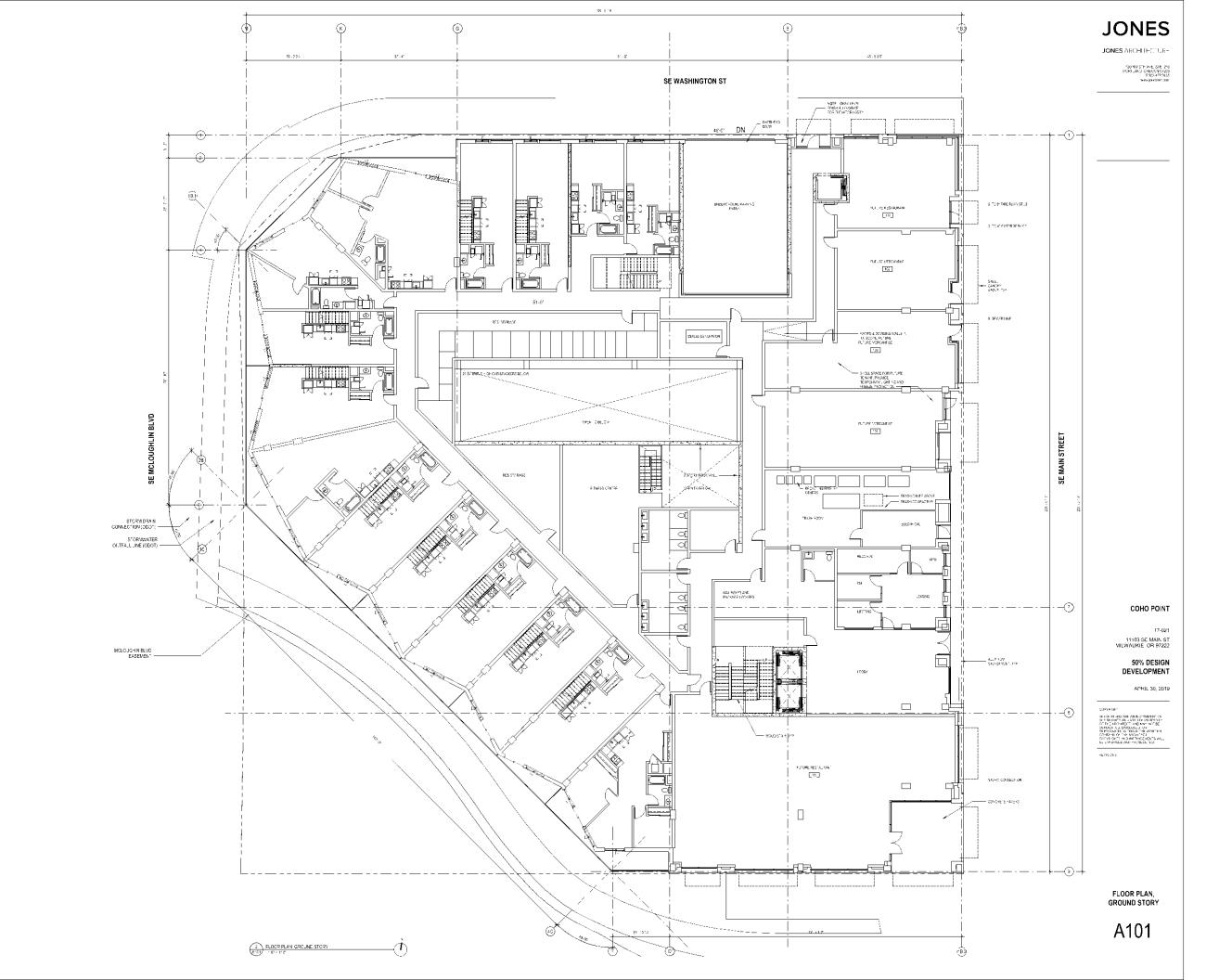
The projected 95th percentile queues which may result from site entering trips are not projected to extend back to the adjacent study intersections along SE Washington Street.



Appendix A

Site Plan





Appendix B

Trip Generation Calculations



TRIP GENERATION CALCULATIONS Existing Conditions

Land Use: General Office Building Land Use Code: 710 Setting/Location General Urban/Suburban Variable: 1000 Sq Ft Gross Floor Area Variable Value: 7.706

AM PEAK HOUR

Trip Rate: 1.16

	Enter	Exit	Total
Directional Distribution	86%	14%	
Trip Ends	8	1	9

PM PEAK HOUR

Trip Rate: 1.15

	Enter	Exit	Total
Directional Distribution	16%	84%	
Trip Ends	1	8	9

WEEKDAY

Trip Rate: 9.74

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	38	38	76

SATURDAY

Trip Rate: 2.21

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	9	9	18

Source: TRIP GENERATION, Tenth Edition

TRIP GENERATION CALCULATIONS **Proposed Conditions**

Land Use: Multifamily Housing (Mid-Rise) Land Use Code: 221 Setting/Location General Urban/Suburban Variable: Dwelling Units Variable Value: 195

AM PEAK HOUR

Trip Rate: 0.36

PM PEAK HOUR

Trip Rate: 0.44

	Enter	Exit	Total
Directional Distribution	26%	74%	
Trip Ends	18	52	70

	Enter	Exit	Total
Directional Distribution	61%	39%	
Trip Ends	52	34	86

WEEKDAY

Trip Rate: 5.44

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	530	530	1,060

Source: TRIP GENERATION, Tenth Edition

SATURDAY

Trip Rate: 4.91

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	479	479	958

6

TRIP GENERATION CALCULATIONS Proposed Conditions

Land Use: Shopping Center Land Use Code: 820 Setting/Location General Urban/Suburban Variable: 1,000 Sq. Ft. GFA Variable Value: 6.733

AM PEAK HOUR

Trip Rate: 0.94

EnterExitTotalDirectional
Distribution62%38%Trip Ends426

PM PEAK HOUR

Trip Rate: 3.81

	Enter	Exit	Total
Directional Distribution	48%	52%	
Trip Ends	12	14	26

WEEKDAY

Trip Rate: 37.75

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	127	127	254

SATURDAY

Trip Rate: 46.12

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	155	155	310

Source: Trip Generation Manual, Tenth Edition

Appendix C

Traffic Counts





Hwy 99 & SE Harrison St

Tuesday, March 05, 2019 7:00 AM to 9:00 AM

5-Minute Interval Summary 7:00 AM to 9:00 AM

Interval		Northb	hound			South	ound			Fact	bound			Mont	house				Pedes	triane	
													Westbound SE Harrison St Inf								
Start		Hwy				Hwy					rrison St			SE Har			Interval		Cros		
Time	L	Т	R	Bikes	L	Т	R	Bikes	L	Т	R	Bikes	L	Т	R	Bikes	Total	North	South	East	West
7:00 AM	24	114	4	0	3	25	0	0	2	1	8	0	3	2	0	0	186	0	0	0	0
7:05 AM	17	123	4	0	5	36	1	0	2	0	9	0	6	2	4	0	209	0	0	0	0
7:10 AM	27	140	6	0	1	35	3	0	0	1	9	0	3	3	0	0	228	0	2	0	0
7:15 AM	24	125	5	0	5	32	3	0	2	0	13	0	9	4	0	0	222	0	0	0	0
7:20 AM	32	148	5	0	0	50	0	0	1	3	12	0	4	2	2	0	259	0	0	0	0
7:25 AM	17	98	7	0	4	48	4	0	0	2	9	0	10	1	1	0	201	0	1	0	0
7:30 AM	33	119	4	0	3	33	1	0	0	1	9	0	7	1	1	0	212	0	2	0	0
7:35 AM	20	91	3	0	2	43	1	0	0	4	22	0	6	4	1	0	197	0	1	0	0
7:40 AM	21	155	11	0	2	54	1	0	0	0	14	0	9	0	4	0	271	0	0	0	0
7:45 AM	19	83	6	0	3	65	0	0	3	3	6	0	8	4	1	0	201	0	0	0	0
7:50 AM	38	137	9	0	7	40	3	0	3	4	17	0	4	0	3	0	265	0	0	0	0
7:55 AM	22	97	12	0	6	46	0	0	2	5	10	0	5	2	0	0	207	0	1	0	0
8:00 AM	28	126	4	0	7	43	1	0	1	4	13	0	7	5	2	0	241	0	1	0	0
8:05 AM	9	87	6	0	19	70	1	0	3	6	13	0	5	6	2	0	227	0	1	1	0
8:10 AM	22	133	9	0	12	41	0	0	2	11	14	0	4	4	3	0	255	0	2	1	0
8:15 AM	23	117	8	0	13	37	2	0	1	2	11	0	6	4	3	0	227	0	1	1	0
8:20 AM	39	121	5	0	3	32	0	0	2	11	10	2	7	8	0	0	238	0	0	1	0
8:25 AM	22	104	10	0	11	60	1	0	0	12	15	0	6	5	2	0	248	0	1	0	0
8:30 AM	39	118	9	0	2	31	0	0	2	2	12	0	8	9	2	0	234	0	0	1	0
8:35 AM	23	71	3	0	8	54	1	0	0	5	12	0	4	5	5	0	191	0	2	2	0
8:40 AM	25	72	7	0	10	34	1	0	1	1	15	1	3	3	2	0	174	0	3	2	0
8:45 AM	15	63	3	0	7	61	2	0	0	4	13	0	12	3	3	0	186	0	1	0	0
8:50 AM	20	83	10	0	7	45	0	0	1	3	12	0	7	1	1	0	190	0	0	0	0
8:55 AM	8	57	3	0	10	46	1	0	3	8	10	1	7	1	3	0	157	0	0	0	0
Total	567	0.500	153	0	150	1,061	27	0	31	93	288	4	150	79	45	0	5,226	0	19	9	0
Survey	267	2,582	153	0	150	1,061	21	0	31	93	288	4	150	79	45	0	5,226	0	19	9	0

15-Minute Interval Summary

7:00 AM to 9:00 AM

Interval		Northb	ound			South	bound			East	bound			West	bound				Pedes	trians	
Start		Hwy	99			Hwy	/ 99			SE Hai	rrison St			SE Har	rison S	t	Interval		Cross	walk	
Time	L	Т	R	Bikes	L	Т	R	Bikes	L	Т	R	Bikes	L	Т	R	Bikes	Total	North	South	East	West
7:00 AM	68	377	14	0	9	96	4	0	4	2	26	0	12	7	4	0	623	0	2	0	0
7:15 AM	73	371	17	0	9	130	7	0	3	5	34	0	23	7	3	0	682	0	1	0	0
7:30 AM	74	365	18	0	7	130	3	0	0	5	45	0	22	5	6	0	680	0	3	0	0
7:45 AM	79	317	27	0	16	151	3	0	8	12	33	0	17	6	4	0	673	0	1	0	0
8:00 AM	59	346	19	0	38	154	2	0	6	21	40	0	16	15	7	0	723	0	4	2	0
8:15 AM	84	342	23	0	27	129	3	0	3	25	36	2	19	17	5	0	713	0	2	2	0
8:30 AM	87	261	19	0	20	119	2	0	3	8	39	1	15	17	9	0	599	0	5	5	0
8:45 AM	43	203	16	0	24	152	3	0	4	15	35	1	26	5	7	0	533	0	1	0	0
Total Survey	567	2,582	153	0	150	1,061	27	0	31	93	288	4	150	79	45	0	5,226	0	19	9	0

Peak Hour Summary

7:35 AM to 8:35 AM Northbound Southbound Eastbound Westbound By Hwy 99 Dut Total Bikes SE Harrison St Hwy 99 SE Harrison St Total Approach Out Total 794 2,557 In Bikes In Out In Out Total Bikes In Out Total Bikes North Volume 1,411 2,070 603 2811 1,763 0 659 0 240 363 2 149 243 392 0 0 2.0% 4.2% 6.0% 2.9% %HV 3.8% PHF 0.92 0.84 0.90 0.79 0.95 Northbound Southbound Eastbound Westbound Bγ Hwy 99 Hwy 99 SE Harrison St SE Harrison St Total Movement
 R
 Total

 1,369
 92
 1,763

 1.8%
 3.3%
 2.0%

 0.91
 0.85
 0.00
 R Total Total т R 157 Total т R
 19
 64
 157
 240

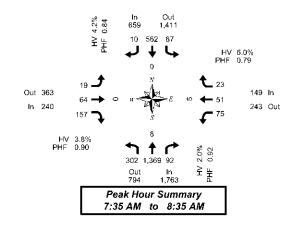
 5.3%
 6.3%
 2.5%
 3.8%

 0.59
 0.64
 0.93
 0.90
 Volume 302 87 562 10 659 75 51 23 149 2,811 3.0% 0.76 1.1% 0.49 4.8% 0.0% 4.2% 0.87 0.63 0.84 7.8% 4.3% 6.0% 0.58 0.72 0.79 2.9% 0.95 %HV PHF 5.3% 0.82

Rolling Hour Summary

7:00 AM to 9:00 AM

Interval		Northb	ound			South	bound			East	bound			Westl	bnuoc				Pedes	trians	
Start		Hwy	99			Hwy	/ 99			SE Ha	rrison St	1		SE Har	rison S	t	Interval		Cross	swalk	
Time	L	т	R	Bikes	L	т	R	Bikes	L	т	R	Bikes	L	т	R	Bikes	Total	North	South	East	West
7:00 AM	294	1,430	76	0	41	507	17	0	15	24	138	0	74	25	17	0	2,658	0	7	0	0
7:15 AM	285	1,399	81	0	70	565	15	0	17	43	152	0	78	33	20	0	2,758	0	9	2	0
7:30 AM	296	1,370	87	0	88	564	11	0	17	63	154	2	74	43	22	0	2,789	0	10	4	0
7:45 AM	309	1,266	88	0	101	553	10	0	20	66	148	3	67	55	25	0	2,708	0	12	9	0
8:00 AM	273	1,152	77	0	109	554	10	0	16	69	150	4	76	54	28	0	2,568	0	12	9	0



Pedestrians

Crosswalk

South East

8

West

0



Hwy 99 & SE Harrison St

Tuesday, March 05, 2019 7:00 AM to 9:00 AM

47	, S	f
	↑ ↑ 9 24	↑ 3
	Out 35	In 36
	Peak Hour 3 2:35 AM to	•

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Heavy Vehicle 5-Minute Interval Summary 7:00 AM to 9:00 AM

Interval		North					bound				ound				bound		
Start		Hw3	799			Hwy	/ 99			SE Har	rison St	t		SE Har	rrison St	t	Interval
Time	L	Т	R	Total	L	т	R	Total	L	т	R	Total	L	т	R	Total	Total
7:00 AM	1	1	1	3	0	2	0	2	1	1	1	3	0	0	0	0	8
7:05 AM	0	3	0	3	1	1	0	2	0	0	0	0	0	0	0	0	5
7:10 AM	0	3	0	3	0	1	0	1	0	0	0	0	0	1	0	1	5
7:15 AM	0	2	0	2	2	1	0	3	0	0	0	0	0	0	0	0	5
7:20 AM	0	1	0	1	0	1	0	1	0	1	0	1	0	0	0	0	3
7:25 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
7:30 AM	0	2	0	2	0	1	0	1	0	0	0	0	1	0	0	1	4
7:35 AM	1	0	0	1	0	1	0	1	0	1	0	1	0	0	0	0	3
7:40 AM	0	1	0	1	0	3	0	3	0	0	0	0	0	0	0	0	4
7:45 AM	0	0	0	0	0	2	0	2	0	0	1	1	0	1	0	1	4
7:50 AM	1	4	0	5	0	4	0	4	0	0	0	0	0	0	0	0	9
7:55 AM	0	0	1	1	0	3	0	3	0	1	0	1	0	1	0	1	6
8:00 AM	0	1	0	1	0	2	0	2	0	0	0	0	1	0	0	1	4
8:05 AM	0	1	0	1	1	3	0	4	1	1	0	2	0	1	0	1	8
8:10 AM	1	3	1	5	0	1	0	1	0	0	0	0	0	0	1	1	7
8:15 AM	1	6	1	8	0	2	0	2	0	0	1	1	0	0	0	0	11
8:20 AM	2	4	0	6	0	2	0	2	0	1	1	2	1	0	0	1	11
8:25 AM	1	2	0	3	0	2	0	2	0	0	0	0	2	1	0	3	8
8:30 AM	2	2	0	4	0	2	0	2	0	0	1	1	0	0	0	0	7
8:35 AM	0	5	0	5	0	3	0	3	0	1	0	1	0	0	1	1	10
8:40 AM	2	4	0	6	1	2	0	3	0	0	1	1	0	0	0	0	10
8:45 AM	1	0	0	1	0	4	0	4	0	0	1	1	0	2	0	2	8
8:50 AM	1	2	0	3	0	2	0	2	0	1	0	1	0	0	0	0	6
8:55 AM	0	2	0	2	0	1	0	1	1	2	0	3	1	0	0	1	7
Total Survey	14	49	4	67	5	47	0	52	3	10	7	20	6	8	2	16	155

Heavy Vehicle 15-Minute Interval Summary 7:00 AM to 9:00 AM

Interval		North	bound			South	bound			Eastb	ound			Westl	oound		
Start		Hwy	/ 99			Hwy	ý 99			SE Har	rison S	t		SE Har	rison S	t	Interval
Time	L	Т	R	Total	L	Т	R	Total	L	Т	R	Total	L	Т	R	Total	Total
7:00 AM	1	7	1	9	1	4	0	5	1	1	1	3	0	1	0	1	18
7:15 AM	0	3	0	3	2	3	0	5	0	1	0	1	0	1	0	1	10
7:30 AM	1	3	0	4	0	5	0	5	0	1	0	1	1	0	0	1	11
7:45 AM	1	4	1	6	0	9	0	9	0	1	1	2	0	2	0	2	19
8:00 AM	1	5	1	7	1	6	0	7	1	1	0	2	1	1	1	3	19
8:15 AM	4	12	1	17	0	6	0	6	0	1	2	3	3	1	0	4	30
8:30 AM	4	11	0	15	1	7	0	8	0	1	2	3	0	0	1	1	27
8:45 AM	2	4	0	6	0	7	0	7	1	3	1	5	1	2	0	3	21
Total Survey	14	49	4	67	5	47	0	52	3	10	7	20	6	8	2	16	155

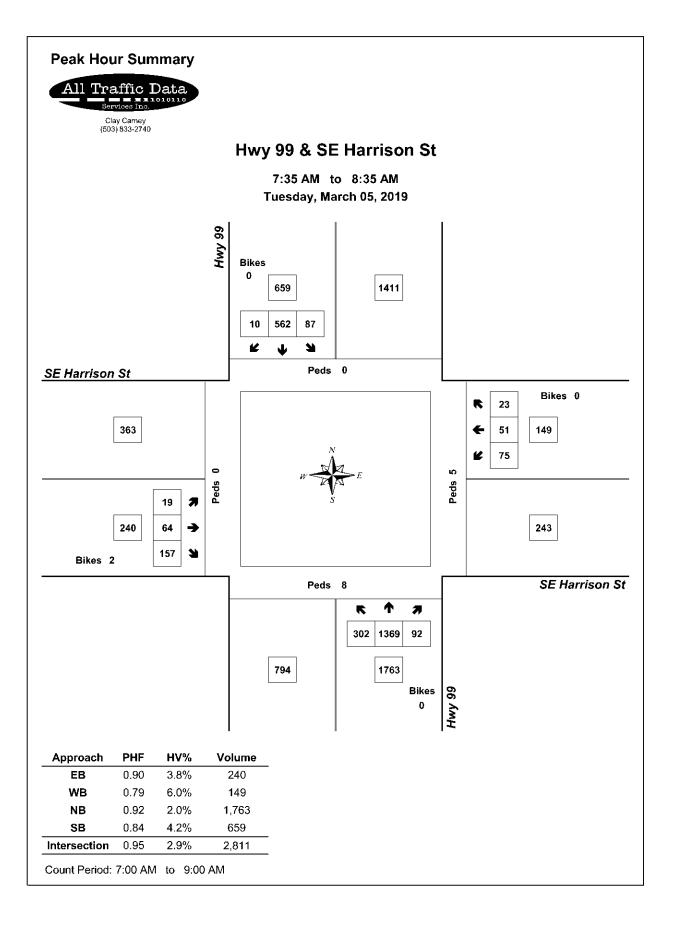
Heavy Vehicle Peak Hour Summary 7:35 AM to 8:35 AM

By			bound y 99			bound y 99			oound rison St			bound rrison St	t	Total
Approach	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total		
Volume	36	35	71	28	26	54	9	13	22	9	8	17		82
PHF	0.47			0.78			0.75			0.56				0.68

By Movement			bound / 99				bound / 99			Eastb SE Har	ound rison St			Westl SE Har			Total
Movement	L	т	R	Total	L L	т	R	Total	L	т	R	Total	L	т	R	Total	
Volume	9	24	3	36	1	27	0	28	1	4	4	9	4	4	1	9	82
PHF	0.45	0.46	0.38	0.47	0.25	0.75	0.00	0.78	0.25	0.50	0.50	0.75	0.33	0.50	0.25	0.56	0.68

Heavy Vehicle Rolling Hour Summary 7:00 AM to 9:00 AM

Interval Start		Northi Hwy					bound 799			Eastb SE Har	ound rison S	t		Westl SE Har	bound rison S	t	Interval
Time	L	т	R	Total	L	т	R	Total	L	т	R	Total	L	т	R	Total	Total
7:00 AM	3	17	2	22	3	21	0	24	1	4	2	7	1	4	0	5	58
7:15 AM	3	15	2	20	3	23	0	26	1	4	1	6	2	4	1	7	59
7:30 AM	7	24	3	34	1	26	0	27	1	4	3	8	5	4	1	10	79
7:45 AM	10	32	3	45	2	28	0	30	1	4	5	10	4	4	2	10	95
8:00 AM	11	32	2	45	2	26	0	28	2	6	5	13	5	4	2	11	97





Hwy 99 & SE Harrison St

Tuesday, March 05, 2019 4:00 PM to 6:00 PM

5-Minute Interval Summary 4:00 PM to 6:00 PM

Interval		Northb				South					ound				oound				Pedes		
Start		Hwy				Hwy				SE Har	rison St			SE Har	rison St		Interval		Cross		
Time	L	Т	R	Bikes	L	Т	R	Bikes	L	Т	R	Bikes	L	Т	R	Bikes	Total	North	South	East	West
4:00 PM	16	36	3	0	10	106	1	0	2	4	38	0	15	5	2	0	238	0	1	0	0
4:05 PM	13	55	5	0	5	162	2	0	0	3	31	0	13	1	0	0	290	0	0	1	0
4:10 PM	26	56	7	1	9	128	0	0	1	6	30	0	10	4	1	0	278	0	1	0	0
4:15 PM	14	66	10	0	9	146	0	0	2	4	32	0	10	2	2	0	297	0	1	0	0
4:20 PM	22	40	6	0	5	124	0	0	2	6	33	0	13	2	2	0	255	0	0	0	0
4:25 PM	15	55	10	0	8	172	1	0	0	2	30	0	5	2	1	1	301	0	0	0	0
4:30 PM	20	43	7	0	4	113	2	0	3	10	43	0	17	3	3	0	268	0	2	0	0
4:35 PM	14	69	11	0	7	136	0	0	3	4	36	0	9	5	1	0	295	0	1	0	0
4:40 PM	17	52	13	0	7	120	0	0	2	6	34	0	13	4	4	0	272	0	1	0	0
4:45 PM	15	45	7	0	6	148	0	0	1	2	20	0	8	4	0	0	256	0	1	0	0
4:50 PM	20	49	5	0	7	116	1	0	1	4	32	0	10	0	4	0	249	0	1	0	0
4:55 PM	15	66	3	0	4	158	1	0	1	3	23	0	12	4	2	0	292	0	1	0	0
5:00 PM	20	48	4	0	7	128	1	0	2	2	30	0	15	1	2	0	260	0	1	0	0
5:05 PM	17	75	10	0	6	148	2	0	5	3	26	0	9	0	1	0	302	0	1	0	0
5:10 PM	26	46	6	0	5	93	1	0	4	5	44	0	17	0	1	0	248	0	1	0	0
5:15 PM	18	76	13	0	10	146	0	0	0	2	28	1	11	4	1	0	309	0	1	0	0
5:20 PM	25	45	10	0	5	133	1	0	0	5	29	0	16	2	2	0	273	0	0	0	0
5:25 PM	18	88	11	0	8	153	0	0	1	2	21	1	10	1	3	0	316	0	0	0	0
5:30 PM	15	42	4	0	9	96	0	0	3	11	40	1	13	3	3	0	239	0	4	3	0
5:35 PM	16	68	16	0	8	135	2	0	2	5	28	0	7	2	5	0	294	0	4	2	0
5:40 PM	24	64	10	0	5	99	0	0	2	3	41	0	14	6	1	0	269	0	1	0	0
5:45 PM	18	60	9	0	8	160	3	0	2	4	25	0	11	2	1	0	303	0	0	0	0
5:50 PM	19	41	9	0	11	106	1	0	1	1	26	1	15	0	2	0	232	0	0	0	0
5:55 PM	18	60	10	0	4	135	5	0	0	4	15	0	6	2	5	0	264	0	0	1	0
Total	441	1,345	199	1	167	3,161	24	0	40	101	735	4	279	59	49	1	6,600	0	23	7	0
Survey		.,040	.55			0,101			-40	.01		~	2/0	00			3,300	l °	-0	,	0

15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start		Northb Hwy				South! Hwy					oound rison St			Westi SE Har	oound rison S	ł	Interval		Pedes Cross		
Time	L	T,	R	Bikes	L	Т	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	Total	North	South	East	West
4:00 PM	55	147	15	1	24	396	3	0	3	13	99	0	38	10	3	0	806	0	2	1	0
4:15 PM	51	161	26	0	22	442	1	0	4	12	95	0	28	6	5	1	853	0	1	0	0
4:30 PM	51	164	31	0	18	369	2	0	8	20	113	0	39	12	8	0	835	0	4	0	0
4:45 PM	50	160	15	0	17	422	2	0	3	9	75	0	30	8	6	0	797	0	3	0	0
5:00 PM	63	169	20	0	18	369	4	0	11	10	100	0	41	1	4	0	810	0	3	0	0
5:15 PM	61	209	34	0	23	432	1	0	1	9	78	2	37	7	6	0	898	0	1	0	0
5:30 PM	55	174	30	0	22	330	2	0	7	19	109	1	34	11	9	0	802	0	9	5	0
5:45 PM	55	161	28	0	23	401	9	0	3	9	66	1	32	4	8	0	799	0	0	1	0
Total Survey	441	1,345	199	1	167	3,161	24	0	40	101	735	4	279	59	49	1	6,600	0	23	7	0

Peak Hour Summary

4:50 PM to 5:50 PM Northbound Southbound Eastbound Westbound Pedestrians By Hwy 99 Out Total 2,077 3,137 Hwy 99 SE Harrison St SE Harrison St Total Crosswalk Approach Total Bikes 2,435 0 Out Total Bikes 269 708 3 In Bikes In Out In In Out Total Bikes North South East Volume 3,354 1,060 0 1 659 776 439 196 232 428 0 0 15 1.4% 1.0% 2.0% %HV 1.4% 1.2% PHF 0.87 0.91 0.81 0.91 0.93 Northbound Southbound Eastbound Westbound Bγ Hwy 99 Hwy 99 SE Harrison St SE Harrison St Total Movement
 L
 T
 R
 Total

 23
 49
 367
 439

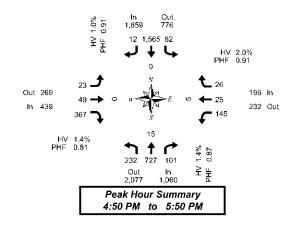
 4.3%
 8.2%
 0.3%
 1.4%

 0.52
 0.64
 0.84
 0.81
 Total R Total R Total т R Volume 232 82 1,565 12 1,659 145 25 26 196 3,354 1.0% 0.0% 1.0% 0.90 0.60 0.91 0.9% 0.84 0.0% 16.0% 0.0% 2.0% 0.82 0.57 0.59 0.91 %HV PHF 1.2% 0.82 1.2% 0.93

Rolling Hour Summary

4:00 PM to 6:00 PM

Interval Start		North Hwj				Southt Hwy					bound rrison St	t		West SE Har	bound rrison S	t	Interval		Pedes Cross	trians swalk	
Time	L	т	R	Bikes	L	т	R	Bikes	L	т	R	Bikes	L	т	R	Bikes	Total	North	South	East	West
4:00 PM	207	632	87	1	81	1,629	8	0	18	54	382	0	135	36	22	1	3,291	0	10	1	0
4:15 PM	215	654	92	0	75	1,602	9	0	26	51	383	0	138	27	23	1	3,295	0	11	0	0
4:30 PM	225	702	100	0	76	1,592	9	0	23	48	366	2	147	28	24	0	3,340	0	11	0	0
4:45 PM	229	712	99	0	80	1,553	9	0	22	47	362	3	142	27	25	0	3,307	0	16	5	0
5:00 PM	234	713	112	0	86	1,532	16	0	22	47	353	4	144	23	27	0	3,309	0	13	6	0



West

0



Hwy 99 & SE Harrison St

Tuesday, March 05, 2019 4:00 PM to 6:00 PM

N RANK	
	•••
Out 16	ln 15
	Summary 5:50 PM

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Out 6

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Heavy Vehicle 5-Minute Interval Summary 4:00 PM to 6:00 PM

Interval		North					bound				ound				bound		
Start		Hw ₃				Hwy	799			SE Har		t		SE Har	rison Si		Interval
Time	L	Т	R	Total	L	Т	R	Total	L	т	R	Total	L	Т	R	Total	Total
4:00 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
4:05 PM	0	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	3
4:10 PM	0	0	0	0	1	1	0	2	0	1	0	1	0	0	0	0	3
4:15 PM	0	4	0	4	0	1	0	1	0	1	0	1	0	0	0	0	6
4:20 PM	0	1	0	1	0	5	0	5	0	0	0	0	1	1	0	2	8
4:25 PM	0	1	0	1	0	2	0	2	0	0	0	0	1	0	0	1	4
4:30 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
4:35 PM	1	3	0	4	0	0	0	0	0	1	0	1	0	1	0	1	6
4:40 PM	0	3	1	4	0	0	0	0	0	0	0	0	0	1	0	1	5
4:45 PM	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
4:50 PM	0	1	0	1	0	1	0	1	0	1	0	1	0	0	0	0	3
4:55 PM	0	2	0	2	0	1	0	1	0	0	0	0	0	1	0	1	4
5:00 PM	0	1	0	1	0	2	0	2	0	0	0	0	0	0	0	0	3
5:05 PM	1	1	0	2	0	2	0	2	0	0	0	0	0	0	0	0	4
5:10 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
5:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1	2
5:20 PM	0	0	0	0	0	1	0	1	0	1	0	1	0	0	0	0	2
5:25 PM	1	1	0	2	0	2	0	2	0	1	1	2	0	0	0	0	6
5:30 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	1	2
5:35 PM	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
5:40 PM	0	2	0	2	0	4	0	4	0	0	0	0	0	1	0	1	7
5:45 PM	0	1	0	1	1	1	0	2	0	1	0	1	0	0	0	0	4
5:50 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
5:55 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	1	0	1	3
Total Survey	3	30	1	34	2	30	0	32	1	7	1	9	2	9	0	11	86

Heavy Vehicle 15-Minute Interval Summary 4:00 PM to 6:00 PM

Interval		North	bound			South	bound			Eastb	ound			Westl	oound		
Start		Hw	/ 99			Hwy	ý 99			SE Har	rison S	t I		SE Har	rison S	t	Interval
Time	L	Т	R	Total	L	Т	R	Total	L	Т	R	Total	L	Т	R	Total	Total
4:00 PM	0	2	0	2	1	3	0	4	0	1	0	1	0	1	0	1	8
4:15 PM	0	6	0	6	0	8	0	8	0	1	0	1	2	1	0	3	18
4:30 PM	1	6	1	8	0	2	0	2	0	1	0	1	0	2	0	2	13
4:45 PM	0	5	0	5	0	2	0	2	0	1	0	1	0	1	0	1	9
5:00 PM	1	3	0	4	0	5	0	5	0	0	0	0	0	0	0	0	9
5:15 PM	1	2	0	3	0	3	0	3	0	2	1	3	0	1	0	1	10
5:30 PM	0	4	0	4	0	4	0	4	1	0	0	1	0	2	0	2	11
5:45 PM	0	2	0	2	1	3	0	4	0	1	0	1	0	1	0	1	8
Total Survey	3	30	1	34	2	30	0	32	1	7	1	9	2	9	0	11	86

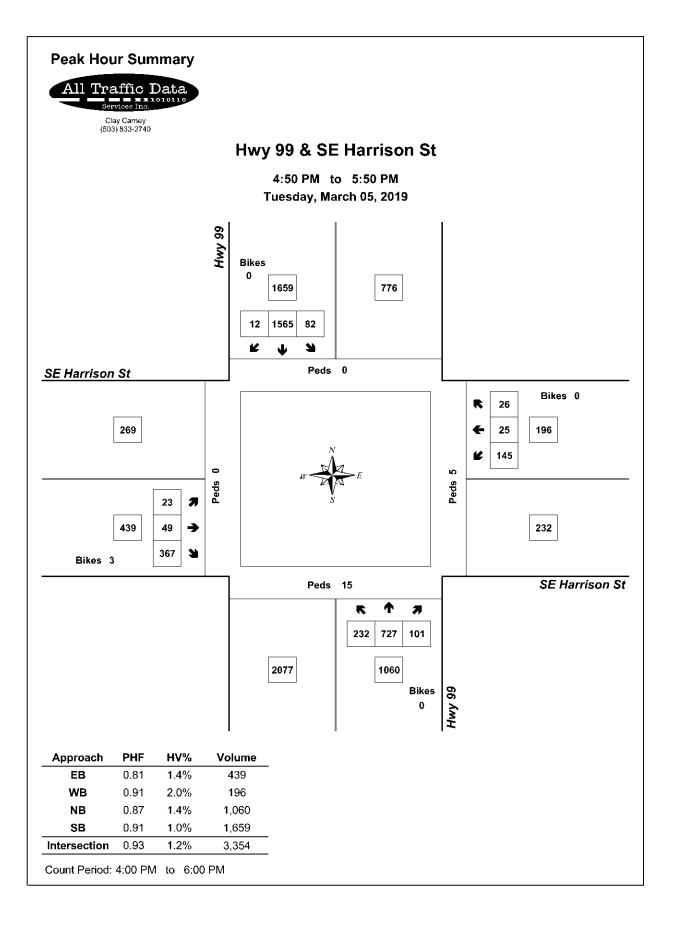
Heavy Vehicle Peak Hour Summary 4:50 PM to 5:50 PM

By			bound v 99			ibound w 99			bound rrison St			bound rrison St	Total
Approach	In	Out	y 55 Total	In	Out	Total	In	Out	Total	In	Out	Total	Total
Volume	15	16	31	16	14	30	6	6	12	4	5	9	41
PHF	0.75			0.67			0.38			0.50			0.79

By Movement		North Hwj	bound y 99			South Hwy	bound / 99			Eastb SE Har				Westt SE Har			Total
wovernent	L	т	R	Total	L	т	R	Total	L	т	R	Total	L	т	R	Total	
Volume	2	13	0	15	1	15	0	16	1	4	1	6	0	4	0	4	41
PHF	0.50	0.65	0.00	0.75	0.25	0.75	0.00	0.67	0.25	0.50	0.25	0.38	0.00	0.50	0.00	0.50	0.79

Heavy Vehicle Rolling Hour Summary 4:00 PM to 6:00 PM

Interval Start		Northi Hwy				South Hwy				Eastb SE Har	rison S	t		West SE Har	oound rison S	t	Interval
Time	L	т	R	Total	L	т	R	Total	L	т	R	Total	L	т	R	Total	Total
4:00 PM	1	19	1	21	1	15	0	16	0	4	0	4	2	5	0	7	48
4:15 PM	2	20	1	23	0	17	0	17	0	3	0	3	2	4	0	6	49
4:30 PM	3	16	1	20	0	12	0	12	0	4	1	5	0	4	0	4	41
4:45 PM	2	14	0	16	0	14	0	14	1	3	1	5	0	4	0	4	39
5:00 PM	2	11	0	13	1	15	0	16	1	3	1	5	0	4	0	4	38





Hwy 99 & SE Monroe St

Tuesday, March 05, 2019 7:00 AM to 9:00 AM

5-Minute Interval Summary 7:00 AM to 9:00 AM

Interval Start Time	Northb	hauno													
					Southbo		Eastbound		Westbound				Pedes	trians	
Time	Hwy	99			Hwy 9	99	SE Monroe St		SE Monroe St		Interval		Cross	swalk	
T III Ç	т	R	Bikes	L	Т	Bikes	Bikes	L	R	Bikes	Total	North	South	East	West
7:00 AM	137	1	0	0	39	0	0	2	1	0	180	0	0	0	0
7:05 AM	169	1	0	0	51	0	0	1	0	0	222	0	0	0	0
7:10 AM	140	2	0	0	57	0	0	1	1	0	201	0	0	0	0
7:15 AM	191	3	0	0	51	1	0	1	0	0	246	0	0	0	0
7:20 AM	159	0	0	0	74	0	0	2	2	0	237	0	0	0	0
7:25 AM	125	0	0	0	54	0	0	0	0	0	179	0	0	0	0
7:30 AM	123	4	0	0	66	0	0	3	0	0	196	0	1	0	0
7:35 AM	167	4	0	0	74	0	0	0	0	0	245	0	0	0	0
7:40 AM	152	2	0	0	69	0	0	5	0	0	228	0	0	0	0
7:45 AM	135	3	0	0	76	0	0	4	0	0	218	0	0	0	0
7:50 AM	124	3	0	0	68	0	0	4	4	0	203	0	0	0	0
7:55 AM	143	6	0	0	57	0	0	2	0	0	208	0	0	0	0
8:00 AM	152	8	0	0	67	0	0	5	0	0	232	0	0	0	0
8:05 AM	143	3	0	0	77	0	0	6	2	0	231	1	0	0	0
8:10 AM	142	10	0	0	64	0	0	5	1	0	222	1	0	2	0
8:15 AM	162	7	0	0	48	0	0	2	1	0	220	0	0	0	0
8:20 AM	138	4	0	0	47	0	0	2	5	0	196	1	0	0	0
8:25 AM	170	1	0	0	81	0	0	2	4	0	258	0	1	1	0
8:30 AM	129	5	0	0	53	0	0	5	3	0	195	0	0	0	0
8:35 AM	84	10	0	0	75	0	0	4	0	0	173	0	0	0	0
8:40 AM	107	4	0	0	64	0	0	4	4	0	183	0	1	0	0
8:45 AM	100	4	0	0	75	0	0	1	2	0	182	0	0	0	0
8:50 AM	74	3	0	0	74	0	0	1	1	0	153	2	0	3	0
8:55 AM	85	6	0	0	61	0	0	0	3	0	155	0	0	0	0
Total Survey	3,251	94	0	0	1,522	1	0	62	34	0	4,963	5	3	6	0

15-Minute Interval Summary

7:00 AM to 9:00 AM

Interval		bound			Southb		Eastbound		Westbound					trians	
Start	HW	y 99			Hwy 9		SE Monroe St		SE Monroe St		Interval		Cross		
Time	Т	R	Bikes	L	Т	Bikes	Bikes	L	R	Bikes	Total	North	South	East	West
7:00 AM	446	4	0	0	147	0	0	4	2	0	603	0	0	0	0
7:15 AM	475	3	0	0	179	1	0	3	2	0	662	0	0	0	0
7:30 AM	442	10	0	0	209	0	0	8	0	0	669	0	1	0	0
7:45 AM	402	12	0	0	201	0	0	10	4	0	629	0	0	0	0
8:00 AM	437	21	0	0	208	0	0	16	3	0	685	2	0	2	0
8:15 AM	470	12	0	0	176	0	0	6	10	0	674	1	1	1	0
8:30 AM	320	19	0	0	192	0	0	13	7	0	551	0	1	0	0
8:45 AM	259	13	0	0	210	0	0	2	6	0	490	2	0	3	0
Total	3,251	94	0	0	1,522	1	0	62	34	0	4.963	6	•	6	0
Survey	3,291	94	U	U	1,322	I	U	02	34	0	4,900		3	6	U

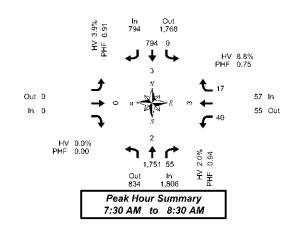
Peak Hour Summary

By			bound			South				Eastb					bound		.		Pedes	
Approach			y 99			Hw ₃				SE Mo					nroe St	I	Total		Cross	
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East
Volume	1,806	834	2,640	0	794	1,768	2,562	0	0	0	0	0	57	55	112	0	2,657	3	2	3
%HV						3.9	9%			0.0	0%			8.	8%		2.7%			
PHF						0.1	3 1			0.0	DO			0.	75		0.96			
	PHF 0.94																			
	Northbound																			
D.,		North	bound			South	bound			Eastb	ound			West	bound					
By			bound y 99			South Hw				Eastb SE Mor					b oun d nroe St		Total			
By Movement				Total	L			Total				Total	L			Total	Total			
			y 99	Total 1,806	L0			Total 794					L 40		nroe St		Total 2,657			
Movement	NA	Hw T	y 99 R 55		L 0 0.0%	Hwy T			NA				L		nroe St R 17	Total 57				

Rolling Hour Summary

7:00 AM to 9:00 AM

Interval	North	bnuoc			Southbo	und	Eastbound		Westbound				Pedes	trians	
Start	Hwj	/ 99			Hwy 9	э	SE Monroe St		SE Monroe St		Interval		Cross	swalk	
Time	т	R	Bikes	L	т	Bikes	Bike	s L	R	Bikes	Total	North	South	East	West
7:00 AM	1,765	29	0	0	736	1	0	25	8	0	2,563	0	1	0	0
7:15 AM	1,756	46	0	0	797	1	0	37	9	0	2,645	2	1	2	0
7:30 AM	1,751	55	0	0	794	0	0	40	17	0	2,657	3	2	3	0
7:45 AM	1,629	64	0	0	777	0	0	45	24	0	2,539	3	2	3	0
8:00 AM	1,486	65	0	0	786	0	0	37	26	0	2,400	5	2	6	0



West 0



Hwy 99 & SE Monroe St

Tuesday, March 05, 2019 7:00 AM to 9:00 AM

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	k Hour Sum AM to 8:3	•

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Heavy Vehicle 5-Minute Interval Summary 7:00 AM to 9:00 AM

Interval	North	ound			Southbo	ound	Eastbound		Westbound		
Start	Hwy	/ 99			Hwy 9	99	SE Monroe St		SE Monroe St		Interval
Time	Τ	R	Total	L	Т	Total	Total	L	R	Total	Total
7:00 AM	3	0	3	0	2	2	0	0	0	0	5
7:05 AM	2	0	2	0	1	1	0	1	0	1	4
7:10 AM	2	0	2	0	1	1	0	0	0	0	3
7:15 AM	2	0	2	0	1	1	0	0	0	0	3
7:20 AM	3	0	3	0	1	1	0	0	0	0	4
7:25 AM	2	0	2	0	1	1	0	0	0	0	3
7:30 AM	0	0	0	0	2	2	0	0	0	0	2
7:35 AM	1	0	1	0	1	1	0	0	0	0	2
7:40 AM	3	0	3	0	1	1	0	1	0	1	5
7:45 AM	1	0	1	0	3	3	0	0	0	0	4
7:50 AM	4	0	4	0	5	5	0	0	0	0	9
7:55 AM	2	0	2	0	2	2	0	1	0	1	5
8:00 AM	0	0	0	0	3	3	0	0	0	0	3
8:05 AM	1	0	1	0	3	3	0	1	0	1	5
8:10 AM	7	0	7	0	2	2	0	1	0	1	10
8:15 AM	6	0	6	0	1	1	0	1	0	1	8
8:20 AM	6	0	6	0	5	5	0	0	0	0	11
8:25 AM	5	0	5	0	3	3	0	0	0	0	8
8:30 AM	3	0	3	0	3	3	0	0	0	0	6
8:35 AM	2	0	2	0	4	4	0	0	0	0	6
8:40 AM	5	0	5	0	4	4	0	0	0	0	9
8:45 AM	2	0	2	0	5	5	0	0	0	0	7
8:50 AM	3	0	3	0	2	2	0	0	0	0	5
8:55 AM	3	1	4	0	3	3	0	0	1	1	8
Total Survey	68	1	69	0	59	59	0	6	1	7	135

Heavy Vehicle 15-Minute Interval Summary 7:00 AM to 9:00 AM

Interval	Nort	hbound			Southb	ound	Eastbound		Westbound		
Start	H	vy 99			Hwy	99	SE Monroe St		SE Monroe St		Interval
Time	Т	R	Total	L	Т	Total	Total	L	R	Total	Total
7:00 AM	7	0	7	0	4	4	0	1	0	1	12
7:15 AM	7	0	7	0	3	3	0	0	0	0	10
7:30 AM	4	0	4	0	4	4	0	1	0	1	9
7:45 AM	7	0	7	0	10	10	0	1	0	1	18
8:00 AM	8	0	8	0	8	8	0	2	0	2	18
8:15 AM	17	0	17	0	9	9	0	1	0	1	27
8:30 AM	10	0	10	0	11	11	0	0	0	0	21
8:45 AM	8	1	9	0	10	10	0	0	1	1	20
Total Survey	68	1	69	0	59	59	0	6	1	7	135

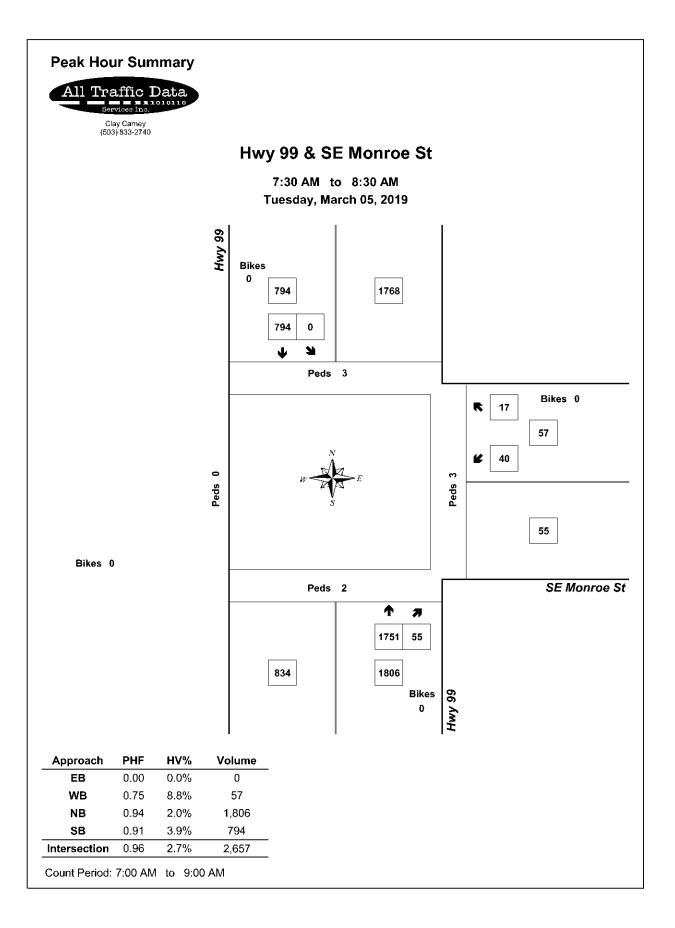
Heavy Vehicle Peak Hour Summary 7:30 AM to 8:30 AM

Bv		North	bound		South	bound		Eastl	bound		West	bound	
Approach		Hw	y 99		Hw	y 99		SE Mo	nroe St		SE Mo	onroe St	Total
Approach	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	36	36	72	31	36	67	0	0	0	5	0	5	72
PHF	0.47			0.78			0.00			0.42			0.62

By Movement	Northi Hwy	pound 799			Southb Hwy		Eastbound SE Monroe St		Westbound SE Monroe St	Total
Movement	т	R	Total	L	т	Total	Total	L	R Total	
Volume	36	0	36	0	31	31	0	5	0 5	72
PHF	0.47	0.00	0.47	0.00	0.78	0.78	0.00	0.42	0.00 0.42	0.62

Heavy Vehicle Rolling Hour Summary 7:00 AM to 9:00 AM

Interval	North	bound			Southbo	und	Eastbound		Westbound		
Start	Hw	y 99			Hwy 99	э	SE Monroe St		SE Monroe St		Interval
Time	т	R	Total	L	т	Total	Total	L	R	Total	Total
7:00 AM	25	0	25	0	21	21	0	3	0	3	49
7:15 AM	26	0	26	0	25	25	0	4	0	4	55
7:30 AM	36	0	36	0	31	31	0	5	0	5	72
7:45 AM	42	0	42	0	38	38	0	4	0	4	84
8:00 AM	43	1	44	0	38	38	0	3	1	4	86





Hwy 99 & SE Monroe St

Tuesday, March 05, 2019 4:00 PM to 6:00 PM

5-Minute Interval Summary 4:00 PM to 6:00 PM

4:00 PW	 0:00 PA														
Interval	Northb				Southbo		Eastbound		Westbound				Pedes	trians	
Start	Hwy	99			Hwy 9	9	SE Monroe St		SE Monroe St		Interval		Cros	swalk	
Time	Т	R	Bikes	L	т	Bikes	Bikes	L	RE	Bikes	Total	North	South	East	West
4:00 PM	79	2	0	0	185	0	0	1	2	0	269	0	0	2	0
4:05 PM	71	3	0	0	172	0	0	6	1	0	253	0	0	0	0
4:10 PM	98	7	1	0	196	0	0	3	2	0	306	0	0	0	0
4:15 PM	74	2	0	0	170	0	0	6	2	0	254	0	0	0	0
4:20 PM	81	4	0	0	190	0	0	2	4	0	281	1	0	0	0
4:25 PM	63	6	0	0	185	0	0	4	4	0	262	0	0	0	0
4:30 PM	70	6	0	0	194	0	0	2	2	0	274	1	0	2	0
4:35 PM	95	0	0	0	157	0	0	2	1	0	255	1	1	0	0
4:40 PM	67	4	0	0	195	0	0	4	1	0	271	0	0	0	0
4:45 PM	76	3	0	0	148	0	0	3	0	0	230	0	0	0	0
4:50 PM	75	3	0	0	185	0	0	5	5	0	273	1	1	0	0
4:55 PM	72	2	0	0	170	0	0	3	2	0	249	0	0	0	0
5:00 PM	82	6	0	0	182	0	0	11	1	0	282	0	0	2	0
5:05 PM	95	6	0	0	161	0	0	9	1	1	272	1	0	0	0
5:10 PM	82	2	0	0	182	0	0	4	3	0	273	0	0	1	0
5:15 PM	94	4	0	0	163	0	0	3	3	0	267	0	0	2	0
5:20 PM	84	1	0	0	186	0	0	4	3	0	278	0	0	0	0
5:25 PM	91	2	0	0	169	1	0	9	4	0	275	1	0	0	0
5:30 PM	77	3	0	0	177	0	0	3	3	0	263	0	0	1	0
5:35 PM	92	4	0	0	151	0	0	2	3	0	252	0	0	0	0
5:40 PM	77	1	0	0	168	0	0	6	4	0	256	0	1	0	0
5:45 PM	77	3	0	0	180	0	0	5	2	0	267	0	0	0	0
5:50 PM	75	3	0	0	169	1	0	2	1	0	250	0	0	0	0
5:55 PM	71	3	0	0	135	0	0	1	4	0	214	0	0	1	0
Total	4.040	00	4	0	4 470	2	0	100	50	4	6 3 3 6	6	2	4.4	0
Survey	1,918	80	1	0	4,170	2	0	100	58	1	6,326	6	3	11	0

15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval		bound			Southb		Eastbound		Westbound SE Monroe St				Pedes		
Start	HW	y 99			Hwy		SE Monroe St				Interval		Cross		
Time	Т	R	Bikes	L	Т	Bikes	Bikes	L	R B	Bikes	Total	North	South	East	West
4:00 PM	248	12	1	0	553	0	0	10	5	0	828	0	0	2	0
4:15 PM	218	12	0	0	545	0	0	12	10	0	797	1	0	0	0
4:30 PM	232	10	0	0	546	0	0	8	4	0	800	2	1	2	0
4:45 PM	223	8	0	0	503	0	0	11	7	0	752	1	1	0	0
5:00 PM	259	14	0	0	525	0	0	24	5	1	827	1	0	3	0
5:15 PM	269	7	0	0	518	1	0	16	10	0	820	1	0	2	0
5:30 PM	246	8	0	0	496	0	0	11	10	0	771	0	1	1	0
5:45 PM	223	9	0	0	484	1	0	8	7	0	731	0	0	1	0
Total	1,918	80	4	0	4,170	2	0	100	58	1	6.326	6	2	11	0
Survey	1,910	60	1	U	4,170	2	0	100	90	1	0,520	6	3		U

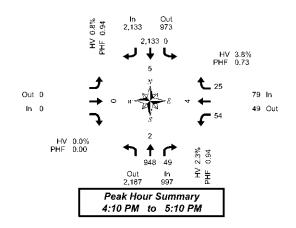
Peak Hour Summary 4:10 PM to 5:10 PM

		North	bound			South	bound			Eacth	ound			Waet	bound				Pedes	triane	
By Approach		Hw				Hw ₃					nroe St				nroe St		Total		Cross		
Approach	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	997	2,187	3,184	1	2,133	973	3,106	0	0	0	0	0	79	49	128	1	3,209	5	2	4	0
%HV		2.3	3%			0.0	3%			0.0	0%			3.8	8%		1.4%				
						-				-				<u>.</u>	70						
PHF		0.1	94			0.9	94			0.	00			Ο.	73		0.95				
PHF		0.	94			0.9	94			0.	00			0.	73		0.95]			
			94 bound				94 bound				oound				bound		0.95	J			
Ву			bound				bound			Eastt				Westl			Total]			
		North	bound	Total		South	bound	Total		Eastt	ound	Total	L	Westl	bound	Total]			
Ву		North	bound y 99	Total 997	L	South	bound	Total 2,133		Eastt	ound		L 54	Westl	bound nroe St						
By Movement	NA	North Hwy T	bound y 99 R 49		L 0 0.0%	South Hw ₃ T	bound		NA	Eastt	ound		L 54 5.6%	Westl	bound nroe St R	Total 79	Total				

Rolling Hour Summary

4:00 PM to 6:00 PM

Interval	N	orthb	ound			Southb	ound	Eastbound		Westbound				Pedes	trians	
Start		Hwy	99				Interval		Cross	swalk						
Time		т	R	Bikes	L	т	Bikes	Bikes	L	R	Bikes	Total	North	South	East	West
4:00 PM	9	21	42	1	0	2,147	0	0	41	26	0	3,177	4	2	4	0
4:15 PM	9	32	44	0	0	2,119	0	0	55	26	1	3,176	5	2	5	0
4:30 PM	9	83	39	0	0	2,092	1	0	59	26	1	3,199	5	2	7	0
4:45 PM	9	97	37	0	0	2,042	1	0	62	32	1	3,170	3	2	6	0
5:00 PM	9	97	38	0	0	2,023	2	0	59	32	1	3,149	2	1	7	0





Hwy 99 & SE Monroe St

Tuesday, March 05, 2019 4:00 PM to 6:00 PM

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	Out 21	ln 23	
		Summary 5:10 PM	

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Heavy Vehicle 5-Minute Interval Summary 4:00 PM to 6:00 PM

Interval	Northi	bound			Southbo	ound	Eastbound		Westbound		
Start	Hwy	799			Hwy S	9	SE Monroe St		SE Monroe St		Interval
Time	т	R	Total	L	т́	Total	Total	L	R	Total	Total
4:00 PM	0	0	0	0	3	3	0	0	0	0	3
4:05 PM	2	0	2	0	0	0	0	0	0	0	2
4:10 PM	1	0	1	0	1	1	0	0	0	0	2
4:15 PM	6	0	6	0	2	2	0	1	0	1	9
4:20 PM	0	0	0	0	6	6	0	0	0	0	6
4:25 PM	1	0	1	0	2	2	0	1	0	1	4
4:30 PM	0	0	0	0	1	1	0	0	0	0	1
4:35 PM	5	0	5	0	0	0	0	0	0	0	5
4:40 PM	2	1	3	0	0	0	0	1	0	1	4
4:45 PM	2	0	2	0	0	0	0	0	0	0	2
4:50 PM	2	0	2	0	1	1	0	0	0	0	3
4:55 PM	1	0	1	0	0	0	0	0	0	0	1
5:00 PM	2	0	2	0	4	4	0	0	0	0	6
5:05 PM	0	0	0	0	1	1	0	0	0	0	1
5:10 PM	1	0	1	0	1	1	0	1	0	1	3
5:15 PM	1	0	1	0	0	0	0	0	0	0	1
5:20 PM	1	0	1	0	1	1	0	1	0	1	3
5:25 PM	1	0	1	0	3	3	0	1	0	1	5
5:30 PM	1	0	1	0	0	0	0	0	0	0	1
5:35 PM	0	0	0	0	1	1	0	0	0	0	1
5:40 PM	2	0	2	0	4	4	0	0	0	0	6
5:45 PM	1	0	1	0	1	1	0	1	0	1	3
5:50 PM	0	0	0	0	1	1	0	0	0	0	1
5:55 PM	1	0	1	0	2	2	0	0	0	0	3
Total Survey	33	1	34	0	35	35	0	7	0	7	76

Heavy Vehicle 15-Minute Interval Summary 4:00 PM to 6:00 PM

Interval	No	rthb	ound			Southb	ound	Eastbound		Westbound		
Start	I	Hwy	99			Hwy	99	SE Monroe St		SE Monroe St		Interval
Time	Т		R	Total	L	Т	Total	Total	L	R	Total	Total
4:00 PM	3		0	3	0	4	4	0	0	0	0	7
4:15 PM	7		0	7	0	10	10	0	2	0	2	19
4:30 PM	7		1	8	0	1	1	0	1	0	1	10
4:45 PM	5		0	5	0	1	1	0	0	0	0	6
5:00 PM	3		0	3	0	6	6	0	1	0	1	10
5:15 PM	3		0	3	0	4	4	0	2	0	2	9
5:30 PM	3		0	3	0	5	5	0	0	0	0	8
5:45 PM	2		0	2	0	4	4	0	1	0	1	7
Total	3:	2	1	34	0	35	35	0	7	0	7	76
Survey	5.	,	1	54	U			0		U	<u> </u>	,0

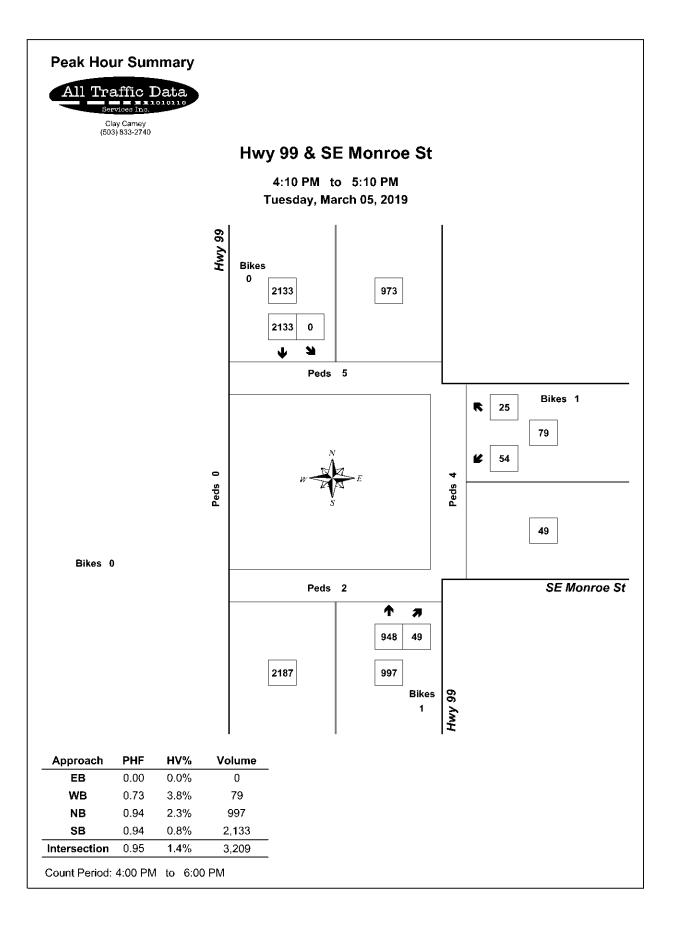
Heavy Vehicle Peak Hour Summary 4:10 PM to 5:10 PM

By Approach			bound y 99			bound y 99			oound nroe St			bound nroe St	Total
Approach	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	23	21	4 4	18	22	40	0	0	0	3	1	4	44
PHF	0.58			0.45			0.00			0.38			0.58

By Movement	Northi Hwy	oound 799			Southb Hwy		Eastbound SE Monroe St		Westbound SE Monroe St	Total
Movement	т	R	Total	L	т	Total	Total	L	R Total	
Volume	22	1	23	0	18	18	0	3	0 3	44
PHF	0.61	0.25	0.58	0.00	0.45	0.45	0.00	0.38	0.00 0.38	0.58

Heavy Vehicle Rolling Hour Summary 4:00 PM to 6:00 PM

Interval	North	bound			Southbo	und	Eastbound		Westbound		
Start	Hw	ry 99			Hwy 9	9	SE Monroe St		SE Monroe St		Interval
Time	Т	T R Total			Т	Total	Total	L	R	Total	Total
4:00 PM	22	1	23	0	16	16	0	3	0	3	42
4:15 PM	22	1	23	0	18	18	0	4	0	4	45
4:30 PM	18	1	19	0	12	12	0	4	0	4	35
4:45 PM	14	0	14	0	16	16	0	3	0	3	33
5:00 PM	11	0	11	0	19	19	0	4	0	4	34





Hwy 99 & SE Washington St

Tuesday, March 05, 2019 7:00 AM to 9:00 AM

5-Minute Interval Summary 7:00 AM to 9:00 AM

7:00 AN	10	9:00 A																			
Interval		Northi				Southb					ound				bound					trians	
Start		Hw3	/ 99			Hwy	99			SE Wasl	nington	St	5	SE Wasl	hington	St	Interval		Cros	swalk	
Time	L	Т	R	Bikes	L	Т	R	Bikes	L	т	R	Bikes	L	т	R	Bikes	Total	North	South	East	West
7:00 AM	0	144	3	0	4	35	0	0	0	0	0	0	3	0	1	0	190	0	0	0	0
7:05 AM	0	163	8	0	3	49	0	0	0	0	0	0	5	0	2	0	230	0	0	0	0
7:10 AM	0	146	3	0	5	46	0	0	0	0	0	0	5	0	3	0	208	0	0	0	0
7:15 AM	0	188	7	0	3	51	0	0	0	0	0	0	1	0	1	0	251	0	0	0	0
7:20 AM	0	158	5	0	8	61	0	0	0	0	0	0	4	0	3	0	239	0	0	0	0
7:25 AM	0	134	16	0	7	44	0	0	0	0	0	0	3	0	5	0	209	0	0	0	1
7:30 AM	0	125	13	0	6	46	0	0	0	0	0	0	3	0	5	0	198	1	1	0	2
7:35 AM	0	170	15	0	6	73	0	0	0	0	0	0	4	0	6	0	274	1	0	0	4
7:40 AM	0	157	5	0	4	62	0	0	0	1	0	0	5	0	3	0	237	0	0	0	0
7:45 AM	0	136	7	0	3	86	0	0	0	0	0	0	3	0	4	0	239	0	0	0	2
7:50 AM	0	134	12	1	6	47	0	1	0	1	0	0	10	0	4	0	214	1	1	0	5
7:55 AM	0	143	13	0	11	58	0	0	1	0	0	0	7	0	8	0	241	0	0	0	3
8:00 AM	0	156	9	0	3	58	0	0	0	0	0	0	8	0	7	0	241	0	1	0	1
8:05 AM	0	133	10	0	9	81	0	0	0	0	0	0	14	0	9	0	256	0	5	0	1
8:10 AM	0	154	8	0	11	55	0	0	0	0	0	0	5	0	7	0	240	0	0	2	2
8:15 AM	0	161	16	0	3	49	0	0	1	0	0	0	6	0	8	0	244	0	0	0	1
8:20 AM	0	132	12	0	9	42	0	0	0	0	0	0	7	0	4	0	206	1	0	0	1
8:25 AM	0	152	17	0	7	75	0	0	0	0	0	0	4	0	2	0	257	0	2	0	1
8:30 AM	0	134	6	1	3	57	0	0	0	0	0	0	11	0	7	0	218	0	1	0	1
8:35 AM	0	90	9	0	12	64	0	0	0	0	0	0	6	0	5	0	186	0	0	0	0
8:40 AM	0	113	6	0	7	48	0	0	2	0	0	0	10	0	0	0	186	0	2	0	0
8:45 AM	0	96	7	0	8	77	0	0	0	0	0	0	4	0	5	0	197	0	5	0	2
8:50 AM	0	77	11	0	11	57	0	0	0	0	0	0	9	0	4	0	169	1	1	0	3
8:55 AM	0	80	8	0	5	60	0	0	0	1	0	0	3	0	5	0	162	0	1	0	0
Total	0	3,276	226	2	154	1,381	0	1	4	3	0	0	140	0	108	0	5,292	5	20	2	30
Survey	Ŭ	4,210		-		.,	-		-	0			.40			,	-,-02		-0	-	20

15-Minute Interval Summary

7:00 AM to 9:00 AM

Interval		North				South					ound	_	_		bound	-				trians	
Start		Hwy	/ 99			Hwy	99			SE Wasł	nington	St	S	E Wasi	hington	St	Interval		Cros	swalk	
Time	L	Т	R	Bikes	L	Т	R	Bikes	L	Т	R	Bikes	L	Т	R	Bikes	Total	North	South	East	West
7:00 AM	0	453	14	0	12	130	0	0	0	0	0	0	13	0	6	0	628	0	0	0	0
7:15 AM	0	480	28	0	18	156	0	0	0	0	0	0	8	0	9	0	699	0	0	0	1
7:30 AM	0	452	33	0	16	181	0	0	0	1	0	0	12	0	14	0	709	2	1	0	6
7:45 AM	0	413	32	1	20	191	0	1	1	1	0	0	20	0	16	0	694	1	1	0	10
8:00 AM	0	443	27	0	23	194	0	0	0	0	0	0	27	0	23	0	737	0	6	2	4
8:15 AM	0	445	45	0	19	166	0	0	1	0	0	0	17	0	14	0	707	1	2	0	3
8:30 AM	0	337	21	1	22	169	0	0	2	0	0	0	27	0	12	0	590	0	3	0	1
8:45 AM	0	253	26	0	24	194	0	0	0	1	0	0	16	0	14	0	528	1	7	0	5
Total Survey	0	3,276	226	2	154	1,381	0	1	4	3	0	0	140	0	108	0	5,292	5	20	2	30

Peak Hour Summary

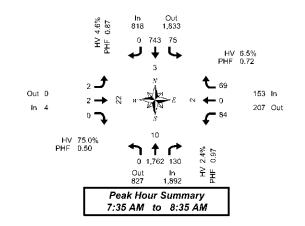
7:35 AM to 8:35 AM

By		North	bound			South	bound			Eastb	ound			West	bound				Pedes	trians	
Approach		Hw	y 99			Hw;	y 99		5	SE Wash	ington	St	S	E Wash	iington	St	Total		Cross	swalk	
Approach	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	1,892	827	2,719	2	818	1,833	2,651	1	4	0	4	0	153	207	360	0	2,867	3	10	2	22
%HV		2.4	1%			4.6	6%			75.	0%			6.5	5%		3.3%				
PHF		0.	97			0.87				0.	50			0.1	72		0.96				
		N 1				<u> </u>							1					1			
By		Northbound					bound			Eastb				Westl							
Movement		Hw	y 99			Hw	y 99		5	SE Wash	ington	St	S	E Wash	ington	St	Total				
morement	L	Т	R	Total	L	Т	R	Total	L	Т	R	Total	L	Т	R	Total					
Volume	0	1,762	130	1,892	75	743	0	818	2	2	0	4	84	0	69	153	2,867				
								4 0.07	1 50.000	14 47 41 14 47	0.0%	75 00/	10.7%	0.0%	4 407	6.5%	3.3%				
%HV	0.0%	1.9%	9.2%	2.4%	8.0%	4.3%	0.0%	4.6%	50.0%	#####	0.0%	70.070	10.7.76	0.076	1.470	0.3%	3.370				

Rolling Hour Summary

7:00 AM to 9:00 AM

Interval		Northb	ound			South	bound			Eastt	ound			West	bound				Pedes	trians	
Start		Hwy	99			Hwy	r 99			SE Wash	ington	St	5	SE Wasl	hington	St	Interval		Cross	swalk	
Time	L L	т	R	Bikes	L	т	R	Bikes	L	т	R	Bikes	L	т	R	Bikes	Total	North	South	East	West
7:00 AM	0	1,798	107	1	66	658	0	1	1	2	0	0	53	0	45	0	2,730	3	2	0	17
7:15 AM	0	1,788	120	1	77	722	0	1	1	2	0	0	67	0	62	0	2,839	3	8	2	21
7:30 AM	0	1,753	137	1	78	732	0	1	2	2	0	0	76	0	67	0	2,847	4	10	2	23
7:45 AM	0	1,638	125	2	84	720	0	1	4	1	0	0	91	0	65	0	2,728	2	12	2	18
8:00 AM	0	1,478	119	1	88	723	0	0	3	1	0	0	87	0	63	0	2,562	2	18	2	13





Hwy 99 & SE Washington St

Tuesday, March 05, 2019 7:00 AM to 9:00 AM

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Heavy Vehicle 5-Minute Interval Summary 7:00 AM to 9:00 AM

Interval			bound			South					ound				bound		
Start		Hwy	y 99			Hwy	/ 99		8	E Wash			5	E Wasl	nington	St	Interval
Time	L	Т	R	Total	L	Т	R	Total	L	Т	R	Total	L	Т	R	Total	Total
7:00 AM	0	3	1	4	1	2	0	3	0	0	0	0	0	0	0	0	7
7:05 AM	0	2	1	3	0	3	0	3	0	0	0	0	0	0	0	0	6
7:10 AM	0	1	0	1	0	1	0	1	0	0	0	0	2	0	0	2	4
7:15 AM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
7:20 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
7:25 AM	0	0	1	1	1	0	0	1	0	0	0	0	1	0	0	1	3
7:30 AM	0	2	0	2	0	2	0	2	0	0	0	0	0	0	0	0	4
7:35 AM	0	1	3	4	0	2	0	2	0	0	0	0	0	0	0	0	6
7:40 AM	0	1	0	1	0	2	0	2	0	1	0	1	2	0	0	2	6
7:45 AM	0	2	0	2	1	3	0	4	0	0	0	0	0	0	0	0	6
7:50 AM	0	2	0	2	2	1	0	3	0	1	0	1	2	0	0	2	8
7:55 AM	0	2	1	3	1	3	0	4	0	0	0	0	1	0	0	1	8
8:00 AM	0	2	1	3	0	3	0	3	0	0	0	0	0	0	0	0	6
8:05 AM	0	1	1	2	0	4	0	4	0	0	0	0	1	0	0	1	7
8:10 AM	0	6	2	8	0	3	0	3	0	0	0	0	1	0	1	2	13
8:15 AM	0	5	2	7	0	2	0	2	1	0	0	1	0	0	0	0	10
8:20 AM	0	5	1	6	0	5	0	5	0	0	0	0	0	0	0	0	11
8:25 AM	0	4	1	5	1	1	0	2	0	0	0	0	0	0	0	0	7
8:30 AM	0	2	0	2	1	3	0	4	0	0	0	0	2	0	0	2	8
8:35 AM	0	1	1	2	0	2	0	2	0	0	0	0	0	0	2	2	6
8:40 AM	0	5	0	5	1	2	0	3	0	0	0	0	1	0	0	1	9
8:45 AM	0	1	1	2	2	3	0	5	0	0	0	0	0	0	0	0	7
8:50 AM	0	2	1	3	0	3	0	3	0	0	0	0	1	0	1	2	8
8:55 AM	0	3	0	3	2	1	0	3	0	0	0	0	0	0	0	0	6
Total Survey	0	54	18	72	13	53	0	66	1	2	0	3	14	0	4	18	159

Heavy Vehicle 15-Minute Interval Summary 7:00 AM to 9:00 AM

Interval		North	bound			South	bound			Eastb	ound			West	oound		
Start		Hwy	y 99			Hwy	y 99		5	E Wash	nington	St	ę	SE Wash	ington	St	Interval
Time	L	Т	R	Total	L	Т	R	Total	L	Т	R	Total	L	Т	R	Total	Total
7:00 AM	0	6	2	8	1	6	0	7	0	0	0	0	2	0	0	2	17
7:15 AM	0	1	1	2	1	2	0	3	0	0	0	0	1	0	0	1	6
7:30 AM	0	4	3	7	0	6	0	6	0	1	0	1	2	0	0	2	16
7:45 AM	0	6	1	7	4	7	0	11	0	1	0	1	3	0	0	3	22
8:00 AM	0	9	4	13	0	10	0	10	0	0	0	0	2	0	1	3	26
8:15 AM	0	14	4	18	1	8	0	9	1	0	0	1	0	0	0	0	28
8:30 AM	0	8	1	9	2	7	0	9	0	0	0	0	3	0	2	5	23
8:45 AM	0	6	2	8	4	7	0	11	0	0	0	0	1	0	1	2	21
Total	0	54	18	72	13	53	0	66	1	2	0	3	14	0	4	18	159
Survey	U	J4	10	12	1.3		U	00	1	2	U	3	14	U	4	10	139

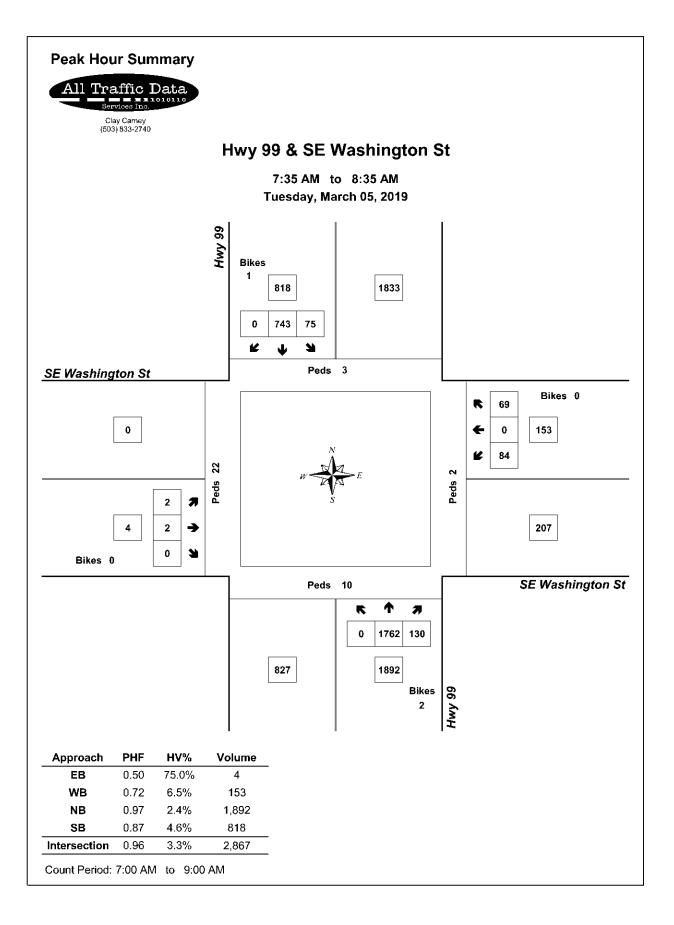
Heavy Vehicle Peak Hour Summary 7:35 AM to 8:35 AM

1.00 /														
By		North	bound		South	ibound		Eastl	bound			West	bound	
Approach		Hw	y 99		Hw	y 99	S	E Wash	hington St		S	SE Wasl	nington St	Total
Approach	In	Out	Total	In	Out	Total	In	Out	Total	Ir	1	Out	Total	
Volume	45	41	86	38	35	73	3	0	3	1	0	20	30	96
PHF	0.54			0.86			0.38			0.6	63			0.71

By Movement		North Hw	bound / 99				bound / 99		S	Eastb E Wash	ound ington S	St	S	Westt E Wash		St	Total
wovernent	L	т	R	Total	L	т	R	Total	L	т	R	Total	L	т	R	Total	
Volume	0	33	12	45	6	32	0	38	1	2	0	3	9	0	1	10	96
PHF	0.00	0.52	0.60	0.54	0.38	0.80	0.00	0.86	0.25	0.25	0.00	0.38	0.56	0.00	0.25	0.63	0.71

Heavy Vehicle Rolling Hour Summary 7:00 AM to 9:00 AM

Interval		North	bound			South	bound			Eastb	ound			West	bound		
Start		Hw3	y 99			Hwy	/ 99		S	E Wash	ington	St	S	SE Wash	nington	St	Interval
Time	L	т	R	Total	L	т	R	Total	L	т	R	Total	L	т	R	Total	Total
7:00 AM	0	17	7	24	6	21	0	27	0	2	0	2	8	0	0	8	61
7:15 AM	0	20	9	29	5	25	0	30	0	2	0	2	8	0	1	9	70
7:30 AM	0	33	12	45	5	31	0	36	1	2	0	3	7	0	1	8	92
7:45 AM	0	37	10	47	7	32	0	39	1	1	0	2	8	0	3	11	99
8:00 AM	0	37	11	48	7	32	0	39	1	0	0	1	6	0	4	10	98





Hwy 99 & SE Washington St

Tuesday, March 05, 2019 4:00 PM to 6:00 PM

5-Minute Interval Summary 4:00 PM to 6:00 PM

	10	0.00 -1																			
Interval		Northb				Southt					bound				bound					trians	
Start		Hwy	99			Hwy				SE Was	hington		5	SE Wasl	nington	St	Interval		Cros		
Time	L	Т	R	Bikes	L	Т	R	Bikes	L	Т	R	Bikes	L	Т	R	Bikes	Total	North	South	East	West
4:00 PM	0	84	9	0	8	184	0	0	0	0	0	0	12	0	5	0	302	0	0	0	2
4:05 PM	0	60	8	1	7	178	0	0	0	0	0	0	16	0	10	0	279	1	1	0	1
4:10 PM	0	112	9	0	10	183	0	0	0	0	0	0	3	0	5	0	322	0	0	0	0
4:15 PM	0	69	7	0	5	169	0	0	0	0	0	0	15	0	3	0	268	0	1	0	1
4:20 PM	0	85	10	0	10	185	0	0	0	0	0	0	13	0	5	0	308	0	0	0	2
4:25 PM	0	69	6	1	7	179	0	0	0	0	0	0	17	0	1	0	279	0	1	0	2
4:30 PM	0	82	10	0	6	192	0	0	0	0	0	0	8	0	3	0	301	0	0	0	1
4:35 PM	0	88	10	0	7	152	0	0	0	0	0	0	9	0	6	0	272	1	2	1	3
4:40 PM	0	69	13	0	6	192	0	0	0	0	0	0	8	0	3	0	291	0	0	0	3
4:45 PM	0	74	8	0	4	144	0	0	0	0	0	0	13	0	3	0	246	1	1	0	3
4:50 PM	0	80	7	0	7	185	0	0	0	0	0	0	10	0	3	0	292	0	1	0	0
4:55 PM	0	63	5	1	7	159	0	0	0	0	0	0	16	0	3	0	253	0	0	0	0
5:00 PM	0	87	7	0	2	185	0	1	0	1	0	0	5	0	3	0	290	0	0	0	1
5:05 PM	0	96	6	0	2	170	0	0	0	0	0	0	13	0	6	0	293	0	3	0	0
5:10 PM	0	76	5	1	4	165	0	0	0	0	0	0	8	0	5	0	263	0	1	0	1
5:15 PM	0	92	3	1	7	158	0	0	0	0	0	0	22	0	2	0	284	2	1	0	2
5:20 PM	0	90	5	0	2	183	0	0	0	0	0	0	8	0	2	0	290	2	0	0	2
5:25 PM	0	96	14	0	7	172	0	1	0	0	0	0	8	0	3	0	300	0	0	0	0
5:30 PM	0	69	7	1	5	167	0	0	0	0	0	0	2	0	1	2	251	0	0	0	0
5:35 PM	0	88	7	1	2	142	0	0	0	0	0	0	12	0	5	0	256	0	1	0	0
5:40 PM	0	83	14	0	10	164	0	0	0	0	0	0	3	0	2	0	276	0	0	0	0
5:45 PM	0	79	10	0	10	181	0	0	0	0	0	0	7	0	4	0	291	0	0	0	0
5:50 PM	0	78	2	0	9	151	0	1	0	0	0	0	7	0	0	0	247	0	0	0	0
5:55 PM	0	80	4	0	7	134	0	0	1	0	0	0	11	0	1	0	238	0	1	0	1
Total	0	1,949	186	7	151	4,074	0	3	1	1	0	0	246	0	84	2	6,692	7	14	1	25
Survey	U	1,949	100	'	131	4,074	0	3		1	U	U	240	0	04	2	0,092	1 '	14		20

15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval		North				Southt					ound				bound					trians	
Start		Hwy	/ 99			Hwy	99			SE Wasł	nington	St	5	SE Was	hington	St	Interval		Cross	swalk	
Time	L	Т	R	Bikes	L	Т	R	Bikes	L	Т	R	Bikes	L	Т	R	Bikes	Total	North	South	East	West
4:00 PM	0	256	26	1	25	545	0	0	0	0	0	0	31	0	20	0	903	1	1	0	3
4:15 PM	0	223	23	1	22	533	0	0	0	0	0	0	45	0	9	0	855	0	2	0	5
4:30 PM	0	239	33	0	19	536	0	0	0	0	0	0	25	0	12	0	864	1	2	1	7
4:45 PM	0	217	20	1	18	488	0	0	0	0	0	0	39	0	9	0	791	1	2	0	3
5:00 PM	0	259	18	1	8	520	0	1	0	1	0	0	26	0	14	0	846	0	4	0	2
5:15 PM	0	278	22	1	16	513	0	1	0	0	0	0	38	0	7	0	874	4	1	0	4
5:30 PM	0	240	28	2	17	473	0	0	0	0	0	0	17	0	8	2	783	0	1	0	0
5:45 PM	0	237	16	0	26	466	0	1	1	0	0	0	25	0	5	0	776	0	1	0	1
Total	0	1.040	186	7	151	4,074	0	0			0	0	246	0	0.4	2	6.692	7	4.4		25
Survey	0	1,949	100		151	4,074	0	3		1	0	U	240	U	84	2	0,092		14	I	25

Peak Hour Summary

4:10 PM to 5:10 PM Northbound Southbound Eastbound Westbound Pedestrians By
 Hwy 99

 Out
 Total

 1,018
 3,186
 Hwy 99 Out Total 2,225 3,297 SE Washington St SE Washington St Total Crosswalk Approach Ιп Bikes In Bikes In Out Total Bikes In Out Total Bikes North South East Volume 3,415 1,072 2 2,168 0 0 174 172 346 0 9 2.7% 1.0% 0.0% 4.0% 1.7% %HV PHF 0.92 0.94 0.25 0.81 0.95 Northbound Southbound Eastbound Westbound Bγ Hwy 99 Hwy 99 SE Washington St SE Washington St Total Movement R R Total Total 174 Total Total т R т R
 014
 98
 1,072

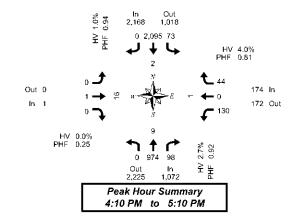
 2.5%
 5.1%
 2.7%

 0.92
 0.74
 0.57
 ∠,095 0 2,168 0.9% 0.0% 1.0% 0.94 0.00 0.01 Volume 0 73 0 0 130 0 **4**4 3,415 0.0% 0.00 4.1% 0.73 0.0% 0.0% 0.0% 0.0% 0.0% 2.3% 4.0% 0.00 0.85 0.81 %HV PHF 4.6% 1.7% 0.00 0.25 0.00 0.25 0.72 0.95

Rolling Hour Summary

4:00 PM to 6:00 PM

Interval		Northt	bnuoe			Southt	ound			Eastt	bnuoe			West	bound				Pedes	trians	
Start		Hwy	99			Hwy	99			SE Wash	ington	St	S	E Wasł	nington	St	Interval		Cross	swalk	
Time	L T R Bikes L T R A 0 935 102 3 84 2,102 0					R	Bikes	L	т	R	Bikes	L	т	R	Bikes	Total	North	South	East	West	
4:00 PM	0	935	102	3	84	2,102	0	0	0	0	0	0	140	0	50	0	3,413	3	7	1	18
4:15 PM	0	938	94	3	67	2,077	0	1	0	1	0	0	135	0	44	0	3,356	2	10	1	17
4:30 PM	0	993	93	3	61	2,057	0	2	0	1	0	0	128	0	42	0	3,375	6	9	1	16
4:45 PM	0	994	88	5	59	1,994	0	2	0	1	0	0	120	0	38	2	3,294	5	8	0	9
5:00 PM	0	1,014	84	4	67	1,972	0	3	1	1	0	0	106	0	34	2	3,279	4	7	0	7



West

16



Hwy 99 & SE Washington St

Tuesday, March 05, 2019 4:00 PM to 6:00 PM

	• ↑ ↑ ← 0 24 5 Out In
Г	24 29 Peak Hour Summary
	4:10 PM to 5:10 PM

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Heavy Vehicle 5-Minute Interval Summary 4:00 PM to 6:00 PM

Interval		North	bound				bound			Eastb	ound				bound		
Start		Hwg	y 99			Hwy	/ 99		S	SE Wash	ington	St	S	E Wasl	nington	St	Interval
Time	L	т	R	Total	L	Т	R	Total	L	т	R	Total	L	т	R	Total	Total
4:00 PM	0	0	1	1	0	1	0	1	0	0	0	0	0	0	0	0	2
4:05 PM	0	2	2	4	0	1	0	1	0	0	0	0	0	0	0	0	5
4:10 PM	0	2	0	2	0	1	0	1	0	0	0	0	1	0	0	1	4
4:15 PM	0	4	0	4	0	2	0	2	0	0	0	0	0	0	0	0	6
4:20 PM	0	0	2	2	1	3	0	4	0	0	0	0	0	0	0	0	6
4:25 PM	0	2	0	2	0	3	0	3	0	0	0	0	1	0	0	1	6
4:30 PM	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	3
4:35 PM	0	4	1	5	0	0	0	0	0	0	0	0	1	0	1	2	7
4:40 PM	0	3	0	3	0	1	0	1	0	0	0	0	0	0	0	0	4
4:45 PM	0	3	0	3	0	0	0	0	0	0	0	0	2	0	0	2	5
4:50 PM	0	2	1	3	1	0	0	1	0	0	0	0	0	0	0	0	4
4:55 PM	0	1	1	2	0	0	0	0	0	0	0	0	1	0	0	1	3
5:00 PM	0	1	0	1	0	4	0	4	0	0	0	0	0	0	0	0	5
5:05 PM	0	2	0	2	1	1	0	2	0	0	0	0	0	0	0	0	4
5:10 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
5:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	2	0	0	2	3
5:20 PM	0	1	0	1	0	2	0	2	0	0	0	0	0	0	0	0	3
5:25 PM	0	0	2	2	0	4	0	4	0	0	0	0	1	0	1	2	8
5:30 PM	0	1	1	2	0	1	0	1	0	0	0	0	0	0	0	0	3
5:35 PM	0	1	1	2	0	2	0	2	0	0	0	0	0	0	0	0	4
5:40 PM	0	2	0	2	0	4	0	4	0	0	0	0	0	0	0	0	6
5:45 PM	0	0	0	0	0	2	0	2	0	0	0	0	1	0	1	2	4
5:50 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
5:55 PM	0	2	1	3	0	2	0	2	0	0	0	0	2	0	0	2	7
Total Survey	0	34	13	47	3	40	0	43	0	0	0	0	12	0	3	15	105

Heavy Vehicle 15-Minute Interval Summary 4:00 PM to 6:00 PM

Interval		North	bound			South	bound			Eastb	ound			West	oound		
Start		Hw	y 99			Hwy	ý 99		5	E Wash	nington	St	5	SE Wash	ington	St	Interval
Time	L	Т	R	Total	L	Т	R	Total	L	Т	R	Total	L	Т	R	Total	Total
4:00 PM	0	4	3	7	0	3	0	3	0	0	0	0	1	0	0	1	11
4:15 PM	0	6	2	8	1	8	0	9	0	0	0	0	1	0	0	1	18
4:30 PM	0	7	1	8	0	4	0	4	0	0	0	0	1	0	1	2	14
4:45 PM	0	6	2	8	1	0	0	1	0	0	0	0	3	0	0	3	12
5:00 PM	0	3	0	3	1	7	0	8	0	0	0	0	0	0	0	0	11
5:15 PM	0	2	2	4	0	6	0	6	0	0	0	0	3	0	1	4	14
5:30 PM	0	4	2	6	0	7	0	7	0	0	0	0	0	0	0	0	13
5:45 PM	0	2	1	3	0	5	0	5	0	0	0	0	3	0	1	4	12
Total	0	34	13	47	3	40	0	43	0	0	0	0	12	0	3	15	105
Survey	U	34	13	47	3	40	U	45	U	0	U	U	12	U	3	15	105

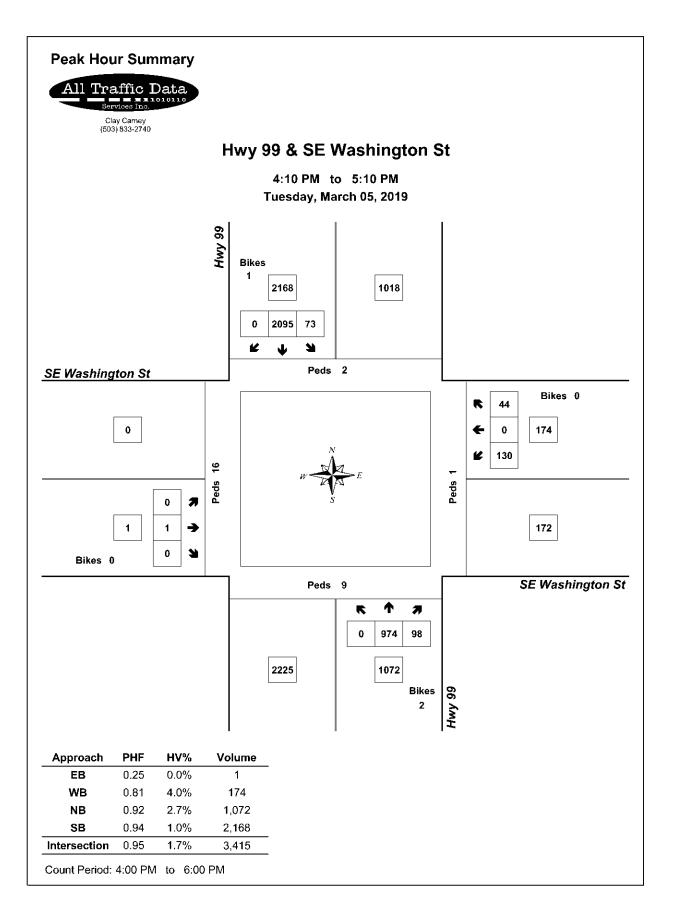
Heavy Vehicle Peak Hour Summary 4:10 PM to 5:10 PM

By			bound y 99				bound 799	s		oound nington St	5		bound hington St	Total
Approach	In	Out	Total	Ir	п	Out	Total	In	Out	Total	In	Out	Total	
Volume	29	24	53	2	1	25	46	0	0	0	7	8	15	57
PHF	0.66			0.9	53			0.00			0.44			0.79

By Movement		Northi Hwj					bound / 99		S	Eastt E Wash		St	s	Westt E Wash		St	Total
Movement	L	т	R	Total	L	т	R	Total	L	т	R	Total	L	т	R	Total	
Volume	0	24	5	29	3	18	0	21	0	0	0	0	6	0	1	7	57
PHF	0.00	0.60	0.63	0.66	0.75	0.50	0.00	0.53	0.00	0.00	0.00	0.00	0.50	0.00	0.25	0.44	0.79

Heavy Vehicle Rolling Hour Summary 4:00 PM to 6:00 PM

Interval		Northi	bound			South	bound			Eastb	ound			West	oound		
Start		Hwy	/ 99			Hwy	/ 99		S	SE Wash	ington	St	S	SE Wash	ington	St	Interval
Time	L	т	R	Total	L	т	R	Total	L	т	R	Total	L	т	R	Total	Total
4:00 PM	0	23	8	31	2	15	0	17	0	0	0	0	6	0	1	7	55
4:15 PM	0	22	5	27	3	19	0	22	0	0	0	0	5	0	1	6	55
4:30 PM	0	18	5	23	2	17	0	19	0	0	0	0	7	0	2	9	51
4:45 PM	0	15	6	21	2	20	0	22	0	0	0	0	6	0	1	7	50
5:00 PM	0	11	5	16	1	25	0	26	0	0	0	0	6	0	2	8	50





SE Main St & SE Washington St

Tuesday, March 05, 2019

7:00 AM to 9:00 AM

5-Minute Interval Summary 7:00 AM to 9:00 AM

7:00 AM		9:00 A																			
Interval		North	bound			South	nbound			Easth	ound			Westl					Pedes	trians	
Start		SE M	ain St			SE №	lain St			SE Wash	nington	St	5	SE Wash	ington	St	Interval		Cros	swalk	
Time	L	Т	R	Bikes	L	т	R	Bikes	L	т	R	Bikes	L	т	R	Bikes	Total	North	South	East	West
7:00 AM	0	0	0	0	0	0	0	0	1	6	1	1	0	3	0	0	11	0	0	1	1
7:05 AM	0	0	0	0	0	1	0	0	1	9	0	0	0	6	4	0	21	0	0	0	0
7:10 AM	0	0	0	0	0	0	1	0	0	8	1	0	0	8	1	0	19	0	0	0	0
7:15 AM	0	0	1	0	2	0	0	0	2	6	0	0	0	3	2	0	16	0	0	0	1
7:20 AM	0	1	0	0	2	0	2	0	5	8	1	0	1	4	1	0	25	0	0	0	0
7:25 AM	0	0	1	0	3	0	1	0	1	18	1	0	0	7	2	0	34	0	0	0	2
7:30 AM	1	0	0	0	1	1	1	0	1	19	2	0	0	5	3	0	34	0	0	0	4
7:35 AM	0	0	0	0	0	0	0	0	2	17	0	0	0	10	0	1	29	1	0	0	2
7:40 AM	0	0	0	0	2	0	1	0	0	11	1	0	0	8	0	0	23	0	0	0	0
7:45 AM	0	1	1	0	1	0	2	0	2	6	0	1	1	7	2	0	23	0	0	0	1
7:50 AM	3	0	0	0	0	1	2	0	0	19	2	0	0	13	3	0	43	0	0	0	0
7:55 AM	0	0	1	0	0	0	3	0	5	16	1	0	0	13	2	0	41	1	0	0	1
8:00 AM	0	0	0	0	1	0	4	0	4	8	0	0	2	15	2	0	36	0	0	0	1
8:05 AM	0	0	0	0	0	0	2	0	1	15	0	0	0	15	1	0	34	1	0	1	2
8:10 AM	1	1	0	0	0	2	2	0	2	12	2	0	1	16	1	0	40	0	0	0	4
8:15 AM	0	0	1	0	0	1	1	0	4	15	0	0	1	12	1	0	36	2	0	0	3
8:20 AM	0	1	2	0	4	0	2	0	2	19	1	1	0	7	1	0	39	2	0	0	1
8:25 AM	0	0	1	0	1	0	3	0	2	18	0	0	0	5	2	0	32	3	0	0	3
8:30 AM	0	0	0	1	0	0	1	0	3	8	1	1	1	18	2	0	34	2	0	0	2
8:35 AM	1	0	1	0	0	0	0	0	3	14	1	0	3	8	1	0	32	1	0	0	0
8:40 AM	1	0	0	0	0	0	2	0	3	12	0	0	2	6	1	0	27	0	0	0	3
8:45 AM	0	0	3	0	1	0	0	0	2	9	1	0	1	9	2	0	28	1	0	1	2
8:50 AM	0	0	2	0	0	1	2	0	5	16	2	0	1	9	1	0	39	2	0	1	1
8:55 AM	0	0	0	0	1	1	1	0	3	10	0	0	1	9	0	0	26	2	1	1	2
Total	7	4	14	1	19	8	33	0	54	299	18	4	15	216	35	1	722	18	1	5	36
Survey		-		1	.9	Ŷ	00	0		299	10	-	13	210	55	'	, 22			5	00

15-Minute Interval Summary 7:00 AM to 9:00 AM

Interval		North	bound			South	bound			Eastb	ound			West	ound				Pedes	trians	
Start		SE M	ain St			SE M	ain St			SE Wash	ington	St	ę	SE Wash	iington	St	Interval		Cros	swalk	
Time	L	Т	R	Bikes	L	Т	R	Bikes	L	Т	R	Bikes	L	Т	R	Bikes	Total	North	South	East	West
7:00 AM	0	0	0	0	0	1	1	0	2	23	2	1	0	17	5	0	51	0	0	1	1
7:15 AM	0	1	2	0	7	0	3	0	8	32	2	0	1	14	5	0	75	0	0	0	3
7:30 AM	1	0	0	0	3	1	2	0	3	47	3	0	0	23	3	1	86	1	0	0	6
7:45 AM	3	1	2	0	1	1	7	0	7	41	з	1	1	33	7	0	107	1	0	0	2
8:00 AM	1	1	0	0	1	2	8	0	7	35	2	0	3	46	4	0	110	1	0	1	7
8:15 AM	0	1	4	0	5	1	6	0	8	52	1	1	1	24	4	0	107	7	0	0	7
8:30 AM	2	0	1	1	0	0	3	0	9	34	2	1	6	32	4	0	93	3	0	0	5
8:45 AM	0	0	5	0	2	2	3	0	10	35	3	0	3	27	3	0	93	5	1	3	5
Total	7		14	1	19	8	33	0	54	299	18	4	15	216	35	1	722	18	4	e	36
Survey		4	14	-	19	0		0	34	299	10	4	15	210	- 55	I	122	10		5	30

Peak Hour Summary

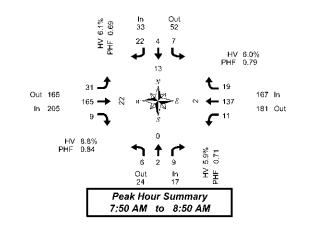
7:50 AM to 8:50 AM

By Approach			bound ain St				bound lain St		S		oound nington	St	S	Westl E Wash	oound nington	St	Total		Pedes Cross		
Approach	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	17	24	41	1	33	52	85	0	205	165	370	2	167	181	348	0	422	13	0	2	22
%HV		5.9	9%			6.	1%			8.	8%			6.0	0%		7.3%				
PHF		0.71 0.69							0.	84			0.	79		0.88					
By		North	bound			South	bound			Eastl	bound			Westl	bnuoc						
Movement		SE M	ain St			SE M	ain St		5	6E Wash	nington	St	5	6E Wash	ington	St	Total				
Movement	L	Т	R	Total	L	Т	R	Total	L	Т	R	Total	L	Т	R	Total					
Volume	6	2	9	17	7	4	22	33	31	165	9	205	11	137	19	167	422				
%HV	16.7%	0.0%	0.0%	5.9%	14.3%	0.0%	4,5%	6.1%	9.7%	8.5%	11.1%	8.8%	0.0%	7.3%	0.0%	6.0%	7.3%				
PHE	0.50	0.25	0.56	0.71	0.35	0.33	0.61	0.69	0.78	0.79	0.75	0.84	0.46	0.74	0.68	0.79	0.88				

Rolling Hour Summary

7:00 AM to 9:00 AM

Interval		North	bound			South	bound			Eastb	ound			Westt	ound				Pedes	trians	
Start		SE M	ain St			SE M	lain St		:	SE Wash	ington	St		SE Wash	ington	St	Interval		Cross	swalk	
Time	L L	<u>T R Bikes L T R Bike</u> 4 2 4 0 11 3 13 0						Bikes	L	т	R	Bikes	L	т	R	Bikes	Total	North	South	East	West
7:00 AM	4	2	4	0	11	3	13	0	20	143	10	2	2	87	20	1	319	2	0	1	12
7:15 AM	5	3	4	0	12	4	20	0	25	155	10	1	5	116	19	1	378	3	0	1	18
7:30 AM	5	3	6	0	10	5	23	0	25	175	9	2	5	126	18	1	410	10	0	1	22
7:45 AM	6	3	7	1	7	4	24	0	31	162	8	3	11	135	19	0	417	12	0	1	21
8:00 AM	3	2	10	1	8	5	20	0	34	156	8	2	13	129	15	0	403	16	1	4	24









Tuesday, March 05, 2019 7:00 AM to 9:00 AM

Out	In	
1	1	
Peak Hou	ur Summary	
7:50 AM	to 8:50 AM	

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Total 31

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Heavy Vehicle 5-Minute Interval Summary 7:00 AM to 9:00 AM

Interval			bound				bound				ound				oound		
Start		SE M	ain St			SE M	lain St		5	SE Wash	ington	St	S	SE Wash	ington	St	Interval
Time	L	т	R	Total	L	Т	R	Total	L	т	R	Total	L	т	R	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	1	2	1	4	0	0	0	0	4
7:05 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	2
7:10 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2
7:15 AM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
7:20 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	2
7:25 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2	2	3
7:30 AM	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	2
7:35 AM	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
7:40 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	2	3
7:45 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
7:50 AM	1	0	0	1	0	0	0	0	0	2	1	3	0	1	0	1	5
7:55 AM	0	0	0	0	0	0	0	0	0	2	0	2	0	1	0	1	3
8:00 AM	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0	0	2
8:05 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	2
8:10 AM	0	0	0	0	0	0	1	1	1	0	0	1	0	1	0	1	3
8:15 AM	0	0	0	0	0	0	0	0	1	1	0	2	0	1	0	1	3
8:20 AM	0	0	0	0	1	0	0	1	0	2	0	2	0	0	0	0	3
8:25 AM	0	0	0	0	0	0	0	0	0	2	0	2	0	1	0	1	3
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
8:35 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	2	3
8:40 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	2
8:45 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
8:50 AM	0	0	0	0	0	0	0	0	0	2	0	2	0	1	0	1	3
8:55 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
Total	1	0	1	2	1	0	1	2	5	24	4	33	1	16	3	20	57
Survey	1	0	1	2		0	1	2	5	24	4	33	1	10	3	20	57

Heavy Vehicle 15-Minute Interval Summary 7:00 AM to 9:00 AM

Interval		North	bound			South	bound			Eastb	ound			Westl	oound		
Start		SE M	ain St			SE M	ain St		5	E Wash	ington	St	ę	SE Wash	ington	St	Interval
Time	L	Т	R	Total	L	Т	R	Total	L	Т	R	Total	L	Т	R	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	1	3	1	5	0	2	1	3	8
7:15 AM	0	0	1	1	0	0	0	0	0	1	0	1	1	1	2	4	6
7:30 AM	0	0	0	0	0	0	0	0	0	3	2	5	0	2	0	2	7
7:45 AM	1	0	0	1	0	0	0	0	0	5	1	6	0	2	0	2	9
8:00 AM	0	0	0	0	0	0	1	1	2	2	0	4	0	2	0	2	7
8:15 AM	0	0	0	0	1	0	0	1	1	5	0	6	0	2	0	2	9
8:30 AM	0	0	0	0	0	0	0	0	0	2	0	2	0	4	0	4	6
8:45 AM	0	0	0	0	0	0	0	0	1	3	0	4	0	1	0	1	5
Total Survey	1	0	1	2	1	0	1	2	5	24	4	33	1	16	3	20	57

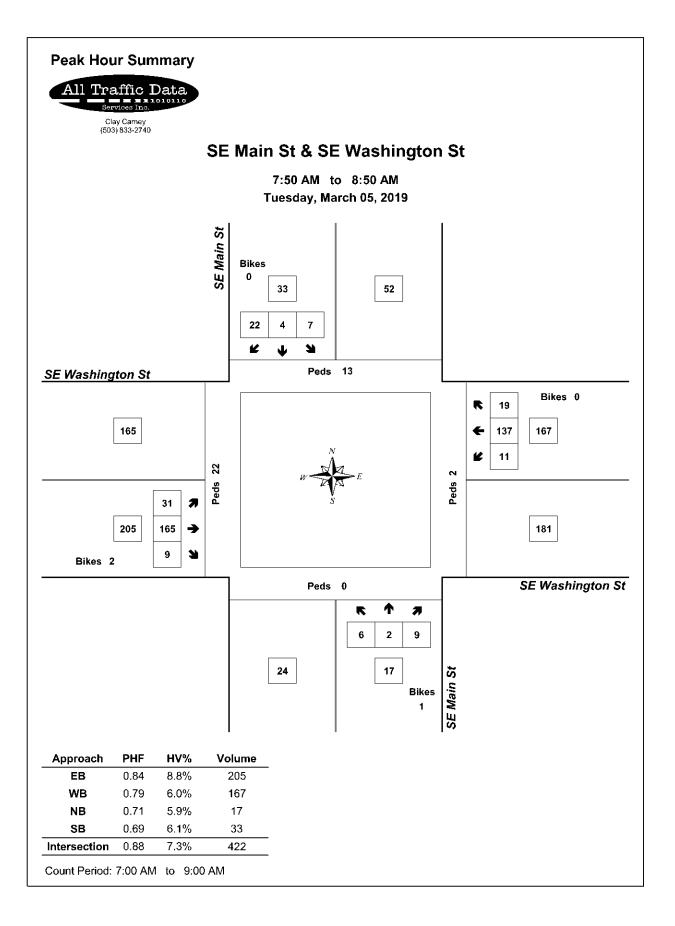
Heavy Vehicle Peak Hour Summary 7.50 AM to 8.50 AM

7.50 AM	10 0	0.00 A	IVI										
By			bound lain St			bound lain St	s		bound hington St	S		bound hington St	
Approach	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	1	1	2	2	3	5	18	12	30	10	15	25	Ĩ
PHF	0.25			0.25			0.64			0.63			

By Movement		North SE M	bound ain St				bound ain St		S	Eastb E Wash		St	9	Westl E Wash		St	Total
wovernent	L	т	R	Total	L	Т	R	Total	L	т	R	Total	L	т	R	Total	
Volume	1	0	0	1	1	0	1	2	3	14	1	18	0	10	0	10	31
PHF	0.25	0.00	0.00	0.25	0.25	0.00	0.25	0.25	0.38	0.70	0.25	0.64	0.00	0.63	0.00	0.63	0.78

Heavy Vehicle Rolling Hour Summary 7:00 AM to 9:00 AM

Northbound Southbound Eastbound Westbound Interval Start SE Main St SE Main St SE Washington St SE Washington St Time 7:00 AM Tota 17 т R Total R R R Tota т Tota 12 0 0 0 0 11 10 0 2 2 1 0 4 3 7:15 AM 7:30 AM 16 21 18 0 0 0 2 11 15 14 12 3 3 7 2 1 0 0 0 3 0 0 0 0 2 2 0 0 8 10 8 10 1 7:45 AM 1 1 8:00 AM 9 0 0 16 9





SE Main St & SE Washington St

Tuesday, March 05, 2019

4:00 PM to 6:00 PM

5-Minute Interval Summary 4:00 PM_to_6:00 PM

4:00 PM		0:00 P																			
Interval			bound				bound			Eastb				Westl						trians	
Start		SE M	lain St			SE M	ain St			SE Wash	ington	St	ŝ	SE Wash	ington	St	Interval		Cros	swalk	
Time	L	т	R	Bikes	L	т	R	Bikes	L	т	R	Bikes	L	Т	R	Bikes	Total	North	South	East	West
4:00 PM	2	0	2	0	4	0	4	0	5	12	0	0	0	11	1	0	41	2	0	0	2
4:05 PM	4	0	0	0	5	1	2	0	3	11	0	0	1	16	1	0	44	1	0	0	3
4:10 PM	0	2	1	0	1	0	2	0	2	12	4	0	3	6	4	0	37	1	0	0	1
4:15 PM	1	2	3	0	4	0	5	0	2	6	6	0	1	11	0	0	41	4	0	0	8
4:20 PM	0	4	0	1	1	0	3	0	3	14	1	0	3	15	2	0	46	0	0	0	3
4:25 PM	2	2	1	0	0	1	3	0	2	13	0	1	2	13	3	0	42	1	0	0	4
4:30 PM	0	0	0	0	3	2	1	0	2	10	1	0	1	8	1	0	29	0	0	0	0
4:35 PM	1	1	2	0	2	1	2	0	5	12	3	0	1	14	0	0	44	1	0	0	1
4:40 PM	0	3	1	0	3	3	2	0	4	13	0	0	1	11	0	0	41	1	0	0	3
4:45 PM	4	1	0	0	1	1	3	0	4	7	2	0	0	7	0	0	30	0	0	0	1
4:50 PM	3	1	3	0	1	2	4	0	1	11	2	0	2	11	2	0	43	3	0	0	1
4:55 PM	2	2	2	0	4	1	4	1	3	7	3	0	0	9	6	0	43	0	0	0	1
5:00 PM	0	2	1	0	4	0	2	1	1	8	1	0	1	6	4	0	30	1	0	0	1
5:05 PM	1	0	0	0	1	0	4	0	3	5	0	0	1	13	1	0	29	0	0	0	1
5:10 PM	3	2	1	0	2	2	7	0	0	8	1	1	3	10	4	0	43	0	0	0	2
5:15 PM	3	2	1	0	8	0	8	0	0	9	1	1	0	10	1	0	43	0	0	0	1
5:20 PM	1	0	0	0	1	0	2	0	3	4	0	0	0	4	2	1	17	2	0	0	1
5:25 PM	0	0	0	0	1	0	2	0	4	15	1	0	1	10	2	0	36	0	0	0	1
5:30 PM	0	1	1	0	6	1	3	0	2	9	2	1	1	3	3	2	32	0	0	0	0
5:35 PM	0	0	0	1	4	1	5	0	2	7	0	0	0	10	0	0	29	0	0	0	2
5:40 PM	0	1	0	0	2	0	0	0	1	20	2	1	1	7	5	0	39	2	0	0	1
5:45 PM	2	3	1	0	3	1	1	0	5	15	1	0	0	6	1	0	39	0	0	0	2
5:50 PM	2	0	0	0	1	1	2	0	1	9	1	0	1	8	2	0	28	0	0	2	1
5:55 PM	2	1	2	0	1	0	3	0	2	7	2	0	0	4	4	0	28	2	0	0	1
Total	33	30	22	2	63	18	74	2	60	244	34	5	24	223	49	3	874	21	0	2	42
Survey	- 00	50	22	2		.0	, 4	2	- 00	244	9 4	5	24	220	49	3	0/4	21	5	2	+2

15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval			bound				bound			Eastb				West					Pedes	trians	
Start		SE M	ain St			SE M	lain St		5	SE Wash	ington	St		SE Wash	ington	St	Interval		Cross	swalk	
Time	L	Т	R	Bikes	L	Т	R	Bikes	L	Т	R	Bikes	L	Т	R	Bikes	Total	North	South	East	West
4:00 PM	6	2	3	0	10	1	8	0	10	35	4	0	4	33	6	0	122	4	0	0	6
4:15 PM	3	8	4	1	5	1	11	0	7	33	7	1	6	39	5	0	129	5	0	0	15
4:30 PM	1	4	3	0	8	6	5	0	11	35	4	0	3	33	1	0	1 14	2	0	0	4
4:45 PM	9	4	5	0	6	4	11	1	8	25	7	0	2	27	8	0	116	3	0	0	3
5:00 PM	4	4	2	0	7	2	13	1	4	21	2	1	5	29	9	0	102	1	0	0	4
5:15 PM	4	2	1	0	10	0	12	0	7	28	2	1	1	24	5	1	96	2	0	0	3
5:30 PM	0	2	1	1	12	2	8	0	5	36	4	2	2	20	8	2	100	2	0	0	3
5:45 PM	6	4	3	0	5	2	6	0	8	31	4	0	1	18	7	0	95	2	0	2	4
Total	33	30	22	2	63	10	74	2	60	244	34	e	24	223	49	2	874	21	0	2	42
Survey	33	30	22	2	03	18	74	2	00	244	34	5	24	223	49	3	0/4		U	2	42

Peak Hour Summary

4:00 PM to 5:00 PM Northbound Southbound Eastbound Westbound Pedestrians By SE Main St SE Main St SE Washington St SE Washington St Total Crosswalk Approach Out Total Bikes In Out Total Bikes In Out Total Bikes In In Out Total Bikes North South East Volume 74 150 481 52 49 101 76 186 167 172 339 0 14 0 1.9% 2.6% 4.8% 4.8% %HV 4.2% PHF 0.72 0.90 0.93 0.84 0.93 Northbound Southbound Eastbound Westbound Bγ SE Main St SE Main St SE Washington St SE Washington St Total Movement R Total 167 т Total т R Total т R Total т R
 18
 15
 52

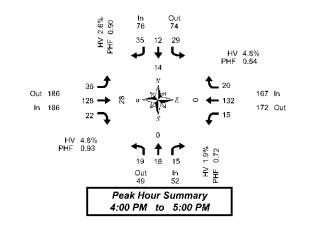
 0.0%
 6.7%
 1.9%

 0.56
 0.75
 0.72
 12 35 76 0.0% 2.9% 2.6% 0.50 0.80 0.90 20 Volume 19 29 36 128 22 186 15 132 481 3.4% 0.73 0.0% 6.3% 4.5% 4.8% %HV PHF 0.0% 6.7% 5.0% 4.8% 4.2% 0.93 4,5% 0.53 0.69 0.86 0.50 0.93 0.54 0.85 0.63 0.84

Rolling Hour Summary

4:00 PM to 6:00 PM

Interval		North					bound			Eastb				West						trians	
Start		SE M	ain St			SE M	lain St			SE Wash	ington	St	5	SE Wash	iington	St	Interval		Cross	swalk	
Time	L	Т	R	Bikes	L	Т	R	Bikes	L	Т	R	Bikes	L	Т	R	Bikes	Total	North	South	East	West
4:00 PM	19	18	15	1	29	12	35	1	36	128	22	1	15	132	20	0	481	14	0	0	28
4:15 PM	17	20	14	1	26	13	40	2	30	114	20	2	16	128	23	0	461	11	0	0	26
4:30 PM	18	14	11	0	31	12	41	2	30	109	15	2	11	113	23	1	428	8	0	0	14
4:45 PM	17	12	9	1	35	8	44	2	24	110	15	4	10	100	30	3	414	8	0	0	13
5:00 PM	14	12	7	1	34	6	39	1	24	116	12	4	9	91	29	3	393	7	0	2	14



West

28



Out 7 in 9



Tuesday, March 05, 2019 4:00 PM to 6:00 PM

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\$ • • • •	f 1
0 0 1 Out In 2 1	
ak Hour Sumr 0 PM to 5:0	

2

Out 1

Heavy Vehicle 5-Minute Interval Summary 4:00 PM to 6:00 PM

Interval			bound				bound			Eastb				Westl			
Start		SE M	ain St			SE M	ain St		S	E Wash	ington	St	S	SE Wash	ington	St	Interval
Time	L	т	R	Total	L	т	R	Total	L	т	R	Total	L	т	R	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
4:05 PM	0	0	0	0	1	0	0	1	0	2	0	2	0	1	0	1	4
4:10 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
4:20 PM	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
4:25 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:35 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	2	3
4:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	1	2
4:50 PM	0	0	1	1	0	0	0	0	0	1	1	2	0	1	0	1	4
4:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
5:00 PM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:05 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
5:10 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:25 PM	0	0	0	0	0	0	0	0	0	2	0	2	1	2	0	3	5
5:30 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
5:35 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
5:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
5:45 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
5:55 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	2
Total	1	0	2	3	1	0	1	2	0	14	1	15	2	13	1	16	36
Survey		0	2	3		5	1	2	0	14	1	10	2	13	1	10	30

Heavy Vehicle 15-Minute Interval Summary 4:00 PM to 6:00 PM

Interval		North	bound			South	bound			Eastb	ound			Westl	oound		
Start		SE M	ain St			SE M	ain St		5	E Wash	ington	St	5	SE Wash	iington	St	Interval
Time	L	Т	R	Total	L	Т	R	Total	L	Т	R	Total	L	Т	R	Total	Total
4:00 PM	0	0	0	0	1	0	0	1	0	3	0	3	0	1	1	2	6
4:15 PM	0	0	0	0	0	0	0	0	0	3	0	3	1	0	0	1	4
4:30 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	2	3
4:45 PM	0	0	1	1	0	0	1	1	0	1	1	2	0	3	0	3	7
5:00 PM	0	0	1	1	0	0	0	0	0	1	0	1	0	2	0	2	4
5:15 PM	0	0	0	0	0	0	0	0	0	2	0	2	1	2	0	3	5
5:30 PM	0	0	0	0	0	0	0	0	0	2	0	2	0	1	0	1	3
5:45 PM	1	0	0	1	0	0	0	0	0	1	0	1	0	2	0	2	4
Total Survey	1	0	2	3	1	0	1	2	0	14	1	15	2	13	1	16	36

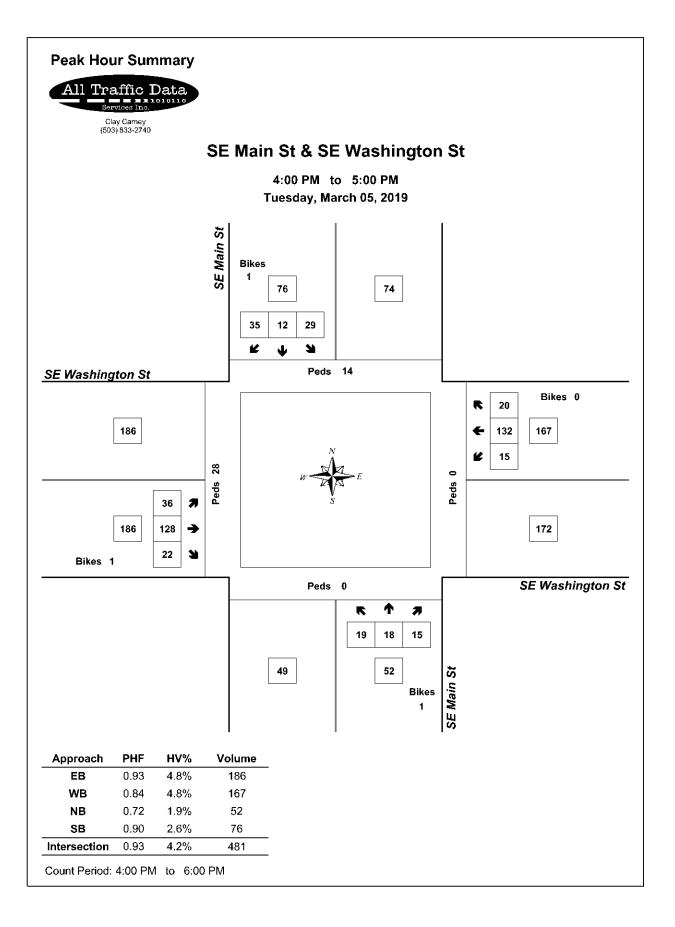
Heavy Vehicle Peak Hour Summary 4:00 PM to 5:00 PM

By Approach			bound lain St			bound lain St	S		oound nington St			estbou ashing	und gton St	Total
Approach	In	Out	Total	In	Out	Total	In	Out	Total	In	Óu	nt T	Fotal	
Volume	1	2	3	2	1	3	9	7	16	8	10)	18	20
PHF	0.25			0.50			0.75			0.67	•			0.71

By Movement			bound ain St			South SE M	bound ain St		S		ound nington (St	s	Westt E Wash		St	Total
Movement	L	т	R	Total	L	т	R	Total	L	т	R	Total	L	т	R	Total	
Volume	0	0	1	1	1	0	1	2	0	8	1	9	1	6	1	8	20
PHF	0.00	0.00	0.25	0.25	0.25	0.00	0.25	0.50	0.00	0.67	0.25	0.75	0.25	0.50	0.25	0.67	0.71

Heavy Vehicle Rolling Hour Summary 4:00 PM to 6:00 PM

Interval Start			bound ain St				bound ain St		s	Eastb E Wash		St	s	West SE Wast	oound ington	St	Interval
Time	L	т	R	Total	L	т	R	Total	L	т	R	Total	L	т	R	Total	Total
4:00 PM	0	0	1	1	1	0	1	2	0	8	1	9	1	6	1	8	20
4:15 PM	0	0	2	2	0	0	1	1	0	6	1	7	1	7	0	8	18
4:30 PM	0	0	2	2	0	0	1	1	0	5	1	6	1	9	0	10	19
4:45 PM	0	0	2	2	0	0	1	1	0	6	1	7	1	8	0	9	19
5:00 PM	1	0	1	2	0	0	0	0	0	6	0	6	1	7	0	8	16





SE 21st Ave & SE Washington St

Tuesday, March 05, 2019

7:00 AM to 9:00 AM

5-Minute Interval Summary 7:00 AM to 9:00 AM

7:00 AM	10	9:00 A																			
Interval		North					bound				ound			Westl						strians	
Start		SE 21	st Ave			SE 21	st Ave		5	SE Wash	nington -	St	ŝ	SE Wash	iington	St	Interval		Cros	swalk	
Time	L	т	R	Bikes	L	т	R	Bikes	L	т	R	Bikes	L	Т	R	Bikes	Total	North	South	East	West
7:00 AM	1	1	0	0	1	0	0	0	0	0	5	0	1	1	0	0	10	0	0	0	2
7:05 AM	4	3	1	0	0	0	4	0	4	4	3	0	3	6	3	0	35	2	0	1	8
7:10 AM	2	5	2	1	0	0	3	0	0	8	1	0	0	2	0	0	23	0	0	1	0
7:15 AM	1	4	0	0	1	2	0	0	0	7	2	0	1	2	2	0	22	0	0	1	0
7:20 AM	4	1	3	0	2	5	1	0	1	3	7	0	0	1	1	0	29	2	1	2	17
7:25 AM	3	3	2	1	2	2	3	0	1	11	4	0	0	4	0	0	35	0	0	1	1
7:30 AM	1	0	1	0	0	2	2	0	2	20	7	0	1	4	0	0	40	1	2	4	3
7:35 AM	5	4	0	1	2	0	1	0	2	13	2	0	1	5	0	1	35	2	0	1	0
7:40 AM	3	3	0	0	1	1	1	0	0	11	1	0	0	4	1	0	26	1	0	3	5
7:45 AM	3	9	2	0	0	3	0	0	0	13	3	1	3	10	0	0	46	1	0	4	2
7:50 AM	3	6	2	0	1	3	2	0	1	16	6	0	1	10	2	0	53	0	0	3	1
7:55 AM	7	11	3	0	0	1	1	0	0	13	5	0	1	7	1	0	50	3	0	0	7
8:00 AM	5	6	2	0	2	0	1	0	1	4	4	0	1	14	0	0	40	0	0	2	1
8:05 AM	6	3	2	0	1	0	2	0	2	8	5	0	0	11	0	0	40	2	0	3	2
8:10 AM	5	4	4	0	2	4	2	0	0	10	4	0	0	13	2	0	50	4	1	1	12
8:15 AM	5	3	2	0	0	1	0	0	3	9	4	0	1	7	0	0	35	3	0	3	6
8:20 AM	1	3	1	0	0	2	0	0	4	12	7	0	0	5	5	0	40	2	0	4	3
8:25 AM	5	7	0	0	0	2	1	0	2	14	3	0	2	4	2	0	42	4	5	5	6
8:30 AM	7	1	2	0	0	з	1	0	0	9	5	0	0	11	2	0	41	10	1	3	4
8:35 AM	3	3	2	0	1	3	0	0	0	7	5	1	1	8	0	0	33	4	0	2	1
8:40 AM	2	2	0	0	2	0	4	0	1	8	6	0	0	4	3	0	32	2	1	0	6
8:45 AM	6	6	2	1	1	2	1	0	2	3	5	0	0	4	2	0	34	0	0	1	1
8:50 AM	7	1	0	0	2	5	0	0	3	8	7	0	1	5	4	0	43	3	0	2	3
8:55 AM	4	3	0	0	0	1	3	0	1	5	6	0	0	6	2	0	31	3	2	1	2
Total	93	92	33	4	21	42	33	0	30	216	107	2	18	148	32	1	865	49	13	48	93
Survey	50	92	50	-			00	3	50	210	.07	2	.9	.40	J 2	'	\$35		.0	-70	

15-Minute Interval Summary

7:00 AM to 9:00 AM

Interval		North	bound				bound			East	ound			West	oound				Pedes	trians	
Start		SE 21	st Ave			SE 21	st Ave		1	SE Wasł	nington	St	5	SE Wash	iington	St	Interval		Cros	swalk	
Time	L	Т	R	Bikes	L	Т	R	Bikes	L	Т	R	Bikes	L	Т	R	Bikes	Total	North	South	East	West
7:00 AM	7	9	3	1	1	0	7	0	4	12	9	0	4	9	3	0	68	2	0	2	10
7:15 AM	8	8	5	1	5	9	4	0	2	21	13	0	1	7	3	0	86	2	1	4	18
7:30 AM	9	7	1	1	3	3	4	0	4	44	10	0	2	13	1	1	101	4	2	8	8
7:45 AM	13	26	7	0	1	7	3	0	1	42	14	1	5	27	3	0	149	4	0	7	10
8:00 AM	16	13	8	0	5	4	5	0	3	22	13	0	1	38	2	0	130	6	1	6	15
8:15 AM	11	13	3	0	0	5	1	0	9	35	14	0	3	16	7	0	117	9	5	12	15
8:30 AM	12	6	4	0	3	6	5	0	1	24	16	1	1	23	5	0	106	16	2	5	11
8:45 AM	17	10	2	1	3	8	4	0	6	16	18	0	1	15	8	0	108	6	2	4	6
Total	93	92	33	4	21	42	33	0	30	216	107	2	18	148	32	1	865	49	13	48	93
Survey	95	92	- 33	4	21	42		0	- 30	210	107	2	10	140	32	I	605	49	1.3	40	95

Westbound

Out Total Bikes

Total

Peak Hour Summary

7:45 AM to 8:45 AM Northbound Southbound Eastbound By SE 21st Ave SE 21st Ave SE Washington St SE Washington St Approach In Out Total Bikes In Out Total Bikes In Out Total Bikes Ιп Volume 9 221 3.8% 0 45 194 170 3 8.2% 132 89 89 134 0 364 2 131 %HV 20.0%

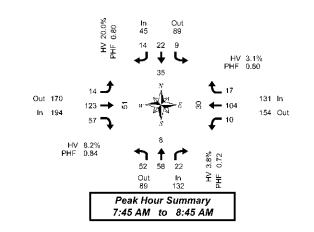
	Pedes Cross		
North	South	East	West
35	8	30	51

		~~~	10(01	Dilloo		~~~	10.01	E-ROO		~~~	1000	Directo	211	~~~	1000	Diricoo	
Volume	132	89	221	0	45	89	134	0	194	170	364	2	131	154	285	0	502
%HV		3.6	8%			20	.0%			8.2	2%			3.1	1%		6.8%
PHF		0.	72			0.	80			0	84			0.	80		0.84
Du .	By Northbound					South	bound			Eastb	bound			Westl	bound		
	SE 21st Ave					SE 21	st Ave		S	E Wash	nington	St	S	E Wash	nington	St	Total
Movement	nent L T R Tot				L	т	R	Total	L	т	R	Total	L	т	R	Total	
Volume	52	58	22	132	9	22	14	45	14	123	57	194	10	104	17	131	502
%HV	3.8%	3.4%	4.5%	3.8%	11.1%	9.1%	42.9%	20.0%	28.6%	6.5%	7.0%	8.2%	10.0%	1.9%	5.9%	3.1%	6.8%
PHF	0.72	0.56	0.69	0.72	0.45	0.69	0.70	0.80	0.39	0.73	0.89	0.84	0.50	0.68	0.47	0.80	0.84

#### **Rolling Hour Summary**

#### 7:00 AM to 9:00 AM

Interval		North				South				Eastb				West					Pedes		
Start		SE 21	st Ave			SE 21	st Ave			SE Wash	ington	St	5	SE Wash	ington	St	Interval		Cross	swalk	
Time	L	т	R	Bikes	L	т	R	Bikes	L	т	R	Bikes	L	т	R	Bikes	Total	North	South	East	West
7:00 AM	37	50	16	3	10	19	18	0	11	119	46	1	12	56	10	1	404	12	3	21	46
7:15 AM	46	54	21	2	14	23	16	0	10	129	50	1	9	85	9	1	466	16	4	25	51
7:30 AM	49	59	19	1	9	19	13	0	17	143	51	1	11	94	13	1	497	23	8	33	48
7:45 AM	52	58	22	0	9	22	14	0	14	123	57	2	10	104	17	0	502	35	8	30	51
8:00 AM	56	42	17	1	11	23	15	0	19	97	61	1	6	92	22	0	461	37	10	27	47







# SE 21st Ave & SE Washington St

Tuesday, March 05, 2019

7:00 AM to 9:00 AM

	<b>↑</b>	<b>(*</b>
Out 7	2	ln 5
Peak Hoi 7:45 AM		Summary 8:45 AM

Total 34 0.85

Oui 7

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#### Heavy Vehicle 5-Minute Interval Summary 7:00 AM to 9:00 AM

Interval			bound				bound				ound				bound		
Start			st Ave				st Ave		8	E Wash			5	SE Wasl			Interval
Time	L	Т	R	Total	L	Т	R	Total	L	Т	R	Total	L	Т	R	Total	Total
7:00 AM	0	0	0	0	1	0	0	1	0	0	1	1	0	0	0	0	2
7:05 AM	0	1	0	1	0	0	1	1	2	0	0	2	1	0	1	2	6
7:10 AM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
7:15 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
7:20 AM	0	0	1	1	0	1	1	2	0	0	0	0	0	1	0	1	4
7:25 AM	0	0	0	0	1	0	1	2	1	0	0	1	0	0	0	0	3
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:35 AM	0	0	0	0	1	0	0	1	2	0	1	3	1	0	0	1	5
7:40 AM	1	0	0	1	1	0	1	2	0	0	0	0	0	0	0	0	3
7:45 AM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
7:50 AM	0	0	0	0	0	0	1	1	0	0	2	2	0	0	1	1	4
7:55 AM	0	0	0	0	0	1	1	2	0	1	0	1	0	0	0	0	3
8:00 AM	0	0	0	0	0	0	0	0	1	0	1	2	1	0	0	1	3
8:05 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	2
8:10 AM	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	2
8:15 AM	1	0	0	1	0	0	0	0	1	0	1	2	0	0	0	0	3
8:20 AM	0	0	0	0	0	0	0	0	1	2	0	3	0	0	0	0	3
8:25 AM	0	1	0	1	0	0	1	1	0	2	0	2	0	0	0	0	4
8:30 AM	1	0	0	1	0	1	1	2	0	0	0	0	0	0	0	0	3
8:35 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
8:40 AM	0	0	0	0	1	0	1	2	1	1	0	2	0	0	0	0	4
8:45 AM	0	1	1	2	0	0	0	0	0	1	0	1	0	0	0	0	3
8:50 AM	0	0	0	0	0	1	0	1	2	0	0	2	0	1	0	1	4
8:55 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	3	5	3	11	5	4	11	20	11	9	6	26	3	4	2	9	66

#### Heavy Vehicle 15-Minute Interval Summary 7:00 AM to 9:00 AM

Interval		North	bound			South	bound			Eastb	ound			Westl	oound		
Start		SE 21	st Ave			SE 21	st Ave		s	E Wash	nington	St	S	SE Wash	iington	St	Interval
Time	L	Т	R	Total	L	т	R	Total	L	Т	R	Total	L	Т	R	Total	Total
7:00 AM	0	1	0	1	1	0	2	3	2	0	1	3	1	0	1	2	9
7:15 AM	0	1	1	2	1	1	2	4	1	0	0	1	0	1	0	1	8
7:30 AM	1	0	0	1	2	0	1	3	2	0	1	3	1	0	0	1	8
7:45 AM	0	1	0	1	0	1	2	3	0	2	2	4	0	0	1	1	9
8:00 AM	0	0	1	1	0	0	1	1	1	1	1	3	1	1	0	2	7
8:15 AM	1	1	0	2	0	0	1	1	2	4	1	7	0	0	0	0	10
8:30 AM	1	0	0	1	1	1	2	4	1	1	0	2	0	1	0	1	8
8:45 AM	0	1	1	2	0	1	0	1	2	1	0	3	0	1	0	1	7
Total	3	5	3	11	5	4	11	20	11	9	6	26	3	4	2	9	66
Survey	2	9			~			20		~	0	20	5	-	4	ÿ	00

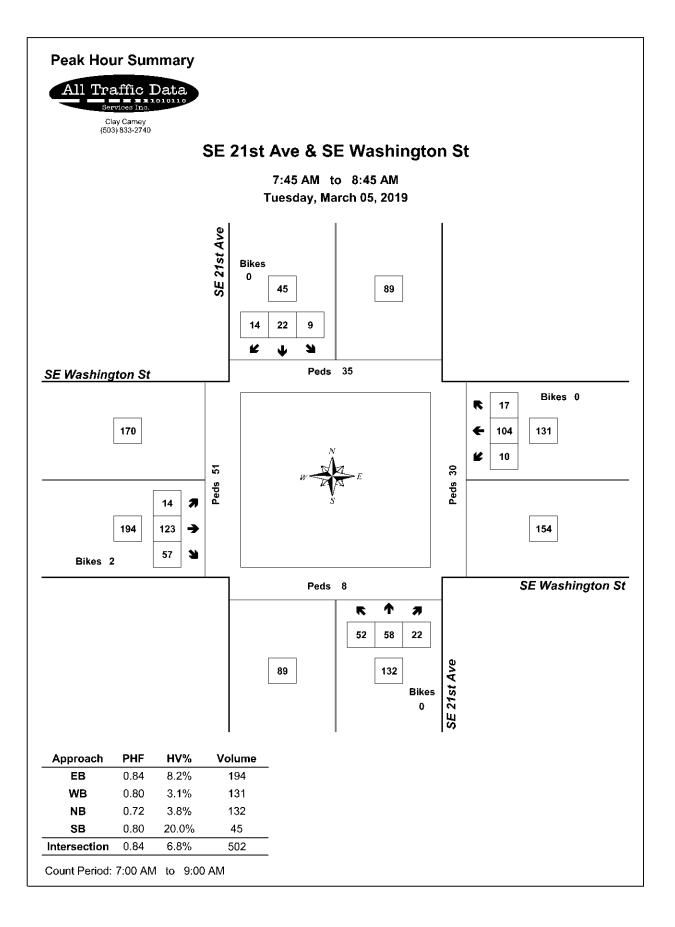
#### Heavy Vehicle Peak Hour Summary 7:45 AM to 8:45 AM

Bv		North	bound		South	ibound		East	ound		West	bound	
Approach		SE 21	st Ave		SE 2	Ist Ave	S	E Wash	nington St	S	E Wast	nington St	
Аррговон	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	5	7	12	9	7	16	16	10	26	4	10	14	
PHF	0.63			0.56			0.57			0.50			

By Movement			bound st Ave			South SE 21	bound st Ave		S	Eastb E Wash		St	s	Westt E Wash		St	Total
Movement	L	т	R	Total	L L	т	R	Total	L	т	R	Total	L	т	R	Total	
Volume	2	2	1	5	1	2	6	9	4	8	4	16	1	2	1	4	34
PHF	0.50	0.50	0.25	0.63	0.25	0.50	0.75	0.56	0.50	0.50	0.33	0.57	0.25	0.50	0.25	0.50	0.85

#### Heavy Vehicle Rolling Hour Summary 7:00 AM to 9:00 AM

Interval Start			bound st Ave				bound st Ave		5	Easti SE Wasi	ound	St	ç	West SE Wasi	bound hington	St	Interval
Time	L	т	R	Total	L	т	R	Total	L	т	Ř	Total	L	т	Ř	Total	Total
7:00 AM	1	3	1	5	4	2	7	13	5	2	4	11	2	1	2	5	34
7:15 AM	1	2	2	5	3	2	6	11	4	3	4	11	2	2	1	5	32
7:30 AM	2	2	1	5	2	1	5	8	5	7	5	17	2	1	1	4	34
7:45 AM	2	2	1	5	1	2	6	9	4	8	4	16	1	2	1	4	34
8:00 AM	2	2	2	6	1	2	4	7	6	7	2	15	1	3	0	4	32





# SE 21st Ave & SE Washington St

Tuesday, March 05, 2019

4:00 PM to 6:00 PM

#### 5-Minute Interval Summary 4:00 PM to 6:00 PM

4:00 PW	10	0:00 P	1911																		
Interval		North	bound			South	bound			Eastb	ound			Westl	bound				Pedes	strians	
Start		SE 21	st Ave			SE 21	st Ave		5	SE Wash	nington -	St		SE Wash	ington	St	Interval		Cros	swalk	
Time	L	т	R	Bikes	L	т	R	Bikes	L	т	R	Bikes	L	т	R	Bikes	Total	North	South	East	West
4:00 PM	2	0	1	1	2	6	1	0	3	10	4	0	0	6	0	0	35	2	1	4	6
4:05 PM	5	3	0	0	1	4	4	0	2	11	5	0	1	9	0	0	45	3	2	5	2
4:10 PM	3	0	0	0	0	4	1	0	1	11	1	0	1	7	2	0	31	0	0	0	1
4:15 PM	6	5	1	0	0	0	2	0	1	8	5	0	3	6	2	0	39	0	0	2	8
4:20 PM	4	3	0	0	0	3	2	0	2	6	6	0	2	11	5	0	44	0	0	0	2
4:25 PM	5	3	0	0	2	0	5	0	3	4	8	1	1	9	1	1	41	0	1	1	0
4:30 PM	2	1	0	0	2	4	1	0	0	6	5	0	1	5	4	0	31	1	1	4	8
4:35 PM	3	5	0	0	4	4	2	0	2	10	6	0	1	8	2	0	47	0	0	4	1
4:40 PM	2	3	1	0	1	7	0	0	0	13	5	0	0	11	1	0	44	1	0	1	2
4:45 PM	2	2	1	0	0	4	1	0	0	3	5	0	0	2	1	0	21	0	0	3	8
4:50 PM	3	3	2	0	1	2	4	1	2	6	6	0	0	11	4	0	44	0	0	0	1
4:55 PM	3	1	3	0	1	3	2	0	4	7	3	0	0	11	0	0	38	0	0	0	1
5:00 PM	3	5	0	0	0	9	3	0	1	9	3	0	1	5	2	0	41	2	1	1	1
5:05 PM	5	1	0	0	1	3	1	0	2	3	1	0	0	11	1	0	29	2	0	2	1
5:10 PM	8	2	0	0	2	5	2	0	0	8	4	0	0	6	2	0	39	1	0	0	0
5:15 PM	2	3	0	0	0	4	2	0	4	9	5	0	0	7	2	0	38	0	0	2	1
5:20 PM	2	6	1	1	0	2	1	0	0	5	0	0	1	7	3	0	28	0	0	2	1
5:25 PM	3	5	1	0	2	2	1	1	2	8	6	0	0	7	1	0	38	1	0	1	1
5:30 PM	1	5	1	0	0	4	1	1	1	7	8	0	2	5	0	1	35	0	0	1	0
5:35 PM	4	6	2	1	1	5	1	0	4	3	5	0	0	4	2	0	37	2	0	6	3
5:40 PM	6	2	0	0	1	5	2	0	1	11	9	0	1	6	4	0	48	0	0	0	5
5:45 PM	2	0	0	0	0	1	1	0	0	9	3	0	1	3	2	0	22	2	0	2	1
5:50 PM	5	13	0	0	2	3	6	0	1	7	7	0	3	5	0	0	52	1	0	2	6
5:55 PM	1	7	2	0	1	6	4	0	2	6	3	0	0	2	0	0	34	2	1	1	8
Total	82	84	16	3	24	90	50	3	38	180	113	1	19	164	41	2	901	20	7	44	68
Survey	ΨĽ	<b>\$</b> -7		5		<u> </u>		5						.04		-	<u>.</u>	L	•		

#### 15-Minute Interval Summary

#### 4:00 PM to 6:00 PM

Interval			bound			South					ound			Westl					Pedes	trians	
Start		SE 21	st Ave			SE 21	st Ave			SE Wasł	ington	St		SE Wash	ington	St	Interval		Cros	swalk	
Time	L	Т	R	Bikes	L	Т	R	Bikes	L	Т	R	Bikes	L	Т	R	Bikes	Total	North	South	East	West
4:00 PM	10	3	1	1	3	14	6	0	6	32	10	0	2	22	2	0	111	5	3	9	9
4:15 PM	15	11	1	0	2	3	9	0	6	18	19	1	6	26	8	1	124	0	1	3	10
4:30 PM	7	9	1	0	7	15	3	0	2	29	16	0	2	24	7	0	122	2	1	9	11
4:45 PM	8	6	6	0	2	9	7	1	6	16	14	0	0	24	5	0	103	0	0	3	10
5:00 PM	16	8	0	0	3	17	6	0	3	20	8	0	1	22	5	0	109	5	1	3	2
5:15 PM	7	14	2	1	2	8	4	1	6	22	11	0	1	21	6	0	104	1	0	5	3
5:30 PM	11	13	3	1	2	14	4	1	6	21	22	0	3	15	6	1	120	2	0	7	8
5:45 PM	8	20	2	0	3	10	11	0	3	22	13	0	4	10	2	0	108	5	1	5	15
Total	82	84	16		24	90	50	2	38	180	113	1	19	164	41	2	901	20	7	44	68
Survey	02	04	10	3	24	90	30	3	- 30	100	115		19	104	41	2	901	20	/	44	00

#### Peak Hour Summary

4:05 PM to 5:05 PM Northbound Southbound Eastbound Westbound Pedestrians By SE 21st Ave SE 21st Ave SE Washington St SE Washington St Total Crosswalk Approach In Out Total Bikes In Out Total Bikes In Out Total Bikes In Out Total Bikes North South East Volume 159 170 466 83 113 196 83 76 163 333 130 114 244 1.2% 10.8% 1.5% %HV 6.5% 4.9% PHF 0.77 0.83 0.90 0.81 0.94 Northbound Southbound Eastbound Westbound Bγ SE 21st Ave T R 44 27 SE 21st Ave SE Washington St SE Washington St Total Movement т R Total Total т R Total т R Total Volume 41 34 8 83 12 83 18 94 58 170 11 95 24 130 466 
 12
 44
 27
 63
 18
 94
 58
 170

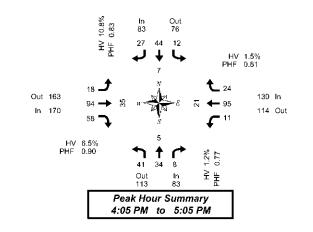
 16.7%
 2.3%
 22.2%
 10.8%
 38.9%
 3.2%
 1.7%
 6.5%

 0.38
 0.73
 0.75
 0.83
 0.64
 0.78
 0.76
 0.90
 0.0% 2.1% 0.0% 1.5% %HV PHF 0.0% 2.9% 0.0% 1.2% 4.9% 0.94 0.68 0.77 0.33 0.77 0.46 0.88 0.60 0.81

#### **Rolling Hour Summary**

#### 4:00 PM to 6:00 PM

Interval		North	bound			South	bound			Eastt	bnuoe			Westl	bnuoc				Pedes	trians	$\neg$
Start		SE 21	st Ave			SE 21	st Ave		5	SE Wash	ington	St	5	SE Wash	ington	St	Interval		Cross	swalk	
Time	L	т	R	Bikes	L	т	R	Bikes	L	т	R	Bikes	L	т	R	Bikes	Total	North	South	East	West
4:00 PM	40	29	9	1	14	41	25	1	20	95	59	1	10	96	22	1	460	7	5	24	40
4:15 PM	46	34	8	0	14	44	25	1	17	83	57	1	9	96	25	1	458	7	3	18	33
4:30 PM	38	37	9	1	14	49	20	2	17	87	49	0	4	91	23	0	438	8	2	20	26
4:45 PM	42	41	11	2	9	48	21	3	21	79	55	0	5	82	22	1	436	8	1	18	23
5:00 PM	42	55	7	2	10	49	25	2	18	85	54	0	9	68	19	1	441	13	2	20	28



West

35

21





# SE 21st Ave & SE Washington St

Tuesday, March 05, 2019

4:00	РМ	to	6:00	PM

• 0 Out 2	<b>↑</b>	0 In 1
		ummary 5:05 PM

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Heavy Vehicle	5-Minute Interval Summary
4:00 PM to 6:	00 PM

Interval			bound				bound				bound				bound		
Start		SE 21	st Ave			SE 21	st Ave		S	E Wash	nington	St	S	SE Wash	nington	St	Interval
Time	L	т	R	Total	L	т	R	Total	L	т	R	Total	L	т	R	Total	Total
4:00 PM	0	0	0	0	0	1	0	1	0	1	0	1	0	0	0	0	2
4:05 PM	0	0	0	0	0	0	2	2	1	2	0	3	0	0	0	0	5
4:10 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
4:20 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
4:25 PM	0	0	0	0	0	0	1	1	1	0	0	1	0	0	0	0	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:35 PM	0	1	0	1	1	1	1	3	1	0	0	1	0	1	0	1	6
4:40 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
4:50 PM	0	0	0	0	0	0	1	1	1	0	1	2	0	0	0	0	3
4:55 PM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
5:05 PM	0	1	0	1	0	0	0	0	1	0	0	1	0	0	0	0	2
5:10 PM	0	0	0	0	0	1	2	3	0	0	0	0	0	0	0	0	3
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:20 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	1	2
5:25 PM	0	0	0	0	0	0	0	0	1	1	0	2	0	1	0	1	3
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:35 PM	0	1	0	1	0	0	0	0	2	0	0	2	0	0	0	0	3
5:40 PM	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:50 PM	0	1	0	1	0	0	2	2	0	0	0	0	0	0	0	0	3
5:55 PM	0	0	0	0	0	1	0	1	1	0	0	1	0	0	0	0	2
Total	0	4	0	4	2	5	12	19	12	5	1	18	0	4	0	4	45
Survey	0	4	0	4	2	5	12	19	12	3		10	0	4	0	4	40

# Heavy Vehicle 15-Minute Interval Summary 4:00 PM to 6:00 PM

Interval		North	bound			South	bound			Eastb	ound			West	bound		
Start		SE 21	st Ave			SE 21	st Ave		S	E Wash	nington	St	5	SE Wash	ington	St	Interval
Time	L	Т	R	Total	L	т	R	Total	L	Т	R	Total	L	Т	R	Total	Total
4:00 PM	0	0	0	0	0	1	2	3	1	3	0	4	0	0	0	0	7
4:15 PM	0	0	0	0	0	0	1	1	2	0	0	2	0	1	0	1	4
4:30 PM	0	1	0	1	2	1	1	4	1	0	0	1	0	1	0	1	7
4:45 PM	0	0	0	0	0	0	2	2	3	0	1	4	0	0	0	0	6
5:00 PM	0	1	0	1	0	1	2	3	1	1	0	2	0	0	0	0	6
5:15 PM	0	0	0	0	0	0	1	1	1	1	0	2	0	2	0	2	5
5:30 PM	0	1	0	1	0	1	1	2	2	0	0	2	0	0	0	0	5
5:45 PM	0	1	0	1	0	1	2	3	1	0	0	1	0	0	0	0	5
Total	0	4	0	4	2	5	12	19	12	5	1	18	0	4	0	4	45
Survey	0	-	0		-		12	.5	.2			.0		-7		7	-10

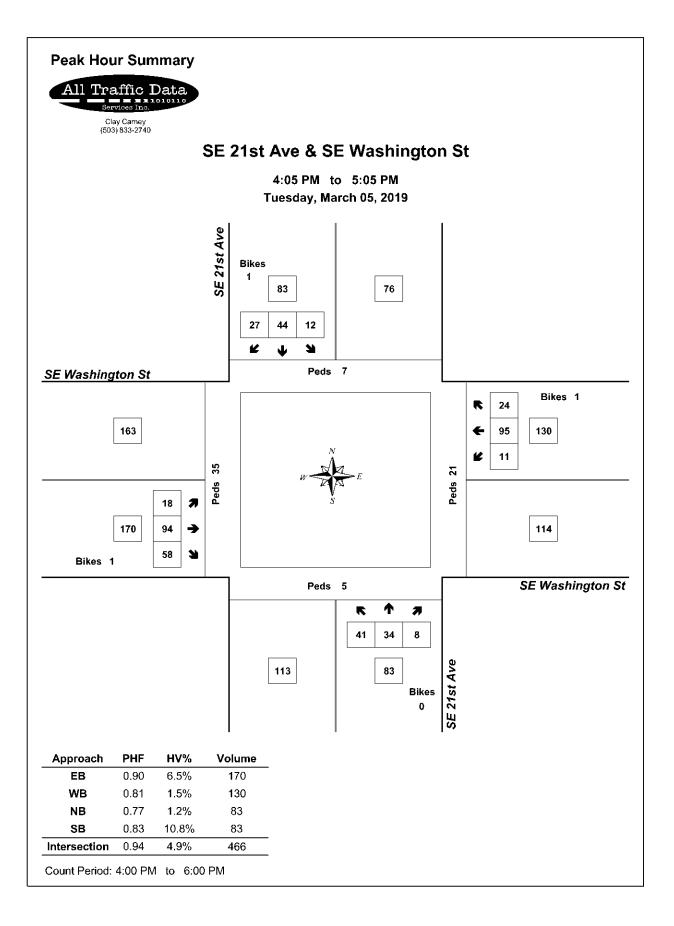
#### Heavy Vehicle Peak Hour Summary 4:05 PM to 5:05 PM

By Approach			bound st Ave			ibound Ist Ave	5		bound hington St			t <b>bound</b> hington St	Total
Approach	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	1	2	3	9	8	17	11	8	19	2	5	7	23
PHF	0.25			0.45			0.55			0.50			0.72

By Movement			bound st Ave			South SE 21	bound st Ave		S	Eastt E Wash	ound ington (	St	s	Westt E Wash		St	Total
Movement	L	т	R	Total	L L	Т	R	Total	L	т	R	Total	L	т	R	Total	
Volume	0	1	0	1	2	1	6	9	7	3	1	11	0	2	0	2	23
PHF	0.00	0.25	0.00	0.25	0.25	0.25	0.75	0.45	0.58	0.38	0.25	0.55	0.00	0.50	0.00	0.50	0.72

#### Heavy Vehicle Rolling Hour Summary 4:00 PM to 6:00 PM

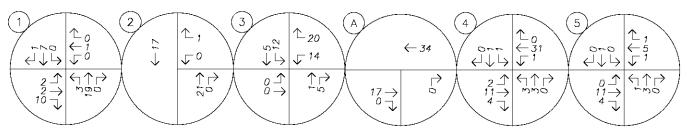
Interval Start			bound st Ave				bound st Ave			Eastb E Wash	ound	°4		Westi E Wash	bound	C4	Interval
		35 21	SLAVE	Total		35 21	SLAVE	Total		T 110	ingion			T 100	ingion		
Time			ĸ	Total			ĸ	1 2 2 2 1			ĸ	Total			ĸ	Total	Total
4:00 PM	0	1	0	1	2	2	6	10	7	3	1	11	0	2	0	2	24
4:15 PM	0	2	0	2	2	2	6	10	7	1	1	9	0	2	0	2	23
4:30 PM	0	2	0	2	2	2	6	10	6	2	1	9	0	3	0	3	24
4:45 PM	0	2	0	2	0	2	6	8	7	2	1	10	0	2	0	2	22
5:00 PM	0	3	0	3	0	3	6	9	5	2	0	7	0	2	0	2	21



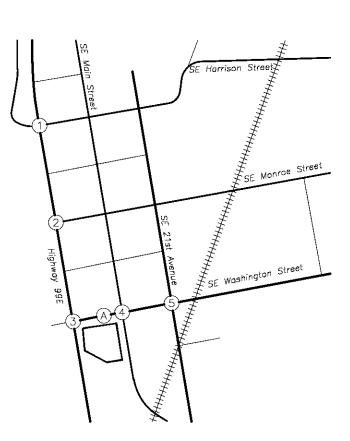
# Appendix D

In-Process Trips

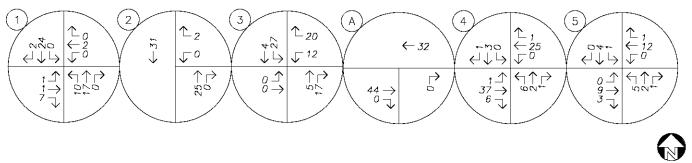




AM PEAK HOUR



PM PEAK HOUR



no scale



## **TRAFFIC VOLUMES**

In-Process Development Trips AM & PM Peak Hours Figure A Coho Point 4/9/2021

# Appendix E

Crash History Data



CDS380 11/12/2025

CITY OF MILWAUKIE, CLACKAMAS COUNTY

ORECON, DEPARTMENT OF TRANSPORTATION _ TRANSPORTATION DEVELOPMENT DIVISION TRANSPORTATION DATA SECTION CRASE ANALYSIS AND REPORTING UNIT URBAN NON-SYSTEM CRASH LISTING 17TH AVE at MCLOUGHLIN BLVD, City of Milwaukie, Clackamas County, 01/01/2014 to 12/31/2018

1 4 of 6 Crash records shown.

SDM															
SFRA P R J S W DATE CTASS	CITY STRET	TNT TYP	R				SPCT. USE								
INVEST E A U I C O DAY DISC			) INT-REL	OFFRD		CRASH	TREE QTY	MOVE			A S				
RD DFT E L G N H R TIME FROM	SECOND STREET BIR		TRAF-	RNDBT	SURF	COLL	CWNER	FROM		INJ		LICNS PED			
UNLOC? D.C.S.V.L.KLAT LONG	LRS LOC			DRVWY	LTGHT	SVETY	V# TYPE	TO	På TYPE :	SVRTY	E X	RES DOC	EREOR	ACT EVENT	CAUSE
04900 N N N N N 11/11/2018 14	MCLOUGHLIN BLVD INT	ER CROSS	X	N	CLR	S-1STOP	01 NONE 9	STRGHT							29
CITY SU	17TH AVE N		TRF SIGNAL	<b>V</b> .	DRY	REAR	N/A	N -S						000	<u>00</u>
N 1P N 45-26-43.38-122-38	060000000000000000000000000000000000000	C		N	DAY	PDO	DSNGR CAR		CI DRVE N	NONE	00 Un	K UNK UNK	000	000	00
N 45 26 43.38 -122 36 33.98	20810220303											2NX			
							0.2 NONE 9 N/A	STOP N -S						011	00
							PSNGR CAR	и -5	C1 DRVR 1	NONE	CO Un	k INK	000	000	00
												UNK			
03142 N.N.N. N.N.11/06/2016 14	MCLOUGHT, IN BUVD INT	RR CROSS	V.	ĸ	CPD	S CTHER	01 NONE 9	TURN R							27,08
CITY SU	17TH AVE S		TRF SIGNAL	N	WET	TURN	N/A	ฟ -5						000	0.0
N ÚP	C 5	с		.4	DLIT	PDC	FENGR CAR		CI DRVR I	NGNE	00 Un		000	000	00
N 45 26 43.37 -122 38 33.97	008100200500											UNK			
							02 NONE 9	TURN-R							
							N/A PSNGR CAR	W -S	C1 DRVR 1	NONE	00 Un	k "INK	000	000	00 00
												JNK			
00273 N.N.N. 01/19/2017 14	MCLOUGHLIN BLVD INT	ER CROSS	X	м	JNK	S-18TOP	01 NONE 0	STRGET							29
XONE PH	17TH AVE S		TRE STONAL	N	WET	REAR	PRVTR	S N						000	00
N 9A	C6	С		м	DAY	INJ	PSNGR CAR		C1 DRVR M	NGNE	26 F	OR-Y	026	000	29
N 45 26 43.37 122 38 33.97	008100200500											03<25			
							0.2 NONE C	STOP							
							PRVTE	S N						011	00
							FENGR CAR		CI DRVR :	-NEC	36 F	0R-¥ 0R<23	000	000	00
05466 N.X.N. 12/21/2017 14	MCLOUGHLIN BLVD INT	RR CROSS	x	N	CLR	S-STROHT	OL NONE O	STRONT						013	29
NONE TH	17TH AVE S		TRE SIGNAL	N	DRY	REAR	FRVTE	N - S						000	90
X 6P	05	С		ĸ	DARK	TNJ	ESNGE CAR		CI DRVR	INCC	33 X	OR Y	642	000	29
N 45 26 43.37 -122 38	008160200800											CR<25			
32.97							0.2 NONE C	STRONT							
							FRVIE	N -5						000 013	00
							FSNGR CAR		C1 DRVR	INCC	62 P		600	000	0.0
							03 NONE C	STRGET				CR<20			
							PRVTE	NS						022	00
							FENGR CAR		CI DRAK 1	NONE	$5.7 \pm F$	0R-Y 0B<25	000	000	00
C1805 N.N.N. N.N. 04/20/2016 16	MCLOUGHLIN BLVD INT	ER CROSS	X	N	FAIN	BIKE	OL NONE O	STRONT				08<25			27
CITY WE D	17TH AVE W		TRF SIGNAL	7	WET	ANGL	FRVIE	W -E						000	00
N 6P	06	с		N	DAY	TNJ	PSNGR CAR		CI DRVR 1	NONE	36 P	07 V	C16,027	038	27
N 45 26 43.37 -122 38		, v					10000 000				24 6	CR<25	0107001		2
33.97															

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11/12/2020

CITY OF MILWAUKIE, CLACKAMAS COUNTY

#### CREGON., DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION TRANSPORTATION DATA SECTION - CRASE ANAYLYSIS AND REPORTING UNIT URBAN NON-SYSTEM CRASH LISTING 17TH AVE at MCLOUGHLIN BLVD, City of Milwaukie, Clackamas County, 01/01/2014 to 12/31/2018

5 6 of 6 Crash records shown.

	SDM																			
SFRA	P スノミリ	TATE	CT AGS	CITY STRRFT		INT TYPE					SPC. USE									
INVEST	EVATCO	YAC 0	0182	FIRST STREET	RO CHAR	(MEDIAN)	INI-REL	OFFRD	WIER	CRASH	TRER OTY	MOVE			Δ	3				
RD DFT	ELGNNF	TIME	FROM	SECOND STREET	BIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	CWNER	FROM	PRTC	INC	G I	E LICNS	PED			
UNLOC?	DCSVLE	( LAT	LONG	LRS	LOCTN	(ILLANES)	CONTL	DRVWY	LEGHT	SVETY	V# TYPE	70	P# TYPE	SVRTY	E S	RES	100	ERFOR	ACT EVENT	CAUSE
												-								
												STRCHT	CI BIKE	INCE	54 X		l XMPR	600	035	0.0
												S N								
03046	N N N	08/31/2018	14	MCLOUGHLIN BLVD	INTER	CROSS	N	м	CLR	ANGL-OTH	01 NONE C	STRGHT								04
NONE		FR		17TH AVE	CN		TRF SIGNAL	N	DRY	ANGL	PRVTE	ЯE							000	00
X		112			C 4	С		N	DLIT	INJ	PSNGR CAR		C1 DRVR	NCNE	26 F			020	000	04
N		45 26 43.36	122 38 33.97	008100200900												CR>25				
											0.2 NONE C	STRONT								
											PRVTE	S N							000	90
											PSNGR CAR		C1 DEVE	INCC	59 X	CR-Y OR<25		000	000	00
											02 NONE C	STREET				UNCZS				
											FRVTE	S -N							000	00
											FSNGR CAR		C2 FSNG	INCO	58 F			000	000	90

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### 11/12/2020

CITY OF MILWAUKIE, CLACKAMAS COUNTY

### CREGON., DEPARTMENT OF TRANSPORTATION — TRANSPORTATION DEVELOPMENT DIVISION TRANSPORTATION LATA SECTION — CRASE ANAVINSIS AND REPORTING UNIT URBAN NON-SYSTEM CRASE LISTING HARRISON ST at MCLOUGHLIN BLVD, City of Milwaukie, Clackamas County, 01/01/2014 to 12/31/2018

1 5 of 17 Crash records shown.

	S D M																		
SFRA	P RJ	S W DATE	CT ASS	CITY STREET		INT TYPE					SPC. USE								
INVEST	E A U I	C O DAY	Disr	FIRST STREET	RD CHAR	(MEDIAN)	INI-REL	OFFRD	WIER	CRASH	TREE QTY	MOVE			Λ 8	)			
	ELGN		FROM	SECOND STREET	DIRECT	legs	TRAF-	RNDBT	SURF	COLL	CWNER	FROM	PRTC	INC		E LICNS PED			
	DCSV		LONG	LRS	LOCTN	(JEANES)	CONTL	DRVWY	LTGHT	SVETY	V# TYPE	70	Pir TYPE	SVRTY	е )	RES DOC	ERFOR	ACT EVENT	CAUSE
	ΝΥΝ	12/10/2015	14	HARRISON ST	INTER	CROSS	X	N	RAIN	S-1STOP	01 NONE C	STRGHT							29,07
CITY		TH		MCLOUGHLIN BLVD	у		L-GRN-SIG	71	WET	REAR	FRVTE	N - S						000	00
N		2A		008100100500	66	c		N	THE	TNJ	PSNGR CAR		C1 DRVR	TNCC	23 X	OR-Y OR<25	643,026	000	29,07
2		45 26 43.37	33.97	30810520365												0:<25			
											02 NONE C FRVTE	STOP N -S						012	00
											PANCE CAR	N -5	C1 DRVR	NONE	51 M	CR-Y	000	000	00
																CR<25			
60440	NNN	N N 92/04/2015	14	HARRISON ST	INTER	CROSS	N.	ĸ	CPB	S ISTOP	01 NONE 0	STRCHT							35,13
CITY		WE		MCLOUGHLIN BLVD	И		TRF SIGNAL	N	DRY	REAR	PRVTE	N -S						000	00
N		3 P			66	с		.4	DAY	PDC	FSNGR CAR		C1 DRVR	NCNE	43 X		045	000	13
N		45 26 43.37	7 -122 36 33.97	008100100900												CR<25			
											02 NONE C	STRGHT							
											PRVTE FSNGR CAR	N -S	C1 DRVR	NONZ	41 R	07 V	045	000	00 13
											POINT OAN		CI DAVA	1020-	-11 P	CR<25	045	000	15
84208	N N N	06/25/2016	14	HARRISON ST	INTER	CROSS	N	М	CLR	S-1STOP	01 NONE 0	STRGIT							29
NONE		SA		MCLOUGHTEIN BUVD	Л		TRE STONAL	N	DRY	RFAR	PRVTE	N S						000	00
N		9A			06	с		м	DAY	INJ	PSNGR CAR		C1 DRVR	NGNE	49 M	CTH-Y	026	000	29
N		45 26 43.37		008100200500												N RES			
			33.97								0.2 NONE C	STOP							
											PRVTE	N S						011	00
											FENGR CAR		C1 DRVK	INCO	43 X	OR-Y OR<25	000	000	00
00401	NXN	N N 91/30/2017	14	HARRISON ST	INTER	CROSS	X	ĸ	CLE	S-1STOP	01 NONE 0	STRONT							29
CITY		MO		MCLOUGHLIN BLVD	У		TRF SIGNAL	V.	DRY	REAR	FRVTE	N - S						000	00
X		1 P			0.6	с		ĸ	DAY	TNJ	ESNGE CAR		C1 DRVR	NONE	39 X	OR Y	026	000	29
N		45 26 43.37		008160100500												OR<25			
			33.97								0.2 NONE C	STOP							
											FRVIE	N -5						011	00
											FSNGR CAR		C1 DRVR	INCC	63 X	CR-Y CR<25	000	000	00
02997	NNN	07/24/2017	14	HARRISON ST	INTER	CROSS	X	N	CLR	S 1STOP	01 NONE 0	STRGHT				0.0.2.7			29
NONE		MO		MCLOUCHLIN BLVD	N		TRF SIGNAL	N	DRY	REAR	UNEN	N -5						000	00
				HELOHALIN DIVD			The second					<b>N</b> .,							
N N		5P 45 26 43.37	7 -122 38	008100200500	66	C		N	YAC	INJ	FANGR CAR		C1 ERVR	NONE	38 F	OR - Y UNK	026	000	29
			33.97																
											02 NONE C PRVTE	STOP N -S						011	00
											FSNGR CAR		C1 DRVR	INCO	47 X		000	000	00
																CR<25			

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#### 11/12/2020

CITY OF MILWAUKIE, CLACKAMAS COUNTY

## CREGON., DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION TRANSPORTATION DATA SECTION - CRASE ANAVEYSIS AND REPORTING UNIT URBAN NON-SYSTEM CRASH LISTING

### HARRISON ST at MCLOUGHLIN BLVD, City of Milwaukie, Clackamas County, 01/01/2014 to 12/31/2018

6 9 of 17 Crash records shown.

:	S D M																			
SFRA	р а је	S W DATE	CT ASS	CITY STREET		INT TYPE					SPCT. USE									
INVEST	Е А О Т С	2 O DAY	DISC	FIRST STREET	RO CHAR	(MEDIAN)	INI-REL	OFFRD	WITER	CRASH	TRER QTY	MOVE			Λ	8				
RD DFT	агала	1 R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	CWNER	FROM	PRTC	INC	G I	E LICXS	PED			
	рсяут		LONG	LRS	LOCTN			DRVWY	PICHI	SVETY	V# TYPE	70	Pir TYPE	SVRTY	E 3	C RES	50C	ERFOR	ACT EVENT	CAUSE
02108 1	NXN	05/10/2016	16	HARRISON ST	INTER	CROSS	X	N	CLR	S-1STOP	01 NONE 9	STRGHT							006	29
NONE		TU	0	MCLOUGHLIN BLVD	Е		TRF SIGNAL	N	DRY	REAR	N/A	2 -W							000	00
N N		1P 45 26 43.37	1 - 222 3.6		0.6	С		N	DAY	PDO	PSNCR CAR		C1 DRVR	NONE	CO Ur	UNK UNK		000	000	0.0
2		45 26 45.37	33.97													JNK				
											0.2 NONE 9	STOP								
											N/A PSNGR CAR	$\Xi \to M$	C1 DRVR	NCNE	CO LT	k INK		000	011 000	00 00
													01 Ditta	1		UNK				
01679 1	N N N I	N 04/13/2016	14	HARRISON ST	INTER	CROSS	7	N	CPD	S ISTOP	01 NONE 0	STRCHT								29
CITY		WE		MCLOUGHLIN BLVD	5		TRE SIGNAL	N	DRY	REAR	PRVTE	S -N							000	0.0
N		10A			66	С		.4	DAY	LNJ	FENGR CAR		C1 DRVR	$NGN\Xi$	64 F			026	000	29
N		45 26 43.37	7 -122 38 33.97	008100200900												CR<25				
											02 NONE C	STOP								
											PRVTE PSNGR CAR	S -N	C1 DRVR	NONE	30 V	02 V		000	011 000	00 00
											PONOK CAR		CI DATA	NOU-	20 2	OR<25		500	000	0.5
											0.2 NONE C	STOP								
											FRVTE PANCE CAR	S -N	C2 PSNG					000	011 000	00
											PSNGR CAR		GZ PANG	. Ni. c.				630	065	00
05892 1	NNN	11/29/2016	14	HARRISON ST	INTER	CROSS	x.	N	CLR	O CTHER	01 NONE 9	BACK								10
NONE		TU		MCLOUGHLIN BLVD	5		TRE SIGNAL	N	DRY	BACK	N/A	N - S							000	0.0
N		1 P			66	C		.4	DAY	PDC	TRUCK		Č1 DRVR	NGNE	00 Gr	Sk UNK		000	000	00
N		45 26 43.37	7 -122 38 33.97	008100200500												UNK				
											02 NONE 9	STOP								
											N/A	S-N							011	00
											PSNGR CAR		C1 DRVR	NUNE	CU CI	UNK		000	000	00
06184 1	NNN	12/28/2016	14	HARRISON ST	INTER	CROSS	Х	N	CLR	S-1STOP	01 NONE 9	STRGET								29
NONE		W-		MCLOUGHLIN BUVD	5		TRE STONAL	N	DRY	RTAR	N/A	S N							000	00
X		10A			0.6	C		N	DAY	PDC	UNENOWN		C1 DRVR	NGNE	CO UI			000	000	00
N		45 26 43.37	7 122 38 33.97	008100200500												'UN X				
											02 NONE 9	STOP								
											N/A	S N	C1 (21876)	BICODOL:	en 15	de conce		0.00	011 000	00
											FENGR CAR		C1 DRVK	NONE	UJ UI	UNK		000	563	00
03035 1	мхм	07/26/2017	14	HARRISON ST	INTER	CROSS	N	N	CLR	S-OTHER	01 NONE 9	TURN-L								08,14
NONE		WE		MCLOUGHLIN BLVD	5		TRF SIGNAL	N	DRY	TURN	N/A	2 - 9							000	00
X		3 P			05	С		ĸ	DAY	PDO	PSNGR CAR		C1 DRVR	NCNE	00 Ur	k UNK		000	000	0.0
N		45 26 43.37	/ -122 38 33.97	008166200800												UNK				

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1171272020

CITY OF MILWAUKIE, CLACKAMAS COUNTY

### CREGON., DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION TRANSPORTATION DATA SECTION - CRASE ANAVIYSIS AND REPORTING UNIT URBAN NON-SYSTEM CRASH LISTING HARRISON ST at MCLOUGHLIN BLVD, City of Milwaukie, Clackamas County, 01/01/2014 to 12/31/2018

10 13 of 17 Crash records shown.

S T	мс																		
SPRA P P	R J S W DATE	CTASS	CITY STREET		INT TYPE					SPC. USE									
INVEST E A U	YAC O DAY	0182	FIRST STREET	KO CHAR	(MEDIAN)	INI-REL	OFFRD	WITER	CRASH	TRER QTY	MOVE			Α٤	;				
RD DFT E L C	S N H R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	CWNER	FROM	PRTC	INC	G E	E LICN	S PED			
INLOCE D.C.S	В V I. К БАТ	LONG	LRS	LOCTN	(ICANES)	CONTL	DRVWY	LTGHT	SVETY	V# TYPE		Pir TYPE	SVRTY	E X	RES	500	RRROR	ACT EVENT	CAUSE
										02 NONE 9	TORN L							000	0.5
										N/A FSNCE CAR	Z -S	CI DRVR	NCNT	ch th	P INZ		000	000	00 00
										Foliga Gen		GT DREB	145,014	0.0 01.	UNK		0.90	000	0.0
02013 N N N	N N N 05/27/2014	14	HARRISON ST	1NTBR	CROSS	N	N	сык	ANGL-07H	01 NONE C	STRGHT								04
сттү	די		MCLOUGHLIN BLVD	CN		TRE STONAL		237	ANGL	PRVTE	WE							000	00
			NGLADORI, IN SUM			TAP STONAL					10 15								
5 5	6F 45 26 43.31		008100:00500	64	C		71	YAC	INJ	FENGR CAR		C1 DRVR	NONE	00 Ur.	k UNK UNK		020	000	04
<b>`</b>	40 20 43.3	33.97	008100.00500												JINA				
										0.2 NONE C	STRGHT								
										PRVTE	S N							000	0.0
										PENGR CAR		C1 DRVR	INCC	46 F	OR-Y OR<2.		000	000	00
										02 NONE C	STRGHU				0	,			
										PRVTE	S - N							000	0.0
										PSNCR CAR		C2 PSNC	INCO	69 F			000	000	0.0
										03 NONE C	STOP								
										FRVTE	2 - 2							011	00
										PSNGR CAR		C1 DRVR	INCO	42 F	CR-Y		000	000	00
															0R<2	5			
02771 N.N.N	N N N 97/18/2014	14	HARRISON ST	INTER	CROSS	X	ĸ	CLR	ANGL OTE	01 NONE C	STRONT								04
TTY	FR		MCLOUGHLIN BLVD	CN		TRF SIGNAL	71	DRY	ANGL	PRVTE	N -S							000	00
×.	7 P			63	C		ß	DAY	1NJ	FSNGR CAR		C1 DRVR	1 N. 10	60 K	03 Y		600	000	90
Ś.	45 26 43.31	7 -132 38	008100100500		<u>,</u>				1100	101000 0110		01 2000	11.0 0		CR<2.		500		
		33.97									600 A 11 A								
										02 NONE C PRVTE	STRGHU W -E							000	00
										PSNCR CAR	<i>,,</i> 2	CI DRVR	NCNE	21 F	OR Y		02:	000	04
															OR<2.	5			
1 Z M - 68760	N N N 09/15/2015	14	HARRISON ST	INTER	3 - 1. BG	N	7	сыр	O-1 L-FUR	N 01 NONE C	STRGHT								04
27TY	τu		MCLOUGHLIN BLVD	CN		TRF STONAL	ĸ	DRY	TURN	PRVTE	N S							000	20
ŝ	7 F			C1	с		м	DUSK	INJ	PENGR CAR		C1 DRVR	BT. 1877		07 V		C 97	000	00
ç	45 26 43.31	7 :22 38	008100100500	61	L		K	JUSK	INU	PENGK CAR		UI LEVR	NORY	33.5	OR<2		697	003	30
		33.97																	
										02 NONE C DRVTR	TURN-L S W							000	00
										PENGR CAR	5 11	C1 DRVR	TN CC	22 F	singe		097	000	00
										i bildit offic		or barr			0R<2.				
02339 N.N.N	95/24/2016	14	HARRISON ST	INTER	CROSS	X	N	CLR	S-OTHER	01 NONE 9	TURN-L								98
ONE	TU		MCLOUGHLIN BLVD	CN		TRF SIGNAL	2	DRY	TURN	N/A	⊻ -S							000	00
τ	210			63	c		N	DAY	PDG	FSNGR CAR		C1 DRVR	NONE	0.0 105	k INK		000	000	00
5	45 26 43.31	/ -122 38	008166200800	×-2						1,00000 000		QU DIVER		30 61.	UNK		00%		v.,
		33.97																	

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11/12/2020

CITY OF MILWAUKIE, CLACKAMAS COUNTY

### CREGON., DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION TRANSPORTATION DATA SECTION - CRASE ANAVIYSIS AND REPORTING UNIT URBAN NON-SYSTEM CRASH LISTING HARRISON ST at MCLOUGHLIN BLVD, City of Milwaukie, Clackamas County, 01/01/2014 to 12/31/2018

14 17 of 17 Crash records shown.

	S D M																		
SFRA	P RJ	S W DATE	CLASS	CITY STREET		INT TYPE					SPC. USE								
NVEST	E A U I	C O DAY	DISC	FIRST STREET	RD CHAR	(MEDIAN)	INI-REL	OFFRD	WIER	CRASH	TREE QTY	MOVE			Λ 8	)			
D DFT	E L G N	II R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDET	SURF	COLL	CWNER	FROM	PRTC	INC	G I	LICXS :	PED		
NLOC?	DCSV	I. K LAT	LONG	LRS	LOCTN	(HILANES)	CONTL	DRVWY	LTGHT	SVETY	V# TYPE	70	Pit TYPE	SVRTY	E S	RES :	OC ERFOR	ACT EVENT	CAUSE
											02 NONE 9 N/A	TURN L Z -S						000	0.0
											PSNCR CAR		CI DRVR	NCNF	CO Ur	K UNK UNK	000	000	00
0215	Y N N	N N 01/13/2017	14	HARRISON ST	INTER	CROSS	N	М	CLR	ANGL-01H	01 NONE C	STRGHT						124	01,04
27TY		99		MCLOUGHLIN BLVD	CN		TRE STONAL	N	TCE	TURN	PRVTE	S N						000 124	00
;		6F 45 26 43.37	122-38 33.97	008100200500	02	C		71	JLIT	INJ	FENGR CAR		C1 DRVR	INCE	27 F	CR-Y OR<25	047,020	000	01,04
			55.97								0.2 NONE C	TURN-R							
											PUBLC	$\Xi = N$						000	0.0
											CTH BUS		C1 DRVR	INCC	60 X	OR-Y GR<25	000	000	00
0490	NNN	N N 02/06/2017	14	HARRISON ST	INTER	CROSS	X	N	CLD	O-1 L-TUR	N OI NONE C	STRGUT						013	02,98,04
Y L'LY		MC		MCLOUGHLIN BLVD	CN		TRE SIGNAL	2	WET	TURN	FRVTE	S -N						000	ÚŬ
:		11P 45 26 43.37		008166260860	C.4	с		ĸ	DAY	TNJ	FSNGR CAR		C1 DRVR	NCNE	28 X	OR-V OR<25	000	000	00
			33.97								0.2 NONE C	TURN L							
											FRVTE	N -E						000 013	00
											PSNGR CAR		C1 DRVR	NONE	30 X	SUSP CR<25	028,004,020	000	02,98,94
											03 NONE C	STOP							
											PRVTE	$\Xi = M$	6.7. DALLAR				000	022 000	00 00
											FENGR CAR		C1 DRVR	INCE	45 X	0R-1 0R<25	0.00	003	50
1691	NXN	05/18/2018	14	HARRISON ST	INTER	CROSS	X	K	CLR	S-CTHER	01 NONE 9	TURN-L							05
ONE		FE		MCLOUGHIIN BIVD	CK		L-GRN-SIG	21	DRY	TURN	N/A	≚ -S						000	00
:		212			C 1	C		N	DAY	PDO	PSNGR CAR		G1 DRVR	NONE	CO Ur	k UNK	000	000	00
:		45 26 43.37	-122-38 33.98	008106200800												UNK			
			-								0.2 NONE 9	TURN L							
											N/A FANGE CAR	≚ -S	C1 DRVR				600	000 000	00 00

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CDS380 11/12/2020

CITY OF MILWAUKIE, CLACKAMAS COUNTY

### CREGON., DEPARTMENT OF TRANSPORTATION — TRANSPORTATION DEVELOPMENT DIVISION TRANSPORTATION DATA SECTION — CRASE ANAYLYSIS AND REPORTING UNIT URBAN NON-SYSTEM CRASE LISTING MONROE ST at MCLOUGHLIN BLVD, City of Milwaukie, Clackamas County, 01/01/2014 to 12/31/2018

1 4 of 8 Crash records shown.

		S D M																			
			S W DATE	CTASS	CITY STREFT		INT TYPE					SPCT. USF.					_				
		EAUI	C O DAY II R TIME	DISP FROM	FIRST STREET SECOND STREET	RD CHAR DIRECT	(MEDIAN) LEGS	INI-REL TRAF-	OFFRD RNDBT	SURF	CRASH COLL	TRER QTY CWNER	MOVE FROM	PRTC	- N	A	S E LICNS	250			
		DCSV		LONG	LRS	LOOTN	(ILANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	70	P# TYPE			X RES	5.00	ERFOR	ACT EVENT	CAUSE
012	36	NNN	04/07/2015	14	MONRCE ST	INTER	3-LEG	Χ	N	CLD	S-1STOP	01 NONE 0	STRGHT								29
NONE	Е		TU		MCLOUGHLIN BLVD	SE		TRF SIGNAL	N	WET	REAR	FRVTE	SE-NW							000	00
N. N			8A 45 26 37.91	7 -122 36 32.58	008100100500	06	С		ĸ	DAY	TNJ	PSNGR CAR		C1 DRVE	NONE	35 X	0R-Y 0R<25		626	000	29
												0.2 NONE C FRVTE PONCE CAR	STOP SE-NW	C1 DRVR	INCO	39 P			000	011 000	00 05
												02 NONE C PRVTE	STOP SE NW				CR<25		000	011 000	00
												PENGR CAR		C2 PSNG	LNCC	U/ X			630	000	90
0040	13	NXN	N N 92/93/2018	14	MONRCE ST	INTER	3-LEG	X	N	CLE	S-1STOP	01 NONE 0	STRGHT								29
CIT	Y		SA		MCLOUGHLIN BLVD	SE		TRE SIGNAL	71	DRY	REAR	FRVTE	SE-NW							000	00
N N			110 45 26 37.95	7 -122 36 32.59	008106100500	0.6	C		к	DAY	TNJ	MTROYCLE		G1 DRVE	TNER	26 X	OR-Y OR<25		026	000	29
												02 NONE C FRVTE PSNGR CAR	STOP SE-NW	CI DRVR	NCNE	71 P	CR-Y CR<23		000	011 000	00 95
G4 5 5	98	YXN	N N 10/06/2016	14	MONROR ST	TNTER	3 TRG	7	N	RATN	S STRCHT	01 NONE 9	STRONT								01,13
CIT	Y		TH		MCLOUGHLIN BLVD	5		TRE SIGNAL	N	WET	89-D	N/A	S -N							000	00
N N			6P 45 26 37.91	7 -122 38 32.38	008100100500	06	С		.4	JLIT	FDC	Fångr Car		C1 DRVR	NGNE	60 U	nk JNK UNK		000	000	00
												02 NONE 9 N/A FSNGR CAR	STRGHT S -N	C1 DRVR	NCNE	00 U	nk UNK UNK		000	000 000	00 00
6238	88	NZN	N N 06/21/2014	14	MONRCE ST	INTER	3-1.EG	N	N	CLR	S-1STOP	01 NONE 0	STRGIT								07
NON	R		SA		MCLOUGHT, IN BUVD	JM.		TRE STONAL	N	ORY	RTAR	PRVTE	N S							000	00
N N			5P 45 26 37.95	7 122 38 32.58	008100:00500	06	С		N	DAY	INJ	PSNGR CAR		C1 DRVR	NONE	38 M	OR-Y OR<25		043,025	000	07
												02 NONE C FRVTE FENGR CAR	STOP N S	C1 DRVK	INCO	59 P	0R-Y 0R<25		000	011 000	00 00
040	s:	NNN	N X 09/30/2017	14	MONRCE ST	INTER	3 - LEC	N	N	RATN	S-1STOP	01 NONE 0	STRONT								97
CITS	Y		SA		MCLOUGHLIN BLVD	246		TRF SIGNAL	м	WET	REAR	FRVTE	NW-SE							000	00
Z Z			90 45 26 37.91	7 -122 38 32.58	008160100800	66	с		к	тыс	TNJ	PSNGR CAR		CI DRVR	NCKE	33 X	OTH Y N-RES		043,026	000	07

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11/12/2020

CITY OF MILWAUKIE, CLACKAMAS COUNTY

## CREGON., DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION TRANSPORTATION DATA SECTION - CRASE ANAYLYSIS AND REPORTING UNIT UKBAN NON-SYSTEM CRASH LISTING MONROE ST at MCLOUGHLIN BLVD, City of Milwaukie, Clackamas County, 01/01/2014 to 12/31/2018

5 8 of 8 Crash records shown.

SDM

SFRA	P RJ	S W DATE	CTASS	CITY STREET		INT TYPE					SPCT. USE										
INVEST	EAUI	C O DAY	0182	FIRST STREET	RD CHAR	(MEDIAN)	INI-REL	OFFRD	WIER	CRASH	TREE QTY	MOVE			1	N 8					
RD DFT	E L G N	II R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	CWNER	FROM	PRTC	INJ	0	B E LI	ICNS	PED			
UNLOC?	DCSV	Г. К.БАТ	LONG	LRS	LOCTN	(ILANES)	CONTL	DRVWY	LTGHT	SVETY	V# TYPE	70	Pir TYPE	SVRTY	ΥF	E X RF	RS	500	ERFOR	ACT EVENT	CAUSE
											02 NONE C PRVTE	STOP NW-SE								011	00
											PSNCE CAR	14 A - 1512	CI DRVR	NONE	23	5 F 07	₹Y		000	000	00
																03	<>25				
											0.2 NONE G	STOP									
											FRVIE	NW-SE								011	ÚÖ
											PSNGR CAR		C2 PSNG	INTC	43	8 F			0.00	000	00
											02 NONE C	STOP									
											PRVTE	NW-SE								011	00
											FENGR CAR		C3 PSNG	INUC	C.,	/ F			000	000	00
03241	NXN	N N 98/98/2017	14	MONRCE ST	INTER	3-LEG	N	N	CLR	S-1STOP	01 NONE 9	STRGHT									27,29
CITY		TU		MCLOUGHLIN BIVD	2464		TRE SIGNAL	.4	DRY	REAR	N/A	NW SE								000	90
N		6 P			0.6	С		ĸ	DAY	PDO	FSNGR CAR		G1 DRVE	NONE	6.0	) Unk UN	4K		000	000	00
N		45 26 37.90		008160100900												4L	vК				
			32.58								0.2 NONE 9	STOP									
											N/A	NW-SE								011	00
											PSNGR CAR		C1 DRVR	NGNE	C C	Unk UN	4.K		000	000	0.0
																JP	4K				
02693	N X N	08/04/2018	14	MONRCE ST	INCER	3 IEG	X	N	CLR	ANGL OTE	01 NONE 9	STRONT									27,94
CITY		SA		MCLOUGHLIN BLVD	CN		TRE SIGNAL	м	DRY	TURN	N/A	S -N								000	0.0
N		64			62	с		N	DAY	PDC	FSNGR CAR		C1 DRVR	NON-	6.5	) Dek 16	14		000	000	00
N		45 26 37.98	8 -122 38	008100100500		-		-								, IL					
			32.59								02 NONE 9	TURN L									
											N/A	Z -S								000	00
											PSNCR CAR		CI DRVR	NONE	c c	) Unik UN	430		000	000	00
																4U	4K				
02887	N N N	08/18/2018	14	MONRCE ST	INCER	3 - L.EG	N	N	CLR	O-1 L-FUR	IN 01 NONE 9	STRGHT									02,08
CTTY		SA		MCLOUGHLIN BLVD	CN		TRE STONAL	ĸ	DRY	TUEN	N/A	S N								000	00
N		5 F			C4	с		м	DAY	PDC	PENGR CAR		C1 DRVR	NONE	00	) Unk UM	1K		000	000	00
N		45 26 37.91		008100100500												UN-	4.K				
			32.59								02 NONE 9	TURN-L									
											N/A	N E								000	00
											PENGR CAR		C1 DRVR	NONE	сs	) Unk UN	٩K		000	000	00
																תנ	4K				

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CDS380 11/12/2020

CITY OF MILWAUKIE, CLACKAMAS COUNTY

CREGON., DEPARTMENT OF TRANSPORTATION TRANSPORTATION DEVELOPMENT DIVISION TRANSPORTATION DATA SECTION CRASH ANAYLYSIS AND REPORTING UNIT URBAN NON-SYSTEM CRASH LISTING

WASHINGTON ST at MCLOUGHLIN BLVD, City of Milwaukie, Clackamas County, 01/01/2014 to 12/31/2018

1 3 of 14 Crash records shown.

S D	м																	
SFRA P R	J S W DATE CTASS	CITY STREET		INT TYPE					SPC". USF.									
INVEST E A U		FIRST STREET	KO CHAR	(MEDIAN)		OFFRD		CRASH	TREE QTY	MOVE			A S					
RD DFT ELG : UNLOC? D.C.S.		SECOND STREET LRS	BIRECT DOCTN	LEGS ( LANES)	TRAF - CONTL	RNDBT DRVWY	SURF LTCHT	COLL SVRTY	CWNER V# TYPE	FROM	PRTC På TYPE			LICNS	PED LOC	EREOR	ACT EVENT	CAUSE
	N N 07/08/2018 17	MCLOUGHLIN BLVD	INTER	3-LEG	N	N	CLR	S-1STOP	01 NONE 9	STRGUT	50 CON	ovn. r	ь л	. R.N.O	- 62N,	NABUA	ACT SYNNI	07,29
COTY	SU 0	WASHINGTON ST	F		TRF SIGNAL	2	YEC	REAR	N/A	≚ -₩							000	00 00
						N												
N	415 415 26 32,48 -122 36 31,16		66	С		N	DAY	PDG	ESNGE CAR		C1 DRVE	NGNE.	up un	UNK		000	000	00
	02.10								0.2 NONE 9	STOP								
									N/A PSNGR CAR	$\Xi = M$	C1 DRVR					000	011 000	00 00
									PONUR CAR		UI LEVE	P0.38±	6.5 64.	UNK		0.00	065	00
88445 N N N	08/16/2014 14	MCLOUGHTEIN BUVD	INTER	3 IRG	7	ĸ	CLR	S ISTOP	01 NONE 0	STRGHT							004	27,29
NONE	SA	WASHINGTON ST	SE		TRF SIGNAL	N	DRY	REAR	PRVTE	SE-NW							000	0.0
N	1P 45 26 32.48 -122 38 31.19	008100100500	06	C		.4	YAC	FDC	FENGR CAR		CI DRVK	NGNE	33 F	OR Y OR<25		016,026	038	27,29
									01 NONE C PRVTE PSNGR CAR	STRGHT SE-NW	C2 PSNG	NC<5	03 F			000	000	00 00
									0.2 NONE C UNKN	STOP SE-NW							011 064	00
									UNKNOWN		CI DRVR	NONE	9 C D P	GR - Y UNK		000	000	00
03515 N X N	09/09/2014 14	MCLOUGHTIN BIVD	INTER	3 TRG	7	N	CLE	S ISTOP	OI NONE O	STRCHT								29
CITY	TU	WASHINGTON ST	SE		TRF SIGNAL	N	DRY	REAR	PRVTE	SE-NW							000	0.0
N	6A 45 26 32.48 -122 38 31.19	008100100500	06	C		.4	YAC	FDC	FENGR CAR		ĈI DRVK	NGN≟	35 X	OR-Y OR<25		626	000	29
									02 NONE C PRVTE	STOP SE-NW							011	00
									FSNGR CAR		C1 DRVR	NCNE	39 F	OR Y OR<25		000	000	00
04288 N N N	N N 10/18/2015 14	MCLOUGHIIN BLVD	1NTER	3-1.EG	N	м	СПК	S-1STOP	01 NONE 0	STRGET								17,29
CTTY	su	WASHINGTON ST	SR		TRE STONAL	N	DRY	RFAR	PRVTE	SE NW							000	00
N N	2P 45 26 32,48 122 38 35,19	008106100500	06	С		N	DAY	INJ	PSNGR CAR		C1 DRVR	NGNE	43 M	CR-Y OR<25		026	028	17,29
	13								01 NONE C PRVTE FSNGR CAR	STRGHT SR NW	C2 PENG	INCE	62 Y			600	000	00 00
										6000 x 600 x 700								
									01 NONE C PRVTE	STRGHT SE-NW							000	00
									PSNGR CAR		C3 PSNG	INJC	CS F			000	000	00

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1171272020

CITY OF MILWAUKIE, CLACKAMAS COUNTY

## CREGON., DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION TRANSPORTATION DATA SECTION - CRASE ANAVEVSTS AND REPORTING UNIT URBAN NON-SYSTEM CRASE LISTING

WASHINGTON ST at MCLOUGHLIN BLVD, City of Milwaukie, Clackamas County, 01/01/2014 to 12/31/2018

4 8 of 14 Crash records shown.

S D M																			
SFRA P R J S	N DATE	CT ASS	CITY STREET		INT TYPE					SFICT. USE									
INVEST E A U I C	YAC O	0182	FIRST STREET	RD CHAR	(MEDIAN)	INI-REL	OFFRD	WIER	CRASH	TREE QTY	NOVE			Λ	8				
RD DFT ELGNI	I R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	CWNER	FROM	PRTC	INC	G I	E LICXS	PED			
UNLOC? D.C.S.V.L	. К БАТ	LONG	LRS	LOCTN	(JEANES)	CONTL	DRVWY	LTGHT	SVETY	V# TYPE	70	P# TYPE	SVRTY	E )	K RES	5.00	ERFOR	ACT EVENT	CAUSE
										02 NONE C	STOP								
										PRVTE PSNCR CAR	SE-NW	CI DRVR	NCET	27 V	OTE V		600	011 000	00 00
										Fonds Sen		CT DRPR	145,215	9 C - 2	OR< 25		0.90	000	0.5
04938 Y N N	L X 10/27/2016	14	MCLOUGHLIN BLVD	INTER	3-1BG	N	N	RAIN	S-1STOP	01 NONE 9	STRGHT								01,29
CTTY	тн		WASHINGTON ST	SR		TRE STONAL	N	WET	REAR	N/A	SE NW							000	00
N	BP			60	C		м	DLIT	PDC	FENGR CAR		C1 DRVR	NONE	CO UI	k UNK		000	000	00
X	45 26 32,48		008100100500												UNK				
		31,19								02 NONE 9	STOP								
										N/A	SE NW							011	00
										PENGR CAR		C1 DRVR	NONE	10 CO			000	000	00
															UNK				
00841 N X N N	UN 03/03/2017	14	MCLOUGHLIN BLVD	INTER	3-LEG	X	N	RAIN	BIKE	01 NONE 0	TURN-L								02,19
CITY	FR		WASHINGTON ST	SE		TRE SIGNAL	N	WET	TURN	FRVTE	NE-SE							000	00
	712			65	с				TNJ								627	000	02
N.	7P 45 26 32.48		008106100500	65	c		N	лыт	TNJ	PSNGR CAR		C1 DRVR	NCNE	51 X	OR-Y OR<25		627	063	82
-*		31.19	30510520303												0.0020				
											- STRGHT	CI BIXE		67 V		T XWLK	6.30	035	19
											STAGA.	GT BIAN	. 14	117 X		I AADR	000	0.50	
											SW NE								
63211 N N N	09/11/2018	14	MCLOUGHLIN BIVD	INTER	3 LEG	N	.4	CLR	S 1STOP	01 NONE 9	STRGHT								29
NONE	TU		WASHINGTON ST	SE		TRE SIGNAL	К	DRY	REAR	N/A	SE-NW							000	00
Z	7A 45 26 32.48	100.00	008100100500	66	С		N	DAY	PDC	FENGR CAR		C1 DRVR	NONE	00 Cr	INK		000	000	00
2		31.19	JUATUU.GJAGJ												JHA				
										0.2 NONE 9	STOP								
										N/A	SE-NW	A		00.00			000	011 000	00 00
										FSNGR CAR		C1 DRVR	NGRE	CJ CI	UN JNK		630	060	50
02117 N N N	06/02/2014	17	MCLOUGHLIN BLVD	INTER	3-LEG	X	м	UNK	ANGL-STP	OI NOME C	TURN-R								06
							1												
NO RPI	MC	0	WASHINGTON ST	SE		TRE SIGNAL	.4	UNK	TUEK	FRVIE	SE NE							000	90
Z	תו			66	c		N	DAY	PDO	PSNCR CAR		C1 DRVR	NONE	45 X	03 - Y		001	000	08
N	45 26 32.48														0.8<25				
		31.19								0.2 NONE G	STOP								
										FRVTE	NE-SW							012	00
										PSNGR CAR		C1 DRVR	NGNE	76 F	OR-Y		000	000	00
															OR<25				
01259 N.X.N	04/16/2018	14	MCLOUGHLIN BLVD	INTER	3 IRG	X	ĸ	CLR	S ISTOP	01 NONE 0	STROHT								27,29
NO RFT	MC		WASHINGTON ST	S		TRF SIGNAL	A	DRY	REAR	PRVIE	S - N							000	00
2	92		0.001.001.000000	66	C		7	DLIT	TNJ	FSNGR CAR		C1 DRVR	INCO	19 F			026	000	27,29
Z	45 26 32.48	-122 38 31.2	008100100500												OR<25				

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#### CDS380 11/12/2020

CITY OF MILWAUKIE, CLACKAMAS COUNTY

### CRECON., DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION TRANSPORTATION DATA SECTION - CRASE ANAYLYSIS AND REPORTING UNIT URBAN NON-SYSTEM CRASH LISTING WASHINGTON ST at MCLOUGHLIN BLVD, City of Milwaukie, Clackamas County, 01/01/2014 to 12/31/2018

9 12 of 14 Crash records shown.

	S D M	1																		
SFRA	PR	J S W DATE	CT ASS	CITY STRRFT		INT TYPE					SPCT. USE									
INVEST	E A U I	C O DAY	DIST	FIRST STREET	RO CHAR	(XEDIAN)	INI-REL	OFFRD	WIER	CRASH	TREE QTY	MOVE			A S					
		I R TIME	FROM	SECOND STREET	DIRECT	legs	TRAF-	RNDBT	SURF	COLL	CWNER	FROM	PRTC			LICNS				
UNLOC?	DCSN	7 Б. К.БАТ	LONG	LRS	LOCTN	( LLANES)	CONTL	DRVWY	PLCHL	SVETY	V# TYPE 01 NONE C	TO STRGHU	Bir TYPE	SVRTY	E X	RES	t.oc	ERFOR	ACT EVENT	CAUSE
											PRVTE	S -N							000	00
											PSNCR CAR		C2 PSNC	INCC	25 X			000	000	0.0
											0.2 NONE G	STOP								
											FRVIE	S -N							011	00
											PSNGR CAR		C1 DRVR	INCC	13 F			000	000	0.0
																0R<25				
00922	YXN	N X 03/14/2015	14	MCLOUGHLIN BLVD	INTER	3 IRG	X	N	RATN	S ISTOP	OI NONE O	STRONT							093	27,01,29
CITY		SA		WASHINGTON ST	NW		TRF SIGNAL	м	WET	REAR	PRVTE	NW-SE							000	00
N		119			06	C		N	DLIT	INJ	FSNGR CAR		C1 DRVR	NGNE	20 X	CR Y		647,026	038 093	27,01,29
N		45 26 32.48	8 -122 38 31.19	008160100500												OR<25				
			319								02 NONE C	STOP								
											PRVTE	NW - SE							011	00
											PSNCR CAR		CI DRVR	INCC	41 Y	OR Y ORK25		000	000	00
											0.2 NONE C	STOP				ONC20				
											FRVTE	NW-SE							011	00
											PSNGR CAR		C2 PSNG	INCO	33 F			000	000	00
01953	NSN	05/20/2017	14	MCLOUGHLIN BLVD	INCER	3 IEG	X	N	CLE	S ISTOP	01 NONE 0	STRONT								29
NONE		SA		WASHINGTON ST	NW		TRF SIGNAL	м	DRY	REAR	PRVIE	NW-SE							000	0.0
N N		11A 45 26 32.48			06	¢		N	DAY	1NJ	FSNGR CAR		C1 DRVE	NGNE	33 F	CR Y CR<25		626	000	29
7		45 26 32.48	31,19	008160100500												U.4<25				
											02 NONE C	STOP								
											PRVTE PSNGR CAR	NW-SE	CI DRVR	- 11 - 0	47 P	03 V		600	011 000	00 00
											PONGA CAR		CT DRVR	. NG C	47. 6	OR<25		0.50	000	00
62454	N N N	06/01/2016	14	MCLOUGHLIN BLVD	INCER	3-1BG	N	V.	CLR	ANGL-01E	01 NONE 9	TURN-R								02
NONE		WE		WASHINGTON ST	CN		TRF STONAL	ĸ	DRY	TURN	N/A	NE NW							016	00
X		9A			C2	с		м	DAY	PDC	PENGR CAR		C1 DRVR	NONE	CD 177	k INK		000	000	00
X		45 26 32,48		008100:00500	02	°		2.	27.12	120	i chiair chiai		01 2000	110212	00 01	UNK			200	
			31,19								02 NONE 9	STREET								
											N/A	SE NW							000	00
											FENGR CAR		C1 ERVR	NONE	00 Ur.			606	000	00
																UN K				
02559	NNN	N N 96/28/2017	14	MCLOUGHLIN BLVD	INTER	3 - LEG	N	N	CLR	ANGL-OTH	01 NONE 9	STRGUT								02,14
\$ TATE		WE		WASHINGTON ST	CN		OFCR/FLAG	N	DRY	TURN	N/A	SE-NW							000	00
X		11A			02	С		ĸ	DAY	PDO	PSNGR CAR		G1 DRVR	NONE	00 Ur.			000	000	00
N		45 26 32.48	8 -122 36 31.19	008100100800												UNK				

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11/12/2020

CITY OF MILWAUKIE, CLACKAMAS COUNTY

### CREGON: DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION TRANSPORTATION DATA SECTION - CRASE ANAVINGTS AND REPORTING UNIT URBAN NON-SYSTEM CRASH LISTING

### WASHINGTON ST at MCLOUGHLIN BLVD, City of Milwaukie, Clackamas County, 01/01/2014 to 12/31/2018

13 14 of 14 Crash records shown.

	S D	м																		
SFR#	PR	J S W DATE	CTASS	CITY STREFT		INT TYPE					SFICT. USE									
INVEST	ΞΛυ	YAC 0 D I	0187	FIRST STREET	RD CHAR	(MEDIAN)	INI-REL	OFFRD	WITER	CRASH	TREE QTY	MOVE			Δ	S				
RD DFT	ELG	N H R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	CWNER	FROM	PRTC	INC	G	E LICNS	PED			
UNLOC?	DCS	V L K LAT	LONG	LRS	LOCTN	(ILANES)	CONTL	DRVWY	LTGHT	SVETY	V# TYPE	70	Pir TYPE	SVRTY	E	X RES	tioc	ERFOR	ACT EVENT	CAUSE
											02 NONE 9	TOKN P								
											N/A	Z - 13							000	0.0
											PSNCR CAR		CI DRVR	NONF	C0 U	nk UNK		600	009	0.0
																JNK				
00327	N N N	N N 01/27/2018	14	MCLOUGHLIN BLVD	INTER	3-TEG	N	N	RAIN	0-1 L-IU	KN 01 NONE 9	STRGHT								02,08
CETY		SA		WASHINGTON ST	CN		TRE STONAL	N	WFT	TURN	N/A	SE NW							000	00
N		129			64	C		N	DAY	PDC	FENGR CAR		C1 DRVR	NONE	co c	nk UNK		000	000	00
N		45 26 32,4	9 122 38	008100100500												UNK				
			31.2																	
											0.2 NONE 9	TURN-L								
											N/A	NW NE							000	00
											PENGR CAR		C1 DRVR	NONE	C0 C	nk UNK		000	000	00
																UNK				

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CDS380 11/12/2020

CITY OF MILWAUKIE, CLACKAMAS COUNTY

CREGON., DEPARTMENT OF TRANSPORTATION CRANSPORTATION DEVELOPMENT DIVISION TRANSPORTATION DATA SECTION CRASH ANAVLYSIS AND REPORTING UNIT URBAN NON-SYSTEM CRASH LISTING WASHINGTON ST at MAIN ST, City of Milwaukie, Clackamas County, 01/01/2014 to 12/31/2018

1 5 of 5 Crash records shown.

SDM																	
SFRA P R J S	W DATE CTASS	CITY STREET		INT TYPE					SFCT. USF.								
INVEST E A U I C		FIRST STREET	RD CHAR		INI-REL	OFFRD		CRASH	TRER QTY	MOVE			A S				
RD DFT ELGNI		SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	CWNER	FROM	PRTC			LICNS PED			
UNLOC? D.C.S.V.I. CO9SO N.X.N. N	KLAT LONG N 02/29/2016 16	LRS MAIN ST	LOCTN INTER	( LANES) CROSS	CONTL N	DRVWY N	LTGHT RAIN	SVRTY S-1STOP	V# TYPE 01 NONE 9	TO STRGHT	Bir TYPE	SVRT	/ E X	RES DOC	EREOR	ACT EVENT	CAUSE 29
COPSO NIX N N				CAUSA												000	
		WASHINGTON ST	В		STCP SIGN	N.	WET	REAR	N/A	는 - M							00
N N	102 45 26 32.94 -122 38		66	c		N	энтт	PDG	PSNGR CAR		C1 DRVE	NONE	CO Un	UNK	000	000	80
	27.22								0.2 NONE 9	STOP							
									N/A	$\Xi \to M$						011	00
									PSNCR CAR		C1 DRVR	NCNE	00 Ur.	NNK UNK	000	000	00
0324). N.N.N.	08/21/2014 16	MAIN ST	INTER	CROSS	7	ĸ	CLR	ANGL OTE	01 NONE C	STRCHT							03
CITY	TH D	WASHINGTON ST	CN		STOP SIGN	N	DRY	ANGL	PRVTE	S -N						015	0.0
N	9A 45 26 32.94 -122 38 27,22		62	С		.4	DAY	PDC	FSNGR CAR		CI DRVR	NGNE	38 F	OR-Y OR<25	000	000	00
	21,22								02 NONE C	STRGHT							
									PRVTE	$\Xi \to M$						000	00
									PSNGR CAR		C1 DRVR	NCNE	84 F	OR Y OR<25	021	000	03
01695 N X N N	X 05/03/2017 16	MAIN ST	INTER	CROSS	N	N	CTK	ANGL-011	01 NONE C	STRGIT							92
CITY	WF 0	WASHINGTON ST	CN		STOP STON	N	DRY	ANGL	FRVTE	M E						015	00
Z Z	6F 45 26 32.94 - 22 38 27.22		C 3	C		м	DAY	INJ	PSNGR CAR		C1 DRVR	NONE	54 F	OR-Y OR<25	028	000	02
	27.22								0.2 NONE C	STRGET							
									PRVTE	N S						015	00
									PENGR CAR		CI DRVK	INCO	35 F	OR-Y OR<23	000	000	00
02057 Y X N	05/26/2017 16	MAIN ST	INTER	CROSS	X	ĸ	CLR	ANGL-OTH	01 NONE 9	STRONT							03,01
NONE	FR D	WASHINGTON ST	CN		STOP SIGN	N	DRY	TURN	N/A	S -N						000	0.0
Z Z	3P 45 26 32.94 -122 38 27.22		0.2	C		к	DAY	PDO	PSNGR CAR		C1 DRVR	NONE	00 Ur.	N UNK UNK	000	000	00
	27.22								0.2 NONE 9	TURN R							
									N/A	$\Xi \rightarrow N$						015	00
									PSNGR CAR		G1 DRVE	NCNE	60 Ur.	K UNK UNK	0.00	000	0.0
04474 N N N	12/05/2018 16	MAIN ST	INTER	CROSS	x	N	CLR	ANGL OTH	01 NONE 9	STRGHT							02
NONE	w= o	WASHINGTON ST	CN		STOP SIGN	N	DRY	TURN	N/A	N -S						000	00
2 2.	11A 45 26 32.94 -122 38		0.3	С		м	YAC	PDC	FENGR CAR		C1 DRVR	NONE	CO Un	K UNK UNK	000	000	00
	27,22								02 NONE 9	TURN-R							
									N/A	W -S						000	00
									F8NGR CAR		C1 DRVR	NONE	00 Un		000	000	00
														UNK			

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CITY OF MILWAUKIE, CLACKAMAS COUNTY

## CREGON., DEPARTMENT OF TRANSPORTATION TRANSPORTATION DEVELOPMENT DIVISION TRANSPORTATION DATA SECTION CEASE ANAVINGTS AND REPORTING UNIT URBAN NON-SYSTEM CRASH LISTING WASHINGTON ST at 21ST AVE, City of Milwaukie, Clackamas County, 01/01/2014 to 12/31/2018

1 5 of 5 Crash records shown.

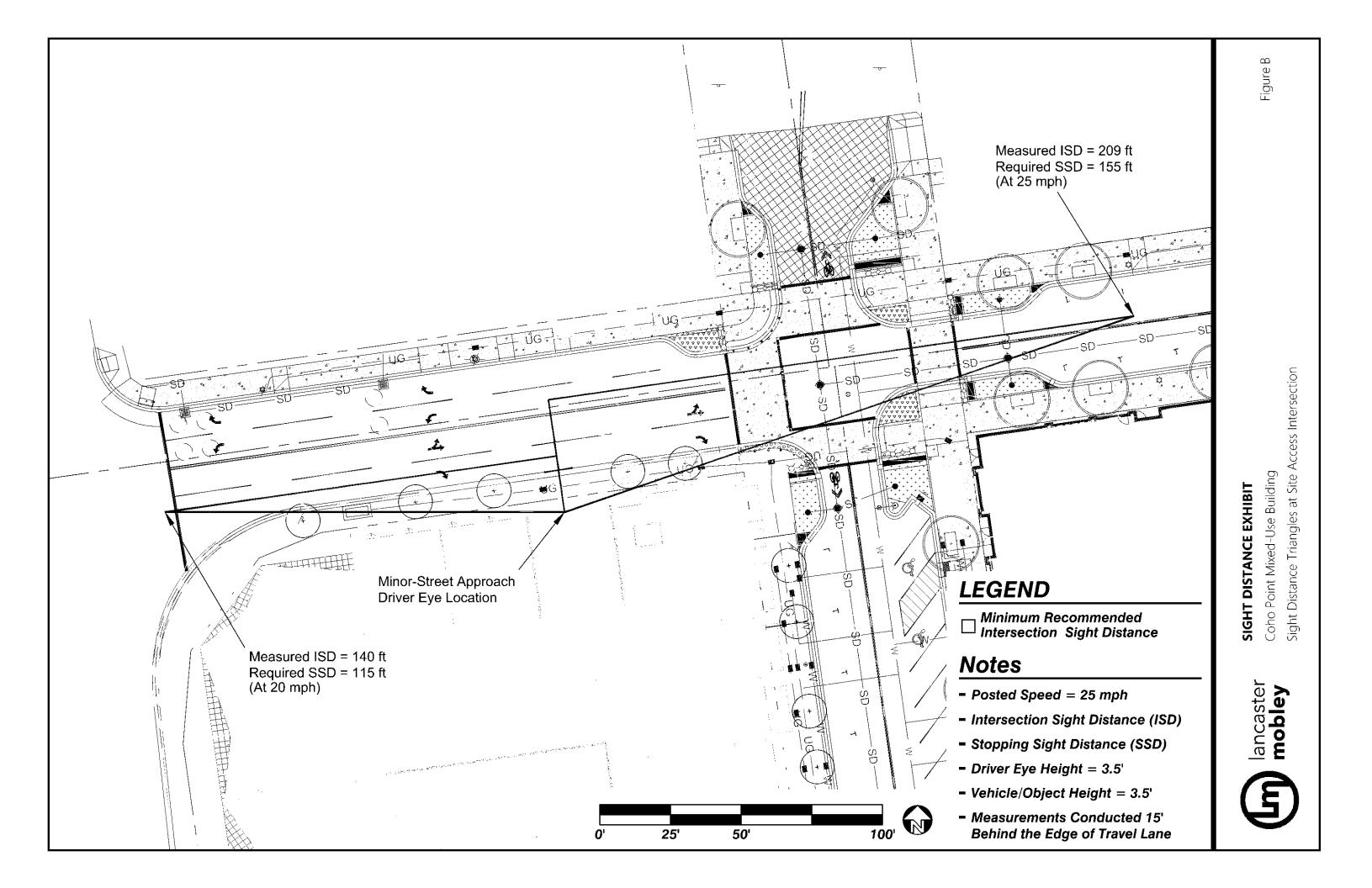
S D	м																		
	J S W DATE CTA	as ci	TY STREET		INT TYPE					SPCT. USF.									
INVEST E A U				RO CHAR	(XEDIAN)		OFFRD		CRASH	TREE QTY	MOVE			A S					
RD DFT E L G				BIRECT	LEGS	TRAF-		SURF	COLL	CWNER	FROM	PRTC	INC		LICNS				
	V L K LAT LON			LOCTN		CONTL		LEGHT	SVRTY	V# TYPE	TO	P# TYPE	SVRTY	E X	RES	100	ERFOR	ACT EVENT	CAUSE
00628 N N N	N N 02/16/2017	17 WA	ASHINGTON ST	INTER	CROSS	X	к	RAIN	PED	01 NONE C	TURN-L								02
CITY	тн Э	23	LST AVE	NE		STOP SIGN	<b>N</b>	WET	PED	FRVTE	NW-NE							000	Ú0
N	108			65	C		N	DAY	TNJ	ESNGE CAR		G1 DRVR	NONE	28 X			629	000	02
N	45 26 33.45 -12 23.														CR<25				
											-								
											STRGHT SE NW	Cl PED	IN.TE	37 F		I XWTK	000	035	95
64561 N N N	10/04/2016	17 W/	ASHINGION ST	INTER	CROSS	N	Y	RAIN	FLX OBJ	01 NONE 9	TJRN R							053	98
CITY	טיד טיד	21	IST AVE	P.		TRE SIGNAL	ĸ	WET	FTX	N/A	SE-NE							000	00
z	6A			66	С		N	DLIT	PDC	SEMI TOW		C1 DRVR	NONE	CO Un	k UNK		000	000	00
Z	45 26 33.45 -12 23.														UNK				
02023 N Z N	05/05/2016		ASHINGTON ST	INTER	CROSS	x	N	CLD	ANGL STP	01 NONE 9	TURN R								29
NO RFT	ти о	25	IST AVE	SN		TRF SIGNAL	Л	DRY	TURN	N/A	NW-SW							000	00
N N	6P 45 26 33.45 -12 23.			05	с		ĸ	DAY	PDC	OTH BUS		C1 DRVR	NCNE	00 Ur.	k UNK UNK		000	000	00
										02 NONE 9 N/A PSNGR CAR	STOP NE- <i>SW</i>	CI DRVR	NCNF	Co Un	k UNK UNK		000	011 000	00 00
01354 N N N	N N 04/05/2017	17 W/	ASHINGTON ST	INTER	CROSS	N	V.	сцр	ANGL-SCP	01 NONE 9	TURN-R								05
CTTY	WE 0	2	ST AVE	SW		TRE STONAL	N	DRY	TURN	N/A	NW SW							000	00
N X	2F 45 26 33,45 12 23.			6	C		К	JAY	PDC	CTH 5US		C1 DRVR	NGNE	00 Ur.	k UNK UNK		000	000	00
	20.									02 NONE 9	STOP								
										N/A	SW NE							011	00
										PENGR CAR		C1 ERVR	NGNE	00 Un	UNK		000	000	00
04619 N N N	N N 10/07/2016	17 WA	ASHINGTON ST	INTER	CROSS	N	N	CLD	PED	OI NONE O	STRGUT								18,27,14
CITY	FR 0	2	LST AVE	NW		TRE SIGNAL	2	DRY	PED	FRVTE	NE-SW							000	00
N N	312 45 26 33,45 -12 23.			65	C		N	DAY	TNJ	PSNGR CAR		CI DRVE	NONE	17 F	OTE-Y N-RES		600	000	90
											-								
											STROKT	CI PED	INCE	15 X		I XMPR	016,020	035	18,27,14
											SE NW								

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# Appendix F

Sight Distance Exhibit





# Appendix G

Preliminary Signal Warrant Analysis



# **Traffic Signal Warrant Analysis**

i raπic Signa	ai warrant Ana	liysis			$\frown$
Project: Date:	Coho Point Mixed 4/8/2021	-			(Ling)
Scenario:	Year 2021 Buildo	ut Conditions -	Full Movement A	ccess Scenario	
Major Street:	SE Washington S	treet	Minor Street:	SE Main Street	
Number of Lanes:	1		Number of Lanes:	1	
PM Peak Hour Volumes:	454		PM Peak Hour Volumes:	90	
Warrant Used: X	_ 100 percent of stan _ 70 percent of stand of 40 mph or isolate	ard warrants use	ed due to 85th perce	•	ess
Number of	Lanes for Moving	ADT on	Major St.	ADT on N	linor St.
Traffic on	Each Approach:	(total of both	approaches)	(higher-volum	e approach)
WARRANT 1, CO	NDITION A	100%	70%	100%	70%
Major St.	Minor St.	Warrants	Warrants	Warrants	Warrants
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 1, CO	NDITION B				
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250
		Note: ADT vo	plumes assume 8th high	est hour is 5.6% of the	daily volume
		Approach Volumes	Minimum Volumes	ls Signal Warrant Met?	
Warrant 1					
	num Vehicular Volum				
Major Street		4,540	8,850		
Minor Street*		900	2,650	No	
Condition B: Interr	ruption of Continuous	Traffic			
Major Street		4,540	13,300		
Minor Street*		900	1,350	No	
Combination Warr	rant				
Major Street		4,540	10,640		
Minor Street*		900	2,120	No	
* Minor streat right	t turning troffic volume	a raduard by 25	50/		

* Minor street right-turning traffic volumes reduced by 25%.

# **Traffic Signal Warrant Analysis**

Traffic Signa	al Warrant Ana	lysis			$\mathbf{\cap}$
Project: Date:	Coho Point Mixed 4/8/2021	l-Use Building			(Ling)
Scenario:	Year 2021 Buildo	ut Conditions -	Restricted LT Egi	ess Scenario	
Major Street:	SE Washington S	treet	Minor Street:	SE Main Street	
Number of Lanes:	1		Number of Lanes:	1	
PM Peak Hour Volumes:	482		PM Peak Hour Volumes:	90	
Warrant Used: X	_ 100 percent of stan _ 70 percent of stand of 40 mph or isolate	ard warrants use	ed due to 85th perce	-	ess
Number of	Lanes for Moving	ADT on	Major St.	ADT on N	/linor St.
Traffic on	Each Approach:	(total of both	approaches)	(higher-volum	e approach)
WARRANT 1, CO	NDITION A	100%	70%	100%	70%
<u>Major St.</u>	Minor St.	<u>Warrants</u>	<u>Warrants</u>	Warrants	Warrants
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 1, CO	NDITION B				
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250
		Note: ADT vo	plumes assume 8th high	est hour is 5.6% of the	daily volume
		Approach Volumes	Minimum Volumes	Is Signal Warrant Met?	
Warrant 1					
	num Vehicular Volum				
Major Street		4,820	8,850		
Minor Street*		900	2,650	No	
Condition B: Interr	ruption of Continuous	Traffic			
Major Street		4,820	13,300		
Minor Street*		900	1,350	No	
Combination Warr	rant				
Major Street		4,820	10,640		
Minor Street*		900	2,120	No	
	t turning traffic volume	o roduced by Of			

* Minor street right-turning traffic volumes reduced by 25%.

# **Traffic Signal Warrant Analysis**

Traffic Signa	al Warrant Ana	alysis			$\frown$
Project: Date:	Coho Point Mixed 4/8/2021	I-Use Building			(Lin)
Scenario:	Year 2021 Buildo	ut Conditions -	RIRO Access Sc	enario	
Major Street:	SE Washington S	street	Minor Street:	SE Main Street	:
Number of Lanes:	1		Number of Lanes:	1	
PM Peak Hour Volumes:	482		PM Peak Hour Volumes:	90	
Warrant Used:					
X	_100 percent of stan				
	<b></b>		ed due to 85th perce th population less th	•	ess
Number of	Lanes for Moving	·	Major St.	ADT on N	Ainor St
	Each Approach:		approaches)	(higher-volum	
		,	,, ,		,
WARRANT 1, CO		100%	70%	100%	70%
Major St.	<u>Minor St.</u>	Warrants	Warrants	<u>Warrants</u> 2,650	Warrants
1 2 or more	1	8,850 10,600	6,200 7,400	2,650	1,850 1,850
2 or more	2 or more	10,600	7,400	2,650 L 3,550	2,500
2 or more 1	2 or more	8,850	6,200	3,550	2,500
		0,000	0,200	0,000	2,000
WARRANT 1, CO		12 200	0.200	1 250	050
1 2 or more	1	13,300 15,900	9,300 11,100	1,350 1,350	950 950
2 or more	2 or more	15,900	11,100	1,350 L	1,250
1	2 or more	13,300	9,300	1,750	1,250
•		10,000	0,000	1,100	1,200
		Note: ADT v	olumes assume 8th high	est hour is 5.6% of the	daily volume
		Approach	Minimum	Is Signal	
		Volumes	Volumes	Warrant Met?	
Warrant 1					
	num Vehicular Volum				
Major Street		4,820	8,850		
Minor Street*		900	2,650	No	
Condition B: Interr	uption of Continuous	Traffic			
Major Street		4,820	13,300		
Minor Street*		900	1,350	Νο	
Combination Warr	ant				
Major Street		4,820	10,640		
Minor Street*		900	2,120	No	
* Minor streat right	turning troffic volume	a raduced by 2	50/		

* Minor street right-turning traffic volumes reduced by 25%.

# Appendix H

Capacity Reports

Queuing Reports



## LEVEL OF SERVICE

Level of service is used to describe the quality of traffic flow. Levels of service A to C are considered good, and rural roads are usually designed for level of service C. Urban streets and signalized intersections are typically designed for level of service D. Level of service E is considered to be the limit of acceptable delay. For unsignalized intersections, level of service E is generally considered acceptable. Here is a more complete description of levels of service:

*Level of service A:* Very low delay at intersections, with all traffic signal cycles clearing and no vehicles waiting through more than one signal cycle. On highways, low volume and high speeds, with speeds not restricted by other vehicles.

*Level of service B:* Operating speeds beginning to be affected by other traffic; short traffic delays at intersections. Higher average intersection delay than for level of service A resulting from more vehicles stopping.

*Level of service C:* Operating speeds and maneuverability closely controlled by other traffic; higher delays at intersections than for level of service B due to a significant number of vehicles stopping. Not all signal cycles clear the waiting vehicles. This is the recommended design standard for rural highways.

Level of service D: Tolerable operating speeds; long traffic delays occur at intersections. The influence of congestion is noticeable. At traffic signals many vehicles stop, and the proportion of vehicles not stopping declines. The number of signal cycle failures, for which vehicles must wait through more than one signal cycle, are noticeable. This is typically the design level for urban signalized intersections.

*Level of service E:* Restricted speeds, very long traffic delays at traffic signals, and traffic volumes near capacity. Flow is unstable so that any interruption, no matter how minor, will cause queues to form and service to deteriorate to level of service F. Traffic signal cycle failures are frequent occurrences. For unsignalized intersections, level of service E or better is generally considered acceptable.

*Level of service F:* Extreme delays, resulting in long queues which may interfere with other traffic movements. There may be stoppages of long duration, and speeds may drop to zero. There may be frequent signal cycle failures. Level of service F will typically result when vehicle arrival rates are greater than capacity. It is considered unacceptable by most drivers.

# LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

LEVEL	CONTROL DELAY
OF	PER VEHICLE
SERVICE	(Seconds)
А	<10
В	10-20
С	20-35
D	35-55
Е	55-80
F	>80

# LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

LEVEL	CONTROL DELAY
OF	PER VEHICLE
SERVICE	(Seconds)
А	<10
В	10-15
С	15-25
D	25-35
Е	35-50
F	>50

## HCM Signalized Intersection Capacity Analysis 1: OR-99E & SE Harrison Street

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		र्भ	7	ሻ			ሻ	<u></u> †₽		ኘ	<u></u> †₽	
Traffic Volume (vph)	19	65	160	77	52	23	308	1396	94	89	573	10
Future Volume (vph)	19	65	160	77	52	23	308	1396	94	89	573	10
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	
Lane Util. Factor		1.00	1.00	0.95	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		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	
Frt		1.00	0.85	1.00	0.96		1.00	0.99		1.00	1.00	
Flt Protected		0.99	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1806	1540	1618	1625		1770	3498		1736	3462	
Flt Permitted		0.99	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1806	1540	1618	1625		1770	3498		1736	3462	
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)	20	68	168	81	55	24	324	1469	99	94	603	11
RTOR Reduction (vph)	0	0	114	0	12	0	0	3	0	0	1	0
Lane Group Flow (vph)	0	88	54	73	75	0	324	1565	0	94	613	0
Confl. Peds. (#/hr)			8	8					5	5		
Confl. Bikes (#/hr)			2	-					-	_		
Heavy Vehicles (%)	4%	4%	4%	6%	6%	6%	2%	2%	2%	4%	4%	4%
Turn Type	Split	NA	pm+ov	Split	NA	- / *	Prot	NA		Prot	NA	.,,
Protected Phases	4	4	5	8	8		5	2		1	6	
Permitted Phases			4	Ū	Ū		Ŭ	-		•	Ū	
Actuated Green, G (s)		11.2	38.3	10.9	10.9		27.1	68.0		11.9	52.8	
Effective Green, g (s)		11.2	38.3	10.9	10.9		27.1	68.0		11.9	52.8	
Actuated g/C Ratio		0.09	0.32	0.09	0.09		0.23	0.57		0.10	0.44	
Clearance Time (s)		4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		168	491	146	147		399	1982		172	1523	
v/s Ratio Prot		c0.05	0.02	0.05	c0.05		c0.18	c0.45		0.05	0.18	
v/s Ratio Perm		00.00	0.02	0.00	00.00		00.10	00.40		0.00	0.10	
v/c Ratio		0.52	0.01	0.50	0.51		0.81	0.79		0.55	0.40	
Uniform Delay, d1		51.9	28.8	52.0	52.0		44.0	20.4		51.5	22.9	
Progression Factor		1.00	1.00	1.00	1.00		1.12	0.88		1.00	1.00	
Incremental Delay, d2		2.9	0.1	2.7	3.0		9.7	2.6		3.5	0.2	
Delay (s)		54.8	28.9	54.6	55.0		59.0	20.5		55.0	23.0	
Level of Service		04.0 D	20.0 C	04.0 D	00.0 D		55.0 E	20.0 C		55.0 E	20.0 C	
Approach Delay (s)		37.8	U	D	54.8		L	27.1		L	27.3	
Approach LOS		57.0 D			04.0 D			27.1 C			27.5 C	
		0			U			0			Ū	
Intersection Summary					011000-		<u> </u>		-			
HCM 2000 Control Delay			29.5	Н	CM 2000	Level of \$	Service		С			
HCM 2000 Volume to Capac	nty ratio		0.76	-								
Actuated Cycle Length (s)			120.0		um of losi				18.0			
Intersection Capacity Utilizat	ion		69.8%	IC	CU Level (	of Service	•		С			
Analysis Period (min)			15									
c Critical Lane Group												

	<b>√</b>	•	Ť	/	\$	↓	
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	ኘ	7	<b>≜</b> †⊅			<b>††</b>	
Traffic Volume (vph)	41	17	1786	56	0	810	
Future Volume (vph)	41	17	1786	56	0	810	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.5	4.5			4.5	
Lane Util. Factor	1.00	1.00	0.95			0.95	
Frpb, ped/bikes	1.00	0.98	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	0.95	1.00	1.00			1.00	
Satd. Flow (prot)	1656	1455	3520			3471	
Flt Permitted	0.95	1.00	1.00			1.00	
Satd. Flow (perm)	1656	1455	3520			3471	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	43	18	1860	58	0.50	844	
RTOR Reduction (vph)	43 0	17	1000	0	0	0	
Lane Group Flow (vph)	43	1	, 1917	0 0	Õ	844	
Confl. Peds. (#/hr)	40	3	1317	3	3	044	
Heavy Vehicles (%)	9%	9%	2%	2%	4%	4%	
Turn Type	Prot	Perm	NA	270	470	NA	
Protected Phases	8	i cim	2			6	
Permitted Phases	v	8	-			v	
Actuated Green, G (s)	7.4	7.4	103.6			103.6	
Effective Green, g (s)	7.4	7.4	103.6			103.6	
Actuated g/C Ratio	0.06	0.06	0.86			0.86	
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)	102	89	3038			2996	
v/s Ratio Prot	c0.03	03	c0.54			0.24	
v/s Ratio Perm	00.00	0.00	60.04			0.24	
v/c Ratio	0.42	0.00	0.63			0.28	
Uniform Delay, d1	54.2	52.9	2.5			1.5	
Progression Factor	1.00	1.00	0.84			0.62	
	2.8	0.1					
Incremental Delay, d2	2.8 57.0	0.1 52.9	0.6 2.7			0.2 1.1	
Delay (s)		52.9 D				1.1 A	
Level of Service	E	D	A 27				
Approach Delay (s)	55.8		2.7			1.1	
Approach LOS	E		A			А	
Intersection Summary							
HCM 2000 Control Delay			3.4	H	CM 2000	Level of Se	ervice A
HCM 2000 Volume to Capa	acity ratio		0.62				
Actuated Cycle Length (s)			120.0	Su	um of losi	t time (s)	9.0
Intersection Capacity Utiliz	ation		63.9%			of Service	В
Analysis Period (min)			15				
c Critical Lane Group							

# HCM 6th Signalized Intersection Summary 2: OR-99E & SE Monroe Street

	∢	×.	Ť	/	\$	¥	
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	ኘ	7	<b>†</b> ĵ <del>,</del>			<b>††</b>	
Traffic Volume (veh/h)	41	17	1786	56	0	810	
Future Volume (veh/h)	41	17	1786	56	0	810	
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	1767	1767	1870	1870	0	1841	
Adj Flow Rate, veh/h	43	18	1860	58	0	844	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %	9	9	2	2	0	4	
Cap, veh/h	62	56	3124	97	0	3105	
Arrive On Green	0.04	0.04	1.00	1.00	0.00	0.89	
Sat Flow, veh/h	1682	1497	3612	109	0	3681	
Grp Volume(v), veh/h	43	18	935	983	0	844	
Grp Sat Flow(s),veh/h/ln	1682	<b>1</b> 497	1777	1850	0	1749	
Q Serve(g_s), s	3.0	1.4	0.0	0.0	0.0	4.3	
Cycle Q Clear(g_c), s	3.0	1.4	0.0	0.0	0.0	4.3	
Prop In Lane	1.00	1.00		0.06	0.00		
Lane Grp Cap(c), veh/h	62	56	1578	1643	0	3105	
V/C Ratio(X)	0.69	0.32	0.59	0.60	0.00	0.27	
Avail Cap(c_a), veh/h	262	233	1578	1643	0	3105	
HCM Platoon Ratio	1.00	1.00	1.33	1.33	1.00	1.00	
Upstream Filter(I)	1.00	1.00	0.56	0.56	0.00	0.93	
Uniform Delay (d), s/veh	57.1	56.3	0.0	0.0	0.0	1.0	
Incr Delay (d2), s/veh	12.6	3.3	0.9	0.9	0.0	0.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	1.5	0.6	0.4	0.4	0.0	0.6	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	69.7	59.6	0.9	0.9	0.0	1.2	
LnGrp LOS	Е	Е	А	А	А	А	
Approach Vol, veh/h	61		1918			844	
Approach Delay, s/veh	66.7		0.9			1.2	
Approach LOS	E		A			A	
Timer - Assigned Phs	_	2				6	8
Phs Duration (G+Y+Rc), s		111.0				111.0	9.0
Change Period (Y+Rc), s		4.5				4.5	9.0 4.5
Max Green Setting (Gmax), s		4.5 92.3				4.5 92.3	4.5 18.7
Max Q Clear Time (g_c+I1), s		92.3 2.0				92.3 6.3	5.0
Green Ext Time (p_c), s		2.0 33.8				6.3 7.5	0.1
v = r		53.0				1.5	0.1
Intersection Summary							
HCM 6th Ctrl Delay			2.4				
HCM 6th LOS			А				

# HCM Signalized Intersection Capacity Analysis 3: OR-99E & SE Washington Street

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		र्स		٦		7		<u></u> †î⊧		٦	<u>†</u> †	
Traffic Volume (vph)	2	2	0	86	0	70	0	1797	133	77	758	0
Future Volume (vph)	2	2	0	86	0	70	0	1797	133	77	758	0
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	
Lane Util. Factor		1.00		1.00		1.00		0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00		0.98		1.00		1.00	1.00	
Flpb, ped/bikes		1.00		0.98		1.00		1.00		1.00	1.00	
Frt		1.00		1.00		0.85		0.99		1.00	1.00	
Flt Protected		0.98		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1056		1653		1482		3499		1719	3438	
Flt Permitted		0.98		0.76		1.00		1.00		0.05	1.00	
Satd. Flow (perm)		1056		1314		1482		3499		92	3438	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	2	2	0	90	0	73	0	1872	139	80	790	0
RTOR Reduction (vph)	0	0	Ó	0	0	65	0	4	0	0	0	Ó
Lane Group Flow (vph)	0	4	Ō	90	0	8	Ō	2007	Ő	80	790	Ő
Confl. Peds. (#/hr)	3		10	10		3	22		2	2		22
Confl. Bikes (#/hr)									2			1
Heavy Vehicles (%)	75%	75%	75%	7%	7%	7%	2%	2%	2%	5%	5%	5%
Turn Type	Perm	NA		Perm		Perm		NA		pm+pt	NA	
Protected Phases	1 01111	4		1 0111		1 0/11		2		1	6	
Permitted Phases	4			8		8		-		6	Ū	
Actuated Green, G (s)	·	13.3		13.3		13.3		87.5		97.7	97.7	
Effective Green, g (s)		13.3		13.3		13.3		87.5		97.7	97.7	
Actuated g/C Ratio		0.11		0.11		0.11		0.73		0.81	0.81	
Clearance Time (s)		4.5		4.5		4.5		4.5		4.5	4.5	
Vehicle Extension (s)		3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		117		145		164		2551		152	2799	
v/s Ratio Prot				140		104		c0.57		c0.02	0.23	
v/s Ratio Perm		0.00		c0.07		0.01		00.01		0.40	0.20	
v/c Ratio		0.03		0.62		0.05		0.79		0.53	0.28	
Uniform Delay, d1		47.6		50.9		47.7		10.3		17.9	2.7	
Progression Factor		1.00		1.00		1.00		1.00		2.05	0.70	
Incremental Delay, d2		0.1		8.0		0.1		2.5		3.2	0.2	
Delay (s)		47.7		58.9		47.8		12.9		40.0	2.1	
Level of Service		D		E		D		. <u>-</u> .е		D	A	
Approach Delay (s)		47.7		_	54.0	5		12.9		2	5.6	
Approach LOS		D			D			B			A	
Intersection Summary												
HCM 2000 Control Delay			13.0	H	CM 2000	Level of	Service		В			
HCM 2000 Volume to Capa	icity ratio		0.75									
Actuated Cycle Length (s)			120.0	S	um of losi	t time (s)			13.5			
Intersection Capacity Utiliza	ation		78.1%	IC	U Level o	of Service	;		D			
Analysis Period (min)			15									
c Critical Lane Group												

- +	section	
mer	Sechan	

Intersection Delay, s/veh 9.2 Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		ų	۲		4			\$			\$	
Traffic Vol, veh/h	32	153	24	12	127	19	19	20	10	7	11	22
Future Vol, veh/h	32	153	24	12	127	19	19	20	10	7	11	22
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	9	9	9	6	6	6	6	6	6	6	6	6
Mvmt Flow	36	174	27	14	144	22	22	23	11	8	13	25
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			2			1			1		
Conflicting Approach L	eft SB			NB			EB			WB		
Conflicting Lanes Left	1			1			2			1		
Conflicting Approach R	RighNB			SB			WB			EB		
Conflicting Lanes Righ	t 1			1			1			2		
HCM Control Delay	9.7			9			8.5			8.1		
HCM LOS	А			А			А			А		

Lane	NBLn1	EBLn1	EBLn2V	VBLn1	SBLn1
Vol Left, %	39%	17%	0%	8%	17%
Vol Thru, %	41%	83%	0%	80%	27%
Vol Right, %	20%	0%	100%	12%	55%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	49	185	24	158	40
LT Vol	19	32	0	12	7
Through Vol	20	153	0	127	11
RT Vol	10	0	24	19	22
Lane Flow Rate	56	210	27	180	45
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.078	0.3	0.033	0.228	0.06
Departure Headway (Hd)	5.012	5.129	4.339	4.573	4.778
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Сар	714	702	825	785	749
Service Time	3.046	2.855	2.065	2.601	2.814
HCM Lane V/C Ratio	0.078	0.299	0.033	0.229	0.06
HCM Control Delay	8.5	10	7.2	9	8.1
HCM Lane LOS	А	А	Α	Α	А
HCM 95th-tile Q	0.3	1.3	0.1	0.9	0.2

## HCM Signalized Intersection Capacity Analysis 5: SE 21st Avenue & SE Washington Street

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			\$			\$	
Traffic Volume (vph)	14	126	43	9	107	17	40	41	21	9	15	14
Future Volume (vph)	14	126	43	9	107	17	40	41	21	9	15	14
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	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			0.99			0.99			0.98	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.97			0.98			0.97			0.95	
Flt Protected		1.00			1.00			0.98			0.99	
Satd. Flow (prot)		1684			1796			1706			1451	
Flt Permitted		0.97			0.97			0.86			0.91	
Satd. Flow (perm)		1631			1741			1488			1332	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	17	150	51	<b>1</b> 1	127	20	48	49	25	11	18	17
RTOR Reduction (vph)	0	22	0	0	11	0	0	18	0	0	12	0
Lane Group Flow (vph)	0	196	0	0	147	0	0	104	0	0	34	0
Confl. Peds. (#/hr)	35		8	8		35	51		30	30		51
Confl. Bikes (#/hr)			2									
Heavy Vehicles (%)	8%	8%	8%	3%	3%	3%	4%	4%	4%	20%	20%	20%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.2			8.2			7.2			7.2	
Effective Green, g (s)		8.2			8.2			7.2			7.2	
Actuated g/C Ratio		0.34			0.34			0.30			0.30	
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) v/s Ratio Prot		548			585			439			393	
v/s Ratio Perm		c0.12			0.08			c0.07			0.03	
v/c Ratio		0.36			0.25			0.24			0.09	
Uniform Delay, d1		6.1			5.9			6.5			6.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.4			0.2			0.3			0.1	
Delay (s)		6.5			6.1			6.8			6.3	
Level of Service		A			A			A			A	
Approach Delay (s)		6.5			6.1			6.8			6.3	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			6.4	Н	CM 2000	Level of	Service		Α			
HCM 2000 Volume to Capa	city ratio		0.30	.,								
Actuated Cycle Length (s)			24.4	S	um of losi	t time (s)			9.0			
Intersection Capacity Utiliza	tion		34.6%			of Service	)		A			
Analysis Period (min) c Critical Lane Group			15									

## HCM 6th Signalized Intersection Summary 5: SE 21st Avenue & SE Washington Street

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			\$			\$	
Traffic Volume (veh/h)	14	126	43	9	107	17	40	41	21	9	15	14
Future Volume (veh/h)	14	126	43	9	107	17	40	41	21	9	15	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.93	0.97		0.95	0.93		0.93	0.94		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	1781	1781	1781	1856	1856	1856	1841	184 <b>1</b>	1841	1604	1604	1604
Adj Flow Rate, veh/h	17	150	51	11	127	20	48	49	25	11	18	17
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	8	8	8	3	3	3	4	4	4	20	20	20
Cap, veh/h	161	395	126	158	491	73	324	284	109	219	243	174
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	55	1205	385	47	1499	224	409	834	320	158	713	511
Grp Volume(v), veh/h	218	0	0	158	0	0	122	0	0	46	0	0
Grp Sat Flow(s),veh/h/ln	1645	0	0	1770	0	0	1563	0	0	1383	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.7	0.0	0.0	1.8	0.0	0.0	1.3	0.0	0.0	0.6	0.0	0.0
Prop In Lane	0.08	_	0.23	0.07	_	0.13	0.39	_	0.20	0.24	_	0.37
Lane Grp Cap(c), veh/h	682	0	0	722	0	0	717	0	0	635	0	0
V/C Ratio(X)	0.32	0.00	0.00	0.22	0.00	0.00	0.17	0.00	0.00	0.07	0.00	0.00
Avail Cap(c_a), veh/h	1728	0	0	1845	0	0	1556	0	0	1376	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)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.0	0.0	0.0	6.7	0.0	0.0	6.3	0.0	0.0	6.1	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0	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/In	0.7	0.0	0.0	0.4	0.0	0.0	0.3	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh		0.0	0.0	6.0	0.0	0.0	6.4	0.0	0.0	6.1	0.0	0.0
LnGrp Delay(d),s/veh	7.3	0.0	0.0	6.9	0.0	0.0	6.4	0.0	0.0		0.0	0.0
LnGrp LOS	A	A 218	A	A	A	A	Α	A 122	A	A	A 46	Α
Approach Vol, veh/h					158 6.9			6.4			40 6.1	
Approach Delay, s/veh		7.3										
Approach LOS		А			A			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		13.7		13.4		13.7		13.4				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		24.5		26.5		24.5		26.5				
Max Q Clear Time (g_c+l1), s		3.3		4.7		2.6		3.8				
Green Ext Time (p_c), s		0.6		1.3		0.2		0.9				
Intersection Summary												
HCM 6th Ctrl Delay			6.9									
HCM 6th LOS			А									

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	<b>∱</b> ₽			-41₽	Y	
Traffic Vol, veh/h	209	5	3	165	1	1
Future Vol, veh/h	209	5	3	165	1	1
Conflicting Peds, #/hr	0	Ó	0	0	0	0
-	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage,	# 0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	227	5	3	179	1	1
		U.	Ų	110		'
	ajor <b>1</b>		Major2		Minor1	
Conflicting Flow All	0	0	232	0	326	116
Stage 1	-	-	-	-	230	-
Stage 2	-	-	-	-	96	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1333	-	643	914
Stage 1	-	-	-	-	786	-
Stage 2	-	-	-	-	917	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1333	-	642	914
Mov Cap-2 Maneuver	-	-	-	-	642	-
Stage 1	-	-	-	-	786	-
Stage 2	-	-	-	-	915	-
Oldgo Z					010	
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.1		9.8	
HCM LOS	U		0.1		9.0 A	
					А	
Minor Lane/Major Mvmt	1	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)		754	-	-	1333	-
HCM Lane V/C Ratio		0.003	-	-	0.002	-
HCM Control Delay (s)		9.8	-	-	7.7	0
HCM Lane LOS		A	-	-	A	А
HCM 95th %tile Q(veh)		0	-	-	0	-

## HCM Signalized Intersection Capacity Analysis 1: OR-99E & SE Harrison Street

	٨	-	$\mathbf{\hat{z}}$	¥	+	•	•	Ť	/*	<b>\</b>	Ļ	-
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		र्स		٦	<del>(</del> )		٦	<u></u> †₽		ኘ	<u></u> †₽	
Traffic Volume (vph)	23	50	374	148	26	27	237	742	103	84	1596	12
Future Volume (vph)	23	50	374	148	26	27	237	742	103	84	1596	12
ldeal 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	
Lane Util. Factor		1.00	1.00	0.95	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		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	
Frt		1.00	0.85	1.00	0.96		1.00	0.98		1.00	1.00	
Flt Protected		0.98	1.00	0.95	0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1852	1581	1681	1659		1787	3493		1787	3570	
Flt Permitted		0.98	1.00	0.95	0.98		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1852	1581	1681	1659		1787	3493		1787	3570	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	25	54	402	159	28	29	255	798	111	90	1716	13
RTOR Reduction (vph)	0	0	52	0	12	0	0	7	0	0	1	0
Lane Group Flow (vph)	0	79	350	1 <b>1</b> 0	94	0	255	902	0	90	1728	0
Confl. Peds. (#/hr)			15	15					5	5		
Confl. Bikes (#/hr)			3									
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	
Protected Phases	.4	4	5	. 8	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)		9.2	35.0	13.1	13.1		25.8	68.4		11.3	53.9	
Effective Green, g (s)		9.2	35.0	13.1	13. <b>1</b>		25.8	68.4		11.3	53.9	
Actuated g/C Ratio		0.08	0.29	0.11	0.11		0.22	0.57		0.09	0.45	
Clearance Time (s)		4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		141	461	183	181		384	1991		168	1603	
v/s Ratio Prot		0.04	c0.16	c0.07	0.06		0.14	0.26		0.05	c0.48	
v/s Ratio Perm			0.06									
v/c Ratio		0.56	0.76	0.60	0.52		0.66	0.45		0.54	1.08	
Uniform Delay, d1		53.4	38.7	51.0	50.5		43.1	15.0		51.8	33.0	
Progression Factor		1.00	1.00	1.00	1.00		1.09	0.83		1.00	1.00	
Incremental Delay, d2		5.0	7.0	5.5	2.7		4.1	0.7		3.3	46.8	
Delay (s)		58.5	45.7	56.4	53.2		51.2	13.2		55.1	79.9	
Level of Service		Е	D	Е	D		D	В		Е	Е	
Approach Delay (s)		47.8			54.8			21.5			78.7	
Approach LOS		D			D			С			Е	
Intersection Summary												
HCM 2000 Control Delay			55.2	H	CM 2000	Level of \$	Service		E			
HCM 2000 Volume to Capa	city ratio		0.91		2000	20,0,0,0			-			
Actuated Cycle Length (s)			120.0	S	um of losi	t time (s)			18.0			
Intersection Capacity Utiliza	ation		86.0%			of Service	1		E			
Analysis Period (min)			15		5 20101				-			
c Critical Lane Group												
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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	۲	7	<b>≜</b> †⊅			<u>†</u> †	
Traffic Volume (vph)	55	26	967	50	0	2176	
Future Volume (vph)	55	26	967	50	0	2176	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.5	4.5			4.5	
Lane Util. Factor	1.00	1.00	0.95			0.95	
Frpb, ped/bikes	1.00	0.98	1.00			1.00	
Flpb, ped/bikes	1.00	1.00	1.00			1.00	
Frt	1.00	0.85	0.99			1.00	
Flt Protected	0.95	1.00	1.00			1.00	
Satd. Flow (prot)	1736	1514	3507			3574	
Flt Permitted	0.95	1.00	1.00			1.00	
Satd. Flow (perm)	1736	1514	3507			3574	
	0.95	0.95	0.95	0.95	0.95	0.95	
Peak-hour factor, PHF	0.95 58	0.95	0.95 1018	0.95	0.95	0.95 2291	
Adj. Flow (vph)			1018				
RTOR Reduction (vph)	0	25	2 1069	0	0	0	
Lane Group Flow (vph)	58	2	1069	0	0	2291	
Confl. Peds. (#/hr)	2	5		4	4		
Confl. Bikes (#/hr)	407	1	00/	1	4.07	4.07	
Heavy Vehicles (%)	4%	_ 4%	2%	2%	1%	1%	
Turn Type	Prot	Perm	NA			NA	
Protected Phases	8	_	2			6	
Permitted Phases		8					
Actuated Green, G (s)	8.2	8.2	102.8			102.8	
Effective Green, g (s)	8.2	8.2	102.8			102.8	
Actuated g/C Ratio	0.07	0.07	0.86			0.86	
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)	118	103	3004			3061	
v/s Ratio Prot	c0.03		0.30			c0.64	
v/s Ratio Perm		0.00					
v/c Ratio	0.49	0.02	0.36			0.75	
Uniform Delay, d1	53.9	52.1	1.8			3.4	
Progression Factor	1.00	1.00	0.27			1.02	
Incremental Delay, d2	3.2	0.1	0.3			0.5	
Delay (s)	57.1	52.2	0.8			4.0	
Level of Service	E	D	A			A	
Approach Delay (s)	55.5		0.8			4.0	
Approach LOS	E		A			A	
Intersection Summary							
HCM 2000 Control Delay			4.3	H	CM 2000	Level of Se	ervice A
HCM 2000 Volume to Capa	acity ratio		0.73				
Actuated Cycle Length (s)	•		120.0	Si	um of losi	t time (s)	9.0
Intersection Capacity Utiliza	ation		73.5%			of Service	D
Analysis Period (min)			15				
c Critical Lane Group							
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## HCM 6th Signalized Intersection Summary 2: OR-99E & SE Monroe Street

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	٦	7	<b>†</b> î»			<b>†</b> †	
Traffic Volume (veh/h)	55	26	967	50	0	2176	
Future Volume (veh/h)	55	26	967	50	0	2176	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	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	1841	1841	1870	1870	0	1885	
Adj Flow Rate, veh/h	58	27	1018	53	0	2291	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	4	4	2	2	0	1	
Cap, veh/h	83	74	3011	157	0	3143	
Arrive On Green	0.05	0.05	1.00	1.00	0.00	0.88	
Sat Flow, veh/h	1753	1560	3525	179	0	3770	
Grp Volume(v), veh/h	58	27	527	544	0	2291	
Grp Sat Flow(s),veh/h/ln	1753	1560	1777	1833	0	1791	
Q Serve(g_s), s	3.9	2.0	0.0	0.0	0.0	26.1	
Cycle Q Clear(g_c), s	3.9	2.0	0.0	0.0	0.0	26.1	
Prop In Lane	1.00	1.00		0.10	0.00		
Lane Grp Cap(c), veh/h	83	74	1559	1609	0	3143	
V/C Ratio(X)	0.70	0.36	0.34	0.34	0.00	0.73	
Avail Cap(c_a), veh/h	263	234	1559	1609	0	3143	
HCM Platoon Ratio	1.00	1.00	1.33	1.33	1.00	1.00	
Upstream Filter(I)	1.00	1.00	0.89	0.89	0.00	0.12	
Uniform Delay (d), s/veh	56.3	55.4	0.0	0.0	0.0	2.5	
Incr Delay (d2), s/veh	10.0	3.0	0.5	0.5	0.0	0.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	2.0	0.9	0.2	0.2	0.0	3.9	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	66.3	58.4	0.5	0.5	0.0	2.7	
LnGrp LOS	Е	E	A	А	A	А	
Approach Vol, veh/h	85		1071			2291	
Approach Delay, s/veh	63.8		0.5			2.7	
Approach LOS	Ē		Â			A	
Timer - Assigned Phs	_	2				6	8
Phs Duration (G+Y+Rc), s		109.8				109.8	10.2
Change Period (Y+Rc), s		4.5				4.5	4.5
Max Green Setting (Gmax), s		4.5 93.0				93.0	18.0
Max Q Clear Time (g_c+I1), s		93.0 2.0				93.0 28.1	5.9
Green Ext Time (p_c), s		2.0 9.5				43.0	0.1
. ,		3.3				40.U	0.1
Intersection Summary			0.5				
HCM 6th Ctrl Delay			3.5				
HCM 6th LOS			А				

# HCM Signalized Intersection Capacity Analysis 3: OR-99E & SE Washington Street

	٦	-	$\mathbf{i}$	¥	←	×	•	Ť	1	$\mathbf{h}$	Ļ	-
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		र्स		٦		7		<u></u> ↑₽		۲	<u>†</u> †	
Traffic Volume (vph)	1	1	0	133	0	45	0	993	100	74	2137	0
Future Volume (vph)	1	1	0	133	0	45	0	993	100	74	2137	0
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	
Lane Util. Factor		1.00		1.00		1.00		0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00		0.98		1.00		1.00	1.00	
Flpb, ped/bikes		1.00		0.98		1.00		1.00		1.00	1.00	
Frt		1.00		1.00		0.85		0.99		1.00	1.00	
Flt Protected		0.98		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1850		1704		1528		3452		1787	3574	
Flt Permitted		0.98		0.76		1.00		1.00		0.20	1.00	
Satd. Flow (perm)		1850		1357		1528		3452		372	3574	
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)	1	1	0	140	0	47	0	1045	105	78	2249	0.00
RTOR Reduction (vph)	0 0	0	õ	0	Ŭ	40	Ũ	6	0	0	0	Õ
Lane Group Flow (vph)	Õ	2	õ	140	Ũ	7	õ	1144	Ő	78	2249	Ő
Confl. Peds. (#/hr)	2	-	9	9	Ū	2	16		1	.0	22.10	16
Confl. Bikes (#/hr)	2		Ų	Ŭ		2	10		2			1
Heavy Vehicles (%)	0%	0%	0%	4%	4%	4%	3%	3%	3%	1%	1%	1%
Turn Type	Perm	NA	070	Perm	-170	Perm	070	NA	070	pm+pt	NA	170
Protected Phases	Ferm	4		Feim		r enn		2		рштрі 1	6	
Permitted Phases	4	4		8		8		2		6	0	
Actuated Green, G (s)	4	16.7		16.7		16.7		85.0		94.3	94.3	
Effective Green, g (s)		16.7		16.7		16.7		85.0		94.3	94.3	
Actuated g/C Ratio		0.14		0.14		0.14		0.71		0.79	0.79	
Clearance Time (s)		4.5		4.5		4.5		4.5		4.5	4.5	
Vehicle Extension (s)		3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		257		188		212		2445		348	2808	
v/s Ratio Prot		201		100		212		2445 0.33		0.01	2000 c0.63	
v/s Ratio Perm		0.00		c0.10		0.00		0.55		0.01	0.03	
v/c Ratio		0.00		0.74		0.00		0.47		0.17	0.80	
Uniform Delay, d1		44.5		49.6		0.03 44.7		7.6		4.5	0.80 7.4	
Progression Factor		1.00		49.0 1.00		1.00		1.00		4.0 1. <b>1</b> 7	0.73	
		0.0		14.8		0.1		0.6		0.2	1.7	
Incremental Delay, d2		44.5		64.4		44.7		0.0 8.3		0.2 5.4	7.2	
Delay (s) Level of Service				04.4 E								
		D 44.5		E	59.4	D		A 8.3		А	A 7.1	
Approach Delay (s) Approach LOS					59.4 E							
Approach LOS		D			E			A			А	
Intersection Summary												
HCM 2000 Control Delay			10.2	H	CM 2000	Level of \$	Service		В			
HCM 2000 Volume to Capac	ity ratio		0.83									
Actuated Cycle Length (s)			120.0	Si	um of losi	time (s)			13.5			
Intersection Capacity Utilizati	on		79.2%			of Service			D			
Analysis Period (min)			15									
Analysis Fonou (min)			10									

Intersection														 
Intersection Delay, s/veh	9													
Intersection LOS	Ă													
Movement	EBL I	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations		<u>स</u>	7	VVDL	<u>بریہ</u>	WDIN	NDL	<u>به</u>	NUN	ODL	<u>الالە</u>	ODIX		
Traffic Vol, veh/h	37	<b>ন</b> 116	37	16	124	20	30	* <del>**</del> 29	15	30	* <del>**</del> 26	36		
Future Vol, veh/h		116	37	16	124	20	30	29 29	15	30	26	36		
		0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93		
Heavy Vehicles, %	5	5.55	0.35	0.00	0.35	0.35	0.00	0.33	2	0.00	0.33	0.00		
Mvmt Flow	40	125	40	17	133	22	32	31	16	32	28	39		
Number of Lanes	0	12.5		0	100	0	0	1	0	0	1	0		
		1	1		1	U		1	Ų		I	Ŭ		
Approach	EB			WB			NB			SB				
Opposing Approach	WB			EB			SB			NB				
Opposing Lanes	1			2			_1			1				
Conflicting Approach Lef	t SB			NB			EB			WB				
Conflicting Lanes Left	1			1			2			1				
Conflicting Approach Rig	hNB			SB			WB			EB				
Conflicting Lanes Right	1			1			1			2				
HCM Control Delay	9.3			9.1			8.6			8.6				
HCM LOS	А			А			А			А				
Lane			EBLn1											
Vol Left, %		41%	24%	0%	10%	33%								
Vol Thru, %		39%	76%	0%	78%	28%								
Vol Right, %		20%	0%	100%	12%	39%								
Sign Control	9	Stop	Stop	Stop	Stop	Stop								
Traffic Vol by Lane		74	153	37	160	<del>9</del> 2								
LT Vol		30	37	0	16	30								
Through Vol		29	116	0	124	26								
RT Vol		15	0	37	20	36								
Lane Flow Rate		80	165	40	172	99								
Geometry Grp		2	7	7	5	2								
Degree of Util (X)			0.242											
Departure Headway (Hd)	) 4.	.931	5.294	4.468	4.718	4.795								
Convergence, Y/N		Yes	Yes	Yes	Yes	Yes								
Сар		725	678	799	759	746								
Service Time	2.	977	3.034	2.208	2.759	2.838								
HCM Lane V/C Ratio	(	0.11	0.243	0.05	0.227	0.133								
HCM Control Delay		8.6	9.7	7.4	9.1	8.6								
HCM Lane LOS		Α	А	Α	Α	А								
		04	0.0	~ ~ ~	0.0	0.5								

0.4 0.9

0.2 0.9

0.5

HCM 95th-tile Q

### HCM Signalized Intersection Capacity Analysis 5: SE 21st Avenue & SE Washington Street

11/17/2020

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			\$			\$	
Traffic Volume (vph)	18	96	44	10	98	24	31	24	8	12	31	28
Future Volume (vph)	18	96	44	10	98	24	31	24	8	12	31	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1 <del>9</del> 00
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			1.00			1.00			0.98	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.96			0.98			0.98			0.95	
Flt Protected		0.99			1.00			0.98			0.99	
Satd. Flow (prot)		1687			1800			1779			1576	
Flt Permitted		0.95			0.96			0.81			0.93	
Satd. Flow (perm)		1608			1741			1479			1486	
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)	19	102	47	11	104	26	33	26	9	13	33	30
RTOR Reduction (vph)	0	29	0	0	16	0	0	6	0	0	22	0
Lane Group Flow (vph)	0	139	0	0	125	0	0	62	0	0	54	0
Confl. Peds. (#/hr)	7		5	5		7	35		21	21		35
Confl. Bikes (#/hr)			1			1						1
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	1%	1%	1%	11%	11%	11%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8	-		2			6	_	
Actuated Green, G (s)		7.2			7.2			6.4			6.4	
Effective Green, g (s)		7.2			7.2			6.4			6.4	
Actuated g/C Ratio		0.32			0.32			0.28			0.28	
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)		512			554			418			420	
v/s Ratio Prot					A 47							
v/s Ratio Perm		c0.09			0.07			c0.04			0.04	
v/c Ratio		0.27			0.22			0.15			0.13	
Uniform Delay, d1		5.7			5.7			6.1			6.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.3			0.2			0.2			0.1	
Delay (s)		6.0			5.9			6.2			6.2	
Level of Service		А			А			А			А	
Approach Delay (s)		6.0			5.9			6.2			6.2	
Approach LOS		А			A			А			А	
Intersection Summary												
HCM 2000 Control Delay			6.0	Н	CM 2000	Level of	Service		А			
HCM 2000 Volume to Capac	city ratio		0.21									
Actuated Cycle Length (s)			22.6	S	um of losi	t time (s)			9.0			
Intersection Capacity Utilizat	tion		32.8%	IC	U Level (	of Service	)		А			
Analysis Period (min) c Critical Lane Group			15									

## HCM 6th Signalized Intersection Summary 5: SE 21st Avenue & SE Washington Street

11/17/2020

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			<del>(</del> )			¢ <del>)</del>			\$	
Traffic Volume (veh/h)	18	96	44	10	98	24	31	24	8	12	31	28
Future Volume (veh/h)	18	96	44	10	98	24	31	24	8	12	31	28
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	0.99		0.96	0.96		0.95	0.95		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	1796	1796	1796	1870	1870	1870	1885	1885	1885	1737	1737	1737
Adj Flow Rate, veh/h	19	102	47	11	104	26	33	26	9	13	33	30
Peak Hour Factor	0.94	0.94	0.94	0. <del>9</del> 4	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	7	7	7	2	2	2	1	1	1	11	11	11
Cap, veh/h	207	272	116	193	344	82	426	285	72	227	279	206
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	102	1082	460	68	1369	325	540	834	210	107	818	603
Grp Volume(v), veh/h	168	0	0	141	0	0	68	0	0	76	0	0
Grp Sat Flow(s),veh/h/ln	1643	0	0	1762	0	0	1584	0	0	1528	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.8	0.0	0.0	1.4	0.0	0.0	0.6	0.0	0.0	0.7	0.0	0.0
Prop In Lane	0.11		0.28	0.08		0.18	0.49		0.13	0.17		0.39
Lane Grp Cap(c), veh/h	594	0	0	618	0	0	783	0	0	713	0	0
V/C Ratio(X)	0.28	0.00	0.00	0.23	0.00	0.00	0.09	0.00	0.00	0.11	0.00	0.00
Avail Cap(c_a), veh/h	2114	0	0	2255	0	0	1932	0	0	1840	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)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.9	0.0	0.0	6.7	0.0	0.0	5.0	0.0	0.0	5.0	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.2	0.0	0.0	0.0	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	0.4	0.0	0.0	0.3	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.1	0.0	0.0	6.9	0.0	0.0	5.0	0.0	0.0	5.1	0.0	0.0
LnGrp LOS	A	А	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		168			14 <b>1</b>			68			76	
Approach Delay, s/veh		7.1			6.9			5.0			5.1	
Approach LOS		А			А			А			А	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		12.1		10.1		12.1		10.1				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		24.5		26.5		24.5		26.5				
Max Q Clear Time (g_c+I1), s		2.6		3.8		2.7		3.4				
Green Ext Time (p_c), s		0.3		1.0		0.4		0.8				
Intersection Summary												
HCM 6th Ctrl Delay			6.4									
HCM 6th LOS			А									

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
	朴			-¶∱	Y	
Traffic Vol, veh/h	187	1	1	190	5	3
Future Vol, veh/h	187	1	1	190	5	3
Conflicting Peds, #/hr	0	Ó	0	0	Ō	Ō
	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage,	# 0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	203	1	1	207	5	3
	200	'	'	201	Ŭ	Ű
	ajor <b>1</b>		Major2		Minor1	
Conflicting Flow All	0	0	204	0	310	102
Stage 1	-	-	-	-	204	-
Stage 2	-	-	-	-	106	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1365	-	658	933
Stage 1	-	-	-	-	810	-
Stage 2	-	-	-	-	907	-
Platoon blocked, %	-	-		-	•••	
Mov Cap-1 Maneuver	-	-	1365	-	657	933
Mov Cap-2 Maneuver	_	_	1000	-	657	
Stage 1		_		-	810	
-	-	-	•	-	906	-
Stage 2	-	-	-	-	900	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		9.9	
HCM LOS					А	
Minor Lane/Major Mumt	,	NBLn1	EBT		WBL	WBT
Minor Lane/Major Mvmt	I		EDI			
Capacity (veh/h)		739	-	-	1365	-
HCM Lane V/C Ratio		0.012	-	-	0.001	-
HCM Control Delay (s)		9.9	-	-	7.6	0
HCM Lane LOS HCM 95th %tile Q(veh)		A 0	-	-	A 0	А

#### HCM Signalized Intersection Capacity Analysis 1: OR-99E & SE Harrison Street

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		र्स	7	٦	\$		٦	<u></u> †î⊧		٦	<u></u> ∱î≽	
Traffic Volume (vph)	22	70	176	80	55	24	323	1434	98	93	588	11
Future Volume (vph)	22	70	176	80	55	24	323	1434	98	93	588	11
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	
Lane Util. Factor		1.00	1.00	0.95	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		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	
Frt		1.00	0.85	1.00	0.96		1.00	0.99		1.00	1.00	
Flt Protected		0.99	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1806	1539	1618	1626		1770	3497		1736	3461	
Flt Permitted		0.99	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1806	1539	1618	1626		1770	3497		1736	3461	
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)	23	74	185	84	58	25	340	1509	103	98	619	12
RTOR Reduction (vph)	0	0	124	0	12	0	0	4	0	0	1	0
Lane Group Flow (vph)	Õ	97	61	76	79	Õ	340	1608	Õ	98	630	Ő
Confl. Peds. (#/hr)	Ŭ	0,	8	8		Ū	010	1000	5	5		Ū
Confl. Bikes (#/hr)			2						Ū			
Heavy Vehicles (%)	4%	4%	4%	6%	6%	6%	2%	2%	2%	4%	4%	4%
Turn Type	Split	NA	pm+ov	Split	NA	0,0	Prot	NA	_,,,	Prot	NA	.,,,
Protected Phases	۵pin 4	4	5	8	8		5	2		1	6	
Permitted Phases	-	-	4	U	0		5	2			0	
Actuated Green, G (s)		11.8	39.6	11.2	11.2		27.8	67.0		12.0	51.2	
Effective Green, g (s)		11.8	39.6	11.2	11.2		27.8	67.0		12.0	51.2	
Actuated g/C Ratio		0.10	0.33	0.09	0.09		0.23	0.56		0.10	0.43	
Clearance Time (s)		4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		177	507	151	151		410	1952		173	1476	
v/s Ratio Prot		c0.05	0.03	0.05	c0.05		c0.19	c0.46		0.06	0.18	
v/s Ratio Perm		0.05	0.03	0.05	00.05		CU. 19	00.40		0.00	0.10	
v/c Ratio		0.55	0.01	0.50	0.52		0.83	0.82		0.57	0.43	
Uniform Delay, d1		51.6	28.0	51.8	51.9		43.8	21.7		0.57 51.5	24.1	
Progression Factor		1.00	1.00	1.00	1.00		43.8 1. <b>1</b> 0	0.91		1.00	1.00	
Incremental Delay, d2		3.4	0.1	2.6	3.3		10.4	3.2		4.2	0.2	
Delay (s)		55.0	28.2	2.0 54.4	55.1		58.8	23.0		55.7	24.3	
Level of Service		55.0 E	20.2 C	04.4 D	55.1 E		56.6 E	23.0 C		55.7 E	24.3 C	
Approach Delay (s)			U	D			E	29.2		E	28.5	
Approach LOS		37.4 D			54.8 D			29.2 C			20.5 C	
		D			D			U			U	
Intersection Summary												
HCM 2000 Control Delay			31.2	Н	CM 2000	Level of \$	Service		С			
HCM 2000 Volume to Capaci	ty ratio		0.78									
Actuated Cycle Length (s)			<b>1</b> 20.0		um of losi	• • •			18.0			
Intersection Capacity Utilizati	on		71.6%	IC	CU Level o	of Service	1		С			
Analysis Period (min)			15									
c Critical Lane Group												

	4	A.	Ť	1	\$	Ļ	
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	ሻ	7	<b>≜</b> †⊅			<b>††</b>	
Traffic Volume (vph)	43	19	1832	58	0	838	
Future Volume (vph)	43	19	1832	58	0	838	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.5	4.5			4.5	
Lane Util. Factor	1.00	1.00	0.95			0.95	
Frpb, ped/bikes	1.00	0.98	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	0.95	1.00	1.00			1.00	
Satd. Flow (prot)	1656	1455	3520			3471	
Flt Permitted	0.95	1.00	1.00			1.00	
Satd. Flow (perm)	1656	1455	3520			3471	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	45	20	1908	60	0	873	
RTOR Reduction (vph)	0	19	1	0	0	0	
Lane Group Flow (vph)	45	1	1967	0	0	873	
Confl. Peds. (#/hr)	2	3		3	3		
Heavy Vehicles (%)	9%	9%	2%	2%	4%	4%	
Turn Type	Prot	Perm	NA			NA	
Protected Phases	8		2			6	
Permitted Phases		8					
Actuated Green, G (s)	7.6	7.6	103.4			103.4	
Effective Green, g (s)	7.6	7.6	103.4			103.4	
Actuated g/C Ratio	0.06	0.06	0.86			0.86	
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)	104	92	3033			2990	
v/s Ratio Prot	c0.03		c0.56			0.25	
v/s Ratio Perm		0.00					
v/c Ratio	0.43	0.01	0.65			0.29	
Uniform Delay, d1	54.1	52.7	2.6			1.5	
Progression Factor	1.00	1.00	0.75			0.63	
Incremental Delay, d2	2.9	0.1	0.6			0.2	
Delay (s)	57.0	52.7	2.6			1.2	
Level of Service	E	D	А			А	
Approach Delay (s)	55.7		2.6			1.2	
Approach LOS	Е		А			А	
Intersection Summary							
HCM 2000 Control Delay			3.4	H	CM 2000	Level of Se	ervice A
HCM 2000 Volume to Capa	city ratio		0.63				
Actuated Cycle Length (s)			120.0	Su	um of lost	t time (s)	9.0
Intersection Capacity Utiliza	ation		65.2%			of Service	C
Analysis Period (min)			15				
c Critical Lane Group							

## HCM 6th Signalized Intersection Summary 2: OR-99E & SE Monroe Street

	•		Ť	/	\$	Ļ	
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	٦	1	<b>†</b> î»			<b>††</b>	
Traffic Volume (veh/h)	43	19	1832	58	0	838	
Future Volume (veh/h)	43	19	1832	58	0	838	
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	1767	1767	1870	1870	0	1841	
Adj Flow Rate, veh/h	45	20	1908	60	0	873	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %	9	9	2	2	0	4	
Cap, veh/h	65	58	3117	97	0	3099	
Arrive On Green	0.04	0.04	1.00	1.00	0.00	0.89	
Sat Flow, veh/h	1682	1497	3611	110	0	3681	
Grp Volume(v), veh/h	45	20	959	1009	0	873	
Grp Sat Flow(s),veh/h/ln	1682	1497	1777	1850	0	1749	
Q Serve(g_s), s	3.2	1.6	0.0	0.0	0.0	4.5	
Cycle Q Clear(g_c), s	3.2	1.6	0.0	0.0	0.0	4.5	
Prop In Lane	1.00	1.00	•••	0.06	0.00		
Lane Grp Cap(c), veh/h	65	58	1574	1640	0	3099	
V/C Ratio(X)	0.69	0.34	0.61	0.62	0.00	0.28	
Avail Cap(c_a), veh/h	262	233	1574	1640	0	3099	
HCM Platoon Ratio	1.00	1.00	1.33	1.33	1.00	1.00	
Upstream Filter(I)	1.00	1.00	0.49	0.49	0.00	0.92	
Uniform Delay (d), s/veh	56.9	56.2	0.0	0.0	0.0	1.0	
Incr Delay (d2), s/veh	12.0	3.5	0.9	0.9	0.0	0.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	1.6	0.7	0.4	0.4	0.0	0.6	
Unsig. Movement Delay, s/veh		0.1	0.4	0.4	0.0	0.0	
LnGrp Delay(d),s/veh	69.0	59.6	0.9	0.9	0.0	1.2	
LnGrp LOS	E	60.0 E	A	A	A	A	
Approach Vol, veh/h	65	<b>L</b>	1968			873	
Approach Delay, s/veh	66.1		0.9			1.2	
Approach LOS	00.1 F		0.9 A			1.2 A	
	E	_	A				
Timer - Assigned Phs		2				6	8
Phs Duration (G+Y+Rc), s		110.8				110.8	9.2
Change Period (Y+Rc), s		4.5				4.5	4.5
Max Green Setting (Gmax), s		92.3				92.3	18.7
Max Q Clear Time (g_c+I1), s		2.0				6.5	5.2
Green Ext Time (p_c), s		36.3				7.9	0.1
		00.0					
Intersection Summary							
Intersection Summary HCM 6th Ctrl Delay			2.4				

# HCM Signalized Intersection Capacity Analysis 3: OR-99E & SE Washington Street

	٦	-	$\mathbf{i}$	4	+	*	•	Ť	1	4	Ļ	-
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		र्स		ሻ		1		<u></u> †î→		ኘ	<b>^</b>	
Traffic Volume (vph)	2	2	0	103	0	93	0	1823	143	92	774	0
Future Volume (vph)	2	2	0	103	0	93	0	1823	143	92	774	0
ldeal 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	
Lane Util. Factor		1.00		1.00		1.00		0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00		0.98		1.00		1.00	1.00	
Flpb, ped/bikes		1.00		0.98		1.00		1.00		1.00	1.00	
Frt		1.00		1.00		0.85		0.99		1.00	1.00	
Flt Protected		0.98		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1056		1653		1482		3496		1719	3438	
Flt Permitted		0.98		0.76		1.00		1.00		0.04	1.00	
Satd. Flow (perm)		1056		1314		1482		3496		81	3438	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	2	2	0	107	0	97	0	1899	149	96	806	0
RTOR Reduction (vph)	0	0	0	0	0	85	0	4	0	0	0	0
Lane Group Flow (vph)	0	4	0	107	0	12	0	2044	0	96	806	0
Confl. Peds. (#/hr)	3		10	10		3	22		2	2		22
Confl. Bikes (#/hr)									2			1
Heavy Vehicles (%)	75%	75%	75%	7%	7%	7%	2%	2%	2%	5%	5%	5%
Turn Type	Perm	NA		Perm		Perm		NA		pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4			8		8				6		
Actuated Green, G (s)		14.4		14.4		14.4		84.9		96.6	96.6	
Effective Green, g (s)		14.4		14.4		14.4		84.9		96.6	96.6	
Actuated g/C Ratio		0.12		0.12		0.12		0.71		0.80	0.80	
Clearance Time (s)		4.5		4.5		4.5		4.5		4.5	4.5	
Vehicle Extension (s)		3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		126		157		177		2473		163	2767	
v/s Ratio Prot								c0.58		c0.04	0.23	
v/s Ratio Perm		0.00		c0.08		0.01				0.44		
v/c Ratio		0.03		0.68		0.07		0.83		0.59	0.29	
Uniform Delay, d1		46.6		50.6		46.8		12.4		27.0	3.0	
Progression Factor		1.00		1.00		1.00		1.00		1.51	0.62	
Incremental Delay, d2		0.1		11.5		0.2		3.3		5.2	0.3	
Delay (s)		46.7		62.1		47.0		15.7		46.0	2.1	
Level of Service		D		Е		D		В		D	А	
Approach Delay (s)		46.7			54.9			15.7			6.8	
Approach LOS		D			D			В			А	
Intersection Summary												
HCM 2000 Control Delay			15.7	H	CM 2000	Level of a	Service		В			
HCM 2000 Volume to Capa	city ratio		0.79	.,					-			
Actuated Cycle Length (s)	<b>,</b>		120.0	S	um of losi	t time (s)			13.5			
Intersection Capacity Utiliza	ation		81.3%			of Service	;		D			
Analysis Period (min)			15						-			
c Critical Lane Group												
· · · · · ·												

Interse	otion
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Intersection Delay, s/veh 9.7 А

Intersection LOS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		ų	۲		\$			\$			\$		
Traffic Vol, veh/h	35	170	29	13	163	20	23	24	10	8	12	23	
Future Vol, veh/h	35	170	29	13	163	20	23	24	10	8	12	23	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	
Heavy Vehicles, %	9	9	9	6	6	6	6	6	6	6	6	6	
Mvmt Flow	40	193	33	15	185	23	26	27	11	9	14	26	
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0	
Approach	EB			WB			NB			SB			
Opposing Approach	WB			EB			SB			NB			
Opposing Lanes	1			2			1			1			
Conflicting Approach L	eft SB			NB			EB			WB			
Conflicting Lanes Left	1			1			2			1			
Conflicting Approach R	lighNB			SB			WB			EB			
Conflicting Lanes Righ	t 1			1			1			2			
HCM Control Delay	10.2			9.6			8.8			8.4			
HCM LOS	В			А			А			А			

Lane	NBLn1	EBLn1	EBLn2\	VBLn1	SBLn1
Vol Left, %	40%	17%	0%	7%	19%
Vol Thru, %	42%	83%	0%	83%	28%
Vol Right, %	18%	0%	100%	10%	53%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	57	205	29	196	43
LT Vol	23	35	0	13	8
Through Vol	24	170	0	163	12
RT Vol	10	0	29	20	23
Lane Flow Rate	65	233	33	223	49
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.094	0.337	0.04	0.288	0.068
Departure Headway (Hd)	5.206	5.208	4.418	4.66	4.975
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Сар	686	6 <del>9</del> 0	809	771	717
Service Time	3.255	2.944	2.154	2.697	3.025
HCM Lane V/C Ratio	0.095	0.338	0.041	0.289	0.068
HCM Control Delay	8.8	10.6	7.3	9.6	8.4
HCM Lane LOS	А	В	Α	Α	А
HCM 95th-tile Q	0.3	1.5	0.1	1.2	0.2

#### HCM Signalized Intersection Capacity Analysis 5: SE 21st Avenue & SE Washington Street

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			\$			\$	
Traffic Volume (vph)	15	142	49	10	116	19	43	46	22	9	17	15
Future Volume (vph)	15	142	49	10	116	19	43	46	22	9	17	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1 <del>9</del> 00
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			0.99			0.99			0.98	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.97			0.98			0.97			0.95	
Flt Protected		1.00			1.00			0.98			0.99	
Satd. Flow (prot)		1683			1794			1709			1452	
Flt Permitted		0.97			0.97			0.86			0.91	
Satd. Flow (perm)		1634			1738			1492			1339	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	18	169	58	12	138	23	51	55	26	11	20	18
RTOR Reduction (vph)	0	22	0	0	10	0	0	18	0	0	13	0
Lane Group Flow (vph)	0	223	0	0	163	0	0	114	0	0	36	0
Confl. Peds. (#/hr)	35		8	8		35	51		30	30		51
Confl. Bikes (#/hr)			2									
Heavy Vehicles (%)	8%	8%	8%	3%	3%	3%	4%	4%	4%	20%	20%	20%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8	-		2	_		6	-	
Actuated Green, G (s)		8.7			8.7			7.4			7.4	
Effective Green, g (s)		8.7			8.7			7.4			7.4	
Actuated g/C Ratio		0.35			0.35			0.29			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) v/s Ratio Prot		566			602			439			394	
v/s Ratio Perm		c0.14			0.09			c0.08			0.03	
v/c Ratio		0.39			0.00			0.26			0.09	
Uniform Delay, d1		6.2			5.9			6.8			6.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.5			0.2			0.3			0.1	
Delay (s)		6.7			6.2			7.1			6.5	
Level of Service		A			0.2 A			A			0.0 A	
Approach Delay (s)		6.7			6.2			7.1			6.5	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			6.6	Н	CM 2000	Level of	Service		A			
HCM 2000 Volume to Capa	city ratio		0.33									
Actuated Cycle Length (s)	•		25.1	S	um of losi	t time (s)			9.0			
Intersection Capacity Utiliza	ation		36.1%			of Service	)		A			
Analysis Period (min) c Critical Lane Group			15									

#### HCM 6th Signalized Intersection Summary 5: SE 21st Avenue & SE Washington Street

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			\$			\$	
Traffic Volume (veh/h)	15	142	49	10	116	19	43	46	22	9	17	15
Future Volume (veh/h)	15	142	49	10	116	19	43	46	22	9	17	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.93	0.97		0.95	0.93		0.92	0.94		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	1781	1781	1781	1856	1856	1856	1841	184 <b>1</b>	1841	1604	1604	1604
Adj Flow Rate, veh/h	18	169	58	12	138	23	51	55	26	11	20	18
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	8	8	8	3	3	3	4	4	4	20	20	20
Cap, veh/h	157	408	132	155	504	80	314	289	104	207	247	171
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	51	1205	390	46	1486	235	399	860	309	143	735	510
Grp Volume(v), veh/h	245	0	0	173	0	0	132	0	0	49	0	0
Grp Sat Flow(s),veh/h/ln	1645	0	0	1767	0	0	1568	0	0	1389	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.1	0.0	0.0	1.9	0.0	0.0	1.5	0.0	0.0	0.6	0.0	0.0
Prop In Lane	0.07		0.24	0.07		0.13	0.39		0.20	0.22		0.37
Lane Grp Cap(c), veh/h	697	0	0	738	0	0	707	0	0	625	0	0
V/C Ratio(X)	0.35	0.00	0.00	0.23	0.00	0.00	0.19	0.00	0.00	0.08	0.00	0.00
Avail Cap(c_a), veh/h	1693	0	0	1803	0	0	1527	0	0	1350	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)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.1	0.0	0.0	6.7	0.0	0.0	6.6	0.0	0.0	6.3	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.2	0.0	0.0	0.1	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	0.7	0.0	0.0	0.5	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh	l –											
LnGrp Delay(d),s/veh	7.4	0.0	0.0	6.8	0.0	0.0	6.7	0.0	0.0	6.4	0.0	0.0
LnGrp LOS	Α	Α	Α	Α	Α	Α	А	А	Α	Α	А	A
Approach Vol, veh/h		245			173			132			49	
Approach Delay, s/veh		7.4			6.8			6.7			6.4	
Approach LOS		А			А			А			А	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		13.8		13.9		13.8		13.9				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		24.5		26.5		24.5		26.5				
Max Q Clear Time (g_c+I1), s		3.5		5.1		2.6		3.9				
Green Ext Time (p_c), s		0.7		1.5		0.2		1.0				
Intersection Summary												
HCM 6th Ctrl Delay			7.0									
HCM 6th LOS			А									

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	朴			44	Y	
Traffic Vol, veh/h	234	5	3	206	1	1
Future Vol, veh/h	234	5	3	206	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0
-	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage,	# 0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	254	5	3	224	1	1
		•	•			
Majar/Minaa M	<b>1</b>		4-1-0		linert	
· · · ·	ajor1		Major2		Minor1	400
Conflicting Flow All	0	0	259	0	375	130
Stage 1	-	-	-	-	257	-
Stage 2	-	-	-	-	118	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1303	-	599	896
Stage 1	-	-	-	-	762	-
Stage 2	-	-	-	-	894	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1303	-	597	896
Mov Cap-2 Maneuver	-	-	-	-	597	-
Stage 1	-	-	-	-	762	-
Stage 2	-	-	-	-	891	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.1		10	
HCM LOS	_				В	
· · · · · · · · · · · · ·					_	
Minor Lane/Major Mvmt	1	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	•	717		-	1303	-
HCM Lane V/C Ratio		0.003	-		0.003	-
HCM Control Delay (s)		10	-	-	7.8	0
HCM Lane LOS		B	-	-	, .o	A
HCM 95th %tile Q(veh)		0	-	-	0	-
		v	-	-	U	-

#### HCM Signalized Intersection Capacity Analysis 1: OR-99E & SE Harrison Street

	٨	-	$\mathbf{\hat{z}}$	4	←	•	•	Ť	/*	<b>\</b>	Ļ	-
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		र्स	7	ሻ	<del>4</del> >		ሻ	<u></u> †₽		ኘ	<u></u> †₽	
Traffic Volume (vph)	25	53	396	154	29	28	257	769	107	87	1642	14
Future Volume (vph)	25	53	396	154	29	28	257	769	107	87	1642	14
ldeal 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	
Lane Util. Factor		1.00	1.00	0.95	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		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	
Frt		1.00	0.85	1.00	0.96		1.00	0.98		1.00	1.00	
Flt Protected		0.98	1.00	0.95	0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1851	1581	1681	1661		1787	3493		1787	3570	
Flt Permitted		0.98	1.00	0.95	0.98		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1851	1581	1681	1661		1787	3493		1787	3570	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	27	57	426	166	31	30	276	827	115	94	1766	15
RTOR Reduction (vph)	0	0	49	0	12	0	0	7	0	0	1	0
Lane Group Flow (vph)	0	84	377	115	100	0	276	935	0	94	1780	0
Confl. Peds. (#/hr)			15	15					5	5		
Confl. Bikes (#/hr)			3									
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	
Protected Phases	4	4	5	8	8		5	2		1	6	
Permitted Phases	•		4	Ū	•		•	-		•	Ū	
Actuated Green, G (s)		9.4	36.4	13.5	13.5		27.0	67.6		11.5	52.1	
Effective Green, g (s)		9.4	36.4	13.5	13.5		27.0	67.6		11.5	52.1	
Actuated g/C Ratio		0.08	0.30	0.11	0.11		0.22	0.56		0.10	0.43	
Clearance Time (s)		4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		144	479	189	186		402	1967		171	1549	
v/s Ratio Prot		0.05	c0.18	c0.07	0.06		0.15	0.27		0.05	c0.50	
v/s Ratio Perm		0.00	0.06	00.07	0.00		0.10	0.27		0.00	00.00	
v/c Ratio		0.58	0.79	0.61	0.54		0.69	0.48		0.55	1.15	
Uniform Delay, d1		53.4	38.3	50.7	50.3		42.6	15.6		51.8	34.0	
Progression Factor		1.00	1.00	1.00	1.00		1.12	0.85		1.00	1.00	
Incremental Delay, d2		5.9	8.4	5.5	3.2		4.6	0.8		3.6	75.2	
Delay (s)		59.3	46.6	56.2	53.5		52.4	14.0		55.4	109.2	
Level of Service		E	40.0 D	E	00.0 D		02.4 D	нч.0 В		E	100.2 F	
Approach Delay (s)		48.7	5	-	54.9		D	22.7		L	106.5	
Approach LOS		 D			04.5 D			C			100.0 F	
		D			5			Ŭ			•	
Intersection Summary			<u>60 4</u>		OM 0000	Louist -64	Conder					
HCM 2000 Control Delay	-14 <del>.</del> 17 -		69.1	H	UM 2000	Level of \$	Service		Е			
HCM 2000 Volume to Capa	city ratio		0.95	~		(C., . 7.)			40.0			
Actuated Cycle Length (s)	e'		120.0		um of losi				18.0			
Intersection Capacity Utiliza	uon		89.0%	IC	U Level (	of Service	•		E			
Analysis Period (min)			15									
c Critical Lane Group												

	4	A.	Ť	/	\$	Ļ	
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	ኘ	7	<b>≜</b> †⊅			<b>††</b>	
Traffic Volume (vph)	57	29	1005	52	0	2237	
Future Volume (vph)	57	29	1005	52	0	2237	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.5	4.5			4.5	
Lane Util. Factor	1.00	1.00	0.95			0.95	
Frpb, ped/bikes	1.00	0.98	1.00			1.00	
Flpb, ped/bikes	1.00	1.00	1.00			1.00	
Frt	1.00	0.85	0.99			1.00	
Flt Protected	0.95	1.00	1.00			1.00	
Satd. Flow (prot)	1736	1514	3507			3574	
Flt Permitted	0.95	1.00	1.00			1.00	
Satd. Flow (perm)	1736	1514	3507			3574	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	0.95 60	31	1058	0.95 55	0.95	2355	
RTOR Reduction (vph)	0	29	2		0	2300 0	
	0 60		ے 1 <b>1</b> 11	0	0	0 2355	
Lane Group Flow (vph)		2	1111	0		2300	
Confl. Peds. (#/hr)	2	5		4 1	4		
Confl. Bikes (#/hr)	407	1	00/	•	4.07	40/	
Heavy Vehicles (%)	4%	4%	2%	2%	1%	1%	
Turn Type	Prot	Perm	NA			NA	
Protected Phases	8	-	2			6	
Permitted Phases		8					
Actuated Green, G (s)	8.3	8.3	102.7			102.7	
Effective Green, g (s)	8.3	8.3	102.7			102.7	
Actuated g/C Ratio	0.07	0.07	0.86			0.86	
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)	120	104	3001			3058	
v/s Ratio Prot	c0.03		0.32			c0.66	
v/s Ratio Perm		0.00					
v/c Ratio	0.50	0.02	0.37			0.77	
Uniform Delay, d1	53.8	52.1	1.8			3.7	
Progression Factor	1.00	1.00	0.19			1.12	
Incremental Delay, d2	3.3	0.1	0.3			0.2	
Delay (s)	57.1	52.1	0.7			4.3	
Level of Service	Е	D	А			А	
Approach Delay (s)	55.4		0.7			4.3	
Approach LOS	E		А			A	
Intersection Summary							
HCM 2000 Control Delay			4.4	H	CM 2000	Level of Se	ervice A
HCM 2000 Volume to Capa	acity ratio		0.75				
Actuated Cycle Length (s)	·		120.0	Si	um of losi	t time (s)	9.0
Intersection Capacity Utiliza	ation		75.2%			of Service	D
Analysis Period (min)			15				
c Critical Lane Group							

## HCM 6th Signalized Intersection Summary 2: OR-99E & SE Monroe Street

	¥	×.	Ť	1	1	¥	
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	٦	7	<b>≜</b> †}→			<b>††</b>	
Traffic Volume (veh/h)	57	29	1005	52	0	2237	
Future Volume (veh/h)	57	29	1005	52	0	2237	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	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	1841	1841	1870	1870	0	1885	
Adj Flow Rate, veh/h	60	31	1058	55	0	2355	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	4	4	2	2	0	1	
Cap, veh/h	86	77	3006	156	0	3137	
Arrive On Green	0.05	0.05	1.00	1.00	0.00	0.88	
Sat Flow, veh/h	1753	1560	3525	178	0	3770	
Grp Volume(v), veh/h	60	31	548	565	0	2355	
Grp Sat Flow(s),veh/h/ln	1753	1560	1777	1833	0	1791	
Q Serve(g_s), s	4.0	2.3	0.0	0.0	0.0	28.6	
Cycle Q Clear(g_c), s	4.0	2.3	0.0	0.0	0.0	28.6	
Prop In Lane	1.00	1.00		0.10	0.00		
Lane Grp Cap(c), veh/h	86	77	1556	1606	0	3137	
V/C Ratio(X)	0.70	0.40	0.35	0.35	0.00	0.75	
Avail Cap(c_a), veh/h	263	234	1556	1606	0	3137	
HCM Platoon Ratio	1.00	1.00	1.33	1.33	1.00	1.00	
Upstream Filter(I)	1.00	1.00	0.87	0.87	0.00	0.09	
Uniform Delay (d), s/veh	56.2	55.3	0.0	0.0	0.0	2.7	
Incr Delay (d2), s/veh	9.7	3.4	0.5	0.5	0.0	0.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	2.0	1.0	0.2	0.2	0.0	4.4	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	65.8	58.7	0.5	0.5	0.0	2.9	
LnGrp LOS	Е	Е	А	А	А	А	
Approach Vol, veh/h	91		1113			2355	
Approach Delay, s/veh	63.4		0.5			2.9	
Approach LOS	E		A			A	
Timer - Assigned Phs		2				6	8
Phs Duration (G+Y+Rc), s		109.6				109.6	10.4
Change Period (Y+Rc), s		4.5				4.5	4.5
Max Green Setting (Gmax), s		93.0				93.0	18.0
Max Q Clear Time (g_c+l1), s		2.0				30.6	6.0
Green Ext Time (p_c), s		10.1				43.7	0.2
Intersection Summary							
HCM 6th Ctrl Delay			3.7				
HCM 6th LOS			A				

# HCM Signalized Intersection Capacity Analysis 3: OR-99E & SE Washington Street

	٨	-	$\mathbf{i}$	4	+	*	•	1	1	4	Ļ	-
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		र्स		٦		7		<u></u> ↑₽		٦	<u></u>	
Traffic Volume (vph)	1	1	0	150	0	67	0	1012	121	104	2171	0
Future Volume (vph)	1	1	0	150	0	67	0	1012	121	104	2171	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1 <del>9</del> 00
Total Lost time (s)		4.5		4.5		4.5		4.5		4.5	4.5	
Lane Util. Factor		1.00		1.00		1.00		0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00		0.98		1.00		1.00	1.00	
Flpb, ped/bikes		1.00		0.98		1.00		1.00		1.00	1.00	
Frt		1.00		1.00		0.85		0.98		1.00	1.00	
Flt Protected		0.98		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1850		1704		1528		3443		1787	3574	
Flt Permitted		0.98		0.76		1.00		1.00		0.18	1.00	
Satd. Flow (perm)		1850		1357		1528		3443		341	3574	
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)	1	1	0	158	0	71	0	1065	127	109	2285	0
RTOR Reduction (vph)	0	0	0	0	0	61	0	7	0	0	0	0
Lane Group Flow (vph)	0	2	0	158	0	10	0	1185	0	109	2285	0
Confl. Peds. (#/hr)	2		9	9		2	16		1	1		16
Confl. Bikes (#/hr)									2			1
Heavy Vehicles (%)	0%	0%	0%	4%	4%	4%	3%	3%	3%	1%	1%	1%
Turn Type	Perm	NA		Perm		Perm		NA		pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4			8		8		-		6	Ū	
Actuated Green, G (s)		17.7		17.7		17.7		82.1		93.3	93.3	
Effective Green, g (s)		17.7		17.7		17.7		82.1		93.3	93.3	
Actuated g/C Ratio		0.15		0.15		0.15		0.68		0.78	0.78	
Clearance Time (s)		4.5		4.5		4.5		4.5		4.5	4.5	
Vehicle Extension (s)		3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		272		200		225		2355		345	2778	
v/s Ratio Prot				200				0.34		0.02	c0.64	
v/s Ratio Perm		0.00		c0.12		0.01		0.01		0.23	00.01	
v/c Ratio		0.00		0.79		0.05		0.50		0.32	0.82	
Uniform Delay, d1		43.7		49.4		43.9		9.1		5.4	8.2	
Progression Factor		1.00		1.00		1.00		1.00		1.28	0.84	
Incremental Delay, d2		0.0		18.8		0.1		0.8		0.3	1.9	
Delay (s)		43.7		68.2		44.0		9.9		7.3	8.8	
Level of Service		D		E		D		A		A	A	
Approach Delay (s)		43.7		_	60.7			9.9		7.	8.7	
Approach LOS		D			E			A			A	
		-			-						~	
Intersection Summary			40.0		OM 0000							
HCM 2000 Control Delay	-14		12.2	H	UM 2000	Level of \$	Service		В			
HCM 2000 Volume to Capa	city ratio		0.85	~	الم مدا	(-) جعدال			40 C			
Actuated Cycle Length (s)	tion		120.0		um of losi				13.5			
Intersection Capacity Utiliza	uon		81.8%	IC.	U Level (	of Service	•		D			
Analysis Period (min)			15									
c Critical Lane Group												

Intersection
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Intersection Delay, s/veh 9.7 Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		ę	7		\$			\$			\$		
Traffic Vol, veh/h	39	158	44	17	154	22	37	32	17	31	30	38	
Future Vol, veh/h	39	158	44	17	154	22	37	32	17	31	30	38	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Heavy Vehicles, %	5	5	5	5	5	5	2	2	2	3	3	3	
Mvmt Flow	42	170	47	18	166	24	40	34	18	33	32	41	
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0	
Approach	EB			WB			NB			SB			
Opposing Approach	WB			EB			SB			NB			
Opposing Lanes	1			2			1			1			
Conflicting Approach L	eft SB			NB			EB			WB			
Conflicting Lanes Left	1			1			2			1			
Conflicting Approach R	lighNB			SB			WB			EB			
Conflicting Lanes Right	t 1			1			1			2			
HCM Control Delay	10. <b>1</b>			9.8			9.1			9			
HCM LOS	В			А			А			А			

Lane	NBLn1	EBLn1	EBLn2V	VBLn1	SBLn1
Vol Left, %	43%	20%	0%	9%	31%
Vol Thru, %	37%	80%	0%	80%	30%
Vol Right, %	20%	0%	100%	1 <b>1</b> %	38%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	86	197	44	193	99
LT Vol	37	39	0	17	31
Through Vol	32	158	0	154	30
RT Vol	17	0	44	22	38
Lane Flow Rate	92	212	47	208	106
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.133	0.316	0.06	0.28	0.149
Departure Headway (Hd)	5.181	5.377	4.573	4.861	5.044
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Сар	687	665	778	735	706
Service Time	3.251	3.137	2.332	2.923	3.112
HCM Lane V/C Ratio	0.134	0.319	0.06	0.283	0.15
HCM Control Delay	9.1	10.6	7.6	9.8	9
HCM Lane LOS	А	В	Α	Α	А
HCM 95th-tile Q	0.5	1.4	0.2	1.1	0.5

#### HCM Signalized Intersection Capacity Analysis 5: SE 21st Avenue & SE Washington Street

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			\$			\$	
Traffic Volume (vph)	19	109	49	10	114	26	37	27	9	13	36	29
Future Volume (vph)	19	109	49	10	114	26	37	27	9	13	36	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1 <del>9</del> 00
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			1.00			1.00			0.98	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.96			0.98			0.98			0.95	
Flt Protected		0.99			1.00			0.98			0.99	
Satd. Flow (prot)		1688			1804			1778			1583	
Flt Permitted		0.95			0.97			0.80			0.93	
Satd. Flow (perm)		1611			1750			1462			1491	
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)	20	116	52	11	121	28	39	29	10	14	38	31
RTOR Reduction (vph)	0	28	0	0	16	0	0	7	0	0	22	0
Lane Group Flow (vph)	0	160	0	0	144	0	0	71	0	0	61	0
Confl. Peds. (#/hr)	7		5	5		7	35		21	21		35
Confl. Bikes (#/hr)			1			1						1
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	1%	1%	1%	11%	11%	11%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	,	4			8			2			6	
Permitted Phases	4	·		8	•		2	-		6	Ū	
Actuated Green, G (s)		7.5			7.5			6.6		-	6.6	
Effective Green, g (s)		7.5			7.5			6.6			6.6	
Actuated g/C Ratio		0.32			0.32			0.29			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) v/s Ratio Prot		523			568			417			426	
v/s Ratio Perm		c0.10			0.08			c0.05			0.04	
v/c Ratio		0.31			0.08			0.17			0.04	
		5.8			5.7			6.2			6.1	
Uniform Delay, d1												
Progression Factor		1.00 0.3			1.00 0.2			1.00 0.2			1.00 0.2	
Incremental Delay, d2		0.3 6.2			0.2 6.0			0.2 6.4			0.2 6.3	
Delay (s) Level of Service		0.2 A						0.4 A				
Approach Delay (s)		6.2			A 6.0			6.4			A 6.3	
Approach LOS		0.2 A			0.0 A			0.4 A			0.3 A	
Intersection Summary												
HCM 2000 Control Delay			6.2	Н	CM 2000	Level of	Service		Α			
HCM 2000 Volume to Capa	city ratio		0.24	.,								
Actuated Cycle Length (s)			23.1	S	um of losi	t time (s)			9.0			
Intersection Capacity Utiliza	ation		34.8%			of Service	)		A			
Analysis Period (min) c Critical Lane Group	- • •		15									

#### HCM 6th Signalized Intersection Summary 5: SE 21st Avenue & SE Washington Street

	٠	-	$\mathbf{i}$	4	+	×.	•	Ť	/	1	Ļ	-
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			<del>\$</del>			<del>\$</del>			\$	
Traffic Volume (veh/h)	19	109	49	10	114	26	37	27	9	13	36	29
Future Volume (veh/h)	19	109	49	10	114	26	37	27	9	13	36	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	0.99		0.97	0.96		0.95	0.95		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	1796	1796	1796	1870	1870	1870	1885	1885	1885	1737	1737	1737
Adj Flow Rate, veh/h	20	116	52	11	121	28	39	29	10	14	38	31
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	7	7	7	2	2	2	1	1	1	11	11	11
Cap, veh/h	203	283	117	187	361	80	432	274	68	225	290	195
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	95	1096	455	59	1400	310	562	808	202	108	854	573
Grp Volume(v), veh/h	188	0	0	160	0	0	78	0	0	83	0	0
Grp Sat Flow(s),veh/h/ln	1645	0	0	1769	0	0	1572	0	0	1535	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.1	0.0	0.0	1.6	0.0	0.0	0.7	0.0	0.0	0.8	0.0	0.0
Prop In Lane	0.11	0	0.28	0.07	0	0.17	0.50	0	0.13	0.17	~	0.37
Lane Grp Cap(c), veh/h	603	0	0	628	0	0	775	0	0	709	0	0
V/C Ratio(X)	0.31	0.00	0.00	0.25	0.00	0.00	0.10	0.00	0.00	0.12	0.00	0.00
Avail Cap(c_a), veh/h	2166	0	0	2318	0	0	1836	0	0	1763	0	0
HCM Platoon Ratio	1.00	1.00	1.00 0.00	1.00	1.00	1.00 0.00	1.00	1.00 0.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00		1.00	0.00 0.0	0.00	1.00 5.1	0.00	0.00	1.00 5.1	0.00	0.00
Uniform Delay (d), s/veh	6.9 0.3	0.0	0.0 0.0	6.8 0.2	0.0	0.0	0.1	0.0	0.0 0.0	5.1 0.1	0.0 0.0	0.0 0.0
Incr Delay (d2), s/veh Initial Q Delay(d3),s/veh	0.3 0.0	0.0 0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh		0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
LnGrp Delay(d),s/veh	7.2	0.0	0.0	7.0	0.0	0.0	5.2	0.0	0.0	5.2	0.0	0.0
LIGIP Delay(d), siveli LIGIP LOS	A	0.0 A	A	A	0.0 A	A	A	0.0 A	0.0 A	3.2 A	0.0 A	A
Approach Vol, veh/h	~	188	~	~	160	<u></u>		78	~		83	<u></u>
Approach Delay, s/veh		7.2			7.0			5.2			5.2	
Approach LOS		A			A			0.2 A			0.2 A	
					А						~	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		12.1		10.3		12.1		10.3				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		23.5		27.5		23.5		27.5				
Max Q Clear Time (g_c+l1), s		2.7 0.4		4.1 1.1		2.8 0.4		3.6 0.9				
Green Ext Time (p_c), s		0.4		1.1		0.4		0.9				
Intersection Summary												
HCM 6th Ctrl Delay			6.5									
HCM 6th LOS			А									

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	<b>∱</b> ₽			4 <b>†</b>	Y	
Traffic Vol, veh/h	238	1	1	229	5	3
Future Vol, veh/h	238	1	1	229	5	3
Conflicting Peds, #/hr	0	0	0	0	Ó	0
-	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None		None
Storage Length	-	-	-	-	0	-
Veh in Median Storage,	# 0	-	-	0	õ	-
Grade, %	0	_	-	Ő	Ŭ	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	92 2	2	2	92 2	32 2
Mvmt Flow	259	2	1	249	2 5	2
	209	I	I	249	0	ა
Major/Minor Mi	ajor <b>1</b>	<u> </u>	Major2	<u> </u>	Minor1	
Conflicting Flow All	0	0	260	0	387	130
Stage 1	-	-	-	-	260	-
Stage 2	-	-	-	-	127	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-		-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	_	_	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	_	_	1302	-	589	896
Stage 1	-	•	1302	-	760	- 030
	-	-	-	-	885	
Stage 2	-	-	-	-	000	-
Platoon blocked, %	-	-	4000	-	500	000
Mov Cap-1 Maneuver	-	-	1302	-	588	896
Mov Cap-2 Maneuver	-	-	-	-	588	-
Stage 1	-	-	-	-	760	-
Stage 2	-	-	-	-	884	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		10.4	
HCM LOS	-		2		В	
					_	
Minor Lane/Major Mvmt	1	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	•	675		-	1302	-
HCM Lane V/C Ratio		0.013	-		0.001	
			-	-	7.8	-
HCM Control Delay (s)		10.4	-	-		0
HCM Lane LOS		B	-	-	A	А
HCM 95th %tile Q(veh)		0	-	-	0	-

#### HCM Signalized Intersection Capacity Analysis 1: OR-99E & SE Harrison Street

	٦	-	$\mathbf{r}$	∢	←	×.		1	/	\$	Ļ	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		र्स	7	٦	\$		٦	<u></u> †î⊧		٦	<u></u> ∱î≽	
Traffic Volume (vph)	22	70	176	80	55	24	323	1452	98	93	593	11
Future Volume (vph)	22	70	176	80	55	24	323	1452	98	93	593	11
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	
Lane Util. Factor		1.00	1.00	0.95	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		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	
Frt		1.00	0.85	1.00	0.96		1.00	0.99		1.00	1.00	
Flt Protected		0.99	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1806	1539	1618	1626		1770	3498		1736	3461	
Flt Permitted		0.99	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1806	1539	1618	1626		1770	3498		1736	3461	
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)	23	74	185	84	58	25	340	1528	103	98	624	12
RTOR Reduction (vph)	0	0	124	0	12	0	0	4	0	0	1	0
Lane Group Flow (vph)	0	97	61	76	79	Ő	340	1627	Ő	98	635	Ő
Confl. Peds. (#/hr)	•	• • •	8	8		Ū.	0.0	/	5	5		•
Confl. Bikes (#/hr)			2	-					•	-		
Heavy Vehicles (%)	4%	4%	4%	6%	6%	6%	2%	2%	2%	4%	4%	4%
Turn Type	Split	NA	pm+ov	Split	NA	0,0	Prot	NA	-/0	Prot	NA	.,,
Protected Phases	4	4	5	8	8		5	2		1	6	
Permitted Phases			4	0	0		U	-			Ŭ	
Actuated Green, G (s)		11.8	39.6	11.2	11.2		27.8	66.9		12.1	51.2	
Effective Green, g (s)		11.8	39.6	11.2	11.2		27.8	66.9		12.1	51.2	
Actuated g/C Ratio		0.10	0.33	0.09	0.09		0.23	0.56		0.10	0.43	
Clearance Time (s)		4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		177	507	151	151		410	1950		175	1476	
v/s Ratio Prot		c0.05	0.03	0.05	c0.05		c0.19	c0.47		0.06	0.18	
v/s Ratio Perm		00.00	0.00	0.00	00.00		00.10	00.47		0.00	0.10	
v/c Ratio		0.55	0.01	0.50	0.52		0.83	0.83		0.56	0.43	
Uniform Delay, d1		51.6	28.0	51.8	51.9		43.8	22.0		51.4	24.2	
Progression Factor		1.00	1.00	1.00	1.00		1.10	0.92		1.00	1.00	
Incremental Delay, d2		3.4	0.1	2.6	3.3		10.4	3.4		4.1	0.2	
Delay (s)		55.0	28.2	2.0 54.4	55.1		58.4	23.7		55.5	24.4	
Level of Service		55.0 E	20.2 C	D	E		50.4 E	20.1 C		55.5 E	24.4 C	
Approach Delay (s)		37.4	C	D	54.8		L	29.7		L	28.5	
Approach LOS		57. <del>4</del> D			0 <del>4</del> .0			20.1 C			20.0 C	
		D			U			U			0	
Intersection Summary					011 0000		<u> </u>					
HCM 2000 Control Delay	. 14 1		31.4	H	CM 2000	Level of	Service		С			
HCM 2000 Volume to Capa	city ratio		0.79	~					40.0			
Actuated Cycle Length (s)	<b>.</b>		120.0		um of losi	• • •			18.0			
Intersection Capacity Utiliza	uon		72.1%	IC	CU Level (	or Service	;		С			
Analysis Period (min)			15									
c Critical Lane Group												

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	ኘ	۲	<b>≜</b> †⊅			<b>††</b>	
Traffic Volume (vph)	43	19	1850	58	0	843	
Future Volume (vph)	43	19	1850	58	0	843	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.5	4.5			4.5	
Lane Util. Factor	1.00	1.00	0.95			0.95	
Frpb, ped/bikes	1.00	0.98	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	0.95	1.00	1.00			1.00	
Satd. Flow (prot)	1656	1455	3520			3471	
Flt Permitted	0.95	1.00	1.00			1.00	
Satd. Flow (perm)	1656	1455	3520			3471	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	45	20	1927	60	0	878	
RTOR Reduction (vph)	0	19	1021	0	Ũ	0	
Lane Group Flow (vph)	45	1	1986	Õ	Õ	878	
Confl. Peds. (#/hr)	2	3		3	3	0.0	
Heavy Vehicles (%)	9%	9%	2%	2%	4%	4%	
Turn Type	Prot	Perm	NA			NA	
Protected Phases	8		2			6	
Permitted Phases		8					
Actuated Green, G (s)	7.6	7.6	103.4			103.4	
Effective Green, g (s)	7.6	7.6	103.4			103.4	
Actuated g/C Ratio	0.06	0.06	0.86			0.86	
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)	104	92	3033			2990	
v/s Ratio Prot	c0.03	•	c0.56			0.25	
v/s Ratio Perm		0.00					
v/c Ratio	0.43	0.01	0.65			0.29	
Uniform Delay, d1	54.1	52.7	2.6			1.5	
Progression Factor	1.00	1.00	0.71			0.62	
Incremental Delay, d2	2.9	0.1	0.6			0.2	
Delay (s)	57.0	52.7	2.5			1.2	
Level of Service	E	D	A			A	
Approach Delay (s)	55.7	-	2.5			1.2	
Approach LOS	E		A			A	
Intersection Summary							
HCM 2000 Control Delay			3.3	H	CM 2000	Level of Se	ervice A
HCM 2000 Volume to Capa	acity ratio		0.64				
Actuated Cycle Length (s)	-		120.0	Su	um of losi	t time (s)	9.0
Intersection Capacity Utilization	ation		65.7%			of Service	С
Analysis Period (min)			15				
c Critical Lane Group							

## HCM 6th Signalized Intersection Summary 2: OR-99E & SE Monroe Street

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	ሻ	7	<b>†</b> ĵ <del>,</del>			<b>††</b>	
Traffic Volume (veh/h)	43	19	1850	58	0	843	
Future Volume (veh/h)	43	19	1850	58	0	843	
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	1767	1767	1870	1870	0	1841	
Adj Flow Rate, veh/h	45	20	1927	60	0	878	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %	9	9	2	2	0	4	
Cap, veh/h	65	58	3118	97	0	3099	
Arrive On Green	0.04	0.04	1.00	1.00	0.00	0.89	
Sat Flow, veh/h	1682	1497	3612	109	0	3681	
Grp Volume(v), veh/h	45	20	968	1019	0	878	
Grp Sat Flow(s),veh/h/ln	1682	1497	1777	1851	0	1749	
Q Serve(g_s), s	3.2	1.6	0.0	0.0	0.0	4.6	
Cycle Q Clear(g_c), s	3.2	1.6	0.0	0.0	0.0	4.6	
Prop In Lane	1.00	1.00		0.06	0.00		
Lane Grp Cap(c), veh/h	65	58	1574	1640	0	3099	
V/C Ratio(X)	0.69	0.34	0.61	0.62	0.00	0.28	
Avail Cap(c_a), veh/h	262	233	1574	1640	0	3099	
HCM Platoon Ratio	1.00	1.00	1.33	1.33	1.00	1.00	
Upstream Filter(I)	1.00	1.00	0.47	0.47	0.00	0.92	
Uniform Delay (d), s/veh	56.9	56.2	0.0	0.0	0.0	1.0	
Incr Delay (d2), s/veh	12.0	3.5	0.9	0.8	0.0	0.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	1.6	0.7	0.4	0.4	0.0	0.6	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	69.0	59.6	0.9	0.8	0.0	1.3	
LnGrp LOS	E	E	A	А	A	A	
Approach Vol, veh/h	65		1987			878	
Approach Delay, s/veh	66.1		0.8			1.3	
Approach LOS	E		A			A	
	-	n					0
Timer - Assigned Phs		2				110.9	8
Phs Duration (G+Y+Rc), s		110.8				110.8	9.2
Change Period (Y+Rc), s		4.5				4.5	4.5
Max Green Setting (Gmax), s		92.3				92.3	18.7
Max Q Clear Time (g_c+l1), s		2.0				6.6	5.2
Green Ext Time (p_c), s		37.3				8.0	0.1
Intersection Summary							
HCM 6th Ctrl Delay			2.4				
HCM 6th LOS			А				

#### HCM Signalized Intersection Capacity Analysis 3: OR-99E & SE Washington Street

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		र्स		٦		7		<u></u> ↑₽		٦	<b>†</b> †	
Traffic Volume (vph)	2	2	0	117	0	111	0	1823	146	97	774	0
Future Volume (vph)	2	2	0	117	0	<b>1</b> 11	0	1823	146	97	774	0
ldeal 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	
Lane Util. Factor		1.00		1.00		1.00		0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00		0.98		1.00		1.00	1.00	
Flpb, ped/bikes		1.00		0.98		1.00		1.00		1.00	1.00	
Frt		1.00		1.00		0.85		0.99		1.00	1.00	
Flt Protected		0.98		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1056		1653		1482		3496		17 <b>1</b> 9	3438	
Flt Permitted		0.98		0.76		1.00		1.00		0.05	1.00	
Satd. Flow (perm)		1056		1314		1482		3496		82	3438	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	2	2	0	122	0	<b>1</b> 16	0	1899	152	101	806	0
RTOR Reduction (vph)	0	0	0	0	0	<b>1</b> 01	0	5	0	0	0	0
Lane Group Flow (vph)	0	4	0	122	0	15	0	2046	0	101	806	0
Confl. Peds. (#/hr)	3		10	10		3	22		2	2		22
Confl. Bikes (#/hr)									2			1
Heavy Vehicles (%)	75%	75%	75%	7%	7%	7%	2%	2%	2%	5%	5%	5%
Turn Type	Perm	NA		Perm		Perm		NA		pm+pt	NA	
Protected Phases		4						2		ې ور 1	6	
Permitted Phases	4			8		8		_		6	-	
Actuated Green, G (s)		15.2		15.2		15.2		83.9		95.8	95.8	
Effective Green, g (s)		15.2		15.2		15.2		83.9		95.8	95.8	
Actuated g/C Ratio		0.13		0.13		0.13		0.70		0.80	0.80	
Clearance Time (s)		4.5		4.5		4.5		4.5		4.5	4.5	
Vehicle Extension (s)		3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		133		166		187		2444		166	2744	
v/s Ratio Prot		100		100		101		c0.59		c0.04	0.23	
v/s Ratio Perm		0.00		c0.09		0.01		00.00		0.45	0.20	
v/c Ratio		0.03		0.73		0.08		0.84		0.61	0.29	
Uniform Delay, d1		45.9		50.5		46.2		13.1		28.6	3.2	
Progression Factor		1.00		1.00		1.00		1.00		1.47	0.61	
Incremental Delay, d2		0.1		15.5		0.2		3.6		6.0	0.3	
Delay (s)		46.0		65.9		46.4		16.7		48.0	2.2	
Level of Service		10.0 D		E		D		В		D	A	
Approach Delay (s)		46.0		-	56.4			16.7		D	7.3	
Approach LOS		-0.0 D			E			B			A	
		0			<b>L</b>			U			,,	
Intersection Summary												
HCM 2000 Control Delay			17.0	H	CM 2000	Level of \$	Service		В			
HCM 2000 Volume to Capac	ity ratio		0.81									
Actuated Cycle Length (s)			120.0		um of losi				13.5			
Intersection Capacity Utilizati	on		82.9%	IC	U Level (	of Service			Е			
Analysis Period (min)			15									
c Critical Lane Group												

Intersection														
Intersection Delay, s/ve	eh 9.8													
Intersection LOS	А													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations		र्स	1		\$			\$			\$			
Traffic Vol, veh/h	35	180	34	13	165	20	24	24	10	8	12	23		
Future Vol, veh/h	35	180	34	13	165	20	24	24	10	8	12	23		
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88		
Heavy Vehicles, %	9	9	9	6	6	6	6	6	6	6	6	6		
Mvmt Flow	40	205	39	15	188	23	27	27	11	9	14	26		
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0		
Approach	EB			WB			NB			SB				
Opposing Approach	WB			EB			SB			NB				
Opposing Lanes	1			2			1			1				
Conflicting Approach L	eft SB			NB			EB			WB				
Conflicting Lanes Left	1			1			2			1				
Conflicting Approach F	RighNB			SB			WB			EB				

1

2

А

HCM Control Delay 10.3 9.7 8.9 8.4 HCM LOS В А А NBLn1 EBLn1 EBLn2WBLn1 SBLn1 Vol Left, % 0% 7% 19% 41% 16% Vol Thru, % 0% 83% 41% 84% 28% Vol Right, % 17% 0% 100% 10% 53% Sign Control Stop Stop Stop Stop Stop

1

Traffic Vol by Lane	58	215	34	198	43
LT Vol	24	35	0	13	8
Through Vol	24	180	0	165	12
RT Vol	10	0	34	20	23
Lane Flow Rate	66	244	39	225	49
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.096	0.354	0.048	0.293	0.068
Departure Headway (Hd)	5.255	5.213	4.427	4.685	5.021
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	680	689	807	765	710
Service Time	3.306	2.948	2.162	2.721	3.076
HCM Lane V/C Ratio	0.097	0.354	0.048	0.294	0.069
HCM Control Delay	8.9	10.8	7.4	9.7	8.4
HCM Lane LOS	А	В	Α	Α	А
HCM 95th-tile Q	0.3	1.6	0.2	1.2	0.2

1

Conflicting Lanes Right

Lane

#### HCM Signalized Intersection Capacity Analysis 5: SE 21st Avenue & SE Washington Street

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			\$			\$	
Traffic Volume (vph)	15	152	49	10	118	19	43	46	22	9	17	15
Future Volume (vph)	15	152	49	10	118	19	43	46	22	9	17	15
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	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			0.99			0.99			0.98	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.97			0.98			0.97			0.95	
Flt Protected		1.00			1.00			0.98			0.99	
Satd. Flow (prot)		1687			1795			1708			1452	
Flt Permitted		0.97			0.97			0.86			0.91	
Satd. Flow (perm)		1640			1738			1491			1339	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	18	181	58	12	140	23	51	55	26	11	20	18
RTOR Reduction (vph)	0	20	0	0	10	0	0	18	0	0	13	0
Lane Group Flow (vph)	0	237	0	0	165	0	0	114	Ő	0	36	0
Confl. Peds. (#/hr)	35	201	8	8	105	35	51	114	30	30	50	51
Confl. Bikes (#/hr)	50		2	0		55	51		50	50		JI
Heavy Vehicles (%)	8%	8%	2 8%	3%	3%	3%	4%	4%	4%	20%	20%	20%
			0 /0			570			4 /0			20 /0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	4	4		0	8		0	2		c	6	
Permitted Phases	4	0.0		8	0.0		2	7 4		6	7.4	
Actuated Green, G (s)		8.9			8.9			7.4			7.4	
Effective Green, g (s)		8.9			8.9			7.4			7.4	
Actuated g/C Ratio		0.35			0.35			0.29			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) v/s Ratio Prot		576			611			436			391	
v/s Ratio Perm		c0.14			0.09			c0.08			0.03	
v/c Ratio		0.41			0.27			0.26			0.09	
Uniform Delay, d1		6.2			5.9			6.9			6.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.5			0.2			0.3			0.1	
Delay (s)		6.7			6.1			7.2			6.6	
Level of Service		А			А			А			А	
Approach Delay (s)		6.7			6.1			7.2			6.6	
Approach LOS		А			А			А			А	
Intersection Summary												
HCM 2000 Control Delay			6.6	Н	CM 2000	Level of	Service		A			
HCM 2000 Volume to Capa	citv ratio		0.34									
Actuated Cycle Length (s)	,		25.3	S	um of losi	t time (s)			9.0			
Intersection Capacity Utiliza	tion		36.6%			of Service	;		A			
Analysis Period (min) c Critical Lane Group			15									

### HCM 6th Signalized Intersection Summary 5: SE 21st Avenue & SE Washington Street

	٠	-	$\mathbf{i}$	∢	-	×	1	Ť	1	1	Ļ	-
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			\$			\$	
Traffic Volume (veh/h)	15	152	49	10	118	19	43	46	22	9	17	15
Future Volume (veh/h)	15	152	49	10	118	19	43	46	22	9	17	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.93	0.97		0.95	0.93		0.92	0.94		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	1781	1781	1781	1856	1856	1856	1841	184 <b>1</b>	1841	1604	1604	1604
Adj Flow Rate, veh/h	18	18 <b>1</b>	58	12	140	23	51	55	26	11	20	18
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	8	8	8	3	3	3	4	4	4	20	20	20
Cap, veh/h	155	423	128	153	512	80	312	287	103	206	245	170
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	49	1230	373	45	1490	232	399	860	309	143	735	510
Grp Volume(v), veh/h	257	0	0	175	0	0	132	0	0	49	0	0
Grp Sat Flow(s),veh/h/ln	1652	0	0	1768	0	0	1568	0	0	1388	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.3	0.0	0.0	2.0	0.0	0.0	1.5	0.0	0.0	0.6	0.0	0.0
Prop In Lane	0.07		0.23	0.07		0.13	0.39		0.20	0.22		0.37
Lane Grp Cap(c), veh/h	706	0	0	745	0	0	702	0	0	621	0	0
V/C Ratio(X)	0.36	0.00	0.00	0.23	0.00	0.00	0.19	0.00	0.00	0.08	0.00	0.00
Avail Cap(c_a), veh/h	1685	0	0	1787	0	0	1513	0	0	1338	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)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.1	0.0	0.0	6.7	0.0	0.0	6.7	0.0	0.0	6.4	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.2	0.0	0.0	0.1	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/In	0.8	0.0	0.0	0.5	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.4	0.0	0.0	6.8	0.0	0.0	6.8	0.0	0.0	6.5	0.0	0.0
LnGrp LOS	A	<u>A</u>	A	A	A	A	A	A	A	A	A	<u>A</u>
Approach Vol, veh/h		257			175			132			49	
Approach Delay, s/veh		7.4			6.8			6.8			6.5	
Approach LOS		A			А			A			А	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		13.8		<b>1</b> 4.1		13.8		14.1				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		24.5		26.5		24.5		26.5				
Max Q Clear Time (g_c+I1), s		3.5		5.3		2.6		4.0				
Green Ext Time (p_c), s		0.7		1.6		0.2		1.0				
Intersection Summary												
HCM 6th Ctrl Delay			7.0									
HCM 6th LOS			А									

Intersection						
Int Delay, s/veh	1.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	朴			41	Y	
Traffic Vol, veh/h	233	14	6	206	33	16
Future Vol, veh/h	233	14	6	206	33	16
Conflicting Peds, #/hr	0	0	0	0	0	0
-	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage,	# 0	-	-	0	0	-
Grade, %	0	-	-	Ō	Ō	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	253	15	7	224	36	17
	200	15	1	224	50	17
Major/Minor Ma	ajor <b>1</b>	p	Major2	١	Minor1	
Conflicting Flow All	0	0	268	0	387	134
Stage 1	-	-	-	-	261	-
Stage 2	-	-	-	-	126	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	_	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1293	-	589	890
Stage 1	-	-		-	759	-
Stage 2	_	_	-	-	886	-
Platoon blocked, %	_	_		_	000	
Mov Cap-1 Maneuver	-	-	1293	-	585	890
Mov Cap-2 Maneuver	-	-	1293		585	
•	-	-	-	-		-
Stage 1	-	-	-	-	759	-
Stage 2	-	-	-	-	881	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.2		10.9	
HCM LOS					В	
Minor Lane/Major Mvmt	1	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	•	659			1293	-
HCM Lane V/C Ratio		0.081	-	-	0.005	-
HCM Control Delay (s)		10.9		-	7.8	0
HCM Lane LOS		10.9 B		-	7.0 A	A
HCM 95th %tile Q(veh)		0.3	-	-	0	-
		0.5	-	-	U	-

#### HCM Signalized Intersection Capacity Analysis 1: OR-99E & SE Harrison Street

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		र्स	7	٦	\$		٦	<u></u> ↑₽		٦	<b>∱</b> ]≽	
Traffic Volume (vph)	25	53	396	154	29	28	257	782	107	87	1663	14
Future Volume (vph)	25	53	396	154	29	28	257	782	107	87	1663	14
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	
Lane Util. Factor		1.00	1.00	0.95	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		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	
Frt		1.00	0.85	1.00	0.96		1.00	0.98		1.00	1.00	
Flt Protected		0.98	1.00	0.95	0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1851	1581	1681	1661		1787	3494		1787	3570	
Flt Permitted		0.98	1.00	0.95	0.98		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1851	1581	1681	1661		1787	3494		1787	3570	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	27	57	426	166	31	30	276	841	115	94	1788	15
RTOR Reduction (vph)	0	0	49	0	12	0	0	7	0	0	1	0
Lane Group Flow (vph)	0	84	377	115	100	0	276	949	0	94	1802	0
Confl. Peds. (#/hr)			15	15					5	5		
Confl. Bikes (#/hr)			3									
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	
Protected Phases	4	4	5	8	8		5	2		1	6	
Permitted Phases			4	-	-		-	_			-	
Actuated Green, G (s)		9.4	36.4	13.5	13.5		27.0	67.6		11.5	52.1	
Effective Green, g (s)		9.4	36.4	13.5	13.5		27.0	67.6		11.5	52.1	
Actuated g/C Ratio		0.08	0.30	0.11	0.11		0.22	0.56		0.10	0.43	
Clearance Time (s)		4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		144	479	189	186		402	1968		171	1549	
v/s Ratio Prot		0.05	c0.18	c0.07	0.06		0.15	0.27		0.05	c0.50	
v/s Ratio Perm			0.06									
v/c Ratio		0.58	0.79	0.61	0.54		0.69	0.48		0.55	1.16	
Uniform Delay, d1		53.4	38.3	50.7	50.3		42.6	15.7		51.8	34.0	
Progression Factor		1.00	1.00	1.00	1.00		1.15	0.85		1.00	1.00	
Incremental Delay, d2		5.9	8.4	5.5	3.2		4.6	0.8		3.6	81.1	
Delay (s)		59.3	46.6	56.2	53.5		53.5	14.2		55.4	115.1	
Level of Service		E	D	E	D		D	В		E	F	
Approach Delay (s)		48.7			54.9			23.0			112.1	
Approach LOS		D			D			С			F	
Intersection Summary												
HCM 2000 Control Delay			72.0	H	CM 2000	Level of \$	Service		E			
HCM 2000 Volume to Capa	city ratio		0.96	.,					-			
Actuated Cycle Length (s)	, <del>.</del>		120.0	S	um of losi	t time (s)			18.0			
Intersection Capacity Utiliza	ition		89.6%			of Service	•		Ē			
Analysis Period (min)			15						-			
c Critical Lane Group												
e onitioal Earlo Oroup												

	4	×.	Ť	1	\$	¥	
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	ሻ	7	<b>≜</b> †î∍			<u>††</u>	
Traffic Volume (vph)	57	29	1018	52	0	2258	
Future Volume (vph)	57	29	1018	52	0	2258	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.5	4.5			4.5	
Lane Util. Factor	1.00	1.00	0.95			0.95	
Frpb, ped/bikes	1.00	0.98	1.00			1.00	
Flpb, ped/bikes	1.00	1.00	1.00			1.00	
Frt	1.00	0.85	0.99			1.00	
Flt Protected	0.95	1.00	1.00			1.00	
Satd. Flow (prot)	1736	1514	3508			3574	
Fit Permitted	0.95	1.00	1.00			1.00	
Satd. Flow (perm)	1736	1514	3508			3574	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	0.95 60	31	1072	0.95 55		2377	
RTOR Reduction (vph)	00		2		0 0		
	0 60	29	ے 1125	0	0	0 2377	
Lane Group Flow (vph)		2	1125	0		23/1	
Confl. Peds. (#/hr)	2	5		4	4		
Confl. Bikes (#/hr)	407	1	00/	1	4.07	40/	
Heavy Vehicles (%)	4%	4%	2%	2%	1%	1%	
Turn Type	Prot	Perm	NA			NA	
Protected Phases	8		2			6	
Permitted Phases		8					
Actuated Green, G (s)	8.3	8.3	102.7			102.7	
Effective Green, g (s)	8.3	8.3	102.7			102.7	
Actuated g/C Ratio	0.07	0.07	0.86			0.86	
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)	120	104	3002			3058	
v/s Ratio Prot	c0.03		0.32			c0.67	
v/s Ratio Perm		0.00					
v/c Ratio	0.50	0.02	0.37			0.78	
Uniform Delay, d1	53.8	52.1	1.8			3.7	
Progression Factor	1.00	1.00	0.19			1.16	
Incremental Delay, d2	3.3	0.1	0.3			0.2	
Delay (s)	57.1	52.1	0.7			4.5	
Level of Service	Е	D	А			А	
Approach Delay (s)	55.4		0.7			4.5	
Approach LOS	E		A			A	
Intersection Summary							
HCM 2000 Control Delay			4.6	H	CM 2000	Level of Se	ervice A
HCM 2000 Volume to Capacit	v ratio		0.76				
Actuated Cycle Length (s)	y rano						
	yrallo		120.0	SL	um of lost	: time (s)	9.0
Intersection Capacity Utilizatio	•		120.0 75.7%		um of lost U Level o	time (s) of Service	9.0 D
Intersection Capacity Utilizatio Analysis Period (min)	•						

## HCM 6th Signalized Intersection Summary 2: OR-99E & SE Monroe Street

	∢	×.	Ť	1	\$	Ļ	
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	٦	*	<b>≜</b> ↑⊅			<b>††</b>	
Traffic Volume (veh/h)	57	29	1018	52	0	2258	
Future Volume (veh/h)	57	29	1018	52	0	2258	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	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	1841	1841	1870	1870	0	1885	
Adj Flow Rate, veh/h	60	31	1072	55	0	2377	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	4	4	2	2	0	1	
Cap, veh/h	86	77	3008	154	0	3137	
Arrive On Green	0.05	0.05	0.88	0.88	0.00	0.88	
Sat Flow, veh/h	1753	1560	3528	176	0	3770	
Grp Volume(v), veh/h	60	31	554	573	0	2377	
Grp Sat Flow(s),veh/h/ln	1753	1560	1777	1834	0	1791	
Q Serve(g_s), s	4.0	2.3	6.8	6.8	0.0	29.4	
Cycle Q Clear(g_c), s	4.0	2.3	6.8	6.8	0.0	29.4	
Prop In Lane	1.00	1.00		0.10	0.00		
Lane Grp Cap(c), veh/h	86	77	1556	1606	0	3137	
V/C Ratio(X)	0.70	0.40	0.36	0.36	0.00	0.76	
Avail Cap(c_a), veh/h	263	234	1556	1606	0	3137	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	0.85	0.85	0.00	0.09	
Uniform Delay (d), s/veh	56.2	55.3	1.3	1.3	0.0	2.7	
Incr Delay (d2), s/veh	9.7	3.4	0.5	0.5	0.0	0.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	2.0	1.0	1.2	1.3	0.0	4.5	
Unsig. Movement Delay, s/veh					0.0	,	
LnGrp Delay(d),s/veh	65.8	58.7	1.9	1.9	0.0	2.9	
LnGrp LOS	E	E	A	A	A	A	
Approach Vol, veh/h	91		1127	••	,,	2377	
Approach Delay, s/veh	63.4		1.9			2.9	
Approach LOS	F		A			2.0 A	
	-	2					Q
Timer - Assigned Phs		2				6 100 G	8
Phs Duration (G+Y+Rc), s		109.6				109.6	10.4
Change Period (Y+Rc), s		4.5				4.5	4.5
Max Green Setting (Gmax), s		93.0				93.0	18.0
Max Q Clear Time (g_c+l1), s		8.8				31.4	6.0
Green Ext Time (p_c), s		10.3				43.9	0.2
Intersection Summary							
HCM 6th Ctrl Delay			4.1				
HCM 6th LOS			А				

#### HCM Signalized Intersection Capacity Analysis 3: OR-99E & SE Washington Street

	٨	-	$\mathbf{i}$	4	+	•	4	Ť	1	4	Ļ	~
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		र्स		٦		1		<u></u> ↑₽		٦	<u>_</u>	
Traffic Volume (vph)	1	1	0	160	0	80	0	1012	137	125	2171	0
Future Volume (vph)	1	1	0	160	0	80	0	1012	137	125	2171	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1 <del>9</del> 00
Total Lost time (s)		4.5		4.5		4.5		4.5		4.5	4.5	
Lane Util. Factor		1.00		1.00		1.00		0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00		0.98		1.00		1.00	1.00	
Flpb, ped/bikes		1.00		0.98		1.00		1.00		1.00	1.00	
Frt		1.00		1.00		0.85		0.98		1.00	1.00	
Flt Protected		0.98		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1850		1704		1528		3436		1787	3574	
Flt Permitted		0.98		0.76		1.00		1.00		0.17	1.00	
Satd. Flow (perm)		1850		1357		1528		3436		325	3574	
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)	1	1	0	168	0	84	0	1065	<b>1</b> 44	132	2285	0
RTOR Reduction (vph)	0	0	0	0	0	71	0	8	0	0	0	0
Lane Group Flow (vph)	0	2	0	168	0	13	0	1201	0	132	2285	0
Confl. Peds. (#/hr)	2		9	9		2	16		1	1		16
Confl. Bikes (#/hr)									2			1
Heavy Vehicles (%)	0%	0%	0%	4%	4%	4%	3%	3%	3%	1%	1%	1%
Turn Type	Perm	NA		Perm		Perm		NA		pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4			8		8		_		6	-	
Actuated Green, G (s)		18.6		18.6		18.6		80.2		92.4	92.4	
Effective Green, g (s)		18.6		18.6		18.6		80.2		92.4	92.4	
Actuated g/C Ratio		0.16		0.16		0.16		0.67		0.77	0.77	
Clearance Time (s)		4.5		4.5		4.5		4.5		4.5	4.5	
Vehicle Extension (s)		3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		286		210		236		2296		344	2751	
v/s Ratio Prot		200		210		200		0.35		0.02	c0.64	
v/s Ratio Perm		0.00		c0.12		0.01		0.00		0.27	00.01	
v/c Ratio		0.00		0.80		0.06		0.52		0.38	0.83	
Uniform Delay, d1		42.9		48.9		43.2		10.1		6.3	8.8	
Progression Factor		1.00		1.00		1.00		1.00		1.34	0.93	
Incremental Delay, d2		0.0		19.2		0.1		0.9		0.5	2.0	
Delay (s)		42.9		68.1		43.3		1 <b>1</b> .0		8.8	10.2	
Level of Service		D		E		10.0 D		B		A	В	
Approach Delay (s)		42.9		-	59.8	D		11.0			10.1	
Approach LOS		D			E			B			B	
		D			-			5			5	
Intersection Summary					<b></b>		<u> </u>		_			
HCM 2000 Control Delay			13.6	H	CM 2000	Level of \$	Service		В			
HCM 2000 Volume to Capac	city ratio		0.86	-					· • -			
Actuated Cycle Length (s)			120.0		um of losi				13.5			
Intersection Capacity Utilization	tion		82.6%	IC	U Level (	of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

Intersection													
Intersection Delay, s/ve	eh 9.9												
Intersection LOS	А												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		ų	۲		4			\$			4		
Traffic Vol, veh/h	39	164	47	17	165	22	43	32	17	31	30	38	
Future Vol, veh/h	39	164	47	17	165	22	43	32	17	31	30	38	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Heavy Vehicles, %	5	5	5	5	5	5	2	2	2	3	3	3	
Mvmt Flow	42	176	51	18	177	24	46	34	18	33	32	41	
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0	
Approach	EB			WB			NB			SB			
Opposing Approach	WB			EB			SB			NB			
Opposing Lanes	1			2			1			1			
Conflicting Approach L	eft SB			NB			EB			WB			
Conflicting Lanes Left	1			1			2			1			
Conflicting Approach F	RighNB			SB			WB			EB			
Conflicting Lanes Righ	t 1			1			1			2			
HCM Control Delay	10.2			10.1			9.2			9.1			
HCM LOS	В			В			А			А			
Lane	١	NBLn1 E	EBLn1 I	EBLn2V	VBLn1	SBLn1							
Vol Left, %		47%	19%	0%	8%	31%							
Vol Thru, %		35%	81%	0%	81%	30%							
Vol Right, %		18%	0%	100%	11%	38%							
Sign Control		Stop	Stop	Stop	Stop	Stop							
Traffic Vol by Lane		92	203	47	204	99							
LT Vol		43	39	0	17	31							
Through Vol		32	164	0	165	30							
RT Vol		17	0	47	22	38							

218

Yes

661

10.8

В

1.4

7

99

2

Yes

677

0.146

9.2

А

0.5

Lane Flow Rate

Geometry Grp

Service Time

Cap

Degree of Util (X)

Convergence, Y/N

HCM Lane V/C Ratio

HCM Control Delay

HCM Lane LOS

HCM 95th-tile Q

Departure Headway (Hd)

51

7

0.144 0.328 0.065 0.298 0.151

5.249 5.409 4.607 4.898 5.107

Yes

771

7.7

Α

0.2

3.329 3.175 2.372 2.967 3.186 0.33 0.066 0.301 0.152

219

Yes

728

10.1

В

1.2

5

106

Yes

696

9.1

А

0.5

2

## HCM Signalized Intersection Capacity Analysis 5: SE 21st Avenue & SE Washington Street

	٦	-	$\mathbf{F}$	¥	+	×.	•	Ť	/	<b>\</b>	Ļ	-
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			\$			\$	
Traffic Volume (vph)	19	115	49	10	125	26	37	27	9	13	36	29
Future Volume (vph)	19	115	49	10	125	26	37	27	9	13	36	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1 <del>9</del> 00
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			1.00			1.00			0.98	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.96			0.98			0.98			0.95	
Flt Protected		0.99			1.00			0.98			0.99	
Satd. Flow (prot)		1691			1808			1778			1582	
Flt Permitted		0.95			0.97			0.80			0.93	
Satd. Flow (perm)		1614			1757			1462			1491	
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)	20	122	52	<b>1</b> 1	133	28	39	29	10	14	38	31
RTOR Reduction (vph)	0	28	0	0	15	0	0	7	0	0	22	0
Lane Group Flow (vph)	0	166	0	0	157	0	0	71	0	0	61	0
Confl. Peds. (#/hr)	7		5	5		7	35		21	21		35
Confl. Bikes (#/hr)			1			1						1
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	1%	1%	1%	11%	11%	11%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.6			7.6			6.6			6.6	
Effective Green, g (s)		7.6			7.6			6.6			6.6	
Actuated g/C Ratio		0.33			0.33			0.28			0.28	
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) v/s Ratio Prot		528			575			415			424	
v/s Ratio Perm		c0.10			0.09			c0.05			0.04	
v/c Ratio		0.32			0.00			0.17			0.14	
Uniform Delay, d1		5.8			5.8			6.2			6.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.3			0.3			0.2			0.2	
Delay (s)		6.2			6.0			6.4			6.3	
Level of Service		A.			0.0 A			A A			0.0 A	
Approach Delay (s)		6.2			6.0			6.4			6.3	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			6.2	Н	CM 2000	Level of	Service		A			
HCM 2000 Volume to Capa	city ratio		0.25									
Actuated Cycle Length (s)			23.2	S	um of losi	t time (s)			9.0			
Intersection Capacity Utiliza	ition		35.3%			of Service	)		A			
Analysis Period (min) c Critical Lane Group			15									

## HCM 6th Signalized Intersection Summary 5: SE 21st Avenue & SE Washington Street

	٠	-	$\mathbf{i}$	¥	-	×.	1	Ť	1	1	Ļ	-
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			<del>\$</del>			\$			\$	
Traffic Volume (veh/h)	19	115	49	10	125	26	37	27	9	13	36	29
Future Volume (veh/h)	<b>1</b> 9	115	49	10	125	26	37	27	9	13	36	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	0.99		0.97	0.96		0.95	0.95		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	1796	1796	1796	1870	1870	1870	1885	1885	1885	1737	1737	1737
Adj Flow Rate, veh/h	20	122	52	11	133	28	39	29	10	14	38	31
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	7	7	7	2	2	2	1	1	1	11	11	11
Cap, veh/h	200	292	116	185	374	76	430	273	68	224	289	194
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	91	1116	442	54	1432	289	563	808	201	108	854	573
Grp Volume(v), veh/h	194	0	0	172	0	0	78	0	0	83	0	0
Grp Sat Flow(s),veh/h/ln	1649	0	0	1776	0	0	1572	0	0	1535	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.1	0.0	0.0	1.7	0.0	0.0	0.7	0.0	0.0	0.8	0.0	0.0
Prop In Lane	0.10		0.27	0.06		0.16	0.50	•	0.13	0.17	<u> </u>	0.37
Lane Grp Cap(c), veh/h	608	0	0	635	0	0	772	0	0	706	0	0
V/C Ratio(X)	0.32	0.00	0.00	0.27	0.00	0.00	0.10	0.00	0.00	0.12	0.00	0.00
Avail Cap(c_a), veh/h	2158	0	0	2314	0	0	1825	0	0	1753	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)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.9	0.0	0.0	6.8	0.0	0.0	5.1	0.0	0.0	5.2	0.0	0.0
Incr Delay (d2), s/veh	0.3 0.0	0.0 0.0	0.0 0.0	0.2 0.0	0.0 0.0	0.0 0.0	0.1 0.0	0.0 0.0	0.0 0.0	0.1 0.0	0.0 0.0	0.0 0.0
Initial Q Delay(d3),s/veh	0.0		0.0	0.0 0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln Unsig. Movement Delay, s/veh		0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
LnGrp Delay(d),s/veh	7.2	0.0	0.0	7.0	0.0	0.0	5.2	0.0	0.0	5.3	0.0	0.0
LIGIP Delay(d), siveli LIGIP LOS	A A	0.0 A	0.0 A	7.0 A	0.0 A	0.0 A	J.Z A	0.0 A	0.0 A	3.3 A	0.0 A	0.0 A
Approach Vol, veh/h	~	194	<u></u>	~ ~	172	<u></u>	~	78	n		83	<u></u>
Approach Delay, s/veh		7.2			7.0			5.2			5.3	
Approach LOS		, <u>2</u> A			A			0.2 A			A	
					Л						Л	
Timer - Assigned Phs		2		<u>4</u> 10.4		6 12.1		8				
Phs Duration (G+Y+Rc), s		12.1		4.5		4.5		10.4 4.5				
Change Period (Y+Rc), s Max Green Setting (Gmax), s		4.5		4.5 27.5		4.5 23.5						
<b>.</b>		23.5 2.7		27.5 4.1		23.5 2.8		27.5 3.7				
Max Q Clear Time (g_c+l1), s Green Ext Time (p_c), s		0.4		4.1		2.0 0.4		3.7 1.0				
		0.4		1.2		0.4		1.0				
Intersection Summary												
HCM 6th Ctrl Delay			6.5									
HCM 6th LOS			А									

Intersection						
Int Delay, s/veh	1.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	朴			4 <b>†</b>	Y	
Traffic Vol, veh/h	236	40	19	227	30	14
Future Vol, veh/h	236	40	19	227	30	14
Conflicting Peds, #/hr	0	0	0	0	Ũ	0
-	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None		None
Storage Length	-	-	-	-	0	-
Veh in Median Storage,	# 0	-	-	0	Ō	-
Grade, %	0	-	-	0	Ō	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	257	43	21	247	33	15
	201	70	21	271	00	10
Major/Minor Ma	ajor <b>1</b>	ľ	Major2	ľ	Minor1	
Conflicting Flow All	0	0	300	0	445	150
Stage 1	-	-	-	-	279	-
Stage 2	-	-	-	-	166	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1258	-	542	870
Stage 1	-	-	-	-	743	-
Stage 2	-	-	-	-	846	-
Platoon blocked, %	-	-		-	÷.•	
Mov Cap-1 Maneuver	-	-	1258	-	532	870
Mov Cap-2 Maneuver	-	_	- 200	-	532	
Stage 1	_	-	-	-	743	_
	-	-	-	-	830	-
Stage 2	-	-	-	-	000	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.7		11.4	
HCM LOS					В	
Minor Long/Major M.			ЕРТ	EDD		
Minor Lane/Major Mvmt	<u> </u>	VBLn1	EBT	EBR		WBT
Capacity (veh/h)		607	-	-	1258	-
HCM Lane V/C Ratio		0.079	-	-	0.016	-
HCM Control Delay (s)		11.4	-	-	7.9	0.1
HCM Lane LOS		В	-	-	A	А
HCM 95th %tile Q(veh)		0.3	-	-	0.1	-

## HCM Signalized Intersection Capacity Analysis 1: OR-99E & SE Harrison Street

	٠	-	$\mathbf{F}$	4	+	•	•	Ť	1	<b>\</b>	Ļ	-
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		र्भ	7	٦	\$		٦	<b>∱</b> î;-		٦	<u></u> †₽	
Traffic Volume (vph)	22	70	176	80	55	24	323	1452	98	93	593	11
Future Volume (vph)	22	70	176	80	55	24	323	1452	98	93	593	11
ldeal 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	
Lane Util. Factor		1.00	1.00	0.95	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		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	
Frt		1.00	0.85	1.00	0.96		1.00	0.99		1.00	1.00	
Flt Protected		0.99	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1806	1539	16 <b>1</b> 8	1626		1770	3498		1736	3461	
Flt Permitted		0.99	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1806	1539	1618	1626		1770	3498		1736	3461	
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)	23	74	185	84	58	25	340	1528	103	98	624	12
RTOR Reduction (vph)	0	0	124	0	12	0	0	4	0	0	1	0
Lane Group Flow (vph)	0	97	61	76	79	0	340	1627	0	98	635	0
Confl. Peds. (#/hr)			8	8					5	5		
Confl. Bikes (#/hr)			2									
Heavy Vehicles (%)	4%	4%	4%	6%	6%	6%	2%	2%	2%	4%	4%	4%
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	
Protected Phases	.4	4	5	8	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)		11.8	39.6	11.2	11.2		27.8	66.9		12.1	51.2	
Effective Green, g (s)		1 <b>1</b> .8	39.6	11.2	11.2		27.8	66.9		12.1	51.2	
Actuated g/C Ratio		0.10	0.33	0.09	0.09		0.23	0.56		0.10	0.43	
Clearance Time (s)		4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		177	507	151	151		410	1950		175	1476	
v/s Ratio Prot		c0.05	0.03	0.05	c0.05		c0.19	c0.47		0.06	0.18	
v/s Ratio Perm			0.01									
v/c Ratio		0.55	0.12	0.50	0.52		0.83	0.83		0.56	0.43	
Uniform Delay, d1		51.6	28.0	51.8	51.9		43.8	22.0		51.4	24.2	
Progression Factor		1.00	1.00	1.00	1.00		1.12	0.91		1.00	1.00	
Incremental Delay, d2		3.4	0.1	2.6	3.3		10.3	3.4		4.1	0.2	
Delay (s)		55.0	28.2	54.4	55.1		59.2	23.5		55.5	24.4	
Level of Service		E	C	D	E		E	C		E	C	
Approach Delay (s)		37.4	-	_	54.8		_	29.6		_	28.5	
Approach LOS		D			D			C			C	
Intersection Summary												
HCM 2000 Control Delay			31.4	н	CM 2000	Level of 9	Service		С			
HCM 2000 Volume to Capacit	v ratio		0.79		5111 2000	2010101	00000		v			
Actuated Cycle Length (s)	, 1000		120.0	2	um of losi	time (s)			18.0			
Intersection Capacity Utilization	n		72.1%		CU Level of		1		0.0 C			
Analysis Period (min)			· · · / / ·						<u> </u>			
			15									

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	٦	7	<b>∱</b> ⊅			<u>††</u>	
Traffic Volume (vph)	57	19	1850	58	0	843	
Future Volume (vph)	57	19	1850	58	0	843	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.5	4.5			4.5	
Lane Util. Factor	1.00	1.00	0.95			0.95	
Frpb, ped/bikes	1.00	0.98	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	0.95	1.00	1.00			1.00	
Satd. Flow (prot)	1656	1455	3520			3471	
Fit Permitted	0.95	1.00	1.00			1.00	
Satd. Flow (perm)	1656	1455	3520			3471	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	0.90 59	20	1927	60	0.50	878	
RTOR Reduction (vph)	0	19	1327	0	0	0,0	
Lane Group Flow (vph)	59	19	1986	0	0	878	
Confl. Peds. (#/hr)	2	3	1900	3	3	010	
Heavy Vehicles (%)	2 9%	9%	2%	2%	4%	4%	
	Prot	Perm	270 NA	270	4 /0	 NA	
Turn Type Protected Phases	8	Pelm	2			6	
Permitted Phases	0	o	2			0	
	0 5	8 9 F	100 E			100 E	
Actuated Green, G (s)	8.5	8.5 8.5	102.5			102.5	
Effective Green, g (s)	8.5	8.5	102.5			102.5	
Actuated g/C Ratio	0.07	0.07	0.85			0.85	
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)	117	103	3006			2964	
v/s Ratio Prot	c0.04		c0.56			0.25	
v/s Ratio Perm		0.00					
v/c Ratio	0.50	0.01	0.66			0.30	
Uniform Delay, d1	53.7	51.9	2.9			1.7	
Progression Factor	1.00	1.00	0.59			0.60	
Incremental Delay, d2	3.4	0.1	0.7			0.2	
Delay (s)	57.1	51.9	2.4			1.3	
Level of Service	E	D	А			А	
Approach Delay (s)	55.8		2.4			1.3	
Approach LOS	E		А			А	
Intersection Summary							
HCM 2000 Control Delay			3.5	H	CM 2000	Level of Ser	rvice A
HCM 2000 Volume to Capa	acity ratio		0.65				
Actuated Cycle Length (s)	-		120.0	Su	um of losi	t time (s)	9.0
Intersection Capacity Utiliz	ation		65.7%			of Service	С
Analysis Period (min)			15				
c Critical Lane Group							
•							

## HCM 6th Signalized Intersection Summary 2: OR-99E & SE Monroe Street

	•	×.	Ť	1	\$	¥	
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	٦	7	<b>†</b> î»			<b>††</b>	
Traffic Volume (veh/h)	57	19	1850	58	0	843	
Future Volume (veh/h)	57	19	1850	58	0	843	
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	1767	1767	1870	1870	0	1841	
Adj Flow Rate, veh/h	59	20	1927	60	0	878	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %	9	9	2	2	0	4	
Cap, veh/h	82	73	3084	96	0	3065	
Arrive On Green	0.05	0.05	1.00	1.00	0.00	0.88	
Sat Flow, veh/h	1682	1497	3612	109	0	3681	
Grp Volume(v), veh/h	59	20	968	1019	0	878	
Grp Sat Flow(s),veh/h/ln	1682	1497	1777	1851	0	1749	
Q Serve(g_s), s	4.1	1.5	0.0	0.0	0.0	5.0	
Cycle Q Clear(g_c), s	4.1	1.5	0.0	0.0	0.0	5.0	
Prop In Lane	1.00	1.00		0.06	0.00		
Lane Grp Cap(c), veh/h	82	73	1557	1622	0	3065	
V/C Ratio(X)	0.72	0.28	0.62	0.63	0.00	0.29	
Avail Cap(c_a), veh/h	262	233	1557	1622	0	3065	
HCM Platoon Ratio	1.00	1.00	1.33	1.33	1.00	1.00	
Upstream Filter(I)	1.00	1.00	0.48	0.48	0.00	0.92	
Uniform Delay (d), s/veh	56.3	55.1	0.0	0.0	0.0	1.2	
Incr Delay (d2), s/veh	11.3	2.0	0.9	0.9	0.0	0.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	2.0	0.6	0.4	0.4	0.0	0.8	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	67.6	57.1	0.9	0.9	0.0	1.4	
LnGrp LOS	E	E	A	A	A	A	
Approach Vol, veh/h	79		1987	••		878	
Approach Delay, s/veh	65.0		0.9			1.4	
Approach LOS	E		Â			A	
Timer - Assigned Phs	_	2				6	8
Phs Duration (G+Y+Rc), s		109.7				109.7	10.3
Change Period (Y+Rc), s		4.5				4.5	4.5
Max Green Setting (Gmax), s		92.3				92.3	18.7
Max Q Clear Time (g_c+I1), s		92.3 2.0				92.3 7.0	6.1
Green Ext Time (p_c), s		2.0 37.3				7.0 8.0	0.1
		51,3				0.0	U. I
Intersection Summary							
HCM 6th Ctrl Delay			2.8				
HCM 6th LOS			А				

## HCM Signalized Intersection Capacity Analysis 3: OR-99E & SE Washington Street

	٦	-	$\mathbf{i}$	4	+	•	•	1	/	<b>\</b>	Ļ	-
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		र्स		٦		ſ		<u></u> †₽		٦	<b>††</b>	
Traffic Volume (vph)	2	2	0	103	0	92	0	1823	146	97	788	0
Future Volume (vph)	2	2	0	103	0	92	0	1823	146	97	788	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1 <del>9</del> 00
Total Lost time (s)		4.5		4.5		4.5		4.5		4.5	4.5	
Lane Util. Factor		1.00		1.00		1.00		0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00		0.98		1.00		1.00	1.00	
Flpb, ped/bikes		1.00		0.98		1.00		1.00		1.00	1.00	
Frt		1.00		1.00		0.85		0.99		1.00	1.00	
Flt Protected		0.98		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1056		1653		1482		3496		1719	3438	
Flt Permitted		0.98		0.76		1.00		1.00		0.04	1.00	
Satd. Flow (perm)		1056		1314		1482		3496		81	3438	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	2	2	0	107	0	96	0	1899	152	101	821	0
RTOR Reduction (vph)	0	0	0	0	0	84	0	4	0	0	0	0
Lane Group Flow (vph)	0	4	0	107	0	12	0	2047	0	101	821	0
Confl. Peds. (#/hr)	3		10	10		3	22		2	2		22
Confl. Bikes (#/hr)									2			1
Heavy Vehicles (%)	75%	75%	75%	7%	7%	7%	2%	2%	2%	5%	5%	5%
Turn Type	Perm	NA		Perm		Perm		NA		pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4			8		8		_		6	_	
Actuated Green, G (s)		14.4		14.4		14,4		84.6		96.6	96.6	
Effective Green, g (s)		14.4		14.4		14.4		84.6		96.6	96.6	
Actuated g/C Ratio		0.12		0.12		0.12		0.70		0.80	0.80	
Clearance Time (s)		4.5		4.5		4.5		4.5		4.5	4.5	
Vehicle Extension (s)		3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		126		157		177		2464		167	2767	
v/s Ratio Prot								c0.59		c0.04	0.24	
v/s Ratio Perm		0.00		c0.08		0.01		00.00		0.45	0.2	
v/c Ratio		0.03		0.68		0.07		0.83		0.60	0.30	
Uniform Delay, d1		46.6		50.6		46.8		12.6		28.4	3.0	
Progression Factor		1.00		1.00		1.00		1.00		1.44	0.57	
Incremental Delay, d2		0.1		11.5		0.2		3.4		5.9	0.3	
Delay (s)		46.7		62.1		47.0		16.0		46.8	2.0	
Level of Service		D		E		D		В		D	A	
Approach Delay (s)		46.7		_	55.0			16.0		_	6.9	
Approach LOS		D			D			В			A	
Intersection Summary		_			_			_				
HCM 2000 Control Delay			15.9	Ці	CM 2000	Level of :	Service		В			
HCM 2000 Volume to Capa	city ratio		0.79	יח		Level OL			U			
Actuated Cycle Length (s)	oity ratio		120.0	c,	um of losi	ttime (e)			13.5			
Intersection Capacity Utiliza	ation		81.6%			of Service			13.5 D			
Analysis Period (min)	auvn		01.0 <i>%</i> 15	IC IC			÷		U			
c Critical Lane Group			IJ									
c onical care oroup												

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Intore	section
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Intersection Delay, s/veh10.3 В

Intersection LOS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		ų	7		\$			\$			\$		
Traffic Vol, veh/h	68	180	34	12	165	20	24	24	10	8	12	23	
Future Vol, veh/h	68	180	34	12	165	20	24	24	10	8	12	23	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	
Heavy Vehicles, %	9	9	9	6	6	6	6	6	6	6	6	6	
Mvmt Flow	77	205	39	14	188	23	27	27	11	9	14	26	
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0	
Approach	EB			WB			NB			SB			
Opposing Approach	WB			EB			SB			NB			
Opposing Lanes	1			2			1			1			
Conflicting Approach L	eft SB			NB			EB			WB			
Conflicting Lanes Left	1			1			2			1			
Conflicting Approach F	RighNB			SB			WB			EB			
Conflicting Lanes Righ	t 1			1			1			2			
HCM Control Delay	11.2			9.8			9			8.6			
HCM LOS	В			А			А			А			

Lane	NBLn1	EBLn1	EBLn2V	VBLn1	SBLn1
Vol Left, %	41%	27%	0%	6%	19%
Vol Thru, %	41%	73%	0%	84%	28%
Vol Right, %	17%	0%	100%	10%	53%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	58	248	34	197	43
LT Vol	24	68	0	12	8
Through Vol	24	180	0	165	12
RT Vol	10	0	34	20	23
Lane Flow Rate	66	282	39	224	49
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.098	0.413	0.048	0.294	0.07
Departure Headway (Hd)	5.353	5.271	4.43	4.734	5.121
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Сар	666	682	806	757	695
Service Time	3.412	3.013	2.171	2.779	3.182
HCM Lane V/C Ratio	0.099	0.413	0.048	0.296	0.071
HCM Control Delay	9	11.7	7.4	9.8	8.6
HCM Lane LOS	А	В	Α	Α	А
HCM 95th-tile Q	0.3	2	0.2	1.2	0.2

## HCM Signalized Intersection Capacity Analysis 5: SE 21st Avenue & SE Washington Street

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			\$			\$	
Traffic Volume (vph)	15	152	49	10	118	19	43	46	22	9	17	15
Future Volume (vph)	15	152	49	10	118	19	43	46	22	9	17	15
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	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			0.99			0.99			0.98	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.97			0.98			0.97			0.95	
Flt Protected		1.00			1.00			0.98			0.99	
Satd. Flow (prot)		1687			1795			1708			1452	
Flt Permitted		0.97			0.97			0.86			0.91	
Satd. Flow (perm)		1640			1738			1491			1339	
	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Peak-hour factor, PHF								0.64 55				
Adj. Flow (vph)	18	181	58	12	140	23	51		26	11	20	18
RTOR Reduction (vph)	0	20	0	0	10	0	0	18	0	0	13	0
Lane Group Flow (vph)	0	237	0	0	165	0	0	114	0	0	36	0
Confl. Peds. (#/hr)	35		8	8		35	51		30	30		51
Confl. Bikes (#/hr)			2									
Heavy Vehicles (%)	8%	8%	8%	3%	3%	3%	4%	4%	4%	20%	20%	20%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.9			8.9			7.4			7.4	
Effective Green, g (s)		8.9			8.9			7.4			7.4	
Actuated g/C Ratio		0.35			0.35			0.29			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) v/s Ratio Prot		576			611			436			391	
v/s Ratio Perm		c0.14			0.09			c0.08			0.03	
v/c Ratio		0.41			0.27			0.26			0.09	
Uniform Delay, d1		6.2			5.9			6.9			6.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.5			0.2			0.3			0.1	
Delay (s)		6.7			6.1			7.2			6.6	
Level of Service		0.7 A			A			A			A	
		6.7			6.1			7.2			6.6	
Approach Delay (s)												
Approach LOS		A			A			A			А	
Intersection Summary												
HCM 2000 Control Delay			6.6	Н	CM 2000	Level of !	Service		А			
HCM 2000 Volume to Capaci	ty ratio		0.34									
Actuated Cycle Length (s)	•		25.3	S	um of losi	time (s)			9.0			
Intersection Capacity Utilization	on		36.6%		U Level (		)		A			
Analysis Period (min) c Critical Lane Group			15									

## HCM 6th Signalized Intersection Summary 5: SE 21st Avenue & SE Washington Street

	٠	-	$\mathbf{i}$	4	+	×.	•	Ť	/	1	Ļ	-
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			\$			\$	
Traffic Volume (veh/h)	15	152	49	10	118	19	43	46	22	9	17	15
Future Volume (veh/h)	15	152	49	10	118	19	43	46	22	9	17	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.93	0.97		0.95	0.93		0.92	0.94		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	1781	1781	1781	1856	1856	1856	1841	184 <b>1</b>	1841	1604	1604	1604
Adj Flow Rate, veh/h	18	181	58	12	140	23	51	55	26	11	20	18
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	8	8	8	3	3	3	4	4	4	20	20	20
Cap, veh/h	155	423	128	153	512	80	312	287	103	206	245	170
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	49	1230	373	45	1490	232	399	860	309	143	735	510
Grp Volume(v), veh/h	257	0	0	175	0	0	132	0	0	49	0	0
Grp Sat Flow(s),veh/h/ln	1652	0	0	1768	0	0	1568	0	0	1388	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.3	0.0	0.0	2.0	0.0	0.0	1.5	0.0	0.0	0.6	0.0	0.0
Prop In Lane	0.07	-	0.23	0.07	-	0.13	0.39	_	0.20	0.22	_	0.37
Lane Grp Cap(c), veh/h	706	0	0	745	0	0	702	0	0	621	0	0
V/C Ratio(X)	0.36	0.00	0.00	0.23	0.00	0.00	0.19	0.00	0.00	0.08	0.00	0.00
Avail Cap(c_a), veh/h	1685	0	0	1787	0	0	1513	0	0	1338	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)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.1	0.0	0.0	6.7	0.0	0.0	6.7	0.0	0.0	6.4	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.2	0.0	0.0	0.1	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/In	0.8	0.0	0.0	0.5	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh		0.0	0.0	6.0	0.0	0.0	6.0	0.0	0.0	e E	0.0	~ ^
LnGrp Delay(d),s/veh	7.4	0.0	0.0	6.8	0.0	0.0	6.8	0.0	0.0	6.5	0.0	0.0
LnGrp LOS	Α	A	A	A	A	A	A	A	A	A	A 40	Α
Approach Vol, veh/h		257			175 6.8			132 6.8			49 6 5	
Approach Delay, s/veh		7.4									6.5	
Approach LOS		A			A			A			А	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		13.8		14.1		13.8		14.1				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		24.5		26.5		24.5		26.5				
Max Q Clear Time (g_c+l1), s		3.5		5.3		2.6		4.0				
Green Ext Time (p_c), s		0.7		1.6		0.2		1.0				
Intersection Summary												
HCM 6th Ctrl Delay			7.0									
HCM 6th LOS			А									

Intersection						
Int Delay, s/veh	1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	<b>∱</b> ₽			-4₽		7
Traffic Vol, veh/h	233	14	6	206	0	49
Future Vol, veh/h	233	14	6	206	ŏ	49
Conflicting Peds, #/hr	0	0	Õ	0	õ	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	- 1100	None		None
	-	None	-	NOTE	-	
Storage Length		-	-	-	-	0
Veh in Median Storage,		-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	253	15	7	224	0	53
Major/Minor M	lajor1	R	Major2	ĸ	/linor1	
						101
Conflicting Flow All	0	0	268	0	-	134
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.14	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.22	-	-	3.32
Pot Cap-1 Maneuver	-	-	1293	-	0	890
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-	•	
Mov Cap-1 Maneuver		-	1293	_	-	890
Mov Cap-1 Maneuver	-	-	1200	-	-	030
•	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.2		9.3	
HCM LOS					A	
					~ ~ ~	
Minor Lane/Major Mvmt	1	NBLn1	EBT	EBR		WBT
Capacity (veh/h)		890	-	-	1293	-
HCM Lane V/C Ratio		0.06	-	-	0.005	-
HCM Control Delay (s)		9.3	-	-	7.8	0
HCM Lane LOS		А	-	-	А	А
HCM 95th %tile Q(veh)		0.2	-	-	0	-

## HCM Signalized Intersection Capacity Analysis 1: OR-99E & SE Harrison Street

	٦	-	$\mathbf{i}$	4	+	•	1	1	1	<b>\</b>	Ļ	-
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		र्भ	7	ሻ			ሻ	<u></u> †₽		ኘ	<del>↑</del> ⊅	
Traffic Volume (vph)	25	53	396	154	29	28	257	782	107	87	1663	14
Future Volume (vph)	25	53	396	154	29	28	257	782	107	87	1663	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1 <del>9</del> 00
Total Lost time (s)		4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00	1.00	0.95	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		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	
Frt		1.00	0.85	1.00	0.96		1.00	0.98		1.00	1.00	
Flt Protected		0.98	1.00	0.95	0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1851	1581	1681	1661		1787	3494		1787	3570	
Flt Permitted		0.98	1.00	0.95	0.98		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1851	1581	1681	1661		1787	3494		1787	3570	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	27	57	426	166	31	30	276	841	115	94	1788	15
RTOR Reduction (vph)	0	0	49	0	12	0	0	7	0	0	1	0
Lane Group Flow (vph)	0	84	377	1 <b>1</b> 5	100	0	276	949	0	94	1802	0
Confl. Peds. (#/hr)			15	15					5	5		
Confl. Bikes (#/hr)			3									
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	
Protected Phases	4	4	5	8	8		5	2		1	6	
Permitted Phases			4	-	-		-	-			-	
Actuated Green, G (s)		9.4	36.4	13.5	13.5		27.0	67.6		11.5	52.1	
Effective Green, g (s)		9.4	36.4	13.5	13.5		27.0	67.6		11.5	52.1	
Actuated g/C Ratio		0.08	0.30	0.11	0.11		0.22	0.56		0.10	0.43	
Clearance Time (s)		4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		144	479	189	186		402	1968		171	1549	
v/s Ratio Prot		0.05	c0.18	c0.07	0.06		0.15	0.27		0.05	c0.50	
v/s Ratio Perm		0.00	0.06	00.07	0.00		0.10	0.27		0.00	00.00	
v/c Ratio		0.58	0.79	0.61	0.54		0.69	0.48		0.55	1.16	
Uniform Delay, d1		53.4	38.3	50.7	50.3		42.6	15.7		51.8	34.0	
Progression Factor		1.00	1.00	1.00	1.00		1.14	0.85		1.00	1.00	
Incremental Delay, d2		5.9	8.4	5.5	3.2		4.6	0.8		3.6	81.1	
Delay (s)		59.3	46.6	56.2	53.5		53.2	14.2		55.4	115.1	
Level of Service		E	D	E	00.0 D		D	B		E	F	
Approach Delay (s)		48.7	5	-	54.9		Ľ	23.0		Ľ	112.1	
Approach LOS		D			D			20.0 C			F	
Intersection Summary												
HCM 2000 Control Delay			72.0	Ц	CM 2000	Level of \$	Senvice		E			
HCM 2000 Volume to Capa	city ratio		0.96			LEVELULA			L			
Actuated Cycle Length (s)	ory ratio		120.0	c.	um of losi	tima (e)			18.0			
Intersection Capacity Utiliza	ition		89.6%			of Service			10.0 E			
Analysis Period (min)	uUT		09.0% 15				÷		L			
c Critical Lane Group			10									

	¥	A.	Ť	/	\$	Ļ	
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	ሻ	*٢	<b>≜</b> †⊅			<b>††</b>	
Traffic Volume (vph)	69	29	1018	52	0	2258	
Future Volume (vph)	69	29	1018	52	0	2258	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.5	4.5			4.5	
Lane Util. Factor	1.00	1.00	0.95			0.95	
Frpb, ped/bikes	1.00	0.98	1.00			1.00	
Flpb, ped/bikes	1.00	1.00	1.00			1.00	
Frt	1.00	0.85	0.99			1.00	
Flt Protected	0.95	1.00	1.00			1.00	
Satd. Flow (prot)	1736	1515	3508			3574	
Flt Permitted	0.95	1.00	1.00			1.00	
Satd. Flow (perm)	1736	1515	3508			3574	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	
•	0.95	0.95	0.95 1072	0.95 55		2377	
Adj. Flow (vph)					0		
RTOR Reduction (vph)	0 72	29	2 1125	0	0	0	
Lane Group Flow (vph)	73	2	1125	0	0	2377	
Confl. Peds. (#/hr)	2	5		4	4		
Confl. Bikes (#/hr)	407	1	00/	1	4.07	40/	
Heavy Vehicles (%)	4%	4%	2%	2%	1%	1%	
Turn Type	Prot	Perm	NA			NA	
Protected Phases	8		2			6	
Permitted Phases		8					
Actuated Green, G (s)	9.1	9.1	101.9			101.9	
Effective Green, g (s)	9.1	9.1	101.9			101.9	
Actuated g/C Ratio	0.08	0.08	0.85			0.85	
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)	131	114	2978			3034	
v/s Ratio Prot	c0.04		0.32			c0.67	
v/s Ratio Perm		0.00					
v/c Ratio	0.56	0.02	0.38			0.78	
Uniform Delay, d1	53.5	51.3	2.0			4.1	
Progression Factor	1.00	1.00	0.15			1.06	
Incremental Delay, d2	5.1	0.1	0.3			0.2	
Delay (s)	58.6	51.4	0.6			4.5	
Level of Service	E	D	A			A	
Approach Delay (s)	56.4	5	0.6			4.5	
Approach LOS	E		A			A	
Intersection Summary							
HCM 2000 Control Delay			4.8	H	CM 2000	Level of Se	ervice A
HCM 2000 Volume to Capa	city ratio		0.76				•••
Actuated Cycle Length (s)			120.0	Si	um of losi	t time (s)	9.0
Intersection Capacity Utiliza	ation		75.7%			of Service	D
Analysis Period (min)			15	10			U U
c Critical Lane Group			10				
· · · · · · · · · · · · · · · · · · ·							

## HCM 6th Signalized Intersection Summary 2: OR-99E & SE Monroe Street

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	ኘ	7	<b>†</b> î»			<b>††</b>	
Traffic Volume (veh/h)	69	29	1018	52	0	2258	
Future Volume (veh/h)	69	29	1018	52	0	2258	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	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	1841	1841	1870	1870	0	1885	
Adj Flow Rate, veh/h	73	31	1072	55	0	2377	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	4	4	2	2	0	1	
Cap, veh/h	100	89	2980	153	0	3108	
Arrive On Green	0.06	0.06	1.00	1.00	0.00	0.87	
Sat Flow, veh/h	1753	1560	3528	176	0	3770	
Grp Volume(v), veh/h	73	31	554	573	0	2377	
Grp Sat Flow(s),veh/h/ln	1753	1560	1777	1834	0	1791	
Q Serve(g_s), s	4.9	2.3	0.0	0.0	0.0	31.3	
Cycle Q Clear(g_c), s	4.9	2.3	0.0	0.0	0.0	31.3	
Prop In Lane	1.00	1.00		0.10	0.00		
Lane Grp Cap(c), veh/h	100	89	1542	1591	0	3108	
V/C Ratio(X)	0.73	0.35	0.36	0.36	0.00	0.76	
Avail Cap(c_a), veh/h	263	234	1542	1591	0	3108	
HCM Platoon Ratio	1.00	1.00	1.33	1.33	1.00	1.00	
Upstream Filter(I)	1.00	1.00	0.86	0.86	0.00	0.09	
Uniform Delay (d), s/veh	55.6	54.4	0.0	0.0	0.0	3.1	
Incr Delay (d2), s/veh	9.6	2.3	0.6	0.5	0.0	0.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	2.5	1.0	0.2	0.2	0.0	5.5	
Unsig. Movement Delay, s/veh				•••	0.0	0.0	
LnGrp Delay(d),s/veh	65.2	56.7	0.6	0.5	0.0	3.3	
LnGrp LOS	E	E	A	A	A	A	
Approach Vol, veh/h	104		1127		, ,	2377	
Approach Delay, s/veh	62.7		0.6			3.3	
Approach LOS	F		Â			A	
	-	n					Q
Timer - Assigned Phs		109.6				6 109.6	8
Phs Duration (G+Y+Rc), s		108.6				108.6	11.4
Change Period (Y+Rc), s		4.5				4.5	4.5
Max Green Setting (Gmax), s		93.0				93.0 22.2	18.0
Max Q Clear Time (g_c+I1), s		2.0				33.3	6.9
Green Ext Time (p_c), s		10.3				43.0	0.2
Intersection Summary							
HCM 6th Ctrl Delay			4.1				
HCM 6th LOS			А				

## HCM Signalized Intersection Capacity Analysis 3: OR-99E & SE Washington Street

	٨	-	$\mathbf{i}$	4	+	*	•	1	1	1	Ļ	-
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		र्स		٦		7		<u></u> ↑₽		٦	<u>_</u>	
Traffic Volume (vph)	1	1	0	148	0	64	0	1012	137	125	2183	0
Future Volume (vph)	1	1	0	148	0	64	0	1012	137	125	2183	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1 <del>9</del> 00
Total Lost time (s)		4.5		4.5		4.5		4.5		4.5	4.5	
Lane Util. Factor		1.00		1.00		1.00		0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00		0.98		1.00		1.00	1.00	
Flpb, ped/bikes		1.00		0.98		1.00		1.00		1.00	1.00	
Frt		1.00		1.00		0.85		0.98		1.00	1.00	
Flt Protected		0.98		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1850		1704		1528		3436		1787	3574	
Flt Permitted		0.98		0.76		1.00		1.00		0.18	1.00	
Satd. Flow (perm)		1850		1357		1528		3436		330	3574	
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)	1	1	0	156	0	67	0	1065	<b>1</b> 44	132	2298	0
RTOR Reduction (vph)	0	0	0	0	0	57	0	8	0	0	0	0
Lane Group Flow (vph)	0	2	0	156	0	10	0	1201	0	132	2298	0
Confl. Peds. (#/hr)	2		9	9		2	16		1	1		16
Confl. Bikes (#/hr)									2			1
Heavy Vehicles (%)	0%	0%	0%	4%	4%	4%	3%	3%	3%	1%	1%	1%
Turn Type	Perm	NA		Perm		Perm		NA		pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4			8		8		-		6	Ū	
Actuated Green, G (s)		17.6		17.6		17.6		81.3		93.4	93.4	
Effective Green, g (s)		17.6		17.6		17.6		81.3		93.4	93.4	
Actuated g/C Ratio		0.15		0.15		0.15		0.68		0.78	0.78	
Clearance Time (s)		4.5		4.5		4.5		4.5		4.5	4.5	
Vehicle Extension (s)		3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		271		199		224		2327		349	2781	
v/s Ratio Prot		2, 1		100				0.35		0.02	c0.64	
v/s Ratio Perm		0.00		c0.11		0.01		0.00		0.27	00.01	
v/c Ratio		0.00		0.78		0.04		0.52		0.38	0.83	
Uniform Delay, d1		43.7		49.4		44.0		9.6		5.9	8.3	
Progression Factor		1.00		1.00		1.00		1.00		1.33	0.92	
Incremental Delay, d2		0.0		18.0		0.1		0.8		0.4	1.9	
Delay (s)		43.7		67.4		44.1		10.4		8.2	9.5	
Level of Service		10.1 D		E		D		B		A.	A	
Approach Delay (s)		43.7		-	60.4			10.4			9.4	
Approach LOS		D			60.4 E			ю.4 В			A.	
		D			-			D				
Intersection Summary					<b></b>		<u> </u>		_			
HCM 2000 Control Delay			12.7	H	CM 2000	Level of \$	Service		В			
HCM 2000 Volume to Capa	city ratio		0.85	-					· • -			
Actuated Cycle Length (s)			120.0		um of losi	( )			13.5			
Intersection Capacity Utiliza	tion		81.9%	IC	U Level (	of Service	•		D			
Analysis Period (min)			15									
c Critical Lane Group												

Intersection	
Intersection Delay, s/veh10.2	

В

Intersection LOS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		ų	۲		\$			\$			\$		
Traffic Vol, veh/h	67	164	47	17	165	22	43	32	17	31	30	38	
Future Vol, veh/h	67	164	47	17	165	22	43	32	17	31	30	38	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Heavy Vehicles, %	5	5	5	5	5	5	2	2	2	3	3	3	
Mvmt Flow	72	176	51	18	177	24	46	34	18	33	32	41	
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0	
Approach	EB			WB			NB			SB			
Opposing Approach	WB			EB			SB			NB			
Opposing Lanes	1			2			1			1			
Conflicting Approach L	eft SB			NB			EB			WB			
Conflicting Lanes Left	1			1			2			1			
Conflicting Approach R	lighNB			SB			WB			EB			
Conflicting Lanes Right	t 1			1			1			2			
HCM Control Delay	10.9			10.2			9.4			9.2			
HCM LOS	В			В			А			А			

Lane	NBLn1	EBLn1	EBLn2V	VBLn1	SBLn1
Vol Left, %	47%	29%	0%	8%	31%
Vol Thru, %	35%	71%	0%	81%	30%
Vol Right, %	18%	0%	100%	1 <b>1</b> %	38%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	92	231	47	204	99
LT Vol	43	67	0	17	31
Through Vol	32	164	0	165	30
RT Vol	17	0	47	22	38
Lane Flow Rate	99	248	51	219	106
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.147	0.377	0.065	0.302	0.154
Departure Headway (Hd)	5.337	5.468	4.617	4.949	5.195
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Сар	665	653	769	719	683
Service Time	3.425	3.24	2.388	3.024	3.281
HCM Lane V/C Ratio	0.149	0.38	0.066	0.305	0.155
HCM Control Delay	9.4	11.6	7.7	10.2	9.2
HCM Lane LOS	А	В	Α	В	А
HCM 95th-tile Q	0.5	1.8	0.2	1.3	0.5

## HCM Signalized Intersection Capacity Analysis 5: SE 21st Avenue & SE Washington Street

04/08/2021

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			\$			\$	
Traffic Volume (vph)	19	115	49	10	125	26	37	27	9	13	36	29
Future Volume (vph)	19	115	49	10	125	26	37	27	9	13	36	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1 <del>9</del> 00
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			1.00			1.00			0.98	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.96			0.98			0.98			0.95	
Flt Protected		0.99			1.00			0.98			0.99	
Satd. Flow (prot)		1691			1808			1778			1582	
Flt Permitted		0.95			0.97			0.80			0.93	
Satd. Flow (perm)		1614			1757			1462			1491	
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)	20	122	52	11	133	28	39	29	10	14	38	31
RTOR Reduction (vph)	0	28	0	0	15	0	0	7	0	0	22	0
Lane Group Flow (vph)	0	166	0	0	157	0	0	71	0	0	61	0
Confl. Peds. (#/hr)	7		5	5		7	35		21	21		35
Confl. Bikes (#/hr)			1			1						1
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	1%	1%	1%	11%	11%	11%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.6			7.6			6.6			6.6	
Effective Green, g (s)		7.6			7.6			6.6			6.6	
Actuated g/C Ratio		0.33			0.33			0.28			0.28	
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)		528			575			415			424	
v/s Ratio Prot												
v/s Ratio Perm		c0.10			0.09			c0.05			0.04	
v/c Ratio		0.32			0.27			0.17			0.14	
Uniform Delay, d1		5.8			5.8			6.2			6.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.3			0.3			0.2			0.2	
Delay (s)		6.2			6.0			6.4			6.3	
Level of Service		А			А			А			А	
Approach Delay (s)		6.2			6.0			6.4			6.3	
Approach LOS		А			А			А			А	
Intersection Summary												
HCM 2000 Control Delay			6.2	H	CM 2000	Level of a	Service		А			
HCM 2000 Volume to Capa	icity ratio		0.25									
Actuated Cycle Length (s)			23.2	S	um of losi	t time (s)			9.0			
Intersection Capacity Utiliza	ation		35.3%	IC	CU Level (	of Service	;		А			
Analysis Period (min)			15									
c Critical Lane Group												

## HCM 6th Signalized Intersection Summary 5: SE 21st Avenue & SE Washington Street

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			<del>\$</del>			\$			\$	
Traffic Volume (veh/h)	19	115	49	10	125	26	37	27	9	13	36	29
Future Volume (veh/h)	<b>1</b> 9	115	49	10	125	26	37	27	9	13	36	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	0.99		0.97	0.96		0.95	0.95		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	1796	1796	1796	1870	1870	1870	1885	1885	1885	1737	1737	1737
Adj Flow Rate, veh/h	20	122	52	11	133	28	39	29	10	14	38	31
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	7	7	7	2	2	2	1	1	1	11	11	11
Cap, veh/h	200	292	<b>1</b> 16	185	374	76	430	273	68	224	289	194
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	91	1116	442	54	1432	289	563	808	201	108	854	573
Grp Volume(v), veh/h	194	0	0	172	0	0	78	0	0	83	0	0
Grp Sat Flow(s),veh/h/ln	1649	0	0	1776	0	0	1572	0	0	1535	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.1	0.0	0.0	1.7	0.0	0.0	0.7	0.0	0.0	0.8	0.0	0.0
Prop In Lane	0.10		0.27	0.06		0.16	0.50	•	0.13	0.17	<u> </u>	0.37
Lane Grp Cap(c), veh/h	608	0	0	635	0	0	772	0	0	706	0	0
V/C Ratio(X)	0.32	0.00	0.00	0.27	0.00	0.00	0.10	0.00	0.00	0.12	0.00	0.00
Avail Cap(c_a), veh/h	2158	0	0	2314	0	0	1825	0	0	1753	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)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.9	0.0	0.0	6.8	0.0	0.0	5.1	0.0	0.0	5.2	0.0	0.0
Incr Delay (d2), s/veh	0.3 0.0	0.0 0.0	0.0 0.0	0.2 0.0	0.0 0.0	0.0 0.0	0.1 0.0	0.0 0.0	0.0 0.0	0.1 0.0	0.0 0.0	0.0 0.0
Initial Q Delay(d3),s/veh	0.0		0.0	0.0 0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln Unsig. Movement Delay, s/veh		0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
LnGrp Delay(d),s/veh	7.2	0.0	0.0	7.0	0.0	0.0	5.2	0.0	0.0	5.3	0.0	0.0
LIGIP Delay(d), siveli LIGIP LOS	A A	0.0 A	0.0 A	7.0 A	0.0 A	0.0 A	J.Z A	0.0 A	0.0 A	3.3 A	0.0 A	0.0 A
Approach Vol, veh/h	~	194	<u></u>	~ ~	172	<u></u>	~	78	n		83	<u></u>
Approach Delay, s/veh		7.2			7.0			5.2			5.3	
Approach LOS		, <u>2</u> A			A			0.2 A			A	
					Л						Л	
Timer - Assigned Phs		2		4 10.4		6 12.1		8				
Phs Duration (G+Y+Rc), s		12.1		4.5		4.5		10.4 4.5				
Change Period (Y+Rc), s Max Green Setting (Gmax), s		4.5		4.5 27.5		4.5 23.5						
<b>.</b>		23.5 2.7		27.5 4.1		23.5 2.8		27.5 3.7				
Max Q Clear Time (g_c+l1), s Green Ext Time (p_c), s		0.4		4.1		2.0 0.4		3.7 1.0				
		0.4		1.2		0.4		1.0				
Intersection Summary												
HCM 6th Ctrl Delay			6.5									
HCM 6th LOS			А									

Intersection						
Int Delay, s/veh	1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	朴			-۠		۲
Traffic Vol, veh/h	234	42	17	229	0	44
Future Vol, veh/h	234	42	17	229	Ő	44
Conflicting Peds, #/hr	0	0	0	0	õ	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None		None	- 0100	None
Storage Length	-		-		-	0
Veh in Median Storage,	- # 0	-	-	0	-0	-
Grade, %	# 0 0	-	-	0	0	
			-			-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	254	46	18	249	0	48
Major/Minor M	lajor1	P	Major2	4	Minor1	
Conflicting Flow All	0	0	300	0	-	150
Stage 1	-	ž.	-	-	-	. • •
Stage 2	-	-	-	-	-	-
Critical Hdwy	_	_	4.14	_	-	6.94
Critical Hdwy Stg 1	-	-	7.17	-	-	0.34
	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	- 2.22	-	-	-
Follow-up Hdwy	-	-		-	-	3.32
Pot Cap-1 Maneuver	-	-	1258	-	0	870
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1258	-	-	870
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.6		9.4	
HCM LOS	U		0.0			
					А	
	-					
Minor Lane/Major Mvmt		NBLn1	EBT	EBR		WBT
Capacity (veh/h)		870	-	-	1258	-
HCM Lane V/C Ratio		0.055	-	-	0.015	-
HCM Control Delay (s)		9.4	-	-	7.9	0.1
HCM Lane LOS		Α	-	-	Α	А
HCM 95th %tile Q(veh)		0.2	-	-	0	-
HCM 95th %tile Q(veh)		0.2	-	-	0	-

## HCM Signalized Intersection Capacity Analysis 1: OR-99E & SE Harrison Street

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		र्स	7	٦	\$		٦	<del>↑</del> î→		٦	<u></u> †₽	
Traffic Volume (vph)	22	70	176	80	55	24	323	1452	98	93	593	11
Future Volume (vph)	22	70	176	80	55	24	323	1452	98	93	593	11
ldeal 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	
Lane Util. Factor		1.00	1.00	0.95	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		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	
Frt		1.00	0.85	1.00	0.96		1.00	0.99		1.00	1.00	
Flt Protected		0.99	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1806	1539	1618	1626		1770	3498		1736	3461	
Flt Permitted		0.99	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1806	1539	1618	1626		1770	3498		1736	3461	
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)	23	74	185	84	58	25	340	1528	103	98	624	12
RTOR Reduction (vph)	0	0	124	0	12	0	0	4	0	0	1	0
Lane Group Flow (vph)	0	97	61	76	79	0	340	1627	0	98	635	0
Confl. Peds. (#/hr)			8	8					5	5		
Confl. Bikes (#/hr)			2									
Heavy Vehicles (%)	4%	4%	4%	6%	6%	6%	2%	2%	2%	4%	4%	4%
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	
Protected Phases	4	4	5	. 8	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)		11.8	39.6	11.2	11.2		27.8	66.9		12.1	51.2	
Effective Green, g (s)		11.8	39.6	11.2	11.2		27.8	66.9		12.1	51.2	
Actuated g/C Ratio		0.10	0.33	0.09	0.09		0.23	0.56		0.10	0.43	
Clearance Time (s)		4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		177	507	151	151		410	1950		175	1476	
v/s Ratio Prot		c0.05	0.03	0.05	c0.05		c0.19	c0.47		0.06	0.18	
v/s Ratio Perm			0.01									
v/c Ratio		0.55	0.12	0.50	0.52		0.83	0.83		0.56	0.43	
Uniform Delay, d1		51.6	28.0	51.8	51.9		43.8	22.0		51.4	24.2	
Progression Factor		1.00	1.00	1.00	1.00		1.11	0.91		1.00	1.00	
Incremental Delay, d2		3.4	0.1	2.6	3.3		10.3	3.4		4.1	0.2	
Delay (s)		55.0	28.2	54.4	55.1		59.1	23.5		55.5	24.4	
Level of Service		Е	С	D	Е		Е	С		Е	С	
Approach Delay (s)		37.4			54.8			29.6			28.5	
Approach LOS		D			D			С			С	
Intersection Summary												
HCM 2000 Control Delay			31.4	Н	CM 2000	Level of :	Service		С			
HCM 2000 Volume to Capacit	v ratio		0.79	.,					Ť			
Actuated Cycle Length (s)	,		120.0	S	um of losi	t time (s)			18.0			
Intersection Capacity Utilizatio	n		72.1%		U Level of		)		C			
Analysis Period (min)	. *		15						Ť			
c Critical Lane Group												

	¥		Ť	/	\$	Ļ	
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	۲	7	<b>≜</b> î≽			<b>††</b>	
Traffic Volume (vph)	63	19	1850	58	0	843	
Future Volume (vph)	63	19	1850	58	0	843	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.5	4.5			4.5	
Lane Util. Factor	1.00	1.00	0.95			0.95	
Frpb, ped/bikes	1.00	0.98	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	0.95	1.00	1.00			1.00	
Satd. Flow (prot)	1656	1455	3520			3471	
Flt Permitted	0.95	1.00	1.00			1.00	
Satd. Flow (perm)	1656	1455	3520			3471	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	0.90 66	20	1927	60	0.30	878	
RTOR Reduction (vph)	0	19	1327	0	0	0/0	
Lane Group Flow (vph)	66	1	, 1986	Ő	0	878	
Confl. Peds. (#/hr)	2	3	1300	3	3	070	
Heavy Vehicles (%)	9%	9%	2%	2%	4%	4%	
Turn Type	Prot	Perm	NA	270	470	NA	
Protected Phases	8	i cim	2			6	
Permitted Phases	v	8	-			v	
Actuated Green, G (s)	8.9	8.9	102.1			102.1	
Effective Green, g (s)	8.9	8.9	102.1			102.1	
Actuated g/C Ratio	0.07	0.07	0.85			0.85	
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)	122	107	2994			2953	
v/s Ratio Prot	c0.04	107	c0.56			0.25	
v/s Ratio Perm	00.04	0.00	00.00			0.20	
v/c Ratio	0.54	0.00	0.66			0.30	
Uniform Delay, d1	53.6	51.5	3.1			1.8	
Progression Factor	1.00	1.00	0.57			0.59	
Incremental Delay, d2	4.8	0.1	0.57			0.59	
Delay (s)	4.0 58.4	51.5	2,4			0.2 1.3	
Level of Service	56.4 E	51.5 D	2.4 A			1.3 A	
Approach Delay (s)	⊑ 56.8	U	А 2.4			А 1.3	
Approach LOS	56.8 E		2.4 A			1.3 A	
	L		~			~	
Intersection Summary							
HCM 2000 Control Delay			3.7	H	CM 2000	Level of Ser	rvice A
HCM 2000 Volume to Capa	city ratio		0.65				
Actuated Cycle Length (s)			120.0		um of lost		9.0
Intersection Capacity Utiliza	tion		65.7%	IC	U Level o	of Service	C
Analysis Period (min)			15				
c Critical Lane Group							

# HCM 6th Signalized Intersection Summary 2: OR-99E & SE Monroe Street

	•	×.	Ť	1	\$	¥	
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	٦	7	<b>†</b> î»			<b>††</b>	
Traffic Volume (veh/h)	63	19	1850	58	0	843	
Future Volume (veh/h)	63	19	1850	58	0	843	
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	1767	1767	1870	1870	0	1841	
Adj Flow Rate, veh/h	66	20	1927	60	0	878	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %	9	9	2	2	0	4	
Cap, veh/h	90	80	3067	95	0	3049	
Arrive On Green	0.05	0.05	1.00	1.00	0.00	0.87	
Sat Flow, veh/h	1682	1497	3612	109	0	3681	
Grp Volume(v), veh/h	66	20	968	1019	0	878	
Grp Sat Flow(s),veh/h/ln	1682	1497	1777	1851	0	1749	
Q Serve(g_s), s	4.6	1.5	0.0	0.0	0.0	5.2	
Cycle Q Clear(g_c), s	4.6	1.5	0.0	0.0	0.0	5.2	
Prop In Lane	1.00	1.00		0.06	0.00		
Lane Grp Cap(c), veh/h	90	80	1549	1613	0	3049	
V/C Ratio(X)	0.74	0.25	0.62	0.63	0.00	0.29	
Avail Cap(c_a), veh/h	262	233	1549	1613	0	3049	
HCM Platoon Ratio	1.00	1.00	1.33	1.33	1.00	1.00	
Upstream Filter(I)	1.00	1.00	0.48	0.48	0.00	0.92	
Uniform Delay (d), s/veh	56.0	54.5	0.0	0.0	0.0	1.3	
Incr Delay (d2), s/veh	11.1	1.6	0.9	0.9	0.0	0.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/In	2.3	0.6	0.4	0.4	0.0	0.9	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	67.0	56.1	0.9	0.9	0.0	1.5	
LnGrp LOS	E	E	A	A	A	A	
Approach Vol, veh/h	86		1987			878	
Approach Delay, s/veh	64.5		0.9			1.5	
Approach LOS	E		A			A	
Timer - Assigned Phs		2				6	8
Phs Duration (G+Y+Rc), s		109.1				109.1	10.9
Change Period (Y+Rc), s		4.5				4.5	4.5
Max Green Setting (Gmax), s		92.3				92.3	18.7
Max Q Clear Time (g_c+I1), s		2.0				7.2	6.6
Green Ext Time (p_c), s		37.3				8.0	0.1
Intersection Summary							
HCM 6th Ctrl Delay			3.0				
HCM 6th LOS			Â				

# HCM Signalized Intersection Capacity Analysis 3: OR-99E & SE Washington Street

	٨	-	$\mathbf{i}$	4	+	•	•	Ť	1	<b>\</b>	Ļ	~
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		र्स		٦		7		<u></u> ↑₽		٦	<u>†</u> †	
Traffic Volume (vph)	2	2	0	103	0	92	0	1823	146	103	788	0
Future Volume (vph)	2	2	0	103	0	92	0	1823	146	103	788	0
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	
Lane Util. Factor		1.00		1.00		1.00		0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00		0.98		1.00		1.00	1.00	
Flpb, ped/bikes		1.00		0.98		1.00		1.00		1.00	1.00	
Frt		1.00		1.00		0.85		0.99		1.00	1.00	
Flt Protected		0.98		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1056		1653		1482		3496		1719	3438	
Flt Permitted		0.98		0.76		1.00		1.00		0.04	1.00	
Satd. Flow (perm)		1056		1314		1482		3496		81	3438	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	2	2	0	107	0	96	0	1899	152	107	821	0
RTOR Reduction (vph)	0	0	0	0	0	84	0	4	0	0	0	0
Lane Group Flow (vph)	0	4	0	107	0	12	0	2047	0	107	821	0
Confl. Peds. (#/hr)	3		10	10		3	22		2	2		22
Confl. Bikes (#/hr)									2			1
Heavy Vehicles (%)	75%	75%	75%	7%	7%	7%	2%	2%	2%	5%	5%	5%
Turn Type	Perm	NA		Perm		Perm		NA		pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4			8		8		-		6	Ū	
Actuated Green, G (s)		14.4		14.4		14.4		84.4		96.6	96.6	
Effective Green, g (s)		14.4		14.4		14.4		84.4		96.6	96.6	
Actuated g/C Ratio		0.12		0.12		0.12		0.70		0.80	0.80	
Clearance Time (s)		4.5		4.5		4.5		4.5		4.5	4.5	
Vehicle Extension (s)		3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		126		157		177		2458		170	2767	
v/s Ratio Prot		120		101		• • •		c0.59		c0.04	0.24	
v/s Ratio Perm		0.00		c0.08		0.01		00.00		0.46	0.21	
v/c Ratio		0.03		0.68		0.07		0.83		0.63	0.30	
Uniform Delay, d1		46.6		50.6		46.8		12.7		29.9	3.0	
Progression Factor		1.00		1.00		1.00		1.00		1.38	0.58	
Incremental Delay, d2		0.1		11.5		0.2		3.5		6.9	0.3	
Delay (s)		46.7		62.1		47.0		16.2		48.3	2.0	
Level of Service		D		E		D		B		10.0 D	2.0 A	
Approach Delay (s)		46.7		L	55.0	D		16.2		Ľ	7.3	
Approach LOS		D			D			B			A	
		D			Ľ			D				
Intersection Summary							<u> </u>					
HCM 2000 Control Delay			16.1	H	CM 2000	Level of \$	Service		В			
HCM 2000 Volume to Capac	city ratio		0.80	-					· • -			
Actuated Cycle Length (s)			120.0		um of losi	• • •			13.5			
Intersection Capacity Utilizat	tion		82.0%	IC	U Level (	of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

I	ntei	rsection
L		30001011

Intersection Delay, s/veh10.3 В

Intersection LOS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		ų	r.		4			\$			4		
Traffic Vol, veh/h	68	180	34	13	160	25	23	25	10	8	12	23	
Future Vol, veh/h	68	180	34	13	160	25	23	25	10	8	12	23	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	
Heavy Vehicles, %	9	9	9	6	6	6	6	6	6	6	6	6	
Mvmt Flow	77	205	39	15	182	28	26	28	11	9	14	26	
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0	
Approach	EB			WB			NB			SB			
Opposing Approach	WB			EB			SB			NB			
Opposing Lanes	1			2			1			1			
Conflicting Approach L	eft SB			NB			EB			WB			
Conflicting Lanes Left	1			1			2			1			
Conflicting Approach R	lighNB			SB			WB			EB			
Conflicting Lanes Righ	t 1			1			1			2			
HCM Control Delay	11.2			9.7			9			8.6			
HCM LOS	В			А			А			А			

Lane	NBLn1	EBLn1	EBLn2\	VBLn1	SBLn1
Vol Left, %	40%	27%	0%	7%	19%
Vol Thru, %	43%	73%	0%	81%	28%
Vol Right, %	17%	0%	100%	13%	53%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	58	248	34	198	43
LT Vol	23	68	0	13	8
Through Vol	25	180	0	160	12
RT Vol	10	0	34	25	23
Lane Flow Rate	66	282	39	225	49
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.098	0.413	0.048	0.295	0.07
Departure Headway (Hd)	5.351	5.272	4.43	4.72	5.123
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Сар	666	682	806	758	695
Service Time	3.41	3.014	2.172	2.765	3.183
HCM Lane V/C Ratio	0.099	0.413	0.048	0.297	0.071
HCM Control Delay	9	11.7	7.4	9.7	8.6
HCM Lane LOS	А	В	А	А	А
HCM 95th-tile Q	0.3	2	0.2	1.2	0.2

## HCM Signalized Intersection Capacity Analysis 5: SE 21st Avenue & SE Washington Street

	٨	-	$\mathbf{F}$	¥	←	•	•	Ť	1	<b>\</b>	Ļ	-
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			\$			\$	
Traffic Volume (vph)	15	152	49	10	118	19	43	46	22	9	17	15
Future Volume (vph)	15	152	49	10	118	19	43	46	22	9	17	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1 <del>9</del> 00
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			0.99			0.99			0.98	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.97			0.98			0.97			0.95	
Flt Protected		1.00			1.00			0.98			0.99	
Satd. Flow (prot)		1687			1795			1708			1452	
Flt Permitted		0.97			0.97			0.86			0.91	
Satd. Flow (perm)		1640			1738			1491			1339	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	18	181	58	12	140	23	51	55	26	11	20	18
RTOR Reduction (vph)	0	20	0	0	10	0	0	18	0	0	13	0
Lane Group Flow (vph)	0	237	0	0	165	0	0	114	0	0	36	0
Confl. Peds. (#/hr)	35		8	8		35	51		30	30		51
Confl. Bikes (#/hr)			2									
Heavy Vehicles (%)	8%	8%	8%	3%	3%	3%	4%	4%	4%	20%	20%	20%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4	·		8	Ū		2	-		6	Ū	
Actuated Green, G (s)		8.9			8.9			7.4		-	7.4	
Effective Green, g (s)		8.9			8.9			7.4			7.4	
Actuated g/C Ratio		0.35			0.35			0.29			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)		576			611			436			391	
v/s Ratio Prot		c0.14			0.09			c0.08			0.02	
v/s Ratio Perm v/c Ratio											0.03	
		0.4 <b>1</b> 6.2			0.27 5.9			0.26			0.09 6.5	
Uniform Delay, d1								6.9				
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.5			0.2			0.3			0.1	
Delay (s) Level of Service		6.7			6.1			7.2			6.6	
		A			A			A			A	
Approach Delay (s) Approach LOS		6.7 A			6.1 A			7.2 A			6.6 A	
Intersection Summary												
HCM 2000 Control Delay			6.6	Н	CM 2000	Level of	Service		А			
HCM 2000 Volume to Capa	city ratio		0.34									
Actuated Cycle Length (s)	·		25.3	S	um of losi	time (s)			9.0			
Intersection Capacity Utiliza	ation		36.6%		U Level (	• • •	9		А			
Analysis Period (min) c Critical Lane Group			15									

## HCM 6th Signalized Intersection Summary 5: SE 21st Avenue & SE Washington Street

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			\$			\$	
Traffic Volume (veh/h)	15	152	49	10	118	19	43	46	22	9	17	15
Future Volume (veh/h)	15	152	49	10	118	19	43	46	22	9	17	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.93	0.97		0.95	0.93		0.92	0.94		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	1781	1781	1781	1856	1856	1856	1841	184 <b>1</b>	1841	1604	1604	1604
Adj Flow Rate, veh/h	18	18 <b>1</b>	58	12	140	23	51	55	26	11	20	18
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	8	8	8	3	3	3	4	4	4	20	20	20
Cap, veh/h	155	423	128	153	512	80	312	287	103	206	245	170
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	49	1230	373	45	1490	232	399	860	309	143	735	510
Grp Volume(v), veh/h	257	0	0	175	0	0	132	0	0	49	0	0
Grp Sat Flow(s),veh/h/ln	1652	0	0	1768	0	0	1568	0	0	1388	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.3	0.0	0.0	2.0	0.0	0.0	1.5	0.0	0.0	0.6	0.0	0.0
Prop In Lane	0.07		0.23	0.07		0.13	0.39		0.20	0.22		0.37
Lane Grp Cap(c), veh/h	706	0	0	745	0	0	702	0	0	621	0	0
V/C Ratio(X)	0.36	0.00	0.00	0.23	0.00	0.00	0.19	0.00	0.00	0.08	0.00	0.00
Avail Cap(c_a), veh/h	1685	0	0	1787	0	0	1513	0	0	1338	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)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.1	0.0	0.0	6.7	0.0	0.0	6.7	0.0	0.0	6.4	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.2	0.0	0.0	0.1	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	0.8	0.0	0.0	0.5	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh	l –											
LnGrp Delay(d),s/veh	7.4	0.0	0.0	6.8	0.0	0.0	6.8	0.0	0.0	6.5	0.0	0.0
LnGrp LOS	Α	Α	А	Α	Α	Α	Α	А	Α	Α	А	A
Approach Vol, veh/h		257			175			132			49	
Approach Delay, s/veh		7.4			6.8			6.8			6.5	
Approach LOS		А			А			А			А	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		13.8		<b>1</b> 4.1		13.8		14.1				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		24.5		26.5		24.5		26.5				
Max Q Clear Time (g_c+I1), s		3.5		5.3		2.6		4.0				
Green Ext Time (p_c), s		0.7		1.6		0.2		1.0				
Intersection Summary												
HCM 6th Ctrl Delay			7.0									
HCM 6th LOS			А									

Intersection						
Int Delay, s/veh	0.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	朴			<b>†</b> †		7
Traffic Vol, veh/h	233	20	0	206	0	49
Future Vol, veh/h	233	20	0	206	0	49
Conflicting Peds, #/hr	0	0	0	0	0	0
	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	# 0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	253	22	0	224	Ō	53
	200	22	v	224	v	00
	ajor <b>1</b>		Major2	1	Minor1	
Conflicting Flow All	0	0	-	-	-	138
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	885
Stage 1	-	-	0	-	0	-
Stage 2	_	-	Ō	-	Ō	-
Platoon blocked, %	-	-	Ŷ	-	v	
Mov Cap-1 Maneuver	-	_		_	-	885
Mov Cap-2 Maneuver		_	_		_	000
•	-	-	-	-	-	-
Stage 1	-	-	•	-	•	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		9.3	
HCM LOS					А	
Minor Long/Major Mumt	ĸ		Срт	EDD		
Minor Lane/Major Mvmt	r	NBLn1	EBT	EDK	WBT	
Capacity (veh/h)		885	-	-	-	
HCM Lane V/C Ratio		0.06	-	-	-	
HCM Control Delay (s)		9.3	-	-	-	
HCM Lane LOS		A	-	-	-	
HCM 95th %tile Q(veh)		0.2	-	-	-	

## HCM Signalized Intersection Capacity Analysis 1: OR-99E & SE Harrison Street

EBT <b>4</b> 5 53 5 53 0 1900 4.5 1.00 1.00	EBR 396 396 1900 4.5 1.00	WBL 154 154 1900	WBT ♣ 29 29	WBR 28	NBL	NBT <b>∱₽</b>	NBR	SBL	SBT	SBR
5 53 5 53 0 1900 4.5 1.00 1.00	396 396 1900 4.5	154 154 1900	29	28		<b>≜</b> 1≽				
5 53 5 53 0 1900 4.5 1.00 1.00	396 396 1900 4.5	154 1900	29	28				ሻ	<u></u> ↑₽	
) 1900 4.5 1.00 1.00	1900 4.5	1900	29	20	257	782	107	87	1663	14
4.5 1.00 1.00	4.5			28	257	782	107	87	1663	14
1.00 1.00			1900	1900	1900	1900	1900	1900	1900	1900
1.00 1.00		4.5	4.5		4.5	4.5		4.5	4.5	
1.00	1.00	0.95	0.95		1.00	0.95		1.00	0.95	
	0.99	1.00	1.00		1.00	1.00		1.00	1.00	
1.00										
				<u> </u>			0.93			0.93
										15
										0
										ŏ
, 04			100	U	210	040			1002	U
		15					J	5		
10/		20%	2%	2%	1%	10/	10/	1%	1%	1%
				2 /0			170			1 70
+ 4		0	0		5	2		1	0	
0.4		12 5	12.5		27.0	676		11 5	50 <b>1</b>	
0.05		CU.07	0.06		0.15	0.27		0.05	CU.50	
0.50		0.04	<u> </u>		0.00	<b>.</b>		0 FF		
	D	E			D			E		
D			D			С			F	
	72.0	H	CM 2000	Level of S	Service		E			
	0.96									
	120.0	Si	um of losi	t time (s)			18.0			
	89.6%						Е			
	15									
	1.00 1.00 0.98 1851 0.98 1851 3 0.93 7 57 0 0 0 84 <u>% 1%</u> it NA 4 4 9.4 9.4 9.4 9.4 9.4 9.4 9.4 0.08 4.5 3.0 144 0.05 0.58 53.4 1.00 5.93 E 48.7 D	1.00         0.85           0.98         1.00           1851         1581           0.98         1.00           1851         1581           0.98         1.00           1851         1581           3         0.93           7         57           426         0           0         84           377         15           3         3           6         1%           1%         1%           1%         1%           1%         1%           1%         1%           1%         1%           1%         1%           1%         1%           1%         1%           1%         1%           1%         1%           1%         1%           1%         1%           1%         1%           1%         1%           1%         1%           1%         1%           1%         1%           1%         1%           1%         1%           1%         1%	1.00         0.85         1.00           0.98         1.00         0.95           1851         1581         1681           0.98         1.00         0.95           1851         1581         1681           3         0.93         0.93           7         57         426         166           0         0         49         0           0         84         377         115           15         15         3           %         1%         1%         2%           it         NA         pm+ov         Split           4         4         5         8           9.4         36.4         13.5           9.4         36.4         13.5           9.4         36.4         13.5           9.4         36.4         13.5           0.08         0.30         0.11           4.5         4.5         4.5           3.0         3.0         3.0           144         479         189           0.05         c0.18         c0.07           0.06         0.59         8.4         5.5 <t< td=""><td>1.00         0.85         1.00         0.96           0.98         1.00         0.95         0.98           1851         1581         1681         1661           0.98         1.00         0.95         0.98           1851         1581         1681         1661           3         0.93         0.93         0.93         0.93           7         57         426         166         31           0         0         49         0         12           0         84         377         115         100           15         15         3        </td><td>$\begin{array}{c ccccccccccccccccccccccccccccccccccc$</td><td>1.00         0.85         1.00         0.96         1.00           0.98         1.00         0.95         0.98         0.95           1851         1581         1681         1661         1787           0.98         1.00         0.95         0.98         0.95           1851         1581         1681         1661         1787           3         0.93         0.93         0.93         0.93         0.93           7         57         426         166         31         30         276           0         0         49         0         12         0         0           0         84         377         115         100         0         276           15         15         3         3         3         3         3         3         3         3         3           6         1%         1%         2%         2%         2%         1%         1           15         15         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3<!--</td--><td>1.00       0.85       1.00       0.96       1.00       0.98         0.98       1.00       0.95       0.98       0.95       1.00         1851       1581       1681       1661       1787       3494         0.98       1.00       0.95       0.98       0.95       1.00         1851       1581       1681       1661       1787       3494         3       0.93       0.93       0.93       0.93       0.93       0.93         7       57       426       166       31       30       276       841         0       0       49       0       12       0       0       7         0       84       377       115       100       0       276       949         15       15      </td><td>1.00       0.85       1.00       0.96       1.00       0.98         0.98       1.00       0.95       0.98       0.95       1.00         1851       1581       1681       1661       1787       3494         0.98       1.00       0.95       0.98       0.95       1.00         1851       1581       1681       1661       1787       3494         3       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.9</td><td>1.00         0.85         1.00         0.96         1.00         0.98         1.00           0.98         1.00         0.95         0.98         0.95         1.00         0.95           1851         1581         1681         1661         1787         3494         1787           0.98         1.00         0.95         0.98         0.95         1.00         0.95           1851         1581         1681         1661         1787         3494         1787           3         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93</td><td>1.00       0.85       1.00       0.96       1.00       0.98       1.00       1.00         0.98       1.00       0.95       0.98       0.95       1.00       0.95       1.00         0.98       1.00       0.95       0.98       0.95       1.00       0.95       1.00         0.98       1.00       0.95       0.98       0.95       1.00       0.95       1.00         1851       1581       1661       1787       3494       1787       3570         3       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.9</td></td></t<>	1.00         0.85         1.00         0.96           0.98         1.00         0.95         0.98           1851         1581         1681         1661           0.98         1.00         0.95         0.98           1851         1581         1681         1661           3         0.93         0.93         0.93         0.93           7         57         426         166         31           0         0         49         0         12           0         84         377         115         100           15         15         3	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	1.00         0.85         1.00         0.96         1.00           0.98         1.00         0.95         0.98         0.95           1851         1581         1681         1661         1787           0.98         1.00         0.95         0.98         0.95           1851         1581         1681         1661         1787           3         0.93         0.93         0.93         0.93         0.93           7         57         426         166         31         30         276           0         0         49         0         12         0         0           0         84         377         115         100         0         276           15         15         3         3         3         3         3         3         3         3         3           6         1%         1%         2%         2%         2%         1%         1           15         15         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3 </td <td>1.00       0.85       1.00       0.96       1.00       0.98         0.98       1.00       0.95       0.98       0.95       1.00         1851       1581       1681       1661       1787       3494         0.98       1.00       0.95       0.98       0.95       1.00         1851       1581       1681       1661       1787       3494         3       0.93       0.93       0.93       0.93       0.93       0.93         7       57       426       166       31       30       276       841         0       0       49       0       12       0       0       7         0       84       377       115       100       0       276       949         15       15      </td> <td>1.00       0.85       1.00       0.96       1.00       0.98         0.98       1.00       0.95       0.98       0.95       1.00         1851       1581       1681       1661       1787       3494         0.98       1.00       0.95       0.98       0.95       1.00         1851       1581       1681       1661       1787       3494         3       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.9</td> <td>1.00         0.85         1.00         0.96         1.00         0.98         1.00           0.98         1.00         0.95         0.98         0.95         1.00         0.95           1851         1581         1681         1661         1787         3494         1787           0.98         1.00         0.95         0.98         0.95         1.00         0.95           1851         1581         1681         1661         1787         3494         1787           3         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93</td> <td>1.00       0.85       1.00       0.96       1.00       0.98       1.00       1.00         0.98       1.00       0.95       0.98       0.95       1.00       0.95       1.00         0.98       1.00       0.95       0.98       0.95       1.00       0.95       1.00         0.98       1.00       0.95       0.98       0.95       1.00       0.95       1.00         1851       1581       1661       1787       3494       1787       3570         3       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.9</td>	1.00       0.85       1.00       0.96       1.00       0.98         0.98       1.00       0.95       0.98       0.95       1.00         1851       1581       1681       1661       1787       3494         0.98       1.00       0.95       0.98       0.95       1.00         1851       1581       1681       1661       1787       3494         3       0.93       0.93       0.93       0.93       0.93       0.93         7       57       426       166       31       30       276       841         0       0       49       0       12       0       0       7         0       84       377       115       100       0       276       949         15       15	1.00       0.85       1.00       0.96       1.00       0.98         0.98       1.00       0.95       0.98       0.95       1.00         1851       1581       1681       1661       1787       3494         0.98       1.00       0.95       0.98       0.95       1.00         1851       1581       1681       1661       1787       3494         3       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.9	1.00         0.85         1.00         0.96         1.00         0.98         1.00           0.98         1.00         0.95         0.98         0.95         1.00         0.95           1851         1581         1681         1661         1787         3494         1787           0.98         1.00         0.95         0.98         0.95         1.00         0.95           1851         1581         1681         1661         1787         3494         1787           3         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93	1.00       0.85       1.00       0.96       1.00       0.98       1.00       1.00         0.98       1.00       0.95       0.98       0.95       1.00       0.95       1.00         0.98       1.00       0.95       0.98       0.95       1.00       0.95       1.00         0.98       1.00       0.95       0.98       0.95       1.00       0.95       1.00         1851       1581       1661       1787       3494       1787       3570         3       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.93       0.9

	4	×.	Ť	1	\$	Ļ	
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	ኘ	۲	<b>†</b> ĵ,			<b>††</b>	
Traffic Volume (vph)	86	29	1018	52	0	2258	
Future Volume (vph)	86	29	1018	52	0	2258	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.5	4.5			4.5	
Lane Util. Factor	1.00	1.00	0.95			0.95	
Frpb, ped/bikes	1.00	0.98	1.00			1.00	
Flpb, ped/bikes	1.00	1.00	1.00			1.00	
Frt	1.00	0.85	0.99			1.00	
Flt Protected	0.95	1.00	1.00			1.00	
Satd. Flow (prot)	1736	1516	3508			3574	
Flt Permitted	0.95	1.00	1.00			1.00	
Satd. Flow (perm)	1736	1516	3508			3574	
	0.95	0.95	0.95	0.95	0.95	0.95	
Peak-hour factor, PHF			0.95 1072			0.95 2377	
Adj. Flow (vph)	91	31		55	0		
RTOR Reduction (vph)	0	28	2 1405	0	0	0	
Lane Group Flow (vph)	91	3	1125	0	0	2377	
Confl. Peds. (#/hr)	2	5		4	4		
Confl. Bikes (#/hr)	407	1	00/	1	407	407	
Heavy Vehicles (%)	4%	4%	2%	2%	1%	1%	
Turn Type	Prot	Perm	NA			NA	
Protected Phases	8		2			6	
Permitted Phases		8					
Actuated Green, G (s)	11.6	11.6	99.4			99.4	
Effective Green, g (s)	11.6	1 <b>1</b> .6	99.4			99.4	
Actuated g/C Ratio	0.10	0.10	0.83			0.83	
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)	167	146	2905			2960	
v/s Ratio Prot	c0.05		0.32			c0.67	
v/s Ratio Perm		0.00					
v/c Ratio	0.54	0.02	0.39			0.80	
Uniform Delay, d1	51.7	49.1	2.6			5.3	
Progression Factor	1.00	1.00	0.17			0.96	
Incremental Delay, d2	3.6	0.1	0.3			0.2	
Delay (s)	55.3	49.1	0.8			5.3	
Level of Service	55.5 E	-5.1 D	A O.O			0.0 A	
Approach Delay (s)	53.7	D	0.8			5.3	
Approach LOS	00.7 D		0.0 A			0.5 A	
	2						
Intersection Summary					011 0000	1	
HCM 2000 Control Delay			5.5	H	JM 2000	Level of Se	ervice A
HCM 2000 Volume to Capac	ity ratio		0.78	-		0	
Actuated Cycle Length (s)			120.0		um of lost		9.0
Intersection Capacity Utilizati	on		76.3%	IC	U Level o	of Service	D
Analysis Period (min)			15				
c Critical Lane Group							

# HCM 6th Signalized Intersection Summary 2: OR-99E & SE Monroe Street

	∢	×.	Ť	1	1	Ļ	
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	٦	7	<b>†</b> ĵ <del>,</del>			<b>††</b>	
Traffic Volume (veh/h)	86	29	1018	52	0	2258	
Future Volume (veh/h)	86	29	1018	52	0	2258	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	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	1841	1841	1870	1870	0	1885	
Adj Flow Rate, veh/h	91	31	1072	55	0	2377	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	4	4	2	2	0	1	
Cap, veh/h	120	106	2943	151	Õ	3069	
Arrive On Green	0.07	0.07	0.86	0.86	0.00	0.86	
Sat Flow, veh/h	1753	1560	3528	176	0.00	3770	
Grp Volume(v), veh/h	91	31	554	573	0	2377	
Grp Sat Flow(s), veh/h/ln	1753	1560	1777	1834	0	1791	
Q Serve(g_s), s	6.1	2.3	7.8	7.8	0.0	33.9	
Cycle Q Clear(g_c), s	6.1	2.3 2.3	7.8	7.8	0.0	33.9 33.9	
Prop In Lane	1.00	2.3 1.00	1.0	0.10	0.0	33.9	
•			1500			2060	
Lane Grp Cap(c), veh/h	120	106	1522	1571	0	3069	
V/C Ratio(X)	0.76	0.29	0.36	0.36	0.00	0.77	
Avail Cap(c_a), veh/h	263	234	1522	1571	0	3069	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	0.85	0.85	0.00	0.09	
Uniform Delay (d), s/veh	55.0	53.2	1.8	1.8	0.0	3.7	
Incr Delay (d2), s/veh	9.5	1.5	0.6	0.6	0.0	0.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	3.0	0.9	1.8	1.8	0.0	6.7	
Unsig. Movement Delay, s/veh			~ .	~ ~	• •	~ ~	
LnGrp Delay(d),s/veh	64.5	54.7	2.4	2.3	0.0	3.8	
LnGrp LOS	E	D	A	A	A	A	
Approach Vol, veh/h	122		1127			2377	
Approach Delay, s/veh	62.0		2.4			3.8	
Approach LOS	Е		А			А	
Timer - Assigned Phs		2				6	8
Phs Duration (G+Y+Rc), s		107.3				107.3	12.7
Change Period (Y+Rc), s		4.5				4.5	4.5
Max Green Setting (Gmax), s		93.0				93.0	18.0
Max Q Clear Time (g_c+I1), s		9.8				35.9	8.1
Green Ext Time (p_c), s		10.3				41.6	0.2
Intersection Summary							
HCM 6th Ctrl Delay			5.3				
HCM 6th LOS			А				

# HCM Signalized Intersection Capacity Analysis 3: OR-99E & SE Washington Street

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		र्स		٦		7		<u></u> ↑₽		٦	<u>_</u>	
Traffic Volume (vph)	1	1	0	148	0	64	0	1012	137	142	2183	0
Future Volume (vph)	1	1	0	148	0	64	0	1012	137	142	2183	0
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	
Lane Util. Factor		1.00		1.00		1.00		0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00		0.98		1.00		1.00	1.00	
Flpb, ped/bikes		1.00		0.98		1.00		1.00		1.00	1.00	
Frt		1.00		1.00		0.85		0.98		1.00	1.00	
Flt Protected		0.98		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1850		1704		1528		3436		1787	3574	
Flt Permitted		0.98		0.76		1.00		1.00		0.17	1.00	
Satd. Flow (perm)		1850		1357		1528		3436		328	3574	
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)	1	1	0	156	0	67	0	1065	<b>1</b> 44	149	2298	0
RTOR Reduction (vph)	0	0	0	0	0	57	0	8	0	0	0	0
Lane Group Flow (vph)	0	2	0	156	0	10	0	1201	0	149	2298	0
Confl. Peds. (#/hr)	2		9	9		2	16		1	1		16
Confl. Bikes (#/hr)									2			1
Heavy Vehicles (%)	0%	0%	0%	4%	4%	4%	3%	3%	3%	1%	1%	1%
Turn Type	Perm	NA		Perm		Perm		NA		pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4			8		8		-		6	-	
Actuated Green, G (s)		17.6		17.6		17.6		80.9		93.4	93.4	
Effective Green, g (s)		17.6		17.6		17.6		80.9		93.4	93.4	
Actuated g/C Ratio		0.15		0.15		0.15		0.67		0.78	0.78	
Clearance Time (s)		4.5		4.5		4,5		4.5		4.5	4.5	
Vehicle Extension (s)		3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		271		199		224		2316		352	2781	
v/s Ratio Prot		_, .		,		/		0.35		0.03	c0.64	
v/s Ratio Perm		0.00		c0.11		0.01		0.00		0.30		
v/c Ratio		0.01		0.78		0.04		0.52		0.42	0.83	
Uniform Delay, d1		43.7		49.4		44.0		9.8		6.1	8.3	
Progression Factor		1.00		1.00		1.00		1.00		1.33	0.89	
Incremental Delay, d2		0.0		18.0		0.1		0.8		0.5	1.8	
Delay (s)		43.7		67.4		44.1		10.6		8.6	9.1	
Level of Service		D		E		 D		В		A	A	
Approach Delay (s)		43.7		_	60.4	2		10.6			9.1	
Approach LOS		D			E			B			A	
Intersection Summary												
HCM 2000 Control Delay			12.5	H	CM 2000	Level of S	Service		В			
HCM 2000 Volume to Capaci	itv ratio		0.85						-			
Actuated Cycle Length (s)	•		120.0	Si	um of losi	time (s)			13.5			
Intersection Capacity Utilizati						of Service			D			
	on		81.9%	IL.	O Level u	JI SELVICE			0			
Analysis Period (min)	on		81.9% 15	IC.	O Level (	JI SEIVICE	,		U			

ntersection	
niersection	

Intersection Delay, s/veh10.2 В

Intersection LOS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		ų	۲		4			4			4		
Traffic Vol, veh/h	67	164	47	17	154	33	37	38	17	31	30	38	
Future Vol, veh/h	67	164	47	17	154	33	37	38	17	31	30	38	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Heavy Vehicles, %	5	5	5	5	5	5	2	2	2	3	3	3	
Mvmt Flow	72	176	51	18	166	35	40	41	18	33	32	41	
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0	
Approach	EB			WB			NB			SB			
Opposing Approach	WB			EB			SB			NB			
Opposing Lanes	1			2			1			1			
Conflicting Approach Le	eft SB			NB			EB			WB			
Conflicting Lanes Left	1			1			2			1			
Conflicting Approach R	ighNB			SB			WB			EB			
Conflicting Lanes Right	: 1			1			1			2			
HCM Control Delay	10.9			10.1			9.3			9.2			
HCM LOS	В			В			А			А			

Lane	NBLn1	EBLn1	EBLn2V	VBLn1	SBLn1
Vol Left, %	40%	29%	0%	8%	31%
Vol Thru, %	41%	71%	0%	75%	30%
Vol Right, %	18%	0%	100%	16%	38%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	92	231	47	204	99
LT Vol	37	67	0	17	31
Through Vol	38	164	0	154	30
RT Vol	17	0	47	33	38
Lane Flow Rate	99	248	51	219	106
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.146	0.377	0.065	0.299	0.153
Departure Headway (Hd)	5.32	5.465	4.613	4.914	5.19
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	668	653	770	726	684
Service Time	3.405	3.234	2.382	2.987	3.275
HCM Lane V/C Ratio	0.148	0.38	0.066	0.302	0.155
HCM Control Delay	9.3	11.5	7.7	10.1	9.2
HCM Lane LOS	А	В	Α	В	А
HCM 95th-tile Q	0.5	1.8	0.2	1.3	0.5

## HCM Signalized Intersection Capacity Analysis 5: SE 21st Avenue & SE Washington Street

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			\$			\$	
Traffic Volume (vph)	19	115	49	10	125	26	37	27	9	13	36	29
Future Volume (vph)	19	115	49	10	125	26	37	27	9	13	36	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1 <del>9</del> 00
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			1.00			1.00			0.98	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.96			0.98			0.98			0.95	
Flt Protected		0.99			1.00			0.98			0.99	
Satd. Flow (prot)		1691			1808			1778			1582	
Flt Permitted		0.95			0.97			0.80			0.93	
Satd. Flow (perm)		1614			1757			1462			1491	
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)	20	122	52	11	133	28	39	29	10	14	38	31
RTOR Reduction (vph)	0	28	0	0	15	0	0	7	0	0	22	0
Lane Group Flow (vph)	0	166	0	0	157	0	0	71	0	0	61	0
Confl. Peds. (#/hr)	7		5	5		7	35		21	21		35
Confl. Bikes (#/hr)			1			1						1
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	1%	1%	1%	11%	11%	11%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8	Ū		2	-		6	Ū	
Actuated Green, G (s)		7.6			7.6			6.6		-	6.6	
Effective Green, g (s)		7.6			7.6			6.6			6.6	
Actuated g/C Ratio		0.33			0.33			0.28			0.28	
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) v/s Ratio Prot		528			575			415			424	
v/s Ratio Perm		c0.10			0.09			c0.05			0.04	
v/c Ratio		0.32			0.09			0.17			0.04	
Uniform Delay, d1		5.8			5.8			6.2			6.2	
•												
Progression Factor		1.00 0.3			1.00 0.3			1.00 0.2			1.00 0.2	
Incremental Delay, d2		0.3 6.2			0.3 6.0			0.2 6.4			0.2 6.3	
Delay (s) Level of Service		0.2 A						0.4 A				
		6.2			A 6.0			6.4			A 6.3	
Approach Delay (s) Approach LOS		0.2 A			0.0 A			0.4 A			0.5 A	
Intersection Summary												
HCM 2000 Control Delay			6.2	Н	CM 2000	Level of	Service		A			
HCM 2000 Volume to Capa	city ratio		0.25		2100 2000	20,0,0,0						
Actuated Cycle Length (s)			23.2	S	um of losi	t time (s)			9.0			
Intersection Capacity Utiliza	tion		35.3%			of Service	)		A			
Analysis Period (min) c Critical Lane Group			15		5 20101		-		,,			

## HCM 6th Signalized Intersection Summary 5: SE 21st Avenue & SE Washington Street

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			<b>\$</b>			<del>\$</del>			\$	
Traffic Volume (veh/h)	19	115	49	10	125	26	37	27	9	13	36	29
Future Volume (veh/h)	19	115	49	10	125	26	37	27	9	13	36	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	0.99		0.97	0.96		0.95	0.95		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	1796	1796	1796	1870	1870	1870	1885	1885	1885	1737	1737	1737
Adj Flow Rate, veh/h	20	122	52	11	133	28	39	29	10	14	38	31
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	7	7	7	2	2	2	1	1	1	11	11	11
Cap, veh/h	200	292	116	185	374	76	430	273	68	224	289	194
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	91	1116	442	54	1432	289	563	808	201	108	854	573
Grp Volume(v), veh/h	194	0	0	172	0	0	78	0	0	83	0	0
Grp Sat Flow(s),veh/h/ln	1649	0	0	1776	0	0	1572	0	0	1535	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.1	0.0	0.0	1.7	0.0	0.0	0.7	0.0	0.0	0.8	0.0	0.0
Prop In Lane	0.10	0	0.27	0.06	0	0.16	0.50	0	0.13	0.17	0	0.37
Lane Grp Cap(c), veh/h	608	0	0 0.00	635	0	0	772	0	0	706	0	0
V/C Ratio(X)	0.32	0.00		0.27 2314	0.00	0.00	0.10 1825	0.00	0.00	0. <b>1</b> 2 1753	0.00	0.00
Avail Cap(c_a), veh/h HCM Platoon Ratio	2158 1.00	0 1.00	0 1.00	2314 1.00	0 1.00	0 1.00	1.00	0 1.00	0 1.00	1.00	0 1.00	0 1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.9	0.00	0.00	6.8	0.00	0.00	5.1	0.00	0.00	5.2	0.00	0.00
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh		0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
LnGrp Delay(d),s/veh	7.2	0.0	0.0	7.0	0.0	0.0	5.2	0.0	0.0	5.3	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		194			172			78			83	
Approach Delay, s/veh		7.2			7.0			5.2			5.3	
Approach LOS		A			A			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		12.1		10.4		12.1		10.4				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		23.5		27.5		23.5		27.5				
Max Q Clear Time (g_c+I1), s		2.7		4.1		2.8		3.7				
Green Ext Time (p_c), s		0.4		1.2		0.4		1.0				
Intersection Summary						011						
HCM 6th Ctrl Delay			6.5									
HCM 6th LOS			0.5 A									

Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	朴			<b>††</b>		*
Traffic Vol, veh/h	234	59	0	229	0	44
Future Vol, veh/h	234	59	0	229	0	44
Conflicting Peds, #/hr	0	0	Ō	0	Ō	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None		None
Storage Length	-	-		-	-	0
Veh in Median Storage,	# 0	-	-	0	0	-
Grade, %	0	_	_	0	0	_
Peak Hour Factor	92	92	92	92	92	92
	92 2	92 2	92 2	92 2	92 2	92 2
Heavy Vehicles, %						
Mvmt Flow	254	64	0	249	0	48
Major/Minor N	lajor1	P	Major2	٩	Minor1	
Conflicting Flow All	0	0	-	-	-	159
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	_	_	-	_	-	_
Follow-up Hdwy	-	-	-	-	-	3.32
	-	-	0	-	- 0	858
Pot Cap-1 Maneuver	-	-		-		
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	858
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
0						
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		9.4	
HCM LOS	0		0		A	
					~	
Minor Lane/Major Mvmt	t I	NBLn1	EBT	EBR	WBT	
Capacity (veh/h)		858	-	-	-	
HCM Lane V/C Ratio		0.056	-	-	-	
HCM Control Delay (s)		9.4	-	-	-	
HCM Lane LOS		А	-	-	-	
HCM 95th %tile Q(veh)		0.2	-	-	-	
. ,						

#### 2. SE Monroe Street at OR-99E

Intersection v/c APM Section 13.4.4: Critical Intersection v/c ratio Method: Determine Critical Movements in HCM 2000 reports HCM 6th reports, detemine adjusted and sat flow rates Adjust Flow/Sat Flow

Sum up Crit Movement Flow Rates

Xc of intersection = sum(crit.move. Flow rates*(C/(C-L))

	AM Peak Hour											
			Adjust Flow		Saturated Flow		A	\dj/Sat Flow	'S	C	1	Xc
	Critcial Mo	ovement	NBTh+RT	WBL	NBTh+RT	WBL	NBTh+RT	WBL	Sum	L	L	ΛL
Existing			1918	43	3721	1682	0.515453	0.025565	0.541018	120	9	0.585
Background			1968	45	3721	1682	0.52889	0.026754	0.555644	120	9	0.601
Buildout (Full-Movement)	NBTh+RT	WBL	1987	45	3721	1682	0.533996	0.026754	0.56075	120	9	0.606
Buildout (No Left-Out)			1987	59	3721	1682	0.533996	0.035077	0.569074	120	9	0.615
Buildout (RIRO)			1987	66	3721	1682	0.533996	0.039239	0.573235	120	9	0.62

#### 2. SE Monroe Street at OR-99E

Intersection v/c
APM Section 13.4.4: Critical Intersection v/c ratio
Method: Determine Critical Movements in HCM 2000 reports
HCM 6th reports, detemine adjusted and sat flow rates
Adjust Flow/Sat Flow

Sum up Crit Movement Flow Rates

Xc of intersection = sum(crit.move. Flow rates*(C/(C-L))

					PM Peak H	our						
			Adjus	t Flow	Saturat	ed Flow	Ą	\dj/Sat Flow	'S	C	1	Xc
	Critcial N	lovement	SBTh	WBL	SBTh	WBL	SBTh	WBL	Sum	L	L	λĹ
Existing			2291	58	3770	1753	0.607692	0.033086	0.640778	120	9	0.693
Background			2355	60	3770	1753	0.624668	0.034227	0.658895	120	9	0.712
Buildout (Full-Movement)	SBTh	WBL	2377	60	3770	1753	0.630504	0.034227	0.664731	120	9	0.719
Buildout (No Left-Out)			2377	73	3770	1753	0.630504	0.041643	0.672147	120	9	0.727
Buildout (RIRO)			2377	91	3770	1753	0.630504	0.051911	0.682415	120	9	0.738

#### 5. SE Washington Street at SE 21st Avenue

Intersection v/c APM Section 13.4.4: Critical Intersection v/c ratio Method: Determine Critical Movements in HCM 2000 reports HCM 6th reports, detemine adjusted and sat flow rates Adjust Flow/Sat Flow Sum up Crit Movement Flow Rates

Xc of intersection = sum(crit.move. Flow rates*(C/(C-L))

AM Peak Hour Adjust Flow Saturated Flow Adj/Sat Flows С L Xc EΒ NB **Critcial Movement** Sum EB NB EΒ NB 0.132523 0.078055 0.210578 Existing 1645 0.248 218 122 1563 60 9 Background 132 1646 1568 0.148846 0.084184 0.233029 9 0.274 245 60 Buildout (Full-Movement) 1652 1568 0.155569 0.084184 0.239753 9 0.282 EB NB 257 132 60 Buildout (No Left-Out) 257 132 1652 1568 0.155569 0.084184 0.239753 60 9 0.282 Buildout (RIRO) 257 132 1652 1568 0.155569 0.084184 0.239753 60 9 0.282

#### 5. SE Washington Street at SE 21st Avenue

Intersection v/c APM Section 13.4.4: Critical Intersection v/c ratio Method: Determine Critical Movements in HCM 2000 reports HCM 6th reports, detemine adjusted and sat flow rates Adjust Flow/Sat Flow Sum up Crit Movement Flow Rates

Xc of intersection = sum(crit.move. Flow rates*(C/(C-L))

					PM Peak H	our						
			Adjust Flow		Saturated Flow		Adj/Sat Flows			C		
	Critcial N	lovement	EB	NB	EB	NB	EB	NB	Sum	L	L	Xc
Existing			168	68	1644	1584	0.10219	0.042929	0.145119	60	9	0.171
Background			188	78	1646	1572	0.114216	0.049618	0.163835	60	9	0.193
Buildout (Full-Movement)	EB	NB	194	78	1649	1572	0.117647	0.049618	0.167265	60	9	0.197
Buildout (No Left-Out)			194	78	1649	1572	0.117647	0.049618	0.167265	60	9	0.197
Buildout (RIRO)			194	78	1649	1572	0.117647	0.049618	0.167265	60	9	0.197

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	32	62
Average Queue (ft)	2	29
95th Queue (ft)	15	55
Link Distance (ft)	1092	353
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Network Summary

Movement	EB	EB	WB	NB
Directions Served	Т	TR	LT	LR
Maximum Queue (ft)	2	2	44	59
Average Queue (ft)	0	0	5	28
95th Queue (ft)	2	2	26	53
Link Distance (ft)	551	551	1097	353
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%) Queuing Penalty (veh)				

### Network Summary

Movement	WB	NB
Directions Served	LT	R
Maximum Queue (ft)	32	50
Average Queue (ft)	2	25
95th Queue (ft)	15	47
Link Distance (ft)	1083	352
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Network Summary

Movement	EB	WB	NB
Directions Served	TR	LT	R
Maximum Queue (ft)	2	45	58
Average Queue (ft)	0	<del>-</del> 0 5	25
95th Queue (ft)	2	25	50
Link Distance (ft)	567	1093	352
Upstream Blk Time (%)	507	1000	002
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

## Network Summary

Network wide Queuing Penalty: 0

DS

Movement	NB
Directions Served	R
Maximum Queue (ft)	59
Average Queue (ft)	26
95th Queue (ft)	50
Link Distance (ft)	352
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

### Network Summary

Movement	NB
Directions Served	R
Maximum Queue (ft)	54
Average Queue (ft)	23
95th Queue (ft)	49
Link Distance (ft)	352
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

### Network Summary