Michael Baker
INTERNATIONAL

We Make a Difference

DATE: April 24th, 2020

TO: I-25 Parallel Arterial Study Technical Advisory Committee (TAC)

FROM: Michael Baker International (MBI)

SUBJECT: I-25 Parallel Arterial Intersection Analysis Memo

This memo documents traffic analysis that the MBI team performed to evaluate intersection design along the North IPA corridor. The purpose of the analysis was to evaluate traffic performance at the major intersections and recommend a basic layout for intersection design and ultimate right of way needs. The following contains intersection analysis assumptions, traffic analysis procedures, evaluation results, and recommended geometry.

Overview

The goal of the North IPA corridor is to provide regional connectivity throughout the northern Colorado transportation network to support future development and population growth. Project limits for the proposed North IPA corridor extend approximately 14 miles from north of SH 66 to Ronald Reagan Boulevard and travels through Weld County, Larimer County, and the Towns of Mead, Berthoud and Johnstown. As part of the preliminary design for the corridor, MBI completed an analysis to evaluate traffic performance at major intersections along the corridor, provide a basic layout for intersection designs and identify ultimate right of way needs. Figure 1 presents the location of nine major intersections that were included in this traffic analysis.

This analysis contains the evaluation of three alternatives reflecting the North IPA corridor build-out in the year 2040. Alternative 1 represents the minimum geometry required for operations, except that it includes a minimum of four through lanes on North IPA. Alternative 2 shows how the intersections operate with exclusive left-turn lanes and four thru lanes on the mainline, and mainline right turn and side street left and right turn lanes as required by the municipalities. Alternative 3 identifies those intersections that can operate at acceptable levels of service with roundabouts and the baseline geometry that is needed. To sum up, the scenarios that have been analyzed in this study are as follows:

- Alternative 1 — the minimum geometry required for operations, including a minimum of four through lanes on North IPA.
- Alternative 2 — exclusive left turn lanes and four through lanes on the mainline; turn lanes as required by the municipalities on the side streets and mainline right turns.
- Alternative 3 — potential roundabout operations at certain intersections.

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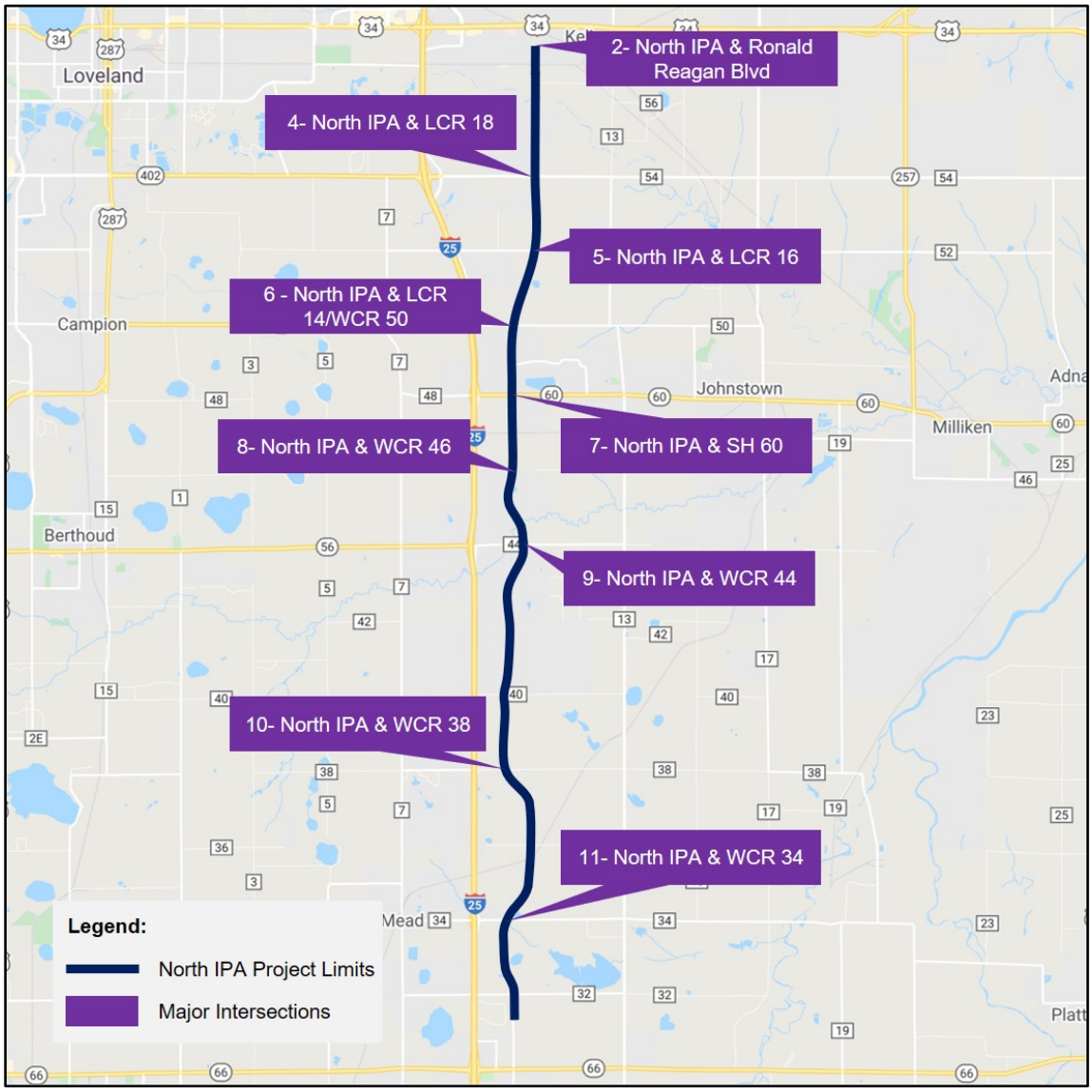
Figure 1: North IPA Corridor and Major Intersections



Analysis Assumptions

The intersection analysis started with a review of municipality design standards, which were used to determine the requirements for exclusive turn lanes and the levels of service (LOS) that traffic operation should meet. The responsible jurisdictions for each of the major intersections were identified and confirmed with the TAC. Larimer County recommended that the Johnstown standards be applied for all intersections within the County since those intersections will fall within Johnstown's jurisdiction in the future. Other assumptions that were discussed with the TAC include intersection geometry, traffic analysis parameters, and evaluation criteria.

Intersection Geometry

- Through Lanes
    - The ultimate design would include four through lanes on the mainline (North IPA).
    - Side streets would start with two through lanes and add additional lanes as needed for intersection operations. The specific recommendations are listed below:
        - In the Town of Mead, WCR 34 would likely need four lanes west of the intersection, and two lanes east of the intersection.
        - In Johnstown, most side streets will be four lanes.
        - Ronald Reagan Boulevard will be no more than two lanes.
        - LCR 18 will need four lanes.
        - Any side streets that assume a four-lane section will follow the typical cross section for North IPA (see Appendix A).
- Turn Lanes
    - The turn lanes on arterial roads should be designed to accommodate WB-67 trucks.
    - Include left-turn lanes on all mainline approaches. Right turn lanes will be included if needed for operations or to keep trucks within their travel lane as they turn onto the side streets.
    - Only include left-turn lanes for side streets if needed for capacity. Only include free-flow right-turn lanes if needed for capacity or to keep trucks within their travel lane when turning.
    - Length of the turn lanes will be based on *CDOT State Highway Access Code*. The calculated storage and deceleration lengths for each movement of each study intersection are provided in Appendix B.

Analysis Parameters

- Signal timing related factors:
    - For any intersection that cannot operate at an acceptable LOS under STOP control, if the intersection meets signal warrants, the signal will be assumed to operate as actuated-uncoordinated unless there are two signals that are spaced ½ mile apart or less.
    - Assume the dual and triple left turns will need to run protected only phases.

  - Consider split phases on the side streets if it shows a substantial benefit over other control strategy.
  - Allow lead/lag optimizations of the signal phases whenever possible to accommodate large turning radii of the WB-67.
  - Use Synchro to find the optimal cycle length.
  - Use the Synchro default of 3.5 seconds yellow clearance interval and 1.0 second all-red time for proposed signal timings.
- Assume 0.92 peak hour factor (PHF) for AM and PM peak hours.
- Heavy Vehicle Percentage (HV%): 4% for mainline traffic, and side street HV% will be based on existing data.
- Speed limits were determined based on the road classifications and the municipalities standards, such as the Johnstown and Mead Transportation Plans and Weld County Engineering Standards, unless otherwise recommended by the municipalities:
  - Johnstown roads will be 45 mph at most, except for LCR 18.
  - Mead will be a maximum of 40 mph posted speed limit.

The mainline is classified as a principal arterial with 4% heavy vehicles and speed limits of 45 mph to 55 mph depending on the jurisdiction's requirements. The summary of municipality standards and detailed parameters for both mainline and side streets have been included in Appendix C

Evaluation Criteria

The LOS standards used for this analysis are consistent with the *Freedom Parkway Access Control Plan* (ACP); intersections in unincorporated areas should meet a LOS "C" for overall intersection and approach standards; intersections in incorporated Cities/Towns should meet a LOS "D" for overall intersection and approach standards. Table 1 provides a summary of the responsible jurisdictions and the LOS standard for each intersection approach.

Table 1: Responsible Jurisdictions and LOS Standards

No.	Intersection	Northbound							
2	North IPA & Ronald Reagan Blvd	Johnstown	D	Johnstown	D	Johnstown	D	Johnstown	D
4	North IPA & LCR 18	Johnstown	D	Johnstown	D	Johnstown	D	Johnstown	D
5	North IPA & LCR 16	Johnstown	D	Johnstown	D	Johnstown	D	Johnstown	D
6	North IPA & LCR 14/WCR 50	Johnstown	D	Johnstown	D	Johnstown	D	Johnstown	D
7	North IPA & SH 60	Johnstown	D	Johnstown	D	CDOT	D	CDOT	D
8	North IPA & WCR 46	Berthoud	D	Weld County	C	Weld	C	Weld	C
9	North IPA & WCR 44	Berthoud	D	Weld County	C	Berthoud	D	Berthoud	D
10	North IPA & WCR 38	Mead	D	Mead	D	Mead	D	Mead	D
11	North IPA & WCR 34	Mead	D	Mead	D	Mead	D	Mead	D

Traffic Evaluation

The traffic analysis started with forecasted traffic volumes from the North Front Range Metropolitan Planning Organization's (NFRMPO) Regional Travel Demand Model provided by Cambridge Systematics and forecasted turning movement volumes as presented in Cambridge's "North I-25 Parallel Arterial Study Traffic Forecasting Report" (Appendix D). Additional intersections were analyzed in the Cambridge Systematics forecast which were either outside MBI's project limits (i.e. intersection No. 1 (US 34) and intersection No. 12 (SH 66)) or are not one of the existing major cross streets shown in our design (intersection No. 3 (CR 20)) and therefore are excluded from this analysis. However, to maintain consistency and ease of reference between these two documents, the same intersection numbering was used in both reports.

The study team assessed signalized intersection operations using Synchro 10.3, and roundabout operations using HCS 7.8. Both softwares utilize the latest *Highway Capacity Manual* (HCM) procedures for capacity and level of service computations and are widely recognized as reliable tools for planning and optimizing transportation systems. Both AM peak and PM peak conditions were evaluated to ensure the highest traffic demand on the corridor was represented.

Traffic control analysis was undertaken for the study intersections to determine the appropriate control plans. Two-way STOPs, all-way STOPs, and traffic signals were tested in Synchro for each intersection during both peak hours. It was found that all intersections would experience significant delays with two-way STOP or all-way STOP controls due to high traffic demand on both the mainline and side streets. The *Manual on Uniform Traffic Control Devices* (MUTCD) signal warrants were

conducted to preliminarily determine if a traffic signal is justified for each intersection. All intersections met Warrant 3 (Peak hour vehicular volume) and some of them also met Warrant 6 (Coordinated signal system). As a result, traffic signals were evaluated for all study intersections.

The performance measures used to evaluate the study intersections include volume to capacity ratio (v/c), average delay, and LOS measurements for the entire intersection, approach, and turning movements. The LOS criteria utilized in this analysis are based on the HCM criteria for at-grade intersections, both signalized and unsignalized (including roundabout). The relationship between average vehicle control delay and LOS as defined by the HCM are listed in Table 2.

Table 2: HCM LOS Criteria for At-Grade Intersections

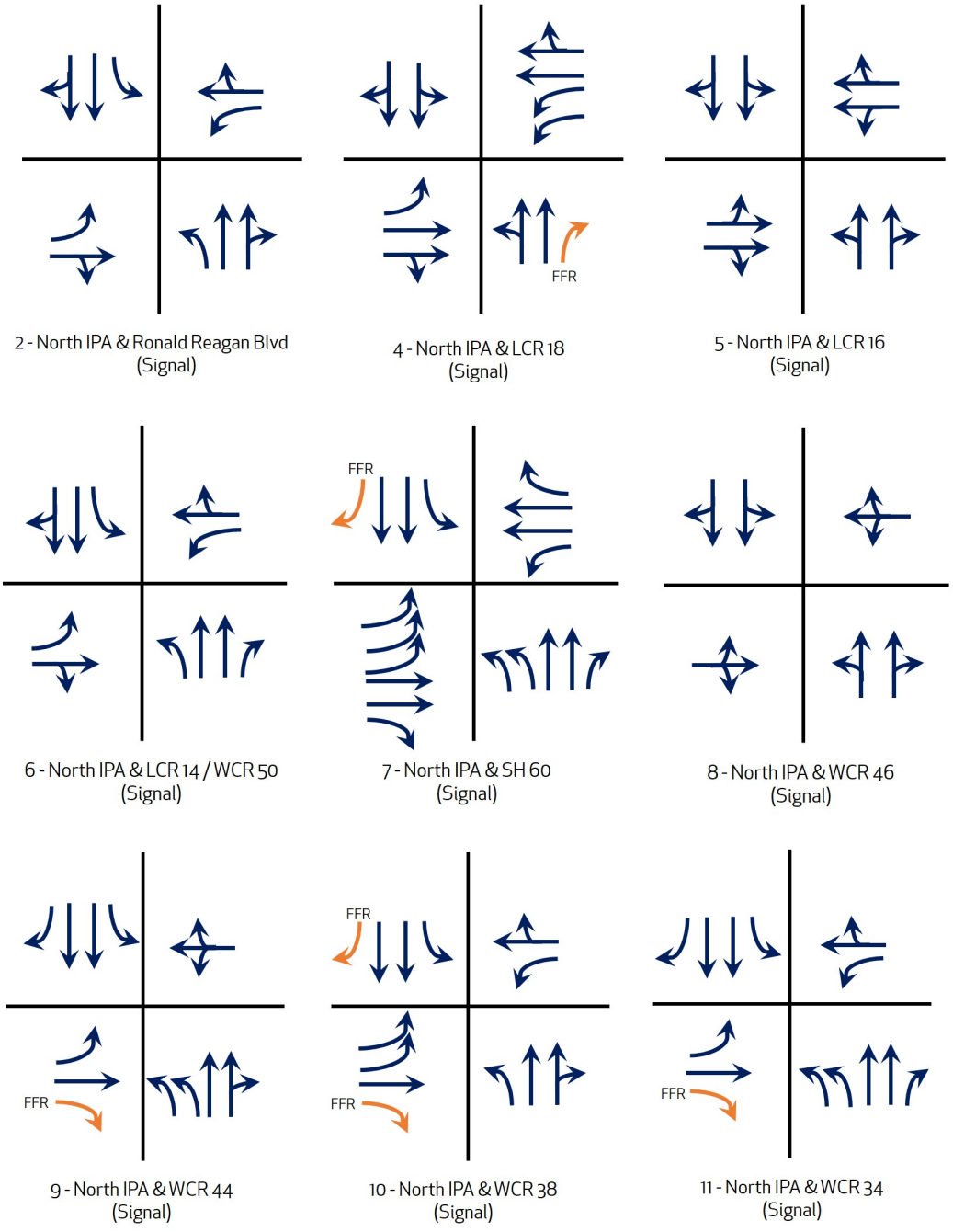
LOS		
A	≤ 10 sec	≤ 10 sec
B	10-20 sec	10-15 sec
C	20-35 sec	15-25 sec
D	35-55 sec	25-35 sec
E	55-80 sec	35-50 sec
F	> 80 sec	> 50 sec

Alternative 1

The intersection configuration of Alternative 1 starts with four through lanes for the mainline, minimal through lanes on the side streets, and no exclusive turn lanes. Based on intersection operations, turning movement volumes and turning movement performance, additional travel lanes and turn lanes were included to accommodate traffic flow and meet the operational requirements of each municipality. The provision of free-flow right-turn (FFR) lanes, dual left-turn lanes, and triple left-turn lanes were considered in some intersection approaches to account for heavy turning volumes.

Timing plans along the corridor were optimized using Synchro to obtain optimal cycle lengths and splits for each intersection. The cycle lengths and splits were further fine-tuned to provide maximum capacity and minimize delays to the traffic. The study intersections were programmed to operate with cycle lengths ranging from 55 seconds to 100 seconds to meet the needs of individual intersections. It should be noted that lead/lag left-turn phases were assigned when opposing left-turn lanes were provided, to accommodate the turning movements of large trucks (i.e. WB-67). In the event that separate left turn lanes were not provided, left turns were assumed to operate permissively, or in the case of WCR 44, split phased operations were applied. Figure 2 presents the minimum geometry needed for the study intersections to operate at acceptable levels of service.

Figure 2: Alternative 1 Intersection Configurations



A summary of the overall intersection performance during both peak hours is provided in Table 3. The detailed intersection results are included in Appendix E. Most intersections experience an average vehicle delay of less than 30 seconds (per vehicle) and an overall LOS "C" or better during the AM Peak hour. The only exception is the SH 60 intersection, which has a LOS "D" during the AM peak hour. Heavy

left-turn volumes during the AM peak hour appear to be the main cause for additional delay. During the PM peak hour, most intersections experience an average vehicle delay of less than 40 seconds (per vehicle) and an overall LOS "D" or better. The intersection at Ronald Reagan Boulevard operates with LOS "D" during the PM peak hour due to heavy turning volumes on the eastbound and westbound approaches. The intersections at LCR 14/WCR 50 operate with LOS "D" due to heavy turning volumes on the westbound and southbound approaches. The intersections at WCR 38 operate with LOS "D" because of heavy eastbound and northbound turning volumes. All intersections operate within acceptable levels of service per the standards outlined above.

Table 3: Alternative 1 Intersection Performances

2	North IPA & Ronald Reagan Blvd	Signal	2,506	28	C	2,531	40.8	D
4	North IPA & LCR 18	Signal	3,503	20.6	C	3,619	33	C
5	North IPA & LCR 16	Signal	2,845	11.5	B	2,995	22.7	C
6	North IPA & LCR 14/WCR 50	Signal	3,033	24.7	C	3,254	35.1	D
7	North IPA & SH 60	Signal	4,296	35.2	D	4,731	27	C
8	North IPA & WCR 46	Signal	2,015	6.4	A	2,278	9.5	A
9	North IPA & WCR 44	Signal	3,116	29.3	C	3,506	33.3	C
10	North IPA & WCR 38	Signal	2,796	31.9	C	3,613	37	D
11	North IPA & WCR 34	Signal	3,044	30.5	C	3,903	32.2	C

Alternative 2

The alternative 2 analysis assumed that North IPA mainline would have a minimum of four through lanes and separate left-turn lanes at each intersection. The mainline right-turn lanes and turn lanes on the side streets were provided to serve operational needs or the municipalities requirements. Compared with Alternative 1, the intersection geometry remains unchanged at North IPA & SH 60 and North IPA & WCR 34. All other intersections have been reconfigured to have through lanes or turn lanes added on the mainline and/or side streets. The provision of free-flow right-turn lanes, dual left-turn lanes, and triple left-turn lanes are consistent with Alternative 1. Table 4 provides a summary of geometry changes compared with Alternative 1 and Figure 3 shows the overall geometry obtained from Alternative 2.

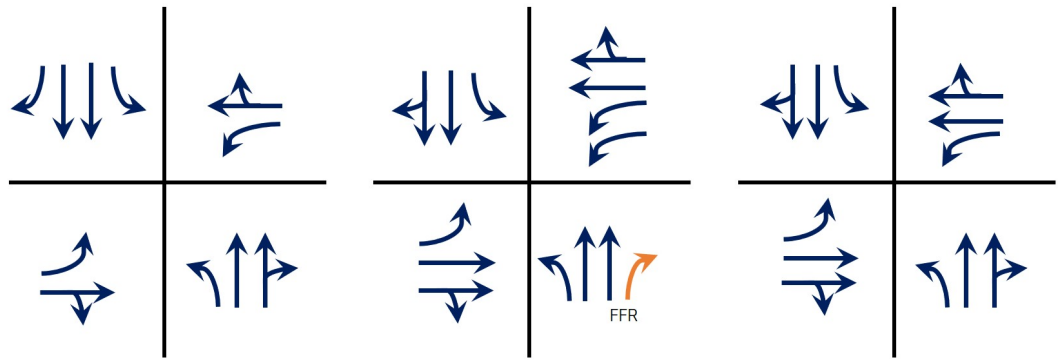
Table 4: Alternative 2 Geometry Changes Compared to Alternative 1

2	North IPA & Ronald Reagan Blvd	Added a SB right-turn lane.
4	North IPA & LCR 18	Added left-turn lanes on NB and SB.
5	North IPA & LCR 16	Added left-turn lanes for all approaches.
6	North IPA & LCR 14/WCR 50	Added a SB right-turn lane; added EB and WB through lanes.
7	North IPA & SH 60	No Changes.
8	North IPA & WCR 46	Added left-turn lanes for all approaches; added NB and SB right-turn lanes.
9	North IPA & WCR 44	Added a WB left-turn lane.
10	North IPA & WCR 38	Added a NB right-turn lane.
11	North IPA & WCR 34	No Changes.

The traffic volumes used in Alternative 2 AM peak and PM peak analysis are the same as those used in Alternative 1. Timing plans for Alternative 2 were further optimized to account for the new geometries. Lead/lag left turn phases were assigned in the following movements due to newly added turn lanes:

- No. 4 North IPA & LCR 18 – northbound/southbound
- No. 5 North IPA & LCR 16 – northbound/southbound and eastbound/westbound
- No. 8 North IPA & WCR 46 – northbound/southbound and eastbound-westbound
- No. 9 North IPA & WCR 44 - eastbound-westbound

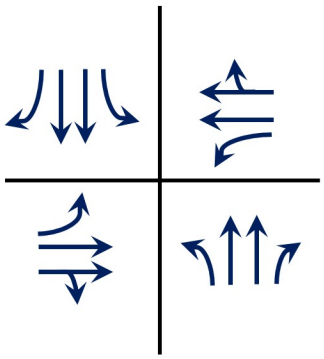
Figure 3: Alternative 2 Intersection Configurations



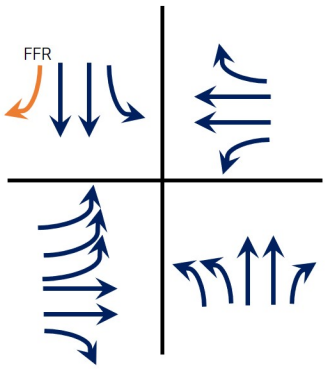
2 - North IPA & Ronald Reagan Blvd (Signal)

4 - North IPA & LCR 18 (Signal)

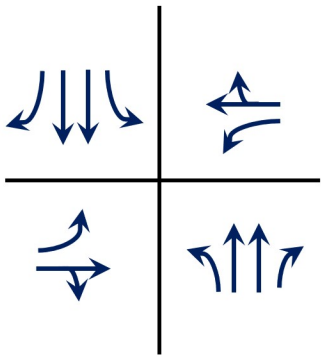
5 - North IPA & LCR 16 (Signal)



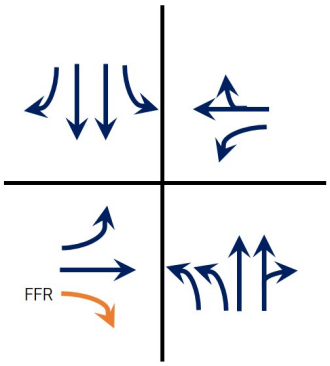
6 - North IPA & LCR 14 / WCR 50
(Signal)



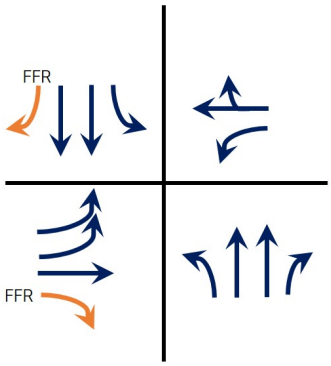
7 - North IPA & SH 60
(Signal)



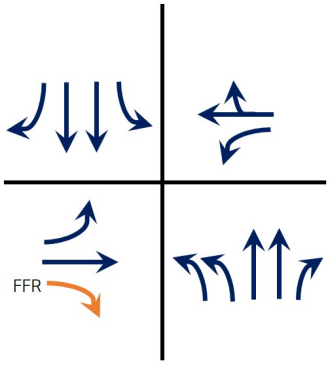
8 - North IPA & WCR 46
(Signal)



9 - North IPA & WCR 44
(Signal)



10 - North IPA & WCR 38
(Signal)



11 - North IPA & WCR 34
(Signal)

A summary of the overall intersection performance for Alternative 2 is provided in Table 5. The detailed intersection results are included in Appendix E. The intersection performance shows benefits from the new geometry and signal operations compared with Alternative 1. During the AM peak hour, most of the major intersections are expected to operate at LOS "C" or better except that SH 60 is expected to operate with LOS "D". As mentioned above, heavy left-turn volumes on eastbound and northbound approaches of SH 60 result in additional delay during the AM peak hour. The PM peak hour also shows most of the intersections are expected to operate with a LOS "C" or better. The only exception is that WCR 38 operates with LOS "D" because of heavy eastbound and northbound turning volumes. All intersections operate within acceptable levels of service per the standards outlined above.

Table 5: Alternative 2 Intersection Performances

2	North IPA & Ronald Reagan Blvd	Signal	2,506	24.6	C	2,531	28.9	C
4	North IPA & LCR 18	Signal	3,503	27.2	C	3,619	32.4	C
5	North IPA & LCR 16	Signal	2,845	23.2	C	2,995	23	C
6	North IPA & LCR 14/WCR 50	Signal	3,033	20.1	C	3,254	21.4	C
7	North IPA & SH 60	Signal	4,296	35.2	D	4,731	27	C
8	North IPA & WCR 46	Signal	2,015	14.6	B	2,278	14.5	B
9	North IPA & WCR 44	Signal	3,116	24	C	3,506	26.9	C
10	North IPA & WCR 38	Signal	2,796	31.5	C	3,613	35.2	D
11	North IPA & WCR 34	Signal	3,044	30.5	C	3,903	32.2	C

Alternative 3

Alternative 3 identifies the potential applications of roundabouts on intersections along the corridor. The FHWA Guideline (*Roundabout*: *An Informational Guide*, 2000) offers the planning steps to implement a roundabout at an intersection and a planning-level procedure to estimate roundabout lane requirements. For maximum service volume relationships, two site-specific parameters that must be considered are the proportion of traffic on the major street and the proportion of left turns, since left turns affect all traffic control modes adversely. As shown in Figure 4, the average daily traffic that can be accommodated is conservatively estimated as a function of the proportion of left turns, for cross-street volume proportions of 50 percent and 67 percent. If the 24-hour volumes fall below the volumes indicated in Figure 4, a roundabout should have no operational problems at any time of the day. If the volumes exceed the threshold suggested, a single-lane or double-lane roundabout may still function well, but a closer look at the actual turning movement volumes during the design hour is required. Table 6 summarizes the results from this high-level analysis. The intersections at SH 60, WCR 38, and WCR 34 might have the issue of demand exceeding capacity when operating with one or two entry lanes.

Figure 4: Maximum Daily Service Volumes for a four-leg roundabout (*FHWA Roundabout: An Informational Guide*)

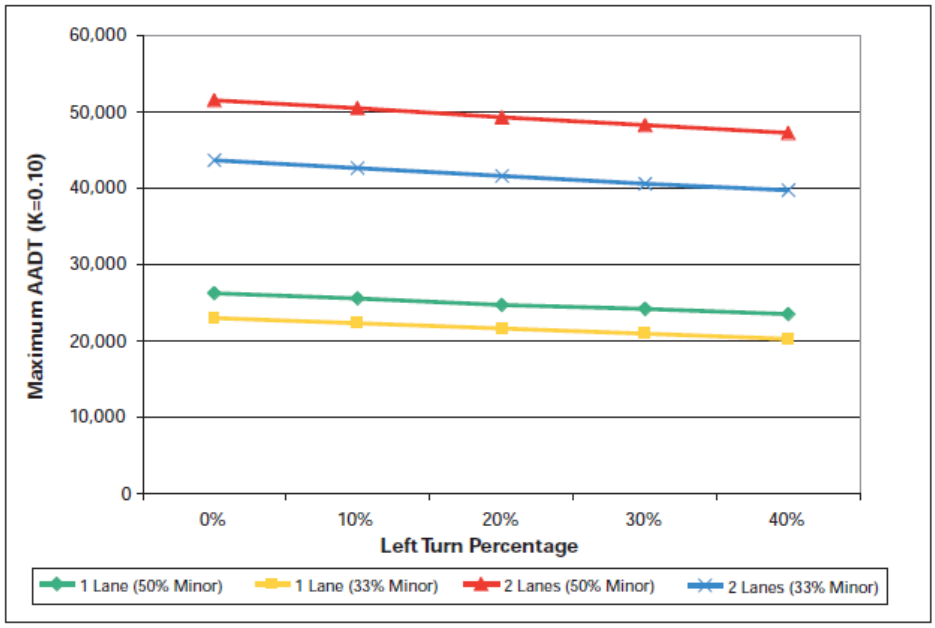


Table 6: Results of Preliminary Roundabout Analysis

2	North IPA & Ronald Reagan Blvd	32,232	19%	16%	30%	39%	Yes	2
4	North IPA & LCR 18	46,331	24%	52%	24%	53%	Yes	2
5	North IPA & LCR 16	36,733	4%	27%	13%	28%	Yes	2
6	North IPA & LCR 14/WCR 50	40,353	20%	28%	14%	26%	Yes	2
7	North IPA & SH 60	56,218	23%	52%	19%	52%	No	-
8	North IPA & WCR 46	30,659	20%	15%	10%	15%	Yes	2
9	North IPA & WCR 44	44,781	29%	23%	22%	29%	Yes	2
10	North IPA & WCR 38	46,292	26%	39%	24%	31%	No	-
11	North IPA & WCR 34	48,592	30%	38%	26%	34%	No	-

HCS roundabout analysis was then carried out to estimate intersection performance with reference to the HCM 6th Edition. The evaluation results are summarized in Table 7 and detailed results have been included in Appendix E. While the FHWA Roundabout Guide indicated that future traffic forecasts at LCR 18 and LCR 14/WCR 50 could operate at acceptable LOS with a roundabout, HCS provides a more

detailed analysis that considers the percent left turns in relation to the conflicting through movements. At both LCR 18 and LCR 14/WCR 50, the HCS analysis showed that conflicts between circulating volumes and approach volumes were too high for traffic to operate at acceptable levels of service with a two-lane roundabout. However, a roundabout would still provide benefits for four intersections on the corridor. As shown in Table 7, Ronald Reagan Boulevard, LCR 16, WCR 46, and WCR 44 are expected to operate with adequate LOS during both peak hours.

Table 7: Alternative 3 Intersection Performance Summary

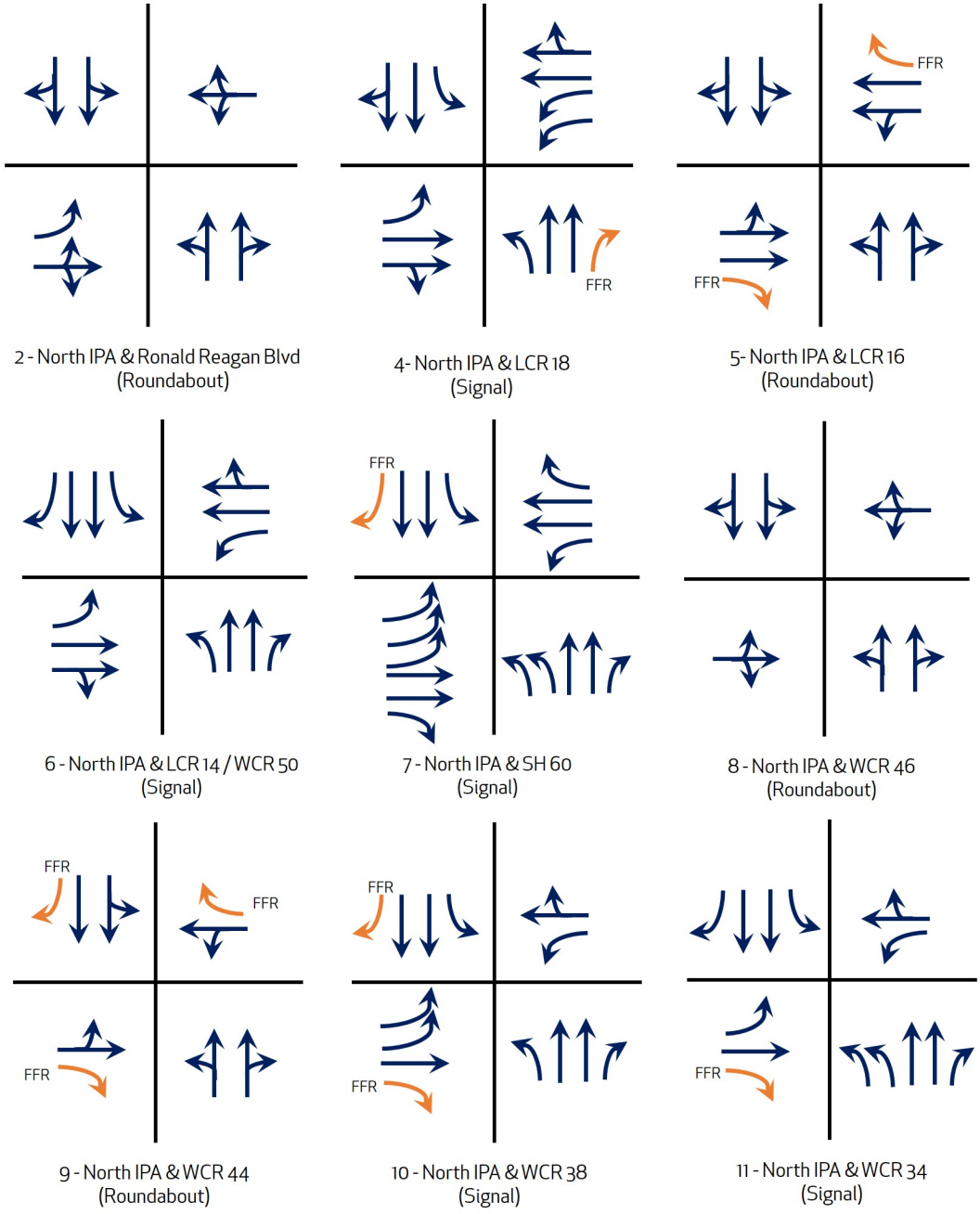
No.	Intersection	Alternative 3	
2	NIPA & Ronald Reagan Blvd	A roundabout will operate with adequate LOS	Roundabout
4	NIPA & LCR 18	The WB approach volume during the AM peak hour and the EB approach volumes during the PM peak hour combined with the conflicting circulating volumes are too high for a roundabout to operate with adequate LOS.	Signal
5	NIPA & LCR 16	EB and WB FF right turn lanes are required for this intersection to operate at acceptable LOS	Roundabout
6	NIPA & LCR 14/WCR 50	Conflicts between circulating volumes and the WB approach volume in the PM peak hour are too high for a roundabout to operate with adequate LOS.	Signal
7	NIPA & SH 60	Conflicts between circulating volumes and approach volumes during both peak hours are too high for a roundabout to operate with adequate LOS.	Signal
8	NIPA & WCR 46	This intersection would operate at LOS B or better with a roundabout.	Roundabout
9	NIPA & WCR 44	Free-flow right turn lanes are required on all approaches except NB to make this intersection operate at acceptable LOS	Roundabout
10	NIPA & WCR 38	Conflicts between circulating volumes and approach volumes in the PM peak hour are too high for a roundabout to operate with adequate LOS.	Signal
11	NIPA & WCR 34	Analysis indicates this intersection would generally operate with LOS D or better with a roundabout, except for a few movements in the PM peak hour that would operate at LOS E.	Signal

Recommended Layout

The final recommendations are based on the traffic analysis, evaluation results, and the intersection control that is expected to require the greatest right of way needs. Figure 5 shows the recommended geometry for each of the study intersections as well as the proposed intersection control. The recommendations provided herein are based on discussions with the TAC and an understanding that the roundabout would be a more conservative way to acquire the right of way (ROW) at the current stage of the project. As such, roundabouts were recommended whenever they could operate with acceptable levels of service during both the AM and PM peak hours. With similar intersection performance, a roundabout normally requires fewer lanes approaching the intersection but a larger

footprint for the circulating lanes at the intersection. Roundabouts reduce the long-term costs like hardware, maintenance and electrical costs associated with traffic signals, and have more safety features than signal-controlled intersections. If the municipalities preferred alternative is a signal, the recommended geometry evaluated in Alternative 2 (Figure 3) and turn bay lengths included in Appendix B would provide guidance for necessary right of way.

Figure 5: Recommended Intersection Configurations



2 - North IPA & Ronald Reagan Blvd (Roundabout)

4- North IPA & LCR 18 (Signal)

5- North IPA & LCR 16 (Roundabout)

6 - North IPA & LCR 14 / WCR 50 (Signal)

7 - North IPA & SH 60 (Signal)

8 - North IPA & WCR 46 (Roundabout)

9 - North IPA & WCR 44 (Roundabout)

10 - North IPA & WCR 38 (Signal)

11 - North IPA & WCR 34 (Signal)

For the geometry to accommodate a WB-67 design vehicle, it is recommended that opposing left turns on both the mainline and side street operate with lead/lag phases whenever possible. For purposes of the preliminary design, we also discussed with the TAC how many lanes should be provided on each of the side street once you get past the intersection. Table 8 summarizes these recommendations.

Table 8: Side Street Recommended Number of Lanes

2	North IPA & Ronald Reagan Blvd	2 lanes to the east and west.
4	North IPA & LCR 18	4 lanes to the east and west.
5	North IPA & LCR 16	4 lanes to the east and west.
6	North IPA & LCR 14/WCR 50	4 lanes to the east and west.
7	North IPA & SH 60	4 lanes to the east and west.
8	North IPA & WCR 46	2 lanes to the east and west.
9	North IPA & WCR 44	2 lanes to the east and west.
10	North IPA & WCR 38	2 lanes to the east and west.
11	North IPA & WCR 34	4 lanes to the west and 2 lanes to the east of the intersection.

The recommendations above are intended to provide guidance to the MBI roadway design team for purposes of conducting the preliminary design and identifying ultimate right of way needs along the corridor. The accommodation of trucks/commercial vehicles and other design factors have not been deeply involved in this analysis. As design progresses, more parameters will be incorporated, and additional geometry may be recommended.

Conclusions

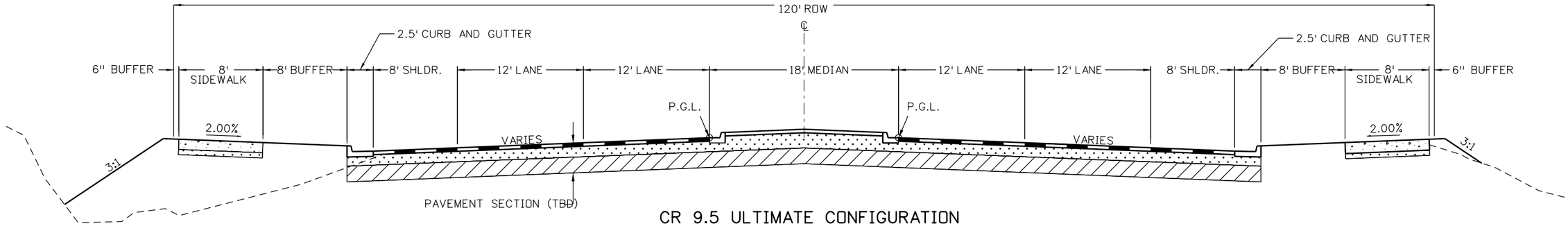
The study team performed traffic analyses to assess intersection operations on the proposed new North IPA corridor and provided the design team with required geometry to assist with identifying ultimate right of way needs. The potential alternatives that were evaluated in this analysis include: Alternative 1 — the minimum geometry required for operations plus a minimum of four through lanes on North IPA. Alternative 2 — separate left turn lanes and a minimum of four through lanes on the mainline; turn lanes as required by the municipalities on the side streets and mainline right turns. Alternative 3 — identifies the potential applications of roundabouts and the baseline geometry needed to operate at acceptable levels of service. Based on the optimization of intersection geometry and traffic control, the following conclusions have been reached:

- The intersections at LCR 18, LCR 14/WCR 50, SH 60, WCR 38, and WCR 34 are recommended to operate as signalized intersections with exclusive left turn lanes and four thru lanes on the mainline. The recommended deceleration, storage, and taper lengths for turn lanes were calculated with reference to *CDOT State Highway Access Code*. For the geometry to accommodate a WB-67 design vehicle, it is recommended that left turns on both the mainline and side street operate with lead/lag phases.
- Roundabout control is recommended for Ronald Reagan Blvd, LCR 16, WCR 46, and WCR 44, with four lanes on the mainline and two circulating lanes. This recommendation is based on a discussion with the TAC and an understanding that roundabouts likely require greater right of way than signalized intersections.

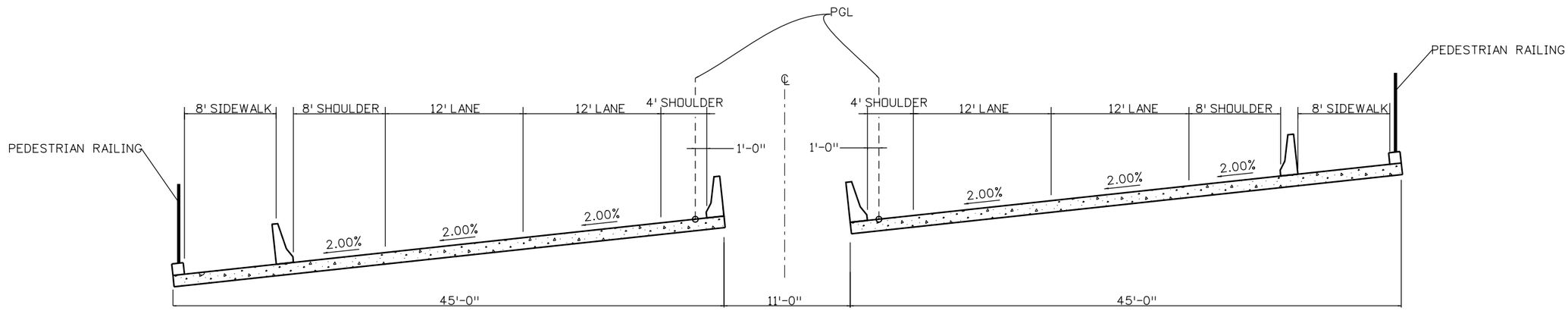
The recommendations formed in this study only reflect the minimum geometry needed for operation of the intersections. As this project moves into design, additional recommendations may be provided to accommodate design vehicles and other geometry along the corridor. The final project recommendations will be presented in design documents based on in-depth evaluations.

APPENDIX A

North IPA Typical Cross Section



CR 9.5 ULTIMATE CONFIGURATION



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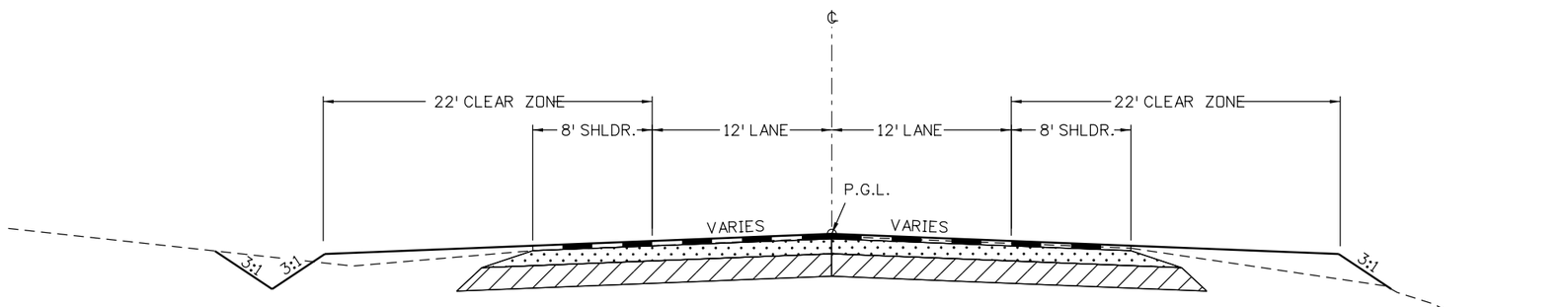


CR 9.5 INTERIM CONFIGURATION

Print Date: 4/24/2020		Sheet Revisions				As Constructed	TYPICAL SECTIONS
File Name: 22911DES_TYP_01.dgn		Date:	Comments	Init.		No Revisions:	
Horiz. Scale: 1:10 Vert. Scale: As Noted						Revised:	Designer: GDF / Detailer: TNT / Sheet Subset: TypSec
Unit Information: 4610 Unit Leader Initial: RJC						Void:	Structure Numbers / Subset Sheets:

Project No./Code
C 060A-023
21876
Sheet Number

APPENDIX B

Calculated Signalized Intersection Turn Bay Lengths

North IPA Signalized Intersection Turn Bay and Taper lengths

No.	Intersection	Northbound (NIPA)				Southbound (NIPA)				Eastbound				Westbound			
		Left Turn		Right Turn		Left Turn		Right Turn		Left Turn		Right Turn		Left Turn		Right Turn	
		Storage Plus Decel (ft)	Taper (ft)	Storage Plus Decel (ft)	Taper (ft)	Storage Plus Decel (ft)	Taper (ft)	Storage Plus Decel (ft)	Taper (ft)	Storage Plus Decel (ft)	Taper (ft)	Storage Plus Decel (ft)	Taper (ft)	Storage Plus Decel (ft)	Taper (ft)	Storage Plus Decel (ft)	Taper (ft)
2	NIPA @ Ronald Reagan Blvd	473	162	373	162	473	162	573	162	490	120	390	120	290	120	390	120
4	NIPA @ LCR 18	418	222	678	222	373	162	373	162	478	222	478	222	678	222	478	222
5	NIPA @ LCR 16	313	162	373	162	578	222	403	222	428	222	418	222	478	222	578	222
6	NIPA @ LCR 14/WCR 50	373	162	573	162	313	162	473	162	373	162	373	162	573	162	323	162
7	NIPA @ SH 60	578	222	478	222	323	162	573	162	678	222	578	222	578	222	428	222
8	NIPA @ WCR 46	373	162	373	162	403	222	578	222	578	222	478	222	478	222	403	222
9	NIPA @ WCR 44	573	162	323	162	323	162	373	162	373	162	573	162	373	162	313	162
10	NIPA @ WCR 38	678	222	428	222	403	222	678	222	526	144	426	144	276	144	251	144
11	NIPA @ WCR 34	573	162	473	162	323	162	473	162	326	144	526	144	326	144	276	144

APPENDIX C

Mainline and Side Street Analysis Parameter Summary

Table 1: Municipality Turn Lane Standards

Jurisdiction	Left turn required	Right turn required
Weld County	Peak hour turning volume > 10 vph.	Peak hour turning volume > 25 vph.
Mead	Required at the intersection of 4-lane major arterials, Required for Minor Collectors, as needed at Major Collectors.	Based on operations.
Johnstown	Based on operations.	Based on operations.
Larimer	Left turn volume is 20% or more of total approach, or > 100 vph, or for operations.	Based on table 8-4 but generally required if 40-50 vph for 40-45 mph roadway.
Berthoud	Refers to Larimer County standards.	Refers to Larimer County standards.
CDOT	Peak hour turning volume > 10 vph, this lane can be dropped if 20 year forecast shows opposing traffic is <100 DHV.	Peak hour turning volume > 25 vph, but if the 20 year forecasts show less than 150 DVH this lane can be dropped.

Table 2: North IPA Northbound Approach Parameters

No.	Intersection	Jurisdiction (Maintenance)	Classification	Speed Limit	HV%	LOS
2	NIPA @ Ronald Reagan Blvd	Johnstown	Major Arterial	45	4	D
4	NIPA @ LCR 18	Johnstown	Major Arterial	55	4	D
5	NIPA @ LCR 16	Johnstown	Major Arterial	45	4	D
6	NIPA @ LCR 14/WCR 50	Johnstown	Major Arterial	45	4	D
7	NIPA @ SH 60	Johnstown	Major Arterial	55	4	D
8	NIPA @ WCR 46	Berthoud	Major Arterial	45	4	D
9	NIPA @ WCR 44	Berthoud	Major Arterial	45	4	D
10	NIPA @ WCR 38	Mead	Major Arterial	55	4	D
11	NIPA @ WCR 34	Mead	Major Arterial	45	4	D

Table 3: North IPA Southbound Approach Parameters

No.	Intersection	Jurisdiction (Maintenance)	Classification	Speed Limit	HV%	LOS
2	NIPA @ Ronald Reagan Blvd	Johnstown	Major Arterial	45	4	D
4	NIPA @ LCR 18	Johnstown	Major Arterial	45	4	D
5	NIPA @ LCR 16	Johnstown	Major Arterial	55	4	D
6	NIPA @ LCR 14/WCR 50	Johnstown	Major Arterial	45	4	D
7	NIPA @ SH 60	Johnstown	Major Arterial	45	4	D
8	NIPA @ WCR 46	Weld County	Major Arterial	55	4	C
9	NIPA @ WCR 44	Weld County	Major Arterial	45	4	C
10	NIPA @ WCR 38	Mead	Major Arterial	55	4	D
11	NIPA @ WCR 34	Mead	Major Arterial	45	4	D

Table 4: Side Street Eastbound Approach Parameters

No.	Intersection	Jurisdiction (Maintenance)	Classification	Speed Limit	HV%	LOS
2	NIPA @ Ronald Reagan Blvd	Johnstown	Minor Arterial	35	3	D
4	NIPA @ LCR 18	Johnstown	Major Arterial	55	3	D
5	NIPA @ LCR 16	Johnstown	Major Arterial	55	3	D
6	NIPA @ LCR 14/WCR 50	Johnstown	Major Arterial	45	3	D
7	NIPA @ SH 60	CDOT	Minor Arterial/SH	55	3.5	D
8	NIPA @ WCR 46	Weld	Collector	55	12	C
9	NIPA @ WCR 44	Berthoud	Arterial	45	3	D
10	NIPA @ WCR 38	Mead	Arterial	40	13	D
11	NIPA @ WCR 34	Mead	Arterial	40	9	D

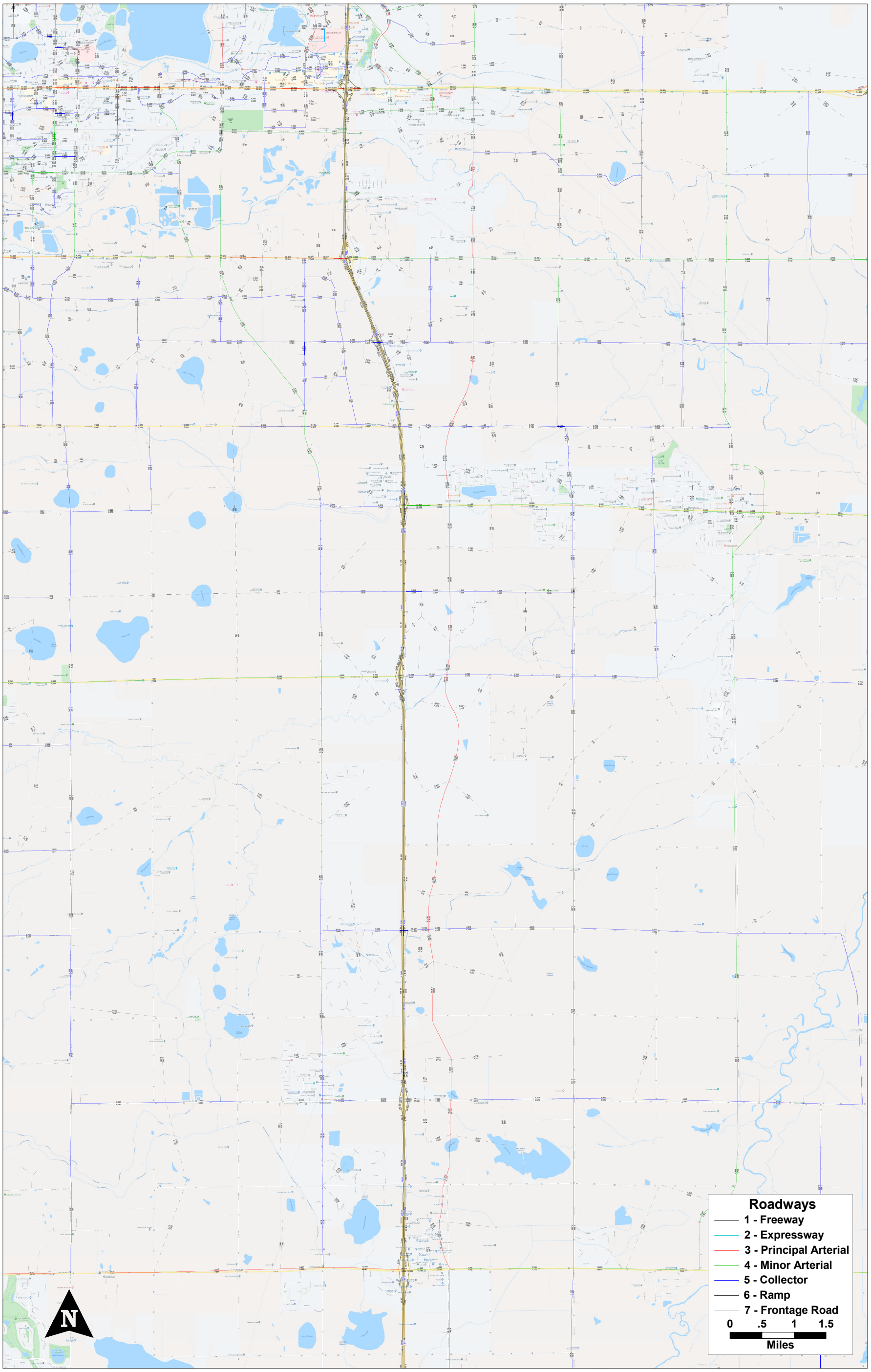
Table 5: Side Street Westbound Approach Parameters

No.	Intersection	Jurisdiction (Maintenance)	Classification	Speed Limit	HV%	LOS
2	NIPA @ Ronald Reagan Blvd	Johnstown	Minor Arterial	35	3	D
4	NIPA @ LCR 18	Johnstown	Major Arterial	55	3	D
5	NIPA @ LCR 16	Johnstown	Major Arterial	55	3	D
6	NIPA @ LCR 14/WCR 50	Johnstown	Major Arterial	45	3	D
7	NIPA @ SH 60	CDOT	Minor Arterial/SH	55	3.5	D
8	NIPA @ WCR 46	Weld	Collector	55	12	C
9	NIPA @ WCR 44	Berthoud	Arterial	45	3	D
10	NIPA @ WCR 38	Mead	Arterial	40	13	D
11	NIPA @ WCR 34	Mead	Arterial	40	9	D

APPENDIX D

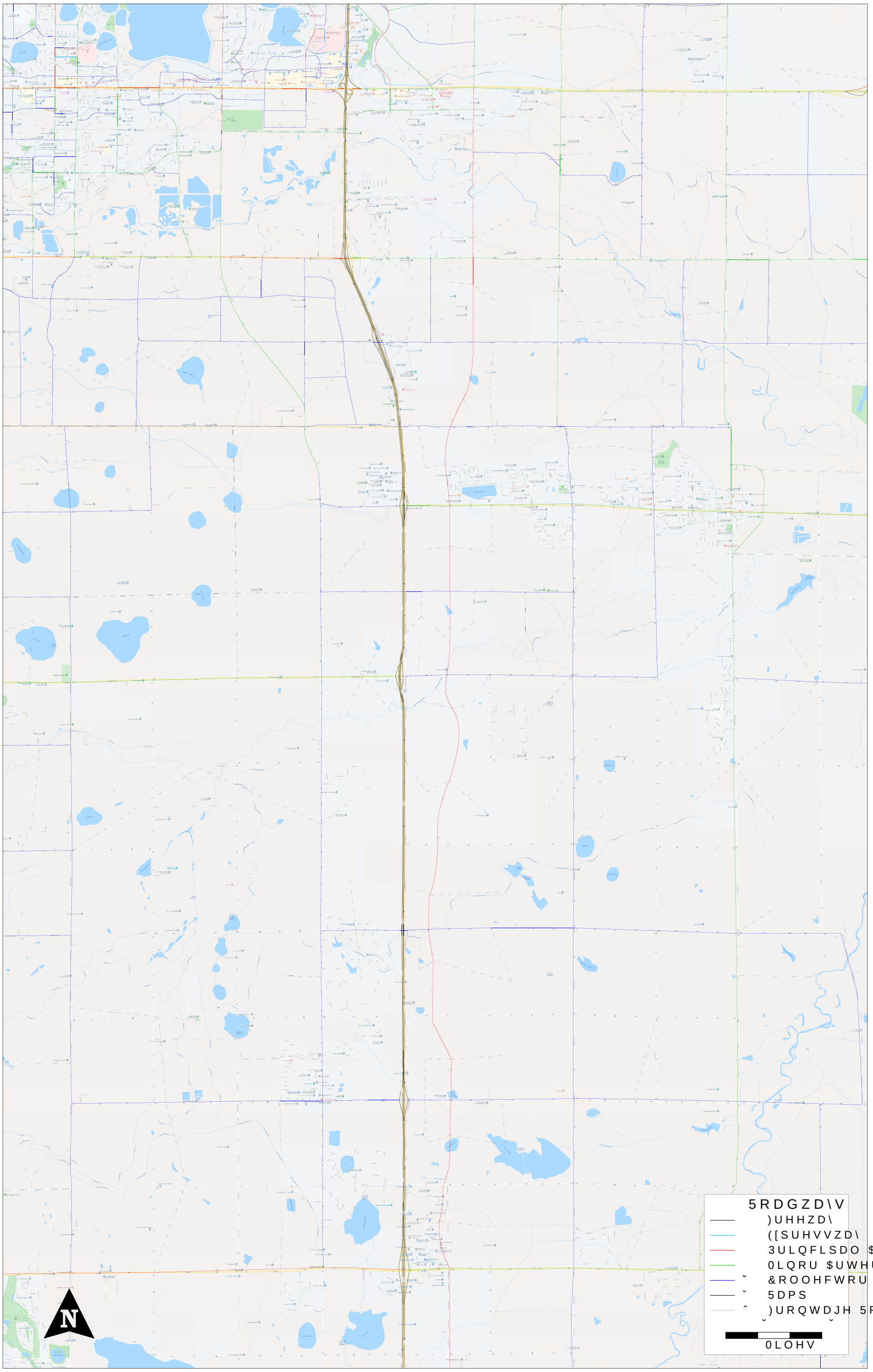
Traffic Forecasts from Cambridge Systematics

I-25 NIPA: Year 2040 24-Hour Project Volumes



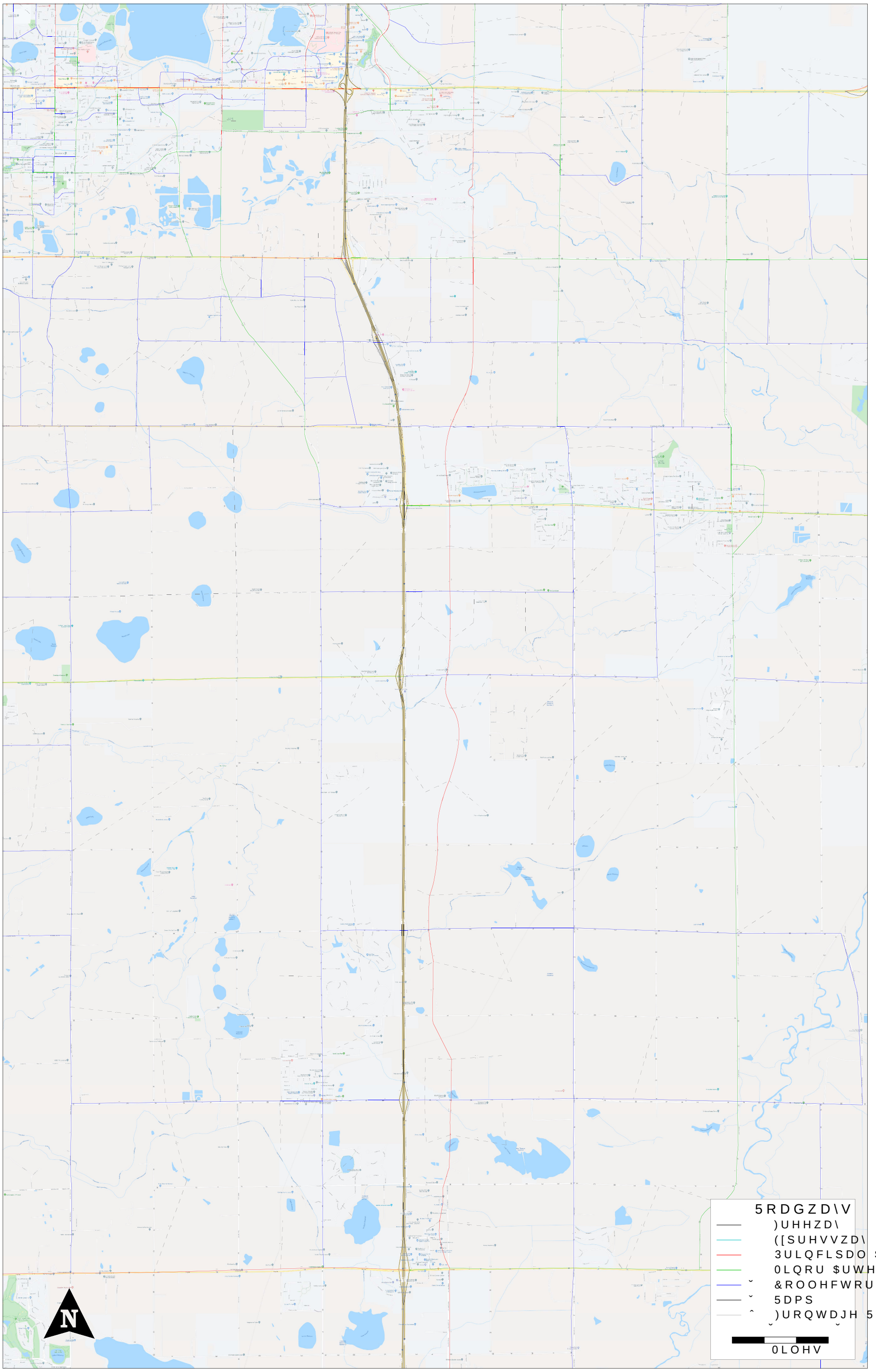
DRAFT Raw Model Results (01/31/2020, v6)

I-25 NIPA: Year 2040 AM Peak Hour Project Volumes



'5$)7 5DZ 0RGHO 5HVXOWV Y˘

I-25 NIPA: Year 2040 PM Peak Hour Project Volumes



'5$)7 5DZ 0RGHO 5HVXOWV Y˘

I-25 NIPA: Year 2040 AM Turn Volumes

Raw Model Results (01/31/2020, V6)

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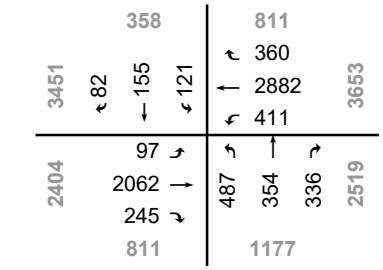

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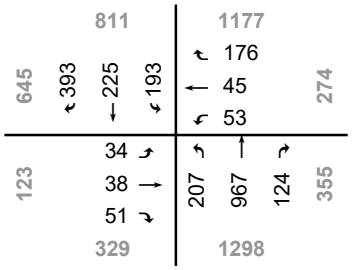

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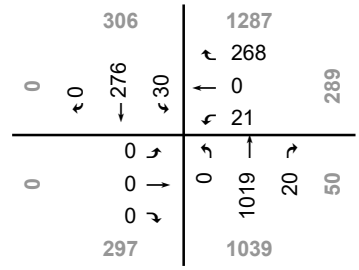

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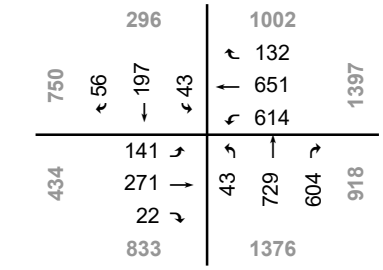

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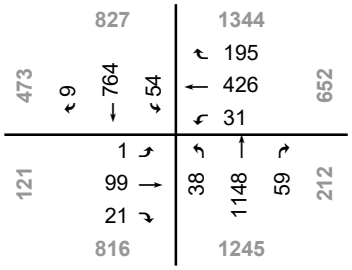

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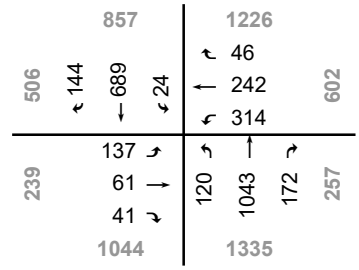

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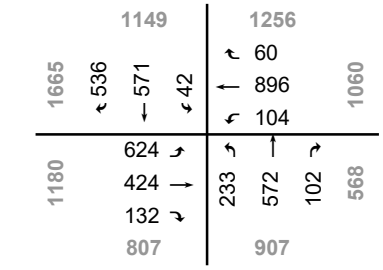

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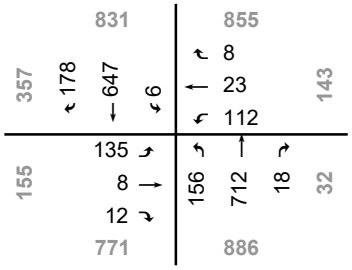

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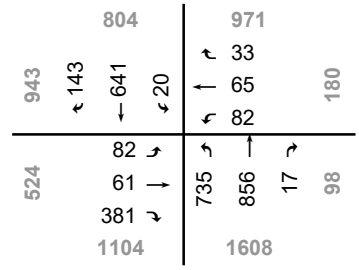

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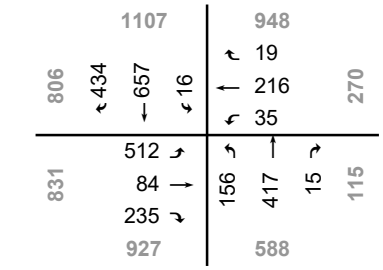

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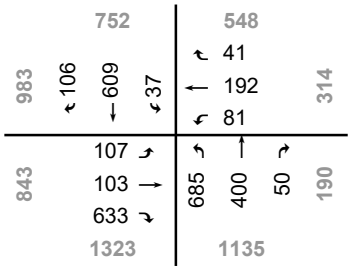

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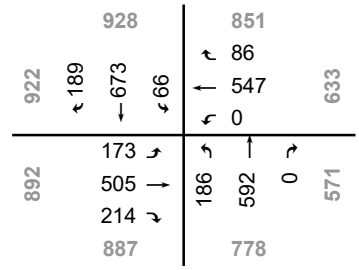

I-25 NIPA: Year 2040 PM Turn Volumes

Raw Model Results (01/31/2020, V6)

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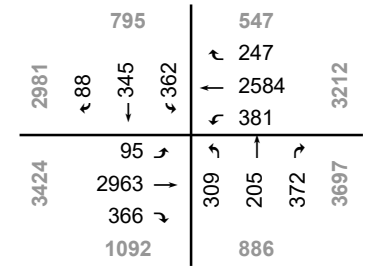

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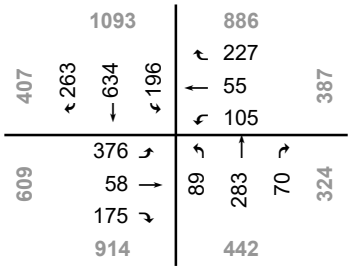

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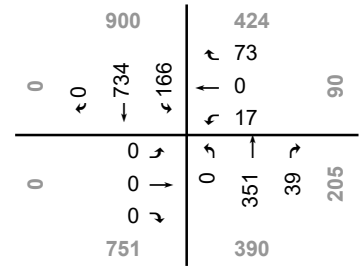

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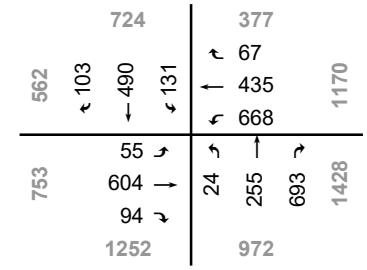

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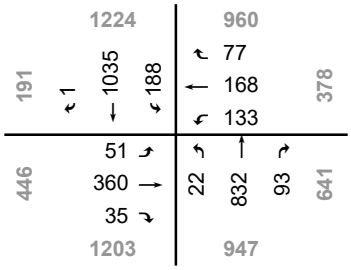
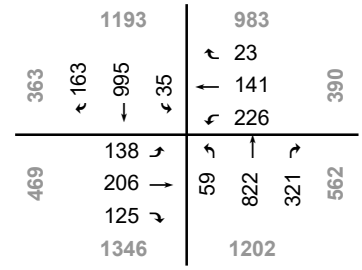


6 CR 9.5 & WCR 50



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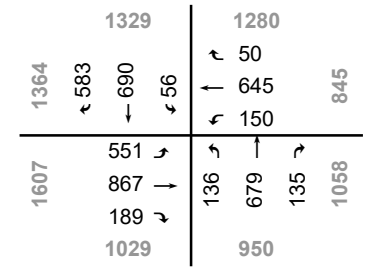
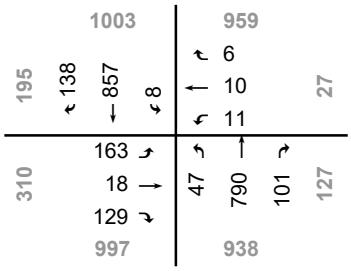


8 CR 9.5 & WCR 46



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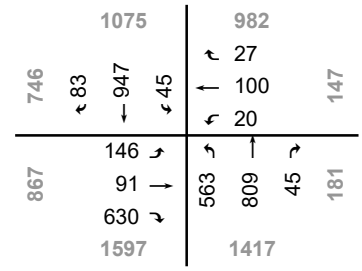

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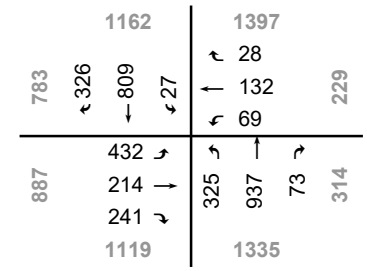

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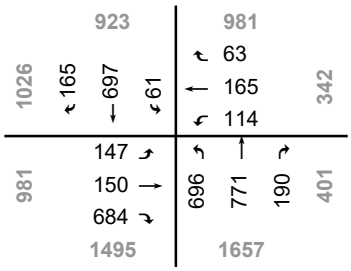

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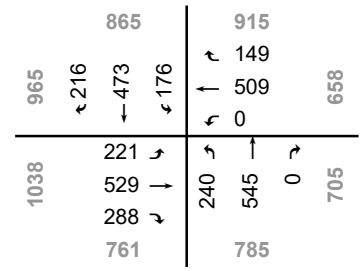


APPENDIX E

Synchro and HCS Reports

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	38	51	53	45	176	207	967	124	193	225	393
Future Volume (veh/h)	34	38	51	53	45	176	207	967	124	193	225	393
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1827	1827	1900	1827	1827	1900
Adj Flow Rate, veh/h	37	41	55	58	49	191	225	1051	135	210	245	427
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	4	4	4	4	4	4
Cap, veh/h	181	121	163	212	60	234	479	1226	157	320	550	492
Arrive On Green	0.04	0.17	0.17	0.05	0.18	0.18	0.20	0.40	0.40	0.12	0.32	0.32
Sat Flow, veh/h	1757	715	960	1757	330	1287	1740	3095	397	1740	1736	1553
Grp Volume(v), veh/h	37	0	96	58	0	240	225	589	597	210	245	427
Grp Sat Flow(s),veh/h/ln	1757	0	1675	1757	0	1617	1740	1736	1757	1740	1736	1553
Q Serve(g_s), s	0.0	0.0	3.5	2.0	0.0	9.8	2.4	21.3	21.4	6.8	7.7	17.8
Cycle Q Clear(g_c), s	0.0	0.0	3.5	2.0	0.0	9.8	2.4	21.3	21.4	6.8	7.7	17.8
Prop In Lane	1.00		0.57	1.00		0.80	1.00		0.23	1.00		1.00
Lane Grp Cap(c), veh/h	181	0	284	212	0	294	479	687	696	320	550	492
V/C Ratio(X)	0.20	0.00	0.34	0.27	0.00	0.82	0.47	0.86	0.86	0.66	0.45	0.87
Avail Cap(c_a), veh/h	246	0	441	257	0	426	479	765	775	320	646	578
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.8	0.0	25.1	26.2	0.0	27.0	22.0	19.0	19.0	21.1	18.7	22.1
Incr Delay (d2), s/veh	0.6	0.0	0.7	0.7	0.0	7.9	0.7	8.8	8.8	4.8	0.6	11.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	1.7	1.0	0.0	5.0	3.7	11.8	12.0	3.6	3.8	9.2
LnGrp Delay(d),s/veh	32.3	0.0	25.8	26.9	0.0	34.9	22.8	27.8	27.8	25.9	19.2	33.9
LnGrp LOS	C		C	C		C	C	C	C	C	B	C
Approach Vol, veh/h		133			298			1411			882	
Approach Delay, s/veh		27.6			33.4			27.0			27.9	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	31.7	7.8	16.2	18.4	26.3	7.0	17.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	30.3	5.1	18.1	13.2	25.6	5.1	18.1
Max Q Clear Time (g_c+I1), s	8.8	23.4	4.0	5.5	4.4	19.8	2.0	11.8
Green Ext Time (p_c), s	0.0	3.8	0.0	0.3	0.4	2.0	0.0	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	28.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	141	271	22	614	651	132	43	729	604	43	197	56
Future Volume (veh/h)	141	271	22	614	651	132	43	729	604	43	197	56
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1900	1827	1827	1900	1827	1900
Adj Flow Rate, veh/h	153	295	24	667	708	143	47	792	0	47	214	61
Adj No. of Lanes	1	2	0	2	2	0	0	2	1	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	4	4	4	4	4	4
Cap, veh/h	353	473	38	966	878	177	109	1040	501	126	544	173
Arrive On Green	0.13	0.14	0.14	0.28	0.30	0.30	0.32	0.32	0.00	0.32	0.32	0.32
Sat Flow, veh/h	1757	3285	266	3408	2907	587	110	3220	1553	115	1683	534
Grp Volume(v), veh/h	153	157	162	667	427	424	444	395	0	143	0	179
Grp Sat Flow(s),veh/h/ln	1757	1752	1798	1704	1752	1741	1751	1579	1553	765	0	1568
Q Serve(g_s), s	4.5	4.5	4.6	9.4	12.1	12.2	5.5	12.2	0.0	1.2	0.0	4.7
Cycle Q Clear(g_c), s	4.5	4.5	4.6	9.4	12.1	12.2	12.2	12.2	0.0	13.4	0.0	4.7
Prop In Lane	1.00		0.15	1.00		0.34	0.11		1.00	0.33		0.34
Lane Grp Cap(c), veh/h	353	252	259	966	529	526	639	510	501	335	0	506
V/C Ratio(X)	0.43	0.62	0.63	0.69	0.81	0.81	0.70	0.77	0.00	0.43	0.00	0.35
Avail Cap(c_a), veh/h	718	629	645	1142	632	628	845	701	690	477	0	696
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.6	21.7	21.8	17.3	17.4	17.4	16.4	16.5	0.0	14.2	0.0	14.0
Incr Delay (d2), s/veh	0.8	2.5	2.5	1.4	6.4	6.5	1.6	3.7	0.0	0.9	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	2.3	2.4	4.5	6.8	6.7	6.2	5.8	0.0	1.6	0.0	2.1
LnGrp Delay(d),s/veh	23.4	24.2	24.3	18.7	23.8	23.9	18.1	20.2	0.0	15.0	0.0	14.4
LnGrp LOS	C	C	C	B	C	C	B	C		B		B
Approach Vol, veh/h		472			1518			839			322	
Approach Delay, s/veh		24.0			21.6			19.1			14.7	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		21.9	19.8	12.3		21.9	11.3	20.8
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		24.0	18.1	19.4		24.0	18.0	19.5
Max Q Clear Time (g_c+I1), s		14.2	11.4	6.6		15.4	6.5	14.2
Green Ext Time (p_c), s		3.2	1.4	1.2		1.2	0.3	2.2

Intersection Summary	
HCM 2010 Ctrl Delay	20.6
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	99	21	31	426	195	38	1148	59	54	764	9
Future Volume (veh/h)	1	99	21	31	426	195	38	1148	59	54	764	9
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1900	1845	1900	1900	1845	1900	1900	1827	1900	1900	1827	1900
Adj Flow Rate, veh/h	1	108	23	34	463	212	41	1248	64	59	830	10
Adj No. of Lanes	0	2	0	0	2	0	0	2	0	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	4	4	4	4	4	4
Cap, veh/h	79	800	165	107	631	281	107	1664	84	123	1463	18
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.53	0.53	0.53	0.53	0.53	0.53
Sat Flow, veh/h	5	2827	582	84	2230	993	49	3160	160	69	2779	35
Grp Volume(v), veh/h	70	0	62	388	0	321	700	0	653	426	0	473
Grp Sat Flow(s),veh/h/ln	1838	0	1576	1804	0	1503	1735	0	1634	1226	0	1656
Q Serve(g_s), s	0.0	0.0	1.4	3.0	0.0	9.2	2.1	0.0	14.9	2.6	0.0	8.9
Cycle Q Clear(g_c), s	1.3	0.0	1.4	9.2	0.0	9.2	14.2	0.0	14.9	17.5	0.0	8.9
Prop In Lane	0.01		0.37	0.09		0.66	0.06		0.10	0.14		0.02
Lane Grp Cap(c), veh/h	597	0	446	593	0	425	994	0	861	733	0	872
V/C Ratio(X)	0.12	0.00	0.14	0.65	0.00	0.75	0.70	0.00	0.76	0.58	0.00	0.54
Avail Cap(c_a), veh/h	775	0	601	767	0	573	1278	0	1142	945	0	1157
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	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.6	0.0	12.6	15.4	0.0	15.4	8.6	0.0	8.8	7.3	0.0	7.4
Incr Delay (d2), s/veh	0.1	0.0	0.1	1.3	0.0	3.9	1.2	0.0	2.1	0.7	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.6	4.7	0.0	4.2	7.1	0.0	7.0	3.5	0.0	4.1
LnGrp Delay(d),s/veh	12.7	0.0	12.8	16.7	0.0	19.3	9.8	0.0	10.9	8.0	0.0	7.9
LnGrp LOS	B		B	B		B	A		B	A		A
Approach Vol, veh/h		132			709			1353			899	
Approach Delay, s/veh		12.7			17.9			10.4			8.0	
Approach LOS		B			B			B			A	

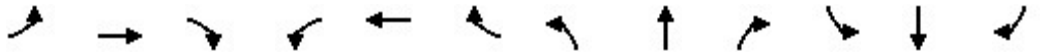
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		29.4		17.9		29.4		17.9
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		33.0		18.0		33.0		18.0
Max Q Clear Time (g_c+I1), s		16.9		3.4		19.5		11.2
Green Ext Time (p_c), s		8.0		0.4		4.7		2.2

Intersection Summary	
HCM 2010 Ctrl Delay	11.5
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	137	61	41	314	242	46	120	1043	172	24	689	144
Future Volume (veh/h)	137	61	41	314	242	46	120	1043	172	24	689	144
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1827	1827	1827	1827	1827	1900
Adj Flow Rate, veh/h	149	66	45	341	263	50	130	1134	187	26	749	157
Adj No. of Lanes	1	1	0	1	1	0	1	2	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	4	4	4	4	4	4
Cap, veh/h	292	99	68	492	317	60	300	1350	604	156	932	195
Arrive On Green	0.11	0.10	0.10	0.22	0.21	0.21	0.09	0.39	0.39	0.03	0.33	0.33
Sat Flow, veh/h	1757	1024	698	1757	1507	287	1740	3471	1553	1740	2858	599
Grp Volume(v), veh/h	149	0	111	341	0	313	130	1134	187	26	455	451
Grp Sat Flow(s),veh/h/ln	1757	0	1722	1757	0	1794	1740	1736	1553	1740	1736	1721
Q Serve(g_s), s	5.6	0.0	4.2	7.6	0.0	11.3	0.0	20.0	2.4	0.7	16.2	16.2
Cycle Q Clear(g_c), s	5.6	0.0	4.2	7.6	0.0	11.3	0.0	20.0	2.4	0.7	16.2	16.2
Prop In Lane	1.00		0.41	1.00		0.16	1.00		1.00	1.00		0.35
Lane Grp Cap(c), veh/h	292	0	167	492	0	377	300	1350	604	156	566	562
V/C Ratio(X)	0.51	0.00	0.67	0.69	0.00	0.83	0.43	0.84	0.31	0.17	0.80	0.80
Avail Cap(c_a), veh/h	296	0	459	492	0	547	300	1495	669	235	735	729
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.4	0.0	29.5	22.4	0.0	25.5	27.4	18.7	2.6	19.6	20.8	20.8
Incr Delay (d2), s/veh	1.4	0.0	4.5	4.2	0.0	7.0	1.0	4.1	0.3	0.5	4.9	5.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	2.2	6.3	0.0	6.3	2.3	10.2	2.1	0.4	8.5	8.4
LnGrp Delay(d),s/veh	30.8	0.0	34.0	26.6	0.0	32.5	28.4	22.8	2.9	20.1	25.7	25.8
LnGrp LOS	C		C	C		C	C	C	A	C	C	C
Approach Vol, veh/h		260			654			1451			932	
Approach Delay, s/veh		32.2			29.4			20.7			25.6	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.4	30.8	19.3	11.0	10.7	26.5	11.6	18.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	29.1	9.9	18.0	5.5	28.6	7.3	20.6
Max Q Clear Time (g_c+I1), s	2.7	22.0	9.6	6.2	2.0	18.2	7.6	13.3
Green Ext Time (p_c), s	0.0	4.3	0.0	0.3	0.1	3.9	0.0	0.9

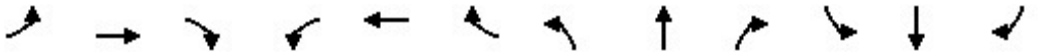
Intersection Summary	
HCM 2010 Ctrl Delay	24.7
HCM 2010 LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	624	424	132	104	896	60	233	572	102	42	571	536
Future Volume (veh/h)	624	424	132	104	896	60	233	572	102	42	571	536
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1827	1827	1827	1827	1827	1827	1827	1827	1827	1827	1827	1827
Adj Flow Rate, veh/h	678	461	143	113	974	65	253	622	111	46	621	0
Adj No. of Lanes	3	2	1	1	2	1	2	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	796	641	287	596	1097	491	327	936	419	153	736	329
Arrive On Green	0.16	0.18	0.18	0.29	0.32	0.32	0.10	0.27	0.27	0.04	0.21	0.00
Sat Flow, veh/h	4907	3471	1553	1740	3471	1553	3375	3471	1553	1740	3471	1553
Grp Volume(v), veh/h	678	461	143	113	974	65	253	622	111	46	621	0
Grp Sat Flow(s),veh/h/ln	1636	1736	1553	1740	1736	1553	1688	1736	1553	1740	1736	1553
Q Serve(g_s), s	11.4	10.6	7.0	0.0	22.6	2.5	6.2	13.5	2.1	1.9	14.5	0.0
Cycle Q Clear(g_c), s	11.4	10.6	7.0	0.0	22.6	2.5	6.2	13.5	2.1	1.9	14.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	796	641	287	596	1097	491	327	936	419	153	736	329
V/C Ratio(X)	0.85	0.72	0.50	0.19	0.89	0.13	0.77	0.66	0.26	0.30	0.84	0.00
Avail Cap(c_a), veh/h	842	1499	671	596	1171	524	339	986	441	188	842	377
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	34.4	32.4	30.9	21.1	27.5	20.6	37.3	27.5	5.0	29.9	32.0	0.0
Incr Delay (d2), s/veh	8.0	1.5	1.3	0.2	8.3	0.1	10.2	1.6	0.3	1.1	7.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	5.2	3.1	1.9	12.1	1.1	3.3	6.7	1.9	0.9	7.7	0.0
LnGrp Delay(d),s/veh	42.5	33.9	32.3	21.2	35.7	20.8	47.5	29.0	5.3	31.0	39.1	0.0
LnGrp LOS	D	C	C	C	D	C	D	C	A	C	D	
Approach Vol, veh/h		1282			1152			986			667	
Approach Delay, s/veh		38.3			33.5			31.1			38.5	
Approach LOS		D			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.8	27.3	29.3	20.1	12.7	22.4	18.2	31.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	24.0	6.5	36.5	8.5	20.5	14.5	28.5
Max Q Clear Time (g_c+I1), s	3.9	15.5	2.0	12.6	8.2	16.5	13.4	24.6
Green Ext Time (p_c), s	0.0	2.6	0.1	3.1	0.0	1.4	0.4	2.1

Intersection Summary	
HCM 2010 Ctrl Delay	35.2
HCM 2010 LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	8	12	112	23	8	156	712	18	6	647	178
Future Volume (veh/h)	135	8	12	112	23	8	156	712	18	6	647	178
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1900	1696	1900	1900	1696	1900	1900	1827	1900	1900	1827	1900
Adj Flow Rate, veh/h	147	9	13	122	25	9	170	774	20	7	703	193
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	12	12	12	12	12	12	4	4	4	4	4	4
Cap, veh/h	407	13	19	375	49	14	319	1302	34	109	1505	410
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.57	0.57	0.57	0.57	0.57	0.57
Sat Flow, veh/h	1272	78	112	1131	292	87	299	2275	60	6	2630	717
Grp Volume(v), veh/h	169	0	0	156	0	0	410	0	554	490	0	413
Grp Sat Flow(s),veh/h/ln	1462	0	0	1511	0	0	982	0	1652	1817	0	1536
Q Serve(g_s), s	0.4	0.0	0.0	0.0	0.0	0.0	5.3	0.0	7.4	0.0	0.0	5.4
Cycle Q Clear(g_c), s	3.4	0.0	0.0	3.0	0.0	0.0	10.8	0.0	7.4	5.4	0.0	5.4
Prop In Lane	0.87		0.08	0.78		0.06	0.41		0.04	0.01		0.47
Lane Grp Cap(c), veh/h	439	0	0	438	0	0	710	0	945	1146	0	879
V/C Ratio(X)	0.39	0.00	0.00	0.36	0.00	0.00	0.58	0.00	0.59	0.43	0.00	0.47
Avail Cap(c_a), veh/h	895	0	0	910	0	0	1096	0	1584	1836	0	1473
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.4	0.0	0.0	13.2	0.0	0.0	5.0	0.0	4.7	4.3	0.0	4.3
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.5	0.0	0.0	0.7	0.0	0.6	0.3	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.0	1.4	0.0	0.0	2.9	0.0	3.4	2.7	0.0	2.3
LnGrp Delay(d),s/veh	13.9	0.0	0.0	13.7	0.0	0.0	5.8	0.0	5.3	4.6	0.0	4.7
LnGrp LOS	B			B			A		A	A		A
Approach Vol, veh/h		169			156			964			903	
Approach Delay, s/veh		13.9			13.7			5.5			4.6	
Approach LOS		B			B			A			A	

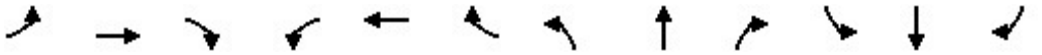
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		24.2		10.2		24.2		10.2
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		33.0		18.0		33.0		18.0
Max Q Clear Time (g_c+I1), s		12.8		5.4		7.4		5.0
Green Ext Time (p_c), s		6.9		0.6		5.3		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	6.4
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	61	381	82	65	33	735	856	17	20	641	143
Future Volume (veh/h)	82	61	381	82	65	33	735	856	17	20	641	143
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1900	1827	1827	1900	1827	1827	1827
Adj Flow Rate, veh/h	89	66	0	89	71	36	799	930	18	22	697	155
Adj No. of Lanes	1	1	1	0	1	0	2	2	0	1	2	1
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, %	3	3	3	3	3	3	4	4	4	4	4	4
Cap, veh/h	140	147	125	114	91	46	880	1180	23	401	853	382
Arrive On Green	0.08	0.08	0.00	0.14	0.14	0.14	0.26	0.34	0.34	0.17	0.25	0.25
Sat Flow, veh/h	1757	1845	1568	794	633	321	3375	3483	67	1740	3471	1553
Grp Volume(v), veh/h	89	66	0	196	0	0	799	463	485	22	697	155
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1748	0	0	1688	1736	1815	1740	1736	1553
Q Serve(g_s), s	3.3	2.3	0.0	7.2	0.0	0.0	15.3	16.0	16.0	0.0	12.6	5.6
Cycle Q Clear(g_c), s	3.3	2.3	0.0	7.2	0.0	0.0	15.3	16.0	16.0	0.0	12.6	5.6
Prop In Lane	1.00		1.00	0.45		0.18	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	140	147	125	250	0	0	880	588	615	401	853	382
V/C Ratio(X)	0.63	0.45	0.00	0.78	0.00	0.00	0.91	0.79	0.79	0.05	0.82	0.41
Avail Cap(c_a), veh/h	475	499	424	473	0	0	887	808	845	401	965	432
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.7	29.2	0.0	27.5	0.0	0.0	23.8	19.8	19.8	23.1	23.7	21.0
Incr Delay (d2), s/veh	4.7	2.1	0.0	5.3	0.0	0.0	13.0	3.6	3.5	0.1	5.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	1.2	0.0	3.9	0.0	0.0	8.7	8.2	8.5	0.3	6.6	2.4
LnGrp Delay(d),s/veh	34.3	31.3	0.0	32.9	0.0	0.0	36.8	23.5	23.3	23.1	28.7	21.7
LnGrp LOS	C	C		C			D	C	C	C	C	C
Approach Vol, veh/h		155			196			1747			874	
Approach Delay, s/veh		33.1			32.9			29.5			27.3	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.7	27.1		9.8	21.9	20.9		14.0
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	31.0		18.0	17.5	18.5		18.0
Max Q Clear Time (g_c+I1), s	2.0	18.0		5.3	17.3	14.6		9.2
Green Ext Time (p_c), s	0.0	4.5		0.4	0.1	1.7		0.6

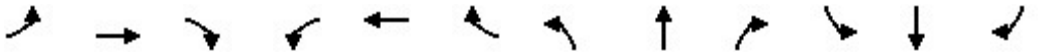
Intersection Summary	
HCM 2010 Ctrl Delay	29.3
HCM 2010 LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	512	84	235	35	216	19	156	417	15	16	657	434
Future Volume (veh/h)	512	84	235	35	216	19	156	417	15	16	657	434
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1681	1681	1681	1681	1681	1900	1827	1827	1900	1827	1827	1827
Adj Flow Rate, veh/h	557	91	0	38	235	21	170	453	16	17	714	0
Adj No. of Lanes	2	1	1	1	1	0	1	2	0	1	2	1
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, %	13	13	13	13	13	13	4	4	4	4	4	4
Cap, veh/h	652	145	124	599	283	25	266	616	22	392	873	390
Arrive On Green	0.21	0.09	0.00	0.31	0.19	0.19	0.09	0.18	0.18	0.16	0.25	0.00
Sat Flow, veh/h	3107	1681	1429	1601	1521	136	1740	3421	121	1740	3471	1553
Grp Volume(v), veh/h	557	91	0	38	0	256	170	229	240	17	714	0
Grp Sat Flow(s),veh/h/ln	1553	1681	1429	1601	0	1657	1740	1736	1806	1740	1736	1553
Q Serve(g_s), s	12.0	3.6	0.0	0.0	0.0	10.3	6.4	8.7	8.7	0.0	13.5	0.0
Cycle Q Clear(g_c), s	12.0	3.6	0.0	0.0	0.0	10.3	6.4	8.7	8.7	0.0	13.5	0.0
Prop In Lane	1.00		1.00	1.00		0.08	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	652	145	124	599	0	309	266	312	325	392	873	390
V/C Ratio(X)	0.85	0.63	0.00	0.06	0.00	0.83	0.64	0.73	0.74	0.04	0.82	0.00
Avail Cap(c_a), veh/h	737	714	607	599	0	429	266	562	585	392	1049	469
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.4	30.7	0.0	16.6	0.0	27.2	28.3	26.9	26.9	24.2	24.5	0.0
Incr Delay (d2), s/veh	8.8	4.4	0.0	0.0	0.0	9.3	5.0	3.4	3.3	0.0	4.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	1.9	0.0	0.5	0.0	5.5	3.4	4.4	4.6	0.3	7.0	0.0
LnGrp Delay(d),s/veh	35.2	35.0	0.0	16.6	0.0	36.5	33.3	30.3	30.2	24.3	28.9	0.0
LnGrp LOS	D	D		B		D	C	C	C	C	C	
Approach Vol, veh/h		648			294			639			731	
Approach Delay, s/veh		35.2			33.9			31.1			28.8	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	17.0	26.0	10.5	11.0	22.0	19.1	17.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	22.5	5.0	29.5	6.5	21.0	16.5	18.0
Max Q Clear Time (g_c+I1), s	2.0	10.7	2.0	5.6	8.4	15.5	14.0	12.3
Green Ext Time (p_c), s	0.0	1.8	0.0	0.4	0.0	2.0	0.6	0.6

Intersection Summary		
HCM 2010 Ctrl Delay		31.9
HCM 2010 LOS		C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	107	103	633	81	192	41	685	400	50	37	609	106
Future Volume (veh/h)	107	103	633	81	192	41	685	400	50	37	609	106
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1743	1743	1743	1743	1743	1900	1827	1827	1827	1827	1827	1827
Adj Flow Rate, veh/h	116	112	0	88	209	45	745	435	54	40	662	115
Adj No. of Lanes	1	1	1	1	1	0	2	2	1	1	2	1
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, %	9	9	9	9	9	9	4	4	4	4	4	4
Cap, veh/h	262	165	140	406	252	54	818	1505	673	209	796	356
Arrive On Green	0.10	0.09	0.00	0.18	0.18	0.18	0.24	0.43	0.43	0.04	0.23	0.23
Sat Flow, veh/h	1660	1743	1482	1660	1391	299	3375	3471	1553	1740	3471	1553
Grp Volume(v), veh/h	116	112	0	88	0	254	745	435	54	40	662	115
Grp Sat Flow(s),veh/h/ln	1660	1743	1482	1660	0	1690	1688	1736	1553	1740	1736	1553
Q Serve(g_s), s	4.9	4.5	0.0	0.0	0.0	10.5	15.5	5.9	0.7	1.4	13.1	3.2
Cycle Q Clear(g_c), s	4.9	4.5	0.0	0.0	0.0	10.5	15.5	5.9	0.7	1.4	13.1	3.2
Prop In Lane	1.00		1.00	1.00		0.18	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	262	165	140	406	0	306	818	1505	673	209	796	356
V/C Ratio(X)	0.44	0.68	0.00	0.22	0.00	0.83	0.91	0.29	0.08	0.19	0.83	0.32
Avail Cap(c_a), veh/h	514	435	370	514	0	422	819	1505	673	275	890	398
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.5	31.6	0.0	24.0	0.0	28.5	26.6	13.2	2.5	24.4	26.5	11.7
Incr Delay (d2), s/veh	1.2	4.9	0.0	0.3	0.0	9.6	14.2	0.1	0.1	0.4	6.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	2.4	0.0	1.4	0.0	5.7	8.8	2.8	0.6	0.7	6.9	1.8
LnGrp Delay(d),s/veh	32.6	36.5	0.0	24.3	0.0	38.1	40.8	13.3	2.5	24.8	32.6	12.2
LnGrp LOS	C	D		C		D	D	B	A	C	C	B
Approach Vol, veh/h		228			342			1234			817	
Approach Delay, s/veh		34.5			34.6			29.4			29.4	
Approach LOS		C			C			C			C	

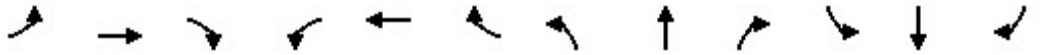
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.3	35.8	17.8	11.3	22.0	21.1	11.6	17.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	30.5	18.0	18.0	17.5	18.5	18.0	18.0
Max Q Clear Time (g_c+I1), s	3.4	7.9	2.0	6.5	17.5	15.1	6.9	12.5
Green Ext Time (p_c), s	0.0	2.7	0.2	0.3	0.0	1.4	0.2	0.6

Intersection Summary		
HCM 2010 Ctrl Delay		30.5
HCM 2010 LOS		C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	376	58	175	105	55	227	89	283	70	196	634	263
Future Volume (veh/h)	376	58	175	105	55	227	89	283	70	196	634	263
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1827	1827	1900	1827	1827	1900
Adj Flow Rate, veh/h	409	63	190	114	60	247	97	308	76	213	689	286
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	4	4	4	4	4	4
Cap, veh/h	448	138	416	219	67	277	187	681	166	342	756	314
Arrive On Green	0.20	0.34	0.34	0.08	0.21	0.21	0.05	0.25	0.25	0.12	0.32	0.32
Sat Flow, veh/h	1757	406	1223	1757	316	1300	1740	2770	673	1740	2394	994
Grp Volume(v), veh/h	409	0	253	114	0	307	97	191	193	213	500	475
Grp Sat Flow(s),veh/h/ln	1757	0	1629	1757	0	1615	1740	1736	1708	1740	1736	1652
Q Serve(g_s), s	14.7	0.0	10.2	4.8	0.0	15.5	0.0	7.8	8.0	8.4	23.2	23.2
Cycle Q Clear(g_c), s	14.7	0.0	10.2	4.8	0.0	15.5	0.0	7.8	8.0	8.4	23.2	23.2
Prop In Lane	1.00		0.75	1.00		0.80	1.00		0.39	1.00		0.60
Lane Grp Cap(c), veh/h	448	0	554	219	0	344	187	427	420	342	548	522
V/C Ratio(X)	0.91	0.00	0.46	0.52	0.00	0.89	0.52	0.45	0.46	0.62	0.91	0.91
Avail Cap(c_a), veh/h	499	0	554	335	0	376	209	445	438	366	569	542
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.8	0.0	21.6	30.4	0.0	32.1	37.5	26.8	26.9	25.1	27.6	27.6
Incr Delay (d2), s/veh	20.1	0.0	0.6	1.9	0.0	21.5	2.2	0.7	0.8	2.9	18.6	19.3
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	11.7	0.0	4.7	2.4	0.0	9.0	2.2	3.9	3.9	4.2	13.9	13.4
LnGrp Delay(d),s/veh	51.0	0.0	22.2	32.3	0.0	53.6	39.7	27.5	27.7	28.1	46.2	46.9
LnGrp LOS	D		C	C		D	D	C	C	C	D	D
Approach Vol, veh/h		662			421			481			1188	
Approach Delay, s/veh		40.0			47.8			30.1			43.2	
Approach LOS		D			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.8	25.1	10.9	33.0	9.0	31.0	21.6	22.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	11.5	21.5	11.9	27.1	5.5	27.5	19.5	19.5
Max Q Clear Time (g_c+I1), s	10.4	10.0	6.8	12.2	2.0	25.2	16.7	17.5
Green Ext Time (p_c), s	0.1	1.5	0.1	1.3	0.1	1.3	0.4	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	40.8
HCM 2010 LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	604	94	668	435	67	24	255	693	131	490	103
Future Volume (veh/h)	55	604	94	668	435	67	24	255	693	131	490	103
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1900	1827	1827	1900	1827	1900
Adj Flow Rate, veh/h	60	657	102	726	473	73	26	277	0	142	533	112
Adj No. of Lanes	1	2	0	2	2	0	0	2	1	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	4	4	4	4	4	4
Cap, veh/h	218	730	113	814	1252	192	93	844	526	202	664	151
Arrive On Green	0.07	0.24	0.24	0.24	0.41	0.41	0.34	0.34	0.00	0.34	0.34	0.34
Sat Flow, veh/h	1757	3042	472	3408	3047	468	102	2494	1553	399	1961	446
Grp Volume(v), veh/h	60	378	381	726	271	275	125	178	0	390	0	397
Grp Sat Flow(s),veh/h/ln	1757	1752	1761	1704	1752	1762	1017	1579	1553	1223	0	1584
Q Serve(g_s), s	2.1	15.4	15.5	15.2	8.0	8.0	0.9	6.2	0.0	17.1	0.0	16.4
Cycle Q Clear(g_c), s	2.1	15.4	15.5	15.2	8.0	8.0	17.3	6.2	0.0	23.3	0.0	16.4
Prop In Lane	1.00		0.27	1.00		0.27	0.21		1.00	0.36		0.28
Lane Grp Cap(c), veh/h	218	420	423	814	720	724	403	535	526	480	0	536
V/C Ratio(X)	0.27	0.90	0.90	0.89	0.38	0.38	0.31	0.33	0.00	0.81	0.00	0.74
Avail Cap(c_a), veh/h	528	427	429	854	720	724	403	535	526	480	0	536
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.8	27.2	27.2	27.2	15.2	15.2	18.0	18.2	0.0	25.4	0.0	21.6
Incr Delay (d2), s/veh	0.7	21.3	21.6	11.3	0.3	0.3	0.4	0.4	0.0	10.1	0.0	5.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	9.9	10.0	8.4	3.9	4.0	1.9	2.7	0.0	9.0	0.0	7.9
LnGrp Delay(d),s/veh	25.5	48.5	48.8	38.5	15.5	15.5	18.4	18.6	0.0	35.5	0.0	27.1
LnGrp LOS	C	D	D	D	B	B	B	B		D		C
Approach Vol, veh/h		819			1272			303			787	
Approach Delay, s/veh		47.0			28.6			18.5			31.2	
Approach LOS		D			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		29.5	22.1	22.2		29.5	9.5	34.9
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		25.0	18.5	18.0		25.0	18.0	18.5
Max Q Clear Time (g_c+I1), s		19.3	17.2	17.5		25.3	4.1	10.0
Green Ext Time (p_c), s		0.7	0.4	0.2		0.0	0.1	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	33.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	360	35	133	168	77	22	832	93	188	1035	1
Future Volume (veh/h)	51	360	35	133	168	77	22	832	93	188	1035	1
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1900	1845	1900	1900	1845	1900	1900	1827	1900	1900	1827	1900
Adj Flow Rate, veh/h	55	391	38	145	183	84	24	904	101	204	1125	1
Adj No. of Lanes	0	2	0	0	2	0	0	2	0	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	4	4	4	4	4	4
Cap, veh/h	102	638	66	186	296	149	67	1848	207	238	1355	1
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.63	0.63	0.63	0.63	0.63	0.63
Sat Flow, veh/h	184	2491	258	413	1155	581	32	2927	328	278	2147	2
Grp Volume(v), veh/h	243	0	241	184	0	228	535	0	494	515	0	815
Grp Sat Flow(s),veh/h/ln	1300	0	1633	573	0	1576	1682	0	1605	765	0	1662
Q Serve(g_s), s	5.1	0.0	10.3	10.2	0.0	10.1	0.8	0.0	13.1	37.4	0.0	28.4
Cycle Q Clear(g_c), s	15.2	0.0	10.3	20.5	0.0	10.1	29.1	0.0	13.1	50.5	0.0	28.4
Prop In Lane	0.23		0.16	0.79		0.37	0.04		0.20	0.40		0.00
Lane Grp Cap(c), veh/h	388	0	419	227	0	404	1109	0	1013	546	0	1049
V/C Ratio(X)	0.63	0.00	0.58	0.81	0.00	0.56	0.48	0.00	0.49	0.94	0.00	0.78
Avail Cap(c_a), veh/h	388	0	419	227	0	404	1109	0	1013	546	0	1049
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	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.4	0.0	26.0	34.9	0.0	25.9	7.7	0.0	7.9	20.1	0.0	10.7
Incr Delay (d2), s/veh	3.1	0.0	1.9	19.3	0.0	1.8	0.3	0.0	0.4	25.4	0.0	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	5.3	0.0	4.8	5.3	0.0	4.6	6.2	0.0	5.9	15.2	0.0	13.8
LnGrp Delay(d),s/veh	30.5	0.0	27.9	54.2	0.0	27.7	8.0	0.0	8.2	45.5	0.0	14.4
LnGrp LOS	C		C	D		C	A		A	D		B
Approach Vol, veh/h		484			412			1029			1330	
Approach Delay, s/veh		29.2			39.5			8.1			26.5	
Approach LOS		C			D			A			C	

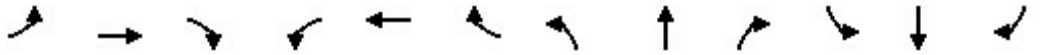
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		55.0		25.0		55.0		25.0
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		50.5		20.5		50.5		20.5
Max Q Clear Time (g_c+I1), s		31.1		17.2		52.5		22.5
Green Ext Time (p_c), s		6.3		0.8		0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	22.7
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	138	206	125	226	141	23	59	822	321	35	995	163
Future Volume (veh/h)	138	206	125	226	141	23	59	822	321	35	995	163
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1827	1827	1827	1827	1827	1900
Adj Flow Rate, veh/h	150	224	136	246	153	25	64	893	349	38	1082	177
Adj No. of Lanes	1	1	0	1	1	0	1	2	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	4	4	4	4	4	4
Cap, veh/h	246	247	150	286	398	65	178	1363	610	189	1137	186
Arrive On Green	0.08	0.23	0.23	0.11	0.26	0.26	0.05	0.39	0.39	0.04	0.38	0.38
Sat Flow, veh/h	1757	1076	653	1757	1547	253	1740	3471	1553	1740	2989	488
Grp Volume(v), veh/h	150	0	360	246	0	178	64	893	349	38	627	632
Grp Sat Flow(s),veh/h/ln	1757	0	1729	1757	0	1800	1740	1736	1553	1740	1736	1741
Q Serve(g_s), s	5.8	0.0	15.7	6.4	0.0	6.3	0.0	16.3	8.6	1.1	27.1	27.3
Cycle Q Clear(g_c), s	5.8	0.0	15.7	6.4	0.0	6.3	0.0	16.3	8.6	1.1	27.1	27.3
Prop In Lane	1.00		0.38	1.00		0.14	1.00		1.00	1.00		0.28
Lane Grp Cap(c), veh/h	246	0	397	286	0	463	178	1363	610	189	660	662
V/C Ratio(X)	0.61	0.00	0.91	0.86	0.00	0.38	0.36	0.65	0.57	0.20	0.95	0.95
Avail Cap(c_a), veh/h	246	0	402	310	0	493	206	1363	610	239	662	664
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.8	0.0	29.0	32.3	0.0	23.7	35.0	19.2	7.3	19.2	23.2	23.3
Incr Delay (d2), s/veh	4.3	0.0	23.7	20.0	0.0	0.5	1.2	1.1	1.3	0.5	23.3	24.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	10.1	6.7	0.0	3.2	1.4	7.9	4.6	0.6	17.2	17.4
LnGrp Delay(d),s/veh	32.1	0.0	52.7	52.3	0.0	24.2	36.3	20.3	8.6	19.7	46.5	47.3
LnGrp LOS	C		D	D		C	D	C	A	B	D	D
Approach Vol, veh/h		510			424			1306			1297	
Approach Delay, s/veh		46.7			40.5			18.0			46.1	
Approach LOS		D			D			B			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.3	34.9	12.9	22.2	8.2	33.9	10.8	24.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	29.5	9.5	18.0	5.0	29.5	6.3	21.2
Max Q Clear Time (g_c+I1), s	3.1	18.3	8.4	17.7	2.0	29.3	7.8	8.3
Green Ext Time (p_c), s	0.0	5.2	0.1	0.1	0.0	0.1	0.0	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	35.1
HCM 2010 LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	551	867	189	150	645	50	136	679	135	56	690	583
Future Volume (veh/h)	551	867	189	150	645	50	136	679	135	56	690	583
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1827	1827	1827	1827	1827	1827	1827	1827	1827	1827	1827	1827
Adj Flow Rate, veh/h	599	942	205	163	701	54	148	738	147	61	750	0
Adj No. of Lanes	3	2	1	1	2	1	2	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	746	1124	503	256	848	380	241	961	430	199	891	399
Arrive On Green	0.15	0.32	0.32	0.07	0.24	0.24	0.07	0.28	0.28	0.05	0.26	0.00
Sat Flow, veh/h	4907	3471	1553	1740	3471	1553	3375	3471	1553	1740	3471	1553
Grp Volume(v), veh/h	599	942	205	163	701	54	148	738	147	61	750	0
Grp Sat Flow(s),veh/h/ln	1636	1736	1553	1740	1736	1553	1688	1736	1553	1740	1736	1553
Q Serve(g_s), s	7.7	16.4	6.7	0.9	12.5	1.8	2.8	12.8	3.5	1.9	13.4	0.0
Cycle Q Clear(g_c), s	7.7	16.4	6.7	0.9	12.5	1.8	2.8	12.8	3.5	1.9	13.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	746	1124	503	256	848	380	241	961	430	199	891	399
V/C Ratio(X)	0.80	0.84	0.41	0.64	0.83	0.14	0.61	0.77	0.34	0.31	0.84	0.00
Avail Cap(c_a), veh/h	789	1244	556	266	957	428	258	983	440	243	983	440
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.7	20.5	17.2	28.0	23.4	19.3	29.5	21.7	9.5	21.6	23.0	0.0
Incr Delay (d2), s/veh	5.8	4.8	0.5	4.7	5.5	0.2	3.8	3.7	0.5	0.9	6.2	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	3.8	8.6	2.9	3.1	6.6	0.8	1.4	6.5	1.9	0.9	7.1	0.0
LnGrp Delay(d),s/veh	32.5	25.3	17.7	32.7	28.8	19.5	33.3	25.3	10.0	22.4	29.2	0.0
LnGrp LOS	C	C	B	C	C	B	C	C	A	C	C	
Approach Vol, veh/h		1746			918			1033			811	
Approach Delay, s/veh		26.9			29.0			24.3			28.7	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.8	22.6	9.2	25.6	9.2	21.3	14.4	20.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.5	5.1	23.4	5.0	18.5	10.5	18.0
Max Q Clear Time (g_c+I1), s	3.9	14.8	2.9	18.4	4.8	15.4	9.7	14.5
Green Ext Time (p_c), s	0.0	1.7	0.1	2.7	0.0	1.4	0.2	1.4

Intersection Summary	
HCM 2010 Ctrl Delay	27.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	163	18	129	11	10	6	47	790	101	8	857	138
Future Volume (veh/h)	163	18	129	11	10	6	47	790	101	8	857	138
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1900	1696	1900	1900	1696	1900	1900	1827	1900	1900	1827	1900
Adj Flow Rate, veh/h	177	20	140	12	11	7	51	859	110	9	932	150
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	12	12	12	12	12	12	4	4	4	4	4	4
Cap, veh/h	333	50	172	261	212	104	133	1256	164	98	1366	218
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.47	0.47	0.47	0.47	0.47	0.47
Sat Flow, veh/h	638	167	572	438	706	348	66	2684	350	7	2917	467
Grp Volume(v), veh/h	337	0	0	30	0	0	517	0	503	583	0	508
Grp Sat Flow(s),veh/h/ln	1378	0	0	1492	0	0	1499	0	1601	1811	0	1580
Q Serve(g_s), s	7.5	0.0	0.0	0.0	0.0	0.0	0.9	0.0	9.5	0.0	0.0	9.8
Cycle Q Clear(g_c), s	8.7	0.0	0.0	0.5	0.0	0.0	10.6	0.0	9.5	9.7	0.0	9.8
Prop In Lane	0.53		0.42	0.40		0.23	0.10		0.22	0.02		0.30
Lane Grp Cap(c), veh/h	555	0	0	578	0	0	804	0	749	942	0	740
V/C Ratio(X)	0.61	0.00	0.00	0.05	0.00	0.00	0.64	0.00	0.67	0.62	0.00	0.69
Avail Cap(c_a), veh/h	829	0	0	852	0	0	1116	0	1093	1321	0	1079
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.5	0.0	0.0	9.7	0.0	0.0	7.7	0.0	8.0	8.1	0.0	8.1
Incr Delay (d2), s/veh	1.1	0.0	0.0	0.0	0.0	0.0	0.9	0.0	1.1	0.7	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	0.0	0.0	0.2	0.0	0.0	4.2	0.0	4.3	4.9	0.0	4.5
LnGrp Delay(d),s/veh	13.6	0.0	0.0	9.7	0.0	0.0	8.6	0.0	9.1	8.7	0.0	9.2
LnGrp LOS	B			A			A		A	A		A
Approach Vol, veh/h		337			30			1020			1091	
Approach Delay, s/veh		13.6			9.7			8.8			9.0	
Approach LOS		B			A			A			A	

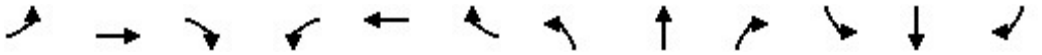
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		22.7		16.2		22.7		16.2
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		26.5		19.5		26.5		19.5
Max Q Clear Time (g_c+I1), s		12.6		10.7		11.8		2.5
Green Ext Time (p_c), s		5.5		1.1		5.5		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	9.5
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	146	91	630	20	100	27	563	809	45	45	947	83
Future Volume (veh/h)	146	91	630	20	100	27	563	809	45	45	947	83
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1845	1845	1845	1900	1845	1900	1827	1827	1900	1827	1827	1827
Adj Flow Rate, veh/h	159	99	0	22	109	29	612	879	49	49	1029	90
Adj No. of Lanes	1	1	1	0	1	0	2	2	0	1	2	1
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, %	3	3	3	3	3	3	4	4	4	4	4	4
Cap, veh/h	210	220	187	28	139	37	694	1103	61	483	1164	521
Arrive On Green	0.12	0.12	0.00	0.11	0.11	0.11	0.21	0.33	0.33	0.21	0.34	0.34
Sat Flow, veh/h	1757	1845	1568	244	1210	322	3375	3343	186	1740	3471	1553
Grp Volume(v), veh/h	159	99	0	160	0	0	612	456	472	49	1029	90
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1776	0	0	1688	1736	1794	1740	1736	1553
Q Serve(g_s), s	7.0	4.0	0.0	7.0	0.0	0.0	14.1	19.1	19.1	0.0	22.4	3.3
Cycle Q Clear(g_c), s	7.0	4.0	0.0	7.0	0.0	0.0	14.1	19.1	19.1	0.0	22.4	3.3
Prop In Lane	1.00		1.00	0.14		0.18	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	210	220	187	204	0	0	694	572	592	483	1164	521
V/C Ratio(X)	0.76	0.45	0.00	0.78	0.00	0.00	0.88	0.80	0.80	0.10	0.88	0.17
Avail Cap(c_a), veh/h	395	415	352	399	0	0	738	873	903	483	1235	553
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.1	32.8	0.0	34.5	0.0	0.0	30.9	24.4	24.4	24.0	25.2	18.8
Incr Delay (d2), s/veh	5.5	1.4	0.0	6.5	0.0	0.0	11.6	3.0	2.9	0.1	7.6	0.2
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	3.7	2.1	0.0	3.8	0.0	0.0	7.7	9.6	9.9	0.9	11.9	1.4
LnGrp Delay(d),s/veh	39.6	34.2	0.0	41.0	0.0	0.0	42.4	27.4	27.3	24.1	32.8	18.9
LnGrp LOS	D	C		D			D	C	C	C	C	B
Approach Vol, veh/h		258			160			1540			1168	
Approach Delay, s/veh		37.6			41.0			33.4			31.3	
Approach LOS		D			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	21.4	30.9		14.1	21.0	31.3		13.7
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.7	40.3		18.0	17.5	28.5		18.0
Max Q Clear Time (g_c+I1), s	2.0	21.1		9.0	16.1	24.4		9.0
Green Ext Time (p_c), s	0.0	5.3		0.6	0.4	2.4		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	33.3
HCM 2010 LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	432	214	241	69	132	28	325	937	73	27	809	326
Future Volume (veh/h)	432	214	241	69	132	28	325	937	73	27	809	326
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1681	1681	1681	1681	1681	1900	1827	1827	1900	1827	1827	1827
Adj Flow Rate, veh/h	470	233	0	75	143	30	353	1018	79	29	879	0
Adj No. of Lanes	2	1	1	1	1	0	1	2	0	1	2	1
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, %	13	13	13	13	13	13	4	4	4	4	4	4
Cap, veh/h	541	286	243	309	180	38	410	1187	92	299	989	442
Arrive On Green	0.17	0.17	0.00	0.14	0.13	0.13	0.18	0.36	0.36	0.11	0.28	0.00
Sat Flow, veh/h	3107	1681	1429	1601	1349	283	1740	3265	253	1740	3471	1553
Grp Volume(v), veh/h	470	233	0	75	0	173	353	541	556	29	879	0
Grp Sat Flow(s),veh/h/ln	1553	1681	1429	1601	0	1631	1740	1736	1782	1740	1736	1553
Q Serve(g_s), s	11.9	10.8	0.0	0.0	0.0	8.3	13.7	23.3	23.3	0.0	19.6	0.0
Cycle Q Clear(g_c), s	11.9	10.8	0.0	0.0	0.0	8.3	13.7	23.3	23.3	0.0	19.6	0.0
Prop In Lane	1.00		1.00	1.00		0.17	1.00		0.14	1.00		1.00
Lane Grp Cap(c), veh/h	541	286	243	309	0	217	410	631	648	299	989	442
V/C Ratio(X)	0.87	0.81	0.00	0.24	0.00	0.80	0.86	0.86	0.86	0.10	0.89	0.00
Avail Cap(c_a), veh/h	566	542	460	309	0	364	410	738	757	299	1049	470
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.4	32.3	0.0	30.0	0.0	33.9	23.4	23.7	23.7	30.5	27.6	0.0
Incr Delay (d2), s/veh	13.2	5.6	0.0	0.4	0.0	6.5	16.6	8.8	8.6	0.1	9.2	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	6.1	5.4	0.0	1.5	0.0	4.1	8.4	12.7	13.0	0.6	10.7	0.0
LnGrp Delay(d),s/veh	45.6	37.9	0.0	30.4	0.0	40.4	40.1	32.5	32.3	30.6	36.8	0.0
LnGrp LOS	D	D		C		D	D	C	C	C	D	
Approach Vol, veh/h		703			248			1450			908	
Approach Delay, s/veh		43.1			37.4			34.3			36.6	
Approach LOS		D			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	33.9	15.6	18.2	19.4	27.5	18.6	15.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	34.3	6.7	26.0	14.9	24.4	14.7	18.0
Max Q Clear Time (g_c+I1), s	2.0	25.3	2.0	12.8	15.7	21.6	13.9	10.3
Green Ext Time (p_c), s	0.0	4.1	0.1	0.9	0.0	1.4	0.2	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	37.0
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	147	150	684	114	165	63	696	771	190	61	697	165
Future Volume (veh/h)	147	150	684	114	165	63	696	771	190	61	697	165
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1743	1743	1743	1743	1743	1900	1827	1827	1827	1827	1827	1827
Adj Flow Rate, veh/h	160	163	0	124	179	68	757	838	207	66	758	179
Adj No. of Lanes	1	1	1	1	1	0	2	2	1	1	2	1
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, %	9	9	9	9	9	9	4	4	4	4	4	4
Cap, veh/h	282	207	176	370	208	79	836	1575	704	163	875	391
Arrive On Green	0.12	0.12	0.00	0.17	0.17	0.17	0.25	0.45	0.45	0.05	0.25	0.25
Sat Flow, veh/h	1660	1743	1482	1660	1205	458	3375	3471	1553	1740	3471	1553
Grp Volume(v), veh/h	160	163	0	124	0	247	757	838	207	66	758	179
Grp Sat Flow(s),veh/h/ln	1660	1743	1482	1660	0	1662	1688	1736	1553	1740	1736	1553
Q Serve(g_s), s	8.1	7.8	0.0	1.1	0.0	12.5	18.8	15.0	3.6	2.6	18.0	5.9
Cycle Q Clear(g_c), s	8.1	7.8	0.0	1.1	0.0	12.5	18.8	15.0	3.6	2.6	18.0	5.9
Prop In Lane	1.00		1.00	1.00		0.28	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	282	207	176	370	0	286	836	1575	704	163	875	391
V/C Ratio(X)	0.57	0.79	0.00	0.33	0.00	0.86	0.91	0.53	0.29	0.40	0.87	0.46
Avail Cap(c_a), veh/h	429	363	309	429	0	346	879	1587	710	214	944	423
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.9	37.0	0.0	29.6	0.0	34.7	31.5	17.0	3.6	28.4	30.9	13.4
Incr Delay (d2), s/veh	1.8	6.4	0.0	0.5	0.0	17.0	12.5	0.3	0.2	1.6	8.1	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	4.1	0.0	2.5	0.0	7.0	10.2	7.2	2.6	1.3	9.6	3.2
LnGrp Delay(d),s/veh	38.7	43.4	0.0	30.2	0.0	51.7	44.0	17.3	3.8	30.0	39.0	14.2
LnGrp LOS	D	D		C		D	D	B	A	C	D	B
Approach Vol, veh/h		323			371			1802			1003	
Approach Delay, s/veh		41.1			44.5			27.0			34.0	
Approach LOS		D			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	43.7	19.4	14.8	25.9	26.3	14.8	19.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.5	39.5	18.0	18.0	22.5	23.5	18.0	18.0
Max Q Clear Time (g_c+I1), s	4.6	17.0	3.1	9.8	20.8	20.0	10.1	14.5
Green Ext Time (p_c), s	0.0	6.3	0.2	0.4	0.6	1.7	0.2	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	32.2
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	38	51	53	45	176	207	967	124	193	225	393
Future Volume (veh/h)	34	38	51	53	45	176	207	967	124	193	225	393
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1827	1827	1900	1827	1827	1827
Adj Flow Rate, veh/h	37	41	55	58	49	191	225	1051	135	210	245	427
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	1
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, %	3	3	3	3	3	3	4	4	4	4	4	4
Cap, veh/h	248	129	174	241	60	236	443	1233	158	264	1204	538
Arrive On Green	0.07	0.18	0.18	0.08	0.18	0.18	0.13	0.40	0.40	0.07	0.35	0.35
Sat Flow, veh/h	1757	715	960	1757	330	1287	1740	3095	397	1740	3471	1553
Grp Volume(v), veh/h	37	0	96	58	0	240	225	589	597	210	245	427
Grp Sat Flow(s),veh/h/ln	1757	0	1675	1757	0	1617	1740	1736	1757	1740	1736	1553
Q Serve(g_s), s	0.0	0.0	3.3	1.9	0.0	9.4	6.3	20.5	20.5	2.6	3.3	11.2
Cycle Q Clear(g_c), s	0.0	0.0	3.3	1.9	0.0	9.4	6.3	20.5	20.5	2.6	3.3	11.2
Prop In Lane	1.00		0.57	1.00		0.80	1.00		0.23	1.00		1.00
Lane Grp Cap(c), veh/h	248	0	303	241	0	296	443	691	700	264	1204	538
V/C Ratio(X)	0.15	0.00	0.32	0.24	0.00	0.81	0.51	0.85	0.85	0.80	0.20	0.79
Avail Cap(c_a), veh/h	597	0	455	586	0	439	508	773	782	306	1320	590
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.4	0.0	23.6	25.2	0.0	26.0	15.9	18.2	18.2	28.5	15.2	9.0
Incr Delay (d2), s/veh	0.3	0.0	0.6	0.5	0.0	6.9	0.9	8.3	8.4	11.9	0.1	6.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	1.6	1.0	0.0	4.8	3.1	11.3	11.4	4.5	1.6	6.0
LnGrp Delay(d),s/veh	28.6	0.0	24.2	25.7	0.0	32.9	16.8	26.5	26.5	40.4	15.3	15.8
LnGrp LOS	C		C	C		C	B	C	C	D	B	B
Approach Vol, veh/h		133			298			1411			882	
Approach Delay, s/veh		25.4			31.5			25.0			21.5	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.4	30.9	9.5	16.5	12.8	27.5	9.4	16.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.5	29.5	18.0	18.0	10.8	25.2	18.0	18.0
Max Q Clear Time (g_c+I1), s	4.6	22.5	3.9	5.3	8.3	13.2	2.0	11.4
Green Ext Time (p_c), s	0.1	3.9	0.1	0.3	0.2	2.4	0.0	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	24.6
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	141	271	22	614	651	132	43	729	604	43	197	56
Future Volume (veh/h)	141	271	22	614	651	132	43	729	604	43	197	56
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1827	1827	1827	1827	1827	1900
Adj Flow Rate, veh/h	153	295	24	667	708	143	47	792	0	47	214	61
Adj No. of Lanes	1	2	0	2	2	0	1	2	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	4	4	4	4	4	4
Cap, veh/h	310	434	35	941	847	171	303	993	444	211	768	214
Arrive On Green	0.12	0.13	0.13	0.28	0.29	0.29	0.04	0.29	0.00	0.04	0.29	0.29
Sat Flow, veh/h	1757	3285	266	3408	2907	587	1740	3471	1553	1740	2684	747
Grp Volume(v), veh/h	153	157	162	667	427	424	47	792	0	47	137	138
Grp Sat Flow(s),veh/h/ln	1757	1752	1798	1704	1752	1741	1740	1736	1553	1740	1736	1695
Q Serve(g_s), s	5.8	5.8	5.9	12.1	15.6	15.7	1.4	14.5	0.0	0.0	4.2	4.4
Cycle Q Clear(g_c), s	5.8	5.8	5.9	12.1	15.6	15.7	1.4	14.5	0.0	0.0	4.2	4.4
Prop In Lane	1.00		0.15	1.00		0.34	1.00		1.00	1.00		0.44
Lane Grp Cap(c), veh/h	310	232	238	941	511	507	303	993	444	211	496	485
V/C Ratio(X)	0.49	0.68	0.68	0.71	0.84	0.84	0.16	0.80	0.00	0.22	0.28	0.29
Avail Cap(c_a), veh/h	566	514	527	1064	601	597	357	1291	578	263	643	628
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.2	28.3	28.4	22.3	22.7	22.8	20.1	22.6	0.0	30.4	19.0	19.0
Incr Delay (d2), s/veh	1.2	3.4	3.4	1.9	8.7	8.8	0.2	2.7	0.0	0.5	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	3.0	3.2	5.9	8.7	8.7	0.7	7.3	0.0	0.9	2.1	2.1
LnGrp Delay(d),s/veh	30.4	31.8	31.8	24.2	31.5	31.6	20.4	25.4	0.0	30.9	19.3	19.3
LnGrp LOS	C	C	C	C	C	C	C	C		C	B	B
Approach Vol, veh/h		472			1518			839			322	
Approach Delay, s/veh		31.3			28.3			25.1			21.0	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.5	24.1	23.4	13.6	7.5	24.1	12.5	24.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	25.5	21.4	20.1	5.1	25.4	18.0	23.5
Max Q Clear Time (g_c+I1), s	2.0	16.5	14.1	7.9	3.4	6.4	7.8	17.7
Green Ext Time (p_c), s	0.0	3.1	1.5	1.2	0.0	1.3	0.2	2.3

Intersection Summary	
HCM 2010 Ctrl Delay	27.2
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	99	21	31	426	195	38	1148	59	54	764	9
Future Volume (veh/h)	1	99	21	31	426	195	38	1148	59	54	764	9
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1827	1827	1900	1827	1827	1900
Adj Flow Rate, veh/h	1	108	23	34	463	212	41	1248	64	59	830	10
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	4	4	4	4	4	4
Cap, veh/h	124	590	122	298	557	253	282	1483	76	228	1585	19
Arrive On Green	0.00	0.20	0.20	0.04	0.24	0.24	0.04	0.44	0.44	0.05	0.45	0.45
Sat Flow, veh/h	1757	2891	600	1757	2344	1065	1740	3360	172	1740	3513	42
Grp Volume(v), veh/h	1	64	67	34	345	330	41	644	668	59	410	430
Grp Sat Flow(s),veh/h/ln	1757	1752	1739	1757	1752	1657	1740	1736	1797	1740	1736	1819
Q Serve(g_s), s	0.0	2.0	2.1	1.1	12.5	12.6	1.0	22.0	22.1	0.0	11.3	11.3
Cycle Q Clear(g_c), s	0.0	2.0	2.1	1.1	12.5	12.6	1.0	22.0	22.1	0.0	11.3	11.3
Prop In Lane	1.00		0.34	1.00		0.64	1.00		0.10	1.00		0.02
Lane Grp Cap(c), veh/h	124	358	355	298	416	394	282	766	793	228	783	821
V/C Ratio(X)	0.01	0.18	0.19	0.11	0.83	0.84	0.15	0.84	0.84	0.26	0.52	0.52
Avail Cap(c_a), veh/h	256	475	472	371	475	449	351	877	907	274	871	913
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.1	21.9	22.0	21.9	24.1	24.2	13.6	16.6	16.6	28.6	13.2	13.2
Incr Delay (d2), s/veh	0.0	0.2	0.3	0.2	10.5	11.8	0.2	6.6	6.5	0.6	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.0	1.0	0.5	7.3	7.1	0.5	11.8	12.2	1.1	5.5	5.7
LnGrp Delay(d),s/veh	32.1	22.2	22.2	22.1	34.7	36.0	13.8	23.2	23.1	29.2	13.7	13.7
LnGrp LOS	C	C	C	C	C	D	B	C	C	C	B	B
Approach Vol, veh/h		132			709			1353			899	
Approach Delay, s/veh		22.3			34.7			22.9			14.7	
Approach LOS		C			C			C			B	

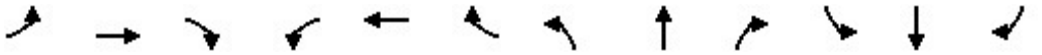
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.8	34.0	6.8	18.1	7.2	34.6	4.6	20.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.1	33.7	5.1	18.1	5.3	33.5	5.1	18.1
Max Q Clear Time (g_c+I1), s	2.0	24.1	3.1	4.1	3.0	13.3	2.0	14.6
Green Ext Time (p_c), s	0.0	5.4	0.0	0.4	0.0	4.4	0.0	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	23.2
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	137	61	41	314	242	46	120	1043	172	24	689	144
Future Volume (veh/h)	137	61	41	314	242	46	120	1043	172	24	689	144
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1827	1827	1827	1827	1827	1827
Adj Flow Rate, veh/h	149	66	45	341	263	50	130	1134	187	26	749	157
Adj No. of Lanes	1	2	0	1	2	0	1	2	1	1	2	1
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, %	3	3	3	3	3	3	4	4	4	4	4	4
Cap, veh/h	379	150	94	489	399	75	297	1453	650	198	1298	581
Arrive On Green	0.16	0.07	0.07	0.22	0.14	0.14	0.07	0.42	0.42	0.03	0.37	0.37
Sat Flow, veh/h	1757	2072	1296	1757	2947	552	1740	3471	1553	1740	3471	1553
Grp Volume(v), veh/h	149	55	56	341	155	158	130	1134	187	26	749	157
Grp Sat Flow(s),veh/h/ln	1757	1752	1616	1757	1752	1747	1740	1736	1553	1740	1736	1553
Q Serve(g_s), s	0.9	2.1	2.3	12.9	5.8	5.9	3.4	19.4	2.2	0.0	11.9	2.6
Cycle Q Clear(g_c), s	0.9	2.1	2.3	12.9	5.8	5.9	3.4	19.4	2.2	0.0	11.9	2.6
Prop In Lane	1.00		0.80	1.00		0.32	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	379	127	117	489	237	237	297	1453	650	198	1298	581
V/C Ratio(X)	0.39	0.43	0.48	0.70	0.65	0.67	0.44	0.78	0.29	0.13	0.58	0.27
Avail Cap(c_a), veh/h	379	458	422	525	621	619	369	1889	845	274	1743	780
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.6	30.6	30.7	26.0	28.2	28.3	16.0	17.3	2.1	27.5	17.2	4.4
Incr Delay (d2), s/veh	0.7	2.3	3.0	3.7	3.0	3.2	1.0	1.6	0.2	0.3	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	1.1	1.1	6.7	3.0	3.1	1.7	9.6	2.1	0.5	5.7	1.9
LnGrp Delay(d),s/veh	25.3	32.9	33.7	29.7	31.3	31.5	17.0	18.9	2.3	27.8	17.6	4.7
LnGrp LOS	C	C	C	C	C	C	B	B	A	C	B	A
Approach Vol, veh/h		260			654			1451			932	
Approach Delay, s/veh		28.7			30.5			16.6			15.7	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.5	33.3	19.6	9.5	9.5	30.3	15.3	13.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	37.5	16.5	18.0	7.9	34.6	10.1	24.4
Max Q Clear Time (g_c+I1), s	2.0	21.4	14.9	4.3	5.4	13.9	2.9	7.9
Green Ext Time (p_c), s	0.0	7.4	0.2	0.4	0.1	5.2	0.2	1.4

Intersection Summary	
HCM 2010 Ctrl Delay	20.1
HCM 2010 LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	624	424	132	104	896	60	233	572	102	42	571	536
Future Volume (veh/h)	624	424	132	104	896	60	233	572	102	42	571	536
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1827	1827	1827	1827	1827	1827	1827	1827	1827	1827	1827	1827
Adj Flow Rate, veh/h	678	461	143	113	974	65	253	622	111	46	621	0
Adj No. of Lanes	3	2	1	1	2	1	2	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	796	641	287	596	1097	491	327	936	419	153	736	329
Arrive On Green	0.16	0.18	0.18	0.29	0.32	0.32	0.10	0.27	0.27	0.04	0.21	0.00
Sat Flow, veh/h	4907	3471	1553	1740	3471	1553	3375	3471	1553	1740	3471	1553
Grp Volume(v), veh/h	678	461	143	113	974	65	253	622	111	46	621	0
Grp Sat Flow(s),veh/h/ln	1636	1736	1553	1740	1736	1553	1688	1736	1553	1740	1736	1553
Q Serve(g_s), s	11.4	10.6	7.0	0.0	22.6	2.5	6.2	13.5	2.1	1.9	14.5	0.0
Cycle Q Clear(g_c), s	11.4	10.6	7.0	0.0	22.6	2.5	6.2	13.5	2.1	1.9	14.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	796	641	287	596	1097	491	327	936	419	153	736	329
V/C Ratio(X)	0.85	0.72	0.50	0.19	0.89	0.13	0.77	0.66	0.26	0.30	0.84	0.00
Avail Cap(c_a), veh/h	842	1499	671	596	1171	524	339	986	441	188	842	377
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	34.4	32.4	30.9	21.1	27.5	20.6	37.3	27.5	5.0	29.9	32.0	0.0
Incr Delay (d2), s/veh	8.0	1.5	1.3	0.2	8.3	0.1	10.2	1.6	0.3	1.1	7.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	5.2	3.1	1.9	12.1	1.1	3.3	6.7	1.9	0.9	7.7	0.0
LnGrp Delay(d),s/veh	42.5	33.9	32.3	21.2	35.7	20.8	47.5	29.0	5.3	31.0	39.1	0.0
LnGrp LOS	D	C	C	C	D	C	D	C	A	C	D	
Approach Vol, veh/h		1282			1152			986			667	
Approach Delay, s/veh		38.3			33.5			31.1			38.5	
Approach LOS		D			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.8	27.3	29.3	20.1	12.7	22.4	18.2	31.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	24.0	6.5	36.5	8.5	20.5	14.5	28.5
Max Q Clear Time (g_c+I1), s	3.9	15.5	2.0	12.6	8.2	16.5	13.4	24.6
Green Ext Time (p_c), s	0.0	2.6	0.1	3.1	0.0	1.4	0.4	2.1

Intersection Summary	
HCM 2010 Ctrl Delay	35.2
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	8	12	112	23	8	156	712	18	6	647	178
Future Volume (veh/h)	135	8	12	112	23	8	156	712	18	6	647	178
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1696	1696	1900	1696	1696	1900	1827	1827	1827	1827	1827	1827
Adj Flow Rate, veh/h	147	9	13	122	25	9	170	774	20	7	703	193
Adj No. of Lanes	1	1	0	1	1	0	1	2	1	1	2	1
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, %	12	12	12	12	12	12	4	4	4	4	4	4
Cap, veh/h	315	64	93	310	118	43	352	1078	482	359	1017	455
Arrive On Green	0.10	0.10	0.10	0.09	0.10	0.10	0.11	0.31	0.31	0.09	0.29	0.29
Sat Flow, veh/h	1616	628	908	1616	1192	429	1740	3471	1553	1740	3471	1553
Grp Volume(v), veh/h	147	0	22	122	0	34	170	774	20	7	703	193
Grp Sat Flow(s),veh/h/ln	1616	0	1536	1616	0	1621	1740	1736	1553	1740	1736	1553
Q Serve(g_s), s	0.0	0.0	0.6	3.3	0.0	0.9	3.6	8.9	0.2	0.0	8.0	2.6
Cycle Q Clear(g_c), s	0.0	0.0	0.6	3.3	0.0	0.9	3.6	8.9	0.2	0.0	8.0	2.6
Prop In Lane	1.00		0.59	1.00		0.26	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	315	0	158	310	0	161	352	1078	482	359	1017	455
V/C Ratio(X)	0.47	0.00	0.14	0.39	0.00	0.21	0.48	0.72	0.04	0.02	0.69	0.42
Avail Cap(c_a), veh/h	341	0	617	341	0	651	374	1471	658	392	1432	641
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.3	0.0	18.3	19.9	0.0	18.6	14.3	13.7	3.6	16.4	14.0	4.3
Incr Delay (d2), s/veh	1.1	0.0	0.4	0.8	0.0	0.6	1.0	1.1	0.0	0.0	0.9	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	1.7	0.0	0.3	1.5	0.0	0.4	1.8	4.4	0.2	0.1	3.9	1.7
LnGrp Delay(d),s/veh	19.4	0.0	18.7	20.7	0.0	19.2	15.3	14.8	3.6	16.5	14.9	4.9
LnGrp LOS	B		B	C		B	B	B	A	B	B	A
Approach Vol, veh/h		169			156			964			903	
Approach Delay, s/veh		19.3			20.4			14.7			12.8	
Approach LOS		B			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.7	18.4	8.7	9.1	9.4	17.6	8.8	9.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	19.0	5.0	18.0	5.5	18.5	5.0	18.0
Max Q Clear Time (g_c+I1), s	2.0	10.9	5.3	2.6	5.6	10.0	2.0	2.9
Green Ext Time (p_c), s	0.0	3.1	0.0	0.0	0.0	3.1	0.1	0.1

Intersection Summary	
HCM 2010 Ctrl Delay	14.6
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	61	381	82	65	33	735	856	17	20	641	143
Future Volume (veh/h)	82	61	381	82	65	33	735	856	17	20	641	143
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1827	1827	1900	1827	1827	1827
Adj Flow Rate, veh/h	89	66	0	89	71	36	799	930	18	22	697	155
Adj No. of Lanes	1	1	1	1	1	0	2	2	0	1	2	1
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, %	3	3	3	3	3	3	4	4	4	4	4	4
Cap, veh/h	261	173	147	265	111	56	911	1216	24	427	889	398
Arrive On Green	0.08	0.09	0.00	0.08	0.10	0.10	0.27	0.35	0.35	0.18	0.26	0.26
Sat Flow, veh/h	1757	1845	1568	1757	1155	586	3375	3483	67	1740	3471	1553
Grp Volume(v), veh/h	89	66	0	89	0	107	799	463	485	22	697	155
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	0	1741	1688	1736	1815	1740	1736	1553
Q Serve(g_s), s	0.0	2.0	0.0	3.0	0.0	3.6	13.7	14.4	14.4	0.0	11.3	3.5
Cycle Q Clear(g_c), s	0.0	2.0	0.0	3.0	0.0	3.6	13.7	14.4	14.4	0.0	11.3	3.5
Prop In Lane	1.00		1.00	1.00		0.34	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	261	173	147	265	0	168	911	606	634	427	889	398
V/C Ratio(X)	0.34	0.38	0.00	0.34	0.00	0.64	0.88	0.76	0.76	0.05	0.78	0.39
Avail Cap(c_a), veh/h	640	547	465	640	0	517	974	887	927	427	1058	473
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.6	25.8	0.0	26.8	0.0	26.4	21.2	17.5	17.5	20.6	21.0	8.9
Incr Delay (d2), s/veh	0.8	1.4	0.0	0.7	0.0	4.0	8.7	2.4	2.3	0.0	3.3	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	1.1	0.0	1.5	0.0	1.9	7.4	7.2	7.5	0.3	5.8	2.0
LnGrp Delay(d),s/veh	26.4	27.2	0.0	27.5	0.0	30.4	29.9	19.9	19.8	20.6	24.3	9.5
LnGrp LOS	C	C		C		C	C	B	B	C	C	A
Approach Vol, veh/h		155			196			1747			874	
Approach Delay, s/veh		26.7			29.1			24.5			21.6	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.2	25.7	9.6	10.2	20.9	20.0	9.4	10.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	31.0	18.0	18.0	17.5	18.5	18.0	18.0
Max Q Clear Time (g_c+I1), s	2.0	16.4	5.0	4.0	15.7	13.3	2.0	5.6
Green Ext Time (p_c), s	0.0	4.8	0.1	0.2	0.6	2.2	0.2	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	24.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	512	84	235	35	216	19	156	417	15	16	657	434
Future Volume (veh/h)	512	84	235	35	216	19	156	417	15	16	657	434
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1681	1681	1681	1681	1681	1900	1827	1827	1827	1827	1827	1827
Adj Flow Rate, veh/h	557	91	0	38	235	21	170	453	16	17	714	0
Adj No. of Lanes	2	1	1	1	1	0	1	2	1	1	2	1
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, %	13	13	13	13	13	13	4	4	4	4	4	4
Cap, veh/h	652	145	124	599	283	25	266	627	281	391	873	390
Arrive On Green	0.21	0.09	0.00	0.31	0.19	0.19	0.09	0.18	0.18	0.16	0.25	0.00
Sat Flow, veh/h	3107	1681	1429	1601	1521	136	1740	3471	1553	1740	3471	1553
Grp Volume(v), veh/h	557	91	0	38	0	256	170	453	16	17	714	0
Grp Sat Flow(s),veh/h/ln	1553	1681	1429	1601	0	1657	1740	1736	1553	1740	1736	1553
Q Serve(g_s), s	12.0	3.6	0.0	0.0	0.0	10.3	6.4	8.5	0.6	0.0	13.5	0.0
Cycle Q Clear(g_c), s	12.0	3.6	0.0	0.0	0.0	10.3	6.4	8.5	0.6	0.0	13.5	0.0
Prop In Lane	1.00		1.00	1.00		0.08	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	652	145	124	599	0	309	266	627	281	391	873	390
V/C Ratio(X)	0.85	0.63	0.00	0.06	0.00	0.83	0.64	0.72	0.06	0.04	0.82	0.00
Avail Cap(c_a), veh/h	737	714	607	599	0	429	266	1124	503	391	1049	469
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.4	30.7	0.0	16.6	0.0	27.2	28.3	26.8	23.6	24.3	24.5	0.0
Incr Delay (d2), s/veh	8.8	4.4	0.0	0.0	0.0	9.3	5.0	1.6	0.1	0.0	4.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	1.9	0.0	0.5	0.0	5.5	3.4	4.2	0.3	0.3	7.0	0.0
LnGrp Delay(d),s/veh	35.2	35.0	0.0	16.6	0.0	36.5	33.3	28.4	23.7	24.3	28.9	0.0
LnGrp LOS	D	D		B		D	C	C	C	C	C	
Approach Vol, veh/h		648			294			639			731	
Approach Delay, s/veh		35.2			33.9			29.6			28.8	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.9	17.1	26.0	10.5	11.0	22.0	19.1	17.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	22.5	5.0	29.5	6.5	21.0	16.5	18.0
Max Q Clear Time (g_c+I1), s	2.0	10.5	2.0	5.6	8.4	15.5	14.0	12.3
Green Ext Time (p_c), s	0.0	2.0	0.0	0.4	0.0	2.0	0.6	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	31.5
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	107	103	633	81	192	41	685	400	50	37	609	106
Future Volume (veh/h)	107	103	633	81	192	41	685	400	50	37	609	106
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1743	1743	1743	1743	1743	1900	1827	1827	1827	1827	1827	1827
Adj Flow Rate, veh/h	116	112	0	88	209	45	745	435	54	40	662	115
Adj No. of Lanes	1	1	1	1	1	0	2	2	1	1	2	1
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, %	9	9	9	9	9	9	4	4	4	4	4	4
Cap, veh/h	262	165	140	406	252	54	818	1505	673	209	796	356
Arrive On Green	0.10	0.09	0.00	0.18	0.18	0.18	0.24	0.43	0.43	0.04	0.23	0.23
Sat Flow, veh/h	1660	1743	1482	1660	1391	299	3375	3471	1553	1740	3471	1553
Grp Volume(v), veh/h	116	112	0	88	0	254	745	435	54	40	662	115
Grp Sat Flow(s),veh/h/ln	1660	1743	1482	1660	0	1690	1688	1736	1553	1740	1736	1553
Q Serve(g_s), s	4.9	4.5	0.0	0.0	0.0	10.5	15.5	5.9	0.7	1.4	13.1	3.2
Cycle Q Clear(g_c), s	4.9	4.5	0.0	0.0	0.0	10.5	15.5	5.9	0.7	1.4	13.1	3.2
Prop In Lane	1.00		1.00	1.00		0.18	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	262	165	140	406	0	306	818	1505	673	209	796	356
V/C Ratio(X)	0.44	0.68	0.00	0.22	0.00	0.83	0.91	0.29	0.08	0.19	0.83	0.32
Avail Cap(c_a), veh/h	514	435	370	514	0	422	819	1505	673	275	890	398
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.5	31.6	0.0	24.0	0.0	28.5	26.6	13.2	2.5	24.4	26.5	11.7
Incr Delay (d2), s/veh	1.2	4.9	0.0	0.3	0.0	9.6	14.2	0.1	0.1	0.4	6.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	2.4	0.0	1.4	0.0	5.7	8.8	2.8	0.6	0.7	6.9	1.8
LnGrp Delay(d),s/veh	32.6	36.5	0.0	24.3	0.0	38.1	40.8	13.3	2.5	24.8	32.6	12.2
LnGrp LOS	C	D		C		D	D	B	A	C	C	B
Approach Vol, veh/h		228			342			1234			817	
Approach Delay, s/veh		34.5			34.6			29.4			29.4	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.3	35.8	17.8	11.3	22.0	21.1	11.6	17.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	30.5	18.0	18.0	17.5	18.5	18.0	18.0
Max Q Clear Time (g_c+I1), s	3.4	7.9	2.0	6.5	17.5	15.1	6.9	12.5
Green Ext Time (p_c), s	0.0	2.7	0.2	0.3	0.0	1.4	0.2	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	30.5
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	376	58	175	105	55	227	89	283	70	196	634	263
Future Volume (veh/h)	376	58	175	105	55	227	89	283	70	196	634	263
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1827	1827	1900	1827	1827	1827
Adj Flow Rate, veh/h	409	63	190	114	60	247	97	308	76	213	689	286
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	1
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, %	3	3	3	3	3	3	4	4	4	4	4	4
Cap, veh/h	452	136	410	243	70	290	226	436	106	390	869	389
Arrive On Green	0.19	0.34	0.34	0.08	0.22	0.22	0.07	0.16	0.16	0.16	0.25	0.25
Sat Flow, veh/h	1757	406	1223	1757	316	1300	1740	2770	673	1740	3471	1553
Grp Volume(v), veh/h	409	0	253	114	0	307	97	191	193	213	689	286
Grp Sat Flow(s),veh/h/ln	1757	0	1629	1757	0	1615	1740	1736	1708	1740	1736	1553
Q Serve(g_s), s	10.6	0.0	8.2	3.8	0.0	12.2	3.5	7.0	7.2	3.1	12.4	6.4
Cycle Q Clear(g_c), s	10.6	0.0	8.2	3.8	0.0	12.2	3.5	7.0	7.2	3.1	12.4	6.4
Prop In Lane	1.00		0.75	1.00		0.80	1.00		0.39	1.00		1.00
Lane Grp Cap(c), veh/h	452	0	546	243	0	361	226	273	269	390	869	389
V/C Ratio(X)	0.90	0.00	0.46	0.47	0.00	0.85	0.43	0.70	0.72	0.55	0.79	0.74
Avail Cap(c_a), veh/h	473	0	546	401	0	455	240	479	471	390	1009	452
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.8	0.0	17.5	24.2	0.0	25.0	27.6	26.8	26.8	24.1	23.5	7.5
Incr Delay (d2), s/veh	20.2	0.0	0.6	1.4	0.0	11.9	1.3	3.3	3.6	1.6	3.8	5.2
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	9.8	0.0	3.7	1.9	0.0	6.6	1.7	3.6	3.6	3.7	6.4	4.5
LnGrp Delay(d),s/veh	45.0	0.0	18.2	25.6	0.0	36.8	28.9	30.0	30.4	25.7	27.3	12.7
LnGrp LOS	D		B	C		D	C	C	C	C	C	B
Approach Vol, veh/h		662			421			481			1188	
Approach Delay, s/veh		34.7			33.8			29.9			23.5	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.3	15.0	9.7	27.0	9.1	21.3	17.2	19.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.1	18.5	11.2	21.2	5.1	19.5	13.5	18.9
Max Q Clear Time (g_c+I1), s	5.1	9.2	5.8	10.2	5.5	14.4	12.6	14.2
Green Ext Time (p_c), s	0.1	1.4	0.1	1.1	0.0	2.4	0.1	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	28.9
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	604	94	668	435	67	24	255	693	131	490	103
Future Volume (veh/h)	55	604	94	668	435	67	24	255	693	131	490	103
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1827	1827	1827	1827	1827	1900
Adj Flow Rate, veh/h	60	657	102	726	473	73	26	277	0	142	533	112
Adj No. of Lanes	1	2	0	2	2	0	1	2	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	4	4	4	4	4	4
Cap, veh/h	229	750	116	825	1274	196	151	417	187	343	657	137
Arrive On Green	0.07	0.25	0.25	0.24	0.42	0.42	0.03	0.12	0.00	0.14	0.23	0.23
Sat Flow, veh/h	1757	3042	472	3408	3047	468	1740	3471	1553	1740	2859	598
Grp Volume(v), veh/h	60	378	381	726	271	275	26	277	0	142	323	322
Grp Sat Flow(s),veh/h/ln	1757	1752	1761	1704	1752	1762	1740	1736	1553	1740	1736	1721
Q Serve(g_s), s	2.0	14.7	14.8	14.6	7.6	7.6	1.0	5.4	0.0	0.9	12.5	12.6
Cycle Q Clear(g_c), s	2.0	14.7	14.8	14.6	7.6	7.6	1.0	5.4	0.0	0.9	12.5	12.6
Prop In Lane	1.00		0.27	1.00		0.27	1.00		1.00	1.00		0.35
Lane Grp Cap(c), veh/h	229	432	434	825	733	737	151	417	187	343	399	395
V/C Ratio(X)	0.26	0.88	0.88	0.88	0.37	0.37	0.17	0.66	0.00	0.41	0.81	0.81
Avail Cap(c_a), veh/h	551	457	459	888	733	737	224	973	435	343	489	485
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.6	25.7	25.7	25.9	14.2	14.2	30.3	29.9	0.0	26.5	25.9	25.9
Incr Delay (d2), s/veh	0.6	16.5	16.7	9.7	0.3	0.3	0.5	1.8	0.0	0.8	8.2	8.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	9.1	9.2	8.0	3.7	3.7	0.5	2.7	0.0	2.5	6.8	6.9
LnGrp Delay(d),s/veh	24.2	42.2	42.4	35.6	14.5	14.6	30.8	31.7	0.0	27.3	34.1	34.5
LnGrp LOS	C	D	D	D	B	B	C	C		C	C	C
Approach Vol, veh/h		819			1272			303			787	
Approach Delay, s/veh		41.0			26.6			31.6			33.0	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.3	13.0	21.7	22.0	6.5	20.8	9.5	34.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.1	19.9	18.5	18.5	5.0	20.0	18.0	19.0
Max Q Clear Time (g_c+I1), s	2.9	7.4	16.6	16.8	3.0	14.6	4.0	9.6
Green Ext Time (p_c), s	0.1	1.1	0.6	0.7	0.0	1.7	0.1	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	32.4
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	360	35	133	168	77	22	832	93	188	1035	1
Future Volume (veh/h)	51	360	35	133	168	77	22	832	93	188	1035	1
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1827	1827	1900	1827	1827	1900
Adj Flow Rate, veh/h	55	391	38	145	183	84	24	904	101	204	1125	1
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	4	4	4	4	4	4
Cap, veh/h	362	555	54	281	297	131	168	1119	125	295	1454	1
Arrive On Green	0.14	0.17	0.17	0.09	0.13	0.13	0.03	0.36	0.36	0.08	0.41	0.41
Sat Flow, veh/h	1757	3230	312	1757	2368	1045	1740	3149	352	1740	3559	3
Grp Volume(v), veh/h	55	211	218	145	133	134	24	498	507	204	549	577
Grp Sat Flow(s),veh/h/ln	1757	1752	1790	1757	1752	1660	1740	1736	1765	1740	1736	1826
Q Serve(g_s), s	0.0	6.8	6.9	4.9	4.3	4.6	0.6	15.6	15.6	1.3	16.4	16.4
Cycle Q Clear(g_c), s	0.0	6.8	6.9	4.9	4.3	4.6	0.6	15.6	15.6	1.3	16.4	16.4
Prop In Lane	1.00		0.17	1.00		0.63	1.00		0.20	1.00		0.00
Lane Grp Cap(c), veh/h	362	301	307	281	220	209	168	617	627	295	709	746
V/C Ratio(X)	0.15	0.70	0.71	0.52	0.61	0.64	0.14	0.81	0.81	0.69	0.77	0.77
Avail Cap(c_a), veh/h	362	526	537	281	538	510	265	753	766	372	825	868
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.3	23.4	23.4	26.8	24.8	24.9	16.8	17.5	17.5	25.1	15.3	15.3
Incr Delay (d2), s/veh	0.2	3.0	3.0	1.6	2.7	3.3	0.4	5.4	5.3	3.9	4.0	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	0.8	3.5	3.6	2.5	2.2	2.3	0.3	8.3	8.4	3.5	8.6	9.0
LnGrp Delay(d),s/veh	22.5	26.4	26.4	28.5	27.5	28.2	17.1	22.9	22.8	29.0	19.3	19.1
LnGrp LOS	C	C	C	C	C	C	B	C	C	C	B	B
Approach Vol, veh/h		484			412			1029			1330	
Approach Delay, s/veh		25.9			28.0			22.7			20.7	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	25.8	10.0	14.8	6.1	29.0	12.8	12.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.5	26.0	5.5	18.0	5.0	28.5	5.1	18.4
Max Q Clear Time (g_c+I1), s	3.3	17.6	6.9	8.9	2.6	18.4	2.0	6.6
Green Ext Time (p_c), s	0.2	3.8	0.0	1.4	0.0	4.5	0.0	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	23.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	138	206	125	226	141	23	59	822	321	35	995	163
Future Volume (veh/h)	138	206	125	226	141	23	59	822	321	35	995	163
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1827	1827	1827	1827	1827	1827
Adj Flow Rate, veh/h	150	224	136	246	153	25	64	893	349	38	1082	177
Adj No. of Lanes	1	2	0	1	2	0	1	2	1	1	2	1
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, %	3	3	3	3	3	3	4	4	4	4	4	4
Cap, veh/h	471	326	190	359	269	43	199	1184	530	307	1327	594
Arrive On Green	0.21	0.15	0.15	0.14	0.09	0.09	0.05	0.34	0.34	0.09	0.38	0.38
Sat Flow, veh/h	1757	2133	1245	1757	3026	486	1740	3471	1553	1740	3471	1553
Grp Volume(v), veh/h	150	182	178	246	87	91	64	893	349	38	1082	177
Grp Sat Flow(s),veh/h/ln	1757	1752	1625	1757	1752	1759	1740	1736	1553	1740	1736	1553
Q Serve(g_s), s	0.5	6.6	6.9	9.3	3.2	3.3	1.8	15.2	7.4	0.0	18.6	2.4
Cycle Q Clear(g_c), s	0.5	6.6	6.9	9.3	3.2	3.3	1.8	15.2	7.4	0.0	18.6	2.4
Prop In Lane	1.00		0.77	1.00		0.28	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	471	268	248	359	156	156	199	1184	530	307	1327	594
V/C Ratio(X)	0.32	0.68	0.71	0.69	0.56	0.58	0.32	0.75	0.66	0.12	0.82	0.30
Avail Cap(c_a), veh/h	471	473	439	359	487	488	239	1537	688	307	1537	688
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.0	26.7	26.8	28.4	29.1	29.1	18.9	19.5	6.2	24.8	18.5	2.9
Incr Delay (d2), s/veh	0.4	3.0	3.8	5.4	3.1	3.4	0.9	1.6	1.5	0.2	3.1	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	2.3	3.4	3.4	4.9	1.7	1.7	0.9	7.5	4.4	0.6	9.4	2.0
LnGrp Delay(d),s/veh	21.4	29.7	30.6	33.7	32.2	32.5	19.8	21.0	7.7	24.9	21.6	3.1
LnGrp LOS	C	C	C	C	C	C	B	C	A	C	C	A
Approach Vol, veh/h		510			424			1306			1297	
Approach Delay, s/veh		27.6			33.2			17.4			19.1	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.7	27.2	14.0	14.7	8.0	30.0	18.3	10.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	29.5	9.5	18.0	5.0	29.5	9.0	18.5
Max Q Clear Time (g_c+I1), s	2.0	17.2	11.3	8.9	3.8	20.6	2.5	5.3
Green Ext Time (p_c), s	0.0	5.5	0.0	1.3	0.0	4.8	0.2	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	21.4
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	551	867	189	150	645	50	136	679	135	56	690	583
Future Volume (veh/h)	551	867	189	150	645	50	136	679	135	56	690	583
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1827	1827	1827	1827	1827	1827	1827	1827	1827	1827	1827	1827
Adj Flow Rate, veh/h	599	942	205	163	701	54	148	738	147	61	750	0
Adj No. of Lanes	3	2	1	1	2	1	2	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	746	1124	503	256	848	380	241	961	430	199	891	399
Arrive On Green	0.15	0.32	0.32	0.07	0.24	0.24	0.07	0.28	0.28	0.05	0.26	0.00
Sat Flow, veh/h	4907	3471	1553	1740	3471	1553	3375	3471	1553	1740	3471	1553
Grp Volume(v), veh/h	599	942	205	163	701	54	148	738	147	61	750	0
Grp Sat Flow(s),veh/h/ln	1636	1736	1553	1740	1736	1553	1688	1736	1553	1740	1736	1553
Q Serve(g_s), s	7.7	16.4	6.7	0.9	12.5	1.8	2.8	12.8	3.5	1.9	13.4	0.0
Cycle Q Clear(g_c), s	7.7	16.4	6.7	0.9	12.5	1.8	2.8	12.8	3.5	1.9	13.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	746	1124	503	256	848	380	241	961	430	199	891	399
V/C Ratio(X)	0.80	0.84	0.41	0.64	0.83	0.14	0.61	0.77	0.34	0.31	0.84	0.00
Avail Cap(c_a), veh/h	789	1244	556	266	957	428	258	983	440	243	983	440
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.7	20.5	17.2	28.0	23.4	19.3	29.5	21.7	9.5	21.6	23.0	0.0
Incr Delay (d2), s/veh	5.8	4.8	0.5	4.7	5.5	0.2	3.8	3.7	0.5	0.9	6.2	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	3.8	8.6	2.9	3.1	6.6	0.8	1.4	6.5	1.9	0.9	7.1	0.0
LnGrp Delay(d),s/veh	32.5	25.3	17.7	32.7	28.8	19.5	33.3	25.3	10.0	22.4	29.2	0.0
LnGrp LOS	C	C	B	C	C	B	C	C	A	C	C	
Approach Vol, veh/h		1746			918			1033			811	
Approach Delay, s/veh		26.9			29.0			24.3			28.7	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.8	22.6	9.2	25.6	9.2	21.3	14.4	20.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.5	5.1	23.4	5.0	18.5	10.5	18.0
Max Q Clear Time (g_c+I1), s	3.9	14.8	2.9	18.4	4.8	15.4	9.7	14.5
Green Ext Time (p_c), s	0.0	1.7	0.1	2.7	0.0	1.4	0.2	1.4

Intersection Summary	
HCM 2010 Ctrl Delay	27.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	163	18	129	11	10	6	47	790	101	8	857	138
Future Volume (veh/h)	163	18	129	11	10	6	47	790	101	8	857	138
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1696	1696	1900	1696	1696	1900	1827	1827	1827	1827	1827	1827
Adj Flow Rate, veh/h	177	20	140	12	11	7	51	859	110	9	932	150
Adj No. of Lanes	1	1	0	1	1	0	1	2	1	1	2	1
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, %	12	12	12	12	12	12	4	4	4	4	4	4
Cap, veh/h	318	34	236	184	97	62	250	1162	520	319	1219	545
Arrive On Green	0.10	0.18	0.18	0.02	0.10	0.10	0.05	0.33	0.33	0.07	0.35	0.35
Sat Flow, veh/h	1616	184	1286	1616	970	617	1740	3471	1553	1740	3471	1553
Grp Volume(v), veh/h	177	0	160	12	0	18	51	859	110	9	932	150
Grp Sat Flow(s),veh/h/ln	1616	0	1470	1616	0	1587	1740	1736	1553	1740	1736	1553
Q Serve(g_s), s	0.0	0.0	4.5	0.3	0.0	0.5	1.0	9.9	1.6	0.0	10.8	1.7
Cycle Q Clear(g_c), s	0.0	0.0	4.5	0.3	0.0	0.5	1.0	9.9	1.6	0.0	10.8	1.7
Prop In Lane	1.00		0.88	1.00		0.39	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	318	0	270	184	0	159	250	1162	520	319	1219	545
V/C Ratio(X)	0.56	0.00	0.59	0.07	0.00	0.11	0.20	0.74	0.21	0.03	0.76	0.28
Avail Cap(c_a), veh/h	338	0	584	338	0	631	351	1457	652	392	1457	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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.4	0.0	16.9	20.8	0.0	18.5	13.3	13.3	5.0	17.0	13.0	3.1
Incr Delay (d2), s/veh	1.8	0.0	2.1	0.1	0.0	0.3	0.4	1.5	0.2	0.0	2.0	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	2.1	0.0	2.0	0.1	0.0	0.2	0.5	4.9	0.9	0.1	5.4	1.2
LnGrp Delay(d),s/veh	20.2	0.0	19.0	21.0	0.0	18.8	13.7	14.8	5.2	17.0	15.1	3.4
LnGrp LOS	C		B	C		B	B	B	A	B	B	A
Approach Vol, veh/h		337			30			1020			1091	
Approach Delay, s/veh		19.6			19.7			13.7			13.5	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.6	19.7	5.2	12.8	6.9	20.4	9.0	9.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	19.0	5.0	18.0	5.0	19.0	5.0	18.0
Max Q Clear Time (g_c+I1), s	2.0	11.9	2.3	6.5	3.0	12.8	2.0	2.5
Green Ext Time (p_c), s	0.0	3.3	0.0	0.5	0.0	3.1	0.1	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	14.5
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	146	91	630	20	100	27	563	809	45	45	947	83
Future Volume (veh/h)	146	91	630	20	100	27	563	809	45	45	947	83
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1827	1827	1900	1827	1827	1827
Adj Flow Rate, veh/h	159	99	0	22	109	29	612	879	49	49	1029	90
Adj No. of Lanes	1	1	1	1	1	0	2	2	0	1	2	1
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, %	3	3	3	3	3	3	4	4	4	4	4	4
Cap, veh/h	225	199	170	225	152	40	720	1139	64	517	1230	550
Arrive On Green	0.07	0.11	0.00	0.07	0.11	0.11	0.21	0.34	0.34	0.23	0.35	0.35
Sat Flow, veh/h	1757	1845	1568	1757	1405	374	3375	3343	186	1740	3471	1553
Grp Volume(v), veh/h	159	99	0	22	0	138	612	456	472	49	1029	90
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	0	1779	1688	1736	1794	1740	1736	1553
Q Serve(g_s), s	2.1	3.6	0.0	0.8	0.0	5.3	12.4	16.7	16.7	0.0	19.3	2.0
Cycle Q Clear(g_c), s	2.1	3.6	0.0	0.8	0.0	5.3	12.4	16.7	16.7	0.0	19.3	2.0
Prop In Lane	1.00		1.00	1.00		0.21	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	225	199	170	225	0	193	720	592	611	517	1230	550
V/C Ratio(X)	0.71	0.50	0.00	0.10	0.00	0.72	0.85	0.77	0.77	0.09	0.84	0.16
Avail Cap(c_a), veh/h	547	468	398	547	0	452	833	986	1020	517	1395	624
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.9	29.8	0.0	30.9	0.0	30.6	26.8	20.9	20.9	20.6	21.0	7.6
Incr Delay (d2), s/veh	4.0	1.9	0.0	0.2	0.0	4.9	7.4	2.2	2.1	0.1	4.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	1.9	0.0	0.4	0.0	2.9	6.4	8.3	8.6	0.7	9.9	1.1
LnGrp Delay(d),s/veh	35.0	31.7	0.0	31.0	0.0	35.5	34.2	23.1	23.0	20.7	25.2	7.7
LnGrp LOS	C	C		C		D	C	C	C	C	C	A
Approach Vol, veh/h		258			160			1540			1168	
Approach Delay, s/veh		33.7			34.9			27.5			23.7	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.6	28.7	9.5	12.2	19.6	29.6	9.5	12.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.7	40.3	18.0	18.0	17.5	28.5	18.0	18.0
Max Q Clear Time (g_c+I1), s	2.0	18.7	2.8	5.6	14.4	21.3	4.1	7.3
Green Ext Time (p_c), s	0.0	5.5	0.0	0.3	0.8	3.8	0.3	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	26.9
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	432	214	241	69	132	28	325	937	73	27	809	326
Future Volume (veh/h)	432	214	241	69	132	28	325	937	73	27	809	326
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1681	1681	1681	1681	1681	1900	1827	1827	1827	1827	1827	1827
Adj Flow Rate, veh/h	470	233	0	75	143	30	353	1018	79	29	879	0
Adj No. of Lanes	2	1	1	1	1	0	1	2	1	1	2	1
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, %	13	13	13	13	13	13	4	4	4	4	4	4
Cap, veh/h	541	286	243	309	180	38	410	1222	547	323	989	442
Arrive On Green	0.17	0.17	0.00	0.14	0.13	0.13	0.18	0.35	0.35	0.12	0.28	0.00
Sat Flow, veh/h	3107	1681	1429	1601	1349	283	1740	3471	1553	1740	3471	1553
Grp Volume(v), veh/h	470	233	0	75	0	173	353	1018	79	29	879	0
Grp Sat Flow(s),veh/h/ln	1553	1681	1429	1601	0	1631	1740	1736	1553	1740	1736	1553
Q Serve(g_s), s	11.9	10.8	0.0	0.0	0.0	8.3	13.9	21.7	2.8	0.0	19.6	0.0
Cycle Q Clear(g_c), s	11.9	10.8	0.0	0.0	0.0	8.3	13.9	21.7	2.8	0.0	19.6	0.0
Prop In Lane	1.00		1.00	1.00		0.17	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	541	286	243	309	0	217	410	1222	547	323	989	442
V/C Ratio(X)	0.87	0.81	0.00	0.24	0.00	0.80	0.86	0.83	0.14	0.09	0.89	0.00
Avail Cap(c_a), veh/h	566	542	460	309	0	364	410	1475	660	323	1049	470
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.4	32.3	0.0	30.0	0.0	33.9	24.1	24.0	17.8	29.1	27.6	0.0
Incr Delay (d2), s/veh	13.2	5.6	0.0	0.4	0.0	6.5	16.6	3.6	0.1	0.1	9.2	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	6.1	5.4	0.0	1.5	0.0	4.1	8.5	10.9	1.2	0.6	10.7	0.0
LnGrp Delay(d),s/veh	45.6	37.9	0.0	30.4	0.0	40.4	40.7	27.6	18.0	29.2	36.8	0.0
LnGrp LOS	D	D		C		D	D	C	B	C	D	
Approach Vol, veh/h		703			248			1450			908	
Approach Delay, s/veh		43.1			37.4			30.3			36.6	
Approach LOS		D			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	32.9	15.6	18.2	19.4	27.5	18.6	15.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	34.3	6.7	26.0	14.9	24.4	14.7	18.0
Max Q Clear Time (g_c+I1), s	2.0	23.7	2.0	12.8	15.9	21.6	13.9	10.3
Green Ext Time (p_c), s	0.0	4.7	0.1	0.9	0.0	1.4	0.2	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	35.2
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	147	150	684	114	165	63	696	771	190	61	697	165
Future Volume (veh/h)	147	150	684	114	165	63	696	771	190	61	697	165
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1743	1743	1743	1743	1743	1900	1827	1827	1827	1827	1827	1827
Adj Flow Rate, veh/h	160	163	0	124	179	68	757	838	207	66	758	179
Adj No. of Lanes	1	1	1	1	1	0	2	2	1	1	2	1
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, %	9	9	9	9	9	9	4	4	4	4	4	4
Cap, veh/h	282	207	176	370	208	79	836	1575	704	163	875	391
Arrive On Green	0.12	0.12	0.00	0.17	0.17	0.17	0.25	0.45	0.45	0.05	0.25	0.25
Sat Flow, veh/h	1660	1743	1482	1660	1205	458	3375	3471	1553	1740	3471	1553
Grp Volume(v), veh/h	160	163	0	124	0	247	757	838	207	66	758	179
Grp Sat Flow(s),veh/h/ln	1660	1743	1482	1660	0	1662	1688	1736	1553	1740	1736	1553
Q Serve(g_s), s	8.1	7.8	0.0	1.1	0.0	12.5	18.8	15.0	3.6	2.6	18.0	5.9
Cycle Q Clear(g_c), s	8.1	7.8	0.0	1.1	0.0	12.5	18.8	15.0	3.6	2.6	18.0	5.9
Prop In Lane	1.00		1.00	1.00		0.28	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	282	207	176	370	0	286	836	1575	704	163	875	391
V/C Ratio(X)	0.57	0.79	0.00	0.33	0.00	0.86	0.91	0.53	0.29	0.40	0.87	0.46
Avail Cap(c_a), veh/h	429	363	309	429	0	346	879	1587	710	214	944	423
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.9	37.0	0.0	29.6	0.0	34.7	31.5	17.0	3.6	28.4	30.9	13.4
Incr Delay (d2), s/veh	1.8	6.4	0.0	0.5	0.0	17.0	12.5	0.3	0.2	1.6	8.1	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	4.1	0.0	2.5	0.0	7.0	10.2	7.2	2.6	1.3	9.6	3.2
LnGrp Delay(d),s/veh	38.7	43.4	0.0	30.2	0.0	51.7	44.0	17.3	3.8	30.0	39.0	14.2
LnGrp LOS	D	D		C		D	D	B	A	C	D	B
Approach Vol, veh/h		323			371			1802			1003	
Approach Delay, s/veh		41.1			44.5			27.0			34.0	
Approach LOS		D			D			C			C	

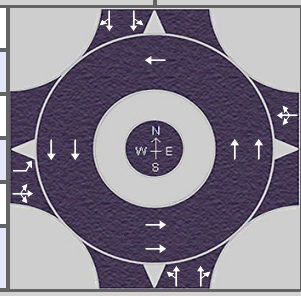
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	43.7	19.4	14.8	25.9	26.3	14.8	19.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.5	39.5	18.0	18.0	22.5	23.5	18.0	18.0
Max Q Clear Time (g_c+I1), s	4.6	17.0	3.1	9.8	20.8	20.0	10.1	14.5
Green Ext Time (p_c), s	0.0	6.3	0.2	0.4	0.6	1.7	0.2	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	32.2
HCM 2010 LOS	C

HCS7 Roundabouts Report

General Information

Analyst	Lingling Yang
Agency or Co.	MBI
Date Performed	2/12/2020
Analysis Year	2040
Time Analyzed	AM Peak
Project Description	North IPA Traffic Analysis



Site Information

Intersection	NIPA & Ronald Reagan Blvd
E/W Street Name	Ronald Reagan Blvd
N/S Street Name	NIPA
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.92
Jurisdiction	

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	1	1	0	0	0	1	0	0	0	2	0	0	0	2	0
Lane Assignment	L		LTR				LTR		LT		TR		LT		TR	
Volume (V), veh/h	0	34	38	51	0	53	45	176	0	207	967	124	0	193	225	393
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
Flow Rate (v_{PCE}), pc/h	0	38	43	57	0	59	50	197	0	234	1093	140	0	218	254	444
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	2				2				2				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)	4.6453	4.3276			4.3276		4.6453	4.3276		4.5436	4.5436	
Follow-Up Headway (s)	2.6667	2.5352			2.5352		2.6667	2.5352		2.5352	2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h	38	100			306		689	778		431	485	
Entry Volume, veh/h	37	97			297		663	748		414	467	
Circulating Flow (v_c), pc/h	531			1365			299			343		
Exiting Flow (v_{ex}), pc/h	401			728			1328			370		
Capacity (c_{pce}), pc/h	828	904			445		1025	1101		1039	1039	
Capacity (c), veh/h	804	878			432		986	1059		999	999	
v/c Ratio (x)	0.05	0.11			0.69		0.67	0.71		0.41	0.47	

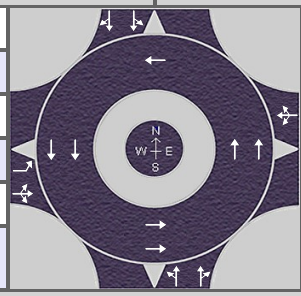
Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh	4.9	5.2			28.2		14.2	14.6		8.2	9.1	
Lane LOS	A	A			D		B	B		A	A	
95% Queue, veh	0.1	0.4			5.1		5.4	6.2		2.1	2.5	
Approach Delay, s/veh	5.1			28.2			14.4			8.7		
Approach LOS	A			D			B			A		
Intersection Delay, s/veh | LOS	13.6						B					

HCS7 Roundabouts Report

General Information

Analyst	Lingling Yang
Agency or Co.	MBI
Date Performed	2/12/2020
Analysis Year	2040
Time Analyzed	PM Peak
Project Description	North IPA Traffic Analysis



Site Information

Intersection	NIPA & Ronald Reagan Blvd
E/W Street Name	Ronald Reagan Blvd
N/S Street Name	NIPA
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.92
Jurisdiction	

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	1	1	0	0	0	1	0	0	0	2	0	0	0	2	0
Lane Assignment	L		LTR				LTR		LT		TR		LT		TR	
Volume (V), veh/h	0	376	58	175	0	105	55	227	0	89	283	70	0	196	634	263
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
Flow Rate (v_{PCE}), pc/h	0	421	65	196	0	118	62	254	0	101	320	79	0	222	717	297
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	2				2				2				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)	4.6453	4.3276			4.3276		4.6453	4.3276		4.5436	4.5436	
Follow-Up Headway (s)	2.6667	2.5352			2.5352		2.6667	2.5352		2.5352	2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h	321	361			434		235	265		581	655	
Entry Volume, veh/h	311	351			421		226	255		559	630	
Circulating Flow (v_c), pc/h	1057			842			708			281		
Exiting Flow (v_{ex}), pc/h	366			460			995			1031		
Capacity (c_{pce}), pc/h	511	578			694		704	778		1100	1100	
Capacity (c), veh/h	496	561			674		677	748		1057	1057	
v/c Ratio (x)	0.63	0.63			0.63		0.33	0.34		0.53	0.60	

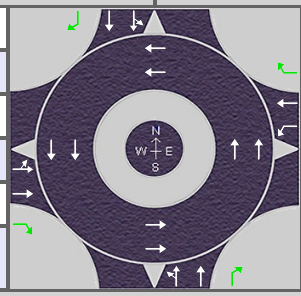
Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh	21.9	19.6			17.0		9.6	9.0		9.8	11.3	
Lane LOS	C	C			C		A	A		A	B	
95% Queue, veh	4.3	4.3			4.4		1.5	1.5		3.2	4.1	
Approach Delay, s/veh	20.7			17.0			9.3			10.6		
Approach LOS	C			C			A			B		
Intersection Delay, s/veh | LOS	13.8						B					

HCS7 Roundabouts Report

General Information

Analyst	Lingling Yang
Agency or Co.	MBI
Date Performed	2/11/2020
Analysis Year	2040
Time Analyzed	AM Peak
Project Description	North IPA Traffic Analysis



Site Information

Intersection	NIPA & LCR 18
E/W Street Name	LCR 18
N/S Street Name	NIPA
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.92
Jurisdiction	

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	2	0	0	1	1	0	0	0	2	0	0	0	2	0
Lane Assignment	LT		T		L		T		LT		T		LT		T	
Volume (V), veh/h	0	141	271	22	0	614	651	132	0	43	729	604	0	43	197	56
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
Flow Rate (v_{PCE}), pc/h	0	158	303	25	0	687	729	148	0	49	824	683	0	49	223	63
Right-Turn Bypass	Non-Yielding				Non-Yielding				Non-Yielding				Non-Yielding			
Conflicting Lanes	2				2				2				2			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)	4.6453	4.3276		4.6453	4.3276		4.6453	4.3276		4.6453	4.3276	
Follow-Up Headway (s)	2.6667	2.5352		2.6667	2.5352		2.6667	2.5352		2.6667	2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h	217	244	25	687	729	148	410	463	683	128	144	63
Entry Volume, veh/h	210	237	24	667	708	144	395	445	657	123	139	61
Circulating Flow (v_c), pc/h	959			1031			510			1465		
Exiting Flow (v_{ex}), pc/h	352			778			982			910		
Capacity (c_{pce}), pc/h	559	628		523	591		844	920		351	409	
Capacity (c), veh/h	542	610		508	574		812	885		337	393	
v/c Ratio (x)	0.39	0.39		1.31	1.23		0.49	0.50		0.36	0.35	

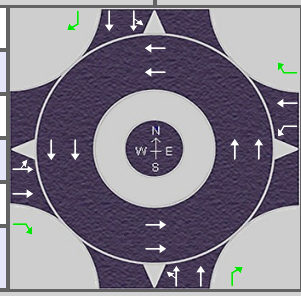
Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh	12.7	11.5		178.5	142.7		11.0	10.6		18.5	15.8	
Lane LOS	B	B	A	F	F	A	B	B	A	C	C	A
95% Queue, veh	1.8	1.8		28.6	26.7		2.7	2.9		1.6	1.6	
Approach Delay, s/veh	11.5			144.9			6.1			13.9		
Approach LOS	B			F			A			B		
Intersection Delay, s/veh | LOS	62.8						F					

HCS7 Roundabouts Report

General Information

Analyst	Lingling Yang
Agency or Co.	MBI
Date Performed	2/11/2020
Analysis Year	2040
Time Analyzed	PM Peak
Project Description	North IPA Traffic Analysis



Site Information

Intersection	NIPA & LCR 18
E/W Street Name	LCR 18
N/S Street Name	NIPA
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.92
Jurisdiction	

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	2	0	0	1	1	0	0	0	2	0	0	0	2	0
Lane Assignment	LT		T		L		T		LT		T		LT		T	
Volume (V), veh/h	0	55	604	94	0	668	435	67	0	24	255	693	0	131	490	103
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
Flow Rate (v_{PCE}), pc/h	0	62	676	105	0	748	487	75	0	27	288	783	0	148	554	116
Right-Turn Bypass	Non-Yielding				Non-Yielding				Non-Yielding				Non-Yielding			
Conflicting Lanes	2				2				2				2			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)	4.6453	4.3276		4.6453	4.3276		4.6453	4.3276		4.6453	4.3276	
Follow-Up Headway (s)	2.6667	2.5352		2.6667	2.5352		2.6667	2.5352		2.6667	2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h	347	391	105	748	487	75	148	167	783	330	372	116
Entry Volume, veh/h	337	380	102	726	473	73	142	161	753	317	358	112
Circulating Flow (v_c), pc/h	1450			377			886			1262		
Exiting Flow (v_{ex}), pc/h	824			514			350			1302		
Capacity (c_{pce}), pc/h	356	414		954	1031		597	669		423	486	
Capacity (c), veh/h	345	402		927	1001		575	643		407	467	
v/c Ratio (x)	0.98	0.94		0.78	0.47		0.25	0.25		0.78	0.77	

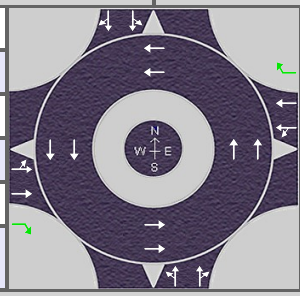
Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh	77.6	64.2		20.3	9.1		9.6	8.7		37.9	32.6	
Lane LOS	F	F	A	C	A	A	A	A	A	E	D	A
95% Queue, veh	10.7	10.6		8.2	2.6		1.0	1.0		6.7	6.6	
Approach Delay, s/veh	61.7			15.0			2.6			30.1		
Approach LOS	F			B			A			D		
Intersection Delay, s/veh | LOS	24.4						C					

HCS7 Roundabouts Report

General Information

Analyst	Lingling Yang
Agency or Co.	MBI
Date Performed	2/12/2020
Analysis Year	2040
Time Analyzed	AM Peak
Project Description	North IPA Traffic Analysis



Site Information

Intersection	NIPA & LCR 16
E/W Street Name	LCR 16
N/S Street Name	NIPA
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.92
Jurisdiction	

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0
Lane Assignment	LT		T		LT		T		LT		TR		LT		TR	
Volume (V), veh/h	0	1	99	21	0	31	426	195	0	38	1148	59	0	54	764	9
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
Flow Rate (v_{PCE}), pc/h	0	1	111	24	0	35	477	218	0	43	1298	67	0	61	864	10
Right-Turn Bypass	Non-Yielding				Non-Yielding				None				None			
Conflicting Lanes	2				2				2				2			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)	4.6453	4.3276		4.6453	4.3276		4.6453	4.3276		4.6453	4.3276	
Follow-Up Headway (s)	2.6667	2.5352		2.6667	2.5352		2.6667	2.5352		2.6667	2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h	53	59	24	241	271	218	662	746		439	496	
Entry Volume, veh/h	51	58	23	234	263	212	636	718		423	476	
Circulating Flow (v_c), pc/h	960			1342			173			555		
Exiting Flow (v_{ex}), pc/h	239			530			1299			899		
Capacity (c_{pce}), pc/h	558	628		393	454		1151	1226		810	886	
Capacity (c), veh/h	542	610		381	441		1107	1179		779	852	
v/c Ratio (x)	0.09	0.09		0.61	0.60		0.57	0.61		0.54	0.56	

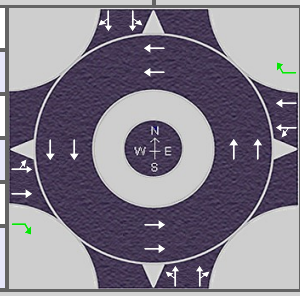
Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh	7.8	7.0		26.3	22.6		10.4	10.7		12.7	12.2	
Lane LOS	A	A	A	D	C	A	B	B		B	B	
95% Queue, veh	0.3	0.3		3.9	3.8		3.8	4.3		3.3	3.5	
Approach Delay, s/veh	6.1			17.1			10.6			12.4		
Approach LOS	A			C			B			B		
Intersection Delay, s/veh | LOS	12.4						B					

HCS7 Roundabouts Report

General Information

Analyst	Lingling Yang
Agency or Co.	MBI
Date Performed	2/12/2020
Analysis Year	2040
Time Analyzed	PM Peak
Project Description	North IPA Traffic Analysis



Site Information

Intersection	NIPA & LCR 16
E/W Street Name	LCR 16
N/S Street Name	NIPA
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.92
Jurisdiction	

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0
Lane Assignment	LT		T		LT		T		LT		TR		LT		TR	
Volume (V), veh/h	0	51	360	35	0	133	168	77	0	22	832	93	0	188	1035	1
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
Flow Rate (v_{PCE}), pc/h	0	57	403	39	0	149	188	86	0	25	941	105	0	213	1170	1
Right-Turn Bypass	Non-Yielding				Non-Yielding				None				None			
Conflicting Lanes	2				2				2				2			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)	4.6453	4.3276		4.6453	4.3276		4.6453	4.3276		4.6453	4.3276	
Follow-Up Headway (s)	2.6667	2.5352		2.6667	2.5352		2.6667	2.5352		2.6667	2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h	216	244	39	158	179	86	503	568		650	734	
Entry Volume, veh/h	210	237	38	154	173	83	484	546		625	705	
Circulating Flow (v_c), pc/h	1532			1023			673			362		
Exiting Flow (v_{ex}), pc/h	721			214			998			1319		
Capacity (c_{pce}), pc/h	330	386		527	595		727	801		968	1044	
Capacity (c), veh/h	320	375		511	578		699	771		930	1004	
v/c Ratio (x)	0.66	0.63		0.30	0.30		0.69	0.71		0.67	0.70	

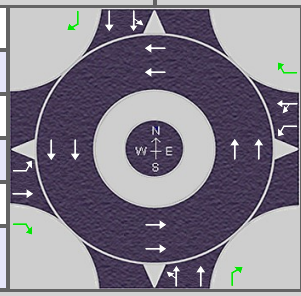
Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh	33.6	27.8		11.5	10.4		19.4	18.7		14.8	15.1	
Lane LOS	D	D	A	B	B	A	C	C		B	C	
95% Queue, veh	4.3	4.1		1.3	1.3		5.6	6.0		5.4	6.1	
Approach Delay, s/veh	28.1			8.7			19.0			14.9		
Approach LOS	D			A			C			B		
Intersection Delay, s/veh | LOS	17.4						C					

HCS7 Roundabouts Report

General Information

Analyst	Lingling Yang
Agency or Co.	MBI
Date Performed	2/11/2020
Analysis Year	2040
Time Analyzed	AM Peak
Project Description	North IPA Traffic Analysis



Site Information

Intersection	NIPA & LCR 14/WCR 50
E/W Street Name	LCR 14/WCR 50
N/S Street Name	NIPA
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.92
Jurisdiction	

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	1	1	0	0	1	1	0	0	0	2	0	0	0	2	0
Lane Assignment	L		T		L		LT		LT		T		LT		T	
Volume (V), veh/h	0	137	61	41	0	314	242	46	0	120	1043	172	0	24	689	144
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
Flow Rate (v_{PCE}), pc/h	0	153	68	46	0	352	271	52	0	136	1179	194	0	27	779	163
Right-Turn Bypass	Non-Yielding				Non-Yielding				Non-Yielding				Non-Yielding			
Conflicting Lanes	2				2				2				2			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)	4.6453	4.3276		4.6453	4.3276		4.6453	4.3276		4.6453	4.3276	
Follow-Up Headway (s)	2.6667	2.5352		2.6667	2.5352		2.6667	2.5352		2.6667	2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h	153	68	46	293	330	52	618	697	194	379	427	163
Entry Volume, veh/h	149	66	45	284	321	50	594	670	187	364	411	157
Circulating Flow (v_c), pc/h	1158			1468			248			759		
Exiting Flow (v_{ex}), pc/h	95			407			1332			1131		
Capacity (c_{pce}), pc/h	465	531		350	408		1075	1150		672	745	
Capacity (c), veh/h	452	515		340	396		1033	1106		646	716	
v/c Ratio (x)	0.33	0.13		0.84	0.81		0.58	0.61		0.56	0.57	

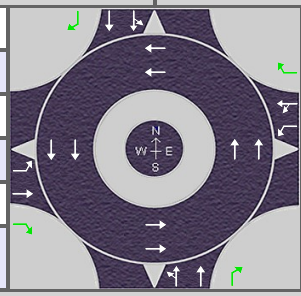
Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh	13.5	8.7		51.2	42.1		11.0	11.2		15.4	14.4	
Lane LOS	B	A	A	F	E	A	B	B	A	C	B	A
95% Queue, veh	1.4	0.4		7.4	7.2		3.8	4.3		3.5	3.7	
Approach Delay, s/veh	9.9			42.8			9.6			12.4		
Approach LOS	A			E			A			B		
Intersection Delay, s/veh | LOS	17.0						C					

HCS7 Roundabouts Report

General Information

Analyst	Lingling Yang
Agency or Co.	MBI
Date Performed	2/11/2020
Analysis Year	2040
Time Analyzed	PM Peak
Project Description	North IPA Traffic Analysis



Site Information

Intersection	NIPA & LCR 14/WCR 50
E/W Street Name	LCR 14/WCR 50
N/S Street Name	NIPA
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.92
Jurisdiction	

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	1	1	0	0	1	1	0	0	0	2	0	0	0	2	0
Lane Assignment	L		T		L		LT		LT		T		LT		T	
Volume (V), veh/h	0	138	206	125	0	226	141	23	0	59	822	321	0	35	995	163
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
Flow Rate (v_{PCE}), pc/h	0	154	231	140	0	253	158	26	0	67	929	363	0	40	1125	184
Right-Turn Bypass	Non-Yielding				Non-Yielding				Non-Yielding				Non-Yielding			
Conflicting Lanes	2				2				2				2			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)	4.6453	4.3276		4.6453	4.3276		4.6453	4.3276		4.6453	4.3276	
Follow-Up Headway (s)	2.6667	2.5352		2.6667	2.5352		2.6667	2.5352		2.6667	2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h	154	231	140	193	218	26	468	528	363	548	617	184
Entry Volume, veh/h	150	224	136	188	211	25	450	508	349	526	594	177
Circulating Flow (v_c), pc/h	1418			1150			425			478		
Exiting Flow (v_{ex}), pc/h	271			225			1083			1378		
Capacity (c_{pce}), pc/h	366	425		469	534		913	989		870	946	
Capacity (c), veh/h	356	413		455	519		878	951		836	910	
v/c Ratio (x)	0.42	0.54		0.41	0.41		0.51	0.53		0.63	0.65	

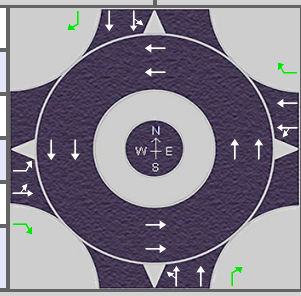
Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh	19.4	21.3		15.4	13.7		10.9	10.7		14.5	14.3	
Lane LOS	C	C	A	C	B	A	B	B	A	B	B	A
95% Queue, veh	2.0	3.1		2.0	2.0		3.0	3.2		4.6	5.0	
Approach Delay, s/veh	15.1			13.6			7.9			12.4		
Approach LOS	C			B			A			B		
Intersection Delay, s/veh | LOS	11.3						B					

HCS7 Roundabouts Report

General Information

Analyst	Lingling Yang
Agency or Co.	MBI
Date Performed	2/11/2020
Analysis Year	2040
Time Analyzed	AM Peak
Project Description	North IPA Traffic Analysis



Site Information

Intersection	NIPA & SH 60
E/W Street Name	SH 60
N/S Street Name	NIPA
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.92
Jurisdiction	

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	1	1	0	0	0	2	0	0	0	2	0	0	0	2	0
Lane Assignment	L		LT		LT		T		LT		T		LT		T	
Volume (V), veh/h	0	624	424	132	0	104	896	60	0	233	572	102	0	42	571	536
Percent Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Flow Rate (v_{PCE}), pc/h	0	705	479	149	0	118	1013	68	0	263	647	115	0	47	645	606
Right-Turn Bypass	Non-Yielding				Non-Yielding				Non-Yielding				Non-Yielding			
Conflicting Lanes	2				2				2				2			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)	4.6453	4.3276		4.6453	4.3276		4.6453	4.3276		4.6453	4.3276	
Follow-Up Headway (s)	2.6667	2.5352		2.6667	2.5352		2.6667	2.5352		2.6667	2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h	628	556	149	532	599	68	428	482	115	325	367	606
Entry Volume, veh/h	603	535	143	511	576	65	411	464	111	313	353	583
Circulating Flow (v_c), pc/h	810			1615			1231			1394		
Exiting Flow (v_{ex}), pc/h	526			1276			1352			763		
Capacity (c_{pce}), pc/h	641	713		306	360		435	499		374	434	
Capacity (c), veh/h	616	686		294	346		418	480		360	418	
v/c Ratio (x)	0.98	0.78		1.74	1.67		0.98	0.97		0.87	0.84	

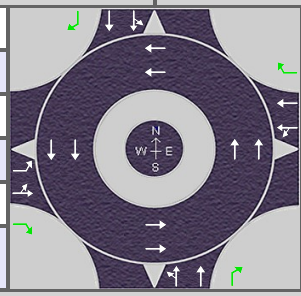
Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh	57.0	25.2		376.8	339.1		71.6	62.6		53.9	45.0	
Lane LOS	F	D	A	F	F	A	F	F	A	F	E	A
95% Queue, veh	14.3	7.6		33.0	35.0		12.0	12.2		8.3	8.1	
Approach Delay, s/veh	37.4			336.6			59.3			26.2		
Approach LOS	E			F			F			D		
Intersection Delay, s/veh | LOS	112.9						F					

HCS7 Roundabouts Report

General Information

Analyst	Lingling Yang
Agency or Co.	MBI
Date Performed	2/11/2020
Analysis Year	2040
Time Analyzed	PM Peak
Project Description	North IPA Traffic Analysis



Site Information

Intersection	NIPA & SH 60
E/W Street Name	SH 60
N/S Street Name	NIPA
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.92
Jurisdiction	

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	1	1	0	0	0	2	0	0	0	2	0	0	0	2	0
Lane Assignment	L		LT		LT		T		LT		T		LT		T	
Volume (V), veh/h	0	551	867	189	0	150	645	50	0	136	679	135	0	56	690	583
Percent Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Flow Rate (v_{PCE}), pc/h	0	623	980	214	0	170	729	57	0	154	768	153	0	63	780	659
Right-Turn Bypass	Non-Yielding				Non-Yielding				Non-Yielding				Non-Yielding			
Conflicting Lanes	2				2				2				2			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)	4.6453	4.3276		4.6453	4.3276		4.6453	4.3276		4.6453	4.3276	
Follow-Up Headway (s)	2.6667	2.5352		2.6667	2.5352		2.6667	2.5352		2.6667	2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h	850	753	214	423	476	57	433	489	153	396	447	659
Entry Volume, veh/h	817	724	206	406	458	55	417	470	147	381	430	634
Circulating Flow (v_c), pc/h	1013			1545			1666			1053		
Exiting Flow (v_{ex}), pc/h	1043			883			1391			950		
Capacity (c_{pce}), pc/h	532	600		326	382		292	345		512	580	
Capacity (c), veh/h	511	577		313	367		280	331		493	558	
v/c Ratio (x)	1.60	1.26		1.30	1.25		1.49	1.42		0.77	0.77	

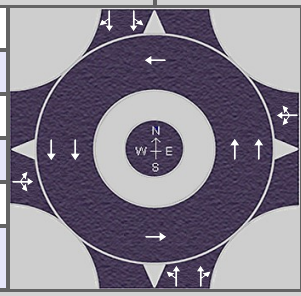
Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh	298.9	151.2		188.9	163.3		270.7	235.6		31.9	28.7	
Lane LOS	F	F	A	F	F	A	F	F	A	D	D	A
95% Queue, veh	45.0	28.1		19.5	20.0		23.7	24.5		6.9	7.0	
Approach Delay, s/veh	202.4			164.9			216.2			16.9		
Approach LOS	F			F			F			C		
Intersection Delay, s/veh | LOS	146.4						F					

HCS7 Roundabouts Report

General Information

Analyst	Lingling Yang
Agency or Co.	MBI
Date Performed	2/12/2020
Analysis Year	2040
Time Analyzed	AM Peak
Project Description	North IPA Traffic Analysis



Site Information

Intersection	NIPA & WCR 46
E/W Street Name	WCR 46
N/S Street Name	NIPA
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.92
Jurisdiction	

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	2	0	0	0	2	0
Lane Assignment			LTR				LTR		LT		TR		LT		TR	
Volume (V), veh/h	0	135	8	12	0	112	23	8	0	156	712	18	0	6	647	178
Percent Heavy Vehicles, %	12	12	12	12	12	12	12	12	4	4	4	4	4	4	4	4
Flow Rate (v_{PCE}), pc/h	0	164	10	15	0	136	28	10	0	176	805	20	0	7	731	201
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	2				2				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.3276			4.3276		4.5436	4.5436		4.5436	4.5436	
Follow-Up Headway (s)		2.5352			2.5352		2.5352	2.5352		2.5352	2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		189			174		470	531		441	498	
Entry Volume, veh/h		169			155		452	510		424	479	
Circulating Flow (v_c), pc/h	874			1145			181			340		
Exiting Flow (v_{ex}), pc/h	37			405			979			882		
Capacity (c_{pce}), pc/h		676			537		1204	1204		1042	1042	
Capacity (c), veh/h		603			479		1158	1158		1002	1002	
v/c Ratio (x)		0.28			0.32		0.39	0.44		0.42	0.48	

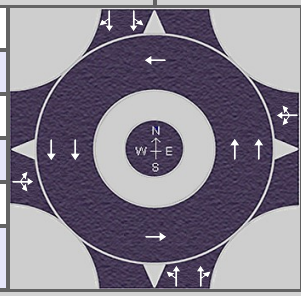
Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		9.7			12.7		7.0	7.7		8.3	9.2	
Lane LOS		A			B		A	A		A	A	
95% Queue, veh		1.1			1.4		1.9	2.3		2.1	2.6	
Approach Delay, s/veh	9.7			12.7			7.4			8.8		
Approach LOS	A			B			A			A		
Intersection Delay, s/veh | LOS	8.5						A					

HCS7 Roundabouts Report

General Information

Analyst	Lingling Yang
Agency or Co.	MBI
Date Performed	2/12/2020
Analysis Year	2040
Time Analyzed	PM Peak
Project Description	North IPA Traffic Analysis



Site Information

Intersection	NIPA & WCR 46
E/W Street Name	WCR 46
N/S Street Name	NIPA
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.92
Jurisdiction	

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	2	0	0	0	2	0
Lane Assignment			LTR				LTR		LT		TR		LT		TR	
Volume (V), veh/h	0	163	18	129	0	11	10	6	0	47	790	101	0	8	857	138
Percent Heavy Vehicles, %	12	12	12	12	12	12	12	12	4	4	4	4	4	4	4	4
Flow Rate (v_{PCE}), pc/h	0	198	22	157	0	13	12	7	0	53	893	114	0	9	969	156
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	2				2				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.3276			4.3276		4.5436	4.5436		4.5436	4.5436	
Follow-Up Headway (s)		2.5352			2.5352		2.5352	2.5352		2.5352	2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		377			32		498	562		533	601	
Entry Volume, veh/h		337			29		479	540		512	578	
Circulating Flow (v_c), pc/h	991			1144			229			78		
Exiting Flow (v_{ex}), pc/h	145			221			1098			1139		
Capacity (c_{pce}), pc/h		612			537		1153	1153		1323	1323	
Capacity (c), veh/h		546			479		1109	1109		1272	1272	
v/c Ratio (x)		0.62			0.06		0.43	0.49		0.40	0.45	

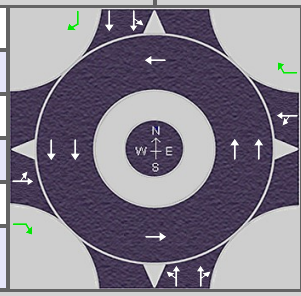
Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		19.7			8.3		7.9	8.7		6.7	7.4	
Lane LOS		C			A		A	A		A	A	
95% Queue, veh		4.2			0.2		2.2	2.7		2.0	2.4	
Approach Delay, s/veh	19.7			8.3			8.3			7.1		
Approach LOS	C			A			A			A		
Intersection Delay, s/veh | LOS	9.3						A					

HCS7 Roundabouts Report

General Information

Analyst	Lingling Yang
Agency or Co.	MBI
Date Performed	2/12/2020
Analysis Year	2040
Time Analyzed	AM Peak
Project Description	North IPA Traffic Analysis



Site Information

Intersection	NIPA & WCR 44
E/W Street Name	WCR 44
N/S Street Name	NIPA
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.92
Jurisdiction	

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	2	0	0	0	2	0
Lane Assignment			LT				LT		LT		TR		LT		T	
Volume (V), veh/h	0	82	61	381	0	82	65	33	0	735	856	17	0	20	641	143
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
Flow Rate (v_{PCE}), pc/h	0	92	68	427	0	92	73	37	0	831	968	19	0	23	725	162
Right-Turn Bypass	Non-Yielding				Non-Yielding				None				Non-Yielding			
Conflicting Lanes	2				2				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.3276			4.3276		4.5436	4.5436		4.5436	4.5436	
Follow-Up Headway (s)		2.5352			2.5352		2.5352	2.5352		2.5352	2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		160	427		165	37	854	964		352	396	162
Entry Volume, veh/h		155	415		160	36	822	926		338	381	156
Circulating Flow (v_c), pc/h	840			1891			183			996		
Exiting Flow (v_{ex}), pc/h	110			904			1060			817		
Capacity (c_{pce}), pc/h		695			285		1202	1202		574	574	
Capacity (c), veh/h		675			276		1156	1156		552	552	
v/c Ratio (x)		0.23			0.58		0.71	0.80		0.61	0.69	

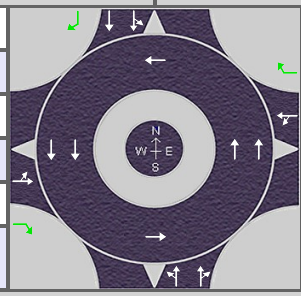
Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		8.1			32.5		13.9	18.3		19.4	23.3	
Lane LOS		A	A		D	A	B	C		C	C	A
95% Queue, veh		0.9			3.4		6.4	9.2		4.1	5.4	
Approach Delay, s/veh	2.2			26.5			16.2			17.6		
Approach LOS	A			D			C			C		
Intersection Delay, s/veh | LOS	14.8						B					

HCS7 Roundabouts Report

General Information

Analyst	Lingling Yang
Agency or Co.	MBI
Date Performed	2/12/2020
Analysis Year	2040
Time Analyzed	PM Peak
Project Description	North IPA Traffic Analysis



Site Information

Intersection	NIPA & WCR 44
E/W Street Name	WCR 44
N/S Street Name	NIPA
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.92
Jurisdiction	

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	2	0	0	0	2	0
Lane Assignment			LT				LT		LT		TR		LT		T	
Volume (V), veh/h	0	146	91	630	0	20	100	27	0	563	809	45	0	45	947	83
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4
Flow Rate (v_{PCE}), pc/h	0	163	102	705	0	22	112	30	0	636	915	51	0	51	1071	94
Right-Turn Bypass	Non-Yielding				Non-Yielding				None				Non-Yielding			
Conflicting Lanes	2				2				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.3276			4.3276		4.5436	4.5436		4.5436	4.5436	
Follow-Up Headway (s)		2.5352			2.5352		2.5352	2.5352		2.5352	2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		265	705		134	30	753	849		527	595	94
Entry Volume, veh/h		257	684		130	29	724	816		507	572	90
Circulating Flow (v_c), pc/h	1144			1714			316			770		
Exiting Flow (v_{ex}), pc/h	204			748			1078			1093		
Capacity (c_{pce}), pc/h		537			331		1065	1065		705	705	
Capacity (c), veh/h		521			321		1024	1024		678	678	
v/c Ratio (x)		0.49			0.41		0.71	0.80		0.75	0.84	

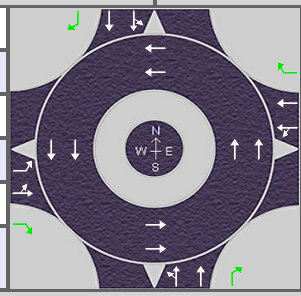
Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		15.9			20.7		15.0	19.7		23.1	31.4	
Lane LOS		C	A		C	A	C	C		C	D	A
95% Queue, veh		2.7			1.9		6.2	8.8		6.8	9.5	
Approach Delay, s/veh	4.3			16.9			17.5			25.4		
Approach LOS	A			C			C			D		
Intersection Delay, s/veh | LOS	16.6						C					

HCS7 Roundabouts Report

General Information

Analyst	Lingling Yang
Agency or Co.	MBI
Date Performed	2/13/2020
Analysis Year	2040
Time Analyzed	AM Peak
Project Description	North IPA Traffic Analysis



Site Information

Intersection	NIPA & WCR 38
E/W Street Name	WCR 38
N/S Street Name	NIPA
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.92
Jurisdiction	

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	1	1	0	0	0	2	0	0	0	2	0	0	0	2	0
Lane Assignment	L		LT		LT		T		LT		T		LT		T	
Volume (V), veh/h	0	512	84	235	0	35	216	19	0	156	417	15	0	16	657	434
Percent Heavy Vehicles, %	13	13	13	13	13	13	13	13	4	4	4	4	4	4	4	4
Flow Rate (v_{PCE}), pc/h	0	629	103	289	0	43	265	23	0	176	471	17	0	18	743	491
Right-Turn Bypass	Non-Yielding				Non-Yielding				Non-Yielding				Non-Yielding			
Conflicting Lanes	2				2				2				2			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)	4.6453	4.3276		4.6453	4.3276		4.6453	4.3276		4.6453	4.3276	
Follow-Up Headway (s)	2.6667	2.5352		2.6667	2.5352		2.6667	2.5352		2.6667	2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h	388	344	289	145	163	23	304	343	17	358	403	491
Entry Volume, veh/h	343	304	256	128	144	20	292	330	16	344	388	472
Circulating Flow (v_c), pc/h	804			1276			750			484		
Exiting Flow (v_{ex}), pc/h	121			441			1100			786		
Capacity (c_{pce}), pc/h	644	717		417	480		677	751		865	941	
Capacity (c), veh/h	570	634		369	425		651	722		832	905	
v/c Ratio (x)	0.60	0.48		0.35	0.34		0.45	0.46		0.41	0.43	

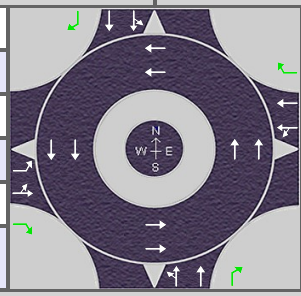
Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh	18.4	13.2		16.6	14.5		12.2	11.4		9.4	9.1	
Lane LOS	C	B	A	C	B	A	B	B	A	A	A	A
95% Queue, veh	4.0	2.6		1.5	1.5		2.3	2.4		2.0	2.2	
Approach Delay, s/veh	11.4			14.4			11.5			5.6		
Approach LOS	B			B			B			A		
Intersection Delay, s/veh | LOS	9.4						A					

HCS7 Roundabouts Report

General Information

Analyst	Lingling Yang
Agency or Co.	MBI
Date Performed	2/13/2020
Analysis Year	2040
Time Analyzed	PM Peak
Project Description	North IPA Traffic Analysis



Site Information

Intersection	NIPA & WCR 38
E/W Street Name	WCR 38
N/S Street Name	NIPA
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.92
Jurisdiction	

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	1	1	0	0	0	2	0	0	0	2	0	0	0	2	0
Lane Assignment	L		LT		LT		T		LT		T		LT		T	
Volume (V), veh/h	0	432	214	241	0	69	132	28	0	325	937	73	0	27	809	326
Percent Heavy Vehicles, %	13	13	13	13	13	13	13	13	4	4	4	4	4	4	4	4
Flow Rate (v_{PCE}), pc/h	0	531	263	296	0	85	162	34	0	367	1059	83	0	31	915	369
Right-Turn Bypass	Non-Yielding				Non-Yielding				Non-Yielding				Non-Yielding			
Conflicting Lanes	2				2				2				2			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)	4.6453	4.3276		4.6453	4.3276		4.6453	4.3276		4.6453	4.3276	
Follow-Up Headway (s)	2.6667	2.5352		2.6667	2.5352		2.6667	2.5352		2.6667	2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h	421	373	296	116	131	34	670	756	83	445	501	369
Entry Volume, veh/h	372	330	262	103	116	30	644	727	80	428	482	355
Circulating Flow (v_c), pc/h	1031			1957			825			614		
Exiting Flow (v_{ex}), pc/h	294			529			1590			1000		
Capacity (c_{pce}), pc/h	523	591		223	269		632	704		767	843	
Capacity (c), veh/h	463	523		197	238		608	677		738	810	
v/c Ratio (x)	0.80	0.63		0.52	0.49		1.06	1.07		0.58	0.60	

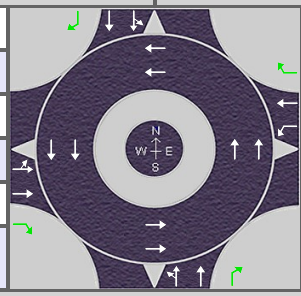
Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh	36.8	21.1		39.1	31.1		79.4	80.0		14.3	13.7	
Lane LOS	E	C	A	E	D	A	F	F	A	B	B	A
95% Queue, veh	7.5	4.4		2.7	2.4		18.0	19.9		3.8	4.0	
Approach Delay, s/veh	21.4			30.6			75.4			10.1		
Approach LOS	C			D			F			B		
Intersection Delay, s/veh | LOS	38.3						E					

HCS7 Roundabouts Report

General Information

Analyst	Lingling Yang
Agency or Co.	MBI
Date Performed	2/13/2020
Analysis Year	2040
Time Analyzed	AM Peak
Project Description	North IPA Traffic Analysis



Site Information

Intersection	NIPA & WCR 34
E/W Street Name	WCR 34
N/S Street Name	NIPA
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.92
Jurisdiction	

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	2	0	0	1	1	0	0	0	2	0	0	0	2	0
Lane Assignment	LT		T		L		T		LT		T		LT		T	
Volume (V), veh/h	0	107	103	633	0	81	192	41	0	685	400	50	0	37	609	106
Percent Heavy Vehicles, %	9	9	9	9	9	9	9	9	4	4	4	4	4	4	4	4
Flow Rate (v_{PCE}), pc/h	0	127	122	750	0	96	227	49	0	774	452	57	0	42	688	120
Right-Turn Bypass	Non-Yielding				Non-Yielding				Non-Yielding				Non-Yielding			
Conflicting Lanes	2				2				2				2			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)	4.6453	4.3276		4.6453	4.3276		4.6453	4.3276		4.6453	4.3276	
Follow-Up Headway (s)	2.6667	2.5352		2.6667	2.5352		2.6667	2.5352		2.6667	2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h	117	132	750	96	227	49	576	650	57	343	387	120
Entry Volume, veh/h	107	121	688	88	208	45	554	625	55	330	372	115
Circulating Flow (v_c), pc/h	826			1353			291			1097		
Exiting Flow (v_{ex}), pc/h	164			1001			579			784		
Capacity (c_{pce}), pc/h	631	704		389	450		1033	1109		492	559	
Capacity (c), veh/h	579	646		357	412		993	1066		473	537	
v/c Ratio (x)	0.19	0.19		0.25	0.50		0.56	0.59		0.70	0.69	

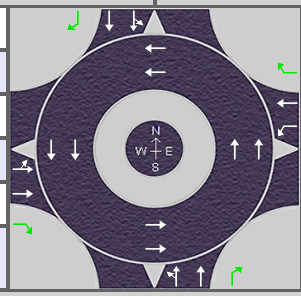
Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh	8.6	7.8		14.6	19.8		10.9	11.0		26.8	23.9	
Lane LOS	A	A	A	B	C	A	B	B	A	D	C	A
95% Queue, veh	0.7	0.7		1.0	2.8		3.6	4.0		5.3	5.4	
Approach Delay, s/veh	2.0			15.9			10.4			21.7		
Approach LOS	A			C			B			C		
Intersection Delay, s/veh | LOS	11.5						B					

HCS7 Roundabouts Report

General Information

Analyst	Lingling Yang
Agency or Co.	MBI
Date Performed	2/13/2020
Analysis Year	2040
Time Analyzed	PM Peak
Project Description	North IPA Traffic Analysis



Site Information

Intersection	NIPA & WCR 34
E/W Street Name	WCR 34
N/S Street Name	NIPA
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.92
Jurisdiction	

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	2	0	0	1	1	0	0	0	2	0	0	0	2	0
Lane Assignment	LT		T		L		T		LT		T		LT		T	
Volume (V), veh/h	0	147	150	684	0	114	165	63	0	696	771	190	0	61	697	165
Percent Heavy Vehicles, %	9	9	9	9	9	9	9	9	4	4	4	4	4	4	4	4
Flow Rate (v_{PCE}), pc/h	0	174	178	810	0	135	195	75	0	787	872	215	0	69	788	187
Right-Turn Bypass	Non-Yielding				Non-Yielding				Non-Yielding				Non-Yielding			
Conflicting Lanes	2				2				2				2			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)	4.6453	4.3276		4.6453	4.3276		4.6453	4.3276		4.6453	4.3276	
Follow-Up Headway (s)	2.6667	2.5352		2.6667	2.5352		2.6667	2.5352		2.6667	2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h	165	187	810	135	195	75	780	879	215	403	454	187
Entry Volume, veh/h	152	171	743	124	179	69	750	845	207	387	437	180
Circulating Flow (v_c), pc/h	992			1833			421			1117		
Exiting Flow (v_{ex}), pc/h	247			982			1046			923		
Capacity (c_{pce}), pc/h	542	611		250	299		916	993		483	549	
Capacity (c), veh/h	497	561		229	274		881	955		465	528	
v/c Ratio (x)	0.31	0.31		0.54	0.65		0.85	0.89		0.83	0.83	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh	11.9	10.7		35.4	38.0		26.6	29.0		40.1	35.6	
Lane LOS	B	B	A	E	E	A	D	D	A	E	E	A
95% Queue, veh	1.3	1.3		2.9	4.2		10.5	12.2		8.2	8.3	
Approach Delay, s/veh	3.4			30.1			24.7			31.0		
Approach LOS	A			D			C			D		
Intersection Delay, s/veh | LOS	21.3						C					