ALTERNATIVE MOBILITY TARGETS

DATE: October 29, 2021

TO: Project Management Team

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SUBJECT: Newport TSP Update
Technical Memorandum #11: Alternative Mobility Targets

Project #17081-007

This technical memorandum summarizes an evaluation of locations where alternate mobility targets are needed on the State highway system within Newport. This memorandum follows the evaluation process outlined in the Planning Business Line Team Operational Notice PB-02[1]. Final review and approval of alternative mobility targets for State highway corridors will be an action of the Oregon Transportation Commission (OTC).

INTRODUCTION

The Oregon Highway Plan (OHP) identifies highway mobility targets for maintaining acceptable and reliable levels of mobility on the state highway system, consistent with expectations for each facility type, location, and functional objectives[2]. The adopted mobility targets are the initial tool for identifying deficiencies and considering solutions for vehicular mobility on the state system. However, consistent with OHP Policy 1F, the ability to meet OHP mobility targets may not be compatible with a community's adopted land use plan, financial capacity, or goals. In these cases, alternative mobility targets can be explored for a facility to adjust long-term roadway performance expectations. Alternative mobility targets are only applied to intersections under state jurisdiction (i.e., an intersection located on the state highway system). Mobility targets for intersections under city jurisdiction are identified in the transportation standards memo of this TSP update.

It is important for a transportation system plan to identify a broad range of transportation system projects and services to address the deficiencies that would exist at the end of a 20-year planning horizon if the community grows in accordance with its adopted land use plan. However, it is also important to realistically identify which transportation projects and services are reasonably likely to be implemented over the 20-year planning horizon, based on financial or other constraints. This exercise enables the community and the state to establish realistic expectations for how that transportation system will likely operate at the end of the 20-year planning horizon.

[1] Planning Business Line Team Operational Notice PB-02, Oregon Department of Transportation, effective May 2, 2013.

[2] *1999 Oregon Highway Plan, as amended May 2015*, Policy 1F: Highway Mobility Policy, Oregon Department of Transportation

Because of the financial constraints that have been faced by state and local governments over the last 20 years and which are expected to continue into the foreseeable future, it is often the case that the local and/or state roadways will not be able to meet local level-of-service (LOS)[3] standards or, in the case of ODOT, roadway volume-to-capacity (v/c)[4] ratio-based mobility targets, at the end of the 20-year planning horizon if the community grows in accordance with its land use plan. Exceeding existing mobility targets is particularly common in larger communities or in those with roadways that experience higher travel demands. In these cases, it is appropriate to adjust roadway performance expectations, as expressed through local LOS standards or state mobility targets, to match the performance that is forecasted to exist at the end of the 20-year planning horizon, through the adoption of alternative standards or mobility targets.

In these situations, adopting alternative standards or mobility targets means adjusting roadway performance expectations to match realistic expectations for how the roadways are forecasted to operate, considering financial and other constraints. In addition to establishing realistic expectations for future system performance, this process will help reduce the need to include state and local investment projects that both parties acknowledge are unlikely to be achieved or that are counter to a community's adopted land use plan and goals.

ALTERNATIVE MOBILITY TARGET NEED

In Newport, US 20 and US 101 bisect the city and are the major transportation routes through Newport. In many cases (such as approaching the Yaquina Bay Bridge), parallel routes do not exist. US 20 and US 101 are classified as Statewide Highways, which typically provide inter-urban and inter-regional mobility and provide connections to larger urban areas, ports and major recreation areas that are not directly served by Interstate Highways. US 101 north of US 20 is a National Network freight route while US 20 is a designated freight route in the Oregon Highway Plan. US 101 (north of US 20) and US 20 are also freight reduction review routes.

Given the population and employment growth projected over the 20-year planning horizon, significant stretches of US 20 and US 101 through Newport are forecast to exceed ODOT's current mobility targets. Existing capacity constraints on the Yaquina Bay Bridge may also continue to impact operations on US 20 and US 101 in Newport since constructing a replacement bridge may not be feasible within the 20-year planning horizon. An evaluation of the disparity between the current targets and forecasted traffic operations confirmed the need for assessing the potential for alternative mobility targets to balance the community's vision established through the Newport TSP goals and objectives. The findings of that evaluation are described below.

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[3] LOS standards are based on the delay experienced by drivers at a particular location where higher delay corresponds to worse levels of service.

[4] V/C ratios describe the ability of an intersection to handle additional traffic demands before experiencing excessive delay or long vehicle queues; v/c ratios that exceed 1.00 indicate that the vehicle demand exceeds the theoretical capacity.

CURRENT MOBILITY TARGETS

All US 20 and US 101 intersections in Newport must comply with the volume-to-capacity (v/c) ratio targets in Table 6 of the OHP. ODOT v/c ratio mobility targets are based on highway classification, posted speed and area type. Within Newport, US 20 and US 101 are classified as Statewide Highways. Therefore, the v/c target ranges from 0.80 to 0.95, as listed in Table 1 below. Note that alternative mobility targets have previously been adopted on US 101 in South Beach.

TABLE 1: EXISTING MOBILITY TARGETS FOR US 20 AND US 101

ROADWAY	EXTENTS	EXISTING V/C MOBILITY TARGET	
		SIGNALIZED	UNSIGNALIZED [A]
US 101	North Urban Growth Boundary to NE 20th Street	≤ 0.80	≤ 0.80/0.90
US 101	NE 20th Street to SE 40th Street [B]	≤ 0.90	≤ 0.90/0.95
US 101	SE 40th Street to south Urban Growth Boundary [B]	≤ 0.80	≤ 0.80/0.90
US 20	Urban Growth Boundary to Moore Drive	≤ 0.80	≤ 0.80/0.90
US 20	Moore Drive to US 101	≤ 0.85	≤ 0.85/0.95

[A] For unsignalized intersections, the mobility target is listed for major approach (highway approach)/minor approach (side street approach).

[B] Alternative mobility targets have been adopted at the intersection of US 101/S 35th St (v/c ≤0.99), US 101/SE 32nd St (v/c ≤0.99), US 101/SE 40th St (v/c ≤0.99) and US 101/South Beach State Park Entrance (v/c ≤0.85) based on the Average Annual Weekday traffic condition.

The mobility targets in the OHP are based on conditions present during the 30th highest annual hour of traffic (30 HV), which in Newport typically occurs during the summer months when traffic volumes increase due to an influx of vacationers and visitors. Newport's position along the Oregon Coast and US 101 leads to significant variations in traffic throughout the year; traffic volumes along US 101 are approximately 20% higher during July and August compared to average weekday volumes. Due to the seasonal variation in traffic volumes, the alternative mobility targets adopted for South Beach are based on the Average Annual Weekday traffic condition rather than the 30 HV traffic condition.

EXISTING AND FUTURE HIGHWAY OPERATIONS

In the TSP, a comparison of existing (year 2018) and future (year 2040) traffic operations along US 101 and US 20 to adopted mobility targets during summer traffic conditions (30 HV) shows that most intersections operate well today, but traffic demand in the summer p.m. peak period at several intersections will exceed capacity by 2040.

Table 2 also demonstrates the results of doing nothing (retaining the system as it exists today) versus implementing the Financially Constrained and other reasonably likely funded projects included in the TSP in 2040 (Table 3). The table compares baseline operations to the Oregon

Highway Plan (OHP) mobility targets. Note that currently adopted mobility targets/standards for US 101 are based on accommodating summertime conditions.

While the US 101/36th, US 101/31st, and US 101/20th intersections are shown to meet mobility targets within Table 2, this does not account for the recent UGB land swap in the area. A land swap occurred within the northeast part of the City that removed 71.36 acres with limited development potential and replaced it with 40-acres with high development potential. This additional development potential would add up to 200 residential units in this area and is expected to further degrade intersection operations. The corresponding analysis for the UGB land swap reported operations at the US 101/36th, US 101/31st, and US 101/20th that would be expected to exceed mobility targets[5].

TABLE 2: INTERSECTION OPERATIONS ON US 101 AND US 20 WITHOUT AND WITH REASONABLY LIKELY IMPROVEMENTS (2018 AND 2040 PM PEAK HOUR, 30 HV)

#	STUDY INTERSECTION	TRAFFIC CONTROL	MOBILITY TARGET [A]	EXISTING V/C	2040 NO BUILD V/C	2040 FINANCIALLY CONSTRAINED V/C
1	US 101/73rd	Urban 4ST	0.80 / 0.95	0.41/0.46	**0.55/1.57**	0.75
2	US 101/52nd	Urban 4SG	0.80	**0.85**	**1.06**	**1.06**
3	US 101/ Oceanview	Urban 3ST	0.80 / 0.95	0.58/0.36	**0.72/1.12**	**0.72/1.12**
4	US 101/36th	Urban 3ST	0.80 / 0.95	0.58/0.16	0.68/0.24 *	0.68/0.24 *
5	US 101/31st	Urban 3ST	0.80 / 0.95	0.61/0.16	0.71/0.30 *	0.71/0.30 *
6	US 101/20th	Urban 4SG	0.90	0.73	0.88 *	0.88 *
7	US 101/11th	Urban 4SG	0.90	0.54	0.65	0.65
8	US 101/6th	Urban 4SG	0.90	0.69	0.81	0.81
9	US 101/US 20	Urban 4SG	0.85	**0.92**	**0.99**	**0.99**
10	US 101/Angle	Urban 4ST	0.90 / 0.95	0.37/0.71	**0.49/2.63**	0.38/0.06

[5] Newport UGB Land Exchange, KAI, April 1, 2020.

#	STUDY INTERSECTION	TRAFFIC CONTROL	MOBILITY TARGET [A]	EXISTING V/C	2040 NO BUILD V/C	2040 FINANCIALLY CONSTRAINED V/C
11	US 101/ Hurbert	Urban 4SG	0.90	0.74	**0.90**	0.56
12	US 101/Bayley	Urban 4ST	0.90 / 0.95	0.33/0.39	0.41/0.79	0.41/0.79
13	US 20/Benton	Urban 4ST	0.85 / 0.95	0.43/0.75	**0.46/1.05**	**0.46/1.05**
14	US 20/Moore	Urban 4SG	0.85	0.68	**0.85**	0.63
18	9th (Proposed US 101N) /Hurbert	Urban 4ST	0.90 / 0.95	0.06/0.41	0.06/0.44	0.43/0.67

Bold and Red values indicate the adopted mobility target would not be met.

* These operational results do not account for the recent UGB land swap in the area that would increase development potential with an additional 200 residential units. This is expected to further degrade intersection operations, and each would be expected to exceed mobility targets.

[A] For unsignalized intersections, the mobility target is listed for major approach (highway approach)/minor approach (side street approach).

Note: At signalized study intersections the v/c, LOS and delay are reported as the intersection average and at unsignalized intersections the v/c, LOS and delay are reported for the worst highway approach/ worst side street approach.

The project category distribution in the financially constrained list is as follows:

- Intersection – 5 projects
- Road Extension – 5 projects
- Revision – 2 projects
- Sidewalk – 19 projects
- Shared-use path – 4 projects
- Bike route – 12 projects
- Separated bike lanes – 3 projects
- Bike Lanes – 11 projects
- Pedestrian crossings – 15 projects
- Programs – 1 project

Of these projects the 5 intersection related projects and one roadway revision project, the US 101 short couplet, are expected to directly impact traffic operations at the study intersections. Beyond the 5 intersection related projects, one intersection improvement was identified as reasonably likely funded even though this improvement is not included on the financially constrained project list. Development pressures at this intersection will drive the need for this improvement. These projects are shown in Table 3.

As noted earlier in this document, additional development associated with a recent UGB land swap near the US 101/36th, US 101/31st, and US 101/20th intersections may also make it necessary to implement an intersection improvement in the area. While it was not included in this analysis, a

TSP project would add a signal at the US 101/NE 36th intersection (TSP Project INT8). This would also improve the substandard operations reported in the UGB land swap analysis (see earlier referenced memorandum) at this intersection and at the nearby US 101/31st intersection as traffic could reroute during congested times to the new signal at the NE 36th Street intersection.

TABLE 3: FINANCIALLY CONSTRAINED AND REASONABLY LIKELY FUNDED INTERSECTION IMPROVEMENTS

TSP PROJECT ID	LOCATION	DESCRIPTION
INT1	US 101/NE 73rd Street	Complete an intersection control evaluation: either a traffic signal or roundabout are potential solutions Note: this project is not included in the financially constrained project list, but is considered reasonably likely to be funded due to future development
INT4	US 101/US 20	Install advance signage to detour westbound right turning vehicles onto NE 1st Street
INT6	US 101/SE Moore Drive/NE Harney Street	Complete an intersection control evaluation: confirm that a traffic signal (with separate left turn lanes on the northbound and southbound approaches) is the best solution
INT9	US 101/SW 40th Street	Complete an intersection control evaluation: either a traffic signal or roundabout are potential solutions
INT11	US 101/NW 6th Street	Realign intersection to eliminate offset approaches on NW 6th Street
INT12	US 101/NE 57th Street	Realign approach to align with NW 58th Street
US 101 SHORT COUPLET	Fall St to Angle St – US 101	Construct a couplet for US 101 with the southbound direction along the current highway right of way and the northbound direction along 9th Street

FACTORS LIMITING THE ABILITY TO MEET EXISTING MOBILITY TARGETS

Several factors combine to make compliance with current mobility targets within Newport difficult. They include the following:

PROJECTED MULTIMODAL TRAVEL NEEDS

The importance of US 20 and US 101 to statewide, regional, and local travel creates significant multimodal demands for both short and long trips along the corridor. These users include:

- People driving on US 101 and US 20 to make local trips to homes, work, and shopping
- People driving for regional trips between cities on the Oregon Coast
- Freight traveling to and through Newport (US 101 (north of US 20) and US 20 are both freight routes)
- Transit traveling along the main state facility or turning at a local street
- People biking and walking along and across US 101 and US 20 (US 101 is a major touring bicycle route as well as a means of transportation for local residents)

Balancing the needs of each of these various users is incorporated in the goals of the Newport TSP and factored into identifying reasonably likely to be funded projects and programs for the Newport TSP.

EXISTING AND PLANNED DEVELOPMENT PATTERNS

In many areas along US 101 and US 20, adjacent existing development and planned urban form promoting increased density and mixed land use constrain the ability to widen the highway right-of-way or provide parallel alternate routes. Obtaining needed right-of-way for highway widening would require acquisition and removal of such development, which would be very expensive and counter to the goals and objectives of the community[6]. Newport is also built around Yaquina Bay which limits travel options to the highway for residents travelling between the northern and southern sections of the city. Existing capacity constraints on the Yaquina Bay Bridge may continue to impact operations on US 20 and US 101 in Newport since constructing a replacement bridge may not be feasible within the 20-year planning horizon even if widening elsewhere is feasible.

FINANCIAL FACTORS

As is true for most agencies, funding for transportation improvements is limited and constrains the ability of ODOT to fund highway capacity improvements. The Newport TSP identifies a comprehensive set of transportation solutions resulting in $78,525,000 worth of projects deemed reasonably likely to be funded in the 20-year planning horizon, including many projects on state highways. However even with the projects and programs identified as reasonably likely to be funded, there are remaining facility mobility target performance deficiencies that could not be addressed within the funding constraints.

OTHER STRATEGIES BEING APPLIED TO ENHANCED MOBILITY

[6] The City of Newport identified a goal for Fiscal Responsibility for the transportation system which supports preservation and maintenance of the City's existing transportation system. Newport TSP Update. *Technical Memo 4 – Goals and Objectives.* 2019.

In addition to funding capacity improvements, the Newport TSP identifies funding for programs and policies to improve multimodal conditions and help reduce motor vehicle demand. This includes 66 active transportation projects including bike routes, sidewalk improvements, and shared-use paths that are reasonably likely to be funded by 2040. It also includes a parking management program for the Nye Beach and Bayfront areas with the goal of increasing parking turnover and a neighborhood traffic management program intended to increase livability.

ALTERNATIVE MOBILITY TARGET EVALUATION

Figure 2 shows ODOT's methodology for determining alternative mobility targets[7]. A summary of each step is discussed below, and Table 4 lists the results for each individual intersection.

STEP 1: IMPLEMENT PLANNED IMPROVEMENTS

Prior to implementing alternative mobility targets, all feasible actions and improvements must be taken to meet the current targets. Even with the implementation of the Financially Constrained and Reasonably Likely Funded improvements in the City of Newport's TSP, alternative mobility targets will be needed at the following study intersections:

- US 101 & 52nd Street/Lighthouse Drive – v/c 1.06
- US 101 & Oceanview Drive – v/c 0.72/1.12
- US 101 & US 20 – v/c 0.99
- US 20 & Benton Street – v/c 0.46/1.05

STEP 2: INCREASE V/C TARGETS, STAYING BELOW CAPACITY

In cases where the v/c is forecasted to be greater than the OHP mobility target but less than capacity (v/c = 1.0) during the 30 HV, establish the proposed alternative target consistent with the v/c values used in the OHP. This approach would work for one of the intersections needing alternative mobility targets.

FIGURE 2: ALTERNATIVE MOBILITY TARGET METHODOLOGY

STEP 3: REMOVE PEAKING WITHIN THE PEAK HOUR

In cases where v/c is forecasted to be greater than or equal to capacity during the 30 HV using the standard analysis procedures, evaluate the actual peak hour traffic volume for future year 30 HV projections rather than expanding the peak 15 minutes to be the 30 HV. If the resulting v/c is less than 1.0, establish the proposed alternative target. Setting the peak hour factor (PHF) for the 30 HV to 1.0 relaxes the peaking assumptions and allows for analysis of the peak hour volumes

[7] Planning Business Line Team Operational Notice PB-02, Oregon Department of Transportation, effective May 2, 2013.

instead of the peak 15-minute volumes. Removing peaking would work for all intersections needing alternative mobility targets.

STEP 4: ANALYZE AVERAGE WEEKDAY CONDITIONS

In cases where v/c is forecasted to be greater than or equal to capacity during the design hour using the actual peak hour projection of traffic and in areas where design hours are affected by high seasonal traffic volumes, evaluate the annual average weekday p.m. peak (AWD) as the future year design hour rather than the 30 HV. If the resulting v/c is less than 1.0, establish the proposed alternative target. Analyzing average weekday conditions instead of the 30 HV gives a more accurate representation of typical conditions instead of peak summer conditions when there is an influx of visitors in Newport. This step was not analyzed due to mobility targets of 1.0 during the 30 HV without peaking (Step 3) resolving the mobility target problem.

STEP 5: HOURS OF CONGESTION

In cases where v/c is forecasted to be greater than or equal to 1.0 using the Annual Average Weekday PM Peak as the future design hour, determine the duration of the period during which the future Annual Average Weekday PM Peak hour will have a v/c greater than or equal to 1.0. Establish the proposed alternative target by increasing the number of hours that v/c can be greater than or equal to 1.0. An "hours of congestion" analysis assumes that traffic volumes that exceed capacity in the analysis hour are shifted to the "shoulder' hours, iteratively, until all traffic can be accommodated. The calculation of multi-hour conditions with peak spreading is fairly complex and it can be difficult to achieve consistent results. Also, because only the most congested intersections make it to Step 5 when considering alternative mobility targets, it is often found that over-capacity conditions would be present for several hours of the day making such a target fairly ineffective. This step was not analyzed due to mobility targets of 1.0 during the 30 HV without peaking (Step 3) resolving the mobility target problem.

TABLE 4: INTERSECTION OPERATIONS ON US 101 AND US 20 WHEN APPLYING THE ALTERNATIVE MOBILTY TARGET METHODOLOGY (2040 PM PEAK HOUR)

#	STUDY INT.	CONTROL	EXISTING V/C MOBILITY TARGET [A]	STEP 1: 30 HV, W/ FINANCIALLY CONSTRAINED IMPROVEMENTS	STEP 2: 30 HV, V/C ≤ 1.0	STEP 3: 30 HV, V/C ≤ 1.0, PHF = 1.0
1	US 101/73rd	Urban 4ST	0.80 / 0.95	0.75	0.75	0.72
2	US 101/52nd	Urban 4SG	0.80	**1.06**	**1.06**	0.99
3	US 101/ Oceanview	Urban 3ST	0.80 / 0.95	**0.72/1.12**	**0.72/1.12**	0.68/0.96
4	US 101/36th	Urban 3ST	0.80 / 0.95	0.68/0.24 *	0.68/0.24 *	0.64/0.20
5	US 101/31st	Urban 3ST	0.80 / 0.95	0.71/0.30 *	0.71/0.30 *	0.66/0.25
6	US 101/20th	Urban 4SG	0.90	0.88 *	0.88 *	0.82
7	US 101/11th	Urban 4SG	0.90	0.65	0.65	0.61
8	US 101/6th	Urban 4SG	0.90	0.81	0.81	0.73
9	US 101/US 20	Urban 4SG	0.85	**0.99**[B]	0.99	0.93
10	US 101/Angle	Urban 4ST	0.90 / 0.95	0.38/0.06	0.38/0.06	0.35/0.05
11	US 101/ Hurbert	Urban 4SG	0.90	0.56	0.56	0.54
12	US 101/Bayley	Urban 4ST	0.90 / 0.95	0.41/0.79	0.41/0.79	0.37/0.51
13	US 20/Benton	Urban 4ST	0.85 / 0.95	**0.46/1.05**	**0.46/1.05**	0.44/0.90
14	US 20/Moore	Urban 4SG	0.85	0.63	0.63	0.58
18	9th (Proposed US 101N) /Hurbert	Urban 4ST	0.90 / 0.95	0.43/0.67	0.43/0.67	0.42/0.60

Bold and Red values indicate a v/c ratio greater than the mobility target at that step.

* These operational results do not account for the recent UGB land swap in the area that would increase development potential with an additional 200 residential units. This is expected to further degrade intersection operations, and each would be expected to exceed mobility targets. While it was not included in this analysis, a TSP project would add a signal at the US 101/NE 36th intersection (TSP Project INT8). This would improve intersections operations in this area from those reported with the analysis of the UGB land swap (see earlier referenced memorandum).

[A] For unsignalized intersections, the mobility target is listed for major approach (highway approach)/minor approach (side street approach).

[B] The proposed improvement does not improve the v/c ratio (from no build) because the WBR movement is not the critical movement for the phase. However the reduction of WBR turning volume will reduce queueing on that approach.

Note: At signalized study intersections the v/c, LOS and delay are reported as the intersection average and at unsignalized intersections the v/c, LOS and delay are reported for the worst highway approach/ worst side street approach.

RECOMMENDED ALTERNATIVE MOBILITY TARGETS

While the transportation investments identified as reasonably likely to be funded in the Newport TSP will result in improved intersection performance on ODOT facilities, not all intersections will be able to meet state v/c mobility targets. There is a need to consider alternative mobility targets in select locations, for the 30 HV condition. Alternative mobility targets establish realistic expectations for future system performance and help the community continue to grow in accordance with its adopted land use plan. Table 5 shows the existing and proposed mobility targets.

TABLE 5: EXISTING AND PROPOSED MOBILITY TARGETS

#	STUDY INT.	CONTROL	EXISTING V/C MOBILITY TARGET [A]	PROPOSED MOBILITY TARGET[B]
1	US 101/73rd	Urban 4ST	0.80 / 0.95	0.99, PHF = 1.0
2	US 101/52nd	Urban 4SG	0.80	0.99, PHF = 1.0
3	US 101/ Oceanview	Urban 3ST	0.80 / 0.95	0.99, PHF = 1.0
4	US 101/36th	Urban 3ST	0.80 / 0.95	0.99, PHF = 1.0
5	US 101/31st	Urban 3ST	0.80 / 0.95	0.99, PHF = 1.0
6	US 101/20th	Urban 4SG	0.90	0.99, PHF = 1.0
7	US 101/11th	Urban 4SG	0.90	0.99, PHF = 1.0
8	US 101/6th	Urban 4SG	0.90	0.99, PHF = 1.0
9	US 101/US 20	Urban 4SG	0.85	0.99, PHF = 1.0
10	US 101/Angle	Urban 4ST	0.90 / 0.95	0.99, PHF = 1.0
11	US 101/ Hurbert	Urban 4SG	0.90	0.99, PHF = 1.0
12	US 101/Bayley	Urban 4ST	0.90 / 0.95	0.99, PHF = 1.0
13	US 20/Benton	Urban 4ST	0.85 / 0.95	0.99, PHF = 1.0
14	US 20/Moore	Urban 4SG	0.85	0.99, PHF = 1.0

[A] For unsignalized intersections, the mobility target is listed for major approach (highway approach)/minor approach (side street approach).

[B] For unsignalized intersections the mobility target is for the worst approach (major or minor)

APPENDIX

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DKS

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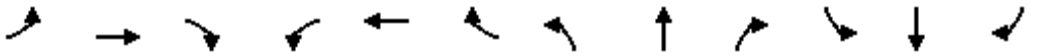
SECTION 1. HCM REPORTS

FINANCIALLY CONSTRAINED



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	5	95	0	15	5	885	60	20	690	2
Future Volume (veh/h)	1	0	5	95	0	15	5	885	60	20	690	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1750	1750	1654	1750	1750	1750	1709	1231	808	1709	1750
Adj Flow Rate, veh/h	1	0	5	100	0	16	5	932	63	21	726	2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	7	0	0	0	3	38	69	3	0
Cap, veh/h	88	15	133	251	0	21	452	1086	663	212	1114	3
Arrive On Green	0.10	0.00	0.10	0.10	0.00	0.10	0.02	0.64	0.64	0.04	0.65	0.62
Sat Flow, veh/h	109	149	1288	1249	0	200	1667	1709	1043	770	1704	5
Grp Volume(v), veh/h	6	0	0	116	0	0	5	932	63	21	0	728
Grp Sat Flow(s),veh/h/ln	1546	0	0	1448	0	0	1667	1709	1043	770	0	1708
Q Serve(g_s), s	0.0	0.0	0.0	4.1	0.0	0.0	0.1	24.0	1.3	0.5	0.0	14.1
Cycle Q Clear(g_c), s	0.2	0.0	0.0	4.3	0.0	0.0	0.1	24.0	1.3	0.5	0.0	14.1
Prop In Lane	0.17		0.83	0.86		0.14	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	236	0	0	271	0	0	452	1086	663	212	0	1117
V/C Ratio(X)	0.03	0.00	0.00	0.43	0.00	0.00	0.01	0.86	0.09	0.10	0.00	0.65
Avail Cap(c_a), veh/h	592	0	0	620	0	0	592	1646	1005	263	0	1645
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	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.2	0.0	0.0	24.0	0.0	0.0	5.1	8.0	3.9	9.0	0.0	5.7
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.1	0.0	0.0	0.0	3.1	0.1	0.2	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	1.5	0.0	0.0	0.0	4.1	0.1	0.1	0.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.3	0.0	0.0	25.1	0.0	0.0	5.1	11.1	3.9	9.2	0.0	6.4
LnGrp LOS	C	A	A	C	A	A	A	B	A	A	A	A
Approach Vol, veh/h		6			116			1000			749	
Approach Delay, s/veh		22.3			25.1			10.6			6.5	
Approach LOS		C			C			B			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	39.0		9.7	5.4	40.0		9.7				
Change Period (Y+Rc), s	5.0	6.0		4.0	5.0	6.0		4.0				
Max Green Setting (Gmax), s	5.0	51.0		19.0	5.0	51.0		19.0				
Max Q Clear Time (g_c+I1), s	2.5	26.0		2.2	2.1	16.1		6.3				
Green Ext Time (p_c), s	0.0	6.9		0.0	0.0	4.8		0.4				

Intersection Summary			
HCM 6th Ctrl Delay		9.9	
HCM 6th LOS		A	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	5	90	95	0	15	55	1080	120	30	850	30
Future Volume (veh/h)	35	5	90	95	0	15	55	1080	120	30	850	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1750	1736	1750	1750	1750	1695	1682	1750	1750	1695	1750
Adj Flow Rate, veh/h	37	5	95	100	0	16	58	1137	0	32	895	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	1	0	0	0	4	5	0	0	4	0
Cap, veh/h	55	4	297	59	0	299	79	1123		52	1102	
Arrive On Green	0.20	0.20	0.20	0.20	0.00	0.20	0.05	0.67	0.00	0.03	0.65	0.00
Sat Flow, veh/h	0	19	1457	0	0	1468	1615	1682	1483	1667	1695	1483
Grp Volume(v), veh/h	42	0	95	100	0	16	58	1137	0	32	895	0
Grp Sat Flow(s),veh/h/ln	19	0	1457	0	0	1468	1615	1682	1483	1667	1695	1483
Q Serve(g_s), s	0.0	0.0	6.8	0.0	0.0	1.1	4.4	82.0	0.0	2.3	48.1	0.0
Cycle Q Clear(g_c), s	24.5	0.0	6.8	24.5	0.0	1.1	4.4	82.0	0.0	2.3	48.1	0.0
Prop In Lane	0.88		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	59	0	297	59	0	299	79	1123		52	1102	
V/C Ratio(X)	0.71	0.00	0.32	1.71	0.00	0.05	0.74	1.01		0.62	0.81	
Avail Cap(c_a), veh/h	59	0	297	59	0	299	105	1123		81	1104	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	58.9	0.0	41.7	61.2	0.0	39.4	57.6	20.4	0.0	58.8	15.9	0.0
Incr Delay (d2), s/veh	31.4	0.0	0.5	379.7	0.0	0.1	14.2	30.0	0.0	8.5	5.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	2.5	8.0	0.0	0.4	2.0	35.7	0.0	1.1	17.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	90.3	0.0	42.1	440.9	0.0	39.4	71.8	50.4	0.0	67.3	21.1	0.0
LnGrp LOS	F	A	D	F	A	D	E	F		E	C	
Approach Vol, veh/h		137			116			1195	A		927	A
Approach Delay, s/veh		56.9			385.5			51.5			22.7	
Approach LOS		E			F			D			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.0	83.8		29.0	7.8	86.0		29.0
Change Period (Y+Rc), s	4.5	6.0		4.5	4.5	6.0		4.5
Max Green Setting (Gmax), s	7.5	78.0		24.5	5.5	80.0		24.5
Max Q Clear Time (g_c+I1), s	6.4	50.1		26.5	4.3	84.0		26.5
Green Ext Time (p_c), s	0.0	12.9		0.0	0.0	0.0		0.0

Intersection Summary	
HCM 6th Ctrl Delay	56.9
HCM 6th LOS	E

Notes

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

Intersection	
Int Delay, s/veh	12.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	130	60	20	1150	970	55
Future Vol, veh/h	130	60	20	1150	970	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	300	-	-	75
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	11	5	4	4
Mvmt Flow	138	64	21	1223	1032	59

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2297	1032	1091	0	-	0
Stage 1	1032	-	-	-	-	-
Stage 2	1265	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.21	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.299	-	-	-
Pot Cap-1 Maneuver	~ 43	285	607	-	-	-
Stage 1	347	-	-	-	-	-
Stage 2	268	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 41	285	607	-	-	-
Mov Cap-2 Maneuver	154	-	-	-	-	-
Stage 1	335	-	-	-	-	-
Stage 2	268	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	156.9	0.2	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	607	-	180	-	-
HCM Lane V/C Ratio	0.035	-	1.123	-	-
HCM Control Delay (s)	11.1	-	156.9	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	0.1	-	10.2	-	-

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

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	15	1085	40	10	995
Future Vol, veh/h	25	15	1085	40	10	995
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	125	275	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	31	4	0	0	3
Mvmt Flow	27	16	1154	43	11	1059

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2235	1154	0	0	1197	0
Stage 1	1154	-	-	-	-	-
Stage 2	1081	-	-	-	-	-
Critical Hdwy	6.4	6.51	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.579	-	-	2.2	-
Pot Cap-1 Maneuver	47	210	-	-	590	-
Stage 1	303	-	-	-	-	-
Stage 2	328	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	46	210	-	-	590	-
Mov Cap-2 Maneuver	163	-	-	-	-	-
Stage 1	303	-	-	-	-	-
Stage 2	322	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	31.5	0	0.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	178	590	-
HCM Lane V/C Ratio	-	-	0.239	0.018	-
HCM Control Delay (s)	-	-	31.5	11.2	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q(veh)	-	-	0.9	0.1	-

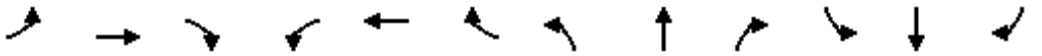
Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	35	10	1115	90	20	995
Future Vol, veh/h	35	10	1115	90	20	995
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	50	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	14	5	0	0	3
Mvmt Flow	38	11	1212	98	22	1082

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2338	1212	0	0	1310	0
Stage 1	1212	-	-	-	-	-
Stage 2	1126	-	-	-	-	-
Critical Hdwy	6.4	6.34	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.426	-	-	2.2	-
Pot Cap-1 Maneuver	41	209	-	-	535	-
Stage 1	284	-	-	-	-	-
Stage 2	313	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	39	209	-	-	535	-
Mov Cap-2 Maneuver	151	-	-	-	-	-
Stage 1	284	-	-	-	-	-
Stage 2	300	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	36.8	0	0.2
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	161	535	-
HCM Lane V/C Ratio	-	-	0.304	0.041	-
HCM Control Delay (s)	-	-	36.8	12	-
HCM Lane LOS	-	-	E	B	-
HCM 95th %tile Q(veh)	-	-	1.2	0.1	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	55	80	325	30	90	60	1325	115	80	1075	20
Future Volume (veh/h)	40	55	80	325	30	90	60	1325	115	80	1075	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1723	1695	1736	1750	1723	1723	1695	1750	1709	1709	1750
Adj Flow Rate, veh/h	43	59	86	239	186	97	65	1425	124	86	1156	22
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
Percent Heavy Veh, %	0	2	4	1	0	2	2	4	0	3	3	0
Cap, veh/h	59	80	117	323	211	110	82	1615	140	81	1756	33
Arrive On Green	0.08	0.08	0.08	0.20	0.20	0.19	0.05	0.54	0.53	0.05	0.54	0.53
Sat Flow, veh/h	711	976	1416	1654	1081	564	1641	2998	259	1628	3259	62
Grp Volume(v), veh/h	102	0	86	239	0	283	65	762	787	86	576	602
Grp Sat Flow(s),veh/h/ln	1687	0	1416	1654	0	1644	1641	1611	1647	1628	1624	1697
Q Serve(g_s), s	7.1	0.0	7.1	16.3	0.0	20.1	4.7	49.7	50.7	6.0	30.4	30.4
Cycle Q Clear(g_c), s	7.1	0.0	7.1	16.3	0.0	20.1	4.7	49.7	50.7	6.0	30.4	30.4
Prop In Lane	0.42		1.00	1.00		0.34	1.00		0.16	1.00		0.04
Lane Grp Cap(c), veh/h	139	0	117	323	0	321	82	868	887	81	875	914
V/C Ratio(X)	0.73	0.00	0.74	0.74	0.00	0.88	0.79	0.88	0.89	1.06	0.66	0.66
Avail Cap(c_a), veh/h	169	0	142	358	0	356	82	868	887	81	875	914
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.71	0.71	0.71	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.9	0.0	53.8	45.4	0.0	47.0	56.4	24.2	24.5	57.0	19.8	19.8
Incr Delay (d2), s/veh	10.9	0.0	13.2	6.6	0.0	19.7	29.4	9.1	9.5	116.1	3.9	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	0.0	3.0	7.3	0.0	10.0	2.6	19.9	20.9	5.1	11.9	12.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.8	0.0	67.0	52.0	0.0	66.7	85.8	33.3	34.1	173.1	23.7	23.5
LnGrp LOS	E	A	E	D	A	E	F	C	C	F	C	C
Approach Vol, veh/h		188			522			1614			1264	
Approach Delay, s/veh		65.8			60.0			35.8			33.8	
Approach LOS		E			E			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	68.6		27.5	10.0	68.6		13.9				
Change Period (Y+Rc), s	4.5	5.0		4.5	4.5	5.0		4.5				
Max Green Setting (Gmax), s	5.5	59.0		25.5	5.5	59.0		11.5				
Max Q Clear Time (g_c+I1), s	6.7	32.4		22.1	8.0	52.7		9.1				
Green Ext Time (p_c), s	0.0	16.0		0.7	0.0	5.7		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		40.2
HCM 6th LOS		D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	15	25	30	10	50	10	1500	15	15	1445	25
Future Volume (veh/h)	75	15	25	30	10	50	10	1500	15	15	1445	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1750	1750	1695	1750	1750	1750	1709	1750	1750	1709	1750
Adj Flow Rate, veh/h	79	16	26	32	11	53	11	1579	16	16	1521	26
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	4	0	0	0	3	0	0	3	0
Cap, veh/h	147	28	34	84	36	99	24	2525	26	30	2515	43
Arrive On Green	0.11	0.12	0.11	0.11	0.12	0.11	0.03	1.00	1.00	0.04	1.00	1.00
Sat Flow, veh/h	845	245	298	382	315	858	1667	3292	33	1667	3265	56
Grp Volume(v), veh/h	121	0	0	96	0	0	11	778	817	16	755	792
Grp Sat Flow(s),veh/h/ln	1388	0	0	1554	0	0	1667	1624	1702	1667	1624	1697
Q Serve(g_s), s	3.4	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	1.1	0.0	0.0
Cycle Q Clear(g_c), s	10.3	0.0	0.0	6.9	0.0	0.0	0.8	0.0	0.0	1.1	0.0	0.0
Prop In Lane	0.65		0.21	0.33		0.55	1.00		0.02	1.00		0.03
Lane Grp Cap(c), veh/h	204	0	0	213	0	0	24	1245	1305	30	1251	1308
V/C Ratio(X)	0.59	0.00	0.00	0.45	0.00	0.00	0.46	0.62	0.63	0.53	0.60	0.61
Avail Cap(c_a), veh/h	336	0	0	349	0	0	83	1245	1305	83	1251	1308
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.41	0.41	0.41	0.65	0.65	0.65
Uniform Delay (d), s/veh	51.7	0.0	0.0	50.2	0.0	0.0	57.8	0.0	0.0	57.4	0.0	0.0
Incr Delay (d2), s/veh	2.1	0.0	0.0	1.1	0.0	0.0	4.1	1.0	0.9	7.0	1.4	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	0.0	0.0	2.8	0.0	0.0	0.4	0.3	0.3	0.5	0.5	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.8	0.0	0.0	51.3	0.0	0.0	61.9	1.0	0.9	64.3	1.4	1.4
LnGrp LOS	D	A	A	D	A	A	E	A	A	E	A	A
Approach Vol, veh/h		121			96			1606			1563	
Approach Delay, s/veh		53.8			51.3			1.4			2.0	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.7	96.4		17.8	6.2	96.0		17.8
Change Period (Y+Rc), s	4.5	5.0		4.5	4.5	5.0		4.5
Max Green Setting (Gmax), s	5.5	76.0		24.5	5.5	76.0		24.5
Max Q Clear Time (g_c+I1), s	2.8	2.0		8.9	3.1	2.0		12.3
Green Ext Time (p_c), s	0.0	51.9		0.3	0.0	54.0		0.4

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	35	30	75	20	35	35	1445	25	25	1400	30
Future Volume (veh/h)	90	35	30	75	20	35	35	1445	25	25	1400	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1736	1750	1654	1750	1750	1709	1750	1709	1750	1750	1695	1750
Adj Flow Rate, veh/h	100	39	33	83	22	39	39	1606	28	28	1556	33
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	1	0	7	0	0	3	0	3	0	0	4	0
Cap, veh/h	127	50	42	113	30	53	55	1907	33	41	1855	39
Arrive On Green	0.12	0.13	0.12	0.10	0.12	0.10	0.03	0.58	0.57	0.05	1.00	1.00
Sat Flow, veh/h	954	372	315	932	247	438	1667	3265	57	1667	3225	68
Grp Volume(v), veh/h	172	0	0	144	0	0	39	797	837	28	776	813
Grp Sat Flow(s),veh/h/ln	1641	0	0	1617	0	0	1667	1624	1698	1667	1611	1682
Q Serve(g_s), s	12.2	0.0	0.0	10.4	0.0	0.0	2.8	48.2	48.5	2.0	0.0	0.0
Cycle Q Clear(g_c), s	12.2	0.0	0.0	10.4	0.0	0.0	2.8	48.2	48.5	2.0	0.0	0.0
Prop In Lane	0.58		0.19	0.58		0.27	1.00		0.03	1.00		0.04
Lane Grp Cap(c), veh/h	219	0	0	195	0	0	55	948	992	41	927	968
V/C Ratio(X)	0.79	0.00	0.00	0.74	0.00	0.00	0.71	0.84	0.84	0.69	0.84	0.84
Avail Cap(c_a), veh/h	219	0	0	216	0	0	83	948	992	83	927	968
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.42	0.42	0.42	0.75	0.75	0.75
Uniform Delay (d), s/veh	51.1	0.0	0.0	51.8	0.0	0.0	57.4	20.4	20.5	56.6	0.0	0.0
Incr Delay (d2), s/veh	16.5	0.0	0.0	10.5	0.0	0.0	5.1	4.0	3.9	10.9	6.9	6.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	0.0	0.0	4.9	0.0	0.0	1.2	17.9	18.9	0.9	1.8	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.7	0.0	0.0	62.3	0.0	0.0	62.5	24.4	24.4	67.6	6.9	6.7
LnGrp LOS	E	A	A	E	A	A	E	C	C	E	A	A
Approach Vol, veh/h		172			144			1673			1617	
Approach Delay, s/veh		67.7			62.3			25.3			7.8	
Approach LOS		E			E			C			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.0	73.5		18.5	6.9	74.6		20.0
Change Period (Y+Rc), s	4.5	6.5		6.0	4.5	6.5		6.0
Max Green Setting (Gmax), s	5.5	63.5		14.0	5.5	63.5		14.0
Max Q Clear Time (g_c+I1), s	4.8	2.0		12.4	4.0	50.5		14.2
Green Ext Time (p_c), s	0.0	32.1		0.1	0.0	12.3		0.0

Intersection Summary	
HCM 6th Ctrl Delay	21.0
HCM 6th LOS	C

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	195	35	255	165	280	75	900	215	335	975	80
Future Volume (veh/h)	205	195	35	255	165	280	75	900	215	335	975	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1736	1736	1695	1654	1723	1723	1750	1695	1614	1695	1709	1709
Adj Flow Rate, veh/h	218	207	37	271	176	298	80	957	0	356	1037	85
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, %	1	1	4	7	2	2	0	4	10	4	3	3
Cap, veh/h	250	246	44	298	364	299	106	1114		256	1336	109
Arrive On Green	0.15	0.17	0.17	0.19	0.21	0.21	0.06	0.35	0.00	0.05	0.15	0.14
Sat Flow, veh/h	1654	1424	255	1576	1723	1414	1667	3221	1367	1615	3032	248
Grp Volume(v), veh/h	218	0	244	271	176	298	80	957	0	356	555	567
Grp Sat Flow(s),veh/h/ln	1654	0	1678	1576	1723	1414	1667	1611	1367	1615	1624	1657
Q Serve(g_s), s	15.5	0.0	16.9	20.2	10.8	25.3	5.7	33.2	0.0	19.0	39.5	39.6
Cycle Q Clear(g_c), s	15.5	0.0	16.9	20.2	10.8	25.3	5.7	33.2	0.0	19.0	39.5	39.6
Prop In Lane	1.00		0.15	1.00		1.00	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	250	0	291	298	364	299	106	1114		256	715	730
V/C Ratio(X)	0.87	0.00	0.84	0.91	0.48	1.00	0.75	0.86		1.39	0.78	0.78
Avail Cap(c_a), veh/h	317	0	322	302	364	299	111	1114		256	715	730
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.43	0.43	0.43
Uniform Delay (d), s/veh	49.8	0.0	48.0	47.6	41.6	47.3	55.3	36.5	0.0	56.9	45.6	45.6
Incr Delay (d2), s/veh	17.6	0.0	15.8	29.0	1.0	51.6	22.9	8.7	0.0	186.8	3.6	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.7	0.0	8.4	10.3	4.7	13.2	3.1	14.4	0.0	21.5	18.0	18.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.4	0.0	63.9	76.6	42.6	98.9	78.2	45.2	0.0	243.6	49.2	49.2
LnGrp LOS	E	A	E	E	D	F	E	D		F	D	D
Approach Vol, veh/h		462			745			1037	A		1478	
Approach Delay, s/veh		65.5			77.5			47.7			96.0	
Approach LOS		E			E			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.6	56.9	22.2	29.3	23.0	45.5	26.7	24.8
Change Period (Y+Rc), s	4.5	5.0	4.5	4.5	4.5	5.0	4.5	4.5
Max Green Setting (Gmax), s	7.5	49.0	22.5	22.5	18.5	38.0	22.5	22.5
Max Q Clear Time (g_c+I1), s	17.3	41.6	17.5	27.3	21.0	35.2	22.2	18.9
Green Ext Time (p_c), s	0.0	5.7	0.2	0.0	0.0	2.2	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	75.1
HCM 6th LOS	E

Notes

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

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

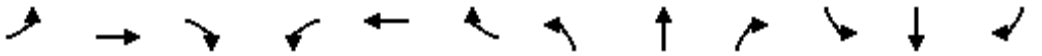
Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	20	0	0	1025	0	0	0	0	1145	45
Future Vol, veh/h	0	0	20	0	0	1025	0	0	0	0	1145	45
Conflicting Peds, #/hr	0	0	17	17	0	0	22	0	11	11	0	22
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	16979	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	14	0	2	0	4	0	4	2	2
Mvmt Flow	0	0	22	0	0	1126	0	0	0	0	1258	49

Major/Minor	Minor2					Major2		
Conflicting Flow All	1305	1305	693			-	-	0
Stage 1	1305	1305	-			-	-	-
Stage 2	0	0	-			-	-	-
Critical Hdwy	6.8	6.5	6.9			-	-	-
Critical Hdwy Stg 1	5.8	5.5	-			-	-	-
Critical Hdwy Stg 2	-	-	-			-	-	-
Follow-up Hdwy	3.5	4	3.3			-	-	-
Pot Cap-1 Maneuver	154	162	390			0	-	-
Stage 1	222	232	-			0	-	-
Stage 2	-	-	-			0	-	-
Platoon blocked, %							-	-
Mov Cap-1 Maneuver	148	0	382			-	-	-
Mov Cap-2 Maneuver	148	0	-			-	-	-
Stage 1	217	0	-			-	-	-
Stage 2	-	0	-			-	-	-

Approach	EB	SB
HCM Control Delay, s	15	0
HCM LOS	C	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	382	-	-
HCM Lane V/C Ratio	0.058	-	-
HCM Control Delay (s)	15	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	0.2	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	30	50	70	60	0	0	0	0	45	1085	20
Future Volume (veh/h)	0	30	50	70	60	0	0	0	0	45	1085	20
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	0.98		1.00				1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1750	1750	1709	1682	0				1750	1723	1750
Adj Flow Rate, veh/h	0	31	52	72	62	0				46	1119	21
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	3	5	0				0	2	0
Cap, veh/h	0	89	149	126	94	0				99	2521	50
Arrive On Green	0.00	0.15	0.15	0.15	0.15	0.00				0.77	0.78	0.77
Sat Flow, veh/h	0	579	972	522	610	0				127	3234	64
Grp Volume(v), veh/h	0	0	83	134	0	0				622	0	564
Grp Sat Flow(s),veh/h/ln	0	0	1552	1132	0	0				1716	0	1708
Q Serve(g_s), s	0.0	0.0	5.8	8.9	0.0	0.0				15.1	0.0	13.0
Cycle Q Clear(g_c), s	0.0	0.0	5.8	14.7	0.0	0.0				15.1	0.0	13.0
Prop In Lane	0.00		0.63	0.54		0.00				0.07		0.04
Lane Grp Cap(c), veh/h	0	0	239	215	0	0				1338	0	1332
V/C Ratio(X)	0.00	0.00	0.35	0.62	0.00	0.00				0.47	0.00	0.42
Avail Cap(c_a), veh/h	0	0	401	365	0	0				1338	0	1332
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	45.5	50.4	0.0	0.0				4.6	0.0	4.4
Incr Delay (d2), s/veh	0.0	0.0	0.6	2.2	0.0	0.0				1.2	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	2.3	4.1	0.0	0.0				5.0	0.0	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	46.2	52.6	0.0	0.0				5.8	0.0	5.3
LnGrp LOS	A	A	D	D	A	A				A	A	A
Approach Vol, veh/h		83			134						1186	
Approach Delay, s/veh		46.2			52.6						5.6	
Approach LOS		D			D						A	

Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		97.5		22.5				22.5				
Change Period (Y+Rc), s		5.0		4.5				4.5				
Max Green Setting (Gmax), s		80.0		30.5				30.5				
Max Q Clear Time (g_c+I1), s		17.1		16.7				7.8				
Green Ext Time (p_c), s		26.3		0.5				0.3				

Intersection Summary		
HCM 6th Ctrl Delay	12.5	
HCM 6th LOS	B	

Notes

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

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	0	60	10	0	30	25	1110	10	10	1195	20
Future Vol, veh/h	15	0	60	10	0	30	25	1110	10	10	1195	20
Conflicting Peds, #/hr	10	0	0	0	0	10	13	0	8	8	0	13
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	4	3	0	0	2	0
Mvmt Flow	17	0	67	11	0	33	28	1233	11	11	1328	22

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2057	2682	688	1989	2688	640	1363	0	0	1252	0	0
Stage 1	1374	1374	-	1303	1303	-	-	-	-	-	-	-
Stage 2	683	1308	-	686	1385	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.18	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.24	-	-	2.2	-	-
Pot Cap-1 Maneuver	33	22	393	37	22	423	490	-	-	563	-	-
Stage 1	156	215	-	173	233	-	-	-	-	-	-	-
Stage 2	410	231	-	408	213	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	27	19	388	27	19	416	484	-	-	559	-	-
Mov Cap-2 Maneuver	27	19	-	27	19	-	-	-	-	-	-	-
Stage 1	145	196	-	162	218	-	-	-	-	-	-	-
Stage 2	352	216	-	311	194	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	110.6	79	0.3	0.5
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	484	-	-	106	90	559	-	-
HCM Lane V/C Ratio	0.057	-	-	0.786	0.494	0.02	-	-
HCM Control Delay (s)	12.9	-	-	110.6	79	11.6	0.4	-
HCM Lane LOS	B	-	-	F	F	B	A	-
HCM 95th %tile Q(veh)	0.2	-	-	4.3	2.1	0.1	-	-

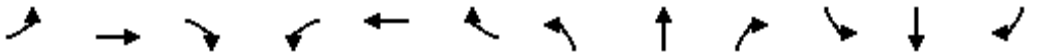
Intersection	
Int Delay, s/veh	17.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	695	45	120	625	5	20	5	210	5	10	40
Future Vol, veh/h	15	695	45	120	625	5	20	5	210	5	10	40
Conflicting Peds, #/hr	1	0	1	1	0	1	1	0	1	1	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	6	5	4	4	0	6	0	3	0	0	3
Mvmt Flow	16	732	47	126	658	5	21	5	221	5	11	42

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	664	0	0	780	0	0	1729	1705	758	1816	1726	663
Stage 1	-	-	-	-	-	-	789	789	-	914	914	-
Stage 2	-	-	-	-	-	-	940	916	-	902	812	-
Critical Hdwy	4.1	-	-	4.14	-	-	7.16	6.5	6.23	7.1	6.5	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.236	-	-	3.554	4	3.327	3.5	4	3.327
Pot Cap-1 Maneuver	935	-	-	828	-	-	68	92	405	61	90	459
Stage 1	-	-	-	-	-	-	378	405	-	330	355	-
Stage 2	-	-	-	-	-	-	311	354	-	335	395	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	934	-	-	827	-	-	48	77	404	23	75	458
Mov Cap-2 Maneuver	-	-	-	-	-	-	48	77	-	23	75	-
Stage 1	-	-	-	-	-	-	371	398	-	324	301	-
Stage 2	-	-	-	-	-	-	231	300	-	147	388	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	1.6	118.2	55.8
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	235	934	-	-	827	-	-	126
HCM Lane V/C Ratio	1.053	0.017	-	-	0.153	-	-	0.459
HCM Control Delay (s)	118.2	8.9	-	-	10.1	-	-	55.8
HCM Lane LOS	F	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	10.4	0.1	-	-	0.5	-	-	2.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	835	135	75	570	195	125	80	75	175	65	40
Future Volume (veh/h)	60	835	135	75	570	195	125	80	75	175	65	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1614	1723	1723	1709	1709	1654	1723	1723	1695	1736	1750	1750
Adj Flow Rate, veh/h	65	908	147	82	620	212	136	87	82	190	71	43
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	2	2	3	3	7	2	2	4	1	0	0
Cap, veh/h	88	1396	226	112	866	711	377	233	219	327	291	176
Arrive On Green	0.06	0.50	0.48	0.07	0.51	0.51	0.28	0.29	0.29	0.28	0.29	0.28
Sat Flow, veh/h	1537	2821	457	1628	1709	1402	1270	813	767	1221	1017	616
Grp Volume(v), veh/h	65	527	528	82	620	212	136	0	169	190	0	114
Grp Sat Flow(s),veh/h/ln	1537	1637	1641	1628	1709	1402	1270	0	1580	1221	0	1633
Q Serve(g_s), s	3.3	19.2	19.3	4.0	22.5	7.0	7.4	0.0	6.8	11.9	0.0	4.3
Cycle Q Clear(g_c), s	3.3	19.2	19.3	4.0	22.5	7.0	11.7	0.0	6.8	18.7	0.0	4.3
Prop In Lane	1.00		0.28	1.00		1.00	1.00		0.49	1.00		0.38
Lane Grp Cap(c), veh/h	88	810	812	112	866	711	377	0	452	327	0	467
V/C Ratio(X)	0.74	0.65	0.65	0.73	0.72	0.30	0.36	0.00	0.37	0.58	0.00	0.24
Avail Cap(c_a), veh/h	154	1002	1004	224	1110	911	521	0	631	466	0	652
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.1	15.1	15.2	36.5	15.3	11.5	26.9	0.0	22.9	30.8	0.0	22.0
Incr Delay (d2), s/veh	8.6	3.4	3.4	6.6	4.3	0.9	0.4	0.0	0.4	1.6	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	7.2	7.3	1.7	8.9	2.2	2.3	0.0	2.5	3.6	0.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.8	18.5	18.6	43.1	19.6	12.4	27.3	0.0	23.2	32.4	0.0	22.3
LnGrp LOS	D	B	B	D	B	B	C	A	C	C	A	C
Approach Vol, veh/h		1120			914			305			304	
Approach Delay, s/veh		20.1			20.0			25.0			28.6	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	43.6		26.9	8.6	44.6		26.9				
Change Period (Y+Rc), s	4.5	5.0		4.5	4.5	5.0		4.5				
Max Green Setting (Gmax), s	10.5	48.0		31.5	7.5	51.0		31.5				
Max Q Clear Time (g_c+I1), s	6.0	21.3		20.7	5.3	24.5		13.7				
Green Ext Time (p_c), s	0.0	17.4		1.0	0.0	13.3		1.1				

Intersection Summary			
HCM 6th Ctrl Delay		21.6	
HCM 6th LOS		C	

Notes

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

Intersection	
Int Delay, s/veh	8.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	55	0	0	70	60	50	1315	25	0	0	0
Future Vol, veh/h	10	55	0	0	70	60	50	1315	25	0	0	0
Conflicting Peds, #/hr	4	0	15	15	0	4	2	0	11	11	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	-	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	2	0	0	0	0	6	2	23	0	6	0
Mvmt Flow	10	57	0	0	72	62	52	1356	26	0	0	0

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	824	1499	-	-	1486	706	2	0	0
Stage 1	2	2	-	-	1484	-	-	-	-
Stage 2	822	1497	-	-	2	-	-	-	-
Critical Hdwy	7.5	6.54	-	-	6.5	6.9	4.22	-	-
Critical Hdwy Stg 1	-	-	-	-	5.5	-	-	-	-
Critical Hdwy Stg 2	6.5	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.02	-	-	4	3.3	2.26	-	-
Pot Cap-1 Maneuver	269	121	0	0	126	383	1590	-	-
Stage 1	-	-	0	0	190	-	-	-	-
Stage 2	339	184	0	0	-	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	93	102	-	-	107	379	1587	-	-
Mov Cap-2 Maneuver	93	102	-	-	107	-	-	-	-
Stage 1	-	-	-	-	161	-	-	-	-
Stage 2	134	156	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	73	56.1	0.7
HCM LOS	F	F	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2
Capacity (veh/h)	1587	-	-	93	102	107	379
HCM Lane V/C Ratio	0.032	-	-	0.111	0.556	0.674	0.163
HCM Control Delay (s)	7.3	0.5	-	48.5	77.5	90.2	16.3
HCM Lane LOS	A	A	-	E	F	F	C
HCM 95th %tile Q(veh)	0.1	-	-	0.4	2.6	3.5	0.6

Intersection ID and Name	use dropdown NB PhasingType	use dropdown SB PhasingType	use dropdown EB PhasingType	use dropdown WB PhasingType	Cycle Length	Lost Time	BEGIN CALCULATIONS	1 EBL	3 EBT	4 EBR	5 WBL	6 WBT	7 WBR	8 NBL	9 NBT	10 NBR	11 SBL	12 SBT	13 SBR	14	Critical Flow Calculator WBL/EBT	EBL/WBT	NBL/SBT	SBL/NBT	V/S E/W	V/S N/S	Intersection V/C	HCM 6th Ctrl Delay	HCM 6th LOS	Synchro ID
2: US 101 & Lighthouse Dr/52nd St	Protected	Protected	Permitted	Permitted	125	12	Adj Flow Rate, veh/h	37	5	95	100	0	16	58	1137	0	32	895	0	Protected	0.26	0.01	0.56	0.70						
							Sat Flow, veh/h	0	19	1457	0	0	1468	1615	1682	1483	1667	1695	1483	Permitted or Split	0.26	0.01	0.53	0.68						
							V/S	0.00	0.26	0.07	0.00	0.00	0.01	0.04	0.68	0.00	0.02	0.53	0.00	selected phasing	0.26	0.01	0.56	0.70	0.26	0.70	**1.06**	**56.9**	**E**	2
7: US 101 & 11th St	Protected	Protected	Permitted	Permitted	120	12	Adj Flow Rate, veh/h	79	16	26	32	11	53	11	1579	16	16	1521	26	Protected	0.17	0.16	0.47	0.49						
							Sat Flow, veh/h	845	245	298	382	315	858	1667	3292	33	1667	3265	56	Permitted or Split	0.09	0.08	0.47	0.48						
							V/S	0.09	0.07	0.09	0.08	0.03	0.06	0.01	0.48	0.48	0.01	0.47	0.46	selected phasing	0.09	0.08	0.47	0.49	0.09	0.49	**0.65**	**5**	**A**	7
8: US 101 & 6th St	Protected	Protected	Split	Split	120	16	Adj Flow Rate, veh/h	100	39	33	83	22	39	39	1606	28	28	1556	33	Protected	0.19	0.19	0.51	0.51						
							Sat Flow, veh/h	954	372	315	932	247	438	1667	3265	57	1667	3225	68	Permitted or Split	0.10	0.09	0.49	0.49						
							V/S	0.10	0.10	0.10	0.09	0.09	0.09	0.02	0.49	0.49	0.02	0.48	0.49	selected phasing	0.10	0.09	0.51	0.51	0.19	0.51	**0.81**	**21**	**C**	8
9: US 101 & Olive St/US 20	Protected	Protected	Protected	Protected	120	16	Adj Flow Rate, veh/h	218	207	37	271	176	298	80	957	0	356	1037	85	Protected	0.32	0.34	0.39	0.52						
							Sat Flow, veh/h	1654	1424	255	1576	1723	1414	1667	3221	1367	1615	3032	248	Permitted or Split	0.15	0.21	0.34	0.30						
							V/S	0.13	0.15	0.15	0.17	0.10	0.21	0.05	0.30	0.00	0.22	0.34	0.34	selected phasing	0.32	0.34	0.39	0.52	0.34	0.52	**0.99**	**75.1**	**E**	9
11: US 101 & Hurbert St	Protected	Protected	Permitted	Permitted	120	12	Adj Flow Rate, veh/h	0	31	52	72	62	0	0	0	0	46	1119	21	Protected	0.19	0.10	0.35	0.36						
							Sat Flow, veh/h	0	579	972	522	610	0	0	0	0	127	3234	64	Permitted or Split	0.05	0.14	0.36	0.00						
							V/S	0.00	0.05	0.05	0.14	0.10	0.00	0.00	0.00	0.00	0.36	0.35	0.33	selected phasing	0.05	0.14	0.35	0.36	0.14	0.36	**0.56**	**12.5**	**B**	11
14: Moore Dr/Harney St & US 20	Permitted	Permitted	Protected	Protected	104	12	Adj Flow Rate, veh/h	65	908	147	82	620	212	136	87	82	190	71	43	Protected	0.37	0.41	0.18	0.26						
							Sat Flow, veh/h	1537	2821	457	1628	1709	1402	1270	813	767	1221	1017	616	Permitted or Split	0.32	0.36	0.16	0.11						
							V/S	0.04	0.32	0.32	0.05	0.36	0.15	0.11	0.11	0.11	0.16	0.07	0.07	selected phasing	0.37	0.41	0.16	0.11	0.41	0.16	**0.63**	**21.6**	**C**	14
1: US 101 & 73rd Ct/73rd St	Protected	Protected	Permitted	Permitted	90	12	Adj Flow Rate, veh/h	1	0	5	100	0	16	5	932	63	21	726	2	Protected	0.08	0.09	0.43	0.57						
							Sat Flow, veh/h	109	149	1288	1249	0	200	1667	1709	1043	770	1704	5	Permitted or Split	0.01	0.08	0.43	0.55						
							V/S	0.01	0.00	0.00	0.08	0.00	0.08	0.00	0.55	0.06	0.03	0.43	0.40	selected phasing	0.01	0.08	0.43	0.57	0.08	0.57	**0.75**	**9.9**	**A**	1
12: US 101 & Hurbert St	Protected	Protected	Permitted	Permitted	120	12	Adj Flow Rate, veh/h													Protected	0.00	0.00	0.00	0.00						
							Sat Flow, veh/h													Permitted or Split	0.00	0.00	0.00	0.00						
							V/S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	selected phasing	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**0**	**A**	12
6: US 101 & 20th St	Protected	Protected	Split	Split	120	16	Adj Flow Rate, veh/h	43	59	86	239	186	97	65	1425	124	86	1156	22	Protected	0.21	0.23	0.39	0.53						
							Sat Flow, veh/h	711	976	1416	1654	1081	564	1641	2998	259	1628	3259	62	Permitted or Split	0.06	0.17	0.35	0.48						
							V/S	0.06	0.06	0.06	0.14	0.17	0.17	0.04	0.48	0.48	0.05	0.35	0.35	selected phasing	0.06	0.17	0.39	0.53	0.23	0.53	**0.88**	**40.2**	**D**	6

Sheet Description:
This sheet reads in the adjusted flow rate and the saturation flow rate from Synchro and divides them to calculated the V/S for each movement.
The critical flow calculator calculates the critical v/s for each conflicting phase pair.
for protected phases, this v/s is the left turn v/s plus the max of the opposing movement v/s
for the permitted and split phases, this v/s is the max of the three movement v/s
The next step selects the proper v/s based on phasing provided
V/S by east-west and north-south is selected by taking the max of the phase pairs or by adding them (if split phasing)
If overlap calculator was selected in input section and overlap phases were indicated, then overlap v/s for intersection is calculated. See details below
If the right turn v/s is greater than the through v/s for the right turn overlap approach, then the right turn is assumed the critical movement and intersection v/c calc will use the v/s overlap instead of approach v/s
The final step in v/c calculation uses the approach v/s ratios, cycle length, and lost time to calculate overall intersection v/c
Delay and LOS are read directly from the HCM 6 report

Overlap Calculator Details
Overlap calculator reads in whether an overlap phase is in use and what type of phasing is associated with the right turn approach and the overlapped approach
V/S is read in for right turn movement, and remaining approaches from previous calculations
-right turn overlap v/s is just the v/s for the right turn movement (i.e. NBR)
-right turn approach v/s is the critical v/s associated with the right turn approaches (i.e. NB/SB) and is calculated differently for protected vs split
-overlap approach v/s is the critical v/s associated with the overlap approaches (i.e. EB/WB) and is calculated differently for protected vs split phasing
The v/s overlap column sums the 3 v/s values for the overlap phasing to get the total v/s overlap to be used in the v/c calculation
If there are overlaps for multiple approaches, the v/s overlap will use the greatest of the approaches for most conservative approach
Use Overlap Calculator' must be enabled and 'Use OV V/S' must be showing in V/S Overlap column in order for overlap v/s to be used in final v/c calculation

	use dropdown	BEGIN	Sat. Flow Default	1700	1	3	4	5	6	7	8	9	10	11	12	13	14	**Outputs**					
Intersection ID and Name	**Control Type**	CALCULATIONS	**Major Approach**	**Row Reference**		**EBL**	**EBT**	**EBR**	**WBL**	**WBT**	**WBR**	**NBL**	**NBT**	**NBR**	**SBL**	**SBT**	**SBR**		**NB**	**SB**	**EB**	**WB**	**Synchro ID**
1: US 101 & 73rd Ct/73rd St	TWSC		#N/A	7														1: US 101 & 73rd Ct/73rd St V/C	**0.00**	**0.00**	**0.00**	**0.00**	**1**
				8														1: US 101 & 73rd Ct/73rd St Delay	**0.00**	**0.00**	**0.00**	**0.00**	
				19		0	0	0	0	0	0	0	0	0	0	0	0	1: US 101 & 73rd Ct/73rd St LOS	**A**	**A**	**A**	**A**	
					Major V/C Lanes	LT	T or TR	TR or R	LT	T or TR	TR or R	LT	T or TR	TR or R	LT	T or TR	TR or R						
					Major V/C																		
					Minor (or AWSC) V/C																		
				45																			
				47																			
				48																			
				49																			
3: US 101 & Oceanview Dr	TWSC		NB/SB	7	Movement	EBL		EBR				NBL	NBT			SBT	SBR	3: US 101 & Oceanview Dr V/C	**0.72**	**0.61**	**1.12**	**0.00**	**3**
				8	Lane Configurations	1		0				1	1			1	1	3: US 101 & Oceanview Dr Delay	**11.10**	**0.00**	**156.90**	**0.00**	
				19	Mvmt Flow	138	0	64	0	0	0	21	1223	0	0	1032	59	3: US 101 & Oceanview Dr LOS	**B**	**A**	**F**	**A**	
				10	Major V/C Lanes	LTR	T or TR	TR or R	LT	T or TR	TR or R	L	T or TR	TR or R	LT	T or TR	TR or R						
					Major V/C							0.04	0.72			0.61	0.03						
					Minor (or AWSC) V/C	1.12																	
				45	Minor Lane/Major Mvmt	0	NBL	NBT	EBLn1	SBT	SBR	0	0	0	0	0	0						
				47	HCM Lane V/C Ratio	0.00	0.04	-	1.12	-	-	0.00	0.00	0.00	0.00	0.00	0.00						
				48	HCM Control Delay (s)	0.0	11.1	-	156.9	-	-	0.0	0.0	0.0	0.0	0.0	0.0						
				49	HCM Lane LOS	0	B	-	F	-	-	0	0	0	0	0	0						
4: US 101 & 36th Street	TWSC		NB/SB	7	Movement				WBL		WBR		NBT	NBR	SBL	SBT		4: US 101 & 36th Street V/C	**0.68**	**0.62**	**0.00**	**0.24**	**4**
				8	Lane Configurations				1		0		1	1	1	1		4: US 101 & 36th Street Delay	**0.00**	**11.20**	**0.00**	**31.50**	
				19	Mvmt Flow	0	0	0	27	0	16	0	1154	43	11	1059	0	4: US 101 & 36th Street LOS	**A**	**B**	**A**	**D**	
				70	Major V/C Lanes	LT	T or TR	TR or R	L	T or TR	TR or R	LT	T or TR	TR or R	L	T or TR	TR or R						
					Major V/C								0.68	0.03	0.02	0.62							
					Minor (or AWSC) V/C				0.24														
				45	Minor Lane/Major Mvmt	0	NBT	NBR	WBLn1	SBL	SBT	0	0	0	0	0	0						
				47	HCM Lane V/C Ratio	0.00	-	-	0.24	0.02	-	0.00	0.00	0.00	0.00	0.00	0.00						
				48	HCM Control Delay (s)	0.0	-	-	31.5	11.2	-	0.0	0.0	0.0	0.0	0.0	0.0						
				49	HCM Lane LOS	0	-	-	D	B	-	0	0	0	0	0	0						
5: US 101 & 31st St	TWSC		NB/SB	7	Movement				WBL		WBR		NBT	NBR	SBL	SBT		5: US 101 & 31st St V/C	**0.71**	**0.64**	**0.00**	**0.30**	**5**
				8	Lane Configurations				1		0		1	1	1	1		5: US 101 & 31st St Delay	**0.00**	**12.00**	**0.00**	**36.80**	
				19	Mvmt Flow	0	0	0	38	0	11	0	1212	98	22	1082	0	5: US 101 & 31st St LOS	**A**	**B**	**A**	**E**	
				127	Major V/C Lanes	LT	T or TR	TR or R	L	T or TR	TR or R	LT	T or TR	TR or R	L	T or TR	TR or R						
					Major V/C								0.71	0.06	0.04	0.64							
					Minor (or AWSC) V/C				0.30														
				45	Minor Lane/Major Mvmt	0	NBT	NBR	WBLn1	SBL	SBT	0	0	0	0	0	0						
				47	HCM Lane V/C Ratio	0.00	-	-	0.30	0.04	-	0.00	0.00	0.00	0.00	0.00	0.00						
				48	HCM Control Delay (s)	0.0	-	-	36.8	12.0	-	0.0	0.0	0.0	0.0	0.0	0.0						
				49	HCM Lane LOS	0	-	-	E	B	-	0	0	0	0	0	0						
10: US 101 & Angle St	TWSC		NB/SB	7	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	10: US 101 & Angle St V/C	**0.00**	**0.38**	**0.06**	**0.00**	**10**
				8	Lane Configurations	0	1	0	0	0	2	0	0	0	0	2	0	10: US 101 & Angle St Delay	**0.00**	**0.00**	**15.00**	**0.00**	
				19	Mvmt Flow	0	0	22	0	0	1126	0	0	0	0	1258	49	10: US 101 & Angle St LOS	**A**	**A**	**C**	**A**	
				184	Major V/C Lanes	LTR	T or TR	TR or R	LT	T or TR	TR or R	LT	T or TR	TR or R	LT	T or TR	TR or R						
					Major V/C		0.01	0.01			0.33					0.38	0.38						
					Minor (or AWSC) V/C	0.06																	
				45	Minor Lane/Major Mvmt	0	EBLn1	SBT	SBR	0	0	0	0	0	0	0	0						
				47	HCM Lane V/C Ratio	0.00	0.06	-	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
				48	HCM Control Delay (s)	0.0	15.0	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
				49	HCM Lane LOS	0	C	-	-	0	0	0	0	0	0	0	0						
12: US 101 & Bayley St	TWSC		NB/SB	7	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	12: US 101 & Bayley St V/C	**0.37**	**0.41**	**0.79**	**0.49**	**12**
				8	Lane Configurations	0	1	0	0	1	0	1	2	0	0	2	0	12: US 101 & Bayley St Delay	**12.90**	**11.60**	**110.60**	**79.00**	
				19	Mvmt Flow	17	0	67	11	0	33	28	1233	11	11	1328	22	12: US 101 & Bayley St LOS	**B**	**B**	**F**	**F**	
				241	Major V/C Lanes	LTR	T or TR	TR or R	LTR	T or TR	TR or R	L	T or TR	TR or R	LT	T or TR	TR or R						
					Major V/C		0.04	0.04		0.02	0.02	0.06	0.37	0.37	0.41	0.40	0.40						
					Minor (or AWSC) V/C	0.79			0.49														
				45	Minor Lane/Major Mvmt	0	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR	0	0	0						
				47	HCM Lane V/C Ratio	0.00	0.06	-	-	0.79	0.49	0.02	-	-	0.00	0.00	0.00						
				48	HCM Control Delay (s)	0.0	12.9	-	-	110.6	79.0	11.6	0.4	-	0.0	0.0	0.0						
				49	HCM Lane LOS	0	B	-	-	F	F	B	A	-	0	0	0						
13: Benton St & US 20	TWSC		EB/WB	7	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	13: Benton St & US 20 V/C	**1.05**	**0.46**	**0.46**	**0.39**	**13**
				8	Lane Configurations	1	1	0	1	1	0	0	1	0	0	1	0	13: Benton St & US 20 Delay	**118.20**	**55.80**	**8.90**	**10.10**	
				19	Mvmt Flow	16	732	47	126	658	5	21	5	221	5	11	42	13: Benton St & US 20 LOS	**F**	**F**	**A**	**B**	
				298	Major V/C Lanes	L	T or TR	TR or R	L	T or TR	TR or R	LTR	T or TR	TR or R	LTR	T or TR	TR or R						
					Major V/C	0.02	0.46	0.46	0.15	0.39	0.39		0.13	0.13		0.03	0.03						
					Minor (or AWSC) V/C							1.05			0.46								
				45	Minor Lane/Major Mvmt	0	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	0	0	0						
				47	HCM Lane V/C Ratio	0.00	1.05	0.02	-	-	0.15	-	-	0.46	0.00	0.00	0.00						
				48	HCM Control Delay (s)	0.0	118.2	8.9	-	-	10.1	-	-	55.8	0.0	0.0	0.0						
				49	HCM Lane LOS	0	F	A	-	-	B	-	-	F	0	0	0						
15: Oceanview Dr & Pacific Pl/25th St	TWSC		NB/SB	7	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	15: Oceanview Dr & Pacific Pl/25th St V/C	**0.15**	**0.08**	**0.00**	**0.27**	**15**
				8	Lane Configurations	0	1	0	0	1	0	0	1	0	0	1	0	15: Oceanview Dr & Pacific Pl/25th St Delay	**0.00**	**7.80**	**0.00**	**12.30**	

	use dropdown	BEGIN	Sat. Flow Default	1700		1	3	4	5	6	7	8	9	10	11	12	13	14					
Intersection ID and Name	**Control Type**	CALCULATIONS	**Major Approach**	**Row Reference**		**EBL**	**EBT**	**EBR**	**WBL**	**WBT**	**WBR**	**NBL**	**NBT**	**NBR**	**SBL**	**SBT**	**SBR**	**Outputs**	**NB**	**SB**	**EB**	**WB**	**Synchro ID**
				19	Mvmt Flow	0	0	0	99	0	86	0	136	123	25	111	0	15: Oceanview Dr & Pacific Pl/25th St LOS	A	A	A	B	
				355	Major V/C Lanes	LTR	T or TR	TR or R	LTR	T or TR	TR or R	LTR	T or TR	TR or R	LTR	T or TR	TR or R						
					Major V/C		0.00	0.00		0.05	0.05		0.15	0.15	0.08	0.07	0.07						
					Minor (or AWSC) V/C	-			0.27														
				45	Minor Lane/Major Mvmt	0	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR	0	0	0						
				47	HCM Lane V/C Ratio	0.00	-	-	-	-	0.27	0.02	-	-	0.00	0.00	0.00						
				48	HCM Control Delay (s)	0.0	0.0	-	-	0.0	12.3	7.8	0.0	-	0.0	0.0	0.0						
				49	HCM Lane LOS	0	A	-	-	A	B	A	A	-	0	0	0						
16: Nye St & 11th St	TWSC		EB/WB	7	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	16: Nye St & 11th St V/C	**0.26**	**0.14**	**0.03**	**0.04**	**16**
				8	Lane Configurations	0	1	0	0	1	0	0	1	0	0	1	0	16: Nye St & 11th St Delay	**10.90**	**10.80**	**7.30**	**7.30**	
				19	Mvmt Flow	6	38	6	19	31	13	19	125	69	19	75	6	16: Nye St & 11th St LOS	**B**	**B**	**A**	**A**	
				412	Major V/C Lanes	LTR	T or TR	TR or R	LTR	T or TR	TR or R	LTR	T or TR	TR or R	LTR	T or TR	TR or R						
					Major V/C	0.03	0.03	0.03	0.04	0.03	0.03		0.11	0.11		0.05	0.05						
					Minor (or AWSC) V/C							0.26			0.14								
				45	Minor Lane/Major Mvmt	0	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	0	0	0						
				47	HCM Lane V/C Ratio	0.00	0.26	0.00	-	-	0.01	-	-	0.14	0.00	0.00	0.00						
				48	HCM Control Delay (s)	0.0	10.9	7.3	0.0	-	7.3	0.0	-	10.8	0.0	0.0	0.0						
				49	HCM Lane LOS	0	B	A	A	-	A	A	-	B	0	0	0						
17: Harney St & 7th St	AWSC		N/A	9	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	17: Harney St & 7th St V/C	**0.22**	**0.00**	**0.22**	**0.08**	**17**
				10	Lane Configurations	0	1	0	0	1	0	0	1	1	0	1	0	17: Harney St & 7th St Delay	**9.80**	**7.80**	**8.10**	**8.10**	
				15	Mvmt Flow	1	45	152	28	34	0	140	0	39	0	1	0	17: Harney St & 7th St LOS	**A**	**A**	**A**	**A**	
				471	Major V/C Lanes	LTR	T or TR	TR or R	LTR	T or TR	TR or R	LT	T or TR	TR or R	LTR	T or TR	TR or R						
					Major V/C		0.12	0.12		0.02	0.02		0.00	0.02		0.00	0.00						
					Minor (or AWSC) V/C	0.22			0.08			0.22	0.05		0.00								
				29	Lane	0	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	0	0	0	0	0	0						
				45	HCM Lane V/C Ratio	0.00	0.22	0.05	0.22	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
				46	HCM Control Delay	0.0	9.8	7.3	8.1	8.1	7.8	0.0	0.0	0.0	0.0	0.0	0.0						
				47	HCM Lane LOS	0	A	A	A	A	A	0	0	0	0	0	0						
18: 9th St & Hurbert St	TWSC		NB/SB	7	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	18: 9th St & Hurbert St V/C	**0.43**	**0.00**	**0.56**	**0.67**	**18**
				8	Lane Configurations	1	1	0	0	1	1	0	2	0	0	0	0	18: 9th St & Hurbert St Delay	**7.30**	**0.00**	**77.50**	**90.20**	
				19	Mvmt Flow	10	57	0	0	72	62	52	1356	26	0	0	0	18: 9th St & Hurbert St LOS	**A**	**A**	**F**	**F**	
				524	Major V/C Lanes	L	T or TR	TR or R	LT	T or TR	TR or R	LT	T or TR	TR or R	LT	T or TR	TR or R						
					Major V/C		0.03	0.03		0.04	0.04	0.43	0.41	0.41									
					Minor (or AWSC) V/C	0.11	0.56		0.67	0.16													
				45	Minor Lane/Major Mvmt	0	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	0	0	0	0						
				47	HCM Lane V/C Ratio	0.00	0.03	-	-	0.11	0.56	0.67	0.16	0.00	0.00	0.00	0.00						
				48	HCM Control Delay (s)	0.0	7.3	0.5	-	48.5	77.5	90.2	16.3	0.0	0.0	0.0	0.0						
				49	HCM Lane LOS	0	A	A	-	E	F	F	C	0	0	0	0						
19: 9th St & Abbey St	TWSC		EB/WB	7	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	19: 9th St & Abbey St V/C	**0.23**	**0.21**	**0.06**	**0.09**	**19**
				8	Lane Configurations	0	1	0	0	1	0	0	1	0	0	1	0	19: 9th St & Abbey St Delay	**13.00**	**13.10**	**7.60**	**7.40**	
				19	Mvmt Flow	30	42	18	1	90	54	24	96	12	48	54	18	19: 9th St & Abbey St LOS	**B**	**B**	**A**	**A**	
				581	Major V/C Lanes	LTR	T or TR	TR or R	LTR	T or TR	TR or R	LTR	T or TR	TR or R	LTR	T or TR	TR or R						
					Major V/C	0.06	0.04	0.04	0.09	0.08	0.08		0.06	0.06		0.04	0.04						
					Minor (or AWSC) V/C							0.23			0.21								
				45	Minor Lane/Major Mvmt	0	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	0	0	0						
				47	HCM Lane V/C Ratio	0.00	0.23	0.02	-	-	0.00	-	-	0.21	0.00	0.00	0.00						
				48	HCM Control Delay (s)	0.0	13.0	7.6	0.0	-	7.4	0.0	-	13.1	0.0	0.0	0.0						
				49	HCM Lane LOS	0	B	A	A	-	A	A	-	B	0	0	0						
20: Bay Blvd & Moore Dr	TWSC		NB/SB	7	Movement	EBL		EBR				NBL	NBT			SBT	SBR	20: Bay Blvd & Moore Dr V/C	**0.11**	**0.10**	**0.33**	**0.00**	**20**
				8	Lane Configurations	1		0				1	1			1	1	20: Bay Blvd & Moore Dr Delay	**7.90**	**0.00**	**14.40**	**0.00**	
				19	Mvmt Flow	72	0	111	0	0	0	161	178	0	0	172	122	20: Bay Blvd & Moore Dr LOS	**A**	**A**	**B**	**A**	
				638	Major V/C Lanes	LTR	T or TR	TR or R	LT	T or TR	TR or R	L	T or TR	TR or R	LT	T or TR	TR or R						
					Major V/C							0.11	0.10			0.10	0.07						
					Minor (or AWSC) V/C	0.33																	
				45	Minor Lane/Major Mvmt	0	NBL	NBT	EBLn1	SBT	SBR	0	0	0	0	0	0						
				47	HCM Lane V/C Ratio	0.00	0.11	-	0.33	-	-	0.00	0.00	0.00	0.00	0.00	0.00						
				48	HCM Control Delay (s)	0.0	7.9	-	14.4	-	-	0.0	0.0	0.0	0.0	0.0	0.0						
				49	HCM Lane LOS	0	A	-	B	-	-	0	0	0	0	0	0						

Sheet Description:

This sheet reads in lane configurations by representing exclusive through or shared lanes with the number of lanes in the through movement, and any exclusive number of turn lanes in the respective turn movement. So a single LTR lane would have 1 under through and 0s under left and right.

This sheet also reads in movement flow and select v/c, LOS, and delay results. The calculations are shown in the box.

Calculations are split out by major and minor approach v/c; Major approach is determined from free approaches in report

The major v/c lanes row indicates the left turn lane configuration for each approach. This is important to determine how to add in the delay from the left turns to the overall calculated v/c for the major approach

In the major v/c row, left turn v/c is read from the report, while remaining movement v/c ratios are calculated based on the methodology given in the ODOT APM and the provided default saturation flow rate of 1700 (can be changed by user)

In the minor v/c row, v/c ratios by lane are calculated based on the ODOT APM method using volume and assumed saturation flow rate

The v/c ratio by approach is the max of the v/c by lane as calculated in the major or minor v/c rows

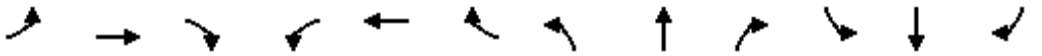
LOS and Delay by approach are read in from the report

For AWSC, all approaches are treated as minor approaches and the calculations remain the same

The summary table selects the worst approach for both directions and concatenates the results with a / for the final summary table for TWSC. For AWSC, the overall worst approach is reported.

SECTION 2. HCM REPORTS

FINANCIALLY CONSTRAINED WITHOUT PEAKING



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	5	95	0	15	5	885	60	20	690	2
Future Volume (veh/h)	1	0	5	95	0	15	5	885	60	20	690	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1750	1750	1654	1750	1750	1750	1709	1231	808	1709	1750
Adj Flow Rate, veh/h	1	0	5	95	0	15	5	885	60	20	690	2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	7	0	0	0	3	38	69	3	0
Cap, veh/h	96	13	127	256	0	19	470	1059	646	230	1085	3
Arrive On Green	0.10	0.00	0.10	0.10	0.00	0.10	0.03	0.62	0.62	0.04	0.64	0.60
Sat Flow, veh/h	124	136	1297	1251	0	198	1667	1709	1043	770	1703	5
Grp Volume(v), veh/h	6	0	0	110	0	0	5	885	60	20	0	692
Grp Sat Flow(s),veh/h/ln	1557	0	0	1449	0	0	1667	1709	1043	770	0	1708
Q Serve(g_s), s	0.0	0.0	0.0	3.5	0.0	0.0	0.1	20.5	1.2	0.5	0.0	12.4
Cycle Q Clear(g_c), s	0.2	0.0	0.0	3.7	0.0	0.0	0.1	20.5	1.2	0.5	0.0	12.4
Prop In Lane	0.17		0.83	0.86		0.14	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	236	0	0	275	0	0	470	1059	646	230	0	1088
V/C Ratio(X)	0.03	0.00	0.00	0.40	0.00	0.00	0.01	0.84	0.09	0.09	0.00	0.64
Avail Cap(c_a), veh/h	648	0	0	679	0	0	625	1802	1100	288	0	1801
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	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.5	0.0	0.0	22.1	0.0	0.0	4.9	7.6	3.9	7.8	0.0	5.6
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.9	0.0	0.0	0.0	1.8	0.1	0.2	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	1.3	0.0	0.0	0.0	2.9	0.1	0.0	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.6	0.0	0.0	23.1	0.0	0.0	4.9	9.4	3.9	8.0	0.0	6.2
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		6			110			950			712	
Approach Delay, s/veh		20.6			23.1			9.0			6.2	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.2	35.1		8.9	5.3	36.0		8.9				
Change Period (Y+Rc), s	5.0	6.0		4.0	5.0	6.0		4.0				
Max Green Setting (Gmax), s	5.0	51.0		19.0	5.0	51.0		19.0				
Max Q Clear Time (g_c+I1), s	2.5	22.5		2.2	2.1	14.4		5.7				
Green Ext Time (p_c), s	0.0	6.6		0.0	0.0	4.5		0.4				

Intersection Summary		
HCM 6th Ctrl Delay		8.8
HCM 6th LOS		A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	5	90	95	0	15	55	1080	120	30	850	30
Future Volume (veh/h)	35	5	90	95	0	15	55	1080	120	30	850	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1750	1736	1750	1750	1750	1695	1682	1750	1750	1695	1750
Adj Flow Rate, veh/h	35	5	90	95	0	15	55	1080	0	30	850	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	1	0	0	0	4	5	0	0	4	0
Cap, veh/h	56	4	294	59	0	296	75	1125		51	1107	
Arrive On Green	0.20	0.20	0.20	0.20	0.00	0.20	0.05	0.67	0.00	0.03	0.65	0.00
Sat Flow, veh/h	0	21	1457	0	0	1468	1615	1682	1483	1667	1695	1483
Grp Volume(v), veh/h	40	0	90	95	0	15	55	1080	0	30	850	0
Grp Sat Flow(s),veh/h/ln	21	0	1457	0	0	1468	1615	1682	1483	1667	1695	1483
Q Serve(g_s), s	0.0	0.0	6.4	0.0	0.0	1.0	4.1	72.1	0.0	2.2	42.4	0.0
Cycle Q Clear(g_c), s	24.0	0.0	6.4	24.0	0.0	1.0	4.1	72.1	0.0	2.2	42.4	0.0
Prop In Lane	0.87		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	60	0	294	59	0	296	75	1125		51	1107	
V/C Ratio(X)	0.67	0.00	0.31	1.60	0.00	0.05	0.73	0.96		0.59	0.77	
Avail Cap(c_a), veh/h	60	0	294	59	0	296	80	1143		82	1152	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	58.0	0.0	41.2	60.5	0.0	39.1	57.1	18.6	0.0	58.1	14.7	0.0
Incr Delay (d2), s/veh	23.5	0.0	0.4	336.0	0.0	0.1	26.1	18.0	0.0	8.0	3.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	2.4	7.4	0.0	0.4	2.2	28.5	0.0	1.0	15.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.5	0.0	41.7	396.5	0.0	39.1	83.2	36.5	0.0	66.1	18.3	0.0
LnGrp LOS	F	A	D	F	A	D	F	D		E	B	
Approach Vol, veh/h		130			110			1135	A		880	A
Approach Delay, s/veh		53.9			347.7			38.8			19.9	
Approach LOS		D			F			D			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.6	83.3		28.5	7.7	85.2		28.5
Change Period (Y+Rc), s	4.5	6.0		4.5	4.5	6.0		4.5
Max Green Setting (Gmax), s	5.5	80.5		24.0	5.5	80.5		24.0
Max Q Clear Time (g_c+I1), s	6.1	44.4		26.0	4.2	74.1		26.0
Green Ext Time (p_c), s	0.0	13.4		0.0	0.0	5.1		0.0

Intersection Summary	
HCM 6th Ctrl Delay	47.4
HCM 6th LOS	D

Notes

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

Intersection	
Int Delay, s/veh	8.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	130	60	20	1150	970	55
Future Vol, veh/h	130	60	20	1150	970	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	300	-	-	75
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	11	5	4	4
Mvmt Flow	130	60	20	1150	970	55

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2160	970	1025	0	-	0
Stage 1	970	-	-	-	-	-
Stage 2	1190	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.21	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.299	-	-	-
Pot Cap-1 Maneuver	~ 53	310	644	-	-	-
Stage 1	371	-	-	-	-	-
Stage 2	291	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 51	310	644	-	-	-
Mov Cap-2 Maneuver	170	-	-	-	-	-
Stage 1	359	-	-	-	-	-
Stage 2	291	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	103.2	0.2	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	644	-	198	-	-
HCM Lane V/C Ratio	0.031	-	0.96	-	-
HCM Control Delay (s)	10.8	-	103.2	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	0.1	-	8	-	-

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

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	15	1085	40	10	995
Future Vol, veh/h	25	15	1085	40	10	995
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	125	275	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	31	4	0	0	3
Mvmt Flow	25	15	1085	40	10	995

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2100	1085	0	0	1125	0
Stage 1	1085	-	-	-	-	-
Stage 2	1015	-	-	-	-	-
Critical Hdwy	6.4	6.51	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.579	-	-	2.2	-
Pot Cap-1 Maneuver	58	231	-	-	628	-
Stage 1	327	-	-	-	-	-
Stage 2	353	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	57	231	-	-	628	-
Mov Cap-2 Maneuver	180	-	-	-	-	-
Stage 1	327	-	-	-	-	-
Stage 2	347	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	28	0	0.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	196	628	-
HCM Lane V/C Ratio	-	-	0.204	0.016	-
HCM Control Delay (s)	-	-	28	10.8	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q(veh)	-	-	0.7	0	-

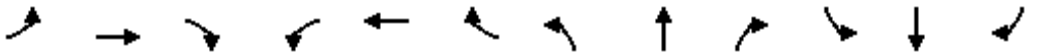
Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	35	10	1115	90	20	995
Future Vol, veh/h	35	10	1115	90	20	995
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	50	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	14	5	0	0	3
Mvmt Flow	35	10	1115	90	20	995

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2150	1115	0	0	1205	0
Stage 1	1115	-	-	-	-	-
Stage 2	1035	-	-	-	-	-
Critical Hdwy	6.4	6.34	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.426	-	-	2.2	-
Pot Cap-1 Maneuver	54	239	-	-	586	-
Stage 1	316	-	-	-	-	-
Stage 2	345	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	52	239	-	-	586	-
Mov Cap-2 Maneuver	172	-	-	-	-	-
Stage 1	316	-	-	-	-	-
Stage 2	333	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	31	0	0.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	183	586	-
HCM Lane V/C Ratio	-	-	0.246	0.034	-
HCM Control Delay (s)	-	-	31	11.4	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q(veh)	-	-	0.9	0.1	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	55	80	325	30	90	60	1325	115	80	1075	20
Future Volume (veh/h)	40	55	80	325	30	90	60	1325	115	80	1075	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1723	1695	1736	1750	1723	1723	1695	1750	1709	1709	1750
Adj Flow Rate, veh/h	40	55	80	222	173	90	60	1325	115	80	1075	20
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	2	4	1	0	2	2	4	0	3	3	0
Cap, veh/h	56	77	111	307	200	104	82	1657	143	81	1803	34
Arrive On Green	0.07	0.08	0.08	0.19	0.19	0.18	0.05	0.55	0.54	0.05	0.55	0.54
Sat Flow, veh/h	710	977	1415	1654	1082	563	1641	2998	259	1628	3261	61
Grp Volume(v), veh/h	95	0	80	222	0	263	60	710	730	80	535	560
Grp Sat Flow(s),veh/h/ln	1687	0	1415	1654	0	1644	1641	1611	1647	1628	1624	1698
Q Serve(g_s), s	6.6	0.0	6.6	15.2	0.0	18.6	4.3	42.3	42.8	5.9	26.4	26.4
Cycle Q Clear(g_c), s	6.6	0.0	6.6	15.2	0.0	18.6	4.3	42.3	42.8	5.9	26.4	26.4
Prop In Lane	0.42		1.00	1.00		0.34	1.00		0.16	1.00		0.04
Lane Grp Cap(c), veh/h	133	0	111	307	0	305	82	890	910	81	898	939
V/C Ratio(X)	0.72	0.00	0.72	0.72	0.00	0.86	0.73	0.80	0.80	0.98	0.60	0.60
Avail Cap(c_a), veh/h	169	0	141	358	0	356	82	890	910	81	898	939
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.76	0.76	0.76	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.1	0.0	54.0	46.0	0.0	47.5	56.2	21.5	21.6	56.9	17.9	17.9
Incr Delay (d2), s/veh	8.5	0.0	10.3	5.3	0.0	16.5	21.6	5.7	5.7	93.7	2.9	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	0.0	2.7	6.7	0.0	9.1	2.3	16.4	17.0	4.5	10.2	10.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.6	0.0	64.3	51.3	0.0	63.9	77.8	27.1	27.4	150.7	20.8	20.7
LnGrp LOS	E	A	E	D	A	E	E	C	C	F	C	C
Approach Vol, veh/h		175			485			1500			1175	
Approach Delay, s/veh		63.4			58.2			29.3			29.6	
Approach LOS		E			E			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	70.4		26.2	10.0	70.3		13.4				
Change Period (Y+Rc), s	4.5	5.0		4.5	4.5	5.0		4.5				
Max Green Setting (Gmax), s	5.5	59.0		25.5	5.5	59.0		11.5				
Max Q Clear Time (g_c+I1), s	6.3	28.4		20.6	7.9	44.8		8.6				
Green Ext Time (p_c), s	0.0	16.0		0.9	0.0	11.7		0.2				

Intersection Summary		
HCM 6th Ctrl Delay		35.4
HCM 6th LOS		D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	15	25	30	10	50	10	1500	15	15	1445	25
Future Volume (veh/h)	75	15	25	30	10	50	10	1500	15	15	1445	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1750	1750	1695	1750	1750	1750	1709	1750	1750	1709	1750
Adj Flow Rate, veh/h	75	15	25	30	10	50	10	1500	15	15	1445	25
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	4	0	0	0	3	0	0	3	0
Cap, veh/h	143	27	34	82	34	95	23	2547	25	29	2537	44
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.03	1.00	1.00	0.03	1.00	1.00
Sat Flow, veh/h	859	248	307	381	313	868	1667	3293	33	1667	3264	56
Grp Volume(v), veh/h	115	0	0	90	0	0	10	739	776	15	718	752
Grp Sat Flow(s),veh/h/ln	1414	0	0	1562	0	0	1667	1624	1702	1667	1624	1697
Q Serve(g_s), s	3.1	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	1.1	0.0	0.0
Cycle Q Clear(g_c), s	9.5	0.0	0.0	6.4	0.0	0.0	0.7	0.0	0.0	1.1	0.0	0.0
Prop In Lane	0.65		0.22	0.33		0.56	1.00		0.02	1.00		0.03
Lane Grp Cap(c), veh/h	198	0	0	204	0	0	23	1256	1316	29	1262	1319
V/C Ratio(X)	0.58	0.00	0.00	0.44	0.00	0.00	0.44	0.59	0.59	0.52	0.57	0.57
Avail Cap(c_a), veh/h	339	0	0	350	0	0	83	1256	1316	83	1262	1319
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.57	0.57	0.57	0.73	0.73	0.73
Uniform Delay (d), s/veh	52.0	0.0	0.0	50.7	0.0	0.0	57.9	0.0	0.0	57.4	0.0	0.0
Incr Delay (d2), s/veh	2.0	0.0	0.0	1.1	0.0	0.0	5.6	1.2	1.1	7.7	1.4	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	0.0	0.0	2.7	0.0	0.0	0.3	0.4	0.4	0.5	0.5	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.0	0.0	0.0	51.8	0.0	0.0	63.5	1.2	1.1	65.1	1.4	1.3
LnGrp LOS	D	A	A	D	A	A	E	A	A	E	A	A
Approach Vol, veh/h		115			90			1525			1485	
Approach Delay, s/veh		54.0			51.8			1.5			2.0	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.6	97.2		17.1	6.1	96.8		17.1
Change Period (Y+Rc), s	4.5	5.0		4.5	4.5	5.0		4.5
Max Green Setting (Gmax), s	5.5	76.0		24.5	5.5	76.0		24.5
Max Q Clear Time (g_c+I1), s	2.7	2.0		8.4	3.1	2.0		11.5
Green Ext Time (p_c), s	0.0	48.3		0.3	0.0	50.4		0.4

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	35	30	75	20	35	35	1445	25	25	1400	30
Future Volume (veh/h)	90	35	30	75	20	35	35	1445	25	25	1400	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1736	1750	1654	1750	1750	1709	1750	1709	1750	1750	1695	1750
Adj Flow Rate, veh/h	90	35	30	75	20	35	35	1445	25	25	1400	30
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	0	7	0	0	3	0	3	0	0	4	0
Cap, veh/h	120	47	40	105	28	49	50	1963	34	38	1915	41
Arrive On Green	0.11	0.13	0.11	0.10	0.11	0.10	0.03	0.60	0.58	0.05	1.00	1.00
Sat Flow, veh/h	952	370	317	933	249	435	1667	3265	56	1667	3224	69
Grp Volume(v), veh/h	155	0	0	130	0	0	35	718	752	25	699	731
Grp Sat Flow(s),veh/h/ln	1640	0	0	1617	0	0	1667	1624	1698	1667	1611	1682
Q Serve(g_s), s	11.0	0.0	0.0	9.4	0.0	0.0	2.5	37.9	38.1	1.8	0.0	0.0
Cycle Q Clear(g_c), s	11.0	0.0	0.0	9.4	0.0	0.0	2.5	37.9	38.1	1.8	0.0	0.0
Prop In Lane	0.58		0.19	0.58		0.27	1.00		0.03	1.00		0.04
Lane Grp Cap(c), veh/h	206	0	0	182	0	0	50	976	1021	38	957	999
V/C Ratio(X)	0.75	0.00	0.00	0.71	0.00	0.00	0.70	0.74	0.74	0.65	0.73	0.73
Avail Cap(c_a), veh/h	219	0	0	216	0	0	83	976	1021	83	957	999
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.50	0.50	0.50	0.79	0.79	0.79
Uniform Delay (d), s/veh	51.4	0.0	0.0	52.2	0.0	0.0	57.7	17.1	17.2	56.8	0.0	0.0
Incr Delay (d2), s/veh	12.2	0.0	0.0	7.7	0.0	0.0	6.4	2.5	2.4	10.4	3.9	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	0.0	0.0	4.3	0.0	0.0	1.1	13.8	14.5	0.8	1.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.7	0.0	0.0	59.9	0.0	0.0	64.1	19.6	19.6	67.2	3.9	3.8
LnGrp LOS	E	A	A	E	A	A	E	B	B	E	A	A
Approach Vol, veh/h		155			130			1505			1455	
Approach Delay, s/veh		63.7			59.9			20.6			4.9	
Approach LOS		E			E			C			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.6	75.8		17.5	6.8	76.6		19.1
Change Period (Y+Rc), s	4.5	6.5		6.0	4.5	6.5		6.0
Max Green Setting (Gmax), s	5.5	63.5		14.0	5.5	63.5		14.0
Max Q Clear Time (g_c+I1), s	4.4	2.0		11.4	3.8	40.1		13.0
Green Ext Time (p_c), s	0.0	26.5		0.1	0.0	20.2		0.1

Intersection Summary	
HCM 6th Ctrl Delay	17.2
HCM 6th LOS	B

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	195	35	255	165	280	75	900	215	335	975	80
Future Volume (veh/h)	205	195	35	255	165	280	75	900	215	335	975	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1736	1736	1695	1654	1723	1723	1750	1695	1614	1695	1709	1709
Adj Flow Rate, veh/h	205	195	35	255	165	280	75	900	0	335	975	80
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	4	7	2	2	0	4	10	4	3	3
Cap, veh/h	238	238	43	284	351	288	100	1162		256	1392	114
Arrive On Green	0.14	0.17	0.16	0.18	0.20	0.20	0.06	0.36	0.00	0.05	0.15	0.15
Sat Flow, veh/h	1654	1422	255	1576	1723	1413	1667	3221	1367	1615	3032	249
Grp Volume(v), veh/h	205	0	230	255	165	280	75	900	0	335	522	533
Grp Sat Flow(s),veh/h/ln	1654	0	1678	1576	1723	1413	1667	1611	1367	1615	1624	1657
Q Serve(g_s), s	14.5	0.0	15.9	19.0	10.1	23.6	5.3	29.7	0.0	19.0	36.6	36.6
Cycle Q Clear(g_c), s	14.5	0.0	15.9	19.0	10.1	23.6	5.3	29.7	0.0	19.0	36.6	36.6
Prop In Lane	1.00		0.15	1.00		1.00	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	238	0	281	284	351	288	100	1162		256	745	761
V/C Ratio(X)	0.86	0.00	0.82	0.90	0.47	0.97	0.75	0.77		1.31	0.70	0.70
Avail Cap(c_a), veh/h	317	0	322	302	351	288	111	1162		256	745	761
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.59	0.59	0.59
Uniform Delay (d), s/veh	50.2	0.0	48.2	48.1	42.1	47.4	55.5	34.0	0.0	56.9	43.1	43.1
Incr Delay (d2), s/veh	15.4	0.0	13.0	26.4	1.0	45.4	20.5	5.1	0.0	155.4	3.3	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	0.0	7.7	9.5	4.4	12.0	2.8	12.5	0.0	19.3	16.7	17.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.6	0.0	61.2	74.6	43.0	92.9	76.0	39.1	0.0	212.3	46.3	46.3
LnGrp LOS	E	A	E	E	D	F	E	D		F	D	D
Approach Vol, veh/h		435			700			975	A		1390	
Approach Delay, s/veh		63.3			74.5			41.9			86.3	
Approach LOS		E			E			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.2	59.1	21.3	28.4	23.0	47.3	25.6	24.1
Change Period (Y+Rc), s	4.5	5.0	4.5	4.5	4.5	5.0	4.5	4.5
Max Green Setting (Gmax), s	7.5	49.0	22.5	22.5	18.5	38.0	22.5	22.5
Max Q Clear Time (g_c+I1), s	7.3	38.6	16.5	25.6	21.0	31.7	21.0	17.9
Green Ext Time (p_c), s	0.0	7.3	0.2	0.0	0.0	4.4	0.1	0.4

Intersection Summary	
HCM 6th Ctrl Delay	68.7
HCM 6th LOS	E

Notes

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

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

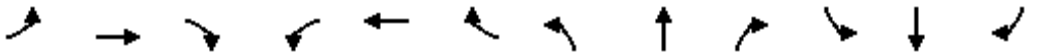
Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	20	0	0	1025	0	0	0	0	1145	45
Future Vol, veh/h	0	0	20	0	0	1025	0	0	0	0	1145	45
Conflicting Peds, #/hr	0	0	17	17	0	0	22	0	11	11	0	22
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	16979	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	14	0	2	0	4	0	4	2	2
Mvmt Flow	0	0	20	0	0	1025	0	0	0	0	1145	45

Major/Minor	Minor2			Major2		
Conflicting Flow All	1190	1190	634	-	-	0
Stage 1	1190	1190	-	-	-	-
Stage 2	0	0	-	-	-	-
Critical Hdwy	6.8	6.5	6.9	-	-	-
Critical Hdwy Stg 1	5.8	5.5	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	-	-	-
Pot Cap-1 Maneuver	183	189	427	0	-	-
Stage 1	255	263	-	0	-	-
Stage 2	-	-	-	0	-	-
Platoon blocked, %					-	-
Mov Cap-1 Maneuver	175	0	418	-	-	-
Mov Cap-2 Maneuver	175	0	-	-	-	-
Stage 1	250	0	-	-	-	-
Stage 2	-	0	-	-	-	-

Approach	EB	SB
HCM Control Delay, s	14	0
HCM LOS	B	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	418	-	-
HCM Lane V/C Ratio	0.048	-	-
HCM Control Delay (s)	14	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	30	50	70	60	0	0	0	0	45	1085	20
Future Volume (veh/h)	0	30	50	70	60	0	0	0	0	45	1085	20
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	0.98		1.00				1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1750	1750	1709	1682	0				1750	1723	1750
Adj Flow Rate, veh/h	0	30	50	70	60	0				45	1085	20
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	3	5	0				0	2	0
Cap, veh/h	0	88	146	125	93	0				100	2532	49
Arrive On Green	0.00	0.15	0.15	0.15	0.15	0.00				0.77	0.78	0.77
Sat Flow, veh/h	0	582	970	527	615	0				128	3234	63
Grp Volume(v), veh/h	0	0	80	130	0	0				603	0	547
Grp Sat Flow(s),veh/h/ln	0	0	1552	1142	0	0				1716	0	1708
Q Serve(g_s), s	0.0	0.0	5.6	8.6	0.0	0.0				14.2	0.0	12.3
Cycle Q Clear(g_c), s	0.0	0.0	5.6	14.1	0.0	0.0				14.2	0.0	12.3
Prop In Lane	0.00		0.62	0.54		0.00				0.07		0.04
Lane Grp Cap(c), veh/h	0	0	234	213	0	0				1344	0	1337
V/C Ratio(X)	0.00	0.00	0.34	0.61	0.00	0.00				0.45	0.00	0.41
Avail Cap(c_a), veh/h	0	0	401	367	0	0				1344	0	1337
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	45.8	50.5	0.0	0.0				4.4	0.0	4.2
Incr Delay (d2), s/veh	0.0	0.0	0.6	2.1	0.0	0.0				1.1	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	2.2	4.0	0.0	0.0				4.7	0.0	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	46.4	52.6	0.0	0.0				5.5	0.0	5.1
LnGrp LOS	A	A	D	D	A	A				A	A	A
Approach Vol, veh/h		80			130						1150	
Approach Delay, s/veh		46.4			52.6						5.3	
Approach LOS		D			D						A	

Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		97.9		22.1				22.1				
Change Period (Y+Rc), s		5.0		4.5				4.5				
Max Green Setting (Gmax), s		80.0		30.5				30.5				
Max Q Clear Time (g_c+I1), s		16.2		16.1				7.6				
Green Ext Time (p_c), s		25.1		0.5				0.3				

Intersection Summary												
HCM 6th Ctrl Delay			12.2									
HCM 6th LOS			B									

Notes

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

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	0	60	10	0	30	25	1110	10	10	1195	20
Future Vol, veh/h	15	0	60	10	0	30	25	1110	10	10	1195	20
Conflicting Peds, #/hr	10	0	0	0	0	10	13	0	8	8	0	13
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	4	3	0	0	2	0
Mvmt Flow	15	0	60	10	0	30	25	1110	10	10	1195	20

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1853	2416	621	1791	2421	578	1228	0	0	1128	0	0
Stage 1	1238	1238	-	1173	1173	-	-	-	-	-	-	-
Stage 2	615	1178	-	618	1248	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.18	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.24	-	-	2.2	-	-
Pot Cap-1 Maneuver	47	33	435	52	33	464	552	-	-	627	-	-
Stage 1	189	250	-	207	268	-	-	-	-	-	-	-
Stage 2	450	267	-	448	247	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	40	29	430	41	29	456	545	-	-	622	-	-
Mov Cap-2 Maneuver	40	29	-	41	29	-	-	-	-	-	-	-
Stage 1	178	235	-	196	254	-	-	-	-	-	-	-
Stage 2	397	253	-	366	232	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	53.2	45	0.3	0.4
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	545	-	-	146	129	622	-	-
HCM Lane V/C Ratio	0.046	-	-	0.514	0.31	0.016	-	-
HCM Control Delay (s)	11.9	-	-	53.2	45	10.9	0.3	-
HCM Lane LOS	B	-	-	F	E	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.5	1.2	0	-	-

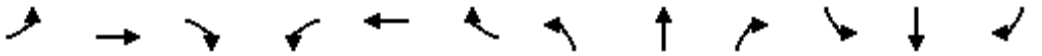
Intersection	
Int Delay, s/veh	11.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	695	45	120	625	5	20	5	210	5	10	40
Future Vol, veh/h	15	695	45	120	625	5	20	5	210	5	10	40
Conflicting Peds, #/hr	1	0	1	1	0	1	1	0	1	1	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	6	5	4	4	0	6	0	3	0	0	3
Mvmt Flow	15	695	45	120	625	5	20	5	210	5	10	40

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	631	0	0	741	0	0	1643	1620	720	1725	1640	630
Stage 1	-	-	-	-	-	-	749	749	-	869	869	-
Stage 2	-	-	-	-	-	-	894	871	-	856	771	-
Critical Hdwy	4.1	-	-	4.14	-	-	7.16	6.5	6.23	7.1	6.5	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.236	-	-	3.554	4	3.327	3.5	4	3.327
Pot Cap-1 Maneuver	961	-	-	857	-	-	78	104	426	71	101	480
Stage 1	-	-	-	-	-	-	398	422	-	349	372	-
Stage 2	-	-	-	-	-	-	330	371	-	355	413	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	960	-	-	856	-	-	57	88	425	30	85	479
Mov Cap-2 Maneuver	-	-	-	-	-	-	57	88	-	30	85	-
Stage 1	-	-	-	-	-	-	391	415	-	343	320	-
Stage 2	-	-	-	-	-	-	252	319	-	174	406	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	1.6	74.4	42.3
HCM LOS			F	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	261	960	-	-	856	-	-	150
HCM Lane V/C Ratio	0.9	0.016	-	-	0.14	-	-	0.367
HCM Control Delay (s)	74.4	8.8	-	-	9.9	-	-	42.3
HCM Lane LOS	F	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	7.9	0	-	-	0.5	-	-	1.5



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	835	135	75	570	195	125	80	75	175	65	40
Future Volume (veh/h)	60	835	135	75	570	195	125	80	75	175	65	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1614	1723	1723	1709	1709	1654	1723	1723	1695	1736	1750	1750
Adj Flow Rate, veh/h	60	835	135	75	570	195	125	80	75	175	65	40
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	10	2	2	3	3	7	2	2	4	1	0	0
Cap, veh/h	85	1399	226	104	862	707	378	224	210	333	277	170
Arrive On Green	0.06	0.50	0.48	0.06	0.50	0.50	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1537	2821	456	1628	1709	1402	1280	816	765	1237	1010	621
Grp Volume(v), veh/h	60	484	486	75	570	195	125	0	155	175	0	105
Grp Sat Flow(s),veh/h/ln	1537	1637	1641	1628	1709	1402	1280	0	1580	1237	0	1631
Q Serve(g_s), s	2.8	15.3	15.4	3.3	17.9	5.8	6.1	0.0	5.7	9.7	0.0	3.6
Cycle Q Clear(g_c), s	2.8	15.3	15.4	3.3	17.9	5.8	9.8	0.0	5.7	15.4	0.0	3.6
Prop In Lane	1.00		0.28	1.00		1.00	1.00		0.48	1.00		0.38
Lane Grp Cap(c), veh/h	85	811	813	104	862	707	378	0	433	333	0	447
V/C Ratio(X)	0.71	0.60	0.60	0.72	0.66	0.28	0.33	0.00	0.36	0.53	0.00	0.23
Avail Cap(c_a), veh/h	170	1108	1111	247	1228	1008	593	0	699	540	0	721
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.6	13.1	13.2	33.2	13.3	10.3	24.6	0.0	21.1	27.8	0.0	20.4
Incr Delay (d2), s/veh	7.7	2.7	2.7	6.7	3.3	0.8	0.4	0.0	0.4	1.3	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	5.6	5.6	1.4	6.8	1.8	1.8	0.0	2.1	2.9	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.3	15.8	15.9	39.9	16.6	11.1	24.9	0.0	21.5	29.0	0.0	20.7
LnGrp LOS	D	B	B	D	B	B	C	A	C	C	A	C
Approach Vol, veh/h		1030			840			280			280	
Approach Delay, s/veh		17.3			17.4			23.0			25.9	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.6	39.9		23.8	8.0	40.5		23.8				
Change Period (Y+Rc), s	4.5	5.0		4.5	4.5	5.0		4.5				
Max Green Setting (Gmax), s	10.5	48.0		31.5	7.5	51.0		31.5				
Max Q Clear Time (g_c+I1), s	5.3	17.4		17.4	4.8	19.9		11.8				
Green Ext Time (p_c), s	0.0	17.5		1.0	0.0	13.2		1.0				

Intersection Summary			
HCM 6th Ctrl Delay		19.0	
HCM 6th LOS		B	

Notes

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

Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	55	0	0	70	60	50	1315	25	0	0	0
Future Vol, veh/h	10	55	0	0	70	60	50	1315	25	0	0	0
Conflicting Peds, #/hr	4	0	15	15	0	4	2	0	11	11	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	-	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	2	0	0	0	0	6	2	23	0	6	0
Mvmt Flow	10	55	0	0	70	60	50	1315	25	0	0	0

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	799	1453	-	-	1441	685	2	0	0
Stage 1	2	2	-	-	1439	-	-	-	-
Stage 2	797	1451	-	-	2	-	-	-	-
Critical Hdwy	7.5	6.54	-	-	6.5	6.9	4.22	-	-
Critical Hdwy Stg 1	-	-	-	-	5.5	-	-	-	-
Critical Hdwy Stg 2	6.5	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.02	-	-	4	3.3	2.26	-	-
Pot Cap-1 Maneuver	280	129	0	0	134	395	1590	-	-
Stage 1	-	-	0	0	200	-	-	-	-
Stage 2	351	194	0	0	-	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	113	112	-	-	116	391	1587	-	-
Mov Cap-2 Maneuver	113	112	-	-	116	-	-	-	-
Stage 1	-	-	-	-	173	-	-	-	-
Stage 2	155	168	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	61	47.6	0.6
HCM LOS	F	E	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2
Capacity (veh/h)	1587	-	-	113	112	116	391
HCM Lane V/C Ratio	0.032	-	-	0.088	0.491	0.603	0.153
HCM Control Delay (s)	7.3	0.4	-	39.9	64.8	74.8	15.9
HCM Lane LOS	A	A	-	E	F	F	C
HCM 95th %tile Q(veh)	0.1	-	-	0.3	2.2	3	0.5

Intersection ID and Name	use dropdown NB PhasingType	use dropdown SB PhasingType	use dropdown EB PhasingType	use dropdown WB PhasingType	Cycle Length	Lost Time	BEGIN CALCULATIONS	1 EBL	3 EBT	4 EBR	5 WBL	6 WBT	7 WBR	8 NBL	9 NBT	10 NBR	11 SBL	12 SBT	13 SBR	14	Critical Flow Calculator WBL/EBT	EBL/WBT	NBL/SBT	SBL/NBT	V/S E/W	V/S N/S	Intersection V/C	HCM 6th Ctrl Delay	HCM 6th LOS	Synchro ID
2: US 101 & Lighthouse Dr/52nd St	Protected	Protected	Permitted	Permitted	125	12	Adj Flow Rate, veh/h	35	5	90	95	0	15	55	1080	0	30	850	0	Protected	0.24	0.01	0.54	0.66						
							Sat Flow, veh/h	0	21	1457	0	0	1468	1615	1682	1483	1667	1695	1483	Permitted or Split	0.24	0.01	0.50	0.64						
							V/S	0.00	0.24	0.06	0.00	0.00	0.01	0.03	0.64	0.00	0.02	0.50	0.00	selected phasing	0.24	0.01	0.54	0.66	0.24	0.66	**0.99**	**47.4**	**D**	2
7: US 101 & 11th St	Protected	Protected	Permitted	Permitted	120	12	Adj Flow Rate, veh/h	75	15	25	30	10	50	10	1500	15	15	1445	25	Protected	0.16	0.14	0.45	0.46						
							Sat Flow, veh/h	859	248	307	381	313	868	1667	3293	33	1667	3264	56	Permitted or Split	0.09	0.08	0.45	0.46						
							V/S	0.09	0.06	0.08	0.08	0.03	0.06	0.01	0.46	0.45	0.01	0.44	0.45	selected phasing	0.09	0.08	0.45	0.46	0.09	0.46	**0.61**	**5**	**A**	7
8: US 101 & 6th St	Protected	Protected	Split	Split	120	16	Adj Flow Rate, veh/h	90	35	30	75	20	35	35	1445	25	25	1400	30	Protected	0.18	0.17	0.46	0.46						
							Sat Flow, veh/h	952	370	317	933	249	435	1667	3265	56	1667	3224	69	Permitted or Split	0.09	0.08	0.43	0.45						
							V/S	0.09	0.09	0.09	0.08	0.08	0.08	0.02	0.44	0.45	0.01	0.43	0.43	selected phasing	0.09	0.08	0.46	0.46	0.18	0.46	**0.73**	**17.2**	**B**	8
9: US 101 & Olive St/US 20	Protected	Protected	Protected	Protected	120	16	Adj Flow Rate, veh/h	205	195	35	255	165	280	75	900	0	335	975	80	Protected	0.30	0.32	0.37	0.49						
							Sat Flow, veh/h	1654	1422	255	1576	1723	1413	1667	3221	1367	1615	3032	249	Permitted or Split	0.14	0.20	0.32	0.28						
							V/S	0.12	0.14	0.14	0.16	0.10	0.20	0.04	0.28	0.00	0.21	0.32	0.32	selected phasing	0.30	0.32	0.37	0.49	0.32	0.49	**0.93**	**68.7**	**E**	9
11: US 101 & Hurbert St	Protected	Protected	Permitted	Permitted	120	12	Adj Flow Rate, veh/h	0	30	50	70	60	0	0	0	0	45	1085	20	Protected	0.18	0.10	0.34	0.35						
							Sat Flow, veh/h	0	582	970	527	615	0	0	0	0	128	3234	63	Permitted or Split	0.05	0.13	0.35	0.00						
							V/S	0.00	0.05	0.05	0.13	0.10	0.00	0.00	0.00	0.00	0.35	0.34	0.32	selected phasing	0.05	0.13	0.34	0.35	0.13	0.35	**0.54**	**12.2**	**B**	11
14: Moore Dr/Harney St & US 20	Permitted	Permitted	Protected	Protected	104	12	Adj Flow Rate, veh/h	60	835	135	75	570	195	125	80	75	175	65	40	Protected	0.34	0.37	0.16	0.24						
							Sat Flow, veh/h	1537	2821	456	1628	1709	1402	1280	816	765	1237	1010	621	Permitted or Split	0.30	0.33	0.14	0.10						
							V/S	0.04	0.30	0.30	0.05	0.33	0.14	0.10	0.10	0.10	0.14	0.06	0.06	selected phasing	0.34	0.37	0.14	0.10	0.37	0.14	**0.58**	**19**	**B**	14
1: US 101 & 73rd Ct/73rd St	Protected	Protected	Permitted	Permitted	90	12	Adj Flow Rate, veh/h	1	0	5	95	0	15	5	885	60	20	690	2	Protected	0.08	0.08	0.41	0.54						
							Sat Flow, veh/h	124	136	1297	1251	0	198	1667	1709	1043	770	1703	5	Permitted or Split	0.01	0.08	0.41	0.52						
							V/S	0.01	0.00	0.00	0.08	0.00	0.08	0.00	0.52	0.06	0.03	0.41	0.40	selected phasing	0.01	0.08	0.41	0.54	0.08	0.54	**0.72**	**8.8**	**A**	1
12: US 101 & Hurbert St	Protected	Protected	Permitted	Permitted	120	12	Adj Flow Rate, veh/h													Protected	0.00	0.00	0.00	0.00						
							Sat Flow, veh/h													Permitted or Split	0.00	0.00	0.00	0.00						
							V/S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	selected phasing	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**0**	**A**	12
6: US 101 & 20th St	Protected	Protected	Split	Split	120	16	Adj Flow Rate, veh/h	40	55	80	222	173	90	60	1325	115	80	1075	20	Protected	0.19	0.22	0.37	0.49						
							Sat Flow, veh/h	710	977	1415	1654	1082	563	1641	2998	259	1628	3261	61	Permitted or Split	0.06	0.16	0.33	0.44						
							V/S	0.06	0.06	0.06	0.13	0.16	0.16	0.04	0.44	0.44	0.05	0.33	0.33	selected phasing	0.06	0.16	0.37	0.49	0.22	0.49	**0.82**	**35.4**	**D**	6

Sheet Description:
This sheet reads in the adjusted flow rate and the saturation flow rate from Synchro and divides them to calculated the V/S for each movement.
The critical flow calculator calculates the critical v/s for each conflicting phase pair.
for protected phases, this v/s is the left turn v/s plus the max of the opposing movement v/s
for the permitted and split phases, this v/s is the max of the three movement v/s
The next step selects the proper v/s based on phasing provided
V/S by east-west and north-south is selected by taking the max of the phase pairs or by adding them (if split phasing)
If overlap calculator was selected in input section and overlap phases were indicated, then overlap v/s for intersection is calculated. See details below
If the right turn v/s is greater than the through v/s for the right turn overlap approach, then the right turn is assumed the critical movement and intersection v/c calc will use the v/s overlap instead of approach v/s
The final step in v/c calculation uses the approach v/s ratios, cycle length, and lost time to calculate overall intersection v/c
Delay and LOS are read directly from the HCM 6 report

Overlap Calculator Details
Overlap calculator reads in whether an overlap phase is in use and what type of phasing is associated with the right turn approach and the overlapped approach
V/S is read in for right turn movement, and remaining approaches from previous calculations
-right turn overlap v/s is just the v/s for the right turn movement (i.e. NBR)
-right turn approach v/s is the critical v/s associated with the right turn approaches (i.e. NB/SB) and is calculated differently for protected vs split
-overlap approach v/s is the critical v/s associated with the overlap approaches (i.e. EB/WB) and is calculated differently for protected vs split phasing
The v/s overlap column sums the 3 v/s values for the overlap phasing to get the total v/s overlap to be used in the v/c calculation
If there are overlaps for multiple approaches, the v/s overlap will use the greatest of the approaches for most conservative approach
Use Overlap Calculator' must be enabled and 'Use OV V/S' must be showing in V/S Overlap column in order for overlap v/s to be used in final v/c calculation

use dropdown		BEGIN	Sat. Flow Default	1700	1	3	4	5	6	7	8	9	10	11	12	13	14	Outputs					
Intersection ID and Name	**Control Type**	CALCULATIONS	**Major Approach**	**Row Reference**		**EBL**	**EBT**	**EBR**	**WBL**	**WBT**	**WBR**	**NBL**	**NBT**	**NBR**	**SBL**	**SBT**	**SBR**		**NB**	**SB**	**EB**	**WB**	**Synchro ID**
1: US 101 & 73rd Ct/73rd St	TWSC		#N/A	7														1: US 101 & 73rd Ct/73rd St V/C	**0.00**	**0.00**	**0.00**	**0.00**	**1**
				8														1: US 101 & 73rd Ct/73rd St Delay	**0.00**	**0.00**	**0.00**	**0.00**	
				19		0	0	0	0	0	0	0	0	0	0	0	0	1: US 101 & 73rd Ct/73rd St LOS	**A**	**A**	**A**	**A**	
					Major V/C Lanes	LT	T or TR	TR or R	LT	T or TR	TR or R	LT	T or TR	TR or R	LT	T or TR	TR or R						
					Major V/C																		
					Minor (or AWSC) V/C																		
				45																			
				47																			
				48																			
				49																			
3: US 101 & Oceanview Dr	TWSC		NB/SB	7	Movement	EBL		EBR				NBL	NBT			SBT	SBR	3: US 101 & Oceanview Dr V/C	**0.68**	**0.57**	**0.96**	**0.00**	**3**
				8	Lane Configurations	1		0				1	1			1	1	3: US 101 & Oceanview Dr Delay	**10.80**	**0.00**	**103.20**	**0.00**	
				19	Mvmt Flow	130	0	60	0	0	0	20	1150	0	0	970	55	3: US 101 & Oceanview Dr LOS	**B**	**A**	**F**	**A**	
				10	Major V/C Lanes	LTR	T or TR	TR or R	LT	T or TR	TR or R	L	T or TR	TR or R	LT	T or TR	TR or R						
					Major V/C							0.03	0.68			0.57	0.03						
					Minor (or AWSC) V/C	0.96																	
				45	Minor Lane/Major Mvmt	0	NBL	NBT	EBLn1	SBT	SBR	0	0	0	0	0	0						
				47	HCM Lane V/C Ratio	0.00	0.03	-	0.96	-	-	0.00	0.00	0.00	0.00	0.00	0.00						
				48	HCM Control Delay (s)	0.0	10.8	-	103.2	-	-	0.0	0.0	0.0	0.0	0.0	0.0						
				49	HCM Lane LOS	0	B	-	F	-	-	0	0	0	0	0	0						
4: US 101 & 36th Street	TWSC		NB/SB	7	Movement				WBL		WBR		NBT	NBR	SBL	SBT		4: US 101 & 36th Street V/C	**0.64**	**0.59**	**0.00**	**0.20**	**4**
				8	Lane Configurations				1		0		1	1	1	1		4: US 101 & 36th Street Delay	**0.00**	**10.80**	**0.00**	**28.00**	
				19	Mvmt Flow	0	0	0	25	0	15	0	1085	40	10	995	0	4: US 101 & 36th Street LOS	**A**	**B**	**A**	**D**	
				70	Major V/C Lanes	LT	T or TR	TR or R	L	T or TR	TR or R	LT	T or TR	TR or R	L	T or TR	TR or R						
					Major V/C								0.64	0.02	0.02	0.59							
					Minor (or AWSC) V/C				0.20														
				45	Minor Lane/Major Mvmt	0	NBT	NBR	WBLn1	SBL	SBT	0	0	0	0	0	0						
				47	HCM Lane V/C Ratio	0.00	-	-	0.20	0.02	-	0.00	0.00	0.00	0.00	0.00	0.00						
				48	HCM Control Delay (s)	0.0	-	-	28.0	10.8	-	0.0	0.0	0.0	0.0	0.0	0.0						
				49	HCM Lane LOS	0	-	-	D	B	-	0	0	0	0	0	0						
5: US 101 & 31st St	TWSC		NB/SB	7	Movement				WBL		WBR		NBT	NBR	SBL	SBT		5: US 101 & 31st St V/C	**0.66**	**0.59**	**0.00**	**0.25**	**5**
				8	Lane Configurations				1		0		1	1	1	1		5: US 101 & 31st St Delay	**0.00**	**11.40**	**0.00**	**31.00**	
				19	Mvmt Flow	0	0	0	35	0	10	0	1115	90	20	995	0	5: US 101 & 31st St LOS	**A**	**B**	**A**	**D**	
				127	Major V/C Lanes	LT	T or TR	TR or R	L	T or TR	TR or R	LT	T or TR	TR or R	L	T or TR	TR or R						
					Major V/C								0.66	0.05	0.03	0.59							
					Minor (or AWSC) V/C				0.25														
				45	Minor Lane/Major Mvmt	0	NBT	NBR	WBLn1	SBL	SBT	0	0	0	0	0	0						
				47	HCM Lane V/C Ratio	0.00	-	-	0.25	0.03	-	0.00	0.00	0.00	0.00	0.00	0.00						
				48	HCM Control Delay (s)	0.0	-	-	31.0	11.4	-	0.0	0.0	0.0	0.0	0.0	0.0						
				49	HCM Lane LOS	0	-	-	D	B	-	0	0	0	0	0	0						
10: US 101 & Angle St	TWSC		NB/SB	7	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	10: US 101 & Angle St V/C	**0.00**	**0.35**	**0.05**	**0.00**	**10**
				8	Lane Configurations	0	1	0	0	0	2	0	0	0	0	2	0	10: US 101 & Angle St Delay	**0.00**	**0.00**	**14.00**	**0.00**	
				19	Mvmt Flow	0	0	20	0	0	1025	0	0	0	0	1145	45	10: US 101 & Angle St LOS	**A**	**A**	**B**	**A**	
				184	Major V/C Lanes	LTR	T or TR	TR or R	LT	T or TR	TR or R	LT	T or TR	TR or R	LT	T or TR	TR or R						
					Major V/C		0.01	0.01			0.30					0.35	0.35						
					Minor (or AWSC) V/C	0.05																	
				45	Minor Lane/Major Mvmt	0	EBLn1	SBT	SBR	0	0	0	0	0	0	0	0						
				47	HCM Lane V/C Ratio	0.00	0.05	-	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
				48	HCM Control Delay (s)	0.0	14.0	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
				49	HCM Lane LOS	0	B	-	-	0	0	0	0	0	0	0	0						
12: US 101 & Bayley St	TWSC		NB/SB	7	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	12: US 101 & Bayley St V/C	**0.33**	**0.37**	**0.51**	**0.31**	**12**
				8	Lane Configurations	0	1	0	0	1	0	1	2	0	0	2	0	12: US 101 & Bayley St Delay	**11.90**	**10.90**	**53.20**	**45.00**	
				19	Mvmt Flow	15	0	60	10	0	30	25	1110	10	10	1195	20	12: US 101 & Bayley St LOS	**B**	**B**	**F**	**E**	
				241	Major V/C Lanes	LTR	T or TR	TR or R	LTR	T or TR	TR or R	L	T or TR	TR or R	LT	T or TR	TR or R						
					Major V/C		0.04	0.04		0.02	0.02	0.05	0.33	0.33	0.37	0.36	0.36						
					Minor (or AWSC) V/C	0.51			0.31														
				45	Minor Lane/Major Mvmt	0	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR	0	0	0						
				47	HCM Lane V/C Ratio	0.00	0.05	-	-	0.51	0.31	0.02	-	-	0.00	0.00	0.00						
				48	HCM Control Delay (s)	0.0	11.9	-	-	53.2	45.0	10.9	0.3	-	0.0	0.0	0.0						
				49	HCM Lane LOS	0	B	-	-	F	E	B	A	-	0	0	0						
13: Benton St & US 20	TWSC		EB/WB	7	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	13: Benton St & US 20 V/C	**0.90**	**0.37**	**0.44**	**0.37**	**13**
				8	Lane Configurations	1	1	0	1	1	0	0	1	0	0	1	0	13: Benton St & US 20 Delay	**74.40**	**42.30**	**8.80**	**9.90**	
				19	Mvmt Flow	15	695	45	120	625	5	20	5	210	5	10	40	13: Benton St & US 20 LOS	**F**	**E**	**A**	**A**	
				298	Major V/C Lanes	L	T or TR	TR or R	L	T or TR	TR or R	LTR	T or TR	TR or R	LTR	T or TR	TR or R						
					Major V/C	0.02	0.44	0.44	0.14	0.37	0.37		0.13	0.13		0.03	0.03						
					Minor (or AWSC) V/C							0.90			0.37								
				45	Minor Lane/Major Mvmt	0	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	0	0	0						
				47	HCM Lane V/C Ratio	0.00	0.90	0.02	-	-	0.14	-	-	0.37	0.00	0.00	0.00						
				48	HCM Control Delay (s)	0.0	74.4	8.8	-	-	9.9	-	-	42.3	0.0	0.0	0.0						
				49	HCM Lane LOS	0	F	A	-	-	A	-	-	E	0	0	0						
15: Oceanview Dr & Pacific Pl/25th St	TWSC		NB/SB	7	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	15: Oceanview Dr & Pacific Pl/25th St V/C	**0.12**	**0.07**	**0.00**	**0.20**	**15**
				8	Lane Configurations	0	1	0	0	1	0	0	1	0	0	1	0	15: Oceanview Dr & Pacific Pl/25th St Delay	**0.00**	**7.70**	**0.00**	**11.10**	

Newport TSP 2040 Financially Constrained 30 HV PHF 1.0 Unsignalized Intersections

	use dropdown	BEGIN	Sat. Flow Default	1700	1	3	4	5	6	7	8	9	10	11	12	13	14	**Outputs**					
Intersection ID and Name	**Control Type**	CALCULATIONS	**Major Approach**	**Row Reference**		**EBL**	**EBT**	**EBR**	**WBL**	**WBT**	**WBR**	**NBL**	**NBT**	**NBR**	**SBL**	**SBT**	**SBR**		**NB**	**SB**	**EB**	**WB**	**Synchro ID**
				19	Mvmt Flow	0	0	0	80	0	70	0	110	100	20	90	0	15: Oceanview Dr & Pacific Pl/25th St LOS	**A**	**A**	**A**	**B**	
				355	Major V/C Lanes	LTR	T or TR	TR or R	LTR	T or TR	TR or R	LTR	T or TR	TR or R	LTR	T or TR	TR or R						
					Major V/C		0.00	0.00		0.04	0.04		0.12	0.12	0.07	0.05	0.05						
					Minor (or AWSC) V/C	-			0.20														
				45	Minor Lane/Major Mvmt	0	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR	0	0	0						
				47	HCM Lane V/C Ratio	0.00	-	-	-	-	0.20	0.02	-	-	0.00	0.00	0.00						
				48	HCM Control Delay (s)	0.0	0.0	-	-	0.0	11.1	7.7	0.0	-	0.0	0.0	0.0						
				49	HCM Lane LOS	0	A	-	-	A	B	A	A	-	0	0	0						
16: Nye St & 11th St	TWSC		EB/WB	7	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	16: Nye St & 11th St V/C	**0.20**	**0.10**	**0.02**	**0.03**	**16**
				8	Lane Configurations	0	1	0	0	1	0	0	1	0	0	1	0	16: Nye St & 11th St Delay	**10.30**	**10.20**	**7.30**	**7.30**	
				19	Mvmt Flow	5	30	5	15	25	10	15	100	55	15	60	5	16: Nye St & 11th St LOS	**B**	**B**	**A**	**A**	
				412	Major V/C Lanes	LTR	T or TR	TR or R	LTR	T or TR	TR or R	LTR	T or TR	TR or R	LTR	T or TR	TR or R						
					Major V/C	0.02	0.02	0.02	0.03	0.02	0.02		0.09	0.09		0.04	0.04						
					Minor (or AWSC) V/C							0.20			0.10								
				45	Minor Lane/Major Mvmt	0	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	0	0	0						
				47	HCM Lane V/C Ratio	0.00	0.20	0.00	-	-	0.01	-	-	0.10	0.00	0.00	0.00						
				48	HCM Control Delay (s)	0.0	10.3	7.3	0.0	-	7.3	0.0	-	10.2	0.0	0.0	0.0						
				49	HCM Lane LOS	0	B	A	A	-	A	A	-	B	0	0	0						
17: Harney St & 7th St	AWSC		N/A	9	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	17: Harney St & 7th St V/C	**0.19**	**0.00**	**0.19**	**0.07**	**17**
				10	Lane Configurations	0	1	0	0	1	0	0	1	1	0	1	0	17: Harney St & 7th St Delay	**9.50**	**7.70**	**7.90**	**8.00**	
				15	Mvmt Flow	1	40	135	25	30	0	125	0	35	0	1	0	17: Harney St & 7th St LOS	**A**	**A**	**A**	**A**	
				471	Major V/C Lanes	LTR	T or TR	TR or R	LTR	T or TR	TR or R	LT	T or TR	TR or R	LTR	T or TR	TR or R						
					Major V/C		0.10	0.10		0.02	0.02		0.00	0.02		0.00	0.00						
					Minor (or AWSC) V/C	0.19			0.07			0.19	0.04		0.00								
				29	Lane	0	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	0	0	0	0	0	0						
				45	HCM Lane V/C Ratio	0.00	0.19	0.04	0.19	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
				46	HCM Control Delay	0.0	9.5	7.2	7.9	8.0	7.7	0.0	0.0	0.0	0.0	0.0	0.0						
				47	HCM Lane LOS	0	A	A	A	A	A	0	0	0	0	0	0						
18: 9th St & Hurbert St	TWSC		NB/SB	7	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	18: 9th St & Hurbert St V/C	**0.42**	**0.00**	**0.49**	**0.60**	**18**
				8	Lane Configurations	1	1	0	0	1	1	0	2	0	0	0	0	18: 9th St & Hurbert St Delay	**7.30**	**0.00**	**64.80**	**74.80**	
				19	Mvmt Flow	10	55	0	0	70	60	50	1315	25	0	0	0	18: 9th St & Hurbert St LOS	**A**	**A**	**F**	**F**	
				524	Major V/C Lanes	L	T or TR	TR or R	LT	T or TR	TR or R	LT	T or TR	TR or R	LT	T or TR	TR or R						
					Major V/C		0.03	0.03		0.04	0.04	0.42	0.39	0.39									
					Minor (or AWSC) V/C	0.09	0.49		0.60	0.15													
				45	Minor Lane/Major Mvmt	0	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	0	0	0	0						
				47	HCM Lane V/C Ratio	0.00	0.03	-	-	0.09	0.49	0.60	0.15	0.00	0.00	0.00	0.00						
				48	HCM Control Delay (s)	0.0	7.3	0.4	-	39.9	64.8	74.8	15.9	0.0	0.0	0.0	0.0						
				49	HCM Lane LOS	0	A	A	-	E	F	F	C	0	0	0	0						
19: 9th St & Abbey St	TWSC		EB/WB	7	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	19: 9th St & Abbey St V/C	**0.18**	**0.17**	**0.05**	**0.07**	**19**
				8	Lane Configurations	0	1	0	0	1	0	0	1	0	0	1	0	19: 9th St & Abbey St Delay	**12.10**	**12.10**	**7.60**	**7.40**	
				19	Mvmt Flow	25	35	15	1	75	45	20	80	10	40	45	15	19: 9th St & Abbey St LOS	**B**	**B**	**A**	**A**	
				581	Major V/C Lanes	LTR	T or TR	TR or R	LTR	T or TR	TR or R	LTR	T or TR	TR or R	LTR	T or TR	TR or R						
					Major V/C	0.05	0.03	0.03	0.07	0.07	0.07		0.05	0.05		0.04	0.04						
					Minor (or AWSC) V/C							0.18			0.17								
				45	Minor Lane/Major Mvmt	0	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	0	0	0						
				47	HCM Lane V/C Ratio	0.00	0.18	0.02	-	-	0.00	-	-	0.17	0.00	0.00	0.00						
				48	HCM Control Delay (s)	0.0	12.1	7.6	0.0	-	7.4	0.0	-	12.1	0.0	0.0	0.0						
				49	HCM Lane LOS	0	B	A	A	-	A	A	-	B	0	0	0						
20: Bay Blvd & Moore Dr	TWSC		NB/SB	7	Movement	EBL		EBR				NBL	NBT			SBT	SBR	20: Bay Blvd & Moore Dr V/C	**0.10**	**0.09**	**0.27**	**0.00**	**20**
				8	Lane Configurations	1		0				1	1			1	1	20: Bay Blvd & Moore Dr Delay	**7.80**	**0.00**	**13.10**	**0.00**	
				19	Mvmt Flow	65	0	100	0	0	0	145	160	0	0	155	110	20: Bay Blvd & Moore Dr LOS	**A**	**A**	**B**	**A**	
				638	Major V/C Lanes	LTR	T or TR	TR or R	LT	T or TR	TR or R	L	T or TR	TR or R	LT	T or TR	TR or R						
					Major V/C							0.10	0.09			0.09	0.06						
					Minor (or AWSC) V/C	0.27																	
				45	Minor Lane/Major Mvmt	0	NBL	NBT	EBLn1	SBT	SBR	0	0	0	0	0	0						
				47	HCM Lane V/C Ratio	0.00	0.10	-	0.27	-	-	0.00	0.00	0.00	0.00	0.00	0.00						
				48	HCM Control Delay (s)	0.0	7.8	-	13.1	-	-	0.0	0.0	0.0	0.0	0.0	0.0						
				49	HCM Lane LOS	0	A	-	B	-	-	0	0	0	0	0	0						

Sheet Description:

This sheet reads in lane configurations by representing exclusive through or shared lanes with the number of lanes in the through movement, and any exclusive number of turn lanes in the respective turn movement. So a single LTR lane would have 1 under through and 0s under left and right.

This sheet also reads in movement flow and select v/c, LOS, and delay results. The calculations are shown in the box.

Calculations are split out by major and minor approach v/c; Major approach is determined from free approaches in report

The major v/c lanes row indicates the left turn lane configuration for each approach. This is important to determine how to add in the delay from the left turns to the overall calculated v/c for the major approach

In the major v/c row, left turn v/c is read from the report, while remaining movement v/c ratios are calculated based on the methodology given in the ODOT APM and the provided default saturation flow rate of 1700 (can be changed by user)

In the minor v/c row, v/c ratios by lane are calculated based on the ODOT APM method using volume and assumed saturation flow rate

The v/c ratio by approach is the max of the v/c by lane as calculated in the major or minor v/c rows

LOS and Delay by approach are read in from the report

For AWSC, all approaches are treated as minor approaches and the calculations remain the same

The summary table selects the worst approach for both directions and concatenates the results with a / for the final summary table for TWSC. For AWSC, the overall worst approach is reported.