

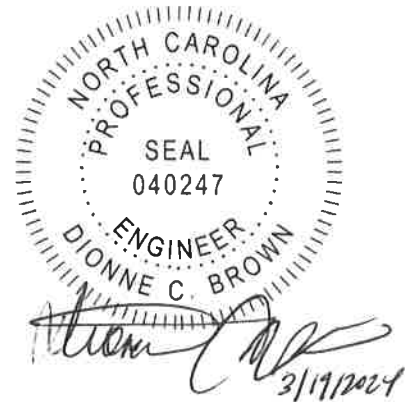
Technical Memorandum

To: Cook Out Inc.
Town of Zebulon

From: Dionne C. Brown, PE, DAVENPORT
John Davenport Jr., PE, DAVENPORT

Date: March 19, 2024

Subject: Zebulon Cook Out
Zebulon, NC
DAVENPORT Project Number 230404



1.0 Introduction

DAVENPORT has prepared this technical memorandum to analyze the proposed Zebulon Cook Out with the proposed Zebulon C-Store in one analysis model for the PM peak. Both transportation impact analyses (TIA) were done independently and did not include the site trips or recommendations into one model. Therefore, Town of Zebulon has requested, and Cook Out has agreed to provide an analysis of both proposed developments to illustrate the effects at the two intersections of concern: NC 96 at US 264 Ramp/ Dogwood Drive and Dogwood Drive at Site Access.

2.0 Trip Generation, Distribution and Assignment

Zebulon C-Store Development

The TIA for the Zebulon C-Store was provided by the Town of Zebulon. The C-Store site trips and distributions were used in the analysis as presented in Table 1 and figures can be found in the supporting documents.

Table 1 - ITE Trip Generation: Average Weekday Driveway Volumes										
ITE 11 th Edition Land Use	Size		Data Source	Weekday	AM Peak Hour			PM Peak Hour		
					Enter	Exit	Total	Enter	Exit	Total
All Vehicles										
Convenience Store/Gas Station (VFP 16-24) ITE Code 945	4.71	KSF	Adjacent-Equation	6,045	215	215	430	186	186	372
Passenger Vehicles										

Convenience Store/Gas Station (VFP 16-24) ITE Code 945	4.71	KSF	Adjacent-Equation	6,002	213	212	425	185	185	370
Pass-by Reduction					132	132	264	104	104	208
Total Passenger Vehicles					81	80	161	81	81	162
Trucks										
Convenience Store/Gas Station (VFP 16-24) ITE Code 945	4.71	KSF	Adjacent-Equation	43	2	3	5	1	1	2

Cook Out Development

The Cook Out development trip generation potential was customized by collecting data at an existing Cook Out that is similar in size for three days. This location also had similar population demographics and roadway surroundings. This data was then averaged to determine the daily total, Mid-day peak and PM peak. This methodology was agreed upon and approved by the reviewing agencies.

Table 2 – Custom Cook Out Restaurant Trip Generation								
Average Weekday Driveway Volumes				24-Hour	Mid-day Peak Hour		PM Peak Hour	
				Two-Way				
Land Use	ITE Land Code	Size		Volume	Enter	Exit	Enter	Exit
Fast-Food Restaurant with Drive-Through Window	Custom	2.8	1000 Sq. Ft. GFA	1,704	89	88	73	65
Event Space	Custom	100	Seats	150	99	51	71	80
Total Unadjusted Trips				1,854	188	139	144	145
Custom Pass-By: (50% Midday & PM)				-	-45	-44	-37	-33
Total Pass-By Trips				-	-45	-44	-37	-33
Total Adjusted Trips (External)				1,854	143	95	107	112

It should be noted that after the completion of the TIA, it was discovered that the “event space” of the proposed Cook Out development would not be open to the public, but the additional square footage will be utilized for staff meetings and gatherings during the morning. Also, the site location that data was collected from is one of two locations that Cook Out provides free meals to the community. Both of these factors give an overestimated trip generation to the analysis and is a conservative result.

In addition to the site access on Dogwood Avenue, the Cook Out is also proposing a right-in/ right-out access on NC 96, that will assist with the Town’s queuing concerns.

The site trip distribution percentages will remain the same as noted in the TIA. The updated distribution figures are illustrated in the Supporting Documents. The site trips of the Zebulon C-Store, Cook Out and future build volumes are also illustrated in the Supporting Documents.

3.0 Capacity Analysis and Queue

A capacity analysis was conducted on the build year with both developments and build year plus improvements for both developments.

Table 3 - Level of Service Summary

PM Peak	2024 Future Build	2024 Future Build + Improvements
NC 96 (Arendell Avenue) and Dogwood Drive/ US 264 Westbound Ramp	F (228.3)	D (39.0)
Dogwood Drive and Site Access 1	C (21.0) NB Approach	C (17.1) NB Approach
NC 96 (Arendell Avenue) at Site Access 2	B (14.8) WB Approach	B (14.8) WB Approach
LOS (delay in seconds) Note for unsignalized conditions, LOS and delay indicates only minor street approach with longest delay		

Table 4 - Queue Results
PM Peak Hour Queues

Scenario	NC 96 (Arendell Avenue) at Dogwood Drive/ US 264 Westbound Ramp									
2024 Future Build	EBLTR		WBLTR		NBL	NBT	NBTR	SBL	SBT	SBTR
Max Queue (ft)	438		319		200	228	221	89	93	114
95th Percentile Queue (ft)	#568		#455		m18	m228		29	209	
Storage Bay (ft)	FULL		FULL		400	FULL	FULL	100	FULL	FULL
2024 Future Build with Improvements	EBL	EBTR	WBL	WBTR	NBL	NBT	NBTR	SBL	SBT	SBR
Max Queue (ft)	358	410	202	223	154	395	370	134	150	127
95th Percentile Queue (ft)	#367	180	185	237	127	432		99	318	129
Storage Bay (ft)	300	FULL	FULL	FULL	400	FULL	FULL	100	FULL	FULL
#: 95th percentile volume exceeds capacity; queue may be longer m: volume for 95th percentile queue is metered by upstream signal										

Table 5 - Queue Results
PM Peak Hour Queues

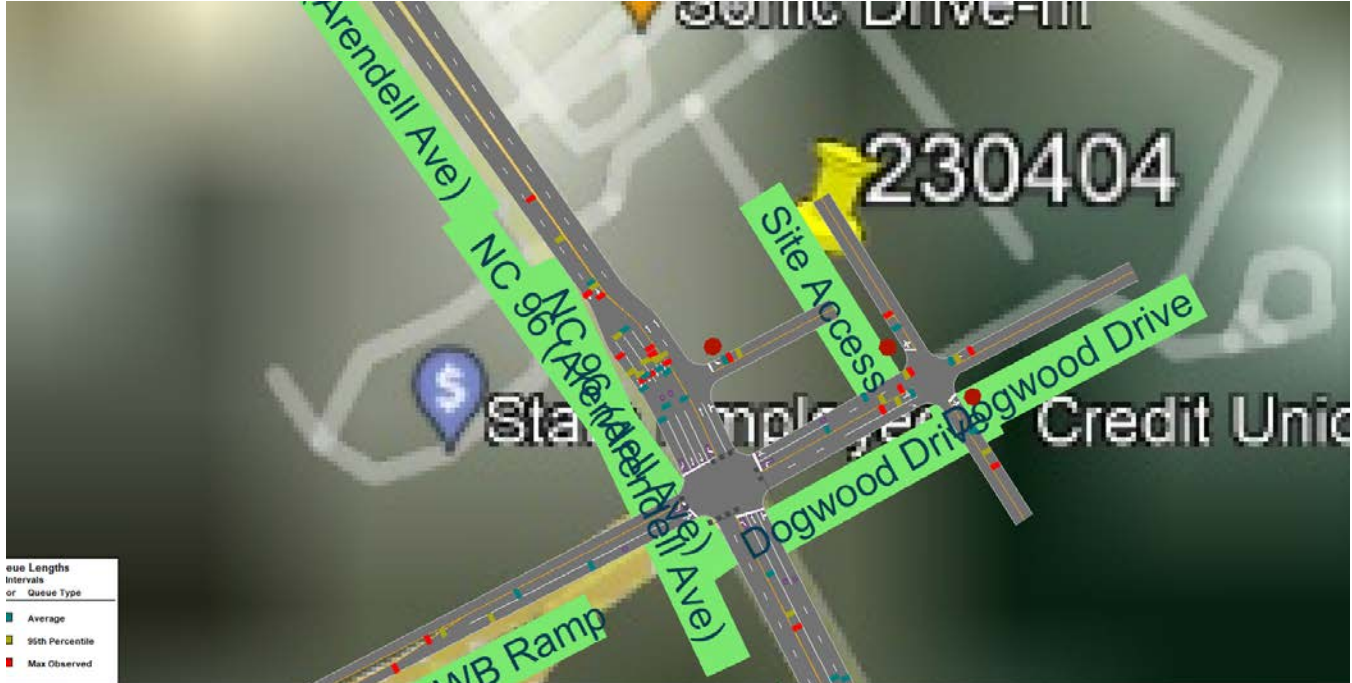
Scenario	Dogwood Drive at Site Access 1			
2024 Future Build	EBLTR	WBLTR	NBLTR	SBLTR
Max Queue (ft)	28	245	288	244
95th Percentile Queue (ft)	4	-	52	8
Storage Bay (ft)	FULL	FULL	FULL	FULL
2024 Future Build with Improvements	EBLT	WBTR	NBLTR	SBLR
Max Queue (ft)	47	29	97	54
95th Percentile Queue (ft)	4	-	42	8
Storage Bay (ft)	FULL	FULL	FULL	FULL

#: 95th percentile volume exceeds capacity; queue may be longer
m: volume for 95th percentile queue is metered by upstream signal

Table 6 - Queue Results
PM Peak Hour Queues

Scenario	NC 96 (Arendell Avenue) at Site Access 2					
2024 Future Build	WBR	NBT	NBTR	SBT	SBT	SBT
Max Queue (ft)	77	54	49	73	165	121
95th Percentile Queue (ft)	8	-	-	-	-	-
Storage Bay (ft)	FULL	FULL	FULL	FULL	FULL	FULL
2024 Future Build with Improvements	WBR	NBT	NBTR	SBT	SBT	SBT
Max Queue (ft)	30	-	-	42	130	142
95th Percentile Queue (ft)	8	-	-	-	-	-
Storage Bay (ft)	FULL	FULL	FULL	FULL	FULL	FULL

#: 95th percentile volume exceeds capacity; queue may be longer
m: volume for 95th percentile queue is metered by upstream signal



PM Peak Future Build with Improvements

4.0 Recommendations

Based on the review of NCDOT and the additional site trips from the Zebulon C-Store, the following are recommended for the above study intersections:

NC 96 (Arendell Avenue) and Dogwood Drive/ US 264 Ramp

- Provide a 300 foot storage eastbound left turn lane with appropriate taper
- Provide a 200 foot storage southbound right turn with appropriate taper
- Provide a full storage westbound left turn lane
- Signal modification

Dogwood Drive at Site Access 1

- Construct full movement access
- Provide a full storage eastbound right turn

NC 96 (Arendell Avenue) at Site Access 2

- Construct a right-in/ right-out access

5.0 Conclusion

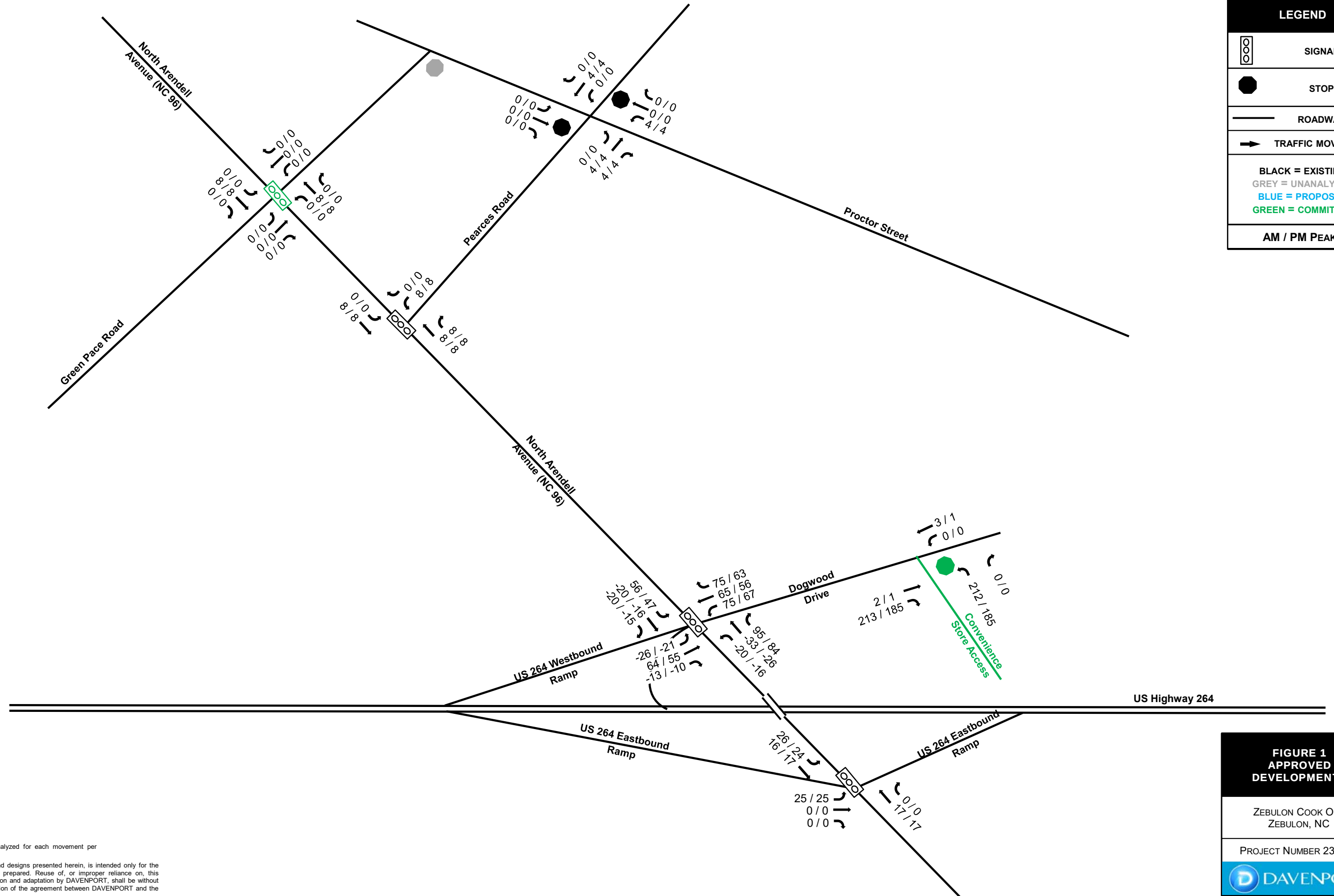
In conclusion, this memorandum illustrates the analysis for both developments, Zebulon C-Store and Zebulon Cook Out off of Dogwood Avenue. The analysis reports that a full access into the Zebulon Cook Out can be accommodated with the above recommendations. As mentioned in the trip generation discussion, the original TIA custom data overestimated the proposed location and therefore, this analysis is conservative.

Supporting Documents

Figures

LOS Reports

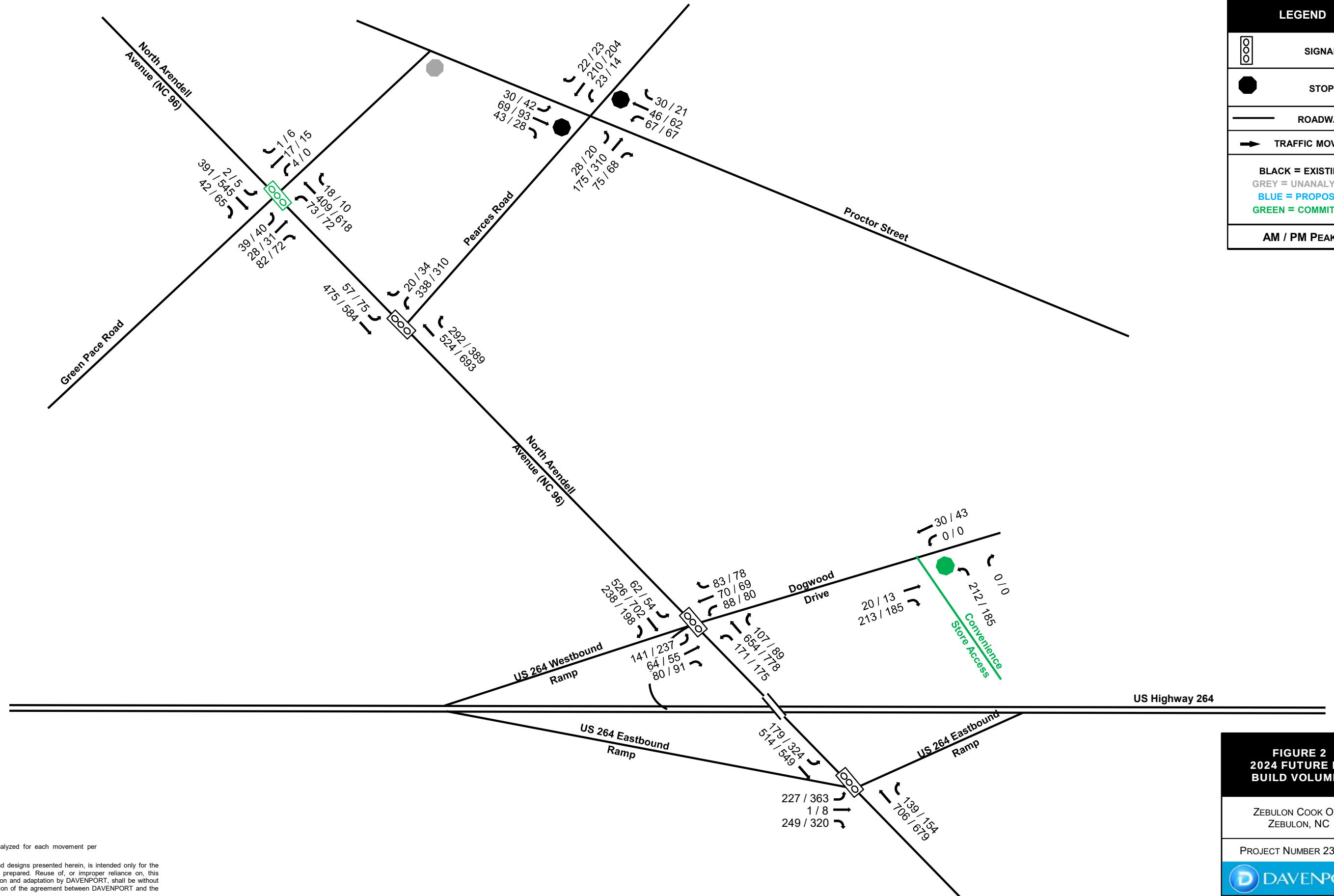
Queue Reports



*** NOT TO SCALE ***

** A minimum of 4 vehicles per hour is analyzed for each movement per NCDOT Congestion Management Guidelines.

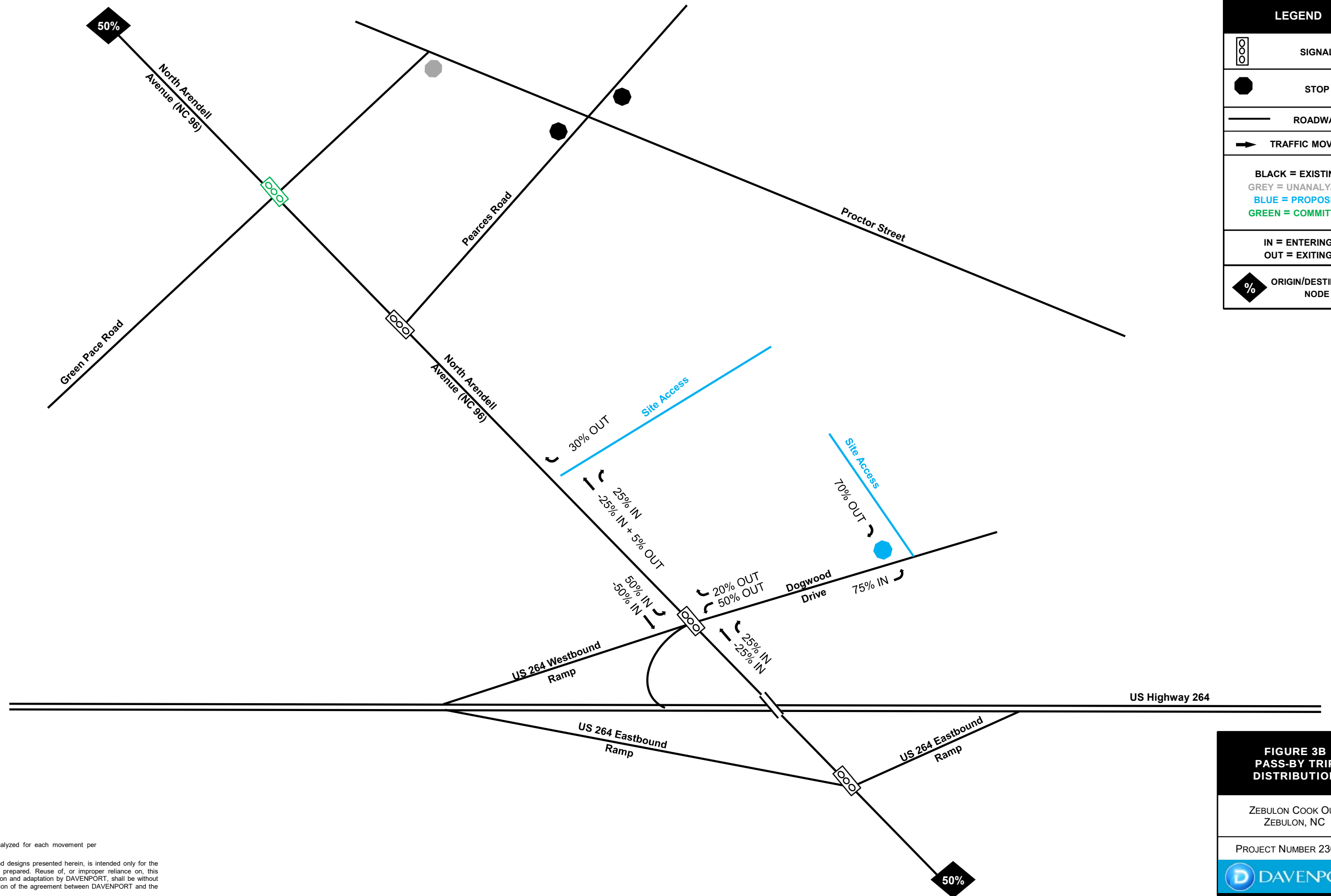
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LEGEND	
	SIGNAL
	STOP
	ROADWAY
	TRAFFIC MOVEMENT
BLACK = EXISTING GREY = UNANALYZED BLUE = PROPOSED GREEN = COMMITTED	
IN = ENTERING OUT = EXITING	
	ORIGIN/DESTINATION NODE

FIGURE 3B
PASS-BY TRIP
DISTRIBUTION

ZEBULON COOK OUT
ZEBULON, NC

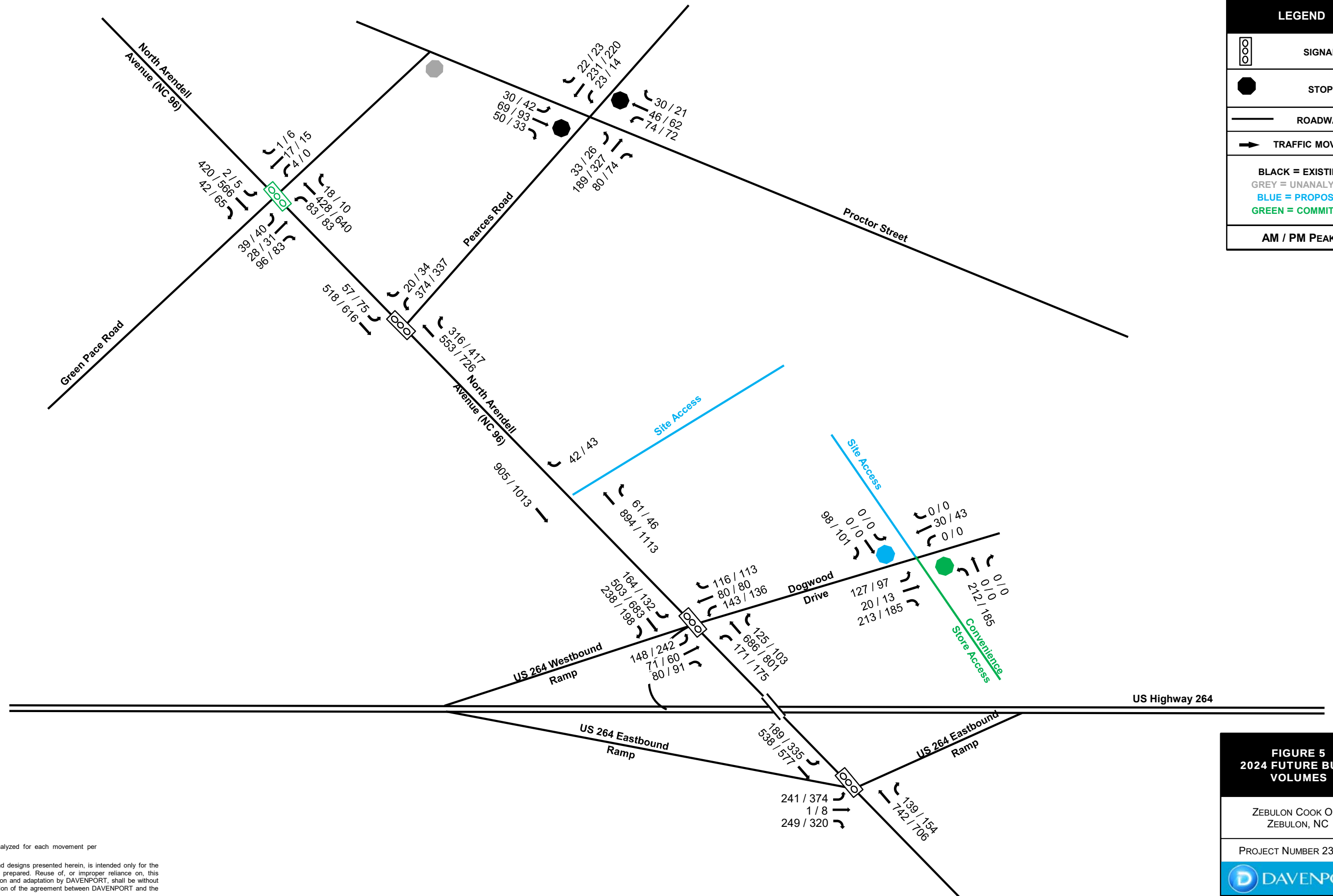
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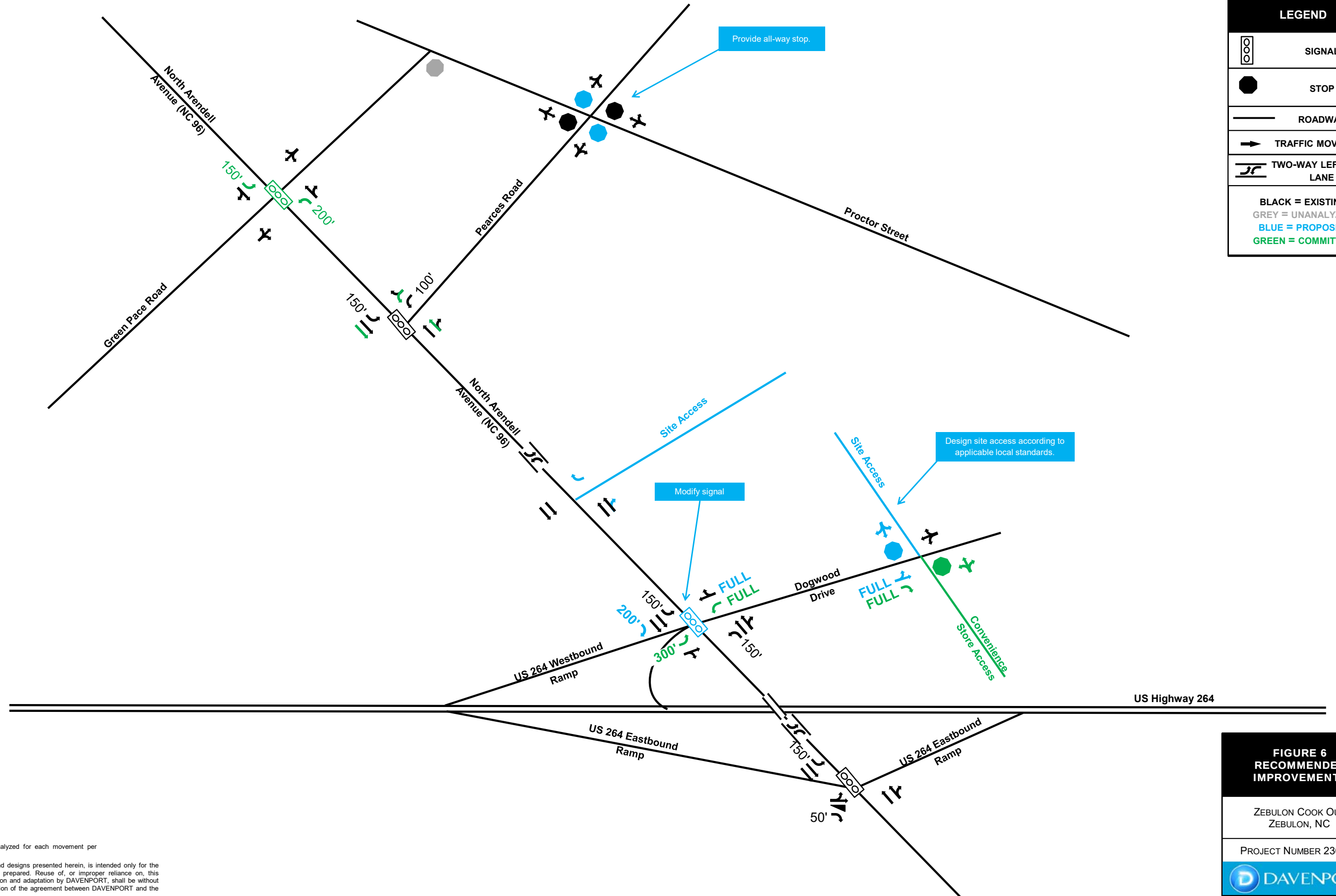
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FIGURE 5
2024 FUTURE BUILD
VOLUMES

ZEBULON COOK OUT
ZEBULON, NC

PROJECT NUMBER 230404





LEGEND	
	SIGNAL
	STOP
	ROADWAY
	TRAFFIC MOVEMENT
	TWO-WAY LEFT-TURN LANE
BLACK = EXISTING GREY = UNANALYZED BLUE = PROPOSED GREEN = COMMITTED	

*** NOT TO SCALE ***

** A minimum of 4 vehicles per hour is analyzed for each movement per NCDOT Congestion Management Guidelines.

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**FIGURE 6
RECOMMENDED
IMPROVEMENTS**

ZEBULON COOK OUT
ZEBULON, NC

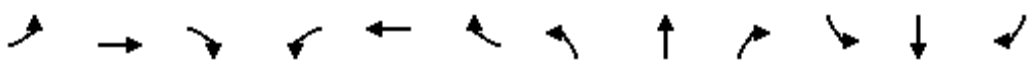
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Lanes, Volumes, Timings

100: NC 96 (Arendell Ave) & US 264 WB Ramp/Dogwood Drive

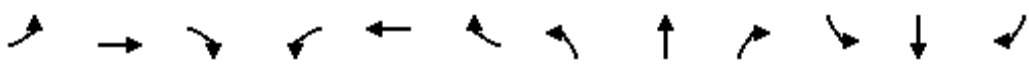
02/22/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↕		↗	↕	
Traffic Volume (vph)	242	60	91	136	80	113	175	801	103	132	683	198
Future Volume (vph)	242	60	91	136	80	113	175	801	103	132	683	198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	400		0	0		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.969			0.954			0.983			0.966	
Flt Protected		0.970			0.980		0.950			0.950		
Satd. Flow (prot)	0	1751	0	0	1742	0	1770	3479	0	1770	3419	0
Flt Permitted		0.564			0.799		0.233			0.226		
Satd. Flow (perm)	0	1018	0	0	1420	0	434	3479	0	421	3419	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		445			380			1027			132	
Travel Time (s)		10.1			8.6			15.6			2.0	
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)	269	67	101	151	89	126	194	890	114	147	759	220
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	437	0	0	366	0	194	1004	0	147	979	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			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	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
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	Perm	NA		Perm	NA		D.P+P	NA		D.P+P	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			6			2		

Lanes, Volumes, Timings

100: NC 96 (Arendell Ave) & US 264 WB Ramp/Dogwood Drive

02/22/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	14.2	14.2		15.0	15.0		14.3	30.0		14.4	17.0	
Total Split (s)	15.0	15.0		15.0	15.0		20.0	45.0		20.0	45.0	
Total Split (%)	18.8%	18.8%		18.8%	18.8%		25.0%	56.3%		25.0%	56.3%	
Maximum Green (s)	8.0	8.0		8.0	8.0		13.0	38.0		13.0	38.0	
Yellow Time (s)	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	
Lost Time Adjust (s)		-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	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)				7.0	7.0			7.0				
Flash Dont Walk (s)				1.0	1.0			16.0				
Pedestrian Calls (#/hr)				0	0			0				
Act Effect Green (s)		10.0			10.0		55.0	45.4		55.0	44.7	
Actuated g/C Ratio		0.12			0.12		0.69	0.57		0.69	0.56	
v/c Ratio		3.44			2.07		0.41	0.51		0.33	0.51	
Control Delay		1133.4			522.6		4.1	13.7		5.0	12.3	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		1133.4			522.6		4.1	13.7		5.0	12.3	
LOS		F			F		A	B		A	B	
Approach Delay		1133.4			522.6			12.1			11.4	
Approach LOS		F			F			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 45 (56%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 3.44

Intersection Signal Delay: 228.3

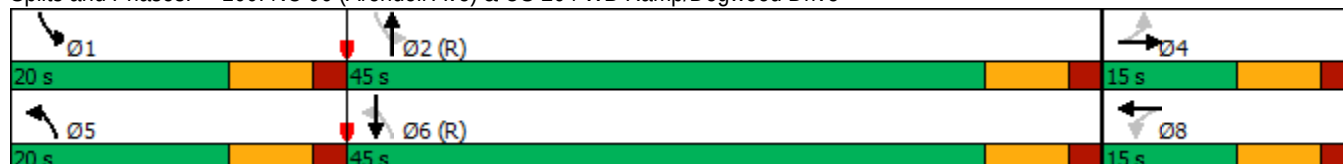
Intersection LOS: F

Intersection Capacity Utilization 81.5%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 100: NC 96 (Arendell Ave) & US 264 WB Ramp/Dogwood Drive



Lanes, Volumes, Timings

200: NC 96 (Arendell Ave) & US 264 EB Ramp

02/22/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗					↖↗		↖	↖↖	
Traffic Volume (vph)	374	8	320	0	0	0	0	706	154	335	577	0
Future Volume (vph)	374	8	320	0	0	0	0	706	154	335	577	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	0		0	275		0
Storage Lanes	0		1	0		0	0		0	1		0
Taper Length (ft)	25			25			25			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850					0.973				
Flt Protected		0.953								0.950		
Satd. Flow (prot)	0	1775	1583	0	0	0	0	3444	0	1770	3539	0
Flt Permitted		0.953								0.172		
Satd. Flow (perm)	0	1775	1583	0	0	0	0	3444	0	320	3539	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		468			613			651			1027	
Travel Time (s)		10.6			13.9			9.9			15.6	
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)	416	9	356	0	0	0	0	784	171	372	641	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	425	356	0	0	0	0	955	0	372	641	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			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	15		9	15		9	15		9
Number of Detectors	1	2	1					2		1	2	
Detector Template	Left	Thru	Right					Thru		Left	Thru	
Leading Detector (ft)	20	100	20					100		20	100	
Trailing Detector (ft)	0	0	0					0		0	0	
Detector 1 Position(ft)	0	0	0					0		0	0	
Detector 1 Size(ft)	20	6	20					6		20	6	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA		D.P+P	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4							2		

Lanes, Volumes, Timings
200: NC 96 (Arendell Ave) & US 264 EB Ramp

02/22/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4					2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0					10.0		7.0	10.0	
Minimum Split (s)	14.0	14.0	14.0					29.0		14.8	17.0	
Total Split (s)	20.0	20.0	20.0					45.0		15.0	60.0	
Total Split (%)	25.0%	25.0%	25.0%					56.3%		18.8%	75.0%	
Maximum Green (s)	13.0	13.0	13.0					38.0		8.0	53.0	
Yellow Time (s)	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	
Lost Time Adjust (s)		-2.0	-2.0					-2.0		-2.0	-2.0	
Total Lost Time (s)		5.0	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	3.0	
Recall Mode	None	None	None					C-Min		None	C-Min	
Walk Time (s)								7.0				
Flash Dont Walk (s)								15.0				
Pedestrian Calls (#/hr)								0				
Act Effect Green (s)		23.1	23.1					31.9		41.9	46.9	
Actuated g/C Ratio		0.29	0.29					0.40		0.52	0.59	
v/c Ratio		0.83	0.78					0.70		1.07	0.31	
Control Delay		45.6	43.0					22.5		53.9	5.6	
Queue Delay		0.0	0.0					0.0		0.0	0.0	
Total Delay		45.6	43.0					22.5		53.9	5.6	
LOS		D	D					C		D	A	
Approach Delay		44.4						22.5			23.3	
Approach LOS		D						C			C	

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

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

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.07

Intersection Signal Delay: 29.0

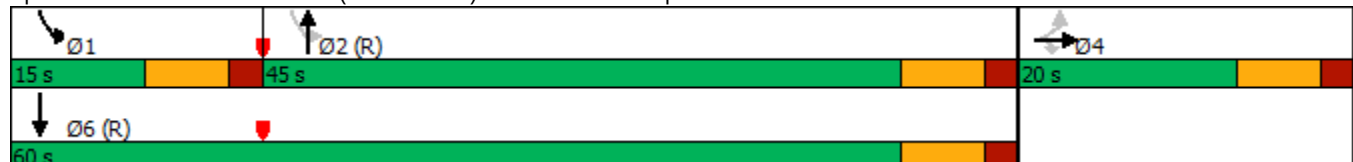
Intersection LOS: C

Intersection Capacity Utilization 76.6%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 200: NC 96 (Arendell Ave) & US 264 EB Ramp



Lanes, Volumes, Timings
300: NC 96 (Arendell Ave) & Pearces Road

02/22/2024

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	WT		WT		WT	WT
Traffic Volume (vph)	337	34	726	417	75	616
Future Volume (vph)	337	34	726	417	75	616
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150	0		0	175	
Storage Lanes	1	0		0	1	
Taper Length (ft)	100				100	
Lane Util. Factor	0.97	0.95	0.95	0.95	1.00	0.95
Frt	0.986		0.945			
Flt Protected	0.957				0.950	
Satd. Flow (prot)	3410	0	3345	0	1770	3539
Flt Permitted	0.957				0.169	
Satd. Flow (perm)	3410	0	3345	0	315	3539
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	35		45			45
Link Distance (ft)	1185		887			773
Travel Time (s)	23.1		13.4			11.7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	374	38	807	463	83	684
Shared Lane Traffic (%)						
Lane Group Flow (vph)	412	0	1270	0	83	684
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	24		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1		2		1	2
Detector Template	Left		Thru		Left	Thru
Leading Detector (ft)	20		100		20	100
Trailing Detector (ft)	0		0		0	0
Detector 1 Position(ft)	0		0		0	0
Detector 1 Size(ft)	20		6		20	6
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0		0.0	0.0
Detector 1 Queue (s)	0.0		0.0		0.0	0.0
Detector 1 Delay (s)	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		NA		D.Pm	NA
Protected Phases	8		2			6
Permitted Phases					2	

Lanes, Volumes, Timings
300: NC 96 (Arendell Ave) & Pearces Road

02/22/2024

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8		2		2	6
Switch Phase						
Minimum Initial (s)	7.0		10.0		10.0	10.0
Minimum Split (s)	20.0		32.6		32.6	17.6
Total Split (s)	20.0		45.0		45.0	45.0
Total Split (%)	30.8%		69.2%		69.2%	69.2%
Maximum Green (s)	13.0		38.0		38.0	38.0
Yellow Time (s)	5.0		5.0		5.0	5.0
All-Red Time (s)	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						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		C-Min		C-Min	C-Min
Walk Time (s)	7.0		7.0		7.0	
Flash Dont Walk (s)	6.0		18.0		18.0	
Pedestrian Calls (#/hr)	0		0		0	
Act Efft Green (s)	14.2		40.8		40.8	40.8
Actuated g/C Ratio	0.22		0.63		0.63	0.63
v/c Ratio	0.55		0.61		0.42	0.31
Control Delay	25.4		9.1		14.2	6.4
Queue Delay	0.0		0.0		0.0	0.0
Total Delay	25.4		9.1		14.2	6.4
LOS	C		A		B	A
Approach Delay	25.4		9.1			7.3
Approach LOS	C		A			A
Intersection Summary						
Area Type:	Other					
Cycle Length: 65						
Actuated Cycle Length: 65						
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:SBT, Start of Green						
Natural Cycle: 60						
Control Type: Actuated-Coordinated						
Maximum v/c Ratio: 0.61						
Intersection Signal Delay: 11.3				Intersection LOS: B		
Intersection Capacity Utilization 64.9%				ICU Level of Service C		
Analysis Period (min) 15						

Splits and Phases: 300: NC 96 (Arendell Ave) & Pearces Road



HCM 6th TWSC
400: Dogwood Drive & Site Access

02/22/2024

Intersection

Int Delay, s/veh 9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	97	13	185	4	43	4	185	4	4	4	4	101
Future Vol, veh/h	97	13	185	4	43	4	185	4	4	4	4	101
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	108	14	206	4	48	4	206	4	4	4	4	112

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	52	0	0	220	0	0	449	393	117	395	494	50
Stage 1	-	-	-	-	-	-	333	333	-	58	58	-
Stage 2	-	-	-	-	-	-	116	60	-	337	436	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1554	-	-	1349	-	-	520	543	935	565	476	1018
Stage 1	-	-	-	-	-	-	681	644	-	954	847	-
Stage 2	-	-	-	-	-	-	889	845	-	677	580	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1554	-	-	1349	-	-	430	497	935	523	436	1018
Mov Cap-2 Maneuver	-	-	-	-	-	-	430	497	-	523	436	-
Stage 1	-	-	-	-	-	-	626	592	-	877	844	-
Stage 2	-	-	-	-	-	-	784	842	-	615	533	-

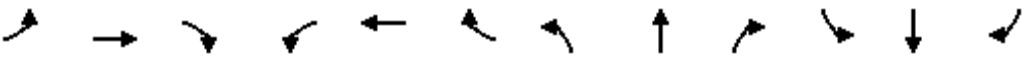
Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.5			0.6			21			9.4		
HCM LOS							C			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	436	1554	-	-	1349	-	-	939
HCM Lane V/C Ratio	0.492	0.069	-	-	0.003	-	-	0.129
HCM Control Delay (s)	21	7.5	0	-	7.7	0	-	9.4
HCM Lane LOS	C	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	2.6	0.2	-	-	0	-	-	0.4

Lanes, Volumes, Timings

500: NC 96 (Arendell Ave) & Green Pace Road

02/22/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Traffic Volume (vph)	40	31	83	0	15	6	83	640	10	5	566	65
Future Volume (vph)	40	31	83	0	15	6	83	640	10	5	566	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	200		0	150		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			100			100		
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		0.927			0.961			0.998			0.985	
Flt Protected		0.987					0.950			0.950		
Satd. Flow (prot)	0	1704	0	0	1790	0	1770	1859	0	1770	1835	0
Flt Permitted		0.905					0.308			0.296		
Satd. Flow (perm)	0	1563	0	0	1790	0	574	1859	0	551	1835	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		1260			776			885			736	
Travel Time (s)		24.5			15.1			13.4			11.2	
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)	44	34	92	0	17	7	92	711	11	6	629	72
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	170	0	0	24	0	92	722	0	6	701	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			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	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
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	Perm	NA			NA		D.Pm	NA		D.Pm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			2			6		

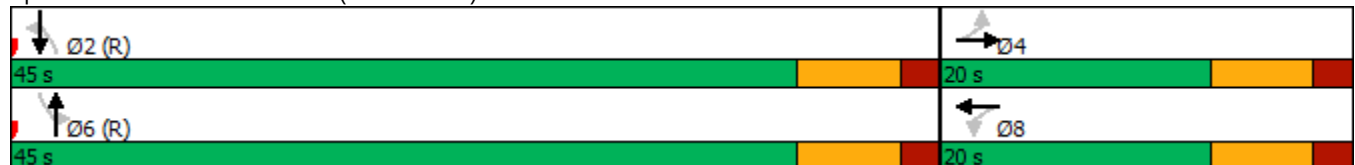
Lanes, Volumes, Timings

500: NC 96 (Arendell Ave) & Green Pace Road

02/22/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	6		6	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	14.0	14.0		14.0	14.0		17.0	17.0		17.0	17.0	
Total Split (s)	20.0	20.0		20.0	20.0		45.0	45.0		45.0	45.0	
Total Split (%)	30.8%	30.8%		30.8%	30.8%		69.2%	69.2%		69.2%	69.2%	
Maximum Green (s)	13.0	13.0		13.0	13.0		38.0	38.0		38.0	38.0	
Yellow Time (s)	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	
Lost Time Adjust (s)		-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	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		5.0	5.0		5.0	5.0	
Minimum Gap (s)	0.2	0.2		0.2	0.2		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		15.0	15.0		15.0	15.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		30.0	30.0		30.0	30.0	
Recall Mode	None	None		None	None		C-Min	C-Min		C-Min	C-Min	
Act Effct Green (s)		12.8			12.8		42.2	42.2		42.2	42.2	
Actuated g/C Ratio		0.20			0.20		0.65	0.65		0.65	0.65	
v/c Ratio		0.55			0.07		0.25	0.60		0.02	0.59	
Control Delay		30.3			20.4		9.8	11.1		5.0	9.6	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		30.3			20.4		9.8	11.1		5.0	9.6	
LOS		C			C		A	B		A	A	
Approach Delay		30.3			20.4			10.9			9.5	
Approach LOS		C			C			B			A	
Intersection Summary												
Area Type:	Other											
Cycle Length: 65												
Actuated Cycle Length: 65												
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green												
Natural Cycle: 45												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 0.60												
Intersection Signal Delay: 12.4												
Intersection LOS: B												
Intersection Capacity Utilization 70.7%												
ICU Level of Service C												
Analysis Period (min) 15												

Splits and Phases: 500: NC 96 (Arendell Ave) & Green Pace Road



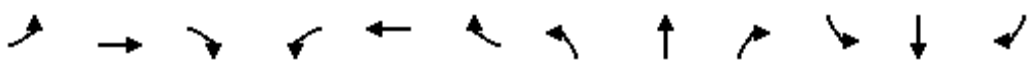
Intersection												
Int Delay, s/veh	11.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	42	93	33	72	62	21	26	327	74	14	220	23
Future Vol, veh/h	42	93	33	72	62	21	26	327	74	14	220	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	47	103	37	80	69	23	29	363	82	16	244	26
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	797	792	257	821	764	404	270	0	0	445	0	0
Stage 1	289	289	-	462	462	-	-	-	-	-	-	-
Stage 2	508	503	-	359	302	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	305	322	782	293	334	647	1293	-	-	1115	-	-
Stage 1	719	673	-	580	565	-	-	-	-	-	-	-
Stage 2	547	541	-	659	664	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	237	307	782	200	319	647	1293	-	-	1115	-	-
Mov Cap-2 Maneuver	237	307	-	200	319	-	-	-	-	-	-	-
Stage 1	697	662	-	563	548	-	-	-	-	-	-	-
Stage 2	447	525	-	521	653	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	30.5		41		0.5		0.5					
HCM LOS	D		E									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1293	-	-	322	264	1115	-	-				
HCM Lane V/C Ratio	0.022	-	-	0.58	0.652	0.014	-	-				
HCM Control Delay (s)	7.8	0	-	30.5	41	8.3	0	-				
HCM Lane LOS	A	A	-	D	E	A	A	-				
HCM 95th %tile O(veh)	0.1	-	-	3.4	4.1	0	-	-				

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↗↗			↗↗↗
Traffic Vol, veh/h	0	43	1113	46	0	1013
Future Vol, veh/h	0	43	1113	46	0	1013
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	0	48	1237	51	0	1126
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	-	644	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	416	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	416	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	14.8	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBT		
Capacity (veh/h)	-	- 416		-		
HCM Lane V/C Ratio	-	- 0.115		-		
HCM Control Delay (s)	-	- 14.8		-		
HCM Lane LOS	-	- B		-		
HCM 95th %tile Q(veh)	-	- 0.4		-		

Lanes, Volumes, Timings

100: NC 96 (Arendell Ave) & US 264 WB Ramp/Dogwood Drive

02/22/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	242	60	91	136	80	113	175	801	103	132	683	198
Future Volume (vph)	242	60	91	136	80	113	175	801	103	132	683	198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		0	0		0	400		0	0		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.910			0.912			0.983				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1695	0	1770	1699	0	1770	3479	0	1770	3539	1583
Flt Permitted	0.950			0.950			0.236			0.140		
Satd. Flow (perm)	1770	1695	0	1770	1699	0	440	3479	0	261	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		758			289			1027			132	
Travel Time (s)		17.2			6.6			15.6			2.0	
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)	269	67	101	151	89	126	194	890	114	147	759	220
Shared Lane Traffic (%)												
Lane Group Flow (vph)	269	168	0	151	215	0	194	1004	0	147	759	220
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			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	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	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
Detector 1 Queue (s)	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
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	NA		D.P+P	NA		D.P+P	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases							6			2		6

Lanes, Volumes, Timings

100: NC 96 (Arendell Ave) & US 264 WB Ramp/Dogwood Drive

02/22/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		7.0	10.0		7.0	10.0	5.0
Minimum Split (s)	12.0	14.2		12.0	15.0		14.3	30.0		14.4	17.0	12.0
Total Split (s)	25.0	33.3		21.3	29.6		18.0	51.0		14.4	47.4	25.0
Total Split (%)	20.8%	27.8%		17.8%	24.7%		15.0%	42.5%		12.0%	39.5%	20.8%
Maximum Green (s)	18.0	26.3		14.3	22.6		11.0	44.0		7.4	40.4	18.0
Yellow Time (s)	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
Lost Time Adjust (s)	-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
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	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
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	None
Walk Time (s)					7.0			7.0				
Flash Dont Walk (s)					1.0			16.0				
Pedestrian Calls (#/hr)					0			0				
Act Effect Green (s)	20.0	26.1		15.2	21.2		58.8	48.6		58.8	46.1	71.1
Actuated g/C Ratio	0.17	0.22		0.13	0.18		0.49	0.40		0.49	0.38	0.59
v/c Ratio	0.91	0.46		0.68	0.72		0.54	0.71		0.58	0.56	0.23
Control Delay	83.7	44.9		65.5	59.9		21.9	34.0		24.9	31.7	13.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	83.7	44.9		65.5	59.9		21.9	34.0		24.9	31.7	13.2
LOS	F	D		E	E		C	C		C	C	B
Approach Delay		68.8			62.2			32.0			27.2	
Approach LOS		E			E			C			C	
Queue Length 50th (ft)	207	114		112	157		78	351		57	250	81
Queue Length 95th (ft)	#367	180		185	237		127	432		99	318	129
Internal Link Dist (ft)		678			209			947			52	
Turn Bay Length (ft)	300						400					
Base Capacity (vph)	295	399		240	348		365	1408		256	1359	937
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.91	0.42		0.63	0.62		0.53	0.71		0.57	0.56	0.23

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 39.0

Intersection LOS: D

Intersection Capacity Utilization 73.9%

ICU Level of Service D

Analysis Period (min) 15

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

Lanes, Volumes, Timings

100: NC 96 (Arendell Ave) & US 264 WB Ramp/Dogwood Drive

02/22/2024

Queue shown is maximum after two cycles.

Splits and Phases: 100: NC 96 (Arendell Ave) & US 264 WB Ramp/Dogwood Drive

 Ø1	 Ø2 (R)	 Ø3	 Ø4
14.4 s	51 s	21.3 s	33.3 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
18 s	47.4 s	25 s	29.6 s

Lanes, Volumes, Timings

200: NC 96 (Arendell Ave) & US 264 EB Ramp

02/22/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	374	8	320	0	0	0	0	706	154	335	577	0
Future Volume (vph)	374	8	320	0	0	0	0	706	154	335	577	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	0		0	0		0	275		0
Storage Lanes	0		1	0		0	0		0	1		0
Taper Length (ft)	25			25			25			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850					0.973				
Flt Protected		0.953								0.950		
Satd. Flow (prot)	0	1775	1583	0	0	0	0	3444	0	1770	3539	0
Flt Permitted		0.953								0.172		
Satd. Flow (perm)	0	1775	1583	0	0	0	0	3444	0	320	3539	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		468			613			651			1027	
Travel Time (s)		10.6			13.9			9.9			15.6	
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)	416	9	356	0	0	0	0	784	171	372	641	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	425	356	0	0	0	0	955	0	372	641	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			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	15		9	15		9	15		9
Number of Detectors	1	2	1					2		1	2	
Detector Template	Left	Thru	Right					Thru		Left	Thru	
Leading Detector (ft)	20	100	20					100		20	100	
Trailing Detector (ft)	0	0	0					0		0	0	
Detector 1 Position(ft)	0	0	0					0		0	0	
Detector 1 Size(ft)	20	6	20					6		20	6	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm					NA		D.P+P	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4							2		

Lanes, Volumes, Timings
200: NC 96 (Arendell Ave) & US 264 EB Ramp

02/22/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4					2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0					10.0		7.0	10.0	
Minimum Split (s)	14.0	14.0	14.0					29.0		14.8	17.0	
Total Split (s)	20.0	20.0	20.0					45.0		15.0	60.0	
Total Split (%)	25.0%	25.0%	25.0%					56.3%		18.8%	75.0%	
Maximum Green (s)	13.0	13.0	13.0					38.0		8.0	53.0	
Yellow Time (s)	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	
Lost Time Adjust (s)		-2.0	-2.0					-2.0		-2.0	-2.0	
Total Lost Time (s)		5.0	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	3.0	
Recall Mode	None	None	None					C-Min		None	C-Min	
Walk Time (s)								7.0				
Flash Dont Walk (s)								15.0				
Pedestrian Calls (#/hr)								0				
Act Effct Green (s)		23.1	23.1					31.9		41.9	46.9	
Actuated g/C Ratio		0.29	0.29					0.40		0.52	0.59	
v/c Ratio		0.83	0.78					0.70		1.07	0.31	
Control Delay		45.6	43.0					22.5		86.4	8.4	
Queue Delay		0.0	0.0					0.0		0.0	0.0	
Total Delay		45.6	43.0					22.5		86.4	8.4	
LOS		D	D					C		F	A	
Approach Delay		44.4						22.5			37.0	
Approach LOS		D						C			D	
Queue Length 50th (ft)		199	164					201		~137	76	
Queue Length 95th (ft)		#428	#365					228		#277	80	
Internal Link Dist (ft)		388			533			571			947	
Turn Bay Length (ft)			100							275		
Base Capacity (vph)		512	457					1722		349	2433	
Starvation Cap Reductn		0	0					0		0	0	
Spillback Cap Reductn		0	0					0		0	0	
Storage Cap Reductn		0	0					0		0	0	
Reduced v/c Ratio		0.83	0.78					0.55		1.07	0.26	
Intersection Summary												
Area Type:	Other											
Cycle Length: 80												
Actuated Cycle Length: 80												
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:SBT, Start of Green												
Natural Cycle: 75												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 1.07												
Intersection Signal Delay: 34.1						Intersection LOS: C						
Intersection Capacity Utilization 76.6%						ICU Level of Service D						
Analysis Period (min) 15												
~ Volume exceeds capacity, queue is theoretically infinite.												

Lanes, Volumes, Timings

200: NC 96 (Arendell Ave) & US 264 EB Ramp

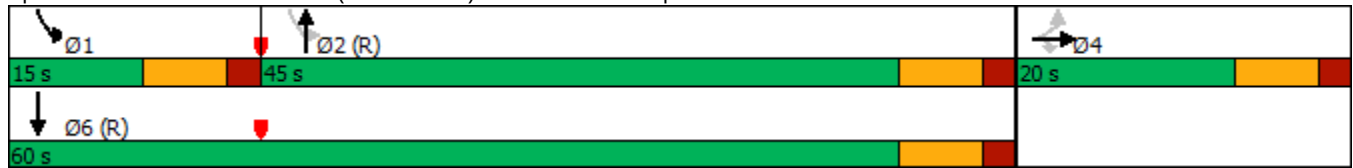
02/22/2024

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 200: NC 96 (Arendell Ave) & US 264 EB Ramp



Lanes, Volumes, Timings
300: NC 96 (Arendell Ave) & Pearces Road

02/22/2024

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	337	34	726	417	75	616
Future Volume (vph)	337	34	726	417	75	616
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150	0		0	175	
Storage Lanes	1	0		0	1	
Taper Length (ft)	100				100	
Lane Util. Factor	0.97	0.95	0.95	0.95	1.00	0.95
Frt	0.986		0.945			
Flt Protected	0.957				0.950	
Satd. Flow (prot)	3410	0	3345	0	1770	3539
Flt Permitted	0.957				0.169	
Satd. Flow (perm)	3410	0	3345	0	315	3539
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	35		45			45
Link Distance (ft)	1185		929			773
Travel Time (s)	23.1		14.1			11.7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	374	38	807	463	83	684
Shared Lane Traffic (%)						
Lane Group Flow (vph)	412	0	1270	0	83	684
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	24		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1		2		1	2
Detector Template	Left		Thru		Left	Thru
Leading Detector (ft)	20		100		20	100
Trailing Detector (ft)	0		0		0	0
Detector 1 Position(ft)	0		0		0	0
Detector 1 Size(ft)	20		6		20	6
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0		0.0	0.0
Detector 1 Queue (s)	0.0		0.0		0.0	0.0
Detector 1 Delay (s)	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		NA		D.Pm	NA
Protected Phases	8		2			6
Permitted Phases					2	

Lanes, Volumes, Timings
300: NC 96 (Arendell Ave) & Pearces Road

02/22/2024



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8		2		2	6
Switch Phase						
Minimum Initial (s)	7.0		10.0		10.0	10.0
Minimum Split (s)	20.0		32.6		32.6	17.6
Total Split (s)	20.0		45.0		45.0	45.0
Total Split (%)	30.8%		69.2%		69.2%	69.2%
Maximum Green (s)	13.0		38.0		38.0	38.0
Yellow Time (s)	5.0		5.0		5.0	5.0
All-Red Time (s)	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						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		C-Min		C-Min	C-Min
Walk Time (s)	7.0		7.0		7.0	
Flash Dont Walk (s)	6.0		18.0		18.0	
Pedestrian Calls (#/hr)	0		0		0	
Act Effect Green (s)	14.2		40.8		40.8	40.8
Actuated g/C Ratio	0.22		0.63		0.63	0.63
v/c Ratio	0.55		0.61		0.42	0.31
Control Delay	25.4		9.1		14.2	6.4
Queue Delay	0.0		0.0		0.0	0.0
Total Delay	25.4		9.1		14.2	6.4
LOS	C		A		B	A
Approach Delay	25.4		9.1			7.3
Approach LOS	C		A			A
Queue Length 50th (ft)	73		142		12	50
Queue Length 95th (ft)	113		197		m37	103
Internal Link Dist (ft)	1105		849			693
Turn Bay Length (ft)	150				175	
Base Capacity (vph)	800		2110		198	2233
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	0.52		0.60		0.42	0.31

Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 65

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

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 11.3

Intersection LOS: B

Intersection Capacity Utilization 64.9%

ICU Level of Service C

Analysis Period (min) 15

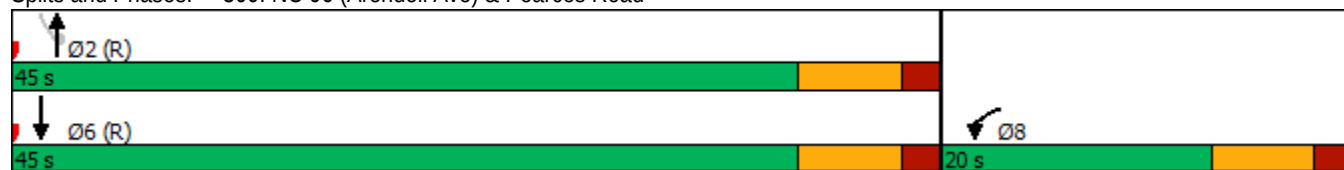
m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings

300: NC 96 (Arendell Ave) & Pearces Road

02/22/2024

Splits and Phases: 300: NC 96 (Arendell Ave) & Pearces Road



HCM 6th TWSC
400: Dogwood Drive & Site Access

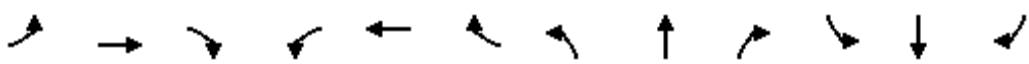
02/22/2024

Intersection												
Int Delay, s/veh	7.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	97	13	185	4	43	4	185	4	4	4	4	101
Future Vol, veh/h	97	13	185	4	43	4	185	4	4	4	4	101
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	108	14	206	4	48	4	206	4	4	4	4	112
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	52	0	0	220	0	0	346	290	14	395	494	50
Stage 1	-	-	-	-	-	-	230	230	-	58	58	-
Stage 2	-	-	-	-	-	-	116	60	-	337	436	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1554	-	-	1349	-	-	608	620	1066	565	476	1018
Stage 1	-	-	-	-	-	-	773	714	-	954	847	-
Stage 2	-	-	-	-	-	-	889	845	-	677	580	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1554	-	-	1349	-	-	502	568	1066	524	436	1018
Mov Cap-2 Maneuver	-	-	-	-	-	-	502	568	-	524	436	-
Stage 1	-	-	-	-	-	-	710	656	-	877	844	-
Stage 2	-	-	-	-	-	-	784	842	-	615	533	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.5			0.6			17.1			9.4		
HCM LOS							C			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	509	1554	-	-	1349	-	-	939				
HCM Lane V/C Ratio	0.421	0.069	-	-	0.003	-	-	0.129				
HCM Control Delay (s)	17.1	7.5	0	-	7.7	0	-	9.4				
HCM Lane LOS	C	A	A	-	A	A	-	A				
HCM 95th %tile Q(veh)	2.1	0.2	-	-	0	-	-	0.4				

Lanes, Volumes, Timings

500: NC 96 (Arendell Ave) & Green Pace Road

02/22/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Traffic Volume (vph)	40	31	83	0	15	6	83	640	10	5	566	65
Future Volume (vph)	40	31	83	0	15	6	83	640	10	5	566	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	200		0	150		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			100			100		
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		0.927			0.961			0.998			0.985	
Flt Protected		0.987					0.950			0.950		
Satd. Flow (prot)	0	1704	0	0	1790	0	1770	1859	0	1770	1835	0
Flt Permitted		0.905					0.308			0.296		
Satd. Flow (perm)	0	1563	0	0	1790	0	574	1859	0	551	1835	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		1260			776			885			736	
Travel Time (s)		24.5			15.1			13.4			11.2	
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)	44	34	92	0	17	7	92	711	11	6	629	72
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	170	0	0	24	0	92	722	0	6	701	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			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	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
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	Perm	NA			NA		D.Pm	NA		D.Pm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			2			6		

Lanes, Volumes, Timings
500: NC 96 (Arendell Ave) & Green Pace Road

02/22/2024

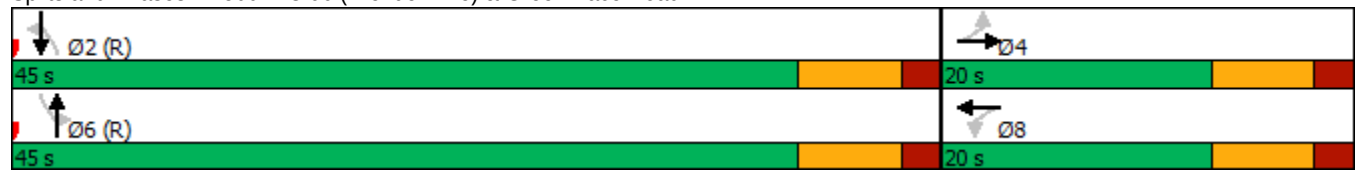
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	6		6	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	14.0	14.0		14.0	14.0		17.0	17.0		17.0	17.0	
Total Split (s)	20.0	20.0		20.0	20.0		45.0	45.0		45.0	45.0	
Total Split (%)	30.8%	30.8%		30.8%	30.8%		69.2%	69.2%		69.2%	69.2%	
Maximum Green (s)	13.0	13.0		13.0	13.0		38.0	38.0		38.0	38.0	
Yellow Time (s)	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	
Lost Time Adjust (s)		-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	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		5.0	5.0		5.0	5.0	
Minimum Gap (s)	0.2	0.2		0.2	0.2		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		15.0	15.0		15.0	15.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		30.0	30.0		30.0	30.0	
Recall Mode	None	None		None	None		C-Min	C-Min		C-Min	C-Min	
Act Effct Green (s)		12.8			12.8		42.2	42.2		42.2	42.2	
Actuated g/C Ratio		0.20			0.20		0.65	0.65		0.65	0.65	
v/c Ratio		0.56			0.07		0.25	0.60		0.02	0.59	
Control Delay		30.3			20.5		9.8	11.0		5.0	9.6	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		30.3			20.5		9.8	11.0		5.0	9.6	
LOS		C			C		A	B		A	A	
Approach Delay		30.3			20.5			10.9			9.5	
Approach LOS		C			C			B			A	
Queue Length 50th (ft)		61			8		15	147		1	137	
Queue Length 95th (ft)		112			24		m35	226		4	246	
Internal Link Dist (ft)		1180			696			805			656	
Turn Bay Length (ft)							200			150		
Base Capacity (vph)		361			415		373	1209		358	1194	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.47			0.06		0.25	0.60		0.02	0.59	
Intersection Summary												
Area Type:	Other											
Cycle Length: 65												
Actuated Cycle Length: 65												
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green												
Natural Cycle: 45												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 0.60												
Intersection Signal Delay: 12.4						Intersection LOS: B						
Intersection Capacity Utilization 70.7%						ICU Level of Service C						
Analysis Period (min) 15												
m Volume for 95th percentile queue is metered by upstream signal.												

Lanes, Volumes, Timings

500: NC 96 (Arendell Ave) & Green Pace Road

02/22/2024

Splits and Phases: 500: NC 96 (Arendell Ave) & Green Pace Road



HCM 6th TWSC
600: Pearces Road & Proctor Street

02/22/2024

Intersection

Int Delay, s/veh 11.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	42	93	33	72	62	21	26	327	74	14	220	23
Future Vol, veh/h	42	93	33	72	62	21	26	327	74	14	220	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	47	103	37	80	69	23	29	363	82	16	244	26

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	797	792	257	821	764	404	270	0	0	445	0	0
Stage 1	289	289	-	462	462	-	-	-	-	-	-	-
Stage 2	508	503	-	359	302	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	305	322	782	293	334	647	1293	-	-	1115	-	-
Stage 1	719	673	-	580	565	-	-	-	-	-	-	-
Stage 2	547	541	-	659	664	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	237	307	782	200	319	647	1293	-	-	1115	-	-
Mov Cap-2 Maneuver	237	307	-	200	319	-	-	-	-	-	-	-
Stage 1	697	662	-	563	548	-	-	-	-	-	-	-
Stage 2	447	525	-	521	653	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	30.5		41		0.5		0.5	
HCM LOS	D		E					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1293	-	-	322 264	1115	-	-
HCM Lane V/C Ratio	0.022	-	-	0.58 0.652	0.014	-	-
HCM Control Delay (s)	7.8	0	-	30.5 41	8.3	0	-
HCM Lane LOS	A	A	-	D E	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	3.4 4.1	0	-	-

Intersection

Int Delay, s/veh 0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	43	1113	46	0	1013
Future Vol, veh/h	0	43	1113	46	0	1013
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	0	48	1237	51	0	1126

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	644	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.94	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.32	-
Pot Cap-1 Maneuver	0	416	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	416	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	416
HCM Lane V/C Ratio	-	-	0.115
HCM Control Delay (s)	-	-	14.8
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.4

Intersection: 100: NC 96 (Arendell Ave) & US 264 WB Ramp/Dogwood Drive

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	TR
Maximum Queue (ft)	438	319	200	228	221	89	93	114
Average Queue (ft)	417	312	67	100	103	51	73	80
95th Queue (ft)	428	318	127	213	210	85	97	113
Link Distance (ft)	399	302		971	971	76	76	76
Upstream Blk Time (%)	100	79				3	9	11
Queuing Penalty (veh)	0	261				11	31	38
Storage Bay Dist (ft)			400					
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 200: NC 96 (Arendell Ave) & US 264 EB Ramp

Movement	EB	EB	NB	NB	SB	SB	SB
Directions Served	LT	R	T	TR	L	T	T
Maximum Queue (ft)	434	200	277	309	323	135	125
Average Queue (ft)	270	143	152	181	184	47	51
95th Queue (ft)	458	286	240	274	294	100	109
Link Distance (ft)	418		602	602		971	971
Upstream Blk Time (%)	9						
Queuing Penalty (veh)	0						
Storage Bay Dist (ft)		100			275		
Storage Blk Time (%)	48	2			1		
Queuing Penalty (veh)	153	7			2		

Intersection: 300: NC 96 (Arendell Ave) & Pearces Road

Movement	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	LR	T	TR	L	T	T
Maximum Queue (ft)	178	193	332	289	75	136	157
Average Queue (ft)	59	124	129	109	33	48	104
95th Queue (ft)	127	188	246	214	62	111	165
Link Distance (ft)		1083	834	834		687	687
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	150				175		
Storage Blk Time (%)	0	4					
Queuing Penalty (veh)	0	7					

Queuing and Blocking Report
PM Future Build

02/22/2024

Intersection: 400: Dogwood Drive & Site Access

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	28	245	288	244
Average Queue (ft)	1	98	265	233
95th Queue (ft)	9	227	273	286
Link Distance (ft)	302	249	249	229
Upstream Blk Time (%)		14	100	89
Queuing Penalty (veh)		0	0	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 500: NC 96 (Arendell Ave) & Green Pace Road

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	158	53	71	252	20	205
Average Queue (ft)	91	11	30	122	1	104
95th Queue (ft)	142	39	63	230	7	175
Link Distance (ft)	1217	732		819		698
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			200		150	
Storage Blk Time (%)				1		1
Queuing Penalty (veh)				1		0

Intersection: 600: Pearces Road & Proctor Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	117	114	54	54
Average Queue (ft)	57	59	6	4
95th Queue (ft)	98	99	32	24
Link Distance (ft)	901	1110	1083	1044
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 700: NC 96 (Arendell Ave)

Movement	WB	NB	NB	SB	SB	SB	B17
Directions Served	R	T	TR	T	T	T	T
Maximum Queue (ft)	77	54	49	73	165	121	165
Average Queue (ft)	30	2	2	8	33	35	5
95th Queue (ft)	63	18	16	42	103	105	54
Link Distance (ft)	155	76	76	110	110	110	834
Upstream Blk Time (%)					1	1	
Queuing Penalty (veh)					2	2	
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Network Summary

Network wide Queuing Penalty: 514

Intersection: 100: NC 96 (Arendell Ave) & US 264 WB Ramp/Dogwood Drive

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	T	R
Maximum Queue (ft)	358	410	202	223	154	395	370	134	150	129	127
Average Queue (ft)	234	137	99	158	80	230	237	84	131	86	73
95th Queue (ft)	338	276	176	216	135	337	338	144	146	147	135
Link Distance (ft)		700	210	210		954	954	68	68	68	68
Upstream Blk Time (%)			0	1				26	46	21	13
Queuing Penalty (veh)			0	1				66	117	53	33
Storage Bay Dist (ft)	300				400						
Storage Blk Time (%)	3	0				0					
Queuing Penalty (veh)	5	0				0					

Intersection: 200: NC 96 (Arendell Ave) & US 264 EB Ramp

Movement	EB	EB	NB	NB	SB	SB	SB
Directions Served	LT	R	T	TR	L	T	T
Maximum Queue (ft)	434	200	282	316	375	573	179
Average Queue (ft)	254	111	156	155	257	173	82
95th Queue (ft)	442	266	236	249	412	467	154
Link Distance (ft)	418		602	602		954	954
Upstream Blk Time (%)	5						
Queuing Penalty (veh)	0						
Storage Bay Dist (ft)		100			275		
Storage Blk Time (%)	44	5			26		
Queuing Penalty (veh)	142	18			75		

Intersection: 300: NC 96 (Arendell Ave) & Pearces Road

Movement	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	LR	T	TR	L	T	T
Maximum Queue (ft)	186	110	230	218	120	223	144
Average Queue (ft)	86	70	123	102	46	88	41
95th Queue (ft)	140	106	202	184	84	178	102
Link Distance (ft)		1083	876	876		687	687
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	150				175		
Storage Blk Time (%)	1					1	
Queuing Penalty (veh)	1					1	

Queuing and Blocking Report

PM Future Build

02/20/2024

Intersection: 400: Dogwood Drive & Site Access

Movement	EB	WB	NB	SB
Directions Served	LT	LTR	LTR	LTR
Maximum Queue (ft)	47	29	97	54
Average Queue (ft)	5	1	46	34
95th Queue (ft)	26	10	77	51
Link Distance (ft)	210	249	170	216
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 500: NC 96 (Arendell Ave) & Green Pace Road

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	138	66	88	193	45	274
Average Queue (ft)	78	14	44	103	4	117
95th Queue (ft)	122	42	82	192	21	209
Link Distance (ft)	1217	732		819		698
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			200		150	
Storage Blk Time (%)				0		3
Queuing Penalty (veh)				0		0

Intersection: 600: Pearces Road & Proctor Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	115	120	22	74
Average Queue (ft)	54	48	1	10
95th Queue (ft)	90	85	10	42
Link Distance (ft)	901	1110	1083	1044
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 700: NC 96 (Arendell Ave)

Movement	WB	SB	SB	SB	SB	B9
Directions Served	R	T	T	T	T	T
Maximum Queue (ft)	30	42	130	142	56	152
Average Queue (ft)	24	5	79	17	6	25
95th Queue (ft)	43	25	145	78	32	91
Link Distance (ft)	169	69	69	69	69	876
Upstream Blk Time (%)			16	1	0	
Queuing Penalty (veh)			39	2	0	
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 552
