



Spring Rd Mixed-Use

Smyrna, GA

June 19, 2020

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1 Project Description

The proposed mixed-use development consists of approximately 10,800 SF of retail, and 105 multi-family units. The development is located in the south west quadrant of Spring Rd and Jonquil Dr in the City of Smyrna, GA. Three driveways are proposed for the site, a right-in / right-out on Spring Rd and full access on Jonquil Dr and a full access on Corn Rd. The proposed development has an anticipated build-out year of 2022. A vicinity map is shown in Figure 1 an aerial map is shown in Figure 2. The proposed site plan is also included in Appendix A.

Figure 1: Vicinity Map

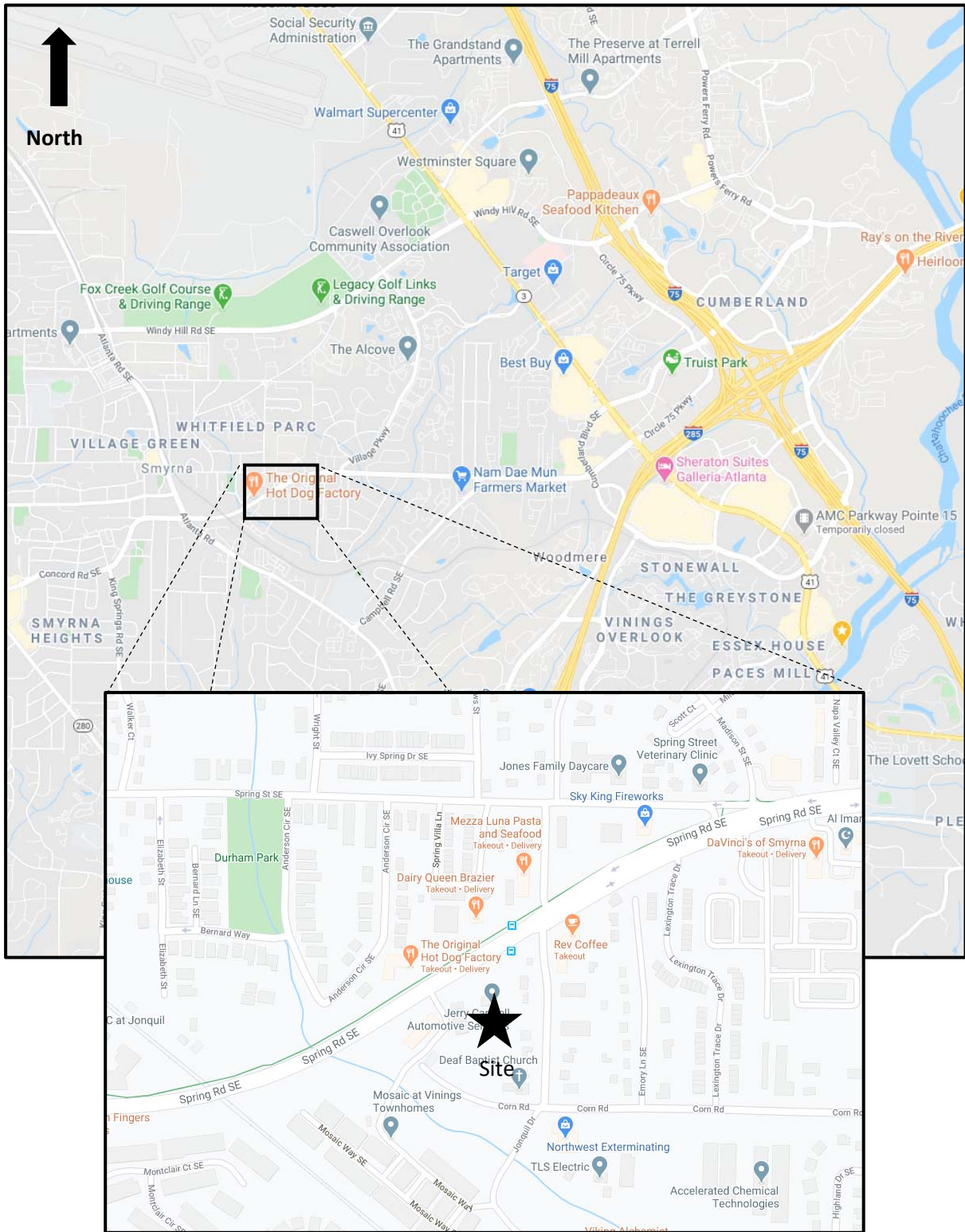


Figure 2: Aerial Map



1.1 Site Plan Summary

The proposed mixed-use development consists of approximately 10,800 SF of retail, and 105 multi-family units. The development is located in the south west quadrant of Spring Rd and Jonquil Dr in the City of Smyrna, GA.

1.2 Site Access

The proposed development will access the external roadway network via three proposed driveway locations.

- Right-in/right-out on Spring Rd 220 feet west of the signalized intersection Jonquil Dr
- Full access on Jonquil Dr south of Spring Rd
- Full access on Corn Rd west of Jonquil Dr

1.3 Study Area

The study area for the proposed development traffic impact study includes the existing signalized intersection of Spring Rd at Jonquil Dr and the proposed site driveways.

2 No-Build Conditions

2.1 Transportation Facilities Description

Spring Rd SE is a four-lane Minor Arterial with a posted speed limit of 45mph. To the west of Jonquil Dr a two-way left-turn lane (TWLTL) separates directions of travel, and to the east a raised median is used. The roadway runs primarily east to west connecting the City of Smyrna to the west with I-75/I-285 to the east.

Jonquil Dr is a two-lane undivided local road with a posted speed limit of 25 mph. The roadway forms a T-intersection with Spring St north of Spring Rd and connects to a townhome development / commercial land-uses to the south. The roadway runs north to south.

Corn Rd is a two-lane undivided local road with an assumed speed limit of 25 mph. The roadway runs east to west and serves as a connection several commercial/industrial businesses and other connections to Spring Rd.

2.2 Traffic Data

Due to the ongoing COVID-19 pandemic at the time of this report, existing traffic counts are not reliable as traffic patterns and volume do not correlate with typical conditions. Historic traffic counts were obtained for the intersection of Spring Rd at Jonquil Dr for use in analysis. The traffic counts were collected on May 6th, 2014. These traffic counts were grown to 2022 no-build conditions for the purposes of this analysis.

Cobb County was able to provide detector data from the SCATS signal timing detector logs. There were some inconsistencies between the detector data and historic traffic count data. Spring Rd approach volumes were generally in line with expected growth; however, the eastbound left-turn movement detector appears to be splitting volume with the through movement. The southbound approach also shows 58 vehicles vs the 253 counted during the AM peak hour of the 2014 historic counts. Additionally, right-turning movements and side-street movements are not always separated. For these reasons, the SCATS data was used for reference only focusing on approach volume not on turning volumes.

2.3 Background Traffic Growth

Background traffic growth is the analysis method of analyzing historic trends in traffic volumes / population growth, and future growth projections to determine an annual growth rate which is applied to the existing traffic counts on the study network.




GDOT historic AADT on the surrounding roadways was intermittent and inconsistent for developing a growth rate. The Atlanta Braves DRI# 2381 approximately 4 miles to the east utilized a yearly growth rate of 1% from 2014-2019. Population data for Cobb County and the City of Smyrna show a population growth of 0.5% to 1% over the past several years. Cobb county provided intersection detector data for the intersection of Spring Rd at Jonquil Dr the data is best used to determine approach volumes at the intersection. Comparing the 2014 historic data to February 2020 SCATS data the AM peak hour grew by 1.5% per year while the PM peak hour shrank by -1.0% per year.

The City of Smyrna has requested a growth rate of 3.0% per year be used for analysis to remain consistent with an unrelated traffic study performed at the beginning of the year near Campbell Rd approximately 1.5 miles to the east. The peak hour turning movement volumes are shown graphically in Figure 4. The raw traffic counts are included in Appendix B.

Figure 3: Lane Geometry



LEGEND

-  Signal Control
-  Stop Control
-  Existing Lane Geometry

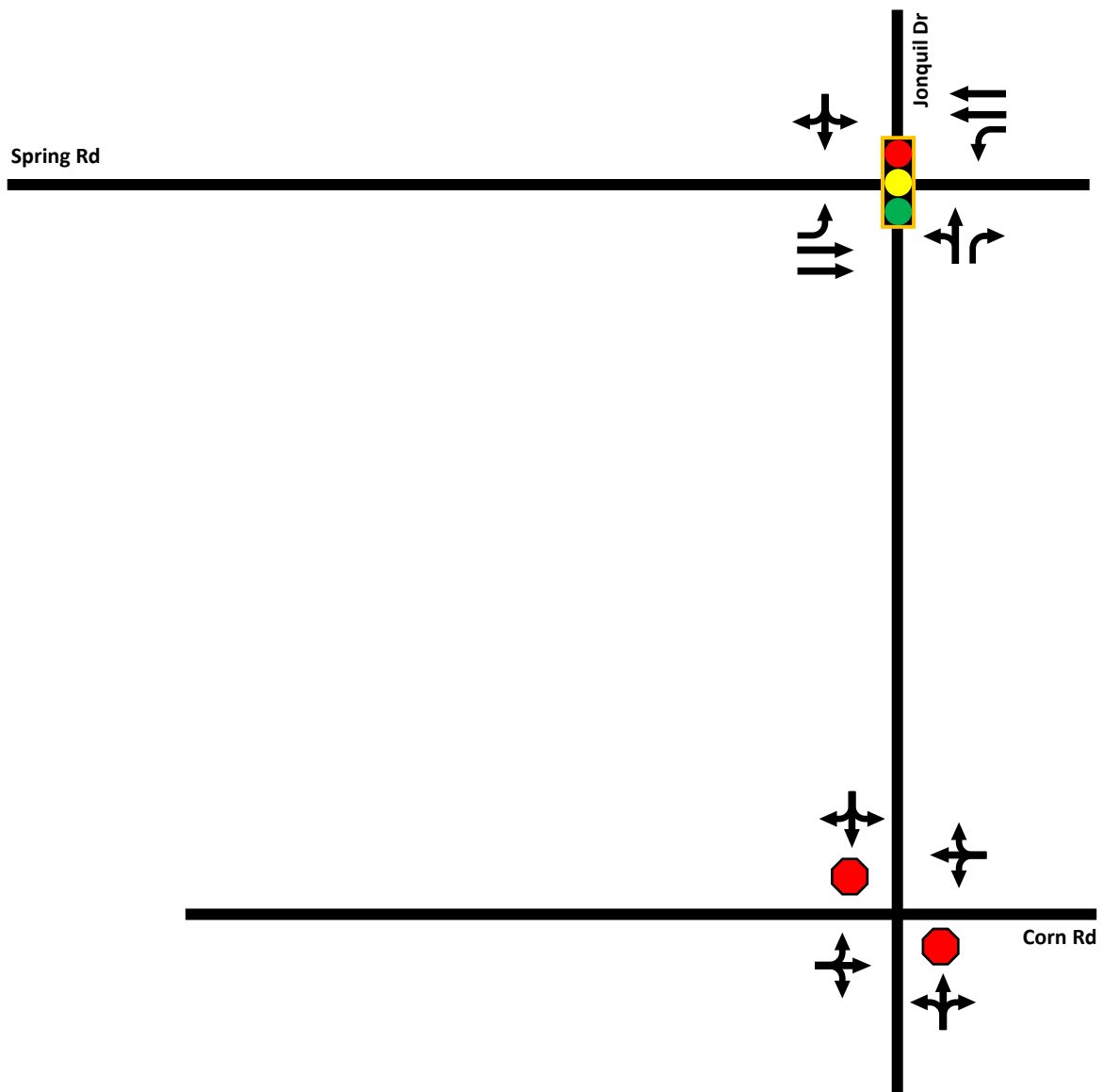
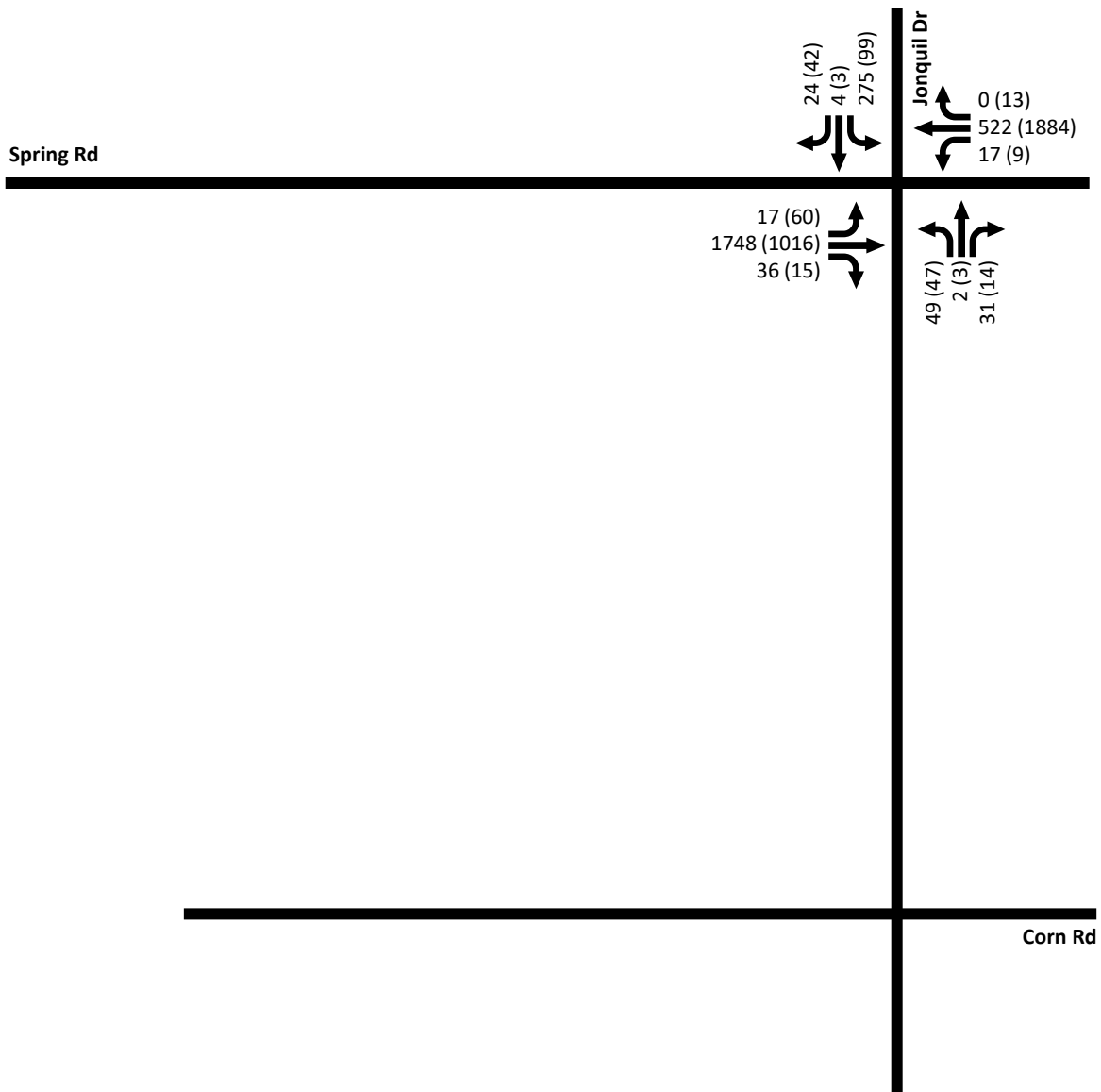


Figure 4: No-Build 2022 Traffic Volumes



LEGEND

(###) → AM (PM) Peak Hour Traffic Volume



2.4 No-Build Capacity Analysis

The no-build 2022 traffic volumes were analyzed using a Synchro 10.3 model to determine the capacity of the AM and PM peak hours. The results are shown by lane group movement and total intersection capacity. Average vehicular delays are shown in seconds, level of service (LOS) is a grading system as defined by the Highway Capacity Manual (HCM) where A is best, and F is worst. HCM 6th Edition was used for analysis. Vehicle 95th percentile queueing shown in feet and is from a SimTraffic 10.3 model analysis. Synchro and SimTraffic output files are included in Appendix C.

Traffic signal timing for the intersection of Spring Rd at Jonquil Dr is controlled by SCATS, an automated signal timing which adjusts signal timing for the Spring Rd corridor based on approach data from vehicle detectors. The signal timing used in analysis was estimated based on the cycle lengths used for Spring Rd. Actual signal timing will vary depending on day and traffic volumes.

Table 1: No-Build 2022 Conditions Capacity Analysis

Intersection	Control	Lane Group Movement	AM Peak Hour			PM Peak Hour		
			Delay (s)	LOS	95 th % Queue (ft)	Delay (s)	LOS	95 th % Queue (ft)
Spring Rd @ Jonquil Dr	Signal Control	EBL	18.6	B	30	34.0	C	190
		EBT/R	14.2	B	255	6.5	A	509
		WBL	28.3	C	35	9.7	A	91
		WBT/R	11.5	B	197	12.6	B	314
		NBL/T	51.3	D	80	61.8	E	85
		NBR	49.7	D	35	59.2	E	30
		SBL/T/R	158.9	F	283	80.9	F	224
		Intersection		27.3	C	-	15.4	B

Spring Rd at Jonquil Dr

- The signalized intersection favors the main-line operation. Northbound LOS sees a LOS of E in the afternoon, and SB a LOS F in AM and PM peak hours.
- The southbound approach peak hour factor is a 0.66 leading to inconsistent arrival times at the intersection worsening the modeled capacity. Automated signal timing should handle inconsistent and arrivals better than Synchro capacity analysis models.
- The intersection is controlled by an automated signal timing program which adjusts the signal timing based on approach volumes (SCATS). Modeling the intersection in Synchro sets the signal timing for an entire hour where SCATS will better handle the inconsistent arrival times adjusting the timing to allow for the southbound approach to clear.
- SCATS detector data shows significantly less southbound volume than the historic traffic counts, consulting historic google earth aerial imagery it appears that a resurfacing project on Spring St, and Spring Rd near Atlanta Rd was completed around the time of the traffic counts which may have altered traffic patterns. Actual southbound volume may be less than modeled.

3 Build Conditions

3.1 Trip Generation

A trip generation for the proposed development was created using the Institute of Traffic Engineers (ITE) Trip Generation Manual 10th Edition, 2017.

Table 2: Trip Generation Summary

Land Use Information	Reduction %	Project Trips			Equation Used ¹	In / Out Distribution
		Total	Inbound	Outbound		
221- Multifamily Housing (Mid-Rise)					105	Dwelling Unit
Daily		571	286	285	$T=5.45(X) - 1.75$	50% / 50%
AM Peak Hour		36	9	27	$\ln(T) = 0.98\ln(X) - 0.98$	26% / 74%
PM Peak Hour		46	28	18	$\ln(T) = 0.96\ln(X) - 0.63$	61% / 39%
Reductions for Internal Capture						
Daily	13%	73	53	20		
AM Peak Hour	0%	0	0	0		
PM Peak Hour	15%	7	5	2		
Net New External Vehicle Trips						
Daily		498	233	265		
AM Peak Hour		36	9	27		
PM Peak Hour		39	23	16		
820- Shopping Center					10,800	1000 S.F.
Daily		408	204	204	$T=37.75(X)$	50% / 50%
AM Peak Hour		10	6	4	$T=0.94(X)$	62% / 38%
PM Peak Hour		41	20	21	$T=3.81(X)$	48% / 52%
Reductions for Internal Capture						
Daily	18%	73	20	53		
AM Peak Hour	0%	0	0	0		
PM Peak Hour	17%	7	2	5		
Reductions for Pass-By Trips						
Daily	26%	87	48	39		
AM Peak Hour	17%	2	1	1		
PM Peak Hour	34%	12	6	6		
Net New External Vehicle Trips						
Daily		248	136	112		
AM Peak Hour		8	5	3		
PM Peak Hour		22	12	10		
Total Trip Generation						
Daily		979	490	489	221- Multifamily Housing (Mid-Rise) 820- Shopping Center	
AM Peak Hour		46	15	31		
PM Peak Hour		87	48	39		
Reductions for Internal Capture						
Daily	15%	146	73	73		
AM Peak Hour	0%	0	0	0		
PM Peak Hour	16%	14	7	7		
Reductions for Pass-By Trips						
Daily	9%	87	48	39		
AM Peak Hour	4%	2	1	1		
PM Peak Hour	14%	12	6	6		
Net New External Vehicle Trips						
Daily		746	369	377		
AM Peak Hour		44	14	30		
PM Peak Hour		61	35	26		

Note: ¹ Where: T = Trips; X = Density by Variable

The proposed development is anticipated to generate 979 daily vehicle trips (490 inbound, 489 outbound) with 46 AM peak hour vehicle trips (15 inbound, 31 outbound), and 87 PM peak hour trips (48 inbound, 39 outbound).

Mixed-use developments that contain residential, and retail land-uses will generate trips that satisfy the total development's trip generation but will not access the site via the external roadway network. Internal trip capture is calculated using the guidance set forth in the ITE Trip Generation Handbook 3rd Edition, 2017 which utilizes the NCHRP 8-51 Internal Trip Capture Estimation tool. AM and PM peak hour trips utilize their respective tools, however, to estimate the daily internal capture the PM worksheets were used with the daily traffic volumes.

The internal capture reduction is 146 daily vehicle trips (73 inbound, 73 outbound) with an PM peak hour vehicle volume reduction of 14 vehicles (7 inbound, 7 outbound), NCHRP worksheets are included in Appendix D.

The proposed retail land-uses are expected to attract trips as intermediate stops on the way from an origin to a primary trip destination without a route diversion. The pass-by trip generation rate is based on the ITE Trip Generation Handbook 3rd Edition, 2017.

The pass-by trip reduction is 87 daily vehicle trips (48 inbound, 39 outbound) with an AM peak hour vehicle volume reduction of 2 vehicles (1 inbound, 1 outbound), and a PM peak hour vehicle volume reduction of 12 vehicles (6 inbound, 6 outbound).

3.2 Trip Distribution

The trip distribution for the proposed development was based on existing traffic counts and patterns, a review of land-use densities in the area, and potential origination / destination points. Due to the residential portion of the development vehicle trips were distributed considering access to schools servicing the proposed development. All schools servicing the development are located to the west.

The trip distribution is shown graphically in Figure 5 (AM) and Figure 6 (PM) Pass-by trip distribution is shown in Figure 7 (AM) Figure 8 (PM). Total project trips are shown in Figure 9.

3.3 Build Traffic Volumes

Build traffic volumes include background volumes and project trips that will be generated by the proposed development. Total build year traffic volumes are shown graphically in Figure 10.

3.4 Turn Lane Warrant Analysis

Turn lane warrant analysis was performed at proposed driveways to determine if the proposed development traffic volume would warrant turn lanes. NCHRP 457: Evaluating Intersection Improvement Recommendations was used for the site driveway. NCHRP reports used for analysis are included in Appendix D. The results of the turn lane warrant analysis are summarized as follows:

Driveway 1 at Spring Rd

- Not Warranted

Driveway 2 at Jonquil Dr

- Not Warranted

Driveway 3 at Corn Rd

- Due to the minimal volume of vehicles accessing the cul-de-sac, a turn-lane is not recommended

Build year lane geometry was unchanged for the purposes of this analysis.

Figure 5: Trip Distribution AM

LEGEND

(###) → IN (OUT) % of Trip Distribution

--- Proposed Driveway

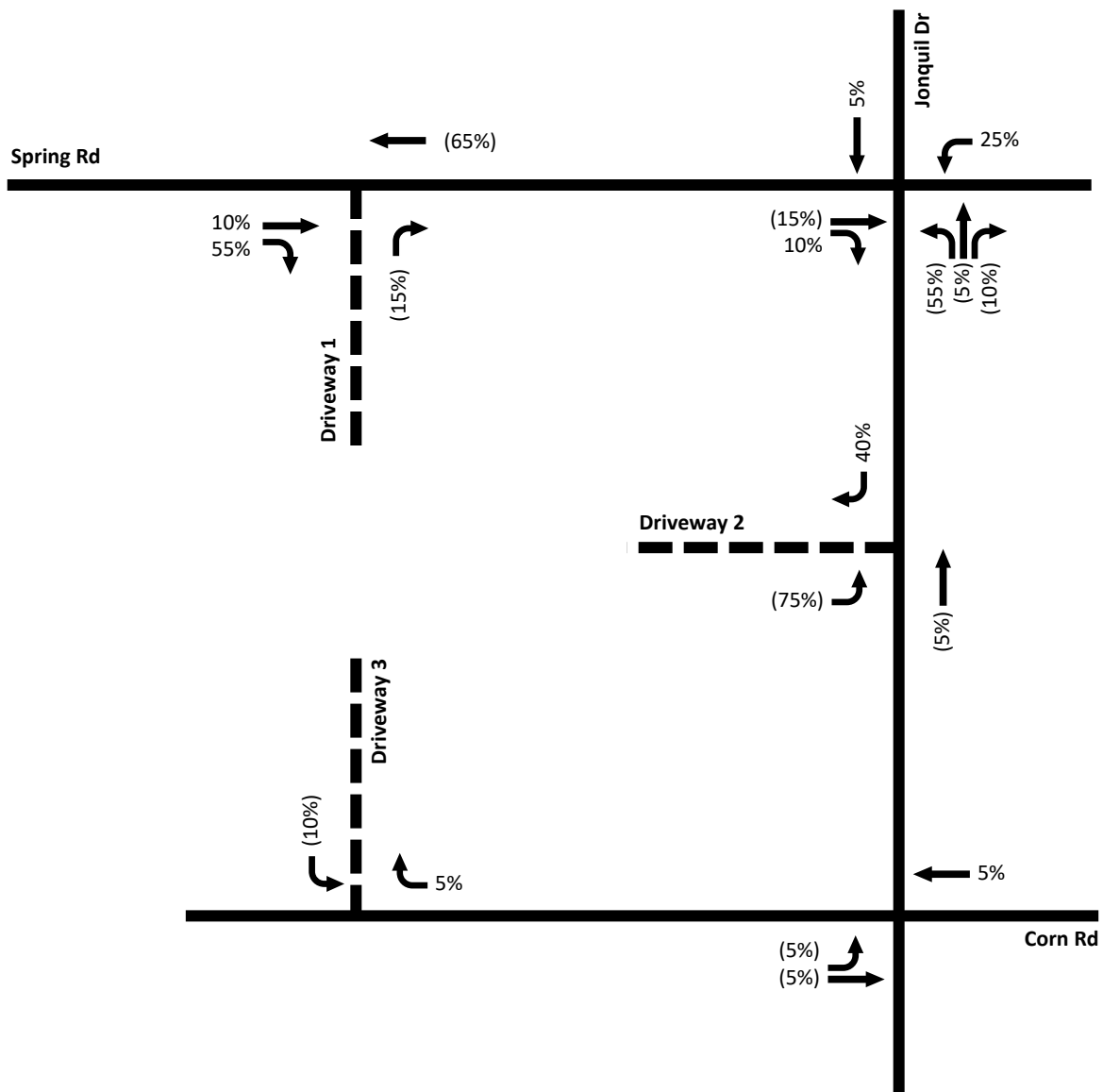


Figure 6: Trip Distribution PM

LEGEND

(###) → IN (OUT) % of Trip Distribution

--- Proposed Driveway

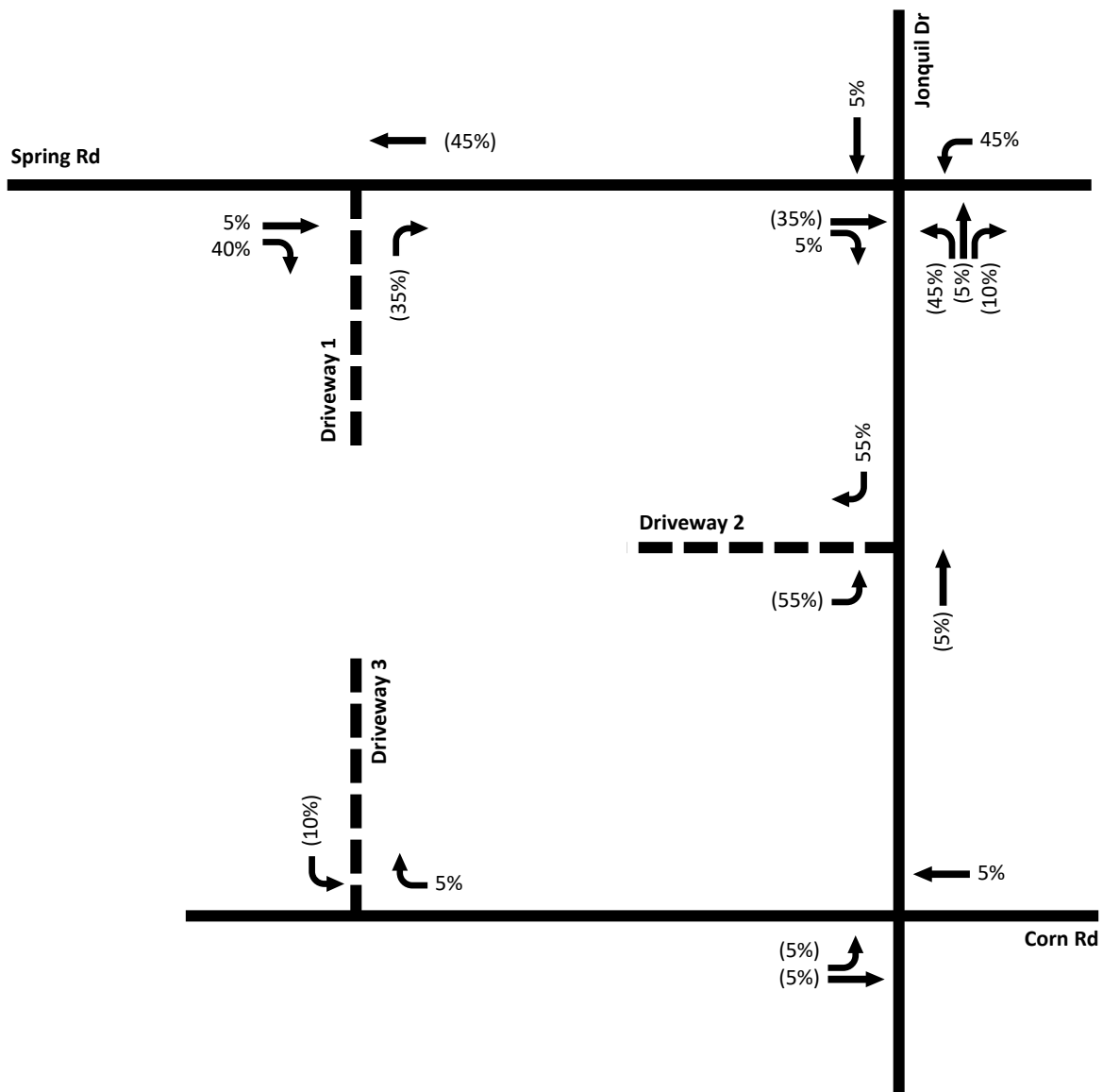


Figure 7: Pass-By Distribution AM



LEGEND

(###) → IN (OUT) % of Pass-By Trips

--- Proposed Driveway

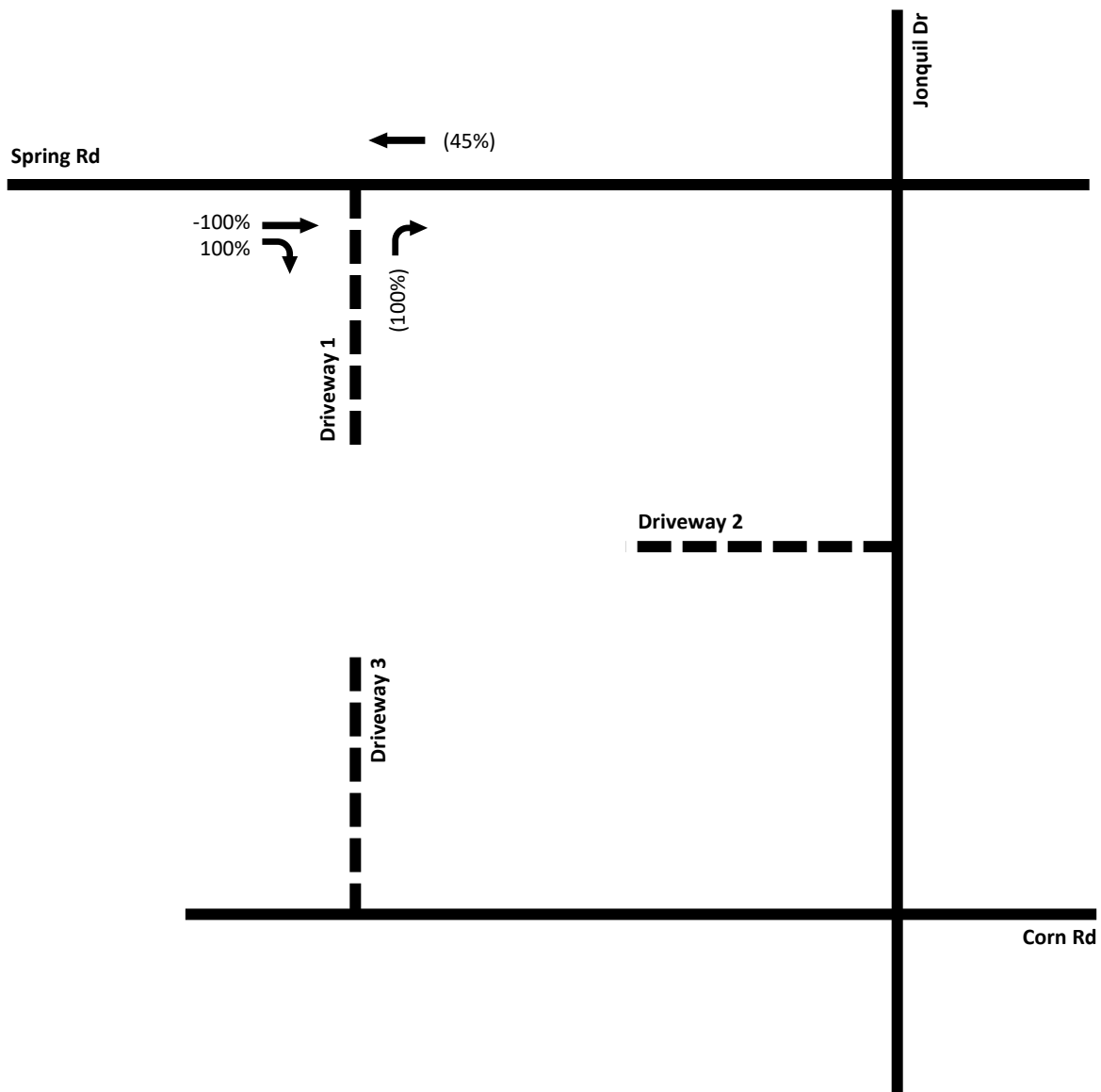


Figure 8: Pass-By Distribution PM



LEGEND

(###) → IN (OUT) % of Pass-By Trips

--- Proposed Driveway

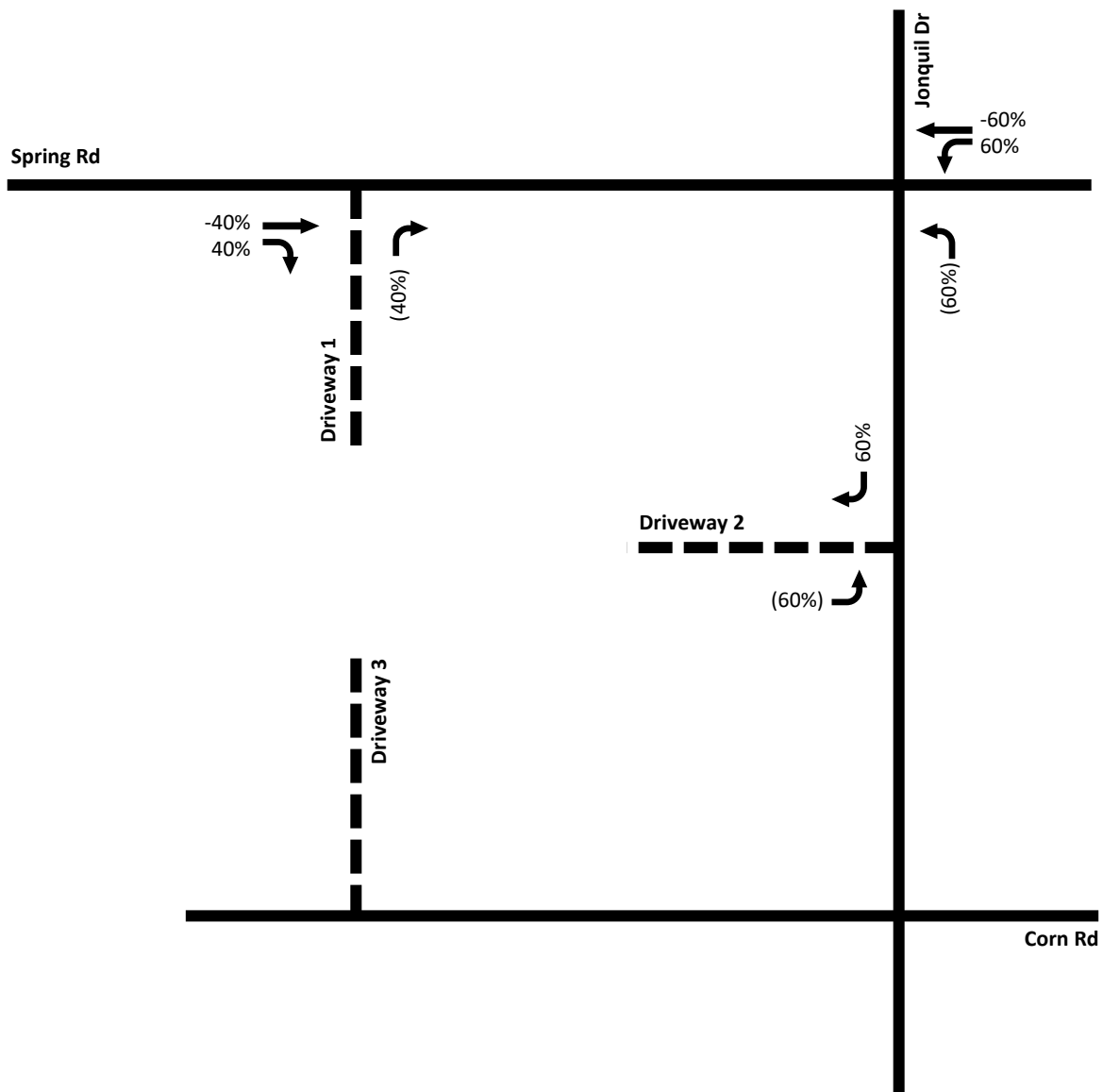


Figure 9: Project Trips



LEGEND

(###) → AM (PM) Peak Hour Traffic Volume

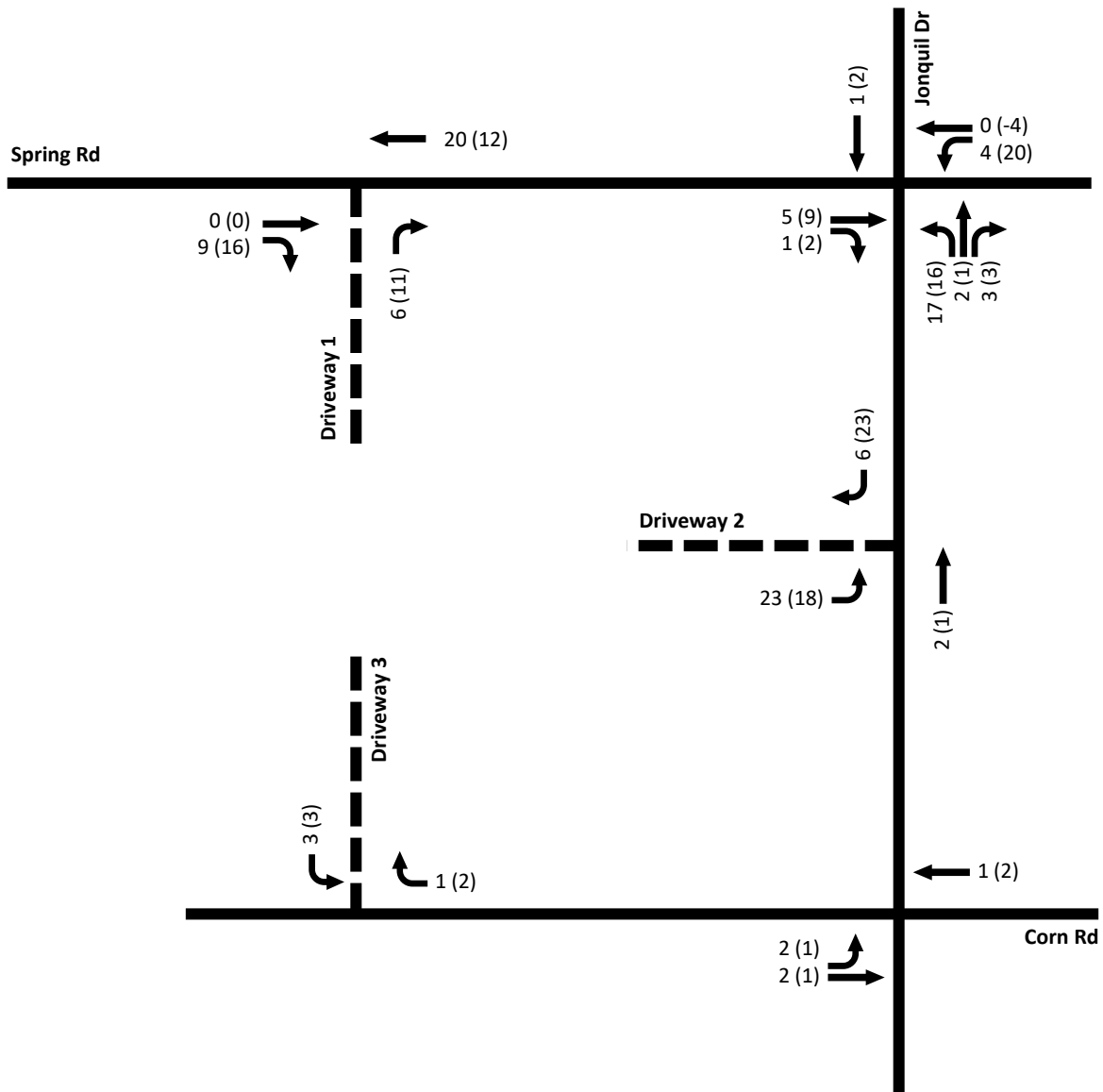


Figure 10: Build 2022 Traffic Volumes



LEGEND

(###) → AM (PM) Peak Hour Traffic Volume

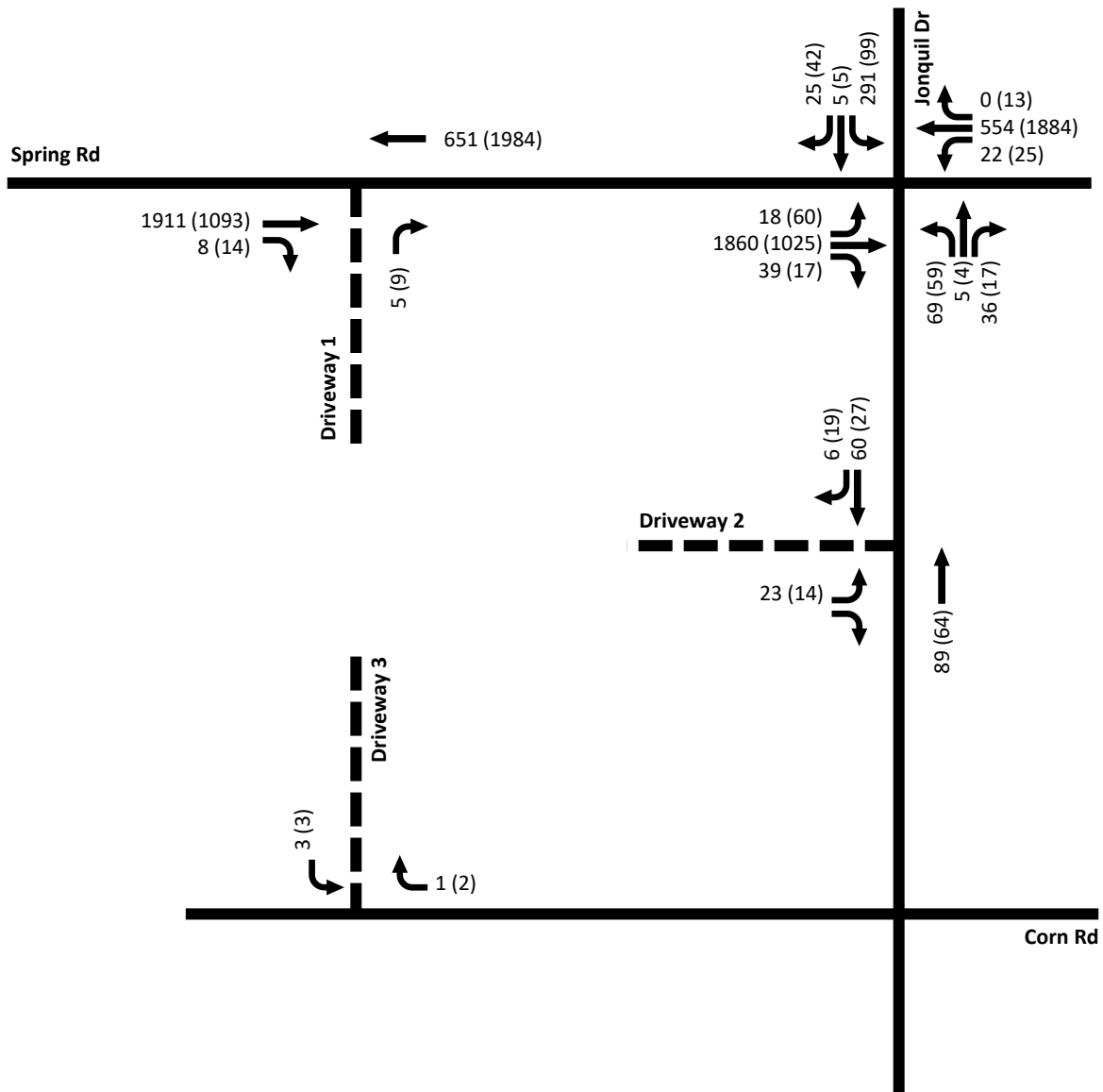
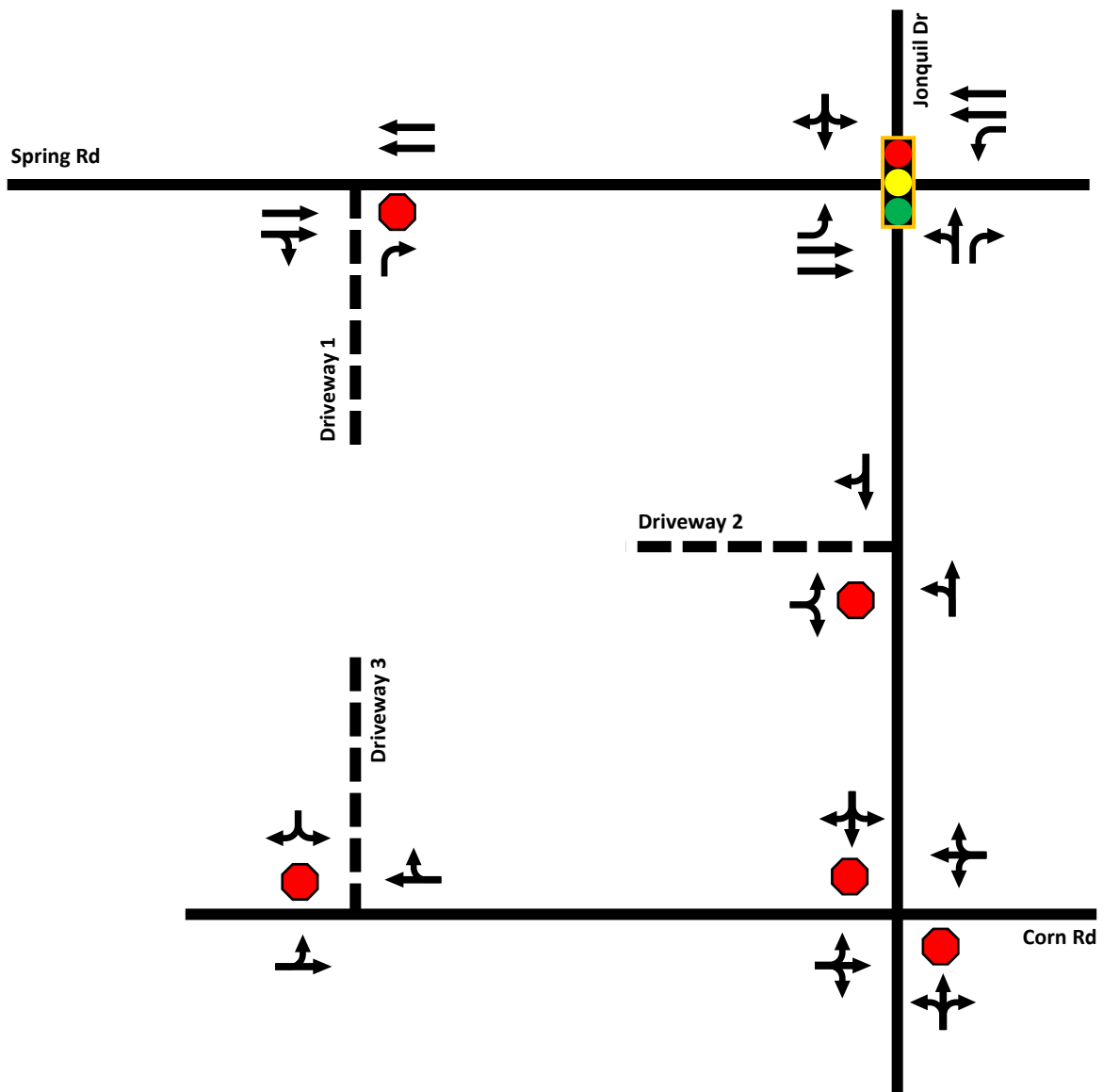
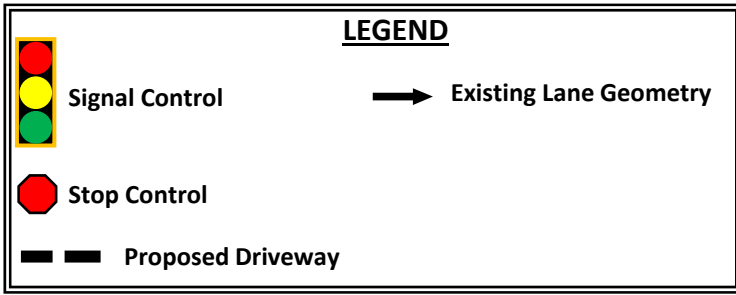


Figure 11: Build 2022 Lane Geometry



Build Capacity Analysis

The build traffic volumes were analyzed using a Synchro 10.3 model to determine the capacity of the AM and PM peak hours. The results are shown by lane group movement and total intersection capacity. Average vehicular delays are shown in seconds, level of service (LOS) is a grading system as defined by the Highway Capacity Manual (HCM) where A is best, and F is worst. HCM 6th Edition was used for analysis. Vehicle 95th percentile queueing shown in feet and is from a SimTraffic 10.3 model analysis. Synchro and SimTraffic output files are included in Appendix C. Build year capacity analysis is shown in Table 3.

Table 3: Build (2022) Conditions Capacity Analysis

Intersection	Control	Lane Group Movement	AM Peak Hour			PM Peak Hour		
			Delay (s)	LOS	95 th % Queue (ft)	Delay (s)	LOS	95 th % Queue (ft)
Spring Rd @ Jonquil Dr	Signal Control	EBL	9.7	A	12	37.5	D	142
		EBT/R	38.1	D	311	7.2	A	194
		WBL	104.7	F	121	11.5	B	31
		WBT/R	7.8	A	122	13.8	B	291
		NBL/T	52.7	D	121	61.1	E	131
		NBR	50.5	D	78	57.8	E	28
		SBL/T/R	477.5	F	478	82.2	F	225
		Intersection	88.3	F	-	16.6	B	-
Driveway 1 @ Spring Rd SE	Side-street Stop Control	EB	0.0	A	224	0.0	A	18
		WB	0.0	A	-	0.0	A	-
		NB	28.8	D	23	13.8	B	35
		Intersection	0	-	-	0.0	-	-
Driveway 2 @ Jonquil Dr	Side-street Stop Control	EB	9.8	A	36	9.2	A	38
		WB	0.0	A	-	0.0	A	-
		NB	0.0	A	18	0.0	A	27
		Intersection	1	-	-	1.0	-	-
Driveway 3 @ Corn Rd	Side-street Stop Control	EB	0.0	A	-	0.0	A	-
		WB	0.0	A	-	0.0	A	-
		SB	8.5	A	10	8.5	A	10
		Intersection	6.4	-	-	5.1	-	-

Spring Rd at Jonquil Dr

- The intersection level of service during the AM peak hour drops to a LOS F
 - The intersection deficiency is due to several factors. The existing southbound approach utilizes a single lane approach and has many left-turning vehicles (291 in Build and No-Build). The northbound approach has a shared through/left-turn lane. The southbound approach peak hour factor is a 0.66 leading to inconsistent arrival times at the intersection worsening the modeled capacity.
 - The intersection is controlled by an automated signal timing program which adjusts the signal timing based on approach volumes (SCATS). Modeling the intersection in Synchro sets the signal timing for an entire hour where SCATS will better handle the inconsistent arrival times adjusting the timing to allow for the southbound approach to clear.
 - SCATS detector data shows significantly less southbound volume than the historic traffic counts, consulting historic google earth it appears that a resurfacing project on Spring St,

and Spring Rd near Atlanta Rd was completed around the time of the traffic counts which may have altered traffic patterns. Actual southbound volume may be less than modeled.

Spring Rd at Driveway 1

- Vehicles exiting the development have a 35-foot internal queue during the PM peak hour and LOS D during the AM peak hour

Jonquil Dr at Driveway 2

- The driveway operates at LOS A for both peak hours with an internal queue of 35 feet

Corn Rd at Driveway 3

- The intersection operates at LOS A for both peak hours with minimal queuing

3.5 Signal Phase Analysis

A left turn phase warrant was conducted at the intersections of Spring Rd at Jonquil Dr. Per GDOT Policy 6785-2 left turn phases will be considered where one or more of the requirements are met:

1. Cross product of peak hour left turn volume and peak hour opposing through volume divided by the number of lanes for opposing through movement is greater than 50,000 or greater than 30,000 for a lagging left turn phase.
2. The left-turn volume exceeds 125 vehicles per hour or 75 vehicles per hour for a lagging left turn phase.

Table 4: Left-Turn Phase Analysis (Brandsmart Way)

Build AM								
Movement	Left (vph)	Opp. Through (vph)	Opp. Through (lanes)	Cross Product	Prot / Perm > 50,000	Lagging >30,000	Prot / Perm >125	Lagging >75
EBL	18	554	2	4,986	No	No	No	No
WBL	22	1860	2	20,460	No	No	No	No
PM								
EBL Build	60	1884	2	56,520	Yes	Yes	No	No
EBL No Build	60	1884	2	56,520	Yes	Yes	No	No
WBL	18	1025	2	9,225	No	No	No	No

3. Correctable crashes equal or exceed 4 crashes in one year or 6 crashes in two years: Not Analyzed
4. Additional criteria including but not limited to sight distance, speed of opposing traffic, number of left turn lanes, number of opposing through lanes, delay, the angle of the left turn and if signal is included in a coordinated signal system – Not analyzed / not applicable

Based on the results of the analysis an EB left turn phase is warranted based on the cross product in no-build conditions. The existing signal infrastructure may be insufficient to support additional signal heads required for FYA operation and should be checked prior to installation.

3.6 Intersections / Roadways Near Proposed Development

The following intersections / roadways were excluded from capacity analysis due to insufficient historic data and inability to collect accurate existing counts due to ongoing COVID-19 conditions.

Spring St / Atlanta Rd

The City of Smyrna has expressed concern over Spring St being utilized as a cut-through route to access Atlanta Rd. The City expressed that Spring Rd during normal operation backs up at the Atlanta Rd intersection causing the cut-through route to be utilized. The proposed development contribution to the cut-through is expected to be relatively minimal and not have a major impact on the roadway. Additionally, the Spring Rd at Atlanta Rd intersection has turn lanes for all approaches with dual-left turn lanes for northbound and southbound movements. Improvements at the intersection would require considerable effort and cost to fix any existing issues.

Corn Rd

Corn Rd services a small number of residential and commercial land-uses. The northern and southern approaches to the intersection with Jonquil Dr are not fully aligned. Fixing alignment at the intersection would require land from the existing landowners. Based on the northbound traffic seen at the intersection of Jonquil Dr at Spring Rd the volumes at the intersection are anticipated to be minimal. If there is a problem with the existing intersection an all way stop control could be considered.

Spring Rd at Village Pkwy

The City of Smyrna expressed concern over the existing eastbound left-turn and queue lengths for the signalized intersection. The proposed development is anticipated to add a minimal amount of traffic to the intersection. Additionally, the left-turn is a back to back left-turn with the entrance of Elmwood Dr preventing expansion. When traffic patterns return to normal the signal timing for the left-turn phase should be examined to make sure the queue is being cleared during normal operation

3.7 Parking

Parking requirements per City of Smyrna Municipal code section 906:

906.4.1 New office and commercial uses which contain more than 10,000 square feet of gross floor area and are located on lots with a street frontage of 40 feet or more...

1 space / 1,000 SF

906.4.3 Dwellings

1 space / unit

Table 5: Parking Requirements

Land-use	Unit	Rate	Req'd
Retail + Amenity (SF)	15,100	1/1,000 SF	16
Residential (Unit)	105	1/unit	105
Total			121
Provided			136

The proposed development provides more than the required parking per municipal code requirements.

4 Recommendations and Conclusions

The proposed development consists of approximately 10,800 SF of retail, and 105 multi-family units. Three driveways are proposed a right-in / right-out on Spring Rd and full access on Jonquil Dr and a full access on Corn Rd. The proposed development has an anticipated build-out year of 2022. The proposed development is planned to generate less than 100 new peak hour trips. The proposed development requires 121 parking spaces and provides 136 total spaces.

Spring Rd at Jonquil Dr

- The intersection level of service during the AM peak hour drops to a LOS F
 - The intersection deficiency is due to several factors. The existing southbound approach utilizes a single lane approach and has many left-turning vehicles (291 in Build and No-Build). The northbound approach has a shared through/left-turn lane. The southbound approach peak hour factor is a 0.66 leading to inconsistent arrival times at the intersection worsening the modeled capacity.
 - The intersection is controlled by an automated signal timing program which adjusts the signal timing based on approach volumes (SCATS). Modeling the intersection in Synchro sets the signal timing for an entire hour where SCATS will better handle the inconsistent arrival times adjusting the timing to allow for the southbound approach to clear.
 - SCATS detector data shows significantly less southbound volume than the historic traffic counts. Consulting historic google earth aerial imagery it appears that a resurfacing project on Spring St, and Spring Rd near Atlanta Rd was completed around the time of the traffic counts which may have altered traffic patterns. Actual southbound volume may be less than modeled.
- Due to the existing southbound failing level of service, geometric constraints of the intersection, and automated signal timing improvements at the intersection are not recommended. Modeled capacity is expected be worse than field conditions
- The intersection meets cross product left-turn flashing yellow arrow signal phase warrants for the eastbound left-turn in no-build conditions.

Spring Rd at Driveway 1

- Proposed Right-in / Right-out driveway
- Vehicles exiting the development have a 35-foot internal queue during the PM peak hour and LOS D during the AM peak hour
- A raised concrete island should be installed in the driveway to prevent vehicles turning left into the development from Spring Rd. We recommend that this raised island be designed and built such that vehicles cannot make a left turn maneuver out of this driveway

Jonquil Dr at Driveway 2

- Proposed full-access driveway
- The driveway operates at LOS A for both peak hours with an internal queue of 35 feet

Corn Rd at Driveway 3

- Proposed full-access driveway
- The intersection operates at LOS A for both peak hours with minimal queuing

No other off-site improvements are recommended

Appendix A: Site Plan

Appendix B: Traffic Counts / SCATS Detector Data

All Traffic Data Service, Inc

1336 Farmer Road

Conyers, Ga 30012

404-374-1283

File Name : #10 JonquilDr@SpringRdAM

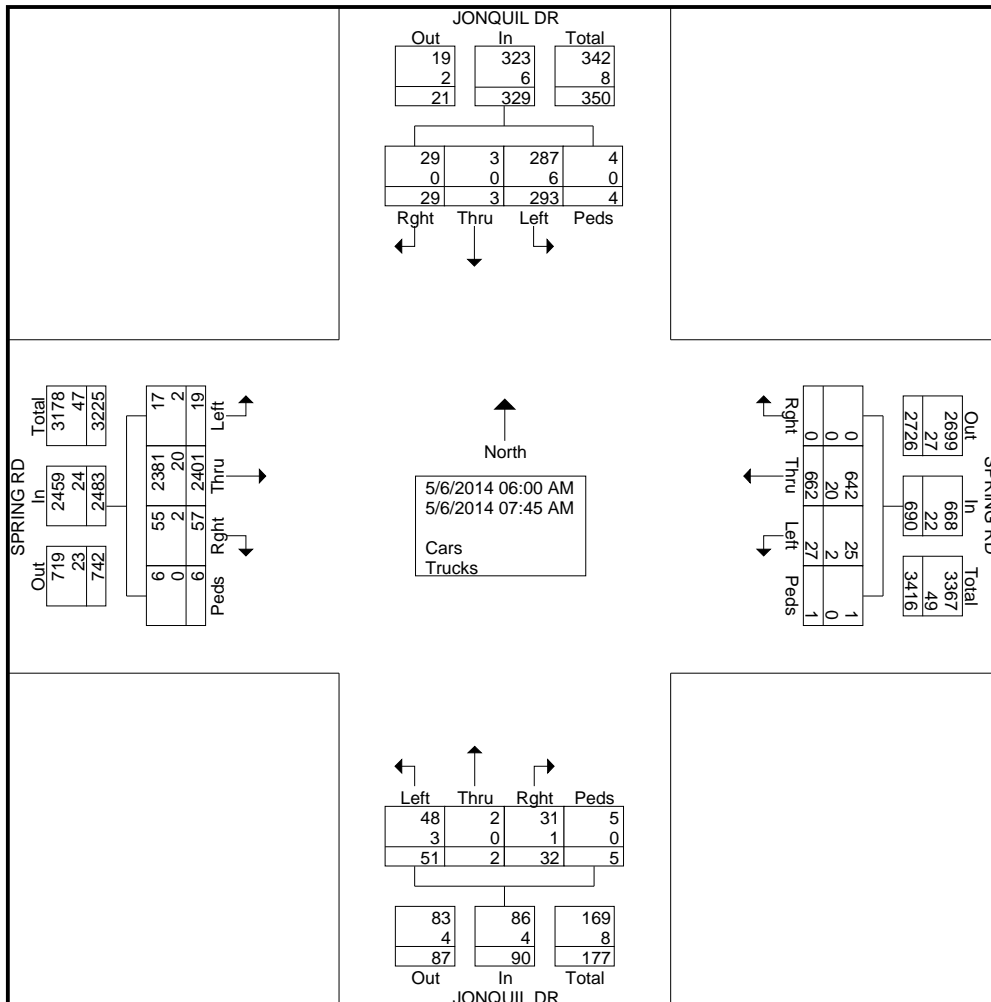
Site Code :

Start Date : 5/6/2014

Page No : 1

Groups Printed- Cars - Trucks

Start Time	JONQUIL DR Southbound					SPRING RD Westbound					JONQUIL DR Northbound					SPRING RD Eastbound					Int. Total
	Rght	Thru	Left	Peds	App. Total	Rght	Thru	Left	Peds	App. Total	Rght	Thru	Left	Peds	App. Total	Rght	Thru	Left	Peds	App. Total	
06:00 AM	1	0	10	1	12	0	36	2	0	38	0	0	1	0	1	1	100	0	0	101	152
06:15 AM	2	0	8	0	10	0	45	4	0	49	2	0	1	0	3	4	200	2	0	206	268
06:30 AM	2	0	20	1	23	0	63	2	0	65	1	0	2	0	3	11	241	1	2	255	346
06:45 AM	4	0	25	0	29	0	81	5	0	86	3	0	6	1	10	11	396	2	0	409	534
Total	9	0	63	2	74	0	225	13	0	238	6	0	10	1	17	27	937	5	2	971	1300
07:00 AM	6	0	15	1	22	0	73	1	0	74	3	0	12	0	15	0	103	2	2	107	218
07:15 AM	3	0	63	0	66	0	115	5	0	120	5	0	4	1	10	14	456	1	0	471	667
07:30 AM	8	1	62	0	71	0	130	5	0	135	9	0	9	0	18	12	485	2	2	501	725
07:45 AM	3	2	90	1	96	0	119	3	1	123	9	2	16	3	30	4	420	9	0	433	682
Total	20	3	230	2	255	0	437	14	1	452	26	2	41	4	73	30	1464	14	4	1512	2292
Grand Total	29	3	293	4	329	0	662	27	1	690	32	2	51	5	90	57	2401	19	6	2483	3592
Apprch %	8.8	0.9	89.1	1.2		0	95.9	3.9	0.1		35.6	2.2	56.7	5.6		2.3	96.7	0.8	0.2		
Total %	0.8	0.1	8.2	0.1	9.2	0	18.4	0.8	0	19.2	0.9	0.1	1.4	0.1	2.5	1.6	66.8	0.5	0.2	69.1	
Cars	29	3	287	4	323	0	642	25	1	668	31	2	48	5	86	55	2381	17	6	2459	3536
% Cars	100	100	98	100	98.2	0	97	92.6	100	96.8	96.9	100	94.1	100	95.6	96.5	99.2	89.5	100	99	98.4
Trucks	0	0	6	0	6	0	20	2	0	22	1	0	3	0	4	2	20	2	0	24	56
% Trucks	0	0	2	0	1.8	0	3	7.4	0	3.2	3.1	0	5.9	0	4.4	3.5	0.8	10.5	0	1	1.6



All Traffic Data Service, Inc

1336 Farmer Road

Conyers, Ga 30012

404-374-1283

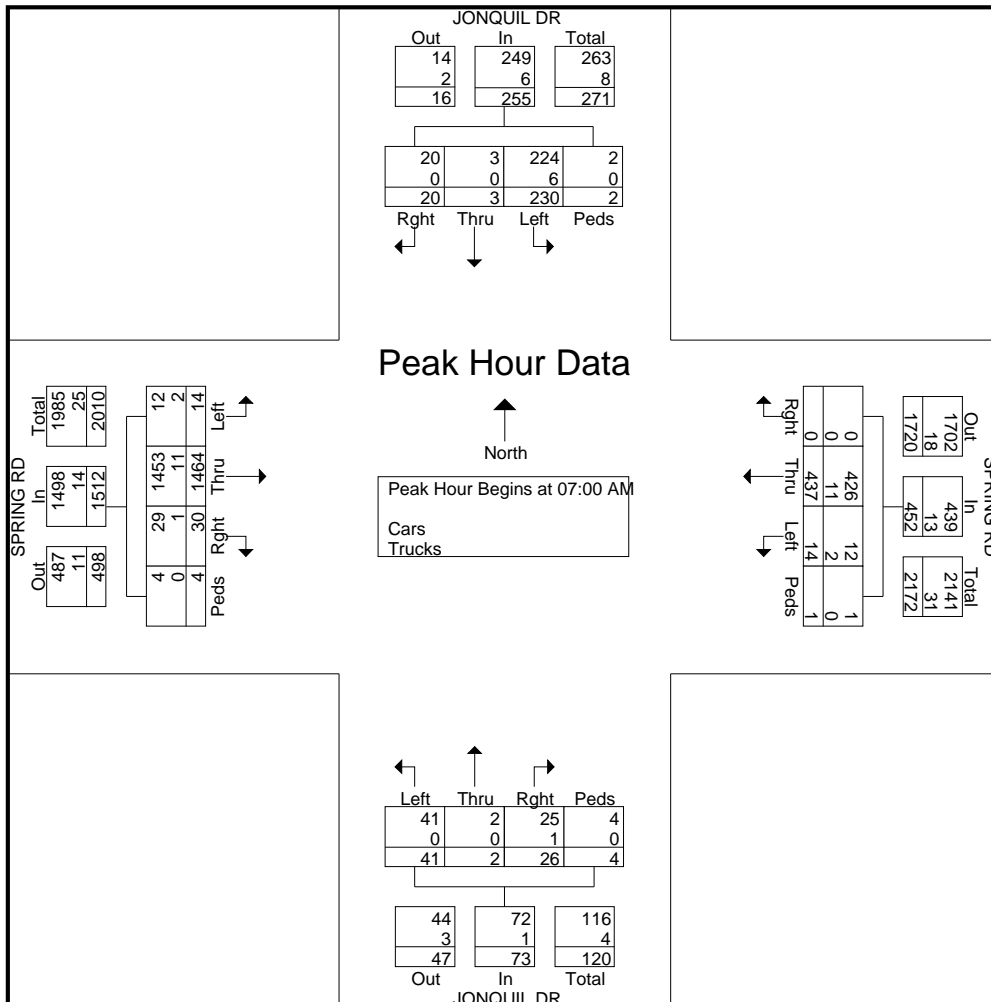
File Name : #10 JonquilDr@SpringRdAM

Site Code :

Start Date : 5/6/2014

Page No : 2

Start Time	JONQUIL DR Southbound					SPRING RD Westbound					JONQUIL DR Northbound					SPRING RD Eastbound					Int. Total
	Rght	Thru	Left	Peds	App. Total	Rght	Thru	Left	Peds	App. Total	Rght	Thru	Left	Peds	App. Total	Rght	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 06:00 AM to 07:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	6	0	15	1	22	0	73	1	0	74	3	0	12	0	15	0	103	2	2	107	218
07:15 AM	3	0	63	0	66	0	115	5	0	120	5	0	4	1	10	14	456	1	0	471	667
07:30 AM	8	1	62	0	71	0	130	5	0	135	9	0	9	0	18	12	485	2	2	501	725
07:45 AM	3	2	90	1	96	0	119	3	1	123	9	2	16	3	30	4	420	9	0	433	682
Total Volume	20	3	230	2	255	0	437	14	1	452	26	2	41	4	73	30	1464	14	4	1512	2292
% App. Total	7.8	1.2	90.2	0.8		0	96.7	3.1	0.2		35.6	2.7	56.2	5.5		2	96.8	0.9	0.3		
PHF	.625	.375	.639	.500	.664	.000	.840	.700	.250	.837	.722	.250	.641	.333	.608	.536	.755	.389	.500	.754	.790
Cars	20	3	224	2	249	0	426	12	1	439	25	2	41	4	72	29	1453				
% Cars	100	100	97.4	100	97.6	0	97.5	85.7	100	97.1	96.2	100	100	100	98.6	96.7	99.2	85.7	100	99.1	98.5
Trucks	0	0	6	0	6	0	11	2	0	13	1	0	0	0	1	1	11	2	0	14	34
% Trucks	0	0	2.6	0	2.4	0	2.5	14.3	0	2.9	3.8	0	0	0	1.4	3.3	0.8	14.3	0	0.9	1.5



All Traffic Data Service, Inc

1336 Farmer Road

Conyers, Ga 30012

404-374-1283

File Name : #10 JonquilDr@SpringRdPM

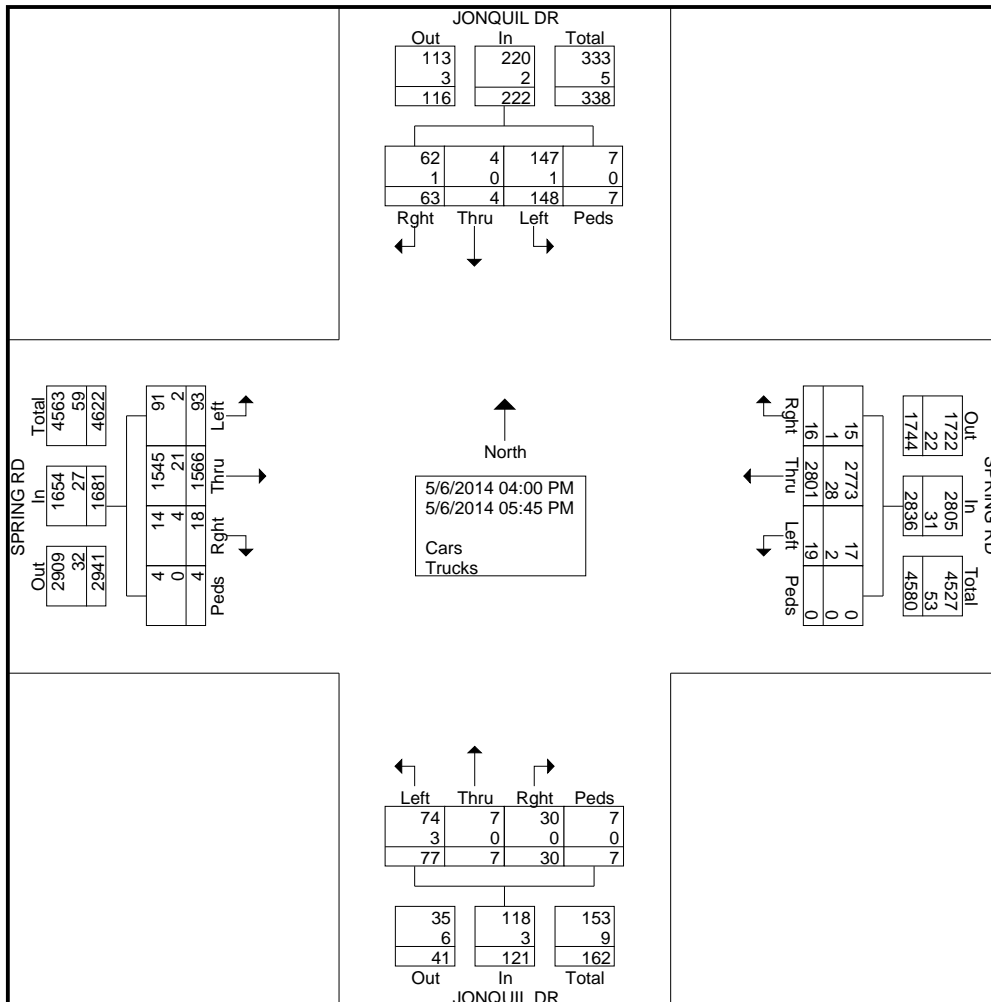
Site Code :

Start Date : 5/6/2014

Page No : 1

Groups Printed- Cars - Trucks

Start Time	JONQUIL DR Southbound					SPRING RD Westbound					JONQUIL DR Northbound					SPRING RD Eastbound					Int. Total
	Rght	Thru	Left	Peds	App. Total	Rght	Thru	Left	Peds	App. Total	Rght	Thru	Left	Peds	App. Total	Rght	Thru	Left	Peds	App. Total	
04:00 PM	9	0	13	0	22	1	285	4	0	290	4	1	16	0	21	1	181	14	0	196	529
04:15 PM	4	0	15	0	19	3	342	2	0	347	8	0	8	2	18	2	191	8	0	201	585
04:30 PM	11	0	24	2	37	1	359	4	0	364	5	3	9	0	17	2	187	6	0	195	613
04:45 PM	10	0	21	1	32	4	348	3	0	355	4	1	10	2	17	5	193	12	2	212	616
Total	34	0	73	3	110	9	1334	13	0	1356	21	5	43	4	73	10	752	40	2	804	2343
05:00 PM	7	1	14	0	22	3	377	0	0	380	3	1	11	0	15	2	194	9	0	205	622
05:15 PM	9	0	26	0	35	1	368	0	0	369	4	0	9	2	15	1	186	10	1	198	617
05:30 PM	7	1	17	4	29	2	394	4	0	400	0	0	7	1	8	4	229	16	1	250	687
05:45 PM	6	2	18	0	26	1	328	2	0	331	2	1	7	0	10	1	205	18	0	224	591
Total	29	4	75	4	112	7	1467	6	0	1480	9	2	34	3	48	8	814	53	2	877	2517
Grand Total	63	4	148	7	222	16	2801	19	0	2836	30	7	77	7	121	18	1566	93	4	1681	4860
Apprch %	28.4	1.8	66.7	3.2		0.6	98.8	0.7	0		24.8	5.8	63.6	5.8		1.1	93.2	5.5	0.2		
Total %	1.3	0.1	3	0.1	4.6	0.3	57.6	0.4	0	58.4	0.6	0.1	1.6	0.1	2.5	0.4	32.2	1.9	0.1	34.6	
Cars	62	4	147	7	220	15	2773	17	0	2805	30	7	74	7	118	14	1545	91	4	1654	4797
% Cars	98.4	100	99.3	100	99.1	93.8	99	89.5	0	98.9	100	100	96.1	100	97.5	77.8	98.7	97.8	100	98.4	98.7
Trucks	1	0	1	0	2	1	28	2	0	31	0	0	3	0	3	4	21	2	0	27	63
% Trucks	1.6	0	0.7	0	0.9	6.2	1	10.5	0	1.1	0	0	3.9	0	2.5	22.2	1.3	2.2	0	1.6	1.3



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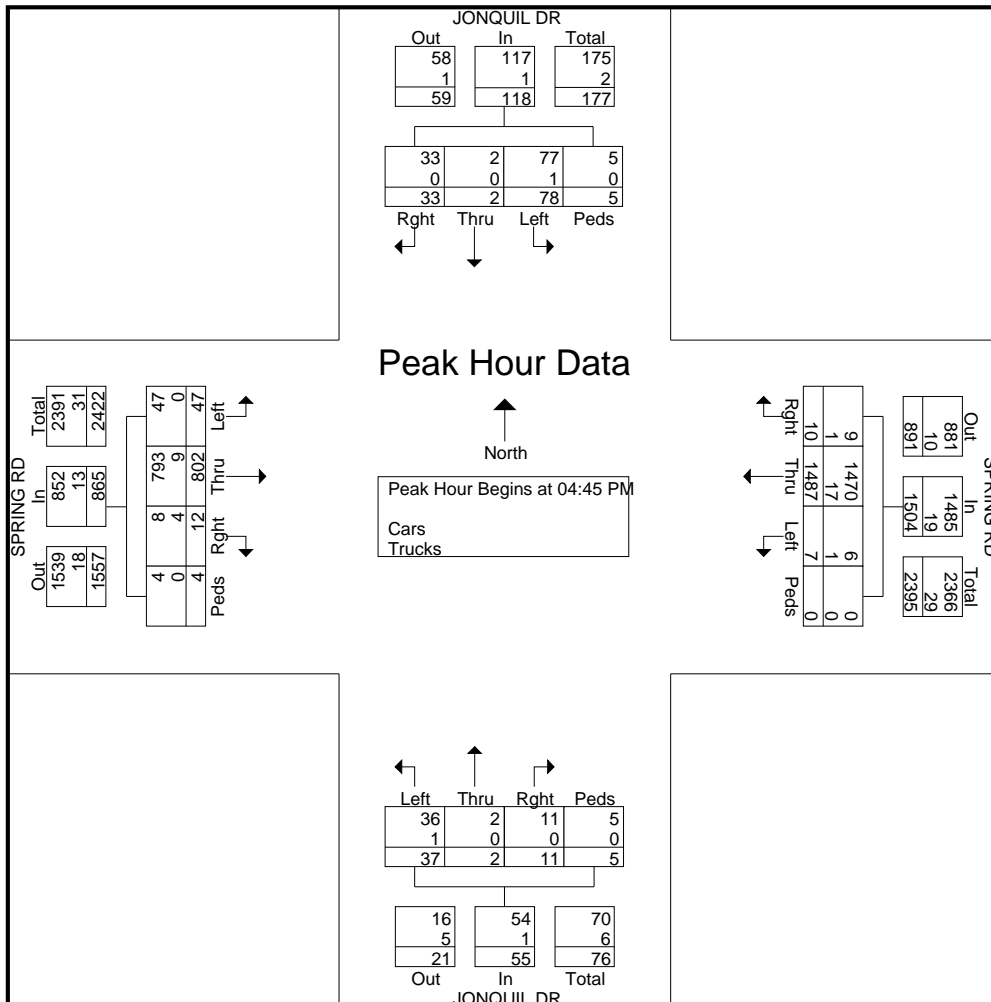
File Name : #10 JonquilDr@SpringRdPM

Site Code :

Start Date : 5/6/2014

Page No : 2

Start Time	JONQUIL DR Southbound					SPRING RD Westbound					JONQUIL DR Northbound					SPRING RD Eastbound					Int. Total
	Rght	Thru	Left	Peds	App. Total	Rght	Thru	Left	Peds	App. Total	Rght	Thru	Left	Peds	App. Total	Rght	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	10	0	21	1	32	4	348	3	0	355	4	1	10	2	17	5	193	12	2	212	616
05:00 PM	7	1	14	0	22	3	377	0	0	380	3	1	11	0	15	2	194	9	0	205	622
05:15 PM	9	0	26	0	35	1	368	0	0	369	4	0	9	2	15	1	186	10	1	198	617
05:30 PM	7	1	17	4	29	2	394	4	0	400	0	0	7	1	8	4	229	16	1	250	687
Total Volume	33	2	78	5	118	10	1487	7	0	1504	11	2	37	5	55	12	802	47	4	865	2542
% App. Total	28	1.7	66.1	4.2		0.7	98.9	0.5	0		20	3.6	67.3	9.1		1.4	92.7	5.4	0.5		
PHF	.825	.500	.750	.313	.843	.625	.944	.438	.000	.940	.688	.500	.841	.625	.809	.600	.876	.734	.500	.865	.925
Cars	33	2	77	5	117	9	1470														
% Cars	100	100	98.7	100	99.2	90.0	98.9	85.7	0	98.7	100	100	97.3	100	98.2	66.7	98.9	100	100	98.5	98.7
Trucks	0	0	1	0	1	1	17	1	0	19	0	0	1	0	1	4	9	0	0	13	34
% Trucks	0	0	1.3	0	0.8	10.0	1.1	14.3	0	1.3	0	0	2.7	0	1.8	33.3	1.1	0	0	1.5	1.3



Counts 2020-02-04_2020-02-06.txt

Tuesday, 04 February 2020

ph 2 LT, Detector: 1

	00:	01:	02:	03:	04:	05:	06:	07:	08:	09:	10:	11:
:15	0	0	0	0	1	1	5	12	11	10	12	10
:30	0	0	0	0	0	1	8	11	13	9	5	13
:45	2	1	0	0	0	0	9	11	10	9	9	10
:60	0	0	0	0	0	4	2	12	14	9	7	18
Hourly Total	2	1	0	0	1	6	24	46	48	37	33	51

AM Total: 249 AM peak 51 11:00 - 12:00

	12:	13:	14:	15:	16:	17:	18:	19:	20:	21:	22:	23:
:15	20	11	10	8	5	23	27	4	16	9	8	2
:30	12	13	12	7	9	33	25	10	8	7	1	2
:45	16	14	10	9	9	23	21	10	4	6	4	0
:60	18	15	18	10	18	25	14	8	7	9	2	0
Hourly Total	66	53	50	34	41	104	87	32	35	31	15	4

PM Total: 552 PM peak 108 17:15 - 18:15

Daily Total 801

ph 2 ST, Detectors: 2-3

	00:	01:	02:	03:	04:	05:	06:	07:	08:	09:	10:	11:
:15	17	11	2	1	4	10	21	75	95	71	104	107
:30	14	9	10	5	3	14	39	96	74	77	98	102
:45	11	4	4	4	7	17	38	80	92	87	81	120
:60	11	8	1	3	10	16	60	103	65	76	99	133
Hourly Total	53	32	17	13	24	57	158	354	326	311	382	462

AM Total: 2189 AM peak 462 11:00 - 12:00

	12:	13:	14:	15:	16:	17:	18:	19:	20:	21:	22:	23:
:15	131	144	160	141	241	333	316	179	159	78	62	29
:30	128	145	145	163	245	310	329	154	117	101	43	35
:45	157	151	190	217	260	333	287	156	94	94	42	23
:60	138	172	171	195	278	340	199	142	99	66	30	17
Hourly Total	554	612	666	716	1024	1316	1131	631	469	339	177	104

PM Total: 7739 PM peak 1318 17:30 - 18:30

Counts 2020-02-04_2020-02-06.txt

Daily Total 9928

ph 4 STLT, Detector: 8

	00:	01:	02:	03:	04:	05:	06:	07:	08:	09:	10:	11:
:15	0	0	0	0	1	0	1	9	10	7	12	3
:30	1	1	0	0	1	1	4	5	11	7	12	14
:45	1	1	0	0	0	2	6	11	13	14	16	11
:60	0	0	0	0	1	3	7	8	8	12	12	16
Hourly Total	2	2	0	0	3	6	18	33	42	40	52	44

AM Total: 242 AM peak 52 09:45 - 10:45

	12:	13:	14:	15:	16:	17:	18:	19:	20:	21:	22:	23:
:15	18	12	12	8	17	7	12	7	5	7	5	0
:30	16	12	11	10	9	11	9	4	2	5	0	3
:45	14	12	7	11	12	8	8	5	5	2	1	1
:60	12	10	10	13	15	7	4	3	4	4	0	1
Hourly Total	60	46	40	42	53	33	33	19	16	18	6	5

PM Total: 371 PM peak 60 12:00 - 13:00

Daily Total 613

ph 4 RT, Detector: 9

	00:	01:	02:	03:	04:	05:	06:	07:	08:	09:	10:	11:
:15	0	0	0	0	0	0	2	4	6	8	4	2
:30	1	0	0	0	0	0	3	4	9	2	5	3
:45	1	1	0	0	0	1	3	7	3	7	4	4
:60	0	0	0	0	0	0	3	2	2	5	4	4
Hourly Total	2	1	0	0	0	1	11	17	20	22	17	13

AM Total: 104 AM peak 24 07:30 - 08:30

	12:	13:	14:	15:	16:	17:	18:	19:	20:	21:	22:	23:
:15	8	6	0	4	3	5	3	1	0	0	2	0
:30	6	6	4	4	2	5	4	1	1	1	0	0
:45	9	4	3	7	4	2	7	3	1	1	0	0
:60	3	6	3	4	6	5	0	1	0	1	1	0
Hourly Total	26	22	10	19	15	17	14	6	2	3	3	0

PM Total: 137 PM peak 26 12:00 - 13:00

Counts 2020-02-04_2020-02-06.txt

Daily Total 241

ph 6 LT, Detector: 5

	00:	01:	02:	03:	04:	05:	06:	07:	08:	09:	10:	11:
:15	16	6	6	5	5	18	82	241	238	172	110	89
:30	8	2	3	3	9	33	141	266	249	150	119	84
:45	11	6	2	3	11	46	176	290	240	153	106	109
:60	4	4	4	6	16	64	243	268	227	130	99	87
Hourly Total	39	18	15	17	41	161	642	1065	954	605	434	369

AM Total: 4360 AM peak 1065 07:00 - 08:00

	12:	13:	14:	15:	16:	17:	18:	19:	20:	21:	22:	23:
:15	101	113	95	117	106	113	96	90	67	60	40	28
:30	99	116	104	88	112	95	101	79	71	40	29	23
:45	113	109	105	110	115	104	104	93	67	55	44	15
:60	123	91	112	99	110	102	110	71	64	37	20	11
Hourly Total	436	429	416	414	443	414	411	333	269	192	133	77

PM Total: 3967 PM peak 465 12:30 - 13:30

Daily Total 8327

ph 6 ST, Detectors: 6-7

	00:	01:	02:	03:	04:	05:	06:	07:	08:	09:	10:	11:
:15	7	5	2	5	3	25	88	202	199	134	95	95
:30	3	5	2	4	12	49	134	217	197	147	111	84
:45	7	5	2	3	9	55	163	233	189	138	105	101
:60	6	3	4	6	15	63	190	228	188	127	82	103
Hourly Total	23	18	10	18	39	192	575	880	773	546	393	383

AM Total: 3850 AM peak 880 07:00 - 08:00

	12:	13:	14:	15:	16:	17:	18:	19:	20:	21:	22:	23:
:15	118	107	90	97	109	123	110	103	58	53	32	17
:30	114	110	98	110	103	104	98	94	71	54	28	16
:45	111	95	109	90	96	124	116	80	48	42	29	17
:60	111	94	102	101	111	108	112	89	74	38	22	10
Hourly Total	454	406	399	398	419	459	436	366	251	187	111	60

PM Total: 3946 PM peak 462 16:45 - 17:45

Counts 2020-02-04_2020-02-06.txt

Daily Total 7796

ph 8, Detector: 4

	00:	01:	02:	03:	04:	05:	06:	07:	08:	09:	10:	11:
:15	1	4	2	1	2	12	13	41	42	22	18	22
:30	1	0	1	1	5	8	20	40	40	23	27	32
:45	2	2	1	2	7	11	30	42	38	21	20	30
:60	0	2	3	1	7	15	31	43	27	20	21	16
Hourly Total	4	8	7	5	21	46	94	166	147	86	86	100

AM Total: 770 AM peak 167 07:15 - 08:15

	12:	13:	14:	15:	16:	17:	18:	19:	20:	21:	22:	23:
:15	25	13	29	21	19	25	36	16	19	7	10	2
:30	20	23	20	17	15	29	23	20	17	12	6	1
:45	26	31	25	23	27	32	22	25	16	6	6	3
:60	26	30	29	33	22	18	24	9	14	14	1	2
Hourly Total	97	97	103	94	83	104	105	70	66	39	23	8

PM Total: 889 PM peak 115 17:15 - 18:15

Daily Total 1659

Wednesday, 05 February 2020

ph 2 LT, Detector: 1

	00:	01:	02:	03:	04:	05:	06:	07:	08:	09:	10:	11:
:15	0	0	0	0	0	2	6	4	9	8	12	11
:30	3	0	0	0	1	0	7	10	10	12	9	13
:45	0	0	0	0	0	2	6	12	8	13	10	10
:60	0	0	0	1	1	5	3	8	14	10	9	22
Hourly Total	3	0	0	1	2	9	22	34	41	43	40	56

AM Total: 251 AM peak 56 11:00 - 12:00

	12:	13:	14:	15:	16:	17:	18:	19:	20:	21:	22:	23:
:15	8	10	14	12	10	44	18	11	12	8	5	4
:30	11	12	14	11	10	23	11	4	1	5	4	3
:45	19	10	10	12	44	24	15	9	6	5	5	2
:60	17	9	6	5	29	31	6	5	12	4	1	0
Hourly Total	55	41	44	40	93	122	50	29	31	22	15	9

Counts 2020-02-04_2020-02-06.txt

PM Total: 551 PM peak 140 16:30 - 17:30

Daily Total 802

ph 2 ST, Detectors: 2-3

	00:	01:	02:	03:	04:	05:	06:	07:	08:	09:	10:	11:
:15	20	10	4	5	3	17	28	64	100	72	78	107
:30	23	8	4	5	5	15	32	83	74	71	84	110
:45	24	3	4	4	7	20	55	89	81	90	98	139
:60	9	6	5	3	10	20	51	94	90	80	103	137
Hourly Total	76	27	17	17	25	72	166	330	345	313	363	493

AM Total: 2244 AM peak 493 11:00 - 12:00

	12:	13:	14:	15:	16:	17:	18:	19:	20:	21:	22:	23:
:15	126	121	184	210	228	307	271	212	120	111	73	38
:30	146	138	159	211	321	323	219	144	122	85	61	27
:45	173	142	185	218	333	347	230	144	102	78	41	33
:60	126	124	171	239	318	285	202	115	109	60	33	22
Hourly Total	571	525	699	878	1200	1262	922	615	453	334	208	120

PM Total: 7787 PM peak 1295 16:45 - 17:45

Daily Total 10031

ph 4 STLT, Detector: 8

	00:	01:	02:	03:	04:	05:	06:	07:	08:	09:	10:	11:
:15	0	1	0	0	0	0	5	9	14	8	14	16
:30	1	0	0	0	1	1	4	8	11	5	12	12
:45	2	1	0	1	0	0	7	9	14	7	11	15
:60	0	0	1	0	0	2	6	9	10	14	14	18
Hourly Total	3	2	1	1	1	3	22	35	49	34	51	61

AM Total: 263 AM peak 61 11:00 - 12:00

	12:	13:	14:	15:	16:	17:	18:	19:	20:	21:	22:	23:
:15	12	9	9	10	13	18	5	3	7	1	4	1
:30	14	10	7	8	7	8	8	6	6	4	4	2
:45	12	13	10	11	13	12	9	7	3	4	2	4
:60	11	9	12	12	10	10	4	4	3	3	2	1
Hourly Total	49	41	38	41	43	48	26	20	19	12	12	8

Counts 2020-02-04_2020-02-06.txt

PM Total: 357 PM peak 49 12:00 - 13:00

Daily Total 620

ph 4 RT, Detector: 9

	00:	01:	02:	03:	04:	05:	06:	07:	08:	09:	10:	11:
:15	0	0	0	0	0	1	2	7	3	5	5	5
:30	0	0	0	0	0	1	2	3	9	6	3	6
:45	0	1	0	0	0	0	3	5	10	9	3	9
:60	0	0	0	0	0	0	2	8	9	7	5	10
Hourly Total	0	1	0	0	0	2	9	23	31	27	16	30

AM Total: 139 AM peak 33 08:15 - 09:15

	12:	13:	14:	15:	16:	17:	18:	19:	20:	21:	22:	23:
:15	3	7	6	3	5	8	0	0	2	0	1	1
:30	4	5	1	6	4	3	2	4	1	0	1	1
:45	4	4	5	3	5	2	2	4	1	0	0	0
:60	4	2	6	7	5	6	0	2	2	4	1	0
Hourly Total	15	18	18	19	19	19	4	10	6	4	3	2

PM Total: 137 PM peak 22 16:15 - 17:15

Daily Total 276

ph 6 LT, Detector: 5

	00:	01:	02:	03:	04:	05:	06:	07:	08:	09:	10:	11:
:15	14	7	6	1	5	25	81	247	243	195	107	83
:30	7	7	6	5	7	33	119	257	275	175	105	82
:45	9	6	1	7	9	46	193	276	236	124	107	120
:60	9	1	6	5	15	66	208	254	186	124	96	90
Hourly Total	39	21	19	18	36	170	601	1034	940	618	415	375

AM Total: 4286 AM peak 1048 07:30 - 08:30

	12:	13:	14:	15:	16:	17:	18:	19:	20:	21:	22:	23:
:15	101	113	94	107	108	101	103	91	73	44	36	17
:30	98	100	101	79	93	118	93	77	51	52	41	16
:45	120	108	125	102	97	114	95	78	59	39	25	13
:60	113	106	114	100	105	101	80	79	55	36	21	20
Hourly Total	432	427	434	388	403	434	371	325	238	171	123	66

Counts 2020-02-04_2020-02-06.txt

PM Total: 3812 PM peak 447 14:15 - 15:15

Daily Total 8098

ph 6 ST, Detectors: 6-7

	00:	01:	02:	03:	04:	05:	06:	07:	08:	09:	10:	11:
:15	4	8	2	7	5	25	74	215	211	156	110	99
:30	6	4	8	2	9	36	100	227	218	158	106	104
:45	9	4	1	8	13	50	167	230	183	108	99	112
:60	5	2	2	6	20	72	186	235	170	113	95	94
Hourly Total	24	18	13	23	47	183	527	907	782	535	410	409

AM Total: 3878 AM peak 907 07:00 - 08:00

	12:	13:	14:	15:	16:	17:	18:	19:	20:	21:	22:	23:
:15	112	106	107	104	115	105	109	103	62	46	27	12
:30	99	128	111	83	108	123	105	70	65	41	26	13
:45	129	89	88	103	112	119	103	78	53	33	24	12
:60	111	98	104	104	113	109	99	82	54	33	19	8
Hourly Total	451	421	410	394	448	456	416	333	234	153	96	45

PM Total: 3857 PM peak 474 12:30 - 13:30

Daily Total 7735

ph 8, Detector: 4

	00:	01:	02:	03:	04:	05:	06:	07:	08:	09:	10:	11:
:15	2	0	3	0	3	5	23	38	33	20	28	15
:30	5	0	1	1	2	7	19	42	37	24	19	21
:45	3	0	0	1	8	10	26	37	35	20	18	17
:60	0	1	1	1	5	15	35	48	27	22	25	23
Hourly Total	10	1	5	3	18	37	103	165	132	86	90	76

AM Total: 726 AM peak 165 07:00 - 08:00

	12:	13:	14:	15:	16:	17:	18:	19:	20:	21:	22:	23:
:15	23	23	23	19	17	19	24	25	14	10	15	5
:30	25	27	20	16	24	26	24	25	14	11	14	3
:45	20	24	18	23	26	22	27	13	11	9	5	3
:60	28	19	31	22	20	24	19	17	14	12	5	2
Hourly Total	96	93	92	80	87	91	94	80	53	42	39	13

Counts 2020-02-04_2020-02-06.txt

PM Total: 860 PM peak 102 12:45 - 13:45

Daily Total 1586

Thursday, 06 February 2020

ph 2 LT, Detector: 1

	00:	01:	02:	03:	04:	05:	06:	07:	08:	09:	10:	11:
:15	3	1	0	1	0	0	6	3	8	5	9	8
:30	0	0	1	1	1	0	4	22	11	11	13	12
:45	0	1	0	0	2	1	7	10	6	22	10	9
:60	0	1	1	0	2	3	4	7	24	12	9	12
Hourly Total	3	3	2	2	5	4	21	42	49	50	41	41

AM Total: 263 AM peak 62 08:45 - 09:45

	12:	13:	14:	15:	16:	17:	18:	19:	20:	21:	22:	23:
:15	9	8	13	5	5	16	13	10	1	9	4	1
:30	9	8	11	8	15	28	9	12	9	7	0	2
:45	9	12	5	11	7	24	14	2	8	3	1	1
:60	9	18	8	4	10	29	9	10	5	4	1	1
Hourly Total	36	46	37	28	37	97	45	34	23	23	6	5

PM Total: 417 PM peak 97 17:00 - 18:00

Daily Total 680

ph 2 ST, Detectors: 2-3

	00:	01:	02:	03:	04:	05:	06:	07:	08:	09:	10:	11:
:15	17	10	8	3	3	9	28	62	75	66	61	78
:30	18	6	9	4	10	11	22	43	72	60	73	70
:45	12	5	8	4	3	10	33	70	69	58	62	94
:60	13	7	5	4	10	10	48	75	66	53	80	103
Hourly Total	60	28	30	15	26	40	131	250	282	237	276	345

AM Total: 1720 AM peak 345 11:00 - 12:00

	12:	13:	14:	15:	16:	17:	18:	19:	20:	21:	22:	23:
:15	120	105	106	151	179	238	225	110	96	79	65	43
:30	110	111	132	164	246	316	201	136	150	89	55	29
:45	127	108	126	150	228	316	156	129	93	87	37	24
:60	99	105	131	154	207	305	186	100	93	72	40	25

Counts 2020-02-04_2020-02-06.txt

Hourly
Total 456 429 495 619 860 1175 768 475 432 327 197 121

PM Total: 6354 PM peak 1175 17:00 - 18:00

Daily Total 8074

ph 4 STLT, Detector: 8

	00:	01:	02:	03:	04:	05:	06:	07:	08:	09:	10:	11:
:15	5	0	0	0	1	4	2	8	8	4	12	12
:30	1	1	0	0	0	1	4	7	8	13	9	14
:45	0	3	0	0	6	0	9	11	11	19	8	12
:60	1	1	3	0	6	2	7	8	8	8	13	10
Hourly Total	7	5	3	0	13	7	22	34	35	44	42	48

AM Total: 260 AM peak 52 09:15 - 10:15

	12:	13:	14:	15:	16:	17:	18:	19:	20:	21:	22:	23:
:15	15	13	10	7	9	12	7	7	4	4	5	1
:30	19	10	13	12	10	7	12	4	4	4	3	0
:45	13	14	14	9	11	6	9	7	6	8	0	0
:60	12	9	8	12	11	6	7	3	3	3	1	0
Hourly Total	59	46	45	40	41	31	35	21	17	19	9	1

PM Total: 364 PM peak 59 12:00 - 13:00

Daily Total 624

ph 4 RT, Detector: 9

	00:	01:	02:	03:	04:	05:	06:	07:	08:	09:	10:	11:
:15	4	0	0	0	0	0	0	4	5	2	8	2
:30	1	0	0	0	0	0	3	11	5	4	4	5
:45	0	1	0	0	1	0	3	5	8	26	2	3
:60	0	0	0	0	1	0	1	4	8	4	2	2
Hourly Total	5	1	0	0	2	0	7	24	26	36	16	12

AM Total: 129 AM peak 42 09:15 - 10:15

	12:	13:	14:	15:	16:	17:	18:	19:	20:	21:	22:	23:
:15	7	2	6	6	2	2	6	0	3	1	1	0
:30	5	3	4	4	7	2	2	2	0	0	1	0
:45	4	6	5	6	5	1	1	4	3	1	0	0
:60	1	4	2	4	3	2	1	1	1	1	0	0

Counts 2020-02-04_2020-02-06.txt

Hourly
Total 17 15 17 20 17 7 10 7 7 3 2 0

PM Total: 122 PM peak 20 13:30 - 14:30

Daily Total 251

ph 6 LT, Detector: 5

	00:	01:	02:	03:	04:	05:	06:	07:	08:	09:	10:	11:
:15	14	4	8	1	4	32	83	210	239	203	108	93
:30	10	8	2	1	11	32	114	141	248	170	90	71
:45	13	8	4	5	11	46	173	260	256	125	91	104
:60	9	5	3	6	19	73	211	266	141	104	89	100

Hourly
Total 46 25 17 13 45 183 581 877 884 602 378 368

AM Total: 4019 AM peak 1013 07:30 - 08:30

	12:	13:	14:	15:	16:	17:	18:	19:	20:	21:	22:	23:
:15	78	101	85	94	108	95	94	88	79	49	38	20
:30	98	97	93	90	90	106	100	84	64	48	39	13
:45	83	86	95	87	93	99	93	74	55	55	33	20
:60	101	85	103	80	102	99	105	89	49	40	26	18

Hourly
Total 360 369 376 351 393 399 392 335 247 192 136 71

PM Total: 3621 PM peak 402 16:45 - 17:45

Daily Total 7640

ph 6 ST, Detectors: 6-7

	00:	01:	02:	03:	04:	05:	06:	07:	08:	09:	10:	11:
:15	10	2	7	0	7	29	81	185	230	176	90	90
:30	7	8	2	5	14	39	113	145	222	131	83	84
:45	13	4	1	9	15	56	132	211	243	137	92	91
:60	5	7	4	7	28	65	197	234	165	114	86	93

Hourly
Total 35 21 14 21 64 189 523 775 860 558 351 358

AM Total: 3769 AM peak 929 07:45 - 08:45

	12:	13:	14:	15:	16:	17:	18:	19:	20:	21:	22:	23:
:15	102	103	83	99	89	93	101	96	65	61	31	15
:30	100	93	95	101	105	118	100	78	64	57	24	14
:45	98	85	83	86	102	103	110	69	65	46	29	16
:60	94	82	89	95	101	117	92	73	54	38	23	11

Counts 2020-02-04_2020-02-06.txt

Hourly
Total 394 363 350 381 397 431 403 316 248 202 107 56

PM Total: 3648 PM peak 439 17:15 - 18:15

Daily Total 7417

ph 8, Detector: 4

	00:	01:	02:	03:	04:	05:	06:	07:	08:	09:	10:	11:
:15	2	2	1	0	2	6	15	43	33	19	24	20
:30	1	2	2	0	3	7	20	17	49	15	18	17
:45	2	0	0	1	7	9	23	30	40	21	23	25
:60	0	3	1	1	11	12	33	42	25	25	25	20

Hourly
Total 5 7 4 2 23 34 91 132 147 80 90 82

AM Total: 697 AM peak 164 07:45 - 08:45

	12:	13:	14:	15:	16:	17:	18:	19:	20:	21:	22:	23:
:15	18	22	15	11	18	26	27	23	22	12	10	4
:30	25	14	17	14	17	18	29	13	23	19	6	1
:45	31	24	20	15	11	29	15	19	22	9	2	4
:60	15	14	17	25	23	36	19	16	14	15	5	6

Hourly
Total 89 74 69 65 69 109 90 71 81 55 23 15

PM Total: 810 PM peak 121 17:30 - 18:30

Daily Total 1507

Appendix C: Synchro Output Files

Timings

1: Jonquil Dr & Spring Rd SE

06/15/2020



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	37	1353	13	1149	47	2	22	184	3
Future Volume (vph)	37	1353	13	1149	47	2	22	184	3
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA
Protected Phases		6		2		8			4
Permitted Phases	6		2		8		8	4	
Detector Phase	6	6	2	2	8	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	120.0	120.0	120.0	120.0	40.0	40.0	40.0	40.0	40.0
Total Split (%)	75.0%	75.0%	75.0%	75.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5	4.5		4.5
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	C-Max	C-Max	None	None	None	None	None

Intersection Summary

Cycle Length: 160
 Actuated Cycle Length: 160
 Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Jonquil Dr & Spring Rd SE



HCM 6th Signalized Intersection Summary

1: Jonquil Dr & Spring Rd SE

06/15/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↘		↗	↗↘			↖	↖		↖↗	
Traffic Volume (veh/h)	37	1353	25	13	1149	6	47	2	22	184	3	32
Future Volume (veh/h)	37	1353	25	13	1149	6	47	2	22	184	3	32
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	49	1804	33	15	1368	7	77	3	36	279	5	48
Peak Hour Factor	0.75	0.75	0.75	0.84	0.84	0.84	0.61	0.61	0.61	0.66	0.66	0.66
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	263	2577	47	155	2617	13	381	14	352	254	4	37
Arrive On Green	0.72	0.72	0.72	0.72	0.72	0.72	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	395	3570	65	252	3625	19	1519	63	1585	958	17	165
Grp Volume(v), veh/h	49	896	941	15	670	705	80	0	36	332	0	0
Grp Sat Flow(s),veh/h/ln	395	1777	1859	252	1777	1867	1582	0	1585	1140	0	0
Q Serve(g_s), s	10.1	45.2	45.7	5.7	27.0	27.0	0.0	0.0	2.9	28.9	0.0	0.0
Cycle Q Clear(g_c), s	37.1	45.2	45.7	51.4	27.0	27.0	6.6	0.0	2.9	35.5	0.0	0.0
Prop In Lane	1.00		0.04	1.00		0.01	0.96		1.00	0.84		0.14
Lane Grp Cap(c), veh/h	263	1283	1342	155	1283	1348	395	0	352	294	0	0
V/C Ratio(X)	0.19	0.70	0.70	0.10	0.52	0.52	0.20	0.00	0.10	1.13	0.00	0.00
Avail Cap(c_a), veh/h	263	1283	1342	155	1283	1348	395	0	352	294	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.2	12.5	12.5	27.0	9.9	9.9	51.0	0.0	49.6	67.6	0.0	0.0
Incr Delay (d2), s/veh	0.3	1.7	1.7	1.2	1.5	1.5	0.2	0.0	0.1	91.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	16.5	17.4	0.4	10.0	10.5	2.7	0.0	1.2	19.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.6	14.2	14.2	28.3	11.5	11.4	51.3	0.0	49.7	158.9	0.0	0.0
LnGrp LOS	B	B	B	C	B	B	D	A	D	F	A	A
Approach Vol, veh/h		1886			1390			116				332
Approach Delay, s/veh		14.3			11.6			50.8				158.9
Approach LOS		B			B			D				F
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		120.0		40.0		120.0		40.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		115.5		35.5		115.5		35.5				
Max Q Clear Time (g_c+I1), s		53.4		37.5		47.7		8.6				
Green Ext Time (p_c), s		12.9		0.0		25.4		0.5				

Intersection Summary

HCM 6th Ctrl Delay	27.3
HCM 6th LOS	C

Intersection: 1: Jonquil Dr & Spring Rd SE

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	LTR
Maximum Queue (ft)	55	311	329	56	245	250	143	85	317
Average Queue (ft)	10	135	120	12	76	92	30	7	196
95th Queue (ft)	30	253	255	35	183	197	80	35	283
Link Distance (ft)		1488	1488		3216	3216			410
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	100			160				35	
Storage Blk Time (%)		9			1		15	0	
Queuing Penalty (veh)		3			0		3	0	

Timings

1: Jonquil Dr & Spring Rd SE

06/15/2020



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↶	↷	↶	↷		↶	↷		↷
Traffic Volume (vph)	60	1016	9	1884	47	3	14	99	3
Future Volume (vph)	60	1016	9	1884	47	3	14	99	3
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA
Protected Phases		6		2		8			4
Permitted Phases	6		2		8		8	4	
Detector Phase	6	6	2	2	8	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	129.0	129.0	129.0	129.0	41.0	41.0	41.0	41.0	41.0
Total Split (%)	75.9%	75.9%	75.9%	75.9%	24.1%	24.1%	24.1%	24.1%	24.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5	4.5		4.5
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	C-Max	C-Max	None	None	None	None	None

Intersection Summary

Cycle Length: 170

Actuated Cycle Length: 170

Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 1: Jonquil Dr & Spring Rd SE



HCM 6th Signalized Intersection Summary

1: Jonquil Dr & Spring Rd SE

06/15/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↖	↗		↗	↖
Traffic Volume (veh/h)	60	1016	15	9	1884	13	47	3	14	99	3	42
Future Volume (veh/h)	60	1016	15	9	1884	13	47	3	14	99	3	42
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	69	1168	17	10	2004	14	58	4	17	118	4	50
Peak Hour Factor	0.87	0.87	0.87	0.94	0.94	0.94	0.81	0.81	0.81	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	148	2785	41	359	2809	20	250	16	270	165	7	56
Arrive On Green	0.78	0.78	0.78	0.78	0.78	0.78	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	212	3586	52	473	3617	25	1225	93	1585	757	39	326
Grp Volume(v), veh/h	69	579	606	10	983	1035	62	0	17	172	0	0
Grp Sat Flow(s),veh/h/ln	212	1777	1861	473	1777	1866	1318	0	1585	1122	0	0
Q Serve(g_s), s	41.3	18.3	18.3	1.2	47.0	47.3	0.0	0.0	1.5	19.5	0.0	0.0
Cycle Q Clear(g_c), s	88.6	18.3	18.3	19.6	47.0	47.3	6.9	0.0	1.5	26.4	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.01	0.94		1.00	0.69		0.29
Lane Grp Cap(c), veh/h	148	1380	1445	359	1380	1449	266	0	270	227	0	0
V/C Ratio(X)	0.47	0.42	0.42	0.03	0.71	0.71	0.23	0.00	0.06	0.76	0.00	0.00
Avail Cap(c_a), veh/h	148	1380	1445	359	1380	1449	327	0	340	291	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	31.7	6.3	6.3	9.5	9.5	9.5	61.4	0.0	59.1	72.6	0.0	0.0
Incr Delay (d2), s/veh	2.3	0.2	0.2	0.1	3.2	3.0	0.4	0.0	0.1	8.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	6.1	6.3	0.1	16.6	17.5	2.4	0.0	0.6	8.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.0	6.5	6.5	9.7	12.6	12.6	61.8	0.0	59.2	80.9	0.0	0.0
LnGrp LOS	C	A	A	A	B	B	E	A	E	F	A	A
Approach Vol, veh/h		1254			2028			79				172
Approach Delay, s/veh		8.0			12.6			61.2				80.9
Approach LOS		A			B			E				F
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		136.5		33.5		136.5		33.5				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		124.5		36.5		124.5		36.5				
Max Q Clear Time (g_c+I1), s		49.3		28.4		90.6		8.9				
Green Ext Time (p_c), s		30.5		0.5		12.1		0.4				
Intersection Summary												
HCM 6th Ctrl Delay				15.4								
HCM 6th LOS				B								

Intersection: 1: Jonquil Dr & Spring Rd SE

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	LTR
Maximum Queue (ft)	150	459	461	259	338	340	100	79	267
Average Queue (ft)	137	319	292	12	156	165	34	5	145
95th Queue (ft)	190	509	480	91	314	309	85	30	224
Link Distance (ft)		1488	1488		3216	3216			410
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	100			160				35	
Storage Blk Time (%)	92	3			6		22	0	
Queuing Penalty (veh)	465	2			1		3	0	

Timings

1: Jonquil Dr & Spring Rd SE

06/18/2020



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	18	1860	22	554	72	5	36	291	5
Future Volume (vph)	18	1860	22	554	72	5	36	291	5
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA
Protected Phases		6		2		8			4
Permitted Phases	6		2		8		8	4	
Detector Phase	6	6	2	2	8	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	120.0	120.0	120.0	120.0	40.0	40.0	40.0	40.0	40.0
Total Split (%)	75.0%	75.0%	75.0%	75.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5	4.5		4.5
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	C-Max	C-Max	None	None	None	None	None

Intersection Summary

Cycle Length: 160

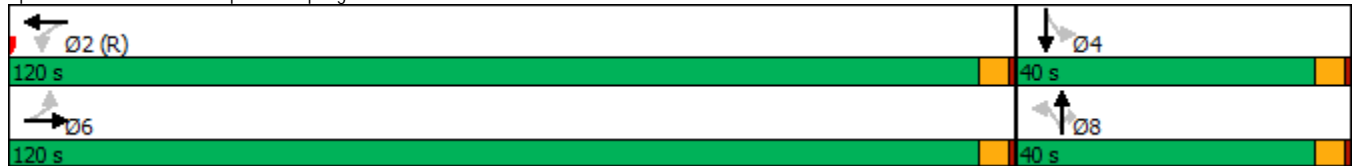
Actuated Cycle Length: 160

Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Splits and Phases: 1: Jonquil Dr & Spring Rd SE



HCM 6th Signalized Intersection Summary

1: Jonquil Dr & Spring Rd SE

06/18/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	1860	39	22	554	0	72	5	36	291	5	25
Future Volume (veh/h)	18	1860	39	22	554	0	72	5	36	291	5	25
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	24	2480	52	26	660	0	118	8	59	441	8	38
Peak Hour Factor	0.75	0.75	0.75	0.84	0.84	0.84	0.61	0.61	0.61	0.66	0.66	0.66
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	555	2569	54	55	2565	0	398	24	352	239	4	17
Arrive On Green	0.72	0.72	0.72	0.72	0.72	0.00	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	774	3559	74	127	3647	0	1596	108	1585	885	16	76
Grp Volume(v), veh/h	24	1234	1298	26	660	0	126	0	59	487	0	0
Grp Sat Flow(s),veh/h/ln	774	1777	1857	127	1777	0	1704	0	1585	977	0	0
Q Serve(g_s), s	1.7	101.0	103.5	12.0	10.1	0.0	0.0	0.0	4.8	25.6	0.0	0.0
Cycle Q Clear(g_c), s	11.9	101.0	103.5	115.5	10.1	0.0	9.9	0.0	4.8	35.5	0.0	0.0
Prop In Lane	1.00		0.04	1.00		0.00	0.94		1.00	0.91		0.08
Lane Grp Cap(c), veh/h	555	1283	1341	55	2565	0	422	0	352	260	0	0
V/C Ratio(X)	0.04	0.96	0.97	0.48	0.26	0.00	0.30	0.00	0.17	1.88	0.00	0.00
Avail Cap(c_a), veh/h	555	1283	1341	55	2565	0	422	0	352	260	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	9.6	20.2	20.6	77.8	7.6	0.0	52.3	0.0	50.3	69.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	16.8	17.6	26.9	0.2	0.0	0.4	0.0	0.2	408.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	41.4	44.5	1.5	3.7	0.0	4.4	0.0	2.0	40.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.7	37.0	38.1	104.7	7.8	0.0	52.7	0.0	50.5	477.5	0.0	0.0
LnGrp LOS	A	D	D	F	A	A	D	A	D	F	A	A
Approach Vol, veh/h		2556			686			185			487	
Approach Delay, s/veh		37.3			11.5			52.0			477.5	
Approach LOS		D			B			D			F	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		120.0		40.0		120.0		40.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		115.5		35.5		115.5		35.5				
Max Q Clear Time (g_c+I1), s		117.5		37.5		105.5		11.9				
Green Ext Time (p_c), s		0.0		0.0		9.4		0.9				
Intersection Summary												
HCM 6th Ctrl Delay			88.3									
HCM 6th LOS			F									

HCM 6th TWSC

2: Driveway 1 & Spring Rd SE

06/18/2020

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↓			↑↑		↔
Traffic Vol, veh/h	1911	8	0	651	0	5
Future Vol, veh/h	1911	8	0	651	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	84	84	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2548	11	0	775	0	5

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	-
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	-
Pot Cap-1 Maneuver	-	0	0
Stage 1	-	0	0
Stage 2	-	0	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	28.8
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	157	-	-	-
HCM Lane V/C Ratio	0.035	-	-	-
HCM Control Delay (s)	28.8	-	-	-
HCM Lane LOS	D	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-

HCM 6th TWSC

3: Jonquil Dr & Driveway 2

06/18/2020

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	23	0	0	89	60	6
Future Vol, veh/h	23	0	0	89	60	6
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	61	61	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	0	0	146	65	7
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	215	69	72	0	-	0
Stage 1	69	-	-	-	-	-
Stage 2	146	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	773	994	1528	-	-	-
Stage 1	954	-	-	-	-	-
Stage 2	881	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	773	994	1528	-	-	-
Mov Cap-2 Maneuver	773	-	-	-	-	-
Stage 1	954	-	-	-	-	-
Stage 2	881	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.8	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1528	-	773	-	-	
HCM Lane V/C Ratio	-	-	0.032	-	-	
HCM Control Delay (s)	0	-	9.8	-	-	
HCM Lane LOS	A	-	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.1	-	-	

HCM 6th TWSC

4: Corn Rd & Driveway 3

06/18/2020

Intersection						
Int Delay, s/veh	6.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	0	0	0	1	3	0
Future Vol, veh/h	0	0	0	1	3	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	1	3	0
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	1	0	-	0	1	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	0	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1622	-	-	-	1022	1084
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1622	-	-	-	1022	1084
Mov Cap-2 Maneuver	-	-	-	-	1022	-
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		8.5		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1622	-	-	-	1022	
HCM Lane V/C Ratio	-	-	-	-	0.003	
HCM Control Delay (s)	0	-	-	-	8.5	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Intersection: 1: Jonquil Dr & Spring Rd SE

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	LTR
Maximum Queue (ft)	11	266	272	107	109	130	144	85	425
Average Queue (ft)	4	211	213	64	53	64	60	24	330
95th Queue (ft)	12	311	300	121	99	122	121	78	478
Link Distance (ft)		248	248		3216	3216	132		410
Upstream Blk Time (%)		4	5				2		4
Queuing Penalty (veh)		42	45				2		0
Storage Bay Dist (ft)	100			160				35	
Storage Blk Time (%)		20					35	3	
Queuing Penalty (veh)		4					13	2	

Intersection: 2: Driveway 1 & Spring Rd SE

Movement	EB	EB	NB
Directions Served	T	TR	R
Maximum Queue (ft)	350	332	31
Average Queue (ft)	65	62	5
95th Queue (ft)	224	219	23
Link Distance (ft)	1183	1183	195
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Jonquil Dr & Driveway 2

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	25	53
Average Queue (ft)	17	2
95th Queue (ft)	36	18
Link Distance (ft)	106	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Corn Rd & Driveway 3

Movement	SB
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	1
95th Queue (ft)	10
Link Distance (ft)	92
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 107

Timings

1: Jonquil Dr & Spring Rd SE

06/18/2020



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	60	1025	25	1884	59	4	17	99	5
Future Volume (vph)	60	1025	25	1884	59	4	17	99	5
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA
Protected Phases		6		2		8			4
Permitted Phases	6		2		8		8	4	
Detector Phase	6	6	2	2	8	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	129.0	129.0	129.0	129.0	41.0	41.0	41.0	41.0	41.0
Total Split (%)	75.9%	75.9%	75.9%	75.9%	24.1%	24.1%	24.1%	24.1%	24.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5	4.5		4.5
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	C-Max	C-Max	None	None	None	None	None

Intersection Summary

Cycle Length: 170

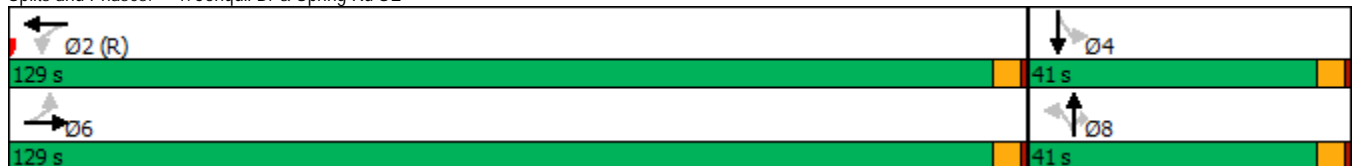
Actuated Cycle Length: 170

Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 1: Jonquil Dr & Spring Rd SE



HCM 6th Signalized Intersection Summary

1: Jonquil Dr & Spring Rd SE

06/18/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	1025	17	25	1884	13	59	4	17	99	5	42
Future Volume (veh/h)	60	1025	17	25	1884	13	59	4	17	99	5	42
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	69	1178	20	27	2004	14	73	5	21	118	6	50
Peak Hour Factor	0.87	0.87	0.87	0.94	0.94	0.94	0.81	0.81	0.81	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	143	2737	46	346	2769	19	261	17	288	163	10	55
Arrive On Green	0.77	0.77	0.77	0.77	0.77	0.77	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	212	3576	61	467	3617	25	1213	91	1585	701	54	305
Grp Volume(v), veh/h	69	585	613	27	983	1035	78	0	21	174	0	0
Grp Sat Flow(s),veh/h/ln	212	1777	1859	467	1777	1866	1304	0	1585	1060	0	0
Q Serve(g_s), s	43.3	19.6	19.6	3.6	49.4	49.6	0.0	0.0	1.9	19.6	0.0	0.0
Cycle Q Clear(g_c), s	93.0	19.6	19.6	23.2	49.4	49.6	8.9	0.0	1.9	28.4	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.01	0.94		1.00	0.68		0.29
Lane Grp Cap(c), veh/h	143	1360	1424	346	1360	1428	278	0	288	228	0	0
V/C Ratio(X)	0.48	0.43	0.43	0.08	0.72	0.72	0.28	0.00	0.07	0.76	0.00	0.00
Avail Cap(c_a), veh/h	143	1360	1424	346	1360	1428	323	0	340	276	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	35.0	7.0	7.0	11.0	10.5	10.5	60.5	0.0	57.7	72.4	0.0	0.0
Incr Delay (d2), s/veh	2.5	0.2	0.2	0.4	3.4	3.2	0.5	0.0	0.1	9.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	6.6	6.9	0.4	17.8	18.8	3.0	0.0	0.8	8.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.5	7.2	7.2	11.5	13.8	13.7	61.1	0.0	57.8	82.2	0.0	0.0
LnGrp LOS	D	A	A	B	B	B	E	A	E	F	A	A
Approach Vol, veh/h		1267			2045			99			174	
Approach Delay, s/veh		8.8			13.7			60.4			82.2	
Approach LOS		A			B			E			F	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		134.6		35.4		134.6		35.4				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		124.5		36.5		124.5		36.5				
Max Q Clear Time (g_c+I1), s		51.6		30.4		95.0		10.9				
Green Ext Time (p_c), s		31.0		0.4		11.6		0.5				
Intersection Summary												
HCM 6th Ctrl Delay			16.6									
HCM 6th LOS			B									

HCM 6th TWSC

2: Driveway 1 & Spring Rd SE

06/18/2020

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↓			↑↑		↔
Traffic Vol, veh/h	1093	14	0	1984	0	9
Future Vol, veh/h	1093	14	0	1984	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	94	94	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1256	16	0	2111	0	10
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	-	-	-	636
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	421
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	421
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0	13.8			
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	421	-	-	-		
HCM Lane V/C Ratio	0.023	-	-	-		
HCM Control Delay (s)	13.8	-	-	-		
HCM Lane LOS	B	-	-	-		
HCM 95th %tile Q(veh)	0.1	-	-	-		

HCM 6th TWSC

3: Jonquil Dr & Driveway 2

06/18/2020

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	0	0	64	27	19
Future Vol, veh/h	14	0	0	64	27	19
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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	81	81	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	0	0	79	29	21

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	119	40	50	0	-	0
Stage 1	40	-	-	-	-	-
Stage 2	79	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	877	1031	1557	-	-	-
Stage 1	982	-	-	-	-	-
Stage 2	944	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	877	1031	1557	-	-	-
Mov Cap-2 Maneuver	877	-	-	-	-	-
Stage 1	982	-	-	-	-	-
Stage 2	944	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.2	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1557	-	877	-	-
HCM Lane V/C Ratio	-	-	0.017	-	-
HCM Control Delay (s)	0	-	9.2	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

HCM 6th TWSC

4: Corn Rd & Driveway 3

06/18/2020

Intersection						
Int Delay, s/veh	5.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	0	0	0	2	3	0
Future Vol, veh/h	0	0	0	2	3	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	2	3	0
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	2	0	-	0	1	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	0	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1620	-	-	-	1022	1084
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1620	-	-	-	1022	1084
Mov Cap-2 Maneuver	-	-	-	-	1022	-
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		8.5		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1620	-	-	-	1022	
HCM Lane V/C Ratio	-	-	-	-	0.003	
HCM Control Delay (s)	0	-	-	-	8.5	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Intersection: 1: Jonquil Dr & Spring Rd SE

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	LTR
Maximum Queue (ft)	150	249	245	57	283	268	150	78	282
Average Queue (ft)	59	84	72	8	150	164	62	4	136
95th Queue (ft)	142	194	176	31	291	290	131	28	225
Link Distance (ft)		248	248		3216	3216	132		410
Upstream Blk Time (%)		0	0				4		
Queuing Penalty (veh)		2	0				3		
Storage Bay Dist (ft)	100			160				35	
Storage Blk Time (%)	16	3			5		40		
Queuing Penalty (veh)	83	2			1		7		

Intersection: 2: Driveway 1 & Spring Rd SE

Movement	EB	NB
Directions Served	T	R
Maximum Queue (ft)	53	55
Average Queue (ft)	2	9
95th Queue (ft)	18	35
Link Distance (ft)	1183	195
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Jonquil Dr & Driveway 2

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	50	53
Average Queue (ft)	12	4
95th Queue (ft)	38	27
Link Distance (ft)	106	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Corn Rd & Driveway 3

Movement	SB
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	1
95th Queue (ft)	10
Link Distance (ft)	92
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 99

Appendix D: NCHRP Turn Lane Warrants

Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

INPUT

Roadway geometry:	4-lane roadway
Variable	Value
Major-road speed, mph:	45
Major-road volume (one direction), veh/h:	1919
Right-turn volume, veh/h:	8

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	10
Guidance for determining the need for a major-road right-turn bay for a 4-lane roadway:	
Do NOT add right-turn bay.	

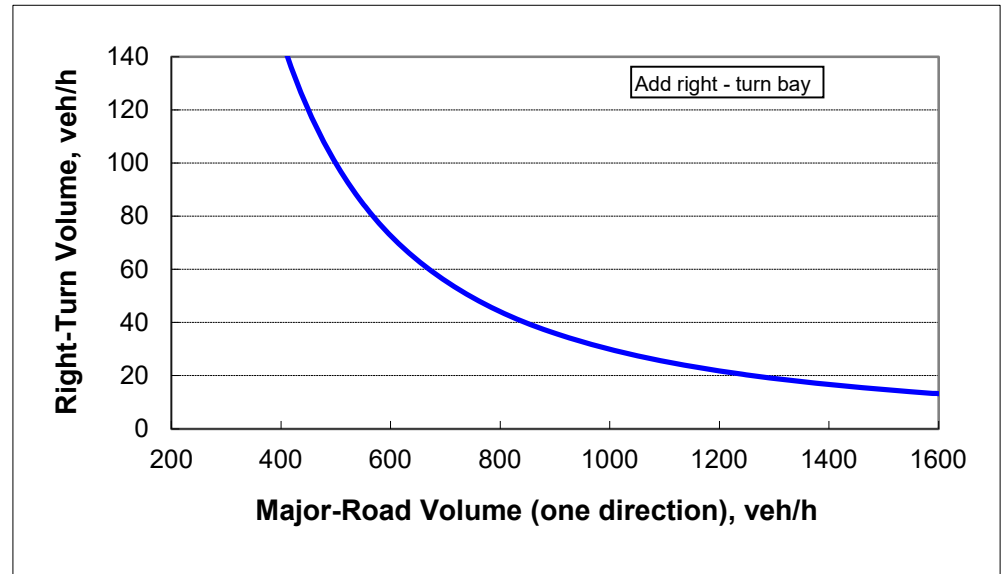


Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

INPUT

Roadway geometry:	4-lane roadway
Variable	Value
Major-road speed, mph:	45
Major-road volume (one direction), veh/h:	1107
Right-turn volume, veh/h:	14

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	25
Guidance for determining the need for a major-road right-turn bay for a 4-lane roadway:	
Do NOT add right-turn bay.	

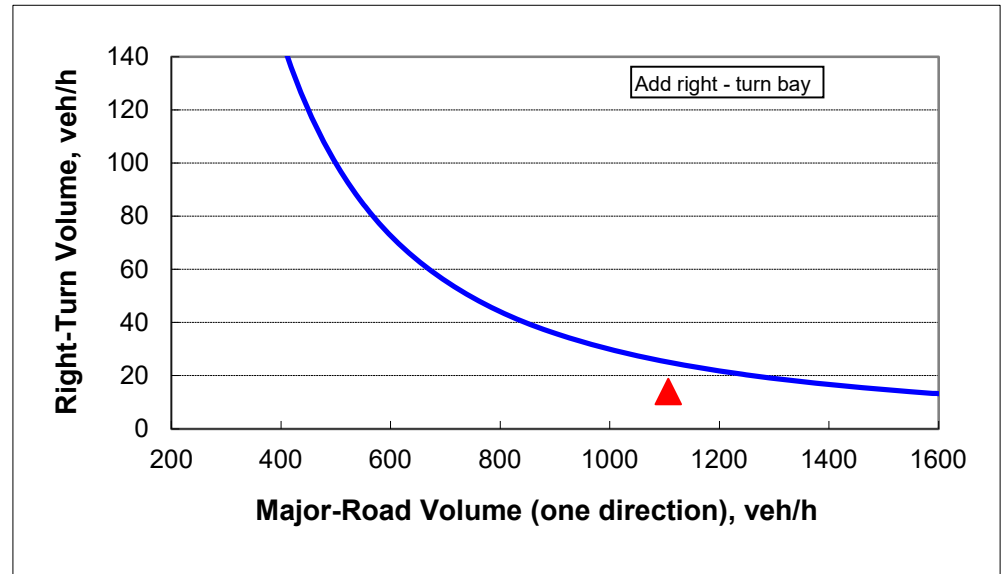


Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

INPUT

Roadway geometry:	2-lane roadway	
Variable	Value	
Major-road speed, mph:	25	
Major-road volume (one direction), veh/h:	66	
Right-turn volume, veh/h:	6	

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	470972424
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	

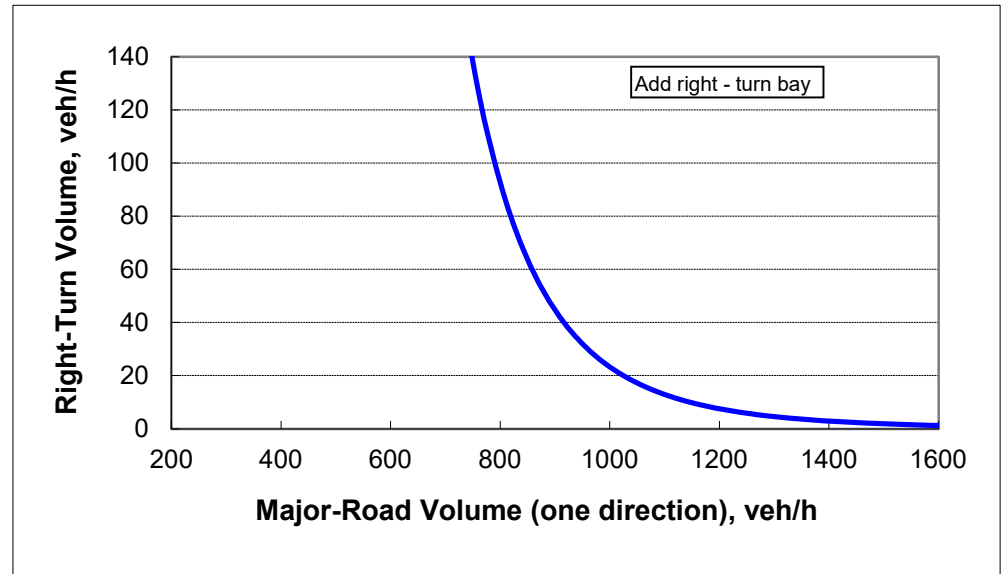


Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

INPUT

Roadway geometry:	2-lane roadway	
Variable	Value	
Major-road speed, mph:	25	
Major-road volume (one direction), veh/h:	47	
Right-turn volume, veh/h:	19	

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	3850719847
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	

