

Traffic Impact Analysis for The Cashiers East Village Mixed-Use Development

Located in
Cashiers, North Carolina

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Revision History

Action	Description	Date
NCDOT	Traffic Impact Analysis Scoping Approval	December 29, 2021
Jackson County	Traffic Impact Analysis Scoping Approval	
Draft	Draft Report Sent to Client for Review	February 1, 2022
Final	Report Sealed	February 7. 2021

Executive Summary

Topic	Page(s)
Proposed Facility	1
This report summarizes the findings of the Traffic Impact Analysis (TIA) performed for the proposed Cashiers East Village. Cashiers East Village is composed of 38,000 square feet of residential units, 35,000 square feet of restaurant and retail space, 15,000 square feet of commercial space, and 10,000 square feet of office space.	
Access Points Studied	2
The site plan includes four access points: two access points off N.C. 107 (Magnolia Street, Perennial Drive) and two access points off Monte Vista Drive serving the hotel complex and the staff housing. The site plan is included as Figure 3.	
Parameters and Study Area	3
<i>This study follows NCDOT's TIA process including NCDOT's concurrence on scope and parameters. A copy of the approved Scope, NCDOT and Jackson County, is included in Appendix A. Table 1 shows the agreed intersections, Table 2 shows other agreed parameters (2030 Build Area, Annual growth rate of 2.5% and peak hour of 0.90).</i>	
Existing & Proposed Level of Service	Pages 18-20
In 2022 the eastbound and westbound approaches of the U.S. 64 and N.C. 107 intersection operate at LOS E during the AM peak period. The westbound approach also operates at LOS E during the PM peak period. In the 2030 background case the southbound approach of U. S. 64 and N.C. 107 intersection also operates at LOS E during the PM peak period. <i>No additional approaches operate at LOS E in the build-out case.</i>	
Traffic Counts	5 Table 1, Figure 5, Appendix C
Peak hour turning movement counts (7:00 - 9:00 AM & 4:00 - 6:00 PM) were conducted at the study area intersections on Wednesday, January 12, 2022, at the intersection of N.C. 107 and Frank Allen Road, N.C. 107 and Marigold Street, U.S. 64 and N.C. 107, U.S. 64 and Marigold Street and U.S. 64 and Monte Vista Road Table 1 shows the AM and PM peak periods for each intersection. Figure 5 shows the traffic movement in the 2022 peak periods.	
Development Traffic	12 (Table 5)
The Cashiers East Village mixed-Use development includes multi-family housing, recreational homes, lodging, retail space restaurants, and office space. The Cashiers East Village is expected to produce 4,587 trips each day (280 trips in the AM peak and 488 trips in the PM peak).	
Safety Review	23
The safety review considers crash data, first responder access, internal pedestrian safety, protected stem lengths, needed turn lanes, and sight distance at access points.	
Proposed Mitigation	27
A pedestrian crosswalk is proposed across Monte Vista Road, between the employee housing site the hotel site.	

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Appendices

- Appendix A – NCDOT TIA Scoping Checklist
- Appendix B – Synchro and SimTraffic Reports
- Appendix C – Turning Movement Counts
- Appendix D - Signal Plans

Introduction and Background

This report summarizes the findings of the Traffic Impact Analysis (TIA) performed for the proposed Cashiers East Village Mixed Use development. Cashiers East Village is composed of 38,000 square feet of residential units, 35,000 square feet of restaurant and retail space, 15,000 square feet of commercial space, and 10,000 square feet of office space.

The Cashiers East Village development is in Jackson County, North Carolina. Figure 1 locates the site in the broader region. Figure 2 shows the site location on U.S. 64 in Cashiers, NC. Figure 3 is the site plan showing access points, buildings, and internal roadway. The Cashiers East Village Mixed-Use Development is proposed on approximately 24.24 acres of land located southeast of the intersection of U.S. 64 and N.C. 107. The purpose of this study is to determine the impact of the anticipated traffic associated with the new development. The intersections examined in this study are listed in the Parameters and Study Area section of the report.

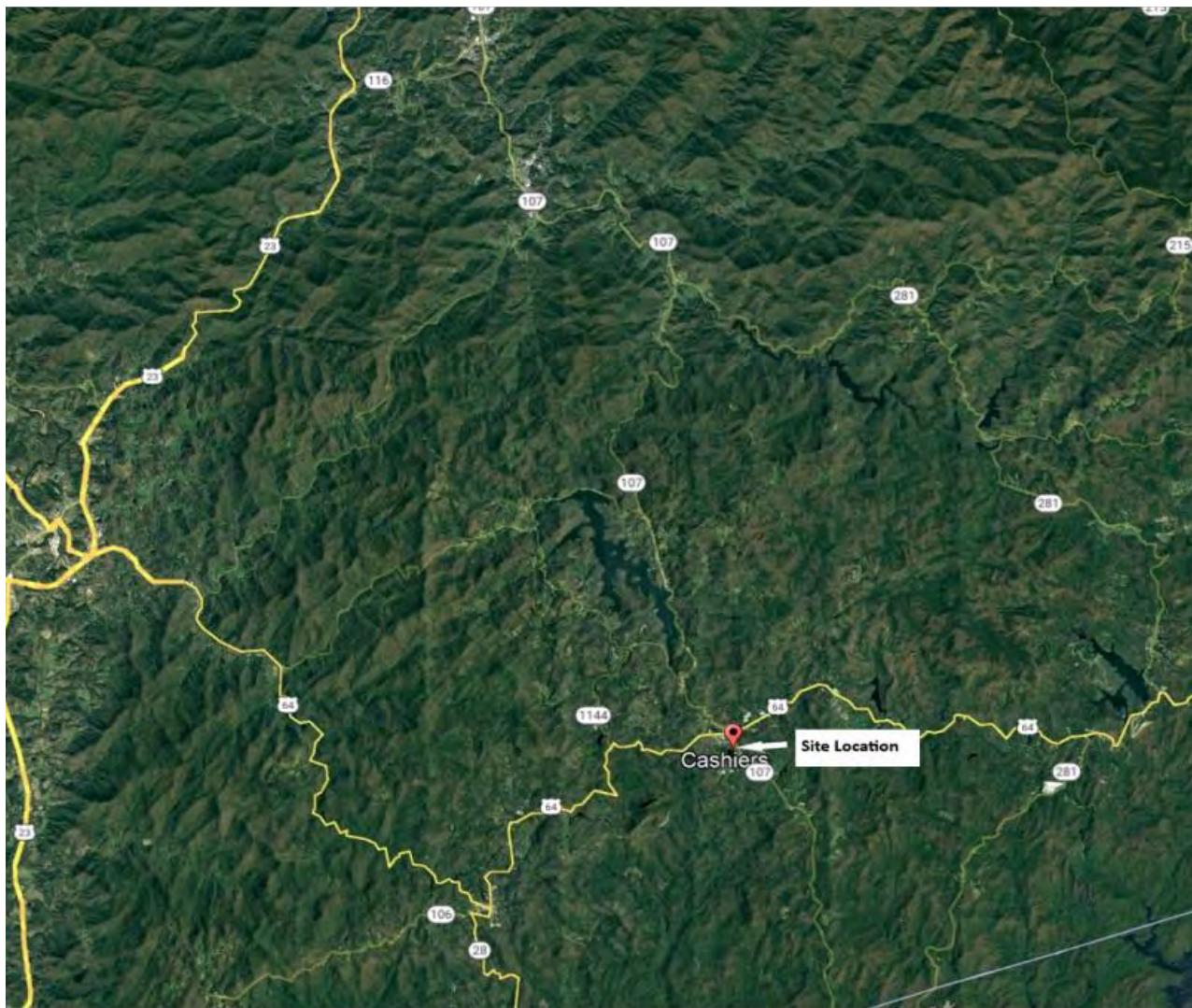


Figure 1 Region of Proposed Site



Figure 2 Proposed Site Location

Proposed Site Use and Access

Figure 3 is the current site plan for the Cashiers East Village Mixed- Use Development. Beginning at N.C. 107 and Marigold Street there are four site access points: N.C. 107 and Marigold Street(1), N.C. 107 and Perennial Drive(2), Monte Vista (3) (service vehicles) and Monte Vista (4) (hotel and employee housing). Employee housing is directly across from the Monte Vista (4) access point. Assuming that most of the trips from employee housing will be either by employee shuttle or non-motorized no analysis of this traffic is included in this study.



Parameters and Study Area

This study follows NCDOT's TIA process including NCDOT's concurrence on scope and parameters. A copy of the approved Scope, NCDOT and Jackson County, is included in Appendix A. NCDOT approved the scope on December 29, 2021.

Peak hour turning movement counts (7:00 - 9:00 AM & 4:00 - 6:00 PM) were conducted on Wednesday, January 12, 2022. From these counts, AM and PM peak hours were determined. Table 1 shows the intersections studied and the AM and PM peak hours for each intersection. This TIA analyzes the AM and PM peak hours for each intersection for existing, background, and build-out traffic conditions.

Other roadway inventory collected included posted speed limits, roadway geometrics, and storage lengths. Additional analysis parameters for the analysis are included in Table 2 (at right). These parameters are agreed to by NCDOT or are taken from the NCDOT's Capacity Analysis Guidance.

Table 1: Studied Intersections

Main Line	Cross Street	AM Peak	PM Peak
N.C. 107	Frank Allen Road (1176)/Valley Road (SR1114)	8:00 AM – 9:00 AM	4:15 PM – 5:15 PM
N.C. 107	Marigold Street (SR1115)	8:00 AM – 9:00 AM	4:15 PM – 5:15 PM
U.S. 64	Monte Vista Road (SR1116)	8:00 AM – 9:00 AM	4:45 PM – 5:45 PM
U.S. 64	N.C. 107	8:00 AM – 9:00 AM	4:00 PM – 5:00 PM
U.S. 64	Marigold Street (SR1115)	8:00 AM – 9:00 AM	4:30 PM – 5:30 PM

Surrounding Land Uses

The Cashiers East Village Mixed-Use Development is located along the U.S. 64 and N.C. 107 corridor in the central part of Cashiers, North Carolina. The immediate area surrounding the proposed site consists of residential and commercial properties.

Table 2: Analysis Parameters

Parameter	Value
Build-out Year	2030
Annual Growth Rate	2.5%
Build-out Peak Hour Factor (PHF)	0.9

Surrounding Roadways

Table 3 summarizes the roadway characteristics of the surrounding network. The roadways in Table 1 are maintained by the North Carolina Department of Transportation. Functional classification addresses the trade-off between mobility and access. Higher functional classifications are intended to provide mobility. Lower functional classifications are intended to provide access to adjacent property. The functional classifications in Table 3 were verified at <https://ncdot.maps.arcgis.com/home/webmap/viewer.html?webmap=e00bf13bffc04642baf32f962712ecfc> on January 24, 2022.

Table 3: Roadway Characteristics

Roadway	NCDOT Roadway Functional Classification	AADT	Speed Limit
U.S. 64	Minor Arterial	8,900	35
N.C. 107	Minor Arterial	5,000	20
Frank Allen Road (SR1176)	Local/Other	NA	25
Monte Vista Road (SR1116)	Local/Other	NA	25
Marigold Street (SR1115)	Local/Other	150	10

Analysis Method

The purpose of a TIA is to determine the impacts of new development traffic on the surrounding roadway. This is done by comparing the effects of additional traffic generated by the site to the traffic that would normally use the road network upon completion of the development. Figure 4 is an outline of the process. The site-generated traffic is added to the background traffic to determine the build-out traffic. These two numbers, background and build-out, are then compared to determine the overall impact that the development traffic has on the roadway.

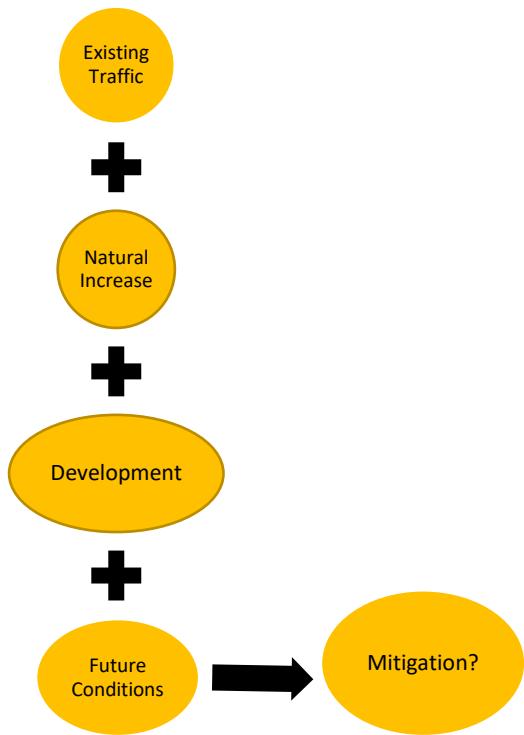


Figure 4 Analysis Flowchart

The studied intersections (Table 1) were analyzed using Synchro. Synchro is a specialized software package that allows the user to model intersections and roadway networks to determine levels of service (LOS), based on the thresholds specified in the *Highway Capacity Manual* (HCM) published by the Transportation Research Board. Synchro also gives an analysis of capacity, vehicle delay, volume to capacity ratio (v/c), queue lengths, traffic signal timing, and vehicle flow rate.

Sim Traffic an extension of Synchro, was Used to better model closely spaced intersections. This animation software allows the user to see traffic moving through the study intersections.

The HCM defines peak hour factor (PHF) as the hourly volume during the maximum-volume hour of the day divided by the highest 15-minute flow rate during the peak hour. PHF is a measure of traffic

demand fluctuations during the peak hour. A PHF of 0.25 means that traffic during the peak is steady. The smaller the PHF the more variable traffic is during the peak hour. The HCM recommended default values are based on data collected throughout the United States. The HCM lists the peak hour factor of 0.88 for Rural and 0.92 for Urban conditions. A peak hour factor of 0.90 was used, which is the average of these two factors and is the recommended PHF recommended by NCDOT for background and build-out Synchro software simulations.

The HCM defines capacity as “the maximum hourly rate at which persons or vehicles can reasonably be expected to traverse a point during a given time period under prevailing roadway, traffic, and control conditions.” Level of Service (LOS) is a term used to represent different driving conditions, with respect to traffic congestion. It is defined as a “qualitative measure describing operational and perceptual conditions within a traffic stream.” LOS “A” represents free-flow traffic conditions with no congestion. LOS “F” represents severely impacted traffic flow due to vehicle congestion. LOS is generally determined by the total “control delay” experienced by drivers (Control delay is vehicle delay that is ultimately caused by the traffic control device. This includes deceleration delay, queue move-up time delay, stopped delay, and acceleration delay). Table 4 shows typical delays associated with each Level of Service for intersections.

Table 4: Highway Capacity Manual Level of Service and Delay

Level of Service	Average Control Delay Per Vehicle (Seconds)	
	Un-signalized Intersection	Signalized Intersection
A	0-10	0-10
B	10-15	10-20
C	15-25	20-35
D	25-35	35-55
E	35-50	55-80
F	> 50	> 80

The analysis for un-signalized intersections can project very high delays on the minor side street, thus it is recommended to use LOS measurements as a comparative tool rather than a design tool. The 95th percentile queue is the vehicle queue (back-up) that has a 5% probability of being exceeded during the analysis period. At un-signalized intersections, p_0 (queue free percent) is the probability of there being no backup.

Existing Traffic

To determine existing traffic, peak period turning movement counts were conducted at the existing intersections listed above and in accordance with the methodology previously explained.

Figure 5 shows the 2022 peak hour volumes. The existing lane diagram is shown in Figure 6. The existing turning movement counts are in Appendix C.

Volume Balancing

The *NCDOT Congestion Management Capacity Analysis Guidelines* recommend that: “All efforts should be made to ensure that upstream and downstream traffic volumes along corridors balance and maintain continuity.”

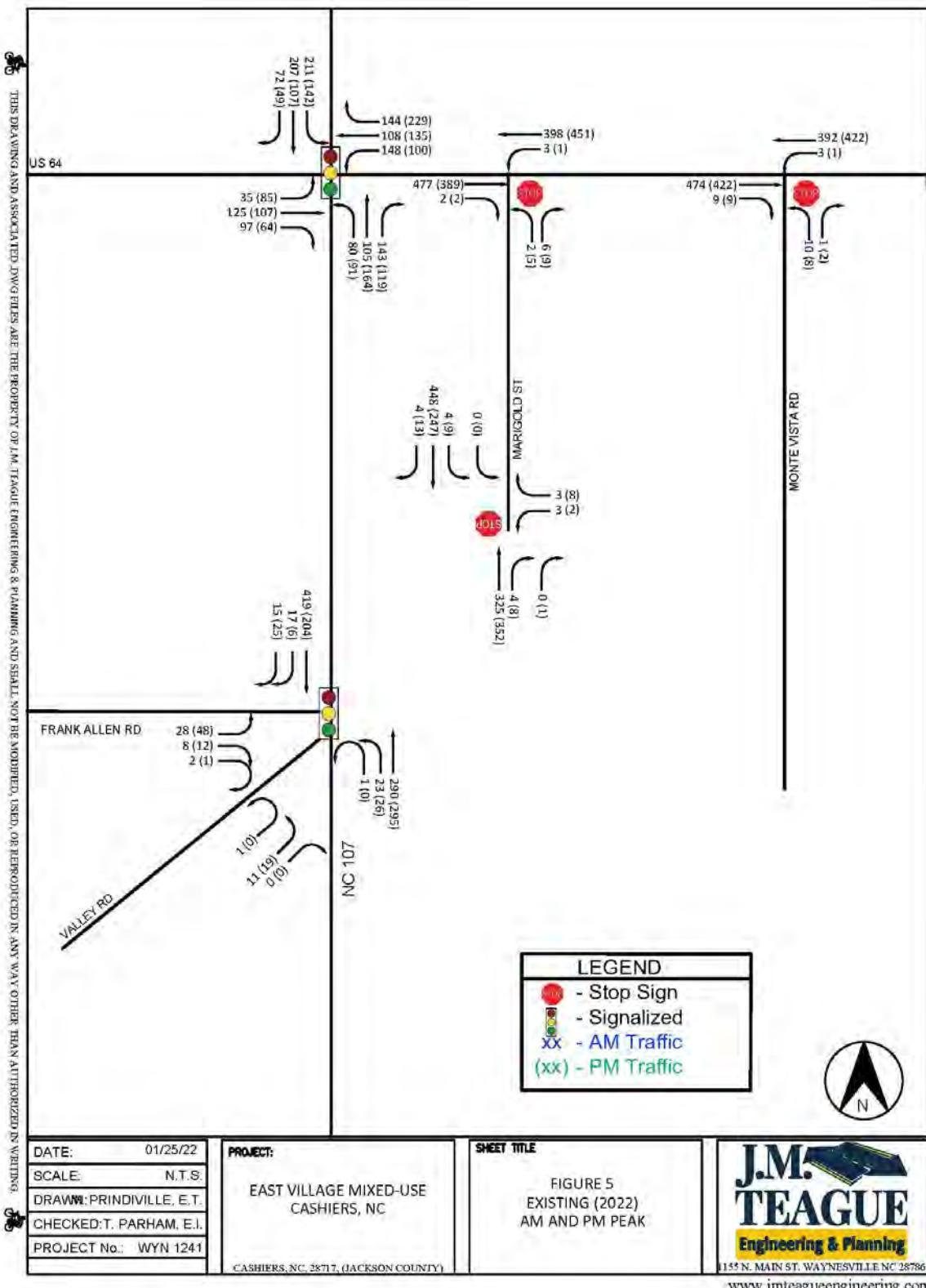


Figure 5 Existing (2022) AM and PM Peak Traffic

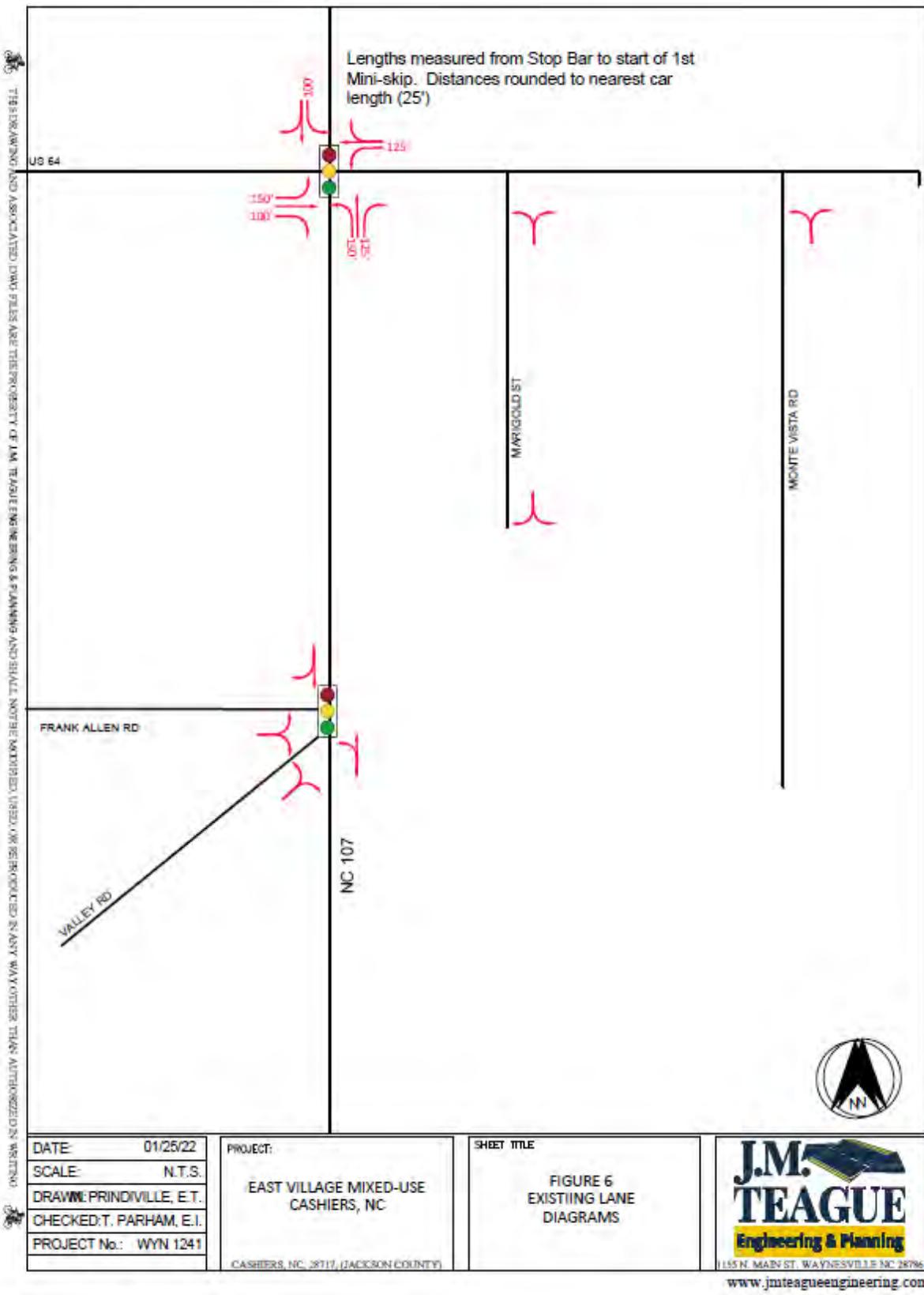


Figure 6 Existing Lane Diagram

Background Traffic

Figure 7 shows the expected AM and PM peak hour background traffic volumes for 2030. Background traffic is the traffic that would be at the studied intersections in the build-out year (2030) without the proposed development. Background traffic is comprised of existing traffic and any change caused by growth trends in the surrounding area or nearby developments. It also assumes no significant roadway changes from the existing conditions. For this study, traffic volumes were grown at a rate of 2.5% per year for calculating background traffic for late 2022 representing project build-out.

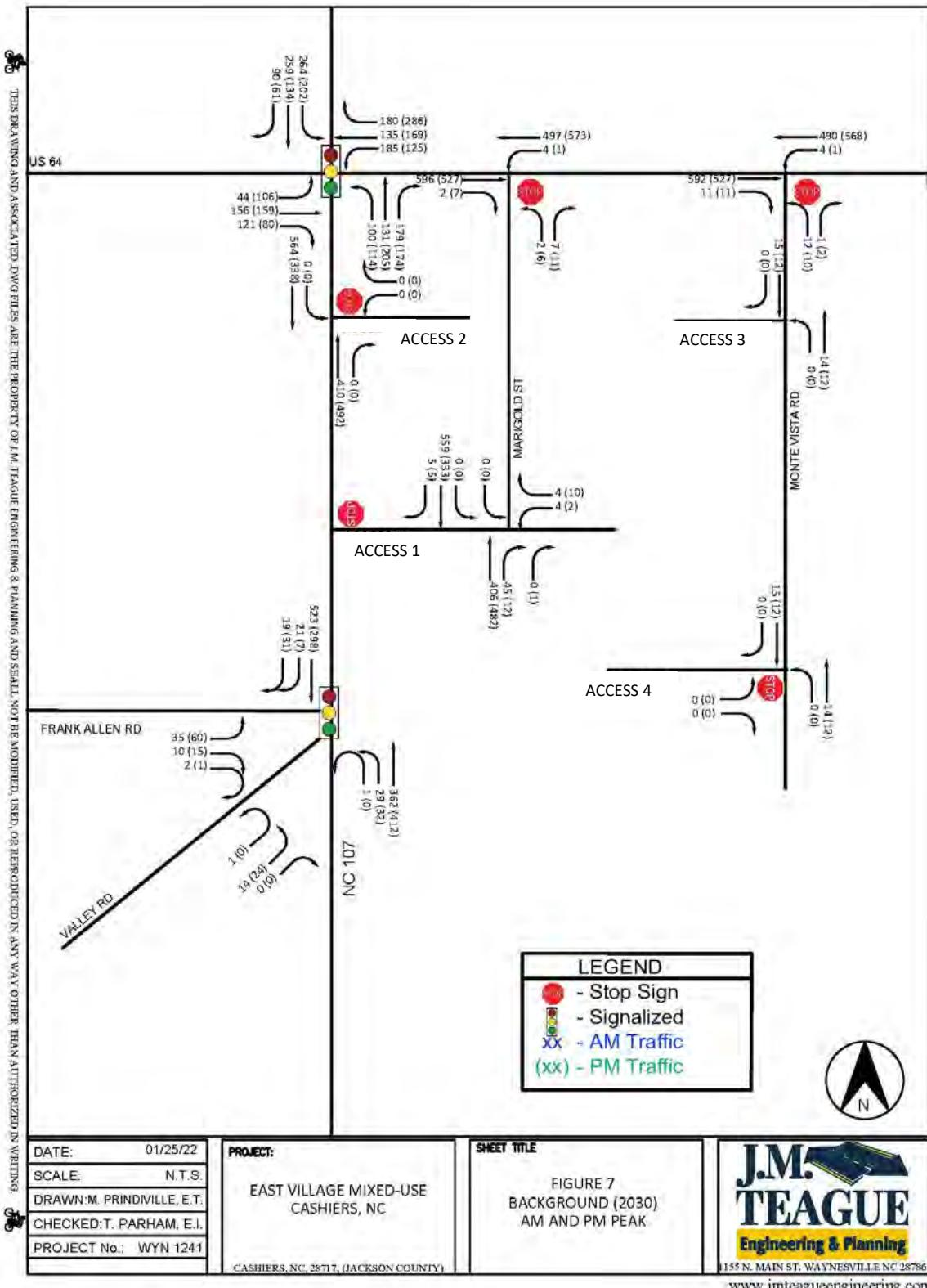


Figure 7 Background (2030) AM and PM Peak Hour Traffic

Trip Generation

The trip generation estimates for the development of this project involved using the traffic data collected for the existing driveways and adding the estimate for the new trips to be generated by the proposed site. The new project trips were based on the 10th edition of the *Trip Generation Manual* published by the Institute of Transportation Engineers (ITE) and were used as the source of data for determining site-generated traffic. Refer to the NCDOT Scoping Checklist found in Appendix A for a detailed description of the trip generation.

Table 6 summarizes the trip generation for Cashiers East Village in AM and PM peak hours along with daily totals.

Table 5 Typical Weekday Trip Generation (2030)

ITE Land Use Code	Size	Daily	AM Peak Hour			PM Peak Hour		
			Enter	Exit	Total	Enter	Exit	Total
220 – M.F. Housing	16 D.U.	80	2	6	8	7	5	12
221 - M.F. Housing	50 D.U.	271	2	13	17	14	9	23
231 – Midrise Res	14 D.U.	48	1	3	4	3	2	5
260 – Rec Homes	18 D.U.	62	6	7	13	5	7	12
310 – Hotel	100 Rooms	702	26	19	45	25	24	49
416 – Campground	14 Occ Sites		1	2	3	2	2	4
820 – Shopping Center	33 KSF	2829	104	64	168	115	124	239
925 – Drinking Place	2 KSF		0	0	0	15	8	23
931 – Quality Restaurant	6 KSF	503	2	2	4	31	16	47
710 – General Office Bldg.	8 KSF	92	16	2	18	13	61	74
Total		4587	162	118	280	130	258	488

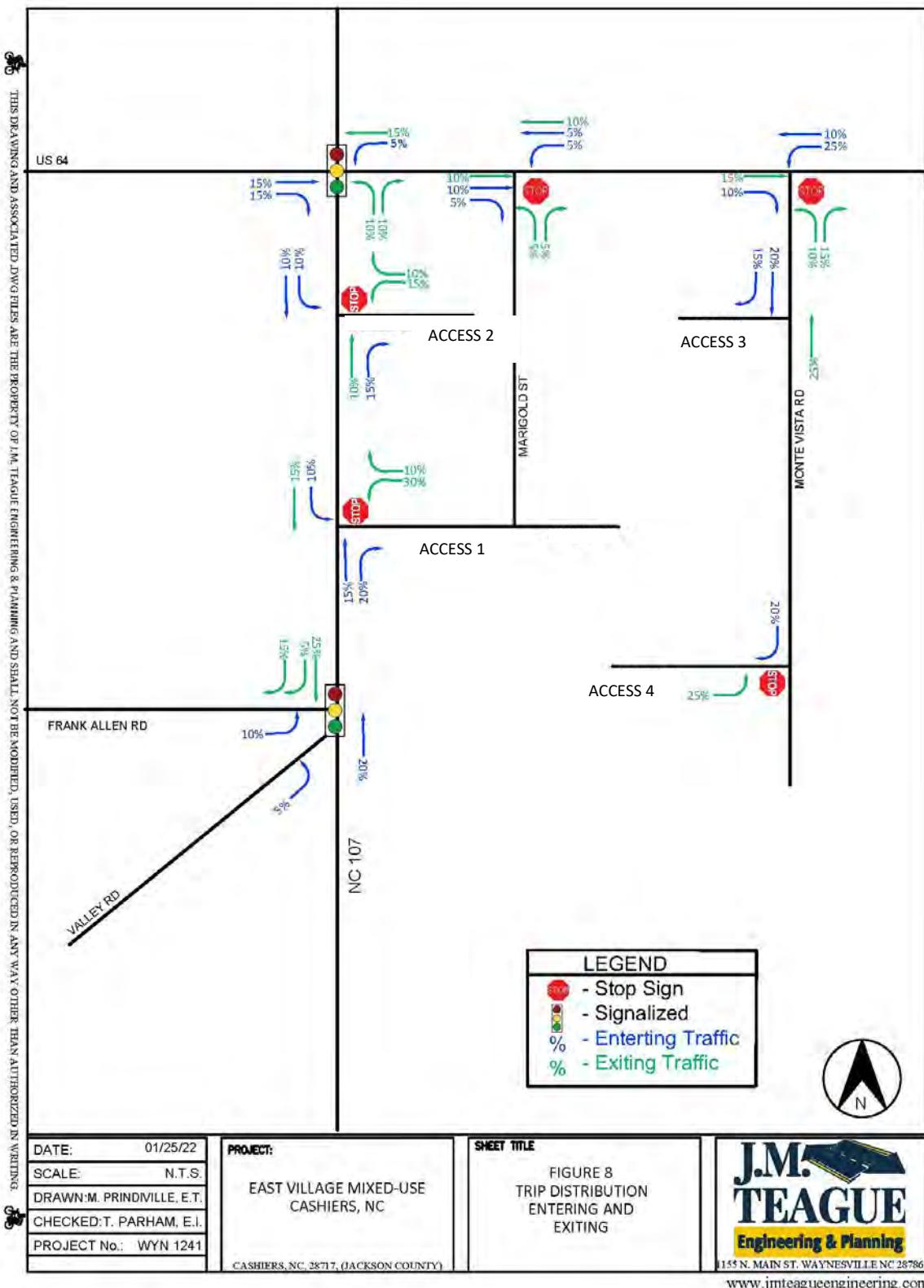


Figure 8 Trip Generation

Trip Distribution

Trip distribution is the assignment of project traffic throughout the road network as it enters and exits the site. The pathway is assigned to show the traffic as it travels through the study area intersections. The trip distribution for this development was estimated from the existing traffic volume patterns within the surrounding roadway network, the surrounding population densities, the location of the proposed development, and engineering judgment. Figure 8 shows the entering and exiting peak hour trip distribution percentages.

The AM and PM peak hour trips were distributed to the roadway network using the percentages in Figure 8 and are shown as AM and PM peak hour Entering and Exiting site generated trips in Figure 9.

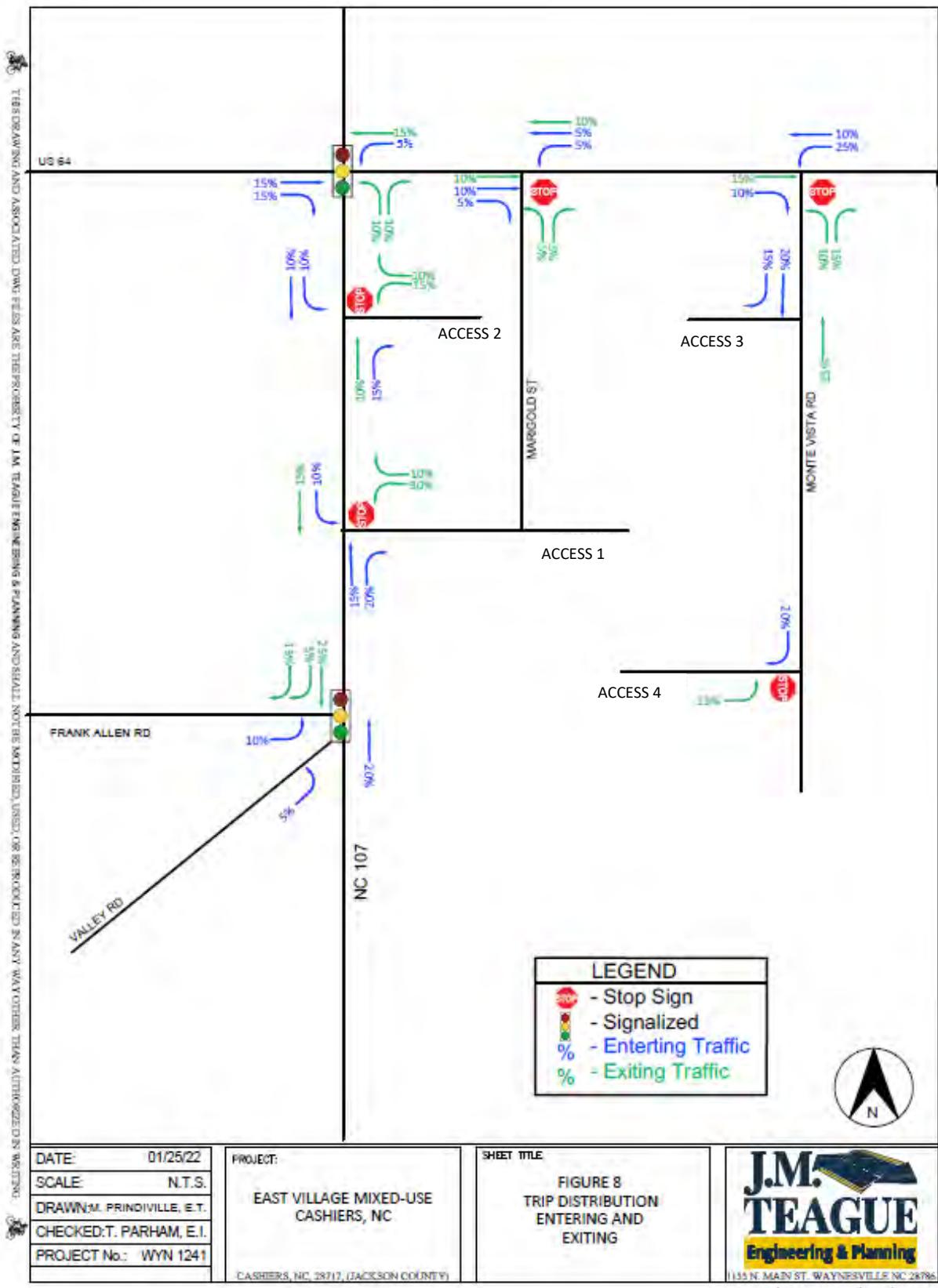


Figure 9 Trip Distribution Percentages

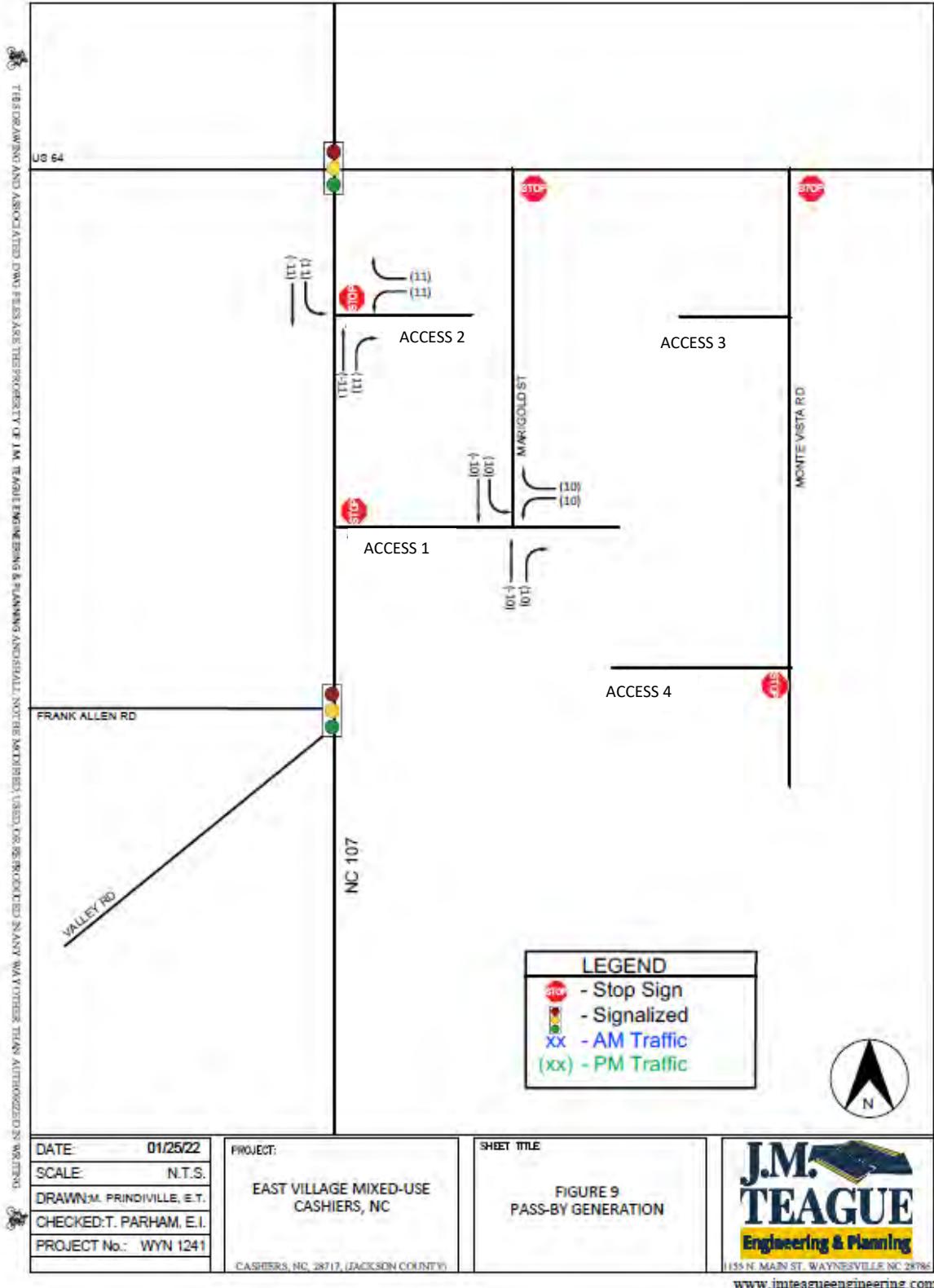


Figure 10 Pass-By Trips

Build-Out Traffic

Build-out traffic is all traffic that will be present on the surrounding roadway network when the project is complete and fully occupied. 2030 is the expected year for completing the new development. Build-out traffic is the sum of background traffic and the proposed site trips, illustrated respectively in Figures 7 and 9. The anticipated build-out AM and PM Peak Hour traffic is shown in Figure 11.

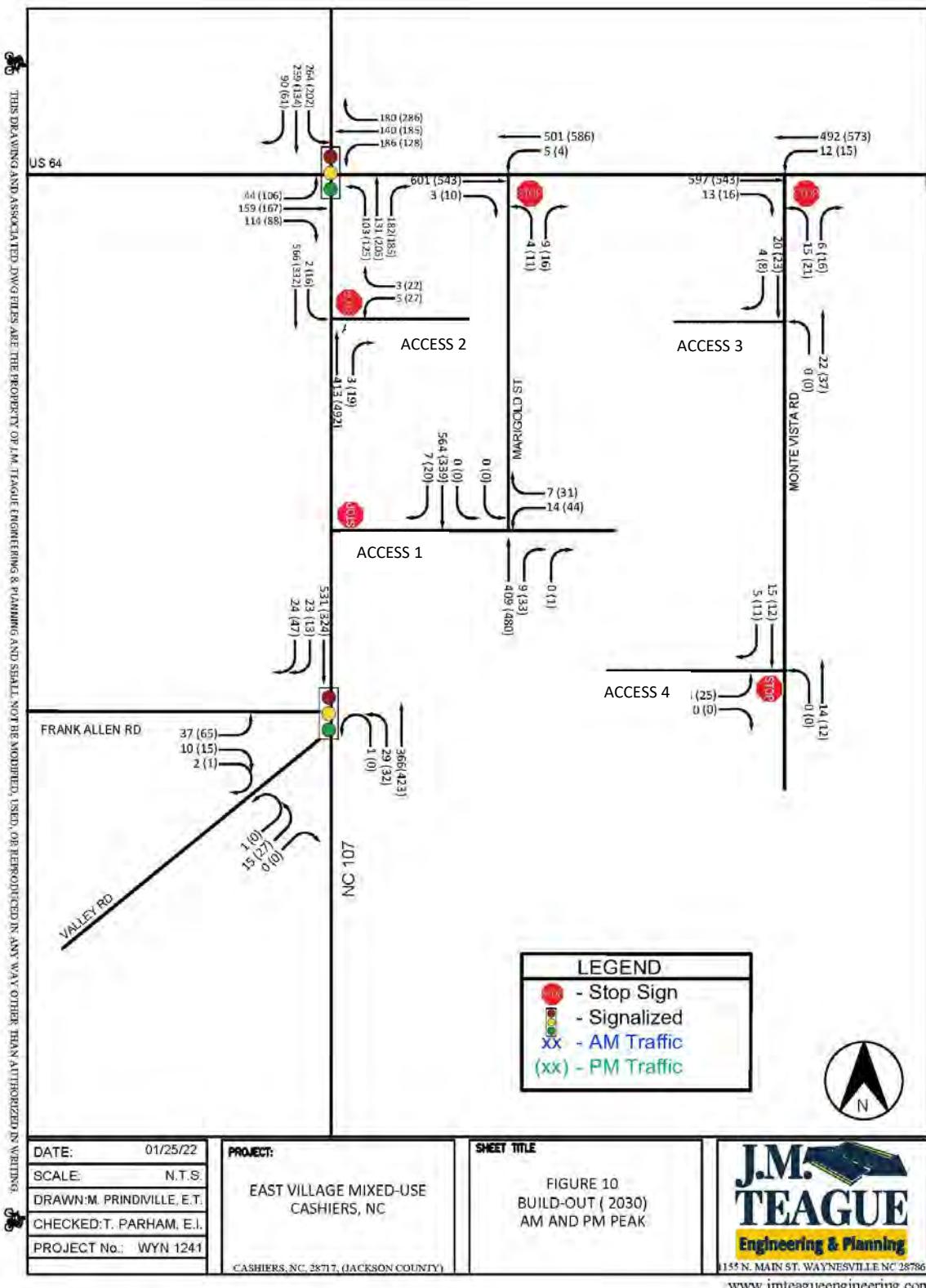


Figure 11 Build-Out (2030) AM and PM Peak Hour Traffic

Analysis of Existing Traffic Conditions

The analysis for existing conditions was based on NCDOT's *Congestion Management Capacity Analysis Guidelines*. Table 6 shows the existing LOS, delay, v/c ratio, and queue for the studied intersections. The existing traffic volumes from the AM & PM peak hours were analyzed using existing lane configurations and traffic control conditions. Since existing turning movement count data was collected, the existing peak hour factor (PHF) was used for analyzing existing conditions. Based on HCM and NCDOT guidance, the free-flow movements / approaches were not analyzed for existing conditions. The capacity analysis (Synchro) reports for the existing conditions are in Appendix B.

In 2022 the eastbound and westbound approaches of the U.S. 64 and N.C. 107 intersection operate at LOS E during the AM peak period. The westbound approach also operates at LOS E during the PM peak period.

Table 6: Analysis of Existing (2022) AM/PM Peak Hour Traffic Conditions

Intersection	Approach	Queue Length (ft) [AM]	LOS [AM]	Delay (sec) [AM]	V/C Ratio [AM]	Queue Length (ft) [PM]	LOS [PM]	Delay (sec) [PM]	V/C Ratio [PM]
U.S 64 & U.S 107	Eastbound	218	E	56.60	0.50	176	D	44.50	0.53
	Westbound	299	E	58.20	0.70	425	E	57.20	0.81
	Northbound	189	D	41.90	0.49	291	D	47.20	0.54
	Southbound	339	D	42.40	0.71	249	D	50.60	0.67
U.S 64 & U.S Marigold Street	Eastbound	0	-	-	-	0	-	-	-
	Westbound	52	A	8.50	0.00	52	A	8.30	0.00
	Northbound	19	B	14.50	0.03	25	B	14.00	0.04
U.S 64 & Monte Vista Road	Eastbound	0	-	-	-	0	-	-	-
	Westbound	83	A	8.50	0.00	32	A	8.30	0.00
	Northbound	26	C	16.70	0.05	26	C	16.30	0.04
U.S 107 & Marigold Street	Westbound	36	B	13.40	0.02	22	B	12.20	0.03
	Northbound	0	-	-	-	6	-	-	-
	Southbound	56	A	8.00	0.00	28	A	8.20	0.00
U.S 107 & Frank Allen Road	Eastbound	80	D	385.70	0.23	90	D	39.30	0.32
	Northeast	48	D	37.90	0.11	49	D	38.20	0.14
	Northbound	205	A	8.10	0.30	208	B	10.20	0.35
	Southbound	267	A	9.10	0.40	203	A	9.30	0.26

Analysis of Background Traffic Conditions

The analysis for background conditions was based on methodologies presented in NCDOT's *Congestion Management Capacity Analysis Guidelines*. To estimate the background LOS, delay, v/c ratio, and queue at the study intersections, the background traffic was analyzed using existing lane configurations and traffic control conditions. The results are provided in Table 8. A PHF of

0.90 was Used for all background conditions in accordance with NCDOT guidelines. Based on HCM and NCDOT guidance, the free-flow movements / approaches were not analyzed for background conditions. The 0.90 PHF is Used by traffic engineering companies and NCDOT to simulate worst-case scenarios for LOS calculations. The worst-case PHF assumption can sometimes create fluctuations in LOS and delay readings without any change in the traffic volumes. The capacity analysis (Synchro) reports for the existing conditions are in Appendix B.

In the 2030 background case the eastbound and westbound approaches of the U.S. 64 and N.C. 107 intersection operate at LOS E during the AM peak period. The westbound approach also operates at LOS E during the PM peak period. In addition, the southbound approach of U. S. 64 and N.C. 107 intersection operate at LOS E during the PM peak period.

Table 7: Analysis of Background (2030) AM/PM Peak Hour Traffic Conditions

Intersection	Approach	Queue Length (ft) [AM]	LOS [AM]	Delay (sec) [AM]	V/C Ratio [AM]	Queue Length (ft) [PM]	LOS [PM]	Delay (sec) [PM]	V/C Ratio [PM]
U.S 64 & U.S 107	Eastbound	245	E	56.40	0.56	220	D	45.30	0.65
	Westbound	373	E	59.60	0.77	525	E	59.30	0.88
	Northbound	336	D	48.30	0.58	445	D	55.00	0.61
	Southbound	450	D	56.50	0.77	381	E	56.90	0.77
U.S 64 & Marigold Street	Eastbound	0	-	-	-	4	-	-	-
	Westbound	39	A	8.90	0.01	160	A	8.70	0.01
	Northbound	19	C	17.10	0.04	37	C	16.80	0.06
U.S 64 & Monte Vista Road	Eastbound	0	-	-	-	0	-	-	-
	Westbound	22	A	8.90	0.01	59	A	8.70	0.01
	Northbound	43	C	21.80	0.08	36	C	21.30	0.07
U.S 107 & Marigold Street	Westbound	22	C	15.80	0.03	32	B	13.50	0.04
	Northbound	0	-	-	-	52	-	-	-
	Southbound	98	A	8.30	0.01	96	A	85.00	0.01
U.S 107 & Frank Allen Road	Eastbound	83	D	39.00	0.27	122	D	39.60	0.38
	Northeast	52	D	38.10	0.13	57	D	38.40	0.17
	Northbound	302	B	10.30	0.40	292	B	12.10	0.45
	Southbound	321	B	12.10	0.53	265	B	10.50	0.33

Analysis of Build-Out Traffic Conditions

The analysis of build-out conditions was based on methodologies presented in NCDOT's *Congestion Management Capacity Analysis Guidelines*. The build-out traffic was analyzed using existing lane configurations and traffic control conditions as well as the addition of the proposed site access points. A PHF of 0.90 was Used for all build-out conditions in accordance with NCDOT guidelines. The build-out LOS, delay, v/c ratio, and queue at the study intersections in the AM and PM peak hours are provided below in Table 9. Based on HCM and NCDOT guidance, "LOS for

un-signalized intersections should only be reported for individual stop-controlled or yield movements." As a result, the free-flow movements / approaches were not reported for the build-out traffic conditions. The 0.90 PHF is Used by traffic engineering companies and NCDOT to simulate worst-case scenarios for LOS calculations. The worst-case PHF assumption can sometimes create fluctuations in LOS and delay readings without any change in the traffic volumes. The Synchro Reports for the Build-out conditions are in Appendix B.

Table 8: Analysis of Build-out (2030) AM/PM Peak Hour Traffic Conditions

Intersection	Approach	Queue Length (ft) [AM]	LOS [AM]	Delay (sec) [AM]	V/C Ratio [AM]	Queue Length (ft) [PM]	LOS [PM]	Delay (sec) [PM]	V/C Ratio [PM]
U.S 64 & U.S 107	Eastbound	245	E	56.40	0.56	220	D	45.30	0.65
	Westbound	373	E	59.60	0.77	525	E	59.30	0.88
	Northbound	336	D	48.30	0.58	445	D	55.00	0.61
	Southbound	450	D	56.50	0.77	381	E	56.90	0.77
U.S 64 & Marigold Street	Eastbound	0	-	-	-	4	-	-	-
	Westbound	39	A	8.90	0.01	160	A	8.70	0.01
	Northbound	19	C	17.10	0.04	37	C	16.80	0.06
U.S 64 & Monte Vista Road	Eastbound	0	-	-	-	0	-	-	-
	Westbound	22	A	8.90	0.01	59	A	8.70	0.01
	Northbound	43	C	21.80	0.08	36	C	21.30	0.07
U.S 107 & Marigold Street	Westbound	22	C	15.80	0.03	32	B	13.50	0.04
	Northbound	0	-	-	-	52	-	-	-
	Southbound	98	A	8.30	0.01	96	A	85.00	0.01
U.S 107 & Frank Allen Road	Eastbound	83	D	39.00	0.27	122	D	39.60	0.38
	Northeast	52	D	38.10	0.13	57	D	38.40	0.17
	Northbound	302	B	10.30	0.40	292	B	12.10	0.45
	Southbound	321	B	12.10	0.53	265	B	10.50	0.33

Findings

This section compares the background and build-out conditions for the studied intersections. The intersection traffic movements that exceed delay and level of service thresholds are discussed in the text and the results are provided in the accompanying tables. The mitigation recommendations at each of the studied intersections were based on NCDOT's *Policy on Street and Driveway Access to North Carolina Highways* (Driveway Manual) methodology and mitigation threshold requirements, and engineering judgment.

According to NCDOT guidelines, mitigation improvements to the studied roadway network are required if at least one of the following conditions exists when comparing base network conditions to project build-out conditions:

- Average intersection or approach delay increases by 25% or greater while maintaining the same LOS, or

- LOS degrades by at least one level, or
- LOS is 'F.'

The comparison of background and build-out conditions is shown in Table 10 below, and in cases where the build-out conditions exceed NCDOT operational thresholds, the need for mitigating improvements is discussed.

Table 9: Comparison of Background vs Build-out Peak Hour Traffic Conditions

Intersection	Approach Direction	Peak Hour	Existing					Background					Build-Out					Background Queue & Build Out Queue Difference (FT)
			Queue Length (ft) [EG]	LOS [EG]	Delay (sec) [EG]	V/C Ratio [EG]	Queue Length (ft) [BG]	LOS [BG]	Delay (sec) [BG]	V/C Ratio [BG]	Queue Length (ft) [BO]	LOS [BO]	Delay (sec) [BO]	V/C Ratio [BO]	Background vs Build-out Delay Increase %			
US 64 & US 107	Eastbound	AM	218	E	56.60	0.50	245	E	56.40	0.56	258	E	56.50	0.56	0%	13		
		PM	176	D	44.50	0.53	220	D	45.30	0.65	203	D	46.50	0.69	3%	0		
		AM	299	E	58.20	0.70	373	E	59.60	0.77	394	E	59.70	0.77	0%	21		
		PM	425	E	57.20	0.81	525	E	59.30	0.88	542	E	58.70	0.88	0%	17		
		AM	189	D	41.90	0.49	336	D	48.30	0.58	242	D	48.50	0.59	0%	0		
		PM	291	D	47.20	0.54	445	D	55.00	0.61	336	E	55.30	0.64	1%	0		
	Westbound	AM	339	D	42.40	0.71	450	D	56.50	0.77	510	D	47.00	0.78	0%	60		
		PM	249	D	50.60	0.67	381	E	56.90	0.77	312	E	58.10	0.78	2%	0		
		AM	0	-	-	-	0	-	-	-	0	-	-	-	0%	0		
		PM	0	-	-	-	4	-	-	-	0	-	-	-	0%	0		
		AM	52	A	8.50	0.00	39	A	8.90	0.01	102	A	8.90	0.01	0%	63		
		PM	52	A	8.30	0.00	160	A	8.70	0.01	182	A	8.70	0.01	0%	22		
US 64 & Monte Vista Road	Northbound	AM	19	B	14.50	0.03	19	C	17.10	0.04	28	C	16.70	0.05	0%	9		
		PM	25	B	14.00	0.04	37	C	16.80	0.06	40	C	18.60	0.10	11%	3		
		AM	0	-	-	-	0	-	-	-	0	-	-	-	0%	0		
		PM	0	-	-	-	0	-	-	-	0	-	-	-	0%	0		
		AM	83	A	8.50	0.00	22	A	8.90	0.01	88	A	9.00	0.02	1%	66		
		PM	32	A	8.30	0.00	59	A	8.70	0.01	114	A	8.80	0.02	1%	55		
	Westbound	AM	26	C	16.70	0.05	43	C	21.80	0.08	34	C	22.70	0.10	4%	0		
		PM	26	C	16.30	0.04	36	C	21.30	0.07	60	C	22.60	0.17	6%	24		
		AM	36	B	13.40	0.02	22	C	15.80	0.03	36	C	18.40	0.08	16%	14		
		PM	22	B	12.20	0.03	32	B	13.50	0.04	88	C	18.90	0.24	40%	56		
		AM	0	-	-	-	0	-	-	-	0	-	-	-	0%	0		
		PM	6	-	-	-	52	-	-	-	44	-	-	-	0%	0		
US 107 & Marigold Street	Southbound	AM	56	A	8.00	0.00	98	A	8.30	0.01	161	A	8.30	0.01	0%	63		
		PM	28	A	8.20	0.00	96	A	85.00	0.01	124	A	8.70	0.02	0%	28		
		AM	80	D	385.70	0.23	83	D	39.00	0.27	74	O	39.00	0.27	0%	0		
		PM	90	D	39.30	0.32	122	D	39.60	0.38	96	D	39.70	0.39	0%	0		
		AM	48	D	37.90	0.11	52	D	38.10	0.13	49	D	38.20	0.14	0%	0		
		PM	49	D	38.20	0.14	57	D	38.40	0.17	79	D	38.60	0.20	1%	22		
	Northbound	AM	205	A	8.10	0.30	302	B	10.30	0.40	317	B	10.50	0.40	2%	15		
		PM	208	B	10.20	0.35	292	B	12.10	0.45	380	B	12.80	0.47	6%	88		
		AM	267	A	9.10	0.40	321	B	12.10	0.53	337	B	12.50	0.54	3%	16		
		PM	203	A	9.30	0.26	265	B	10.50	0.33	272	B	11.40	0.38	9%	7		
		AM									56	A	8.70	0.01	0%	56		
		PM									55	A	8.80	0.03	0%	55		
Monte Vista Road & Access 2	Northbound	AM									0	A	7.30	0.00	0%	0		
		PM									0	A	7.30	0.00	0%	0		
		AM									0	-	-	-	0%	0		
		PM									0	-	-	-	0%	0		
	Southbound	AM									39	C	16.60	0.03	0%	39		
		PM									65	C	17.10	0.16	0%	65		
		AM									14	-	-	-	0%	14		
		PM									136	-	-	-	0%	136		
US 107 & Access 3	Westbound	AM									52	A	8.30	0.00	0%	52		
		PM									107	A	9	0	0%	107		

U.S. 64 @ N.C. 107

No significant increases in delay are expected when comparing Background and Build conditions.

U.S. 64 @ Marigold Street

No significant increases in delay are expected when comparing Background and Build conditions.

U.S. 64 @ Monte Vista Road

No significant increases in delay are expected when comparing Background and Build conditions.

N.C. 107 @ Marigold Street

No significant increases in delay are expected when comparing Background and Build conditions. Queues are expected to increase by less than 50 feet on all approaches. NCDOT turn lane warrants were not met in either of the Build scenario peak hours. No improvements by the development are recommended.

N.C. 107 @ Frank Allen Road/Valley Road

No significant increases in delay are expected when comparing Background and Build conditions.

Queuing Analyses

Queuing analyses were performed to determine the effect of the build-out traffic on intersection traffic queues. Sim Traffic was used to generate the Queuing and Blocking Reports for the study area intersections for each analysis scenario. The following guidelines indicate where mitigation improvements are required to ensure that appropriate turn lane storage lengths for queuing vehicles are provided:

Mitigation is required when the Build condition exceeds the No-Build conditions by any of the following minimum thresholds:

1. *A significant increase in maximum queue length or 95th percentile queue length,*
2. *Left-turn and/or right-turn lane warrants (NCDOT's Policy on Street and Driveway Access to North Carolina Highways) are identified, or*
3. *Build with Capacity Improvements queue exceeds the existing storage length.*

Table 10 shows the study area intersection queue impacts based on the SimTraffic maximum queue length and the Synchro 95th percentile queue length.

Table 10: Queue Length Increases

Main Line	Cross Street	Approach	AM Peak	PM Peak
U.S 64	N.C. 107	Eastbound	13	0
		Westbound	21	17
		Northbound	0	0
		Southbound	60	0
	Marigold Street	Eastbound	0	0
		Westbound	63	22
		Northbound	9	3
		Southbound	NA	NA
	Monte Vista Road	Eastbound	0	0
		Westbound	66	55
		Northbound	0	24
		Southbound	NA	NA
N.C. 107	Marigold Street	Eastbound	NA	NA
		Westbound	14	56
		Northbound	0	0
		Southbound	63	28
	Frank Allen Road	Eastbound	0	0
		Westbound	0	22
		Northbound	15	88
		Southbound	16	7
	Access 1	Eastbound	NA	NA
		Westbound	39	65
		Northbound	14	136
		Southbound	52	107
Monte Vista Road	Access 4	Eastbound	56	55
		Westbound	NA	NA
		Northbound	0	0
		Southbound	0	0

Based upon the increase in queue length changes only the intersection of N.C> 107 and Marigold Street should be considered for mitigation. However, This queue backs into the Cashiers Village East so no mitigation is recommended.

Safety Review

This section of the report evaluates the site plan and street network for basic safety elements. This evaluation considers emergency vehicle access, turn lane warrants, internal non-motorized travel and reported incidents at nearby intersections.

Crash Data Review

Figure 6 shows NCDOT's planning level crash data for intersections in the study area. JMTE downloaded Figure 6 from <https://ncdot.maps.arcgis.com/home/webmap/> on January 25, 2022.

The intersection of U.S. 64 and N.C. 107 normally has between four and five crashes per year. Since 2016, most of the crashes have been property damage only. There have been no reported fatalities at that intersection.

No other intersections in the study area show reported crashes since 2016.



This map displays planning level crash data grouped by intersection. This data should not be used for detailed analysis. The NCDOT Traffic Safety Unit can provide detailed numbers if needed.

State of North Carolina DOT, Tennessee STS GIS, Esri, HERE, Garmin, INCREMENT P, USGS, EPA, USDA

Figure 12 NCDOT Total Crash Frequency by Intersection (2016-2022)

Emergency Vehicle Access

The site plan (Figure 3) shows three full movement access points and a one-way in access point. One internal roadway allows access from one side of Cashiers East Village to the other. This internal roadway is twenty (20) feet wide and allows emergency vehicles to set up on the roadway.

Pedestrian and Non-Motorized Trips

Cashiers East Village is intended to be a walkable extension of Cashiers. The commercial area is designed to produce a high internal capture rate and minimize the number of vehicle trips. The streets are designed for low speeds and include sidewalks and walkways to allow residents and visitors to safely walk from point to point.

Protected Stem Lengths

As recommended by the NCDOT internal protected stem lengths for the site accesses be at least 100 feet long. In the case of the access points off N.C. 107 these are existing conditions. It is recommended that a marked crosswalk be provided at Monte Vista Access #2 between the employee housing and the hospitality site.

Turn Lane Warrants

JMTE performed a turn lane warrant analysis for left turns based upon *NCDOT's Policy on Street and Driveway Access to North Carolina Highways* dated July 2003, at:

- the intersection of U.S. 64 and Monte Vista Road,
- and for the intersection of N.C. 107 and Magnolia/Perennial Street.

Figure 12 shows the turn lane warrant nomograph for U.S. 64 and Monte Vista. Figure 13 shows the turn lane warrant nomograph for N.C. 107 and Magnolia/Perennial Street.

Turn lanes may be warranted at both intersections. Turn lane length and configuration are beyond the scope of this preliminary analysis and scope. Any proposed improvements and are subject to review and approval by the NCDOT.

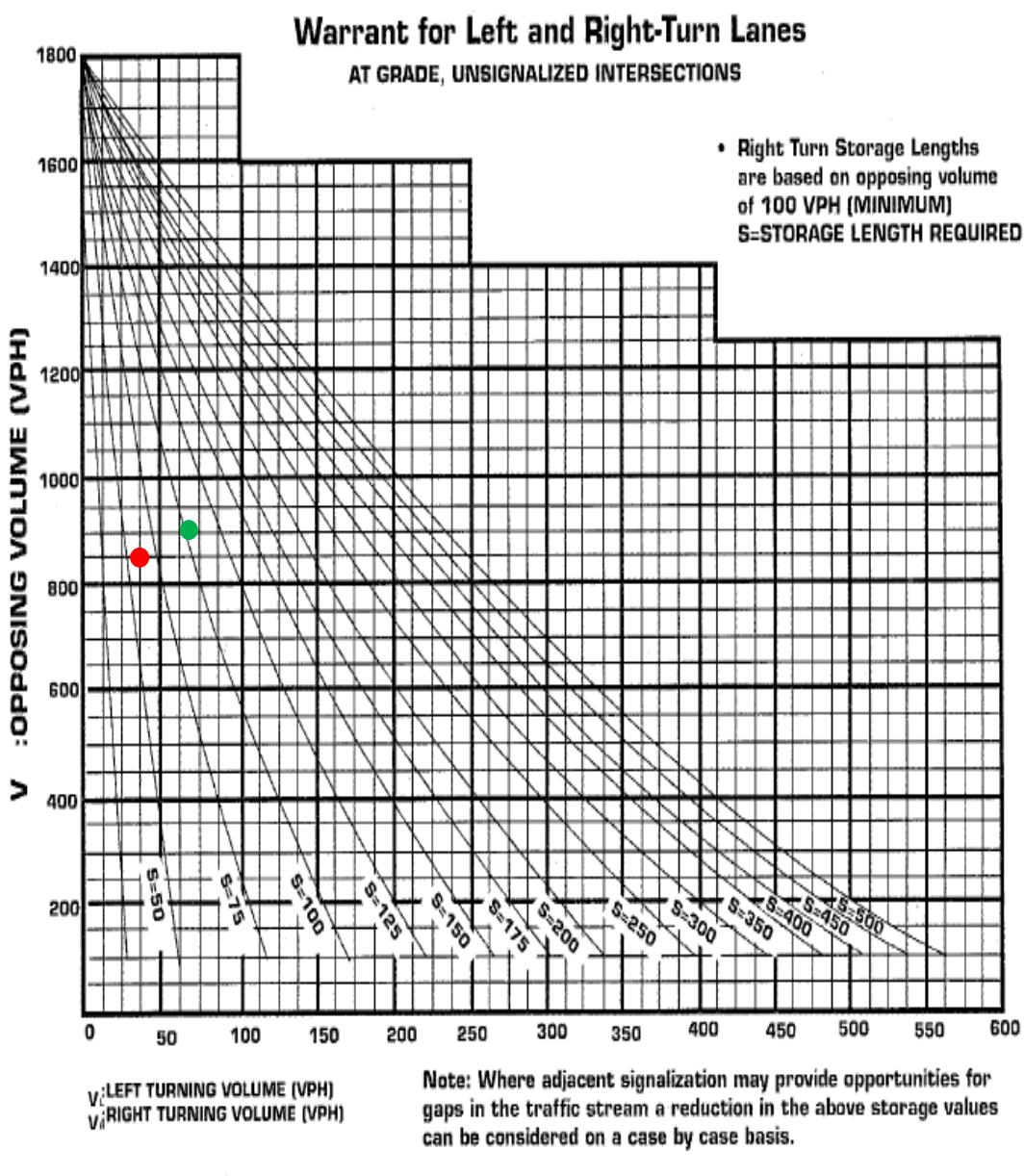


Figure 13 Turn Lane Warrant Analysis – U.S. 64 and Monte Vista Road

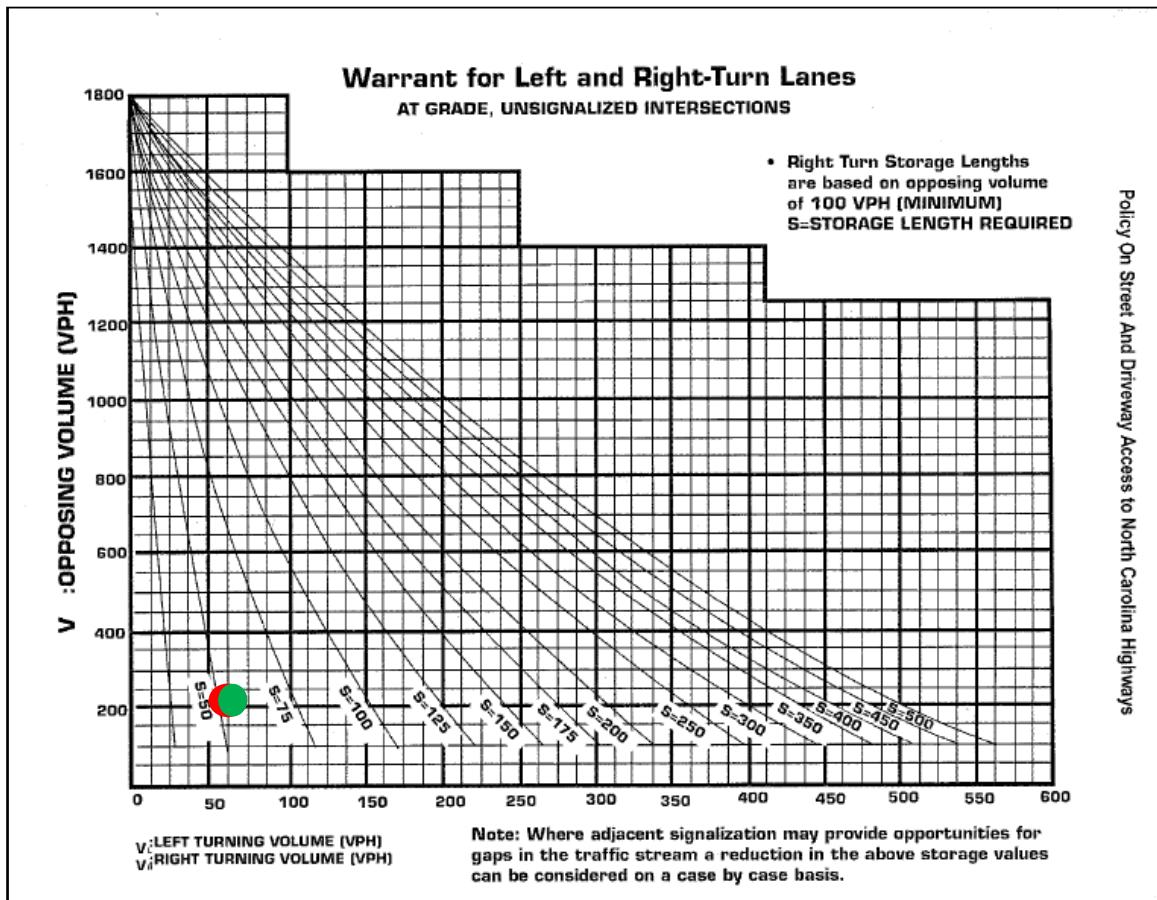


Figure 14 Turn Lane Warrant Analysis - N.C 107 at Magnolia/Perennial Street

Sight Distance

Sight distance is a concern at the first entrance (Access Point 3) to the hotel and camping areas on Monte Vista Road. The site plan (Figure 3) proposes that this entrance be right on only eliminating the left turn out and resolving the sight distance concern.

Appendix A

NCDOT TIA Scoping Checklist

Mike Prindiville

From: Lee, Christopher D <cdlee@ncdot.gov>
Sent: Wednesday, December 29, 2021 11:07 AM
To: David Hyder; Christian Sottile; victor.lofquist@frontier.com
Cc: Mike Prindiville; Patience Stepp; Ty Parham; Shuler, Zachary T; Shuler, James B; Sitton, Brody D; Gallo, Robert S; Reese, Michael P
Subject: RE: [External] NCDCOT TIA Scoping Sheet-East Cashiers
Attachments: 2021-12-29_East Village Cashiers Development CMS Scope Review_SC-2020-181R1.pdf

Good Morning David,

I hope this finds you well. Please accept the attached comments from our Congestion Management staff. I concur with these comments and would ask you to address each item and adjust the scope accordingly. If you have any questions please advise.

Sincerely,

Chris Lee, PE
District Engineer
North Carolina Department of Transportation
Division 14: District II – Haywood, Jackson, & Swain Counties

828 497 7333 office
cdlee@ncdot.gov

178 Henry Bird Rd.
Whittier, NC 28789



Email correspondence to and from this address is subject to the North Carolina Public Records Law and may be disclosed to third parties.

From: David Hyder <David@jmteagueengineering.com>
Sent: Monday, December 13, 2021 2:40 PM
To: Lee, Christopher D <cdlee@ncdot.gov>; Christian Sottile <csottile@sottile.cc>; victor.lofquist@frontier.com
Cc: Mike Prindiville <Mike@jmteagueengineering.com>; Patience Stepp <patience.stepp@jmteagueengineering.com>; Ty Parham <ty@jmteagueengineering.com>
Subject: [External] NCDCOT TIA Scoping Sheet-East Cashiers

CAUTION: External email. Do not click links or open attachments unless you verify. Send all suspicious email as an attachment to [Report Spam](#).

Chris,

Attached please find the scoping sheet, site plan and land use table for the subject project. If you need additional information, please email Ty Parham or me.

Respectfully,

David Hyder

David W. Hyder, P.E.

Engineering Director

J.M. Teague Engineering & Planning

1155 North Main Street

Waynesville North Carolina 28786

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Email correspondence to and from this sender is subject to the N.C. Public Records Law and may be disclosed to third parties.

East Village Cashiers TIA SCOPING REVIEW

BULLET LIST OF CONGESTION MGMT. COMMENTS AND CONCERNS (SC-2020-181R1)
December 29, 2021

The Congestion Management Section (CMS) has performed a review of the scoping document for the proposed East Village Cashiers development prepared by J.M. Teague Engineering & Planning (received by NCDOT on December 13, 2021). According to the document, the proposed development is to be located southeast of the intersection of US 64 and NC 107 in Cashiers, Jackson County. **The scoping document states that the full build-out of the development is to be constructed by 2030 and is to consist of a mixed-use development, generating a total of 4,587 unadjusted daily trips.** Based on our review, we have the following comments at this time:

General

- TIP Project R-5881 are in the immediate area of this project. The scoping documents indicate that a rezoning request will NOT be made for this project. * [Observation]
 - *Current LET date for R-5881 is POST YEAR

Trip Generation and Adjustments

- The ITE Trip Generation Manual, 10th Edition appears to be used. [Observation]
- Please provide NCHRP 684 spreadsheet for Internal Capture calculations. Internal capture calculations should follow ITE Trip Generation Manual, Handbook methodology, and NCDOT Capacity Analysis Guidelines.
- LUC code 820 (Shopping Center) used exclusively in trip generation assumes there are no separate retail outparcels. If some of the retail developments are anticipated to be individual outparcels, trip generation for individual outparcels should be calculated separately or else revised trip generation and a revised TIA will be necessary. [Observation]
- Pass-by calculations appears reasonable.
- Otherwise, the unadjusted trip generation appears reasonable.

Trip Distribution and Growth Rate

- Trip Distribution not provided in TIA Checklist. Please ensure to provide the trip distribution diagram with origin/destination points and trip distribution movements for the entering and exiting site trips during the AM and PM peak hours.
- Growth factor of 1 percent appears too small based off AADT growth trends in the area. It is rather suggested to use a 2.5 percent growth factor (growth factor used in the original Cashiers Hillside TIA – SC-2020-181).

Study Intersections

- The proposed study intersections appear reasonable.

Site Plan and Proposed Driveway(s)

- Site plan appears reasonable and appears to match with the trip generation; however, please ensure that the proposed driveway(s) are in accordance with the NCDOT Driveway Manual and Internal Protected Stem lengths are provided with the TIA.

NOTE: This list should not be considered all-inclusive. Further review may identify additional areas of concern.



NCDOT Traffic Impact Analysis Need Screening / Scoping Request



A Traffic Impact Analysis (TIA) may be required for developments based on the site trip generation estimates, site context, or at the discretion of the NCDOT District Engineer. The Applicant or the TIA Consultant shall submit this form along with the site plan to the District Engineer to determine the TIA need and, if a TIA is required, initiate the TIA scoping process. Without an approved scope, the TIA is incomplete and will be rejected until the study is revised to conform to NCDOT's TIA requirements.

Project Name: Cashiers East Village Mixed-Use Tia **Previous Name:** If Applicable _____
Location: US-64 and NC-107 Cashiers, NC **County:** Jackson **Municipality:** Jackson
Project Description: A small scale multi-use development including residential, retail, office, restaurant and lodging

Project Contact:	Applicant	TIA Consultant
Company Name	The Kessler Collection	J. M. Teague Engineering
Contact Person	Day B. Dantzler	David W. Hyder
Phone Number	407.996.9999	828.456.8383
Email	Day.dantzler@kesslercollection.com	David@jmteagueengineering.com
Mailing Address	4901 Vineland Road, Ste 650 Orlando, FL 32811	1155 North Main Street Waynesville, NC 28786

Site Plan Prepared By: Sottile & Sottile

See site plan/vicinity map requirements on page 2.

Parcel Size: 24.24 Acre(s)

Site Plan Date: Novemeber 28, 2021

Anticipated Build-Out Year: 2030

Weekday Site Trip Generation - Do NOT adjust for mode split, pass-by, internal capture, or diverted trips.

ITE LUC	Proposed Land Use	Size	Unit	Daily Trips	Peak Hour Type	AM Peak Hour Trips			PM Peak Hour Trips			Data Source
						Enter	Exit	Total	Enter	Exit	Total	
220	Multifamily Low	16	D.U.	80	Adj. Street	2	6	8	7	5	12	ITE Equation
221	Multifamily Mid	50	D.U.	271	Adj. Street	4	13	17	14	9	23	ITE Equation
231	Midrise Res	14	D.U.	48	Adj. Street	1	3	4	3	2	5	ITE Rate
260	Recreational Homes	18	D.U.	62	Generator	6	7	13	5	7	12	ITE Equation
310	Hotel	100	Rooms	702	Adj. Street	26	19	45	25	24	49	ITE Equation
416	Campground	14	Occ. Sites		Adj. Street	1	2	3	2	2	4	ITE Rate
820	Shopping Center	33	KSF	2829	Adj. Street	104	64	168	115	124	239	ITE Equation
925	Drinking Place	2	KSF		Adj. Street	0	0	0	15	8	23	ITE Rate
931	Quality Restaurant	6	KSF	503	Adj. Street	2	2	4	31	16	47	ITE Rate
710	General Office Bldg	8	KSF	92	Generator	16	2	18	13	61	74	ITE Equation
Total				4587		162	118	280	230	258	488	X

Refer to the current [NCDOT Congestion Management Capacity Analysis Guidelines](#) for acceptable trip calculation methods and data sources.

**Explain local or other data sources, if used:

- The estimated site trips meet NCDOT's TIA trip threshold of 3,000 daily trips.
- The estimated site trips meet the municipal TIA trip threshold of _____
- This project is located in a known [STIP](#) and/ or local CIP project # R-5881
- This project includes a rezoning request.



NCDOT Traffic Impact Analysis Need Screening / Scoping Request



- The proposed site access is located within 1,000 feet of an interchange.
- The Applicant requests for a new or modified control-of-access break.
- The Applicant requests for a new or modified median break.

Applicant's Signature

Day B. Dantzler
Print Name

Date

Site Plan/Vicinity Map Requirement for TIA Need Screening: While the site plan may not be finalized during the TIA scoping stage, the graphic representation of the proposed development shall provide adequate details on the development scope and context. More specifically, the site plan/map shall clearly show the location and type of each access point, spacing to adjacent and opposing driveways or intersections, internal street network, proposed buildings/parcels with their anticipated uses and sizes at full build-out and, if applicable, any nearby interstate, US, NC or Secondary Roads (SR).

Project Name: Cashiers East Village Mixed-Use Tia **Project Reference Number:** WAYN 1241

- A TIA is Required by the Local Government.** In addition, the study area is expected to include NCDOT maintained transportation facilities.
- A TIA is Required by NCDOT,** per the [Policy on Street and Driveway Access to North Carolina Highways.](#)

If either or both of the boxes above are checked, the Applicant/TIA Consultant is hereby requested to fill out as much as possible of the following TIA scoping checklist, and return it along with the supporting documents to NCDOT prior to the scoping meeting.

- A TIA is NOT required.** This decision is based on the development information presented above.

Changes in the development plan will require re-evaluation of the TIA need, and may necessitate a TIA. The Applicant should inform the District Engineer of any significant changes in a timely fashion to avoid delays or rejections of the driveway permit / encroachment agreement applications.



NCDOT Traffic Impact Analysis Need Screening / Scoping Request



Additional Comments:

The TIA need decision is made by the NCDOT Division 14 District 2 on _____.

NCDOT District Representative's Signature

Email concurrence may be used in lieu of the signature.

Print Name



NCDOT TIA Scoping Checklist



Project Name: Cashiers East Village Mixed-Use

TIA Scoping Date: _____

TIA Need Screening Forms are Attached. Project Reference #: WAYN 1241 Decision Date: _____

Site Plan and Access

- Provide a site plan illustrating site access, internal and external roadways, buildings and land uses.

Refer to NCDOT's [Policy on Street and Driveway Access to North Carolina Highways](#) pages 14 and 15 for site plan requirements.

- Identify site access.

New Access	On Road	Access Type		Driveway Spacing		
	Road Name	Permitted Movements	Traffic Control	Distance (ft)	Direction	Nearest Intersection / Access
Access A	Monte Vista Rd	Conventional Full-Mvmt	2-Way Stop	525	SE	US 64
Access B	Monte Vista Rd	Conventional Full-Mvmt	2-Way Stop	1150	SE	US 64
Access C	Marigold St	Conventional Full-Mvmt	2-Way Stop	250	South	US 64
Access D	NC107	Conventional Full-Mvmt	2-Way Stop	750	South	US 64
Access E						
Access F						
Access G						
Access H						

Existing Access	Existing Intersection of		Access Modification	Proposed Interconnectivity (If Applicable)		
	Road A	Road B		Connector #	Road Connected	Adjacent Development
Access 1			Please Select	Connector 1		
Access 2				Connector 2		
Access 3				Connector 3		
Access 4				Connector 4		

- Additional access clarifications and provisions (e.g., proposed control-of-access or median breaks, modifications of existing access, loading/unloading area access, bike/pedestrian accommodation).



Proposed K-12 School Site

- NCDOT [MSTA School Traffic Calculator](#) for Select School Type shall be used.
- Peak Hour Factors (PHFs) shall be adjusted/weighted for new school trips (0.5 PHF by default).
- Internal school circulation analysis is required, and should be submitted in advance or concurrent with the TIA submittal.
- Clarify traffic operation plans (e.g. traffic circulation pattern, pedestrian access, drop-off/pick-up zone location and configuration, queue storage area and, if applicable, staggered start times).



NCDOT TIA Scoping Checklist



Trip Generation

The TIA Consultant shall prepare trip generation estimates following the current [NCDOT Congestion Management Capacity Analysis Guidelines](#), and submit the calculation sheets and supporting information to the District Engineer for approval prior to capacity analysis.

ITE LUC	Proposed Land Use	Size	Unit	Daily Trips	Peak Hour Type	AM Peak Hour Trips			PM Peak Hour Trips			Data Source		
						Enter	Exit	Total	Enter	Exit	Total			
220	Multifamily Low	16	D.U.	80	Adj. Street	2	6	8	7	5	12	ITE Equation		
221	Multifamily Mid	50	D.U.	271	Adj. Street	4	13	17	14	9	23	ITE Equation		
231	MidriseRes	14	D.U.	48	Adj. Street	1	3	4	3	2	5	ITE Rate		
260	Recreational Home	18	D.U.	62	Generator	6	7	13	5	7	12	ITE Equation		
310	Hotel	100	Rooms	702	Adj. Street	26	19	45	25	24	49	ITE Equation		
416	Campground	14	Occ. Sites		Adj. Street	1	2	3	2	2	4	ITE Rate		
820	Shopping Center	33	KSF	2829	Adj. Street	104	64	168	115	124	239	ITE Equation		
925	Drinking Place	2	KSF		Adj. Street	0	0	0	15	8	23	ITE Rate		
931	Quality Restaurant	6	KSF	503	Adj. Street	2	2	4	31	16	47	ITE Rate		
710	General Office Bldg	8	KSF	92	Generator	16	2	18	13	61	74	ITE Equation		
Unadjusted Site Trips				4587		162	118	280	230	258	488	<input checked="" type="checkbox"/>		
Internal Capture Trips (Attach Calculation Sheets)						140	86	226	134	111	245	ITE Rate		
Internal Capture % of Unadjusted Site Trips					%			%			%	<input checked="" type="checkbox"/>		
LUC	Proposed Land Use	Any Internal Trips?			Pass-By % of External Trips							<input checked="" type="checkbox"/>		
820	Shopping Center	Yes - Adjust External Trips			%			%			34 %	ITE Rate		
931	Quality Restaurant	Yes - Adjust External Trips			%			%			44 %	ITE Rate		
710	General Office Bldg	Yes - Adjust External Trips			%			%			%	ITE Rate		
					%			%			%			
					%			%			%			
Pass-By Trips (Attach Calculation Sheets)						0	0	0	42	42	84	<input checked="" type="checkbox"/>		
Adjacent Street Volumes												Please Select		
Non-Pass-By Primary Trips												<input checked="" type="checkbox"/>		
Diverted Trips, if Applicable and Justifiable												Please Select		

**Explain local or other data sources, if used:

Existing Site Trip Information for Redevelopment Projects (Attach separate sheets as needed)

ITE LUC	Existing Land Use	Size	Unit	Daily Trips	Peak Hour Type	AM Peak Hour Trips			PM Peak Hour Trips			Data Source
						Enter	Exit	Total	Enter	Exit	Total	
					Please Select							Please Select
Total Existing Site Trips												<input checked="" type="checkbox"/>



NCDOT TIA Scoping Checklist



Trip Distribution

- Trip distribution diagrams are submitted concurrently with this document (attach separate sheets).
- Trip distribution diagrams will be submitted separately, along with supporting information, to the District Engineer for review and approval prior to capacity analysis. The trip distribution shall be based on the current and anticipated traffic patterns, as well as instructions noted below.

If required by the District Engineer, the following additional diagrams shall also be submitted:

- Mixed-Use Developments (separate diagrams for residential, commercial, and office trips)
- Inter-Development Trips (if ‘internal’ trips cross public streets)
- Pass-By Trips
- Diverted Trips
- Each Analysis Period

Mode Split

- Provide Data Source and Justification

Mode Period	Auto		
AM Peak	%	%	%
PM Peak	%	%	%
Daily	%	%	%
	%	%	%

- Identify proper infrastructure and accommodation for other modes of travel.

Analysis Peak Periods:

- Weekday AM Peak 7:00 AM - 9:00 AM
- Weekday PM Peak 4:00 PM - 6:00 PM
- Weekday Midday Peak _____
- Weekday PM School Peak _____
- Weekend _____ Peak _____
- Other _____



NCDOT TIA Scoping Checklist



Study Area Intersections and Data Collection

The study area shall include the site access intersections (both new and existing) identified under “Site Plan and Access” on page 1, as well as the following external and, if applicable, internal intersections.

External Intersection	Intersection of		Traffic Control	Intersection Turning Movement Counts			Notes
	Road A	Road B		New / Existing	Date of Counts	Growth Adjustment	
#1	US-64	NC-107	Signal	Require New Counts	01/12/22	2.5%	
#2	US-64	Marigold St	2-Way Stop		01/12/22	2.5%	
#3	US-64	Monte Vista Rd	2-Way Stop		01/12/22	2.5%	
#4	NC-107	Marigold St	2-Way Stop		01/12/22	2.5%	
#5	NC-107	FrankAllen/Valley	Signal		01/12/22	2.5%	
#6							
#7							
#8							
#9							
#10							
#11							
#12							

Internal Intersection	Intersection of		Access Type		Intersection Spacing		
	Road A	Road B	Traffic Control	Permitted Movements	Distance (ft)	Direction	Nearest Intersection
#101			Please Select	Please Select		Please Select	
#102							
#103							
#104							
#105							

The following data will be collected:

- New traffic turning movement counts in 15-min intervals 5-min intervals (near schools)
Unless otherwise noted above, new traffic counts shall be collected at the existing study intersections during the analysis periods. Weekday counts shall avoid Mondays, Fridays, holidays, school breaks, road closures, and major weather events.
 To account for the impact of existing and/or proposed school traffic, PHFs will be adjusted for:

intersections numbered: _____

and access points numbered: _____

Traffic Forecast Data for TIP: _____

Roadway/Intersection Configuration & Traffic Control

Traffic Signal Phasing & Timing Data

Crash Data: _____ Period: _____

Other: _____



NCDOT TIA Scoping Checklist



Future Year Conditions

Project Build-Out Year: 2030

Future Analysis Year(s): _____

Identify below any funded/committed future transportation improvements, as well as any approved but incomplete developments near the site.

Funded STIP / Local CIP Project	Project Description		Year Complete
R-5881	NC 107 INTERSECTION. IMPROVE INTERSECTION		2033
Nearby Approved Development	Location	Future Land Use (exclude any completed phases)	Committed Improvements

Annual Growth Factor: 2. %

Justification/Data Source: _____

Local Comprehensive Transportation Plan Compliance

Identify Applicable Local Transportation Planning Documents

Identify Applicable Roadways inside the Study Area

Road Name	Classification	Speed Limit	Proposed Cross-Section	Proposed Right-of-Way	Compliance Requirements	Affect Study Intersection #



NCDOT TIA Scoping Checklist



Study Method

The traffic analysis shall follow the current [NCDOT Congestion Management Capacity Analysis Guidelines, Policy on Street and Driveway Access to North Carolina Highways](#), and use the current approved version of analysis software (e.g. Synchro/SimTraffic, HCS, Sidra Intersection, TransModeler).

The study shall include the following analysis scenarios for each analysis period.

1. Existing Conditions
2. Future No-Build Conditions (existing + background growth + approved developments + committed or funded improvements)
3. Future Build Conditions (future no-build + site trips)
4. Future Build with Improvements Conditions (future build traffic with improvements to mitigate the proposed development's impacts) and, if applicable:
 - 5. TIP Design Year Analysis _____
 - 6. Alternative Access Scenario (without proposed control-of-access or median break / modification)

The following additional analysis/outputs should be provided as warranted:

- Signal Warrant Analysis for accesses/intersections _____
- Multi-Modal Level of Service Analysis _____
- School Loading Zone Traffic Simulation _____
- Phasing Analysis (scope separately as needed) _____
- Safety/Crash Analysis _____
- Control-of-Access Modification Justification _____
- Median Break / Modification Justification _____
- Other _____

Submittals

In addition to the hardcopies required below, the TIA Consultant shall provide the District Engineer and, if required, the local government an electronic copy of the study documents, including the latest site plan, figures and appendices, in searchable PDF files and the original traffic analysis files (e.g., Synchro, HCS).

To expedite review, the NCDOT electronic submittals shall also be delivered concurrently to:

- Div. Traffic Engr
- Regional Traffic Engr
- Congestion Management
- Other _____

Submittals	NCDOT		Local Government	
	Electronic	Hardcopy	Electronic	Hardcopy
Trip Generation & Distribution	Required		Please Select	
Draft TIA Report	Required			
Final Sealed TIA Report	Required			

- Additional Comments (municipal TIA requirements, approved variations from NCDOT guidelines)



NCDOT TIA Scoping Checklist



Agreement by All Parties

The undersigned agree to the contents and methodology described above for completing the required traffic impact analysis for the proposed development identified herein. Any changes to the above methodology contemplated by the Applicant or the TIA Consultant must be submitted to the District Engineer in writing. If approved by NCDOT, then such changes may be accepted for the TIA report. Subsequent revisions to the development plan (e.g. land use, density, site access, or schedule) may require additional scoping and analysis, and may modify the TIA requirements.

This agreement shall become effective on the date approved by NCDOT, and shall expire _____ months after the effective date or upon significant changes to the roadway network and/or development assumptions, whichever occurs first. Once expired, renewal or re-scoping will be required for subsequent TIA submittals.

APPLICANT

Signature _____
Print Name Christian Sottile

Date _____

TIA CONSULTANT

Signature _____
Print Name David W. Hyder

Date _____

LOCAL GOVERNMENT REPRESENTATIVE (If Applicable)

Signature _____
Print Name _____
Date _____
Email concurrence may be used in lieu of the signature.

NCDOT DISTRICT REPRESENTATIVE

Reviewed and approved by the NCDOT Division 14 District 2 on _____.

Signature _____
Print Name _____
Email concurrence may be used in lieu of the signature.



NCDOT TIA Submittal Checklist



Submittal: Please Select Document Date: _____

Project Name: _____ Previous Name: If Applicable _____

NCDOT Division: _____ District: _____ County: _____ Municipality: _____

TIA Consultant: _____ Submitted By: _____

Phone Number: _____ Email: _____

TIA Scoping Checklist Approval Date: _____ Unadjusted Daily Site Trips: _____

- The approved TIA Scoping Checklist is included in this submittal.
- LOS D or better is expected at all study intersections after proposed mitigations.
- The study report is sealed by a NC Professional Engineer with expertise in traffic engineering.
- This study has identified all known deficiencies with and without the proposed development.
- This study has identified mitigation measures to adequately accommodate the site trips.

Explain here if any of the boxes above are unchecked:

The undersigned affirms that, except for the deviations noted below, the TIA submittal conforms to the current [NCDOT Congestion Management Capacity Analysis Guidelines, Policy on Street and Driveway Access to North Carolina Highways](#), and the TIA Scoping Checklist approved by the NCDOT District Office. The undersigned also acknowledges that the TIA will be rejected if the deviations and justifications are not properly documented and approved by NCDOT.

Deviations and Justifications (e.g., changes in site plan, development schedule, site trip and off-site trip estimates, study area, data collection, analysis period and method. Attached separate sheets if needed.)



NCDOT TIA Submittal Checklist



TIA Consultant's Signature
(Professional Engineer of TIA Record)

Print Name

Date

Appendix B

Synchro and Sim Traffic Reports

Intersection

Int Delay, s/veh 1.1

Movement WBL WBR NBT NBR SBL SBT

Lane Configurations	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	27	22	492	19	16	332
Future Vol, veh/h	27	22	492	19	16	332
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	24	547	21	18	369

Major/Minor Minor1 Major1 Major2

Conflicting Flow All	963	558	0	0	568	0
Stage 1	558	-	-	-	-	-
Stage 2	405	-	-	-	-	-
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	284	529	-	-	1004	-
Stage 1	573	-	-	-	-	-
Stage 2	673	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	277	529	-	-	1004	-
Mov Cap-2 Maneuver	277	-	-	-	-	-
Stage 1	573	-	-	-	-	-
Stage 2	658	-	-	-	-	-

Approach WB NB SB

HCM Control Delay, s	17.1	0	0.4
----------------------	------	---	-----

HCM LOS C

Minor Lane/Major Mvmt	NBT	NBR	WB Ln1	SBL	SBT
Capacity (veh/h)	-	-	352	1004	-
HCM Lane V/C Ratio	-	-	0.155	0.018	-
HCM Control Delay (s)	-	-	17.1	8.7	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-

Intersection

Int Delay, s/veh 0.5

Movement EBT EBR WBL WBT NBL NBR

Lane Configurations						
Traffic Vol, veh/h	597	13	12	492	15	6
Future Vol, veh/h	597	13	12	492	15	6
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	663	14	13	547	17	7

Major/Minor Major1 Major2 Minor1

Conflicting Flow All	0	0	677	0	1243	670
Stage 1	-	-	-	-	670	-
Stage 2	-	-	-	-	573	-
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	-	-	915	-	193	457
Stage 1	-	-	-	-	509	-
Stage 2	-	-	-	-	564	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	915	-	189	457
Mov Cap-2 Maneuver	-	-	-	-	189	-
Stage 1	-	-	-	-	509	-
Stage 2	-	-	-	-	553	-

Approach EB WB NB

HCM Control Delay, s 0 0.2 22.7

HCM LOS C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	227	-	-	915	-
HCM Lane V/C Ratio	0.103	-	-	0.015	-
HCM Control Delay (s)	22.7	-	-	9	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection

Int Delay, s/veh 0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
----------	-----	-----	-----	-----	-----	-----

Lane Configurations						
Traffic Vol, veh/h	5	4	413	4	4	566
Future Vol, veh/h	5	4	413	4	4	566
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	4	459	4	4	629

Major/Minor	Minor1	Major1	Major2
-------------	--------	--------	--------

Conflicting Flow All	1098	461	0	0	463	0
Stage 1	461	-	-	-	-	-
Stage 2	637	-	-	-	-	-
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	235	600	-	-	1098	-
Stage 1	635	-	-	-	-	-
Stage 2	527	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	234	600	-	-	1098	-
Mov Cap-2 Maneuver	234	-	-	-	-	-
Stage 1	635	-	-	-	-	-
Stage 2	524	-	-	-	-	-

Approach	WB	NB	SB
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HCM Control Delay, s	16.6	0	0.1
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HCM LOS C

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	321	1098	-
HCM Lane V/C Ratio	-	-	0.031	0.004	-
HCM Control Delay (s)	-	-	16.6	8.3	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection

Int Delay, s/veh 4.2

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations						
Traffic Vol, veh/h	25	4	4	12	12	11
Future Vol, veh/h	25	4	4	12	12	11
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	4	4	13	13	12

Major/Minor Minor2 Major1 Major2

Conflicting Flow All	40	19	25	0	-	0
Stage 1	19	-	-	-	-	-
Stage 2	21	-	-	-	-	-
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	972	1059	1589	-	-	-
Stage 1	1004	-	-	-	-	-
Stage 2	1002	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	969	1059	1589	-	-	-
Mov Cap-2 Maneuver	969	-	-	-	-	-
Stage 1	1001	-	-	-	-	-
Stage 2	1002	-	-	-	-	-

Approach EB NB SB

HCM Control Delay, s 8.8 1.8 0

HCM LOS A

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1589	-	980	-	-
HCM Lane V/C Ratio	0.003	-	0.033	-	-
HCM Control Delay (s)	7.3	0	8.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

5: Valley Rd & US HWY 107 & Frank Allen Road

Timing Plan: Year (2030)

Build-Out PM

01/28/2022

	EBL	EBR	EBR2	NBL2	NBL	NBT	SBT	SBR	SBR2	NEL2	NEL	NER
Lane Group												
Lane Configurations												
Traffic Volume (vph)	65	15	4	4	32	423	324	13	47	4	27	4
Future Volume (vph)	65	15	4	4	32	423	324	13	47	4	27	4
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	0.970						0.979				0.986	
Flt Protected	0.963						0.996				0.957	
Satd. Flow (prot)	1740	0	0	0	0	1855	1824	0	0	0	1758	0
Flt Permitted	0.963						0.944				0.957	
Satd. Flow (perm)	1740	0	0	0	0	1758	1824	0	0	0	1758	0
Right Turn on Red				No					No		No	
Satd. Flow (RTOR)												
Link Speed (mph)	35					20	20				20	
Link Distance (ft)	1096					965	348				1510	
Travel Time (s)	21.4					32.9	11.9				51.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	72	17	4	4	36	470	360	14	52	4	30	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	93	0	0	0	0	510	426	0	0	0	38	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Right	Right	Left	Left	Left	Left	Right	Right	Left	Left	Right
Median Width(ft)	12					0	0				12	
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	9	15	15			9	9	15	15	9
Number of Detectors	1			1	1	2	2			1	1	
Detector Template	Left			Left	Left	Thru	Thru			Left	Left	
Leading Detector (ft)	20			20	20	100	100			20	20	
Trailing Detector (ft)	0			0	0	0	0			0	0	
Detector 1 Position(ft)	0			0	0	0	0			0	0	
Detector 1 Size(ft)	20			20	20	6	6			20	20	
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0			0.0	0.0	0.0	0.0			0.0	0.0	
Detector 1 Queue (s)	0.0			0.0	0.0	0.0	0.0			0.0	0.0	
Detector 1 Delay (s)	0.0			0.0	0.0	0.0	0.0			0.0	0.0	
Detector 2 Position(ft)						94	94					
Detector 2 Size(ft)						6	6					
Detector 2 Type						Cl+Ex	Cl+Ex					
Detector 2 Channel												
Detector 2 Extend (s)						0.0	0.0					
Turn Type	Prot			Perm	Perm	NA	NA			Perm	Prot	
Protected Phases	4					2	6				3	
Permitted Phases				2	2					3		
Detector Phase	4			2	2	2	6			3	3	
Switch Phase												
Minimum Initial (s)	7.0			10.0	10.0	10.0	10.0			7.0	7.0	

5: Valley Rd & US HWY 107 & Frank Allen Road

Timing Plan: Year (2030)

Build-Out PM

01/28/2022



Lane Group	EBL	EBR	EBR2	NBL2	NBL	NBT	SBT	SBR	SBR2	NEL2	NEL	NER
Minimum Split (s)	25.0			25.0	25.0	25.0	25.0			25.0	25.0	
Total Split (s)	25.0			40.0	40.0	40.0	40.0			25.0	25.0	
Total Split (%)	27.8%			44.4%	44.4%	44.4%	44.4%			27.8%	27.8%	
Maximum Green (s)	18.0			33.0	33.0	33.0	33.0			18.0	18.0	
Yellow Time (s)	5.0			5.0	5.0	5.0	5.0			5.0	5.0	
All-Red Time (s)	2.0			2.0	2.0	2.0	2.0			2.0	2.0	
Lost Time Adjust (s)	-2.0					-2.0	-2.0				-2.0	
Total Lost Time (s)	5.0					5.0	5.0				5.0	
Lead/Lag	Lag									Lead	Lead	
Lead-Lag Optimize?	Yes									Yes	Yes	
Vehicle Extension (s)	3.0			3.0	3.0	3.0	3.0			3.0	3.0	
Recall Mode	None			C-Min	C-Min	C-Min	None			Min	Min	
Walk Time (s)	7.0			7.0	7.0	7.0	7.0			7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	11.0	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	0			0	0	0	0			0	0	
Act Effct Green (s)	12.3					55.7	55.7				9.9	
Actuated g/C Ratio	0.14					0.62	0.62				0.11	
v/c Ratio	0.39					0.47	0.38				0.20	
Control Delay	39.7					12.8	11.4				38.6	
Queue Delay	0.0					0.0	0.0				0.0	
Total Delay	39.7					12.8	11.4				38.6	
LOS	D					B	B				D	
Approach Delay	39.7					12.8	11.4				38.6	
Approach LOS	D					B	B				D	
Queue Length 50th (ft)	49					152	117				20	
Queue Length 95th (ft)	91					278	216				49	
Internal Link Dist (ft)	1016					885	268				1430	
Turn Bay Length (ft)												
Base Capacity (vph)	386					1087	1127				390	
Starvation Cap Reductn	0					0	0				0	
Spillback Cap Reductn	0					0	0				0	
Storage Cap Reductn	0					0	0				0	
Reduced v/c Ratio	0.24					0.47	0.38				0.10	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 80

Control Type: Actuated-Coordinated

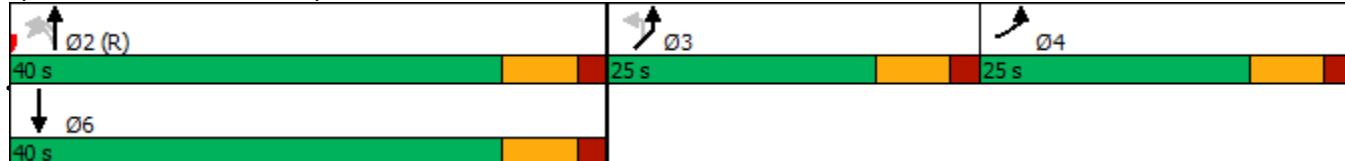
Maximum v/c Ratio: 0.47

Intersection Signal Delay: 15.5 Intersection LOS: B

Intersection Capacity Utilization 73.3% ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Valley Rd & US HWY 107 & Frank Allen Road



Intersection

Int Delay, s/veh 2.7

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations						
Traffic Vol, veh/h	8	4	4	14	15	5
Future Vol, veh/h	8	4	4	14	15	5
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	4	4	16	17	6

Major/Minor Minor2 Major1 Major2

Conflicting Flow All	44	20	23	0	-	0
Stage 1	20	-	-	-	-	-
Stage 2	24	-	-	-	-	-
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	967	1058	1592	-	-	-
Stage 1	1003	-	-	-	-	-
Stage 2	999	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	964	1058	1592	-	-	-
Mov Cap-2 Maneuver	964	-	-	-	-	-
Stage 1	1000	-	-	-	-	-
Stage 2	999	-	-	-	-	-

Approach EB NB SB

HCM Control Delay, s	8.7	1.6	0
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HCM LOS A

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1592	-	993	-	-
HCM Lane V/C Ratio	0.003	-	0.013	-	-
HCM Control Delay (s)	7.3	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection

Int Delay, s/veh 1.7

Movement WBL WBR NBU NBT NBR SBL SBT

Lane Configurations							
Traffic Vol, veh/h	44	31	1	480	33	20	339
Future Vol, veh/h	44	31	1	480	33	20	339
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	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	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	49	34	1	533	37	22	377

Major/Minor Minor1 Major1 Major2

Conflicting Flow All	973	552	-	0	0	570	0
Stage 1	552	-	-	-	-	-	-
Stage 2	421	-	-	-	-	-	-
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	280	533	-	-	-	1002	-
Stage 1	577	-	-	-	-	-	-
Stage 2	662	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	272	533	-	-	-	1002	-
Mov Cap-2 Maneuver	272	-	-	-	-	-	-
Stage 1	577	-	-	-	-	-	-
Stage 2	643	-	-	-	-	-	-

Approach WB NB SB

HCM Control Delay, s	18.9	0.5
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HCM LOS C

Minor Lane/Major Mvmt	NBT	NBR	WBL	Ln1	SBL	SBT
Capacity (veh/h)	-	-	341	1002	-	-
HCM Lane V/C Ratio	-	-	0.244	0.022	-	-
HCM Control Delay (s)	-	-	18.9	8.7	0	-
HCM Lane LOS	-	-	C	A	A	-
HCM 95th %tile Q(veh)	-	-	0.9	0.1	-	-

5: Valley Rd & US HWY 107 & Frank Allen Road

Timing Plan: Year (2030)

01/28/2022

Build-Out AM



Lane Group	EBL	EBR	EBR2	NBL2	NBL	NBT	SBT	SBR	SBR2	NEL2	NEL	NER
Lane Configurations												
Traffic Volume (vph)	37	10	4	4	29	366	531	23	24	4	15	4
Future Volume (vph)	37	10	4	4	29	366	531	23	24	4	15	4
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	0.964						0.989				0.978	
Flt Protected	0.965					0.996					0.960	
Satd. Flow (prot)	1733	0	0	0	0	1855	1842	0	0	0	1749	0
Flt Permitted	0.965					0.922					0.960	
Satd. Flow (perm)	1733	0	0	0	0	1717	1842	0	0	0	1749	0
Right Turn on Red			No						No		No	
Satd. Flow (RTOR)												
Link Speed (mph)	35					20	20				20	
Link Distance (ft)	1096					965	348				1510	
Travel Time (s)	21.4					32.9	11.9				51.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	41	11	4	4	32	407	590	26	27	4	17	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	56	0	0	0	0	443	643	0	0	0	25	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Right	Right	Left	Left	Left	Left	Right	Right	Left	Left	Right
Median Width(ft)	12					0	0				12	
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	9	15	15			9	9	15	15	9
Number of Detectors	1			1	1	2	2			1	1	
Detector Template	Left			Left	Left	Thru	Thru			Left	Left	
Leading Detector (ft)	20			20	20	100	100			20	20	
Trailing Detector (ft)	0			0	0	0	0			0	0	
Detector 1 Position(ft)	0			0	0	0	0			0	0	
Detector 1 Size(ft)	20			20	20	6	6			20	20	
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0			0.0	0.0	0.0	0.0			0.0	0.0	
Detector 1 Queue (s)	0.0			0.0	0.0	0.0	0.0			0.0	0.0	
Detector 1 Delay (s)	0.0			0.0	0.0	0.0	0.0			0.0	0.0	
Detector 2 Position(ft)						94	94					
Detector 2 Size(ft)						6	6					
Detector 2 Type						Cl+Ex	Cl+Ex					
Detector 2 Channel												
Detector 2 Extend (s)						0.0	0.0					
Turn Type	Prot			Perm	Perm	NA	NA			Perm	Prot	
Protected Phases	4					2	6				3	
Permitted Phases				2	2					3		
Detector Phase	4			2	2	2	6			3	3	
Switch Phase												
Minimum Initial (s)	7.0			10.0	10.0	10.0	10.0			7.0	7.0	

5: Valley Rd & US HWY 107 & Frank Allen Road

Timing Plan: Year (2030)

Build-Out AM

01/28/2022



Lane Group	EBL	EBR	EBR2	NBL2	NBL	NBT	SBT	SBR	SBR2	NEL2	NEL	NER
Minimum Split (s)	25.0			25.0	25.0	25.0	25.0			25.0	25.0	
Total Split (s)	25.0			40.0	40.0	40.0	40.0			25.0	25.0	
Total Split (%)	27.8%			44.4%	44.4%	44.4%	44.4%			27.8%	27.8%	
Maximum Green (s)	18.0			33.0	33.0	33.0	33.0			18.0	18.0	
Yellow Time (s)	5.0			5.0	5.0	5.0	5.0			5.0	5.0	
All-Red Time (s)	2.0			2.0	2.0	2.0	2.0			2.0	2.0	
Lost Time Adjust (s)	-2.0					-2.0	-2.0				-2.0	
Total Lost Time (s)	5.0					5.0	5.0				5.0	
Lead/Lag	Lag									Lead	Lead	
Lead-Lag Optimize?	Yes									Yes	Yes	
Vehicle Extension (s)	3.0			3.0	3.0	3.0	3.0			3.0	3.0	
Recall Mode	None			C-Min	C-Min	C-Min	None			Min	Min	
Walk Time (s)	7.0			7.0	7.0	7.0	7.0			7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	11.0	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	0			0	0	0	0			0	0	
Act Effct Green (s)	10.6					57.7	57.7				9.4	
Actuated g/C Ratio	0.12					0.64	0.64				0.10	
v/c Ratio	0.27					0.40	0.54				0.14	
Control Delay	39.0					10.5	12.5				38.2	
Queue Delay	0.0					0.0	0.0				0.0	
Total Delay	39.0					10.5	12.5				38.2	
LOS	D					B	B				D	
Approach Delay	39.0					10.5	12.5				38.2	
Approach LOS	D					B	B				D	
Queue Length 50th (ft)	30					117	194				13	
Queue Length 95th (ft)	64					210	337				37	
Internal Link Dist (ft)	1016					885	268				1430	
Turn Bay Length (ft)												
Base Capacity (vph)	385					1101	1181				388	
Starvation Cap Reductn	0					0	0				0	
Spillback Cap Reductn	0					0	0				0	
Storage Cap Reductn	0					0	0				0	
Reduced v/c Ratio	0.15					0.40	0.54				0.06	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 90

Control Type: Actuated-Coordinated

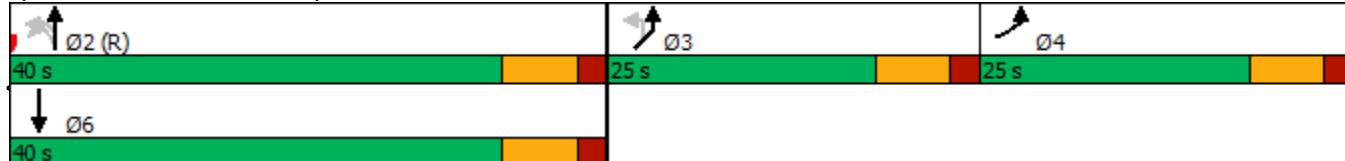
Maximum v/c Ratio: 0.54

Intersection Signal Delay: 13.6 Intersection LOS: B

Intersection Capacity Utilization 70.8% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 5: Valley Rd & US HWY 107 & Frank Allen Road



Intersection

Int Delay, s/veh 0.4

Movement WBL WBR NBT NBR SBL SBT

Lane Configurations   

Traffic Vol, veh/h 14 7 409 9 7 564

Future Vol, veh/h 14 7 409 9 7 564

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 90 90 90 90 90 90

Heavy Vehicles, % 2 2 2 2 2 2

Mvmt Flow 16 8 454 10 8 627

Major/Minor Minor1 Major1 Major2

Conflicting Flow All 1102 459 0 0 464 0

Stage 1 459 - - - - -

Stage 2 643 - - - - -

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 234 602 - - 1097 -

Stage 1 636 - - - - -

Stage 2 523 - - - - -

Platoon blocked, % - - - - -

Mov Cap-1 Maneuver 231 602 - - 1097 -

Mov Cap-2 Maneuver 231 - - - - -

Stage 1 636 - - - - -

Stage 2 517 - - - - -

Approach WB NB SB

HCM Control Delay, s 18.4 0 0.1

HCM LOS C

Minor Lane/Major Mvmt NBT NBR WBL Ln1 SBL SBT

Capacity (veh/h) - - 291 1097 -

HCM Lane V/C Ratio - - 0.08 0.007 -

HCM Control Delay (s) - - 18.4 8.3 0

HCM Lane LOS - - C A A

HCM 95th %tile Q(veh) - - 0.3 0 -

Intersection

Int Delay, s/veh 0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
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Lane Configurations						
Traffic Vol, veh/h	543	16	15	573	21	16
Future Vol, veh/h	543	16	15	573	21	16
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	603	18	17	637	23	18

Major/Minor	Major1	Major2	Minor1
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Conflicting Flow All	0	0	621	0	1283	612
Stage 1	-	-	-	-	612	-
Stage 2	-	-	-	-	671	-
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	-	-	960	-	182	493
Stage 1	-	-	-	-	541	-
Stage 2	-	-	-	-	508	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	960	-	177	493
Mov Cap-2 Maneuver	-	-	-	-	177	-
Stage 1	-	-	-	-	541	-
Stage 2	-	-	-	-	494	-

Approach	EB	WB	NB
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HCM Control Delay, s	0	0.2	22.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
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Capacity (veh/h)	245	-	-	960	-
HCM Lane V/C Ratio	0.168	-	-	0.017	-
HCM Control Delay (s)	22.6	-	-	8.8	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.6	-	-	0.1	-

Intersection

Int Delay, s/veh 0.5

Movement EBT EBR WBL WBT NBL NBR

Lane Configurations						
Traffic Vol, veh/h	543	10	4	586	11	16
Future Vol, veh/h	543	10	4	586	11	16
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	603	11	4	651	12	18

Major/Minor Major1 Major2 Minor1

Conflicting Flow All	0	0	614	0	1268	609
Stage 1	-	-	-	-	609	-
Stage 2	-	-	-	-	659	-
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	-	-	965	-	186	495
Stage 1	-	-	-	-	543	-
Stage 2	-	-	-	-	515	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	965	-	185	495
Mov Cap-2 Maneuver	-	-	-	-	185	-
Stage 1	-	-	-	-	543	-
Stage 2	-	-	-	-	512	-

Approach EB WB NB

HCM Control Delay, s 0 0.1 18.6

HCM LOS C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	294	-	-	965	-
HCM Lane V/C Ratio	0.102	-	-	0.005	-
HCM Control Delay (s)	18.6	-	-	8.7	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

1: US HWY 107 & US HWY 64

Timing Plan: Year (2030)

01/28/2022

Build-Out AM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	44	159	124	186	140	180	103	131	182	264	259	90
Future Volume (vph)	44	159	124	186	140	180	103	131	182	264	259	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	150		0	100		50	75		0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	175			155		150				155		
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			0.850		0.916				0.850		0.961	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1706	0	1770	1863	1583	1770	1790	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1863	1583	1770	1706	0	1770	1863	1583	1770	1790	0
Right Turn on Red			No			No			No		No	
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			35	
Link Distance (ft)		940			500			382			2257	
Travel Time (s)		18.3			9.7			13.0			44.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	49	177	138	207	156	200	114	146	202	293	288	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	49	177	138	207	356	0	114	146	202	293	388	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			-20			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
Number of Detectors	1	2	1	1	2		1	2	1	1	1	2
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Prot	Prot	NA		Prot	NA	Prot	Prot	NA	
Protected Phases	7	4	4	3	8		5	2	2	1	6	
Permitted Phases												

Build-Out AM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	10.0	10.0	7.0	10.0	
Minimum Split (s)	17.0	25.0	25.0	17.0	25.0		17.0	25.0	25.0	17.0	25.0	
Total Split (s)	17.0	32.0	32.0	29.0	44.0		20.0	32.0	32.0	37.0	49.0	
Total Split (%)	13.1%	24.6%	24.6%	22.3%	33.8%		15.4%	24.6%	24.6%	28.5%	37.7%	
Maximum Green (s)	10.0	25.0	25.0	22.0	37.0		13.0	25.0	25.0	30.0	42.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Min	C-Min	None	C-Min	
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effct Green (s)	10.7	22.0	22.0	21.0	35.1		14.2	39.3	39.3	27.6	52.8	
Actuated g/C Ratio	0.08	0.17	0.17	0.16	0.27		0.11	0.30	0.30	0.21	0.41	
v/c Ratio	0.34	0.56	0.52	0.72	0.77		0.59	0.26	0.42	0.78	0.53	
Control Delay	62.4	55.8	55.2	66.3	55.9		67.9	40.1	43.6	62.7	35.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	62.4	55.8	55.2	66.3	55.9		67.9	40.1	43.6	62.7	35.1	
LOS	E	E	E	E	E		E	D	D	E	D	
Approach Delay		56.5			59.7			48.5			47.0	
Approach LOS		E			E			D			D	
Queue Length 50th (ft)	40	137	106	166	280		92	97	141	233	258	
Queue Length 95th (ft)	82	206	169	250	379		156	173	242	327	389	
Internal Link Dist (ft)		860			420			302			2177	
Turn Bay Length (ft)	100		100	150			100		50	75		
Base Capacity (vph)	163	386	328	326	511		209	563	479	435	727	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.30	0.46	0.42	0.63	0.70		0.55	0.26	0.42	0.67	0.53	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 52.5

Intersection LOS: D

Intersection Capacity Utilization 65.8%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: US HWY 107 & US HWY 64



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	106	167	88	128	185	286	125	205	185	202	134	61
Future Volume (vph)	106	167	88	128	185	286	125	205	185	202	134	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	150		0	100		50	75		0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	175			155		150				155		
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			0.850		0.909				0.850		0.953	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1693	0	1770	1863	1583	1770	1775	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1863	1583	1770	1693	0	1770	1863	1583	1770	1775	0
Right Turn on Red			No			No			No		No	
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			35	
Link Distance (ft)		940			500			382			2257	
Travel Time (s)		18.3			9.7			13.0			44.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	118	186	98	142	206	318	139	228	206	224	149	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	118	186	98	142	524	0	139	228	206	224	217	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			-20			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
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Prot	Prot	NA		Prot	NA	Prot	Prot	NA	
Protected Phases	7	4	4	3	8		5	2	2	1	6	
Permitted Phases												

Build-Out PM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	10.0	10.0	7.0	10.0	
Minimum Split (s)	17.0	25.0	25.0	17.0	25.0		17.0	25.0	25.0	17.0	25.0	
Total Split (s)	17.0	49.0	49.0	23.0	55.0		23.0	31.0	31.0	27.0	35.0	
Total Split (%)	13.1%	37.7%	37.7%	17.7%	42.3%		17.7%	23.8%	23.8%	20.8%	26.9%	
Maximum Green (s)	10.0	42.0	42.0	16.0	48.0		16.0	24.0	24.0	20.0	28.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Min	C-Min	None	C-Min	
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effct Green (s)	12.5	42.2	42.2	16.2	45.8		16.0	30.6	30.6	21.1	35.6	
Actuated g/C Ratio	0.10	0.32	0.32	0.12	0.35		0.12	0.24	0.24	0.16	0.27	
v/c Ratio	0.69	0.31	0.19	0.65	0.88		0.64	0.52	0.55	0.78	0.45	
Control Delay	78.1	34.1	32.1	67.9	56.2		67.5	50.3	52.4	71.2	44.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	78.1	34.1	32.1	67.9	56.2		67.5	50.3	52.4	71.2	44.7	
LOS	E	C	C	E	E		E	D	D	E	D	
Approach Delay		46.5			58.7			55.3			58.1	
Approach LOS		D			E			E			E	
Queue Length 50th (ft)	97	115	58	114	398		112	179	163	179	160	
Queue Length 95th (ft)	#191	179	103	186	542		182	266	249	#296	246	
Internal Link Dist (ft)		860			420			302			2177	
Turn Bay Length (ft)	100		100	150			100		50	75		
Base Capacity (vph)	172	630	535	245	651		245	441	375	303	486	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.69	0.30	0.18	0.58	0.80		0.57	0.52	0.55	0.74	0.45	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 55.3

Intersection LOS: E

Intersection Capacity Utilization 71.8%

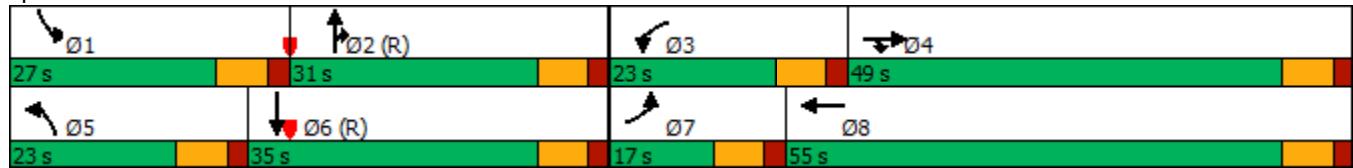
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: US HWY 107 & US HWY 64





Lane Group	EBL	EBR	EBR2	NBL	NBT	SBT	SBR	SBR2	NEL	NER
Lane Configurations	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Traffic Volume (vph)	60	15	4	32	412	298	7	31	24	4
Future Volume (vph)	60	15	4	32	412	298	7	31	24	4
Ideal Flow (vphpl)	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
Frt	0.968					0.985			0.983	
Flt Protected	0.963					0.996			0.958	
Satd. Flow (prot)	1736	0	0	0	1855	1835	0	0	1754	0
Flt Permitted	0.963					0.954			0.958	
Satd. Flow (perm)	1736	0	0	0	1777	1835	0	0	1754	0
Right Turn on Red				No				No		No
Satd. Flow (RTOR)										
Link Speed (mph)	35				20	20			20	
Link Distance (ft)	1096				965	348			1510	
Travel Time (s)	21.4				32.9	11.9			51.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	67	17	4	36	458	331	8	34	27	4
Shared Lane Traffic (%)										
Lane Group Flow (vph)	88	0	0	0	494	373	0	0	31	0
Enter Blocked Intersection	No									
Lane Alignment	Left	Right	Right	Left	Left	Left	Right	Right	Left	Right
Median Width(ft)	12				0	0			12	
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
Turning Speed (mph)	15	9	9	15			9	9	15	9
Number of Detectors	1				1	2	2			1
Detector Template	Left			Left	Thru	Thru			Left	
Leading Detector (ft)	20			20	100	100			20	
Trailing Detector (ft)	0				0	0	0			0
Detector 1 Position(ft)	0				0	0	0			0
Detector 1 Size(ft)	20			20	6	6			20	
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel										
Detector 1 Extend (s)	0.0				0.0	0.0	0.0			0.0
Detector 1 Queue (s)	0.0				0.0	0.0	0.0			0.0
Detector 1 Delay (s)	0.0				0.0	0.0	0.0			0.0
Detector 2 Position(ft)					94	94				
Detector 2 Size(ft)					6	6				
Detector 2 Type					Cl+Ex	Cl+Ex				
Detector 2 Channel										
Detector 2 Extend (s)					0.0	0.0				
Turn Type	Prot			Perm	NA	NA			Prot	
Protected Phases	4				2	6			3	
Permitted Phases					2					
Detector Phase	4			2	2	6			3	
Switch Phase										
Minimum Initial (s)	7.0			10.0	10.0	10.0			7.0	

5: Valley Rd & US HWY 107 & Frank Allen Road

Timing Plan: Year (2030)

01/26/2022

Background PM

Lane Group	EBL	EBR	EBR2	NBL	NBT	SBT	SBR	SBR2	NEL	NER
Minimum Split (s)	25.0			25.0	25.0	25.0			25.0	
Total Split (s)	25.0			40.0	40.0	40.0			25.0	
Total Split (%)	27.8%			44.4%	44.4%	44.4%			27.8%	
Maximum Green (s)	18.0			33.0	33.0	33.0			18.0	
Yellow Time (s)	5.0			5.0	5.0	5.0			5.0	
All-Red Time (s)	2.0			2.0	2.0	2.0			2.0	
Lost Time Adjust (s)	-2.0				-2.0	-2.0			-2.0	
Total Lost Time (s)	5.0				5.0	5.0			5.0	
Lead/Lag	Lag								Lead	
Lead-Lag Optimize?	Yes								Yes	
Vehicle Extension (s)	3.0			3.0	3.0	3.0			3.0	
Recall Mode	None			C-Min	C-Min	None			Min	
Walk Time (s)	7.0			7.0	7.0	7.0			7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0			0	0	0			0	
Act Effct Green (s)	12.1				56.1	56.1			9.6	
Actuated g/C Ratio	0.13				0.62	0.62			0.11	
v/c Ratio	0.38				0.45	0.33			0.17	
Control Delay	39.6				12.1	10.5			38.4	
Queue Delay	0.0				0.0	0.0			0.0	
Total Delay	39.6				12.1	10.5			38.4	
LOS	D				B	B			D	
Approach Delay	39.6				12.1	10.5			38.4	
Approach LOS	D				B	B			D	
Queue Length 50th (ft)	46				142	97			16	
Queue Length 95th (ft)	88				257	180			42	
Internal Link Dist (ft)	1016				885	268			1430	
Turn Bay Length (ft)										
Base Capacity (vph)	385				1107	1143			389	
Starvation Cap Reductn	0				0	0			0	
Spillback Cap Reductn	0				0	0			0	
Storage Cap Reductn	0				0	0			0	
Reduced v/c Ratio	0.23				0.45	0.33			0.08	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 80

Control Type: Actuated-Coordinated

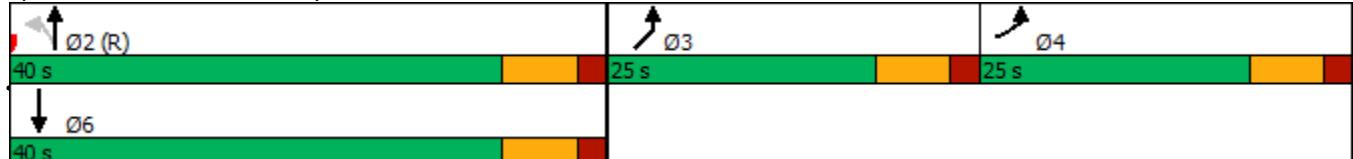
Maximum v/c Ratio: 0.45

Intersection Signal Delay: 14.8 Intersection LOS: B

Intersection Capacity Utilization 69.8% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 5: Valley Rd & US HWY 107 & Frank Allen Road



Intersection

Int Delay, s/veh 0.3

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
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Lane Configurations							
Traffic Vol, veh/h	4	10	1	482	12	5	333
Future Vol, veh/h	4	10	1	482	12	5	333
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	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	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	4	11	1	536	13	6	370

Major/Minor	Minor1	Major1	Major2
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Conflicting Flow All	925	543	-	0	0	549	0
Stage 1	543	-	-	-	-	-	-
Stage 2	382	-	-	-	-	-	-
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	299	540	-	-	-	1021	-
Stage 1	582	-	-	-	-	-	-
Stage 2	690	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	297	540	-	-	-	1021	-
Mov Cap-2 Maneuver	297	-	-	-	-	-	-
Stage 1	582	-	-	-	-	-	-
Stage 2	685	-	-	-	-	-	-

Approach	WB	NB	SB
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HCM Control Delay, s	13.5		0.1
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HCM LOS	B
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Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	438	1021	-
HCM Lane V/C Ratio	-	-	0.036	0.005	-
HCM Control Delay (s)	-	-	13.5	8.5	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

5: Valley Rd & US HWY 107 & Frank Allen Road

Timing Plan: Year (2030)

Background AM

01/26/2022

	EBL	EBR	EBR2	NBL2	NBL	NBT	SBT	SBR	SBR2	NEL2	NEL	NER
Lane Group												
Lane Configurations												
Traffic Volume (vph)	35	10	4	4	29	362	523	21	19	4	14	4
Future Volume (vph)	35	10	4	4	29	362	523	21	19	4	14	4
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	0.962						0.990				0.977	
Flt Protected	0.965					0.996					0.960	
Satd. Flow (prot)	1729	0	0	0	0	1855	1844	0	0	0	1747	0
Flt Permitted	0.965					0.924					0.960	
Satd. Flow (perm)	1729	0	0	0	0	1721	1844	0	0	0	1747	0
Right Turn on Red			No						No		No	
Satd. Flow (RTOR)												
Link Speed (mph)	35					20	20				20	
Link Distance (ft)	1096					965	348				1510	
Travel Time (s)	21.4					32.9	11.9				51.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	39	11	4	4	32	402	581	23	21	4	16	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	54	0	0	0	0	438	625	0	0	0	24	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Right	Right	Left	Left	Left	Left	Right	Right	Left	Left	Right
Median Width(ft)	12					0	0				12	
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	9	15	15			9	9	15	15	9
Number of Detectors	1			1	1	2	2			1	1	
Detector Template	Left			Left	Left	Thru	Thru			Left	Left	
Leading Detector (ft)	20			20	20	100	100			20	20	
Trailing Detector (ft)	0			0	0	0	0			0	0	
Detector 1 Position(ft)	0			0	0	0	0			0	0	
Detector 1 Size(ft)	20			20	20	6	6			20	20	
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0			0.0	0.0	0.0	0.0			0.0	0.0	
Detector 1 Queue (s)	0.0			0.0	0.0	0.0	0.0			0.0	0.0	
Detector 1 Delay (s)	0.0			0.0	0.0	0.0	0.0			0.0	0.0	
Detector 2 Position(ft)						94	94					
Detector 2 Size(ft)						6	6					
Detector 2 Type						Cl+Ex	Cl+Ex					
Detector 2 Channel												
Detector 2 Extend (s)						0.0	0.0					
Turn Type	Prot			Perm	Perm	NA	NA			Perm	Prot	
Protected Phases	4					2	6				3	
Permitted Phases				2	2					3		
Detector Phase	4			2	2	2	6			3	3	
Switch Phase												
Minimum Initial (s)	7.0			10.0	10.0	10.0	10.0			7.0	7.0	

5: Valley Rd & US HWY 107 & Frank Allen Road

Timing Plan: Year (2030)

Background AM

01/26/2022



Lane Group	EBL	EBR	EBR2	NBL2	NBL	NBT	SBT	SBR	SBR2	NEL2	NEL	NER
Minimum Split (s)	25.0			25.0	25.0	25.0	25.0			25.0	25.0	
Total Split (s)	25.0			40.0	40.0	40.0	40.0			25.0	25.0	
Total Split (%)	27.8%			44.4%	44.4%	44.4%	44.4%			27.8%	27.8%	
Maximum Green (s)	18.0			33.0	33.0	33.0	33.0			18.0	18.0	
Yellow Time (s)	5.0			5.0	5.0	5.0	5.0			5.0	5.0	
All-Red Time (s)	2.0			2.0	2.0	2.0	2.0			2.0	2.0	
Lost Time Adjust (s)	-2.0					-2.0	-2.0				-2.0	
Total Lost Time (s)	5.0					5.0	5.0				5.0	
Lead/Lag	Lag									Lead	Lead	
Lead-Lag Optimize?	Yes									Yes	Yes	
Vehicle Extension (s)	3.0			3.0	3.0	3.0	3.0			3.0	3.0	
Recall Mode	None			C-Min	C-Min	C-Min	None			Min	Min	
Walk Time (s)	7.0			7.0	7.0	7.0	7.0			7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	11.0	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	0			0	0	0	0			0	0	
Act Effct Green (s)	10.6					57.8	57.8				9.4	
Actuated g/C Ratio	0.12					0.64	0.64				0.10	
v/c Ratio	0.27					0.40	0.53				0.13	
Control Delay	39.0					10.3	12.1				38.1	
Queue Delay	0.0					0.0	0.0				0.0	
Total Delay	39.0					10.3	12.1				38.1	
LOS	D					B	B				D	
Approach Delay	39.0					10.3	12.1				38.1	
Approach LOS	D					B	B				D	
Queue Length 50th (ft)	29					115	186				13	
Queue Length 95th (ft)	62					205	321				36	
Internal Link Dist (ft)	1016					885	268				1430	
Turn Bay Length (ft)												
Base Capacity (vph)	384					1105	1184				388	
Starvation Cap Reductn	0					0	0				0	
Spillback Cap Reductn	0					0	0				0	
Storage Cap Reductn	0					0	0				0	
Reduced v/c Ratio	0.14					0.40	0.53				0.06	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 90

Control Type: Actuated-Coordinated

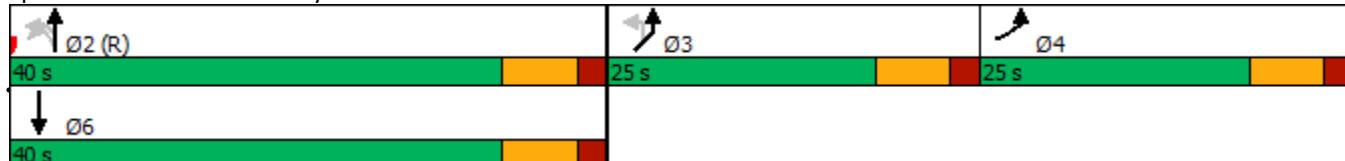
Maximum v/c Ratio: 0.53

Intersection Signal Delay: 13.3 Intersection LOS: B

Intersection Capacity Utilization 70.6% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 5: Valley Rd & US HWY 107 & Frank Allen Road



Intersection

Int Delay, s/veh 0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
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Lane Configurations	↑		↑	↔		
Traffic Vol, veh/h	601	4	5	501	4	9
Future Vol, veh/h	601	4	5	501	4	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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	668	4	6	557	4	10

Major/Minor	Major1	Major2	Minor1
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Conflicting Flow All	0	0	672	0	1239	670
Stage 1	-	-	-	-	670	-
Stage 2	-	-	-	-	569	-
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	-	-	919	-	194	457
Stage 1	-	-	-	-	509	-
Stage 2	-	-	-	-	566	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	919	-	192	457
Mov Cap-2 Maneuver	-	-	-	-	192	-
Stage 1	-	-	-	-	509	-
Stage 2	-	-	-	-	561	-

Approach	EB	WB	NB
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HCM Control Delay, s	0	0.1	16.7
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HCM LOS	C
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Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
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Capacity (veh/h)	321	-	-	919	-
HCM Lane V/C Ratio	0.045	-	-	0.006	-
HCM Control Delay (s)	16.7	-	-	8.9	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection

Int Delay, s/veh 0.2

Movement WBL WBR NBT NBR SBL SBT

Lane Configurations						
Traffic Vol, veh/h	4	4	406	5	5	559
Future Vol, veh/h	4	4	406	5	5	559
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	4	451	6	6	621

Major/Minor Minor1 Major1 Major2

Conflicting Flow All	1087	454	0	0	457	0
Stage 1	454	-	-	-	-	-
Stage 2	633	-	-	-	-	-
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	239	606	-	-	1104	-
Stage 1	640	-	-	-	-	-
Stage 2	529	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	237	606	-	-	1104	-
Mov Cap-2 Maneuver	237	-	-	-	-	-
Stage 1	640	-	-	-	-	-
Stage 2	525	-	-	-	-	-

Approach WB NB SB

HCM Control Delay, s	15.8	0	0.1
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HCM LOS C

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	341	1104	-
HCM Lane V/C Ratio	-	-	0.026	0.005	-
HCM Control Delay (s)	-	-	15.8	8.3	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection

Int Delay, s/veh 0.3

Movement EBT EBR WBL WBT NBL NBR

Lane Configurations						
Traffic Vol, veh/h	527	7	4	573	6	11
Future Vol, veh/h	527	7	4	573	6	11
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	586	8	4	637	7	12

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	594	0	1235	590
Stage 1	-	-	-	-	590	-
Stage 2	-	-	-	-	645	-
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	-	-	982	-	195	508
Stage 1	-	-	-	-	554	-
Stage 2	-	-	-	-	522	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	982	-	194	508
Mov Cap-2 Maneuver	-	-	-	-	194	-
Stage 1	-	-	-	-	554	-
Stage 2	-	-	-	-	519	-

Approach EB WB NB

HCM Control Delay, s 0 0.1 16.8

HCM LOS C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	323	-	-	982	-
HCM Lane V/C Ratio	0.058	-	-	0.005	-
HCM Control Delay (s)	16.8	-	-	8.7	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection

Int Delay, s/veh 0.4

Movement EBT EBR WBL WBT NBL NBR

Lane Configurations	
Traffic Vol, veh/h	592 11 4 490 12 4
Future Vol, veh/h	592 11 4 490 12 4
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	90 90 90 90 90 90
Heavy Vehicles, %	2 2 2 2 2 2
Mvmt Flow	658 12 4 544 13 4

Major/Minor Major1 Major2 Minor1

Conflicting Flow All	0 0 670 0 1216 664
Stage 1	- - - - 664 -
Stage 2	- - - - 552 -
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	- - 920 - 200 461
Stage 1	- - - - 512 -
Stage 2	- - - - 577 -
Platoon blocked, %	- - - -
Mov Cap-1 Maneuver	- - 920 - 199 461
Mov Cap-2 Maneuver	- - - - 199 -
Stage 1	- - - - 512 -
Stage 2	- - - - 574 -

Approach EB WB NB

HCM Control Delay, s 0 0.1 21.8

HCM LOS C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	232	-	-	920	-
HCM Lane V/C Ratio	0.077	-	-	0.005	-
HCM Control Delay (s)	21.8	-	-	8.9	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

5: Valley Rd & US HWY 107 & Frank Allen Road

Timing Plan: Year (2022)

Existing PM

01/26/2022



Lane Group	EBL	EBR	EBR2	NBL	NBT	SBT	SBR	SBR2	NEL	NER
Lane Configurations	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Traffic Volume (vph)	48	12	4	26	330	239	6	25	19	4
Future Volume (vph)	48	12	4	26	330	239	6	25	19	4
Ideal Flow (vphpl)	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
Frt	0.967					0.984			0.978	
Flt Protected	0.964					0.996			0.960	
Satd. Flow (prot)	1736	0	0	0	1855	1833	0	0	1749	0
Flt Permitted	0.964					0.963			0.960	
Satd. Flow (perm)	1736	0	0	0	1794	1833	0	0	1749	0
Right Turn on Red				No				No		No
Satd. Flow (RTOR)										
Link Speed (mph)	35				20	20			20	
Link Distance (ft)	1096				965	348			1510	
Travel Time (s)	21.4				32.9	11.9			51.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	53	13	4	29	367	266	7	28	21	4
Shared Lane Traffic (%)										
Lane Group Flow (vph)	70	0	0	0	396	301	0	0	25	0
Enter Blocked Intersection	No									
Lane Alignment	Left	Right	Right	Left	Left	Left	Right	Right	Left	Right
Median Width(ft)	12				0	0			12	
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
Turning Speed (mph)	15	9	9	15			9	9	15	9
Number of Detectors	1				1	2	2		1	
Detector Template	Left			Left	Thru	Thru			Left	
Leading Detector (ft)	20			20	100	100			20	
Trailing Detector (ft)	0				0	0	0		0	
Detector 1 Position(ft)	0				0	0	0		0	
Detector 1 Size(ft)	20			20	6	6			20	
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel										
Detector 1 Extend (s)	0.0				0.0	0.0	0.0		0.0	
Detector 1 Queue (s)	0.0				0.0	0.0	0.0		0.0	
Detector 1 Delay (s)	0.0				0.0	0.0	0.0		0.0	
Detector 2 Position(ft)					94	94				
Detector 2 Size(ft)					6	6				
Detector 2 Type					Cl+Ex	Cl+Ex				
Detector 2 Channel										
Detector 2 Extend (s)					0.0	0.0				
Turn Type	Prot			Perm	NA	NA			Prot	
Protected Phases	4				2	6			3	
Permitted Phases					2					
Detector Phase	4			2	2	6			3	
Switch Phase										
Minimum Initial (s)	7.0			10.0	10.0	10.0			7.0	

5: Valley Rd & US HWY 107 & Frank Allen Road

Timing Plan: Year (2022)

01/26/2022

Existing PM



Lane Group	EBL	EBR	EBR2	NBL	NBT	SBT	SBR	SBR2	NEL	NER
Minimum Split (s)	25.0			25.0	25.0	25.0			25.0	
Total Split (s)	25.0			40.0	40.0	40.0			25.0	
Total Split (%)	27.8%			44.4%	44.4%	44.4%			27.8%	
Maximum Green (s)	18.0			33.0	33.0	33.0			18.0	
Yellow Time (s)	5.0			5.0	5.0	5.0			5.0	
All-Red Time (s)	2.0			2.0	2.0	2.0			2.0	
Lost Time Adjust (s)	-2.0				-2.0	-2.0			-2.0	
Total Lost Time (s)	5.0				5.0	5.0			5.0	
Lead/Lag	Lag								Lead	
Lead-Lag Optimize?	Yes								Yes	
Vehicle Extension (s)	3.0			3.0	3.0	3.0			3.0	
Recall Mode	None			C-Min	C-Min	None			Min	
Walk Time (s)	7.0			7.0	7.0	7.0			7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0			0	0	0			0	
Act Effct Green (s)	11.3				57.1	57.1			9.4	
Actuated g/C Ratio	0.13				0.63	0.63			0.10	
v/c Ratio	0.32				0.35	0.26			0.14	
Control Delay	39.3				10.2	9.3			38.2	
Queue Delay	0.0				0.0	0.0			0.0	
Total Delay	39.3				10.2	9.3			38.2	
LOS	D				B	A			D	
Approach Delay	39.3				10.2	9.3			38.2	
Approach LOS	D				B	A			D	
Queue Length 50th (ft)	37				102	72			13	
Queue Length 95th (ft)	74				185	135			37	
Internal Link Dist (ft)	1016				885	268			1430	
Turn Bay Length (ft)										
Base Capacity (vph)	385				1137	1162			388	
Starvation Cap Reductn	0				0	0			0	
Spillback Cap Reductn	0				0	0			0	
Storage Cap Reductn	0				0	0			0	
Reduced v/c Ratio	0.18				0.35	0.26			0.06	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 75

Control Type: Actuated-Coordinated

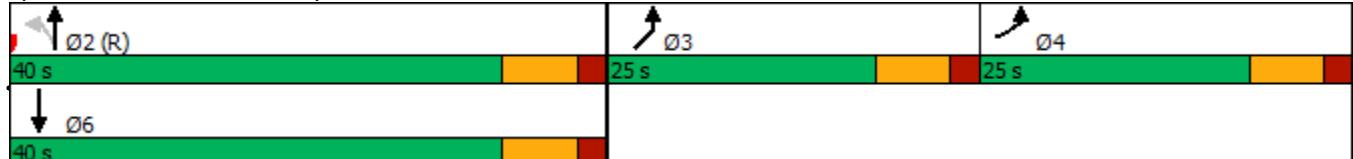
Maximum v/c Ratio: 0.35

Intersection Signal Delay: 13.3 Intersection LOS: B

Intersection Capacity Utilization 61.6% ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 5: Valley Rd & US HWY 107 & Frank Allen Road



Intersection

Int Delay, s/veh 0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
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Lane Configurations						
Traffic Vol, veh/h	527	11	4	568	10	4
Future Vol, veh/h	527	11	4	568	10	4
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	586	12	4	631	11	4

Major/Minor	Major1	Major2	Minor1
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Conflicting Flow All	0	0	598	0	1231	592
Stage 1	-	-	-	-	592	-
Stage 2	-	-	-	-	639	-
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	-	-	979	-	196	506
Stage 1	-	-	-	-	553	-
Stage 2	-	-	-	-	526	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	979	-	195	506
Mov Cap-2 Maneuver	-	-	-	-	195	-
Stage 1	-	-	-	-	553	-
Stage 2	-	-	-	-	523	-

Approach	EB	WB	NB
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HCM Control Delay, s	0	0.1	21.3
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HCM LOS	C
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Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
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Capacity (veh/h)	237	-	-	979	-
HCM Lane V/C Ratio	0.066	-	-	0.005	-
HCM Control Delay (s)	21.3	-	-	8.7	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

5: Valley Rd & US HWY 107 & Frank Allen Road

Timing Plan: Year (2022)

Existing AM

01/25/2022

	EBL	EBR	EBR2	NBL2	NBL	NBT	SBT	SBR	SBR2	NEL2	NEL	NER
Lane Group												
Lane Configurations												
Traffic Volume (vph)	28	8	4	4	23	290	419	17	15	4	11	4
Future Volume (vph)	28	8	4	4	23	290	419	17	15	4	11	4
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	0.960						0.990				0.973	
Flt Protected	0.966					0.996					0.962	
Satd. Flow (prot)	1727	0	0	0	0	1855	1844	0	0	0	1744	0
Flt Permitted	0.966					0.939					0.962	
Satd. Flow (perm)	1727	0	0	0	0	1749	1844	0	0	0	1744	0
Right Turn on Red			No						No		No	
Satd. Flow (RTOR)												
Link Speed (mph)	35					20	20				20	
Link Distance (ft)	1096					965	348				1510	
Travel Time (s)	21.4					32.9	11.9				51.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	31	9	4	4	26	322	466	19	17	4	12	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	0	0	0	0	352	502	0	0	0	20	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Right	Right	Left	Left	Left	Left	Right	Right	Left	Left	Right
Median Width(ft)	12					0	0				12	
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	9	15	15			9	9	15	15	9
Number of Detectors	1			1	1	2	2			1	1	
Detector Template	Left			Left	Left	Thru	Thru			Left	Left	
Leading Detector (ft)	20			20	20	100	100			20	20	
Trailing Detector (ft)	0			0	0	0	0			0	0	
Detector 1 Position(ft)	0			0	0	0	0			0	0	
Detector 1 Size(ft)	20			20	20	6	6			20	20	
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0			0.0	0.0	0.0	0.0			0.0	0.0	
Detector 1 Queue (s)	0.0			0.0	0.0	0.0	0.0			0.0	0.0	
Detector 1 Delay (s)	0.0			0.0	0.0	0.0	0.0			0.0	0.0	
Detector 2 Position(ft)						94	94					
Detector 2 Size(ft)						6	6					
Detector 2 Type						Cl+Ex	Cl+Ex					
Detector 2 Channel												
Detector 2 Extend (s)						0.0	0.0					
Turn Type	Prot			Perm	Perm	NA	NA			Prot	Prot	
Protected Phases	4					2	6			3	3	
Permitted Phases				2	2							
Detector Phase	4			2	2	2	6			3	3	
Switch Phase												
Minimum Initial (s)	7.0			10.0	10.0	10.0	10.0			7.0	7.0	

5: Valley Rd & US HWY 107 & Frank Allen Road

Timing Plan: Year (2022)

01/25/2022

Existing AM



Lane Group	EBL	EBR	EBR2	NBL2	NBL	NBT	SBT	SBR	SBR2	NEL2	NEL	NER
Minimum Split (s)	25.0			25.0	25.0	25.0	25.0			25.0	25.0	
Total Split (s)	25.0			40.0	40.0	40.0	40.0			25.0	25.0	
Total Split (%)	27.8%			44.4%	44.4%	44.4%	44.4%			27.8%	27.8%	
Maximum Green (s)	18.0			33.0	33.0	33.0	33.0			18.0	18.0	
Yellow Time (s)	5.0			5.0	5.0	5.0	5.0			5.0	5.0	
All-Red Time (s)	2.0			2.0	2.0	2.0	2.0			2.0	2.0	
Lost Time Adjust (s)	-2.0					-2.0	-2.0				-2.0	
Total Lost Time (s)	5.0					5.0	5.0				5.0	
Lead/Lag	Lag									Lead	Lead	
Lead-Lag Optimize?	Yes									Yes	Yes	
Vehicle Extension (s)	3.0			3.0	3.0	3.0	3.0			3.0	3.0	
Recall Mode	None			C-Min	C-Min	C-Min	None			Min	Min	
Walk Time (s)	7.0			7.0	7.0	7.0	7.0			7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	11.0	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	0			0	0	0	0			0	0	
Act Effct Green (s)	10.2					61.1	61.1				9.3	
Actuated g/C Ratio	0.11					0.68	0.68				0.10	
v/c Ratio	0.23					0.30	0.40				0.11	
Control Delay	38.7					8.1	9.1				37.9	
Queue Delay	0.0					0.0	0.0				0.0	
Total Delay	38.7					8.1	9.1				37.9	
LOS	D					A	A				D	
Approach Delay	38.7					8.1	9.1				37.9	
Approach LOS	D					A	A				D	
Queue Length 50th (ft)	23					85	133				11	
Queue Length 95th (ft)	54					151	228				32	
Internal Link Dist (ft)	1016					885	268				1430	
Turn Bay Length (ft)												
Base Capacity (vph)	383					1187	1252				387	
Starvation Cap Reductn	0					0	0				0	
Spillback Cap Reductn	0					0	0				0	
Storage Cap Reductn	0					0	0				0	
Reduced v/c Ratio	0.11					0.30	0.40				0.05	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 80

Control Type: Actuated-Coordinated

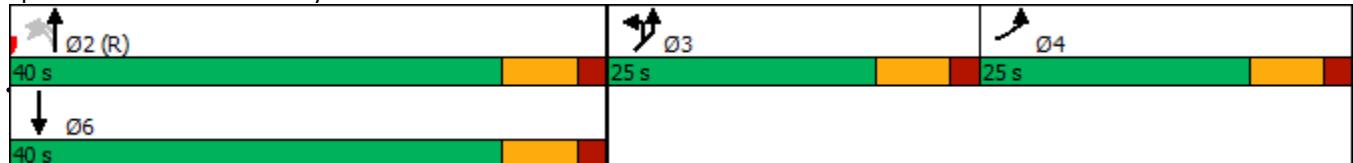
Maximum v/c Ratio: 0.40

Intersection Signal Delay: 10.8 Intersection LOS: B

Intersection Capacity Utilization 61.8% ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 5: Valley Rd & US HWY 107 & Frank Allen Road



Intersection

Int Delay, s/veh 0.3

Movement WBL WBR NBU NBT NBR SBL SBT

Lane Configurations							
Traffic Vol, veh/h	4	8	1	386	10	4	267
Future Vol, veh/h	4	8	1	386	10	4	267
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	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	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	4	9	1	429	11	4	297

Major/Minor Minor1 Major1 Major2

Conflicting Flow All	740	435	-	0	0	440	0
Stage 1	435	-	-	-	-	-	-
Stage 2	305	-	-	-	-	-	-
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	384	621	-	-	-	1120	-
Stage 1	653	-	-	-	-	-	-
Stage 2	748	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	382	621	-	-	-	1120	-
Mov Cap-2 Maneuver	382	-	-	-	-	-	-
Stage 1	653	-	-	-	-	-	-
Stage 2	745	-	-	-	-	-	-

Approach WB NB SB

HCM Control Delay, s	12.2	0.1
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HCM LOS B

Minor Lane/Major Mvmt	NBT	NBR	WBL	Ln1	SBL	SBT
Capacity (veh/h)	-	-	514	1120	-	-
HCM Lane V/C Ratio	-	-	0.026	0.004	-	-
HCM Control Delay (s)	-	-	12.2	8.2	0	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-	-

1: US HWY 107 & US HWY 64

Timing Plan: Year (2030)

01/26/2022

Background AM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	44	156	121	185	135	180	100	131	179	264	259	90
Future Volume (vph)	44	156	121	185	135	180	100	131	179	264	259	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	150		0	100		50	75		0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	175			155			150			155		
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			0.850		0.914				0.850		0.961	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1703	0	1770	1863	1583	1770	1790	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1863	1583	1770	1703	0	1770	1863	1583	1770	1790	0
Right Turn on Red			No			No			No		No	
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			35	
Link Distance (ft)		940			500			631			2257	
Travel Time (s)		18.3			9.7			21.5			44.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	49	173	134	206	150	200	111	146	199	293	288	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	49	173	134	206	350	0	111	146	199	293	388	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			-20			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
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Prot	Prot	NA		Prot	NA	Prot	Prot	NA	
Protected Phases	7	4	4	3	8		5	2	2	1	6	
Permitted Phases												

1: US HWY 107 & US HWY 64

Timing Plan: Year (2030)

01/26/2022

Background AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	10.0	10.0	7.0	10.0	
Minimum Split (s)	17.0	25.0	25.0	17.0	25.0		17.0	25.0	25.0	17.0	25.0	
Total Split (s)	17.0	32.0	32.0	29.0	44.0		20.0	31.0	31.0	38.0	49.0	
Total Split (%)	13.1%	24.6%	24.6%	22.3%	33.8%		15.4%	23.8%	23.8%	29.2%	37.7%	
Maximum Green (s)	10.0	25.0	25.0	22.0	37.0		13.0	24.0	24.0	31.0	42.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Min	C-Min	None	C-Min	
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effct Green (s)	10.7	21.7	21.7	21.0	34.8		14.1	39.4	39.4	27.9	53.2	
Actuated g/C Ratio	0.08	0.17	0.17	0.16	0.27		0.11	0.30	0.30	0.21	0.41	
v/c Ratio	0.34	0.56	0.51	0.72	0.77		0.58	0.26	0.42	0.77	0.53	
Control Delay	62.4	55.8	55.1	66.1	55.8		67.3	40.2	43.6	61.9	34.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	62.4	55.8	55.1	66.1	55.8		67.3	40.2	43.6	61.9	34.8	
LOS	E	E	E	E	E		E	D	D	E	C	
Approach Delay		56.4			59.6			48.3			46.5	
Approach LOS		E			E			D			D	
Queue Length 50th (ft)	40	134	103	165	276		89	96	139	232	256	
Queue Length 95th (ft)	82	202	164	248	373		154	175	241	324	389	
Internal Link Dist (ft)		860			420			551			2177	
Turn Bay Length (ft)	100		100	150			100		50	75		
Base Capacity (vph)	163	386	328	326	510		209	564	479	449	732	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.30	0.45	0.41	0.63	0.69		0.53	0.26	0.42	0.65	0.53	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 52.2

Intersection LOS: D

Intersection Capacity Utilization 65.6%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: US HWY 107 & US HWY 64



1: US HWY 107 & US HWY 64

Timing Plan: Year (2030)

01/26/2022

Background PM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	106	159	80	125	169	286	114	205	174	202	134	61
Future Volume (vph)	106	159	80	125	169	286	114	205	174	202	134	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	150		0	100		50	75		0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	175			155		150			155			
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			0.850		0.906				0.850		0.953	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1688	0	1770	1863	1583	1770	1775	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1863	1583	1770	1688	0	1770	1863	1583	1770	1775	0
Right Turn on Red			No			No			No		No	
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			35	
Link Distance (ft)		940			500			631			2257	
Travel Time (s)		18.3			9.7			21.5			44.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	118	177	89	139	188	318	127	228	193	224	149	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	118	177	89	139	506	0	127	228	193	224	217	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			-20			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
Number of Detectors	1	2	1	1	2		1	2	1	1	1	2
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Prot	Prot	NA		Prot	NA	Prot	Prot	NA	
Protected Phases	7	4	4	3	8		5	2	2	1	6	
Permitted Phases												

Background PM

Lane Group	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	10.0	10.0	7.0	10.0	
Minimum Split (s)	17.0	25.0	25.0	17.0	25.0		17.0	25.0	25.0	17.0	25.0	
Total Split (s)	19.0	50.0	50.0	23.0	54.0		22.0	29.0	29.0	28.0	35.0	
Total Split (%)	14.6%	38.5%	38.5%	17.7%	41.5%		16.9%	22.3%	22.3%	21.5%	26.9%	
Maximum Green (s)	12.0	43.0	43.0	16.0	47.0		15.0	22.0	22.0	21.0	28.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Min	C-Min	None	C-Min	
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effct Green (s)	13.4	41.8	41.8	16.0	44.5		15.2	30.7	30.7	21.4	36.9	
Actuated g/C Ratio	0.10	0.32	0.32	0.12	0.34		0.12	0.24	0.24	0.16	0.28	
v/c Ratio	0.65	0.30	0.17	0.64	0.88		0.61	0.52	0.52	0.77	0.43	
Control Delay	72.8	33.8	31.6	67.5	57.0		67.4	50.8	51.8	69.6	43.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	72.8	33.8	31.6	67.5	57.0		67.4	50.8	51.8	69.6	43.7	
LOS	E	C	C	E	E		E	D	D	E	D	
Approach Delay		45.3			59.3			55.0			56.9	
Approach LOS		D			E			D			E	
Queue Length 50th (ft)	96	109	53	112	389		102	178	151	179	158	
Queue Length 95th (ft)	#164	168	94	182	525		170	272	238	#284	246	
Internal Link Dist (ft)		860			420			551			2177	
Turn Bay Length (ft)	100		100	150			100		50	75		
Base Capacity (vph)	192	644	547	245	636		231	440	374	315	504	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.61	0.27	0.16	0.57	0.80		0.55	0.52	0.52	0.71	0.43	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 54.9

Intersection LOS: D

Intersection Capacity Utilization 71.0%

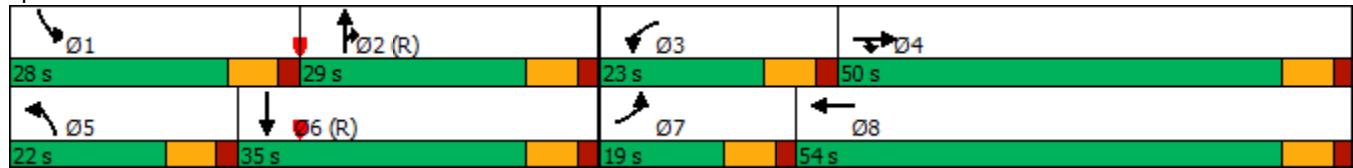
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: US HWY 107 & US HWY 64



Existing AMIntersection

Int Delay, s/veh 0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
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Lane Configurations						
Traffic Vol, veh/h	4	4	325	4	4	448
Future Vol, veh/h	4	4	325	4	4	448
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	4	361	4	4	498

Major/Minor	Minor1	Major1	Major2
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Conflicting Flow All	869	363	0	0	365	0
Stage 1	363	-	-	-	-	-
Stage 2	506	-	-	-	-	-
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	322	682	-	-	1194	-
Stage 1	704	-	-	-	-	-
Stage 2	606	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	320	682	-	-	1194	-
Mov Cap-2 Maneuver	320	-	-	-	-	-
Stage 1	704	-	-	-	-	-
Stage 2	603	-	-	-	-	-

Approach	WB	NB	SB
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HCM Control Delay, s	13.4	0	0.1
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HCM LOS B

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	436	1194	-
HCM Lane V/C Ratio	-	-	0.02	0.004	-
HCM Control Delay (s)	-	-	13.4	8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection

Int Delay, s/veh 0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
----------	-----	-----	-----	-----	-----	-----

Lane Configurations						
Traffic Vol, veh/h	596	4	4	497	4	7
Future Vol, veh/h	596	4	4	497	4	7
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	662	4	4	552	4	8

Major/Minor	Major1	Major2	Minor1
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Conflicting Flow All	0	0	666	0	1224	664
Stage 1	-	-	-	-	664	-
Stage 2	-	-	-	-	560	-
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	-	-	923	-	198	461
Stage 1	-	-	-	-	512	-
Stage 2	-	-	-	-	572	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	923	-	197	461
Mov Cap-2 Maneuver	-	-	-	-	197	-
Stage 1	-	-	-	-	512	-
Stage 2	-	-	-	-	569	-

Approach	EB	WB	NB
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HCM Control Delay, s	0	0.1	17.1
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HCM LOS	C
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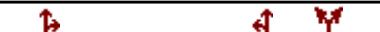
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	310	-	-	923	-
HCM Lane V/C Ratio	0.039	-	-	0.005	-
HCM Control Delay (s)	17.1	-	-	8.9	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection

Int Delay, s/veh 0.3

Movement EBT EBR WBL WBT NBL NBR

Lane Configurations



Traffic Vol, veh/h 422 9 4 455 8 4

Future Vol, veh/h 422 9 4 455 8 4

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 90 90 90 90 90 90

Heavy Vehicles, % 2 2 2 2 2 2

Mvmt Flow 469 10 4 506 9 4

Major/Minor Major1 Major2 Minor1

Conflicting Flow All 0 0 479 0 988 474

Stage 1 - - - - 474 -

Stage 2 - - - - 514 -

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 - - 1083 - 274 590

Stage 1 - - - - 626 -

Stage 2 - - - - 600 -

Platoon blocked, % - - - - -

Mov Cap-1 Maneuver - - 1083 - 273 590

Mov Cap-2 Maneuver - - - - 273 -

Stage 1 - - - - 626 -

Stage 2 - - - - 597 -

Approach EB WB NB

HCM Control Delay, s 0 0.1 16.3

HCM LOS C

Minor Lane/Major Mvmt NBLn1 EBT EBR WBL WBT

Capacity (veh/h) 333 - - 1083 -

HCM Lane V/C Ratio 0.04 - - 0.004 -

HCM Control Delay (s) 16.3 - - 8.3 0

HCM Lane LOS C - - A A

HCM 95th %tile Q(veh) 0.1 - - 0 -

Existing AMIntersection

Int Delay, s/veh 0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
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Lane Configurations						
Traffic Vol, veh/h	474	9	4	392	10	4
Future Vol, veh/h	474	9	4	392	10	4
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	527	10	4	436	11	4

Major/Minor	Major1	Major2	Minor1			
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Conflicting Flow All	0	0	537	0	976	532
Stage 1	-	-	-	-	532	-
Stage 2	-	-	-	-	444	-
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	-	-	1031	-	279	547
Stage 1	-	-	-	-	589	-
Stage 2	-	-	-	-	646	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1031	-	278	547
Mov Cap-2 Maneuver	-	-	-	-	278	-
Stage 1	-	-	-	-	589	-
Stage 2	-	-	-	-	643	-

Approach	EB	WB	NB
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HCM Control Delay, s	0	0.1	16.7
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HCM LOS	C
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Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	323	-	-	1031	-
HCM Lane V/C Ratio	0.048	-	-	0.004	-
HCM Control Delay (s)	16.7	-	-	8.5	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

1: US HWY 107 & US HWY 64

Timing Plan: Year (2022)

01/26/2022

Existing PM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	85	127	64	100	135	229	91	164	139	162	107	49
Future Volume (vph)	85	127	64	100	135	229	91	164	139	162	107	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			100	150		0	100		50	75	0
Storage Lanes	1			1	1		0	1		1	1	0
Taper Length (ft)	175				155			150			155	
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				0.850		0.906			0.850		0.953	
Flt Protected	0.950				0.950			0.950			0.950	
Satd. Flow (prot)	1770	1863	1583	1770	1688	0	1770	1863	1583	1770	1775	0
Flt Permitted	0.950				0.950			0.950			0.950	
Satd. Flow (perm)	1770	1863	1583	1770	1688	0	1770	1863	1583	1770	1775	0
Right Turn on Red				No			No			No		No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			35	
Link Distance (ft)		940			500			631			2257	
Travel Time (s)		18.3			9.7			21.5			44.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	94	141	71	111	150	254	101	182	154	180	119	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	94	141	71	111	404	0	101	182	154	180	173	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			-20			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
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Prot	Prot	NA		Prot	NA	Prot	Prot	NA	
Protected Phases	7	4	4	3	8		5	2	2	1	6	
Permitted Phases												

1: US HWY 107 & US HWY 64

Timing Plan: Year (2022)

01/26/2022

Existing PM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	10.0	10.0	7.0	10.0	
Minimum Split (s)	17.0	25.0	25.0	17.0	25.0		17.0	25.0	25.0	17.0	25.0	
Total Split (s)	18.0	51.0	51.0	20.0	53.0		20.0	31.0	31.0	28.0	39.0	
Total Split (%)	13.8%	39.2%	39.2%	15.4%	40.8%		15.4%	23.8%	23.8%	21.5%	30.0%	
Maximum Green (s)	11.0	44.0	44.0	13.0	46.0		13.0	24.0	24.0	21.0	32.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Min	C-Min	None	C-Min	
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effct Green (s)	13.0	37.3	37.3	14.3	38.5		13.8	38.8	38.8	19.6	44.6	
Actuated g/C Ratio	0.10	0.29	0.29	0.11	0.30		0.11	0.30	0.30	0.15	0.34	
v/c Ratio	0.53	0.26	0.16	0.57	0.81		0.54	0.33	0.33	0.67	0.28	
Control Delay	66.5	35.5	33.3	66.5	54.7		65.6	41.4	42.1	64.7	36.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	66.5	35.5	33.3	66.5	54.7		65.6	41.4	42.1	64.7	36.0	
LOS	E	D	C	E	D		E	D	D	E	D	
Approach Delay		44.5			57.2			47.2			50.6	
Approach LOS		D			E			D			D	
Queue Length 50th (ft)	76	91	45	89	314		81	123	104	144	109	
Queue Length 95th (ft)	136	135	77	154	397		142	214	188	220	189	
Internal Link Dist (ft)		860			420			551			2177	
Turn Bay Length (ft)	100		100	150			100		50	75		
Base Capacity (vph)	189	659	560	212	623		209	556	472	313	609	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.50	0.21	0.13	0.52	0.65		0.48	0.33	0.33	0.58	0.28	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 50.6

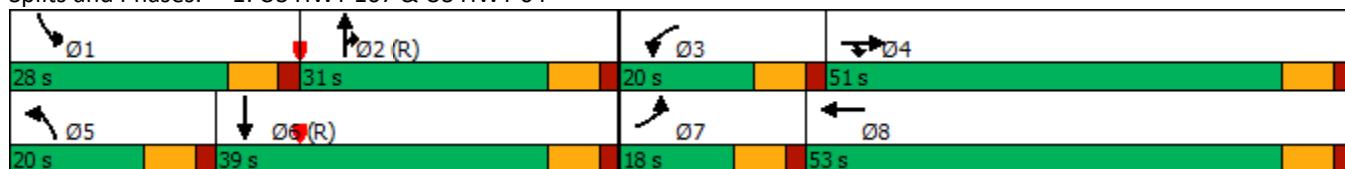
Intersection LOS: D

Intersection Capacity Utilization 61.3%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: US HWY 107 & US HWY 64



Intersection

Int Delay, s/veh 0.2

Movement EBT EBR WBL WBT NBL NBR

Lane Configurations						
Traffic Vol, veh/h	477	4	4	398	4	6
Future Vol, veh/h	477	4	4	398	4	6
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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	530	4	4	442	4	7

Major/Minor Major1 Major2 Minor1

Conflicting Flow All	0	0	534	0	982	532
Stage 1	-	-	-	-	532	-
Stage 2	-	-	-	-	450	-
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	-	-	1034	-	276	547
Stage 1	-	-	-	-	589	-
Stage 2	-	-	-	-	642	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1034	-	275	547
Mov Cap-2 Maneuver	-	-	-	-	275	-
Stage 1	-	-	-	-	589	-
Stage 2	-	-	-	-	639	-

Approach EB WB NB

HCM Control Delay, s 0 0.1 14.5

HCM LOS B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	392	-	-	1034	-
HCM Lane V/C Ratio	0.028	-	-	0.004	-
HCM Control Delay (s)	14.5	-	-	8.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection

Int Delay, s/veh 0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
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Lane Configurations						
Traffic Vol, veh/h	422	6	4	459	5	9
Future Vol, veh/h	422	6	4	459	5	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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	469	7	4	510	6	10

Major/Minor	Major1	Major2	Minor1	
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Conflicting Flow All	0	0	476	0	991	473
Stage 1	-	-	-	-	473	-
Stage 2	-	-	-	-	518	-
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	-	-	1086	-	273	591
Stage 1	-	-	-	-	627	-
Stage 2	-	-	-	-	598	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1086	-	272	591
Mov Cap-2 Maneuver	-	-	-	-	272	-
Stage 1	-	-	-	-	627	-
Stage 2	-	-	-	-	595	-

Approach	EB	WB	NB
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HCM Control Delay, s	0	0.1	14
HCM LOS		B	

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	417	-	-	1086	-
HCM Lane V/C Ratio	0.037	-	-	0.004	-
HCM Control Delay (s)	14	-	-	8.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

1: US HWY 107 & US HWY 64

Timing Plan: Year (2022)

01/25/2022

Existing AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	35	125	97	148	108	144	80	105	143	211	207	72
Future Volume (vph)	35	125	97	148	108	144	80	105	143	211	207	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	150		0	100		50	75		0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	175			155		150				155		
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			0.850		0.914				0.850		0.961	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1703	0	1770	1863	1583	1770	1790	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1863	1583	1770	1703	0	1770	1863	1583	1770	1790	0
Right Turn on Red			No			No			No		No	
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			35	
Link Distance (ft)		940			500			631			2257	
Travel Time (s)		18.3			9.7			21.5			44.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	39	139	108	164	120	160	89	117	159	234	230	80
Shared Lane Traffic (%)												
Lane Group Flow (vph)	39	139	108	164	280	0	89	117	159	234	310	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			-20			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
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Prot	Prot	NA		Prot	NA	Prot	Prot	NA	
Protected Phases	7	4	4	3	8		5	2	2	1	6	
Permitted Phases												

1: US HWY 107 & US HWY 64

Timing Plan: Year (2022)

01/25/2022

Existing AM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	10.0	10.0	7.0	10.0	
Minimum Split (s)	17.0	25.0	25.0	17.0	25.0		17.0	25.0	25.0	17.0	25.0	
Total Split (s)	17.0	32.0	32.0	28.0	43.0		20.0	34.0	34.0	36.0	50.0	
Total Split (%)	13.1%	24.6%	24.6%	21.5%	33.1%		15.4%	26.2%	26.2%	27.7%	38.5%	
Maximum Green (s)	10.0	25.0	25.0	21.0	36.0		13.0	27.0	27.0	29.0	43.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Min	C-Min	None	C-Min	
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effct Green (s)	10.6	19.3	19.3	19.0	30.5		13.4	47.4	47.4	24.3	58.3	
Actuated g/C Ratio	0.08	0.15	0.15	0.15	0.23		0.10	0.36	0.36	0.19	0.45	
v/c Ratio	0.27	0.50	0.46	0.64	0.70		0.49	0.17	0.28	0.71	0.39	
Control Delay	60.3	56.3	55.8	62.9	55.4		63.8	33.9	35.6	60.7	28.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	60.3	56.3	55.8	62.9	55.4		63.8	33.9	35.6	60.7	28.6	
LOS	E	E	E	E	E		E	C	D	E	C	
Approach Delay		56.6			58.2			41.9			42.4	
Approach LOS		E			E			D			D	
Queue Length 50th (ft)	32	109	84	132	222		72	67	95	186	174	
Queue Length 95th (ft)	68	167	137	200	299		126	141	189	259	302	
Internal Link Dist (ft)		860			420			551			2177	
Turn Bay Length (ft)	100		100	150			100		50	75		
Base Capacity (vph)	166	386	328	316	497		209	680	578	424	806	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.23	0.36	0.33	0.52	0.56		0.43	0.17	0.28	0.55	0.38	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 49.1

Intersection LOS: D

Intersection Capacity Utilization 58.1%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: US HWY 107 & US HWY 64



Intersection: 1: US HWY 107 & US HWY 64

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	L	T	R	L	TR
Maximum Queue (ft)	135	258	205	295	394	177	237	150	230	510
Average Queue (ft)	38	119	74	152	202	84	101	34	179	225
95th Queue (ft)	89	211	158	258	317	149	190	135	268	414
Link Distance (ft)		877			425		326			2188
Upstream Blk Time (%)					0		0			
Queuing Penalty (veh)					1		0			
Storage Bay Dist (ft)	100		100	150		100		50	75	
Storage Blk Time (%)	0	16	7	12	21	9	37		44	27
Queuing Penalty (veh)	0	26	13	38	38	28	105		155	72

Intersection: 2: Marigold Street & US HWY 64

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	102	28
Average Queue (ft)	7	6
95th Queue (ft)	51	21
Link Distance (ft)	726	537
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Monte Vista Rd & US HWY 64

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	88	34
Average Queue (ft)	10	11
95th Queue (ft)	47	30
Link Distance (ft)	759	348
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: US HWY 107 & Marigold Street

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	36	161
Average Queue (ft)	12	17
95th Queue (ft)	32	85
Link Distance (ft)	537	168
Upstream Blk Time (%)		0
Queuing Penalty (veh)		1
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Valley Rd & US HWY 107 & Frank Allen Road

Movement	EB	NB	SB	NE
Directions Served	LR>	<LT	TR>	<LR
Maximum Queue (ft)	74	317	293	49
Average Queue (ft)	31	142	187	15
95th Queue (ft)	63	257	300	41
Link Distance (ft)	1025	918	284	1453
Upstream Blk Time (%)			1	
Queuing Penalty (veh)			8	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Monte Vista Rd & Access 1

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 7: Monte vista Rd & Access 2.

Movement	EB
Directions Served	LR
Maximum Queue (ft)	35
Average Queue (ft)	9
95th Queue (ft)	32
Link Distance (ft)	1015
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: US HWY 107 & Access 3

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	39	14	52
Average Queue (ft)	8	0	3
95th Queue (ft)	30	10	21
Link Distance (ft)	982	168	326
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 486

Intersection: 1: US HWY 107 & US HWY 64

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	L	T	R	L	TR
Maximum Queue (ft)	185	203	131	304	441	250	336	150	228	312
Average Queue (ft)	84	100	40	170	303	120	181	73	133	126
95th Queue (ft)	157	183	93	332	457	219	329	194	218	259
Link Distance (ft)		877			425		326			2188
Upstream Blk Time (%)						2		2		
Queuing Penalty (veh)						13		11		
Storage Bay Dist (ft)	100		100	150		100		50	75	
Storage Blk Time (%)	12	10	1	5	37	16	52		39	14
Queuing Penalty (veh)	31	19	3	25	47	64	160		77	27

Intersection: 2: Marigold Street & US HWY 64

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	182	40
Average Queue (ft)	25	13
95th Queue (ft)	109	32
Link Distance (ft)	726	537
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Monte Vista Rd & US HWY 64

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	114	60
Average Queue (ft)	14	16
95th Queue (ft)	63	40
Link Distance (ft)	759	348
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: US HWY 107 & Marigold Street

Movement	WB	NB	SB
Directions Served	LR	UTR	LT
Maximum Queue (ft)	88	44	124
Average Queue (ft)	30	2	17
95th Queue (ft)	65	25	73
Link Distance (ft)	537	284	168
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Valley Rd & US HWY 107 & Frank Allen Road

Movement	EB	NB	SB	NE
Directions Served	LR>	<LT	TR>	<LR
Maximum Queue (ft)	96	380	272	79
Average Queue (ft)	46	169	135	21
95th Queue (ft)	84	292	239	55
Link Distance (ft)	1025	918	284	1453
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Monte Vista Rd & Access 1

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 7: Monte vista Rd & Access 2.

Movement	EB
Directions Served	LR
Maximum Queue (ft)	55
Average Queue (ft)	20
95th Queue (ft)	47
Link Distance (ft)	1015
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: US HWY 107 & Access 3

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	65	136	107
Average Queue (ft)	28	12	9
95th Queue (ft)	56	72	52
Link Distance (ft)	982	168	326
Upstream Blk Time (%)		1	
Queuing Penalty (veh)		3	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 481

Intersection: 1: US HWY 107 & US HWY 64

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	L	T	R	L	TR
Maximum Queue (ft)	155	176	126	304	425	172	291	150	206	249
Average Queue (ft)	64	74	35	110	243	79	111	42	106	79
95th Queue (ft)	118	142	85	238	381	145	214	150	183	179
Link Distance (ft)		877			426		545			2188
Upstream Blk Time (%)						0				
Queuing Penalty (veh)						2				
Storage Bay Dist (ft)	100		100	150		100		50	75	
Storage Blk Time (%)	4	5	1	1	28	10	39	0	29	6
Queuing Penalty (veh)	8	8	2	4	28	32	89	0	45	10

Intersection: 2: Marigold Street & US HWY 64

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	52	25
Average Queue (ft)	6	6
95th Queue (ft)	35	20
Link Distance (ft)	726	531
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Monte Vista Rd & US HWY 64

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	32	26
Average Queue (ft)	1	5
95th Queue (ft)	13	21
Link Distance (ft)	759	541
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: US HWY 107 & Marigold Street

Movement	WB	NB	SB
Directions Served	LR	UTR	LT
Maximum Queue (ft)	22	6	28
Average Queue (ft)	6	0	1
95th Queue (ft)	21	4	14
Link Distance (ft)	531	289	545
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Valley Rd & US HWY 107 & Frank Allen Road

Movement	EB	NB	SB	NE
Directions Served	LR>	LT	TR>	LR
Maximum Queue (ft)	90	208	203	49
Average Queue (ft)	31	106	94	16
95th Queue (ft)	68	177	184	43
Link Distance (ft)	1025	918	289	1453
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 229

Intersection: 1: US HWY 107 & US HWY 64

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	L	T	R	L	TR
Maximum Queue (ft)	201	220	128	304	435	250	445	150	224	381
Average Queue (ft)	86	89	36	175	291	115	197	79	133	138
95th Queue (ft)	155	171	90	341	440	219	394	201	232	308
Link Distance (ft)		877			426		545			2188
Upstream Blk Time (%)						2		0		
Queuing Penalty (veh)						13		0		
Storage Bay Dist (ft)	100		100	150		100		50	75	
Storage Blk Time (%)	11	8	2	3	35	16	54		38	17
Queuing Penalty (veh)	26	14	5	13	43	59	157		74	34

Intersection: 2: Marigold Street & US HWY 64

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	4	160	37
Average Queue (ft)	0	18	10
95th Queue (ft)	3	88	27
Link Distance (ft)	426	726	531
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Monte Vista Rd & US HWY 64

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	59	36
Average Queue (ft)	3	7
95th Queue (ft)	27	26
Link Distance (ft)	759	541
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: US HWY 107 & Marigold Street

Movement	WB	NB	SB
Directions Served	LR	UTR	LT
Maximum Queue (ft)	32	52	96
Average Queue (ft)	9	2	5
95th Queue (ft)	27	25	37
Link Distance (ft)	531	289	545
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Valley Rd & US HWY 107 & Frank Allen Road

Movement	EB	NB	SB	NE
Directions Served	LR>	LT	TR>	LR
Maximum Queue (ft)	122	292	265	57
Average Queue (ft)	44	151	122	16
95th Queue (ft)	89	252	221	45
Link Distance (ft)	1025	918	289	1453
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 438

Intersection: 1: US HWY 107 & US HWY 64

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	L	T	R	L	TR
Maximum Queue (ft)	101	218	163	243	292	151	173	146	229	339
Average Queue (ft)	34	95	64	116	166	72	63	8	130	146
95th Queue (ft)	77	179	127	188	264	131	131	61	221	288
Link Distance (ft)		877			426		545		2188	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	100		100	150		100		50	75	
Storage Blk Time (%)	0	10	5	4	14	6	20		36	16
Queuing Penalty (veh)	0	13	8	11	21	16	46		102	34

Intersection: 2: Marigold Street & US HWY 64

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	52	19
Average Queue (ft)	3	5
95th Queue (ft)	24	18
Link Distance (ft)	726	531
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Monte Vista Rd & US HWY 64

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	83	26
Average Queue (ft)	4	8
95th Queue (ft)	39	24
Link Distance (ft)	759	541
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: US HWY 107 & Marigold Street

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	36	56
Average Queue (ft)	6	2
95th Queue (ft)	23	23
Link Distance (ft)	531	545
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Valley Rd & US HWY 107 & Frank Allen Road

Movement	EB	NB	SB	NE
Directions Served	LR>	<LT	TR>	<LR
Maximum Queue (ft)	80	205	267	48
Average Queue (ft)	27	93	142	13
95th Queue (ft)	61	163	236	37
Link Distance (ft)	1025	918	289	1453
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			1	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 251

Intersection: 1: US HWY 107 & US HWY 64

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	L	T	R	L	TR
Maximum Queue (ft)	105	245	192	296	357	249	336	150	230	450
Average Queue (ft)	37	108	75	149	203	91	108	38	176	212
95th Queue (ft)	84	199	150	253	317	176	229	142	255	403
Link Distance (ft)		877			426		545		2188	
Upstream Blk Time (%)					0					
Queuing Penalty (veh)					0					
Storage Bay Dist (ft)	100		100	150		100		50	75	
Storage Blk Time (%)	1	15	7	10	21	12	35	0	46	28
Queuing Penalty (veh)	2	25	15	33	38	37	97	0	160	74

Intersection: 2: Marigold Street & US HWY 64

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	39	19
Average Queue (ft)	3	5
95th Queue (ft)	24	18
Link Distance (ft)	726	531
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Monte Vista Rd & US HWY 64

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	22	43
Average Queue (ft)	1	11
95th Queue (ft)	11	32
Link Distance (ft)	759	541
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: US HWY 107 & Marigold Street

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	22	98
Average Queue (ft)	4	9
95th Queue (ft)	18	55
Link Distance (ft)	531	545
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Valley Rd & US HWY 107 & Frank Allen Road

Movement	EB	NB	SB	NE
Directions Served	LR>	<LT	TR>	<LR
Maximum Queue (ft)	83	302	292	52
Average Queue (ft)	29	125	173	13
95th Queue (ft)	65	232	281	38
Link Distance (ft)	1025	918	289	1453
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			2	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 482

Appendix C

Turning Movement Counts



J.M. Teague Engineering & Planning

1155 N. Main Street, Waynesville, NC 28785

828-456-8383

File Name : US 64 @ Monte Vista Rd (SR 1116) - Existing
Site Code : 1071.1
Start Date : 10/15/2020
Page No : 1

Groups Printed- PV - Duals - TTST - Twins - Bikes

Start Time	Southbound					US 64 Westbound					Monte Vista Rd (SR 1116) Northbound					US 64 Eastbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:00 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	5	0	0	5	9
06:15 AM	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	0	16	0	0	16	34
06:30 AM	0	0	0	0	0	0	17	0	0	17	1	0	0	0	1	0	34	0	0	34	52
06:45 AM	0	0	0	0	0	0	23	0	0	23	3	0	0	0	3	0	49	3	0	52	78
Total	0	0	0	0	0	0	62	0	0	62	4	0	0	0	4	0	104	3	0	107	173
07:00 AM	0	0	0	0	0	1	47	0	0	48	1	0	3	0	4	0	39	0	0	39	91
07:15 AM	0	0	0	0	0	0	57	0	0	57	0	0	1	0	1	0	61	1	0	62	120
07:30 AM	0	0	0	0	0	0	84	0	0	84	3	0	1	0	4	0	75	5	0	80	168
07:45 AM	0	0	0	0	0	0	121	0	0	121	3	0	3	0	6	0	134	3	0	137	264
Total	0	0	0	0	0	1	309	0	0	310	7	0	8	0	15	0	309	9	0	318	643
08:00 AM	0	0	0	0	0	1	109	0	0	110	6	0	0	0	6	0	131	5	0	136	252
08:15 AM	0	0	0	0	0	0	141	0	0	141	3	0	0	0	3	0	151	0	0	151	295
08:30 AM	0	0	0	0	0	0	131	0	0	131	5	0	0	0	5	1	140	2	0	143	279
08:45 AM	0	0	0	0	0	1	125	0	0	126	2	0	1	0	3	0	121	2	0	123	252
Total	0	0	0	0	0	2	506	0	0	508	16	0	1	0	17	1	543	9	0	553	1078
09:00 AM	0	0	0	0	0	1	133	0	0	134	3	0	1	0	4	0	141	4	0	145	283
09:15 AM	0	0	0	0	0	0	106	0	0	106	0	0	3	0	3	0	127	3	0	130	239
09:30 AM	0	0	0	0	0	2	126	0	0	128	2	0	2	0	4	0	133	0	0	133	265
09:45 AM	0	0	0	0	0	0	124	0	0	124	1	0	0	0	1	0	134	2	0	136	261
Total	0	0	0	0	0	3	489	0	0	492	6	0	6	0	12	0	535	9	0	544	1048
10:00 AM	0	0	0	0	0	1	135	0	0	136	4	0	2	0	6	0	134	1	0	135	277
10:15 AM	0	0	0	0	0	0	131	0	0	131	2	0	1	0	3	0	126	4	0	130	264
10:30 AM	0	0	0	0	0	0	123	0	0	123	1	0	3	0	4	0	142	0	0	142	269
10:45 AM	0	0	0	0	0	0	143	0	0	143	4	0	0	0	4	0	133	3	0	136	283
Total	0	0	0	0	0	1	532	0	0	533	11	0	6	0	17	0	535	8	0	543	1093
11:00 AM	0	0	0	0	0	0	143	0	0	143	3	0	0	0	3	1	122	5	0	128	274
11:15 AM	0	0	0	0	0	1	158	0	0	159	0	0	2	0	2	0	159	2	0	161	322
11:30 AM	0	0	0	0	0	0	168	0	0	168	1	0	1	0	2	0	155	0	0	155	325
11:45 AM	0	0	0	0	0	0	163	0	0	163	1	0	2	0	3	0	170	0	0	170	336
Total	0	0	0	0	0	1	632	0	0	633	5	0	5	0	10	1	606	7	0	614	1257
12:00 PM	0	0	0	0	0	2	169	0	0	171	1	0	3	0	4	0	174	2	0	176	351
12:15 PM	0	0	0	0	0	4	180	0	0	184	2	0	0	0	2	0	161	2	0	163	349
12:30 PM	0	0	0	0	0	3	188	0	0	191	2	0	1	0	3	0	150	3	0	153	347
12:45 PM	0	0	0	0	0	3	181	0	0	184	6	0	0	0	6	0	147	3	0	150	340
Total	0	0	0	0	0	12	718	0	0	730	11	0	4	0	15	0	632	10	0	642	1387
01:00 PM	0	0	0	0	0	1	184	0	0	185	3	0	0	0	3	0	141	2	0	143	331
01:15 PM	0	0	0	0	0	0	155	0	0	155	1	0	1	0	2	0	150	0	0	150	307
01:30 PM	0	0	0	0	0	0	138	0	0	138	0	0	1	0	1	0	139	4	0	143	282
01:45 PM	0	0	0	0	0	0	136	0	0	136	6	0	1	0	7	0	153	2	0	155	298
Total	0	0	0	0	0	1	613	0	0	614	10	0	3	0	13	0	583	8	0	591	1218
02:00 PM	0	0	0	0	0	1	170	0	0	171	0	0	1	0	1	0	135	6	0	141	313
02:15 PM	0	0	0	0	0	1	156	0	0	157	0	0	0	0	0	0	165	5	0	170	327
02:30 PM	0	0	0	0	0	0	149	0	0	149	3	0	1	0	4	1	121	2	0	124	277
02:45 PM	0	0	0	0	0	3	152	0	0	155	0	0	1	0	1	0	147	3	0	150	306
Total	0	0	0	0	0	5	627	0	0	632	3	0	3	0	6	1	568	16	0	585	1223



J.M. Teague Engineering & Planning

1155 N. Main Street, Waynesville, NC 28785

828-456-8383

File Name : US 64 @ Monte Vista Rd (SR 1116) - Existing

Site Code : 1071.1

Start Date : 10/15/2020

Page No : 2

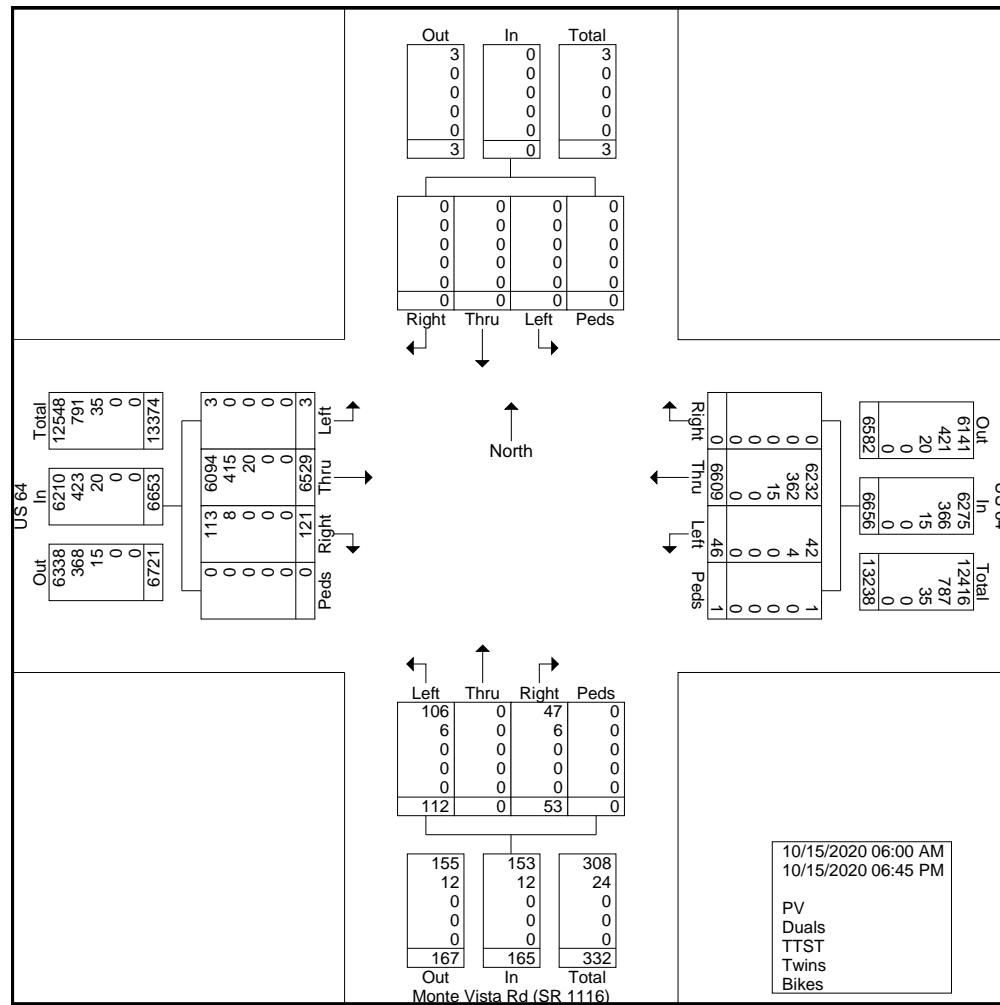
Groups Printed- PV - Duals - TTST - Twins - Bikes

J.M. Teague Engineering & Planning

1155 N. Main Street, Waynesville, NC 28785

828-456-8383

File Name : US 64 @ Monte Vista Rd (SR 1116) - Existing
Site Code : 1071.1
Start Date : 10/15/2020
Page No : 3



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1155 N. Main Street, Waynesville, NC 28785

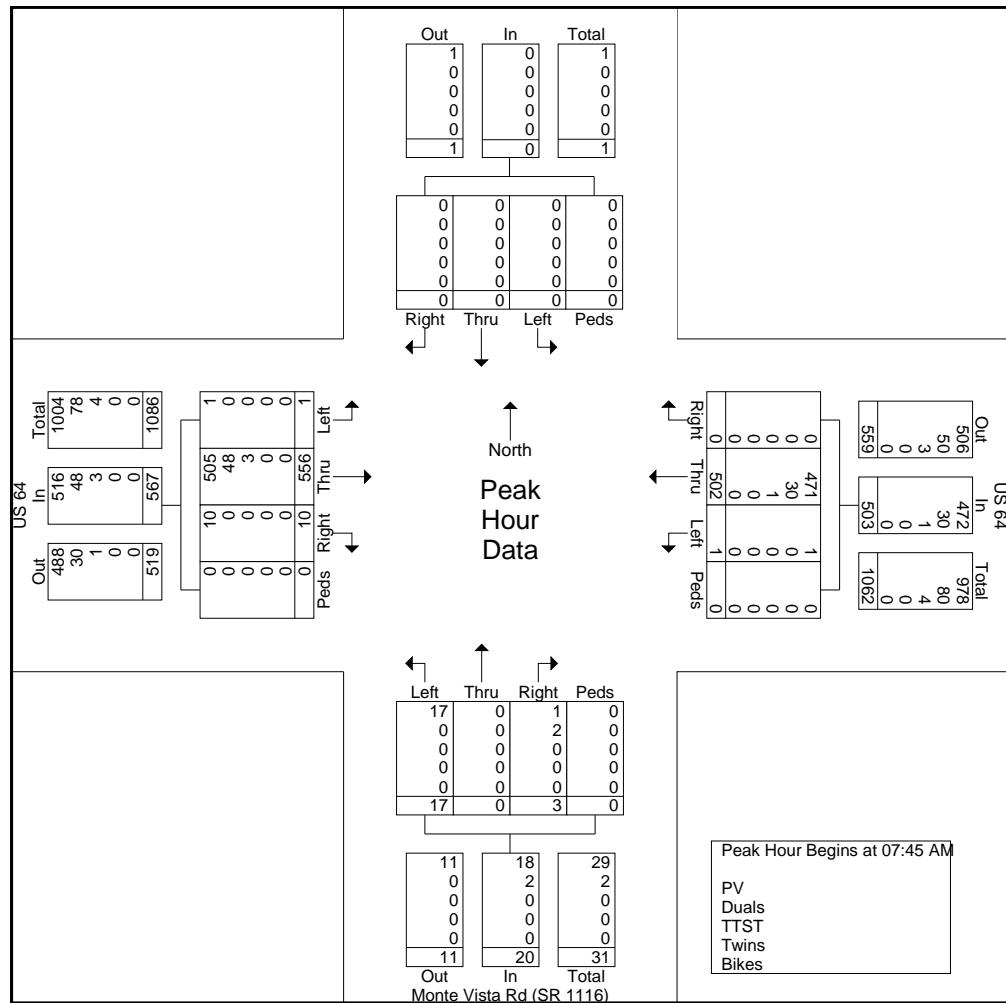
828-456-8383

File Name : US 64 @ Monte Vista Rd (SR 1116) - Existing

Site Code : 1071.1

Start Date : 10/15/2020

Page No : 4



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1155 N. Main Street, Waynesville, NC 28785

828-456-8383

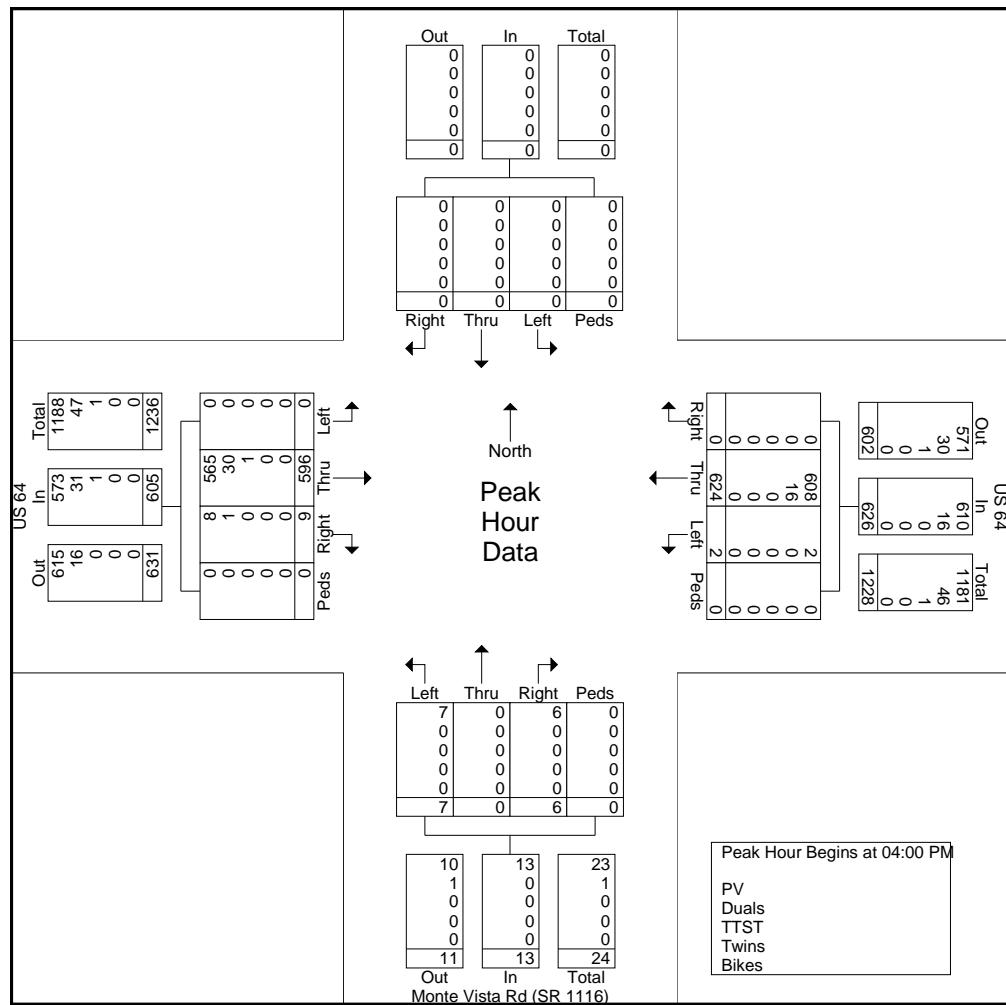
File Name : US 64 @ Monte Vista Rd (SR 1116) - Existing

Site Code : 1071.1

Start Date : 10/15/2020

Page No : 5

	Southbound					US 64 Westbound					Monte Vista Rd (SR 1116) Northbound					US 64 Eastbound											
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																											
Peak Hour for Entire Intersection Begins at 04:00 PM																											
04:00 PM	0	0	0	0	0	1	153	0	0	154	4	0	1	0	5	0	169	3	0	172	331						
04:15 PM	0	0	0	0	0	1	159	0	0	160	1	0	4	0	5	0	140	3	0	143	308						
04:30 PM	0	0	0	0	0	0	161	0	0	161	0	0	0	0	0	0	0	128	2	0	130	291					
04:45 PM	0	0	0	0	0	0	151	0	0	151	2	0	1	0	3	0	159	1	0	160	314						
Total Volume	0	0	0	0	0	2	624	0	0	626	7	0	6	0	13	0	596	9	0	605	1244						
% App. Total	0	0	0	0	0	0.3	99.7	0	0	53.8	0	46.2	0	0	0	0	98.5	1.5	0								
PHF	.000	.000	.000	.000	.000	.500	.969	.000	.000	.972	.438	.000	.375	.000	.650	.000	.882	.750	.000	.879	.940						
PV	0	0	0	0	0	2	608	0	0	610	7	0	6	0	13	0	565	8	0	573	1196						
% PV	0	0	0	0	0	100	97.4	0	0	97.4	100	0	100	0	100	0	94.8	88.9	0	94.7	96.1						
Duals	0	0	0	0	0	0	16	0	0	16	0	0	0	0	0	0	0	30	1	0	31	47					
% Duals	0	0	0	0	0	0	2.6	0	0	2.6	0	0	0	0	0	0	0	5.0	11.1	0	5.1	3.8					
TTST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1					
% TTST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0	0.2	0.1					
Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
% Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
% Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					



File Name : US 64 @ Marigold St (SR 1115) - Existing
Site Code : 1071.2
Start Date : 10/20/2020
Page No : 1

Groups Printed- PV - Duals - TTST - Twins - Bikes

Start Time	Southbound					US 64 Westbound					Marigold Street (SR 1115) Northbound					US 64 Eastbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:00 AM	0	0	0	0	0	0	13	0	0	13	0	0	0	0	0	0	11	0	0	11	24
06:15 AM	0	0	0	0	0	0	19	0	0	19	0	0	0	0	0	0	19	0	0	19	38
06:30 AM	0	0	0	0	0	0	20	0	0	20	0	0	0	0	0	0	20	0	0	20	40
06:45 AM	0	0	0	0	0	0	28	0	0	28	0	0	2	0	2	0	53	0	0	53	83
Total	0	0	0	0	0	0	80	0	0	80	0	0	2	0	2	0	103	0	0	103	185
07:00 AM	0	0	0	0	0	0	35	0	0	35	0	0	0	0	0	0	42	0	0	42	77
07:15 AM	0	0	0	0	0	0	77	0	0	77	0	0	0	0	0	0	60	0	0	60	137
07:30 AM	0	0	0	0	0	1	78	0	0	79	0	0	0	0	0	0	82	0	0	82	161
07:45 AM	0	0	0	0	0	3	104	0	0	107	0	0	0	0	0	0	144	2	0	146	253
Total	0	0	0	0	0	4	294	0	0	298	0	0	0	0	0	0	328	2	0	330	628
08:00 AM	0	0	0	0	0	0	122	0	0	122	0	0	2	0	2	0	126	3	0	129	253
08:15 AM	0	0	0	0	0	2	119	0	0	121	2	0	0	0	2	0	142	1	0	143	266
08:30 AM	0	0	0	0	0	0	112	0	0	112	1	0	1	1	3	0	146	0	0	146	261
08:45 AM	0	0	0	0	0	2	122	0	0	124	2	0	3	0	5	0	148	1	0	149	278
Total	0	0	0	0	0	4	475	0	0	479	5	0	6	1	12	0	562	5	0	567	1058
09:00 AM	0	0	0	0	0	2	103	0	0	105	1	0	1	0	2	0	109	0	0	109	216
09:15 AM	0	0	0	0	0	1	107	0	0	108	1	0	3	1	5	0	115	1	0	116	229
09:30 AM	0	0	0	0	0	1	120	0	0	121	1	0	3	1	5	0	122	2	0	124	250
09:45 AM	0	0	0	0	0	3	149	0	0	152	1	0	2	0	3	0	120	2	0	122	277
Total	0	0	0	0	0	7	479	0	0	486	4	0	9	2	15	0	466	5	0	471	972
10:00 AM	0	0	0	0	0	5	122	0	0	127	0	0	2	0	2	0	124	6	0	130	259
10:15 AM	0	0	0	0	0	1	144	0	2	147	5	0	6	3	14	0	112	2	0	114	275
10:30 AM	0	0	0	0	0	1	138	0	0	139	3	0	7	1	11	0	140	4	0	144	294
10:45 AM	0	0	0	0	0	7	141	0	0	148	3	0	3	2	8	0	123	0	0	123	279
Total	0	0	0	0	0	14	545	0	2	561	11	0	18	6	35	0	499	12	0	511	1107
11:00 AM	0	0	0	0	0	5	150	0	0	155	5	0	5	0	10	0	128	3	0	131	296
11:15 AM	0	0	0	0	0	5	149	0	0	154	5	0	10	0	15	0	172	2	0	174	343
11:30 AM	0	0	0	0	0	7	136	0	0	143	6	0	5	0	11	0	135	2	0	137	291
11:45 AM	0	0	0	0	0	6	185	0	0	191	6	0	11	2	19	0	140	3	0	143	353
Total	0	0	0	0	0	23	620	0	0	643	22	0	31	2	55	0	575	10	0	585	1283
12:00 PM	0	0	0	0	0	8	144	0	0	152	5	0	7	0	12	0	172	6	0	178	342
12:15 PM	0	0	0	0	0	5	150	0	0	155	10	0	15	0	25	0	175	10	0	185	365
12:30 PM	0	0	0	0	0	11	162	0	0	173	4	0	12	0	16	0	153	5	0	158	347
12:45 PM	0	0	0	0	0	7	162	0	4	173	4	0	17	3	24	0	153	3	0	156	353
Total	0	0	0	0	0	31	618	0	4	653	23	0	51	3	77	0	653	24	0	677	1407
01:00 PM	0	0	0	0	0	8	162	0	0	170	3	0	16	3	22	0	135	6	0	141	333
01:15 PM	0	0	0	0	0	7	187	0	0	194	3	0	12	1	16	0	148	2	0	150	360
01:30 PM	0	0	0	0	0	4	166	0	0	170	4	0	10	2	16	0	143	4	0	147	333
01:45 PM	0	0	0	0	0	2	137	0	0	139	2	0	9	1	12	0	159	2	0	161	312
Total	0	0	0	0	0	21	652	0	0	673	12	0	47	7	66	0	585	14	0	599	1338
02:00 PM	0	0	0	0	0	6	152	0	0	158	4	0	6	0	10	0	152	3	0	155	323
02:15 PM	0	0	0	0	0	1	180	0	0	181	3	0	9	0	12	0	141	3	0	144	337
02:30 PM	0	0	0	0	0	7	154	0	0	161	7	0	13	0	20	0	154	3	0	157	338
02:45 PM	0	0	0	0	0	7	144	0	0	151	11	0	14	0	25	0	139	4	0	143	319
Total	0	0	0	0	0	21	630	0	0	651	25	0	42	0	67	0	586	13	0	599	1317



J.M. Teague Engineering & Planning

1155 N. Main Street, Waynesville, NC 28786

828-456-8383

File Name : US 64 @ Marigold St (SR 1115) - Existing

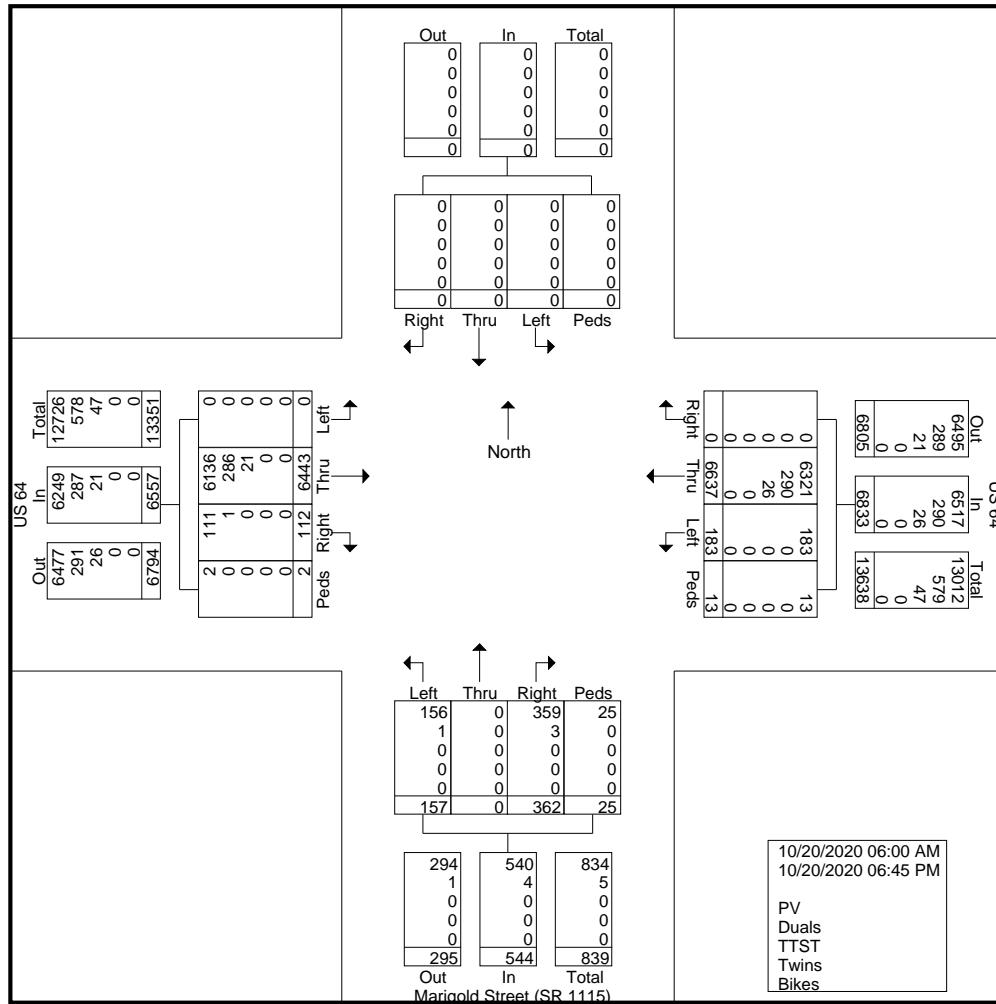
Site Code : 1071.2

Start Date : 10/20/2020

Page No : 2

Groups Printed- PV - Duals - TTST - Twins - Bikes

File Name : US 64 @ Marigold St (SR 1115) - Existing
 Site Code : 1071.2
 Start Date : 10/20/2020
 Page No : 3



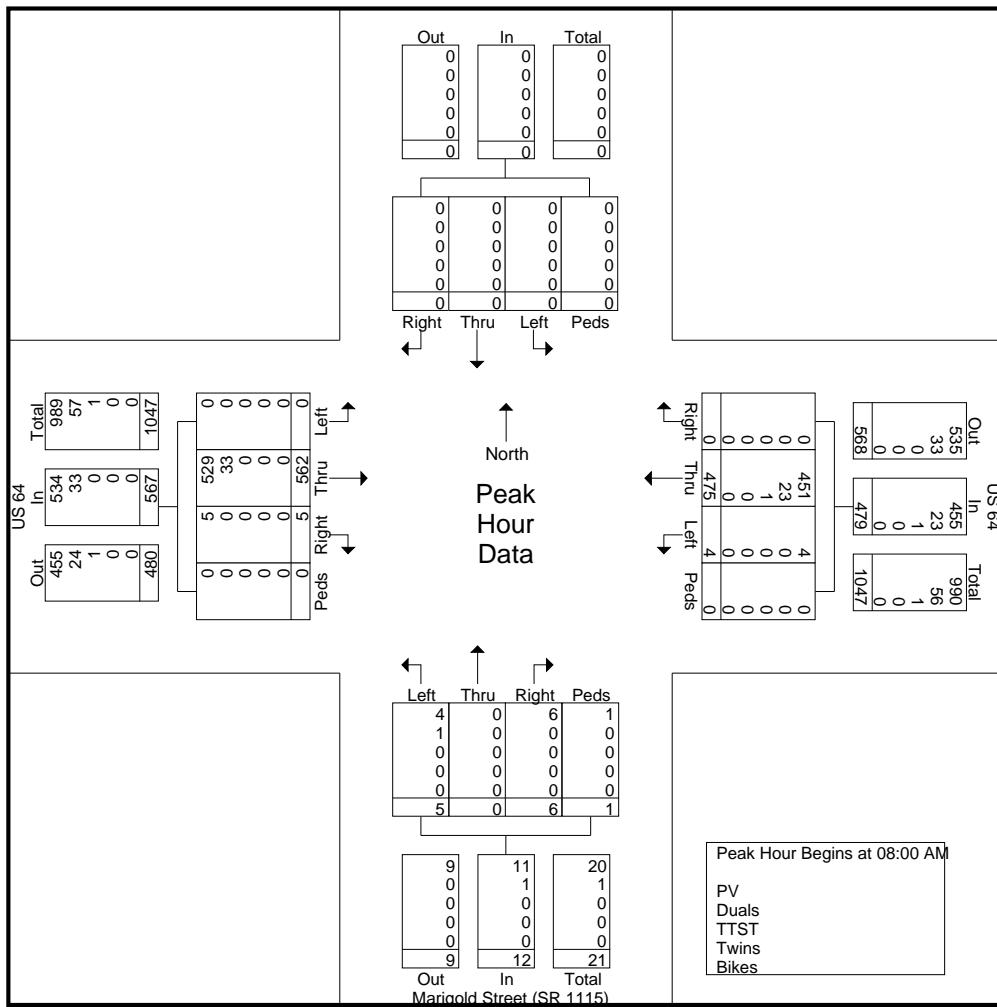
J.M. Teague Engineering & Planning

1155 N. Main Street, Waynesville, NC 28786

828-456-8383

File Name : US 64 @ Marigold St (SR 1115) - Existing
 Site Code : 1071.2
 Start Date : 10/20/2020
 Page No : 4

Start Time	Southbound					US 64 Westbound					Marigold Street (SR 1115) Northbound					US 64 Eastbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	0	0	0	0	0	122	0	0	122	0	0	2	0	2	0	126	3	0	129	253
08:15 AM	0	0	0	0	0	2	119	0	0	121	2	0	0	0	2	0	142	1	0	143	266
08:30 AM	0	0	0	0	0	0	112	0	0	112	1	0	1	1	3	0	146	0	0	146	261
08:45 AM	0	0	0	0	0	2	122	0	0	124	2	0	3	0	5	0	148	1	0	149	278
Total Volume	0	0	0	0	0	4	475	0	0	479	5	0	6	1	12	0	562	5	0	567	1058
% App. Total	0	0	0	0	0	0.8	99.2	0	0	41.7	0	50	8.3	0	99.1	0.9	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.500	.973	.000	.000	.966	.625	.000	.500	.250	.600	.000	.949	.417	.000	.951	.951
PV	0	0	0	0	0	0	451	0	0	455	4	0	6	1	11	0	529	5	0	534	1000
% PV	0	0	0	0	0	100	94.9	0	0	95.0	80.0	0	100	100	91.7	0	94.1	100	0	94.2	94.5
Duals	0	0	0	0	0	0	23	0	0	23	1	0	0	0	1	0	33	0	0	33	57
% Duals	0	0	0	0	0	0	4.8	0	0	4.8	20.0	0	0	0	8.3	0	5.9	0	0	5.8	5.4
TTST	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
% TTST	0	0	0	0	0	0	0.2	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0.1
Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



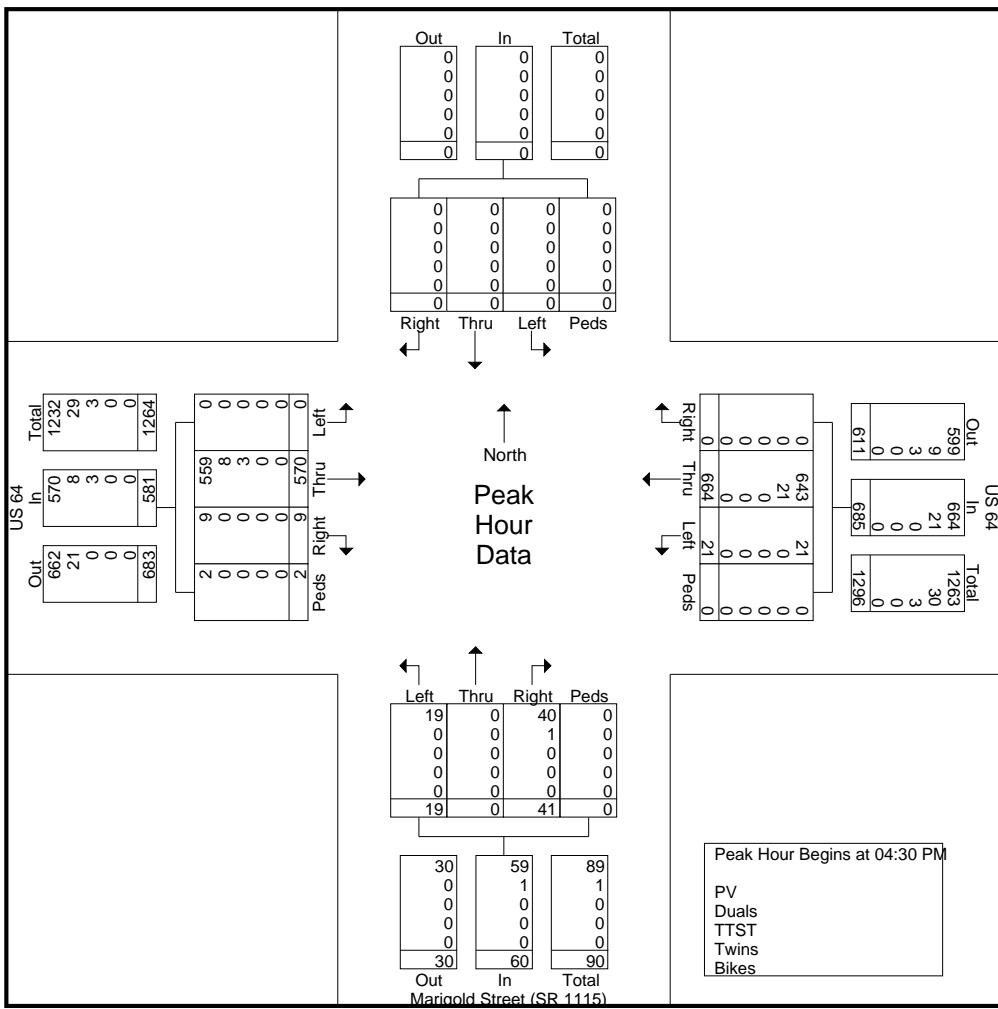
J.M. Teague Engineering & Planning

1155 N. Main Street, Waynesville, NC 28786

828-456-8383

File Name : US 64 @ Marigold St (SR 1115) - Existing
Site Code : 1071.2
Start Date : 10/20/2020
Page No : 5

Start Time	Southbound					US 64 Westbound				Marigold Street (SR 1115) Northbound				US 64 Eastbound				Int. Total			
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	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 04:30 PM																					
04:30 PM	0	0	0	0	0	4	176	0	0	180	3	0	11	0	14	0	160	1	0	161	355
04:45 PM	0	0	0	0	0	3	148	0	0	151	4	0	11	0	15	0	136	3	0	139	305
05:00 PM	0	0	0	0	0	7	178	0	0	185	6	0	8	0	14	0	125	5	2	132	331
05:15 PM	0	0	0	0	0	7	162	0	0	169	6	0	11	0	17	0	149	0	0	149	335
Total Volume	0	0	0	0	0	21	664	0	0	685	19	0	41	0	60	0	570	9	2	581	1326
% App. Total	0	0	0	0	0	3.1	96.9	0	0	31.7	0	68.3	0	0	98.1	1.5	0.3				
PHF	.000	.000	.000	.000	.000	.750	.933	.000	.000	.926	.792	.000	.932	.000	.882	.000	.891	.450	.250	.902	.934
PV	0	0	0	0	0	21	643	0	0	664	19	0	40	0	59	0	559	9	2	570	1293
% PV	0	0	0	0	0	100	96.8	0	0	96.9	100	0	97.6	0	98.3	0	98.1	100	100	98.1	97.5
Duals	0	0	0	0	0	0	21	0	0	21	0	0	1	0	1	0	8	0	0	8	30
% Duals	0	0	0	0	0	0	3.2	0	0	3.1	0	0	2.4	0	1.7	0	1.4	0	0	1.4	2.3
TTST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
% TTST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0	0	0.2
Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



File Name : US 64 @ NC 107 - Existing
Site Code : 1071.3
Start Date : 10/20/2020
Page No : 1

Groups Printed- PV - Duals - TTST - Twins - Bikes

Start Time	NC 107 Southbound					US 64 Westbound					NC 107 Northbound					US 64 Eastbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:00 AM	6	5	2	0	13	1	3	8	0	12	3	6	5	0	14	0	1	2	0	3	42
06:15 AM	10	4	0	0	14	4	8	7	0	19	3	5	4	0	12	1	6	5	0	12	57
06:30 AM	11	11	4	0	26	3	13	5	0	21	6	5	2	0	13	0	8	5	0	13	73
06:45 AM	37	16	4	0	57	5	8	16	0	29	3	9	6	0	18	3	12	9	0	24	128
Total	64	36	10	0	110	13	32	36	0	81	15	25	17	0	57	4	27	21	0	52	300
07:00 AM	27	17	6	0	50	13	11	8	0	32	6	6	4	0	16	2	11	11	0	24	122
07:15 AM	32	21	12	0	65	17	28	30	0	75	13	10	11	0	34	4	16	12	0	32	206
07:30 AM	49	42	13	0	104	20	19	32	0	71	13	16	23	0	52	4	16	12	0	32	259
07:45 AM	108	46	13	0	167	42	37	27	0	106	18	18	21	0	57	8	29	35	0	72	402
Total	216	126	44	0	386	92	95	97	0	284	50	50	59	0	159	18	72	70	0	160	989
08:00 AM	63	74	15	0	152	58	22	44	0	124	13	26	22	0	61	13	46	39	0	98	435
08:15 AM	70	54	21	0	145	52	29	41	0	122	34	42	55	0	131	9	30	38	0	77	475
08:30 AM	73	48	20	0	141	34	47	33	0	114	26	28	41	0	95	11	36	17	0	64	414
08:45 AM	71	39	10	0	120	41	38	47	1	127	12	20	42	0	74	12	40	24	0	76	397
Total	277	215	66	0	558	185	136	165	1	487	85	116	160	0	361	45	152	118	0	315	1721
09:00 AM	44	49	18	0	111	27	31	42	0	100	15	19	34	0	68	13	36	18	0	67	346
09:15 AM	58	32	15	0	105	35	31	33	1	100	17	21	28	1	67	13	41	13	0	67	339
09:30 AM	35	22	14	0	71	38	46	47	0	131	18	25	51	0	94	17	41	18	0	76	372
09:45 AM	50	39	23	0	112	48	61	47	0	156	6	29	37	0	72	17	42	25	0	84	424
Total	187	142	70	0	399	148	169	169	1	487	56	94	150	1	301	60	160	74	0	294	1481
10:00 AM	63	36	14	0	113	44	30	40	2	116	14	20	37	0	71	12	39	22	0	73	373
10:15 AM	49	40	25	0	114	39	58	53	0	150	20	28	32	0	80	15	44	32	0	91	435
10:30 AM	54	25	27	0	106	44	57	44	2	147	17	23	43	0	83	9	51	13	0	73	409
10:45 AM	46	47	27	0	120	48	52	40	4	144	23	29	42	0	94	18	46	20	0	84	442
Total	212	148	93	0	453	175	197	177	8	557	74	100	154	0	328	54	180	87	0	321	1659
11:00 AM	37	28	28	0	93	46	60	45	2	153	29	32	45	4	110	13	50	20	0	83	439
11:15 AM	61	43	13	0	117	48	51	52	0	151	27	35	71	0	133	15	65	31	0	111	512
11:30 AM	43	30	31	2	106	58	40	48	0	146	26	28	59	0	113	21	57	37	0	115	480
11:45 AM	55	27	24	0	106	52	72	62	9	195	36	37	61	2	136	23	39	32	0	94	531
Total	196	128	96	2	422	204	223	207	11	645	118	132	236	6	492	72	211	120	0	403	1962
12:00 PM	45	29	24	0	98	77	46	36	3	162	37	35	76	1	149	24	69	33	1	127	536
12:15 PM	76	44	18	0	138	49	58	54	1	162	42	23	62	0	127	22	63	39	0	124	551
12:30 PM	42	38	18	0	98	62	56	46	0	164	25	44	62	0	131	24	76	32	0	132	525
12:45 PM	64	54	35	0	153	63	59	54	4	180	34	43	51	0	128	30	53	35	0	118	579
Total	227	165	95	0	487	251	219	190	8	668	138	145	251	1	535	100	261	139	1	501	2191
01:00 PM	53	40	23	0	116	50	64	59	4	177	23	40	51	0	114	22	66	26	0	114	521
01:15 PM	52	43	17	0	112	58	55	68	0	181	38	30	52	0	120	25	59	26	0	110	523
01:30 PM	58	29	28	0	115	52	73	66	1	192	28	29	60	0	117	17	48	18	2	85	509
01:45 PM	41	41	25	0	107	55	52	41	1	149	23	39	61	0	123	26	66	33	0	125	504
Total	204	153	93	0	450	215	244	234	6	699	112	138	224	0	474	90	239	103	2	434	2057
02:00 PM	58	38	28	0	124	40	54	60	11	165	33	46	45	0	124	29	66	27	0	122	535
02:15 PM	47	30	19	0	96	47	77	53	0	177	34	28	46	0	108	34	69	26	0	129	510
02:30 PM	55	38	30	0	123	53	55	62	15	185	22	35	70	6	133	16	53	31	0	100	541
02:45 PM	41	57	22	0	120	53	56	49	0	158	34	32	50	0	116	14	58	28	0	100	494
Total	201	163	99	0	463	193	242	224	26	685	123	141	211	6	481	93	246	112	0	451	2080



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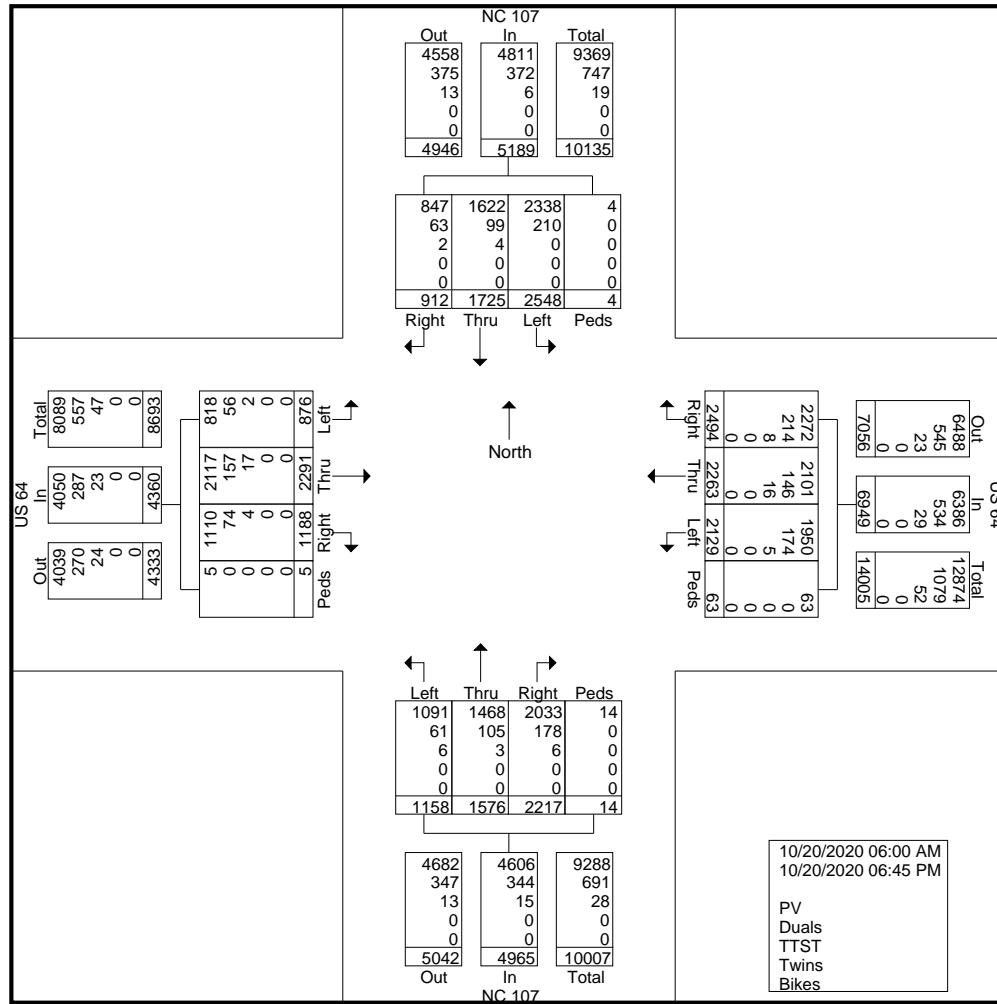
1155 N. Main Street, Waynesville, NC 28786

828-456-8383

File Name : US 64 @ NC 107 - Existing
Site Code : 1071.3
Start Date : 10/20/2020
Page No : 2

Groups Printed- PV - Duals - TTST - Twins - Bikes

File Name : US 64 @ NC 107 - Existing
Site Code : 1071.3
Start Date : 10/20/2020
Page No : 3



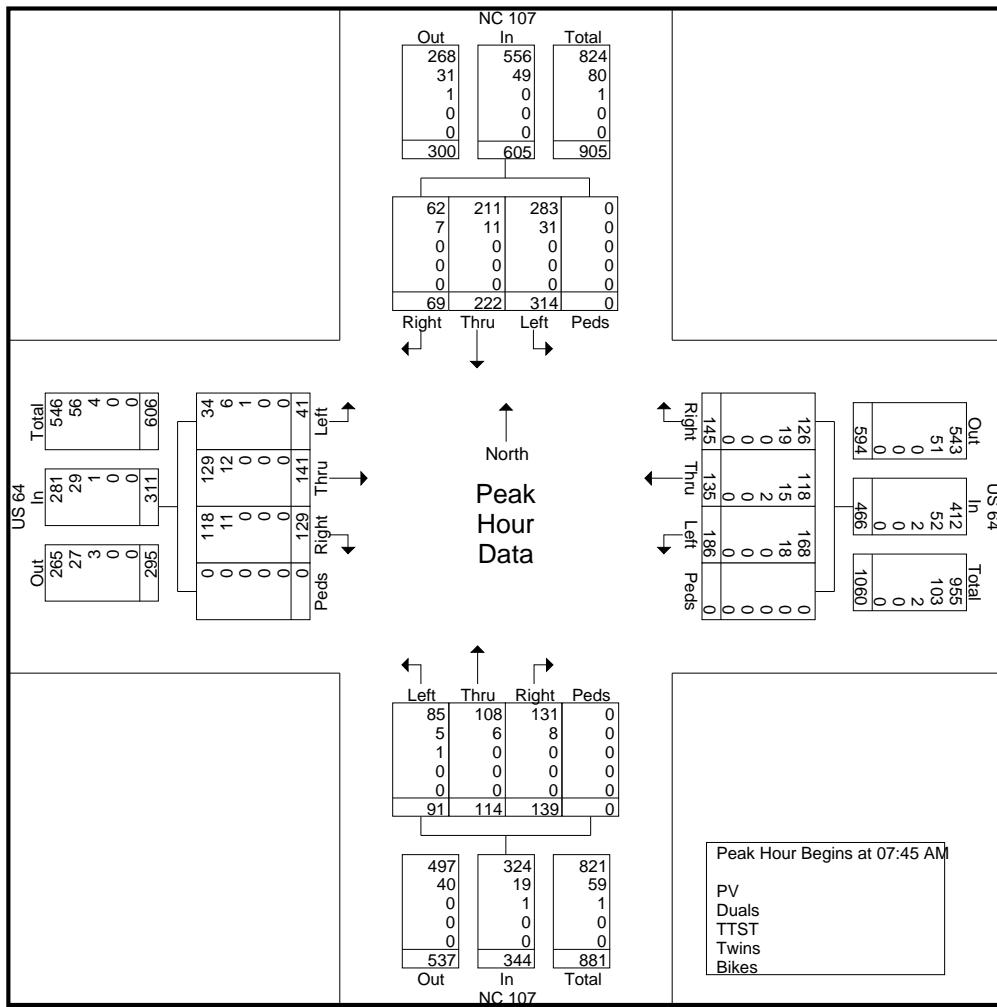
J.M. Teague Engineering & Planning

1155 N. Main Street, Waynesville, NC 28786

828-456-8383

File Name : US 64 @ NC 107 - Existing
 Site Code : 1071.3
 Start Date : 10/20/2020
 Page No : 4

Start Time	NC 107 Southbound					US 64 Westbound					NC 107 Northbound					US 64 Eastbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	108	46	13	0	167	42	37	27	0	106	18	18	21	0	57	8	29	35	0	72	402
08:00 AM	63	74	15	0	152	58	22	44	0	124	13	26	22	0	61	13	46	39	0	98	435
08:15 AM	70	54	21	0	145	52	29	41	0	122	34	42	55	0	131	9	30	38	0	77	475
08:30 AM	73	48	20	0	141	34	47	33	0	114	26	28	41	0	95	11	36	17	0	64	414
Total Volume	314	222	69	0	605	186	135	145	0	466	91	114	139	0	344	41	141	129	0	311	1726
% App. Total	51.9	36.7	11.4	0		39.9	29	31.1	0		26.5	33.1	40.4	0		13.2	45.3	41.5	0		
PHF	.727	.750	.821	.000	.906	.802	.718	.824	.000	.940	.669	.679	.632	.000	.656	.788	.766	.827	.000	.793	.908
PV	283	211	62	0	556	168	118	126	0	412	85	108	131	0	324	34	129	118	0	281	1573
% PV	90.1	95.0	89.9	0	91.9	90.3	87.4	86.9	0	88.4	93.4	94.7	94.2	0	94.2	82.9	91.5	91.5	0	90.4	91.1
Duals	31	11	7	0	49	18	15	19	0	52	5	6	8	0	19	6	12	11	0	29	149
% Duals	9.9	5.0	10.1	0	8.1	9.7	11.1	13.1	0	11.2	5.5	5.3	5.8	0	5.5	14.6	8.5	8.5	0	9.3	8.6
TTST	0	0	0	0	0	0	2	0	0	0	2	1	0	0	1	1	0	0	0	1	4
% TTST	0	0	0	0	0	0	1.5	0	0	0.4	1.1	0	0	0	0.3	2.4	0	0	0	0.3	0.2
Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



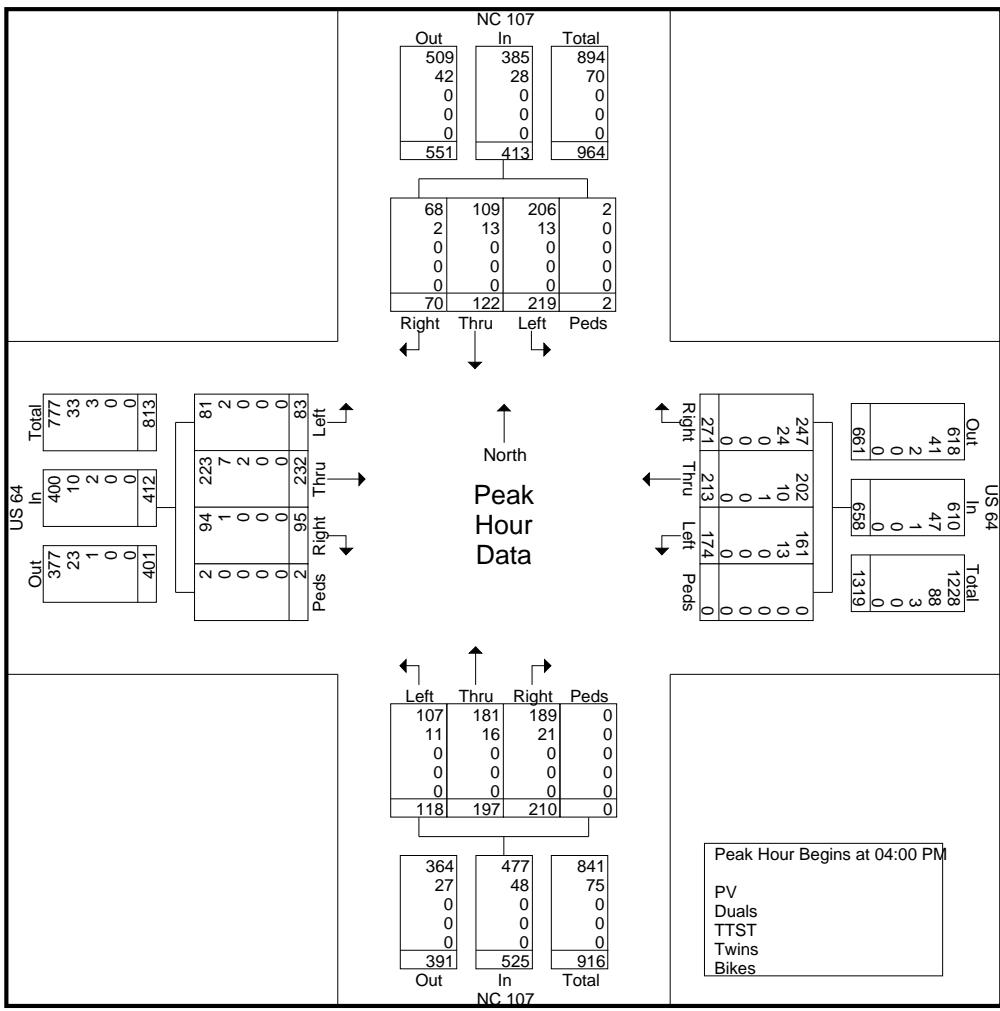
J.M. Teague Engineering & Planning

1155 N. Main Street, Waynesville, NC 28786

828-456-8383

File Name : US 64 @ NC 107 - Existing
 Site Code : 1071.3
 Start Date : 10/20/2020
 Page No : 5

Start Time	NC 107 Southbound					US 64 Westbound					NC 107 Northbound					US 64 Eastbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	54	39	19	0	112	38	55	60	0	153	22	70	58	0	150	18	61	27	0	106	521
04:15 PM	51	30	18	0	99	49	64	57	0	170	27	43	50	0	120	25	55	21	0	101	490
04:30 PM	57	27	16	0	100	44	44	82	0	170	41	53	56	0	150	17	67	28	0	112	532
04:45 PM	57	26	17	2	102	43	50	72	0	165	28	31	46	0	105	23	49	19	2	93	465
Total Volume	219	122	70	2	413	174	213	271	0	658	118	197	210	0	525	83	232	95	2	412	2008
% App. Total	53	29.5	16.9	0.5		26.4	32.4	41.2	0		22.5	37.5	40	0		20.1	56.3	23.1	0.5		
PHF	.961	.782	.921	.250	.922	.888	.832	.826	.000	.968	.720	.704	.905	.000	.875	.830	.866	.848	.250	.920	.944
PV	206	109	68	2	385	161	202	247	0	610	107	181	189	0	477	81	223	94	2	400	1872
% PV	94.1	89.3	97.1	100	93.2	92.5	94.8	91.1	0	92.7	90.7	91.9	90.0	0	90.9	97.6	96.1	98.9	100	97.1	93.2
Duals	13	13	2	0	28	13	10	24	0	47	11	16	21	0	48	2	7	1	0	10	133
% Duals	5.9	10.7	2.9	0	6.8	7.5	4.7	8.9	0	7.1	9.3	8.1	10.0	0	9.1	2.4	3.0	1.1	0	2.4	6.6
TTST	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2	0	0	0	3
% TTST	0	0	0	0	0	0	0.5	0	0	0	0.2	0	0	0	0	0	0	0.9	0	0	0.1
Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



File Name : US 64 @ Frank Allen Rd (SR 1182) - Existing
Site Code : 1071.4
Start Date : 10/15/2020
Page No : 1

Groups Printed- PV - Duals - TTST - Twins - Bike																					
Start Time	Southbound					US 64 Westbound					Frank Allen Road (SR 1182) Northbound					US 64 Eastbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:00 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	4	0	0	4	8
06:15 AM	0	0	0	0	0	2	10	0	0	12	0	0	1	0	1	0	6	2	0	8	21
06:30 AM	0	0	0	0	0	2	11	0	0	13	0	0	0	0	0	0	14	2	0	16	29
06:45 AM	0	0	0	0	0	4	7	0	0	11	0	0	2	0	2	0	11	2	0	13	26
Total	0	0	0	0	0	8	32	0	0	40	0	0	3	0	3	0	35	6	0	41	84
07:00 AM	0	0	0	0	0	4	21	0	0	25	1	0	3	0	4	0	16	1	0	17	46
07:15 AM	0	0	0	0	0	2	26	0	0	28	2	0	4	0	6	0	22	1	0	23	57
07:30 AM	0	0	0	0	0	5	47	0	0	52	2	0	0	0	2	0	22	0	0	22	76
07:45 AM	0	0	0	0	0	8	32	0	0	40	0	0	7	0	7	0	76	1	0	77	124
Total	0	0	0	0	0	19	126	0	0	145	5	0	14	0	19	0	136	3	0	139	303
08:00 AM	0	0	0	0	0	10	41	0	0	51	3	0	6	0	9	0	63	6	0	69	129
08:15 AM	0	0	0	0	0	13	57	0	0	70	3	0	5	0	8	0	64	7	0	71	149
08:30 AM	0	0	0	0	0	11	45	0	0	56	5	0	7	1	13	0	38	8	0	46	115
08:45 AM	0	0	0	0	0	8	48	0	0	56	3	0	6	0	9	0	55	4	0	59	124
Total	0	0	0	0	0	42	191	0	0	233	14	0	24	1	39	0	220	25	0	245	517
09:00 AM	0	0	0	0	0	5	62	0	0	67	4	0	8	0	12	0	64	7	0	71	150
09:15 AM	0	0	0	0	0	8	56	0	0	64	7	0	6	0	13	0	48	5	0	53	130
09:30 AM	0	0	0	0	0	14	44	0	0	58	2	0	12	0	14	0	47	4	0	51	123
09:45 AM	0	0	0	0	0	10	57	0	0	67	2	0	13	1	16	0	67	6	0	73	156
Total	0	0	0	0	0	37	219	0	0	256	15	0	39	1	55	0	226	22	0	248	559
10:00 AM	0	0	0	0	0	16	50	0	0	66	3	0	12	0	15	0	69	3	0	72	153
10:15 AM	0	0	0	0	0	13	60	0	0	73	1	0	8	0	9	0	46	12	0	58	140
10:30 AM	0	0	0	0	0	8	64	0	0	72	6	0	10	0	16	0	53	7	0	60	148
10:45 AM	0	0	0	0	0	22	76	0	0	98	13	0	19	0	32	0	67	11	0	78	208
Total	0	0	0	0	0	59	250	0	0	309	23	0	49	0	72	0	235	33	0	268	649
11:00 AM	0	0	0	0	0	22	67	0	0	89	6	0	15	0	21	0	74	7	0	81	191
11:15 AM	0	0	0	0	0	23	73	0	0	96	10	0	19	0	29	0	66	12	0	78	203
11:30 AM	0	0	0	0	0	17	62	0	0	79	2	0	13	0	15	0	66	10	0	76	170
11:45 AM	0	0	0	0	0	22	85	0	0	107	10	0	17	0	27	0	70	6	0	76	210
Total	0	0	0	0	0	84	287	0	0	371	28	0	64	0	92	0	276	35	0	311	774
12:00 PM	0	0	0	0	0	27	72	0	0	99	8	0	21	0	29	0	71	10	0	81	209
12:15 PM	0	0	0	0	0	18	85	0	0	103	10	0	34	0	44	0	83	9	0	92	239
12:30 PM	0	0	0	0	0	22	75	0	0	97	6	0	26	0	32	0	64	10	0	74	203
12:45 PM	0	0	0	0	0	16	85	0	0	101	4	0	14	0	18	0	73	9	0	82	201
Total	0	0	0	0	0	83	317	0	0	400	28	0	95	0	123	0	291	38	0	329	852
01:00 PM	0	0	0	0	0	23	74	0	0	97	15	0	15	0	30	0	69	9	0	78	205
01:15 PM	0	0	0	0	0	19	66	0	0	85	11	0	25	0	36	0	65	21	0	86	207
01:30 PM	0	0	0	0	0	16	74	0	0	90	14	0	17	0	31	0	66	9	0	75	196
01:45 PM	0	0	0	0	0	9	82	0	0	91	8	0	15	0	23	0	78	7	0	85	199
Total	0	0	0	0	0	67	296	0	0	363	48	0	72	0	120	0	278	46	0	324	807
02:00 PM	0	0	0	0	0	16	89	0	0	105	4	0	21	0	25	0	74	11	0	85	215
02:15 PM	0	0	0	0	0	18	70	0	0	88	8	0	17	0	25	0	70	4	0	74	187
02:30 PM	0	0	0	0	0	13	71	0	0	84	7	0	12	0	19	0	68	12	0	80	183
02:45 PM	0	0	0	0	0	8	70	0	0	78	6	0	15	1	22	0	78	7	0	85	185
Total	0	0	0	0	0	55	300	0	0	355	25	0	65	1	91	0	290	34	0	324	770



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1155 N. Main Street, Waynesville, NC 28786

828-456-8383

File Name : US 64 @ Frank Allen Rd (SR 1182) - Existing

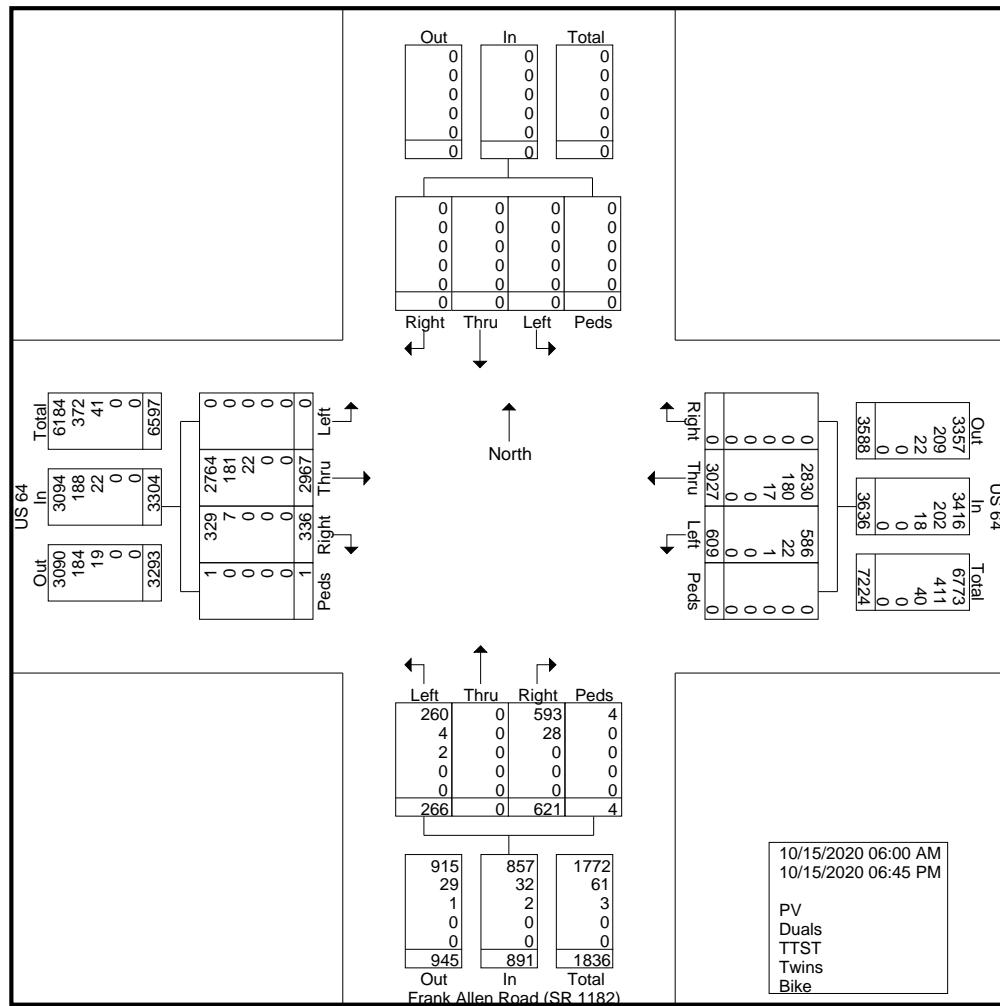
Site Code : 1071.4

Start Date : 10/15/2020

Page No : 2

Groups Printed- PV - Duals - TTST - Twins - Bike

File Name : US 64 @ Frank Allen Rd (SR 1182) - Existing
Site Code : 1071.4
Start Date : 10/15/2020
Page No : 3



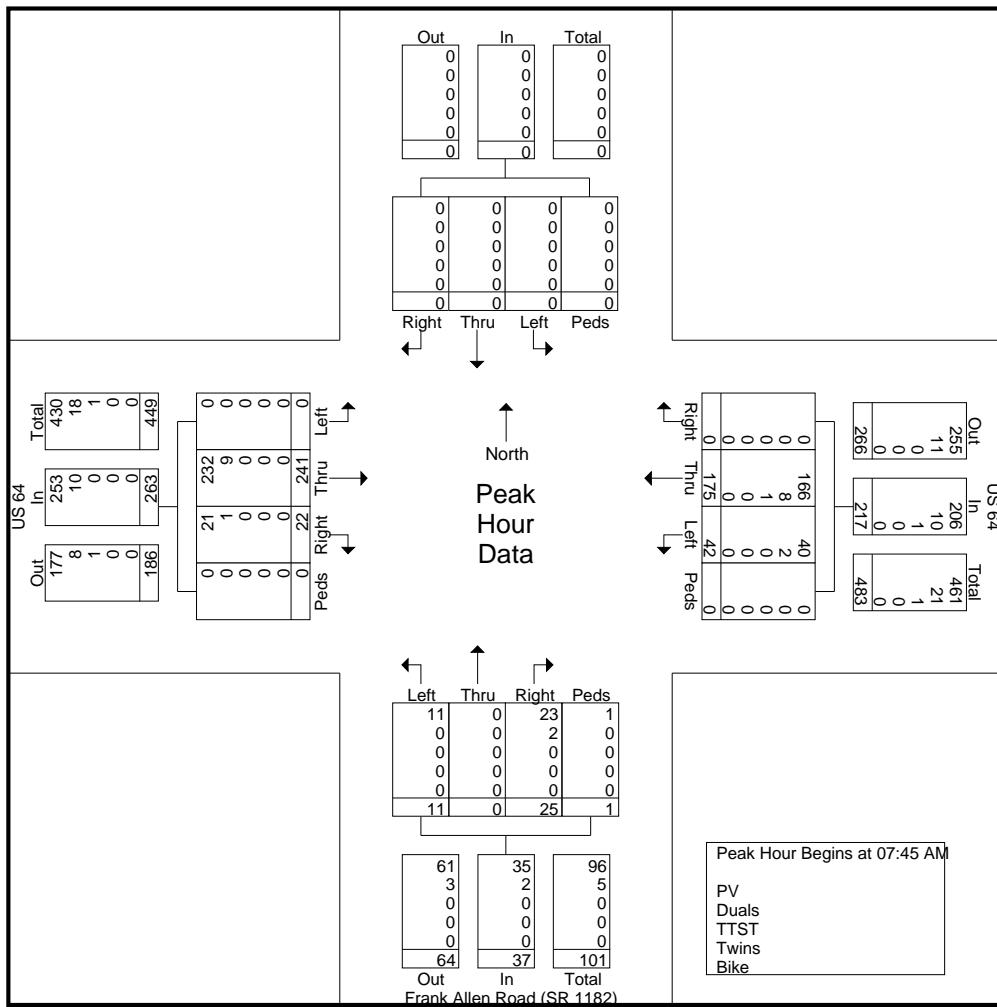
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828-456-8383

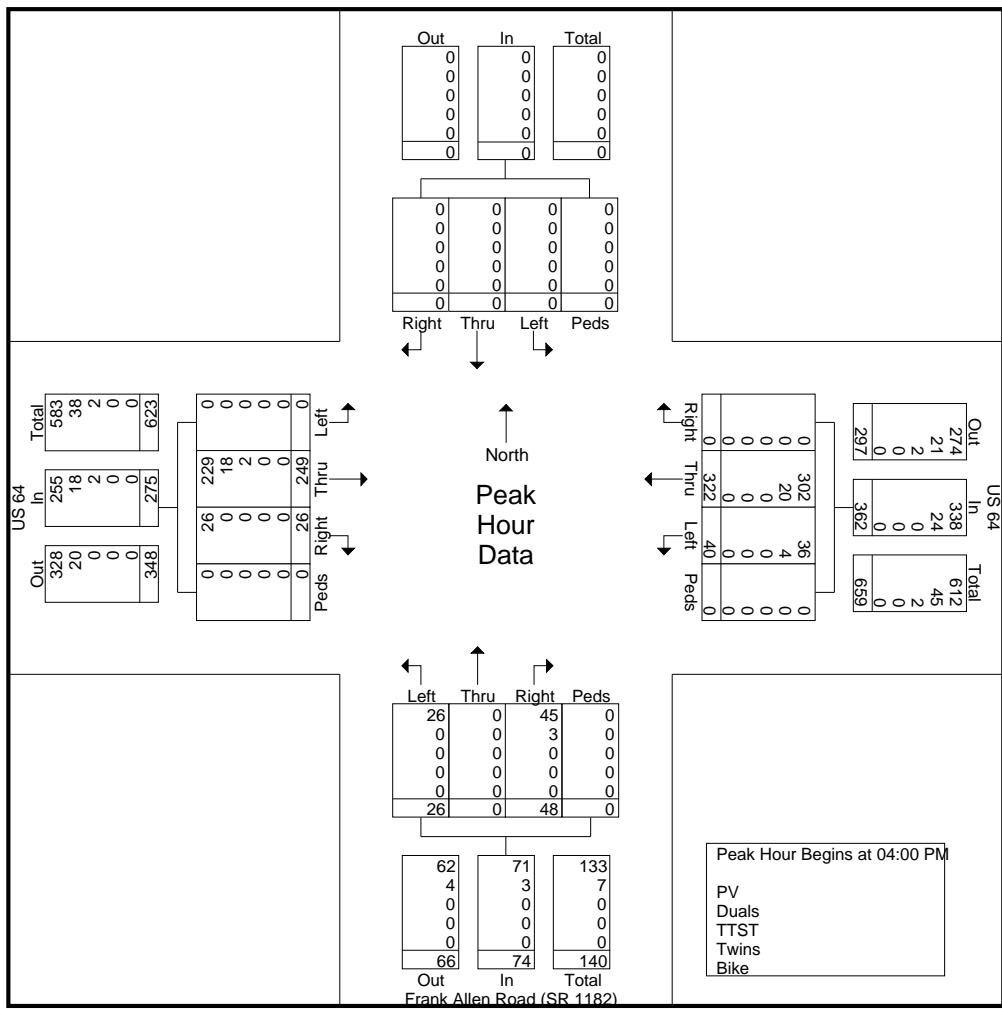
File Name : US 64 @ Frank Allen Rd (SR 1182) - Existing
 Site Code : 1071.4
 Start Date : 10/15/2020
 Page No : 4

Start Time	Southbound					US 64 Westbound					Frank Allen Road (SR 1182) Northbound					US 64 Eastbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	0	0	0	0	8	32	0	0	40	0	0	7	0	7	0	76	1	0	77	124
08:00 AM	0	0	0	0	0	10	41	0	0	51	3	0	6	0	9	0	63	6	0	69	129
08:15 AM	0	0	0	0	0	13	57	0	0	70	3	0	5	0	8	0	64	7	0	71	149
08:30 AM	0	0	0	0	0	11	45	0	0	56	5	0	7	1	13	0	38	8	0	46	115
Total Volume	0	0	0	0	0	42	175	0	0	217	11	0	25	1	37	0	241	22	0	263	517
% App. Total	0	0	0	0	0	19.4	80.6	0	0	29.7	0	67.6	2.7	0	91.6	8.4	0	96.2	95.6	0	
PHF	.000	.000	.000	.000	.000	.808	.768	.000	.000	.775	.550	.000	.893	.250	.712	.000	.793	.688	.000	.854	.867
PV	0	0	0	0	0	40	166	0	0	206	11	0	23	1	35	0	232	21	0	253	494
% PV	0	0	0	0	0	95.2	94.9	0	0	94.9	100	0	92.0	100	94.6	0	96.3	95.5	0	96.2	95.6
Duals	0	0	0	0	0	2	8	0	0	10	0	0	2	0	2	0	9	1	0	10	22
% Duals	0	0	0	0	0	4.8	4.6	0	0	4.6	0	0	8.0	0	5.4	0	3.7	4.5	0	3.8	4.3
TTST	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
% TTST	0	0	0	0	0	0	0.6	0	0	0.5	0	0	0	0	0	0	0	0	0	0	0.2
Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bike	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bike	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



828-456-8383

File Name : US 64 @ Frank Allen Rd (SR 1182) - Existing
Site Code : 1071.4
Start Date : 10/15/2020
Page No : 5



File Name : NC 107 @ Frank Allen Rd (SR 1176) - Existing
Site Code : 1071.5
Start Date : 10/15/2020
Page No : 1

Groups Printed- PV - Duals - TTST - Twins - Bikes

Start Time	NC 107 Southbound					Valley Rd (SR 1114) Northeastbound					NC 107 Northbound					Frank Allen Rd (SR 1176) Eastbound					
	Thru	Bear Right	Right	Peds	App. Total	Hard Left	Bear Left	Hard Right	Peds	App. Total	Hard Left	Left	Thru	Peds	App. Total	Left	Right	Hard Right	Peds	App. Total	Int. Total
06:00 AM	12	0	0	0	12	0	0	0	0	0	0	0	11	0	11	0	0	0	0	0	23
06:15 AM	14	0	3	0	17	0	0	0	0	0	0	0	13	0	13	0	1	0	0	1	31
06:30 AM	15	0	3	0	18	0	0	0	0	0	0	0	14	0	14	1	0	0	0	1	33
06:45 AM	23	0	3	0	26	0	0	0	0	0	0	0	19	0	19	2	0	0	0	2	47
Total	64	0	9	0	73	0	0	0	0	0	0	0	57	0	57	3	1	0	0	4	134
07:00 AM	45	0	2	0	47	0	2	1	0	3	1	2	17	0	20	2	0	0	0	2	72
07:15 AM	41	1	1	0	43	0	0	0	0	0	0	3	25	0	28	1	0	0	0	1	72
07:30 AM	43	4	3	0	50	0	0	0	0	0	0	6	40	0	46	2	1	0	0	3	99
07:45 AM	90	8	5	0	103	0	0	0	0	0	0	7	57	0	64	3	2	0	0	5	172
Total	219	13	11	0	243	0	2	1	0	3	1	18	139	0	158	8	3	0	0	11	415
08:00 AM	123	5	6	0	134	0	7	0	0	7	0	5	45	0	50	1	4	0	0	5	196
08:15 AM	150	3	9	0	162	1	3	0	0	4	0	9	98	0	107	9	9	0	0	18	291
08:30 AM	87	5	9	0	101	0	1	0	0	1	0	12	87	0	99	8	5	0	0	13	214
08:45 AM	78	1	12	0	91	0	2	0	0	2	0	5	58	0	63	11	10	1	0	22	178
Total	438	14	36	0	488	1	13	0	0	14	0	31	288	0	319	29	28	1	0	58	879
09:00 AM	78	1	8	0	87	0	1	0	0	1	0	8	67	0	75	12	9	0	0	21	184
09:15 AM	62	1	10	0	73	0	1	0	0	1	1	6	59	0	66	16	6	1	0	23	163
09:30 AM	77	1	20	0	98	1	3	0	0	4	0	6	50	0	56	12	8	0	0	20	178
09:45 AM	63	1	10	0	74	0	3	0	0	3	0	7	65	0	72	16	7	1	0	24	173
Total	280	4	48	0	332	1	8	0	0	9	1	27	241	0	269	56	30	2	0	88	698
10:00 AM	76	2	11	0	89	0	2	0	0	2	0	11	56	0	67	13	11	0	0	24	182
10:15 AM	69	3	17	0	89	1	1	0	0	2	0	7	56	0	63	13	3	2	0	18	172
10:30 AM	72	2	17	0	91	1	0	0	0	1	1	6	88	0	95	13	9	0	0	22	209
10:45 AM	81	2	27	0	110	0	6	1	0	7	1	10	83	0	94	17	11	0	0	28	239
Total	298	9	72	0	379	2	9	1	0	12	2	34	283	0	319	56	34	2	0	92	802
11:00 AM	82	1	15	0	98	0	1	0	0	1	0	9	79	0	88	15	11	1	0	27	214
11:15 AM	78	2	21	0	101	0	2	0	0	2	1	14	80	0	95	25	2	0	0	27	225
11:30 AM	98	0	25	0	123	2	2	1	0	5	0	19	97	0	116	27	14	0	0	41	285
11:45 AM	85	5	24	0	114	1	7	0	0	8	0	13	92	0	105	20	13	1	0	34	261
Total	343	8	85	0	436	3	12	1	0	16	1	55	348	0	404	87	40	2	0	129	985
12:00 PM	93	5	18	0	116	1	1	0	0	2	0	20	107	0	127	21	8	1	0	30	275
12:15 PM	104	6	28	0	138	0	7	0	0	7	0	11	82	0	93	23	13	1	0	37	275
12:30 PM	99	3	36	0	138	1	9	0	0	10	0	9	61	0	70	23	9	3	0	35	253
12:45 PM	110	0	34	0	144	0	3	0	0	3	1	17	116	0	134	29	20	1	0	50	331
Total	406	14	116	0	536	2	20	0	0	22	1	57	366	0	424	96	50	6	0	152	1134
01:00 PM	94	2	24	0	120	0	3	0	0	3	3	17	93	0	113	28	14	0	0	42	278
01:15 PM	66	1	26	0	93	0	6	0	0	6	0	15	84	0	99	28	11	1	0	40	238
01:30 PM	98	2	31	0	131	1	3	2	0	6	0	7	84	0	91	33	12	1	0	46	274
01:45 PM	77	1	20	0	98	0	1	0	0	1	0	16	101	0	117	28	12	0	0	40	256
Total	335	6	101	0	442	1	13	2	0	16	3	55	362	0	420	117	49	2	0	168	1046
02:00 PM	71	3	27	0	101	0	2	0	0	2	0	7	84	0	91	21	12	2	0	35	229
02:15 PM	76	1	28	0	105	0	4	0	0	4	0	14	68	0	82	16	14	0	0	30	221
02:30 PM	96	6	26	0	128	1	6	0	0	7	0	9	64	0	73	27	10	1	0	38	246
02:45 PM	73	1	16	3	93	0	7	1	1	9	0	8	76	0	84	23	11	1	4	39	225
Total	316	11	97	3	427	1	19	1	1	22	0	38	292	0	330	87	47	4	4	142	921



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1155 N. Main Street, Waynesville, NC 28786

828-456-8383

File Name : NC 107 @ Frank Allen Rd (SR 1176) - Existing

Site Code : 1071.5

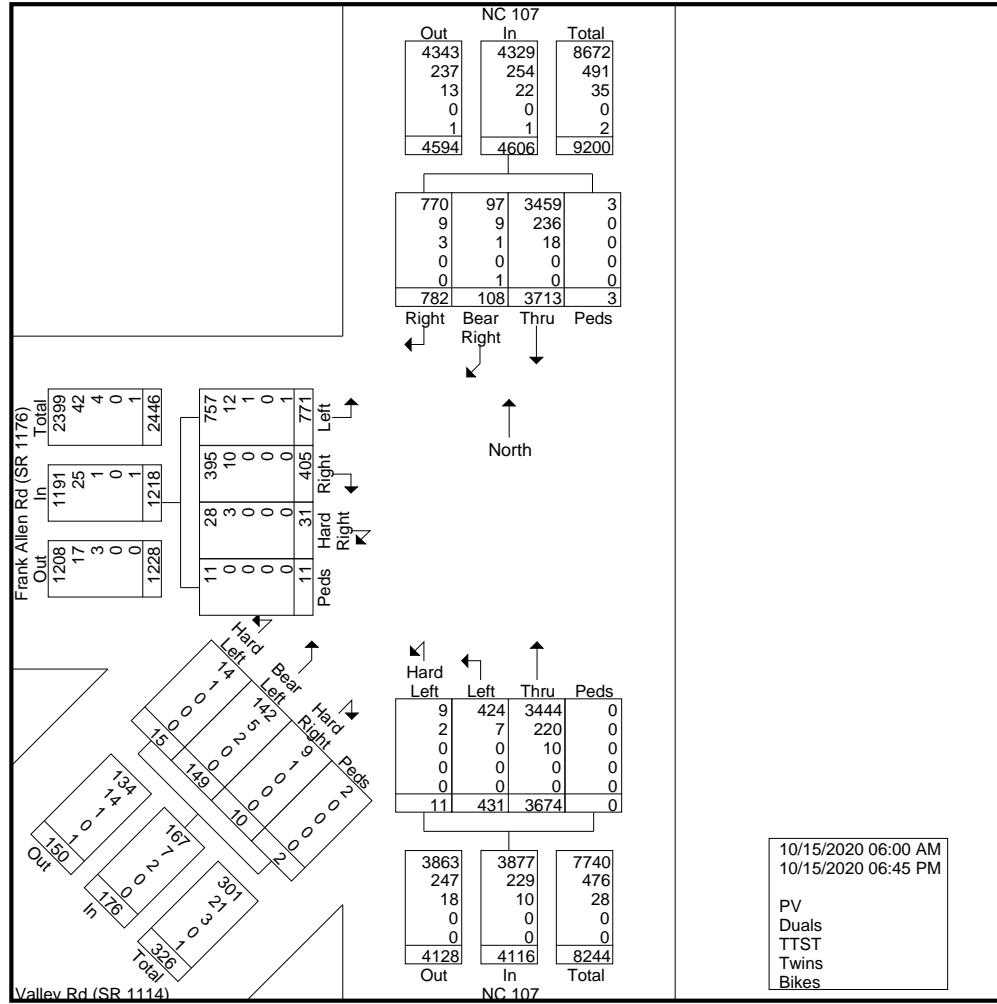
Start Date : 10/15/2020

Page No : 2

Groups Printed- PV - Duals - TTST - Twins - Bikes

Start Time	NC 107 Southbound					Valley Rd (SR 1114) Northeastbound					NC 107 Northbound					Frank Allen Rd (SR 1176) Eastbound					
	Thru	Bear Right	Right	Peds	App. Total	Hard Left	Bear Left	Hard Right	Peds	App. Total	Hard Left	Left	Thru	Peds	App. Total	Left	Right	Hard Right	Peds	App. Total	Int. Total
03:00 PM	92	2	25	0	119	1	4	0	1	6	0	7	93	0	100	21	11	1	1	34	259
03:15 PM	85	1	28	0	114	0	1	0	0	1	0	15	130	0	145	23	13	1	0	37	297
03:30 PM	92	3	21	0	116	0	5	1	0	6	0	18	102	0	120	20	13	0	0	33	275
03:45 PM	79	1	19	0	99	1	2	1	0	4	0	13	90	0	103	23	17	2	0	42	248
Total	348	7	93	0	448	2	12	2	1	17	0	53	415	0	468	87	54	4	1	146	1079
04:00 PM	66	2	15	0	83	0	3	0	0	3	0	5	94	0	99	14	15	1	0	30	215
04:15 PM	71	5	11	0	87	1	3	0	0	4	1	6	83	0	90	10	9	1	0	20	201
04:30 PM	72	4	10	0	86	0	3	1	0	4	0	15	108	0	123	12	9	2	0	23	236
04:45 PM	60	0	16	0	76	0	4	0	0	4	0	8	100	0	108	19	8	0	2	29	217
Total	269	11	52	0	332	1	13	1	0	15	1	34	385	0	420	55	41	4	2	102	869
05:00 PM	67	2	13	0	82	0	10	1	0	11	0	6	84	0	90	19	5	1	0	25	208
05:15 PM	63	2	9	0	74	1	7	0	0	8	0	1	77	0	78	12	7	0	0	19	179
05:30 PM	59	1	6	0	66	0	0	0	0	0	0	3	69	0	72	7	1	0	2	10	148
05:45 PM	43	2	10	0	55	0	3	0	0	3	0	5	52	0	57	12	3	0	0	15	130
Total	232	7	38	0	277	1	20	1	0	22	0	15	282	0	297	50	16	1	2	69	665
06:00 PM	50	1	6	0	57	0	2	0	0	2	1	3	62	0	66	9	3	2	1	15	140
06:15 PM	37	1	7	0	45	0	3	0	0	3	0	0	60	0	60	10	5	0	1	16	124
06:30 PM	37	0	4	0	41	0	0	0	0	0	0	4	49	0	53	7	3	1	0	11	105
06:45 PM	41	2	7	0	50	0	3	0	0	3	0	7	45	0	52	14	1	0	0	15	120
Total	165	4	24	0	193	0	8	0	0	8	1	14	216	0	231	40	12	3	2	57	489
Grand Total	3713	108	782	3	4606	15	149	10	2	176	11	431	3674	0	4116	771	405	31	11	1218	10116
Apprch %	80.6	2.3	17	0.1		8.5	84.7	5.7	1.1		0.3	10.5	89.3	0		63.3	33.3	2.5	0.9		
Total %	36.7	1.1	7.7	0	45.5	0.1	1.5	0.1	0	1.7	0.1	4.3	36.3	0	40.7	7.6	4	0.3	0.1	12	
PV	3459	97	770	3	4329	14	142	9	2	167	9	424	3444	0	3877	757	395	28	11	1191	9564
% PV	93.2	89.8	98.5	100	94	93.3	95.3	90	100	94.9	81.8	98.4	93.7	0	94.2	98.2	97.5	90.3	100	97.8	94.5
Duals	236	9	9	0	254	1	5	1	0	7	2	7	220	0	229	12	10	3	0	25	515
% Duals	6.4	8.3	1.2	0	5.5	6.7	3.4	10	0	4	18.2	1.6	6	0	5.6	1.6	2.5	9.7	0	2.1	5.1
TTST	18	1	3	0	22	0	2	0	0	2	0	0	10	0	10	1	0	0	0	1	35
% TTST	0.5	0.9	0.4	0	0.5	0	1.3	0	0	1.1	0	0	0.3	0	0.2	0.1	0	0	0	0.1	0.3
Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bikes	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
% Bikes	0	0.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0.1	0

File Name : NC 107 @ Frank Allen Rd (SR 1176) - Existing
Site Code : 1071.5
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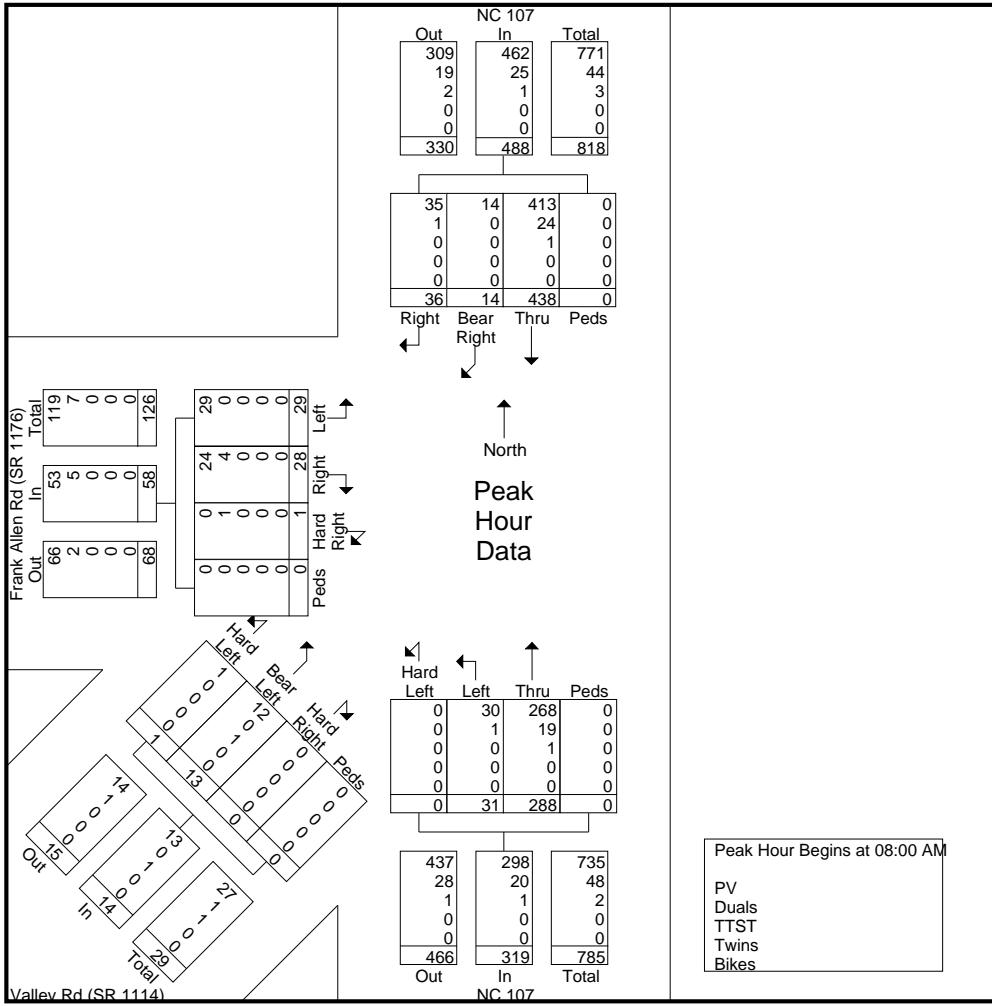
File Name : NC 107 @ Frank Allen Rd (SR 1176) - Existing
Site Code : 1071.5
Start Date : 10/15/2020
Page No : 4

	NC 107 Southbound					Valley Rd (SR 1114) Northeastbound					NC 107 Northbound					Frank Allen Rd (SR 1176) Eastbound					
Start Time	Thru	Bear Right	Right	Peds	App. Total	Hard Left	Bear Left	Hard Right	Peds	App. Total	Hard Left	Left	Thru	Peds	App. Total	Left	Right	Hard Right	Peds	App. Total	Int. Total

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 08:00 AM

08:00 AM	123	5	6	0	134	0	7	0	0	7	0	5	45	0	50	1	4	0	0	5	196
08:15 AM	150	3	9	0	162	1	3	0	0	4	0	9	98	0	107	9	9	0	0	18	291
08:30 AM	87	5	9	0	101	0	1	0	0	1	0	12	87	0	99	8	5	0	0	13	214
08:45 AM	78	1	12	0	91	0	2	0	0	2	0	5	58	0	63	11	10	1	0	22	178
Total Volume	438	14	36	0	488	1	13	0	0	14	0	31	288	0	319	29	28	1	0	58	879
% App. Total	89.8	2.9	7.4	0		7.1	92.9	0	0		0	9.7	90.3	0		50	48.3	1.7	0		
PHF	.730	.700	.750	.000	.753	.250	.464	.000	.000	.500	.000	.646	.735	.000	.745	.659	.700	.250	.000	.659	.755
PV	413	14	35	0	462	1	12	0	0	13	0	30	268	0	298	29	24	0	0	53	826
% PV	94.3	100	97.2	0	94.7	100	92.3	0	0	92.9	0	96.8	93.1	0	93.4	100	85.7	0	0	91.4	94.0
Duals	24	0	1	0	25	0	0	0	0	0	0	1	19	0	20	0	4	1	0	5	50
% Duals	5.5	0	2.8	0	5.1	0	0	0	0	0	0	3.2	6.6	0	6.3	0	14.3	100	0	8.6	5.7
TTST	1	0	0	0	1	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	3
% TTST	0.2	0	0	0	0.2	0	7.7	0	0	7.1	0	0	0.3	0	0.3	0	0	0	0	0	0.3
Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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828-456-8383

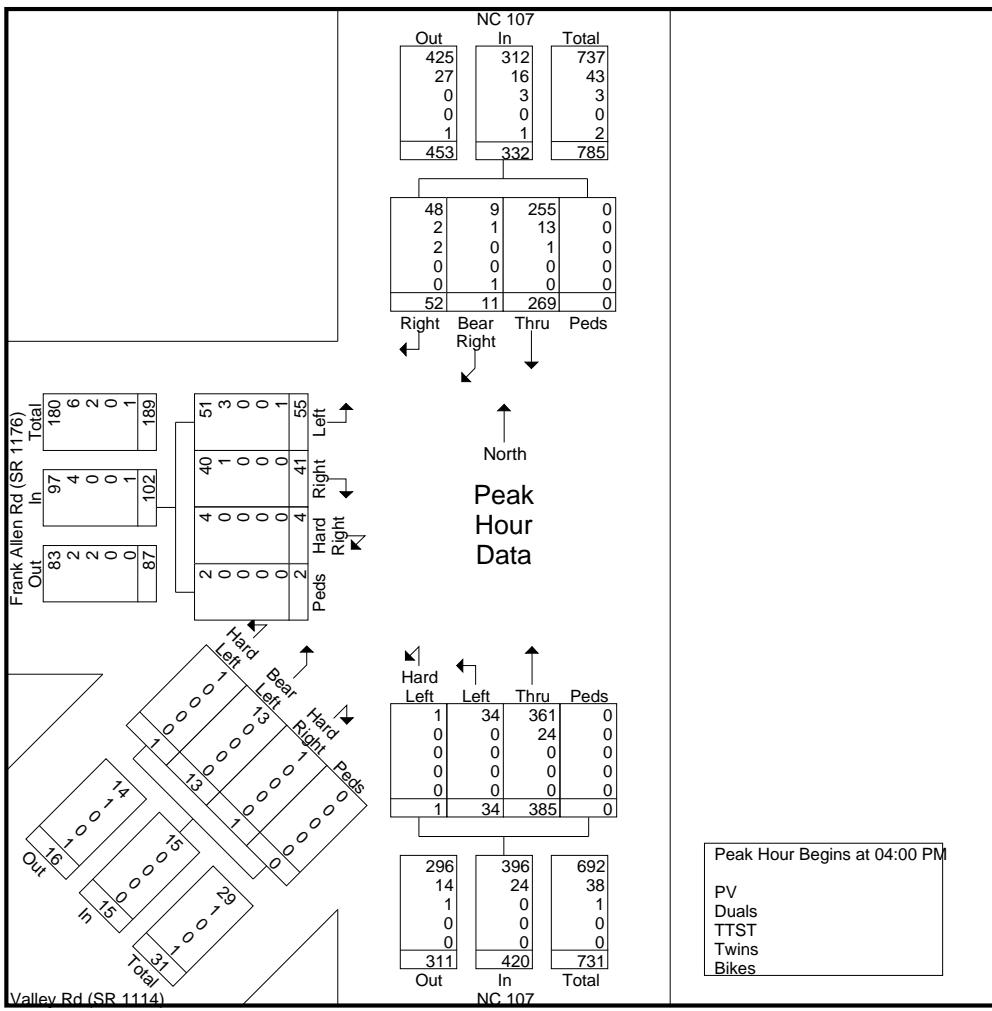
File Name : NC 107 @ Frank Allen Rd (SR 1176) - Existing
 Site Code : 1071.5
 Start Date : 10/15/2020
 Page No : 5

	NC 107 Southbound					Valley Rd (SR 1114) Northeastbound					NC 107 Northbound					Frank Allen Rd (SR 1176) Eastbound					
Start Time	Thru	Bear Right	Right	Peds	App. Total	Hard Left	Bear Left	Hard Right	Peds	App. Total	Hard Left	Left	Thru	Peds	App. Total	Left	Right	Hard Right	Peds	App. Total	Int. Total

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:00 PM

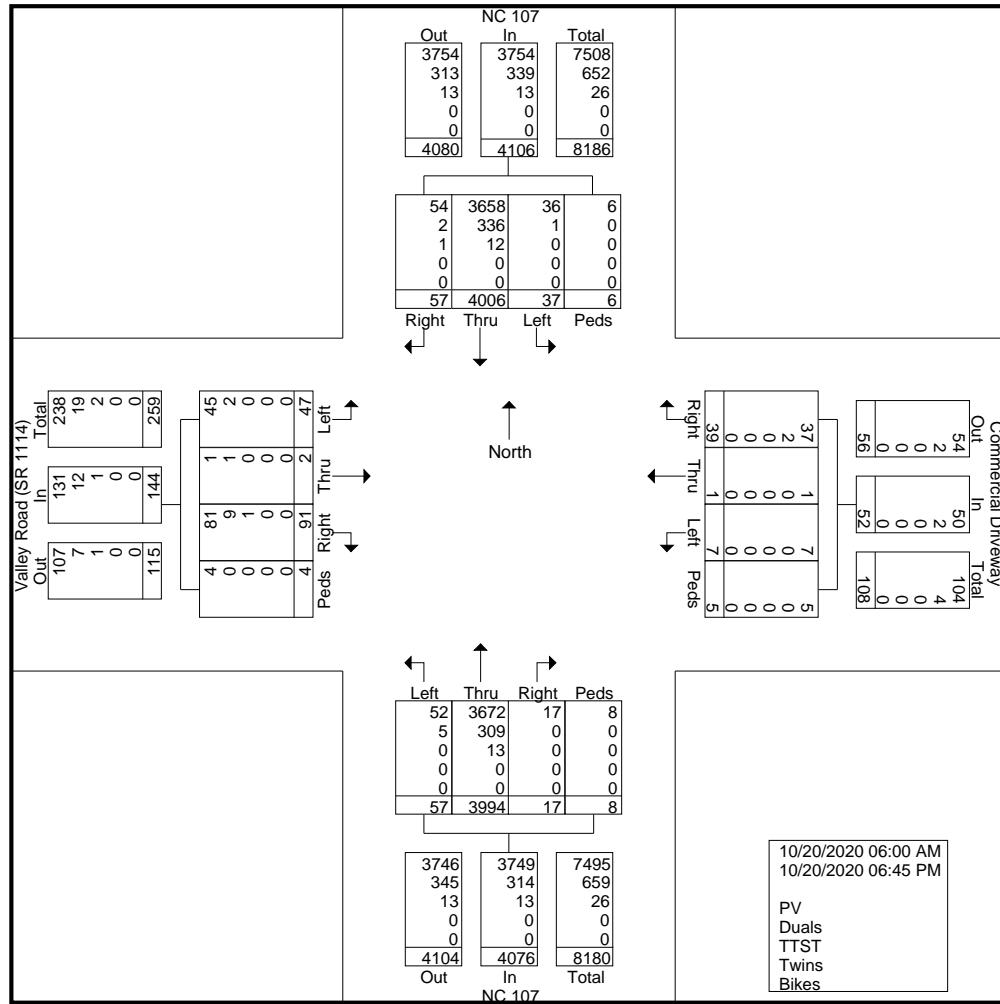
04:00 PM	66	2	15	0	83	0	3	0	0	3	0	5	94	0	99	14	15	1	0	30	215	
04:15 PM	71	5	11	0	87	1	3	0	0	4	1	6	83	0	90	10	9	1	0	20	201	
04:30 PM	72	4	10	0	86	0	3	1	0	4	0	15	108	0	123	12	9	2	0	23	236	
04:45 PM	60	0	16	0	76	0	4	0	0	4	0	8	100	0	108	19	8	0	2	29	217	
Total Volume	269	11	52	0	332	1	13	1	0	15	1	34	385	0	420	55	41	4	2	102	869	
% App. Total	81	3.3	15.7	0		6.7	86.7	6.7	0		0.2	8.1	91.7	0		53.9	40.2	3.9	2			
PHF	.934	.550	.813	.000	.954	.250	.813	.250	.000	.938	.250	.567	.891	.000	.854	.724	.683	.500	.250	.850	.921	
PV	255	9	48	0	312	1	13	1	0	15	1	34	361	0	396	51	40	4	2	97	820	
% PV	94.8	81.8	92.3	0	94.0	100	100	100	0	100	100	100	93.8	0	94.3	92.7	97.6	100	100	95.1	94.4	
Duals	13	1	2	0	16	0	0	0	0	0	0	0	0	0	0	24	0	24	3	1	0	4
% Duals	4.8	9.1	3.8	0	4.8	0	0	0	0	0	0	0	0	0	0	6.2	0	5.7	5.5	2.4	0	3.9
TTST	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
% TTST	0.4	0	3.8	0	0.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	
Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bikes	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	
% Bikes	0	9.1	0	0	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	



File Name : NC 107 @ Valley Rd (SR 1114) - Existing
Site Code : 1071.6
Start Date : 10/20/2020
Page No : 1

Groups Printed- PV - Duals - TTST - Twins - Bikes																					
Start Time	NC 107 Southbound					Commercial Driveway Westbound					NC 107 Northbound					Valley Road (SR 1114) Eastbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:00 AM	0	11	0	0	11	0	0	0	0	0	0	15	0	0	15	0	0	0	0	0	26
06:15 AM	1	12	0	0	13	0	0	0	0	0	0	12	0	0	12	0	0	0	0	0	25
06:30 AM	0	17	0	0	17	0	0	0	0	0	0	12	0	0	12	0	0	0	0	0	29
06:45 AM	0	26	0	0	26	0	0	0	0	0	0	21	0	0	21	0	0	0	0	0	47
Total	1	66	0	0	67	0	0	0	0	0	0	60	0	0	60	0	0	0	0	0	127
07:00 AM	1	36	0	0	37	0	0	1	0	1	0	17	0	0	17	0	0	0	0	0	55
07:15 AM	0	44	0	0	44	0	0	2	0	2	0	32	0	0	32	0	0	0	0	0	78
07:30 AM	0	55	0	0	55	1	0	1	0	2	2	51	0	0	53	0	0	1	0	1	111
07:45 AM	1	105	0	0	106	0	0	0	0	0	0	56	0	0	56	0	0	6	0	6	168
Total	2	240	0	0	242	1	0	4	0	5	2	156	0	0	158	0	0	7	0	7	412
08:00 AM	1	148	1	0	150	0	0	1	0	1	3	60	0	0	63	0	0	2	0	2	216
08:15 AM	1	127	1	0	129	0	0	1	0	1	1	134	1	0	136	1	0	1	0	2	268
08:30 AM	0	98	0	0	98	0	0	0	0	0	2	81	0	0	83	0	0	1	0	1	182
08:45 AM	2	83	2	0	87	0	0	1	0	1	3	73	0	0	76	3	0	0	0	3	167
Total	4	456	4	0	464	0	0	3	0	3	9	348	1	0	358	4	0	4	0	8	833
09:00 AM	0	77	1	0	78	0	0	0	0	0	0	61	0	0	61	0	0	1	0	1	140
09:15 AM	1	55	0	0	56	0	0	0	0	0	1	65	0	0	66	1	0	2	0	3	125
09:30 AM	0	74	1	0	75	0	0	1	0	1	0	74	0	0	74	0	0	0	0	0	150
09:45 AM	1	72	3	0	76	0	0	0	0	0	0	67	0	0	67	1	0	3	0	4	147
Total	2	278	5	0	285	0	0	1	0	1	1	267	0	0	268	2	0	6	0	8	562
10:00 AM	0	78	2	0	80	0	0	2	0	2	1	57	0	0	58	0	0	1	0	1	141
10:15 AM	0	88	0	0	88	0	0	1	0	1	0	72	0	0	72	1	0	0	0	1	162
10:30 AM	1	57	0	0	58	0	0	1	0	1	1	62	0	0	63	1	0	2	0	3	125
10:45 AM	0	80	2	0	82	0	0	0	0	0	3	74	0	0	77	5	0	3	0	8	167
Total	1	303	4	0	308	0	0	4	0	4	5	265	0	0	270	7	0	6	0	13	595
11:00 AM	1	67	1	0	69	0	0	0	0	0	1	97	1	0	99	2	0	1	0	3	171
11:15 AM	1	80	2	0	83	1	0	0	0	1	0	87	0	0	87	2	0	1	0	3	174
11:30 AM	1	90	1	0	92	0	0	1	0	1	4	87	1	1	93	0	0	1	0	1	187
11:45 AM	0	90	1	0	91	0	0	0	0	0	2	110	0	0	112	1	0	1	0	2	205
Total	3	327	5	0	335	1	0	1	0	2	7	381	2	1	391	5	0	4	0	9	737
12:00 PM	1	110	0	1	112	0	0	0	0	0	3	116	0	1	120	0	0	4	0	4	236
12:15 PM	0	92	4	0	96	0	0	2	0	2	2	112	0	1	115	1	0	4	0	5	218
12:30 PM	1	107	4	0	112	0	0	0	0	0	0	90	1	0	91	2	0	1	0	3	206
12:45 PM	0	111	1	0	112	0	0	2	0	2	1	98	0	0	99	2	0	4	0	6	219
Total	2	420	9	1	432	0	0	4	0	4	6	416	1	2	425	5	0	13	0	18	879
01:00 PM	2	96	1	0	99	0	0	1	0	1	4	78	0	0	82	1	0	5	0	6	188
01:15 PM	5	96	6	0	107	0	1	2	2	5	0	85	2	0	87	2	0	4	0	6	205
01:30 PM	0	79	1	2	82	0	0	0	2	2	0	87	0	0	87	1	0	5	0	6	177
01:45 PM	3	91	3	2	99	0	0	3	1	4	1	89	1	0	91	2	0	3	0	5	199
Total	10	362	11	4	387	0	1	6	5	12	5	339	3	0	347	6	0	17	0	23	769
02:00 PM	0	65	1	0	66	0	0	1	0	1	1	104	0	0	105	0	0	5	0	5	177
02:15 PM	1	73	0	0	74	0	0	1	0	1	2	80	0	0	82	2	0	2	0	4	161
02:30 PM	3	100	3	0	106	2	0	0	0	2	0	82	2	0	84	1	0	2	0	3	195
02:45 PM	2	97	1	0	100	1	0	3	0	4	0	86	1	2	89	2	0	3	0	5	198
Total	6	335	5	0	346	3	0	5	0	8	3	352	3	2	360	5	0	12	0	17	731

File Name : NC 107 @ Valley Rd (SR 1114) - Existing
Site Code : 1071.6
Start Date : 10/20/2020
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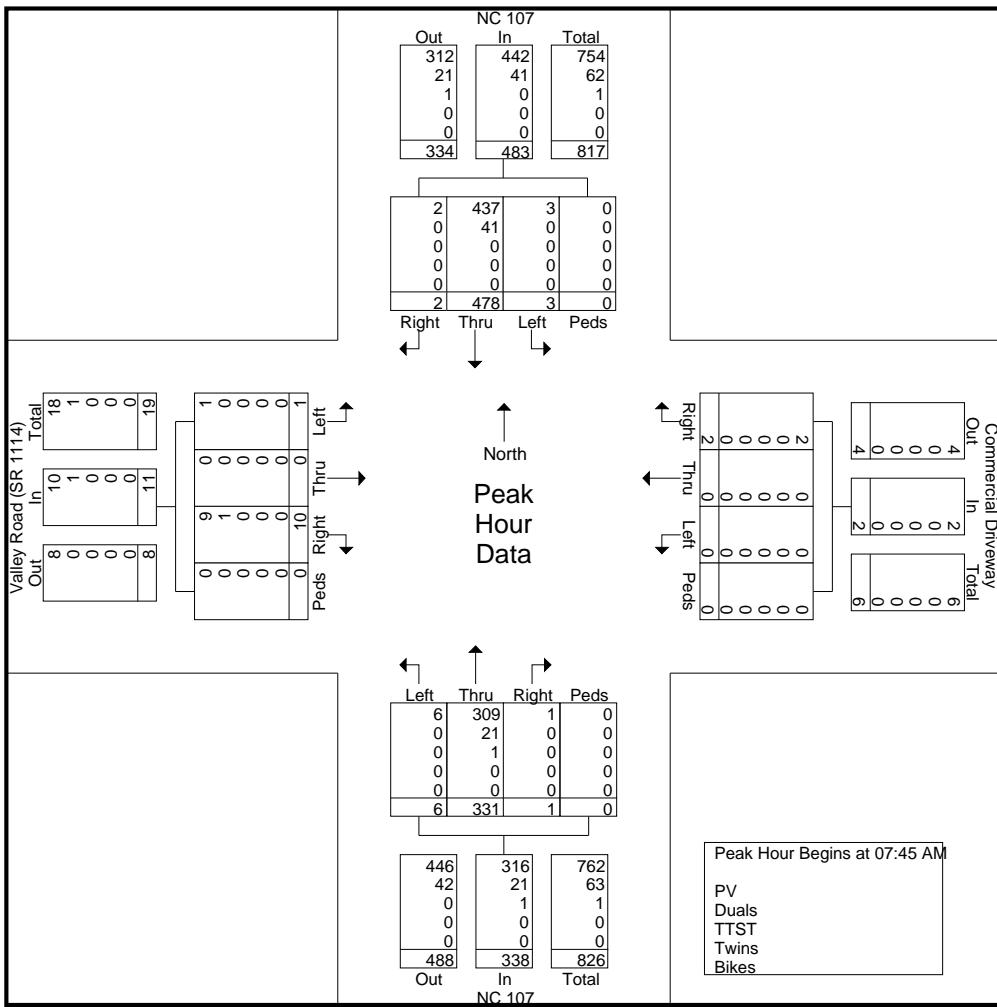
J.M. Teague Engineering & Planning

1155 N. Main Street, Waynesville, NC 28786

828-456-8383

File Name : NC 107 @ Valley Rd (SR 1114) - Existing
 Site Code : 1071.6
 Start Date : 10/20/2020
 Page No : 4

	NC 107 Southbound					Commercial Driveway Westbound					NC 107 Northbound					Valley Road (SR 1114) Eastbound											
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																											
Peak Hour for Entire Intersection Begins at 07:45 AM																											
07:45 AM	1	105	0	0	106	0	0	0	0	0	0	56	0	0	56	0	0	6	0	6	0	6	168				
08:00 AM	1	148	1	0	150	0	0	1	0	1	3	60	0	0	63	0	0	2	0	2	0	2	216				
08:15 AM	1	127	1	0	129	0	0	1	0	1	1	134	1	0	136	1	0	1	0	1	0	2	268				
08:30 AM	0	98	0	0	98	0	0	0	0	0	2	81	0	0	83	0	0	1	0	1	0	1	182				
Total Volume	3	478	2	0	483	0	0	2	0	2	6	331	1	0	338	1	0	10	0	0	11	0	834				
% App. Total	0.6	99	0.4	0		0	0	100	0		1.8	97.9	0.3	0		9.1	0	90.9	0								
PHF	.750	.807	.500	.000	.805	.000	.000	.500	.000	.500	.500	.618	.250	.000	.621	.250	.000	.417	.000	.458	.778						
PV	3	437	2	0	442	0	0	2	0	2	6	309	1	0	316	1	0	9	0	0	10	0	770				
% PV	100	91.4	100	0	91.5	0	0	100	0	100	100	93.4	100	0	93.5	100	0	90.0	0	0	90.9	0	92.3				
Duals	0	41	0	0	41	0	0	0	0	0	0	21	0	0	21	0	0	1	0	0	1	0	63				
% Duals	0	8.6	0	0	8.5	0	0	0	0	0	0	6.3	0	0	6.2	0	0	10.0	0	0	9.1	0	7.6				
TTST	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1			
% TTST	0	0	0	0	0	0	0	0	0	0	0	0.3	0	0	0.3	0	0	0	0	0	0	0	0	0.1			
Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
% Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
% Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		



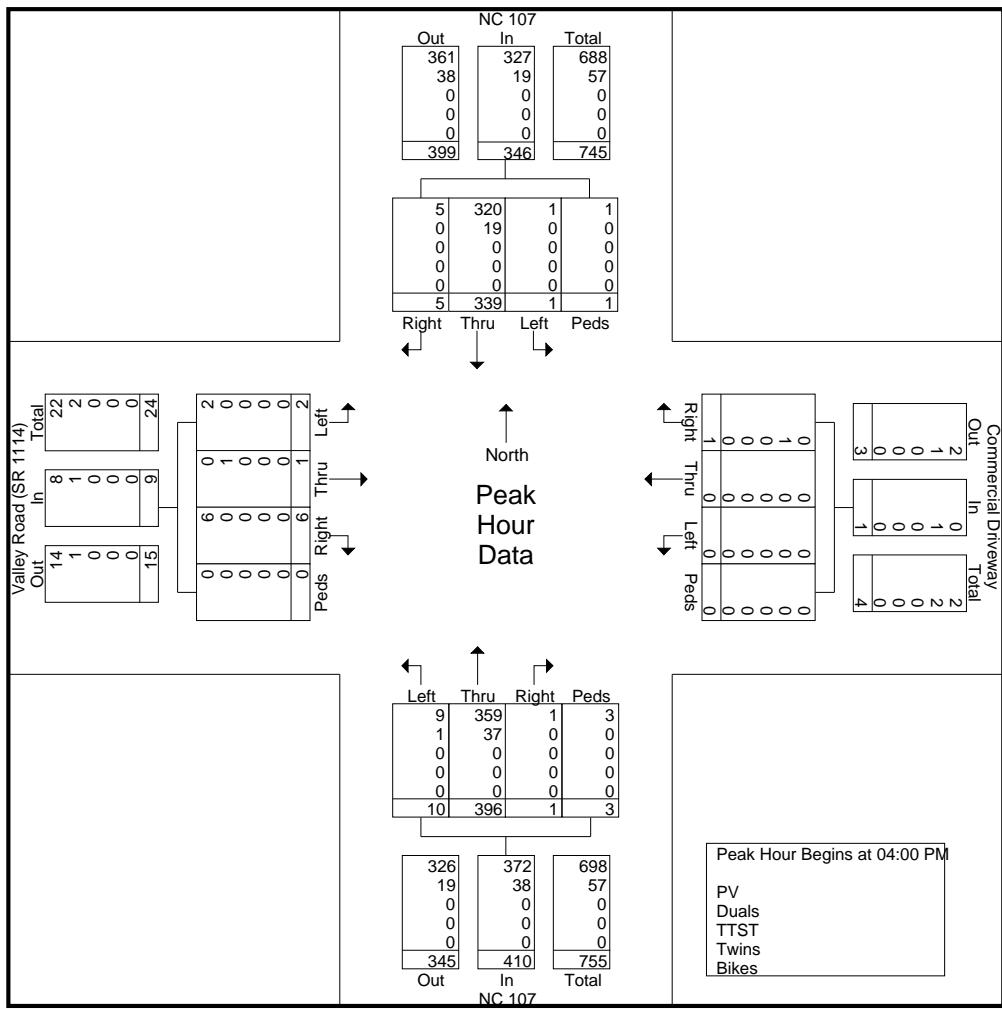
J.M. Teague Engineering & Planning

1155 N. Main Street, Waynesville, NC 28786

828-456-8383

File Name : NC 107 @ Valley Rd (SR 1114) - Existing
Site Code : 1071.6
Start Date : 10/20/2020
Page No : 5

	NC 107 Southbound					Commercial Driveway Westbound					NC 107 Northbound					Valley Road (SR 1114) Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	82	0	1	83	0	0	1	0	1	2	106	1	1	110	1	1	3	0	5	199
04:15 PM	0	80	1	0	81	0	0	0	0	0	1	102	0	2	105	1	0	1	0	2	188
04:30 PM	1	101	1	0	103	0	0	0	0	0	1	116	0	0	117	0	0	0	0	0	220
04:45 PM	0	76	3	0	79	0	0	0	0	0	6	72	0	0	78	0	0	2	0	2	159
Total Volume	1	339	5	1	346	0	0	1	0	1	10	396	1	3	410	2	1	6	0	9	766
% App. Total	0.3	98	1.4	0.3		0	0	100	0		2.4	96.6	0.2	0.7		22.2	11.1	66.7	0		
PHF	.250	.839	.417	.250	.840	.000	.000	.250	.000	.250	.417	.853	.250	.375	.876	.500	.250	.500	.000	.450	.870
PV	1	320	5	1	327	0	0	0	0	0	9	359	1	3	372	2	0	6	0	8	707
% PV	100	94.4	100	100	94.5	0	0	0	0	0	90.0	90.7	100	100	90.7	100	0	100	0	88.9	92.3
Duals	0	19	0	0	19	0	0	1	0	1	1	37	0	0	38	0	1	0	0	1	59
% Duals	0	5.6	0	0	5.5	0	0	100	0	100	10.0	9.3	0	0	9.3	0	100	0	0	11.1	7.7
TTST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% TTST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Twins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Bikes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	



Appendix D

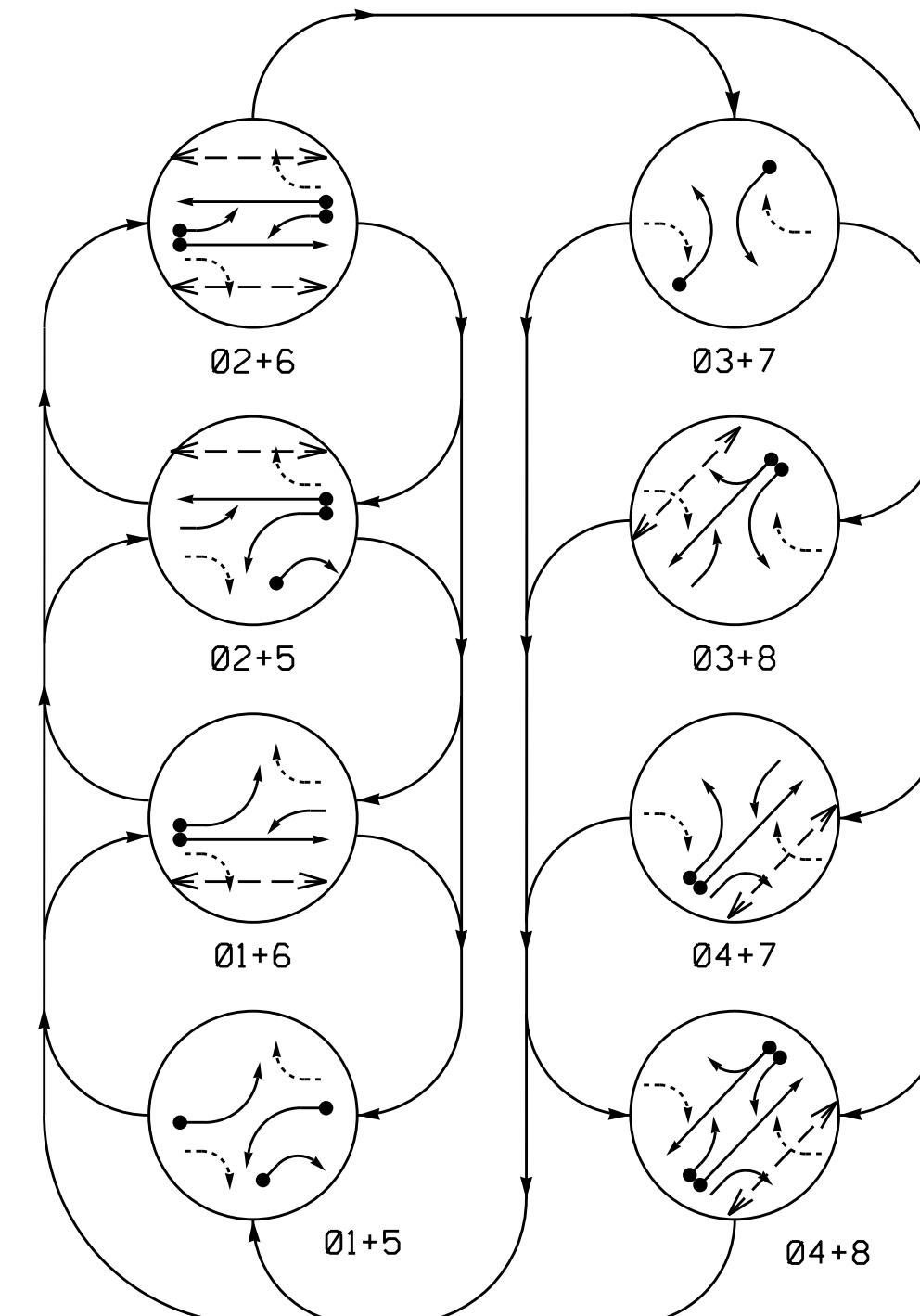
Signal Plans

8 Phase
Fully Actuated
Isolated

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 and/or phase 5 may be lagged.
- Phase 3 and/or phase 7 may be lagged.
- Set all detector units to presence mode.
- In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- Pavement markings are existing.

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND
 ● DETECTED MOVEMENT
 ← UNDETECTED MOVEMENT (OVERLAP)
 → UNSIGNALIZED MOVEMENT
 ↔ PEDESTRIAN MOVEMENT

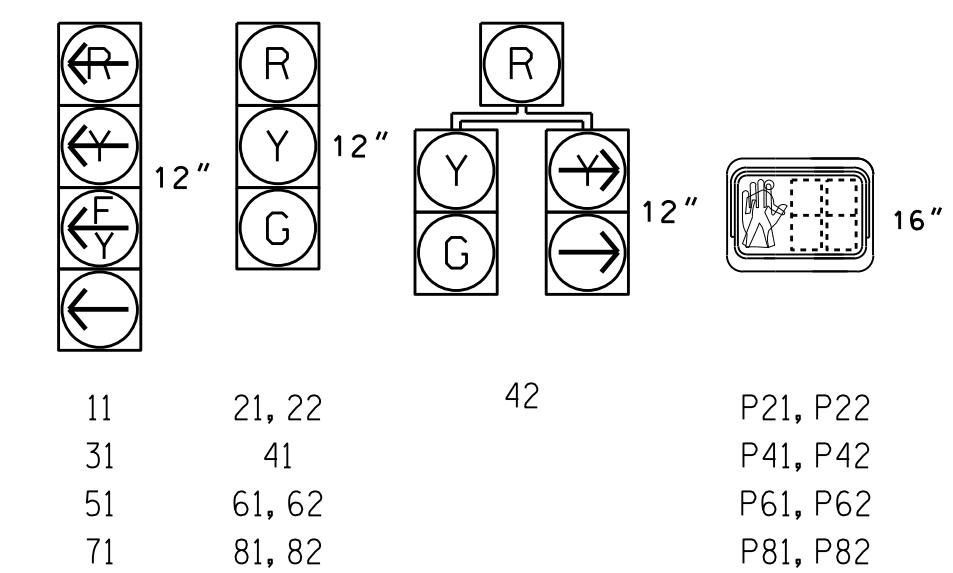
TABLE OF OPERATION

SIGNAL FACE	PHASE							
	0	1	2	3	4	5	6	FLASH
11	←	←	F Y	R R R R	R R R R	Y		
21, 22	R R	G G	R R R R	R R R R	R Y			
31	→ R R R R	→ R R R R	→ F Y	→ F Y	R			
41	R R R R R R	R R R R R R	G G R					
42	R R R R R R	R R R R R R	G G R					
51	← F Y	← F Y	R R R R	R R R R	Y			
61, 62	R G R G R R R	R G R G R R R	R R Y					
71	→ R R R R	→ R R R R	→ F Y	→ F Y	R			
81, 82	R R R R G R G R	R R R R G R G R						
P21, P22	DW DW W W DW DW DW DRK	DW DW W W DW DW DW DRK						
P41, P42	DW DW DW DW DW W W DRK	DW DW DW DW DW W W DRK						
P61, P62	DW W DW W DW DW DW DRK	DW W DW W DW DW DW DRK						
P81, P82	DW DW DW DW DW W DW W DRK	DW DW DW DW DW W DW W DRK						

W - Walk
 DW - Don't Walk
 DRK - Dark

SIGNAL FACE I.D.

All Heads L.E.D.



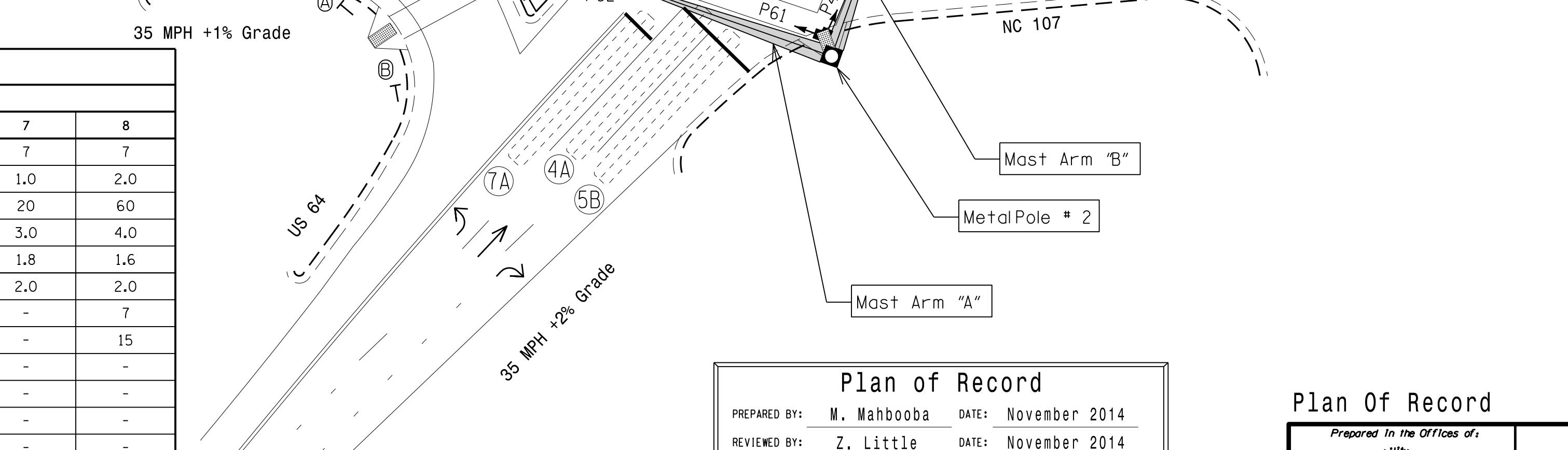
OASIS 2070L LOOP & DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	INDUCTIVE LOOPS		DETECTOR PROGRAMMING		SYSTEM LOOP NEW CARD
				NEW LOOP	PHASE	CALING	EXTENSION	
1A	6X60	+5	2-4-2	-	1 Y Y	-	-	15 - Y
2A	6X40	0	2-4-2	-	2 Y Y	-	-	- - Y
3A	6X60	+5	2-4-2	-	3 Y Y	-	-	15 - Y
4A	6X60	+5	2-4-2	-	4 Y Y	-	-	- - Y
5A	6X60	+10	2-4-2	-	5 Y Y	-	-	15 - Y
5B	6X60	+5	2-4-2	-	2 Y Y	-	-	- - Y
6A	6X40	0	2-4-2	-	6 Y Y	-	-	- - Y
7A	6X60	+5	2-4-2	-	7 Y Y	-	-	15 - Y
8A	6X60	+5	2-4-2	-	8 Y Y	-	-	3 - Y

OASIS 2070L TIMING CHART

FEATURE	PHASE							
	1	2	3	4	5	6	7	8
Min Green 1 *	7	10	7	7	10	7	7	7
Extension 1 *	1.0	2.0	1.0	2.0	1.0	2.0	1.0	2.0
Max Green 1 *	20	60	20	60	20	60	20	60
Yellow Clearance	3.0	3.8	3.0	4.0	3.0	3.8	3.0	4.0
Red Clearance	2.9	2.9	1.9	1.6	2.9	2.9	1.8	1.6
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	7	-	7	-	7	-	7
Don't Walk 1	-	15	-	14	-	17	-	15
Seconds Per Actuation *	-	-	-	-	-	-	-	-
Max Variable Initial *	-	-	-	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-	-	-	-
Time To Reduce *	-	-	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-	-	-
Recall Mode	-	MIN RECALL	-	-	MIN RECALL	-	-	-
Vehicle Call Memory	-	YELLOW	-	-	YELLOW	-	-	-
Dual Entry	-	-	ON	-	-	-	ON	-
Simultaneous Gap	ON	ON	ON	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.



Plan of Record

PREPARED BY: M. Mahbooba DATE: November 2014
 REVIEWED BY: Z. Little DATE: November 2014
 SIGNATURE: DATE: 12/1/2014
 DOCUMENT NUMBER: 0C21EFD04F5341E COMMENTS:
 Changed loops 2A & 6A to 6X40, adjusted Extension and Max times for phases 2, 4, 6 & 8.

This plan of record reflects existing field conditions as submitted by field personnel. This plan may have been modified from its original state.

Plan of Record

Prepared In the Offices of:
 Transportation Mobility and Safety Division
 North Carolina Department of Transportation
 Signal Design Section
 750 N. Greenfield Pkwy., Garner, NC 27529

US 64 at NC 107
 Division 14 Jackson County Cashiers
 PLAN DATE: October 2012 REVIEWED BY: Z. Little
 PREPARED BY: M. Mahbooba REVIEWED BY:
 REVISED: INIT. DATE
 0 30 1" = 30'

Not a certified document. This document originally issued and sealed by Zachary M. Little, PE 03530 on 12/22/2012. This document shall not be considered a certified document.

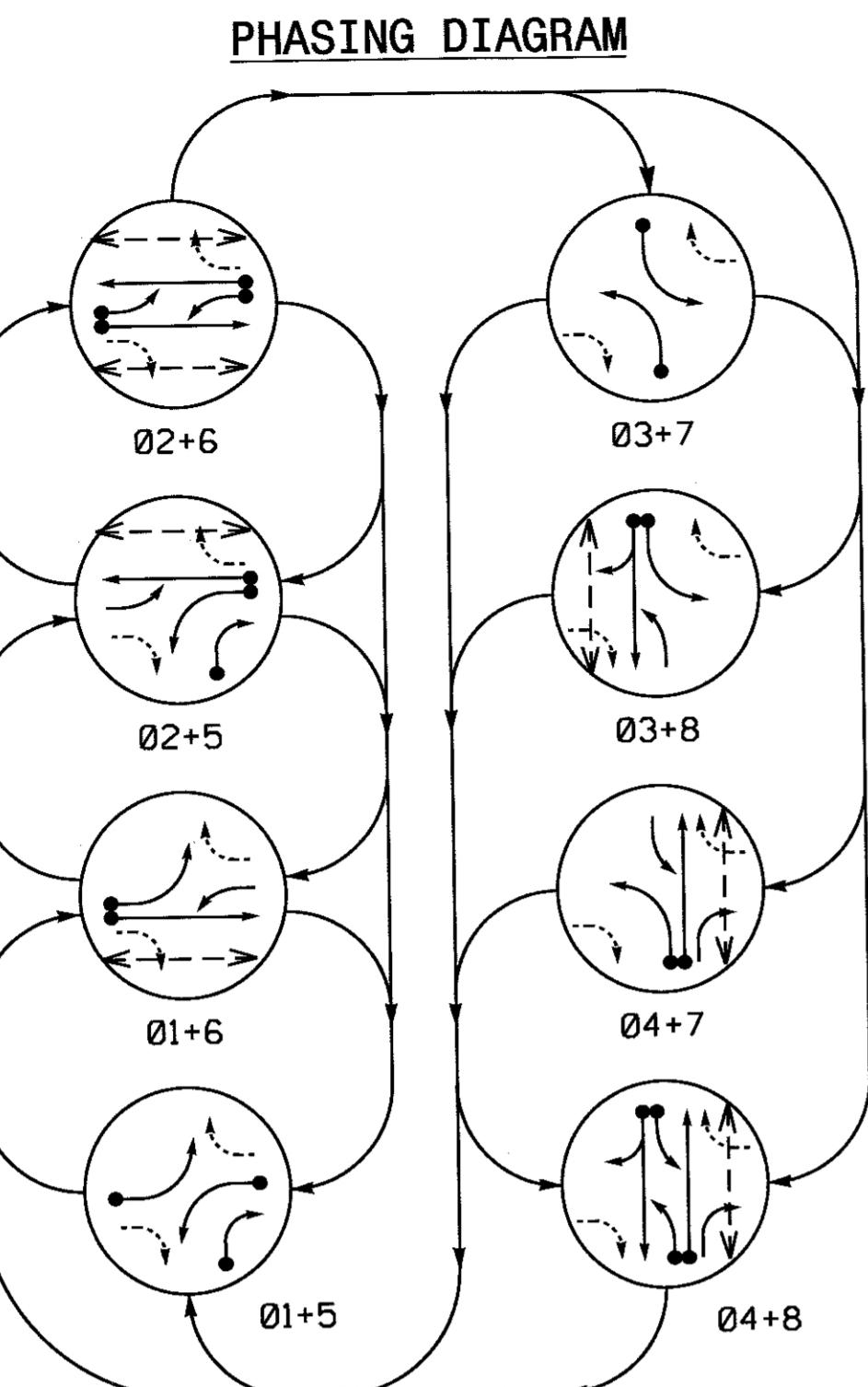
SIG. INVENTORY NO. 14-0580

PROJECT REFERENCE NO.	SHEET NO.
N/A	Sig. 1

8 Phase
Fully Actuated
Isolated

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 and/or phase 5 may be lagged.
- Phase 3 and/or phase 7 may be lagged.
- Reposition existing signal heads numbered 22, 62 & 82.
- Set all detector units to presence mode.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- Pavement markings are existing.



PHASING DIAGRAM DETECTION LEGEND

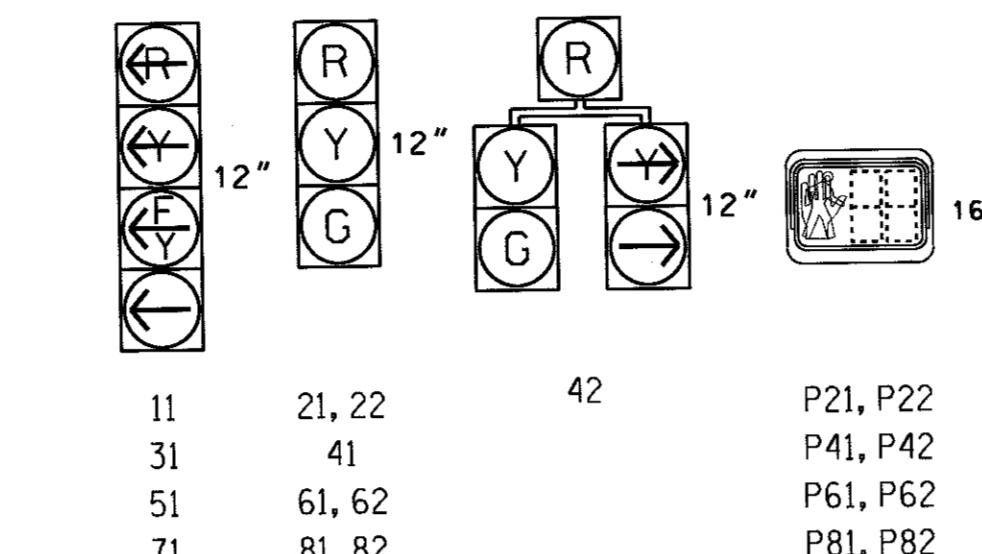
- Detected Movement
- Undetected Movement (Overlap)
- Unsignaled Movement
- Pedestrian Movement

SIGNAL FACE	PHASE							
	0 1 2 3 4 5 6 7	0 1 2 3 4 5 6 7	0 1 2 3 4 5 6 7	0 1 2 3 4 5 6 7	0 1 2 3 4 5 6 7	0 1 2 3 4 5 6 7	0 1 2 3 4 5 6 7	F
11	- - F Y	- - F Y	R R R R R R R R	R R R R R R R R	R R R R R R R R	R R R R R R R R	R R R R R R R R	Y
21, 22	R R G G	R R G G	- - F Y	- - F Y	R R R R R R R R	R R R R R R R R	R R R R R R R R	Y
31	R R R R	R R R R	- - F Y	- - F Y	R R R R R R R R	R R R R R R R R	R R R R R R R R	R
41	R R R R R R	R R R R R R	R R R R R R	R R R R R R	R R R R R R	R G G G G G	R G G G G G	R
42	R R R R R R	R R R R R R	R R R R R R	R R R R R R	R R R R R R	R R R R R R	G G G G G G	R
51	- - F Y	- - F Y	R R R R R R R R	R R R R R R R R	R R R R R R R R	R R R R R R R R	R R R R R R R R	Y
61, 62	R G R G R R R R	R G R G R R R R	R R R R R R R R	R R R R R R R R	R R R R R R R R	R R R R R R R R	R R R R R R R R	Y
71	R R R R R R	R R R R R R	- - F Y	- - F Y	R R R R R R R R	R R R R R R R R	R R R R R R R R	R
81, 82	R R R R R R	R R R R R R	R R R R R R	R R R R R R	R R R R R R	R G R G R G	R G R G R G	R
P21, P22	DW DW W W DW DW DW	DW DW W W DW DW DW	DW DW W W DW DW DW	DW DW W W DW DW DW	DW DW W W DW DW DW	DW DRK	DW DRK	
P41, P42	DW DW DW DW DW DW	DW DW DW DW DW DW	DW DW W W DW DW DW	DW DW W W DW DW DW	DW DW W W DW DW DW	DW DRK	DW DRK	
P61, P62	DW W DW W DW W DW	DW W DW W DW W DW	DW W DW W DW W DW	DW W DW W DW W DW	DW W DW W DW W DW	DW DRK	DW DRK	
P81, P82	DW DW DW DW DW W DW	DW DW DW DW DW W DW	DW DW DW DW W DW W DW	DW DW DW DW W DW W DW	DW DW DW DW W DW W DW	DW DRK	DW DRK	

W - Walk
DW - Don't Walk
DRK - Dark

SIGNAL FACE I.D.

All Heads L.E.D.



OASIS 2070L LOOP & DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	INDUCTIVE LOOPS		DETECTOR PROGRAMMING			
				NEW LOOP	PHASE	CALLING	EXTENSION	STRETCH TIME	DELAY TIME
1A	6X60	+5	2-4-2	-	1	Y	Y	-	15
2A	6X6	55	4	-	2	Y	Y	-	-
3A	6X60	+5	2-4-2	-	3	Y	Y	-	15
4A	6X60	+5	2-4-2	-	4	Y	Y	-	-
5A	6X60	+10	2-4-2	-	5	Y	Y	-	-
5B	6X60	+5	2-4-2	-	5	Y	Y	-	15
6A	6X6	60	4	-	6	Y	Y	-	-
7A	6X60	+5	2-4-2	-	7	Y	Y	-	15
8A	6X60	+5	2-4-2	-	8	Y	Y	-	10

FEATURE	PHASE							
	1	2	3	4	5	6	7	8
Min Green 1*	7	10	7	7	7	10	7	7
Extension 1*	1.0	3.0	1.0	1.0	1.0	3.0	1.0	1.0
Max Green 1*	20	90	20	25	20	90	20	25
Yellow Clearance	3.0	3.8	3.0	4.0	3.0	3.8	3.0	4.0
Red Clearance	2.9	2.9	1.9	1.6	2.9	2.9	1.8	1.6
Walk 1*	-	7	-	7	-	7	-	7
Don't Walk 1	-	15	-	14	-	17	-	15
Seconds Per Actuation *	-	-	-	-	-	-	-	-
Max Variable Initial *	-	-	-	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-	-	-	-
Time To Reduce *	-	-	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-	-	-
Recall Mode	-	MIN RECALL	-	-	MIN RECALL	-	-	-
Vehicle Call Memory	-	YELLOW	-	-	YELLOW	-	-	-
Dual Entry	-	-	-	ON	-	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

OASIS 2070L TIMING CHART

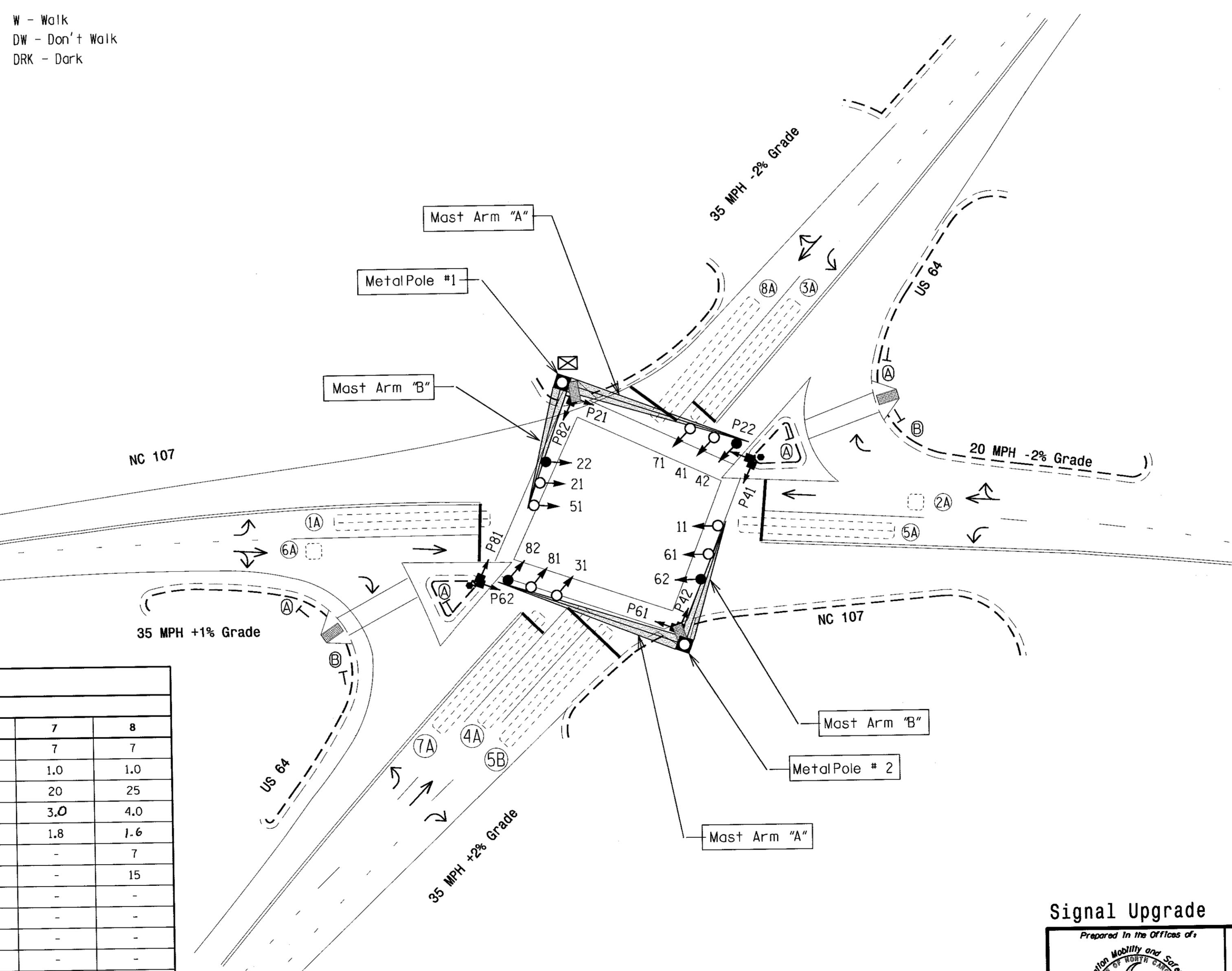
Prepared in the Offices of:
Transportation Mobility and Safety Division
State of North Carolina Department of Transportation
Signal Design Section
750 N. Greenfield Pkwy., Garner, NC 27529

PLAN DATE: October 2012 REVIEWED BY: Z. Little

PREPARED BY: M. Mahbooba REVIEWED BY:

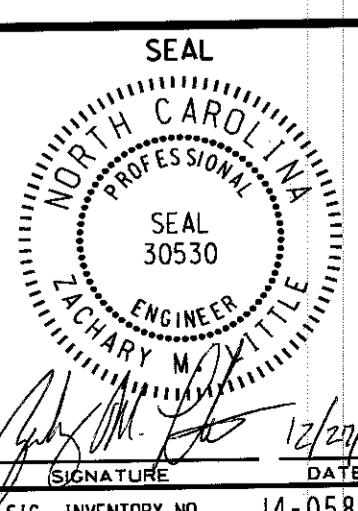
REVISIONS INIT. DATE
12/21/12

SIG. INVENTORY NO. 14-0580

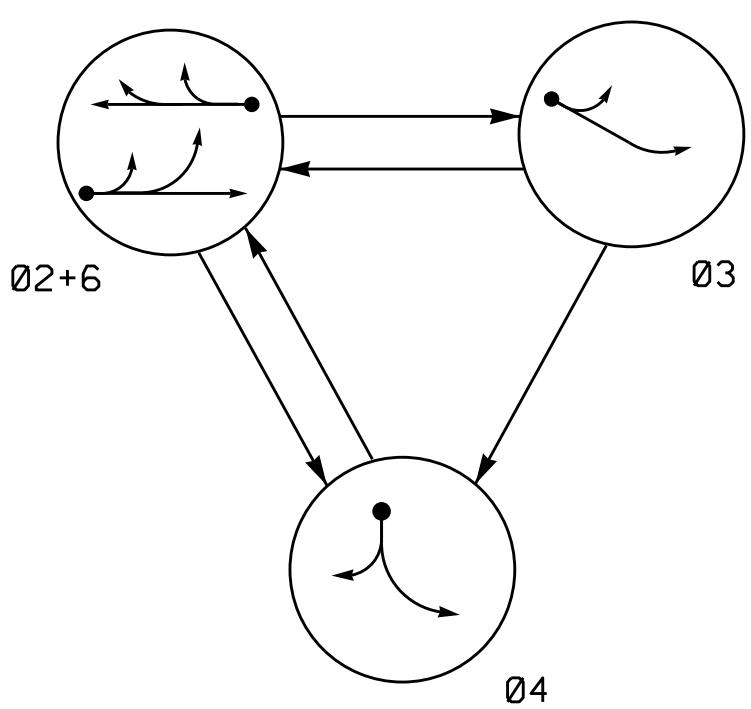


Signal Upgrade

US 64 at NC 107	Division 14 Jackson County Cashiers
PLAN DATE: October 2012	REVIEWED BY: Z. Little
PREPARED BY: M. Mahbooba	REVIEWED BY:
REVISIONS INIT. DATE 12/21/12	SIG. INVENTORY NO. 14-0580
SCALE 0 30 1'=30'	DATE 12/21/12



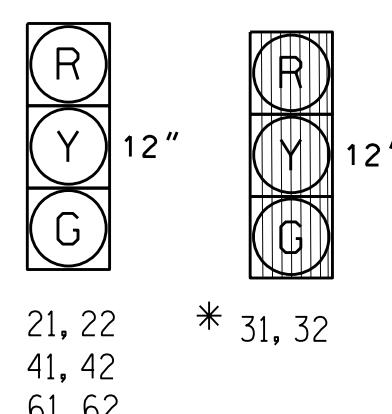
PHASING DIAGRAM



SIGNAL FACE	PHASE			
	0 2 + 6	0 3	0 4	F L A S H
21, 22	G	R	R	Y
31, 32	R	G	R	R
41, 42	R	R	G	R
61, 62	C	R	R	Y

SIGNAL FACE I.D.

All Heads L.E.D.
* Louvers



PHASING DIAGRAM DETECTION LEGEND

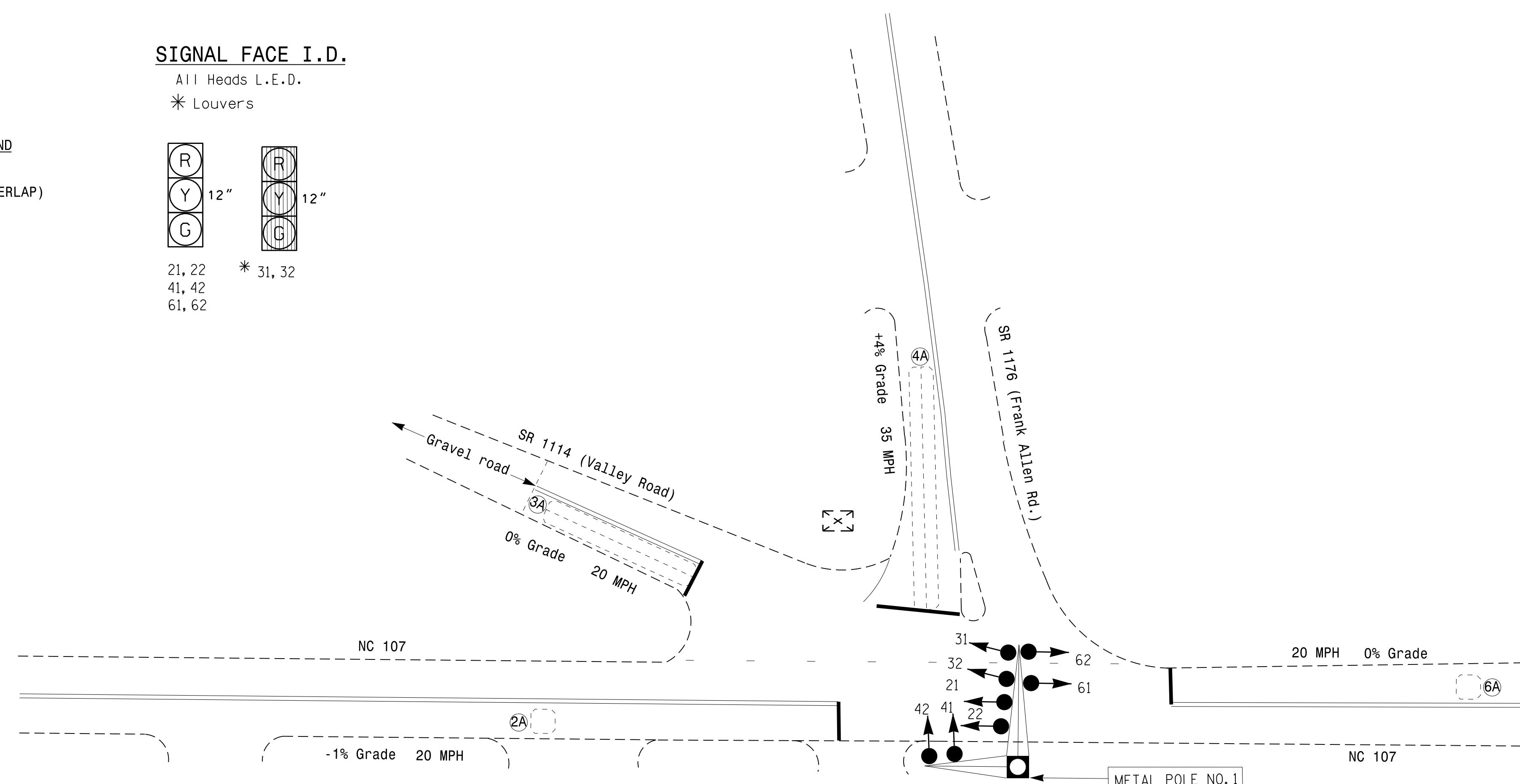
- ←● DETECTED MOVEMENT
- ←— UNDETECTED MOVEMENT (OVERLAP)
- ↔— UNSIGNALIZED MOVEMENT
- ↔→ PEDESTRIAN MOVEMENT

2070 OASIS LOOP & DETECTOR INSTALLATION												
LOOP	INDUCTIVE LOOPS			DETECTOR PROGRAMMING								
	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	AWN Loop	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	6X6	70	3	-	2	Y	Y	—	—	—	-	-
3A	6X40	0	2-4-2	-	3	Y	Y	—	10	—	-	-
4A	6X60	0	2-4-2	-	4	Y	Y	—	10	—	-	-
6A	6X6	70	3	-	6	Y	Y	—	—	—	-	-

3-Phase
Fully Actuated
Isolated

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Set all detector units to presence mode.
- Pavement markings are existing.



FEATURE	PHASE			
	2	3	4	6
Min Green 1 *	10	7	7	10
Extension 1 *	3.0	1.0	1.0	3.0
Max Green 1 *	45	15	25	45
Yellow Clearance	5.0	5.0	4.0	5.0
Red Clearance	2.5	2.0	1.5	2.5
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	-	-	-	-
Max Variable Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Recall Mode	MIN RECALL	-	-	MIN RECALL
Vehicle Call Memory	YELLOW	-	-	YELLOW
Dual Entry	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

Plan of Record

PREPARED BY: C. Pierce DATE: March 2018
REVIEWED BY: T. Williams DATE: March 2018
SIGNATURE: DATE: 3/29/2018
Comments: Replaced loop 3A with an inductive loop and relocated the cabinet.

This plan of record reflects existing field conditions as submitted by field personnel. This plan may have been modified from its original state.

Prepared In the Offices of:

NC 107
at
SR 1176 (Frank Allen Rd.) / SR 1114 (Valley Road)
Division 14 Jackson County Cashiers
PLAN DATE: March 2005 REVIEWED BY:
PREPARED BY: Monif Bazzarie REVIEWED BY:
REVISIONS INIT. DATE
0 20
1"=20'

Not a certified document. This document originally issued and sealed by Boniface Madubuchukwu, 25475 on 03/22/05. This document shall not be considered a certified document.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SIG. INVENTORY NO. 14-0053

