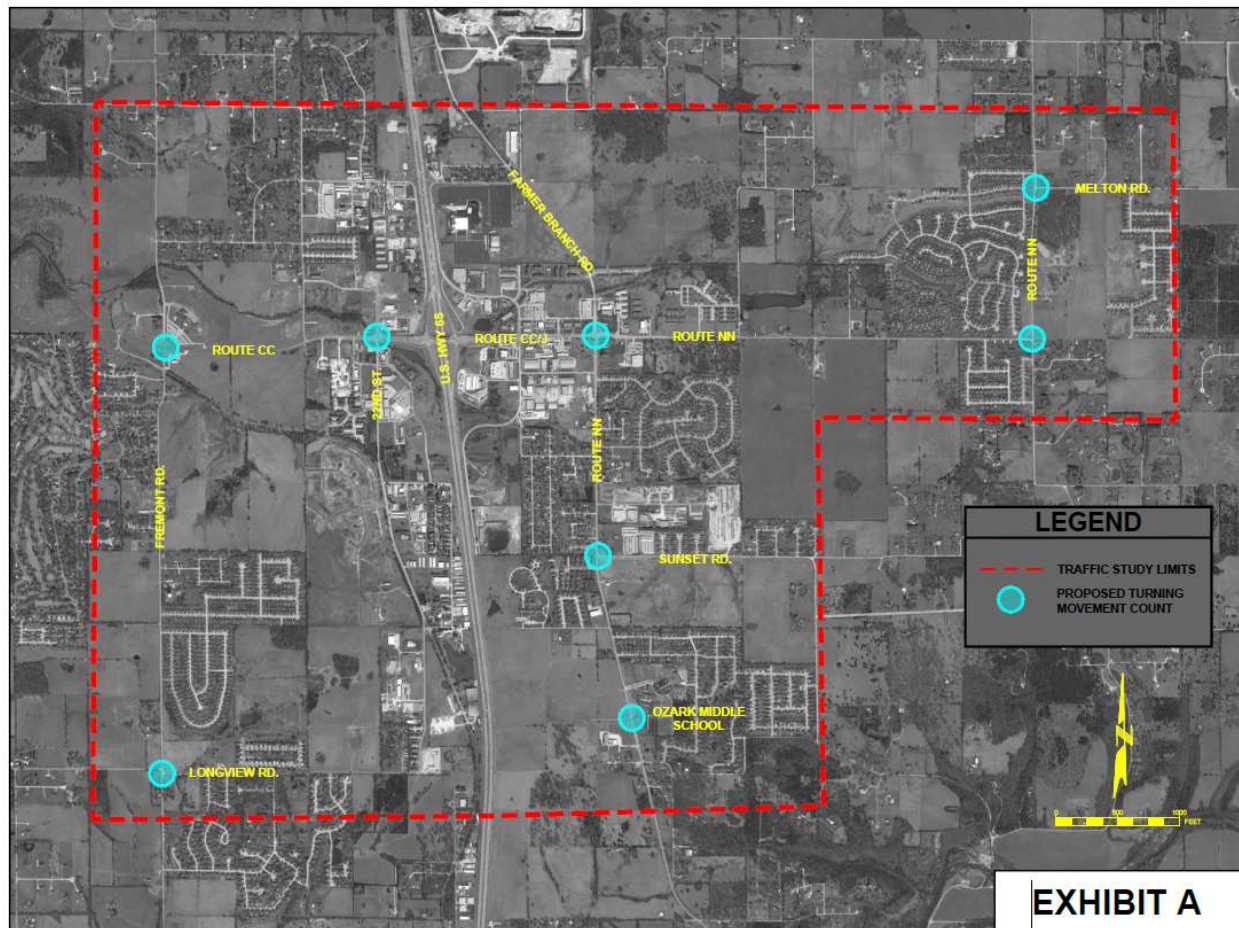




OZARK NORTH CORRIDOR TRAFFIC STUDY

OZARK, MISSOURI

PREPARED BY:
CRAWFORD, MURPHY & TILLY
JANUARY 2022

Executive Summary

This traffic impact study examines the impacts of background growth and several proposed developments along the Route CC/J/NN corridor in Ozark, MO. There are nine proposed developments within the study area: 4 single family detached housing developments, 2 multi-family housing developments, and 3 multi-use developments, one of which is approximately 229 acres in size. Traffic from these developments will utilize Route CC/J/NN to travel to and from destinations both in Ozark and beyond.

Traffic models have been created to analyze traffic conditions for the existing (no developments) and proposed (with developments) conditions. Existing models were created for the years 2021, 2023 and 2043, while proposed models were created for 2023 and 2043. The time periods analyzed include AM, PM, and weekend peak hours. Changes in travel patterns due to the proposed developments and traffic scenarios have been projected using existing traffic patterns and engineering judgement.

The traffic from proposed developments within the study area does increase delays at intersections throughout the study area. However, even when combined with background traffic growth over time, all intersections operate at acceptable levels through 2043 with the exception of Route CC and 22nd Street. The intersection of Route CC and 22nd Street experiences a failing level of service even during the existing 2021 PM peak hour. Background growth and development traffic only serve to exacerbate capacity issues at this location. As a result, the following improvements are recommended there:

- Add an eastbound through lane starting at least 700 feet in advance of the intersection.
- Channelize the eastbound and northbound right turn movements.
- Add a second westbound left turn lane and update the westbound left turn phasing to be protected only.

The cost of implementing these recommended roadway improvements would be **\$1,100,000**. Steep slopes in the southeast quadrant of the intersection result in higher costs.

In addition, the intersections of Route CC/Fremont Road and Route J/NN/Farmer Branch Road should be monitored as traffic in the area continues to grow. If more development is realized near these intersections than what is modeled in this traffic study, they may require improvements to address increased delay.

Table of Contents

Executive Summary.....	ii
I - Introduction	1
II – Study Area Conditions.....	2
Description of Study Intersections.....	2
Proposed Future Developments	3
Existing Traffic Volumes.....	5
Future Traffic Volumes.....	5
III – Development Generated Traffic	5
Trip Generation.....	5
Pass-By Trips	6
Trip Distribution and Assignment	7
IV - Operations	7
No Build Conditions	8
Build Conditions	10
V –Roadway Improvements.....	11
Route CC and 22 nd Street	11
Route CC and Fremont Road.....	12
VI - Conclusions	12

I - Introduction

The purpose of this traffic study is to determine the impacts of planned developments and improvements along the Route CC/J/NN corridor in Ozark, MO. This study is intended to be used as a planning tool to identify potential transportation improvement projects and consider the associated impacts of developments and other infrastructure improvements to the existing transportation network.

The objectives for this analysis include the following:

- Forecast trips generated by proposed developments within the study focus area during the morning, evening, and weekend peak hours
- Distribute the generated trips to the public roadway network based on ADT distributions and the existing directional split of traffic
- Create traffic models including the existing and proposed conditions to determine the impact of the generated trips to the existing roadway network
- Make recommendations for improvements to the roadway network to accommodate the additional traffic from the proposed developments.

Traffic models have been created to analyze the traffic conditions under the existing and proposed conditions. Several scenarios have been modelled. These traffic scenarios include:

1. 2021 No-Build (existing traffic conditions)
2. 2023 No-Build (traffic conditions with no proposed developments)
3. 2043 No-Build (traffic conditions with no proposed developments)
4. 2023 with Development (traffic conditions with proposed development traffic)
5. 2043 with Development (traffic conditions with proposed development traffic)

II – Study Area Conditions

The study limits include approximately 4,750 acres, including 10 miles of roadway. Route CC/J/NN is largely a two-lane section within the study area. Between 25th Street and 13th Street Route CC/J/NN has a two-way left turn lane (TWLTL), as well as several other added lanes in the vicinity of the interchange with US 65. Farmer Branch Road/Route NN is a two-lane section north of Route CC/J, and a two-lane section with a TWLTL south of Route CC/J. Fremont Road is a two-lane section with one lane in either direction.

Description of Study Intersections



This analysis will examine the impacts to the intersections show in the exhibit above.

(1) Route CC and Fremont Road: A four-way signalized intersection approximately 5,000 feet west of the interchange of Route CC/J/NN with US 65. The eastbound approach has a dedicated left turn lane, one through lane, and a dedicated right turn lane. The westbound approach has a dedicated left turn lane and a shared through/right lane. The northbound approach has a dedicated left turn lane, one through lane, and a dedicated channelized right turn lane. The southbound approach has a dedicated left turn lane and a shared through/right lane with right turn channelization. There are pedestrian crosswalks provided across the northbound and westbound legs.

(2) Route CC and 22nd Street: A four-way signalized intersection approximately 1,000 feet west of the interchange of Route CC/J/NN with US 65. The eastbound approach has a dedicated left turn lane, one through lane, and a dedicated right turn lane. The westbound approach has a dedicated left turn lane and two through lanes with a channelized right turn. The northbound approach has a dedicated left turn lane and a shared through/right lane. The southbound approach has a dedicated left turn lane, one through

lane, and a dedicated channelized right turn lane. There are pedestrian crosswalks provided across the westbound and southbound legs.

(3) [Route J/NN and Farmer Branch Road/Route NN](#): A four-way signalized intersection approximately 1,000 feet east of the interchange of Route CC/J/NN with US 65. The eastbound approach has a dedicated left turn lane, one through lane, and a dedicated channelized right turn lane that is developed from an upstream through lane. The westbound approach has a dedicated left turn lane, one through lane, and a dedicated channelized right turn lane. The northbound and southbound approaches each have a dedicated left turn lane, one through lane, and a dedicated channelized right turn lane. There are pedestrian crosswalks provided across the westbound and southbound legs.

(4) [Route NN and Pheasant Drive](#): A 3-way unsignalized intersection approximately 8,000 feet east of the intersection of Route CC/J/NN and Farmer Branch Road. The separated T-intersection allows through traffic on Route NN to continue unimpeded and allows traffic to and from Pheasant Drive to merge/diverge. Route NN has one through lane in each direction at this location. At the intersection itself each leg has one shared left/through/right lane. Traffic entering Route NN is stop controlled. Eastbound departing traffic is yield controlled at the intersection, while southbound departing traffic operated freely.

(5) [Route NN and Melton Road](#): A three-way unsignalized intersection approximately 3,000 feet north of the intersection of Route NN and Pheasant Drive. The westbound approach is stop controlled and has one shared left/through/right lane. The northbound approach operates freely and has one shared through/right lane. The southbound approach operates freely and has one through lane and a TWLTL.

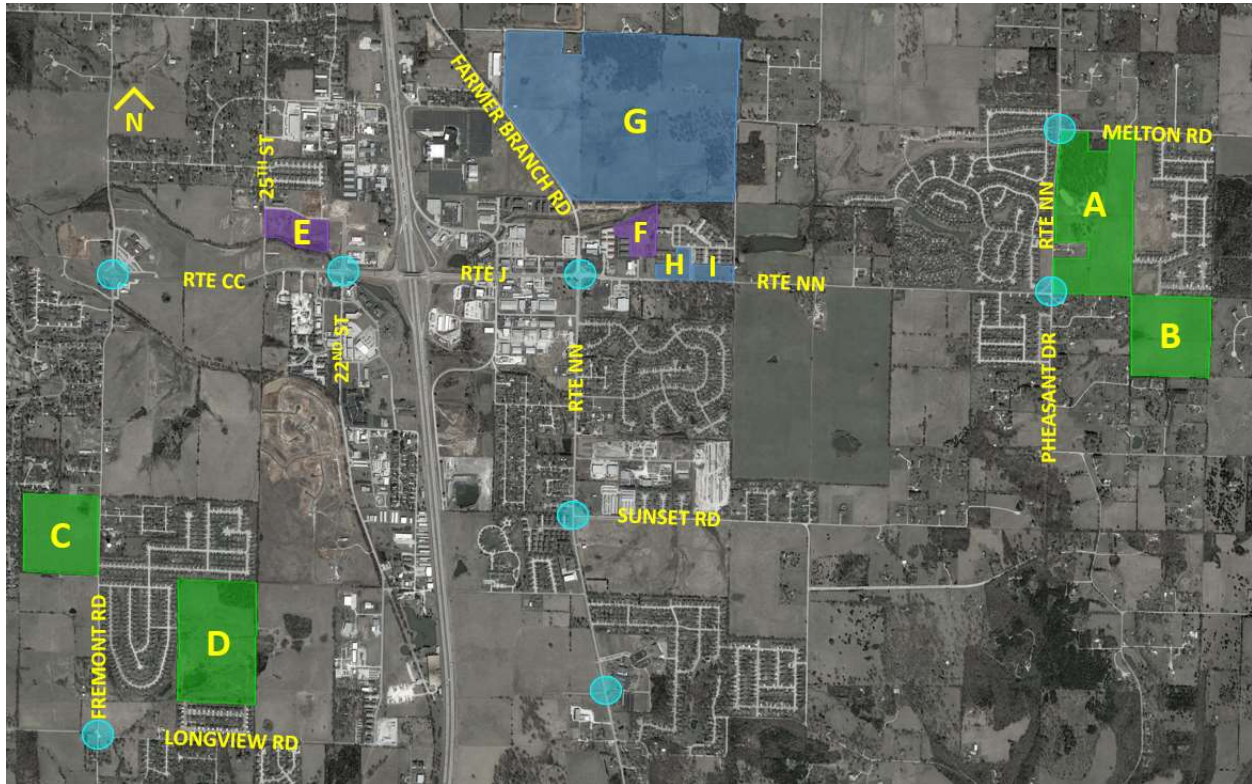
(6) [Route NN and Sunset Road](#): A three-way unsignalized intersection approximately 4,000 feet south of the intersection of Route CC/J/NN and Farmer Branch Road. The westbound approach is stop controlled and has one shared left/through/right lane. The northbound approach operates freely and has one shared through/right lane. The southbound approach operates freely and has one through lane and a TWLTL.

(7) [Route NN and Ozark Middle School Exit](#): A four-way unsignalized intersection approximately 3,000 feet south of the intersection of Route NN and Sunset Road. The eastbound approach is currently not utilized as it does not serve any development, but it is stop controlled and has one shared left/through/right lane. The westbound approach is a one-way exit from Ozark Middle School with a dedicated left turn lane and dedicated right turn lane. The northbound approach operates freely and has one shared through/right lane. The southbound approach operates freely and has one through lane and a TWLTL.

(8) [Fremont Road and Longview Road](#): An offset four-way intersection (unsignalized) approximately 8,000 feet south of the intersection of Route CC and Fremont Road. The eastbound and westbound legs at this intersection are offset from each other. All legs are stop controlled.

[Proposed Future Developments](#)

Within the approximately 4,750-acre traffic study limits, the existing land use is a mix of commercial, residential, industrial, and government/institution. The City of Ozark provided a list of proposed developments throughout the city, and it was determined that nine of those potential developments fall within this traffic study area.



This analysis will examine the impacts of the developments shown in the exhibit above. Detailed information was not available for most of the developments provided at the time of this study. Dwelling unit counts and gross leasable area (GLA) needed for trip generation were assumed based on the characteristics of similar nearby developments. Additionally, for multi-use developments, the City of Ozark advised using the assumption that 75% of the area would be dedicated to housing, while the remaining 25% would be commercial.

(A) [Single-Family Housing Development 1](#): This approximately 75-acre development would have access points along Highway NN and Melton Road. The majority of trips generated by this development would make their way to and from their trip ends via Highway NN.

(B) [Single-Family Housing Development 2](#): It was assumed that if this approximately 41-acre housing development is constructed, that a roadway connection would need to be built between Pheasant Drive and Willow Road. This proposed roadway segment is indicated as a “Future Street” in the Ozark Transportation Organization’s Major Thoroughfare Plan and would essentially be an extension of Highway NN eastward. This development would have access points primarily on this newly constructed roadway, which is included in the 2043 build models. The majority of trips generated by this development would make their way to and from their trip ends via Highway NN.

(C) [Single-Family Housing Development 3](#): This approximately 38-acre development would have access points along Fremont Road. The majority of traffic generated by this development would head north to access Highway CC, while the rest would be split going to and from the west (Nixa) or south (destinations within Ozark).

(D) **Single-Family Housing Development 4:** This approximately 63-acre development would utilize existing access points already in place for the surrounding existing developments. These access points are along Fremont Road and Longview Road. The majority of traffic generated by this development would head north to access Highway CC, while the rest would be split going to and from the west (Nixa) or south (destinations within Ozark).

(E) **Multi-Family Housing Development 1:** This approximately 12-acre development would have access points along 25th Street and Spring Drive. Most of the trips generated by the development would use the existing 25th Street and 22nd Street intersections with Highway CC to travel to and from their trip ends.

(F) **Multi-Family Housing Development 2:** This approximately 9-acre development would have direct access to Highway NN via an existing driveway, with the majority of generated trips traveling to and from the west.

(G) **Multi-Use Development 1:** The preliminary plans for this approximately 229-acre Planned Unit Development (PUD) includes 432 single-family housing units, 134 condominium/townhouse units, 198 apartment units, 190,000 SF of commercial shopping area, a soccer complex with 10 fields, and a 30,000 SF recreational community center. The primary access points for this development would be along Farmer Branch Road, with secondary access points along Southernview Road and Blue Stern Road.

(H) **Multi-Use Development 2:** This approximately 5-acre development would access Highway NN directly via White Street, with the majority of generated trips traveling to and from the west.

(I) **Multi-Use Development 3:** This approximately 4-acre development would access Highway NN directly via White Street, with the majority of generated trips traveling to and from the west.

Existing Traffic Volumes

Traffic counts within the study area were collected in September of 2021 for the weekday and weekend peak hours. Traffic counts were collected at the intersections described previously in the D section of this report.

It was determined that a seasonal adjustment factor was not necessary in this case. Therefore, the traffic counts collected in September 2021 were used as base traffic volumes for this analysis.

Future Traffic Volumes

A 1% annual background growth rate was determined to be appropriate for the study area considering past growth in the area and historical counts performed by the Missouri Department of Transportation. The one-percent annual growth rate was utilized throughout the remainder of the study to better determine the impacts of the developments on the roadway network.

III – Development Generated Traffic

Trip Generation

The number of trips generated by a proposed development is a function of land use and development size. The Institute of Transportation Engineers publishes an established compilation of trip data called the

*Trip Generation Manual*¹ for various land uses in studies performed across the United States. This enables a traffic studies analyst to forecast traffic based on generation rates comparable to previously constructed sites with similar characteristics when local or established trip generation data is not available.

Table 1 below summarizes the amount of additional traffic that would be generated by the proposed developments, including pass-by trips. If both an average rate and a fitted curve was shown in the *Trip Generation Handbook*, the average rate was used to acquire the estimated trip generation.

Table 1

ROUTE CC/J/NN DEVELOPMENTS TRIP GENERATION											
DESCRIPTION/ITE CODE	UNITS	EXPECTED UNITS	TOTAL DISTRIBUTION OF GENERATED TRIPS								
			AM IN	AM OUT	AM PASS BY	PM IN	PM OUT	PM PASS BY	WEEKEND IN	WEEKEND OUT	WEEKEND PASS BY
DEVELOPMENT A (SINGLE FAMILY DETACHED HOUSING 210)	DU	298	55	165	0	186	109	0	150	127	0
DEVELOPMENT B (SINGLE FAMILY DETACHED HOUSING 210)	DU	164	30	91	0	102	60	0	82	70	0
DEVELOPMENT C (SINGLE FAMILY DETACHED HOUSING 210)	DU	152	28	84	0	95	56	0	76	65	0
DEVELOPMENT D (SINGLE FAMILY DETACHED HOUSING 210)	DU	250	46	139	0	156	92	0	126	107	0
DEVELOPMENT E (MULTI FAMILY HOUSING LOW RISE 220)	DU	79	8	28	0	28	16	0	28	28	0
DEVELOPMENT F (MULTI FAMILY HOUSING LOW RISE 220)	DU	72	8	26	0	25	15	0	25	25	0
DEVELOPMENT G (SINGLE FAMILY DETACHED HOUSING 210)	DU	432	80	240	0	269	158	0	217	185	0
DEVELOPMENT G (MULTI FAMILY HOUSING LOW RISE 220)	DU	134	14	48	0	47	28	0	47	47	0
DEVELOPMENT G (MULTI FAMILY HOUSING MID RISE 220)	DU	198	21	70	0	70	41	0	70	70	0
DEVELOPMENT G (SHOPPING CENTER 820)	KSF	190	111	68	61	347	376	246	445	410	291
DEVELOPMENT G (SOCCOR COMPLEX 488)	FIELDS	10	6	4	0	108	56	0	192	209	0
DEVELOPMENT G (COMMUNITY RECREATION CENTER)	KSF	30	35	18	0	33	37	0	17	15	0
DEVELOPMENT H (MULTI FAMILY HOUSING LOW RISE 220)	DU	14	2	5	0	5	3	0	5	5	0
DEVELOPMENT H (SHOPPING CENTER 820)	KSF	8	3	2	3	10	11	10	13	12	12
DEVELOPMENT I (MULTI FAMILY HOUSING LOW RISE 220)	DU	12	1	4	0	4	2	0	5	5	0
DEVELOPMENT I (SHOPPING CENTER 820)	KSF	6.5	3	2	2	8	9	8	11	10	10
Total			451	994	66	1493	1069	264	1509	1390	313

The time periods used for trip generation were the AM and PM peak hours for a weekday and midday peak hour for a Saturday

Pass-By Trips

According to the *Trip Generation Handbook*², pass-by trips are made as intermediate stops on the way from an origin to a primary trip destination without a route diversion. They are attracted from existing traffic passing the proposed site on an adjacent street that offers access to the development. As such, pass-by trips are not added to the traffic directly generated by the site in question since they would be on the road network if the site did not exist.

The relative percentage of which trips are pass-by trips was determined by using data from the *Trip Generation Handbook*. Only the commercial portion of the multi-use development is considered a

¹ *Trip Generation Manual*, Institute of Transportation Engineers, Tenth Edition, 2017.

² *Trip Generation Handbook*, Institute of Transportation Engineers, Third Edition, 2017.

generator of pass-by trips, and the appropriate weekday and weekend rates were applied, as seen below in Table 2.

Table 2

ROUTE CC/J/NN DEVELOPMENTS PASS-BY TRIP GENERATION								
DESCRIPTION/ITE CODE	UNITS	EXPECTED UNITS	AM PASS-BY RATE	PM PASS-BY RATE	WEEKEND PASS-BY RATE	PASS-BY TRIPS		
						AM PASS BY	PM PASS BY	WEEKEND PASS BY
DEVELOPMENT G (SHOPPING CENTER 820)	KSF ²	190	34%	34%	34%	61	246	291
DEVELOPMENT H (SHOPPING CENTER 820)	KSF ²	8	34%	34%	34%	3	10	12
DEVELOPMENT I (SHOPPING CENTER 820)	KSF ²	6.5	34%	34%	34%	2	8	10

Trip Distribution and Assignment

Trip distribution for the developments included in this analysis was based on two factors: generator type and traffic counts. The generated trips were assigned to turning movements and roadways using a gravity model and the existing traffic patterns. According to the 2019 Ozark Comprehensive Plan, nearly 84% of working Ozark residents commute to another city for work and this fact was considered when determining likely destinations for generated traffic.

Trip assignment involves assigning the generated traffic to the various roadways in the study area, both existing and proposed. This includes both entering and exiting trips in the AM, PM, and weekend peak hours. The trip assignment assumptions were based on logical routing decisions, assumed travel patterns, development locations, and traffic delays.

Traffic maps for the modelled conditions can be seen in **Appendix A**.

IV - Operations

This section details the operation of intersections within the study area. The macroscopic traffic analysis software application Synchro 10 was used to analyze the operation of the study intersections for the AM, PM, and weekend peak hours.

The primary performance measure used in the Highway Capacity Manual (HCM) and the Synchro model to provide a Level of Service (LOS) for signalized and unsignalized intersections is control delay, measured in seconds per vehicle. The LOS rating system describes the operational characteristics of an intersection and ranges from A (free flow, minimal delay) to F (extreme congestion, unacceptable delay). The ranges of control delay used to define LOS are shown in **Table 3**.

Table 3

INTERSECTION LEVEL OF SERVICE (LOS) CRITERIA		
LOS	SIGNALIZED INTERSECTION CONTROL DELAY (sec)	UNSIGNALIZED INTERSECTION CONTROL DELAY (sec)
A	0-10	0-10
B	>10-20	>10-15
C	>20-35	>15-25
D	>35-55	>25-35
E	>55-80	>35-50
F	>80	>50

The Missouri Department of Transportation (MoDOT) typically considers LOS D to be an acceptable level of service for the roadways under their jurisdiction. For the purpose of this analysis, LOS rating of D will be considered the threshold for satisfactory LOS within the study area.

To determine the impact of background growth and development traffic on the existing roadway network, the following traffic models were created:

1. AM, PM, and weekend (WE) scenarios for years 2021, 2023, and 2043 without development, including background growth, and no roadway changes (no-build scenario).
2. AM, PM, and weekend (WE) scenarios for years 2023 and 2043 with development, including background growth, and no roadway changes. For the 2023 models, it was assumed that 20% of the proposed developments would be completed. For the 2043 models, it was assumed that 100% of the proposed developments would be completed.

Existing cycle lengths and left-turn phasing was used for the signalized intersections modeled in Synchro for the 2021 and 2023 no-build and build scenarios. For the 2043 no-build and build scenarios, left-turn phasing was kept the same, but cycle lengths were optimized (with appropriate signal coordination maintained).

No Build Conditions

As a starting point, the existing traffic was grown to reflect the projected traffic for the years 2023 and 2043. The resulting traffic conditions can be seen in **Table 4**.

Table 4

				No Build Conditions					
				2021		2023		2043	
				Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Signalized	Intersection								
	1	Route CC & Fremont Road	AM	29.5	C	30.2	C	33.1	C
			PM	40.5	D	43.0	D	48.0	D
			WE	26.9	C	27.5	C	27.7	C
	2	Route CC & 22nd Street	AM	50.9	D	54.5	D	111.7	F
			PM	96.3	F	101.3	F	164.9	F
			WE	28.9	C	28.4	C	50.4	D
	3	Route J/NN & Farmer Branch Road	AM	23.1	C	23.7	C	31.7	C
			PM	25.1	C	25.7	C	38.4	D
			WE	18.9	B	19.0	B	21.6	C
Unsignalized	4	Route NN & Pheasant Drive	AM	4.4	A	4.4	A	4.5	A
			PM	5.1	A	5.1	A	5.2	A
			WE	4.0	A	4.0	A	4.1	A
	5	Route NN & Melton Road	AM	2.2	A	2.2	A	2.4	A
			PM	1.6	A	1.7	A	1.9	A
			WE	1.5	A	1.5	A	1.6	A
	6	Route NN & Sunset Road	AM	1.8	A	1.8	A	2.6	A
			PM	1.5	A	1.5	A	1.8	A
			WE	1.6	A	1.6	A	1.8	A
	7	Route NN & Ozark Middle School	AM	3.7	A	3.8	A	4.7	A
			PM	0.3	A	0.3	A	0.3	A
			WE	0.7	A	0.7	A	0.8	A
	8	Fremont Road and Longview Road	AM	8.6	A	8.6	A	9.3	A
			PM	8.9	A	9.0	A	9.9	A
			WE	7.8	A	7.8	A	8.1	A

The traffic models show that the existing roadway network will generally operate at acceptable levels of service under projected future traffic loads, with the exception of the signalized intersection of Route CC and 22nd Street, which degrades to LOS F during even the existing 2021 PM peak hour. The northbound and southbound approaches to this intersection experience the most delay, but all movements at this intersection suffer long delays due to lack of capacity.

The intersection of Route CC and Fremont Road has movements that fall below acceptable levels in the 2043 PM peak hour – primarily the EB and WB left turns.

All other intersections operate acceptably in the 2023 and 2043 no-build scenarios. Possible solutions to address the decreases in LOS are discussed in the Roadway Improvements section of this report.

Full intersection analysis reports can be found in Appendix B.

Build Conditions

For the 2023 and 2043 build scenarios, the base traffic was projected, and the additional traffic generated by the proposed developments was added to determine the impact the developments would have on the surrounding roadway system. The results of these analyses can be seen in **Table 5**.

Table 5

				Build Conditions			
				2023		2043	
Intersection				Delay (sec)	LOS	Delay (sec)	LOS
Signalized	1	Route CC & Fremont Road	AM	30.9	C	36.2	D
			PM	43.6	D	51.7	D
			WE	25.3	C	29.2	C
	2	Route CC & 22nd Street	AM	53.5	D	134.9	F
			PM	110.7	F	179.9	F
			WE	28.6	C	70.2	E
	3	Route J/NN & Farmer Branch Road	AM	23.5	C	37.7	D
			PM	25.8	C	42.8	D
			WE	19.2	B	23.6	C
Unsignalized	4	Route NN & Pheasant Drive	AM	4.4	A	5.9	A
			PM	5.1	A	6.1	A
			WE	4.0	A	6.0	A
	5	Route NN & Melton Road	AM	2.9	A	3.3	A
			PM	2.2	A	2.8	A
			WE	1.5	A	2.3	A
	6	Route NN & Sunset Road	AM	1.8	A	2.7	A
			PM	1.6	A	1.9	A
			WE	1.6	A	1.8	A
	7	Route NN & Ozark Middle School	AM	3.8	A	4.8	A
			PM	0.3	A	0.3	A
			WE	0.7	A	0.7	A
	8	Fremont Road and Longview Road	AM	8.7	A	9.5	A
			PM	9.1	A	10.2	B
			WE	7.9	A	8.4	A

For the 2023 build models, the largest increase in control delay from the no-build scenario is less than 1 second, except for the intersection of Route CC and 22nd Street during the PM peak hour. This is expected given that only 20% of proposed development traffic was included in the 2023 models. Similarly, in the

2043 build models, only the intersection of Route CC and 22nd Street experiences a significant increase in delay, which is due to development traffic exacerbating the existing capacity issue there.

The performance issues at the intersection of Route CC and Fremont Road persist with slight increases in delay in the build models. The intersection of Route J/NN and Farmer Branch Road, which handles a large portion of the overall proposed development traffic in the area, suffers only slight increases in delay over the no-build scenario, and still operates acceptably through 2043.

All other intersections operate acceptably in the 2023 and 2043 build scenarios. Possible solutions to address unacceptable delay values are discussed in the Roadway Improvements section of this report.

Full intersection Synchro analysis reports can be found in Appendix B.

V –Roadway Improvements

Of the eight intersections analyzed in this traffic study, one (Route CC/22nd St) experiences an overall LOS F rating in the 2021, 2023, and 2043 no-build and build scenarios, while one other (Route CC/Fremont Rd) has approaches that fall below acceptable levels by 2043. Possible roadway improvements for these intersections are discussed below.

Route CC and 22nd Street

This intersection experiences LOS F during the existing 2021 PM peak hour, with delays increasing further with the addition of background growth and development traffic in the 2023 and 2043 scenarios. The northbound and southbound approaches experience the most delay, but all movements experience heavy delays due to lack of capacity at this intersection.

A combination of roadway improvements applied at this intersection is successful in bringing all movements within an acceptable LOS during the 2043 build condition, which is the worst-case traffic scenario. These improvements include the following:

- Adding an eastbound through lane starting at least 700 feet in advance of the intersection. This through lane would meet up with existing through lanes west of the intersection before the diverging diamond interchange with US 65. In advance of the intersection, the dedicated right turn lane could be eliminated in favor of a shared through/right lane. This improvement has the biggest impact on intersection performance as it increases overall capacity.
- Channelizing the eastbound and northbound right turn movements. Dedicated right turn lanes are not needed on these approaches, but channelizing the movement decreases delay for those lane groups.
- Adding a second westbound left turn lane and changing the westbound left turn phasing to be protected only.

Table 6 below details how each movement performs in each of 2023 and 2043 scenarios. Right turn movements are omitted from this table as HCS 6 methodology shows channelized right turns as having no delay. The traffic models show that if these improvements are implemented, all movements operate acceptably in all scenarios.

Table 6

Approach	Movement	No-Build, with All Improvements						Build, with All Improvements					
		2023			2043			2023			2043		
		AM	PM	WE	AM	PM	WE	AM	PM	WE	AM	PM	WE
EB Rte CC	Left	16.5 (B)	19.5 (B)	14.4 (B)	18.5 (B)	20.4 (C)	16.1 (B)	16.5 (B)	19.5 (B)	14.4 (B)	18.1 (B)	21.1 (C)	16.0 (B)
	Thru	26.8 (C)	30.0 (C)	19.3 (B)	31.1 (C)	32.6 (C)	22.2 (C)	27.6 (C)	31.0 (C)	19.7 (B)	34.7 (C)	38.0 (D)	23.6 (C)
	Approach	26.2 (C)	29.5 (C)	18.7 (B)	30.3 (C)	32.0 (C)	21.4 (C)	27.0 (C)	30.4 (C)	19.0 (B)	33.8 (C)	37.2 (D)	22.8 (C)
WB Rte CC	Left	41.3 (D)	45.6 (D)	30.7 (C)	53.4 (D)	47.8 (D)	36.4 (D)	41.3 (D)	45.6 (D)	30.6 (C)	53.4 (D)	52.4 (D)	38.7 (D)
	Thru	18.5 (B)	24.8 (C)	16.8 (B)	19.8 (B)	24.9 (C)	18.5 (B)	18.5 (B)	24.8 (C)	16.8 (B)	19.4 (B)	24.5 (C)	18.1 (B)
	Approach	26.7 (C)	30.4 (C)	21.7 (C)	31.8 (C)	31.1 (C)	24.8 (C)	26.7 (C)	30.4 (C)	21.6 (C)	31.5 (C)	32.0 (C)	25.3 (C)
NB Fremont	Left	17.4 (B)	22.1 (C)	18.3 (B)	26.5 (C)	26.2 (C)	20.1 (C)	17.4 (B)	22.1 (C)	18.3 (B)	26.5 (C)	30.6 (C)	22.4 (C)
	Thru	20.0 (B)	24.6 (C)	20.5 (C)	30.3 (C)	29.6 (C)	22.8 (C)	20.0 (B)	24.6 (C)	20.5 (C)	30.3 (C)	34.6 (C)	25.3 (C)
	Approach	18.4 (B)	22.6 (C)	19.5 (B)	27.9 (C)	26.9 (C)	21.7 (C)	18.4 (B)	22.6 (C)	19.5 (B)	27.9 (C)	31.5 (C)	24.1 (C)
SB Fremont	Left	17.9 (B)	19.8 (B)	16.9 (B)	22.8 (C)	29.2 (C)	21.2 (C)	17.9 (B)	19.8 (B)	17.0 (B)	23.5 (C)	31.3 (C)	23.8 (C)
	Thru	18.8 (B)	21.8 (C)	16.9 (B)	24.8 (C)	28.2 (C)	19.2 (B)	18.8 (B)	21.9 (C)	16.9 (B)	25.4 (C)	31.8 (C)	20.9 (C)
	Approach	18.1 (B)	20.1 (C)	16.9 (B)	23.2 (C)	29.1 (C)	20.9 (C)	18.1 (B)	20.2 (C)	17.0 (B)	23.9 (C)	31.4 (C)	23.5 (C)
Intersection		25.0 (C)	28.8 (C)	19.7 (B)	30.0 (C)	31.0 (C)	22.9 (C)	25.3 (C)	29.0 (C)	19.8 (B)	31.3 (C)	33.7 (C)	24.0 (C)

Note that if the right turn channelization and through lane additions are made without the westbound left turn lane addition, all movements would operate acceptably in all scenarios, albeit with slightly more delay, except for the 2043 PM Build model. In that case, the overall intersection LOS drops to D, with the westbound left turn movement at LOS E but none failing. With the level of current construction and potential development happening in the vicinity of this intersection, the additional left turn lane is still recommended to handle future changes in traffic patterns.

A conceptual design of these improvements is shown in **Appendix C**. The estimated cost for these improvements would be **\$1,100,000**.

Synchro model reports for these geometric changes can be found in **Appendix B**.

Route CC and Fremont Road

During the 2043 no-build and build PM peak hours, the eastbound and westbound left turn movements fall to LOS E. All approaches and the intersection as a whole operate at LOS D at worst, so no intersection improvements are recommended at this location currently. However, roadway improvements would likely be necessary if more development than what is currently modeled is realized near the intersection. These potential improvements would include adding an additional through lane in the eastbound and westbound directions, as well as potentially adding a westbound left turn lane. The additional through lanes would need to extend at least 400 feet in advance of the intersection for both approaches.

A conceptual design of these improvements is shown in **Appendix C**. The estimated cost for these improvements would be **\$1,700,000**.

VI - Conclusions

The traffic models show that the intersections within the study area operate at an acceptable level through 2043 traffic projections, with the exception of Route CC and 22nd Street.

The following roadway improvements are recommended at the intersection of Route CC and 22nd Street to address unacceptable levels of service in the 2023 and 2043 no-build and build scenarios:

- Add an eastbound through lane starting at least 700 feet in advance of the intersection.
- Channelize the eastbound and northbound right turn movements.
- Add a second westbound left turn lane and changing the westbound left turn phasing to be protected only.

The cost of implementing these recommended roadway improvements would be **\$1,100,000**. Steep slopes in the southeast quadrant of the intersection result in higher costs.

The intersections of Route CC/Fremont Road and Route J/NN/Farmer Branch Road should be monitored as traffic in the area continues to grow. If more development is realized near these intersections than what is modeled in this traffic study, they may require improvements to address increased delay.

Appendix A

Traffic Volume Maps

N.T.S

LEGEND

AM (PM) (SAT)

PEAK HOUR
TRAFFIC VOLUME

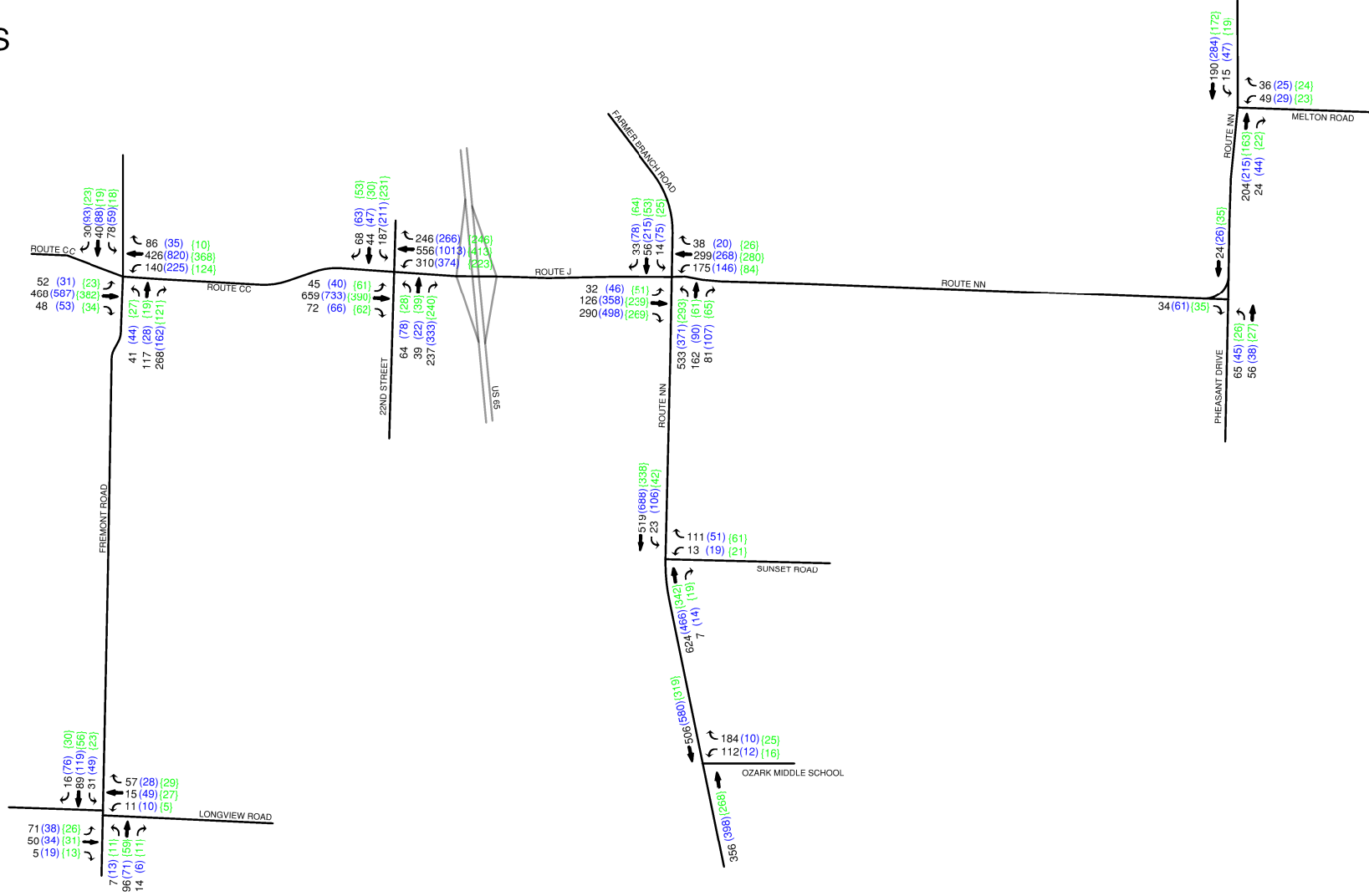


EXHIBIT 1

OZARK, MO

CHRISTIAN COUNTY

DECEMBER 23, 2021



PEAK HOUR TRAFFIC COUNTS
EXISTING YEAR 2021

N.T.S

LEGEND

AM (PM) (SAT)
PEAK HOUR
TRAFFIC VOLUME

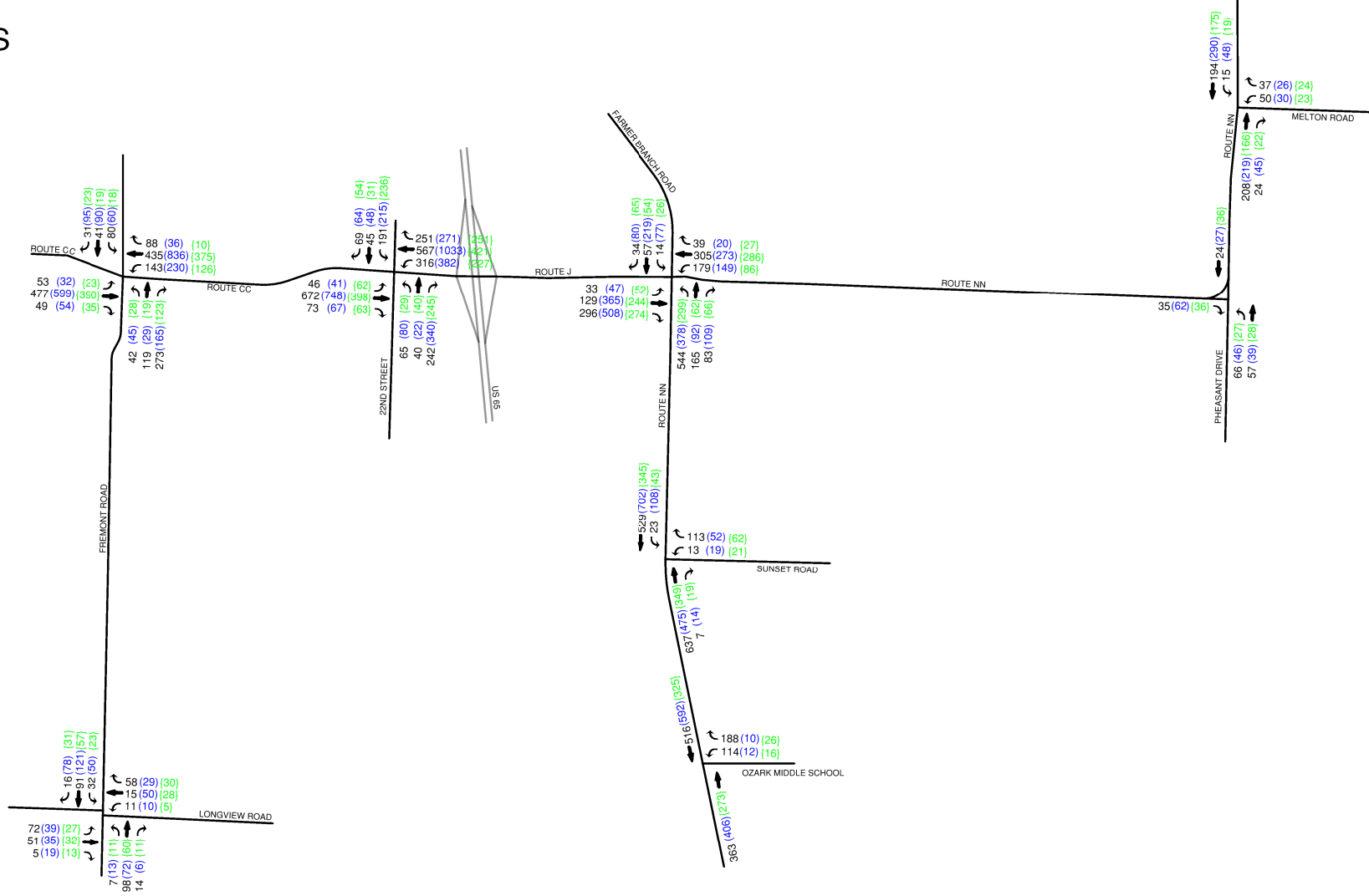


EXHIBIT 2

NO BUILD SCENARIO
2023 PROJECTED

OZARK, MO

CHRISTIAN COUNTY

DECEMBER 23, 2021



CMT
Engineers and Consultants

N.T.S

LEGEND

AM (PM) (SAT)

PEAK HOUR
TRAFFIC VOLUME

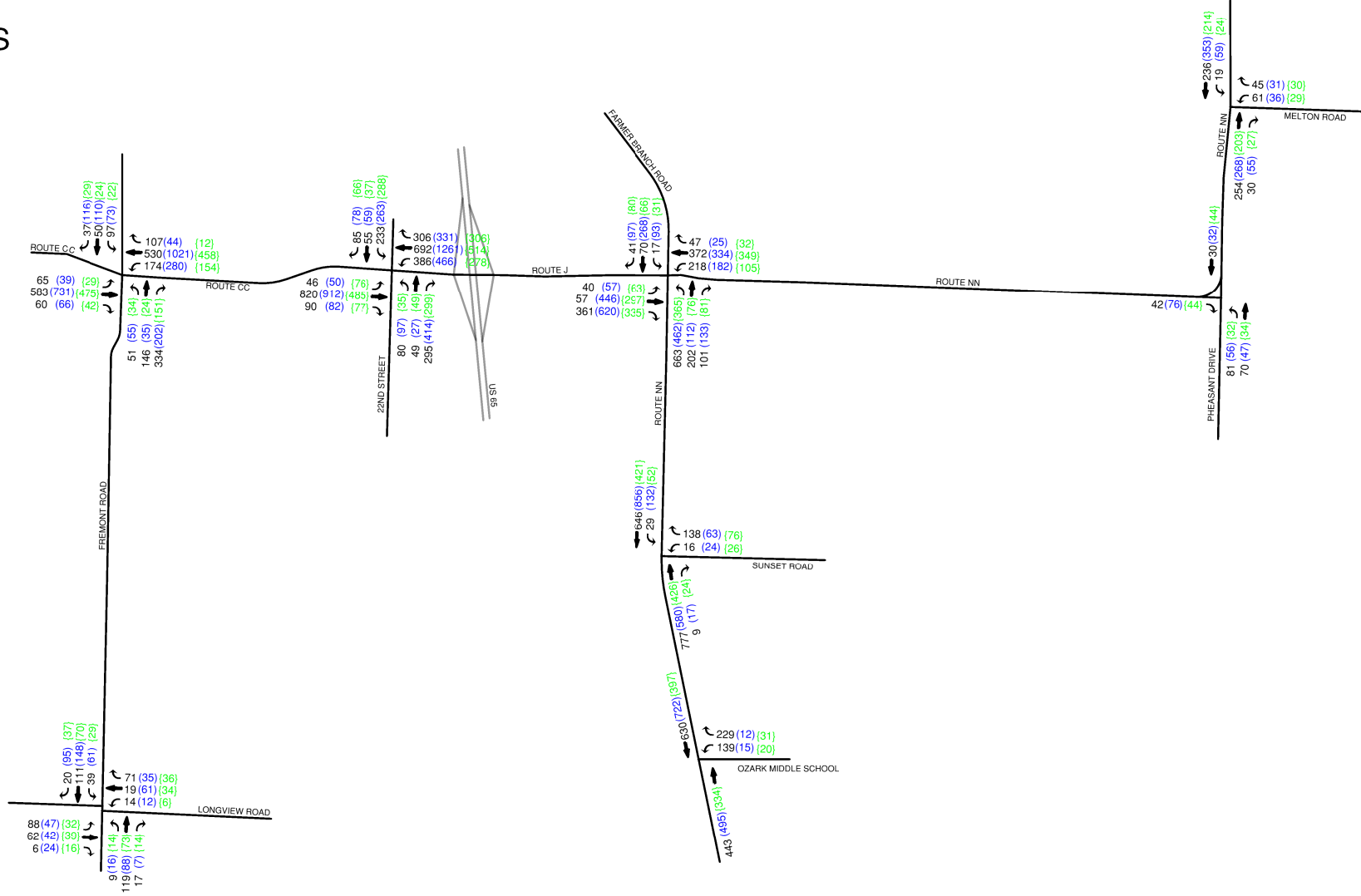


EXHIBIT 3

NO BUILD SCENARIO
2043 PROJECTED

OZARK, MO

CHRISTIAN COUNTY

DECEMBER 23, 2021



N.T.S

LEGEND

AM (PM) (SAT)
PEAK HOUR
TRAFFIC VOLUME

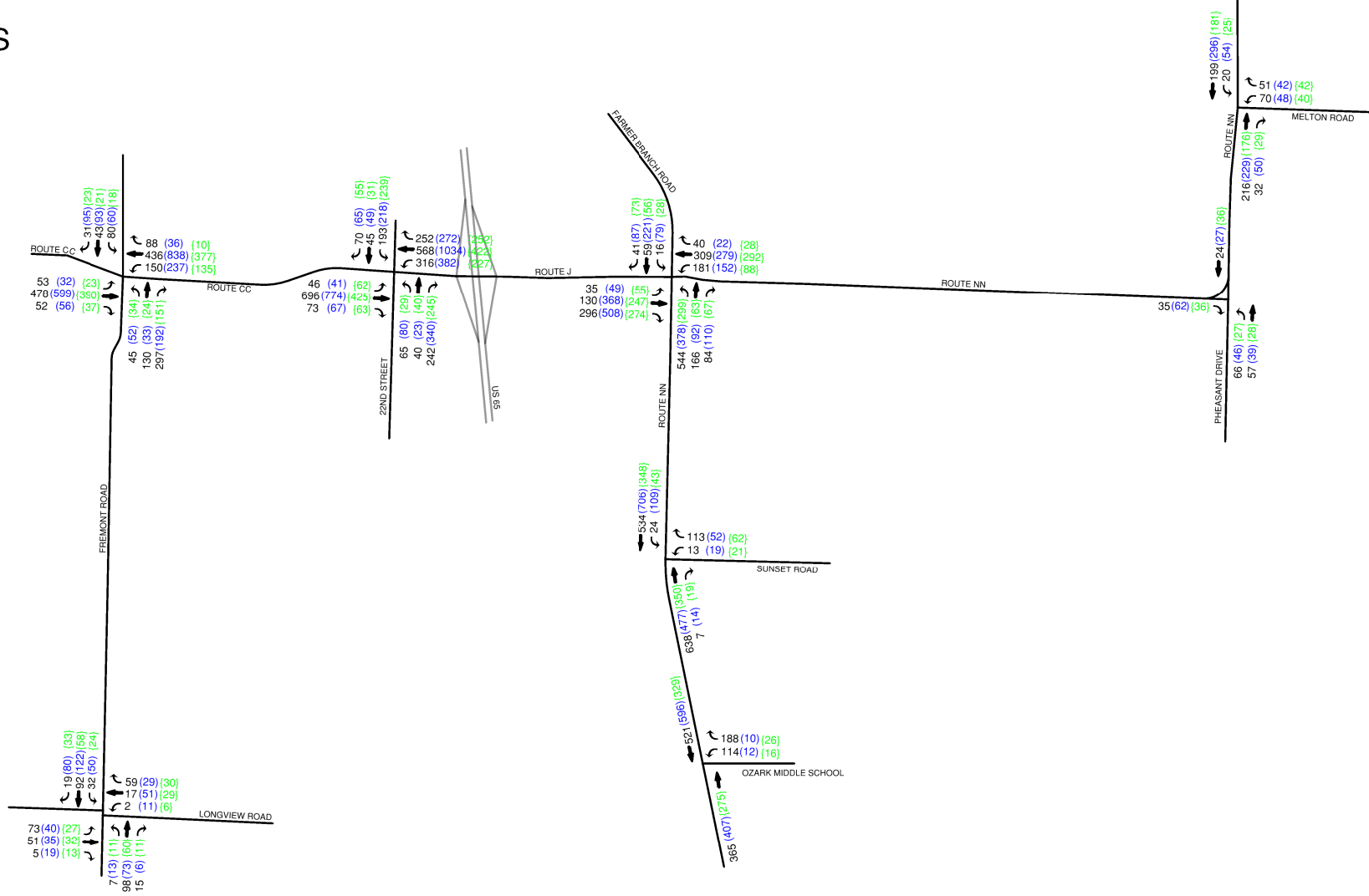


EXHIBIT 4

BUILD SCENARIO
2023 PROJECTED

OZARK, MO

CHRISTIAN COUNTY

DECEMBER 23, 2021



N.T.S

LEGEND

AM (PM) (SAT)

PEAK HOUR
TRAFFIC VOLUME

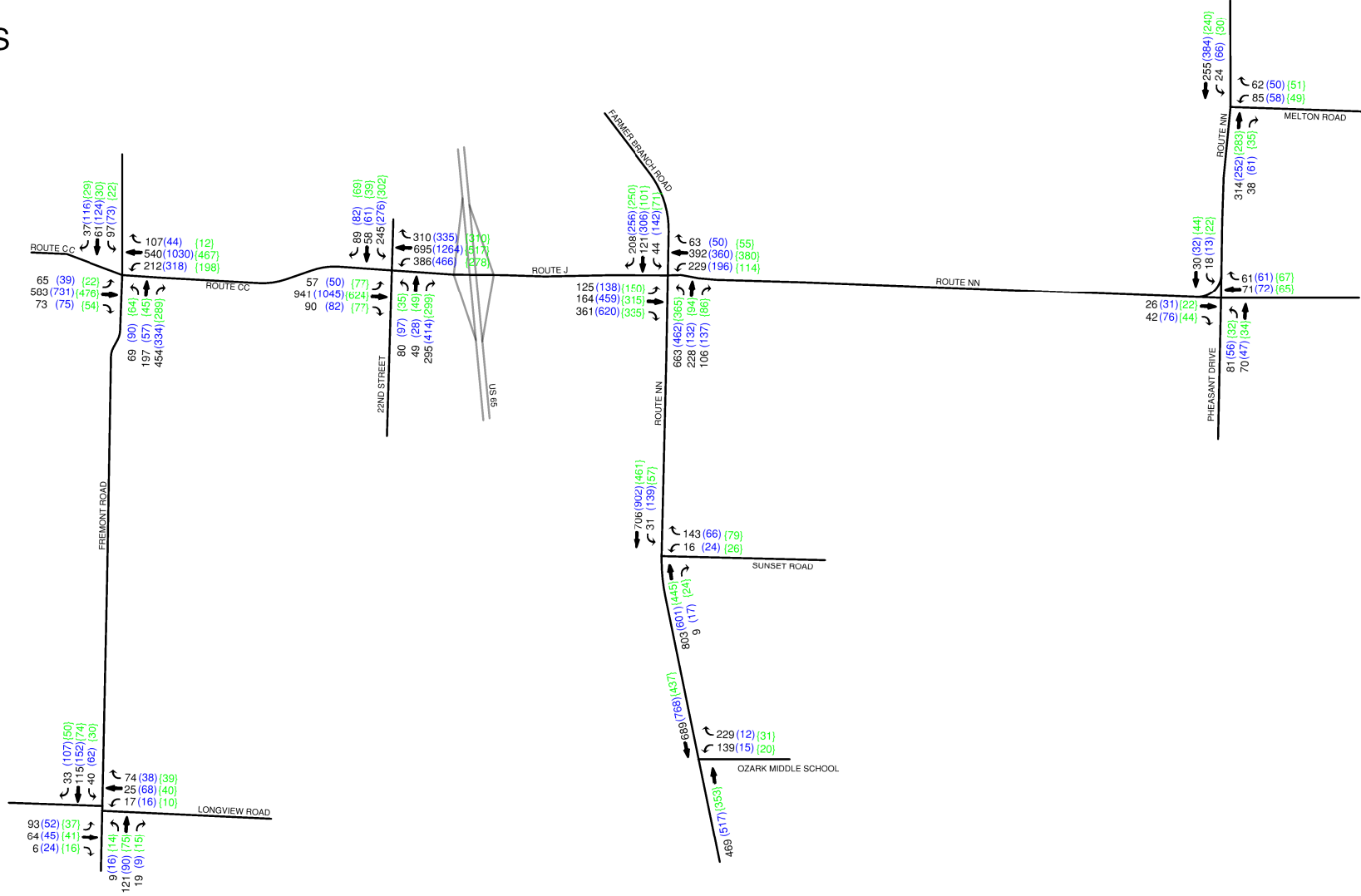


EXHIBIT 5

BUILD SCENARIO
2043 PROJECTED

OZARK, MO

CHRISTIAN COUNTY

DECEMBER 23, 2021



CMT
Engineers and Consultants

Appendix B

Synchro Traffic Reports

HCM 6th Signalized Intersection Summary

3: Hwy NN/Farmers Branch Rd & Hwy NN/Hwy J

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	126	290	175	299	38	533	162	81	14	56	33
Future Volume (veh/h)	32	126	290	175	299	38	533	162	81	14	56	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	35	137	0	190	325	0	579	176	0	15	61	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	305	480		464	542		723	771		415	445	
Arrive On Green	0.03	0.26	0.00	0.07	0.29	0.00	0.19	0.42	0.00	0.02	0.24	0.00
Sat Flow, veh/h	1767	1856	1572	1767	1856	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	35	137	0	190	325	0	579	176	0	15	61	0
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1856	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	1.1	4.4	0.0	5.1	11.3	0.0	14.5	4.6	0.0	0.5	1.9	0.0
Cycle Q Clear(g_c), s	1.1	4.4	0.0	5.1	11.3	0.0	14.5	4.6	0.0	0.5	1.9	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	305	480		464	542		723	771		415	445	
V/C Ratio(X)	0.11	0.29		0.41	0.60		0.80	0.23		0.04	0.14	
Avail Cap(c_a), veh/h	362	480		464	542		723	771		502	445	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	19.6	22.3	0.0	19.8	22.8	0.0	17.7	14.2	0.0	20.8	22.4	0.0
Incr Delay (d2), s/veh	0.2	1.5	0.0	0.6	4.8	0.0	6.4	0.7	0.0	0.0	0.6	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	0.4	2.0	0.0	2.3	5.1	0.0	7.9	1.8	0.0	0.2	0.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.8	23.7	0.0	20.4	27.6	0.0	24.1	14.8	0.0	20.9	23.0	0.0
LnGrp LOS	B	C		C	C		C	B		C	C	
Approach Vol, veh/h		172	A		515	A		755	A		76	A
Approach Delay, s/veh		22.9			24.9			21.9			22.6	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.6	23.9	19.0	22.5	7.1	26.4	5.8	35.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.1	19.4	14.5	18.0	5.0	19.5	5.0	27.5				
Max Q Clear Time (g_c+I1), s	7.1	6.4	16.5	3.9	3.1	13.3	2.5	6.6				
Green Ext Time (p_c), s	0.0	0.4	0.0	0.2	0.0	0.9	0.0	0.8				

Intersection Summary

HCM 6th Ctrl Delay	23.1
HCM 6th LOS	C

Notes

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

HCM 6th Signalized Intersection Summary

6: 22nd St & Hwy CC

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	659	72	310	556	246	64	39	237	187	44	68
Future Volume (veh/h)	45	659	72	310	556	246	64	39	237	187	44	68
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	49	716	78	337	604	0	70	42	258	203	48	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	508	914	775	373	2009		343	34	208	229	374	
Arrive On Green	0.03	0.49	0.49	0.11	0.57	0.00	0.05	0.15	0.15	0.10	0.20	0.00
Sat Flow, veh/h	1767	1856	1572	1767	3618	0	1767	225	1382	1767	1856	1572
Grp Volume(v), veh/h	49	716	78	337	604	0	70	0	300	203	48	0
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1763	0	1767	0	1607	1767	1856	1572
Q Serve(g_s), s	1.6	38.2	3.2	10.7	10.7	0.0	4.0	0.0	18.1	11.5	2.5	0.0
Cycle Q Clear(g_c), s	1.6	38.2	3.2	10.7	10.7	0.0	4.0	0.0	18.1	11.5	2.5	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.86	1.00		1.00
Lane Grp Cap(c), veh/h	508	914	775	373	2009		343	0	242	229	374	
V/C Ratio(X)	0.10	0.78	0.10	0.90	0.30		0.20	0.00	1.24	0.89	0.13	
Avail Cap(c_a), veh/h	524	914	775	451	2009		349	0	242	229	374	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	13.9	25.1	16.2	22.6	13.4	0.0	40.4	0.0	51.0	38.5	39.3	0.0
Incr Delay (d2), s/veh	0.1	6.6	0.3	18.9	0.4	0.0	0.3	0.0	137.2	31.0	0.7	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	0.6	17.3	1.2	6.5	4.0	0.0	1.8	0.0	16.5	6.9	1.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.9	31.8	16.5	41.5	13.8	0.0	40.7	0.0	188.1	69.5	40.0	0.0
LnGrp LOS	B	C	B	D	B		D	A	F	E	D	
Approach Vol, veh/h	843			941			A			370		
Approach Delay, s/veh	29.3			23.7			160.2			63.8		
Approach LOS	C			C			F			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.8	63.6	9.9	28.7	8.5	72.9	16.0	22.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.5	53.9	5.8	23.8	5.1	67.3	11.5	18.1				
Max Q Clear Time (g_c+I1), s	12.7	40.2	6.0	4.5	3.6	12.7	13.5	20.1				
Green Ext Time (p_c), s	0.5	4.0	0.0	0.1	0.0	4.2	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	50.9
HCM 6th LOS	D

Notes

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

HCM 6th Signalized Intersection Summary

8: Fremont Rd & Hwy CC

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	468	48	140	426	86	41	117	268	78	40	30
Future Volume (veh/h)	52	468	48	140	426	86	41	117	268	78	40	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	57	509	52	152	463	93	45	127	0	85	43	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	83	644	546	188	610	123	499	455		435	483	
Arrive On Green	0.05	0.35	0.35	0.11	0.41	0.41	0.04	0.25	0.00	0.06	0.26	0.00
Sat Flow, veh/h	1767	1856	1572	1767	1500	301	1767	1856	1572	1767	1856	0
Grp Volume(v), veh/h	57	509	52	152	0	556	45	127	0	85	43	0
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	0	1801	1767	1856	1572	1767	1856	0
Q Serve(g_s), s	2.3	18.1	1.6	6.2	0.0	19.4	1.4	4.1	0.0	2.6	1.3	0.0
Cycle Q Clear(g_c), s	2.3	18.1	1.6	6.2	0.0	19.4	1.4	4.1	0.0	2.6	1.3	0.0
Prop In Lane	1.00		1.00	1.00		0.17	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	83	644	546	188	0	733	499	455		435	483	
V/C Ratio(X)	0.69	0.79	0.10	0.81	0.00	0.76	0.09	0.28		0.20	0.09	
Avail Cap(c_a), veh/h	123	644	546	205	0	733	547	455		456	483	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	34.5	21.6	16.2	32.1	0.0	18.7	19.2	22.5	0.0	19.0	20.6	0.0
Incr Delay (d2), s/veh	9.7	9.5	0.3	19.6	0.0	7.2	0.1	1.5	0.0	0.2	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	1.2	8.6	0.6	3.5	0.0	8.3	0.5	1.8	0.0	1.0	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.2	31.1	16.5	51.7	0.0	25.9	19.3	24.0	0.0	19.2	20.9	0.0
LnGrp LOS	D	C	B	D	A	C	B	C		B	C	
Approach Vol, veh/h	618			708			172			A		
Approach Delay, s/veh	31.1			31.4			22.8			19.8		
Approach LOS	C			C			C			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.3	30.0	7.5	23.6	7.9	34.4	8.6	22.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	8.5	25.5	5.0	18.0	5.1	28.9	5.0	18.0				
Max Q Clear Time (g_c+I1), s	8.2	20.1	3.4	3.3	4.3	21.4	4.6	6.1				
Green Ext Time (p_c), s	0.0	1.5	0.0	0.1	0.0	2.0	0.0	0.4				

Intersection Summary

HCM 6th Ctrl Delay 29.5

HCM 6th LOS C

Notes

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

Intersection

Intersection Delay, s/veh	8.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	71	50	5	11	15	57	7	96	14	31	89	16
Future Vol, veh/h	71	50	5	11	15	57	7	96	14	31	89	16
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
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	77	54	5	12	16	62	8	104	15	34	97	17
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.9	8	8.5	8.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	6%	56%	13%	23%
Vol Thru, %	82%	40%	18%	65%
Vol Right, %	12%	4%	69%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	117	126	83	136
LT Vol	7	71	11	31
Through Vol	96	50	15	89
RT Vol	14	5	57	16
Lane Flow Rate	127	137	90	148
Geometry Grp	1	1	1	1
Degree of Util (X)	0.162	0.182	0.11	0.189
Departure Headway (Hd)	4.599	4.787	4.379	4.61
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	778	749	817	778
Service Time	2.635	2.819	2.414	2.643
HCM Lane V/C Ratio	0.163	0.183	0.11	0.19
HCM Control Delay	8.5	8.9	8	8.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	0.7	0.4	0.7

HCM 6th TWSC
15: Hwy NN/ Hwy NN & Sunset Rd

12/23/2021

Intersection

Int Delay, s/veh 1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	111	624	7	23	519
Future Vol, veh/h	13	111	624	7	23	519
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	14	121	678	8	25	564

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1296	682	0
Stage 1	682	-	-
Stage 2	614	-	-
Critical Hdwy	6.43	6.23	-
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	5.43	-	-
Follow-up Hdwy	3.527	3.327	-
Pot Cap-1 Maneuver	178	448	-
Stage 1	500	-	-
Stage 2	538	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	173	448	-
Mov Cap-2 Maneuver	312	-	-
Stage 1	500	-	-
Stage 2	523	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.2	0	0.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	428	903
HCM Lane V/C Ratio	-	-	0.315	0.028
HCM Control Delay (s)	-	-	17.2	9.1
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	1.3	0.1

Intersection						
Int Delay, s/veh	3.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	112	184	356	0	0	506
Future Vol, veh/h	112	184	356	0	0	506
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	122	200	387	0	0	550
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	937	387	0	-	-	-
Stage 1	387	-	-	-	-	-
Stage 2	550	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	-	-
Pot Cap-1 Maneuver	293	659	-	0	0	-
Stage 1	684	-	-	0	0	-
Stage 2	576	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	293	659	-	-	-	-
Mov Cap-2 Maneuver	417	-	-	-	-	-
Stage 1	684	-	-	-	-	-
Stage 2	576	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	14.5	0	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBTWBLn1WBLn2		SBT			
Capacity (veh/h)	-	417	659	-	-	-
HCM Lane V/C Ratio	-	0.292	0.303	-	-	-
HCM Control Delay (s)	-	17.2	12.8	-	-	-
HCM Lane LOS	-	C	B	-	-	-
HCM 95th %tile Q(veh)	-	1.2	1.3	-	-	-

Intersection						
Int Delay, s/veh	2.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	49	36	204	24	15	190
Future Vol, veh/h	49	36	204	24	15	190
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	53	39	222	26	16	207

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	474	235	0	0	248
Stage 1	235	-	-	-	-
Stage 2	239	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13
Critical Hdwy Stg 1	5.43	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227
Pot Cap-1 Maneuver	547	802	-	-	1312
Stage 1	802	-	-	-	-
Stage 2	798	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	540	802	-	-	1312
Mov Cap-2 Maneuver	540	-	-	-	-
Stage 1	802	-	-	-	-
Stage 2	788	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.7	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	627	1312
HCM Lane V/C Ratio	-	-	0.147	0.012
HCM Control Delay (s)	-	-	11.7	7.8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.5	0

Lanes, Volumes, Timings

2: Pheasant

12/23/2021

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	34	65	56	24	0
Future Volume (vph)	0	34	65	56	24	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected	0.974					
Satd. Flow (prot)	0	1596	0	1797	1845	0
Flt Permitted	0.974					
Satd. Flow (perm)	0	1596	0	1797	1845	0
Link Speed (mph)	30			45	30	
Link Distance (ft)	1141			2632	1106	
Travel Time (s)	25.9			39.9	25.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	37	71	61	26	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	37	0	132	26	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	9		
Sign Control	Yield			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	16.5%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th Signalized Intersection Summary

3: Hwy NN/Farmers Branch Rd & Hwy NN/Hwy J

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	358	290	146	268	20	371	90	107	75	215	78
Future Volume (veh/h)	46	358	290	146	268	20	371	90	107	75	215	78
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	50	389	0	159	291	0	403	98	0	82	234	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	376	528		321	585		548	664		508	452	
Arrive On Green	0.04	0.28	0.00	0.07	0.31	0.00	0.17	0.35	0.00	0.05	0.24	0.00
Sat Flow, veh/h	1795	1885	1598	1795	1885	1598	1795	1885	1598	1795	1885	1598
Grp Volume(v), veh/h	50	389	0	159	291	0	403	98	0	82	234	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1795	1885	1598	1795	1885	1598	1795	1885	1598
Q Serve(g_s), s	1.5	14.0	0.0	4.7	9.4	0.0	12.3	2.7	0.0	2.5	8.1	0.0
Cycle Q Clear(g_c), s	1.5	14.0	0.0	4.7	9.4	0.0	12.3	2.7	0.0	2.5	8.1	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	376	528		321	585		548	664		508	452	
V/C Ratio(X)	0.13	0.74		0.50	0.50		0.74	0.15		0.16	0.52	
Avail Cap(c_a), veh/h	420	528		321	585		548	664		532	452	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	18.0	24.5	0.0	18.8	21.1	0.0	16.6	16.6	0.0	19.6	24.7	0.0
Incr Delay (d2), s/veh	0.2	8.9	0.0	1.2	3.0	0.0	5.1	0.5	0.0	0.1	4.2	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	0.6	6.9	0.0	1.8	4.2	0.0	5.0	1.1	0.0	1.0	3.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.2	33.4	0.0	20.0	24.1	0.0	21.7	17.1	0.0	19.7	28.9	0.0
LnGrp LOS	B	C		B	C		C	B		B	C	
Approach Vol, veh/h	439		A	450		A	501		A	316		A
Approach Delay, s/veh	31.7			22.6			20.8			26.5		
Approach LOS	C			C			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.0	25.5	17.0	22.5	7.7	27.8	8.6	30.9				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.5	21.0	12.5	18.0	5.1	21.4	5.1	25.4				
Max Q Clear Time (g_c+I1), s	6.7	16.0	14.3	10.1	3.5	11.4	4.5	4.7				
Green Ext Time (p_c), s	0.0	0.9	0.0	0.7	0.0	1.0	0.0	0.4				

Intersection Summary

HCM 6th Ctrl Delay	25.1
HCM 6th LOS	C

Notes

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

HCM 6th Signalized Intersection Summary

6: 22nd St & Hwy CC

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	733	66	374	1013	266	78	22	333	211	47	63
Future Volume (veh/h)	40	733	66	374	1013	266	78	22	333	211	47	63
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	43	797	72	407	1101	0	85	24	362	229	51	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	327	824	698	424	2173		313	13	198	240	357	
Arrive On Green	0.03	0.44	0.44	0.20	0.61	0.00	0.05	0.13	0.13	0.11	0.19	0.00
Sat Flow, veh/h	1795	1885	1598	1795	3676	0	1795	100	1513	1795	1885	1598
Grp Volume(v), veh/h	43	797	72	407	1101	0	85	0	386	229	51	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1795	1791	0	1795	0	1613	1795	1885	1598
Q Serve(g_s), s	1.8	57.7	3.7	26.1	24.4	0.0	5.7	0.0	18.3	14.7	3.2	0.0
Cycle Q Clear(g_c), s	1.8	57.7	3.7	26.1	24.4	0.0	5.7	0.0	18.3	14.7	3.2	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.94	1.00		1.00
Lane Grp Cap(c), veh/h	327	824	698	424	2173		313	0	211	240	357	
V/C Ratio(X)	0.13	0.97	0.10	0.96	0.51		0.27	0.00	1.83	0.95	0.14	
Avail Cap(c_a), veh/h	345	824	698	424	2173		313	0	211	240	357	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.4	38.4	23.2	45.1	15.6	0.0	49.8	0.0	60.9	47.2	47.3	0.0
Incr Delay (d2), s/veh	0.2	24.3	0.3	33.4	0.8	0.0	0.5	0.0	391.8	45.4	0.8	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	0.8	30.8	1.5	17.7	9.6	0.0	2.6	0.0	30.4	9.9	1.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.6	62.7	23.5	78.5	16.5	0.0	50.2	0.0	452.7	92.6	48.1	0.0
LnGrp LOS	C	E	C	E	B		D	A	F	F	D	
Approach Vol, veh/h					1508	A					280	A
Approach Delay, s/veh					33.2						84.5	
Approach LOS	E				C		F				F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	32.3	65.7	11.0	31.0	8.6	89.4	19.2	22.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	27.8	61.2	6.5	26.5	5.5	83.5	14.7	18.3				
Max Q Clear Time (g_c+I1), s	28.1	59.7	7.7	5.2	3.8	26.4	16.7	20.3				
Green Ext Time (p_c), s	0.0	0.8	0.0	0.2	0.0	9.4	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 96.3

HCM 6th LOS F

Notes

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

HCM 6th Signalized Intersection Summary

8: Fremont Rd & Hwy CC

12/23/2021

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (veh/h)	31	587	53	225	820	35	44	28	162	59	88	93		
Future Volume (veh/h)	31	587	53	225	820	35	44	28	162	59	88	93		
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Work Zone On Approach	No			No			No			No				
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885		
Adj Flow Rate, veh/h	34	638	58	245	891	38	48	30	0	64	96	0		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1		
Cap, veh/h	57	754	639	270	931	40	368	381		424	392			
Arrive On Green	0.03	0.40	0.40	0.15	0.52	0.52	0.04	0.20	0.00	0.04	0.21	0.00		
Sat Flow, veh/h	1795	1885	1598	1795	1795	77	1795	1885	1598	1795	1885	0		
Grp Volume(v), veh/h	34	638	58	245	0	929	48	30	0	64	96	0		
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1795	0	1871	1795	1885	1598	1795	1885	0		
Q Serve(g_s), s	1.7	27.3	2.0	11.9	0.0	42.2	1.9	1.1	0.0	2.5	3.8	0.0		
Cycle Q Clear(g_c), s	1.7	27.3	2.0	11.9	0.0	42.2	1.9	1.1	0.0	2.5	3.8	0.0		
Prop In Lane	1.00		1.00	1.00		0.04	1.00		1.00	1.00		0.00		
Lane Grp Cap(c), veh/h	57	754	639	270	0	971	368	381		424	392			
V/C Ratio(X)	0.59	0.85	0.09	0.91	0.00	0.96	0.13	0.08		0.15	0.24			
Avail Cap(c_a), veh/h	103	754	639	270	0	971	399	381		445	392			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	42.5	24.2	16.6	37.2	0.0	20.5	26.4	28.8	0.0	26.2	29.4	0.0		
Incr Delay (d2), s/veh	9.4	11.3	0.3	31.4	0.0	20.2	0.2	0.4	0.0	0.2	1.5	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	0.9	13.2	0.7	7.3	0.0	20.8	0.8	0.5	0.0	1.0	1.8	0.0		
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	51.9	35.5	16.9	68.6	0.0	40.6	26.5	29.2	0.0	26.3	30.9	0.0		
LnGrp LOS	D	D	B	E	A	D	C	C		C	C			
Approach Vol, veh/h	730			1174			78			A			160	A
Approach Delay, s/veh	34.7			46.5			27.5			29.1				
Approach LOS	C			D			C			C				
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	17.9	40.1	8.0	23.0	7.3	50.7	8.5	22.5						
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5						
Max Green Setting (Gmax), s	13.4	35.6	5.0	18.0	5.1	43.9	5.0	18.0						
Max Q Clear Time (g_c+I1), s	13.9	29.3	3.9	5.8	3.7	44.2	4.5	3.1						
Green Ext Time (p_c), s	0.0	2.1	0.0	0.3	0.0	0.0	0.0	0.1						
Intersection Summary														
HCM 6th Ctrl Delay	40.5													
HCM 6th LOS	D													

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	38	34	19	10	49	28	13	71	6	49	119	76
Future Vol, veh/h	38	34	19	10	49	28	13	71	6	49	119	76
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
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	41	37	21	11	53	30	14	77	7	53	129	83
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.6	8.4	8.4	9.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	42%	11%	20%
Vol Thru, %	79%	37%	56%	49%
Vol Right, %	7%	21%	32%	31%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	90	91	87	244
LT Vol	13	38	10	49
Through Vol	71	34	49	119
RT Vol	6	19	28	76
Lane Flow Rate	98	99	95	265
Geometry Grp	1	1	1	1
Degree of Util (X)	0.127	0.132	0.123	0.321
Departure Headway (Hd)	4.665	4.814	4.694	4.351
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	767	743	761	825
Service Time	2.702	2.856	2.736	2.38
HCM Lane V/C Ratio	0.128	0.133	0.125	0.321
HCM Control Delay	8.4	8.6	8.4	9.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.5	0.4	1.4

HCM 6th TWSC
15: Hwy NN/ Hwy NN & Sunset Rd

12/23/2021

Intersection

Int Delay, s/veh 1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	19	51	466	14	106	688
Future Vol, veh/h	19	51	466	14	106	688
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	21	55	507	15	115	748

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1493	515	0
Stage 1	515	-	-
Stage 2	978	-	-
Critical Hdwy	6.41	6.21	-
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	-
Pot Cap-1 Maneuver	136	562	-
Stage 1	602	-	-
Stage 2	366	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	121	562	-
Mov Cap-2 Maneuver	242	-	-
Stage 1	602	-	-
Stage 2	326	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.6	0	1.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	414	1050
HCM Lane V/C Ratio	-	-	0.184	0.11
HCM Control Delay (s)	-	-	15.6	8.9
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.7	0.4

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	10	398	0	0	580
Future Vol, veh/h	12	10	398	0	0	580
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	13	11	433	0	0	630
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1063	433	0	-	-	-
Stage 1	433	-	-	-	-	-
Stage 2	630	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	-	-
Pot Cap-1 Maneuver	248	625	-	0	0	-
Stage 1	656	-	-	0	0	-
Stage 2	533	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	248	625	-	-	-	-
Mov Cap-2 Maneuver	380	-	-	-	-	-
Stage 1	656	-	-	-	-	-
Stage 2	533	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	13	0	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBTWBLn1WBLn2		SBT			
Capacity (veh/h)	-	380	625	-	-	-
HCM Lane V/C Ratio	-	0.034	0.017	-	-	-
HCM Control Delay (s)	-	14.8	10.9	-	-	-
HCM Lane LOS	-	B	B	-	-	-
HCM 95th %tile Q(veh)	-	0.1	0.1	-	-	-

Intersection

Int Delay, s/veh 1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	29	25	215	44	47	284
Future Vol, veh/h	29	25	215	44	47	284
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	32	27	234	48	51	309

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	669	258	0
Stage 1	258	-	-
Stage 2	411	-	-
Critical Hdwy	6.41	6.21	-
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	-
Pot Cap-1 Maneuver	424	783	-
Stage 1	787	-	-
Stage 2	671	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	407	783	-
Mov Cap-2 Maneuver	407	-	-
Stage 1	787	-	-
Stage 2	644	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.8	0	1.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	523	1286
HCM Lane V/C Ratio	-	-	0.112	0.04
HCM Control Delay (s)	-	-	12.8	7.9
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1

Lanes, Volumes, Timings

2: Pheasant

12/23/2021

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	61	45	38	26	0
Future Volume (vph)	0	61	45	38	26	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected	0.973					
Satd. Flow (prot)	0	1627	0	1830	1881	0
Flt Permitted	0.973					
Satd. Flow (perm)	0	1627	0	1830	1881	0
Link Speed (mph)	30			45	30	
Link Distance (ft)	1141			2632	1106	
Travel Time (s)	25.9			39.9	25.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	66	49	41	28	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	66	0	90	28	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	9		
Sign Control	Yield			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	14.5%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th Signalized Intersection Summary

3: Hwy NN/Farmers Branch Rd & Hwy NN/Hwy J

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	239	269	84	280	26	293	61	65	25	63	64
Future Volume (veh/h)	51	239	269	84	280	26	293	61	65	25	63	64
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	55	260	0	91	304	0	318	66	0	27	68	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	383	545		423	571		608	636		544	530	
Arrive On Green	0.05	0.29	0.00	0.06	0.30	0.00	0.09	0.34	0.00	0.03	0.28	0.00
Sat Flow, veh/h	1795	1885	1598	1795	1885	1598	1795	1885	1598	1795	1885	1598
Grp Volume(v), veh/h	55	260	0	91	304	0	318	66	0	27	68	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1795	1885	1598	1795	1885	1598	1795	1885	1598
Q Serve(g_s), s	1.3	7.3	0.0	2.2	8.6	0.0	5.5	1.5	0.0	0.7	1.7	0.0
Cycle Q Clear(g_c), s	1.3	7.3	0.0	2.2	8.6	0.0	5.5	1.5	0.0	0.7	1.7	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	383	545		423	571		608	636		544	530	
V/C Ratio(X)	0.14	0.48		0.22	0.53		0.52	0.10		0.05	0.13	
Avail Cap(c_a), veh/h	436	545		451	571		608	636		631	530	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	15.0	18.8	0.0	14.6	18.5	0.0	15.8	14.6	0.0	15.4	17.2	0.0
Incr Delay (d2), s/veh	0.2	3.0	0.0	0.3	3.5	0.0	0.8	0.3	0.0	0.0	0.5	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	0.5	3.2	0.0	0.8	3.8	0.0	3.3	0.6	0.0	0.3	0.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.1	21.7	0.0	14.9	22.1	0.0	16.6	14.9	0.0	15.5	17.7	0.0
LnGrp LOS	B	C		B	C		B	B		B	B	
Approach Vol, veh/h	315		A	395		A	384		A	95		A
Approach Delay, s/veh	20.6			20.4			16.3			17.0		
Approach LOS	C			C			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.5	23.0	10.0	22.5	7.6	23.9	6.4	26.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	18.5	5.5	18.0	5.0	18.5	5.0	18.5				
Max Q Clear Time (g_c+I1), s	4.2	9.3	7.5	3.7	3.3	10.6	2.7	3.5				
Green Ext Time (p_c), s	0.0	0.8	0.0	0.2	0.0	0.9	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay	18.9											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary

6: 22nd St & Hwy CC

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	390	62	223	413	246	28	39	240	231	30	53
Future Volume (veh/h)	61	390	62	223	413	246	28	39	240	231	30	53
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	66	424	67	242	449	0	30	42	261	251	33	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	518	758	642	450	1650		406	48	295	325	583	
Arrive On Green	0.04	0.40	0.40	0.16	0.77	0.00	0.03	0.21	0.21	0.13	0.31	0.00
Sat Flow, veh/h	1795	1885	1598	1795	3676	0	1795	226	1406	1795	1885	1598
Grp Volume(v), veh/h	66	424	67	242	449	0	30	0	303	251	33	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1795	1791	0	1795	0	1632	1795	1885	1598
Q Serve(g_s), s	2.3	19.1	2.9	8.5	4.0	0.0	1.4	0.0	19.8	11.5	1.4	0.0
Cycle Q Clear(g_c), s	2.3	19.1	2.9	8.5	4.0	0.0	1.4	0.0	19.8	11.5	1.4	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.86	1.00		1.00
Lane Grp Cap(c), veh/h	518	758	642	450	1650		406	0	343	325	583	
V/C Ratio(X)	0.13	0.56	0.10	0.54	0.27		0.07	0.00	0.88	0.77	0.06	
Avail Cap(c_a), veh/h	535	758	642	511	1650		438	0	343	416	583	
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	17.8	25.4	20.5	16.2	7.3	0.0	32.5	0.0	42.2	29.3	26.7	0.0
Incr Delay (d2), s/veh	0.1	3.0	0.3	1.0	0.4	0.0	0.1	0.0	26.6	6.7	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	8.7	1.1	3.0	1.4	0.0	0.6	0.0	10.4	5.5	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.9	28.4	20.9	17.2	7.7	0.0	32.6	0.0	68.7	36.0	26.9	0.0
LnGrp LOS	B	C	C	B	A		C	A	E	D	C	
Approach Vol, veh/h	557			691			A			333		
Approach Delay, s/veh	26.2			11.1			65.5			34.9		
Approach LOS	C			B			E			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.3	48.7	7.5	38.5	8.8	55.2	18.4	27.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	14.5	38.5	5.0	34.0	5.4	47.6	19.5	19.5				
Max Q Clear Time (g_c+I1), s	10.5	21.1	3.4	3.4	4.3	6.0	13.5	21.8				
Green Ext Time (p_c), s	0.2	2.4	0.0	0.1	0.0	2.9	0.4	0.0				

Intersection Summary

HCM 6th Ctrl Delay	28.9
HCM 6th LOS	C

Notes

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

HCM 6th Signalized Intersection Summary

8: Fremont Rd & Hwy CC

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	382	34	124	368	10	27	19	121	18	19	23
Future Volume (veh/h)	23	382	34	124	368	10	27	19	121	18	19	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	25	415	37	135	400	11	29	21	0	20	21	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	51	551	467	171	656	18	569	563		566	548	
Arrive On Green	0.03	0.29	0.29	0.10	0.36	0.36	0.03	0.30	0.00	0.02	0.29	0.00
Sat Flow, veh/h	1795	1885	1598	1795	1826	50	1795	1885	1598	1795	1885	0
Grp Volume(v), veh/h	25	415	37	135	0	411	29	21	0	20	21	0
Grp Sat Flow(s), veh/h/ln	1795	1885	1598	1795	0	1876	1795	1885	1598	1795	1885	0
Q Serve(g_s), s	0.9	12.4	1.0	4.6	0.0	11.1	0.7	0.5	0.0	0.5	0.5	0.0
Cycle Q Clear(g_c), s	0.9	12.4	1.0	4.6	0.0	11.1	0.7	0.5	0.0	0.5	0.5	0.0
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	51	551	467	171	0	674	569	563		566	548	
V/C Ratio(X)	0.49	0.75	0.08	0.79	0.00	0.61	0.05	0.04		0.04	0.04	
Avail Cap(c_a), veh/h	145	551	467	171	0	674	657	563		668	548	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	29.7	19.9	15.9	27.4	0.0	16.3	14.5	15.4	0.0	14.7	15.8	0.0
Incr Delay (d2), s/veh	7.2	9.2	0.3	21.6	0.0	4.1	0.0	0.1	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	6.0	0.4	2.8	0.0	4.7	0.2	0.2	0.0	0.2	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.9	29.1	16.2	49.0	0.0	20.4	14.5	15.5	0.0	14.8	15.9	0.0
LnGrp LOS	D	C	B	D	A	C	B	B		B	B	
Approach Vol, veh/h	477				546				50			
Approach Delay, s/veh	28.5				27.5				14.9			
Approach LOS	C				C				B			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.4	22.6	6.5	22.5	6.2	26.8	6.0	23.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.9	18.1	5.0	18.0	5.0	19.0	5.0	18.0				
Max Q Clear Time (g_c+I1), s	6.6	14.4	2.7	2.5	2.9	13.1	2.5	2.5				
Green Ext Time (p_c), s	0.0	0.8	0.0	0.0	0.0	1.1	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	26.9
HCM 6th LOS	C

Notes

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

Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	26	31	13	5	27	29	11	59	11	23	56	30
Future Vol, veh/h	26	31	13	5	27	29	11	59	11	23	56	30
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
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	28	34	14	5	29	32	12	64	12	25	61	33
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.9	7.6	7.8	7.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	37%	8%	21%
Vol Thru, %	73%	44%	44%	51%
Vol Right, %	14%	19%	48%	28%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	81	70	61	109
LT Vol	11	26	5	23
Through Vol	59	31	27	56
RT Vol	11	13	29	30
Lane Flow Rate	88	76	66	118
Geometry Grp	1	1	1	1
Degree of Util (X)	0.105	0.093	0.077	0.139
Departure Headway (Hd)	4.306	4.408	4.19	4.218
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	835	816	857	855
Service Time	2.318	2.421	2.204	2.218
HCM Lane V/C Ratio	0.105	0.093	0.077	0.138
HCM Control Delay	7.8	7.9	7.6	7.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.3	0.2	0.5

HCM 6th TWSC
15: Hwy NN/ Hwy NN & Sunset Rd

12/23/2021

Intersection

Int Delay, s/veh 1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	21	61	342	19	42	338
Future Vol, veh/h	21	61	342	19	42	338
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	23	66	372	21	46	367

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	842	383	0
Stage 1	383	-	-
Stage 2	459	-	-
Critical Hdwy	6.41	6.21	-
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	-
Pot Cap-1 Maneuver	336	667	-
Stage 1	691	-	-
Stage 2	638	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	323	667	-
Mov Cap-2 Maneuver	443	-	-
Stage 1	691	-	-
Stage 2	613	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.2	0	0.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	591	1171
HCM Lane V/C Ratio	-	-	0.151	0.039
HCM Control Delay (s)	-	-	12.2	8.2
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1

Intersection

Int Delay, s/veh 0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	16	25	268	0	0	319
Future Vol, veh/h	16	25	268	0	0	319
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	17	27	291	0	0	347

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	638	291	0
Stage 1	291	-	-
Stage 2	347	-	-
Critical Hdwy	6.41	6.21	-
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	-
Pot Cap-1 Maneuver	442	751	0
Stage 1	761	-	0
Stage 2	718	-	0
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	442	751	-
Mov Cap-2 Maneuver	539	-	-
Stage 1	761	-	-
Stage 2	718	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1WBLn2	SBT
Capacity (veh/h)	- 539 751	-
HCM Lane V/C Ratio	- 0.032 0.036	-
HCM Control Delay (s)	- 11.9 10	-
HCM Lane LOS	- B B	-
HCM 95th %tile Q(veh)	- 0.1 0.1	-

Intersection						
Int Delay, s/veh	1.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	24	163	22	19	172
Future Vol, veh/h	23	24	163	22	19	172
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	25	26	177	24	21	187

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	418	189	0
Stage 1	189	-	-
Stage 2	229	-	-
Critical Hdwy	6.41	6.21	-
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	-
Pot Cap-1 Maneuver	593	855	-
Stage 1	846	-	-
Stage 2	811	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	584	855	-
Mov Cap-2 Maneuver	584	-	-
Stage 1	846	-	-
Stage 2	799	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.6	0	0.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	697	1377
HCM Lane V/C Ratio	-	-	0.073	0.015
HCM Control Delay (s)	-	-	10.6	7.7
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0

Lanes, Volumes, Timings

2: Pheasant

12/23/2021

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	35	26	27	35	0
Future Volume (vph)	0	35	26	27	35	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected	0.976					
Satd. Flow (prot)	0	1627	0	1836	1881	0
Flt Permitted	0.976					
Satd. Flow (perm)	0	1627	0	1836	1881	0
Link Speed (mph)	30			45	30	
Link Distance (ft)	1141			2632	1106	
Travel Time (s)	25.9			39.9	25.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	38	28	29	38	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	38	0	57	38	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	9		
Sign Control	Yield			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	13.3%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th Signalized Intersection Summary

3: Hwy NN/Farmers Branch Rd & Hwy NN/Hwy J

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	129	296	179	305	39	544	165	93	14	57	34
Future Volume (veh/h)	33	129	296	179	305	39	544	165	93	14	57	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	36	140	0	195	332	0	591	179	0	15	62	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	301	480		462	541		722	771		415	445	
Arrive On Green	0.04	0.26	0.00	0.07	0.29	0.00	0.19	0.42	0.00	0.02	0.24	0.00
Sat Flow, veh/h	1767	1856	1572	1767	1856	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	36	140	0	195	332	0	591	179	0	15	62	0
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1856	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	1.1	4.5	0.0	5.1	11.6	0.0	14.5	4.7	0.0	0.5	2.0	0.0
Cycle Q Clear(g_c), s	1.1	4.5	0.0	5.1	11.6	0.0	14.5	4.7	0.0	0.5	2.0	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	301	480		462	541		722	771		415	445	
V/C Ratio(X)	0.12	0.29		0.42	0.61		0.82	0.23		0.04	0.14	
Avail Cap(c_a), veh/h	356	480		462	541		722	771		501	445	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	19.7	22.3	0.0	20.0	22.9	0.0	18.0	14.2	0.0	20.8	22.4	0.0
Incr Delay (d2), s/veh	0.2	1.5	0.0	0.6	5.1	0.0	7.4	0.7	0.0	0.0	0.7	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	0.4	2.0	0.0	2.4	5.3	0.0	8.3	1.9	0.0	0.2	0.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.8	23.8	0.0	20.6	28.1	0.0	25.4	14.9	0.0	20.9	23.1	0.0
LnGrp LOS	B	C		C	C		C	B		C	C	
Approach Vol, veh/h		176	A		527	A		770	A		77	A
Approach Delay, s/veh		23.0			25.3			22.9			22.6	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.6	23.9	19.0	22.5	7.1	26.4	5.8	35.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.1	19.4	14.5	18.0	5.0	19.5	5.0	27.5				
Max Q Clear Time (g_c+I1), s	7.1	6.5	16.5	4.0	3.1	13.6	2.5	6.7				
Green Ext Time (p_c), s	0.0	0.5	0.0	0.2	0.0	0.9	0.0	0.8				

Intersection Summary

HCM 6th Ctrl Delay	23.7
HCM 6th LOS	C

Notes

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

HCM 6th Signalized Intersection Summary

6: 22nd St & Hwy CC

12/23/2021

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	46	672	73	316	567	251	65	40	242	191	45	69	
Future Volume (veh/h)	46	672	73	316	567	251	65	40	242	191	45	69	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No			No			No			No			
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	50	730	79	343	616	0	71	43	263	208	49	0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3	
Cap, veh/h	503	896	759	373	2011		342	34	207	229	372		
Arrive On Green	0.03	0.48	0.48	0.12	0.57	0.00	0.05	0.15	0.15	0.10	0.20	0.00	
Sat Flow, veh/h	1767	1856	1572	1767	3618	0	1767	226	1381	1767	1856	1572	
Grp Volume(v), veh/h	50	730	79	343	616	0	71	0	306	208	49	0	
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1763	0	1767	0	1607	1767	1856	1572	
Q Serve(g_s), s	1.7	40.3	3.3	12.0	10.9	0.0	4.0	0.0	18.0	11.5	2.6	0.0	
Cycle Q Clear(g_c), s	1.7	40.3	3.3	12.0	10.9	0.0	4.0	0.0	18.0	11.5	2.6	0.0	
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.86	1.00		1.00	
Lane Grp Cap(c), veh/h	503	896	759	373	2011		342	0	241	229	372		
V/C Ratio(X)	0.10	0.81	0.10	0.92	0.31		0.21	0.00	1.27	0.91	0.13		
Avail Cap(c_a), veh/h	519	896	759	449	2011		347	0	241	229	372		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	
Uniform Delay (d), s/veh	14.4	26.5	16.9	25.3	13.4	0.0	40.4	0.0	51.0	39.0	39.4	0.0	
Incr Delay (d2), s/veh	0.1	8.1	0.3	21.8	0.4	0.0	0.3	0.0	149.8	35.4	0.7	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	0.7	18.5	1.2	6.8	4.1	0.0	1.8	0.0	17.2	7.4	1.3	0.0	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	14.5	34.5	17.2	47.0	13.8	0.0	40.7	0.0	200.8	74.4	40.2	0.0	
LnGrp LOS	B	C	B	D	B		D	A	F	E	D		
Approach Vol, veh/h	859				959		A		377		257		A
Approach Delay, s/veh	31.8				25.7				170.6		67.9		
Approach LOS	C				C				F		E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	19.1	62.4	10.0	28.5	8.6	72.9	16.0	22.5					
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5					
Max Green Setting (Gmax), s	19.7	52.8	5.8	23.7	5.1	67.4	11.5	18.0					
Max Q Clear Time (g_c+l1), s	14.0	42.3	6.0	4.6	3.7	12.9	13.5	20.0					
Green Ext Time (p_c), s	0.5	3.6	0.0	0.2	0.0	4.3	0.0	0.0					

Intersection Summary

HCM 6th Ctrl Delay 54.5

HCM 6th LOS D

Notes

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

HCM 6th Signalized Intersection Summary

8: Fremont Rd & Hwy CC

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	477	49	143	435	88	42	119	273	80	41	31
Future Volume (veh/h)	53	477	49	143	435	88	42	119	273	80	41	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	58	518	53	155	473	96	46	129	0	87	45	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	83	643	545	191	610	124	497	454		433	482	
Arrive On Green	0.05	0.35	0.35	0.11	0.41	0.41	0.04	0.24	0.00	0.06	0.26	0.00
Sat Flow, veh/h	1767	1856	1572	1767	1497	304	1767	1856	1572	1767	1856	0
Grp Volume(v), veh/h	58	518	53	155	0	569	46	129	0	87	45	0
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	0	1801	1767	1856	1572	1767	1856	0
Q Serve(g_s), s	2.4	18.6	1.7	6.3	0.0	20.2	1.4	4.2	0.0	2.7	1.4	0.0
Cycle Q Clear(g_c), s	2.4	18.6	1.7	6.3	0.0	20.2	1.4	4.2	0.0	2.7	1.4	0.0
Prop In Lane	1.00		1.00	1.00		0.17	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	83	643	545	191	0	734	497	454		433	482	
V/C Ratio(X)	0.70	0.81	0.10	0.81	0.00	0.78	0.09	0.28		0.20	0.09	
Avail Cap(c_a), veh/h	122	643	545	204	0	734	543	454		453	482	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	34.6	21.8	16.3	32.1	0.0	18.9	19.3	22.6	0.0	19.0	20.7	0.0
Incr Delay (d2), s/veh	9.9	10.4	0.4	20.2	0.0	7.9	0.1	1.6	0.0	0.2	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	1.2	8.9	0.6	3.6	0.0	8.7	0.5	1.8	0.0	1.0	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.5	32.2	16.6	52.3	0.0	26.8	19.4	24.2	0.0	19.3	21.1	0.0
LnGrp LOS	D	C	B	D	A	C	B	C		B	C	
Approach Vol, veh/h	629			724			175			A		
Approach Delay, s/veh	32.0			32.2			22.9			19.9		
Approach LOS	C			C			C			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.5	30.0	7.5	23.6	8.0	34.5	8.7	22.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	8.5	25.5	5.0	18.0	5.1	28.9	5.0	18.0				
Max Q Clear Time (g_c+I1), s	8.3	20.6	3.4	3.4	4.4	22.2	4.7	6.2				
Green Ext Time (p_c), s	0.0	1.4	0.0	0.1	0.0	1.9	0.0	0.4				

Intersection Summary

HCM 6th Ctrl Delay	30.2
HCM 6th LOS	C

Notes

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

Intersection

Intersection Delay, s/veh	8.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	72	51	5	11	15	58	7	98	14	32	91	16
Future Vol, veh/h	72	51	5	11	15	58	7	98	14	32	91	16
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
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	78	55	5	12	16	63	8	107	15	35	99	17
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.9	8	8.6	8.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	6%	56%	13%	23%
Vol Thru, %	82%	40%	18%	65%
Vol Right, %	12%	4%	69%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	119	128	84	139
LT Vol	7	72	11	32
Through Vol	98	51	15	91
RT Vol	14	5	58	16
Lane Flow Rate	129	139	91	151
Geometry Grp	1	1	1	1
Degree of Util (X)	0.166	0.186	0.111	0.194
Departure Headway (Hd)	4.615	4.803	4.396	4.625
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	776	746	814	775
Service Time	2.65	2.838	2.433	2.659
HCM Lane V/C Ratio	0.166	0.186	0.112	0.195
HCM Control Delay	8.6	8.9	8	8.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	0.7	0.4	0.7

HCM 6th TWSC
15: Hwy NN/ Hwy NN & Sunset Rd

12/23/2021

Intersection						
Int Delay, s/veh	1.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	113	637	7	23	529
Future Vol, veh/h	13	113	637	7	23	529
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	14	123	692	8	25	575
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1321	696	0	0	700	0
Stage 1	696	-	-	-	-	-
Stage 2	625	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	172	440	-	-	892	-
Stage 1	493	-	-	-	-	-
Stage 2	532	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	167	440	-	-	892	-
Mov Cap-2 Maneuver	307	-	-	-	-	-
Stage 1	493	-	-	-	-	-
Stage 2	517	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	17.6	0		0.4		
HCM LOS	C					
Minor Lane/Major Mvmt		NBT	NBRWBLn1	SBL	SBT	
Capacity (veh/h)		-	-	421	892	-
HCM Lane V/C Ratio		-	-	0.325	0.028	-
HCM Control Delay (s)		-	-	17.6	9.2	-
HCM Lane LOS		-	-	C	A	-
HCM 95th %tile Q(veh)		-	-	1.4	0.1	-

Intersection

Int Delay, s/veh 3.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	114	188	363	0	0	516
Future Vol, veh/h	114	188	363	0	0	516
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	124	204	395	0	0	561

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	956	395	0	-	-	-
Stage 1	395	-	-	-	-	-
Stage 2	561	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	-	-
Pot Cap-1 Maneuver	285	652	-	0	0	-
Stage 1	678	-	-	0	0	-
Stage 2	569	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	285	652	-	-	-	-
Mov Cap-2 Maneuver	411	-	-	-	-	-
Stage 1	678	-	-	-	-	-
Stage 2	569	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1WBLn2	SBT
Capacity (veh/h)	- 411 652	-
HCM Lane V/C Ratio	- 0.301 0.313	-
HCM Control Delay (s)	- 17.5 13	-
HCM Lane LOS	- C B	-
HCM 95th %tile Q(veh)	- 1.3 1.3	-

Intersection

Int Delay, s/veh 2.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	50	37	208	24	15	194
Future Vol, veh/h	50	37	208	24	15	194
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	54	40	226	26	16	211

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	482	239	0
Stage 1	239	-	-
Stage 2	243	-	-
Critical Hdwy	6.43	6.23	-
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	5.43	-	-
Follow-up Hdwy	3.527	3.327	-
Pot Cap-1 Maneuver	541	797	-
Stage 1	798	-	-
Stage 2	795	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	535	797	-
Mov Cap-2 Maneuver	535	-	-
Stage 1	798	-	-
Stage 2	785	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.8	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	622	1307
HCM Lane V/C Ratio	-	-	0.152	0.012
HCM Control Delay (s)	-	-	11.8	7.8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.5	0

Lanes, Volumes, Timings

2: Pheasant

12/23/2021

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	35	66	57	24	0
Future Volume (vph)	0	35	66	57	24	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected	0.974					
Satd. Flow (prot)	0	1596	0	1797	1845	0
Flt Permitted	0.974					
Satd. Flow (perm)	0	1596	0	1797	1845	0
Link Speed (mph)	30			45	30	
Link Distance (ft)	1141			2632	1106	
Travel Time (s)	25.9			39.9	25.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	38	72	62	26	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	38	0	134	26	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	9		
Sign Control	Yield			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	16.7%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th Signalized Intersection Summary

3: Hwy NN/Farmers Branch Rd & Hwy NN/Hwy J

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	365	508	149	273	20	378	92	109	77	219	80
Future Volume (veh/h)	47	365	508	149	273	20	378	92	109	77	219	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	51	397	0	162	297	0	411	100	0	84	238	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	371	528		315	584		545	663		508	452	
Arrive On Green	0.04	0.28	0.00	0.07	0.31	0.00	0.17	0.35	0.00	0.06	0.24	0.00
Sat Flow, veh/h	1795	1885	1598	1795	1885	1598	1795	1885	1598	1795	1885	1598
Grp Volume(v), veh/h	51	397	0	162	297	0	411	100	0	84	238	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1795	1885	1598	1795	1885	1598	1795	1885	1598
Q Serve(g_s), s	1.5	14.4	0.0	4.8	9.7	0.0	12.5	2.7	0.0	2.6	8.2	0.0
Cycle Q Clear(g_c), s	1.5	14.4	0.0	4.8	9.7	0.0	12.5	2.7	0.0	2.6	8.2	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	371	528		315	584		545	663		508	452	
V/C Ratio(X)	0.14	0.75		0.51	0.51		0.75	0.15		0.17	0.53	
Avail Cap(c_a), veh/h	415	528		315	584		545	663		536	452	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	18.0	24.6	0.0	18.9	21.2	0.0	16.8	16.6	0.0	19.5	24.8	0.0
Incr Delay (d2), s/veh	0.2	9.5	0.0	1.4	3.1	0.0	5.9	0.5	0.0	0.2	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	0.6	7.1	0.0	1.9	4.3	0.0	5.3	1.1	0.0	1.0	4.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.2	34.2	0.0	20.3	24.4	0.0	22.7	17.1	0.0	19.7	29.1	0.0
LnGrp LOS	B	C		C	C		C	B		B	C	
Approach Vol, veh/h		448	A		459	A		511	A		322	A
Approach Delay, s/veh		32.3			22.9			21.6			26.7	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.0	25.5	17.0	22.5	7.8	27.7	8.6	30.9				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.5	21.0	12.5	18.0	5.1	21.4	5.3	25.2				
Max Q Clear Time (g_c+I1), s	6.8	16.4	14.5	10.2	3.5	11.7	4.6	4.7				
Green Ext Time (p_c), s	0.0	0.9	0.0	0.7	0.0	1.0	0.0	0.4				

Intersection Summary

HCM 6th Ctrl Delay	25.7
HCM 6th LOS	C

Notes

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

HCM 6th Signalized Intersection Summary

6: 22nd St & Hwy CC

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	748	67	382	1033	271	80	22	340	215	48	64
Future Volume (veh/h)	41	748	67	382	1033	271	80	22	340	215	48	64
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	45	813	73	415	1123	0	87	24	370	234	52	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	321	831	704	415	2176		313	13	198	237	354	
Arrive On Green	0.03	0.44	0.44	0.20	0.61	0.00	0.05	0.13	0.13	0.10	0.19	0.00
Sat Flow, veh/h	1795	1885	1598	1795	3676	0	1795	98	1514	1795	1885	1598
Grp Volume(v), veh/h	45	813	73	415	1123	0	87	0	394	234	52	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1795	1791	0	1795	0	1613	1795	1885	1598
Q Serve(g_s), s	1.9	59.4	3.7	27.5	25.1	0.0	5.9	0.0	18.3	14.5	3.2	0.0
Cycle Q Clear(g_c), s	1.9	59.4	3.7	27.5	25.1	0.0	5.9	0.0	18.3	14.5	3.2	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.94	1.00		1.00
Lane Grp Cap(c), veh/h	321	831	704	415	2176		313	0	211	237	354	
V/C Ratio(X)	0.14	0.98	0.10	1.00	0.52		0.28	0.00	1.87	0.99	0.15	
Avail Cap(c_a), veh/h	339	831	704	415	2176		313	0	211	237	354	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.2	38.5	22.9	46.9	15.7	0.0	49.8	0.0	60.9	48.1	47.5	0.0
Incr Delay (d2), s/veh	0.2	26.4	0.3	44.4	0.9	0.0	0.5	0.0	408.7	54.2	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	32.1	1.5	19.3	9.8	0.0	2.7	0.0	31.4	10.6	1.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.4	64.9	23.2	91.3	16.6	0.0	50.3	0.0	469.5	102.3	48.4	0.0
LnGrp LOS	C	E	C	F	B		D	A	F	F	D	
Approach Vol, veh/h					1538	A					286	A
Approach Delay, s/veh	59.5				36.7		393.7				92.5	
Approach LOS	E				D		F				F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	32.0	66.2	11.0	30.8	8.6	89.6	19.0	22.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	27.5	61.7	6.5	26.3	5.5	83.7	14.5	18.3				
Max Q Clear Time (g_c+I1), s	29.5	61.4	7.9	5.2	3.9	27.1	16.5	20.3				
Green Ext Time (p_c), s	0.0	0.2	0.0	0.2	0.0	9.7	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 101.3

HCM 6th LOS F

Notes

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

HCM 6th Signalized Intersection Summary

8: Fremont Rd & Hwy CC

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	599	54	230	836	36	45	29	165	60	90	95
Future Volume (veh/h)	32	599	54	230	836	36	45	29	165	60	90	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	35	651	59	250	909	39	49	32	0	65	98	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	58	748	634	276	930	40	367	381		423	392	
Arrive On Green	0.03	0.40	0.40	0.15	0.52	0.52	0.04	0.20	0.00	0.04	0.21	0.00
Sat Flow, veh/h	1795	1885	1598	1795	1794	77	1795	1885	1598	1795	1885	0
Grp Volume(v), veh/h	35	651	59	250	0	948	49	32	0	65	98	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1795	0	1871	1795	1885	1598	1795	1885	0
Q Serve(g_s), s	1.7	28.3	2.1	12.2	0.0	44.0	1.9	1.2	0.0	2.5	3.9	0.0
Cycle Q Clear(g_c), s	1.7	28.3	2.1	12.2	0.0	44.0	1.9	1.2	0.0	2.5	3.9	0.0
Prop In Lane	1.00		1.00	1.00		0.04	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	58	748	634	276	0	969	367	381		423	392	
V/C Ratio(X)	0.60	0.87	0.09	0.90	0.00	0.98	0.13	0.08		0.15	0.25	
Avail Cap(c_a), veh/h	103	748	634	276	0	969	397	381		443	392	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	42.5	24.7	16.8	37.0	0.0	20.9	26.4	28.8	0.0	26.2	29.5	0.0
Incr Delay (d2), s/veh	9.5	13.2	0.3	30.6	0.0	24.0	0.2	0.4	0.0	0.2	1.5	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	0.9	14.0	0.7	7.4	0.0	22.5	0.8	0.6	0.0	1.0	1.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.9	37.9	17.1	67.6	0.0	45.0	26.5	29.2	0.0	26.3	31.0	0.0
LnGrp LOS	D	D	B	E	A	D	C	C		C	C	
Approach Vol, veh/h	745			1198			81			A		
Approach Delay, s/veh	37.0			49.7			27.6			29.1		
Approach LOS	D			D			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.2	39.8	8.0	23.0	7.4	50.6	8.5	22.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	13.7	35.3	5.0	18.0	5.1	43.9	5.0	18.0				
Max Q Clear Time (g_c+I1), s	14.2	30.3	3.9	5.9	3.7	46.0	4.5	3.2				
Green Ext Time (p_c), s	0.0	1.8	0.0	0.3	0.0	0.0	0.0	0.1				

Intersection Summary

HCM 6th Ctrl Delay 43.0

HCM 6th LOS D

Notes

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

Intersection	
Intersection Delay, s/veh	9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	39	35	19	10	50	29	13	72	6	50	121	78
Future Vol, veh/h	39	35	19	10	50	29	13	72	6	50	121	78
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
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	42	38	21	11	54	32	14	78	7	54	132	85
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.6	8.4	8.4	9.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	42%	11%	20%
Vol Thru, %	79%	38%	56%	49%
Vol Right, %	7%	20%	33%	31%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	91	93	89	249
LT Vol	13	39	10	50
Through Vol	72	35	50	121
RT Vol	6	19	29	78
Lane Flow Rate	99	101	97	271
Geometry Grp	1	1	1	1
Degree of Util (X)	0.129	0.136	0.127	0.328
Departure Headway (Hd)	4.685	4.837	4.711	4.363
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	764	739	758	823
Service Time	2.726	2.881	2.755	2.396
HCM Lane V/C Ratio	0.13	0.137	0.128	0.329
HCM Control Delay	8.4	8.6	8.4	9.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.5	0.4	1.4

HCM 6th TWSC
15: Hwy NN/ Hwy NN & Sunset Rd

12/23/2021

Intersection

Int Delay, s/veh 1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	19	52	475	14	108	702
Future Vol, veh/h	19	52	475	14	108	702
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	21	57	516	15	117	763

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1521	524	0
Stage 1	524	-	-
Stage 2	997	-	-
Critical Hdwy	6.41	6.21	-
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	-
Pot Cap-1 Maneuver	131	555	-
Stage 1	596	-	-
Stage 2	359	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	116	555	-
Mov Cap-2 Maneuver	236	-	-
Stage 1	596	-	-
Stage 2	319	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.9	0	1.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	408	1042
HCM Lane V/C Ratio	-	-	0.189	0.113
HCM Control Delay (s)	-	-	15.9	8.9
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.7	0.4

Intersection

Int Delay, s/veh 0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	10	406	0	0	592
Future Vol, veh/h	12	10	406	0	0	592
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	13	11	441	0	0	643

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1084	441	0
Stage 1	441	-	-
Stage 2	643	-	-
Critical Hdwy	6.41	6.21	-
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	-
Pot Cap-1 Maneuver	241	618	0
Stage 1	651	-	0
Stage 2	525	-	0
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	241	618	-
Mov Cap-2 Maneuver	373	-	-
Stage 1	651	-	-
Stage 2	525	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1WBLn2	SBT
Capacity (veh/h)	- 373 618	-
HCM Lane V/C Ratio	- 0.035 0.018	-
HCM Control Delay (s)	- 15 10.9	-
HCM Lane LOS	- C B	-
HCM 95th %tile Q(veh)	- 0.1 0.1	-

Intersection

Int Delay, s/veh 1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	26	219	45	48	290
Future Vol, veh/h	30	26	219	45	48	290
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	33	28	238	49	52	315

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	682	263	0
Stage 1	263	-	-
Stage 2	419	-	-
Critical Hdwy	6.41	6.21	-
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	-
Pot Cap-1 Maneuver	417	778	-
Stage 1	783	-	-
Stage 2	666	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	400	778	-
Mov Cap-2 Maneuver	400	-	-
Stage 1	783	-	-
Stage 2	639	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.9	0	1.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	517	1281
HCM Lane V/C Ratio	-	-	0.118	0.041
HCM Control Delay (s)	-	-	12.9	7.9
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1

Lanes, Volumes, Timings

2: Pheasant

12/23/2021

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	62	46	39	27	0
Future Volume (vph)	0	62	46	39	27	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected	0.974					
Satd. Flow (prot)	0	1627	0	1832	1881	0
Flt Permitted	0.974					
Satd. Flow (perm)	0	1627	0	1832	1881	0
Link Speed (mph)	30			45	30	
Link Distance (ft)	1141			2632	1106	
Travel Time (s)	25.9			39.9	25.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	67	50	42	29	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	67	0	92	29	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	9		
Sign Control	Yield			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	14.6%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th Signalized Intersection Summary

3: Hwy NN/Farmers Branch Rd & Hwy NN/Hwy J

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	244	274	86	286	27	299	62	66	26	54	65
Future Volume (veh/h)	52	244	274	86	286	27	299	62	66	26	54	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	57	265	0	93	311	0	325	67	0	28	59	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	379	545		420	570		616	634		545	530	
Arrive On Green	0.05	0.29	0.00	0.06	0.30	0.00	0.09	0.34	0.00	0.03	0.28	0.00
Sat Flow, veh/h	1795	1885	1598	1795	1885	1598	1795	1885	1598	1795	1885	1598
Grp Volume(v), veh/h	57	265	0	93	311	0	325	67	0	28	59	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1795	1885	1598	1795	1885	1598	1795	1885	1598
Q Serve(g_s), s	1.4	7.4	0.0	2.3	8.8	0.0	5.5	1.6	0.0	0.7	1.5	0.0
Cycle Q Clear(g_c), s	1.4	7.4	0.0	2.3	8.8	0.0	5.5	1.6	0.0	0.7	1.5	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	379	545		420	570		616	634		545	530	
V/C Ratio(X)	0.15	0.49		0.22	0.55		0.53	0.11		0.05	0.11	
Avail Cap(c_a), veh/h	430	545		446	570		616	634		631	530	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	15.0	18.8	0.0	14.7	18.7	0.0	15.9	14.6	0.0	15.4	17.1	0.0
Incr Delay (d2), s/veh	0.2	3.1	0.0	0.3	3.7	0.0	0.8	0.3	0.0	0.0	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	0.5	3.3	0.0	0.8	3.9	0.0	3.4	0.6	0.0	0.3	0.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.2	21.9	0.0	14.9	22.4	0.0	16.7	15.0	0.0	15.5	17.5	0.0
LnGrp LOS	B	C		B	C		B	B		B	B	
Approach Vol, veh/h	322		A	404		A	392		A	87		A
Approach Delay, s/veh	20.7			20.7			16.4			16.8		
Approach LOS	C			C			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.5	23.0	10.0	22.5	7.7	23.9	6.5	26.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	18.5	5.5	18.0	5.0	18.5	5.0	18.5				
Max Q Clear Time (g_c+I1), s	4.3	9.4	7.5	3.5	3.4	10.8	2.7	3.6				
Green Ext Time (p_c), s	0.0	0.8	0.0	0.2	0.0	0.9	0.0	0.2				

Intersection Summary

HCM 6th Ctrl Delay 19.0

HCM 6th LOS B

Notes

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

HCM 6th Signalized Intersection Summary

6: 22nd St & Hwy CC

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	398	63	228	421	251	29	40	245	236	31	54
Future Volume (veh/h)	62	398	63	228	421	251	29	40	245	236	31	54
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	67	433	68	248	458	0	32	43	266	257	34	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	441	580	492	386	1336		459	51	316	368	607	
Arrive On Green	0.05	0.31	0.31	0.11	0.37	0.00	0.03	0.22	0.22	0.13	0.32	0.00
Sat Flow, veh/h	1795	1885	1598	1795	3676	0	1795	227	1405	1795	1885	1598
Grp Volume(v), veh/h	67	433	68	248	458	0	32	0	309	257	34	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1795	1791	0	1795	0	1632	1795	1885	1598
Q Serve(g_s), s	2.0	16.5	2.5	7.1	7.4	0.0	1.1	0.0	14.5	8.3	1.0	0.0
Cycle Q Clear(g_c), s	2.0	16.5	2.5	7.1	7.4	0.0	1.1	0.0	14.5	8.3	1.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.86	1.00		1.00
Lane Grp Cap(c), veh/h	441	580	492	386	1336		459	0	367	368	607	
V/C Ratio(X)	0.15	0.75	0.14	0.64	0.34		0.07	0.00	0.84	0.70	0.06	
Avail Cap(c_a), veh/h	478	580	492	395	1336		514	0	367	373	607	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	17.3	24.9	20.0	17.2	18.0	0.0	22.5	0.0	29.6	20.2	18.7	0.0
Incr Delay (d2), s/veh	0.2	8.5	0.6	3.4	0.7	0.0	0.1	0.0	20.3	5.5	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	8.0	1.0	2.9	2.8	0.0	0.5	0.0	7.5	3.8	0.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.4	33.4	20.6	20.6	18.7	0.0	22.6	0.0	49.9	25.7	18.9	0.0
LnGrp LOS	B	C	C	C	B		C	A	D	C	B	
Approach Vol, veh/h	568			706			A			341		
Approach Delay, s/veh	30.0			19.4						47.3		
Approach LOS	C			B						D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.6	29.1	7.0	30.2	8.4	34.3	14.8	22.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	9.5	24.0	5.0	23.5	5.5	28.0	10.5	18.0				
Max Q Clear Time (g_c+I1), s	9.1	18.5	3.1	3.0	4.0	9.4	10.3	16.5				
Green Ext Time (p_c), s	0.0	1.3	0.0	0.1	0.0	2.6	0.0	0.3				

Intersection Summary

HCM 6th Ctrl Delay	28.4
HCM 6th LOS	C

Notes

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

HCM 6th Signalized Intersection Summary

8: Fremont Rd & Hwy CC

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	390	35	126	375	10	28	19	123	18	19	23
Future Volume (veh/h)	23	390	35	126	375	10	28	19	123	18	19	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	25	424	38	137	408	11	30	21	0	20	21	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	51	547	464	174	655	18	570	564		565	547	
Arrive On Green	0.03	0.29	0.29	0.10	0.36	0.36	0.03	0.30	0.00	0.02	0.29	0.00
Sat Flow, veh/h	1795	1885	1598	1795	1827	49	1795	1885	1598	1795	1885	0
Grp Volume(v), veh/h	25	424	38	137	0	419	30	21	0	20	21	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1795	0	1876	1795	1885	1598	1795	1885	0
Q Serve(g_s), s	0.9	12.8	1.1	4.6	0.0	11.4	0.7	0.5	0.0	0.5	0.5	0.0
Cycle Q Clear(g_c), s	0.9	12.8	1.1	4.6	0.0	11.4	0.7	0.5	0.0	0.5	0.5	0.0
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	51	547	464	174	0	673	570	564		565	547	
V/C Ratio(X)	0.49	0.77	0.08	0.79	0.00	0.62	0.05	0.04		0.04	0.04	
Avail Cap(c_a), veh/h	145	547	464	174	0	673	657	564		668	547	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	29.7	20.2	16.0	27.4	0.0	16.4	14.5	15.4	0.0	14.8	15.8	0.0
Incr Delay (d2), s/veh	7.3	10.3	0.3	21.2	0.0	4.3	0.0	0.1	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	6.3	0.4	2.8	0.0	4.8	0.3	0.2	0.0	0.2	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.9	30.4	16.3	48.5	0.0	20.7	14.5	15.5	0.0	14.8	15.9	0.0
LnGrp LOS	D	C	B	D	A	C	B	B		B	B	
Approach Vol, veh/h	487				556				51			
Approach Delay, s/veh	29.7				27.6				14.9			
Approach LOS	C				C				B			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.5	22.5	6.5	22.5	6.2	26.8	6.0	23.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.0	18.0	5.0	18.0	5.0	19.0	5.0	18.0				
Max Q Clear Time (g_c+I1), s	6.6	14.8	2.7	2.5	2.9	13.4	2.5	2.5				
Green Ext Time (p_c), s	0.0	0.8	0.0	0.0	0.0	1.1	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	27.5
HCM 6th LOS	C

Notes

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

Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	32	13	5	28	30	11	60	11	23	57	31
Future Vol, veh/h	27	32	13	5	28	30	11	60	11	23	57	31
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
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	29	35	14	5	30	33	12	65	12	25	62	34
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.9	7.6	7.9	7.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	13%	38%	8%	21%
Vol Thru, %	73%	44%	44%	51%
Vol Right, %	13%	18%	48%	28%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	82	72	63	111
LT Vol	11	27	5	23
Through Vol	60	32	28	57
RT Vol	11	13	30	31
Lane Flow Rate	89	78	68	121
Geometry Grp	1	1	1	1
Degree of Util (X)	0.107	0.096	0.08	0.142
Departure Headway (Hd)	4.317	4.421	4.199	4.228
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	832	812	855	853
Service Time	2.333	2.438	2.215	2.228
HCM Lane V/C Ratio	0.107	0.096	0.08	0.142
HCM Control Delay	7.9	7.9	7.6	7.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.3	0.3	0.5

HCM 6th TWSC
15: Hwy NN/ Hwy NN & Sunset Rd

12/23/2021

Intersection						
Int Delay, s/veh	1.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	21	62	349	19	43	345
Future Vol, veh/h	21	62	349	19	43	345
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	23	67	379	21	47	375
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	859	390	0	0	400	0
Stage 1	390	-	-	-	-	-
Stage 2	469	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.11	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.209	-
Pot Cap-1 Maneuver	328	661	-	-	1164	-
Stage 1	686	-	-	-	-	-
Stage 2	632	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	315	661	-	-	1164	-
Mov Cap-2 Maneuver	437	-	-	-	-	-
Stage 1	686	-	-	-	-	-
Stage 2	607	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	12.3	0		0.9		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	585	1164	-	
HCM Lane V/C Ratio	-	-	0.154	0.04	-	
HCM Control Delay (s)	-	-	12.3	8.2	-	
HCM Lane LOS	-	-	B	A	-	
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-	

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	16	26	273	0	0	325
Future Vol, veh/h	16	26	273	0	0	325
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	17	28	297	0	0	353
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	650	297	0	-	-	-
Stage 1	297	-	-	-	-	-
Stage 2	353	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	-	-
Pot Cap-1 Maneuver	435	745	-	0	0	-
Stage 1	756	-	-	0	0	-
Stage 2	713	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	435	745	-	-	-	-
Mov Cap-2 Maneuver	533	-	-	-	-	-
Stage 1	756	-	-	-	-	-
Stage 2	713	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	10.8	0	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBTWBLn1WBLn2		SBT			
Capacity (veh/h)	-	533	745	-	-	-
HCM Lane V/C Ratio	-	0.033	0.038	-	-	-
HCM Control Delay (s)	-	12	10	-	-	-
HCM Lane LOS	-	B	B	-	-	-
HCM 95th %tile Q(veh)	-	0.1	0.1	-	-	-

Intersection

Int Delay, s/veh 1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	24	166	22	19	175
Future Vol, veh/h	23	24	166	22	19	175
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	25	26	180	24	21	190

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	424	192	0
Stage 1	192	-	-
Stage 2	232	-	-
Critical Hdwy	6.41	6.21	-
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	-
Pot Cap-1 Maneuver	589	852	-
Stage 1	843	-	-
Stage 2	809	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	580	852	-
Mov Cap-2 Maneuver	580	-	-
Stage 1	843	-	-
Stage 2	797	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.6	0	0.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	693	1374
HCM Lane V/C Ratio	-	-	0.074	0.015
HCM Control Delay (s)	-	-	10.6	7.7
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0

Lanes, Volumes, Timings

2: Pheasant

12/23/2021

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	36	27	28	36	0
Future Volume (vph)	0	36	27	28	36	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected	0.976					
Satd. Flow (prot)	0	1627	0	1836	1881	0
Flt Permitted	0.976					
Satd. Flow (perm)	0	1627	0	1836	1881	0
Link Speed (mph)	30			45	30	
Link Distance (ft)	1141			2632	1106	
Travel Time (s)	25.9			39.9	25.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	39	29	30	39	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	39	0	59	39	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	9		
Sign Control	Yield			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	13.3%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th Signalized Intersection Summary

3: Hwy NN/Farmers Branch Rd & Hwy NN/Hwy J

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	157	361	218	372	47	663	202	101	17	70	41
Future Volume (veh/h)	40	157	361	218	372	47	663	202	101	17	70	41
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	43	171	0	237	404	0	721	220	0	18	76	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	222	437		414	520		798	859		346	371	
Arrive On Green	0.04	0.24	0.00	0.08	0.28	0.00	0.28	0.46	0.00	0.02	0.20	0.00
Sat Flow, veh/h	1767	1856	1572	1767	1856	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	43	171	0	237	404	0	721	220	0	18	76	0
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1856	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	1.6	7.0	0.0	7.3	18.0	0.0	25.5	6.5	0.0	0.7	3.1	0.0
Cycle Q Clear(g_c), s	1.6	7.0	0.0	7.3	18.0	0.0	25.5	6.5	0.0	0.7	3.1	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	222	437		414	520		798	859		346	371	
V/C Ratio(X)	0.19	0.39		0.57	0.78		0.90	0.26		0.05	0.20	
Avail Cap(c_a), veh/h	256	437		414	520		798	859		409	371	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	25.6	29.0	0.0	25.2	29.8	0.0	20.0	14.7	0.0	27.7	30.0	0.0
Incr Delay (d2), s/veh	0.4	2.6	0.0	1.9	10.9	0.0	13.6	0.7	0.0	0.1	1.2	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	0.7	3.2	0.0	0.9	9.0	0.0	13.7	2.6	0.0	0.3	1.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.0	31.6	0.0	27.1	40.7	0.0	33.6	15.4	0.0	27.7	31.3	0.0
LnGrp LOS	C	C		C	D		C	B		C	C	
Approach Vol, veh/h		214	A		641	A		941	A		94	A
Approach Delay, s/veh		30.5			35.7			29.3			30.6	
Approach LOS		C			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.8	25.7	30.0	22.5	7.8	29.7	6.3	46.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.3	21.2	25.5	18.0	5.0	23.5	5.0	38.5				
Max Q Clear Time (g_c+I1), s	9.3	9.0	27.5	5.1	3.6	20.0	2.7	8.5				
Green Ext Time (p_c), s	0.0	0.6	0.0	0.2	0.0	0.7	0.0	1.1				

Intersection Summary

HCM 6th Ctrl Delay	31.7
HCM 6th LOS	C

Notes

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

HCM 6th Signalized Intersection Summary

6: 22nd St & Hwy CC

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	820	90	386	692	306	80	49	295	233	55	85
Future Volume (veh/h)	56	820	90	386	692	306	80	49	295	233	55	85
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	61	891	98	420	752	0	87	53	321	253	60	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	441	856	726	361	2117		331	32	191	212	325	
Arrive On Green	0.03	0.46	0.46	0.17	0.60	0.00	0.05	0.14	0.14	0.09	0.18	0.00
Sat Flow, veh/h	1767	1856	1572	1767	3618	0	1767	228	1379	1767	1856	1572
Grp Volume(v), veh/h	61	891	98	420	752	0	87	0	374	253	60	0
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1763	0	1767	0	1607	1767	1856	1572
Q Serve(g_s), s	2.3	60.0	4.7	22.5	14.1	0.0	5.5	0.0	18.0	11.5	3.6	0.0
Cycle Q Clear(g_c), s	2.3	60.0	4.7	22.5	14.1	0.0	5.5	0.0	18.0	11.5	3.6	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.86	1.00		1.00
Lane Grp Cap(c), veh/h	441	856	726	361	2117		331	0	223	212	325	
V/C Ratio(X)	0.14	1.04	0.14	1.16	0.36		0.26	0.00	1.68	1.20	0.18	
Avail Cap(c_a), veh/h	456	856	726	361	2117		331	0	223	212	325	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	17.1	35.0	20.1	45.0	13.2	0.0	44.9	0.0	56.0	46.0	45.7	0.0
Incr Delay (d2), s/veh	0.1	41.7	0.4	99.4	0.5	0.0	0.4	0.0	325.1	124.5	1.2	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	0.9	35.2	1.8	20.9	5.3	0.0	2.4	0.0	27.4	8.7	1.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.3	76.7	20.5	144.5	13.7	0.0	45.3	0.0	381.1	170.5	46.9	0.0
LnGrp LOS	B	F	C	F	B		D	A	F	F	D	
Approach Vol, veh/h	1050			1172			A			461		
Approach Delay, s/veh	68.0			60.5			317.7			146.8		
Approach LOS	E			E			F			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	27.0	64.5	11.2	27.3	8.9	82.6	16.0	22.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	22.5	60.0	6.7	22.8	5.5	77.0	11.5	18.0				
Max Q Clear Time (g_c+l1), s	24.5	62.0	7.5	5.6	4.3	16.1	13.5	20.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.2	0.0	5.5	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	111.7
HCM 6th LOS	F

Notes

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

HCM 6th Signalized Intersection Summary

8: Fremont Rd & Hwy CC

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	583	60	174	530	107	51	146	334	97	50	37
Future Volume (veh/h)	65	583	60	174	530	107	51	146	334	97	50	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	71	634	65	189	576	116	55	159	0	105	54	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	91	763	647	224	729	147	415	376		337	403	
Arrive On Green	0.05	0.41	0.41	0.13	0.49	0.49	0.04	0.20	0.00	0.06	0.22	0.00
Sat Flow, veh/h	1767	1856	1572	1767	1499	302	1767	1856	1572	1767	1856	0
Grp Volume(v), veh/h	71	634	65	189	0	692	55	159	0	105	54	0
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	0	1801	1767	1856	1572	1767	1856	0
Q Serve(g_s), s	3.5	27.1	2.3	9.3	0.0	28.4	2.2	6.6	0.0	4.2	2.1	0.0
Cycle Q Clear(g_c), s	3.5	27.1	2.3	9.3	0.0	28.4	2.2	6.6	0.0	4.2	2.1	0.0
Prop In Lane	1.00		1.00	1.00		0.17	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	91	763	647	224	0	876	415	376		337	403	
V/C Ratio(X)	0.78	0.83	0.10	0.84	0.00	0.79	0.13	0.42		0.31	0.13	
Avail Cap(c_a), veh/h	129	763	647	249	0	876	440	376		337	403	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	41.6	23.4	16.0	37.9	0.0	19.0	26.1	30.8	0.0	26.2	28.0	0.0
Incr Delay (d2), s/veh	17.4	10.2	0.3	21.0	0.0	7.2	0.1	3.5	0.0	0.5	0.7	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	1.9	12.7	0.8	5.1	0.0	12.0	0.9	3.2	0.0	1.7	1.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.0	33.6	16.3	58.9	0.0	26.2	26.3	34.3	0.0	26.7	28.7	0.0
LnGrp LOS	E	C	B	E	A	C	C	C		C	C	
Approach Vol, veh/h	770			881			214			A		
Approach Delay, s/veh	34.4			33.2			32.2			27.4		
Approach LOS	C			C			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.7	41.0	8.2	23.8	9.1	47.7	9.5	22.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	12.5	36.5	5.0	18.0	6.5	42.5	5.0	18.0				
Max Q Clear Time (g_c+I1), s	11.3	29.1	4.2	4.1	5.5	30.4	6.2	8.6				
Green Ext Time (p_c), s	0.1	2.4	0.0	0.1	0.0	3.5	0.0	0.4				

Intersection Summary

HCM 6th Ctrl Delay	33.1
HCM 6th LOS	C

Notes

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

Intersection

Intersection Delay, s/veh	9.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	88	62	6	14	19	71	9	119	17	39	111	20
Future Vol, veh/h	88	62	6	14	19	71	9	119	17	39	111	20
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
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	96	67	7	15	21	77	10	129	18	42	121	22
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.6	8.5	9.2	9.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	6%	56%	13%	23%
Vol Thru, %	82%	40%	18%	65%
Vol Right, %	12%	4%	68%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	145	156	104	170
LT Vol	9	88	14	39
Through Vol	119	62	19	111
RT Vol	17	6	71	20
Lane Flow Rate	158	170	113	185
Geometry Grp	1	1	1	1
Degree of Util (X)	0.211	0.235	0.145	0.247
Departure Headway (Hd)	4.809	4.999	4.614	4.807
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	742	714	771	743
Service Time	2.869	3.061	2.681	2.865
HCM Lane V/C Ratio	0.213	0.238	0.147	0.249
HCM Control Delay	9.2	9.6	8.5	9.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.8	0.9	0.5	1

HCM 6th TWSC
15: Hwy NN/ Hwy NN & Sunset Rd

12/23/2021

Intersection						
Int Delay, s/veh	2.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	16	138	777	9	29	646
Future Vol, veh/h	16	138	777	9	29	646
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	17	150	845	10	32	702

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1616	850	0	0	855
Stage 1	850	-	-	-	-
Stage 2	766	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13
Critical Hdwy Stg 1	5.43	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227
Pot Cap-1 Maneuver	113	359	-	-	781
Stage 1	417	-	-	-	-
Stage 2	457	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	108	359	-	-	781
Mov Cap-2 Maneuver	244	-	-	-	-
Stage 1	417	-	-	-	-
Stage 2	438	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	25.2	0	0.4
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	342	781
HCM Lane V/C Ratio	-	-	0.489	0.04
HCM Control Delay (s)	-	-	25.2	9.8
HCM Lane LOS	-	-	D	A
HCM 95th %tile Q(veh)	-	-	2.6	0.1

Intersection						
Int Delay, s/veh	4.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	139	229	443	0	0	630
Future Vol, veh/h	139	229	443	0	0	630
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	151	249	482	0	0	685
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1167	482	0	-	-	-
Stage 1	482	-	-	-	-	-
Stage 2	685	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	-	-
Pot Cap-1 Maneuver	213	582	-	0	0	-
Stage 1	619	-	-	0	0	-
Stage 2	499	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	213	582	-	-	-	-
Mov Cap-2 Maneuver	348	-	-	-	-	-
Stage 1	619	-	-	-	-	-
Stage 2	499	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	18.5	0	0			
HCM LOS	C					
Minor Lane/Major Mvmt	NBTWBLn1WBLn2		SBT			
Capacity (veh/h)	-	348	582	-	-	-
HCM Lane V/C Ratio	-	0.434	0.428	-	-	-
HCM Control Delay (s)	-	23	15.7	-	-	-
HCM Lane LOS	-	C	C	-	-	-
HCM 95th %tile Q(veh)	-	2.1	2.1	-	-	-

Intersection

Int Delay, s/veh 2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	61	45	254	30	19	236
Future Vol, veh/h	61	45	254	30	19	236
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	66	49	276	33	21	257

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	592	293	0
Stage 1	293	-	-
Stage 2	299	-	-
Critical Hdwy	6.43	6.23	-
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	5.43	-	-
Follow-up Hdwy	3.527	3.327	-
Pot Cap-1 Maneuver	467	744	-
Stage 1	755	-	-
Stage 2	750	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	459	744	-
Mov Cap-2 Maneuver	459	-	-
Stage 1	755	-	-
Stage 2	737	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.3	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	548	1246
HCM Lane V/C Ratio	-	-	0.21	0.017
HCM Control Delay (s)	-	-	13.3	7.9
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.8	0.1

Lanes, Volumes, Timings

2: Pheasant

12/23/2021

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	42	81	70	30	0
Future Volume (vph)	0	42	81	70	30	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected	0.974					
Satd. Flow (prot)	0	1596	0	1797	1845	0
Flt Permitted	0.974					
Satd. Flow (perm)	0	1596	0	1797	1845	0
Link Speed (mph)	30			45	30	
Link Distance (ft)	1141			2632	1106	
Travel Time (s)	25.9			39.9	25.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	46	88	76	33	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	46	0	164	33	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	9		
Sign Control	Yield			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	18.2%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th Signalized Intersection Summary

3: Hwy NN/Farmers Branch Rd & Hwy NN/Hwy J

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	446	620	182	334	25	462	112	133	93	268	97
Future Volume (veh/h)	57	446	620	182	334	25	462	112	133	93	268	97
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	62	485	0	198	363	0	502	122	0	101	291	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	327	549		261	613		554	698		445	377	
Arrive On Green	0.04	0.29	0.00	0.08	0.33	0.00	0.23	0.37	0.00	0.06	0.20	0.00
Sat Flow, veh/h	1795	1885	1598	1795	1885	1598	1795	1885	1598	1795	1885	1598
Grp Volume(v), veh/h	62	485	0	198	363	0	502	122	0	101	291	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1795	1885	1598	1795	1885	1598	1795	1885	1598
Q Serve(g_s), s	2.1	22.1	0.0	7.0	14.5	0.0	19.1	3.9	0.0	4.0	13.1	0.0
Cycle Q Clear(g_c), s	2.1	22.1	0.0	7.0	14.5	0.0	19.1	3.9	0.0	4.0	13.1	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	327	549		261	613		554	698		445	377	
V/C Ratio(X)	0.19	0.88		0.76	0.59		0.91	0.17		0.23	0.77	
Avail Cap(c_a), veh/h	350	549		261	613		554	698		454	377	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	21.4	30.4	0.0	23.3	25.4	0.0	20.6	19.1	0.0	26.0	34.1	0.0
Incr Delay (d2), s/veh	0.3	18.4	0.0	12.0	4.2	0.0	18.5	0.5	0.0	0.3	14.2	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	0.9	12.1	0.0	3.5	6.7	0.0	9.9	1.7	0.0	1.7	7.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.7	48.9	0.0	35.3	29.6	0.0	39.1	19.6	0.0	26.3	48.2	0.0
LnGrp LOS	C	D		D	C		D	B		C	D	
Approach Vol, veh/h	547		A	561		A	624		A	392		A
Approach Delay, s/veh	45.8			31.6			35.3			42.6		
Approach LOS	D			C			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.5	30.7	25.3	22.5	8.4	33.8	10.0	37.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.0	26.2	20.8	18.0	5.1	28.1	5.9	32.9				
Max Q Clear Time (g_c+l1), s	9.0	24.1	21.1	15.1	4.1	16.5	6.0	5.9				
Green Ext Time (p_c), s	0.0	0.6	0.0	0.4	0.0	1.5	0.0	0.5				
Intersection Summary												
HCM 6th Ctrl Delay	38.4											
HCM 6th LOS	D											

HCM 6th Signalized Intersection Summary

6: 22nd St & Hwy CC

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	912	82	466	1261	331	97	27	414	263	59	78
Future Volume (veh/h)	50	912	82	466	1261	331	97	27	414	263	59	78
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	54	991	89	507	1371	0	105	29	450	286	64	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	262	873	740	401	2257		321	12	187	222	303	
Arrive On Green	0.03	0.46	0.46	0.20	0.63	0.00	0.06	0.12	0.12	0.10	0.16	0.00
Sat Flow, veh/h	1795	1885	1598	1795	3676	0	1795	98	1515	1795	1885	1598
Grp Volume(v), veh/h	54	991	89	507	1371	0	105	0	479	286	64	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1795	1791	0	1795	0	1613	1795	1885	1598
Q Serve(g_s), s	2.4	69.5	4.7	29.5	34.4	0.0	7.6	0.0	18.5	14.5	4.4	0.0
Cycle Q Clear(g_c), s	2.4	69.5	4.7	29.5	34.4	0.0	7.6	0.0	18.5	14.5	4.4	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.94	1.00		1.00
Lane Grp Cap(c), veh/h	262	873	740	401	2257		321	0	199	222	303	
V/C Ratio(X)	0.21	1.13	0.12	1.26	0.61		0.33	0.00	2.41	1.29	0.21	
Avail Cap(c_a), veh/h	276	873	740	401	2257		321	0	199	222	303	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.2	40.3	22.9	52.6	16.6	0.0	53.2	0.0	65.8	53.3	54.7	0.0
Incr Delay (d2), s/veh	0.4	74.6	0.3	137.4	1.2	0.0	0.6	0.0	649.0	160.3	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	48.7	1.9	29.6	13.5	0.0	3.5	0.0	43.5	11.2	2.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.6	114.9	23.2	190.0	17.8	0.0	53.8	0.0	714.7	213.6	56.3	0.0
LnGrp LOS	C	F	C	F	B		D	A	F	F	E	
Approach Vol, veh/h	1134			1878			A			584		
Approach Delay, s/veh	103.2			64.3			595.9			184.8		
Approach LOS	F			E			F			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	34.0	74.0	13.4	28.6	9.0	99.0	19.0	23.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	29.5	69.5	8.9	24.1	5.7	93.3	14.5	18.5				
Max Q Clear Time (g_c+I1), s	31.5	71.5	9.6	6.4	4.4	36.4	16.5	20.5				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.2	0.0	13.5	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	164.9											
HCM 6th LOS	F											

HCM 6th Signalized Intersection Summary

8: Fremont Rd & Hwy CC

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	731	66	280	1021	44	55	35	202	73	110	116
Future Volume (veh/h)	39	731	66	280	1021	44	55	35	202	73	110	116
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	42	795	72	304	1110	48	60	38	0	79	120	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	56	903	766	322	1125	49	252	283		318	288	
Arrive On Green	0.03	0.48	0.48	0.18	0.63	0.63	0.04	0.15	0.00	0.04	0.15	0.00
Sat Flow, veh/h	1795	1885	1598	1795	1794	78	1795	1885	1598	1795	1885	0
Grp Volume(v), veh/h	42	795	72	304	0	1158	60	38	0	79	120	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1795	0	1871	1795	1885	1598	1795	1885	0
Q Serve(g_s), s	2.8	45.6	2.9	20.1	0.0	72.7	3.4	2.1	0.0	4.5	6.9	0.0
Cycle Q Clear(g_c), s	2.8	45.6	2.9	20.1	0.0	72.7	3.4	2.1	0.0	4.5	6.9	0.0
Prop In Lane	1.00		1.00	1.00		0.04	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	56	903	766	322	0	1173	252	283		318	288	
V/C Ratio(X)	0.75	0.88	0.09	0.95	0.00	0.99	0.24	0.13		0.25	0.42	
Avail Cap(c_a), veh/h	76	903	766	322	0	1173	257	283		318	288	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	57.6	28.1	17.0	48.7	0.0	21.9	41.0	44.2	0.0	41.0	46.0	0.0
Incr Delay (d2), s/veh	23.0	12.0	0.2	35.9	0.0	23.4	0.5	1.0	0.0	0.4	4.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	22.0	1.1	11.9	0.0	34.6	1.5	1.0	0.0	2.0	3.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.6	40.1	17.3	84.5	0.0	45.3	41.5	45.2	0.0	41.4	50.3	0.0
LnGrp LOS	F	D	B	F	A	D	D	D		D	D	
Approach Vol, veh/h		909			1462			98	A		199	A
Approach Delay, s/veh		40.2			53.4			43.0			46.8	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.0	62.0	9.1	22.9	8.3	79.7	9.5	22.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	21.5	57.5	5.0	18.0	5.1	73.9	5.0	18.0				
Max Q Clear Time (g_c+I1), s	22.1	47.6	5.4	8.9	4.8	74.7	6.5	4.1				
Green Ext Time (p_c), s	0.0	3.8	0.0	0.3	0.0	0.0	0.0	0.1				

Intersection Summary

HCM 6th Ctrl Delay 48.0

HCM 6th LOS D

Notes

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

Intersection

Intersection Delay, s/veh	9.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	47	42	24	12	61	35	16	88	7	61	148	95
Future Vol, veh/h	47	42	24	12	61	35	16	88	7	61	148	95
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
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	51	46	26	13	66	38	17	96	8	66	161	103
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.2	9	8.9	10.8
HCM LOS	A	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	42%	11%	20%
Vol Thru, %	79%	37%	56%	49%
Vol Right, %	6%	21%	32%	31%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	111	113	108	304
LT Vol	16	47	12	61
Through Vol	88	42	61	148
RT Vol	7	24	35	95
Lane Flow Rate	121	123	117	330
Geometry Grp	1	1	1	1
Degree of Util (X)	0.164	0.173	0.162	0.415
Departure Headway (Hd)	4.895	5.073	4.956	4.518
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	728	701	717	793
Service Time	2.963	3.147	3.03	2.571
HCM Lane V/C Ratio	0.166	0.175	0.163	0.416
HCM Control Delay	8.9	9.2	9	10.8
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.6	0.6	0.6	2.1

HCM 6th TWSC
15: Hwy NN/ Hwy NN & Sunset Rd

12/23/2021

Intersection

Int Delay, s/veh 1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	24	63	580	17	132	856
Future Vol, veh/h	24	63	580	17	132	856
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	26	68	630	18	143	930

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1855	639	0
Stage 1	639	-	-
Stage 2	1216	-	-
Critical Hdwy	6.41	6.21	4.11
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	2.209
Pot Cap-1 Maneuver	82	478	943
Stage 1	528	-	-
Stage 2	282	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	70	478	943
Mov Cap-2 Maneuver	177	-	-
Stage 1	528	-	-
Stage 2	239	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.6	0	1.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	325	943
HCM Lane V/C Ratio	-	-	0.291	0.152
HCM Control Delay (s)	-	-	20.6	9.5
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	1.2	0.5

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	15	495	0	0	722
Future Vol, veh/h	12	15	495	0	0	722
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	13	16	538	0	0	785
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1323	538	0	-	-	-
Stage 1	538	-	-	-	-	-
Stage 2	785	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	-	-
Pot Cap-1 Maneuver	173	545	-	0	0	-
Stage 1	587	-	-	0	0	-
Stage 2	451	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	173	545	-	-	-	-
Mov Cap-2 Maneuver	310	-	-	-	-	-
Stage 1	587	-	-	-	-	-
Stage 2	451	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	14.2	0	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBTWBLn1WBLn2		SBT			
Capacity (veh/h)	-	310	545	-	-	-
HCM Lane V/C Ratio	-	0.042	0.03	-	-	-
HCM Control Delay (s)	-	17.1	11.8	-	-	-
HCM Lane LOS	-	C	B	-	-	-
HCM 95th %tile Q(veh)	-	0.1	0.1	-	-	-

Intersection						
Int Delay, s/veh	1.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	36	31	268	55	59	353
Future Vol, veh/h	36	31	268	55	59	353
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	39	34	291	60	64	384
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	833	321	0	0	351	0
Stage 1	321	-	-	-	-	-
Stage 2	512	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.11	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.209	-
Pot Cap-1 Maneuver	340	722	-	-	1213	-
Stage 1	738	-	-	-	-	-
Stage 2	604	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	322	722	-	-	1213	-
Mov Cap-2 Maneuver	322	-	-	-	-	-
Stage 1	738	-	-	-	-	-
Stage 2	572	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	15	0	1.2			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	433	1213	-	
HCM Lane V/C Ratio	-	-	0.168	0.053	-	
HCM Control Delay (s)	-	-	15	8.1	-	
HCM Lane LOS	-	-	C	A	-	
HCM 95th %tile Q(veh)	-	-	0.6	0.2	-	

Lanes, Volumes, Timings

2: Pheasant

12/23/2021

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	76	56	47	32	0
Future Volume (vph)	0	76	56	47	32	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected	0.973					
Satd. Flow (prot)	0	1627	0	1830	1881	0
Flt Permitted	0.973					
Satd. Flow (perm)	0	1627	0	1830	1881	0
Link Speed (mph)	30			45	30	
Link Distance (ft)	1141			2632	1106	
Travel Time (s)	25.9			39.9	25.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	83	61	51	35	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	83	0	112	35	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	9		
Sign Control	Yield			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	15.6%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th Signalized Intersection Summary

3: Hwy NN/Farmers Branch Rd & Hwy NN/Hwy J

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	297	335	105	349	32	365	76	81	31	66	80
Future Volume (veh/h)	63	297	335	105	349	32	365	76	81	31	66	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	68	323	0	114	379	0	397	83	0	34	72	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	336	542		383	566		602	622		546	527	
Arrive On Green	0.05	0.29	0.00	0.07	0.30	0.00	0.09	0.33	0.00	0.04	0.28	0.00
Sat Flow, veh/h	1795	1885	1598	1795	1885	1598	1795	1885	1598	1795	1885	1598
Grp Volume(v), veh/h	68	323	0	114	379	0	397	83	0	34	72	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1795	1885	1598	1795	1885	1598	1795	1885	1598
Q Serve(g_s), s	1.7	9.5	0.0	2.8	11.3	0.0	5.5	2.0	0.0	0.9	1.8	0.0
Cycle Q Clear(g_c), s	1.7	9.5	0.0	2.8	11.3	0.0	5.5	2.0	0.0	0.9	1.8	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	336	542		383	566		602	622		546	527	
V/C Ratio(X)	0.20	0.60		0.30	0.67		0.66	0.13		0.06	0.14	
Avail Cap(c_a), veh/h	377	542		401	566		602	622		622	527	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	15.4	19.7	0.0	15.1	19.7	0.0	17.8	15.1	0.0	15.4	17.4	0.0
Incr Delay (d2), s/veh	0.3	4.8	0.0	0.4	6.2	0.0	2.7	0.4	0.0	0.0	0.5	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	0.6	4.3	0.0	1.0	5.2	0.0	2.1	0.8	0.0	0.3	0.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.7	24.5	0.0	15.5	25.9	0.0	20.4	15.6	0.0	15.4	17.9	0.0
LnGrp LOS	B	C		B	C		C	B		B	B	
Approach Vol, veh/h	391		A	493		A	480		A	106		A
Approach Delay, s/veh	23.0			23.5			19.6			17.1		
Approach LOS	C			C			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.8	23.0	10.0	22.5	8.0	23.8	6.8	25.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	18.5	5.5	18.0	5.0	18.5	5.0	18.5				
Max Q Clear Time (g_c+l1), s	4.8	11.5	7.5	3.8	3.7	13.3	2.9	4.0				
Green Ext Time (p_c), s	0.0	0.9	0.0	0.2	0.0	0.9	0.0	0.2				

Intersection Summary

HCM 6th Ctrl Delay	21.6
HCM 6th LOS	C

Notes

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

HCM 6th Signalized Intersection Summary

6: 22nd St & Hwy CC

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	76	485	77	278	514	306	35	49	299	288	37	66
Future Volume (veh/h)	76	485	77	278	514	306	35	49	299	288	37	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	83	527	84	302	559	0	38	53	325	313	40	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	425	625	529	368	1470		417	46	281	333	579	
Arrive On Green	0.05	0.33	0.33	0.13	0.41	0.00	0.03	0.20	0.20	0.14	0.31	0.00
Sat Flow, veh/h	1795	1885	1598	1795	3676	0	1795	229	1404	1795	1885	1598
Grp Volume(v), veh/h	83	527	84	302	559	0	38	0	378	313	40	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1795	1791	0	1795	0	1633	1795	1885	1598
Q Serve(g_s), s	2.7	23.4	3.3	9.4	9.8	0.0	1.5	0.0	18.0	12.1	1.4	0.0
Cycle Q Clear(g_c), s	2.7	23.4	3.3	9.4	9.8	0.0	1.5	0.0	18.0	12.1	1.4	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.86	1.00		1.00
Lane Grp Cap(c), veh/h	425	625	529	368	1470		417	0	327	333	579	
V/C Ratio(X)	0.20	0.84	0.16	0.82	0.38		0.09	0.00	1.16	0.94	0.07	
Avail Cap(c_a), veh/h	462	625	529	376	1470		455	0	327	333	579	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	18.2	27.9	21.2	19.6	18.5	0.0	27.0	0.0	36.0	24.3	22.1	0.0
Incr Delay (d2), s/veh	0.2	13.1	0.6	13.3	0.7	0.0	0.1	0.0	99.8	33.7	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	11.9	1.3	4.8	3.8	0.0	0.6	0.0	16.0	8.0	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.4	41.1	21.9	32.9	19.3	0.0	27.1	0.0	135.8	58.0	22.3	0.0
LnGrp LOS	B	D	C	C	B		C	A	F	E	C	
Approach Vol, veh/h	694			861			A			416		
Approach Delay, s/veh	36.0			24.1			125.8			54.0		
Approach LOS	D			C			F			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.0	34.3	7.6	32.1	8.9	41.4	17.2	22.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	11.9	29.4	5.0	25.7	6.2	35.1	12.7	18.0				
Max Q Clear Time (g_c+I1), s	11.4	25.4	3.5	3.4	4.7	11.8	14.1	20.0				
Green Ext Time (p_c), s	0.0	1.3	0.0	0.1	0.0	3.4	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	50.4
HCM 6th LOS	D

Notes

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

HCM 6th Signalized Intersection Summary

8: Fremont Rd & Hwy CC

12/23/2021

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (veh/h)	29	475	42	154	458	12	34	24	151	22	24	29		
Future Volume (veh/h)	29	475	42	154	458	12	34	24	151	22	24	29		
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Work Zone On Approach	No			No			No			No				
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885		
Adj Flow Rate, veh/h	32	516	46	167	498	13	37	26	0	24	26	0		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1		
Cap, veh/h	59	648	549	207	779	20	504	495		500	476			
Arrive On Green	0.03	0.34	0.34	0.12	0.43	0.43	0.04	0.26	0.00	0.03	0.25	0.00		
Sat Flow, veh/h	1795	1885	1598	1795	1829	48	1795	1885	1598	1795	1885	0		
Grp Volume(v), veh/h	32	516	46	167	0	511	37	26	0	24	26	0		
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1795	0	1877	1795	1885	1598	1795	1885	0		
Q Serve(g_s), s	1.3	17.6	1.4	6.5	0.0	15.3	1.1	0.7	0.0	0.7	0.7	0.0		
Cycle Q Clear(g_c), s	1.3	17.6	1.4	6.5	0.0	15.3	1.1	0.7	0.0	0.7	0.7	0.0		
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	1.00		0.00		
Lane Grp Cap(c), veh/h	59	648	549	207	0	799	504	495		500	476			
V/C Ratio(X)	0.54	0.80	0.08	0.81	0.00	0.64	0.07	0.05		0.05	0.05			
Avail Cap(c_a), veh/h	128	648	549	239	0	799	565	495		579	476			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	33.9	21.1	15.8	30.8	0.0	16.2	18.4	19.7	0.0	18.8	20.2	0.0		
Incr Delay (d2), s/veh	7.5	9.8	0.3	16.3	0.0	3.9	0.1	0.2	0.0	0.0	0.2	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.6	8.5	0.5	3.5	0.0	6.4	0.4	0.3	0.0	0.3	0.3	0.0		
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	41.4	31.0	16.1	47.1	0.0	20.1	18.5	19.9	0.0	18.8	20.4	0.0		
LnGrp LOS	D	C	B	D	A	C	B	B		B	C			
Approach Vol, veh/h	594			678			63			A			50	A
Approach Delay, s/veh	30.4			26.7			19.0			19.7				
Approach LOS	C			C			B			B				
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	12.7	29.0	7.1	22.5	6.8	34.9	6.4	23.2						
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5						
Max Green Setting (Gmax), s	9.5	24.5	5.0	18.0	5.1	28.9	5.0	18.0						
Max Q Clear Time (g_c+I1), s	8.5	19.6	3.1	2.7	3.3	17.3	2.7	2.7						
Green Ext Time (p_c), s	0.0	1.4	0.0	0.0	0.0	2.3	0.0	0.0						

Intersection Summary

HCM 6th Ctrl Delay	27.7
HCM 6th LOS	C

Notes

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

Intersection

Intersection Delay, s/veh	8.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	39	16	6	34	36	14	73	14	29	70	37
Future Vol, veh/h	32	39	16	6	34	36	14	73	14	29	70	37
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
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	35	42	17	7	37	39	15	79	15	32	76	40
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.2	7.8	8.1	8.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	37%	8%	21%
Vol Thru, %	72%	45%	45%	51%
Vol Right, %	14%	18%	47%	27%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	101	87	76	136
LT Vol	14	32	6	29
Through Vol	73	39	34	70
RT Vol	14	16	36	37
Lane Flow Rate	110	95	83	148
Geometry Grp	1	1	1	1
Degree of Util (X)	0.135	0.12	0.1	0.178
Departure Headway (Hd)	4.428	4.553	4.339	4.324
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	810	788	826	831
Service Time	2.452	2.576	2.363	2.346
HCM Lane V/C Ratio	0.136	0.121	0.1	0.178
HCM Control Delay	8.1	8.2	7.8	8.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.4	0.3	0.6

HCM 6th TWSC
15: Hwy NN/ Hwy NN & Sunset Rd

12/23/2021

Intersection

Int Delay, s/veh 1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	76	426	24	52	421
Future Vol, veh/h	26	76	426	24	52	421
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	28	83	463	26	57	458

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1048	476	0
Stage 1	476	-	-
Stage 2	572	-	-
Critical Hdwy	6.41	6.21	-
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	-
Pot Cap-1 Maneuver	253	591	-
Stage 1	627	-	-
Stage 2	567	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	240	591	-
Mov Cap-2 Maneuver	372	-	-
Stage 1	627	-	-
Stage 2	537	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.9	0	0.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	514	1079
HCM Lane V/C Ratio	-	-	0.216	0.052
HCM Control Delay (s)	-	-	13.9	8.5
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.8	0.2

Intersection

Int Delay, s/veh 0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	31	334	0	0	397
Future Vol, veh/h	20	31	334	0	0	397
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	22	34	363	0	0	432

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	795	363	0
Stage 1	363	-	-
Stage 2	432	-	-
Critical Hdwy	6.41	6.21	-
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	-
Pot Cap-1 Maneuver	358	684	-
Stage 1	706	-	-
Stage 2	657	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	358	684	-
Mov Cap-2 Maneuver	474	-	-
Stage 1	706	-	-
Stage 2	657	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1WBLn2	SBT
Capacity (veh/h)	- 474 684	-
HCM Lane V/C Ratio	- 0.046 0.049	-
HCM Control Delay (s)	- 13 10.5	-
HCM Lane LOS	- B B	-
HCM 95th %tile Q(veh)	- 0.1 0.2	-

Intersection

Int Delay, s/veh 1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	29	30	203	27	24	214
Future Vol, veh/h	29	30	203	27	24	214
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	32	33	221	29	26	233

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	521	236	0
Stage 1	236	-	-
Stage 2	285	-	-
Critical Hdwy	6.41	6.21	4.11
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	2.209
Pot Cap-1 Maneuver	517	805	1321
Stage 1	806	-	-
Stage 2	766	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	507	805	1321
Mov Cap-2 Maneuver	507	-	-
Stage 1	806	-	-
Stage 2	751	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.4	0	0.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	625	1321
HCM Lane V/C Ratio	-	-	0.103	0.02
HCM Control Delay (s)	-	-	11.4	7.8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1

Lanes, Volumes, Timings

2: Pheasant

12/23/2021

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	44	32	34	44	0
Future Volume (vph)	0	44	32	34	44	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected	0.976					
Satd. Flow (prot)	0	1627	0	1836	1881	0
Flt Permitted	0.976					
Satd. Flow (perm)	0	1627	0	1836	1881	0
Link Speed (mph)	30			45	30	
Link Distance (ft)	1141			2632	1106	
Travel Time (s)	25.9			39.9	25.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	48	35	37	48	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	48	0	72	48	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	9		
Sign Control	Yield			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	13.6%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th Signalized Intersection Summary

3: Hwy NN/Farmers Branch Rd & Hwy NN/Hwy J

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	130	296	181	309	40	544	166	84	16	59	41
Future Volume (veh/h)	35	130	296	181	309	40	544	166	84	16	59	41
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	38	141	0	197	336	0	591	180	0	17	64	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	266	445		427	502		783	833		394	417	
Arrive On Green	0.04	0.24	0.00	0.07	0.27	0.00	0.24	0.45	0.00	0.02	0.22	0.00
Sat Flow, veh/h	1767	1856	1572	1767	1856	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	38	141	0	197	336	0	591	180	0	17	64	0
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1856	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	1.3	5.0	0.0	5.3	12.9	0.0	19.5	4.7	0.0	0.6	2.2	0.0
Cycle Q Clear(g_c), s	1.3	5.0	0.0	5.3	12.9	0.0	19.5	4.7	0.0	0.6	2.2	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	266	445		427	502		783	833		394	417	
V/C Ratio(X)	0.14	0.32		0.46	0.67		0.76	0.22		0.04	0.15	
Avail Cap(c_a), veh/h	314	445		427	502		783	833		469	417	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	22.2	25.0	0.0	22.9	26.0	0.0	15.8	13.4	0.0	23.0	24.9	0.0
Incr Delay (d2), s/veh	0.2	1.9	0.0	0.8	6.9	0.0	4.2	0.6	0.0	0.0	0.8	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	0.5	2.3	0.0	3.0	6.1	0.0	7.7	1.9	0.0	0.2	1.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.4	26.9	0.0	23.7	32.9	0.0	20.0	14.0	0.0	23.1	25.7	0.0
LnGrp LOS	C	C		C	C		B	B		C	C	
Approach Vol, veh/h		179	A		533	A		771	A		81	A
Approach Delay, s/veh		25.9			29.5			18.6			25.1	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.8	23.7	24.0	22.5	7.4	26.1	6.1	40.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.3	19.2	19.5	18.0	5.0	19.5	5.0	32.5				
Max Q Clear Time (g_c+I1), s	7.3	7.0	21.5	4.2	3.3	14.9	2.6	6.7				
Green Ext Time (p_c), s	0.0	0.4	0.0	0.2	0.0	0.7	0.0	0.9				

Intersection Summary

HCM 6th Ctrl Delay	23.5
HCM 6th LOS	C

Notes

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

HCM 6th Signalized Intersection Summary

6: 22nd St & Hwy CC

12/23/2021

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (veh/h)	46	696	73	316	568	252	65	40	242	193	45	70		
Future Volume (veh/h)	46	696	73	316	568	252	65	40	242	193	45	70		
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Work Zone On Approach	No			No			No			No				
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856		
Adj Flow Rate, veh/h	50	757	79	343	617	0	71	43	263	210	49	0		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3		
Cap, veh/h	474	802	679	365	1942		366	37	226	218	380			
Arrive On Green	0.04	0.43	0.43	0.26	0.92	0.00	0.05	0.16	0.16	0.09	0.20	0.00		
Sat Flow, veh/h	1767	1856	1572	1767	3618	0	1767	226	1381	1767	1856	1572		
Grp Volume(v), veh/h	50	757	79	343	617	0	71	0	306	210	49	0		
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1763	0	1767	0	1607	1767	1856	1572		
Q Serve(g_s), s	1.7	43.1	3.3	15.0	2.2	0.0	3.6	0.0	18.0	9.5	2.4	0.0		
Cycle Q Clear(g_c), s	1.7	43.1	3.3	15.0	2.2	0.0	3.6	0.0	18.0	9.5	2.4	0.0		
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.86	1.00		1.00		
Lane Grp Cap(c), veh/h	474	802	679	365	1942		366	0	263	218	380			
V/C Ratio(X)	0.11	0.94	0.12	0.94	0.32		0.19	0.00	1.16	0.96	0.13			
Avail Cap(c_a), veh/h	493	802	679	365	1942		376	0	263	218	380			
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	16.0	30.0	18.7	26.2	2.1	0.0	35.8	0.0	46.0	37.0	35.7	0.0		
Incr Delay (d2), s/veh	0.1	20.8	0.3	32.1	0.4	0.0	0.3	0.0	107.1	50.3	0.7	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	0.7	22.3	1.3	10.8	0.7	0.0	1.6	0.0	14.9	7.7	1.2	0.0		
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	16.1	50.8	19.0	58.3	2.5	0.0	36.1	0.0	153.1	87.3	36.4	0.0		
LnGrp LOS	B	D	B	E	A		D	A	F	F	D			
Approach Vol, veh/h	886			960			A			377			259	A
Approach Delay, s/veh	46.0			22.5			131.1			77.7				
Approach LOS	D			C			F			E				
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	21.5	52.0	9.5	27.0	8.4	65.1	14.0	22.5						
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5						
Max Green Setting (Gmax), s	17.0	47.5	5.6	21.9	5.1	59.4	9.5	18.0						
Max Q Clear Time (g_c+I1), s	17.0	45.1	5.6	4.4	3.7	4.2	11.5	20.0						
Green Ext Time (p_c), s	0.0	1.2	0.0	0.1	0.0	4.3	0.0	0.0						

Intersection Summary

HCM 6th Ctrl Delay 53.1

HCM 6th LOS D

Notes

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

HCM 6th Signalized Intersection Summary

8: Fremont Rd & Hwy CC

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	478	52	150	436	88	45	130	297	80	43	31
Future Volume (veh/h)	53	478	52	150	436	88	45	130	297	80	43	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	58	520	57	163	474	96	49	141	0	87	47	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	84	623	528	201	602	122	500	458		428	483	
Arrive On Green	0.05	0.34	0.34	0.11	0.40	0.40	0.04	0.25	0.00	0.06	0.26	0.00
Sat Flow, veh/h	1767	1856	1572	1767	1498	303	1767	1856	1572	1767	1856	0
Grp Volume(v), veh/h	58	520	57	163	0	570	49	141	0	87	47	0
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	0	1801	1767	1856	1572	1767	1856	0
Q Serve(g_s), s	2.4	18.9	1.8	6.6	0.0	20.2	1.5	4.5	0.0	2.6	1.4	0.0
Cycle Q Clear(g_c), s	2.4	18.9	1.8	6.6	0.0	20.2	1.5	4.5	0.0	2.6	1.4	0.0
Prop In Lane	1.00		1.00	1.00		0.17	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	84	623	528	201	0	724	500	458		428	483	
V/C Ratio(X)	0.69	0.83	0.11	0.81	0.00	0.79	0.10	0.31		0.20	0.10	
Avail Cap(c_a), veh/h	124	623	528	230	0	724	545	458		449	483	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	34.2	22.3	16.7	31.6	0.0	19.1	18.9	22.4	0.0	18.8	20.5	0.0
Incr Delay (d2), s/veh	9.8	12.5	0.4	17.4	0.0	8.4	0.1	1.7	0.0	0.2	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	1.2	9.3	0.6	3.6	0.0	8.8	0.6	2.0	0.0	1.0	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.0	34.8	17.1	48.9	0.0	27.5	19.0	24.1	0.0	19.0	20.9	0.0
LnGrp LOS	D	C	B	D	A	C	B	C		B	C	
Approach Vol, veh/h	635			733			190			A		
Approach Delay, s/veh	34.0			32.3			22.8			19.6		
Approach LOS	C			C			C			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.8	29.0	7.6	23.5	8.0	33.8	8.6	22.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	9.5	24.5	5.0	18.0	5.1	28.9	5.0	18.0				
Max Q Clear Time (g_c+I1), s	8.6	20.9	3.5	3.4	4.4	22.2	4.6	6.5				
Green Ext Time (p_c), s	0.0	1.1	0.0	0.1	0.0	1.9	0.0	0.4				

Intersection Summary

HCM 6th Ctrl Delay	30.9
HCM 6th LOS	C

Notes

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

Intersection

Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	73	51	5	12	17	59	7	98	15	32	92	19
Future Vol, veh/h	73	51	5	12	17	59	7	98	15	32	92	19
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
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	79	55	5	13	18	64	8	107	16	35	100	21
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9	8.1	8.6	8.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	6%	57%	14%	22%
Vol Thru, %	82%	40%	19%	64%
Vol Right, %	12%	4%	67%	13%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	120	129	88	143
LT Vol	7	73	12	32
Through Vol	98	51	17	92
RT Vol	15	5	59	19
Lane Flow Rate	130	140	96	155
Geometry Grp	1	1	1	1
Degree of Util (X)	0.168	0.188	0.118	0.2
Departure Headway (Hd)	4.631	4.821	4.423	4.629
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	773	743	808	774
Service Time	2.669	2.861	2.464	2.666
HCM Lane V/C Ratio	0.168	0.188	0.119	0.2
HCM Control Delay	8.6	9	8.1	8.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	0.7	0.4	0.7

HCM 6th TWSC
15: Hwy NN/ Hwy NN & Sunset Rd

12/23/2021

Intersection

Int Delay, s/veh 1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	113	638	7	24	534
Future Vol, veh/h	13	113	638	7	24	534
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	14	123	693	8	26	580

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1329	697	0
Stage 1	697	-	-
Stage 2	632	-	-
Critical Hdwy	6.43	6.23	-
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	5.43	-	-
Follow-up Hdwy	3.527	3.327	-
Pot Cap-1 Maneuver	170	439	-
Stage 1	492	-	-
Stage 2	528	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	165	439	-
Mov Cap-2 Maneuver	304	-	-
Stage 1	492	-	-
Stage 2	513	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.7	0	0.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	420	891
HCM Lane V/C Ratio	-	-	0.326	0.029
HCM Control Delay (s)	-	-	17.7	9.2
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	1.4	0.1

Intersection

Int Delay, s/veh 3.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	114	188	365	0	0	521
Future Vol, veh/h	114	188	365	0	0	521
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	124	204	397	0	0	566

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	963	397	0
Stage 1	397	-	-
Stage 2	566	-	-
Critical Hdwy	6.43	6.23	-
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	5.43	-	-
Follow-up Hdwy	3.527	3.327	-
Pot Cap-1 Maneuver	282	650	0
Stage 1	677	-	0
Stage 2	566	-	0
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	282	650	-
Mov Cap-2 Maneuver	408	-	-
Stage 1	677	-	-
Stage 2	566	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1WBLn2	SBT
Capacity (veh/h)	- 408 650	-
HCM Lane V/C Ratio	- 0.304 0.314	-
HCM Control Delay (s)	- 17.6 13.1	-
HCM Lane LOS	- C B	-
HCM 95th %tile Q(veh)	- 1.3 1.3	-

Intersection						
Int Delay, s/veh	2.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	70	51	216	32	20	199
Future Vol, veh/h	70	51	216	32	20	199
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	76	55	235	35	22	216
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	513	253	0	0	270	0
Stage 1	253	-	-	-	-	-
Stage 2	260	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	519	783	-	-	1288	-
Stage 1	787	-	-	-	-	-
Stage 2	781	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	510	783	-	-	1288	-
Mov Cap-2 Maneuver	510	-	-	-	-	-
Stage 1	787	-	-	-	-	-
Stage 2	768	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	12.7	0	0.7			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	598	1288	-	
HCM Lane V/C Ratio	-	-	0.22	0.017	-	
HCM Control Delay (s)	-	-	12.7	7.8	-	
HCM Lane LOS	-	-	B	A	-	
HCM 95th %tile Q(veh)	-	-	0.8	0.1	-	

Lanes, Volumes, Timings

2: Pheasant

12/23/2021

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	35	66	57	24	0
Future Volume (vph)	0	35	66	57	24	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected	0.974					
Satd. Flow (prot)	0	1596	0	1797	1845	0
Flt Permitted	0.974					
Satd. Flow (perm)	0	1596	0	1797	1845	0
Link Speed (mph)	30			45	30	
Link Distance (ft)	1141			2632	1106	
Travel Time (s)	25.9			39.9	25.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	38	72	62	26	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	38	0	134	26	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	9		
Sign Control	Yield			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	16.7%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th Signalized Intersection Summary

3: Hwy NN/Farmers Branch Rd & Hwy NN/Hwy J

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	368	508	152	279	22	378	92	110	79	221	87
Future Volume (veh/h)	49	368	508	152	279	22	378	92	110	79	221	87
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	53	400	0	165	303	0	411	100	0	86	240	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	367	528		313	582		544	662		509	452	
Arrive On Green	0.04	0.28	0.00	0.07	0.31	0.00	0.17	0.35	0.00	0.06	0.24	0.00
Sat Flow, veh/h	1795	1885	1598	1795	1885	1598	1795	1885	1598	1795	1885	1598
Grp Volume(v), veh/h	53	400	0	165	303	0	411	100	0	86	240	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1795	1885	1598	1795	1885	1598	1795	1885	1598
Q Serve(g_s), s	1.5	14.5	0.0	4.9	9.9	0.0	12.5	2.7	0.0	2.7	8.3	0.0
Cycle Q Clear(g_c), s	1.5	14.5	0.0	4.9	9.9	0.0	12.5	2.7	0.0	2.7	8.3	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	367	528		313	582		544	662		509	452	
V/C Ratio(X)	0.14	0.76		0.53	0.52		0.76	0.15		0.17	0.53	
Avail Cap(c_a), veh/h	409	528		313	582		544	662		541	452	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	18.1	24.7	0.0	19.0	21.3	0.0	16.8	16.7	0.0	19.5	24.8	0.0
Incr Delay (d2), s/veh	0.2	9.8	0.0	1.6	3.3	0.0	6.0	0.5	0.0	0.2	4.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	7.2	0.0	1.9	4.4	0.0	5.3	1.1	0.0	1.1	4.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.2	34.5	0.0	20.6	24.7	0.0	22.8	17.2	0.0	19.7	29.2	0.0
LnGrp LOS	B	C		C	C		C	B		B	C	
Approach Vol, veh/h		453	A		468	A		511	A		326	A
Approach Delay, s/veh		32.6			23.2			21.7			26.7	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.0	25.5	17.0	22.5	7.8	27.7	8.7	30.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.5	21.0	12.5	18.0	5.1	21.4	5.5	25.0				
Max Q Clear Time (g_c+I1), s	6.9	16.5	14.5	10.3	3.5	11.9	4.7	4.7				
Green Ext Time (p_c), s	0.0	0.9	0.0	0.7	0.0	1.0	0.0	0.4				

Intersection Summary

HCM 6th Ctrl Delay	25.8
HCM 6th LOS	C

Notes

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

HCM 6th Signalized Intersection Summary

6: 22nd St & Hwy CC

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	774	67	382	1034	282	80	23	340	218	49	65
Future Volume (veh/h)	41	774	67	382	1034	282	80	23	340	218	49	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	45	841	73	415	1124	0	87	25	370	237	53	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	325	862	731	406	2227		294	12	184	242	349	
Arrive On Green	0.03	0.46	0.46	0.19	0.62	0.00	0.04	0.12	0.12	0.11	0.19	0.00
Sat Flow, veh/h	1795	1885	1598	1795	3676	0	1795	102	1511	1795	1885	1598
Grp Volume(v), veh/h	45	841	73	415	1124	0	87	0	395	237	53	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1795	1791	0	1795	0	1613	1795	1885	1598
Q Serve(g_s), s	2.0	65.6	3.9	28.9	25.9	0.0	6.4	0.0	18.3	16.2	3.5	0.0
Cycle Q Clear(g_c), s	2.0	65.6	3.9	28.9	25.9	0.0	6.4	0.0	18.3	16.2	3.5	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.94	1.00		1.00
Lane Grp Cap(c), veh/h	325	862	731	406	2227		294	0	197	242	349	
V/C Ratio(X)	0.14	0.98	0.10	1.02	0.50		0.30	0.00	2.01	0.98	0.15	
Avail Cap(c_a), veh/h	340	862	731	406	2227		294	0	197	242	349	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.4	39.9	23.1	50.8	15.6	0.0	54.7	0.0	65.9	51.8	51.2	0.0
Incr Delay (d2), s/veh	0.2	25.3	0.3	50.1	0.8	0.0	0.6	0.0	470.7	52.0	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	35.0	1.6	20.7	10.3	0.0	3.0	0.0	33.3	11.3	1.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.6	65.1	23.4	101.0	16.5	0.0	55.3	0.0	536.6	103.7	52.1	0.0
LnGrp LOS	C	E	C	F	B		E	A	F	F	D	
Approach Vol, veh/h					1539	A					290	A
Approach Delay, s/veh					39.2						94.3	
Approach LOS	E				D		F				F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.4	73.1	11.2	32.3	8.7	97.8	20.7	22.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	28.9	68.6	6.7	27.8	5.5	92.0	16.2	18.3				
Max Q Clear Time (g_c+I1), s	30.9	67.6	8.4	5.5	4.0	27.9	18.2	20.3				
Green Ext Time (p_c), s	0.0	0.6	0.0	0.2	0.0	9.8	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	110.7
HCM 6th LOS	F

Notes

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

HCM 6th Signalized Intersection Summary

8: Fremont Rd & Hwy CC

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	599	56	237	838	36	52	33	192	60	93	95
Future Volume (veh/h)	32	599	56	237	838	36	52	33	192	60	93	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	35	651	61	258	911	39	57	36	0	65	101	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	58	739	626	284	930	40	365	381		420	386	
Arrive On Green	0.03	0.39	0.39	0.16	0.52	0.52	0.04	0.20	0.00	0.04	0.20	0.00
Sat Flow, veh/h	1795	1885	1598	1795	1795	77	1795	1885	1598	1795	1885	0
Grp Volume(v), veh/h	35	651	61	258	0	950	57	36	0	65	101	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1795	0	1871	1795	1885	1598	1795	1885	0
Q Serve(g_s), s	1.7	28.5	2.1	12.6	0.0	44.2	2.2	1.4	0.0	2.5	4.0	0.0
Cycle Q Clear(g_c), s	1.7	28.5	2.1	12.6	0.0	44.2	2.2	1.4	0.0	2.5	4.0	0.0
Prop In Lane	1.00		1.00	1.00		0.04	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	58	739	626	284	0	969	365	381		420	386	
V/C Ratio(X)	0.60	0.88	0.10	0.91	0.00	0.98	0.16	0.09		0.15	0.26	
Avail Cap(c_a), veh/h	103	739	626	284	0	969	390	381		440	386	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	42.5	25.1	17.1	36.8	0.0	21.0	26.3	28.9	0.0	26.2	29.7	0.0
Incr Delay (d2), s/veh	9.5	14.2	0.3	30.5	0.0	24.5	0.2	0.5	0.0	0.2	1.6	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	0.9	14.3	0.8	7.6	0.0	22.7	0.9	0.6	0.0	1.0	1.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.9	39.3	17.4	67.3	0.0	45.4	26.5	29.4	0.0	26.3	31.4	0.0
LnGrp LOS	D	D	B	E	A	D	C	C		C	C	
Approach Vol, veh/h	747				1208				93			
Approach Delay, s/veh	38.1				50.1				27.6			
Approach LOS	D				D				C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.6	39.4	8.3	22.7	7.4	50.6	8.5	22.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	14.1	34.9	5.0	18.0	5.1	43.9	5.0	18.0				
Max Q Clear Time (g_c+I1), s	14.6	30.5	4.2	6.0	3.7	46.2	4.5	3.4				
Green Ext Time (p_c), s	0.0	1.7	0.0	0.3	0.0	0.0	0.0	0.1				

Intersection Summary

HCM 6th Ctrl Delay 43.6

HCM 6th LOS D

Notes

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

Intersection

Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	40	35	19	11	51	29	13	73	6	50	122	80
Future Vol, veh/h	40	35	19	11	51	29	13	73	6	50	122	80
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
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	43	38	21	12	55	32	14	79	7	54	133	87
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.7	8.5	8.5	9.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	43%	12%	20%
Vol Thru, %	79%	37%	56%	48%
Vol Right, %	7%	20%	32%	32%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	92	94	91	252
LT Vol	13	40	11	50
Through Vol	73	35	51	122
RT Vol	6	19	29	80
Lane Flow Rate	100	102	99	274
Geometry Grp	1	1	1	1
Degree of Util (X)	0.131	0.138	0.13	0.333
Departure Headway (Hd)	4.699	4.852	4.729	4.371
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	761	737	756	822
Service Time	2.741	2.9	2.776	2.405
HCM Lane V/C Ratio	0.131	0.138	0.131	0.333
HCM Control Delay	8.5	8.7	8.5	9.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.5	0.4	1.5

HCM 6th TWSC
15: Hwy NN/ Hwy NN & Sunset Rd

12/23/2021

Intersection

Int Delay, s/veh 1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	19	52	477	14	109	706
Future Vol, veh/h	19	52	477	14	109	706
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	21	57	518	15	118	767

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1529	526	0
Stage 1	526	-	-
Stage 2	1003	-	-
Critical Hdwy	6.41	6.21	-
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	-
Pot Cap-1 Maneuver	130	554	-
Stage 1	595	-	-
Stage 2	356	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	115	554	-
Mov Cap-2 Maneuver	234	-	-
Stage 1	595	-	-
Stage 2	316	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.9	0	1.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	406	1040
HCM Lane V/C Ratio	-	-	0.19	0.114
HCM Control Delay (s)	-	-	15.9	8.9
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.7	0.4

Intersection

Int Delay, s/veh 0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	10	407	0	0	596
Future Vol, veh/h	12	10	407	0	0	596
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	13	11	442	0	0	648

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1090	442	0
Stage 1	442	-	-
Stage 2	648	-	-
Critical Hdwy	6.41	6.21	-
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	-
Pot Cap-1 Maneuver	239	618	0
Stage 1	650	-	0
Stage 2	523	-	0
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	239	618	-
Mov Cap-2 Maneuver	371	-	-
Stage 1	650	-	-
Stage 2	523	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1WBLn2	SBT
Capacity (veh/h)	- 371 618	-
HCM Lane V/C Ratio	- 0.035 0.018	-
HCM Control Delay (s)	- 15.1 10.9	-
HCM Lane LOS	- C B	-
HCM 95th %tile Q(veh)	- 0.1 0.1	-

Intersection

Int Delay, s/veh 2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	48	42	229	50	54	296
Future Vol, veh/h	48	42	229	50	54	296
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	52	46	249	54	59	322

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	716	276	0
Stage 1	276	-	-
Stage 2	440	-	-
Critical Hdwy	6.41	6.21	-
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	-
Pot Cap-1 Maneuver	398	765	-
Stage 1	773	-	-
Stage 2	651	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	379	765	-
Mov Cap-2 Maneuver	379	-	-
Stage 1	773	-	-
Stage 2	620	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14	0	1.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	496	1264
HCM Lane V/C Ratio	-	-	0.197	0.046
HCM Control Delay (s)	-	-	14	8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.7	0.1

Lanes, Volumes, Timings

2: Pheasant

12/23/2021

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	62	46	39	27	0
Future Volume (vph)	0	62	46	39	27	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected	0.974					
Satd. Flow (prot)	0	1627	0	1832	1881	0
Flt Permitted	0.974					
Satd. Flow (perm)	0	1627	0	1832	1881	0
Link Speed (mph)	30			45	30	
Link Distance (ft)	1141			2632	1106	
Travel Time (s)	25.9			39.9	25.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	67	50	42	29	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	67	0	92	29	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	9		
Sign Control	Yield			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	14.6%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th Signalized Intersection Summary

3: Hwy NN/Farmers Branch Rd & Hwy NN/Hwy J

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	247	274	88	292	28	299	63	67	28	56	73
Future Volume (veh/h)	55	247	274	88	292	28	299	63	67	28	56	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	60	268	0	96	317	0	325	68	0	30	61	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	376	544		418	568		614	630		548	529	
Arrive On Green	0.05	0.29	0.00	0.06	0.30	0.00	0.09	0.33	0.00	0.03	0.28	0.00
Sat Flow, veh/h	1795	1885	1598	1795	1885	1598	1795	1885	1598	1795	1885	1598
Grp Volume(v), veh/h	60	268	0	96	317	0	325	68	0	30	61	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1795	1885	1598	1795	1885	1598	1795	1885	1598
Q Serve(g_s), s	1.5	7.6	0.0	2.3	9.1	0.0	5.5	1.6	0.0	0.7	1.5	0.0
Cycle Q Clear(g_c), s	1.5	7.6	0.0	2.3	9.1	0.0	5.5	1.6	0.0	0.7	1.5	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	376	544		418	568		614	630		548	529	
V/C Ratio(X)	0.16	0.49		0.23	0.56		0.53	0.11		0.05	0.12	
Avail Cap(c_a), veh/h	424	544		444	568		614	630		630	529	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	15.0	18.9	0.0	14.7	18.8	0.0	16.0	14.7	0.0	15.4	17.1	0.0
Incr Delay (d2), s/veh	0.2	3.2	0.0	0.3	3.9	0.0	0.9	0.3	0.0	0.0	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	0.5	3.3	0.0	0.8	4.0	0.0	3.4	0.6	0.0	0.3	0.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.2	22.1	0.0	15.0	22.7	0.0	16.8	15.1	0.0	15.4	17.6	0.0
LnGrp LOS	B	C		B	C		B	B		B	B	
Approach Vol, veh/h	328		A	413		A	393		A	91		A
Approach Delay, s/veh	20.8			20.9			16.5			16.9		
Approach LOS	C			C			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.6	23.0	10.0	22.5	7.8	23.8	6.6	25.9				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	18.5	5.5	18.0	5.0	18.5	5.0	18.5				
Max Q Clear Time (g_c+l1), s	4.3	9.6	7.5	3.5	3.5	11.1	2.7	3.6				
Green Ext Time (p_c), s	0.0	0.9	0.0	0.2	0.0	0.9	0.0	0.2				

Intersection Summary

HCM 6th Ctrl Delay	19.2
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary

6: 22nd St & Hwy CC

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	425	63	227	422	252	29	40	245	239	31	55
Future Volume (veh/h)	62	425	63	227	422	252	29	40	245	239	31	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	67	462	68	247	459	0	32	43	266	260	34	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	452	613	519	374	1371		459	51	316	351	588	
Arrive On Green	0.05	0.32	0.32	0.11	0.38	0.00	0.03	0.22	0.22	0.12	0.31	0.00
Sat Flow, veh/h	1795	1885	1598	1795	3676	0	1795	227	1405	1795	1885	1598
Grp Volume(v), veh/h	67	462	68	247	459	0	32	0	309	260	34	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1795	1791	0	1795	0	1632	1795	1885	1598
Q Serve(g_s), s	1.9	17.5	2.4	6.9	7.3	0.0	1.1	0.0	14.5	8.6	1.0	0.0
Cycle Q Clear(g_c), s	1.9	17.5	2.4	6.9	7.3	0.0	1.1	0.0	14.5	8.6	1.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.86	1.00		1.00
Lane Grp Cap(c), veh/h	452	613	519	374	1371		459	0	367	351	588	
V/C Ratio(X)	0.15	0.75	0.13	0.66	0.33		0.07	0.00	0.84	0.74	0.06	
Avail Cap(c_a), veh/h	488	613	519	374	1371		514	0	367	351	588	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	16.4	24.1	19.0	17.0	17.5	0.0	22.5	0.0	29.6	20.8	19.3	0.0
Incr Delay (d2), s/veh	0.2	8.4	0.5	4.3	0.7	0.0	0.1	0.0	20.3	8.2	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	8.4	0.9	2.9	2.8	0.0	0.5	0.0	7.5	4.2	0.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.5	32.5	19.6	21.3	18.1	0.0	22.6	0.0	49.9	29.0	19.5	0.0
LnGrp LOS	B	C	B	C	B		C	A	D	C	B	
Approach Vol, veh/h	597			706			A			341		
Approach Delay, s/veh	29.2			19.2			47.3			27.9		
Approach LOS	C			B			D			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.0	30.5	7.0	29.5	8.4	35.1	14.0	22.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	8.5	26.0	5.0	22.5	5.5	29.0	9.5	18.0				
Max Q Clear Time (g_c+I1), s	8.9	19.5	3.1	3.0	3.9	9.3	10.6	16.5				
Green Ext Time (p_c), s	0.0	1.5	0.0	0.1	0.0	2.6	0.0	0.3				
Intersection Summary												
HCM 6th Ctrl Delay				28.6								
HCM 6th LOS				C								
Notes												

HCM 6th Signalized Intersection Summary

8: Fremont Rd & Hwy CC

12/23/2021

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (veh/h)	23	390	37	135	377	10	34	24	151	18	21	23		
Future Volume (veh/h)	23	390	37	135	377	10	34	24	151	18	21	23		
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Work Zone On Approach	No			No			No			No				
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885		
Adj Flow Rate, veh/h	25	424	40	147	410	11	37	26	0	20	23	0		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1		
Cap, veh/h	50	588	498	186	708	19	547	543		533	516			
Arrive On Green	0.03	0.31	0.31	0.10	0.39	0.39	0.04	0.29	0.00	0.02	0.27	0.00		
Sat Flow, veh/h	1795	1885	1598	1795	1827	49	1795	1885	1598	1795	1885	0		
Grp Volume(v), veh/h	25	424	40	147	0	421	37	26	0	20	23	0		
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1795	0	1876	1795	1885	1598	1795	1885	0		
Q Serve(g_s), s	0.9	13.1	1.2	5.3	0.0	11.7	1.0	0.7	0.0	0.5	0.6	0.0		
Cycle Q Clear(g_c), s	0.9	13.1	1.2	5.3	0.0	11.7	1.0	0.7	0.0	0.5	0.6	0.0		
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	1.00		0.00		
Lane Grp Cap(c), veh/h	50	588	498	186	0	727	547	543		533	516			
V/C Ratio(X)	0.50	0.72	0.08	0.79	0.00	0.58	0.07	0.05		0.04	0.04			
Avail Cap(c_a), veh/h	137	588	498	232	0	727	617	543		628	516			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	31.5	20.1	16.0	28.8	0.0	15.9	15.9	16.9	0.0	16.4	17.6	0.0		
Incr Delay (d2), s/veh	7.5	7.5	0.3	13.7	0.0	3.4	0.1	0.2	0.0	0.0	0.2	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.5	6.1	0.4	2.8	0.0	4.8	0.3	0.3	0.0	0.2	0.2	0.0		
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	39.0	27.6	16.3	42.5	0.0	19.3	16.0	17.1	0.0	16.5	17.7	0.0		
LnGrp LOS	D	C	B	D	A	B	B	B		B	B			
Approach Vol, veh/h	489			568			63			A			43	A
Approach Delay, s/veh	27.2			25.3			16.4			17.1				
Approach LOS	C			C			B			B				
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	11.3	25.0	7.0	22.5	6.3	30.0	6.0	23.4						
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5						
Max Green Setting (Gmax), s	8.5	20.5	5.0	18.0	5.0	24.0	5.0	18.0						
Max Q Clear Time (g_c+I1), s	7.3	15.1	3.0	2.6	2.9	13.7	2.5	2.7						
Green Ext Time (p_c), s	0.0	1.2	0.0	0.0	0.0	1.7	0.0	0.0						

Intersection Summary

HCM 6th Ctrl Delay 25.3

HCM 6th LOS C

Notes

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

Intersection

Intersection Delay, s/veh	7.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	32	13	6	29	30	11	60	11	24	58	33
Future Vol, veh/h	27	32	13	6	29	30	11	60	11	24	58	33
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
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	29	35	14	7	32	33	12	65	12	26	63	36
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.9	7.6	7.9	8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	13%	38%	9%	21%
Vol Thru, %	73%	44%	45%	50%
Vol Right, %	13%	18%	46%	29%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	82	72	65	115
LT Vol	11	27	6	24
Through Vol	60	32	29	58
RT Vol	11	13	30	33
Lane Flow Rate	89	78	71	125
Geometry Grp	1	1	1	1
Degree of Util (X)	0.107	0.096	0.083	0.146
Departure Headway (Hd)	4.33	4.434	4.221	4.217
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	831	811	851	853
Service Time	2.343	2.448	2.234	2.23
HCM Lane V/C Ratio	0.107	0.096	0.083	0.147
HCM Control Delay	7.9	7.9	7.6	8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.3	0.3	0.5

HCM 6th TWSC
15: Hwy NN/ Hwy NN & Sunset Rd

12/23/2021

Intersection

Int Delay, s/veh 1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	21	62	350	19	43	348
Future Vol, veh/h	21	62	350	19	43	348
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	23	67	380	21	47	378

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	863	391	0
Stage 1	391	-	-
Stage 2	472	-	-
Critical Hdwy	6.41	6.21	-
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	-
Pot Cap-1 Maneuver	326	660	-
Stage 1	686	-	-
Stage 2	630	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	313	660	-
Mov Cap-2 Maneuver	435	-	-
Stage 1	686	-	-
Stage 2	605	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.3	0	0.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	584	1163
HCM Lane V/C Ratio	-	-	0.154	0.04
HCM Control Delay (s)	-	-	12.3	8.2
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1

Intersection

Int Delay, s/veh 0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	16	26	275	0	0	329
Future Vol, veh/h	16	26	275	0	0	329
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	17	28	299	0	0	358

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	657	299	0
Stage 1	299	-	-
Stage 2	358	-	-
Critical Hdwy	6.41	6.21	-
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	-
Pot Cap-1 Maneuver	431	743	0
Stage 1	755	-	0
Stage 2	710	-	0
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	431	743	-
Mov Cap-2 Maneuver	530	-	-
Stage 1	755	-	-
Stage 2	710	-	-

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

Minor Lane/Major Mvmt	NBTWBLn1WBLn2	SBT
Capacity (veh/h)	- 530 743	-
HCM Lane V/C Ratio	- 0.033 0.038	-
HCM Control Delay (s)	- 12 10	-
HCM Lane LOS	- B B	-
HCM 95th %tile Q(veh)	- 0.1 0.1	-

Intersection

Int Delay, s/veh 2.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	42	176	29	25	181
Future Vol, veh/h	40	42	176	29	25	181
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	43	46	191	32	27	197

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	458	207	0
Stage 1	207	-	-
Stage 2	251	-	-
Critical Hdwy	6.41	6.21	-
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	-
Pot Cap-1 Maneuver	563	836	-
Stage 1	830	-	-
Stage 2	793	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	552	836	-
Mov Cap-2 Maneuver	552	-	-
Stage 1	830	-	-
Stage 2	777	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.2	0	0.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	668	1352
HCM Lane V/C Ratio	-	-	0.133	0.02
HCM Control Delay (s)	-	-	11.2	7.7
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1

Lanes, Volumes, Timings

2: Pheasant

12/23/2021

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	36	27	28	36	0
Future Volume (vph)	0	36	27	28	36	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected	0.976					
Satd. Flow (prot)	0	1627	0	1836	1881	0
Flt Permitted	0.976					
Satd. Flow (perm)	0	1627	0	1836	1881	0
Link Speed (mph)	30			45	30	
Link Distance (ft)	1141			2632	1106	
Travel Time (s)	25.9			39.9	25.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	39	29	30	39	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	39	0	59	39	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	9		
Sign Control	Yield			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	13.3%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th Signalized Intersection Summary

3: Hwy NN/Farmers Branch Rd & Hwy NN/Hwy J

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	164	361	229	392	63	663	228	106	44	121	208
Future Volume (veh/h)	125	164	361	229	392	63	663	228	106	44	121	208
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	136	178	0	249	426	0	721	248	0	48	132	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	212	402		409	474		762	833		373	371	
Arrive On Green	0.06	0.22	0.00	0.10	0.26	0.00	0.29	0.45	0.00	0.04	0.20	0.00
Sat Flow, veh/h	1767	1856	1572	1767	1856	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	136	178	0	249	426	0	721	248	0	48	132	0
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1856	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	5.1	7.5	0.0	8.6	20.0	0.0	25.9	7.7	0.0	1.9	5.5	0.0
Cycle Q Clear(g_c), s	5.1	7.5	0.0	8.6	20.0	0.0	25.9	7.7	0.0	1.9	5.5	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	212	402		409	474		762	833		373	371	
V/C Ratio(X)	0.64	0.44		0.61	0.90		0.95	0.30		0.13	0.36	
Avail Cap(c_a), veh/h	212	402		409	474		762	833		405	371	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	28.4	30.5	0.0	25.5	32.4	0.0	20.3	15.8	0.0	26.8	31.0	0.0
Incr Delay (d2), s/veh	6.3	3.5	0.0	2.6	22.5	0.0	20.6	0.9	0.0	0.2	2.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	3.5	0.0	4.2	11.3	0.0	14.9	3.1	0.0	0.8	2.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.8	34.1	0.0	28.2	54.9	0.0	40.9	16.7	0.0	27.0	33.7	0.0
LnGrp LOS	C	C		C	D		D	B		C	C	
Approach Vol, veh/h		314	A		675	A		969	A		180	A
Approach Delay, s/veh		34.4			45.0			34.7			31.9	
Approach LOS		C			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.1	24.0	30.4	22.5	9.6	27.5	8.0	44.9				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	8.6	19.5	25.9	18.0	5.1	23.0	5.1	38.8				
Max Q Clear Time (g_c+I1), s	10.6	9.5	27.9	7.5	7.1	22.0	3.9	9.7				
Green Ext Time (p_c), s	0.0	0.5	0.0	0.4	0.0	0.3	0.0	1.3				
Intersection Summary												
HCM 6th Ctrl Delay			37.7									
HCM 6th LOS			D									
Notes												
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary

6: 22nd St & Hwy CC

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	941	90	386	695	310	80	49	295	245	58	89
Future Volume (veh/h)	57	941	90	386	695	310	80	49	295	245	58	89
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	62	1023	98	420	755	0	87	53	321	266	63	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	455	915	775	335	2190		309	29	177	209	313	
Arrive On Green	0.03	0.49	0.49	0.16	0.62	0.00	0.05	0.13	0.13	0.09	0.17	0.00
Sat Flow, veh/h	1767	1856	1572	1767	3618	0	1767	228	1379	1767	1856	1572
Grp Volume(v), veh/h	62	1023	98	420	755	0	87	0	374	266	63	0
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1763	0	1767	0	1607	1767	1856	1572
Q Serve(g_s), s	2.4	69.0	4.7	22.5	14.5	0.0	6.0	0.0	18.0	12.5	4.1	0.0
Cycle Q Clear(g_c), s	2.4	69.0	4.7	22.5	14.5	0.0	6.0	0.0	18.0	12.5	4.1	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.86	1.00		1.00
Lane Grp Cap(c), veh/h	455	915	775	335	2190		309	0	207	209	313	
V/C Ratio(X)	0.14	1.12	0.13	1.25	0.34		0.28	0.00	1.81	1.27	0.20	
Avail Cap(c_a), veh/h	467	915	775	335	2190		309	0	207	209	313	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	16.3	35.5	19.2	49.9	12.8	0.0	49.8	0.0	61.0	50.2	50.1	0.0
Incr Delay (d2), s/veh	0.1	68.0	0.3	135.7	0.4	0.0	0.5	0.0	383.0	154.1	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	1.0	46.4	1.8	23.7	5.5	0.0	2.7	0.0	29.3	10.4	2.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.5	103.5	19.5	185.6	13.2	0.0	50.3	0.0	444.0	204.3	51.5	0.0
LnGrp LOS	B	F	B	F	B		D	A	F	F	D	
Approach Vol, veh/h	1183			1175			A			461		
Approach Delay, s/veh	91.9			74.8			369.7			175.0		
Approach LOS	F			E			F			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	27.0	73.5	11.4	28.1	9.1	91.4	17.0	22.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	22.5	69.0	6.9	23.6	5.5	86.0	12.5	18.0				
Max Q Clear Time (g_c+I1), s	24.5	71.0	8.0	6.1	4.4	16.5	14.5	20.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.2	0.0	5.5	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 134.9

HCM 6th LOS F

Notes

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

HCM 6th Signalized Intersection Summary

8: Fremont Rd & Hwy CC

12/23/2021

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	65	583	73	212	540	107	69	197	454	97	61	37	
Future Volume (veh/h)	65	583	73	212	540	107	69	197	454	97	61	37	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No			No			No			No			
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	71	634	79	230	587	116	75	214	0	105	66	0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3	
Cap, veh/h	91	700	593	268	718	142	416	384		304	401		
Arrive On Green	0.05	0.38	0.38	0.15	0.48	0.48	0.05	0.21	0.00	0.06	0.22	0.00	
Sat Flow, veh/h	1767	1856	1572	1767	1505	297	1767	1856	1572	1767	1856	0	
Grp Volume(v), veh/h	71	634	79	230	0	703	75	214	0	105	66	0	
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	0	1802	1767	1856	1572	1767	1856	0	
Q Serve(g_s), s	3.5	28.1	2.9	11.0	0.0	29.1	2.9	9.0	0.0	4.0	2.5	0.0	
Cycle Q Clear(g_c), s	3.5	28.1	2.9	11.0	0.0	29.1	2.9	9.0	0.0	4.0	2.5	0.0	
Prop In Lane	1.00		1.00	1.00		0.17	1.00		1.00	1.00		0.00	
Lane Grp Cap(c), veh/h	91	700	593	268	0	860	416	384		304	401		
V/C Ratio(X)	0.78	0.91	0.13	0.86	0.00	0.82	0.18	0.56		0.35	0.16		
Avail Cap(c_a), veh/h	152	700	593	335	0	860	433	384		304	401		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	
Uniform Delay (d), s/veh	40.8	25.6	17.8	36.0	0.0	19.5	25.2	30.9	0.0	25.5	27.7	0.0	
Incr Delay (d2), s/veh	13.2	17.6	0.5	16.4	0.0	8.5	0.2	5.7	0.0	0.7	0.9	0.0	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	1.8	14.5	1.0	5.7	0.0	12.5	1.2	4.4	0.0	1.6	1.2	0.0	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	54.0	43.2	18.2	52.4	0.0	28.0	25.4	36.7	0.0	26.2	28.6	0.0	
LnGrp LOS	D	D	B	D	A	C	C	D		C	C		
Approach Vol, veh/h	784			933			289			171			A
Approach Delay, s/veh	41.7			34.0			33.7			27.1			
Approach LOS	D			C			C			C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	17.7	37.3	8.7	23.3	9.0	46.0	9.5	22.5					
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5					
Max Green Setting (Gmax), s	16.5	32.5	5.0	18.0	7.5	41.5	5.0	18.0					
Max Q Clear Time (g_c+I1), s	13.0	30.1	4.9	4.5	5.5	31.1	6.0	11.0					
Green Ext Time (p_c), s	0.2	1.0	0.0	0.2	0.0	3.3	0.0	0.5					

Intersection Summary

HCM 6th Ctrl Delay 36.2

HCM 6th LOS D

Notes

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

Intersection

Intersection Delay, s/veh	9.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	93	64	6	17	25	74	9	121	19	40	115	33
Future Vol, veh/h	93	64	6	17	25	74	9	121	19	40	115	33
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
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	101	70	7	18	27	80	10	132	21	43	125	36
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.9	8.7	9.4	9.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	6%	57%	15%	21%
Vol Thru, %	81%	39%	22%	61%
Vol Right, %	13%	4%	64%	18%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	149	163	116	188
LT Vol	9	93	17	40
Through Vol	121	64	25	115
RT Vol	19	6	74	33
Lane Flow Rate	162	177	126	204
Geometry Grp	1	1	1	1
Degree of Util (X)	0.22	0.25	0.165	0.275
Departure Headway (Hd)	4.889	5.083	4.722	4.837
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	729	702	751	738
Service Time	2.961	3.156	2.799	2.905
HCM Lane V/C Ratio	0.222	0.252	0.168	0.276
HCM Control Delay	9.4	9.9	8.7	9.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.8	1	0.6	1.1

HCM 6th TWSC
15: Hwy NN/ Hwy NN & Sunset Rd

12/23/2021

Intersection

Int Delay, s/veh 2.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	16	143	803	9	31	706
Future Vol, veh/h	16	143	803	9	31	706
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	17	155	873	10	34	767

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1713	878	0
Stage 1	878	-	-
Stage 2	835	-	-
Critical Hdwy	6.43	6.23	-
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	5.43	-	-
Follow-up Hdwy	3.527	3.327	-
Pot Cap-1 Maneuver	99	346	-
Stage 1	405	-	-
Stage 2	424	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	95	346	-
Mov Cap-2 Maneuver	228	-	-
Stage 1	405	-	-
Stage 2	405	-	-

Approach	WB	NB	SB
HCM Control Delay, s	27.4	0	0.4
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	329	762
HCM Lane V/C Ratio	-	-	0.525	0.044
HCM Control Delay (s)	-	-	27.4	9.9
HCM Lane LOS	-	-	D	A
HCM 95th %tile Q(veh)	-	-	2.9	0.1

Intersection

Int Delay, s/veh 4.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	139	229	469	0	0	689
Future Vol, veh/h	139	229	469	0	0	689
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	151	249	510	0	0	749

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1259	510	0
Stage 1	510	-	-
Stage 2	749	-	-
Critical Hdwy	6.43	6.23	-
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	5.43	-	-
Follow-up Hdwy	3.527	3.327	-
Pot Cap-1 Maneuver	187	561	0
Stage 1	601	-	0
Stage 2	465	-	0
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	187	561	-
Mov Cap-2 Maneuver	323	-	-
Stage 1	601	-	-
Stage 2	465	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.9	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBTWBLn1WBLn2	SBT
Capacity (veh/h)	- 323 561	-
HCM Lane V/C Ratio	- 0.468 0.444	-
HCM Control Delay (s)	- 25.6 16.4	-
HCM Lane LOS	- D C	-
HCM 95th %tile Q(veh)	- 2.4 2.3	-

Intersection

Int Delay, s/veh 3.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	85	62	314	38	24	255
Future Vol, veh/h	85	62	314	38	24	255
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	92	67	341	41	26	277

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	691	362	0
Stage 1	362	-	-
Stage 2	329	-	-
Critical Hdwy	6.43	6.23	-
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	5.43	-	-
Follow-up Hdwy	3.527	3.327	-
Pot Cap-1 Maneuver	409	680	-
Stage 1	702	-	-
Stage 2	727	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	400	680	-
Mov Cap-2 Maneuver	400	-	-
Stage 1	702	-	-
Stage 2	711	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.1	0	0.7
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	484	1171
HCM Lane V/C Ratio	-	-	0.33	0.022
HCM Control Delay (s)	-	-	16.1	8.1
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	1.4	0.1

Lanes, Volumes, Timings

2: Pheasant

12/23/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	26	42	0	71	61	81	70	0	18	30	0
Future Volume (vph)	0	26	42	0	71	61	81	70	0	18	30	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.916				0.938							
Flt Protected							0.974				0.981	
Satd. Flow (prot)	0	1690	0	0	1730	0	0	1797	0	0	1810	0
Flt Permitted							0.974				0.981	
Satd. Flow (perm)	0	1690	0	0	1730	0	0	1797	0	0	1810	0
Link Speed (mph)	30				30		45				30	
Link Distance (ft)	1141				3417		2632				1106	
Travel Time (s)	25.9				77.7		39.9				25.1	
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
Adj. Flow (vph)	0	28	46	0	77	66	88	76	0	20	33	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	74	0	0	143	0	0	164	0	0	53	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	0				0		0				0	
Link Offset(ft)	0				0		0				0	
Crosswalk Width(ft)	16				16		16				16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control	Yield				Stop				Free			
Intersection Summary												
Area Type:	Other											
Control Type: Unsignalized												
Intersection Capacity Utilization 26.6% ICU Level of Service A												
Analysis Period (min) 15												

HCM 6th Signalized Intersection Summary

3: Hwy NN/Farmers Branch Rd & Hwy NN/Hwy J

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	138	459	620	196	360	50	462	132	137	142	306	256
Future Volume (veh/h)	138	459	620	196	360	50	462	132	137	142	306	256
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	150	499	0	213	391	0	502	143	0	154	333	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	312	555		246	582		520	655		507	408	
Arrive On Green	0.06	0.29	0.00	0.07	0.31	0.00	0.22	0.35	0.00	0.09	0.22	0.00
Sat Flow, veh/h	1795	1885	1598	1795	1885	1598	1795	1885	1598	1795	1885	1598
Grp Volume(v), veh/h	150	499	0	213	391	0	502	143	0	154	333	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1795	1885	1598	1795	1885	1598	1795	1885	1598
Q Serve(g_s), s	5.2	22.9	0.0	6.5	16.3	0.0	19.0	4.8	0.0	5.9	15.1	0.0
Cycle Q Clear(g_c), s	5.2	22.9	0.0	6.5	16.3	0.0	19.0	4.8	0.0	5.9	15.1	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	312	555		246	582		520	655		507	408	
V/C Ratio(X)	0.48	0.90		0.86	0.67		0.96	0.22		0.30	0.82	
Avail Cap(c_a), veh/h	312	555		246	582		520	655		526	408	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	22.3	30.5	0.0	26.6	27.1	0.0	20.9	20.7	0.0	23.9	33.5	0.0
Incr Delay (d2), s/veh	1.1	20.0	0.0	25.8	6.1	0.0	30.6	0.8	0.0	0.3	16.3	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	2.2	12.6	0.0	4.7	7.7	0.0	11.4	2.1	0.0	2.5	8.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.5	50.5	0.0	52.4	33.2	0.0	51.4	21.5	0.0	24.3	49.8	0.0
LnGrp LOS	C	D		D	C		D	C		C	D	
Approach Vol, veh/h	649		A	604		A	645		A	487		A
Approach Delay, s/veh	44.2			40.0			44.8			41.7		
Approach LOS	D			D			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	31.0	24.0	24.0	9.7	32.3	12.2	35.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	26.5	19.5	19.5	5.2	27.8	8.7	30.3				
Max Q Clear Time (g_c+I1), s	8.5	24.9	21.0	17.1	7.2	18.3	7.9	6.8				
Green Ext Time (p_c), s	0.0	0.5	0.0	0.4	0.0	1.4	0.0	0.6				

Intersection Summary

HCM 6th Ctrl Delay	42.8
HCM 6th LOS	D

Notes

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

HCM 6th Signalized Intersection Summary

6: 22nd St & Hwy CC

12/23/2021

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	50	1045	82	466	1264	335	97	28	414	276	61	82	
Future Volume (veh/h)	50	1045	82	466	1264	335	97	28	414	276	61	82	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No			No			No			No			
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	
Adj Flow Rate, veh/h	54	1136	89	507	1374	0	105	30	450	300	66	0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1	
Cap, veh/h	256	899	762	365	2233		328	13	197	222	317		
Arrive On Green	0.03	0.48	0.48	0.18	0.62	0.00	0.06	0.13	0.13	0.10	0.17	0.00	
Sat Flow, veh/h	1795	1885	1598	1795	3676	0	1795	101	1512	1795	1885	1598	
Grp Volume(v), veh/h	54	1136	89	507	1374	0	105	0	480	300	66	0	
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1795	1791	0	1795	0	1613	1795	1885	1598	
Q Serve(g_s), s	2.3	71.5	4.6	26.5	35.1	0.0	7.6	0.0	19.5	14.5	4.5	0.0	
Cycle Q Clear(g_c), s	2.3	71.5	4.6	26.5	35.1	0.0	7.6	0.0	19.5	14.5	4.5	0.0	
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.94	1.00		1.00	
Lane Grp Cap(c), veh/h	256	899	762	365	2233		328	0	210	222	317		
V/C Ratio(X)	0.21	1.26	0.12	1.39	0.62		0.32	0.00	2.29	1.35	0.21		
Avail Cap(c_a), veh/h	264	899	762	365	2233		328	0	210	222	317		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	
Uniform Delay (d), s/veh	19.5	39.3	21.8	53.4	17.2	0.0	52.4	0.0	65.3	52.5	53.8	0.0	
Incr Delay (d2), s/veh	0.4	127.8	0.3	190.9	1.3	0.0	0.6	0.0	595.0	185.9	1.5	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	1.0	63.2	1.8	32.4	13.9	0.0	3.5	0.0	42.7	12.8	2.3	0.0	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	19.9	167.0	22.1	244.3	18.5	0.0	53.0	0.0	660.2	238.4	55.3	0.0	
LnGrp LOS	B	F	C	F	B		D	A	F	F	E		
Approach Vol, veh/h	1279				1881		A		585		366		A
Approach Delay, s/veh	150.7				79.4				551.2		205.4		
Approach LOS	F				E				F		F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	31.0	76.0	13.3	29.7	9.0	98.0	19.0	24.0					
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5					
Max Green Setting (Gmax), s	26.5	71.5	8.8	25.2	5.1	92.9	14.5	19.5					
Max Q Clear Time (g_c+I1), s	28.5	73.5	9.6	6.5	4.3	37.1	16.5	21.5					
Green Ext Time (p_c), s	0.0	0.0	0.0	0.2	0.0	13.5	0.0	0.0					

Intersection Summary

HCM 6th Ctrl Delay 179.9

HCM 6th LOS F

Notes

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

HCM 6th Signalized Intersection Summary

8: Fremont Rd & Hwy CC

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	731	75	318	1030	44	90	57	334	73	124	116
Future Volume (veh/h)	39	731	75	318	1030	44	90	57	334	73	124	116
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	42	795	82	346	1120	48	98	62	0	79	135	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	57	846	717	372	1121	48	244	285		301	285	
Arrive On Green	0.03	0.45	0.45	0.21	0.62	0.62	0.04	0.15	0.00	0.04	0.15	0.00
Sat Flow, veh/h	1795	1885	1598	1795	1794	77	1795	1885	1598	1795	1885	0
Grp Volume(v), veh/h	42	795	82	346	0	1168	98	62	0	79	135	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1795	0	1871	1795	1885	1598	1795	1885	0
Q Serve(g_s), s	2.8	47.9	3.6	22.6	0.0	74.3	5.0	3.4	0.0	4.4	7.8	0.0
Cycle Q Clear(g_c), s	2.8	47.9	3.6	22.6	0.0	74.3	5.0	3.4	0.0	4.4	7.8	0.0
Prop In Lane	1.00		1.00	1.00		0.04	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	57	846	717	372	0	1169	244	285		301	285	
V/C Ratio(X)	0.74	0.94	0.11	0.93	0.00	1.00	0.40	0.22		0.26	0.47	
Avail Cap(c_a), veh/h	128	846	717	384	0	1169	244	285		301	285	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	57.2	31.3	19.1	46.4	0.0	22.4	42.0	44.4	0.0	40.6	46.3	0.0
Incr Delay (d2), s/veh	17.2	19.3	0.3	28.6	0.0	26.2	1.1	1.8	0.0	0.5	5.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	24.7	1.3	12.7	0.0	36.1	2.5	1.7	0.0	1.9	4.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.5	50.6	19.4	75.1	0.0	48.6	43.1	46.2	0.0	41.1	51.8	0.0
LnGrp LOS	E	D	B	E	A	D	D	D		D	D	
Approach Vol, veh/h	919				1514				160			
Approach Delay, s/veh	48.9				54.6				44.3			
Approach LOS	D				D				D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	29.2	58.0	9.5	22.5	8.3	78.9	9.5	22.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	25.5	53.5	5.0	18.0	8.5	70.5	5.0	18.0				
Max Q Clear Time (g_c+I1), s	24.6	49.9	7.0	9.8	4.8	76.3	6.4	5.4				
Green Ext Time (p_c), s	0.1	1.8	0.0	0.3	0.0	0.0	0.0	0.1				

Intersection Summary

HCM 6th Ctrl Delay 51.6

HCM 6th LOS D

Notes

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

Intersection

Intersection Delay, s/veh	10.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	52	45	24	16	68	38	16	90	9	62	152	107
Future Vol, veh/h	52	45	24	16	68	38	16	90	9	62	152	107
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
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	57	49	26	17	74	41	17	98	10	67	165	116
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.5	9.3	9.1	11.3
HCM LOS	A	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	43%	13%	19%
Vol Thru, %	78%	37%	56%	47%
Vol Right, %	8%	20%	31%	33%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	115	121	122	321
LT Vol	16	52	16	62
Through Vol	90	45	68	152
RT Vol	9	24	38	107
Lane Flow Rate	125	132	133	349
Geometry Grp	1	1	1	1
Degree of Util (X)	0.173	0.189	0.186	0.444
Departure Headway (Hd)	4.983	5.17	5.045	4.579
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	712	687	703	782
Service Time	3.066	3.259	3.133	2.643
HCM Lane V/C Ratio	0.176	0.192	0.189	0.446
HCM Control Delay	9.1	9.5	9.3	11.3
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.6	0.7	0.7	2.3

Lanes, Volumes, Timings

2: Pheasant

12/23/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	31	76	0	72	61	56	47	0	13	32	0
Future Volume (vph)	0	31	76	0	72	61	56	47	0	13	32	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.904			0.938								
Flt Protected							0.973			0.986		
Satd. Flow (prot)	0	1701	0	0	1765	0	0	1830	0	0	1855	0
Flt Permitted							0.973			0.986		
Satd. Flow (perm)	0	1701	0	0	1765	0	0	1830	0	0	1855	0
Link Speed (mph)	30			30			45			30		
Link Distance (ft)	1141			3036			2632			1106		
Travel Time (s)	25.9			69.0			39.9			25.1		
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
Adj. Flow (vph)	0	34	83	0	78	66	61	51	0	14	35	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	117	0	0	144	0	0	112	0	0	49	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	0			0			0			0		
Link Offset(ft)	0			0			0			0		
Crosswalk Width(ft)	16			16			16			16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control	Yield			Stop			Free			Free		
Intersection Summary												
Area Type:	Other											
Control Type: Unsignalized												
Intersection Capacity Utilization 24.3%												
ICU Level of Service A												
Analysis Period (min) 15												

HCM 6th Signalized Intersection Summary

3: Hwy NN/Farmers Branch Rd & Hwy NN/Hwy J

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	315	335	114	380	55	365	94	86	71	101	250
Future Volume (veh/h)	150	315	335	114	380	55	365	94	86	71	101	250
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	163	342	0	124	413	0	397	102	0	77	110	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	325	556		372	549		594	609		537	485	
Arrive On Green	0.07	0.30	0.00	0.07	0.29	0.00	0.12	0.32	0.00	0.06	0.26	0.00
Sat Flow, veh/h	1795	1885	1598	1795	1885	1598	1795	1885	1598	1795	1885	1598
Grp Volume(v), veh/h	163	342	0	124	413	0	397	102	0	77	110	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1795	1885	1598	1795	1885	1598	1795	1885	1598
Q Serve(g_s), s	4.4	10.9	0.0	3.3	13.9	0.0	8.5	2.7	0.0	2.2	3.2	0.0
Cycle Q Clear(g_c), s	4.4	10.9	0.0	3.3	13.9	0.0	8.5	2.7	0.0	2.2	3.2	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	325	556		372	549		594	609		537	485	
V/C Ratio(X)	0.50	0.61		0.33	0.75		0.67	0.17		0.14	0.23	
Avail Cap(c_a), veh/h	325	556		376	549		594	609		569	485	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	17.2	21.2	0.0	16.3	22.5	0.0	17.5	17.0	0.0	17.3	20.5	0.0
Incr Delay (d2), s/veh	1.2	5.0	0.0	0.5	9.2	0.0	2.9	0.6	0.0	0.1	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	5.0	0.0	1.2	6.8	0.0	4.5	1.1	0.0	0.8	1.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.4	26.3	0.0	16.8	31.7	0.0	20.3	17.5	0.0	17.4	21.6	0.0
LnGrp LOS	B	C		B	C		C	B		B	C	
Approach Vol, veh/h		505	A		537	A		499	A		187	A
Approach Delay, s/veh		23.7			28.2			19.8			19.9	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.3	25.2	13.0	22.5	9.6	24.9	8.4	27.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	20.5	8.5	18.0	5.1	20.4	5.1	21.4				
Max Q Clear Time (g_c+I1), s	5.3	12.9	10.5	5.2	6.4	15.9	4.2	4.7				
Green Ext Time (p_c), s	0.0	1.1	0.0	0.4	0.0	0.9	0.0	0.3				

Intersection Summary

HCM 6th Ctrl Delay	23.6
HCM 6th LOS	C

Notes

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

HCM 6th Signalized Intersection Summary

6: 22nd St & Hwy CC

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	624	77	278	517	310	35	49	299	302	39	69
Future Volume (veh/h)	77	624	77	278	517	310	35	49	299	302	39	69
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	84	678	84	302	562	0	38	53	325	328	42	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	454	701	594	314	1626		378	41	253	325	544	
Arrive On Green	0.05	0.37	0.37	0.13	0.45	0.00	0.03	0.18	0.18	0.14	0.29	0.00
Sat Flow, veh/h	1795	1885	1598	1795	3676	0	1795	229	1404	1795	1885	1598
Grp Volume(v), veh/h	84	678	84	302	562	0	38	0	378	328	42	0
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1795	1791	0	1795	0	1633	1795	1885	1598
Q Serve(g_s), s	2.9	35.3	3.5	11.9	10.2	0.0	1.7	0.0	18.0	14.1	1.6	0.0
Cycle Q Clear(g_c), s	2.9	35.3	3.5	11.9	10.2	0.0	1.7	0.0	18.0	14.1	1.6	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.86	1.00		1.00
Lane Grp Cap(c), veh/h	454	701	594	314	1626		378	0	294	325	544	
V/C Ratio(X)	0.18	0.97	0.14	0.96	0.35		0.10	0.00	1.29	1.01	0.08	
Avail Cap(c_a), veh/h	483	701	594	314	1626		411	0	294	325	544	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	17.8	30.8	20.8	27.9	17.7	0.0	31.7	0.0	41.0	28.9	25.9	0.0
Incr Delay (d2), s/veh	0.2	26.8	0.5	40.7	0.6	0.0	0.1	0.0	152.2	52.1	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	1.1	19.9	1.4	8.2	4.0	0.0	0.7	0.0	19.5	10.8	0.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.0	57.6	21.3	68.6	18.3	0.0	31.8	0.0	193.2	81.1	26.2	0.0
LnGrp LOS	B	E	C	E	B		C	A	F	F	C	
Approach Vol, veh/h	846			864			A			416		
Approach Delay, s/veh	50.0			35.9			178.4			74.8		
Approach LOS	D			D			F			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.2	41.7	7.8	33.3	9.0	49.9	18.6	22.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	12.7	37.2	5.1	27.0	6.1	43.8	14.1	18.0				
Max Q Clear Time (g_c+I1), s	13.9	37.3	3.7	3.6	4.9	12.2	16.1	20.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.1	0.0	3.7	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 70.2

HCM 6th LOS E

Notes

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

HCM 6th Signalized Intersection Summary

8: Fremont Rd & Hwy CC

12/23/2021

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (veh/h)	29	476	54	198	467	12	64	45	289	22	30	29		
Future Volume (veh/h)	29	476	54	198	467	12	64	45	289	22	30	29		
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Work Zone On Approach	No			No			No			No				
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885		
Adj Flow Rate, veh/h	32	517	59	215	508	13	70	49	0	24	33	0		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1		
Cap, veh/h	58	645	547	255	828	21	487	484		458	438			
Arrive On Green	0.03	0.34	0.34	0.14	0.45	0.45	0.05	0.26	0.00	0.03	0.23	0.00		
Sat Flow, veh/h	1795	1885	1598	1795	1830	47	1795	1885	1598	1795	1885	0		
Grp Volume(v), veh/h	32	517	59	215	0	521	70	49	0	24	33	0		
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1795	0	1877	1795	1885	1598	1795	1885	0		
Q Serve(g_s), s	1.4	19.2	2.0	9.0	0.0	16.3	2.3	1.5	0.0	0.8	1.1	0.0		
Cycle Q Clear(g_c), s	1.4	19.2	2.0	9.0	0.0	16.3	2.3	1.5	0.0	0.8	1.1	0.0		
Prop In Lane	1.00		1.00	1.00		0.02	1.00		1.00	1.00		0.00		
Lane Grp Cap(c), veh/h	58	645	547	255	0	849	487	484		458	438			
V/C Ratio(X)	0.55	0.80	0.11	0.84	0.00	0.61	0.14	0.10		0.05	0.08			
Avail Cap(c_a), veh/h	118	645	547	290	0	849	513	484		527	438			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	36.9	23.1	17.4	32.3	0.0	16.1	20.7	21.9	0.0	21.6	23.2	0.0		
Incr Delay (d2), s/veh	8.1	10.1	0.4	17.8	0.0	3.3	0.1	0.4	0.0	0.0	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	0.7	9.3	0.7	4.9	0.0	6.7	0.9	0.7	0.0	0.3	0.5	0.0		
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	45.0	33.1	17.8	50.2	0.0	19.4	20.9	22.4	0.0	21.6	23.5	0.0		
LnGrp LOS	D	C	B	D	A	B	C	C		C	C			
Approach Vol, veh/h	608			736			119			A			57	A
Approach Delay, s/veh	32.3			28.4			21.5			22.7				
Approach LOS	C			C			C			C				
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	15.5	31.0	8.4	22.5	7.0	39.5	6.5	24.4						
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5						
Max Green Setting (Gmax), s	12.5	26.5	5.0	18.0	5.1	33.9	5.0	18.0						
Max Q Clear Time (g_c+I1), s	11.0	21.2	4.3	3.1	3.4	18.3	2.8	3.5						
Green Ext Time (p_c), s	0.1	1.5	0.0	0.1	0.0	2.7	0.0	0.1						

Intersection Summary

HCM 6th Ctrl Delay 29.2

HCM 6th LOS C

Notes

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

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	37	41	16	10	40	39	14	75	15	30	74	50
Future Vol, veh/h	37	41	16	10	40	39	14	75	15	30	74	50
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
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	40	45	17	11	43	42	15	82	16	33	80	54
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.4	8.1	8.3	8.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	13%	39%	11%	19%
Vol Thru, %	72%	44%	45%	48%
Vol Right, %	14%	17%	44%	32%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	104	94	89	154
LT Vol	14	37	10	30
Through Vol	75	41	40	74
RT Vol	15	16	39	50
Lane Flow Rate	113	102	97	167
Geometry Grp	1	1	1	1
Degree of Util (X)	0.141	0.132	0.119	0.202
Departure Headway (Hd)	4.503	4.638	4.432	4.35
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	796	773	809	825
Service Time	2.532	2.666	2.461	2.376
HCM Lane V/C Ratio	0.142	0.132	0.12	0.202
HCM Control Delay	8.3	8.4	8.1	8.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.5	0.4	0.8

HCM 6th TWSC
15: Hwy NN/ Hwy NN & Sunset Rd

12/23/2021

Intersection

Int Delay, s/veh 1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	79	445	24	57	461
Future Vol, veh/h	26	79	445	24	57	461
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	28	86	484	26	62	501

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1122	497	0
Stage 1	497	-	-
Stage 2	625	-	-
Critical Hdwy	6.41	6.21	-
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	-
Pot Cap-1 Maneuver	229	575	-
Stage 1	613	-	-
Stage 2	536	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	216	575	-
Mov Cap-2 Maneuver	350	-	-
Stage 1	613	-	-
Stage 2	505	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.4	0	0.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	496	1060
HCM Lane V/C Ratio	-	-	0.23	0.058
HCM Control Delay (s)	-	-	14.4	8.6
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.9	0.2

Intersection

Int Delay, s/veh 0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	31	353	0	0	437
Future Vol, veh/h	20	31	353	0	0	437
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	22	34	384	0	0	475

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	859	384	0
Stage 1	384	-	-
Stage 2	475	-	-
Critical Hdwy	6.41	6.21	-
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	-
Pot Cap-1 Maneuver	328	666	-
Stage 1	691	-	-
Stage 2	628	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	328	666	-
Mov Cap-2 Maneuver	449	-	-
Stage 1	691	-	-
Stage 2	628	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBTWBLn1WBLn2	SBT
Capacity (veh/h)	- 449 666	-
HCM Lane V/C Ratio	- 0.048 0.051	-
HCM Control Delay (s)	- 13.4 10.7	-
HCM Lane LOS	- B B	-
HCM 95th %tile Q(veh)	- 0.2 0.2	-

Intersection

Int Delay, s/veh 2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	49	51	283	35	30	240
Future Vol, veh/h	49	51	283	35	30	240
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	300	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	53	55	308	38	33	261

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	654	327	0
Stage 1	327	-	-
Stage 2	327	-	-
Critical Hdwy	6.41	6.21	4.11
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	2.209
Pot Cap-1 Maneuver	433	717	1219
Stage 1	733	-	-
Stage 2	733	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	421	717	1219
Mov Cap-2 Maneuver	421	-	-
Stage 1	733	-	-
Stage 2	713	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.5	0	0.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	533	1219
HCM Lane V/C Ratio	-	-	0.204	0.027
HCM Control Delay (s)	-	-	13.5	8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.8	0.1

Lanes, Volumes, Timings

2: Pheasant

12/23/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	22	44	0	65	67	32	34	0	22	44	0
Future Volume (vph)	0	22	44	0	65	67	32	34	0	22	44	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.910			0.932								
Flt Protected							0.976			0.984		
Satd. Flow (prot)	0	1712	0	0	1753	0	0	1836	0	0	1851	0
Flt Permitted							0.976			0.984		
Satd. Flow (perm)	0	1712	0	0	1753	0	0	1836	0	0	1851	0
Link Speed (mph)	30			30			45			30		
Link Distance (ft)	1141			3268			2632			1106		
Travel Time (s)	25.9			74.3			39.9			25.1		
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
Adj. Flow (vph)	0	24	48	0	71	73	35	37	0	24	48	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	72	0	0	144	0	0	72	0	0	72	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	0			0			0			0		
Link Offset(ft)	0			0			0			0		
Crosswalk Width(ft)	16			16			16			16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control	Yield			Stop			Free			Free		
Intersection Summary												
Area Type:	Other											
Control Type: Unsignalized												
Intersection Capacity Utilization 19.7%												
ICU Level of Service A												
Analysis Period (min) 15												

HCM 6th Signalized Intersection Summary 6: 22nd St & Hwy CC

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	672	73	316	567	251	65	40	242	191	45	69
Future Volume (veh/h)	46	672	73	316	567	251	65	40	242	191	45	69
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	50	730	0	343	616	0	71	43	0	208	49	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	369	1018		423	1294		552	487		575	535	
Arrive On Green	0.04	0.28	0.00	0.12	0.36	0.00	0.05	0.26	0.00	0.08	0.28	0.00
Sat Flow, veh/h	1795	3676	0	3483	3582	1598	1795	1885	0	1795	1885	1598
Grp Volume(v), veh/h	50	730	0	343	616	0	71	43	0	208	49	0
Grp Sat Flow(s),veh/h/ln	1795	1791	0	1742	1791	1598	1795	1885	0	1795	1885	1598
Q Serve(g_s), s	1.3	12.8	0.0	6.7	9.3	0.0	2.0	1.2	0.0	5.5	1.3	0.0
Cycle Q Clear(g_c), s	1.3	12.8	0.0	6.7	9.3	0.0	2.0	1.2	0.0	5.5	1.3	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	369	1018		423	1294		552	487		575	535	
V/C Ratio(X)	0.14	0.72		0.81	0.48		0.13	0.09		0.36	0.09	
Avail Cap(c_a), veh/h	417	1018		423	1294		587	487		575	535	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	16.3	22.5	0.0	30.0	17.2	0.0	17.2	19.7	0.0	17.5	18.4	0.0
Incr Delay (d2), s/veh	0.2	4.3	0.0	11.3	1.3	0.0	0.1	0.4	0.0	0.4	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	0.5	5.4	0.0	3.2	3.5	0.0	0.8	0.6	0.0	2.4	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.5	26.8	0.0	41.3	18.5	0.0	17.4	20.0	0.0	17.9	18.8	0.0
LnGrp LOS	B	C		D	B		B	C		B	B	
Approach Vol, veh/h	780		A	959		A	114		A	257		A
Approach Delay, s/veh	26.2			26.7			18.4			18.1		
Approach LOS	C			C			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.0	24.4	8.2	24.4	7.6	29.8	10.0	22.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	8.5	19.9	5.1	18.5	5.0	23.4	5.5	18.1				
Max Q Clear Time (g_c+I1), s	8.7	14.8	4.0	3.3	3.3	11.3	7.5	3.2				
Green Ext Time (p_c), s	0.0	2.0	0.0	0.1	0.0	3.0	0.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay	25.0											
HCM 6th LOS	C											
Notes												
User approved pedestrian interval to be less than phase max green.												
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary

6: 22nd St & Hwy CC

12/23/2021

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (veh/h)	46	696	73	316	568	252	65	40	242	193	45	70		
Future Volume (veh/h)	46	696	73	316	568	252	65	40	242	193	45	70		
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Work Zone On Approach	No			No			No			No				
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885		
Adj Flow Rate, veh/h	50	757	0	343	617	0	71	43	0	210	49	0		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1		
Cap, veh/h	368	1018		423	1294		552	487		575	535			
Arrive On Green	0.04	0.28	0.00	0.12	0.36	0.00	0.05	0.26	0.00	0.08	0.28	0.00		
Sat Flow, veh/h	1795	3676	0	3483	3582	1598	1795	1885	0	1795	1885	1598		
Grp Volume(v), veh/h	50	757	0	343	617	0	71	43	0	210	49	0		
Grp Sat Flow(s),veh/h/ln	1795	1791	0	1742	1791	1598	1795	1885	0	1795	1885	1598		
Q Serve(g_s), s	1.3	13.4	0.0	6.7	9.3	0.0	2.0	1.2	0.0	5.5	1.3	0.0		
Cycle Q Clear(g_c), s	1.3	13.4	0.0	6.7	9.3	0.0	2.0	1.2	0.0	5.5	1.3	0.0		
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.00	1.00		1.00		
Lane Grp Cap(c), veh/h	368	1018		423	1294		552	487		575	535			
V/C Ratio(X)	0.14	0.74		0.81	0.48		0.13	0.09		0.36	0.09			
Avail Cap(c_a), veh/h	417	1018		423	1294		587	487		575	535			
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	16.3	22.7	0.0	30.0	17.2	0.0	17.2	19.7	0.0	17.5	18.4	0.0		
Incr Delay (d2), s/veh	0.2	4.9	0.0	11.3	1.3	0.0	0.1	0.4	0.0	0.4	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	0.5	5.6	0.0	3.2	3.5	0.0	0.8	0.6	0.0	2.4	0.6	0.0		
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	16.5	27.6	0.0	41.3	18.5	0.0	17.4	20.0	0.0	17.9	18.8	0.0		
LnGrp LOS	B	C		D	B		B	C		B	B			
Approach Vol, veh/h	807		A	960		A	114		A	259		A		
Approach Delay, s/veh	27.0			26.7			18.4			18.1				
Approach LOS	C			C			B			B				
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	13.0	24.4	8.2	24.4	7.6	29.8	10.0	22.6						
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5						
Max Green Setting (Gmax), s	8.5	19.9	5.1	18.5	5.0	23.4	5.5	18.1						
Max Q Clear Time (g_c+I1), s	8.7	15.4	4.0	3.3	3.3	11.3	7.5	3.2						
Green Ext Time (p_c), s	0.0	1.9	0.0	0.1	0.0	3.0	0.0	0.1						

Intersection Summary

HCM 6th Ctrl Delay	25.3
HCM 6th LOS	C

Notes

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

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

HCM 6th Signalized Intersection Summary

6: 22nd St & Hwy CC

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	748	67	382	1033	271	80	22	340	215	48	64
Future Volume (veh/h)	41	748	67	382	1033	271	80	22	340	215	48	64
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	45	813	0	415	1123	0	87	24	0	234	52	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	228	1082		493	1448		493	424		581	524	
Arrive On Green	0.04	0.30	0.00	0.14	0.40	0.00	0.05	0.22	0.00	0.11	0.28	0.00
Sat Flow, veh/h	1795	3676	0	3483	3582	1598	1795	1885	0	1795	1885	1598
Grp Volume(v), veh/h	45	813	0	415	1123	0	87	24	0	234	52	0
Grp Sat Flow(s),veh/h/ln	1795	1791	0	1742	1791	1598	1795	1885	0	1795	1885	1598
Q Serve(g_s), s	1.4	16.4	0.0	9.3	21.8	0.0	2.9	0.8	0.0	7.8	1.6	0.0
Cycle Q Clear(g_c), s	1.4	16.4	0.0	9.3	21.8	0.0	2.9	0.8	0.0	7.8	1.6	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	228	1082		493	1448		493	424		581	524	
V/C Ratio(X)	0.20	0.75		0.84	0.78		0.18	0.06		0.40	0.10	
Avail Cap(c_a), veh/h	269	1082		501	1448		516	424		581	524	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	19.1	25.2	0.0	33.5	20.7	0.0	21.9	24.3	0.0	19.3	21.5	0.0
Incr Delay (d2), s/veh	0.4	4.8	0.0	12.1	4.1	0.0	0.2	0.3	0.0	0.4	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	0.5	7.0	0.0	4.5	8.8	0.0	1.2	0.4	0.0	3.1	0.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.5	30.0	0.0	45.6	24.8	0.0	22.1	24.6	0.0	19.8	21.8	0.0
LnGrp LOS	B	C		D	C		C	C		B	C	
Approach Vol, veh/h	858		A	1538		A	111		A	286		A
Approach Delay, s/veh	29.5			30.4			22.6			20.1		
Approach LOS	C			C			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.8	28.7	8.8	26.7	7.7	36.8	13.0	22.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	11.5	24.0	5.3	21.2	5.0	30.5	8.5	18.0				
Max Q Clear Time (g_c+I1), s	11.3	18.4	4.9	3.6	3.4	23.8	9.8	2.8				
Green Ext Time (p_c), s	0.0	2.4	0.0	0.2	0.0	3.8	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	28.8											
HCM 6th LOS	C											
Notes												
User approved pedestrian interval to be less than phase max green.												
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary

6: 22nd St & Hwy CC

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	774	67	382	1034	272	80	23	340	218	49	65
Future Volume (veh/h)	41	774	67	382	1034	272	80	23	340	218	49	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	45	841	0	415	1124	0	87	25	0	237	53	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	227	1082		493	1448		492	424		581	524	
Arrive On Green	0.04	0.30	0.00	0.14	0.40	0.00	0.05	0.22	0.00	0.11	0.28	0.00
Sat Flow, veh/h	1795	3676	0	3483	3582	1598	1795	1885	0	1795	1885	1598
Grp Volume(v), veh/h	45	841	0	415	1124	0	87	25	0	237	53	0
Grp Sat Flow(s),veh/h/ln	1795	1791	0	1742	1791	1598	1795	1885	0	1795	1885	1598
Q Serve(g_s), s	1.4	17.1	0.0	9.3	21.8	0.0	2.9	0.8	0.0	7.9	1.7	0.0
Cycle Q Clear(g_c), s	1.4	17.1	0.0	9.3	21.8	0.0	2.9	0.8	0.0	7.9	1.7	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	227	1082		493	1448		492	424		581	524	
V/C Ratio(X)	0.20	0.78		0.84	0.78		0.18	0.06		0.41	0.10	
Avail Cap(c_a), veh/h	269	1082		501	1448		515	424		581	524	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	19.1	25.5	0.0	33.5	20.7	0.0	21.9	24.3	0.0	19.4	21.5	0.0
Incr Delay (d2), s/veh	0.4	5.5	0.0	12.1	4.1	0.0	0.2	0.3	0.0	0.5	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	0.5	7.4	0.0	4.5	8.7	0.0	1.2	0.4	0.0	3.2	0.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.5	31.0	0.0	45.6	24.8	0.0	22.1	24.6	0.0	19.8	21.9	0.0
LnGrp LOS	B	C		D	C		C	C		B	C	
Approach Vol, veh/h	886		A	1539		A	112		A	290		A
Approach Delay, s/veh	30.4			30.4			22.6			20.2		
Approach LOS	C			C			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.8	28.7	8.8	26.7	7.7	36.8	13.0	22.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	11.5	24.0	5.3	21.2	5.0	30.5	8.5	18.0				
Max Q Clear Time (g_c+I1), s	11.3	19.1	4.9	3.7	3.4	23.8	9.9	2.8				
Green Ext Time (p_c), s	0.0	2.2	0.0	0.2	0.0	3.8	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	29.0
HCM 6th LOS	C

Notes

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

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

HCM 6th Signalized Intersection Summary

6: 22nd St & Hwy CC

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	398	63	227	421	251	29	40	245	236	31	54
Future Volume (veh/h)	62	398	63	227	421	251	29	40	245	236	31	54
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	67	433	0	247	458	0	32	43	0	257	34	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	443	1068		354	1239		483	423		571	545	
Arrive On Green	0.05	0.30	0.00	0.10	0.35	0.00	0.03	0.22	0.00	0.10	0.29	0.00
Sat Flow, veh/h	1795	3676	0	3483	3582	1598	1795	1885	0	1795	1885	1598
Grp Volume(v), veh/h	67	433	0	247	458	0	32	43	0	257	34	0
Grp Sat Flow(s),veh/h/ln	1795	1791	0	1742	1791	1598	1795	1885	0	1795	1885	1598
Q Serve(g_s), s	1.6	6.3	0.0	4.5	6.2	0.0	0.9	1.2	0.0	6.4	0.8	0.0
Cycle Q Clear(g_c), s	1.6	6.3	0.0	4.5	6.2	0.0	0.9	1.2	0.0	6.4	0.8	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	443	1068		354	1239		483	423		571	545	
V/C Ratio(X)	0.15	0.41		0.70	0.37		0.07	0.10		0.45	0.06	
Avail Cap(c_a), veh/h	487	1068		509	1239		599	423		571	545	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	14.2	18.2	0.0	28.2	15.9	0.0	18.2	20.0	0.0	16.4	16.7	0.0
Incr Delay (d2), s/veh	0.2	1.1	0.0	2.5	0.8	0.0	0.1	0.5	0.0	0.6	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.4	0.0	1.8	2.3	0.0	0.3	0.5	0.0	2.7	0.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.4	19.3	0.0	30.7	16.8	0.0	18.3	20.5	0.0	16.9	16.9	0.0
LnGrp LOS	B	B		C	B		B	C		B	B	
Approach Vol, veh/h		500	A		705	A		75	A		291	A
Approach Delay, s/veh		18.7			21.7			19.5			16.9	
Approach LOS		B			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.1	23.9	6.7	23.3	8.0	27.0	10.9	19.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	9.5	16.5	6.4	14.6	5.1	20.9	6.4	14.6				
Max Q Clear Time (g_c+I1), s	6.5	8.3	2.9	2.8	3.6	8.2	8.4	3.2				
Green Ext Time (p_c), s	0.2	1.6	0.0	0.1	0.0	2.2	0.0	0.1				

Intersection Summary

HCM 6th Ctrl Delay 19.7
 HCM 6th LOS B

Notes

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

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

HCM 6th Signalized Intersection Summary

6: 22nd St & Hwy CC

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	425	63	227	422	252	29	40	245	239	31	55
Future Volume (veh/h)	62	425	63	227	422	252	29	40	245	239	31	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	67	462	0	247	459	0	32	43	0	260	34	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	443	1065		357	1239		483	423		571	545	
Arrive On Green	0.05	0.30	0.00	0.10	0.35	0.00	0.03	0.22	0.00	0.10	0.29	0.00
Sat Flow, veh/h	1795	3676	0	3483	3582	1598	1795	1885	0	1795	1885	1598
Grp Volume(v), veh/h	67	462	0	247	459	0	32	43	0	260	34	0
Grp Sat Flow(s),veh/h/ln	1795	1791	0	1742	1791	1598	1795	1885	0	1795	1885	1598
Q Serve(g_s), s	1.6	6.8	0.0	4.5	6.2	0.0	0.9	1.2	0.0	6.4	0.8	0.0
Cycle Q Clear(g_c), s	1.6	6.8	0.0	4.5	6.2	0.0	0.9	1.2	0.0	6.4	0.8	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	443	1065		357	1239		483	423		571	545	
V/C Ratio(X)	0.15	0.43		0.69	0.37		0.07	0.10		0.46	0.06	
Avail Cap(c_a), veh/h	487	1065		563	1239		599	423		571	545	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	14.3	18.4	0.0	28.2	15.9	0.0	18.2	20.0	0.0	16.4	16.7	0.0
Incr Delay (d2), s/veh	0.2	1.3	0.0	2.4	0.9	0.0	0.1	0.5	0.0	0.6	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.6	0.0	1.8	2.3	0.0	0.3	0.5	0.0	2.8	0.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.4	19.7	0.0	30.6	16.8	0.0	18.3	20.5	0.0	17.0	16.9	0.0
LnGrp LOS	B	B		C	B		B	C		B	B	
Approach Vol, veh/h		529	A		706	A		75	A		294	A
Approach Delay, s/veh		19.0			21.6			19.5			17.0	
Approach LOS		B			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.2	23.8	6.7	23.3	8.0	27.0	10.9	19.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	10.5	15.5	6.4	14.6	5.1	20.9	6.4	14.6				
Max Q Clear Time (g_c+I1), s	6.5	8.8	2.9	2.8	3.6	8.2	8.4	3.2				
Green Ext Time (p_c), s	0.3	1.5	0.0	0.1	0.0	2.2	0.0	0.1				

Intersection Summary

HCM 6th Ctrl Delay 19.8

HCM 6th LOS B

Notes

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

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

HCM 6th Signalized Intersection Summary

6: 22nd St & Hwy CC

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	820	90	386	692	306	80	49	295	233	55	85
Future Volume (veh/h)	56	820	90	386	692	306	80	49	295	233	55	85
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	61	891	0	420	752	0	87	53	0	253	60	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	355	1190		484	1532		448	379		552	519	
Arrive On Green	0.04	0.33	0.00	0.14	0.43	0.00	0.05	0.20	0.00	0.13	0.28	0.00
Sat Flow, veh/h	1795	3676	0	3483	3582	1598	1795	1885	0	1795	1885	1598
Grp Volume(v), veh/h	61	891	0	420	752	0	87	53	0	253	60	0
Grp Sat Flow(s),veh/h/ln	1795	1791	0	1742	1791	1598	1795	1885	0	1795	1885	1598
Q Serve(g_s), s	2.0	19.9	0.0	10.6	13.7	0.0	3.4	2.1	0.0	9.6	2.1	0.0
Cycle Q Clear(g_c), s	2.0	19.9	0.0	10.6	13.7	0.0	3.4	2.1	0.0	9.6	2.1	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	355	1190		484	1532		448	379		552	519	
V/C Ratio(X)	0.17	0.75		0.87	0.49		0.19	0.14		0.46	0.12	
Avail Cap(c_a), veh/h	383	1190		484	1532		462	379		552	519	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	18.3	26.7	0.0	37.9	18.7	0.0	26.3	29.6	0.0	22.2	24.4	0.0
Incr Delay (d2), s/veh	0.2	4.3	0.0	15.4	1.1	0.0	0.2	0.8	0.0	0.6	0.5	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	0.8	8.5	0.0	5.3	5.4	0.0	1.5	1.0	0.0	4.0	1.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.5	31.1	0.0	53.4	19.8	0.0	26.5	30.3	0.0	22.8	24.8	0.0
LnGrp LOS	B	C		D	B		C	C		C	C	
Approach Vol, veh/h	952		A	1172		A	140		A	313		A
Approach Delay, s/veh	30.3			31.8			27.9			23.2		
Approach LOS	C			C			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.0	34.4	9.3	29.3	8.4	43.0	16.0	22.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	12.5	29.9	5.5	24.1	5.3	37.1	11.5	18.1				
Max Q Clear Time (g_c+I1), s	12.6	21.9	5.4	4.1	4.0	15.7	11.6	4.1				
Green Ext Time (p_c), s	0.0	3.4	0.0	0.2	0.0	4.7	0.0	0.1				

Intersection Summary

HCM 6th Ctrl Delay	30.0
HCM 6th LOS	C

Notes

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

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

HCM 6th Signalized Intersection Summary

6: 22nd St & Hwy CC

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	941	90	386	695	310	80	49	295	245	58	89
Future Volume (veh/h)	57	941	90	386	695	310	80	49	295	245	58	89
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	62	1023	0	420	755	0	87	53	0	266	63	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	361	1214		484	1555		447	379		540	507	
Arrive On Green	0.04	0.34	0.00	0.14	0.43	0.00	0.05	0.20	0.00	0.12	0.27	0.00
Sat Flow, veh/h	1795	3676	0	3483	3582	1598	1795	1885	0	1795	1885	1598
Grp Volume(v), veh/h	62	1023	0	420	755	0	87	53	0	266	63	0
Grp Sat Flow(s),veh/h/ln	1795	1791	0	1742	1791	1598	1795	1885	0	1795	1885	1598
Q Serve(g_s), s	2.0	23.8	0.0	10.6	13.6	0.0	3.4	2.1	0.0	10.3	2.3	0.0
Cycle Q Clear(g_c), s	2.0	23.8	0.0	10.6	13.6	0.0	3.4	2.1	0.0	10.3	2.3	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	361	1214		484	1555		447	379		540	507	
V/C Ratio(X)	0.17	0.84		0.87	0.49		0.19	0.14		0.49	0.12	
Avail Cap(c_a), veh/h	388	1214		484	1555		463	379		540	507	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	17.9	27.5	0.0	37.9	18.3	0.0	26.3	29.6	0.0	22.8	24.9	0.0
Incr Delay (d2), s/veh	0.2	7.2	0.0	15.4	1.1	0.0	0.2	0.8	0.0	0.7	0.5	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	0.8	10.5	0.0	5.3	5.3	0.0	1.5	1.0	0.0	4.3	1.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.1	34.7	0.0	53.4	19.4	0.0	26.5	30.3	0.0	23.5	25.4	0.0
LnGrp LOS	B	C		D	B		C	C		C	C	
Approach Vol, veh/h	1085		A	1175		A	140		A	329		A
Approach Delay, s/veh	33.8			31.5			27.9			23.9		
Approach LOS	C			C			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.0	35.0	9.3	28.7	8.4	43.6	15.4	22.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	12.5	30.5	5.6	23.4	5.3	37.7	10.9	18.1				
Max Q Clear Time (g_c+I1), s	12.6	25.8	5.4	4.3	4.0	15.6	12.3	4.1				
Green Ext Time (p_c), s	0.0	2.6	0.0	0.2	0.0	4.8	0.0	0.1				

Intersection Summary

HCM 6th Ctrl Delay	31.3
HCM 6th LOS	C

Notes

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

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

HCM 6th Signalized Intersection Summary

6: 22nd St & Hwy CC

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	912	82	466	1261	331	97	27	414	263	59	78
Future Volume (veh/h)	50	912	82	466	1261	331	97	27	414	263	59	78
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	54	991	0	507	1371	0	105	29	0	286	64	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	210	1229		586	1683		461	377		501	425	
Arrive On Green	0.04	0.34	0.00	0.17	0.47	0.00	0.06	0.20	0.00	0.09	0.23	0.00
Sat Flow, veh/h	1795	3676	0	3483	3582	1598	1795	1885	0	1795	1885	1598
Grp Volume(v), veh/h	54	991	0	507	1371	0	105	29	0	286	64	0
Grp Sat Flow(s),veh/h/ln	1795	1791	0	1742	1791	1598	1795	1885	0	1795	1885	1598
Q Serve(g_s), s	1.7	22.6	0.0	12.8	29.6	0.0	4.1	1.1	0.0	8.0	2.4	0.0
Cycle Q Clear(g_c), s	1.7	22.6	0.0	12.8	29.6	0.0	4.1	1.1	0.0	8.0	2.4	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	210	1229		586	1683		461	377		501	425	
V/C Ratio(X)	0.26	0.81		0.87	0.81		0.23	0.08		0.57	0.15	
Avail Cap(c_a), veh/h	236	1229		639	1683		493	377		501	425	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	19.7	26.9	0.0	36.4	20.5	0.0	25.9	29.2	0.0	27.6	27.9	0.0
Incr Delay (d2), s/veh	0.6	5.7	0.0	11.3	4.5	0.0	0.2	0.4	0.0	1.6	0.7	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	0.7	9.8	0.0	6.0	11.8	0.0	1.8	0.5	0.0	5.5	1.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.4	32.6	0.0	47.8	24.9	0.0	26.2	29.6	0.0	29.2	28.7	0.0
LnGrp LOS	C	C		D	C		C	C		C	C	
Approach Vol, veh/h	1045		A	1878		A	134		A	350		A
Approach Delay, s/veh	32.0			31.1			26.9			29.1		
Approach LOS	C			C			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.6	35.4	10.2	24.8	8.2	46.8	12.5	22.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	16.5	29.5	7.3	18.7	5.0	41.0	8.0	18.0				
Max Q Clear Time (g_c+I1), s	14.8	24.6	6.1	4.4	3.7	31.6	10.0	3.1				
Green Ext Time (p_c), s	0.4	2.6	0.0	0.2	0.0	5.8	0.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay	31.0											
HCM 6th LOS	C											
Notes												
User approved pedestrian interval to be less than phase max green.												
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary

6: 22nd St & Hwy CC

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	1045	82	466	1264	335	97	28	414	276	61	82
Future Volume (veh/h)	50	1045	82	466	1264	335	97	28	414	276	61	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	54	1136	0	507	1374	0	105	30	0	300	66	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	211	1301		581	1759		429	341		501	427	
Arrive On Green	0.04	0.36	0.00	0.17	0.49	0.00	0.06	0.18	0.00	0.11	0.23	0.00
Sat Flow, veh/h	1795	3676	0	3483	3582	1598	1795	1885	0	1795	1885	1598
Grp Volume(v), veh/h	54	1136	0	507	1374	0	105	30	0	300	66	0
Grp Sat Flow(s),veh/h/ln	1795	1791	0	1742	1791	1598	1795	1885	0	1795	1885	1598
Q Serve(g_s), s	1.9	29.6	0.0	14.2	31.7	0.0	4.7	1.3	0.0	10.9	2.8	0.0
Cycle Q Clear(g_c), s	1.9	29.6	0.0	14.2	31.7	0.0	4.7	1.3	0.0	10.9	2.8	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	211	1301		581	1759		429	341		501	427	
V/C Ratio(X)	0.26	0.87		0.87	0.78		0.24	0.09		0.60	0.15	
Avail Cap(c_a), veh/h	231	1301		644	1759		432	341		501	427	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.5	29.7	0.0	40.6	21.0	0.0	30.3	34.1	0.0	29.4	31.0	0.0
Incr Delay (d2), s/veh	0.6	8.3	0.0	11.8	3.5	0.0	0.3	0.5	0.0	2.0	0.8	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	0.8	13.2	0.0	6.8	12.6	0.0	2.0	0.7	0.0	1.1	1.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.1	38.0	0.0	52.4	24.5	0.0	30.6	34.6	0.0	31.3	31.8	0.0
LnGrp LOS	C	D		D	C		C	C		C	C	
Approach Vol, veh/h	1190		A	1881		A	135		A	366		A
Approach Delay, s/veh	37.2			32.0			31.5			31.4		
Approach LOS	D			C			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.2	40.8	10.8	27.2	8.4	53.6	15.4	22.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.5	34.5	6.5	22.5	5.0	48.0	10.9	18.1				
Max Q Clear Time (g_c+I1), s	16.2	31.6	6.7	4.8	3.9	33.7	12.9	3.3				
Green Ext Time (p_c), s	0.5	1.9	0.0	0.2	0.0	7.9	0.0	0.1				

Intersection Summary

HCM 6th Ctrl Delay	33.7
HCM 6th LOS	C

Notes

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

HCM 6th Signalized Intersection Summary

6: 22nd St & Hwy CC

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	76	485	77	278	514	306	35	49	299	288	37	66
Future Volume (veh/h)	76	485	77	278	514	306	35	49	299	288	37	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	83	527	0	302	559	0	38	53	0	313	40	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	414	1117		400	1332		492	452		560	560	
Arrive On Green	0.05	0.31	0.00	0.11	0.37	0.00	0.04	0.24	0.00	0.09	0.30	0.00
Sat Flow, veh/h	1795	3676	0	3483	3582	1598	1795	1885	0	1795	1885	1598
Grp Volume(v), veh/h	83	527	0	302	559	0	38	53	0	313	40	0
Grp Sat Flow(s),veh/h/ln	1795	1791	0	1742	1791	1598	1795	1885	0	1795	1885	1598
Q Serve(g_s), s	2.3	8.9	0.0	6.3	8.7	0.0	1.2	1.6	0.0	7.0	1.1	0.0
Cycle Q Clear(g_c), s	2.3	8.9	0.0	6.3	8.7	0.0	1.2	1.6	0.0	7.0	1.1	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	414	1117		400	1332		492	452		560	560	
V/C Ratio(X)	0.20	0.47		0.76	0.42		0.08	0.12		0.56	0.07	
Avail Cap(c_a), veh/h	452	1117		534	1332		594	452		560	560	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	15.9	20.8	0.0	32.2	17.5	0.0	20.1	22.3	0.0	19.9	18.9	0.0
Incr Delay (d2), s/veh	0.2	1.4	0.0	4.3	1.0	0.0	0.1	0.5	0.0	1.2	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	3.6	0.0	2.7	3.3	0.0	0.5	0.8	0.0	1.1	0.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.1	22.2	0.0	36.4	18.5	0.0	20.1	22.8	0.0	21.2	19.2	0.0
LnGrp LOS	B	C		D	B		C	C		C	B	
Approach Vol, veh/h		610	A		861	A		91	A		353	A
Approach Delay, s/veh		21.4			24.8			21.7			20.9	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.1	27.9	7.2	26.8	8.6	32.4	11.5	22.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	11.5	20.5	7.0	18.0	5.7	26.3	7.0	18.0				
Max Q Clear Time (g_c+I1), s	8.3	10.9	3.2	3.1	4.3	10.7	9.0	3.6				
Green Ext Time (p_c), s	0.3	2.2	0.0	0.1	0.0	3.0	0.0	0.1				

Intersection Summary

HCM 6th Ctrl Delay	22.9
HCM 6th LOS	C

Notes

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

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

HCM 6th Signalized Intersection Summary

6: 22nd St & Hwy CC

12/23/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	624	77	278	517	310	35	49	299	302	39	69
Future Volume (veh/h)	77	624	77	278	517	310	35	49	299	302	39	69
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	84	678	0	302	562	0	38	53	0	328	42	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	428	1205		396	1423		463	424		545	545	
Arrive On Green	0.05	0.34	0.00	0.11	0.40	0.00	0.04	0.22	0.00	0.10	0.29	0.00
Sat Flow, veh/h	1795	3676	0	3483	3582	1598	1795	1885	0	1795	1885	1598
Grp Volume(v), veh/h	84	678	0	302	562	0	38	53	0	328	42	0
Grp Sat Flow(s),veh/h/ln	1795	1791	0	1742	1791	1598	1795	1885	0	1795	1885	1598
Q Serve(g_s), s	2.4	12.4	0.0	6.7	9.0	0.0	1.3	1.8	0.0	8.0	1.3	0.0
Cycle Q Clear(g_c), s	2.4	12.4	0.0	6.7	9.0	0.0	1.3	1.8	0.0	8.0	1.3	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	428	1205		396	1423		463	424		545	545	
V/C Ratio(X)	0.20	0.56		0.76	0.40		0.08	0.12		0.60	0.08	
Avail Cap(c_a), veh/h	462	1205		544	1423		579	424		545	545	
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	15.8	21.7	0.0	34.4	17.2	0.0	22.3	24.7	0.0	22.0	20.7	0.0
Incr Delay (d2), s/veh	0.2	1.9	0.0	4.3	0.8	0.0	0.1	0.6	0.0	1.8	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	0.9	5.0	0.0	2.9	3.4	0.0	0.5	0.9	0.0	1.4	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.0	23.6	0.0	38.7	18.1	0.0	22.4	25.3	0.0	23.8	20.9	0.0
LnGrp LOS	B	C		D	B		C	C		C	C	
Approach Vol, veh/h		762	A		864	A		91	A		370	A
Approach Delay, s/veh		22.8			25.3			24.1			23.5	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.6	31.4	7.4	27.6	8.7	36.3	12.5	22.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	12.5	23.5	8.0	18.0	5.7	30.3	8.0	18.0				
Max Q Clear Time (g_c+I1), s	8.7	14.4	3.3	3.3	4.4	11.0	10.0	3.8				
Green Ext Time (p_c), s	0.4	2.8	0.0	0.1	0.0	3.3	0.0	0.1				

Intersection Summary

HCM 6th Ctrl Delay	24.0
HCM 6th LOS	C

Notes

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

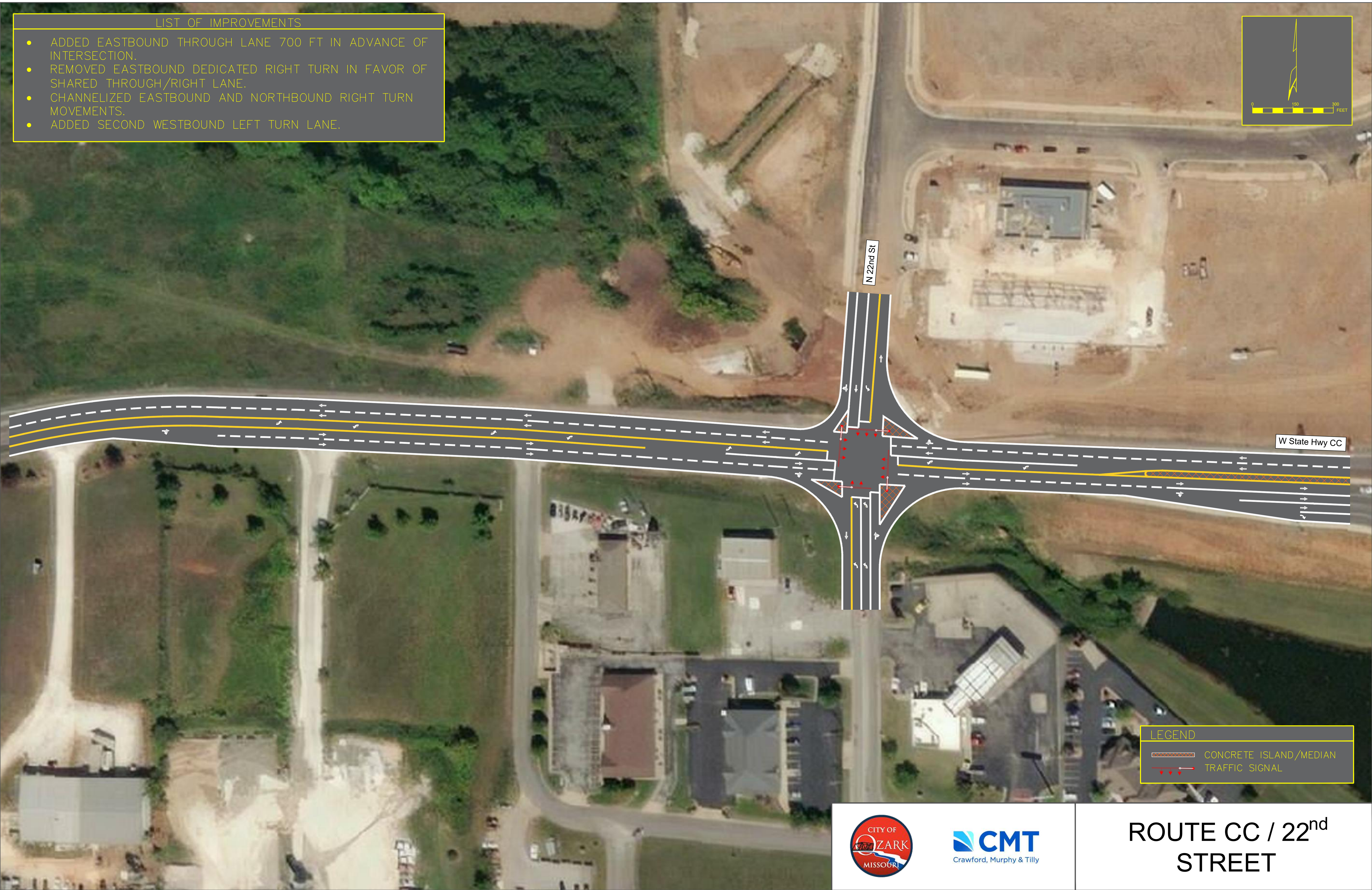
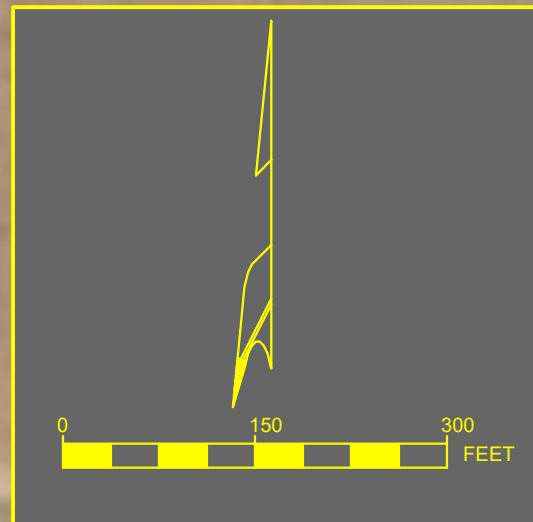
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Appendix C

Conceptual Designs

LIST OF IMPROVEMENTS

- ADDED EASTBOUND THROUGH LANE 700 FT IN ADVANCE OF INTERSECTION.
- REMOVED EASTBOUND DEDICATED RIGHT TURN IN FAVOR OF SHARED THROUGH/RIGHT LANE.
- CHANNELIZED EASTBOUND AND NORTHBOUND RIGHT TURN MOVEMENTS.
- ADDED SECOND WESTBOUND LEFT TURN LANE.



LEGEND

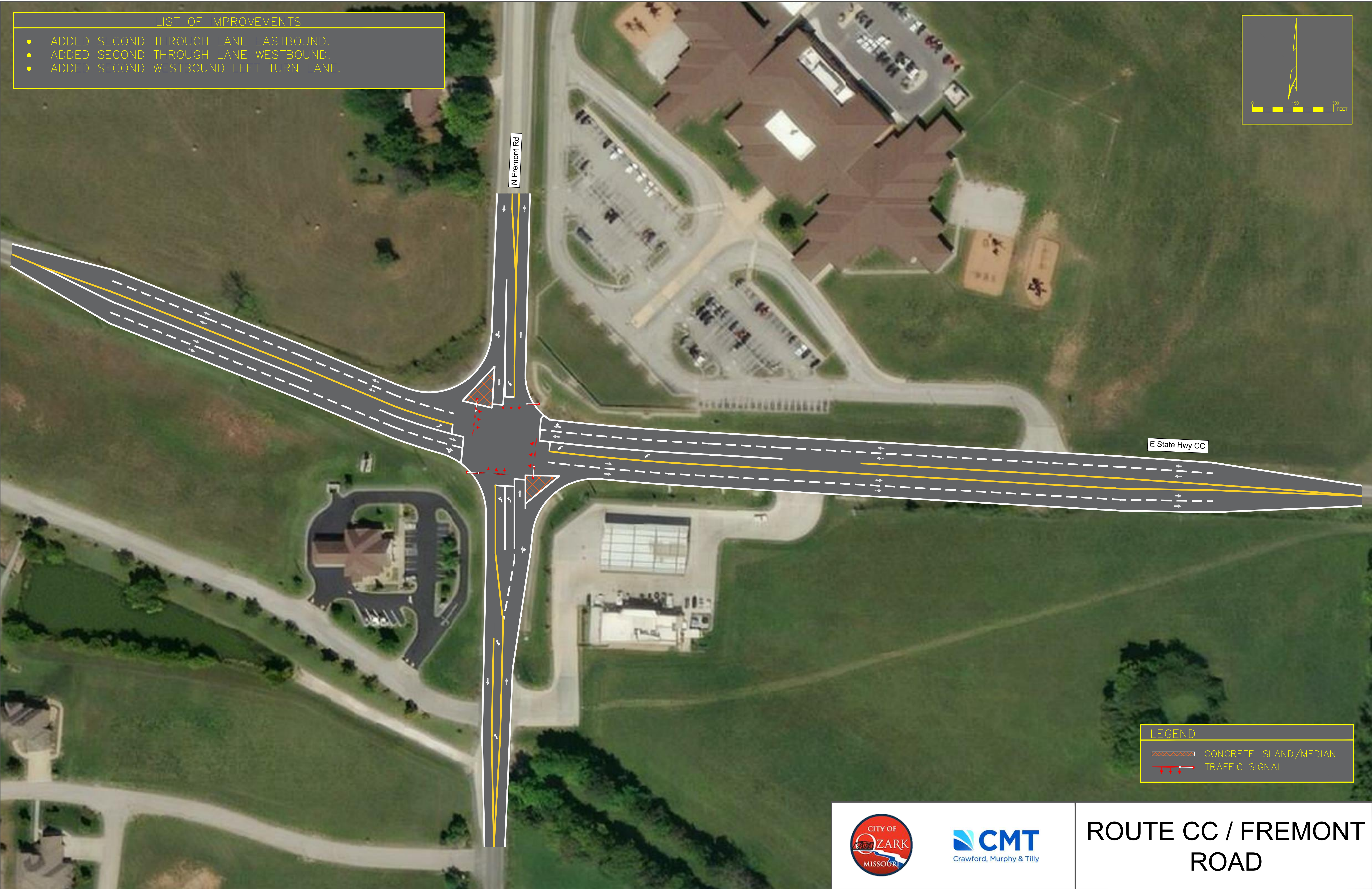
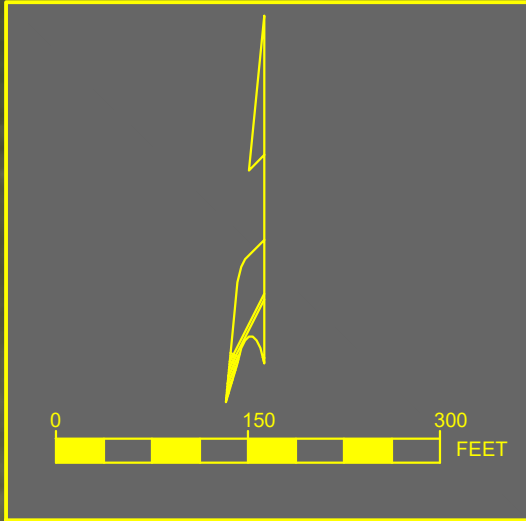
	CONCRETE ISLAND/MEDIAN
	TRAFFIC SIGNAL



ROUTE CC / 22nd STREET

LIST OF IMPROVEMENTS

- ADDED SECOND THROUGH LANE EASTBOUND.
- ADDED SECOND THROUGH LANE WESTBOUND.
- ADDED SECOND WESTBOUND LEFT TURN LANE.



LEGEND

	CONCRETE ISLAND/MEDIAN
	TRAFFIC SIGNAL



ROUTE CC / FREMONT ROAD



OZARK NORTH CORRIDOR TRAFFIC STUDY

CMT JOB # 21004106-00

OZARK, MO

ITEM

UNIT COSTS

Route CC / 22nd StreetRoute CC / Fremont
Road

Removal of Improvements

\$200,000.00 / LS

0.75 \$150,000

0.5 \$100,000

Unclassified Excavation

\$10.00 / CY

3000 \$30,000

3000 \$30,000

Compacting Embankment

\$5.00 / CY

\$0

\$0

Embankment In Place

\$15.00 / CY

1,500.00 \$22,500

1,500.00 \$22,500

Full Depth Pavement, 11 IN.

\$65.00 / SY

1,896.00 \$123,240

3,957.00 \$257,205

A2 Shoulder

\$60.00 / SY

953.00 \$57,180

2,725.00 \$163,500

Type 5 Agg. Base

\$9.00 / SY

2,849.00 \$25,641

6,682.00 \$60,138

Type B Curb & Gutter

\$35.00 / LF

- \$0

- \$0

Paved Approach, 8 IN.

\$95.00 / SY

- \$0

- \$0

8" Concrete Median (Pin On)

\$60.00 / SY

207.00 \$12,420

225.00 \$13,500

Traffic Signal Upgrade

\$150,000.00 / LS

1.00 \$150,000

1.50 \$225,000

Subtotal

\$570,981

\$871,843

Mobilization

8.0% \$45,678

\$69,747

Erosion Control

3.0% \$17,129

\$26,155

Traffic Control

8.0% \$45,678

\$69,747

Signing

2.0% \$11,420

\$17,437

Pavement Marking

1.5% \$8,565

\$13,078

Contractor Furnished Surveying and Staking

1.5% \$8,565

\$13,078

Subtotal

\$137,035

\$209,242

Contingency

20%

\$141,603

\$216,217

CONSTRUCTION SUBTOTAL**Subtotal****\$849,620****Subtotal****\$1,297,302****\$2,146,922**

ESTIMATE ASSUMPTIONS & KEY NOTES

ASSUMES NO ENVIRONMENTAL MITIGATION COSTS

CONCEPT DESIGN PHASE WITH MANY ASSUMPTIONS

PROJECT SCHEDULE & INFLATION

CONSTRUCTION DOLLARS (2024)

PROGRAM DOLLARS

Route CC and 22nd Street

Route CC / Fremont Road

Construction Cost

\$849,620

\$1,297,302

Preliminary Engineering (11%)

\$93,458

\$142,703

Construction Engineering (15%)

\$127,443

\$194,595

Right of Way

\$10,000

\$10,000

Right of Way Incidentals

\$3,000

\$3,000

Utility Relocation Costs

\$15,000

\$15,000

TOTAL**\$1,098,520.86****\$1,662,601.00****PROJECT TOTALS****\$2,761,121.86**DESIGN ESTIMATE IS BASED ON CONCEPT DESIGN & CAN CHANGE BASED ON
FINAL DESIGN APPROVAL