

DRAFT

Design Traffic Technical Memorandum

**Wellness Way PD&E Study
From US 27 to SR 429
Orange & Lake Counties, Florida**

Prepared for:

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List of Acronyms

AADT	Average Annual Daily Traffic
DHT	Design Hour Truck
DHV	Design Hour Volume
FDOT	Florida Department of Transportation
HCM	Highway Capacity Manual
ITE	Institute of Transportation Engineers
LOS	Level of Service
LRTP	Long Range Transportation Planning
PD&E	Project Development & Environment

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Appendix A – C&M Report

Appendix B – Detailed HCS Output

1 Introduction

A Project Development and Environment (PD&E) Study is being initiated for the proposed Wellness Way Toll Road Project. The project is proposed as an east-west roadway connecting US 27 to SR 429. Figure 1 provides a map of the project site location and the proposed alignment. Central Florida Expressway Authority (CFEA) issued a Concept Development and Evaluation Study for a SR 429 to US 27 Connector in January 2007. After evaluation of four prospective corridors, the study recommended the alignment of the proposed project as meeting the study objectives of environmental protection and community building. It should be noted that this study also stated that the majority of trips on the facility would be local in nature and that a toll facility was not warranted.

This current study shows that the facility does warrant tolling and that it not only supports local trips but also longer distance trips from US 27 and SR 50. Some of this is due in part to the inclusion of the Wellness Way Sector Plan and also the recovery of the economy.

The main east-west arterial highways in the study area are SR 50, also referred as Broad Street in Lake County and Colonial Drive in Orange County, and US 192, also referred to as West Irlo Bronson Memorial Highway. It should be noted that the segment of US 192 between US 27 and SR 429 is the boundary between Lake, Orange, Polk and Osceola Counties. The distance along US 27 between US 192 and SR 50 is approximately 15 miles. The only other east-west roadway connecting US 27 and SR 429 is Hartwood Marsh Road, which is approximately three miles south of SR 50. The project, as proposed, will be approximately six miles south of SR 50. The project falls under the Lake-Sumter Metropolitan Planning Organization for the segment in Lake County. Figure 1 shows the project study area.

The general objective of this Design Traffic Technical Memorandum is to provide documented information necessary to assist in making a decision of configuration of the improvements to the above mentioned project in such a way that the Florida Department of Transportation (FDOT) statewide minimum Level of Service (LOS) standards and Orange and Lake County standards can be achieved.

Traffic elements of this PD&E study such as existing and projected traffic volumes, trip distribution and assignment, and roadway LOS for the alternatives under consideration are presented in this Technical Memorandum.

The traffic analysis contained in this report includes some information from the “Wellness Way Toll Road Sketch Traffic and Revenue Study” Final Report August 2013 by C&M Associates (C&M2013).

2 Existing Year Traffic Conditions

C&M reviewed existing available information, performed field observations to obtain traffic characteristics of the area, and complemented the available information with information provided by AVCON, Inc.

2.1 Existing Roadway Configuration

New Independence Parkway extends from Avalon Road to a diamond interchange providing access to SR 429. The project is proposed to extend this roadway westward to connect to US 27. New Independence Parkway is currently a two-lane, two-way roadway connecting to Avalon Road and a four-lane divided roadway in the vicinity of the SR 429 interchange. New Independence Parkway is under construction to connect eastward to Ficquette Road through the community of Independence.

US 27 is a four-lane divided roadway in the vicinity of the proposed project between Boggy Marsh Road and Lake Louisa Road and a six-lane divided roadway between US 192 and Boggy Marsh Road and between Lake Louisa Road and SR 50. US 27 has interchanges at the SR 50 and US 192 intersections. Posted speed limit in the vicinity of the project is 55 miles per hour (mph).

Avalon Road extends from US 192 to SR 50 in a north-south direction. The roadway is a two-lane two-way roadway. Posted speed limit is 45 mph.

SR 429 - Daniel Webster Western Beltway is a four-lane divided, limited-access toll road. SR 429 extends from I-4 to US 441, and is maintained by CFEA in the vicinity of the Project between the Seidel Road interchange and US 441, and by Florida's Turnpike from I-4 to Seidel Road. There is an interchange at New Independence Parkway that would connect to the proposed project. Posted speed limit is 65 mph.

US 192 - West Irlo Bronson Memorial Highway extends from US 27 to SR A1A. It is a four-lane divided highway from US 27 to just west of the SR 429 interchange. It connects to US 27 and to SR 429 via interchanges. Posted speed limit in the study area is 55 mph.

Schofield Road is a two-lane, two-way paved road extending from Avalon Road to approximately one mile west of SR 429. An interchange is planned to connect Schofield Road to SR 429, approximately two miles south of the New Independence Parkway interchange. This road extends to the west as a dirt road, referred as Shell Pond Road, connecting to US 27 just south of the proposed connection of the project with US 27. (C&M 2013)

Figure 1-1 shows this roadway network as described above.

2.2 Existing Year Traffic

2.2.1 Existing Traffic Volumes

As part of the C&M 2013 report, traffic count data from the Florida Department of Transportation (FDOT) traffic online web page and from the traffic counts webpage of Orange County. Counts collected by the agencies in the period of 2002 through 2012 were obtained. Figure 2-1 shows the 2012 traffic volumes within the study area. Table 2-1 shows the traffic growth for the project area highways. Traffic volumes show effects of the 2008-09 recession with stabilization by 2010-11 and recovery trends by 2012. (C&M 2013)

Figure 2-1. Existing Traffic Volumes

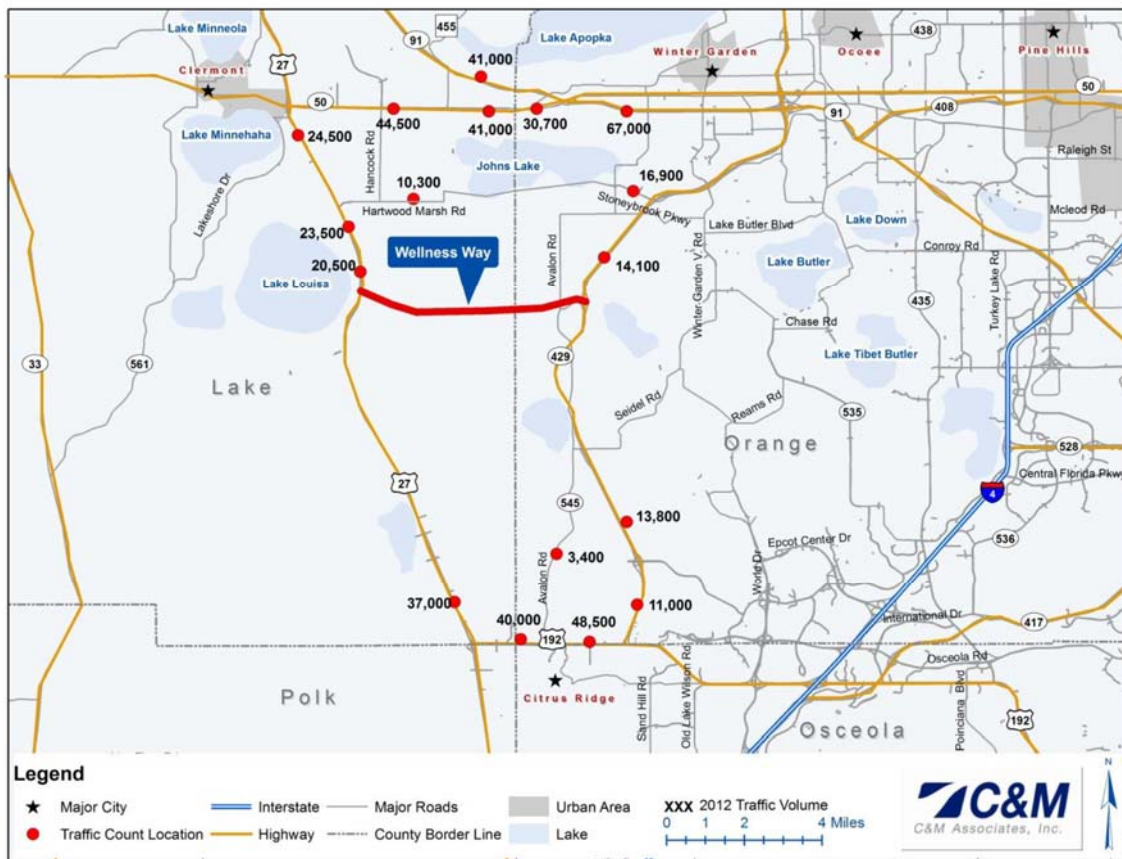


Table 2-1. Historical Traffic Volumes

Location	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
SR 50 East of Hancock	41,500	45,000	50,000	56,000	53,000	56,000	49,000	47,000	46,000	44,000	44,500
SR 50 West of SR 91	47,000	47,000	53,000	53,000	54,000	52,500	47,500	47,000	46,000	40,500	41,000
SR 50 - Orange Ctl.	36,500	35,700	36,200	37,200	35,600	35,200	33,300	32,800	31,500	29,500	30,700
SR 91 North of SR 50	30,000	34,300	37,100	40,400	42,500	44,000	43,200	40,700	40,800	41,000	41,000
SR 91 South of SR 50	50,800	57,800	63,300	68,700	71,900	73,900	72,200	66,900	65,700	67,000	67,000
US 27 South of SR 50	30,000	35,500	36,500	34,500	38,000	32,000	30,000	25,500	24,500	24,500	24,500
US 27 South of Hartwood	20,200	22,500	28,500	31,000	26,500	26,500	22,000	23,000	23,000	23,000	23,500
US 27 - Lake Louisa						23,500	22,000	20,100	21,000	21,500	20,500
US 27 North of US 192	31,500	31,500	36,500	42,500	44,500	37,500	37,500	36,000	35,500	35,500	37,000
US 192 West of Avalon	37,000	36,000	40,500	52,000	42,500	44,000	50,000	35,000	37,000	39,000	40,000
US 192 East of Avalon				48,500	34,500	49,000	45,500	42,500	43,000	41,000	48,500
SR 429 North of US 192						7,200	10,100	9,800	9,800	10,400	11,000
SR 429 North of Western						9,600	13,100	13,200	12,500	13,200	13,800
SR 429 North of New Independence					4,800	4,800	4,800	12,000	12,000	12,000	14,100
Avalon Road											3,400
Hartwood Marsh										12,300	10,300
Stoneybrook											16,900

2.3 Traffic Analysis Assumptions

2.3.1 Methodology

The 2040 Orlando Urban Area Transportation Study (OUATS) model was utilized to forecast 2017 and 2037 travel demand. The OUATS model geographic area covers the MetroPlan Orlando Counties of Orange, Osceola and Seminole, in addition to the western portion of Volusia County, the Lake County network and northeastern portion of the Polk County network.

The OUATS travel demand model includes special trip purposes for the Orlando area special attractions such as Walt Disney World, Universal Studios, Sea World, Orlando International Airport, the Orange County Convention Center and others. The project may provide an alternate route to these special traffic generators for communities in the vicinity of the project. The model was developed in 2011 and is based on land use approved by MetroPlan Orlando. It should be noted that MetroPlan Orlando adopted the 2040 plan and model in 2014 based on a land use trends plan and an alternative land use plan identified during the planning process.

The original C&M study utilized the 2030 OUATS model which didn't show growth out to 2037 or the Wellness Way Sector Plan, which the 2040 model does.

2.3.2 Traffic Factors

The peak hour (“K”) and directional (“D”) factors are used to convert the Annual Average Daily Traffic (AADT) to peak hour directional volumes.

The K-factor is the ratio of the hourly two-way traffic to the two-way AADT. The K30 is the relationship between the 30th highest hourly volume of the year and the AADT for the design year. The K30 is used to determine the design hour volume (DHV).

The directional distribution factor (D-factor) is the percentage of the total, two-way peak hour traffic traveling in the peak direction. D30 is the proportion of traffic in the 30th highest hour of the design year traveling in the peak direction. The directional distribution is an essential parameter used to determine the directional design hour volume (DDHV). The DDHV is the basis of geometric design.

The truck factor (T24 or simply T) is critical for an accurate roadway pavement design. T is the percentage of trucks using a roadway for 24 hours.

The actual composition of trucks is needed for operational analysis and noise studies. In addition to the T factors already defined, the following definitions are also needed:

Design Hour Truck (DHT): The percentage of trucks expected to use a highway segment during the 30th highest hour of the design year. The adjusted, annual design hour percentage of trucks and buses (24T+B or T24) divided by two.

DH2: The adjusted, annual design hour medium truck percentage. It is the sum of the annual percentages of Categories 4 and 5 (Figure 2.2 of the FDOT’s Project Traffic Handbook), adjusted to 24 hours, and divided by two.

DH3: The adjusted, annual design hour heavy truck percentage. It is DHT minus DH2, or the sum of the adjusted annual percentages of Categories 6 through 13 (Figure 2.2 in the FDOT’s Project Traffic Handbook), divided by two.

The FDOT traffic count stations provided the traffic factors for the study area. Table 2-1 shows the selected traffic factors based on the analysis of the FDOT database and the recommendations stated in FDOT’s “Project Traffic Forecasting Handbook”.

Table 2-2. Traffic Factors

	US 27	SR 429	New Independence Parkway	Wellness Way
K ₃₀	9.00	10.50	9.00	10.50
D ₃₀	54.70	53.30	53.30	53.30
T ₂₄	11.90	12.70	4.10	4.10
T _{Design}	5.95	6.35	2.05	2.05
FDOT Site ID	11-0007	75-0670	75-8202	N/A

Based on the preceding discussion, it is reasonable to accept the counts obtained for this project as the base traffic, since they are a true reflection of the situation on the ground. At the same time, the preceding assessment also allows for the acceptance of the travel demand model outputs for the future year traffic within the study area.

3 Future Years Traffic Conditions

3.1 Traffic Analysis Assumptions

3.1.1 Methodology

Future year traffic was developed for the opening year and the design year. It was determined within the Scope of Services for this project that the year 2017 will be the opening year. FDOT guidelines (Project Traffic Forecasting Handbook, FDOT - 2002) establishes a 20-year period for the design year forecast after the opening year, making the design year 2037.

3.1.2 Traffic Factors

The same traffic factors developed for the existing year were used in all future years. The uncertainties linked to the future land use along the corridor, and the use of area-wide average of parameters, made this determination reasonable. It was also in agreement with FDOT guidelines, which are centered on an accurate estimate of K_{30} , D_{30} , and T for the current roadway system because it will provide a reasonable estimate of them for the design year. It also makes the comparison of different alternatives easier by giving all of them the same traffic factors.

3.1.3 Daily Traffic Volumes

The new Wellness Way is proposed to be a toll facility. For the purposes of this report and analysis, only the minimum toll value of \$0.75 was used as this will produce the highest volume of traffic and will allow for the analysis of the “worst case” scenario for traffic operations.

Wellness Way would provide a direct route from east of SR 429 to US 27 which could alleviate congestion on SR 50 from US 27 to SR 429 and on SR 429 from SR 50 to Wellness Way. By providing east/west access from SR 429 to US 27 this route will also provide more route choices to Disney parks and properties from US 27 north of Wellness Way via the interchange at SR 429.

Familiarity with the road and the travel time benefits would increase the use of the facility. Table 3-3 shows the No-Build and Build AADTs for the project for 2017 and 2037.

Table 3-1: 2017 & 2037 AADTs

Facility	Location	No-Build Year 2017 AADT	Build Year 2017 AADT	No-Build Year 2037 AADT	Build Year 2037 AADT
US 27	North of Wellness Way	52,900	52,400	58,100	64,900
US 27	South of Wellness Way	52,900	53,400	58,100	70,678
Avalon Road	North of New Independence Parkway	N/A	19,200	N/A	26,500
Avalon Road	South of New Independence Parkway	N/A	17,000	N/A	33,100
New Independence Parkway	East of SR 429	4,800	4,300	19,200	16,895
New Independence Parkway	West of SR 429	800	1,800	3,000	11,600
Five Mile Road	North of Wellness Way	N/A	0	N/A	400
Wellness Way (4L/6L)	Between Avalon Road and Five Mile Road	N/A	21,000	N/A	42,100
Wellness Way (4L/6L)	Between Five Mile Road and US 27	N/A	21,000	N/A	42,100
Wellness Way (4L/6L)	Between Avalon Road and SR 429	N/A	1,800	N/A	11,600

3.2 Directional Design Hour Traffic Volumes

Capacity and operational analysis for the intersections required the determination of DDHV. DDHV is the traffic volume expected to use a highway segment during the peak hour of the design year (2037) in the peak direction. Opening year (2017) directional peak hour volumes were also developed to allow the possible use of this analysis in a phased construction of the project if so desired, and to establish no-build conditions.

The methodology that was used for this analysis is consistent with the FDOT’s Project Traffic Forecasting Handbook. FDOT’s TURNS5A Turning Analysis Tool is the recommended program for balancing turning movements and therefore was the method chosen to develop DDHV. TURNS5A first balances the 2-Way AADT volumes to achieve consistent flow in and out of every approach, and then calculates the DDHV by applying the K and D factors to the 2-Way AADT volumes for each intersection being analyzed.

DDHVs were developed for both the AM and PM peak for the No-build and Build scenarios shown in Figures 3-1 and 3-2.

Figure 3-1 : DDHVs No-Build

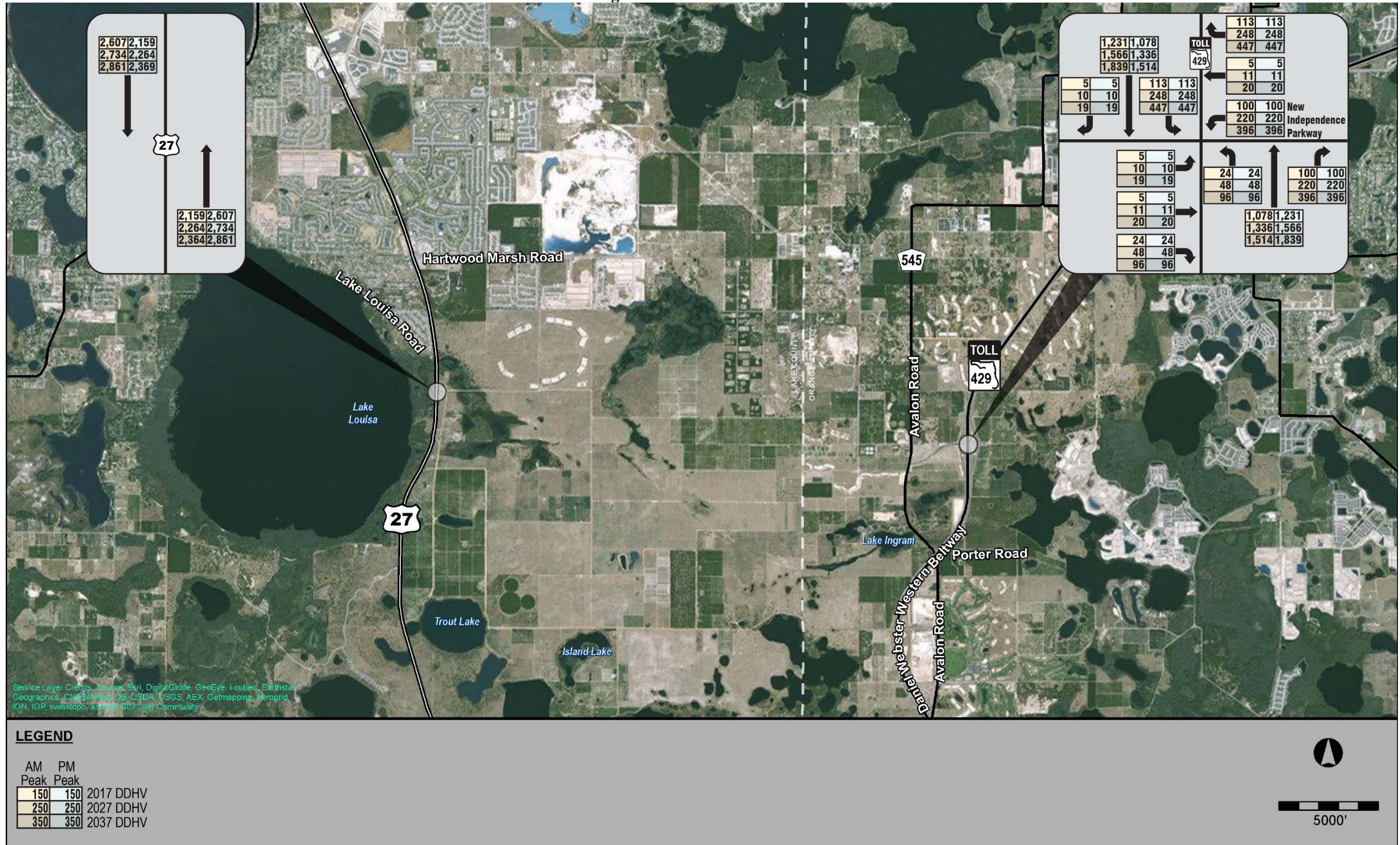


Figure 3-2: DDHVs for Build



4 Operational Analysis

LOS is based on a combination of the 2000 Highway Capacity Manual (HCM) and the 2010 HCM methodologies. This was necessary in order to develop some of the intersection level of service measurements. The 2010 HCM does not allow or provide LOS for certain lane groups, as such the 2000 HCM was used to develop the intersections LOS. The 2000 HCM output from Synchro software was used, as appropriate, to measure performance for the intersection traffic operational analysis. For ramp analyses, the latest version of the Highway Capacity Software was utilized. The operations analyses that were performed as part of this project are described in this section.

4.1 Existing and Future Years Daily Traffic Level of Service Analysis

The FDOT's Quality/Level of Service Handbook generalized tables were used in this analysis to evaluate the performance of the roadway segments. *(It should be noted that this method only provides a general indication and is not to be used for design where more detailed intersection analysis is required, and the generalized tables have assumptions that may not match the subject roadway(s).)* This analysis is used only for comparison of alternatives only.

A summary of this analysis is found in Table 4-1. The assumption for Wellness Way is the extension of Independence Parkway to the west. This extension will terminate at US 27, essentially creating an east-west connector between SR 429 and US 27. The new roadway is planned as a toll facility with electronic toll collection, and the old roadway will remain as it is now.

4.2 Hourly Traffic LOS Analysis

The hourly traffic or DDHV was evaluated using Generalized Tables from the FDOT's Quality/Level of Service Handbook. Table 4-2 shows the LOS results. *(It should be noted that this method only provides a general indication and is not to be used for design where more detailed intersection analysis is required, and the generalized tables have assumptions that may not match the subject roadway(s).)* This analysis is used only for comparison of alternatives only.

Table 4-1: 2017 & 2037 Daily LOS

Facility	Location	No-Build Year 2017 AADT LOS	Build Year 2017 AADT LOS	No-Build Year 2037 AADT LOS	Build Year 2037 AADT LOS
US 27	North of Shell Pond Road	F	F	F	F
US 27	Between Shell Pond Road and Wellness Way	N/A	F	N/A	F
US 27	Between Wellness Way and N. Bradshaw Road	N/A	F	N/A	F
US 27	South of N. Bradshaw Road	F	F	F	F
Avalon Road	North of New Independence Parkway	N/A	B	N/A	B
Avalon Road	South of New Independence Parkway	N/A	B	N/A	B
New Independence Parkway	East of SR 429	B	B	F	B
New Independence Parkway	West of SR 429	B	B	B	B
Five Mile Road	North of Wellness Way	N/A	B	N/A	B
Wellness Way (4L/6L)	Between Avalon Road and Five Mile Road	N/A	B	N/A	F
Wellness Way (4L/6L)	Between Five Mile Road and US 27	N/A	B/B	N/A	F/B
Wellness Way (4L/6L)	Between Avalon Road and SR 429	N/A	B/B	N/A	F/B

* FDOT Generalized Table 1 for Urbanized Areas - State Signalized Arterials modified by -10% for Non-State Roadway Adjustment for all roads except US 27 based on four-lane divided Wellness Way.

Table 4-2: 2017 & 2037 Hourly Traffic LOS

Facility	Location	No-Build Year Peak Hr. 2017 LOS	Build Year 2017 Peak Hr. LOS	No-Build Year 2037 Peak Hr. LOS	Build Year 2037 Peak Hr. LOS
US 27	North of Shell Pond Road	F	F	F	F
US 27	Between Shell Pond Road and Wellness Way	N/A	F	N/A	F
US 27	Between Wellness Way and N. Bradshaw Road	N/A	F	N/A	F
US 27	South of N. Bradshaw Road	F	F	F	F
Avalon Road	North of New Independence Parkway	N/A	F	N/A	F
Avalon Road	South of New Independence Parkway	N/A	D	N/A	F
New Independence Parkway	East of SR 429	B	B	F	B
New Independence Parkway	West of SR 429	B	B	B	B
Five Mile Road	North of Wellness Way	N/A	B	N/A	B
Wellness Way	Between Avalon Road and Five Mile Road	N/A	B	N/A	F
Wellness Way (4L/6L)	Between Five Mile Road and US 27	N/A	B/B	N/A	F/B
Wellness Way (4L/6L)	Between Avalon Road and SR 429	N/A	B/B	N/A	B/B

* FDOT Generalized Table 4 for Urbanized Areas - State Signalized Arterials modified by -10% for Non-State Roadway Adjustment for all roads except US 27 based on four-lane divided Wellness Way.

4.2.1 Existing Year (2013) LOS Analysis

The existing year (2013) Peak hour volumes were evaluated using the FDOT’s LOS Generalized tables. Table 4-3 summarizes the LOS results for existing conditions.

The results indicate that the LOS at the study intersections is currently at or above the FDOT standard.

Table 4-3: 2013 LOS

Facility	Location	2013 Daily LOS*	2013 Peak Hr. LOS**
US 27	North of Shell Pond Road	B	B
US 27	South of Shell Pond Road	B	B
Avalon Road	North of New Independence Parkway	C	C
Avalon Road	South of New Independence Parkway	C	C
New Independence Parkway	East of SR 429	C	C
New Independence Parkway	West of SR 429	C	C

*Daily LOS = FDOT Generalized Table 1 for Urbanized Areas - State Signalized Arterials modified by -10% for Non-State Roadway Adjustment.

** Peak Hour LOS: FDOT Generalized Table 7 for Urbanized Areas - State Signalized Arterials modified by -10% for Non-State Roadway Adjustment.

4.3 Hourly Traffic LOS Analysis at Selected Intersections

The traffic analysis was conducted using Synchro traffic software which uses the HCM 2010 methodology to determine intersection LOS. Existing intersections within the corridor are currently unsignalized. Optimized signal timings were created using Synchro’s optimization tool to achieve optimal intersection operating conditions and traffic progression for the Build conditions. The Synchro HCM intersection capacity analysis reports and Queuing and Blocking Reports are included in this report in Appendix B.

4.3.1 Future Year (Opening: 2017, Interim: 2027 and Design: 2037) Intersections LOS Analysis

Operational analyses were conducted on the selected intersections to determine their operational LOS for the No-Build and Build scenarios. This No-Build analysis utilized the existing roadway geometry and signal timings for the opening (2017), interim (2027) and design year (2037). The results of the No-Build analysis are summarized in Table 4-5.

The Build analysis utilized optimized signal timings and roadway geometry in order to provide acceptable operating conditions in the design year. Through the analysis it was determined the intersections at US 27/Wellness Way and Wellness Way/Avalon Road required more aggressive improvements. Figures 4-1 through 4-8 provide a schematic of these interchange concepts. Table 4-7 provides the results of the Build analysis.

Wellness Way & Avalon Road

Four alternatives were evaluated for the intersection of Wellness Way and Avalon Road:

- **Alternatives 1-1.3** – The first three alternatives utilize a traditional at-grade signalized intersection design. The lane configurations for alternatives 1-1.3 can be found in Table 4-6 below.
- **Alternative 2** – The signalized intersection alternative was analyzed with the addition of a flyover allowing a free flowing northbound left movement.

Table 4-4 Wellness Way & Avalon Road Approach Lanes Alternatives 1-1.3 & 2

Alternative	Approach Lanes											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
1	2	2	1	1	2	0	2	2	0	1	1	1
1.2	2	2	1	1	2	1	2	2	1	1	2	1
1.3	2	2	1	1	2	1	3	2	0	1	2	1
2	2	2	1	1	2	1	1*	1	1	1	1	1

*Grade separated and free flow movement.

US 27 & Wellness Way

The US 27 analysis evaluated the following four alternative intersection designs:

- **Alternative 1** – utilizes a traditional at-grade intersection layout with dual southbound and westbound left turn lanes, two northbound through and southbound through lanes as well as channelized northbound and westbound right turn lanes.
- **Alternative 1.2** – is the same geometry as Alternative 1 except an additional lane is added to the northbound through and southbound left approaches.
- **Alternative 2** – utilizes a flyover in order to allow a free-flowing southbound left turn movement.
- **Alternative 3** – was developed as an innovative design in order to allow the westbound left and southbound left movements to occur simultaneously which will lessen the impact on the northbound and southbound through movements on US 27. The alternative was created in order to avoid the construction of a flyover.

Figure 4-1: Wellness Way & Avalon Road – Alternative 1

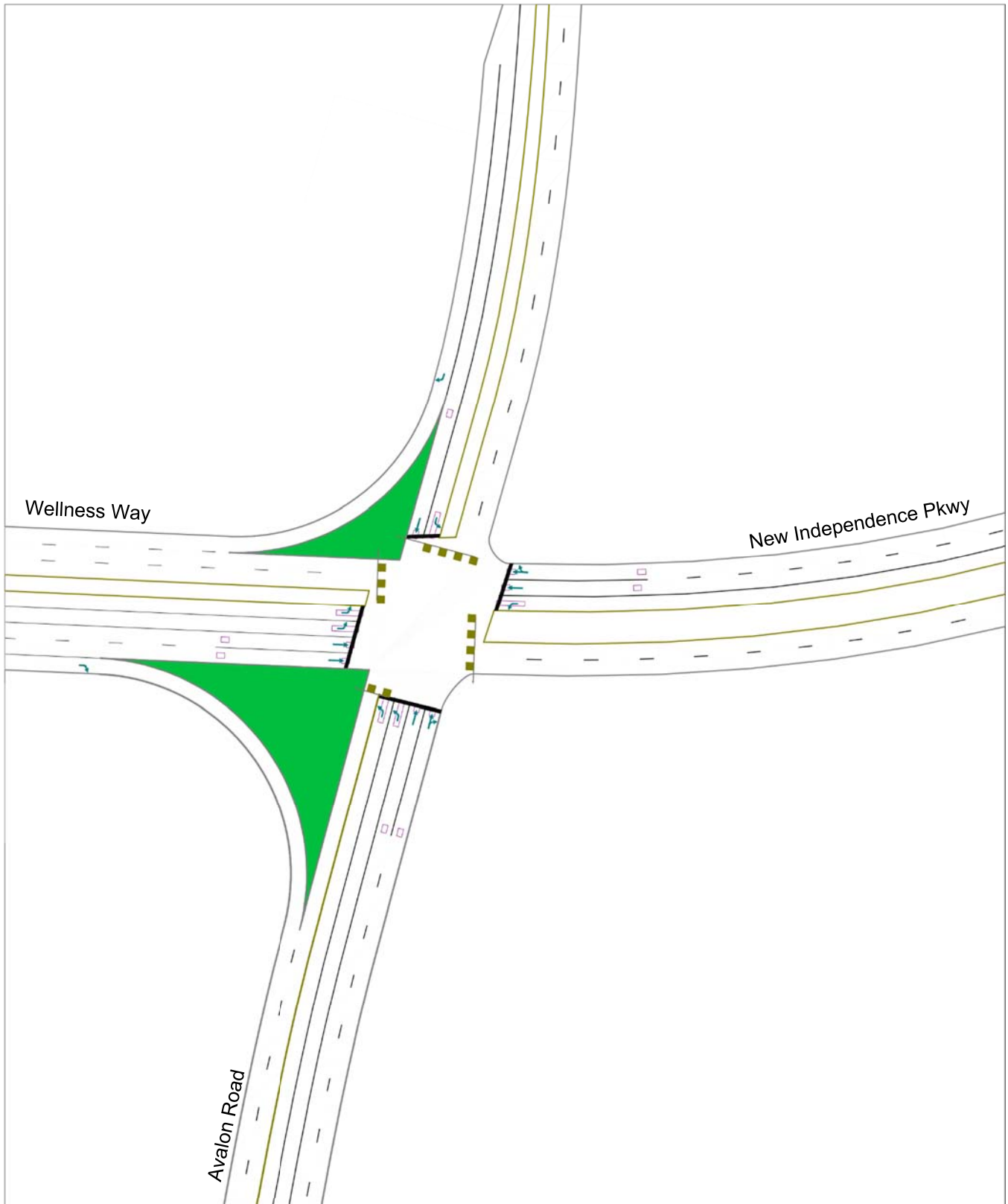


Figure 4-2: Wellness Way & Avalon Road – Alternative 1.2

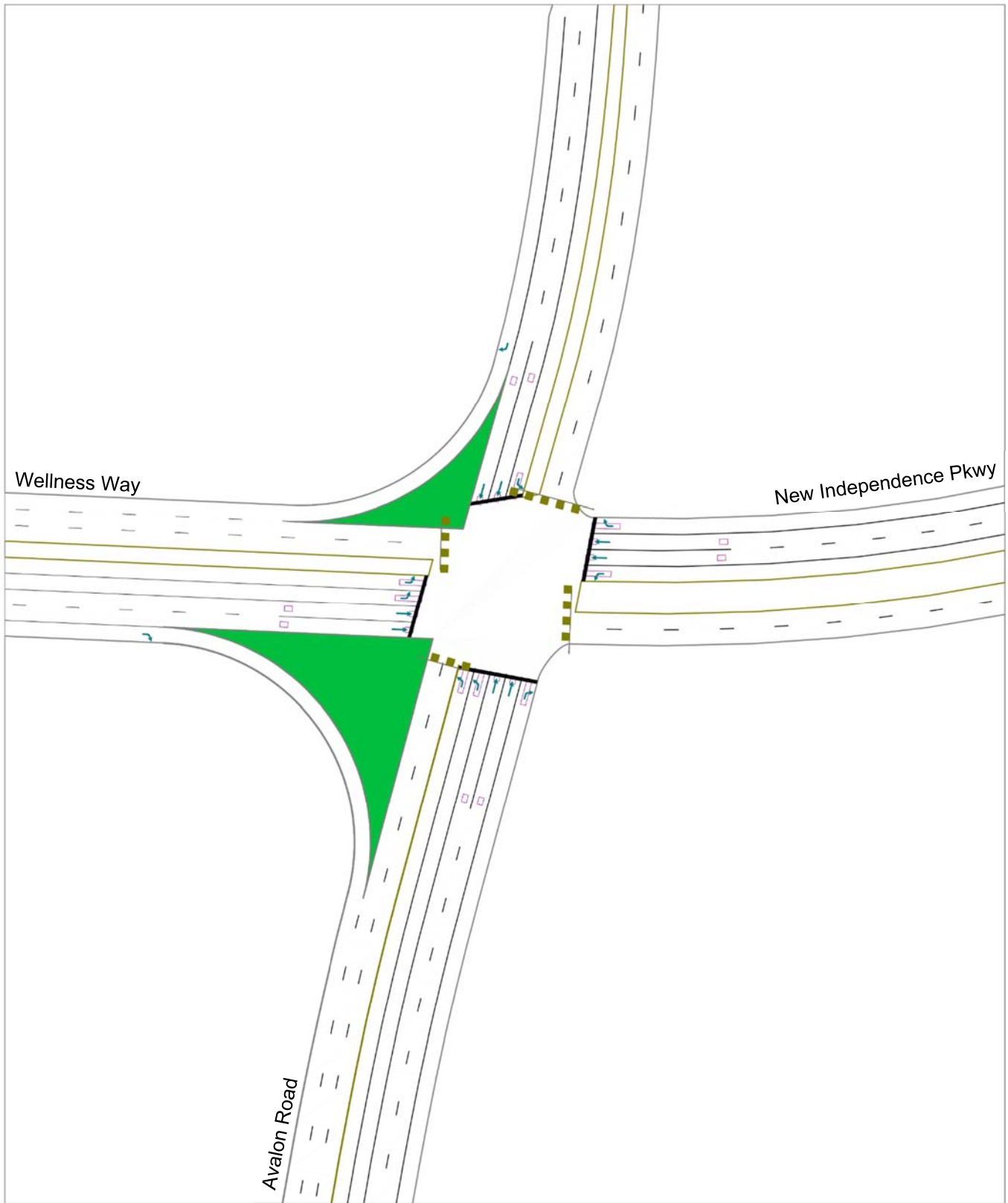


Figure 4-3: Wellness Way & Avalon Road – Alternative 1.3

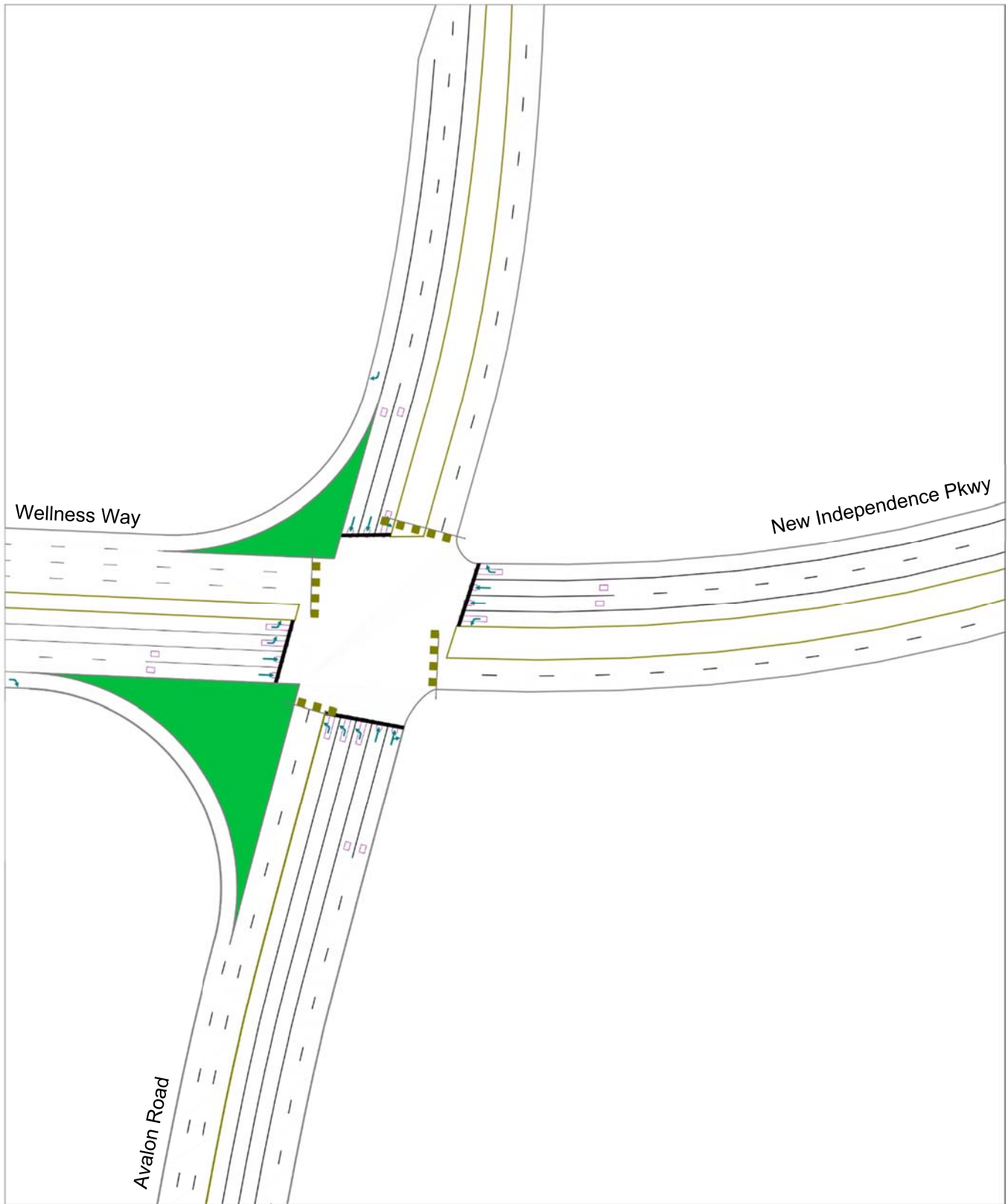


Figure 4-4: Wellness Way & Avalon Road – Alternative 2

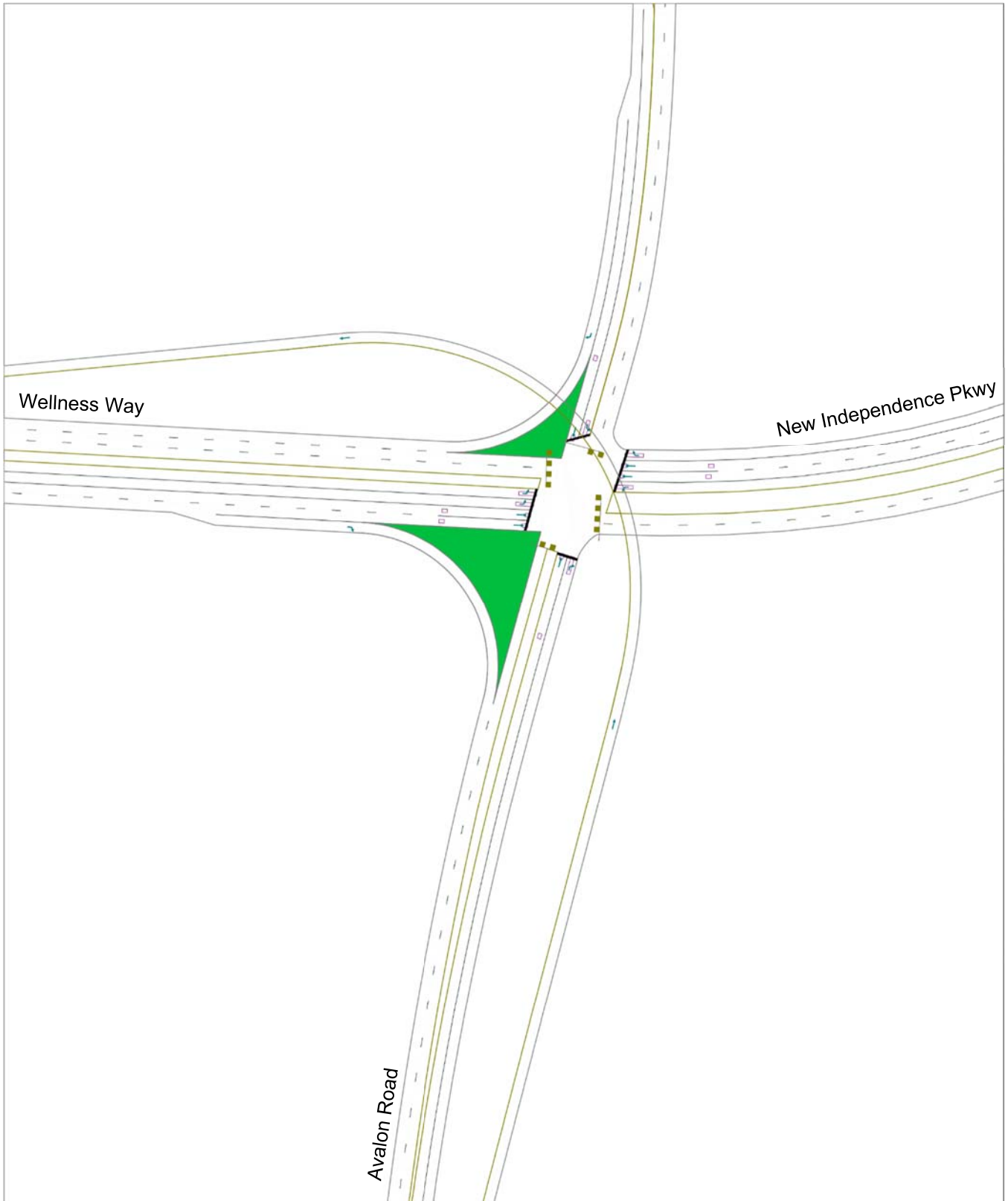


Figure 4-5: Wellness Way & US 27 – Alternative 1

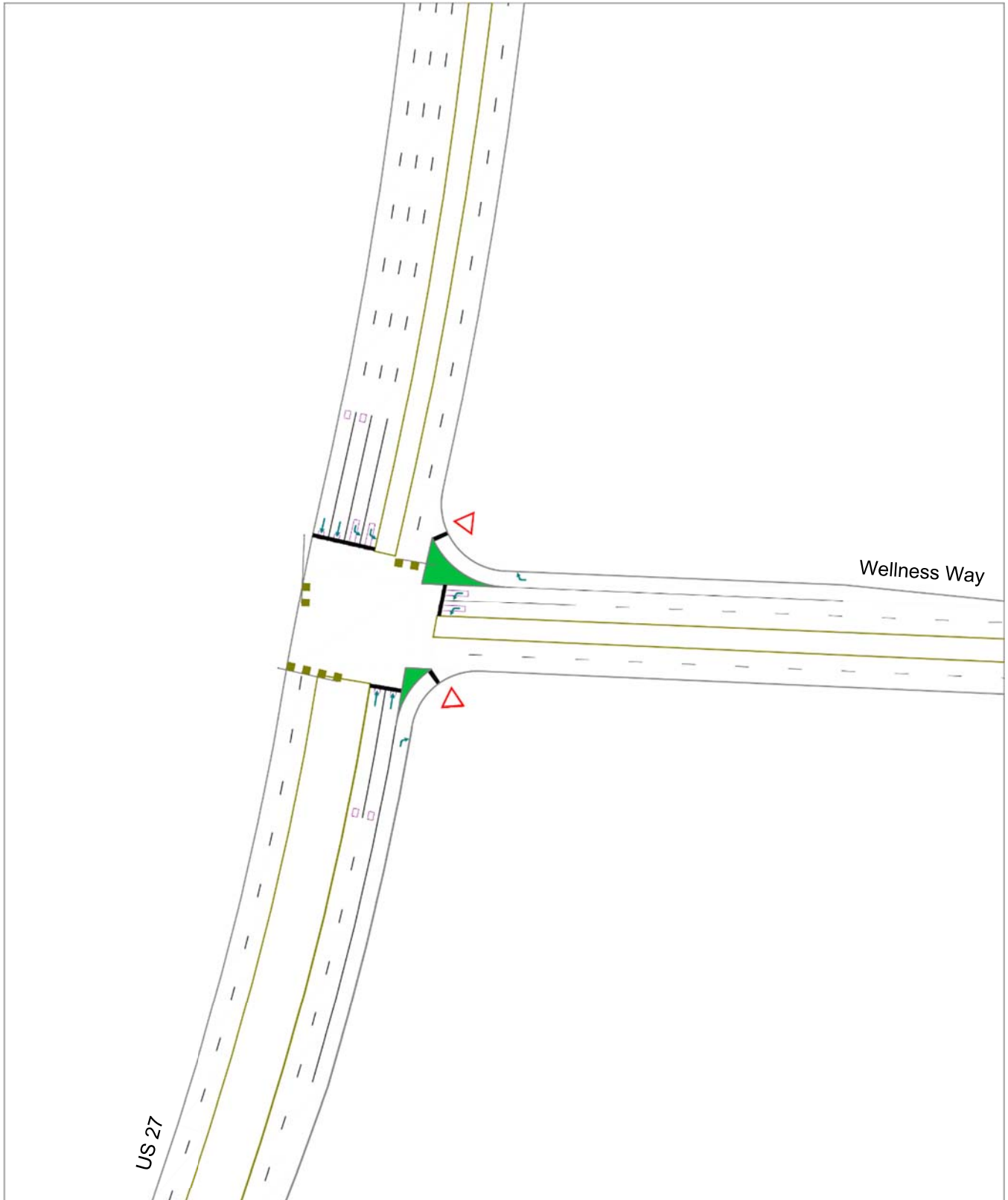


Figure 4-6: Wellness Way & US 27 – Alternative 1.2 1

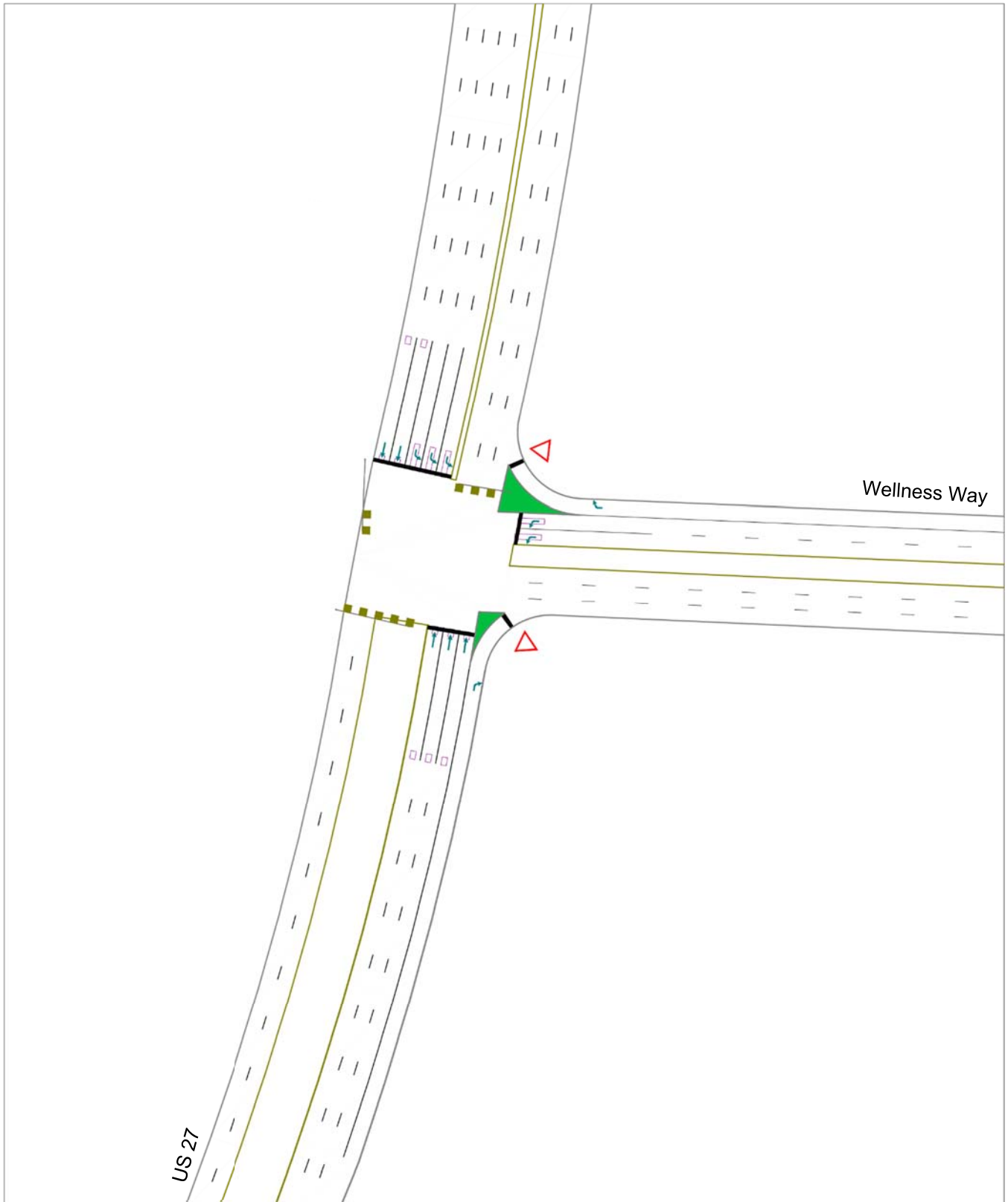


Figure 4-7: Wellness Way & US 27 – Alternative 2

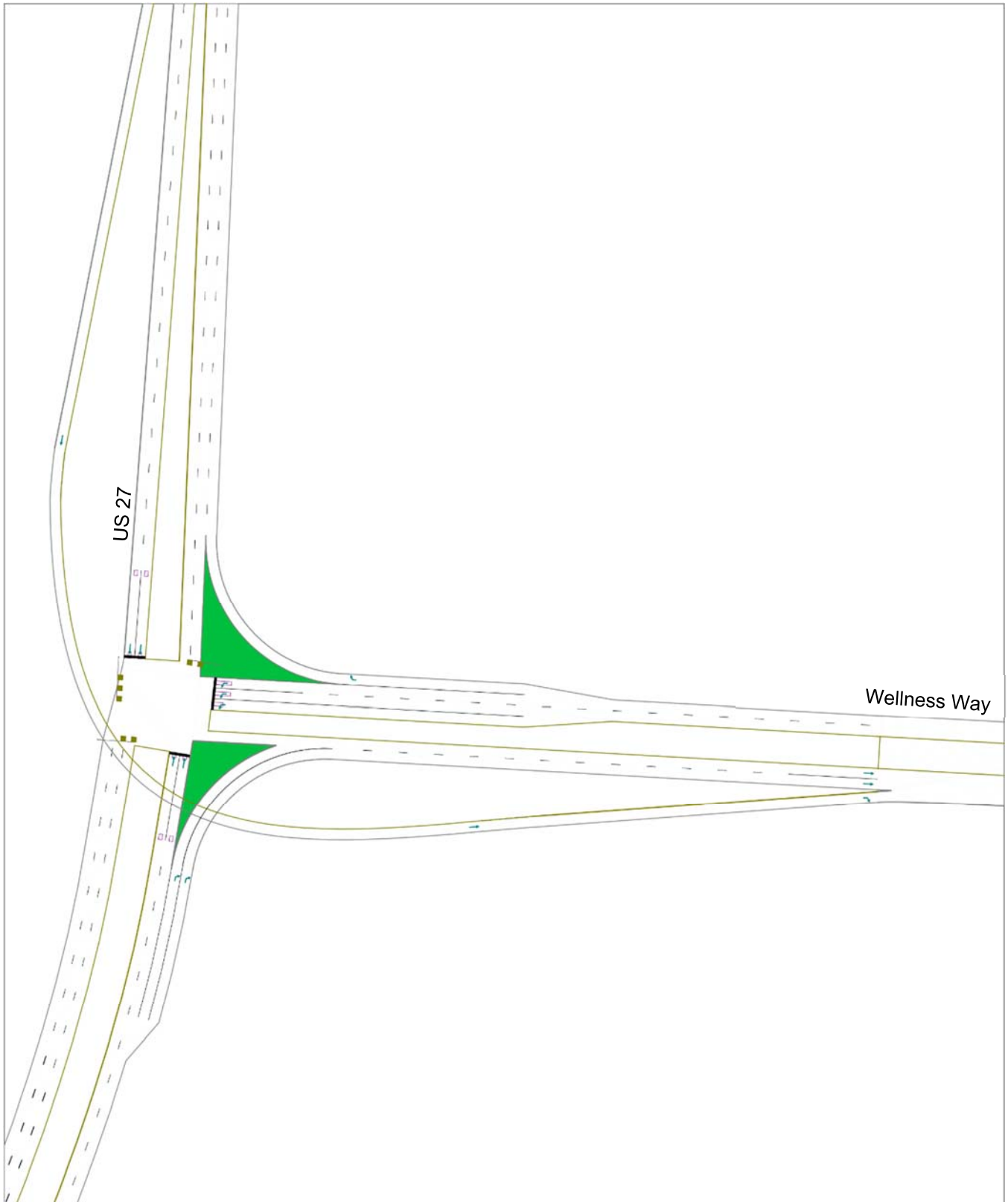
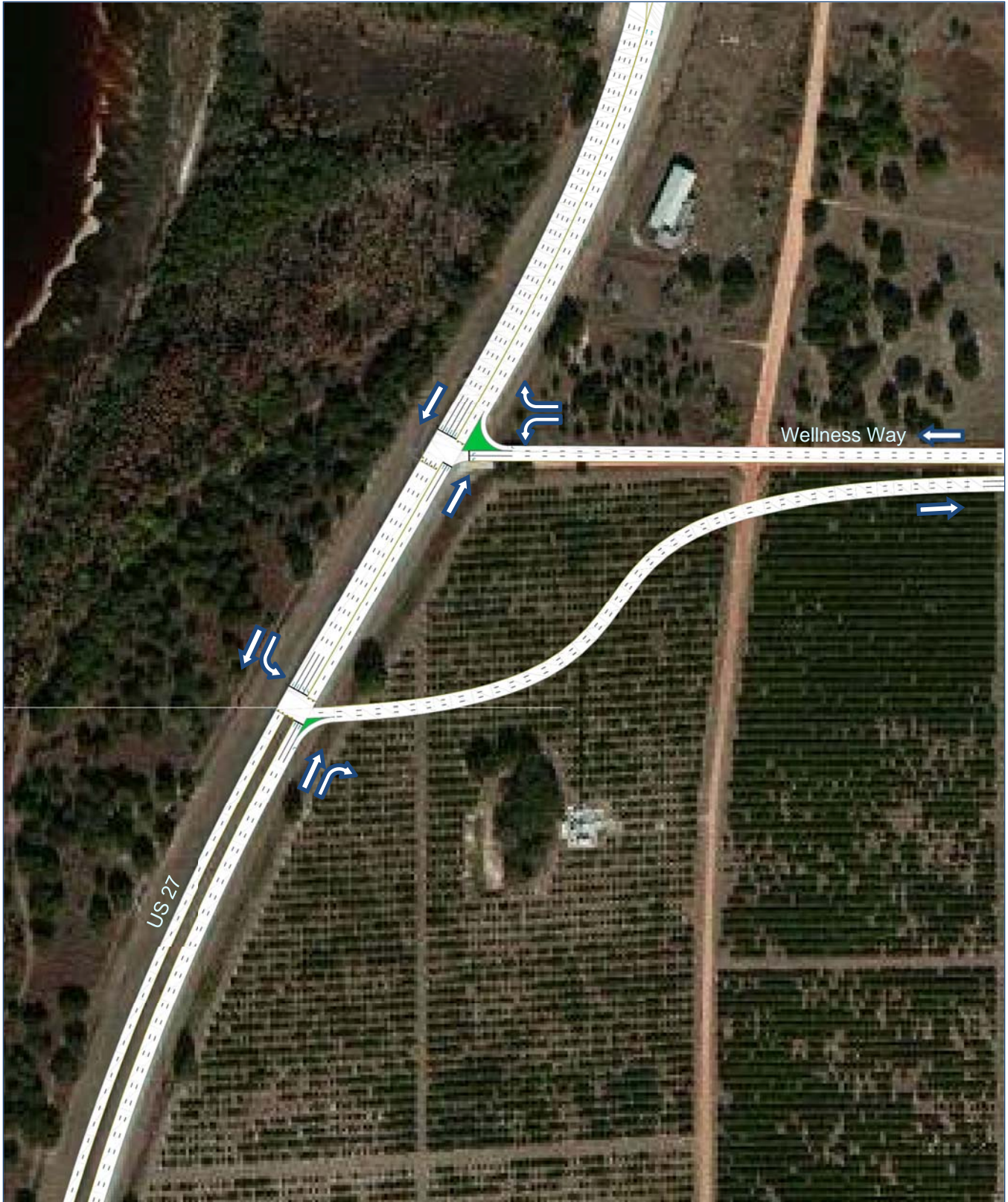


Figure 4-8: Wellness Way & US 27 – Alternative 3 2



4.3.2 Results Summary

The following section provides a summary of the traffic analysis of each of the tested alternatives. Table 4-7 lists the results of each build analysis and Appendix B contains the detailed HCS output.

SR 429 Interchange

The results of the Build analysis show that the SR 429 ramp termini will continue to operate at an acceptable level of service in the future with the introduction of traffic signals. Signal Warrant Studies will be required in order to install the signals.

Wellness Way & Avalon Road

The Alternative 1 design concept at Wellness Way and Avalon Road will continue to operate at LOS E through 2037. However, the minimum improvements to maintain an acceptable LOS E are represented by alternative 1.2. Alternative 1.2 improvements include northbound and westbound right turn lanes along with northbound dual left turns and the associated improvements to Avalon Road to accept eastbound dual lefts from Wellness Way. Alternative 1.3, which includes the improvements mentioned in alternative 1.2 as well as adding a third northbound left turn lane, performs at LOS D in 2037.

In order to further enhance the operation of this intersection, a northbound left turn flyover was analyzed. This improvement also allows the intersection to operate at LOS D through 2037.

Wellness Way & Five Mile Road

The Wellness Way/Five Mile Road intersection is expected to have light traffic volumes based on the development information utilized to develop the design traffic. It was not part of this analysis but was assumed to remain as a two-way stop controlled intersection through 2037. It should be noted that while the traffic is only projected to be 20 vehicles per hour in the southbound approach the approach LOS is expected to operate at LOS F in 2037. The introduction of a traffic signal or possibly a roundabout may eliminate operational deficiency. Further study would be required to determine the most appropriate form of traffic control.

Wellness Way & US 27

The intersection of Wellness Way and US 27 was analyzed as an at-grade intersection as well as two other alternatives including a flyover and a quadrant style signalized intersection. The intersection geometry shown in Alternative 1 (Figure 4-5) results in a LOS F in the opening year and continues to operate as an LOS F through 2037. The analysis of the at-grade intersection at this location was an iterative process. Short of widening US 27 and Wellness Way, none of the at-grade alternatives (alternatives 1 or 1.2) achieved an acceptable LOS. The addition of the southbound left-turn flyover provided a LOS D through 2037. The third alternative (quadrant by-pass) performed at an acceptable LOS until design year 2027 but failed in the PM in 2037.

Table 4-5 Opening, Interim, and Design Year Intersection LOS (Build Scenario)

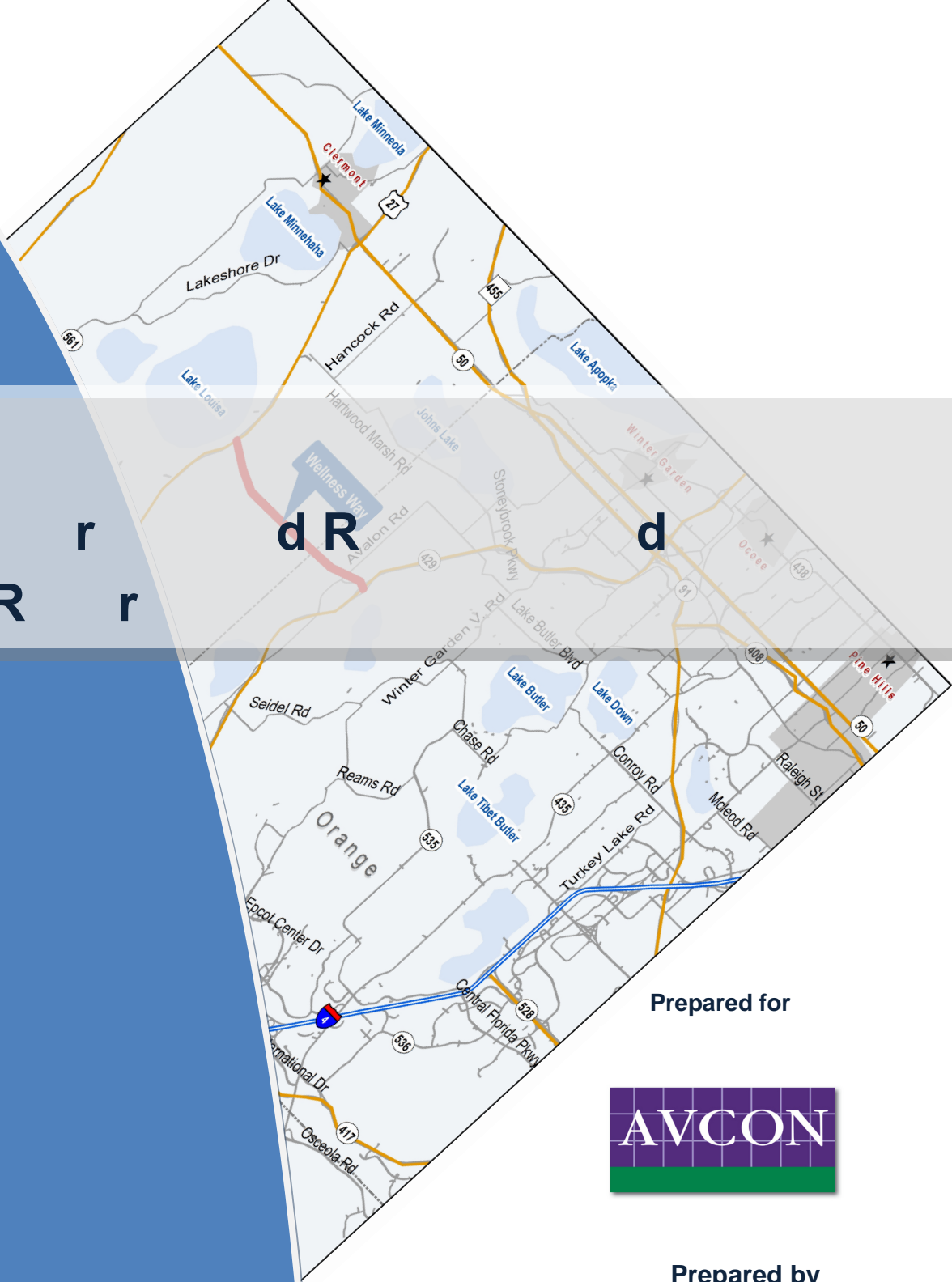
Intersection		LOS (Delay, seconds)					
		2017		2027		2037	
		AM	PM	AM	PM	AM	PM
New Independence Pkwy at NB SR 429 Ramp		C (23.6)	C (23.6)	C (34.3)	C (34.3)	D (40.9)	D (40.9)
New Independence Pkwy at SB SR 429 Ramp		C (22.7)	C (22.7)	C (37.6)	C (37.6)	D (48.1)	D (48.1)
Wellness Way at Avalon Road	Signalized Intersection Alt 1 (Fig 4-1)	D (43.9)	D (40.0)	E (60.1)	D (48.7)	F (109.5)	F (85.9)
	Signalized Intersection Alt 1.2 (Fig 4-2)	D (38.9)	D (38.0)	D (42.9)	D (40.3)	E (69.2)	E (62.2)
	Signalized Intersection Alt 1.3 (Fig 4-3)	C (34.7)	C (34.1)	D (37.0)	D (35.8)	D (50.7)	D (46.9)
	Northbound Left Flyover Alt 2 (Fig 4-4)	C (32.3)	C (34.3)	C (31.4)	C (35.0)	D (35.8)	D (41.9)
Wellness Way at US 27	Signalized Intersection Alt 1 (Fig 4-5)	D (45.1)	F (82.7)	F (104.7)	F (155.0)	F (184.6)	F (237.1)
	Signalized Intersection Alt 1.2 (Fig 4-6)	C (29.3)	C (30.1)	E (62.4)	E (70.4)	F (136.4)	F (145.0)
	Southbound Left Flyover Alt 2 (Fig 4-7)	B (16.2)	B (16.2)	C (29.2)	C (29.2)	D (49.7)	D (49.7)
	Quadrant Intersection Alt 3 (Fig 4-8)	C (25.0)	D (50.0)	D (42.6)	E (56.1)	E (59.9)	F (111.0)

Appendices

Appendix A
C&M Report

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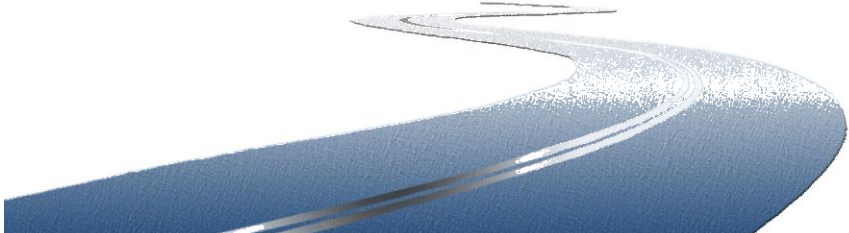
Prepared for



Prepared by



2013





Level 1 Traffic and Revenue Report

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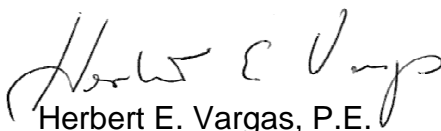
To: Rick V. Baldocchi, P.E.
Vice President, AVCON, Inc.
5555 E. Michigan St. Suite 200
Orlando, FL 32822

Subject: Wellness Way
Level 1 Traffic and Revenue Study
Final Report

C&M Associates, Inc. is pleased to provide you with the Final Report of the Level 1 - Sketch Traffic and Revenue Study for Orchard Pond Road. This report presents an overview of the proposed project, an assessment of existing traffic conditions, available traffic data and potential traffic demand from the local model for the study area. The report presents the methodology and approach for travel demand forecasts, review of traffic operations, analysis of toll diversion and most importantly, the traffic and revenue forecast.

The C&M team including, Shahram Bohluli, Carlos M. Contreras, Carlos Miranda, Sara Sohaee and Sruti Marepally expresses its sincere gratitude to AVCON, Inc. and Clary Consulting LLC for providing the opportunity to participate in this project.

Respectfully,



Herbert E. Vargas, P.E.
Project Manager

Wellness Way Toll Road

Sketch Traffic and Revenue Study

FINAL REPORT

Prepared for

AVCON, Inc.

By



August 2013

The results of this study constitute the opinion of C&M. This opinion is based on normal professional effort with respect to future Traffic and Revenue for the tolled facility, subject to the time and budget constraints of the study's scope of work, and based on the information available to C&M at the time of execution of this study. C&M cannot guarantee or assure future events in connection to this Traffic and Revenue forecast.

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1. Introduction

This report summarizes the inputs, assumptions and results of a Sketch Traffic and Revenue (T&R) study for the Wellness Way Toll Road project (“the Project”) in Orange and Lake Counties west of Orlando, Florida, from US 27 to the interchange of SR 429 and New Independence Parkway. The work was undertaken by C&M Associates, Inc. (C&M) through AVCON, Inc.

1.1 Study Goals and Objectives

The primary goal of this study is to prepare a Sketch T&R forecast for the Project to evaluate its preliminary financial feasibility. The study focuses on an alignment previously selected by a study undertaken by Orlando Orange County Expressway Authority (OOCEA) and referred as Alternative "D" as an extension of New Independence Parkway.

As part of the study, C&M performed the following:

- Prepared a study that is consequent with the previous history of the Project;
- Included all contextual information relevant to the Project, including updates to the regional travel demand model;
- Analyzed the importance of the Project as a connection for development between US 27 and SR 429 corridors;
- Reviewed existing information for its reasonableness, including socioeconomic data, traffic data, and existing traffic demand models for the region;
- Accounted for project location in an area with a history of toll roads and high electronic toll transponders penetration;
- Utilized current state-of-the-art methodologies for the analyses; and
- Produced a T&R forecast.

1.2 Wellness Way Toll Road Project

The Project is proposed as an east-west roadway connecting US 27 to SR 429. Figure 1 provides a map of the project site location and the proposed alignment. The roadway is located in portions of southwest Orange County and southeast Lake County. The study focused on these two areas within the context of the overall Orlando metro area.



Figure 1– Project Location

Orlando Orange County Expressway Authority (OOCEA) issued a Concept Development and Evaluation Study for a SR 429 to US 27 Connector in January 2007. After evaluation of four prospective corridors, the study recommended the alignment of the proposed Project as meeting the study objectives of environmental protection and community building.

The main east-west arterial highways in the study area are SR 50, also referred as Broad Street in Lake County and Colonial Drive in Orange County, and US 192, also referred as W Irlo Bronson Memorial Highway. It should be noted that the segment of US 192 between US 27 and SR 429 is the boundary between Lake, Orange, Polk and Osceola Counties. The distance along US 27 between US 192 and SR 50 is approximately 15 miles. The only other east-west roadway connecting US 27 and SR 429 is Hartwood Marsh Road, which is approximately three miles south of SR 50. The Project, as proposed, will be approximately six miles south of SR 50. The Project falls under the Lake-Sumter Metropolitan Planning Organization for the segment in Lake County.

2. Existing Conditions

C&M reviewed existing available information, performed field observations to obtain traffic characteristics of the area, and complemented the available information with information provided by AVCON, Inc.

2.1 Existing Highway System

New Independence Parkway extends from Avalon Road to a diamond interchange providing access to SR 429. The Project is proposed to extend this roadway westward to connect to US 27. New Independence Parkway is currently a two-lane, two-way roadway connecting to Avalon Road and a four-lane divided roadway in the vicinity of the SR 429 interchange. New Independence Parkway is under construction to connect eastward to Ficquette Road through the community of Independence.

US 27 is a four-lane divided roadway in the vicinity of the proposed project between Boggy Marsh Road and Lake Louisa Road and a six-lane divided roadway between US 192 and Boggy Marsh Road and between Lake Louisa Road and SR 50. US 27 has interchanges at the SR 50 and US 192 intersections. Posted speed limit in the vicinity of the Project is 55 miles per hour (mph).

Avalon Road extends from US 192 to SR 50 in a north-south direction. The roadway is a two-lane two-way roadway. Posted speed limit is 45 mph.

SR 429 - Daniel Webster Western Beltway is a four-lane divided, limited-access toll road. SR 429 extends from I-4 to US 441, and is maintained by OOCEA in the vicinity of the Project between the Seidel Road interchange and US 441 and by Florida's Turnpike from I-4 to Seidel Road. There is an interchange at New Independence Parkway that would connect to the proposed Project. Posted speed limit is 65 mph.

US 192 - W. Irló Bronson Memorial Highway extends from US 27 to SR A1A. It is a four-lane divided highway from US 27 to just west of the SR 429 interchange. It connects to US 27 and to SR 429 via interchanges. Posted speed limit in the study area is 55 mph.

Schofield Road is a two-lane, two-way paved road extending from Avalon Road to approximately one mile west of SR 429. An interchange is planned to connect Schofield Road to SR 429, approximately two miles south of the New Independence Parkway interchange. This road extends to the west as a dirt road, referred as Shell Pond Road, connecting to US 27 just south of the proposed connection of the Project with US 27.

Hartwood Marsh Road is a two-lane, two-way road extending from US 27 to Avalon Road, and then continuing east as Marsh Road and then as four-lane divided Stoneybrook West Parkway and as frontage roads to SR 429 connecting to the interchange at County Road 535 Winter Garden Vineland Road. Posted speed limit is 40 mph.

SR 50 - Colonial Drive/Broad Street extends from US 19 in Weeki Wachee near the Gulf of Mexico to US 1 in Titusville near the Intracoastal Waterway. It is a six-lane divided highway within the study area with interchanges at US 27 and SR 91 or Florida's Turnpike. Posted speed limit within the study area is 45 mph.

SR 91 - Florida's Turnpike extends from the Golden Glades interchange (I-95, SR 826 and SR 91 interchange) in Miami-Dade County to I-75 in Wildwood, Sumter County. It is a toll road, providing regional connectivity with interchanges with SR 429, SR 408, I-4 and SR 528 in the vicinity of the study area. The Florida's Turnpike is a four lane divided highway north of SR 50 and an eight lane divided highway south of SR 50. Posted speed limit is 60 mph.

2.2 Traffic Volumes

C&M obtained traffic count data from the Florida Department of Transportation (FDOT) traffic online web page and from the traffic counts webpage of Orange County. The counts were collected by the agencies in the period of 2002 through 2012. Figure 2 shows the 2012 traffic volumes within the study area. Table 1 shows the traffic growth for the project area highways. Traffic volumes show effects of the 2008-09 recession with stabilization by 2010-11 and recovery trends by 2012.

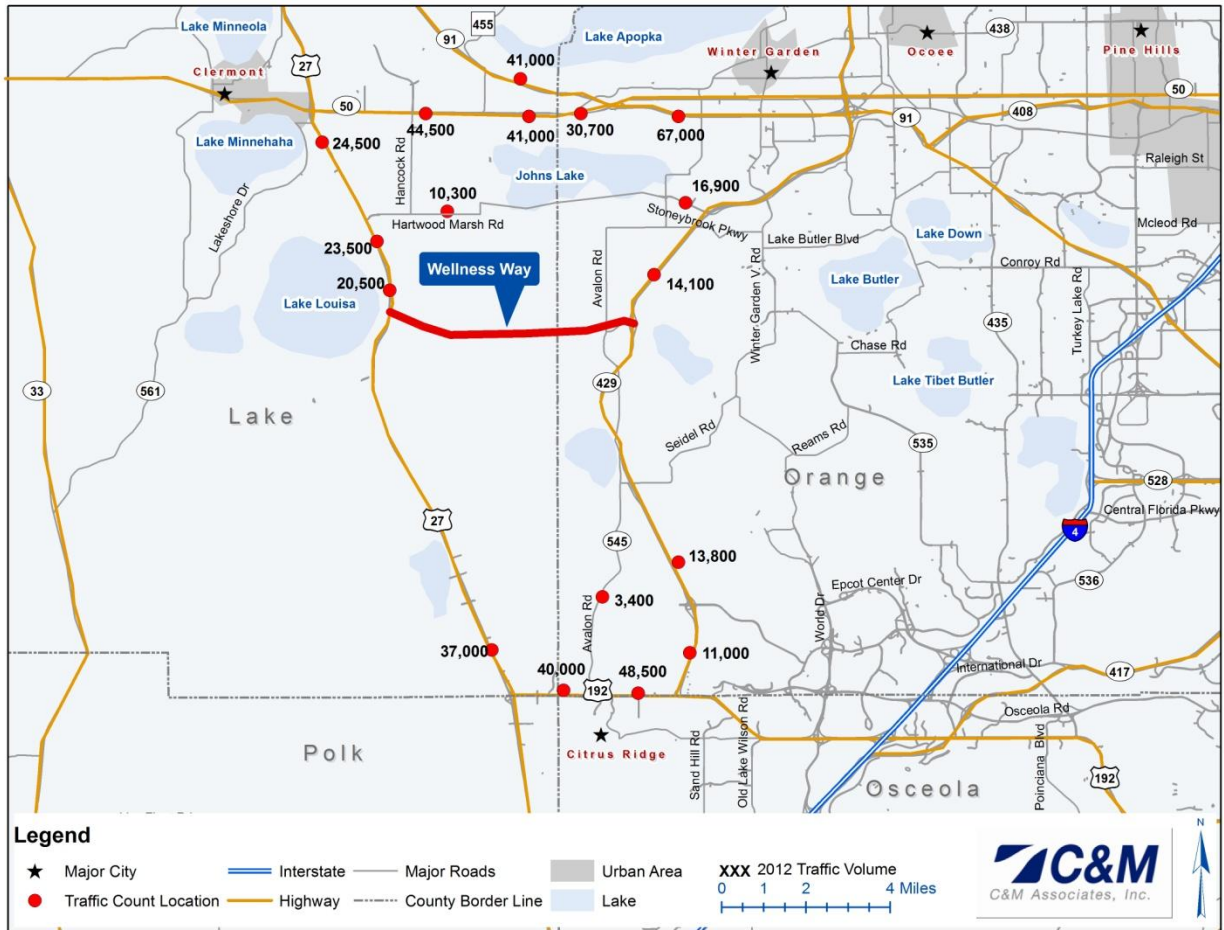


Figure 2– Existing Traffic Volumes

Table 1- Historical Traffic Volumes

Location	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
SR 50 East of Hancock	41,500	45,000	50,000	56,000	53,000	56,000	49,000	47,000	46,000	44,000	44,500
SR 50 West of SR 91	47,000	47,000	53,000	53,000	54,000	52,500	47,500	47,000	46,000	40,500	41,000
SR 50 - Orange Ctl.	36,500	35,700	36,200	37,200	35,600	35,200	33,300	32,800	31,500	29,500	30,700
SR 91 North of SR 50	30,000	34,300	37,100	40,400	42,500	44,000	43,200	40,700	40,800	41,000	41,000
SR 91 South of SR 50	50,800	57,800	63,300	68,700	71,900	73,900	72,200	66,900	65,700	67,000	67,000
US 27 South of SR 50	30,000	35,500	36,500	34,500	38,000	32,000	30,000	25,500	24,500	24,500	24,500
US 27 South of Hartwood	20,200	22,500	28,500	31,000	26,500	26,500	22,000	23,000	23,000	23,000	23,500
US 27 - Lake Louisa							23,500	22,000	20,100	21,000	20,500
US 27 North of US 192	31,500	31,500	36,500	42,500	44,500	37,500	37,500	36,000	35,500	35,500	37,000
US 192 West of Avalon	37,000	36,000	40,500	52,000	42,500	44,000	50,000	35,000	37,000	39,000	40,000
US 192 East of Avalon				48,500	34,500	49,000	45,500	42,500	43,000	41,000	48,500
SR 429 North of US 192						7,200	10,100	9,800	9,800	10,400	11,000
SR 429 North of Western						9,600	13,100	13,200	12,500	13,200	13,800
SR 429 North of New Independence					4,800	4,800	4,800	12,000	12,000	12,000	14,100
Avalon Road											3,400
Hartwood Marsh										12,300	10,300
Stoneybrook											16,900

3. Travel Demand Estimation

3.1 Travel Demand Model

Sketch studies utilize existing available information to project forecasts. For purposes of the Project, the 2030 Orlando Urban Area Transportation Study (OUATS) model was utilized to forecast 2015 and 2030 travel demand. The OUATS model geographic area covers the MetroPlan Orlando Counties of Orange, Osceola and Seminole, in addition to the western portion of Volusia County, the Lake County network and northeastern portion of the Polk County network.

The OUATS travel demand model includes special trip purposes for the Orlando area special attractions such as Walt Disney World, Universal Studios, Sea World, Orlando International Airport, the Orange County Convention Center and others. The Project may provide an alternate route to these special traffic generators for communities in the vicinity of the project. The model was developed in 2004 and is based on land use approved by MetroPlan Orlando. It should be noted that MetroPlan Orlando adopted the 2030 plan and model in 2009 based on a land use trends plan and an alternative land use plan identified during the planning process.

C&M did not verify or validate land use assumptions throughout the region. However, cursory analysis of the traffic analysis zones within the Wellness project area indicates that the Horizons West development is assumed to be partially developed by 2015 and potentially fully developed by 2030. Also, the land in the vicinity of the Project in Lake County appears to be assumed as agricultural land with one dwelling unit per 10 acres for both 2015 and 2030.

3.2 Wellness Way Toll Road Demand

The 2030 OUATS travel demand model does not include the Project or a similar alignment for 2015 or 2030. For purposes of the Sketch T&R study, the 2015 and 2030 model highway networks were modified to include the Project as a toll-free roadway to estimate overall demand. Figure 3 shows the travel demand model assignment for 2015 with and without the Project, and Figure 4 shows the 2030 travel demand with and without the Project.

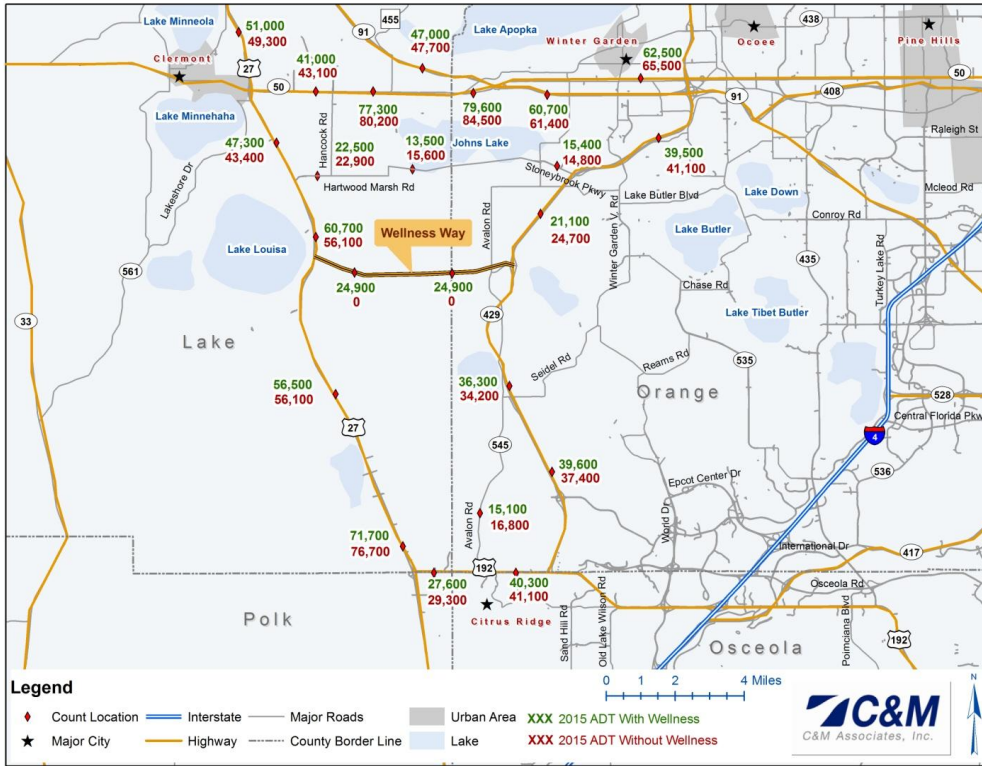


Figure 3- 2015 Travel Demand Model Volumes

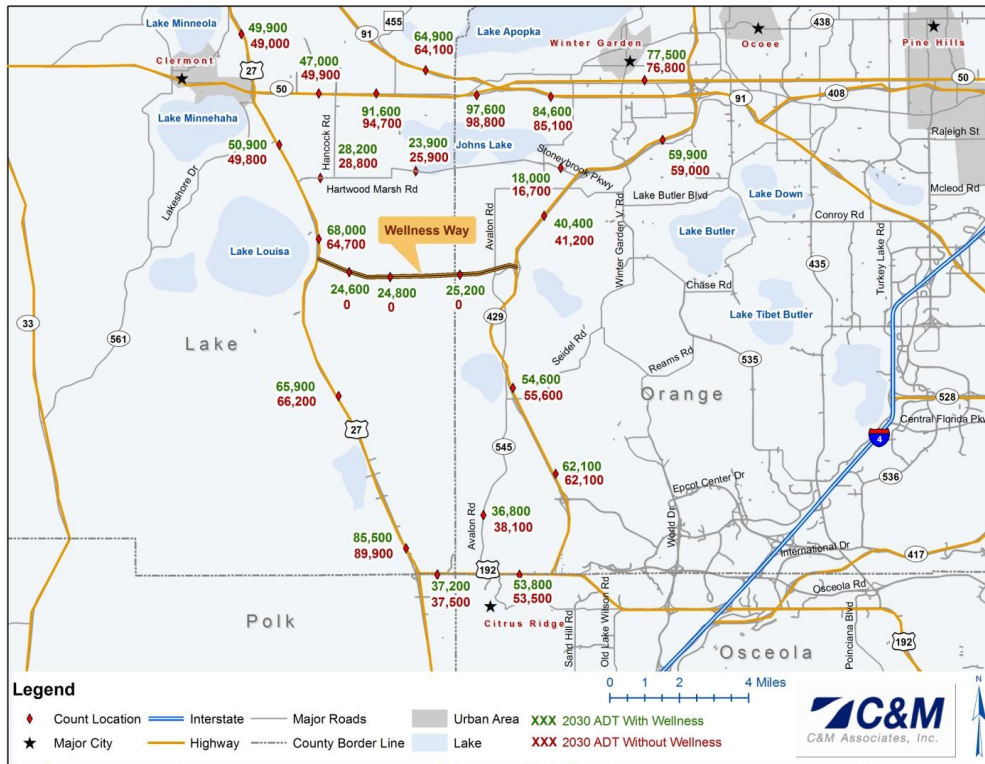


Figure 4- 2030 Travel Demand Model Volumes

Analysis of model traffic assignments indicated aggressive land use development for 2015. Essentially, the model is assuming a high rate of growth before 2015 and minor growth between 2015 and 2030. This is in contrary to the traffic trends in the area, where traffic volumes essentially peaked in 2006-2007, and bottomed in 2011 with a recovery beginning to show in 2012. For this reason, the analysis assumed a toll-free demand on the Project of 17,400 ADT for 2015 and 25,200 ADT for 2030.

3.3 Trip Distribution

For purposes of estimating capture rates once tolls are applied, it is important to understand the origin-destination of the trips and the potential route choices that drivers may have in the future. A select link analysis was conducted for the Project's trips. Figure 5 shows the traffic distribution for the Project's trips in the regional network for years 2015 and 2030. Based on this analysis, trips with an origin or destination in Horizons West account for approximately 13% of the Project's traffic by 2015 and approximately 40% by 2030.

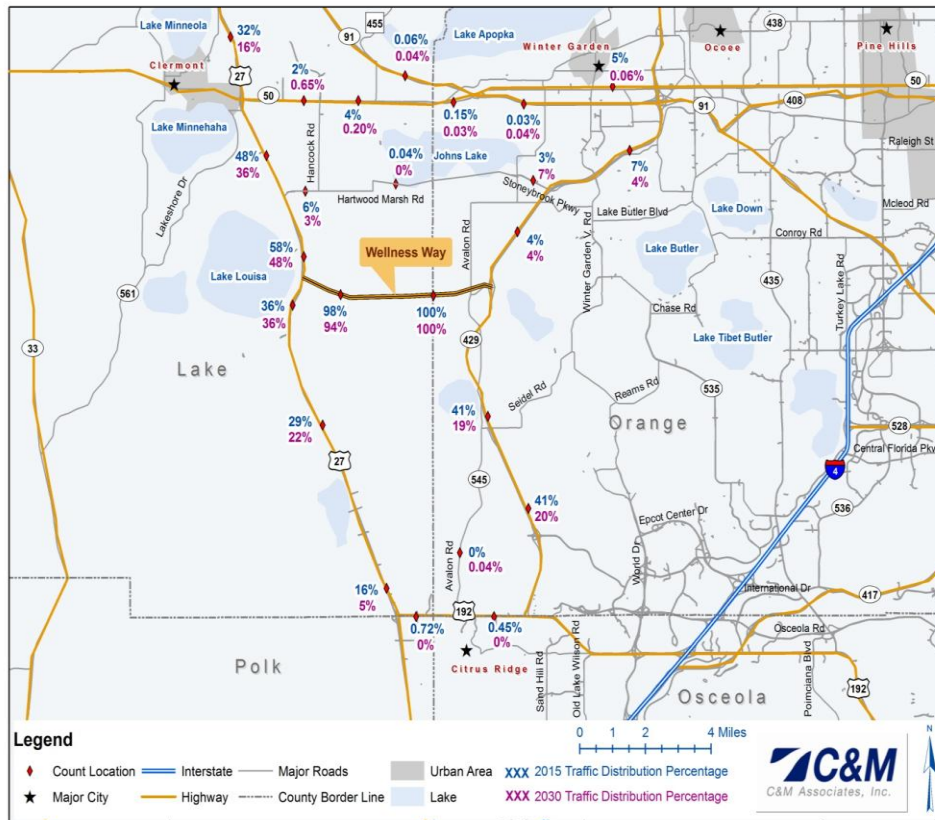


Figure 5- Wellness Way Toll Road Trip Distribution

Along US 27, the 2015 trip distribution indicates that 58% of the trips come from areas north of the proposed Project, while 36% come from areas south of the Project and 6% come from land uses adjacent to the Project. For 2030, trip distribution from the west indicates that 48% come from areas north of the Project, 36% from the south and 16% from land uses adjacent to it. Along SR 429, the 2015 trip distribution indicates that 41% of the trips go to/from the south and 4% to/from the north; while the 2030 trip distribution indicates that 19% go to/from the south and 4% to/from the north.

The above mentioned trip distributions indicate that in 2015, traffic utilizing the Project is primarily diverting from SR 50 and US 192 to arrive to their intended destinations with approximately 20% of the traffic having an origin or destination near the vicinity of the project. By 2030, as development increases at Horizons West and near the project, approximately 55% of the traffic will have an origin or destination in the vicinity of the project.

4. Traffic and Revenue Forecasts

4.1 Toll Diversion

The toll diversion model is based on the value of time of potential users of the facility and the travel time savings that the toll facility will offer to them. For purposes of a Sketch study, the methodology assumes that 100% of the travel demand for the "toll-free" alignment is eligible to utilize the future toll facility and then, based on potential time savings and value of time estimation, the methodology assumes a capture rate -- the percentage of vehicles that will utilize the tolled facility compared to the toll-free facility.

Metropolitan Orlando drivers as well as most Florida drivers are aware of toll roads and most of them are electronic transponder subscribers. The toll diversion methodology utilized for this project takes this fact into consideration. It should be noted that alternate routes to the proposed Project may include utilization of Florida's Turnpike or OOCEA toll roads.

4.2 Alternatives

Two alternatives were evaluated in this Sketch T&R study. One alternative assumes the construction of the Project as a two-lane two-way toll facility and a second alternative assumes the construction of the Project as a four lane divided facility. Both alternatives assume that a toll gantry will be built between Avalon Road and US 27 and that toll collection will be all electronic through the use of toll transponders and video tolling similar to the Florida's Turnpike.

4.3 Traffic and Revenue Assumptions

Toll diversion was calculated for each alternative based on calculated travel times with and without the Project. FDOT's Q/LOS Handbook shows a service capacity of 15,200 for two-lane two-way roads and 33,800 for four-lane divided highways. Level of service "C" daily volumes are shown as 14,100 for two-lane two-way and 32,100 for four-lane divided highways. These numbers are based on "K" value of 9.7% and "D" value of 0.55. However, toll roads tend to have higher "K" values and "D" values. For purposes of the Sketch analysis, the Project as a toll road is assumed to have a "K" value of 10.5 and "D" value of 0.63. Applying these values to the above numbers, the toll road level of service "C" capacity would be 11,400 for a two-lane two-way road and 25,900 for a four-lane divided roadway. In addition, a two-lane two-way road is adjusted depending on the percent of highway that may allow passing, and the percent of time that vehicles

may be following others. As toll roads "sell" value to motorists, the capacity for the two-lane two-way is adjusted by 20%, reducing its desirable capacity to 9,100 ADT. Travel time values are calculated based on this desirable capacity for purposes of the toll diversion calculation.

Adjustment factors were applied to the toll diversion results to account for a ramp up period, and for toll collection methods. The study assumes the Project open to the public by 2015 and provides a 30-year forecast for transactions and revenues. The design of the facility assumes all electronic toll collection compatible to the Florida's Turnpike facilities throughout the State of Florida. The study assumed a ramp up period of five years assuming a 65% electronic transponder market penetration by 2015 and increasing to 90% by 2020.

Revenue leakage for electronic transponder users is assumed at 1%. This rate accounts for misreads and times when the equipment may not work properly or not classify vehicles accordingly. Violation rates for video tolling are considered to range from 35% in the first year to 15% after the fifth year. This accounts for out-of-state license plates and/or delinquent payments.

The Project is not in the path of drivers utilizing the highway system. Currently most drivers utilize US 27 to access SR 50 or US 192. Others may utilize Hartwood Marsh Road to access SR 429. For this reason, during the first year of operation, it is assumed that only 50% of potential users of the Project will be aware the facility is a viable option for them. However, due to the familiarity of area drivers with toll roads, it is assumed that within five years the road will be accepted and recognized by the community.

The travel demand forecast and toll diversion is assumed on weekday average daily traffic. Trip lengths on Sundays tend to be more localized in nature for the majority of drivers. The study assumed the annual revenue generation to be equivalent to 325 times the weekday transactions and revenue for passenger cars and 280 times for trucks to account for weekends and holidays.

Truck traffic was assumed to be 3% of the daily traffic and tolls for trucks are estimated based on the number of axles. Truck toll charges are assumed to be the passenger vehicle rate times the number of axles minus one. Table 2 provides a summary of the T&R assumptions.

Table 2- Traffic and Revenue Assumptions

Item	Assumptions					
<i>Opening year of operations</i>	2015					
<i>Last forecasted year</i>	2044					
<i>Type of toll collection</i>	Electronic Toll Collection (ETC) and Video Tolling					
<i>Revenue Days</i>	325 days for passenger cars and 280 days for trucks					
<i>Traffic Ramp-Up, Video Violation and ETC Penetration</i>	Year	Ramp up		Video	ETC Penetration	
		Auto	Truck	Violation	Auto	Truck
	2015	50%	50%	35%	65%	65%
	2016	60%	60%	30%	70%	70%
	2017	70%	70%	25%	75%	75%
	2018	80%	80%	20%	80%	80%
	2019	90%	90%	15%	85%	85%
2020	100%	100%	15%	90%	90%	
<i>ETC Leakage</i>	1% of ETC Transactions					
<i>Truck Percentage</i>	3%					
<i>Average Truck Axles</i>	3.2					

4.4 Toll Sensitivity

The sensitivity analysis of the study assumed six toll rates fluctuating from \$0.50 per passenger car in each direction to \$3.00 per passenger car in each direction for each alternative. Figure 6 presents the toll sensitivity analysis for the two-lane two-way roadway. Based on this analysis, a toll rate of \$0.75 would provide the highest revenue for the facility. Figure 7 presents the toll sensitivity analysis for the four-lane divided road alternative. Based on this analysis, a toll rate of \$1.00 would provide the highest revenue for the facility.

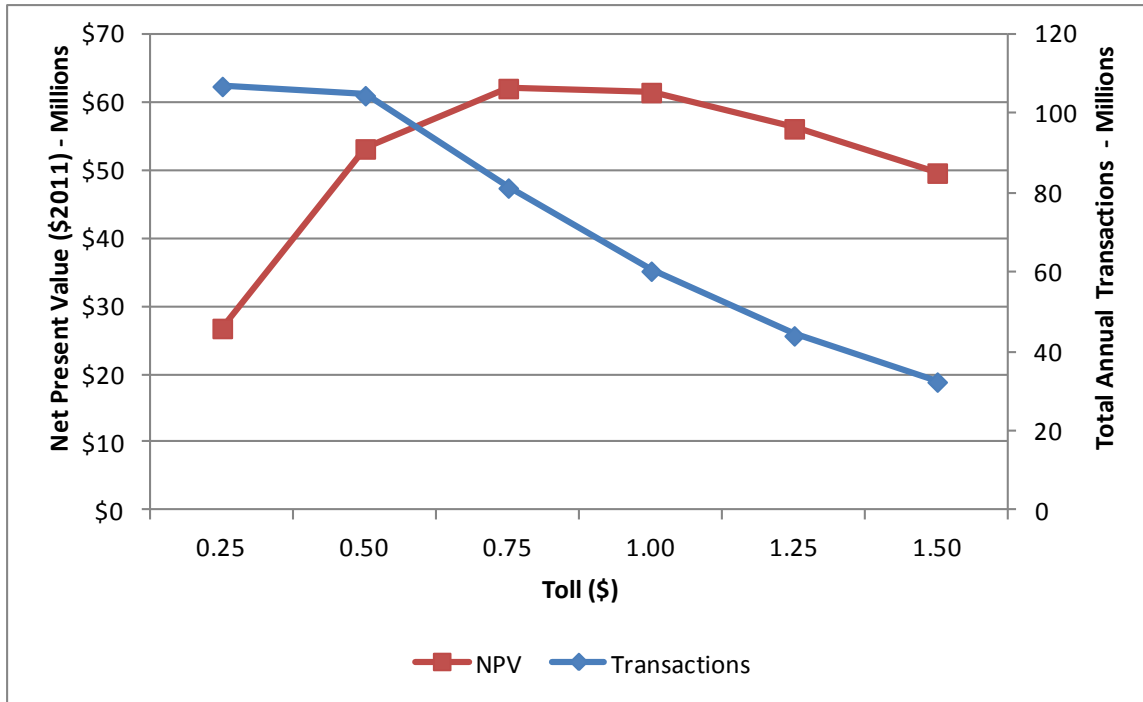


Figure 6- Toll Sensitivity for Two-Lane Two-Way Alternative

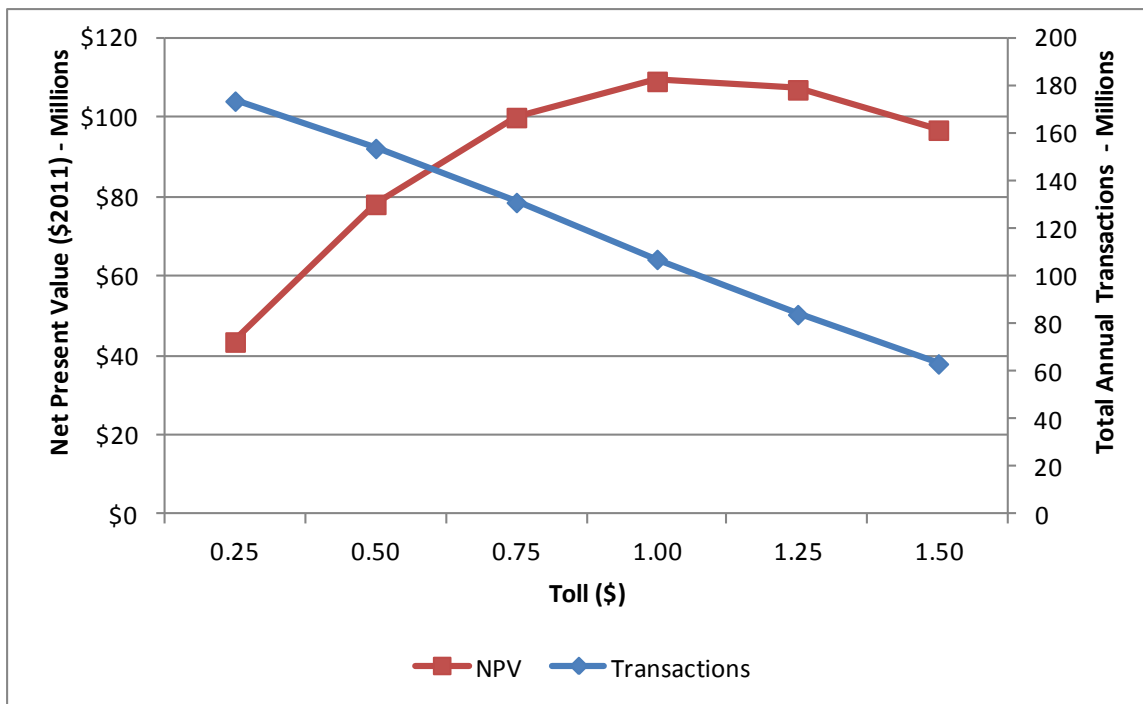


Figure 7- Toll Sensitivity for Four Lane Divided Alternative

4.5 Traffic and Revenue Forecasts

Table 3 presents the T&R forecast for the two-lane two-way toll road based on a \$0.75 toll rate.

Table 3- Traffic and Revenue Forecasts for Two-Lane Two-Way Alternative

Traffic and Revenue Forecasts based on toll rate of \$0.75

Year	Annual Transactions			Annual Revenue (Nominal Dollars)		
	Auto	Truck	Total	Auto	Truck	Total
2015	959,900	25,600	985,500	\$627,100	\$36,800	\$663,900
2016	1,186,300	31,600	1,217,900	\$803,500	\$47,100	\$850,600
2017	1,424,200	37,900	1,462,100	\$993,400	\$58,200	\$1,051,600
2018	1,673,600	44,600	1,718,200	\$1,194,900	\$70,000	\$1,264,900
2019	1,934,400	51,500	1,985,900	\$1,405,900	\$82,400	\$1,488,300
2020	2,206,800	58,800	2,265,600	\$1,615,300	\$94,700	\$1,710,000
2021	2,264,100	60,300	2,324,400	\$1,681,100	\$98,500	\$1,779,600
2022	2,321,500	61,900	2,383,400	\$1,723,700	\$101,000	\$1,824,700
2023	2,378,900	63,400	2,442,300	\$1,766,300	\$103,500	\$1,869,800
2024	2,436,300	64,900	2,501,200	\$1,808,900	\$106,000	\$1,914,900
2025	2,493,600	66,400	2,560,000	\$1,851,500	\$108,500	\$1,960,000
2026	2,551,000	68,000	2,619,000	\$1,894,100	\$111,000	\$2,005,100
2027	2,608,400	69,500	2,677,900	\$1,936,700	\$113,500	\$2,050,200
2028	2,665,800	71,000	2,736,800	\$1,979,300	\$116,000	\$2,095,300
2029	2,723,100	72,600	2,795,700	\$2,021,900	\$118,500	\$2,140,400
2030	2,780,500	74,100	2,854,600	\$2,064,500	\$121,000	\$2,185,500
2031	2,837,300	75,600	2,912,900	\$2,106,700	\$123,500	\$2,230,200
2032	2,893,600	77,100	2,970,700	\$2,148,500	\$125,900	\$2,274,400
2033	2,949,200	78,600	3,027,800	\$2,189,800	\$128,400	\$2,318,200
2034	3,004,200	80,000	3,084,200	\$2,230,600	\$130,800	\$2,361,400
2035	3,058,600	81,500	3,140,100	\$2,271,000	\$133,100	\$2,404,100
2036	3,112,300	82,900	3,195,200	\$2,310,900	\$135,500	\$2,446,400
2037	3,165,300	84,300	3,249,600	\$2,350,200	\$137,800	\$2,488,000
2038	3,217,500	85,700	3,303,200	\$2,389,000	\$140,000	\$2,529,000
2039	3,269,100	87,100	3,356,200	\$2,427,300	\$142,300	\$2,569,600
2040	3,319,900	88,500	3,408,400	\$2,465,000	\$144,500	\$2,609,500
2041	3,369,900	89,800	3,459,700	\$2,502,100	\$146,700	\$2,648,800
2042	3,419,200	91,100	3,510,300	\$2,538,700	\$148,800	\$2,687,500
2043	3,467,600	92,400	3,560,000	\$2,574,700	\$150,900	\$2,725,600
2044	3,515,300	93,700	3,609,000	\$2,610,100	\$153,000	\$2,763,100

Table 4 presents the T&R forecast for the four-lane divided toll road based on a \$1.00 toll rate.

Table 4- Traffic and Revenue Forecasts for Four Lane Divided Alternative

Traffic and Revenue Forecasts based on toll rate of \$1.00

Year	Annual Transactions			Annual Revenue (Nominal Dollars)		
	Auto	Truck	Total	Auto	Truck	Total
2015	1,266,600	33,800	1,300,400	\$1,103,200	\$64,700	\$1,167,900
2016	1,565,400	41,700	1,607,100	\$1,413,500	\$82,900	\$1,496,400
2017	1,879,300	50,100	1,929,400	\$1,747,700	\$102,500	\$1,850,200
2018	2,208,300	58,800	2,267,100	\$2,102,300	\$123,200	\$2,225,500
2019	2,552,500	68,000	2,620,500	\$2,473,400	\$145,000	\$2,618,400
2020	2,911,800	77,600	2,989,400	\$2,841,900	\$166,600	\$3,008,500
2021	2,987,500	79,600	3,067,100	\$2,957,600	\$173,400	\$3,131,000
2022	3,063,200	81,600	3,144,800	\$3,032,600	\$177,800	\$3,210,400
2023	3,138,900	83,600	3,222,500	\$3,107,500	\$182,200	\$3,289,700
2024	3,214,600	85,700	3,300,300	\$3,182,500	\$186,600	\$3,369,100
2025	3,290,300	87,700	3,378,000	\$3,257,400	\$191,000	\$3,448,400
2026	3,366,000	89,700	3,455,700	\$3,332,400	\$195,300	\$3,527,700
2027	3,441,800	91,700	3,533,500	\$3,407,300	\$199,700	\$3,607,000
2028	3,517,500	93,700	3,611,200	\$3,482,300	\$204,100	\$3,686,400
2029	3,593,200	95,700	3,688,900	\$3,557,200	\$208,500	\$3,765,700
2030	3,668,900	97,800	3,766,700	\$3,632,200	\$212,900	\$3,845,100
2031	3,743,900	99,800	3,843,700	\$3,706,400	\$217,300	\$3,923,700
2032	3,818,100	101,700	3,919,800	\$3,779,900	\$221,600	\$4,001,500
2033	3,891,500	103,700	3,995,200	\$3,852,600	\$225,800	\$4,078,400
2034	3,964,100	105,600	4,069,700	\$3,924,400	\$230,100	\$4,154,500
2035	4,035,800	107,500	4,143,300	\$3,995,400	\$234,200	\$4,229,600
2036	4,106,600	109,400	4,216,000	\$4,065,600	\$238,300	\$4,303,900
2037	4,176,500	111,300	4,287,800	\$4,134,800	\$242,400	\$4,377,200
2038	4,245,500	113,100	4,358,600	\$4,203,100	\$246,400	\$4,449,500
2039	4,313,500	114,900	4,428,400	\$4,270,400	\$250,300	\$4,520,700
2040	4,380,500	116,700	4,497,200	\$4,336,700	\$254,200	\$4,590,900
2041	4,446,600	118,500	4,565,100	\$4,402,100	\$258,100	\$4,660,200
2042	4,511,600	120,200	4,631,800	\$4,466,400	\$261,800	\$4,728,200
2043	4,575,500	121,900	4,697,400	\$4,529,800	\$265,500	\$4,795,300
2044	4,638,500	123,600	4,762,100	\$4,592,100	\$269,200	\$4,861,300

Appendix B
Detailed HCS Output

HCM 2010 TWSC 4: NB SR 429 Ramp & New Independence Pkwy
 2017 - No Build - AM Peak

11/12/2015

Intersection

Int Delay, s/veh 2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	137	0	0	105	113	24	0	100	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	None
Storage Length	215	-	-	-	-	300	0	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	149	0	0	114	123	26	0	109	0	0	0

Major/Minor

	Major1		Major2		Minor1				
Conflicting Flow All	114	0	0	149	0	0	217	274	74
Stage 1	-	-	-	-	-	-	160	160	-
Stage 2	-	-	-	-	-	-	57	114	-
Critical Hdwy	4.14	-	-	4.14	-	-	6.84	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	5.84	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.84	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32
Pot Cap-1 Maneuver	1473	-	-	1430	-	-	752	632	973
Stage 1	-	-	-	-	-	-	852	764	-
Stage 2	-	-	-	-	-	-	959	800	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1473	-	-	1430	-	-	749	0	973
Mov Cap-2 Maneuver	-	-	-	-	-	-	745	0	-
Stage 1	-	-	-	-	-	-	849	0	-
Stage 2	-	-	-	-	-	-	959	0	-

Approach

	EB	WB	NB
HCM Control Delay, s	0.3	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt

	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	745	973	1473	-	-	1430	-	-
HCM Lane V/C Ratio	0.035	0.112	0.004	-	-	-	-	-
HCM Control Delay (s)	10	9.2	7.5	-	-	0	-	-
HCM Lane LOS	B	A	A	-	-	A	-	-
HCM 95th %tile Q(veh)	0.1	0.4	0	-	-	0	-	-

HCM 2010 TWSC 7: SB SR 429 Ramp & New Independence Pkwy
2017 - No Build - AM Peak

11/12/2015

Intersection

Int Delay, s/veh 7.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	29	29	100	29	0	0	0	0	113	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	300	220	-	-	-	-	-	0	-	380
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	32	32	109	32	0	0	0	0	123	0	0

Major/Minor

	Major1			Major2			Minor2		
Conflicting Flow All	32	0	-	32	0	0	265	281	16
Stage 1	-	-	-	-	-	-	249	249	-
Stage 2	-	-	-	-	-	-	16	32	-
Critical Hdwy	4.14	-	-	4.14	-	-	6.84	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	5.84	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.84	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32
Pot Cap-1 Maneuver	1579	-	0	1579	-	-	702	626	1059
Stage 1	-	-	0	-	-	-	769	699	-
Stage 2	-	-	0	-	-	-	1004	868	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1579	-	-	1579	-	-	654	0	1059
Mov Cap-2 Maneuver	-	-	-	-	-	-	642	0	-
Stage 1	-	-	-	-	-	-	716	0	-
Stage 2	-	-	-	-	-	-	1004	0	-

Approach

	EB	WB	SB
HCM Control Delay, s	0	5.8	11.9
HCM LOS			B

Minor Lane/Major Mvmt

	EBL	EBT	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1579	-	1579	-	-	642	-
HCM Lane V/C Ratio	-	-	0.069	-	-	0.191	-
HCM Control Delay (s)	0	-	7.4	-	-	11.9	0
HCM Lane LOS	A	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0	-	0.2	-	-	0.7	-

HCM 2010 TWSC 4: NB SR 429 Ramp & New Independence Pkwy
 2017 - No Build - PM Peak

11/12/2015

Intersection

Int Delay, s/veh 2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	137	0	0	105	113	24	0	100	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	None
Storage Length	215	-	-	-	-	300	0	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	149	0	0	114	123	26	0	109	0	0	0

Major/Minor

	Major1		Major2		Minor1				
Conflicting Flow All	114	0	0	149	0	0	217	274	74
Stage 1	-	-	-	-	-	-	160	160	-
Stage 2	-	-	-	-	-	-	57	114	-
Critical Hdwy	4.14	-	-	4.14	-	-	6.84	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	5.84	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.84	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32
Pot Cap-1 Maneuver	1473	-	-	1430	-	-	752	632	973
Stage 1	-	-	-	-	-	-	852	764	-
Stage 2	-	-	-	-	-	-	959	800	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1473	-	-	1430	-	-	749	0	973
Mov Cap-2 Maneuver	-	-	-	-	-	-	745	0	-
Stage 1	-	-	-	-	-	-	849	0	-
Stage 2	-	-	-	-	-	-	959	0	-

Approach

	EB	WB	NB
HCM Control Delay, s	0.3	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt

	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	745	973	1473	-	-	1430	-	-
HCM Lane V/C Ratio	0.035	0.112	0.004	-	-	-	-	-
HCM Control Delay (s)	10	9.2	7.5	-	-	0	-	-
HCM Lane LOS	B	A	A	-	-	A	-	-
HCM 95th %tile Q(veh)	0.1	0.4	0	-	-	0	-	-

HCM 2010 TWSC 7: SB SR 429 Ramp & New Independence Pkwy
 2017 - No Build - PM Peak

11/12/2015

Intersection

Int Delay, s/veh 7.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	29	29	100	29	0	0	0	0	113	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	300	220	-	-	-	-	-	0	-	380
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	32	32	109	32	0	0	0	0	123	0	0

Major/Minor

	Major1			Major2			Minor2		
Conflicting Flow All	32	0	-	32	0	0	265	281	16
Stage 1	-	-	-	-	-	-	249	249	-
Stage 2	-	-	-	-	-	-	16	32	-
Critical Hdwy	4.14	-	-	4.14	-	-	6.84	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	5.84	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.84	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32
Pot Cap-1 Maneuver	1579	-	0	1579	-	-	702	626	1059
Stage 1	-	-	0	-	-	-	769	699	-
Stage 2	-	-	0	-	-	-	1004	868	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1579	-	-	1579	-	-	654	0	1059
Mov Cap-2 Maneuver	-	-	-	-	-	-	642	0	-
Stage 1	-	-	-	-	-	-	716	0	-
Stage 2	-	-	-	-	-	-	1004	0	-

Approach

	EB	WB	SB
HCM Control Delay, s	0	5.8	11.9
HCM LOS			B

Minor Lane/Major Mvmt

	EBL	EBT	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1579	-	1579	-	-	642	-
HCM Lane V/C Ratio	-	-	0.069	-	-	0.191	-
HCM Control Delay (s)	0	-	7.4	-	-	11.9	0
HCM Lane LOS	A	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0	-	0.2	-	-	0.7	-

HCM 2010 TWSC 4: NB SR 429 Ramp & New Independence Pkwy
 2027 - No Build - AM Peak

11/12/2015

Intersection

Int Delay, s/veh 2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	10	259	0	0	231	248	48	0	220	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	None
Storage Length	215	-	-	-	-	300	0	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	282	0	0	251	270	52	0	239	0	0	0

Major/Minor	Major1	Major2	Minor1						
Conflicting Flow All	251	0	0	282	0	0	429	554	141
Stage 1	-	-	-	-	-	-	303	303	-
Stage 2	-	-	-	-	-	-	126	251	-
Critical Hdwy	4.14	-	-	4.14	-	-	6.84	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	5.84	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.84	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32
Pot Cap-1 Maneuver	1311	-	-	1277	-	-	554	439	881
Stage 1	-	-	-	-	-	-	723	662	-
Stage 2	-	-	-	-	-	-	886	698	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1311	-	-	1277	-	-	549	0	881
Mov Cap-2 Maneuver	-	-	-	-	-	-	602	0	-
Stage 1	-	-	-	-	-	-	717	0	-
Stage 2	-	-	-	-	-	-	886	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0.3	0	10.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	602	881	1311	-	-	1277	-	-
HCM Lane V/C Ratio	0.087	0.271	0.008	-	-	-	-	-
HCM Control Delay (s)	11.5	10.6	7.8	-	-	0	-	-
HCM Lane LOS	B	B	A	-	-	A	-	-
HCM 95th %tile Q(veh)	0.3	1.1	0	-	-	0	-	-

HCM 2010 TWSC 7: SB SR 429 Ramp & New Independence Pkwy
 2027 - No Build - AM Peak

11/12/2015

Intersection

Int Delay, s/veh 15.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	21	48	220	59	0	0	0	0	248	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	300	220	-	-	-	-	-	0	-	380
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	23	52	239	64	0	0	0	0	270	0	11

Major/Minor

	Major1		Major2		Minor2	
Conflicting Flow All	64	0	-	23	0	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	1536	-	0	1591	-	-
Stage 1	-	-	0	-	-	-
Stage 2	-	-	0	-	-	-
Platoon blocked, %						
Mov Cap-1 Maneuver	1536	-	-	1591	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach

	EB	WB	SB
HCM Control Delay, s	0	6	27.7
HCM LOS			D

Minor Lane/Major Mvmt

	EBL	EBT	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1536	-	1591	-	-	414	1035
HCM Lane V/C Ratio	-	-	0.15	-	-	0.651	0.011
HCM Control Delay (s)	0	-	7.7	-	-	28.5	8.5
HCM Lane LOS	A	-	A	-	-	D	A
HCM 95th %tile Q(veh)	0	-	0.5	-	-	4.5	0

HCM 2010 TWSC 4: NB SR 429 Ramp & New Independence Pkwy
 2027 - No Build - PM Peak

11/12/2015

Intersection

Int Delay, s/veh 2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	10	259	0	0	231	248	48	0	220	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	None
Storage Length	215	-	-	-	-	300	0	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	282	0	0	251	270	52	0	239	0	0	0

Major/Minor

	Major1		Major2		Minor1				
Conflicting Flow All	251	0	0	282	0	0	429	554	141
Stage 1	-	-	-	-	-	-	303	303	-
Stage 2	-	-	-	-	-	-	126	251	-
Critical Hdwy	4.14	-	-	4.14	-	-	6.84	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	5.84	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.84	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32
Pot Cap-1 Maneuver	1311	-	-	1277	-	-	554	439	881
Stage 1	-	-	-	-	-	-	723	662	-
Stage 2	-	-	-	-	-	-	886	698	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1311	-	-	1277	-	-	549	0	881
Mov Cap-2 Maneuver	-	-	-	-	-	-	602	0	-
Stage 1	-	-	-	-	-	-	717	0	-
Stage 2	-	-	-	-	-	-	886	0	-

Approach

	EB	WB	NB
HCM Control Delay, s	0.3	0	10.8
HCM LOS			B

Minor Lane/Major Mvmt

	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	602	881	1311	-	-	1277	-	-
HCM Lane V/C Ratio	0.087	0.271	0.008	-	-	-	-	-
HCM Control Delay (s)	11.5	10.6	7.8	-	-	0	-	-
HCM Lane LOS	B	B	A	-	-	A	-	-
HCM 95th %tile Q(veh)	0.3	1.1	0	-	-	0	-	-

HCM 2010 TWSC 7: SB SR 429 Ramp & New Independence Pkwy
 2027 - No Build - PM Peak

11/12/2015

Intersection

Int Delay, s/veh 15.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	21	48	220	59	0	0	0	0	248	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	300	220	-	-	-	-	-	0	-	380
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	23	52	239	64	0	0	0	0	270	0	11

Major/Minor

	Major1		Major2		Minor2				
Conflicting Flow All	64	0	-	23	0	0	553	565	32
Stage 1	-	-	-	-	-	-	542	542	-
Stage 2	-	-	-	-	-	-	11	23	-
Critical Hdwy	4.14	-	-	4.14	-	-	6.84	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	5.84	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.84	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32
Pot Cap-1 Maneuver	1536	-	0	1591	-	-	463	433	1035
Stage 1	-	-	0	-	-	-	547	518	-
Stage 2	-	-	0	-	-	-	1010	876	-
Platoon blocked, %		-			-				
Mov Cap-1 Maneuver	1536	-	-	1591	-	-	393	0	1035
Mov Cap-2 Maneuver	-	-	-	-	-	-	414	0	-
Stage 1	-	-	-	-	-	-	465	0	-
Stage 2	-	-	-	-	-	-	1010	0	-

Approach

	EB	WB	SB
HCM Control Delay, s	0	6	27.7
HCM LOS			D

Minor Lane/Major Mvmt

	EBL	EBT	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1536	-	1591	-	-	414	1035
HCM Lane V/C Ratio	-	-	0.15	-	-	0.651	0.011
HCM Control Delay (s)	0	-	7.7	-	-	28.5	8.5
HCM Lane LOS	A	-	A	-	-	D	A
HCM 95th %tile Q(veh)	0	-	0.5	-	-	4.5	0

HCM 2010 TWSC 4: NB SR 429 Ramp & New Independence Pkwy
 2037 - No Build - AM Peak

11/12/2015

Intersection

Int Delay, s/veh 4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	19	467	0	0	416	447	96	0	396	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	None
Storage Length	215	-	-	-	-	300	0	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	508	0	0	452	486	104	0	430	0	0	0

Major/Minor

	Major1		Major2		Minor1				
Conflicting Flow All	452	0	0	508	0	0	775	1001	254
Stage 1	-	-	-	-	-	-	549	549	-
Stage 2	-	-	-	-	-	-	226	452	-
Critical Hdwy	4.14	-	-	4.14	-	-	6.84	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	5.84	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.84	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32
Pot Cap-1 Maneuver	1105	-	-	1053	-	-	335	241	745
Stage 1	-	-	-	-	-	-	542	515	-
Stage 2	-	-	-	-	-	-	790	569	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1105	-	-	1053	-	-	329	0	745
Mov Cap-2 Maneuver	-	-	-	-	-	-	427	0	-
Stage 1	-	-	-	-	-	-	532	0	-
Stage 2	-	-	-	-	-	-	790	0	-

Approach

	EB	WB	NB
HCM Control Delay, s	0.3	0	16.2
HCM LOS			C

Minor Lane/Major Mvmt

	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	427	745	1105	-	-	1053	-	-
HCM Lane V/C Ratio	0.244	0.578	0.019	-	-	-	-	-
HCM Control Delay (s)	16.1	16.2	8.3	-	-	0	-	-
HCM Lane LOS	C	C	A	-	-	A	-	-
HCM 95th %tile Q(veh)	0.9	3.7	0.1	-	-	0	-	-

HCM 2010 TWSC 7: SB SR 429 Ramp & New Independence Pkwy
 2037 - No Build - AM Peak

11/12/2015

Intersection

Int Delay, s/veh 294.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	39	96	396	116	0	0	0	0	447	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	300	220	-	-	-	-	-	0	-	380
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	42	104	430	126	0	0	0	0	486	0	21

Major/Minor

	Major1			Major2			Minor2		
Conflicting Flow All	126	0	-	42	0	0	1008	1029	63
Stage 1	-	-	-	-	-	-	987	987	-
Stage 2	-	-	-	-	-	-	21	42	-
Critical Hdwy	4.14	-	-	4.14	-	-	6.84	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	5.84	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.84	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32
Pot Cap-1 Maneuver	1458	-	0	1565	-	-	~ 237	232	988
Stage 1	-	-	0	-	-	-	~ 322	324	-
Stage 2	-	-	0	-	-	-	999	859	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1458	-	-	1565	-	-	~ 172	0	988
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 206	0	-
Stage 1	-	-	-	-	-	-	~ 234	0	-
Stage 2	-	-	-	-	-	-	999	0	-

Approach

	EB	WB	SB
HCM Control Delay, s	0	6.3	\$ 636.1
HCM LOS			F

Minor Lane/Major Mvmt

	EBL	EBT	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1458	-	1565	-	-	206	988
HCM Lane V/C Ratio	-	-	0.275	-	-	2.359	0.021
HCM Control Delay (s)	0	-	8.2	-	-\$ 662.8	8.7	
HCM Lane LOS	A	-	A	-	-	F	A
HCM 95th %tile Q(veh)	0	-	1.1	-	-	39.6	0.1

Notes

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

HCM 2010 TWSC 4: NB SR 429 Ramp & New Independence Pkwy
 2037 - No Build - PM Peak

11/12/2015

Intersection

Int Delay, s/veh 4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	19	467	0	0	416	447	96	0	396	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	None
Storage Length	215	-	-	-	-	300	0	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	508	0	0	452	486	104	0	430	0	0	0

Major/Minor

	Major1		Major2		Minor1				
Conflicting Flow All	452	0	0	508	0	0	775	1001	254
Stage 1	-	-	-	-	-	-	549	549	-
Stage 2	-	-	-	-	-	-	226	452	-
Critical Hdwy	4.14	-	-	4.14	-	-	6.84	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	5.84	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.84	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32
Pot Cap-1 Maneuver	1105	-	-	1053	-	-	335	241	745
Stage 1	-	-	-	-	-	-	542	515	-
Stage 2	-	-	-	-	-	-	790	569	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1105	-	-	1053	-	-	329	0	745
Mov Cap-2 Maneuver	-	-	-	-	-	-	427	0	-
Stage 1	-	-	-	-	-	-	532	0	-
Stage 2	-	-	-	-	-	-	790	0	-

Approach

	EB	WB	NB
HCM Control Delay, s	0.3	0	16.2
HCM LOS			C

Minor Lane/Major Mvmt

	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	427	745	1105	-	-	1053	-	-
HCM Lane V/C Ratio	0.244	0.578	0.019	-	-	-	-	-
HCM Control Delay (s)	16.1	16.2	8.3	-	-	0	-	-
HCM Lane LOS	C	C	A	-	-	A	-	-
HCM 95th %tile Q(veh)	0.9	3.7	0.1	-	-	0	-	-

HCM 2010 TWSC 7: SB SR 429 Ramp & New Independence Pkwy
 2037 - No Build - PM Peak

11/12/2015

Intersection

Int Delay, s/veh 294.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	39	96	396	116	0	0	0	0	447	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	300	220	-	-	-	-	-	0	-	380
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	42	104	430	126	0	0	0	0	486	0	21

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	126	0	-	42	0	0	1008	1029	63
Stage 1	-	-	-	-	-	-	987	987	-
Stage 2	-	-	-	-	-	-	21	42	-
Critical Hdwy	4.14	-	-	4.14	-	-	6.84	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	5.84	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.84	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32
Pot Cap-1 Maneuver	1458	-	0	1565	-	-	~ 237	232	988
Stage 1	-	-	0	-	-	-	~ 322	324	-
Stage 2	-	-	0	-	-	-	999	859	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1458	-	-	1565	-	-	~ 172	0	988
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 206	0	-
Stage 1	-	-	-	-	-	-	~ 234	0	-
Stage 2	-	-	-	-	-	-	999	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	6.3	\$ 636.1
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1458	-	1565	-	-	206	988
HCM Lane V/C Ratio	-	-	0.275	-	-	2.359	0.021
HCM Control Delay (s)	0	-	8.2	-	-\$ 662.8	8.7	
HCM Lane LOS	A	-	A	-	-	F	A
HCM 95th %tile Q(veh)	0	-	1.1	-	-	39.6	0.1

Notes

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













HCM 2010 Signalized Intersection Summary
4: NB SR 429 Ramp & New Independence Pkwy

Wellness Way
2017 - Build AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	8	124	0	0	111	113	73	0	100	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	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			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1863	0	1863			
Adj Flow Rate, veh/h	9	135	0	0	121	0	79	0	109			
Adj No. of Lanes	2	2	0	0	2	1	1	0	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	0	2			
Cap, veh/h	55	1422	0	0	1062	475	175	0	156			
Arrive On Green	0.02	0.40	0.00	0.00	0.30	0.00	0.10	0.00	0.10			
Sat Flow, veh/h	3442	3632	0	0	3632	1583	1774	0	1583			
Grp Volume(v), veh/h	9	135	0	0	121	0	79	0	109			
Grp Sat Flow(s),veh/h/ln	1721	1770	0	0	1770	1583	1774	0	1583			
Q Serve(g_s), s	0.2	1.7	0.0	0.0	1.7	0.0	2.9	0.0	4.7			
Cycle Q Clear(g_c), s	0.2	1.7	0.0	0.0	1.7	0.0	2.9	0.0	4.7			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	55	1422	0	0	1062	475	175	0	156			
V/C Ratio(X)	0.16	0.09	0.00	0.00	0.11	0.00	0.45	0.00	0.70			
Avail Cap(c_a), veh/h	541	1921	0	0	1062	475	507	0	452			
HCM Platoon Ratio	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	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	34.0	13.0	0.0	0.0	17.8	0.0	29.8	0.0	30.5			
Incr Delay (d2), s/veh	1.4	0.0	0.0	0.0	0.2	0.0	1.8	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			
%ile BackOfQ(50%),veh/ln	0.1	0.8	0.0	0.0	0.9	0.0	1.5	0.0	2.3			
LnGrp Delay(d),s/veh	35.3	13.1	0.0	0.0	18.0	0.0	31.6	0.0	36.0			
LnGrp LOS	D	B			B		C		D			
Approach Vol, veh/h		144			121			188				
Approach Delay, s/veh		14.4			18.0			34.2				
Approach LOS		B			B			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		34.1			7.1	27.0		12.9				
Change Period (Y+Rc), s		6.0			6.0	6.0		6.0				
Max Green Setting (Gmax), s		38.0			11.0	21.0		20.0				
Max Q Clear Time (g_c+I1), s		3.7			2.2	3.7		6.7				
Green Ext Time (p_c), s		0.8			0.4	0.5		0.4				
Intersection Summary												
HCM 2010 Ctrl Delay					23.6							
HCM 2010 LOS					C							

HCM 2010 Signalized Intersection Summary
 7: SB SR 429 Ramp & New Independence Pkwy

Wellness Way
 2017 - Build AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑		↑
Volume (veh/h)	0	19	73	100	84	0	0	0	0	113	0	8
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	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
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1676	1676	1676	1676	0				1676	0	1676
Adj Flow Rate, veh/h	0	21	0	109	91	0				123	0	0
Adj No. of Lanes	0	2	1	2	2	0				1	0	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	319	142	1106	1729	0				155	0	139
Arrive On Green	0.00	0.10	0.00	0.36	0.54	0.00				0.10	0.00	0.00
Sat Flow, veh/h	0	3269	1425	3097	3269	0				1597	0	1425
Grp Volume(v), veh/h	0	21	0	109	91	0				123	0	0
Grp Sat Flow(s),veh/h/ln	0	1593	1425	1549	1593	0				1597	0	1425
Q Serve(g_s), s	0.0	0.4	0.0	1.6	0.9	0.0				5.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.4	0.0	1.6	0.9	0.0				5.3	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	319	142	1106	1729	0				155	0	139
V/C Ratio(X)	0.00	0.07	0.00	0.10	0.05	0.00				0.79	0.00	0.00
Avail Cap(c_a), veh/h	0	728	326	1106	1729	0				456	0	407
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	28.5	0.0	15.0	7.5	0.0				30.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.1	0.0				8.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.0	0.7	0.4	0.0				2.7	0.0	0.0
LnGrp Delay(d),s/veh	0.0	28.6	0.0	15.0	7.6	0.0				39.6	0.0	0.0
LnGrp LOS		C		B	A					D		
Approach Vol, veh/h		21			200						123	
Approach Delay, s/veh		28.6			11.6						39.6	
Approach LOS		C			B						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	31.0	13.0		12.8		44.0						
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0						
Max Green Setting (Gmax), s	16.0	16.0		20.0		38.0						
Max Q Clear Time (g_c+I1), s	3.6	2.4		7.3		2.9						
Green Ext Time (p_c), s	0.6	0.0		0.2		0.9						
Intersection Summary												
HCM 2010 Ctrl Delay				22.7								
HCM 2010 LOS				C								













HCM 2010 Signalized Intersection Summary
 4: NB SR 429 Ramp & New Independence Pkwy

Wellness Way
 2017 - Build PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	8	124	0	0	111	113	73	0	100	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	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			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1863	0	1863			
Adj Flow Rate, veh/h	9	135	0	0	121	0	79	0	109			
Adj No. of Lanes	2	2	0	0	2	1	1	0	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	0	2			
Cap, veh/h	55	1422	0	0	1062	475	175	0	156			
Arrive On Green	0.02	0.40	0.00	0.00	0.30	0.00	0.10	0.00	0.10			
Sat Flow, veh/h	3442	3632	0	0	3632	1583	1774	0	1583			
Grp Volume(v), veh/h	9	135	0	0	121	0	79	0	109			
Grp Sat Flow(s),veh/h/ln	1721	1770	0	0	1770	1583	1774	0	1583			
Q Serve(g_s), s	0.2	1.7	0.0	0.0	1.7	0.0	2.9	0.0	4.7			
Cycle Q Clear(g_c), s	0.2	1.7	0.0	0.0	1.7	0.0	2.9	0.0	4.7			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	55	1422	0	0	1062	475	175	0	156			
V/C Ratio(X)	0.16	0.09	0.00	0.00	0.11	0.00	0.45	0.00	0.70			
Avail Cap(c_a), veh/h	541	1921	0	0	1062	475	507	0	452			
HCM Platoon Ratio	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	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	34.0	13.0	0.0	0.0	17.8	0.0	29.8	0.0	30.5			
Incr Delay (d2), s/veh	1.4	0.0	0.0	0.0	0.2	0.0	1.8	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			
%ile BackOfQ(50%),veh/ln	0.1	0.8	0.0	0.0	0.9	0.0	1.5	0.0	2.3			
LnGrp Delay(d),s/veh	35.3	13.1	0.0	0.0	18.0	0.0	31.6	0.0	36.0			
LnGrp LOS	D	B			B		C		D			
Approach Vol, veh/h		144			121			188				
Approach Delay, s/veh		14.4			18.0			34.2				
Approach LOS		B			B			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		34.1			7.1	27.0		12.9				
Change Period (Y+Rc), s		6.0			6.0	6.0		6.0				
Max Green Setting (Gmax), s		38.0			11.0	21.0		20.0				
Max Q Clear Time (g_c+I1), s		3.7			2.2	3.7		6.7				
Green Ext Time (p_c), s		0.8			0.4	0.5		0.4				
Intersection Summary												
HCM 2010 Ctrl Delay					23.6							
HCM 2010 LOS					C							



















HCM 2010 Signalized Intersection Summary
 7: SB SR 429 Ramp & New Independence Pkwy

Wellness Way
 2017 - Build PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑		↑
Volume (veh/h)	0	19	73	100	84	0	0	0	0	113	0	8
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	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
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1676	1676	1676	1676	0				1676	0	1676
Adj Flow Rate, veh/h	0	21	0	109	91	0				123	0	0
Adj No. of Lanes	0	2	1	2	2	0				1	0	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	319	142	1106	1729	0				155	0	139
Arrive On Green	0.00	0.10	0.00	0.36	0.54	0.00				0.10	0.00	0.00
Sat Flow, veh/h	0	3269	1425	3097	3269	0				1597	0	1425
Grp Volume(v), veh/h	0	21	0	109	91	0				123	0	0
Grp Sat Flow(s),veh/h/ln	0	1593	1425	1549	1593	0				1597	0	1425
Q Serve(g_s), s	0.0	0.4	0.0	1.6	0.9	0.0				5.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.4	0.0	1.6	0.9	0.0				5.3	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	319	142	1106	1729	0				155	0	139
V/C Ratio(X)	0.00	0.07	0.00	0.10	0.05	0.00				0.79	0.00	0.00
Avail Cap(c_a), veh/h	0	728	326	1106	1729	0				456	0	407
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	28.5	0.0	15.0	7.5	0.0				30.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.1	0.0				8.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.0	0.7	0.4	0.0				2.7	0.0	0.0
LnGrp Delay(d),s/veh	0.0	28.6	0.0	15.0	7.6	0.0				39.6	0.0	0.0
LnGrp LOS		C		B	A					D		
Approach Vol, veh/h		21			200						123	
Approach Delay, s/veh		28.6			11.6						39.6	
Approach LOS		C			B						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	31.0	13.0		12.8		44.0						
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0						
Max Green Setting (Gmax), s	16.0	16.0		20.0		38.0						
Max Q Clear Time (g_c+I1), s	3.6	2.4		7.3		2.9						
Green Ext Time (p_c), s	0.6	0.0		0.2		0.9						
Intersection Summary												
HCM 2010 Ctrl Delay				22.7								
HCM 2010 LOS				C								













HCM 2010 Signalized Intersection Summary
 4: NB SR 429 Ramp & New Independence Pkwy

Wellness Way
 2027 - Build AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	219	270	0	0	242	248	107	0	220	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	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			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1863	0	1863			
Adj Flow Rate, veh/h	238	293	0	0	263	0	116	0	239			
Adj No. of Lanes	2	2	0	0	2	1	1	0	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	0	2			
Cap, veh/h	316	1740	0	0	1213	543	310	0	277			
Arrive On Green	0.09	0.49	0.00	0.00	0.34	0.00	0.17	0.00	0.17			
Sat Flow, veh/h	3442	3632	0	0	3632	1583	1774	0	1583			
Grp Volume(v), veh/h	238	293	0	0	263	0	116	0	239			
Grp Sat Flow(s),veh/h/ln	1721	1770	0	0	1770	1583	1774	0	1583			
Q Serve(g_s), s	7.1	4.8	0.0	0.0	5.5	0.0	6.1	0.0	15.4			
Cycle Q Clear(g_c), s	7.1	4.8	0.0	0.0	5.5	0.0	6.1	0.0	15.4			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	316	1740	0	0	1213	543	310	0	277			
V/C Ratio(X)	0.75	0.17	0.00	0.00	0.22	0.00	0.37	0.00	0.86			
Avail Cap(c_a), veh/h	656	2090	0	0	1213	543	524	0	467			
HCM Platoon Ratio	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	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	46.5	14.8	0.0	0.0	24.5	0.0	38.2	0.0	42.1			
Incr Delay (d2), s/veh	3.7	0.0	0.0	0.0	0.4	0.0	0.7	0.0	8.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.5	2.4	0.0	0.0	2.8	0.0	3.0	0.0	7.4			
LnGrp Delay(d),s/veh	50.2	14.8	0.0	0.0	24.9	0.0	39.0	0.0	50.5			
LnGrp LOS	D	B			C		D		D			
Approach Vol, veh/h		531			263			355				
Approach Delay, s/veh		30.7			24.9			46.7				
Approach LOS		C			C			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		57.6			15.6	42.0		24.4				
Change Period (Y+Rc), s		6.0			6.0	6.0		6.0				
Max Green Setting (Gmax), s		62.0			20.0	36.0		31.0				
Max Q Clear Time (g_c+I1), s		6.8			9.1	7.5		17.4				
Green Ext Time (p_c), s		3.6			0.6	3.4		1.0				
Intersection Summary												
HCM 2010 Ctrl Delay					34.3							
HCM 2010 LOS					C							

HCM 2010 Signalized Intersection Summary
 7: SB SR 429 Ramp & New Independence Pkwy

Wellness Way
 2027 - Build AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑		↑
Volume (veh/h)	0	241	107	220	129	0	0	0	0	248	0	219
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	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
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1676	1676	1676	1676	0				1676	0	1676
Adj Flow Rate, veh/h	0	262	0	239	140	0				270	0	0
Adj No. of Lanes	0	2	1	2	2	0				1	0	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	1047	468	309	1547	0				305	0	272
Arrive On Green	0.00	0.33	0.00	0.10	0.49	0.00				0.19	0.00	0.00
Sat Flow, veh/h	0	3269	1425	3097	3269	0				1597	0	1425
Grp Volume(v), veh/h	0	262	0	239	140	0				270	0	0
Grp Sat Flow(s),veh/h/ln	0	1593	1425	1549	1593	0				1597	0	1425
Q Serve(g_s), s	0.0	6.3	0.0	7.9	2.5	0.0				17.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	6.3	0.0	7.9	2.5	0.0				17.3	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1047	468	309	1547	0				305	0	272
V/C Ratio(X)	0.00	0.25	0.00	0.77	0.09	0.00				0.89	0.00	0.00
Avail Cap(c_a), veh/h	0	1047	468	649	1547	0				639	0	570
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.98	0.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	25.8	0.0	46.1	14.5	0.0				41.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	4.1	0.1	0.0				8.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.8	0.0	3.6	1.1	0.0				8.4	0.0	0.0
LnGrp Delay(d),s/veh	0.0	25.9	0.0	50.2	14.6	0.0				49.8	0.0	0.0
LnGrp LOS		C		D	B					D		
Approach Vol, veh/h		262			379						270	
Approach Delay, s/veh		25.9			37.1						49.8	
Approach LOS		C			D						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	16.5	40.5		26.1		57.0						
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0						
Max Green Setting (Gmax), s	22.0	23.0		42.0		51.0						
Max Q Clear Time (g_c+I1), s	9.9	8.3		19.3		4.5						
Green Ext Time (p_c), s	0.6	1.9		0.8		2.4						
Intersection Summary												
HCM 2010 Ctrl Delay				37.6								
HCM 2010 LOS				D								













HCM 2010 Signalized Intersection Summary
 4: NB SR 429 Ramp & New Independence Pkwy

Wellness Way
 2027 - Build PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	219	270	0	0	242	248	107	0	220	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	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			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1863	0	1863			
Adj Flow Rate, veh/h	238	293	0	0	263	0	116	0	239			
Adj No. of Lanes	2	2	0	0	2	1	1	0	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	0	2			
Cap, veh/h	316	1740	0	0	1213	543	310	0	277			
Arrive On Green	0.09	0.49	0.00	0.00	0.34	0.00	0.17	0.00	0.17			
Sat Flow, veh/h	3442	3632	0	0	3632	1583	1774	0	1583			
Grp Volume(v), veh/h	238	293	0	0	263	0	116	0	239			
Grp Sat Flow(s),veh/h/ln	1721	1770	0	0	1770	1583	1774	0	1583			
Q Serve(g_s), s	7.1	4.8	0.0	0.0	5.5	0.0	6.1	0.0	15.4			
Cycle Q Clear(g_c), s	7.1	4.8	0.0	0.0	5.5	0.0	6.1	0.0	15.4			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	316	1740	0	0	1213	543	310	0	277			
V/C Ratio(X)	0.75	0.17	0.00	0.00	0.22	0.00	0.37	0.00	0.86			
Avail Cap(c_a), veh/h	656	2090	0	0	1213	543	524	0	467			
HCM Platoon Ratio	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	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	46.5	14.8	0.0	0.0	24.5	0.0	38.2	0.0	42.1			
Incr Delay (d2), s/veh	3.7	0.0	0.0	0.0	0.4	0.0	0.7	0.0	8.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.5	2.4	0.0	0.0	2.8	0.0	3.0	0.0	7.4			
LnGrp Delay(d),s/veh	50.2	14.8	0.0	0.0	24.9	0.0	39.0	0.0	50.5			
LnGrp LOS	D	B			C		D		D			
Approach Vol, veh/h		531			263			355				
Approach Delay, s/veh		30.7			24.9			46.7				
Approach LOS		C			C			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		57.6			15.6	42.0		24.4				
Change Period (Y+Rc), s		6.0			6.0	6.0		6.0				
Max Green Setting (Gmax), s		62.0			20.0	36.0		31.0				
Max Q Clear Time (g_c+I1), s		6.8			9.1	7.5		17.4				
Green Ext Time (p_c), s		3.6			0.6	3.4		1.0				
Intersection Summary												
HCM 2010 Ctrl Delay			34.3									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
 7: SB SR 429 Ramp & New Independence Pkwy

Wellness Way
 2027 - Build PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↗↗	↑↑					↘		↗
Volume (veh/h)	0	241	107	220	129	0	0	0	0	248	0	219
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	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
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1676	1676	1676	1676	0				1676	0	1676
Adj Flow Rate, veh/h	0	262	0	239	140	0				270	0	0
Adj No. of Lanes	0	2	1	2	2	0				1	0	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	1047	468	309	1547	0				305	0	272
Arrive On Green	0.00	0.33	0.00	0.10	0.49	0.00				0.19	0.00	0.00
Sat Flow, veh/h	0	3269	1425	3097	3269	0				1597	0	1425
Grp Volume(v), veh/h	0	262	0	239	140	0				270	0	0
Grp Sat Flow(s),veh/h/ln	0	1593	1425	1549	1593	0				1597	0	1425
Q Serve(g_s), s	0.0	6.3	0.0	7.9	2.5	0.0				17.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	6.3	0.0	7.9	2.5	0.0				17.3	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1047	468	309	1547	0				305	0	272
V/C Ratio(X)	0.00	0.25	0.00	0.77	0.09	0.00				0.89	0.00	0.00
Avail Cap(c_a), veh/h	0	1047	468	649	1547	0				639	0	570
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.98	0.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	25.8	0.0	46.1	14.5	0.0				41.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	4.1	0.1	0.0				8.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.8	0.0	3.6	1.1	0.0				8.4	0.0	0.0
LnGrp Delay(d),s/veh	0.0	25.9	0.0	50.2	14.6	0.0				49.8	0.0	0.0
LnGrp LOS		C		D	B					D		
Approach Vol, veh/h		262			379						270	
Approach Delay, s/veh		25.9			37.1						49.8	
Approach LOS		C			D						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	16.5	40.5		26.1		57.0						
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0						
Max Green Setting (Gmax), s	22.0	23.0		42.0		51.0						
Max Q Clear Time (g_c+I1), s	9.9	8.3		19.3		4.5						
Green Ext Time (p_c), s	0.6	1.9		0.8		2.4						
Intersection Summary												
HCM 2010 Ctrl Delay				37.6								
HCM 2010 LOS				D								

HCM 2010 Signalized Intersection Summary
 4: NB SR 429 Ramp & New Independence Pkwy

Wellness Way
 2037 - Build AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	426	491	0	0	440	447	137	0	396	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	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			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1863	0	1863			
Adj Flow Rate, veh/h	463	534	0	0	478	0	149	0	430			
Adj No. of Lanes	2	2	0	0	2	1	1	0	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	0	2			
Cap, veh/h	538	1910	0	0	1180	528	511	0	456			
Arrive On Green	0.16	0.54	0.00	0.00	0.33	0.00	0.29	0.00	0.29			
Sat Flow, veh/h	3442	3632	0	0	3632	1583	1774	0	1583			
Grp Volume(v), veh/h	463	534	0	0	478	0	149	0	430			
Grp Sat Flow(s),veh/h/ln	1721	1770	0	0	1770	1583	1774	0	1583			
Q Serve(g_s), s	15.7	9.8	0.0	0.0	12.5	0.0	7.8	0.0	31.8			
Cycle Q Clear(g_c), s	15.7	9.8	0.0	0.0	12.5	0.0	7.8	0.0	31.8			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	538	1910	0	0	1180	528	511	0	456			
V/C Ratio(X)	0.86	0.28	0.00	0.00	0.41	0.00	0.29	0.00	0.94			
Avail Cap(c_a), veh/h	717	2094	0	0	1180	528	547	0	488			
HCM Platoon Ratio	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	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	49.4	15.0	0.0	0.0	30.8	0.0	33.2	0.0	41.7			
Incr Delay (d2), s/veh	8.2	0.1	0.0	0.0	1.0	0.0	0.3	0.0	26.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	8.1	4.8	0.0	0.0	6.3	0.0	3.9	0.0	17.3			
LnGrp Delay(d),s/veh	57.5	15.1	0.0	0.0	31.9	0.0	33.5	0.0	67.9			
LnGrp LOS	E	B			C		C		E			
Approach Vol, veh/h		997			478			579				
Approach Delay, s/veh		34.8			31.9			59.1				
Approach LOS		C			C			E				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		70.7			24.7	46.0		40.6				
Change Period (Y+Rc), s		6.0			6.0	6.0		6.0				
Max Green Setting (Gmax), s		71.0			25.0	40.0		37.0				
Max Q Clear Time (g_c+I1), s		11.8			17.7	14.5		33.8				
Green Ext Time (p_c), s		7.5			1.0	6.7		0.7				
Intersection Summary												
HCM 2010 Ctrl Delay					40.9							
HCM 2010 LOS					D							



















HCM 2010 Signalized Intersection Summary
 7: SB SR 429 Ramp & New Independence Pkwy

Wellness Way
 2037 - Build AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑		↑
Volume (veh/h)	0	470	137	396	181	0	0	0	0	447	0	426
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	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
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1676	1676	1676	1676	0				1676	0	1676
Adj Flow Rate, veh/h	0	511	0	430	197	0				486	0	0
Adj No. of Lanes	0	2	1	2	2	0				1	0	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	850	380	490	1513	0				517	0	462
Arrive On Green	0.00	0.27	0.00	0.16	0.48	0.00				0.32	0.00	0.00
Sat Flow, veh/h	0	3269	1425	3097	3269	0				1597	0	1425
Grp Volume(v), veh/h	0	511	0	430	197	0				486	0	0
Grp Sat Flow(s),veh/h/ln	0	1593	1425	1549	1593	0				1597	0	1425
Q Serve(g_s), s	0.0	16.8	0.0	16.3	4.2	0.0				35.5	0.0	0.0
Cycle Q Clear(g_c), s	0.0	16.8	0.0	16.3	4.2	0.0				35.5	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	850	380	490	1513	0				517	0	462
V/C Ratio(X)	0.00	0.60	0.00	0.88	0.13	0.00				0.94	0.00	0.00
Avail Cap(c_a), veh/h	0	850	380	594	1513	0				679	0	606
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.90	0.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	38.4	0.0	49.4	17.6	0.0				39.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.1	0.0	12.3	0.2	0.0				18.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	7.5	0.0	7.8	1.9	0.0				18.3	0.0	0.0
LnGrp Delay(d),s/veh	0.0	39.5	0.0	61.6	17.8	0.0				57.5	0.0	0.0
LnGrp LOS		D		E	B					E		
Approach Vol, veh/h		511			627						486	
Approach Delay, s/veh		39.5			47.9						57.5	
Approach LOS		D			D						E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	25.0	38.0		44.9		63.0						
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0						
Max Green Setting (Gmax), s	23.0	28.0		51.0		57.0						
Max Q Clear Time (g_c+I1), s	18.3	18.8		37.5		6.2						
Green Ext Time (p_c), s	0.7	2.8		1.4		4.6						
Intersection Summary												
HCM 2010 Ctrl Delay				48.1								
HCM 2010 LOS				D								

HCM 2010 Signalized Intersection Summary
 4: NB SR 429 Ramp & New Independence Pkwy

Wellness Way
 2037 - Build PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	426	491	0	0	440	447	137	0	396	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	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			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1863	0	1863			
Adj Flow Rate, veh/h	463	534	0	0	478	0	149	0	430			
Adj No. of Lanes	2	2	0	0	2	1	1	0	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	0	2			
Cap, veh/h	538	1910	0	0	1180	528	511	0	456			
Arrive On Green	0.16	0.54	0.00	0.00	0.33	0.00	0.29	0.00	0.29			
Sat Flow, veh/h	3442	3632	0	0	3632	1583	1774	0	1583			
Grp Volume(v), veh/h	463	534	0	0	478	0	149	0	430			
Grp Sat Flow(s),veh/h/ln	1721	1770	0	0	1770	1583	1774	0	1583			
Q Serve(g_s), s	15.7	9.8	0.0	0.0	12.5	0.0	7.8	0.0	31.8			
Cycle Q Clear(g_c), s	15.7	9.8	0.0	0.0	12.5	0.0	7.8	0.0	31.8			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	538	1910	0	0	1180	528	511	0	456			
V/C Ratio(X)	0.86	0.28	0.00	0.00	0.41	0.00	0.29	0.00	0.94			
Avail Cap(c_a), veh/h	717	2094	0	0	1180	528	547	0	488			
HCM Platoon Ratio	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	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	49.4	15.0	0.0	0.0	30.8	0.0	33.2	0.0	41.7			
Incr Delay (d2), s/veh	8.2	0.1	0.0	0.0	1.0	0.0	0.3	0.0	26.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	8.1	4.8	0.0	0.0	6.3	0.0	3.9	0.0	17.3			
LnGrp Delay(d),s/veh	57.5	15.1	0.0	0.0	31.9	0.0	33.5	0.0	67.9			
LnGrp LOS	E	B			C		C		E			
Approach Vol, veh/h		997			478			579				
Approach Delay, s/veh		34.8			31.9			59.1				
Approach LOS		C			C			E				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		70.7			24.7	46.0		40.6				
Change Period (Y+Rc), s		6.0			6.0	6.0		6.0				
Max Green Setting (Gmax), s		71.0			25.0	40.0		37.0				
Max Q Clear Time (g_c+I1), s		11.8			17.7	14.5		33.8				
Green Ext Time (p_c), s		7.5			1.0	6.7		0.7				
Intersection Summary												
HCM 2010 Ctrl Delay					40.9							
HCM 2010 LOS					D							























HCM 2010 Signalized Intersection Summary
 11: Avalon Rd & New Independence Pkwy

Wellness Way
 2017 - Build AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	576	47	481	20	47	25	481	214	20	25	315	576
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	626	51	0	22	51	27	523	233	22	27	342	0
Adj No. of Lanes	2	2	1	1	2	0	2	2	0	1	1	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	698	1121	502	58	338	166	600	1130	106	68	390	332
Arrive On Green	0.20	0.32	0.00	0.03	0.15	0.15	0.17	0.35	0.35	0.04	0.21	0.00
Sat Flow, veh/h	3442	3539	1583	1774	2300	1133	3442	3272	306	1774	1863	1583
Grp Volume(v), veh/h	626	51	0	22	38	40	523	125	130	27	342	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1663	1721	1770	1809	1774	1863	1583
Q Serve(g_s), s	16.0	0.9	0.0	1.1	1.7	1.9	13.3	4.5	4.6	1.3	16.0	0.0
Cycle Q Clear(g_c), s	16.0	0.9	0.0	1.1	1.7	1.9	13.3	4.5	4.6	1.3	16.0	0.0
Prop In Lane	1.00		1.00	1.00		0.68	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	698	1121	502	58	260	244	600	611	625	68	390	332
V/C Ratio(X)	0.90	0.05	0.00	0.38	0.15	0.16	0.87	0.20	0.21	0.40	0.88	0.00
Avail Cap(c_a), veh/h	727	1121	502	138	260	244	650	611	625	138	435	369
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	35.0	21.3	0.0	42.6	33.5	33.6	36.2	20.7	20.8	42.3	34.5	0.0
Incr Delay (d2), s/veh	13.6	0.1	0.0	4.0	1.2	1.4	11.8	0.2	0.2	3.8	16.8	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	8.9	0.5	0.0	0.6	0.9	1.0	7.3	2.2	2.3	0.7	10.0	0.0
LnGrp Delay(d),s/veh	48.6	21.4	0.0	46.6	34.7	35.0	47.9	20.9	20.9	46.0	51.2	0.0
LnGrp LOS	D	C		D	C	C	D	C	C	D	D	
Approach Vol, veh/h		677			100			778			369	
Approach Delay, s/veh		46.5			37.4			39.1			50.9	
Approach LOS		D			D			D			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	9.0	34.5	21.7	24.8	24.2	19.2	9.4	37.1				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	7.0	21.0	17.0	21.0	19.0	9.0	7.0	31.0				
Max Q Clear Time (g_c+I1), s	3.1	2.9	15.3	18.0	18.0	3.9	3.3	6.6				
Green Ext Time (p_c), s	0.0	0.5	0.4	0.8	0.3	0.2	0.0	3.0				
Intersection Summary												
HCM 2010 Ctrl Delay			43.9									
HCM 2010 LOS			D									























HCM 2010 Signalized Intersection Summary
 11: Avalon Rd & New Independence Pkwy

Wellness Way
 2017 - Build PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	576	47	481	20	47	25	481	315	20	25	214	576
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	626	51	0	22	51	27	523	342	22	27	233	0
Adj No. of Lanes	2	2	1	1	2	0	2	2	0	1	1	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	719	1304	583	58	443	218	606	992	64	68	290	247
Arrive On Green	0.21	0.37	0.00	0.03	0.19	0.19	0.18	0.29	0.29	0.04	0.16	0.00
Sat Flow, veh/h	3442	3539	1583	1774	2300	1133	3442	3378	216	1774	1863	1583
Grp Volume(v), veh/h	626	51	0	22	38	40	523	178	186	27	233	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1663	1721	1770	1825	1774	1863	1583
Q Serve(g_s), s	15.8	0.8	0.0	1.1	1.6	1.8	13.3	7.1	7.2	1.3	10.9	0.0
Cycle Q Clear(g_c), s	15.8	0.8	0.0	1.1	1.6	1.8	13.3	7.1	7.2	1.3	10.9	0.0
Prop In Lane	1.00		1.00	1.00		0.68	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	719	1304	583	58	341	320	606	520	536	68	290	247
V/C Ratio(X)	0.87	0.04	0.00	0.38	0.11	0.12	0.86	0.34	0.35	0.40	0.80	0.00
Avail Cap(c_a), veh/h	841	1304	583	138	341	320	688	551	568	138	352	299
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	34.4	18.2	0.0	42.6	30.0	30.1	36.0	25.0	25.0	42.3	36.6	0.0
Incr Delay (d2), s/veh	8.8	0.1	0.0	4.0	0.7	0.8	10.0	0.4	0.4	3.8	10.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.4	0.4	0.0	0.6	0.9	0.9	7.2	3.5	3.7	0.7	6.4	0.0
LnGrp Delay(d),s/veh	43.2	18.3	0.0	46.6	30.7	30.9	46.1	25.4	25.4	46.0	47.2	0.0
LnGrp LOS	D	B		D	C	C	D	C	C	D	D	
Approach Vol, veh/h		677			100			887			260	
Approach Delay, s/veh		41.3			34.2			37.6			47.1	
Approach LOS		D			C			D			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	9.0	39.2	21.8	20.0	24.8	23.3	9.4	32.4				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	7.0	24.0	18.0	17.0	22.0	9.0	7.0	28.0				
Max Q Clear Time (g_c+I1), s	3.1	2.8	15.3	12.9	17.8	3.8	3.3	9.2				
Green Ext Time (p_c), s	0.0	0.5	0.6	1.2	1.0	0.2	0.0	2.8				
Intersection Summary												
HCM 2010 Ctrl Delay			40.0									
HCM 2010 LOS			D									























HCM 2010 Signalized Intersection Summary
 11: Avalon Rd & New Independence Pkwy

Wellness Way
 2027 - Build - Avalon Alt 1 AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	681	206	765	78	206	64	765	229	78	64	339	681
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	740	224	0	85	224	70	832	249	85	70	368	0
Adj No. of Lanes	2	2	1	1	2	0	2	2	0	1	1	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	772	908	406	108	250	76	868	1046	348	102	383	326
Arrive On Green	0.22	0.26	0.00	0.06	0.09	0.09	0.25	0.40	0.40	0.06	0.21	0.00
Sat Flow, veh/h	3442	3539	1583	1774	2674	815	3442	2610	869	1774	1863	1583
Grp Volume(v), veh/h	740	224	0	85	146	148	832	167	167	70	368	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1719	1721	1770	1709	1774	1863	1583
Q Serve(g_s), s	22.7	5.4	0.0	5.1	8.7	9.1	25.5	6.7	6.9	4.1	20.9	0.0
Cycle Q Clear(g_c), s	22.7	5.4	0.0	5.1	8.7	9.1	25.5	6.7	6.9	4.1	20.9	0.0
Prop In Lane	1.00		1.00	1.00		0.47	1.00		0.51	1.00		1.00
Lane Grp Cap(c), veh/h	772	908	406	108	165	161	868	709	685	102	383	326
V/C Ratio(X)	0.96	0.25	0.00	0.78	0.88	0.92	0.96	0.24	0.24	0.69	0.96	0.00
Avail Cap(c_a), veh/h	772	908	406	182	165	161	868	709	685	149	383	326
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	0.92	0.92	0.92	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	41.0	31.6	0.0	49.5	47.9	48.1	39.4	21.2	21.3	49.5	42.1	0.0
Incr Delay (d2), s/veh	22.7	0.6	0.0	10.8	42.3	49.6	21.0	0.2	0.2	8.0	35.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.2	2.7	0.0	2.8	6.2	6.6	14.7	3.3	3.3	2.3	14.5	0.0
LnGrp Delay(d),s/veh	63.7	32.2	0.0	60.3	90.2	97.7	60.4	21.4	21.5	57.5	77.8	0.0
LnGrp LOS	E	C		E	F	F	E	C	C	E	E	
Approach Vol, veh/h		964			379			1166			438	
Approach Delay, s/veh		56.4			86.4			49.2			74.6	
Approach LOS		E			F			D			E	
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	12.5	33.5	33.0	28.0	30.0	16.0	12.1	48.9				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	11.0	23.0	27.0	22.0	24.0	10.0	9.0	40.0				
Max Q Clear Time (g_c+I1), s	7.1	7.4	27.5	22.9	24.7	11.1	6.1	8.9				
Green Ext Time (p_c), s	0.0	2.4	0.0	0.0	0.0	0.0	0.0	3.8				
Intersection Summary												
HCM 2010 Ctrl Delay			60.1									
HCM 2010 LOS			E									























HCM 2010 Signalized Intersection Summary
 11: Avalon Rd & New Independence Pkwy

Wellness Way
 2027 - Build - Avalon Alt 1 PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	681	206	765	78	206	64	765	339	78	64	229	681
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	740	224	0	85	224	70	832	368	85	70	249	0
Adj No. of Lanes	2	2	1	1	2	0	2	2	0	1	1	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	801	937	419	122	269	82	880	961	220	114	269	229
Arrive On Green	0.23	0.26	0.00	0.07	0.10	0.10	0.26	0.34	0.34	0.06	0.14	0.00
Sat Flow, veh/h	3442	3539	1583	1774	2674	815	3442	2863	654	1774	1863	1583
Grp Volume(v), veh/h	740	224	0	85	146	148	832	226	227	70	249	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1719	1721	1770	1747	1774	1863	1583
Q Serve(g_s), s	18.9	4.5	0.0	4.2	7.3	7.6	21.4	8.7	8.9	3.5	11.9	0.0
Cycle Q Clear(g_c), s	18.9	4.5	0.0	4.2	7.3	7.6	21.4	8.7	8.9	3.5	11.9	0.0
Prop In Lane	1.00		1.00	1.00		0.47	1.00		0.37	1.00		1.00
Lane Grp Cap(c), veh/h	801	937	419	122	178	173	880	594	587	114	269	229
V/C Ratio(X)	0.92	0.24	0.00	0.70	0.82	0.85	0.95	0.38	0.39	0.61	0.93	0.00
Avail Cap(c_a), veh/h	803	937	419	177	178	173	880	594	587	177	269	229
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	0.92	0.92	0.92	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.7	26.0	0.0	41.0	39.7	39.8	32.9	22.8	22.8	41.0	38.0	0.0
Incr Delay (d2), s/veh	16.2	0.6	0.0	6.5	30.9	36.1	18.6	0.4	0.4	5.3	35.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.7	2.3	0.0	2.3	5.1	5.3	12.4	4.3	4.4	1.9	8.7	0.0
LnGrp Delay(d),s/veh	50.0	26.6	0.0	47.5	70.6	75.9	51.5	23.2	23.2	46.3	73.6	0.0
LnGrp LOS	D	C		D	E	E	D	C	C	D	E	
Approach Vol, veh/h		964			379			1285			319	
Approach Delay, s/veh		44.5			67.5			41.5			67.6	
Approach LOS		D			E			D			E	
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	12.2	29.8	29.0	19.0	26.9	15.1	11.8	36.2				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	9.0	21.0	23.0	13.0	21.0	9.0	9.0	27.0				
Max Q Clear Time (g_c+I1), s	6.2	6.5	23.4	13.9	20.9	9.6	5.5	10.9				
Green Ext Time (p_c), s	0.0	2.3	0.0	0.0	0.0	0.0	0.0	3.2				
Intersection Summary												
HCM 2010 Ctrl Delay			48.7									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary
 11: Avalon Rd & New Independence Pkwy

Wellness Way
 2037 - Build - Avalon Alt 1 AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	786	377	1049	132	377	98	1049	246	132	98	368	786
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	854	410	0	143	410	107	1140	267	143	107	400	0
Adj No. of Lanes	2	2	1	1	2	0	2	2	0	1	1	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	760	934	418	166	380	98	1028	934	486	128	351	298
Arrive On Green	0.22	0.26	0.00	0.09	0.14	0.14	0.30	0.41	0.41	0.07	0.19	0.00
Sat Flow, veh/h	3442	3539	1583	1774	2785	720	3442	2254	1172	1774	1863	1583
Grp Volume(v), veh/h	854	410	0	143	259	258	1140	208	202	107	400	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1736	1721	1770	1656	1774	1863	1583
Q Serve(g_s), s	34.0	14.9	0.0	12.2	21.0	21.0	46.0	12.0	12.5	9.2	29.0	0.0
Cycle Q Clear(g_c), s	34.0	14.9	0.0	12.2	21.0	21.0	46.0	12.0	12.5	9.2	29.0	0.0
Prop In Lane	1.00		1.00	1.00		0.41	1.00		0.71	1.00		1.00
Lane Grp Cap(c), veh/h	760	934	418	166	241	237	1028	734	687	128	351	298
V/C Ratio(X)	1.12	0.44	0.00	0.86	1.07	1.09	1.11	0.28	0.29	0.83	1.14	0.00
Avail Cap(c_a), veh/h	760	934	418	242	241	237	1028	734	687	196	351	298
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	0.84	0.84	0.84	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	60.0	47.2	0.0	68.8	66.5	66.5	54.0	29.9	30.1	70.5	62.5	0.0
Incr Delay (d2), s/veh	72.3	1.5	0.0	16.4	74.1	79.8	62.9	0.2	0.2	16.5	91.8	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	23.8	7.5	0.0	6.8	15.2	15.3	30.8	5.9	5.8	5.1	23.9	0.0
LnGrp Delay(d),s/veh	132.3	48.7	0.0	85.3	140.6	146.3	116.9	30.1	30.3	87.0	154.3	0.0
LnGrp LOS	F	D		F	F	F	F	C	C	F	F	
Approach Vol, veh/h		1264			660			1550			507	
Approach Delay, s/veh		105.2			130.8			94.0			140.1	
Approach LOS		F			F			F			F	
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	20.4	46.6	52.0	35.0	40.0	27.0	17.2	69.8				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	21.0	34.0	46.0	29.0	34.0	21.0	17.0	58.0				
Max Q Clear Time (g_c+I1), s	14.2	16.9	48.0	31.0	36.0	23.0	11.2	14.5				
Green Ext Time (p_c), s	0.2	4.7	0.0	0.0	0.0	0.0	0.1	4.7				
Intersection Summary												
HCM 2010 Ctrl Delay			109.5									
HCM 2010 LOS			F									

HCM 2010 Signalized Intersection Summary
 11: Avalon Rd & New Independence Pkwy

Wellness Way
 2037 - Build - Avalon Alt 1 PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	786	377	1049	132	377	98	1049	368	132	98	246	786
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	854	410	0	143	410	107	1140	400	143	107	267	0
Adj No. of Lanes	2	2	1	1	2	0	2	2	0	1	1	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	794	970	434	169	386	100	1085	955	337	131	244	207
Arrive On Green	0.23	0.27	0.00	0.10	0.14	0.14	0.32	0.37	0.37	0.07	0.13	0.00
Sat Flow, veh/h	3442	3539	1583	1774	2785	720	3442	2566	907	1774	1863	1583
Grp Volume(v), veh/h	854	410	0	143	259	258	1140	274	269	107	267	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1736	1721	1770	1703	1774	1863	1583
Q Serve(g_s), s	30.0	12.4	0.0	10.3	18.0	18.0	41.0	15.0	15.3	7.7	17.0	0.0
Cycle Q Clear(g_c), s	30.0	12.4	0.0	10.3	18.0	18.0	41.0	15.0	15.3	7.7	17.0	0.0
Prop In Lane	1.00		1.00	1.00		0.41	1.00		0.53	1.00		1.00
Lane Grp Cap(c), veh/h	794	970	434	169	245	240	1085	659	634	131	244	207
V/C Ratio(X)	1.08	0.42	0.00	0.85	1.06	1.07	1.05	0.42	0.42	0.82	1.10	0.00
Avail Cap(c_a), veh/h	794	970	434	246	245	240	1085	659	634	205	244	207
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	0.84	0.84	0.84	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	50.0	38.8	0.0	57.9	56.0	56.0	44.5	30.3	30.4	59.3	56.5	0.0
Incr Delay (d2), s/veh	54.1	1.4	0.0	14.1	68.7	74.1	41.5	0.4	0.5	13.2	85.8	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	20.2	6.2	0.0	5.7	13.5	13.6	25.7	7.4	7.2	4.3	14.5	0.0
LnGrp Delay(d),s/veh	104.1	40.1	0.0	72.0	124.7	130.1	86.0	30.7	30.9	72.5	142.3	0.0
LnGrp LOS	F	D		E	F	F	F	C	C	E	F	
Approach Vol, veh/h		1264			660			1683			374	
Approach Delay, s/veh		83.4			115.4			68.2			122.3	
Approach LOS		F			F			E			F	
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	18.4	41.6	47.0	23.0	36.0	24.0	15.6	54.4				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	18.0	30.0	41.0	17.0	30.0	18.0	15.0	43.0				
Max Q Clear Time (g_c+I1), s	12.3	14.4	43.0	19.0	32.0	20.0	9.7	17.3				
Green Ext Time (p_c), s	0.1	4.5	0.0	0.0	0.0	0.0	0.1	4.3				
Intersection Summary												
HCM 2010 Ctrl Delay			85.9									
HCM 2010 LOS			F									

























HCM 2010 Signalized Intersection Summary
 11: Avalon Rd & New Independence Pkwy

Wellness Way
 2017 - Build - Avalon Alt 1.2 AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	576	47	481	20	47	25	481	214	20	25	315	576
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	626	51	0	22	51	27	523	233	22	27	342	0
Adj No. of Lanes	2	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	729	1392	623	58	760	340	616	951	426	68	453	203
Arrive On Green	0.21	0.39	0.00	0.03	0.21	0.21	0.18	0.27	0.27	0.04	0.13	0.00
Sat Flow, veh/h	3442	3539	1583	1774	3539	1583	3442	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	626	51	0	22	51	27	523	233	22	27	342	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1583	1721	1770	1583	1774	1770	1583
Q Serve(g_s), s	15.8	0.8	0.0	1.1	1.0	1.2	13.2	4.6	0.9	1.3	8.4	0.0
Cycle Q Clear(g_c), s	15.8	0.8	0.0	1.1	1.0	1.2	13.2	4.6	0.9	1.3	8.4	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	729	1392	623	58	760	340	616	951	426	68	453	203
V/C Ratio(X)	0.86	0.04	0.00	0.38	0.07	0.08	0.85	0.24	0.05	0.40	0.75	0.00
Avail Cap(c_a), veh/h	918	1392	623	138	760	340	765	1062	475	138	551	246
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	34.2	16.8	0.0	42.6	28.2	28.2	35.8	25.8	24.4	42.3	37.9	0.0
Incr Delay (d2), s/veh	6.8	0.0	0.0	4.0	0.2	0.5	7.5	0.1	0.0	3.8	4.8	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	8.2	0.4	0.0	0.6	0.5	0.6	6.9	2.3	0.4	0.7	4.4	0.0
LnGrp Delay(d),s/veh	41.0	16.8	0.0	46.6	28.3	28.7	43.3	25.9	24.4	46.0	42.6	0.0
LnGrp LOS	D	B		D	C	C	D	C	C	D	D	
Approach Vol, veh/h		677			100			778			369	
Approach Delay, s/veh		39.2			32.4			37.5			42.9	
Approach LOS		D			C			D			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	9.0	41.4	22.1	17.5	25.1	25.3	9.4	30.2				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	7.0	25.0	20.0	14.0	24.0	8.0	7.0	27.0				
Max Q Clear Time (g_c+I1), s	3.1	2.8	15.2	10.4	17.8	3.2	3.3	6.6				
Green Ext Time (p_c), s	0.0	0.5	0.9	1.1	1.3	0.2	0.0	3.1				
Intersection Summary												
HCM 2010 Ctrl Delay			38.9									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary
 11: Avalon Rd & New Independence Pkwy

Wellness Way
 2017 - Build - Avalon Alt 1.2 PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	576	47	481	20	47	25	481	315	20	25	214	576
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	626	51	0	22	51	27	523	342	22	27	233	0
Adj No. of Lanes	2	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	733	1507	674	58	870	389	620	837	374	68	334	150
Arrive On Green	0.21	0.43	0.00	0.03	0.25	0.25	0.18	0.24	0.24	0.04	0.09	0.00
Sat Flow, veh/h	3442	3539	1583	1774	3539	1583	3442	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	626	51	0	22	51	27	523	342	22	27	233	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1583	1721	1770	1583	1774	1770	1583
Q Serve(g_s), s	15.7	0.8	0.0	1.1	1.0	1.2	13.2	7.4	1.0	1.3	5.7	0.0
Cycle Q Clear(g_c), s	15.7	0.8	0.0	1.1	1.0	1.2	13.2	7.4	1.0	1.3	5.7	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	733	1507	674	58	870	389	620	837	374	68	334	150
V/C Ratio(X)	0.85	0.03	0.00	0.38	0.06	0.07	0.84	0.41	0.06	0.40	0.70	0.00
Avail Cap(c_a), veh/h	956	1507	674	138	870	389	803	944	422	138	393	176
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	34.1	15.0	0.0	42.6	26.0	26.0	35.7	29.0	26.6	42.3	39.5	0.0
Incr Delay (d2), s/veh	6.1	0.0	0.0	4.0	0.1	0.3	6.5	0.3	0.1	3.8	4.3	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	8.1	0.4	0.0	0.6	0.5	0.6	6.8	3.6	0.4	0.7	3.0	0.0
LnGrp Delay(d),s/veh	40.1	15.1	0.0	46.6	26.1	26.4	42.2	29.4	26.7	46.0	43.8	0.0
LnGrp LOS	D	B		D	C	C	D	C	C	D	D	
Approach Vol, veh/h		677			100			887			260	
Approach Delay, s/veh		38.2			30.7			36.9			44.1	
Approach LOS		D			C			D			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	9.0	44.3	22.2	14.5	25.2	28.1	9.4	27.3				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	7.0	28.0	21.0	10.0	25.0	10.0	7.0	24.0				
Max Q Clear Time (g_c+I1), s	3.1	2.8	15.2	7.7	17.7	3.2	3.3	9.4				
Green Ext Time (p_c), s	0.0	0.5	1.0	0.8	1.4	0.2	0.0	2.8				
Intersection Summary												
HCM 2010 Ctrl Delay			38.0									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary
 11: Avalon Rd & New Independence Pkwy

Wellness Way
 2027 - Build - Avalon Alt 1.2 AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	681	206	765	78	206	64	765	229	78	64	339	681
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	740	224	0	85	224	70	832	249	85	70	368	0
Adj No. of Lanes	2	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	813	1012	453	119	413	185	911	1154	516	112	440	197
Arrive On Green	0.24	0.29	0.00	0.07	0.12	0.12	0.26	0.33	0.33	0.06	0.12	0.00
Sat Flow, veh/h	3442	3539	1583	1774	3539	1583	3442	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	740	224	0	85	224	70	832	249	85	70	368	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1583	1721	1770	1583	1774	1770	1583
Q Serve(g_s), s	19.5	4.5	0.0	4.4	5.6	3.8	21.8	4.7	3.6	3.6	9.4	0.0
Cycle Q Clear(g_c), s	19.5	4.5	0.0	4.4	5.6	3.8	21.8	4.7	3.6	3.6	9.4	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	813	1012	453	119	413	185	911	1154	516	112	440	197
V/C Ratio(X)	0.91	0.22	0.00	0.72	0.54	0.38	0.91	0.22	0.16	0.63	0.84	0.00
Avail Cap(c_a), veh/h	851	1012	453	191	413	185	962	1154	516	172	457	204
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	0.92	0.92	0.92	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	34.6	25.3	0.0	42.5	38.7	38.0	33.2	22.7	22.3	42.5	39.8	0.0
Incr Delay (d2), s/veh	13.4	0.5	0.0	7.2	4.6	5.4	12.5	0.1	0.1	5.7	12.4	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	10.8	2.2	0.0	2.4	3.0	1.9	11.9	2.3	1.6	1.9	5.4	0.0
LnGrp Delay(d),s/veh	47.9	25.8	0.0	49.7	43.4	43.3	45.7	22.8	22.5	48.2	52.2	0.0
LnGrp LOS	D	C		D	D	D	D	C	C	D	D	
Approach Vol, veh/h		964			379			1166			438	
Approach Delay, s/veh		42.8			44.8			39.1			51.5	
Approach LOS		D			D			D			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	12.2	32.6	30.6	17.6	28.0	16.9	11.9	36.3				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	10.0	21.0	26.0	12.0	23.0	8.0	9.0	29.0				
Max Q Clear Time (g_c+I1), s	6.4	6.5	23.8	11.4	21.5	7.6	5.6	6.7				
Green Ext Time (p_c), s	0.0	2.3	0.8	0.1	0.5	0.1	0.0	3.7				
Intersection Summary												
HCM 2010 Ctrl Delay			42.9									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary
 11: Avalon Rd & New Independence Pkwy

Wellness Way
 2027 - Build - Avalon Alt 1.2 PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	681	206	765	78	206	64	765	339	78	64	229	681
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	740	224	0	85	224	70	832	368	85	70	249	0
Adj No. of Lanes	2	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	780	906	405	137	378	169	872	973	435	127	330	148
Arrive On Green	0.23	0.26	0.00	0.08	0.11	0.11	0.25	0.28	0.28	0.07	0.09	0.00
Sat Flow, veh/h	3442	3539	1583	1774	3539	1583	3442	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	740	224	0	85	224	70	832	368	85	70	249	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1583	1721	1770	1583	1774	1770	1583
Q Serve(g_s), s	15.9	3.8	0.0	3.5	4.5	3.1	17.9	6.3	3.1	2.9	5.1	0.0
Cycle Q Clear(g_c), s	15.9	3.8	0.0	3.5	4.5	3.1	17.9	6.3	3.1	2.9	5.1	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	780	906	405	137	378	169	872	973	435	127	330	148
V/C Ratio(X)	0.95	0.25	0.00	0.62	0.59	0.41	0.95	0.38	0.20	0.55	0.75	0.00
Avail Cap(c_a), veh/h	780	906	405	213	378	169	872	973	435	166	330	148
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	0.92	0.92	0.92	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	28.6	22.2	0.0	33.5	31.9	31.3	27.6	22.0	20.8	33.6	33.2	0.0
Incr Delay (d2), s/veh	20.7	0.7	0.0	4.1	6.2	6.8	20.2	0.2	0.2	3.7	9.4	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	9.7	1.9	0.0	1.9	2.5	1.7	10.9	3.1	1.4	1.5	3.0	0.0
LnGrp Delay(d),s/veh	49.2	22.8	0.0	37.6	38.1	38.1	47.8	22.2	21.0	37.3	42.6	0.0
LnGrp LOS	D	C		D	D	D	D	C	C	D	D	
Approach Vol, veh/h		964			379			1285			319	
Approach Delay, s/veh		43.1			38.0			38.7			41.4	
Approach LOS		D			D			D			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	11.8	25.2	25.0	13.0	23.0	14.0	11.4	26.6				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	9.0	16.0	19.0	7.0	17.0	8.0	7.0	19.0				
Max Q Clear Time (g_c+I1), s	5.5	5.8	19.9	7.1	17.9	6.5	4.9	8.3				
Green Ext Time (p_c), s	0.0	1.9	0.0	0.0	0.0	0.4	0.0	2.8				
Intersection Summary												
HCM 2010 Ctrl Delay			40.3									
HCM 2010 LOS			D									

























HCM 2010 Signalized Intersection Summary
 11: Avalon Rd & New Independence Pkwy

Wellness Way
 2037 - Build - Avalon Alt 1.2 AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	786	377	1049	132	377	98	1049	246	132	98	368	786
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	854	410	0	143	410	107	1140	267	143	107	400	0
Adj No. of Lanes	2	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	860	977	437	169	429	192	1147	1321	591	131	402	180
Arrive On Green	0.25	0.28	0.00	0.10	0.12	0.12	0.33	0.37	0.37	0.07	0.11	0.00
Sat Flow, veh/h	3442	3539	1583	1774	3539	1583	3442	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	854	410	0	143	410	107	1140	267	143	107	400	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1583	1721	1770	1583	1774	1770	1583
Q Serve(g_s), s	32.7	12.5	0.0	10.5	15.2	8.4	43.6	6.8	8.2	7.8	14.9	0.0
Cycle Q Clear(g_c), s	32.7	12.5	0.0	10.5	15.2	8.4	43.6	6.8	8.2	7.8	14.9	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	860	977	437	169	429	192	1147	1321	591	131	402	180
V/C Ratio(X)	0.99	0.42	0.00	0.85	0.96	0.56	0.99	0.20	0.24	0.82	0.99	0.00
Avail Cap(c_a), veh/h	860	977	437	242	429	192	1147	1321	591	202	402	180
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	0.84	0.84	0.84	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	49.4	39.1	0.0	58.8	57.6	54.7	43.9	28.0	28.5	60.3	58.5	0.0
Incr Delay (d2), s/veh	28.8	1.3	0.0	14.8	30.3	9.5	25.0	0.1	0.2	13.9	43.4	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	19.0	6.3	0.0	5.8	9.3	4.2	24.7	3.3	3.6	4.4	9.7	0.0
LnGrp Delay(d),s/veh	78.1	40.4	0.0	73.6	88.0	64.2	68.8	28.1	28.7	74.2	101.8	0.0
LnGrp LOS	E	D		E	F	E	E	C	C	E	F	
Approach Vol, veh/h		1264			660			1550			507	
Approach Delay, s/veh		65.9			81.0			58.1			96.0	
Approach LOS		E			F			E			F	
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	18.6	42.4	50.0	21.0	39.0	22.0	15.7	55.3				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	18.0	31.0	44.0	15.0	33.0	16.0	15.0	44.0				
Max Q Clear Time (g_c+I1), s	12.5	14.5	45.6	16.9	34.7	17.2	9.8	10.2				
Green Ext Time (p_c), s	0.1	4.6	0.0	0.0	0.0	0.0	0.1	4.5				
Intersection Summary												
HCM 2010 Ctrl Delay			69.2									
HCM 2010 LOS			E									

























HCM 2010 Signalized Intersection Summary
 11: Avalon Rd & New Independence Pkwy

Wellness Way
 2037 - Build - Avalon Alt 1.2 PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	786	377	1049	132	377	98	1049	368	132	98	246	786
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	854	410	0	143	410	107	1140	400	143	107	267	0
Adj No. of Lanes	2	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	826	926	414	175	425	190	1101	1147	513	135	283	127
Arrive On Green	0.24	0.26	0.00	0.10	0.12	0.12	0.32	0.32	0.32	0.08	0.08	0.00
Sat Flow, veh/h	3442	3539	1583	1774	3539	1583	3442	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	854	410	0	143	410	107	1140	400	143	107	267	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1583	1721	1770	1583	1774	1770	1583
Q Serve(g_s), s	24.0	9.7	0.0	7.9	11.5	6.4	32.0	8.6	6.7	5.9	7.5	0.0
Cycle Q Clear(g_c), s	24.0	9.7	0.0	7.9	11.5	6.4	32.0	8.6	6.7	5.9	7.5	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	826	926	414	175	425	190	1101	1147	513	135	283	127
V/C Ratio(X)	1.03	0.44	0.00	0.82	0.97	0.56	1.04	0.35	0.28	0.79	0.94	0.00
Avail Cap(c_a), veh/h	826	926	414	266	425	190	1101	1147	513	213	283	127
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	0.84	0.84	0.84	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	38.0	30.8	0.0	44.2	43.8	41.5	34.0	25.8	25.1	45.4	45.8	0.0
Incr Delay (d2), s/veh	40.4	1.5	0.0	9.6	32.4	9.8	36.6	0.2	0.3	10.2	38.4	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	16.0	4.9	0.0	4.4	7.5	3.3	20.7	4.3	3.0	3.3	5.2	0.0
LnGrp Delay(d),s/veh	78.4	32.4	0.0	53.8	76.2	51.3	70.6	25.9	25.4	55.7	84.1	0.0
LnGrp LOS	F	C		D	E	D	F	C	C	E	F	
Approach Vol, veh/h		1264			660			1683			374	
Approach Delay, s/veh		63.5			67.3			56.1			76.0	
Approach LOS		E			E			E			E	
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	15.8	32.2	38.0	14.0	30.0	18.0	13.6	38.4				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	15.0	21.0	32.0	8.0	24.0	12.0	12.0	28.0				
Max Q Clear Time (g_c+I1), s	9.9	11.7	34.0	9.5	26.0	13.5	7.9	10.6				
Green Ext Time (p_c), s	0.1	3.4	0.0	0.0	0.0	0.0	0.1	3.9				
Intersection Summary												
HCM 2010 Ctrl Delay			62.2									
HCM 2010 LOS			E									

HCM 2010 Signalized Intersection Summary
 11: Avalon Rd & New Independence Pkwy

Wellness Way
 2017 - Build - Avalon Alt 1.3 AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	576	47	481	20	47	25	481	214	20	25	315	576
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	626	51	0	22	51	27	523	233	22	27	342	0
Adj No. of Lanes	2	2	1	1	2	1	3	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	735	1419	635	60	782	350	669	739	69	70	466	208
Arrive On Green	0.21	0.40	0.00	0.03	0.22	0.22	0.13	0.23	0.23	0.04	0.13	0.00
Sat Flow, veh/h	3442	3539	1583	1774	3539	1583	5003	3272	306	1774	3539	1583
Grp Volume(v), veh/h	626	51	0	22	51	27	523	125	130	27	342	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1583	1668	1770	1809	1774	1770	1583
Q Serve(g_s), s	14.0	0.7	0.0	1.0	0.9	1.1	8.1	4.7	4.8	1.2	7.4	0.0
Cycle Q Clear(g_c), s	14.0	0.7	0.0	1.0	0.9	1.1	8.1	4.7	4.8	1.2	7.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	735	1419	635	60	782	350	669	400	408	70	466	208
V/C Ratio(X)	0.85	0.04	0.00	0.37	0.07	0.08	0.78	0.31	0.32	0.39	0.73	0.00
Avail Cap(c_a), veh/h	903	1419	635	155	782	350	813	420	430	155	575	257
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.2	14.6	0.0	37.8	24.6	24.7	33.5	25.8	25.8	37.5	33.4	0.0
Incr Delay (d2), s/veh	6.6	0.0	0.0	3.7	0.2	0.4	4.1	0.4	0.4	3.4	3.8	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	7.3	0.3	0.0	0.5	0.5	0.5	4.0	2.3	2.4	0.7	3.9	0.0
LnGrp Delay(d),s/veh	36.8	14.6	0.0	41.5	24.8	25.1	37.6	26.2	26.3	40.9	37.2	0.0
LnGrp LOS	D	B		D	C	C	D	C	C	D	D	
Approach Vol, veh/h		677			100			778			369	
Approach Delay, s/veh		35.2			28.6			33.9			37.4	
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	8.7	38.1	16.7	16.5	23.1	23.7	9.2	24.1				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	7.0	23.0	13.0	13.0	21.0	9.0	7.0	19.0				
Max Q Clear Time (g_c+I1), s	3.0	2.7	10.1	9.4	16.0	3.1	3.2	6.8				
Green Ext Time (p_c), s	0.0	0.5	0.6	1.1	1.1	0.2	0.0	2.5				
Intersection Summary												
HCM 2010 Ctrl Delay			34.7									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
 11: Avalon Rd & New Independence Pkwy

Wellness Way
 2017 - Build - Avalon Alt 1.3 PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	576	47	481	20	47	25	481	315	20	25	214	576
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	626	51	0	22	51	27	523	342	22	27	233	0
Adj No. of Lanes	2	2	1	1	2	1	3	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	745	1536	687	60	890	398	678	651	42	70	342	153
Arrive On Green	0.22	0.43	0.00	0.03	0.25	0.25	0.14	0.19	0.19	0.04	0.10	0.00
Sat Flow, veh/h	3442	3539	1583	1774	3539	1583	5003	3378	216	1774	3539	1583
Grp Volume(v), veh/h	626	51	0	22	51	27	523	178	186	27	233	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1583	1668	1770	1825	1774	1770	1583
Q Serve(g_s), s	13.9	0.7	0.0	1.0	0.9	1.0	8.1	7.2	7.3	1.2	5.1	0.0
Cycle Q Clear(g_c), s	13.9	0.7	0.0	1.0	0.9	1.0	8.1	7.2	7.3	1.2	5.1	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	745	1536	687	60	890	398	678	341	351	70	342	153
V/C Ratio(X)	0.84	0.03	0.00	0.37	0.06	0.07	0.77	0.52	0.53	0.39	0.68	0.00
Avail Cap(c_a), veh/h	989	1536	687	155	890	398	875	354	365	155	398	178
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.0	13.0	0.0	37.8	22.7	22.8	33.4	29.0	29.0	37.5	35.0	0.0
Incr Delay (d2), s/veh	5.0	0.0	0.0	3.7	0.1	0.3	3.2	1.3	1.3	3.4	3.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	0.3	0.0	0.5	0.4	0.5	3.9	3.6	3.8	0.7	2.7	0.0
LnGrp Delay(d),s/veh	35.0	13.0	0.0	41.5	22.9	23.1	36.6	30.3	30.3	40.9	38.8	0.0
LnGrp LOS	D	B		D	C	C	D	C	C	D	D	
Approach Vol, veh/h		677			100			887			260	
Approach Delay, s/veh		33.4			27.0			34.0			39.0	
Approach LOS		C			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	8.7	40.7	16.8	13.7	23.3	26.1	9.2	21.4				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	7.0	26.0	14.0	9.0	23.0	10.0	7.0	16.0				
Max Q Clear Time (g_c+I1), s	3.0	2.7	10.1	7.1	15.9	3.0	3.2	9.3				
Green Ext Time (p_c), s	0.0	0.5	0.8	0.6	1.4	0.2	0.0	1.7				
Intersection Summary												
HCM 2010 Ctrl Delay			34.1									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
 11: Avalon Rd & New Independence Pkwy

Wellness Way
 2027 - Build - Avalon Alt 1.3 AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	681	206	765	78	206	64	765	229	78	64	339	681
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	740	224	0	85	224	70	832	249	85	70	368	0
Adj No. of Lanes	2	2	1	1	2	1	3	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	823	1081	484	132	498	223	959	656	218	122	455	204
Arrive On Green	0.24	0.31	0.00	0.07	0.14	0.14	0.19	0.25	0.25	0.07	0.13	0.00
Sat Flow, veh/h	3442	3539	1583	1774	3539	1583	5003	2610	869	1774	3539	1583
Grp Volume(v), veh/h	740	224	0	85	224	70	832	167	167	70	368	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1583	1668	1770	1709	1774	1770	1583
Q Serve(g_s), s	16.7	3.8	0.0	3.7	4.6	3.2	12.9	6.2	6.5	3.1	8.1	0.0
Cycle Q Clear(g_c), s	16.7	3.8	0.0	3.7	4.6	3.2	12.9	6.2	6.5	3.1	8.1	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.51	1.00		1.00
Lane Grp Cap(c), veh/h	823	1081	484	132	498	223	959	445	429	122	455	204
V/C Ratio(X)	0.90	0.21	0.00	0.65	0.45	0.31	0.87	0.38	0.39	0.57	0.81	0.00
Avail Cap(c_a), veh/h	860	1081	484	200	498	223	1001	445	429	177	487	218
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	0.92	0.92	0.92	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	29.5	20.6	0.0	36.0	31.5	30.9	31.3	24.8	24.9	36.1	33.9	0.0
Incr Delay (d2), s/veh	12.1	0.4	0.0	4.8	2.7	3.4	8.0	0.5	0.6	4.1	9.3	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	9.3	1.9	0.0	2.0	2.5	1.6	6.6	3.1	3.1	1.6	4.5	0.0
LnGrp Delay(d),s/veh	41.6	21.0	0.0	40.8	34.2	34.3	39.3	25.3	25.4	40.2	43.2	0.0
LnGrp LOS	D	C		D	C	C	D	C	C	D	D	
Approach Vol, veh/h		964			379			1166			438	
Approach Delay, s/veh		36.8			35.7			35.3			42.7	
Approach LOS		D			D			D			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	11.9	30.4	21.3	16.3	25.1	17.3	11.5	26.1				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	9.0	20.0	16.0	11.0	20.0	9.0	8.0	19.0				
Max Q Clear Time (g_c+I1), s	5.7	5.8	14.9	10.1	18.7	6.6	5.1	8.5				
Green Ext Time (p_c), s	0.0	2.3	0.4	0.2	0.4	0.6	0.0	2.8				
Intersection Summary												
HCM 2010 Ctrl Delay			37.0									
HCM 2010 LOS			D									

























HCM 2010 Signalized Intersection Summary
 11: Avalon Rd & New Independence Pkwy

Wellness Way
 2027 - Build - Avalon Alt 1.3 PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	681	206	765	78	206	64	765	339	78	64	229	681
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	740	224	0	85	224	70	832	368	85	70	249	0
Adj No. of Lanes	2	2	1	1	2	1	3	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	823	1152	515	132	569	254	959	662	151	122	384	172
Arrive On Green	0.24	0.33	0.00	0.07	0.16	0.16	0.19	0.23	0.23	0.07	0.11	0.00
Sat Flow, veh/h	3442	3539	1583	1774	3539	1583	5003	2863	654	1774	3539	1583
Grp Volume(v), veh/h	740	224	0	85	224	70	832	226	227	70	249	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1583	1668	1770	1747	1774	1770	1583
Q Serve(g_s), s	16.7	3.6	0.0	3.7	4.5	3.1	12.9	9.0	9.2	3.1	5.4	0.0
Cycle Q Clear(g_c), s	16.7	3.6	0.0	3.7	4.5	3.1	12.9	9.0	9.2	3.1	5.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.37	1.00		1.00
Lane Grp Cap(c), veh/h	823	1152	515	132	569	254	959	409	404	122	384	172
V/C Ratio(X)	0.90	0.19	0.00	0.65	0.39	0.28	0.87	0.55	0.56	0.57	0.65	0.00
Avail Cap(c_a), veh/h	860	1152	515	200	569	254	1001	420	415	177	487	218
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	0.92	0.92	0.92	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	29.5	19.4	0.0	36.0	30.1	29.5	31.3	27.1	27.2	36.1	34.2	0.0
Incr Delay (d2), s/veh	12.1	0.4	0.0	4.8	1.9	2.4	8.0	1.5	1.6	4.1	2.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.3	1.8	0.0	2.0	2.4	1.5	6.6	4.6	4.6	1.6	2.7	0.0
LnGrp Delay(d),s/veh	41.6	19.8	0.0	40.8	32.0	31.9	39.3	28.6	28.8	40.2	36.2	0.0
LnGrp LOS	D	B		D	C	C	D	C	C	D	D	
Approach Vol, veh/h		964			379			1285			319	
Approach Delay, s/veh		36.5			33.9			35.6			37.1	
Approach LOS		D			C			D			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	11.9	32.0	21.3	14.7	25.1	18.9	11.5	24.5				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	9.0	20.0	16.0	11.0	20.0	9.0	8.0	19.0				
Max Q Clear Time (g_c+I1), s	5.7	5.6	14.9	7.4	18.7	6.5	5.1	11.2				
Green Ext Time (p_c), s	0.0	2.3	0.4	1.3	0.4	0.7	0.0	2.3				
Intersection Summary												
HCM 2010 Ctrl Delay			35.8									
HCM 2010 LOS			D									

























HCM 2010 Signalized Intersection Summary
 11: Avalon Rd & New Independence Pkwy

Wellness Way
 2037 - Build - Avalon Alt 1.3 AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	786	377	1049	132	377	98	1049	246	132	98	368	786
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	854	410	0	143	410	107	1140	267	143	107	400	0
Adj No. of Lanes	2	2	1	1	2	1	3	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	887	1036	464	175	474	212	1186	642	334	135	438	196
Arrive On Green	0.26	0.29	0.00	0.10	0.13	0.13	0.24	0.28	0.28	0.08	0.12	0.00
Sat Flow, veh/h	3442	3539	1583	1774	3539	1583	5003	2254	1172	1774	3539	1583
Grp Volume(v), veh/h	854	410	0	143	410	107	1140	208	202	107	400	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1583	1668	1770	1656	1774	1770	1583
Q Serve(g_s), s	23.8	9.0	0.0	7.7	11.0	6.1	21.8	9.2	9.6	5.8	10.8	0.0
Cycle Q Clear(g_c), s	23.8	9.0	0.0	7.7	11.0	6.1	21.8	9.2	9.6	5.8	10.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.71	1.00		1.00
Lane Grp Cap(c), veh/h	887	1036	464	175	474	212	1186	504	471	135	438	196
V/C Ratio(X)	0.96	0.40	0.00	0.81	0.86	0.50	0.96	0.41	0.43	0.79	0.91	0.00
Avail Cap(c_a), veh/h	887	1036	464	274	474	212	1186	504	471	219	438	196
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	0.84	0.84	0.84	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	35.5	27.4	0.0	42.8	41.1	39.0	36.6	28.1	28.3	44.0	42.0	0.0
Incr Delay (d2), s/veh	21.6	1.1	0.0	8.6	16.1	7.1	17.6	0.5	0.6	9.9	23.4	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	13.9	4.5	0.0	4.2	6.4	3.1	12.0	4.6	4.5	3.2	6.7	0.0
LnGrp Delay(d),s/veh	57.1	28.6	0.0	51.4	57.3	46.1	54.1	28.7	28.9	53.9	65.4	0.0
LnGrp LOS	E	C		D	E	D	D	C	C	D	E	
Approach Vol, veh/h		1264			660			1550			507	
Approach Delay, s/veh		47.9			54.2			47.4			63.0	
Approach LOS		D			D			D			E	
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	15.6	34.4	29.0	18.0	31.0	19.0	13.4	33.6				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	15.0	23.0	23.0	12.0	25.0	13.0	12.0	23.0				
Max Q Clear Time (g_c+I1), s	9.7	11.0	23.8	12.8	25.8	13.0	7.8	11.6				
Green Ext Time (p_c), s	0.1	4.0	0.0	0.0	0.0	0.0	0.1	3.4				
Intersection Summary												
HCM 2010 Ctrl Delay			50.7									
HCM 2010 LOS			D									




























HCM 2010 Signalized Intersection Summary
 11: Avalon Rd & New Independence Pkwy

Wellness Way
 2037 - Build - Avalon Alt 1.3 PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	786	377	1049	132	377	98	1049	368	132	98	246	786
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	854	410	0	143	410	107	1140	400	143	107	267	0
Adj No. of Lanes	2	2	1	1	2	1	3	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	860	970	434	179	442	198	1188	630	223	141	310	139
Arrive On Green	0.25	0.27	0.00	0.10	0.13	0.13	0.24	0.25	0.25	0.08	0.09	0.00
Sat Flow, veh/h	3442	3539	1583	1774	3539	1583	5003	2566	907	1774	3539	1583
Grp Volume(v), veh/h	854	410	0	143	410	107	1140	274	269	107	267	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1583	1668	1770	1703	1774	1770	1583
Q Serve(g_s), s	19.8	7.6	0.0	6.3	9.2	5.1	18.0	11.1	11.3	4.7	6.0	0.0
Cycle Q Clear(g_c), s	19.8	7.6	0.0	6.3	9.2	5.1	18.0	11.1	11.3	4.7	6.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.53	1.00		1.00
Lane Grp Cap(c), veh/h	860	970	434	179	442	198	1188	435	418	141	310	139
V/C Ratio(X)	0.99	0.42	0.00	0.80	0.93	0.54	0.96	0.63	0.64	0.76	0.86	0.00
Avail Cap(c_a), veh/h	860	970	434	288	442	198	1188	435	418	155	310	139
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	0.84	0.84	0.84	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	29.9	23.8	0.0	35.2	34.6	32.8	30.1	26.9	27.0	36.1	36.0	0.0
Incr Delay (d2), s/veh	28.8	1.4	0.0	6.7	24.8	8.7	17.3	2.9	3.3	17.8	21.2	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	12.8	3.9	0.0	3.4	6.0	2.7	10.1	5.8	5.7	3.0	3.8	0.0
LnGrp Delay(d),s/veh	58.7	25.2	0.0	41.9	59.4	41.5	47.4	29.9	30.3	53.9	57.3	0.0
LnGrp LOS	E	C		D	E	D	D	C	C	D	E	
Approach Vol, veh/h		1264			660			1683			374	
Approach Delay, s/veh		47.8			52.7			41.8			56.3	
Approach LOS		D			D			D			E	
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	14.1	27.9	25.0	13.0	26.0	16.0	12.4	25.6				
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	13.0	17.0	19.0	7.0	20.0	10.0	7.0	19.0				
Max Q Clear Time (g_c+I1), s	8.3	9.6	20.0	8.0	21.8	11.2	6.7	13.3				
Green Ext Time (p_c), s	0.1	2.9	0.0	0.0	0.0	0.0	0.0	2.1				
Intersection Summary												
HCM 2010 Ctrl Delay			46.9									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary
 11: Avalon Rd & New Independence Pkwy

Wellness Way
 2017 - Build - Avalon Alt 2 AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 						 	
Volume (veh/h)	576	47	481	20	47	25	0	214	20	25	315	576
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1863	1863	1863	1863	1863	1863	0	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	626	51	0	22	51	27	0	233	22	27	342	0
Adj No. of Lanes	2	2	1	1	2	1	0	1	1	1	1	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, %	2	2	2	2	2	2	0	2	2	2	2	2
Cap, veh/h	741	1635	731	60	993	444	0	307	261	70	520	442
Arrive On Green	0.22	0.46	0.00	0.03	0.28	0.28	0.00	0.16	0.16	0.04	0.28	0.00
Sat Flow, veh/h	3442	3539	1583	1774	3539	1583	0	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	626	51	0	22	51	27	0	233	22	27	342	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1583	0	1863	1583	1774	1863	1583
Q Serve(g_s), s	14.0	0.6	0.0	1.0	0.8	1.0	0.0	9.6	0.9	1.2	13.0	0.0
Cycle Q Clear(g_c), s	14.0	0.6	0.0	1.0	0.8	1.0	0.0	9.6	0.9	1.2	13.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	741	1635	731	60	993	444	0	307	261	70	520	442
V/C Ratio(X)	0.85	0.03	0.00	0.37	0.05	0.06	0.00	0.76	0.08	0.39	0.66	0.00
Avail Cap(c_a), veh/h	946	1635	731	155	993	444	0	419	356	155	722	614
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.1	11.8	0.0	37.8	21.0	21.1	0.0	31.9	28.3	37.5	25.4	0.0
Incr Delay (d2), s/veh	5.7	0.0	0.0	3.7	0.1	0.3	0.0	5.3	0.1	3.4	1.4	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	7.2	0.3	0.0	0.5	0.4	1.1	0.0	5.4	0.9	0.7	6.9	0.0
LnGrp Delay(d),s/veh	35.9	11.8	0.0	41.5	21.1	21.3	0.0	37.2	28.4	40.9	26.9	0.0
LnGrp LOS	D	B		D	C	C		D	C	D	C	
Approach Vol, veh/h		677			100			255			369	
Approach Delay, s/veh		34.0			25.7			36.5			27.9	
Approach LOS		C			C			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.7	42.9		28.3	23.2	28.4	9.2	19.2				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	7.0	24.0		31.0	22.0	9.0	7.0	18.0				
Max Q Clear Time (g_c+I1), s	3.0	2.6		15.0	16.0	3.0	3.2	11.6				
Green Ext Time (p_c), s	0.0	0.5		2.6	1.3	0.2	0.0	1.6				
Intersection Summary												
HCM 2010 Ctrl Delay				32.3								
HCM 2010 LOS				C								
























HCM 2010 Signalized Intersection Summary
 11: Avalon Rd & New Independence Pkwy

Wellness Way
 2017 - Build - Avalon Alt 2 PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	576	47	481	20	47	25	0	315	20	25	214	576
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1863	1863	1863	1863	1863	1863	0	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	626	51	0	22	51	27	0	342	22	27	233	0
Adj No. of Lanes	2	2	1	1	2	1	0	1	1	1	1	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, %	2	2	2	2	2	2	0	2	2	2	2	2
Cap, veh/h	722	1440	644	60	817	365	0	409	348	70	623	529
Arrive On Green	0.21	0.41	0.00	0.03	0.23	0.23	0.00	0.22	0.22	0.04	0.33	0.00
Sat Flow, veh/h	3442	3539	1583	1774	3539	1583	0	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	626	51	0	22	51	27	0	342	22	27	233	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1583	0	1863	1583	1774	1863	1583
Q Serve(g_s), s	14.1	0.7	0.0	1.0	0.9	1.1	0.0	14.0	0.9	1.2	7.6	0.0
Cycle Q Clear(g_c), s	14.1	0.7	0.0	1.0	0.9	1.1	0.0	14.0	0.9	1.2	7.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	722	1440	644	60	817	365	0	409	348	70	623	529
V/C Ratio(X)	0.87	0.04	0.00	0.37	0.06	0.07	0.00	0.84	0.06	0.39	0.37	0.00
Avail Cap(c_a), veh/h	817	1440	644	155	817	365	0	512	435	155	815	693
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.5	14.3	0.0	37.8	24.0	24.1	0.0	29.8	24.7	37.5	20.3	0.0
Incr Delay (d2), s/veh	8.9	0.0	0.0	3.7	0.1	0.4	0.0	9.5	0.1	3.4	0.4	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	7.6	0.3	0.0	0.5	0.5	1.1	0.0	8.3	0.9	0.7	3.9	0.0
LnGrp Delay(d),s/veh	39.4	14.3	0.0	41.5	24.2	24.5	0.0	39.3	24.8	40.9	20.6	0.0
LnGrp LOS	D	B		D	C	C		D	C	D	C	
Approach Vol, veh/h		677			100			364			260	
Approach Delay, s/veh		37.5			28.1			38.4			22.7	
Approach LOS		D			C			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.7	38.6		32.7	22.8	24.5	9.2	23.6				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	7.0	20.0		35.0	19.0	8.0	7.0	22.0				
Max Q Clear Time (g_c+I1), s	3.0	2.7		9.6	16.1	3.1	3.2	16.0				
Green Ext Time (p_c), s	0.0	0.5		3.0	0.7	0.2	0.0	1.5				
Intersection Summary												
HCM 2010 Ctrl Delay			34.3									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
 11: Avalon Rd & New Independence Pkwy

Wellness Way
 2027 - Build - Avalon Alt 2 AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	681	206	765	78	206	64	0	229	78	64	339	681
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1863	1863	1863	1863	1863	1863	0	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	740	224	0	85	224	70	0	249	85	70	368	0
Adj No. of Lanes	2	2	1	1	2	1	0	1	1	1	1	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, %	2	2	2	2	2	2	0	2	2	2	2	2
Cap, veh/h	850	1362	609	132	751	336	0	320	272	122	588	500
Arrive On Green	0.25	0.38	0.00	0.07	0.21	0.21	0.00	0.17	0.17	0.07	0.32	0.00
Sat Flow, veh/h	3442	3539	1583	1774	3539	1583	0	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	740	224	0	85	224	70	0	249	85	70	368	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1583	0	1863	1583	1774	1863	1583
Q Serve(g_s), s	16.5	3.3	0.0	3.7	4.3	2.9	0.0	10.2	3.8	3.1	13.5	0.0
Cycle Q Clear(g_c), s	16.5	3.3	0.0	3.7	4.3	2.9	0.0	10.2	3.8	3.1	13.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	850	1362	609	132	751	336	0	320	272	122	588	500
V/C Ratio(X)	0.87	0.16	0.00	0.65	0.30	0.21	0.00	0.78	0.31	0.57	0.63	0.00
Avail Cap(c_a), veh/h	989	1362	609	200	751	336	0	396	336	155	699	594
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	0.92	0.92	0.92	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	28.9	16.2	0.0	36.0	26.5	26.0	0.0	31.7	29.0	36.1	23.3	0.0
Incr Delay (d2), s/veh	7.6	0.3	0.0	4.8	0.9	1.3	0.0	7.6	0.6	4.1	1.3	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	8.7	1.7	0.0	2.0	2.2	2.9	0.0	5.9	3.5	1.6	7.2	0.0
LnGrp Delay(d),s/veh	36.5	16.4	0.0	40.8	27.4	27.3	0.0	39.3	29.6	40.2	24.6	0.0
LnGrp LOS	D	B		D	C	C		D	C	D	C	
Approach Vol, veh/h		964			379			334			438	
Approach Delay, s/veh		31.9			30.4			36.8			27.1	
Approach LOS		C			C			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.9	36.8		31.3	25.8	23.0	11.5	19.8				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	9.0	23.0		30.0	23.0	9.0	7.0	17.0				
Max Q Clear Time (g_c+I1), s	5.7	5.3		15.5	18.5	6.3	5.1	12.2				
Green Ext Time (p_c), s	0.0	2.4		3.0	1.2	0.7	0.0	1.5				
Intersection Summary												
HCM 2010 Ctrl Delay			31.4									
HCM 2010 LOS			C									
























HCM 2010 Signalized Intersection Summary
 11: Avalon Rd & New Independence Pkwy

Wellness Way
 2027 - Build - Avalon Alt 2 PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	681	206	765	78	206	64	0	339	78	64	229	681
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1863	1863	1863	1863	1863	1863	0	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	740	224	0	85	224	70	0	368	85	70	249	0
Adj No. of Lanes	2	2	1	1	2	1	0	1	1	1	1	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, %	2	2	2	2	2	2	0	2	2	2	2	2
Cap, veh/h	823	1165	521	132	582	260	0	424	360	122	692	588
Arrive On Green	0.24	0.33	0.00	0.07	0.16	0.16	0.00	0.23	0.23	0.07	0.37	0.00
Sat Flow, veh/h	3442	3539	1583	1774	3539	1583	0	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	740	224	0	85	224	70	0	368	85	70	249	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1583	0	1863	1583	1774	1863	1583
Q Serve(g_s), s	16.7	3.6	0.0	3.7	4.5	3.1	0.0	15.2	3.5	3.1	7.8	0.0
Cycle Q Clear(g_c), s	16.7	3.6	0.0	3.7	4.5	3.1	0.0	15.2	3.5	3.1	7.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	823	1165	521	132	582	260	0	424	360	122	692	588
V/C Ratio(X)	0.90	0.19	0.00	0.65	0.39	0.27	0.00	0.87	0.24	0.57	0.36	0.00
Avail Cap(c_a), veh/h	860	1165	521	200	582	260	0	466	396	155	768	653
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	0.92	0.92	0.92	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	29.5	19.2	0.0	36.0	29.8	29.2	0.0	29.7	25.2	36.1	18.2	0.0
Incr Delay (d2), s/veh	12.1	0.4	0.0	4.8	1.8	2.3	0.0	15.0	0.3	4.1	0.3	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	9.3	1.8	0.0	2.0	2.4	3.0	0.0	9.5	3.4	1.6	4.0	0.0
LnGrp Delay(d),s/veh	41.6	19.6	0.0	40.8	31.6	31.5	0.0	44.7	25.6	40.2	18.5	0.0
LnGrp LOS	D	B		D	C	C		D	C	D	B	
Approach Vol, veh/h		964			379			453			319	
Approach Delay, s/veh		36.5			33.6			41.1			23.3	
Approach LOS		D			C			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.9	32.3		35.7	25.1	19.2	11.5	24.2				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	9.0	20.0		33.0	20.0	9.0	7.0	20.0				
Max Q Clear Time (g_c+I1), s	5.7	5.6		9.8	18.7	6.5	5.1	17.2				
Green Ext Time (p_c), s	0.0	2.3		3.4	0.4	0.7	0.0	1.0				
Intersection Summary												
HCM 2010 Ctrl Delay			35.0									
HCM 2010 LOS			C									




























HCM 2010 Signalized Intersection Summary
 11: Avalon Rd & New Independence Pkwy

Wellness Way
 2037 - Build - Avalon Alt 2 AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	786	377	1049	132	377	98	0	246	132	98	368	786
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1863	1863	1863	1863	1863	1863	0	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	854	410	0	143	410	107	0	267	143	107	400	0
Adj No. of Lanes	2	2	1	1	2	1	0	1	1	1	1	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, %	2	2	2	2	2	2	0	2	2	2	2	2
Cap, veh/h	928	1241	555	179	644	288	0	315	268	141	602	512
Arrive On Green	0.27	0.35	0.00	0.10	0.18	0.18	0.00	0.17	0.17	0.08	0.32	0.00
Sat Flow, veh/h	3442	3539	1583	1774	3539	1583	0	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	854	410	0	143	410	107	0	267	143	107	400	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1583	0	1863	1583	1774	1863	1583
Q Serve(g_s), s	19.3	6.8	0.0	6.3	8.6	4.7	0.0	11.1	6.6	4.7	14.8	0.0
Cycle Q Clear(g_c), s	19.3	6.8	0.0	6.3	8.6	4.7	0.0	11.1	6.6	4.7	14.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	928	1241	555	179	644	288	0	315	268	141	602	512
V/C Ratio(X)	0.92	0.33	0.00	0.80	0.64	0.37	0.00	0.85	0.53	0.76	0.66	0.00
Avail Cap(c_a), veh/h	946	1241	555	288	644	288	0	326	277	155	629	534
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	0.84	0.84	0.84	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	28.4	19.1	0.0	35.2	30.3	28.7	0.0	32.2	30.4	36.1	23.3	0.0
Incr Delay (d2), s/veh	13.7	0.7	0.0	6.7	4.0	3.1	0.0	18.1	1.8	17.8	2.5	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	10.9	3.4	0.0	3.4	4.5	4.5	0.0	7.3	5.9	3.0	8.0	0.0
LnGrp Delay(d),s/veh	42.1	19.8	0.0	41.9	34.3	31.8	0.0	50.4	32.2	53.9	25.8	0.0
LnGrp LOS	D	B		D	C	C		D	C	D	C	
Approach Vol, veh/h		1264			660			410			507	
Approach Delay, s/veh		34.8			35.5			44.0			31.7	
Approach LOS		C			D			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.1	34.1		31.9	27.6	20.6	12.4	19.5				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	13.0	22.0		27.0	22.0	13.0	7.0	14.0				
Max Q Clear Time (g_c+I1), s	8.3	8.8		16.8	21.3	10.6	6.7	13.1				
Green Ext Time (p_c), s	0.1	4.1		2.9	0.3	1.2	0.0	0.4				
Intersection Summary												
HCM 2010 Ctrl Delay			35.8									
HCM 2010 LOS			D									

















HCM 2010 Signalized Intersection Summary
 11: Avalon Rd & New Independence Pkwy

Wellness Way
 2037 - Build - Avalon Alt 2 PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 						 	
Volume (veh/h)	786	377	1049	132	377	98	0	368	132	98	246	786
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1863	1863	1863	1863	1863	1863	0	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	854	410	0	143	410	107	0	400	143	107	267	0
Adj No. of Lanes	2	2	1	1	2	1	0	1	1	1	1	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, %	2	2	2	2	2	2	0	2	2	2	2	2
Cap, veh/h	914	1135	508	177	549	245	0	441	375	135	707	601
Arrive On Green	0.27	0.32	0.00	0.10	0.16	0.16	0.00	0.24	0.24	0.08	0.38	0.00
Sat Flow, veh/h	3442	3539	1583	1774	3539	1583	0	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	854	410	0	143	410	107	0	400	143	107	267	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1583	0	1863	1583	1774	1863	1583
Q Serve(g_s), s	21.8	8.0	0.0	7.1	10.0	5.5	0.0	18.8	6.8	5.3	9.3	0.0
Cycle Q Clear(g_c), s	21.8	8.0	0.0	7.1	10.0	5.5	0.0	18.8	6.8	5.3	9.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	914	1135	508	177	549	245	0	441	375	135	707	601
V/C Ratio(X)	0.93	0.36	0.00	0.81	0.75	0.44	0.00	0.91	0.38	0.79	0.38	0.00
Avail Cap(c_a), veh/h	918	1135	508	276	549	245	0	455	387	138	724	616
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	0.84	0.84	0.84	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.3	23.5	0.0	39.7	36.3	34.5	0.0	33.4	28.8	40.9	20.2	0.0
Incr Delay (d2), s/veh	16.2	0.9	0.0	8.1	7.7	4.7	0.0	21.3	0.6	26.1	0.3	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	12.4	4.1	0.0	3.9	5.4	5.2	0.0	12.3	6.3	3.6	4.9	0.0
LnGrp Delay(d),s/veh	48.5	24.4	0.0	47.8	44.0	39.1	0.0	54.6	29.4	67.0	20.6	0.0
LnGrp LOS	D	C		D	D	D		D	C	E	C	
Approach Vol, veh/h		1264			660			543			374	
Approach Delay, s/veh		40.7			44.0			48.0			33.8	
Approach LOS		D			D			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	34.9		40.2	29.9	20.0	12.8	27.3				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	14.0	23.0		35.0	24.0	13.0	7.0	22.0				
Max Q Clear Time (g_c+I1), s	9.1	10.0		11.3	23.8	12.0	7.3	20.8				
Green Ext Time (p_c), s	0.1	4.1		3.9	0.1	0.6	0.0	0.5				
Intersection Summary												
HCM 2010 Ctrl Delay			41.9									
HCM 2010 LOS			D									













HCM 2010 Signalized Intersection Summary
 18: US 27 & Wellness Way

Wellness Way
 2017 - Build AM Peak

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations	 		 		 	 		
Volume (veh/h)	574	530	1603	574	530	2055		
Number	3	18	2	12	1	6		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	624	0	1742	0	576	2234		
Adj No. of Lanes	2	1	2	1	2	2		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	684	315	1702	761	581	2478		
Arrive On Green	0.20	0.00	0.48	0.00	0.17	0.70		
Sat Flow, veh/h	3442	1583	3632	1583	3442	3632		
Grp Volume(v), veh/h	624	0	1742	0	576	2234		
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	1583	1721	1770		
Q Serve(g_s), s	21.0	0.0	57.0	0.0	19.8	60.9		
Cycle Q Clear(g_c), s	21.0	0.0	57.0	0.0	19.8	60.9		
Prop In Lane	1.00	1.00		1.00	1.00			
Lane Grp Cap(c), veh/h	684	315	1702	761	581	2478		
V/C Ratio(X)	0.91	0.00	1.02	0.00	0.99	0.90		
Avail Cap(c_a), veh/h	726	334	1702	761	581	2478		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00		
Uniform Delay (d), s/veh	46.5	0.0	30.8	0.0	49.2	14.5		
Incr Delay (d2), s/veh	15.4	0.0	28.1	0.0	35.2	5.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	11.4	0.0	34.3	0.0	12.2	30.9		
LnGrp Delay(d),s/veh	61.9	0.0	58.9	0.0	84.5	19.5		
LnGrp LOS	E		F		F	B		
Approach Vol, veh/h	624		1742			2810		
Approach Delay, s/veh	61.9		58.9			32.8		
Approach LOS	E		E			C		
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	26.0	63.0				89.0		29.6
Change Period (Y+Rc), s	6.0	6.0				6.0		6.0
Max Green Setting (Gmax), s	20.0	57.0				83.0		25.0
Max Q Clear Time (g_c+I1), s	21.8	59.0				62.9		23.0
Green Ext Time (p_c), s	0.0	0.0				19.5		0.5
Intersection Summary								
HCM 2010 Ctrl Delay			45.1					
HCM 2010 LOS			D					













HCM 2010 Signalized Intersection Summary
 18: US 27 & Wellness Way

Wellness Way
 2017 - Build - Alt 1 PM Peak

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Volume (veh/h)	574	530	2055	574	530	1603		
Number	3	18	2	12	1	6		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	624	0	2234	0	576	1742		
Adj No. of Lanes	2	1	2	1	2	2		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	671	309	1882	842	495	2544		
Arrive On Green	0.20	0.00	0.53	0.00	0.14	0.72		
Sat Flow, veh/h	3442	1583	3632	1583	3442	3632		
Grp Volume(v), veh/h	624	0	2234	0	576	1742		
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	1583	1721	1770		
Q Serve(g_s), s	24.8	0.0	74.0	0.0	20.0	37.9		
Cycle Q Clear(g_c), s	24.8	0.0	74.0	0.0	20.0	37.9		
Prop In Lane	1.00	1.00		1.00	1.00			
Lane Grp Cap(c), veh/h	671	309	1882	842	495	2544		
V/C Ratio(X)	0.93	0.00	1.19	0.00	1.16	0.68		
Avail Cap(c_a), veh/h	693	319	1882	842	495	2544		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00		
Uniform Delay (d), s/veh	55.1	0.0	32.6	0.0	59.6	10.8		
Incr Delay (d2), s/veh	18.8	0.0	89.8	0.0	94.2	0.8		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	13.5	0.0	59.5	0.0	16.0	18.7		
LnGrp Delay(d),s/veh	73.8	0.0	122.3	0.0	153.8	11.6		
LnGrp LOS	E		F		F	B		
Approach Vol, veh/h	624		2234			2318		
Approach Delay, s/veh	73.8		122.3			46.9		
Approach LOS	E		F			D		
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	26.0	80.0				106.0		33.1
Change Period (Y+Rc), s	6.0	6.0				6.0		6.0
Max Green Setting (Gmax), s	20.0	74.0				100.0		28.0
Max Q Clear Time (g_c+I1), s	22.0	76.0				39.9		26.8
Green Ext Time (p_c), s	0.0	0.0				54.8		0.3
Intersection Summary								
HCM 2010 Ctrl Delay			82.7					
HCM 2010 LOS			F					













HCM 2010 Signalized Intersection Summary
 18: US 27 & Wellness Way

Wellness Way
 2027 - Build - US 27 - Alt 1 AM Peak

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Volume (veh/h)	902	750	1646	902	750	2133		
Number	3	18	2	12	1	6		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	980	0	1789	0	815	2318		
Adj No. of Lanes	2	1	2	1	2	2		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	941	433	1463	654	665	2289		
Arrive On Green	0.27	0.00	0.41	0.00	0.19	0.65		
Sat Flow, veh/h	3442	1583	3632	1583	3442	3632		
Grp Volume(v), veh/h	980	0	1789	0	815	2318		
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	1583	1721	1770		
Q Serve(g_s), s	41.0	0.0	62.0	0.0	29.0	97.0		
Cycle Q Clear(g_c), s	41.0	0.0	62.0	0.0	29.0	97.0		
Prop In Lane	1.00	1.00		1.00	1.00			
Lane Grp Cap(c), veh/h	941	433	1463	654	665	2289		
V/C Ratio(X)	1.04	0.00	1.22	0.00	1.22	1.01		
Avail Cap(c_a), veh/h	941	433	1463	654	665	2289		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00		
Uniform Delay (d), s/veh	54.5	0.0	44.0	0.0	60.5	26.5		
Incr Delay (d2), s/veh	40.8	0.0	106.7	0.0	114.2	22.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	24.8	0.0	51.9	0.0	24.3	54.0		
LnGrp Delay(d),s/veh	95.3	0.0	150.7	0.0	174.7	48.5		
LnGrp LOS	F		F		F	F		
Approach Vol, veh/h	980		1789			3133		
Approach Delay, s/veh	95.3		150.7			81.4		
Approach LOS	F		F			F		
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	35.0	68.0				103.0		47.0
Change Period (Y+Rc), s	6.0	6.0				6.0		6.0
Max Green Setting (Gmax), s	29.0	62.0				97.0		41.0
Max Q Clear Time (g_c+I1), s	31.0	64.0				99.0		43.0
Green Ext Time (p_c), s	0.0	0.0				0.0		0.0
Intersection Summary								
HCM 2010 Ctrl Delay			104.7					
HCM 2010 LOS			F					













HCM 2010 Signalized Intersection Summary
 18: US 27 & Wellness Way

Wellness Way
 2027 - Build - US 27 - Alt 1 PM Peak

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Volume (veh/h)	902	750	2133	902	750	1646		
Number	3	18	2	12	1	6		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	980	0	2318	0	815	1789		
Adj No. of Lanes	2	1	2	1	2	2		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	872	401	1628	728	574	2359		
Arrive On Green	0.25	0.00	0.46	0.00	0.17	0.67		
Sat Flow, veh/h	3442	1583	3632	1583	3442	3632		
Grp Volume(v), veh/h	980	0	2318	0	815	1789		
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	1583	1721	1770		
Q Serve(g_s), s	38.0	0.0	69.0	0.0	25.0	51.1		
Cycle Q Clear(g_c), s	38.0	0.0	69.0	0.0	25.0	51.1		
Prop In Lane	1.00	1.00		1.00	1.00			
Lane Grp Cap(c), veh/h	872	401	1628	728	574	2359		
V/C Ratio(X)	1.12	0.00	1.42	0.00	1.42	0.76		
Avail Cap(c_a), veh/h	872	401	1628	728	574	2359		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	0.00	1.00	0.00	1.00	1.00		
Uniform Delay (d), s/veh	56.0	0.0	40.5	0.0	62.5	16.9		
Incr Delay (d2), s/veh	70.6	0.0	194.4	0.0	199.4	1.5		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	26.6	0.0	77.6	0.0	27.8	25.3		
LnGrp Delay(d),s/veh	126.6	0.0	234.9	0.0	261.9	18.3		
LnGrp LOS	F		F		F	B		
Approach Vol, veh/h	980		2318			2604		
Approach Delay, s/veh	126.6		234.9			94.6		
Approach LOS	F		F			F		
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	31.0	75.0				106.0		44.0
Change Period (Y+Rc), s	6.0	6.0				6.0		6.0
Max Green Setting (Gmax), s	25.0	69.0				100.0		38.0
Max Q Clear Time (g_c+I1), s	27.0	71.0				53.1		40.0
Green Ext Time (p_c), s	0.0	0.0				44.2		0.0
Intersection Summary								
HCM 2010 Ctrl Delay			155.0					
HCM 2010 LOS			F					













HCM 2010 Signalized Intersection Summary
 18: US 27 & Wellness Way

Wellness Way
 2037 - Build - US 27 - Alt 1 AM Peak

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Volume (veh/h)	1236	976	1683	1236	976	2206		
Number	3	18	2	12	1	6		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	1343	0	1829	0	1061	2398		
Adj No. of Lanes	2	1	2	1	2	2		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	1101	507	1274	570	688	2124		
Arrive On Green	0.32	0.00	0.36	0.00	0.20	0.60		
Sat Flow, veh/h	3442	1583	3632	1583	3442	3632		
Grp Volume(v), veh/h	1343	0	1829	0	1061	2398		
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	1583	1721	1770		
Q Serve(g_s), s	48.0	0.0	54.0	0.0	30.0	90.0		
Cycle Q Clear(g_c), s	48.0	0.0	54.0	0.0	30.0	90.0		
Prop In Lane	1.00	1.00		1.00	1.00			
Lane Grp Cap(c), veh/h	1101	507	1274	570	688	2124		
V/C Ratio(X)	1.22	0.00	1.44	0.00	1.54	1.13		
Avail Cap(c_a), veh/h	1101	507	1274	570	688	2124		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00		
Uniform Delay (d), s/veh	51.0	0.0	48.0	0.0	60.0	30.0		
Incr Delay (d2), s/veh	107.1	0.0	200.5	0.0	250.9	64.8		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	39.2	0.0	61.9	0.0	38.2	62.8		
LnGrp Delay(d),s/veh	158.1	0.0	248.5	0.0	310.9	94.8		
LnGrp LOS	F		F		F	F		
Approach Vol, veh/h	1343		1829			3459		
Approach Delay, s/veh	158.1		248.5			161.1		
Approach LOS	F		F			F		
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	36.0	60.0				96.0		54.0
Change Period (Y+Rc), s	6.0	6.0				6.0		6.0
Max Green Setting (Gmax), s	30.0	54.0				90.0		48.0
Max Q Clear Time (g_c+I1), s	32.0	56.0				92.0		50.0
Green Ext Time (p_c), s	0.0	0.0				0.0		0.0
Intersection Summary								
HCM 2010 Ctrl Delay			184.6					
HCM 2010 LOS			F					













HCM 2010 Signalized Intersection Summary
 18: US 27 & Wellness Way

Wellness Way
 2037 - Build - US 27 - Alt 1 PM Peak

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Volume (veh/h)	1236	976	2206	1236	976	1683		
Number	3	18	2	12	1	6		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	1343	0	2398	0	1061	1829		
Adj No. of Lanes	2	1	2	1	2	2		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	1010	464	1463	654	597	2218		
Arrive On Green	0.29	0.00	0.41	0.00	0.17	0.63		
Sat Flow, veh/h	3442	1583	3632	1583	3442	3632		
Grp Volume(v), veh/h	1343	0	2398	0	1061	1829		
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	1583	1721	1770		
Q Serve(g_s), s	44.0	0.0	62.0	0.0	26.0	59.9		
Cycle Q Clear(g_c), s	44.0	0.0	62.0	0.0	26.0	59.9		
Prop In Lane	1.00	1.00		1.00	1.00			
Lane Grp Cap(c), veh/h	1010	464	1463	654	597	2218		
V/C Ratio(X)	1.33	0.00	1.64	0.00	1.78	0.82		
Avail Cap(c_a), veh/h	1010	464	1463	654	597	2218		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00		
Uniform Delay (d), s/veh	53.0	0.0	44.0	0.0	62.0	21.6		
Incr Delay (d2), s/veh	155.5	0.0	290.8	0.0	357.1	2.7		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	42.7	0.0	89.4	0.0	41.9	29.8		
LnGrp Delay(d),s/veh	208.5	0.0	334.8	0.0	419.1	24.3		
LnGrp LOS	F		F		F	C		
Approach Vol, veh/h	1343		2398			2890		
Approach Delay, s/veh	208.5		334.8			169.3		
Approach LOS	F		F			F		
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	32.0	68.0				100.0		50.0
Change Period (Y+Rc), s	6.0	6.0				6.0		6.0
Max Green Setting (Gmax), s	26.0	62.0				94.0		44.0
Max Q Clear Time (g_c+I1), s	28.0	64.0				61.9		46.0
Green Ext Time (p_c), s	0.0	0.0				31.1		0.0
Intersection Summary								
HCM 2010 Ctrl Delay			237.1					
HCM 2010 LOS			F					



















HCM 2010 Signalized Intersection Summary
 18: US 27 & Wellness Way

Wellness Way
 2017 - Build - US 27 - Alt 1.2 AM Peak

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Volume (veh/h)	574	530	1603	574	530	2055		
Number	3	18	2	12	1	6		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	624	0	1742	0	576	2234		
Adj No. of Lanes	2	1	3	1	3	2		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	706	325	2186	681	690	2277		
Arrive On Green	0.21	0.00	0.43	0.00	0.14	0.64		
Sat Flow, veh/h	3442	1583	5253	1583	5003	3632		
Grp Volume(v), veh/h	624	0	1742	0	576	2234		
Grp Sat Flow(s),veh/h/ln	1721	1583	1695	1583	1668	1770		
Q Serve(g_s), s	13.9	0.0	23.5	0.0	8.9	48.3		
Cycle Q Clear(g_c), s	13.9	0.0	23.5	0.0	8.9	48.3		
Prop In Lane	1.00	1.00		1.00	1.00			
Lane Grp Cap(c), veh/h	706	325	2186	681	690	2277		
V/C Ratio(X)	0.88	0.00	0.80	0.00	0.84	0.98		
Avail Cap(c_a), veh/h	739	340	2186	681	695	2279		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00		
Uniform Delay (d), s/veh	30.6	0.0	19.6	0.0	33.3	13.7		
Incr Delay (d2), s/veh	12.0	0.0	2.2	0.0	8.7	14.6		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	7.8	0.0	11.4	0.0	4.7	27.9		
LnGrp Delay(d),s/veh	42.5	0.0	21.7	0.0	41.9	28.3		
LnGrp LOS	D		C		D	C		
Approach Vol, veh/h	624		1742			2810		
Approach Delay, s/veh	42.5		21.7			31.1		
Approach LOS	D		C			C		
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	16.9	40.0				57.0		22.2
Change Period (Y+Rc), s	6.0	6.0				6.0		6.0
Max Green Setting (Gmax), s	11.0	34.0				51.0		17.0
Max Q Clear Time (g_c+I1), s	10.9	25.5				50.3		15.9
Green Ext Time (p_c), s	0.0	8.3				0.6		0.3
Intersection Summary								
HCM 2010 Ctrl Delay			29.3					
HCM 2010 LOS			C					



















HCM 2010 Signalized Intersection Summary
 18: US 27 & Wellness Way

Wellness Way
 2017 - Build - US 27 - Alt 1.2 PM Peak

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations	 		  		  	 		
Volume (veh/h)	574	530	2055	574	530	1603		
Number	3	18	2	12	1	6		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	624	0	2234	0	576	1742		
Adj No. of Lanes	2	1	3	1	3	2		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	725	334	2302	717	639	2300		
Arrive On Green	0.21	0.00	0.45	0.00	0.13	0.65		
Sat Flow, veh/h	3442	1583	5253	1583	5003	3632		
Grp Volume(v), veh/h	624	0	2234	0	576	1742		
Grp Sat Flow(s),veh/h/ln	1721	1583	1695	1583	1668	1770		
Q Serve(g_s), s	15.1	0.0	36.9	0.0	9.8	29.2		
Cycle Q Clear(g_c), s	15.1	0.0	36.9	0.0	9.8	29.2		
Prop In Lane	1.00	1.00		1.00	1.00			
Lane Grp Cap(c), veh/h	725	334	2302	717	639	2300		
V/C Ratio(X)	0.86	0.00	0.97	0.00	0.90	0.76		
Avail Cap(c_a), veh/h	879	404	2302	717	639	2300		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00		
Uniform Delay (d), s/veh	32.8	0.0	23.0	0.0	37.0	10.4		
Incr Delay (d2), s/veh	7.5	0.0	12.6	0.0	16.1	1.5		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	7.9	0.0	19.9	0.0	5.4	14.5		
LnGrp Delay(d),s/veh	40.2	0.0	35.6	0.0	53.1	11.9		
LnGrp LOS	D		D		D	B		
Approach Vol, veh/h	624		2234			2318		
Approach Delay, s/veh	40.2		35.6			22.1		
Approach LOS	D		D			C		
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	17.0	45.0				62.0		24.2
Change Period (Y+Rc), s	6.0	6.0				6.0		6.0
Max Green Setting (Gmax), s	11.0	39.0				56.0		22.0
Max Q Clear Time (g_c+I1), s	11.8	38.9				31.2		17.1
Green Ext Time (p_c), s	0.0	0.1				23.6		1.1
Intersection Summary								
HCM 2010 Ctrl Delay			30.1					
HCM 2010 LOS			C					



















HCM 2010 Signalized Intersection Summary
 18: US 27 & Wellness Way

Wellness Way
 2027 - Build - US 27 - Alt 1.2 AM Peak

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations	 		  		  	 		
Volume (veh/h)	902	750	1646	902	750	2133		
Number	3	18	2	12	1	6		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	980	0	1789	0	815	2318		
Adj No. of Lanes	2	1	3	1	3	2		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	1039	478	1925	599	841	2113		
Arrive On Green	0.30	0.00	0.38	0.00	0.17	0.60		
Sat Flow, veh/h	3442	1583	5253	1583	5003	3632		
Grp Volume(v), veh/h	980	0	1789	0	815	2318		
Grp Sat Flow(s),veh/h/ln	1721	1583	1695	1583	1668	1770		
Q Serve(g_s), s	33.0	0.0	40.1	0.0	19.2	71.0		
Cycle Q Clear(g_c), s	33.0	0.0	40.1	0.0	19.2	71.0		
Prop In Lane	1.00	1.00		1.00	1.00			
Lane Grp Cap(c), veh/h	1039	478	1925	599	841	2113		
V/C Ratio(X)	0.94	0.00	0.93	0.00	0.97	1.10		
Avail Cap(c_a), veh/h	1071	493	1925	599	841	2113		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00		
Uniform Delay (d), s/veh	40.5	0.0	35.4	0.0	49.1	24.0		
Incr Delay (d2), s/veh	15.5	0.0	8.6	0.0	23.5	51.7		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	17.9	0.0	20.3	0.0	10.7	49.5		
LnGrp Delay(d),s/veh	56.0	0.0	44.1	0.0	72.7	75.7		
LnGrp LOS	E		D		E	F		
Approach Vol, veh/h	980		1789			3133		
Approach Delay, s/veh	56.0		44.1			74.9		
Approach LOS	E		D			E		
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	26.0	51.0				77.0		41.9
Change Period (Y+Rc), s	6.0	6.0				6.0		6.0
Max Green Setting (Gmax), s	20.0	45.0				71.0		37.0
Max Q Clear Time (g_c+I1), s	21.2	42.1				73.0		35.0
Green Ext Time (p_c), s	0.0	2.9				0.0		0.9
Intersection Summary								
HCM 2010 Ctrl Delay			62.4					
HCM 2010 LOS			E					













HCM 2010 Signalized Intersection Summary
 18: US 27 & Wellness Way

Wellness Way
 2027 - Build - US 27 - Alt 1.2 PM Peak

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations	 		  		  	 		
Volume (veh/h)	902	750	2133	902	750	1646		
Number	3	18	2	12	1	6		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	980	0	2318	0	815	1789		
Adj No. of Lanes	2	1	3	1	3	2		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	1062	488	2131	664	734	2151		
Arrive On Green	0.31	0.00	0.42	0.00	0.15	0.61		
Sat Flow, veh/h	3442	1583	5253	1583	5003	3632		
Grp Volume(v), veh/h	980	0	2318	0	815	1789		
Grp Sat Flow(s),veh/h/ln	1721	1583	1695	1583	1668	1770		
Q Serve(g_s), s	39.4	0.0	60.0	0.0	21.0	57.4		
Cycle Q Clear(g_c), s	39.4	0.0	60.0	0.0	21.0	57.4		
Prop In Lane	1.00	1.00		1.00	1.00			
Lane Grp Cap(c), veh/h	1062	488	2131	664	734	2151		
V/C Ratio(X)	0.92	0.00	1.09	0.00	1.11	0.83		
Avail Cap(c_a), veh/h	1226	564	2131	664	734	2151		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00		
Uniform Delay (d), s/veh	47.9	0.0	41.6	0.0	61.1	22.3		
Incr Delay (d2), s/veh	10.6	0.0	48.1	0.0	67.9	2.9		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	20.4	0.0	37.5	0.0	14.3	28.7		
LnGrp Delay(d),s/veh	58.5	0.0	89.6	0.0	129.0	25.2		
LnGrp LOS	E		F		F	C		
Approach Vol, veh/h	980		2318			2604		
Approach Delay, s/veh	58.5		89.6			57.7		
Approach LOS	E		F			E		
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	27.0	66.0				93.0		50.2
Change Period (Y+Rc), s	6.0	6.0				6.0		6.0
Max Green Setting (Gmax), s	21.0	60.0				87.0		51.0
Max Q Clear Time (g_c+I1), s	23.0	62.0				59.4		41.4
Green Ext Time (p_c), s	0.0	0.0				26.4		2.8
Intersection Summary								
HCM 2010 Ctrl Delay			70.4					
HCM 2010 LOS			E					













HCM 2010 Signalized Intersection Summary
 18: US 27 & Wellness Way

Wellness Way
 2037 - Build - US 27 - Alt 1.2 AM Peak

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Volume (veh/h)	1236	976	1683	1236	976	2206		
Number	3	18	2	12	1	6		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	1343	0	1829	0	1061	2398		
Adj No. of Lanes	2	1	3	1	3	2		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	1331	612	1729	538	767	1888		
Arrive On Green	0.39	0.00	0.34	0.00	0.15	0.53		
Sat Flow, veh/h	3442	1583	5253	1583	5003	3632		
Grp Volume(v), veh/h	1343	0	1829	0	1061	2398		
Grp Sat Flow(s),veh/h/ln	1721	1583	1695	1583	1668	1770		
Q Serve(g_s), s	58.0	0.0	51.0	0.0	23.0	80.0		
Cycle Q Clear(g_c), s	58.0	0.0	51.0	0.0	23.0	80.0		
Prop In Lane	1.00	1.00		1.00	1.00			
Lane Grp Cap(c), veh/h	1331	612	1729	538	767	1888		
V/C Ratio(X)	1.01	0.00	1.06	0.00	1.38	1.27		
Avail Cap(c_a), veh/h	1331	612	1729	538	767	1888		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00		
Uniform Delay (d), s/veh	46.0	0.0	49.5	0.0	63.5	35.0		
Incr Delay (d2), s/veh	26.9	0.0	38.8	0.0	180.5	126.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	32.5	0.0	30.1	0.0	23.4	71.8		
LnGrp Delay(d),s/veh	72.9	0.0	88.3	0.0	244.0	161.0		
LnGrp LOS	F		F		F	F		
Approach Vol, veh/h	1343		1829			3459		
Approach Delay, s/veh	72.9		88.3			186.5		
Approach LOS	E		F			F		
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	29.0	57.0				86.0		64.0
Change Period (Y+Rc), s	6.0	6.0				6.0		6.0
Max Green Setting (Gmax), s	23.0	51.0				80.0		58.0
Max Q Clear Time (g_c+I1), s	25.0	53.0				82.0		60.0
Green Ext Time (p_c), s	0.0	0.0				0.0		0.0
Intersection Summary								
HCM 2010 Ctrl Delay			136.4					
HCM 2010 LOS			F					







HCM 2010 Signalized Intersection Summary
 18: US 27 & Wellness Way

Wellness Way
 2037 - Build - US 27 - Alt 1.2 PM Peak

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Volume (veh/h)	1236	976	2206	1236	976	1683		
Number	3	18	2	12	1	6		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	1343	0	2398	0	1061	1829		
Adj No. of Lanes	2	1	3	1	3	2		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	1308	602	1763	549	767	1911		
Arrive On Green	0.38	0.00	0.35	0.00	0.15	0.54		
Sat Flow, veh/h	3442	1583	5253	1583	5003	3632		
Grp Volume(v), veh/h	1343	0	2398	0	1061	1829		
Grp Sat Flow(s),veh/h/ln	1721	1583	1695	1583	1668	1770		
Q Serve(g_s), s	57.0	0.0	52.0	0.0	23.0	73.8		
Cycle Q Clear(g_c), s	57.0	0.0	52.0	0.0	23.0	73.8		
Prop In Lane	1.00	1.00		1.00	1.00			
Lane Grp Cap(c), veh/h	1308	602	1763	549	767	1911		
V/C Ratio(X)	1.03	0.00	1.36	0.00	1.38	0.96		
Avail Cap(c_a), veh/h	1308	602	1763	549	767	1911		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00		
Uniform Delay (d), s/veh	46.5	0.0	49.0	0.0	63.5	32.8		
Incr Delay (d2), s/veh	32.0	0.0	165.9	0.0	180.5	12.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	32.9	0.0	51.4	0.0	23.4	39.0		
LnGrp Delay(d),s/veh	78.5	0.0	214.9	0.0	244.0	44.9		
LnGrp LOS	F		F		F	D		
Approach Vol, veh/h	1343		2398			2890		
Approach Delay, s/veh	78.5		214.9			118.0		
Approach LOS	E		F			F		
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	29.0	58.0				87.0		63.0
Change Period (Y+Rc), s	6.0	6.0				6.0		6.0
Max Green Setting (Gmax), s	23.0	52.0				81.0		57.0
Max Q Clear Time (g_c+I1), s	25.0	54.0				75.8		59.0
Green Ext Time (p_c), s	0.0	0.0				5.2		0.0
Intersection Summary								
HCM 2010 Ctrl Delay			145.0					
HCM 2010 LOS			F					







HCM 2010 Signalized Intersection Summary
 18: US 27 & Wellness Way

Wellness Way
 2017 - Build AM - Alt 2 AM Peak

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations	↔↔↔	↗	↑↑	↗↗		↑↑		
Volume (veh/h)	574	530	1603	574	0	2055		
Number	3	18	2	12	1	6		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	0	1863		
Adj Flow Rate, veh/h	624	0	1742	0	0	2234		
Adj No. of Lanes	3	1	2	2	0	2		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	0	2		
Cap, veh/h	803	254	2413	1900	0	2413		
Arrive On Green	0.16	0.00	0.68	0.00	0.00	0.68		
Sat Flow, veh/h	5003	1583	3632	2787	0	3725		
Grp Volume(v), veh/h	624	0	1742	0	0	2234		
Grp Sat Flow(s),veh/h/ln	1668	1583	1770	1393	0	1770		
Q Serve(g_s), s	9.1	0.0	23.5	0.0	0.0	41.4		
Cycle Q Clear(g_c), s	9.1	0.0	23.5	0.0	0.0	41.4		
Prop In Lane	1.00	1.00		1.00	0.00			
Lane Grp Cap(c), veh/h	803	254	2413	1900	0	2413		
V/C Ratio(X)	0.78	0.00	0.72	0.00	0.00	0.93		
Avail Cap(c_a), veh/h	1052	333	2419	1905	0	2419		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00		
Uniform Delay (d), s/veh	30.6	0.0	7.6	0.0	0.0	10.5		
Incr Delay (d2), s/veh	2.7	0.0	1.1	0.0	0.0	6.8		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	4.4	0.0	11.5	0.0	0.0	22.1		
LnGrp Delay(d),s/veh	33.4	0.0	8.7	0.0	0.0	17.3		
LnGrp LOS	C		A			B		
Approach Vol, veh/h	624		1742			2234		
Approach Delay, s/veh	33.4		8.7			17.3		
Approach LOS	C		A			B		
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		57.9				57.9		18.2
Change Period (Y+Rc), s		6.0				6.0		6.0
Max Green Setting (Gmax), s		52.0				52.0		16.0
Max Q Clear Time (g_c+I1), s		25.5				43.4		11.1
Green Ext Time (p_c), s		25.4				8.4		1.1
Intersection Summary								
HCM 2010 Ctrl Delay			16.2					
HCM 2010 LOS			B					







HCM 2010 Signalized Intersection Summary
 18: US 27 & Wellness Way

Wellness Way
 2017 - Build PM - Alt 2 PM Peak

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations	↑↑↑	↑	↑↑	↑↑		↑↑		
Volume (veh/h)	574	530	2055	574	0	1603		
Number	3	18	2	12	1	6		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	0	1863		
Adj Flow Rate, veh/h	624	0	2234	0	0	1742		
Adj No. of Lanes	3	1	2	2	0	2		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	0	2		
Cap, veh/h	803	254	2413	1900	0	2413		
Arrive On Green	0.16	0.00	0.68	0.00	0.00	0.68		
Sat Flow, veh/h	5003	1583	3632	2787	0	3725		
Grp Volume(v), veh/h	624	0	2234	0	0	1742		
Grp Sat Flow(s),veh/h/ln	1668	1583	1770	1393	0	1770		
Q Serve(g_s), s	9.1	0.0	41.4	0.0	0.0	23.5		
Cycle Q Clear(g_c), s	9.1	0.0	41.4	0.0	0.0	23.5		
Prop In Lane	1.00	1.00		1.00	0.00			
Lane Grp Cap(c), veh/h	803	254	2413	1900	0	2413		
V/C Ratio(X)	0.78	0.00	0.93	0.00	0.00	0.72		
Avail Cap(c_a), veh/h	1052	333	2419	1905	0	2419		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00		
Uniform Delay (d), s/veh	30.6	0.0	10.5	0.0	0.0	7.6		
Incr Delay (d2), s/veh	2.7	0.0	6.8	0.0	0.0	1.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	4.4	0.0	22.1	0.0	0.0	11.5		
LnGrp Delay(d),s/veh	33.4	0.0	17.3	0.0	0.0	8.7		
LnGrp LOS	C		B			A		
Approach Vol, veh/h	624		2234			1742		
Approach Delay, s/veh	33.4		17.3			8.7		
Approach LOS	C		B			A		
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		57.9				57.9		18.2
Change Period (Y+Rc), s		6.0				6.0		6.0
Max Green Setting (Gmax), s		52.0				52.0		16.0
Max Q Clear Time (g_c+I1), s		43.4				25.5		11.1
Green Ext Time (p_c), s		8.4				25.4		1.1
Intersection Summary								
HCM 2010 Ctrl Delay			16.2					
HCM 2010 LOS			B					







HCM 2010 Signalized Intersection Summary
 18: US 27 & Wellness Way

Wellness Way
 2027 - Build AM - US 27 Alt 2 AM Peak

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations	↔↔↔	↗	↑↑	↗↗		↑↑		
Volume (veh/h)	902	750	1646	902	0	2133		
Number	3	18	2	12	1	6		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	0	1863		
Adj Flow Rate, veh/h	980	0	1789	0	0	2318		
Adj No. of Lanes	3	1	2	2	0	2		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	0	2		
Cap, veh/h	1056	334	2320	1827	0	2320		
Arrive On Green	0.21	0.00	0.66	0.00	0.00	0.66		
Sat Flow, veh/h	5003	1583	3632	2787	0	3725		
Grp Volume(v), veh/h	980	0	1789	0	0	2318		
Grp Sat Flow(s),veh/h/ln	1668	1583	1770	1393	0	1770		
Q Serve(g_s), s	17.3	0.0	31.7	0.0	0.0	58.8		
Cycle Q Clear(g_c), s	17.3	0.0	31.7	0.0	0.0	58.8		
Prop In Lane	1.00	1.00		1.00	0.00			
Lane Grp Cap(c), veh/h	1056	334	2320	1827	0	2320		
V/C Ratio(X)	0.93	0.00	0.77	0.00	0.00	1.00		
Avail Cap(c_a), veh/h	1056	334	2320	1827	0	2320		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00		
Uniform Delay (d), s/veh	34.8	0.0	10.8	0.0	0.0	15.5		
Incr Delay (d2), s/veh	13.7	0.0	1.6	0.0	0.0	18.5		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	9.3	0.0	15.7	0.0	0.0	34.0		
LnGrp Delay(d),s/veh	48.5	0.0	12.4	0.0	0.0	33.9		
LnGrp LOS	D		B			C		
Approach Vol, veh/h	980		1789			2318		
Approach Delay, s/veh	48.5		12.4			33.9		
Approach LOS	D		B			C		
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		65.0				65.0		25.0
Change Period (Y+Rc), s		6.0				6.0		6.0
Max Green Setting (Gmax), s		59.0				59.0		19.0
Max Q Clear Time (g_c+I1), s		33.7				60.8		19.3
Green Ext Time (p_c), s		24.5				0.0		0.0
Intersection Summary								
HCM 2010 Ctrl Delay			29.2					
HCM 2010 LOS			C					

















HCM 2010 Signalized Intersection Summary
 18: US 27 & Wellness Way

Wellness Way
 2027 - Build AM - US 27 Alt 2 PM Peak

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations	↔↔↔	↗	↑↑	↗↗		↑↑		
Volume (veh/h)	902	750	2133	902	0	1646		
Number	3	18	2	12	1	6		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	0	1863		
Adj Flow Rate, veh/h	980	0	2318	0	0	1789		
Adj No. of Lanes	3	1	2	2	0	2		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	0	2		
Cap, veh/h	1056	334	2320	1827	0	2320		
Arrive On Green	0.21	0.00	0.66	0.00	0.00	0.66		
Sat Flow, veh/h	5003	1583	3632	2787	0	3725		
Grp Volume(v), veh/h	980	0	2318	0	0	1789		
Grp Sat Flow(s),veh/h/ln	1668	1583	1770	1393	0	1770		
Q Serve(g_s), s	17.3	0.0	58.8	0.0	0.0	31.7		
Cycle Q Clear(g_c), s	17.3	0.0	58.8	0.0	0.0	31.7		
Prop In Lane	1.00	1.00		1.00	0.00			
Lane Grp Cap(c), veh/h	1056	334	2320	1827	0	2320		
V/C Ratio(X)	0.93	0.00	1.00	0.00	0.00	0.77		
Avail Cap(c_a), veh/h	1056	334	2320	1827	0	2320		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00		
Uniform Delay (d), s/veh	34.8	0.0	15.5	0.0	0.0	10.8		
Incr Delay (d2), s/veh	13.7	0.0	18.5	0.0	0.0	1.6		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	9.3	0.0	34.0	0.0	0.0	15.7		
LnGrp Delay(d),s/veh	48.5	0.0	33.9	0.0	0.0	12.4		
LnGrp LOS	D		C			B		
Approach Vol, veh/h	980		2318			1789		
Approach Delay, s/veh	48.5		33.9			12.4		
Approach LOS	D		C			B		
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		65.0				65.0		25.0
Change Period (Y+Rc), s		6.0				6.0		6.0
Max Green Setting (Gmax), s		59.0				59.0		19.0
Max Q Clear Time (g_c+I1), s		60.8				33.7		19.3
Green Ext Time (p_c), s		0.0				24.5		0.0
Intersection Summary								
HCM 2010 Ctrl Delay			29.2					
HCM 2010 LOS			C					







HCM 2010 Signalized Intersection Summary
 18: US 27 & Wellness Way

Wellness Way
 2037 - Build AM - US 27 Alt 2 AM Peak

									
Movement	WBL	WBR	NBT	NBR	SBL	SBT			
Lane Configurations	  		 	 			 		
Volume (veh/h)	1236	976	1683	1236	0	2206			
Number	3	18	2	12	1	6			
Initial Q (Qb), veh	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00				
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	0	1863			
Adj Flow Rate, veh/h	1343	0	1829	0	0	2398			
Adj No. of Lanes	3	1	2	2	0	2			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	2	2	0	2			
Cap, veh/h	1322	418	2300	1811	0	2300			
Arrive On Green	0.26	0.00	0.65	0.00	0.00	0.65			
Sat Flow, veh/h	5003	1583	3632	2787	0	3725			
Grp Volume(v), veh/h	1343	0	1829	0	0	2398			
Grp Sat Flow(s),veh/h/ln	1668	1583	1770	1393	0	1770			
Q Serve(g_s), s	37.0	0.0	52.4	0.0	0.0	91.0			
Cycle Q Clear(g_c), s	37.0	0.0	52.4	0.0	0.0	91.0			
Prop In Lane	1.00	1.00		1.00	0.00				
Lane Grp Cap(c), veh/h	1322	418	2300	1811	0	2300			
V/C Ratio(X)	1.02	0.00	0.80	0.00	0.00	1.04			
Avail Cap(c_a), veh/h	1322	418	2300	1811	0	2300			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00			
Uniform Delay (d), s/veh	51.5	0.0	17.7	0.0	0.0	24.5			
Incr Delay (d2), s/veh	28.7	0.0	2.0	0.0	0.0	30.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	20.5	0.0	26.0	0.0	0.0	54.0			
LnGrp Delay(d),s/veh	80.2	0.0	19.8	0.0	0.0	55.4			
LnGrp LOS	F		B			F			
Approach Vol, veh/h	1343		1829			2398			
Approach Delay, s/veh	80.2		19.8			55.4			
Approach LOS	F		B			E			
Timer	1	2	3	4	5	6	7	8	
Assigned Phs		2				6		8	
Phs Duration (G+Y+Rc), s		97.0				97.0		43.0	
Change Period (Y+Rc), s		6.0				6.0		6.0	
Max Green Setting (Gmax), s		91.0				91.0		37.0	
Max Q Clear Time (g_c+I1), s		54.4				93.0		39.0	
Green Ext Time (p_c), s		35.2				0.0		0.0	
Intersection Summary									
HCM 2010 Ctrl Delay			49.7						
HCM 2010 LOS			D						















HCM 2010 Signalized Intersection Summary
 18: US 27 & Wellness Way

Wellness Way
 2037 - Build PM - US 27 Alt 2 PM Peak

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations	↔↔↔	↔	↑↑	↔↔		↑↑		
Volume (veh/h)	1236	976	2206	1236	0	1683		
Number	3	18	2	12	1	6		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	0	1863		
Adj Flow Rate, veh/h	1343	0	2398	0	0	1829		
Adj No. of Lanes	3	1	2	2	0	2		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	0	2		
Cap, veh/h	1322	418	2300	1811	0	2300		
Arrive On Green	0.26	0.00	0.65	0.00	0.00	0.65		
Sat Flow, veh/h	5003	1583	3632	2787	0	3725		
Grp Volume(v), veh/h	1343	0	2398	0	0	1829		
Grp Sat Flow(s),veh/h/ln	1668	1583	1770	1393	0	1770		
Q Serve(g_s), s	37.0	0.0	91.0	0.0	0.0	52.4		
Cycle Q Clear(g_c), s	37.0	0.0	91.0	0.0	0.0	52.4		
Prop In Lane	1.00	1.00		1.00	0.00			
Lane Grp Cap(c), veh/h	1322	418	2300	1811	0	2300		
V/C Ratio(X)	1.02	0.00	1.04	0.00	0.00	0.80		
Avail Cap(c_a), veh/h	1322	418	2300	1811	0	2300		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00		
Uniform Delay (d), s/veh	51.5	0.0	24.5	0.0	0.0	17.7		
Incr Delay (d2), s/veh	28.7	0.0	30.9	0.0	0.0	2.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	20.5	0.0	54.0	0.0	0.0	26.0		
LnGrp Delay(d),s/veh	80.2	0.0	55.4	0.0	0.0	19.8		
LnGrp LOS	F		F			B		
Approach Vol, veh/h	1343		2398			1829		
Approach Delay, s/veh	80.2		55.4			19.8		
Approach LOS	F		E			B		
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		97.0				97.0		43.0
Change Period (Y+Rc), s		6.0				6.0		6.0
Max Green Setting (Gmax), s		91.0				91.0		37.0
Max Q Clear Time (g_c+I1), s		93.0				54.4		39.0
Green Ext Time (p_c), s		0.0				35.2		0.0
Intersection Summary								
HCM 2010 Ctrl Delay			49.7					
HCM 2010 LOS			D					







HCM 2010 Signalized Intersection Summary
 22: US 27 & WB Wellness Way

Wellness Way
 2017 - Build - US 27 - Alt 3 AM Peak

									
Movement	WBL	WBR	NBT	NBR	SBL	SBT			
Lane Configurations	 		 				  		
Volume (veh/h)	574	530	1603	0	0	2585			
Number	3	18	2	12	1	6			
Initial Q (Qb), veh	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00				
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	1863	0	0	1863			
Adj Flow Rate, veh/h	624	0	1742	0	0	2810			
Adj No. of Lanes	2	1	2	0	0	4			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	2	0	0	2			
Cap, veh/h	739	340	2032	0	0	3678			
Arrive On Green	0.21	0.00	0.57	0.00	0.00	0.57			
Sat Flow, veh/h	3442	1583	3725	0	0	6929			
Grp Volume(v), veh/h	624	0	1742	0	0	2810			
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	0	0	1602			
Q Serve(g_s), s	13.9	0.0	33.0	0.0	0.0	26.6			
Cycle Q Clear(g_c), s	13.9	0.0	33.0	0.0	0.0	26.6			
Prop In Lane	1.00	1.00		0.00	0.00				
Lane Grp Cap(c), veh/h	739	340	2032	0	0	3678			
V/C Ratio(X)	0.84	0.00	0.86	0.00	0.00	0.76			
Avail Cap(c_a), veh/h	946	435	2035	0	0	3685			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	0.00	0.41	0.00	0.00	1.00			
Uniform Delay (d), s/veh	30.1	0.0	14.3	0.0	0.0	12.9			
Incr Delay (d2), s/veh	11.4	0.0	1.7	0.0	0.0	1.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	7.8	0.0	16.4	0.0	0.0	11.8			
LnGrp Delay(d),s/veh	41.5	0.0	16.0	0.0	0.0	13.9			
LnGrp LOS	D		B			B			
Approach Vol, veh/h	624		1742			2810			
Approach Delay, s/veh	41.5		16.0			13.9			
Approach LOS	D		B			B			
Timer	1	2	3	4	5	6	7	8	
Assigned Phs		2				6		8	
Phs Duration (G+Y+Rc), s		51.9				51.9		23.2	
Change Period (Y+Rc), s		6.0				6.0		6.0	
Max Green Setting (Gmax), s		46.0				46.0		22.0	
Max Q Clear Time (g_c+I1), s		35.0				28.6		15.9	
Green Ext Time (p_c), s		10.9				17.2		1.3	
Intersection Summary									
HCM 2010 Ctrl Delay			17.9						
HCM 2010 LOS			B						















HCM 2010 Signalized Intersection Summary
 23: US 27 & EB Wellness Way

Wellness Way
 2017 - Build - US 27 - Alt 3 AM Peak

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations			↑↑	↑	↑↑	↑↑		
Volume (veh/h)	0	0	1603	574	530	2629		
Number			2	12	1	6		
Initial Q (Qb), veh			0	0	0	0		
Ped-Bike Adj(A_pbT)				1.00	1.00			
Parking Bus, Adj			1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln			1863	1863	1863	1863		
Adj Flow Rate, veh/h			1742	0	576	2858		
Adj No. of Lanes			2	1	2	2		
Peak Hour Factor			0.92	0.92	0.92	0.92		
Percent Heavy Veh, %			2	2	2	2		
Cap, veh/h			2039	912	943	3446		
Arrive On Green			0.58	0.00	0.27	1.00		
Sat Flow, veh/h			3632	1583	3442	3725		
Grp Volume(v), veh/h			1742	0	576	2858		
Grp Sat Flow(s),veh/h/ln			1770	1583	1721	1863		
Q Serve(g_s), s			32.9	0.0	11.7	0.0		
Cycle Q Clear(g_c), s			32.9	0.0	11.7	0.0		
Prop In Lane				1.00	1.00			
Lane Grp Cap(c), veh/h			2039	912	943	3446		
V/C Ratio(X)			0.85	0.00	0.61	0.83		
Avail Cap(c_a), veh/h			2039	912	946	3586		
HCM Platoon Ratio			1.00	1.00	1.00	2.00		
Upstream Filter(I)			1.00	0.00	0.59	0.59		
Uniform Delay (d), s/veh			14.2	0.0	25.3	0.0		
Incr Delay (d2), s/veh			3.8	0.0	0.7	1.0		
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln			16.8	0.0	5.6	0.5		
LnGrp Delay(d),s/veh			17.9	0.0	26.0	1.0		
LnGrp LOS			B		C	A		
Approach Vol, veh/h			1742			3434		
Approach Delay, s/veh			17.9			5.2		
Approach LOS			B			A		
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		
Phs Duration (G+Y+Rc), s	27.9	52.1				80.0		
Change Period (Y+Rc), s	6.0	6.0				* 6		
Max Green Setting (Gmax), s	22.0	46.0				* 77		
Max Q Clear Time (g_c+I1), s	13.7	34.9				0.0		
Green Ext Time (p_c), s	8.2	9.6				71.4		
Intersection Summary								
HCM 2010 Ctrl Delay			9.5					
HCM 2010 LOS			A					
Notes								
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.								







HCM 2010 Signalized Intersection Summary
 22: US 27 & WB Wellness Way

Wellness Way
 2017 - Build - US 27 - Alt 3 PM Peak

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations	 		 			  		
Volume (veh/h)	574	530	2055	0	0	2133		
Number	3	18	2	12	1	6		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	0	0	1863		
Adj Flow Rate, veh/h	624	0	2234	0	0	2318		
Adj No. of Lanes	2	1	2	0	0	4		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	0	0	2		
Cap, veh/h	699	322	2246	0	0	4066		
Arrive On Green	0.20	0.00	0.63	0.00	0.00	0.63		
Sat Flow, veh/h	3442	1583	3725	0	0	6929		
Grp Volume(v), veh/h	624	0	2234	0	0	2318		
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	0	0	1602		
Q Serve(g_s), s	25.6	0.0	90.7	0.0	0.0	30.0		
Cycle Q Clear(g_c), s	25.6	0.0	90.7	0.0	0.0	30.0		
Prop In Lane	1.00	1.00		0.00	0.00			
Lane Grp Cap(c), veh/h	699	322	2246	0	0	4066		
V/C Ratio(X)	0.89	0.00	0.99	0.00	0.00	0.57		
Avail Cap(c_a), veh/h	973	448	2246	0	0	4066		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	0.34	0.00	0.00	1.00		
Uniform Delay (d), s/veh	56.2	0.0	26.3	0.0	0.0	15.2		
Incr Delay (d2), s/veh	16.0	0.0	9.9	0.0	0.0	0.2		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	13.7	0.0	47.2	0.0	0.0	13.3		
LnGrp Delay(d),s/veh	72.2	0.0	36.2	0.0	0.0	15.4		
LnGrp LOS	E		D			B		
Approach Vol, veh/h	624		2234			2318		
Approach Delay, s/veh	72.2		36.2			15.4		
Approach LOS	E		D			B		
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		98.0				98.0		35.5
Change Period (Y+Rc), s		6.0				6.0		6.0
Max Green Setting (Gmax), s		92.0				92.0		41.0
Max Q Clear Time (g_c+I1), s		92.7				32.0		27.6
Green Ext Time (p_c), s		0.0				57.3		1.9
Intersection Summary								
HCM 2010 Ctrl Delay			31.2					
HCM 2010 LOS			C					











HCM 2010 Signalized Intersection Summary
 23: US 27 & EB Wellness Way

Wellness Way
 2017 - Build - US 27 - Alt 3 PM Peak

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations			↑↑	↗	↘↗	↑↑		
Volume (veh/h)	0	0	2055	574	530	2177		
Number			2	12	1	6		
Initial Q (Qb), veh			0	0	0	0		
Ped-Bike Adj(A_pbT)				1.00	1.00			
Parking Bus, Adj			1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln			1863	1863	1863	1863		
Adj Flow Rate, veh/h			2234	0	576	2366		
Adj No. of Lanes			2	1	2	2		
Peak Hour Factor			0.92	0.92	0.92	0.92		
Percent Heavy Veh, %			2	2	2	2		
Cap, veh/h			2272	1017	947	3571		
Arrive On Green			0.64	0.00	0.28	1.00		
Sat Flow, veh/h			3632	1583	3442	3725		
Grp Volume(v), veh/h			2234	0	576	2366		
Grp Sat Flow(s),veh/h/ln			1770	1583	1721	1863		
Q Serve(g_s), s			88.8	0.0	21.1	0.0		
Cycle Q Clear(g_c), s			88.8	0.0	21.1	0.0		
Prop In Lane				1.00	1.00			
Lane Grp Cap(c), veh/h			2272	1017	947	3571		
V/C Ratio(X)			0.98	0.00	0.61	0.66		
Avail Cap(c_a), veh/h			2272	1017	973	3648		
HCM Platoon Ratio			1.00	1.00	1.00	2.00		
Upstream Filter(I)			1.00	0.00	0.78	0.78		
Uniform Delay (d), s/veh			25.2	0.0	45.7	0.0		
Incr Delay (d2), s/veh			15.1	0.0	0.8	0.3		
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln			47.9	0.0	10.2	0.2		
LnGrp Delay(d),s/veh			40.2	0.0	46.6	0.3		
LnGrp LOS			D		D	A		
Approach Vol, veh/h			2234			2942		
Approach Delay, s/veh			40.2			9.4		
Approach LOS			D			A		
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		
Phs Duration (G+Y+Rc), s	45.9	99.1				145.0		
Change Period (Y+Rc), s	6.0	6.0				* 6		
Max Green Setting (Gmax), s	41.0	92.0				* 1.4E2		
Max Q Clear Time (g_c+I1), s	23.1	90.8				0.0		
Green Ext Time (p_c), s	16.8	1.1				94.9		
Intersection Summary								
HCM 2010 Ctrl Delay			22.7					
HCM 2010 LOS			C					
Notes								
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.								







HCM 2010 Signalized Intersection Summary
 22: US 27 & WB Wellness Way

Wellness Way
 2027 - Build - US 27 - Alt 3.2 AM Peak

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Volume (veh/h)	902	750	1646	0	0	2883		
Number	3	18	2	12	1	6		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	0	0	1863		
Adj Flow Rate, veh/h	980	0	1789	0	0	3134		
Adj No. of Lanes	2	1	2	0	0	4		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	0	0	2		
Cap, veh/h	1008	464	2190	0	0	3966		
Arrive On Green	0.29	0.00	0.62	0.00	0.00	0.62		
Sat Flow, veh/h	3442	1583	3725	0	0	6929		
Grp Volume(v), veh/h	980	0	1789	0	0	3134		
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	0	0	1602		
Q Serve(g_s), s	39.4	0.0	54.5	0.0	0.0	51.1		
Cycle Q Clear(g_c), s	39.4	0.0	54.5	0.0	0.0	51.1		
Prop In Lane	1.00	1.00		0.00	0.00			
Lane Grp Cap(c), veh/h	1008	464	2190	0	0	3966		
V/C Ratio(X)	0.97	0.00	0.82	0.00	0.00	0.79		
Avail Cap(c_a), veh/h	1008	464	2199	0	0	3982		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	0.49	0.00	0.00	1.00		
Uniform Delay (d), s/veh	48.9	0.0	20.6	0.0	0.0	19.9		
Incr Delay (d2), s/veh	22.4	0.0	1.2	0.0	0.0	1.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	21.9	0.0	26.7	0.0	0.0	22.7		
LnGrp Delay(d),s/veh	71.3	0.0	21.8	0.0	0.0	21.0		
LnGrp LOS	E		C			C		
Approach Vol, veh/h	980		1789			3134		
Approach Delay, s/veh	71.3		21.8			21.0		
Approach LOS	E		C			C		
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		92.6				92.6		47.0
Change Period (Y+Rc), s		6.0				6.0		6.0
Max Green Setting (Gmax), s		87.0				87.0		41.0
Max Q Clear Time (g_c+I1), s		56.5				53.1		41.4
Green Ext Time (p_c), s		30.1				33.5		0.0
Intersection Summary								
HCM 2010 Ctrl Delay			29.6					
HCM 2010 LOS			C					











HCM 2010 Signalized Intersection Summary
 23: US 27 & EB Wellness Way

Wellness Way
 2027 - Build - US 27 - Alt 3.2 AM Peak

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations			↑↑	↑	↑↑	↑↑		
Volume (veh/h)	0	0	1646	902	750	3035		
Number			2	12	1	6		
Initial Q (Qb), veh			0	0	0	0		
Ped-Bike Adj(A_pbT)				1.00	1.00			
Parking Bus, Adj			1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln			1863	1863	1863	1863		
Adj Flow Rate, veh/h			1789	0	815	3299		
Adj No. of Lanes			2	1	2	2		
Peak Hour Factor			0.92	0.92	0.92	0.92		
Percent Heavy Veh, %			2	2	2	2		
Cap, veh/h			2017	902	1185	3566		
Arrive On Green			0.57	0.00	0.34	1.00		
Sat Flow, veh/h			3632	1583	3442	3725		
Grp Volume(v), veh/h			1789	0	815	3299		
Grp Sat Flow(s),veh/h/ln			1770	1583	1721	1863		
Q Serve(g_s), s			61.6	0.0	28.5	0.0		
Cycle Q Clear(g_c), s			61.6	0.0	28.5	0.0		
Prop In Lane				1.00	1.00			
Lane Grp Cap(c), veh/h			2017	902	1185	3566		
V/C Ratio(X)			0.89	0.00	0.69	0.93		
Avail Cap(c_a), veh/h			2199	984	1185	3646		
HCM Platoon Ratio			1.00	1.00	1.00	2.00		
Upstream Filter(I)			1.00	0.00	0.44	0.44		
Uniform Delay (d), s/veh			26.2	0.0	39.4	0.0		
Incr Delay (d2), s/veh			4.5	0.0	0.8	2.2		
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln			31.1	0.0	13.6	1.1		
LnGrp Delay(d),s/veh			30.7	0.0	40.2	2.2		
LnGrp LOS			C		D	A		
Approach Vol, veh/h			1789			4114		
Approach Delay, s/veh			30.7			9.7		
Approach LOS			C			A		
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		
Phs Duration (G+Y+Rc), s	54.2	85.8				140.0		
Change Period (Y+Rc), s	6.0	6.0				* 6		
Max Green Setting (Gmax), s	41.0	87.0				* 1.4E2		
Max Q Clear Time (g_c+I1), s	30.5	63.6				0.0		
Green Ext Time (p_c), s	10.5	13.7				131.5		
Intersection Summary								
HCM 2010 Ctrl Delay			16.1					
HCM 2010 LOS			B					
Notes								
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.								







HCM 2010 Signalized Intersection Summary
 22: US 27 & WB Wellness Way

Wellness Way
 2027 - Build - US 27 - Alt 3.2 PM Peak

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Volume (veh/h)	902	750	2133	0	0	2396		
Number	3	18	2	12	1	6		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	0	0	1863		
Adj Flow Rate, veh/h	980	0	2318	0	0	2604		
Adj No. of Lanes	2	1	2	0	0	4		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	0	0	2		
Cap, veh/h	876	403	2252	0	0	4078		
Arrive On Green	0.25	0.00	0.64	0.00	0.00	0.64		
Sat Flow, veh/h	3442	1583	3725	0	0	6929		
Grp Volume(v), veh/h	980	0	2318	0	0	2604		
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	0	0	1602		
Q Serve(g_s), s	28.0	0.0	70.0	0.0	0.0	27.4		
Cycle Q Clear(g_c), s	28.0	0.0	70.0	0.0	0.0	27.4		
Prop In Lane	1.00	1.00		0.00	0.00			
Lane Grp Cap(c), veh/h	876	403	2252	0	0	4078		
V/C Ratio(X)	1.12	0.00	1.03	0.00	0.00	0.64		
Avail Cap(c_a), veh/h	876	403	2252	0	0	4078		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	0.12	0.00	0.00	1.00		
Uniform Delay (d), s/veh	41.0	0.0	20.0	0.0	0.0	12.3		
Incr Delay (d2), s/veh	68.5	0.0	15.9	0.0	0.0	0.3		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	21.6	0.0	38.8	0.0	0.0	12.0		
LnGrp Delay(d),s/veh	109.5	0.0	35.9	0.0	0.0	12.6		
LnGrp LOS	F		F			B		
Approach Vol, veh/h	980		2318			2604		
Approach Delay, s/veh	109.5		35.9			12.6		
Approach LOS	F		D			B		
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		76.0				76.0		34.0
Change Period (Y+Rc), s		6.0				6.0		6.0
Max Green Setting (Gmax), s		70.0				70.0		28.0
Max Q Clear Time (g_c+I1), s		72.0				29.4		30.0
Green Ext Time (p_c), s		0.0				39.9		0.0
Intersection Summary								
HCM 2010 Ctrl Delay			37.9					
HCM 2010 LOS			D					











HCM 2010 Signalized Intersection Summary
 23: US 27 & EB Wellness Way

Wellness Way
 2027 - Build - US 27 - Alt 3.2 PM Peak

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations			↑↑	↑	↑↑	↑↑		
Volume (veh/h)	0	0	2133	902	750	2548		
Number			2	12	1	6		
Initial Q (Qb), veh			0	0	0	0		
Ped-Bike Adj(A_pbT)				1.00	1.00			
Parking Bus, Adj			1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln			1863	1863	1863	1863		
Adj Flow Rate, veh/h			2318	0	815	2770		
Adj No. of Lanes			2	1	2	2		
Peak Hour Factor			0.92	0.92	0.92	0.92		
Percent Heavy Veh, %			2	2	2	2		
Cap, veh/h			2349	1051	782	3522		
Arrive On Green			0.66	0.00	0.23	1.00		
Sat Flow, veh/h			3632	1583	3442	3725		
Grp Volume(v), veh/h			2318	0	815	2770		
Grp Sat Flow(s),veh/h/ln			1770	1583	1721	1863		
Q Serve(g_s), s			70.2	0.0	25.0	0.0		
Cycle Q Clear(g_c), s			70.2	0.0	25.0	0.0		
Prop In Lane				1.00	1.00			
Lane Grp Cap(c), veh/h			2349	1051	782	3522		
V/C Ratio(X)			0.99	0.00	1.04	0.79		
Avail Cap(c_a), veh/h			2349	1051	782	3624		
HCM Platoon Ratio			1.00	1.00	1.00	2.00		
Upstream Filter(I)			1.00	0.00	0.55	0.55		
Uniform Delay (d), s/veh			18.0	0.0	42.5	0.0		
Incr Delay (d2), s/veh			15.5	0.0	35.5	0.6		
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln			38.9	0.0	15.7	0.3		
LnGrp Delay(d),s/veh			33.6	0.0	78.0	0.6		
LnGrp LOS			C		F	A		
Approach Vol, veh/h			2318			3585		
Approach Delay, s/veh			33.6			18.2		
Approach LOS			C			B		
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		
Phs Duration (G+Y+Rc), s	31.0	79.0				110.0		
Change Period (Y+Rc), s	6.0	6.0				* 6		
Max Green Setting (Gmax), s	25.0	73.0				* 1.1E2		
Max Q Clear Time (g_c+I1), s	27.0	72.2				0.0		
Green Ext Time (p_c), s	0.0	0.7				96.1		
Intersection Summary								
HCM 2010 Ctrl Delay			24.3					
HCM 2010 LOS			C					
Notes								
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.								







HCM 2010 Signalized Intersection Summary
 22: US 27 & WB Wellness Way

Wellness Way
 2037 - Build - US 27 - Alt 3 AM Peak

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Volume (veh/h)	1236	976	1683	0	0	3182		
Number	3	18	2	12	1	6		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	0	0	1863		
Adj Flow Rate, veh/h	1343	0	1829	0	0	3459		
Adj No. of Lanes	2	1	2	0	0	4		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	0	0	2		
Cap, veh/h	1239	570	1982	0	0	3588		
Arrive On Green	0.36	0.00	0.56	0.00	0.00	0.56		
Sat Flow, veh/h	3442	1583	3725	0	0	6929		
Grp Volume(v), veh/h	1343	0	1829	0	0	3459		
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	0	0	1602		
Q Serve(g_s), s	54.0	0.0	70.6	0.0	0.0	77.4		
Cycle Q Clear(g_c), s	54.0	0.0	70.6	0.0	0.0	77.4		
Prop In Lane	1.00	1.00		0.00	0.00			
Lane Grp Cap(c), veh/h	1239	570	1982	0	0	3588		
V/C Ratio(X)	1.08	0.00	0.92	0.00	0.00	0.96		
Avail Cap(c_a), veh/h	1239	570	1982	0	0	3588		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	0.37	0.00	0.00	1.00		
Uniform Delay (d), s/veh	48.0	0.0	30.1	0.0	0.0	31.6		
Incr Delay (d2), s/veh	51.5	0.0	3.2	0.0	0.0	8.4		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	34.5	0.0	35.2	0.0	0.0	36.2		
LnGrp Delay(d),s/veh	99.5	0.0	33.3	0.0	0.0	39.9		
LnGrp LOS	F		C			D		
Approach Vol, veh/h	1343		1829			3459		
Approach Delay, s/veh	99.5		33.3			39.9		
Approach LOS	F		C			D		
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		90.0				90.0		60.0
Change Period (Y+Rc), s		6.0				6.0		6.0
Max Green Setting (Gmax), s		84.0				84.0		54.0
Max Q Clear Time (g_c+I1), s		72.6				79.4		56.0
Green Ext Time (p_c), s		11.4				4.6		0.0
Intersection Summary								
HCM 2010 Ctrl Delay			50.2					
HCM 2010 LOS			D					











HCM 2010 Signalized Intersection Summary
 23: US 27 & EB Wellness Way

Wellness Way
 2037 - Build - US 27 - Alt 3 AM Peak

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations			↑↑	↑	↑↑	↑↑		
Volume (veh/h)	0	0	1683	1236	976	3442		
Number			2	12	1	6		
Initial Q (Qb), veh			0	0	0	0		
Ped-Bike Adj(A_pbT)				1.00	1.00			
Parking Bus, Adj			1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln			1863	1863	1863	1863		
Adj Flow Rate, veh/h			1829	0	1061	3741		
Adj No. of Lanes			2	1	2	2		
Peak Hour Factor			0.92	0.92	0.92	0.92		
Percent Heavy Veh, %			2	2	2	2		
Cap, veh/h			2304	1031	1291	3972		
Arrive On Green			0.65	0.00	0.38	1.00		
Sat Flow, veh/h			3632	1583	3442	3725		
Grp Volume(v), veh/h			1829	0	1061	3741		
Grp Sat Flow(s),veh/h/ln			1770	1583	1721	1863		
Q Serve(g_s), s			56.0	0.0	41.8	0.0		
Cycle Q Clear(g_c), s			56.0	0.0	41.8	0.0		
Prop In Lane				1.00	1.00			
Lane Grp Cap(c), veh/h			2304	1031	1291	3972		
V/C Ratio(X)			0.79	0.00	0.82	0.94		
Avail Cap(c_a), veh/h			2304	1031	1291	3972		
HCM Platoon Ratio			1.00	1.00	1.00	2.00		
Upstream Filter(I)			1.00	0.00	0.09	0.09		
Uniform Delay (d), s/veh			18.9	0.0	42.3	0.0		
Incr Delay (d2), s/veh			2.0	0.0	0.4	0.6		
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln			27.8	0.0	20.0	0.3		
LnGrp Delay(d),s/veh			20.9	0.0	42.8	0.6		
LnGrp LOS			C		D	A		
Approach Vol, veh/h			1829			4802		
Approach Delay, s/veh			20.9			9.9		
Approach LOS			C			A		
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		
Phs Duration (G+Y+Rc), s	62.3	103.7				166.1		
Change Period (Y+Rc), s	6.0	6.0				* 6		
Max Green Setting (Gmax), s	49.0	89.0				* 1.5E2		
Max Q Clear Time (g_c+I1), s	43.8	58.0				0.0		
Green Ext Time (p_c), s	5.2	23.8				144.1		
Intersection Summary								
HCM 2010 Ctrl Delay			13.0					
HCM 2010 LOS			B					
Notes								
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.								







HCM 2010 Signalized Intersection Summary
 22: US 27 & WB Wellness Way

Wellness Way
 2037 - Build - US 27 - Alt 3 PM Peak

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Volume (veh/h)	1236	976	2206	0	0	2659		
Number	3	18	2	12	1	6		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	0	0	1863		
Adj Flow Rate, veh/h	1343	0	2398	0	0	2890		
Adj No. of Lanes	2	1	2	0	0	4		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	0	0	2		
Cap, veh/h	1239	570	1982	0	0	3588		
Arrive On Green	0.36	0.00	0.56	0.00	0.00	0.56		
Sat Flow, veh/h	3442	1583	3725	0	0	6929		
Grp Volume(v), veh/h	1343	0	2398	0	0	2890		
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	0	0	1602		
Q Serve(g_s), s	54.0	0.0	84.0	0.0	0.0	54.2		
Cycle Q Clear(g_c), s	54.0	0.0	84.0	0.0	0.0	54.2		
Prop In Lane	1.00	1.00		0.00	0.00			
Lane Grp Cap(c), veh/h	1239	570	1982	0	0	3588		
V/C Ratio(X)	1.08	0.00	1.21	0.00	0.00	0.81		
Avail Cap(c_a), veh/h	1239	570	1982	0	0	3588		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	0.09	0.00	0.00	1.00		
Uniform Delay (d), s/veh	48.0	0.0	33.0	0.0	0.0	26.4		
Incr Delay (d2), s/veh	51.5	0.0	94.9	0.0	0.0	1.4		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	34.5	0.0	66.9	0.0	0.0	24.2		
LnGrp Delay(d),s/veh	99.5	0.0	127.9	0.0	0.0	27.9		
LnGrp LOS	F		F			C		
Approach Vol, veh/h	1343		2398			2890		
Approach Delay, s/veh	99.5		127.9			27.9		
Approach LOS	F		F			C		
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		90.0				90.0		60.0
Change Period (Y+Rc), s		6.0				6.0		6.0
Max Green Setting (Gmax), s		84.0				84.0		54.0
Max Q Clear Time (g_c+I1), s		86.0				56.2		56.0
Green Ext Time (p_c), s		0.0				27.6		0.0
Intersection Summary								
HCM 2010 Ctrl Delay			78.6					
HCM 2010 LOS			E					

HCM 2010 Signalized Intersection Summary
 23: US 27 & EB Wellness Way

Wellness Way
 2037 - Build - US 27 - Alt 3 PM Peak

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations			↑↑	↑	↑↑	↑↑		
Volume (veh/h)	0	0	2206	1236	976	2919		
Number			2	12	1	6		
Initial Q (Qb), veh			0	0	0	0		
Ped-Bike Adj(A_pbT)				1.00	1.00			
Parking Bus, Adj			1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln			1863	1863	1863	1863		
Adj Flow Rate, veh/h			2398	0	1061	3173		
Adj No. of Lanes			2	1	2	2		
Peak Hour Factor			0.92	0.92	0.92	0.92		
Percent Heavy Veh, %			2	2	2	2		
Cap, veh/h			2100	939	1124	3576		
Arrive On Green			0.59	0.00	0.33	1.00		
Sat Flow, veh/h			3632	1583	3442	3725		
Grp Volume(v), veh/h			2398	0	1061	3173		
Grp Sat Flow(s),veh/h/ln			1770	1583	1721	1863		
Q Serve(g_s), s			89.0	0.0	45.0	0.0		
Cycle Q Clear(g_c), s			89.0	0.0	45.0	0.0		
Prop In Lane				1.00	1.00			
Lane Grp Cap(c), veh/h			2100	939	1124	3576		
V/C Ratio(X)			1.14	0.00	0.94	0.89		
Avail Cap(c_a), veh/h			2100	939	1124	3651		
HCM Platoon Ratio			1.00	1.00	1.00	2.00		
Upstream Filter(I)			1.00	0.00	0.32	0.32		
Uniform Delay (d), s/veh			30.5	0.0	49.2	0.0		
Incr Delay (d2), s/veh			70.1	0.0	6.3	1.0		
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln			63.6	0.0	22.4	0.5		
LnGrp Delay(d),s/veh			100.6	0.0	55.5	1.0		
LnGrp LOS			F		E	A		
Approach Vol, veh/h			2398			4234		
Approach Delay, s/veh			100.6			14.7		
Approach LOS			F			B		
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		
Phs Duration (G+Y+Rc), s	55.0	95.0				150.0		
Change Period (Y+Rc), s	6.0	6.0				* 6		
Max Green Setting (Gmax), s	49.0	89.0				* 1.5E2		
Max Q Clear Time (g_c+I1), s	47.0	91.0				0.0		
Green Ext Time (p_c), s	2.0	0.0				141.3		
Intersection Summary								
HCM 2010 Ctrl Delay			45.7					
HCM 2010 LOS			D					
Notes								
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.								

Phone: Fax:
 E-mail:

-----Diverge Analysis-----

Analyst:
 Agency/Co.: Atkins
 Date performed: 11/13/2015
 Analysis time period: AM Peak
 Freeway/Dir of Travel: Avalon rd NB
 Junction: Wellness Way/Avalon Rd
 Jurisdiction:
 Analysis Year: 2037
 Description: Wellness Way

-----Freeway Data-----

Type of analysis	Diverge		
Number of lanes in freeway	2		
Free-flow speed on freeway	55.0	mph	
Volume on freeway	1427	vph	

-----Off Ramp Data-----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	35.0	mph	
Volume on ramp	1049	vph	
Length of first accel/decel lane	500	ft	
Length of second accel/decel lane		ft	

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	No		
Volume on adjacent ramp		vph	
Position of adjacent ramp			
Type of adjacent ramp			
Distance to adjacent ramp		ft	

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1427	1049		vph
Peak-hour factor, PHF	0.92	0.92		
Peak 15-min volume, v15	388	285		v
Trucks and buses	2	2		%
Recreational vehicles	0	0		%
Terrain type:	Level	Level		
Grade	0.00 %	0.00 %		%
Length	0.00 mi	0.00 mi		mi
Trucks and buses PCE, ET	1.5	1.5		
Recreational vehicle PCE, ER	1.2	1.2		

Heavy vehicle adjustment, fHV	0.990	0.990	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	1567	1152	pcph

----- Estimation of V12 Diverge Areas -----

L = (Equation 13-12 or 13-13)

EQ

P = 1.000 Using Equation 0

FD

$v_{12} = v_R + (v_F - v_R) P = 1567$ pc/h

12 R F R FD

----- Capacity Checks -----

	Actual	Maximum	LOS F?
$v_{12} = v_{12}$	1567	4500	No
$v_{FO} = v_F - v_R$	415	4500	No
v_R	1152	2000	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 1567$		(Equation 13-15, 13-16, 13-18, or 13-19)	

----- Flow Entering Diverge Influence Area -----

	Actual	Max Desirable	Violation?
v_{12}	1567	4400	No

----- Level of Service Determination (if not F) -----

Density, $D = 4.252 + 0.0086 v_{12} - 0.009 L_D = 13.2$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

----- Speed Estimation -----

Intermediate speed variable,	D = 0.532	
Space mean speed in ramp influence area,	S = 48.1	mph
Space mean speed in outer lanes,	S = N/A	mph
Space mean speed for all vehicles,	S = 48.1	mph

Phone: Fax:
 E-mail:

-----Diverge Analysis-----

Analyst:
 Agency/Co.: Atkins
 Date performed: 11/13/2015
 Analysis time period: PM Peak
 Freeway/Dir of Travel: Avalon rd NB
 Junction: Wellness Way/Avalon Rd
 Jurisdiction:
 Analysis Year: 2037
 Description: Wellness Way

-----Freeway Data-----

Type of analysis	Diverge		
Number of lanes in freeway	2		
Free-flow speed on freeway	55.0	mph	
Volume on freeway	1549	vph	

-----Off Ramp Data-----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	35.0	mph	
Volume on ramp	1049	vph	
Length of first accel/decel lane	500	ft	
Length of second accel/decel lane		ft	

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	No		
Volume on adjacent ramp		vph	
Position of adjacent ramp			
Type of adjacent ramp			
Distance to adjacent ramp		ft	

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1549	1049		vph
Peak-hour factor, PHF	0.92	0.92		
Peak 15-min volume, v15	421	285		v
Trucks and buses	2	2		%
Recreational vehicles	0	0		%
Terrain type:	Level	Level		
Grade	0.00 %	0.00 %		%
Length	0.00 mi	0.00 mi		mi
Trucks and buses PCE, ET	1.5	1.5		
Recreational vehicle PCE, ER	1.2	1.2		

Heavy vehicle adjustment, fHV	0.990	0.990	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	1701	1152	pcph

----- Estimation of V12 Diverge Areas -----

L = (Equation 13-12 or 13-13)

EQ

P = 1.000 Using Equation 0

FD

$v_{12} = v_R + (v_F - v_R) P = 1701 \text{ pc/h}$

----- Capacity Checks -----

	Actual	Maximum	LOS F?
$v = v_{12}$	1701	4500	No
$v_{Fi} = v_F - v_R$	549	4500	No
v_R	1152	2000	No
$v_3 \text{ or } v_{av34}$	0 pc/h	(Equation 13-14 or 13-17)	
Is $v_3 \text{ or } v_{av34} > 2700 \text{ pc/h?}$		No	
Is $v_3 \text{ or } v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 1701$		(Equation 13-15, 13-16, 13-18, or 13-19)	

----- Flow Entering Diverge Influence Area -----

	Actual	Max Desirable	Violation?
v_{12}	1701	4400	No

----- Level of Service Determination (if not F) -----

Density, $D = 4.252 + 0.0086 v_{12} - 0.009 L_D = 14.4 \text{ pc/mi/ln}$

Level of service for ramp-freeway junction areas of influence B

----- Speed Estimation -----

Intermediate speed variable,	D = 0.532	
Space mean speed in ramp influence area,	S _R = 48.1	mph
Space mean speed in outer lanes,	S ₀ = N/A	mph
Space mean speed for all vehicles,	S = 48.1	mph

Phone: _____ Fax: _____
 E-mail: _____

-----Merge Analysis-----

Analyst:
 Agency/Co.: Atkins
 Date performed: 11/13/2015
 Analysis time period: AM Peak
 Freeway/Dir of Travel: Wellness Way WB
 Junction: Wellness Way/Avalon Rd
 Jurisdiction:
 Analysis Year: 2037
 Description: Wellness Way

-----Freeway Data-----

Type of analysis	Merge		
Number of lanes in freeway	2		
Free-flow speed on freeway	55.0	mph	
Volume on freeway	1163	vph	

-----On Ramp Data-----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-flow speed on ramp	35.0	mph	
Volume on ramp	1049	vph	
Length of first accel/decel lane	500	ft	
Length of second accel/decel lane		ft	

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	No		
Volume on adjacent Ramp		vph	
Position of adjacent Ramp			
Type of adjacent Ramp			
Distance to adjacent Ramp		ft	

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1163	1049		vph
Peak-hour factor, PHF	0.92	0.92		
Peak 15-min volume, v15	316	285		v
Trucks and buses	0	0		%
Recreational vehicles	0	0		%
Terrain type:	Level	Level		
Grade		%	%	%
Length		mi	mi	mi
Trucks and buses PCE, ET	1.5	1.5		
Recreational vehicle PCE, ER	1.2	1.2		

Heavy vehicle adjustment, fHV	1.000	1.000	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	1264	1140	pcph

----- Estimation of V12 Merge Areas -----

L = (Equation 13-6 or 13-7)

EQ

P = 1.000 Using Equation 0

FM

v = v (P) = 1264 pc/h

12 F FM

----- Capacity Checks -----

	Actual	Maximum	LOS F?
v	2404	4500	No
FO			
v or v	0 pc/h	(Equation 13-14 or 13-17)	
3 av34			
Is v or v	> 2700 pc/h?	No	
3 av34			
Is v or v	> 1.5 v /2	No	
3 av34	12		
If yes, v	= 1264	(Equation 13-15, 13-16, 13-18, or 13-19)	
12A			

----- Flow Entering Merge Influence Area -----

	Actual	Max Desirable	Violation?
v	2404	4600	No
R12			

----- Level of Service Determination (if not F) -----

Density, D = 5.475 + 0.00734 v + 0.0078 v - 0.00627 L = 20.6 pc/mi/ln

R R 12 A C

Level of service for ramp-freeway junction areas of influence C

----- Speed Estimation -----

Intermediate speed variable,	M = 0.329	
	S	
Space mean speed in ramp influence area,	S = 50.7	mph
	R	
Space mean speed in outer lanes,	S = N/A	mph
	0	
Space mean speed for all vehicles,	S = 50.7	mph

Phone: Fax:
 E-mail:

-----Merge Analysis-----

Analyst:
 Agency/Co.: Atkins
 Date performed: 11/13/2015
 Analysis time period: PM Peak
 Freeway/Dir of Travel: Wellness Way WB
 Junction: Wellness Way/Avalon Rd
 Jurisdiction:
 Analysis Year: 2037
 Description: Wellness Way

-----Freeway Data-----

Type of analysis	Merge		
Number of lanes in freeway	2		
Free-flow speed on freeway	55.0	mph	
Volume on freeway	1163	vph	

-----On Ramp Data-----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-flow speed on ramp	35.0	mph	
Volume on ramp	1049	vph	
Length of first accel/decel lane	500	ft	
Length of second accel/decel lane		ft	

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	No		
Volume on adjacent Ramp		vph	
Position of adjacent Ramp			
Type of adjacent Ramp			
Distance to adjacent Ramp		ft	

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1163	1049		vph
Peak-hour factor, PHF	0.92	0.92		
Peak 15-min volume, v15	316	285		v
Trucks and buses	0	0		%
Recreational vehicles	0	0		%
Terrain type:	Level	Level		
Grade		%	%	%
Length		mi	mi	mi
Trucks and buses PCE, ET	1.5	1.5		
Recreational vehicle PCE, ER	1.2	1.2		

Heavy vehicle adjustment, fHV	1.000	1.000	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	1264	1140	pcph

----- Estimation of V12 Merge Areas -----

L = (Equation 13-6 or 13-7)

EQ

P = 1.000 Using Equation 0

FM

v = v (P) = 1264 pc/h

12 F FM

----- Capacity Checks -----

	Actual	Maximum	LOS F?
v	2404	4500	No
FO			
v or v	0 pc/h	(Equation 13-14 or 13-17)	
3 av34			
Is v or v	> 2700 pc/h?	No	
3 av34			
Is v or v	> 1.5 v /2	No	
3 av34	12		
If yes, v	= 1264	(Equation 13-15, 13-16, 13-18, or 13-19)	
12A			

----- Flow Entering Merge Influence Area -----

	Actual	Max Desirable	Violation?
v	2404	4600	No
R12			

----- Level of Service Determination (if not F) -----

Density, D = 5.475 + 0.00734 v + 0.0078 v - 0.00627 L = 20.6 pc/mi/ln

R R 12 A C

Level of service for ramp-freeway junction areas of influence C

----- Speed Estimation -----

Intermediate speed variable,	M = 0.329	
	S	
Space mean speed in ramp influence area,	S = 50.7	mph
	R	
Space mean speed in outer lanes,	S = N/A	mph
	0	
Space mean speed for all vehicles,	S = 50.7	mph

Phone: Fax:
 E-mail:

-----Diverge Analysis-----

Analyst:
 Agency/Co.: Atkins
 Date performed: 11/13/2015
 Analysis time period: AM Peak
 Freeway/Dir of Travel: US 27 SB
 Junction: US 27/Wellness Way
 Jurisdiction:
 Analysis Year: 2037
 Description: Wellness Way

-----Freeway Data-----

Type of analysis	Diverge		
Number of lanes in freeway	2		
Free-flow speed on freeway	55.0	mph	
Volume on freeway	3182	vph	

-----Off Ramp Data-----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	35.0	mph	
Volume on ramp	976	vph	
Length of first accel/decel lane	500	ft	
Length of second accel/decel lane		ft	

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	No		
Volume on adjacent ramp		vph	
Position of adjacent ramp			
Type of adjacent ramp			
Distance to adjacent ramp		ft	

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3182	976		vph
Peak-hour factor, PHF	0.92	0.92		
Peak 15-min volume, v15	865	265		v
Trucks and buses	2	2		%
Recreational vehicles	0	0		%
Terrain type:	Level	Level		
Grade	0.00 %	0.00 %		%
Length	0.00 mi	0.00 mi		mi
Trucks and buses PCE, ET	1.5	1.5		
Recreational vehicle PCE, ER	1.2	1.2		

Heavy vehicle adjustment, fHV	0.990	0.990	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	3493	1071	pcph

----- Estimation of V12 Diverge Areas -----

L = (Equation 13-12 or 13-13)

EQ

P = 1.000 Using Equation 0

FD

$v_{12} = v_R + (v_F - v_R) P = 3493$ pc/h

12 R F R FD

----- Capacity Checks -----

	Actual	Maximum	LOS F?
$v_{12} = v_{12}$	3493	4500	No
$v_{FO} = v_F - v_R$	2422	4500	No
v_R	1071	2000	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 3493$		(Equation 13-15, 13-16, 13-18, or 13-19)	

----- Flow Entering Diverge Influence Area -----

	Actual	Max Desirable	Violation?
v_{12}	3493	4400	No

----- Level of Service Determination (if not F) -----

Density, $D = 4.252 + 0.0086 v_{12} - 0.009 L_D = 29.8$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

----- Speed Estimation -----

Intermediate speed variable,	D = 0.524	
Space mean speed in ramp influence area,	S = 48.2	mph
Space mean speed in outer lanes,	S = N/A	mph
Space mean speed for all vehicles,	S = 48.2	mph

Phone: Fax:
 E-mail:

-----Diverge Analysis-----

Analyst:
 Agency/Co.: Atkins
 Date performed: 11/13/2015
 Analysis time period: PM Peak
 Freeway/Dir of Travel: US 27 SB
 Junction: US 27/Wellness Way
 Jurisdiction:
 Analysis Year: 2037
 Description: Wellness Way

-----Freeway Data-----

Type of analysis	Diverge		
Number of lanes in freeway	2		
Free-flow speed on freeway	55.0	mph	
Volume on freeway	2659	vph	

-----Off Ramp Data-----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-Flow speed on ramp	35.0	mph	
Volume on ramp	976	vph	
Length of first accel/decel lane	500	ft	
Length of second accel/decel lane		ft	

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	No		
Volume on adjacent ramp		vph	
Position of adjacent ramp			
Type of adjacent ramp			
Distance to adjacent ramp		ft	

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2659	976		vph
Peak-hour factor, PHF	0.92	0.92		
Peak 15-min volume, v15	723	265		v
Trucks and buses	2	2		%
Recreational vehicles	0	0		%
Terrain type:	Level	Level		
Grade	0.00 %	0.00 %		%
Length	0.00 mi	0.00 mi		mi
Trucks and buses PCE, ET	1.5	1.5		
Recreational vehicle PCE, ER	1.2	1.2		

Heavy vehicle adjustment, fHV	0.990	0.990	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	2919	1071	pcph

----- Estimation of V12 Diverge Areas -----

L = (Equation 13-12 or 13-13)

EQ

P = 1.000 Using Equation 0

FD

$v_{12} = v_R + (v_F - v_R) P = 2919$ pc/h

12 R F R FD

----- Capacity Checks -----

	Actual	Maximum	LOS F?
$v_{12} = v_{12}$	2919	4500	No
$v_{FO} = v_F - v_R$	1848	4500	No
v_R	1071	2000	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or $v_{av34} > 2700$ pc/h?		No	
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$		No	
If yes, $v_{12A} = 2919$		(Equation 13-15, 13-16, 13-18, or 13-19)	

----- Flow Entering Diverge Influence Area -----

	Actual	Max Desirable	Violation?
v_{12}	2919	4400	No

----- Level of Service Determination (if not F) -----

Density, $D = 4.252 + 0.0086 v_{12} - 0.009 L_D = 24.9$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

----- Speed Estimation -----

Intermediate speed variable,	D = 0.524	
Space mean speed in ramp influence area,	S = 48.2	mph
Space mean speed in outer lanes,	S = N/A	mph
Space mean speed for all vehicles,	S = 48.2	mph

Phone: Fax:
 E-mail:

-----Merge Analysis-----

Analyst:
 Agency/Co.: Atkins
 Date performed: 11/13/2015
 Analysis time period: AM Peak
 Freeway/Dir of Travel: Wellness Way EB
 Junction: US 27/Wellness Way
 Jurisdiction:
 Analysis Year: 2037
 Description: Wellness Way

-----Freeway Data-----

Type of analysis	Merge		
Number of lanes in freeway	2		
Free-flow speed on freeway	55.0	mph	
Volume on freeway	1236	vph	

-----On Ramp Data-----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-flow speed on ramp	35.0	mph	
Volume on ramp	976	vph	
Length of first accel/decel lane	500	ft	
Length of second accel/decel lane		ft	

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	No		
Volume on adjacent Ramp		vph	
Position of adjacent Ramp			
Type of adjacent Ramp			
Distance to adjacent Ramp		ft	

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1236	976		vph
Peak-hour factor, PHF	0.92	0.92		
Peak 15-min volume, v15	336	265		v
Trucks and buses	0	0		%
Recreational vehicles	0	0		%
Terrain type:	Level	Level		
Grade	%	%	%	%
Length	mi	mi	mi	mi
Trucks and buses PCE, ET	1.5	1.5		
Recreational vehicle PCE, ER	1.2	1.2		

Heavy vehicle adjustment, fHV	1.000	1.000	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	1343	1061	pcph

----- Estimation of V12 Merge Areas -----

L = (Equation 13-6 or 13-7)

EQ

P = 1.000 Using Equation 0

FM

v = v (P) = 1343 pc/h

12 F FM

----- Capacity Checks -----

	Actual	Maximum	LOS F?
v	2404	4500	No
FO			
v or v	0 pc/h	(Equation 13-14 or 13-17)	
3 av34			
Is v or v	> 2700 pc/h?	No	
3 av34			
Is v or v	> 1.5 v /2	No	
3 av34	12		
If yes, v	= 1343	(Equation 13-15, 13-16, 13-18, or 13-19)	
12A			

----- Flow Entering Merge Influence Area -----

	Actual	Max Desirable	Violation?
v	2404	4600	No
R12			

----- Level of Service Determination (if not F) -----

Density, D = 5.475 + 0.00734 v + 0.0078 v - 0.00627 L = 20.6 pc/mi/ln

R R 12 A C

Level of service for ramp-freeway junction areas of influence C

----- Speed Estimation -----

Intermediate speed variable,	M = 0.329	
	S	
Space mean speed in ramp influence area,	S = 50.7	mph
	R	
Space mean speed in outer lanes,	S = N/A	mph
	0	
Space mean speed for all vehicles,	S = 50.7	mph

Phone: Fax:
E-mail:

-----Merge Analysis-----

Analyst:
Agency/Co.: Atkins
Date performed: 11/13/2015
Analysis time period: PM Peak
Freeway/Dir of Travel: Wellness Way EB
Junction: US 27/Wellness Way
Jurisdiction:
Analysis Year: 2037
Description: Wellness Way

-----Freeway Data-----

Type of analysis	Merge		
Number of lanes in freeway	2		
Free-flow speed on freeway	55.0	mph	
Volume on freeway	1236	vph	

-----On Ramp Data-----

Side of freeway	Right		
Number of lanes in ramp	1		
Free-flow speed on ramp	35.0	mph	
Volume on ramp	976	vph	
Length of first accel/decel lane	500	ft	
Length of second accel/decel lane		ft	

-----Adjacent Ramp Data (if one exists)-----

Does adjacent ramp exist?	No		
Volume on adjacent Ramp		vph	
Position of adjacent Ramp			
Type of adjacent Ramp			
Distance to adjacent Ramp		ft	

-----Conversion to pc/h Under Base Conditions-----

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1236	976		vph
Peak-hour factor, PHF	0.92	0.92		
Peak 15-min volume, v15	336	265		v
Trucks and buses	0	0		%
Recreational vehicles	0	0		%
Terrain type:	Level	Level		
Grade		%	%	%
Length		mi	mi	mi
Trucks and buses PCE, ET	1.5	1.5		
Recreational vehicle PCE, ER	1.2	1.2		

Heavy vehicle adjustment, fHV	1.000	1.000	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	1343	1061	pcph

----- Estimation of V12 Merge Areas -----

L = (Equation 13-6 or 13-7)

EQ

P = 1.000 Using Equation 0

FM

v = v (P) = 1343 pc/h

12 F FM

----- Capacity Checks -----

	Actual	Maximum	LOS F?
v	2404	4500	No
FO			
v or v	0 pc/h	(Equation 13-14 or 13-17)	
3 av34			
Is v or v	> 2700 pc/h?	No	
3 av34			
Is v or v	> 1.5 v /2	No	
3 av34	12		
If yes, v	= 1343	(Equation 13-15, 13-16, 13-18, or 13-19)	
12A			

----- Flow Entering Merge Influence Area -----

	Actual	Max Desirable	Violation?
v	2404	4600	No
R12			

----- Level of Service Determination (if not F) -----

Density, D = 5.475 + 0.00734 v + 0.0078 v - 0.00627 L = 20.6 pc/mi/ln

R R 12 A C

Level of service for ramp-freeway junction areas of influence C

----- Speed Estimation -----

Intermediate speed variable,	M = 0.329	
	S	
Space mean speed in ramp influence area,	S = 50.7	mph
	R	
Space mean speed in outer lanes,	S = N/A	mph
	0	
Space mean speed for all vehicles,	S = 50.7	mph