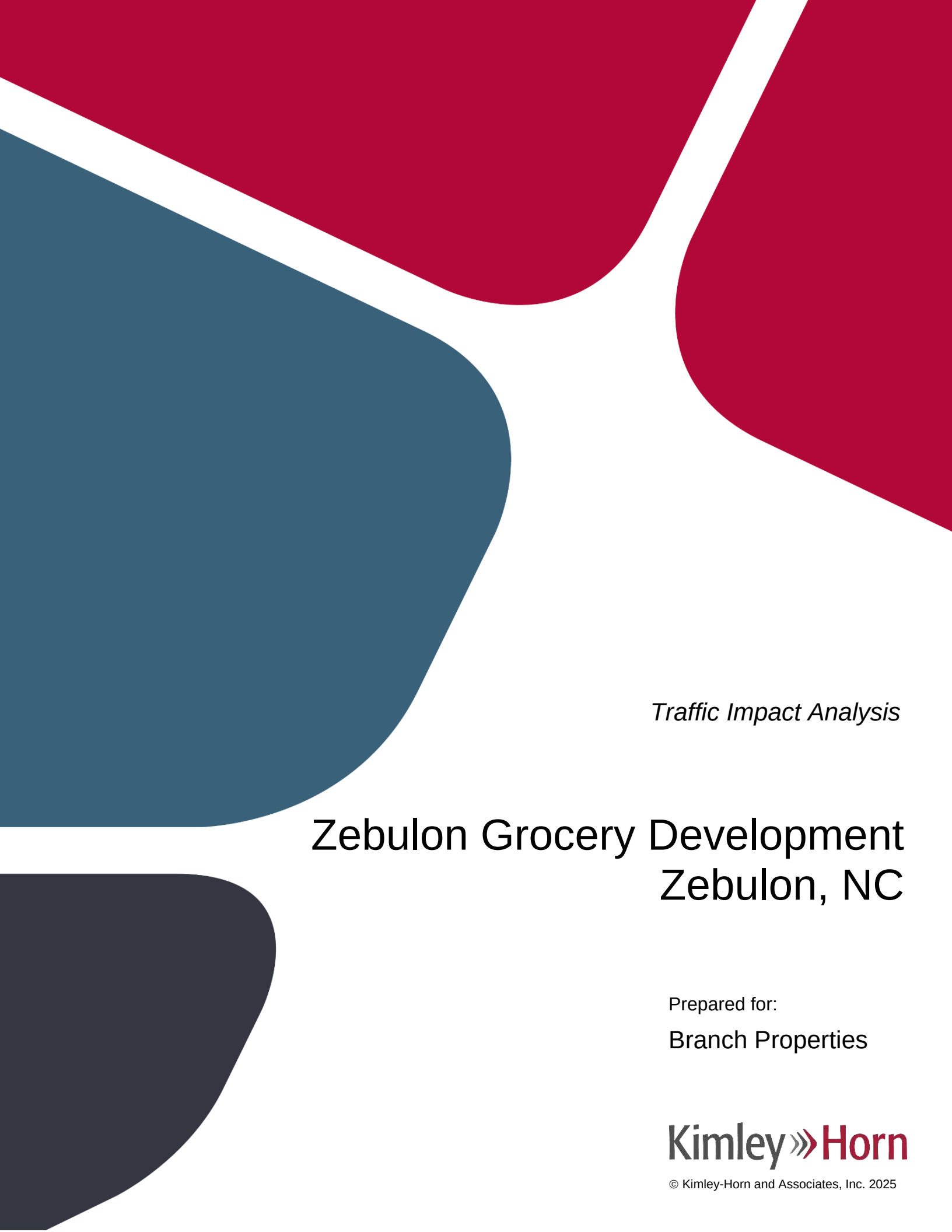




Traffic Impact Analysis

Zebulon Grocery Development Zebulon, NC

Prepared for:
Branch Properties

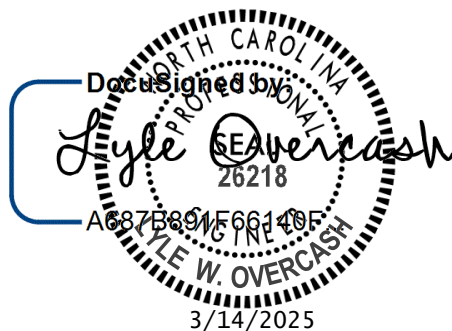
Kimley»Horn

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Traffic Impact Analysis for
Zebulon Grocery Development
Zebulon, North Carolina

Prepared for:
Branch Properties
Atlanta, Georgia

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3/14/2025
March 2025

019675013

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Executive Summary

Kimley-Horn and Associates, Inc. has performed a Traffic Impact Analysis for the Zebulon Grocery Development, which is proposed to be located in the northeast corner of the intersection of NC 96 at Proctor Street in Zebulon, NC. There is currently one vacant building on the property, to be removed, and as envisioned the development will consist of a 92,000 square foot (s.f.) grocery-anchored shopping center. The site is proposed to be accessed via a right-in access only driveway and a full movement driveway along NC 96. Access is also proposed via a full movement driveway along Proctor Street. Build-out of the development is anticipated by 2027.

This report presents trip generation, distribution, traffic analyses, and recommendations for transportation improvements required to meet anticipated traffic demands in conjunction with the development.

Per the Town of Zebulon (Town) Unified Development Ordinance (UDO), the future traffic conditions were analyzed for the build-out year plus one year into the future after the development is completed (2028). Therefore, the traffic conditions studied include the following:

- Existing (2024)
- Background (2028)
- Build-out (2028)
- Build-out (2028) with Improvements

Trip Generation

The traffic generation potential of the proposed development was determined using the trip generation rates published in *Trip Generation* (Institute of Transportation Engineers, Eleventh Edition, 2021). As shown in [Table ES-1](#), the site is projected to generate approximately 6,894 new daily trips, 224 new AM peak hour trips, and 665 new PM peak hour trips.

Table ES-1 ITE Traffic Generation (Vehicles)												
Land Use		Intensity		Daily			AM Peak Hour			PM Peak Hour		
				Total	In	Out	Total	In	Out	Total	In	Out
821	Shopping Plaza (40-150k) – w/ Supermarket	92,000	s.f.	8,494	4,247	4,247	325	202	123	825	396	429
Pass-By Reductions				-1,600	-800	-800	-101	-63	-38	-160	-80	-80
Total Net New External Trips				6,894	3,447	3,447	224	139	85	665	316	349

Capacity Analysis

Capacity analyses were performed using Synchro Version 12 software. [Table ES-2](#) summarizes the operation of the study intersections for the AM and PM peak hour traffic conditions.

Table ES-2 - Level of Service Summary

Intersection and Approach/Movement	Traffic Control	Existing (2025) Traffic		Background (2028) Traffic		Build-out (2028) Traffic		Build-out (2028) Traffic - Improved	
		AM	PM	AM	PM	AM	PM	AM	PM
NC 96 at Pippin Road	Signalized	B (13.4)	B (12.1)	C (24.0)	B (18.8)	C (24.6)	C (21.7)	C (24.5)	C (21.6)
Westbound		C (24.5)	C (25.2)	C (29.4)	D (37.1)	C (31.4)	D (41.4)	C (31.2)	D (40.8)
Northbound		B (13.0)	B (13.4)	C (26.8)	C (20.2)	C (26.7)	C (22.9)	C (26.5)	C (22.8)
Southbound		B (10.4)	A (8.3)	B (18.9)	B (12.0)	B (19.6)	B (14.3)	B (19.7)	B (14.5)
NC 96 at Rose Mallow Drive	Unsignalized	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
Westbound		D (27.2)	D (32.7)	F (55.3)	F (85.9)	F (76.7)	F (249.9)	F (75.4)	F (240.8)
Southbound Left		A (8.8)	A (9.3)	A (9.3)	B (10.6)	A (9.4)	B (11.3)	A (9.4)	B (11.3)
NC 96 at Riley Hill Road/Proctor Street		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
Eastbound	Unsignalized	F (73.1)	F (54.6)	F (>500)*	F (>500)	F (>500)*	F (>500)	C (20.9)	D (25.3)
Westbound		F (139.9)	D (34.6)	F (>500)	F (>500)	F (>500)	F (>500)*	C (15.7)	C (22.4)
Northbound Left		B (10.1)	A (9.1)	B (12.0)	B (10.0)	B (12.2)	B (10.4)	B (13.2)	B (10.7)
Southbound Left		A (8.8)	A (9.4)	A (9.5)	B (11.0)	A (9.6)	B (11.5)	A (9.6)	B (11.5)
NC 96 at Green Pace Road	Signalized	B (15.5)	C (20.6)	B (19.9)	C (25.7)	C (21.4)	C (31.4)	D (38.3)	D (43.2)
Eastbound		E (73.2)	E (70.0)	F (88.0)	F (88.2)	F (93.0)	F (100.5)	F (83.8)	F (86.1)
Westbound		D (44.3)	C (35.2)	D (46.3)	D (36.6)	D (46.8)	D (38.4)	E (68.8)	E (68.9)
Northbound		A (4.7)	B (11.9)	A (6.3)	B (10.5)	A (7.6)	B (15.5)	C (23.0)	C (32.7)
Southbound		A (8.4)	B (10.9)	B (15.5)	B (19.5)	B (16.8)	C (24.8)	D (37.3)	D (37.3)
NC 96 at Pearces Road	Signalized	C (21.5)	B (13.6)	C (20.7)	B (14.7)	C (21.0)	B (15.2)	B (19.0)	B (13.9)
Westbound		D (42.3)	D (50.4)	D (51.1)	D (53.6)	D (51.3)	D (53.8)	D (51.3)	D (53.8)
Northbound		B (13.0)	A (5.1)	A (8.6)	A (5.1)	A (9.4)	A (6.6)	A (9.4)	A (6.6)
Southbound		B (18.7)	B (10.8)	B (13.0)	B (11.7)	B (13.5)	B (11.7)	A (7.5)	A (7.7)
NC 96 at US 64-264 WB Ramps/Dogwood Drive	Signalized	D (43.9)	C (34.2)	C (34.7)	C (29.6)	D (37.1)	D (35.3)	D (43.0)	D (40.8)
Eastbound		F (154.9)	E (73.3)	E (76.4)	E (63.7)	F (84.7)	E (79.0)	F (84.7)	E (79.0)
Westbound		C (25.2)	C (25.8)	F (93.9)	E (76.5)	F (93.9)	E (76.5)	F (93.9)	E (76.5)
Northbound		A (7.1)	B (18.1)	B (11.1)	B (14.0)	B (10.9)	B (12.9)	B (10.9)	B (12.9)
Southbound		C (23.5)	C (34.3)	C (25.9)	C (23.2)	C (28.5)	C (33.3)	D (42.0)	D (47.3)
NC 96 at US 64-264 EB Ramps	Signalized	C (26.2)	C (33.0)	C (32.7)	D (44.6)	C (33.7)	D (51.4)	C (33.7)	D (51.4)
Eastbound		E (59.3)	D (57.6)	E (59.4)	E (65.9)	E (60.6)	E (74.7)	E (60.6)	E (74.7)
Northbound		C (22.4)	C (26.0)	D (38.9)	D (50.9)	D (39.5)	D (54.9)	D (39.5)	D (54.9)
Southbound		A (5.2)	B (18.9)	B (11.4)	C (21.3)	B (12.4)	C (29.8)	B (12.4)	C (29.9)
Proctor Street at Green Pace Road	Unsignalized	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
Northbound		A (9.4)	A (9.7)	A (9.5)	A (9.8)	B (10.7)	B (11.6)	B (11.4)	B (12.9)
Westbound Left		A (7.7)	A (7.6)	A (7.8)	A (7.6)	A (7.8)	A (7.9)	A (8.0)	A (8.0)
Proctor Street at Watsonia Drive	Unsignalized	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	N/A	
Southbound		B (11.3)	B (10.9)	B (11.8)	B (11.0)	B (12.4)	B (11.9)		
Eastbound Left		A (8.0)	A (7.5)	A (8.1)	A (7.6)	A (8.2)	A (7.8)		
Proctor Street at Pearces Road	All-Way Stop Control (Existing)/ Roundabout (Future)	C (19.5)	C (16.7)	B (11.9) v/c - 0.714	B (10.7) v/c - 0.676	B (12.9) v/c - 0.746	B (12.7) v/c - 0.739	N/A	
Eastbound		B (14.4)	B (13.6)	B (11.5)	A (7.8)	B (12.3)	A (9.3)		
Westbound		C (19.7)	B (12.8)	A (7.6)	A (9.8)	A (8.0)	B (11.5)		
Northbound		B (14.8)	C (21.6)	A (7.6)	B (14.1)	A (7.9)	C (17.6)		
Southbound		C (24.5)	B (13.4)	C (16.7)	A (7.4)	C (18.6)	A (8.4)		
NC 96 at Site Driveway 1	Unsignalized/ Signalized (with Improvements)	N/A				- (-)	- (-)	B (13.0)	C (27.8)
Westbound						F (269.2)	F (>500)	D (35.8)	E (61.1)
Northbound						- (-)	- (-)	B (15.0)	C (30.8)
Southbound Left/Southbound						B (10.0)	B (13.0)	A (9.9)	B (15.9)
Proctor Street at Site Driveway 3	Unsignalized	N/A				- (-)	- (-)	- (-)	- (-)
Southbound						B (10.3)	B (12.0)	B (10.0)	B (11.9)
Eastbound Left						A (7.6)	A (7.7)	A (7.5)	A (7.7)

*Due to Synchro limitations, no delay is available at this approach.

Committed Improvements by Others

The following improvements are committed to be performed by others:

NC 96 at Pearces Road

- Provide an additional southbound through lane along NC 96 that begins approximately 830 feet north of this intersection and ends at US 64-264 WB Ramps/Dogwood Drive (U-5118 FB)
- Restripe the existing westbound right-turn lane as a shared left/right-turn lane (U-5118 FB)
- Modify existing traffic signal to accommodate laneage improvements (U-5118 FB)

NC 96 at US 64-264 WB Ramps/Dogwood Drive

- Provide an exclusive eastbound left-turn lane
- Provide an exclusive westbound left-turn lane and a westbound through/right-turn lane with approximately 150 feet of storage
- Extend the southbound through lane along NC 96 to US 64-264 WB Ramps/Dogwood Drive (U-5118 FB)

Proctor Street at Pearces Road

- Construct a modular roundabout (HN-0018)

Proposed Improvements by Zebulon Grocery Development

The following improvements are proposed to be performed in conjunction with the proposed development:

NC 96 at Riley Hill Road/Proctor Street

- Reconfigure the intersection to a Reduced Conflict Intersection (RCI) by restriping the eastbound and westbound approaches to allow only right-turns onto NC 96

NC 96 at Green Pace Road

- Construct an exclusive northbound right-turn lane with approximately 125 feet of storage
- Modify the existing traffic signal to accommodate this additional laneage and to provide permitted/protected phasing for the northbound and southbound left-turning movements

NC 96 at Site Driveway 1

- Construct Site Driveway 1 as a full-movement access with two egress lanes and one ingress lane
- Provide frontage widening via an additional northbound through lane along NC 96 that begins at Riley Hill Road/Proctor Street and ends as a northbound right-turn lane into Site Driveway 1
- Install traffic signal when warranted

NC 96 at Site Driveway 2

- Construct Site Driveway 2 with right-in only access and one ingress lane
- Provide frontage widening via an additional northbound through lane along NC 96 that begins at Riley Hill Road/Proctor Street and ends as a northbound right-turn lane into Site Driveway 1
- Provide a northbound right-turn lane with approximately 50 feet of storage

NC 96 at Site Driveway 3

- Construct Site Driveway 3 as a full-movement access with one ingress lane and two egress lanes to be striped as a left-turn lane and right-turn lane with approximately 50 feet of storage

Conclusions

With improvements committed by others in place, analyses indicate that the intersections of NC 96 at Pearces Road, NC 96 at US 64-264 WB Ramps/Dogwood Drive, and Proctor Street at Pearces Road are expected to operate at acceptable levels of service and delays in both peak hours.

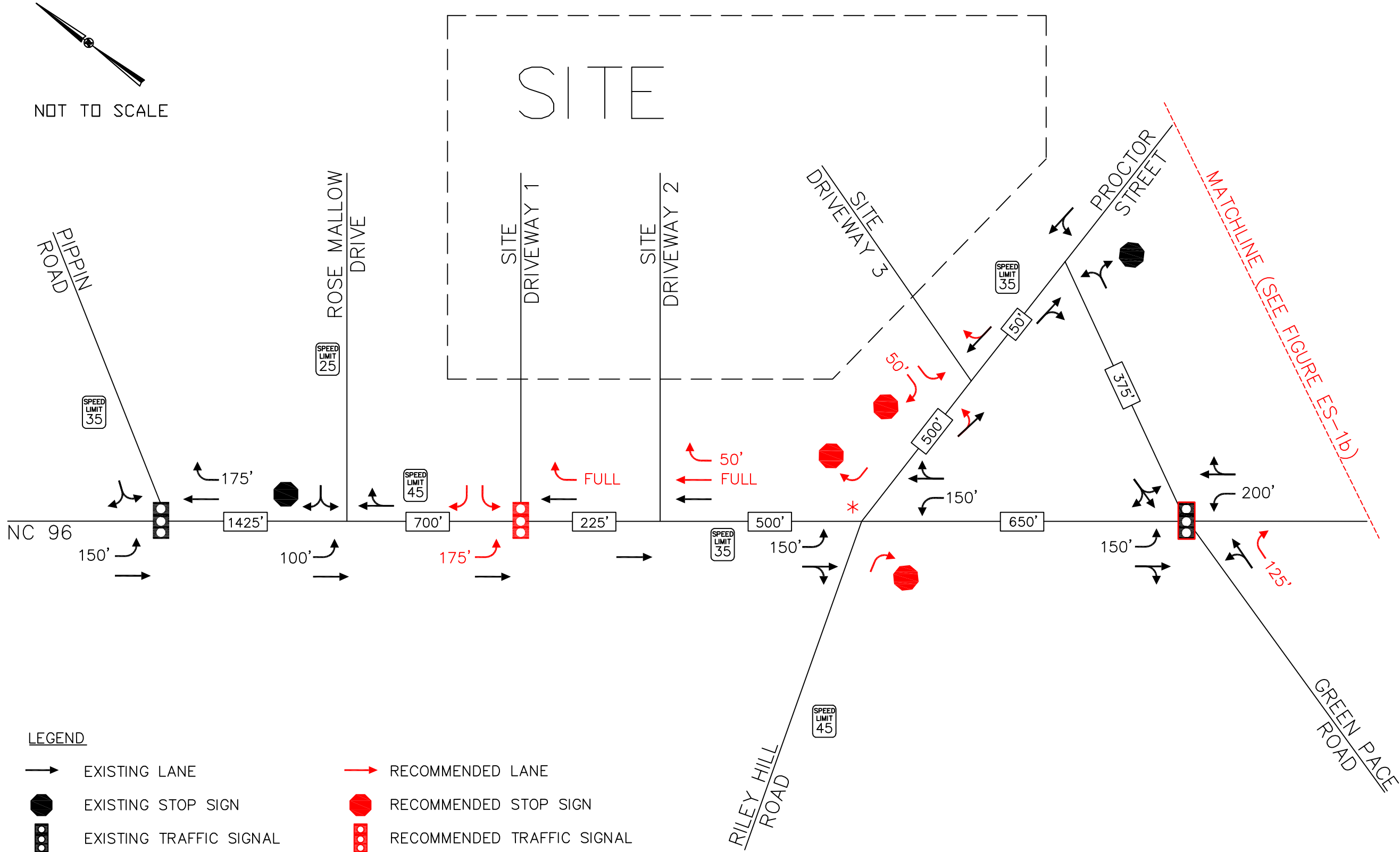
The intersection of NC 96 at Rose Mallow Drive is expected to operate with long delays at the minor street approach during both peak hours analyzed, with or without the proposed development in place. It should be noted that long delays are not uncommon at minor street approaches of mainlines with heavy through movements (NC 96). Additionally, the proposed traffic signal at Site Driveway 1 is expected to provide gaps that would allow vehicles on Rose Mallow Drive to turn onto NC 96.

The intersection of NC 96 at Riley Hill Road/Proctor Street currently operates and is expected to continue to operate with long delays at the minor street approaches in both peak hours under all traffic conditions and peak hours. With the conversion of this intersection to an RCI, the minor street approaches are expected to operate with short to moderate delays in both peak hours.

The intersection of NC 96 at Green Pace Road is expected to operate with acceptable levels of service and delays during both peak hours; however, to reduce queues along NC 96 in each direction permitted/protected phasing was added to the northbound and southbound left-turning movements at this intersection. As result of this improvement and turn restrictions at NC 96 at Riley Hill Road/Proctor Street, increases in delay are expected during both peak hours analyzed. An eastbound right-turn lane is proposed to reduce delays at the eastbound approach to less than those observed in background traffic conditions.

All other study intersections are expected to operate with acceptable delays and queues during both peak hours with the recommended improvements in place. The recommended roadway laneage with the committed and proposed improvements is shown on **Figure ES-1a** and **Figure ES-1b**.

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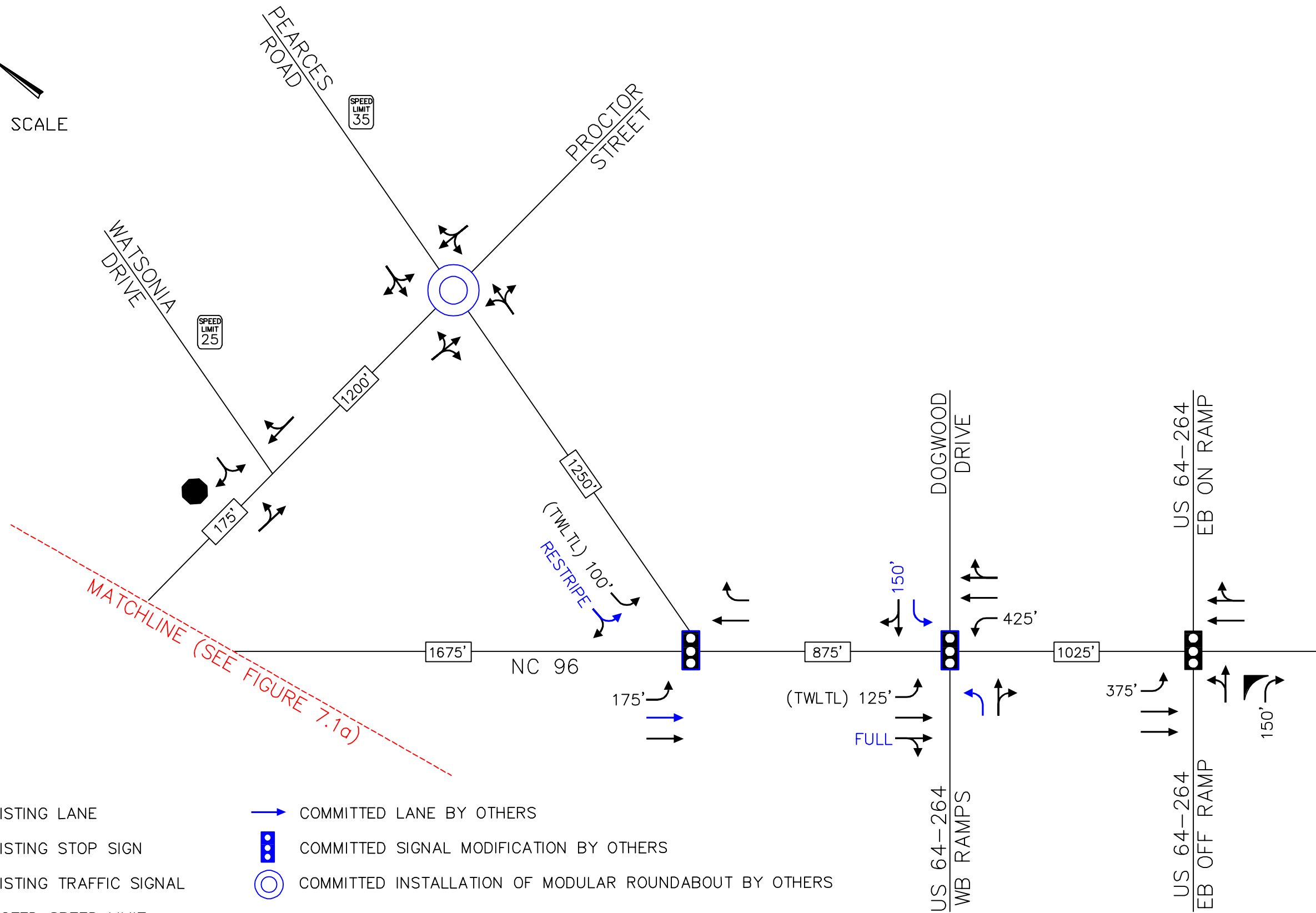
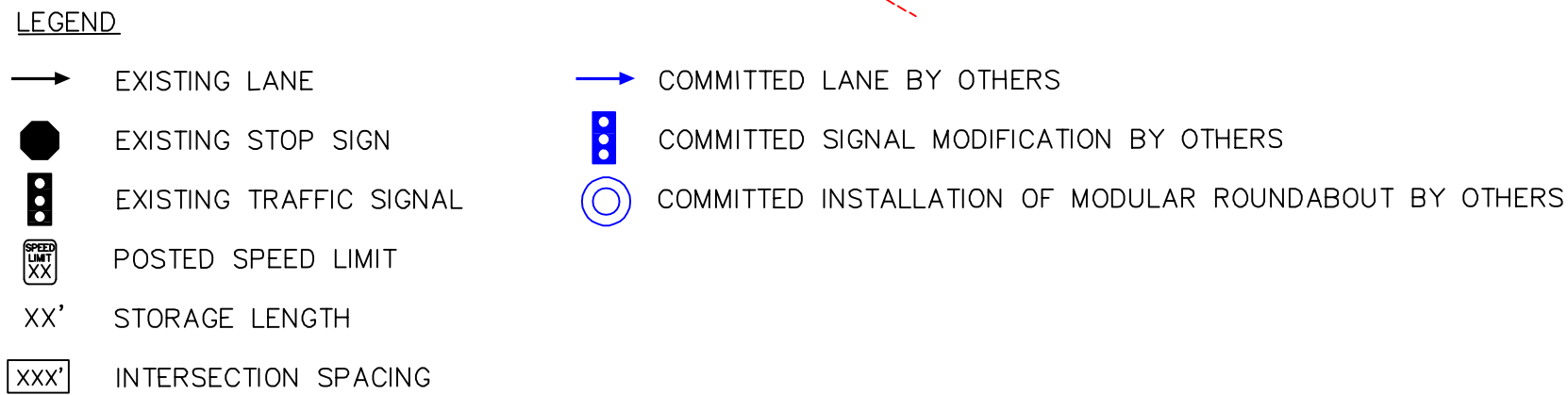


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1.0 Introduction

Kimley-Horn and Associates, Inc. has performed a Traffic Impact Analysis for the Zebulon Grocery Development, which is proposed to be located in the northeast corner of the intersection of NC 96 at Proctor Street in Zebulon, NC. There is currently one vacant building on the property, to be removed, and as envisioned the development will consist of a 92,000 square foot (s.f.) grocery-anchored shopping center. The site is proposed to be accessed via a right-in access only driveway and a full movement driveway along NC 96. Access is also proposed via a full movement driveway along Proctor Street. Build-out of the development is anticipated by 2027.

This report presents trip generation, distribution, traffic analyses, and recommendations for transportation improvements required to meet anticipated traffic demands in conjunction with the development.

Per the Town of Zebulon (Town) Unified Development Ordinance (UDO), the future traffic conditions were analyzed for the build-out year plus one year into the future after the development is completed (2028). Therefore, the traffic conditions studied include the following:

- Existing (2024)
- Background (2028)
- Build-out (2028)
- Build-out (2028) with Improvements

NCDOT and Town planning staff provided background data and were consulted regarding the elements to be covered in this analysis. The approved assumptions memorandum is included in the Appendix of this report.

2.0 Inventory

2.1 Study Area

The study area for this development includes the following intersections:

- NC 96 at Pippin Road
- NC 96 at Rose Mallow Drive
- NC 96 at Riley Hill Road/Proctor Street
- NC 96 at Green Pace Road
- NC 96 at Pearces Road
- NC 96 at US 64-264 WB Ramps/Dogwood Drive
- NC 96 at US 64-264 EB Ramps
- Proctor Street at Green Pace Road
- Proctor Street at Watsonia Drive
- Proctor Street at Pearces Road
- NC 96 at Site Driveway 1
- NC 96 at Site Driveway 2
- Proctor Street at Site Driveway 3

Figure 2.1 shows the site location and proposed driveway connections. The conceptual site plan is shown on **Figure 2.2**.

2.2 Existing Conditions

The proposed Zebulon Grocery development is located in the northeast corner of the intersection of NC 96 at Riley Hill/Proctor Street in Zebulon, NC. Roadways in the study area include NC 96, Pippin Road, Rose Mallow Drive, Riley Hill Road, Proctor Street, Green Pace Road, Pearces Road, Watsonia Road, Dogwood Drive, and US 64-264. Roadway network elements (speed limit, estimated average daily traffic volume, and existing configuration) of study area roadways are summarized in Table 2.1, located on the following page. The existing roadway laneage is shown in **Figure 2.3a** and **Figure 2.3b**.

Table 2.1 Roadway Network Summary			
Roadway	Speed Limit	Estimated AADT* Volume	Typical Existing Configuration
NC 96	35 mph / 45 mph	11,000 vpd north of Pippin Road*; 12,500 vpd north of Pearces Road**	2-Lane Undivided/ 4-Lane Undivided
Pippin Road	25 mph	3,000 vpd east of NC 96***	2-Lane Undivided
Rose Mallow Drive	25 mph	<1,000 vpd east of NC 96***	2-Lane Undivided
Riley Hill Road/ Proctor Street	35 / 45 mph	3,400 vpd east of Watsonia Drive*; 2,400 vpd west of NC 96*	2-Lane Undivided
Green Pace Road	mph	3,800 vpd west of NC 96	2-Lane Undivided
Pearces Road	35 mph	7,500 vpd east of NC 96***; 7,300 vpd north of Proctor Street*	2-Lane Undivided
Watsonia Drive	25 mph	<1,000 vpd north of Proctor Street***	2-Lane Undivided
Dogwood Drive	35 mph (assumed)	<1,000 vpd east of NC 96***	2-Lane Undivided
US 64-264	70 mph	61,000 vpd east of NC 96*	4-Lane Divided

*2023 AADT from NCDOT.

**2021 AADT from NCDOT

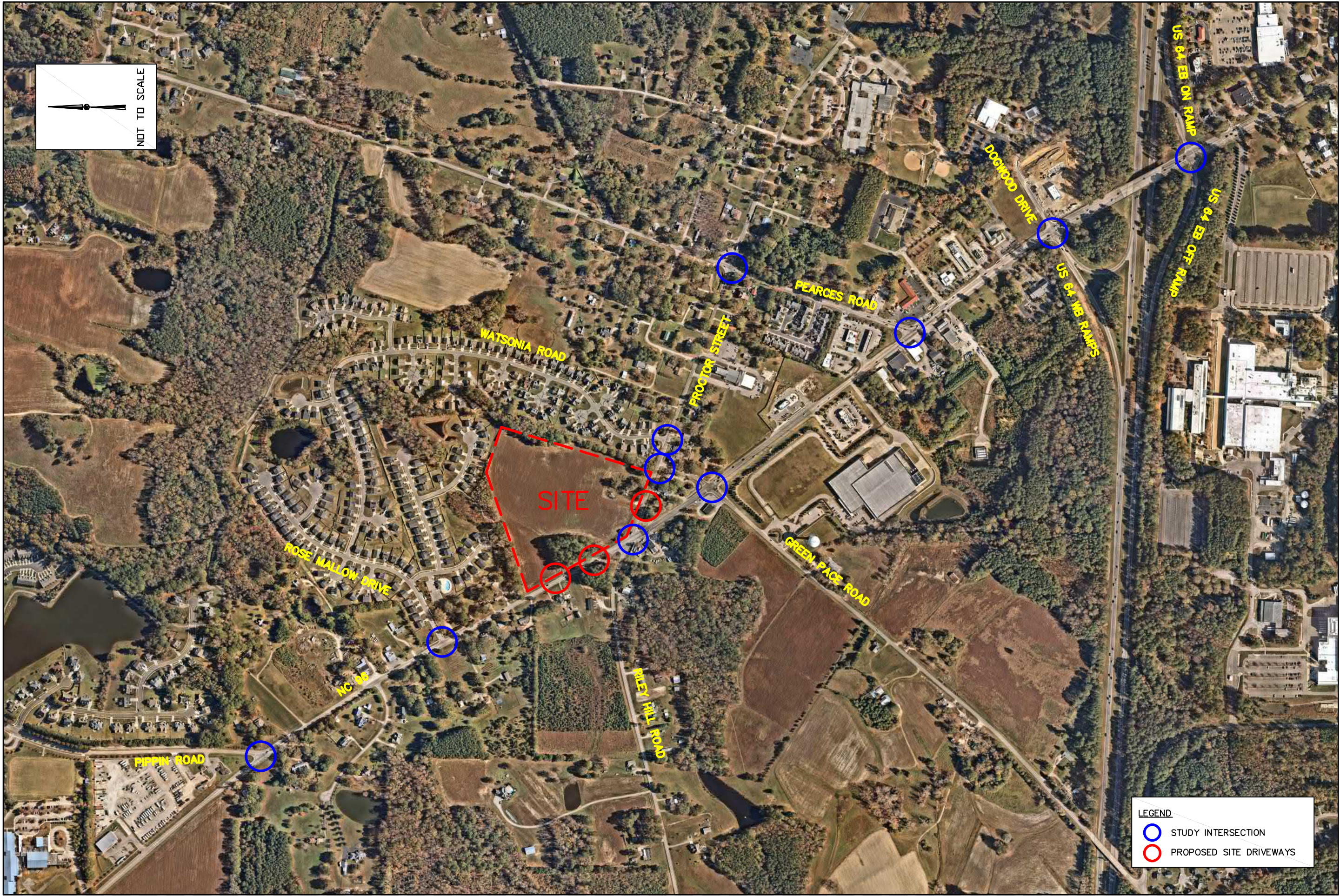
***ADT was calculated for this roadway using existing AM and PM traffic volumes, assuming the total of those peak hours is 20% of the daily traffic volumes.

2.3 Future Roadway Improvements

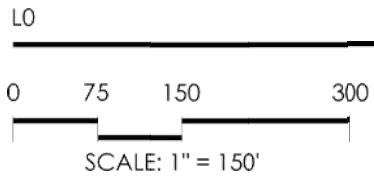
NCDOT State Transportation Improvement Program (TIP) project HN-0018 proposes to construct a modular roundabout at the intersection of Proctor Street at Pearces Road. Based on coordination with the Town, this project is now expected to be completed by a developer in the area and will begin construction in 2026 and was included and analyzed in this study as a future roadway improvement under all future (2028) traffic conditions.

NCDOT TIP project U-5118 FB proposes to construct access management improvements north of Pearces Road to Dogwood Drive along NC 96. An additional southbound through lane is expected to be provided along NC 96 beginning approximately 830 feet north of the intersection of NC 96 at Pearces Road and ending at US 64-264 WB Ramps/Dogwood Drive. At the intersection of NC 96 at Pearces Road the westbound right lane is expected to be restriped to a shared left/right lane and the existing traffic signal is expected to be modified to accommodate these laneage improvements. This project was included and analyzed in this study as a future roadway improvement under all future (2028) traffic conditions.

At the intersection of NC 96 at US 64-264 WB Ramps/Dogwood Drive, an exclusive westbound left-turn lane, a shared westbound through/right-turn lane with a storage length of 150 feet with an appropriate taper length, and an exclusive eastbound left-turn lane are expected to be provided by others.



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Z E B U L O N
NC 96 HWY & PROCTOR ST.
Z E B U L O N , N C

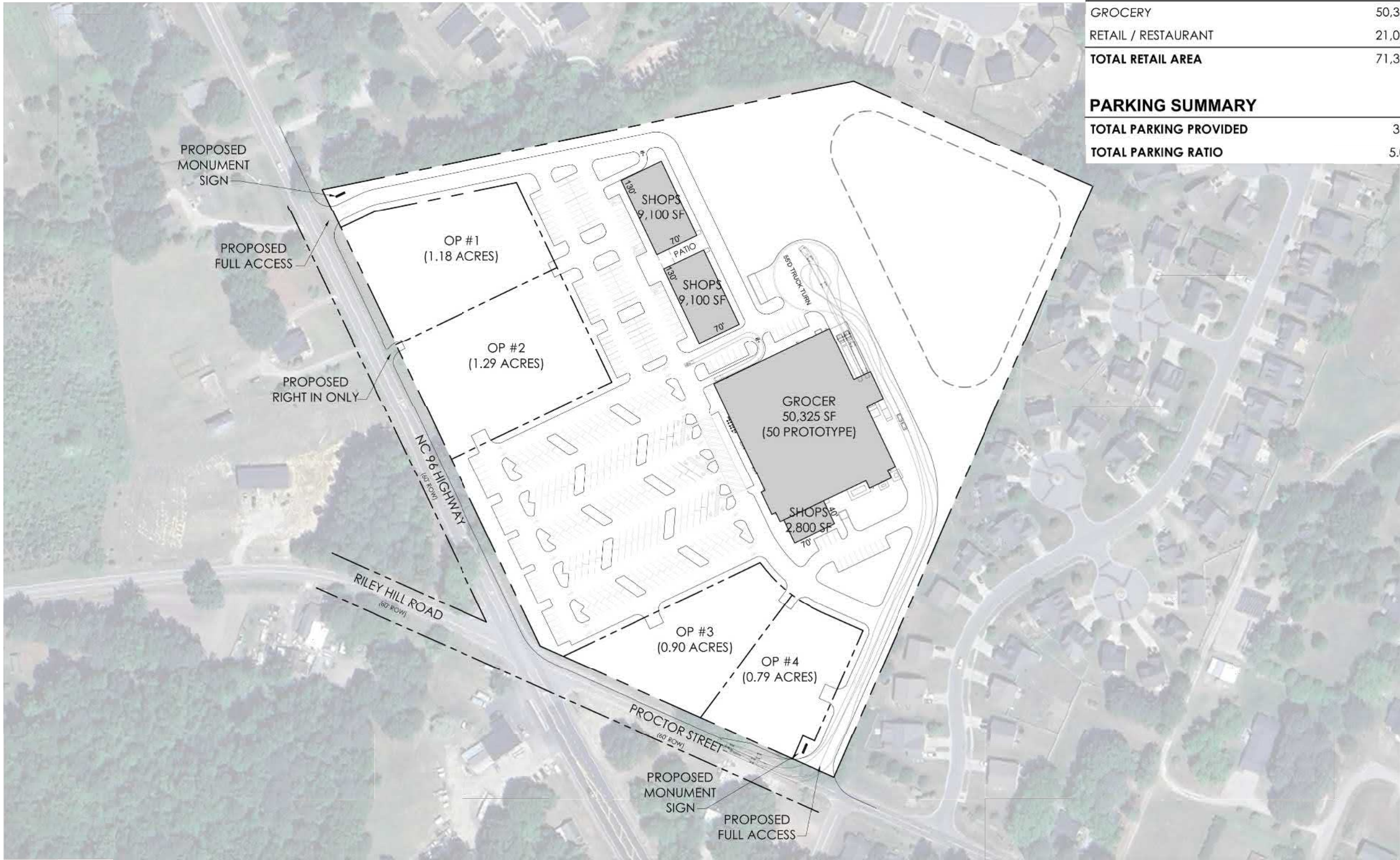
SP-1.2
SCHEMATIC SITE PLAN (ZONING PLAN)
2024.12.06



ZEBULON GROCERY
ZEBULON, NC
TRAFFIC IMPACT ANALYSIS

CONCEPTUAL SITE PLAN

FIGURE
2.2

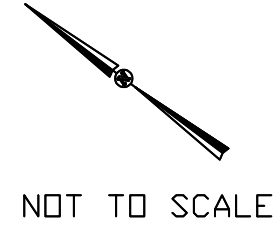


BUILDING SUMMARY

GROCERY	50,325 SF
RETAIL / RESTAURANT	21,000 SF
TOTAL RETAIL AREA	71,325 SF

PARKING SUMMARY

TOTAL PARKING PROVIDED	357 SPACES
TOTAL PARKING RATIO	5.00 /1000

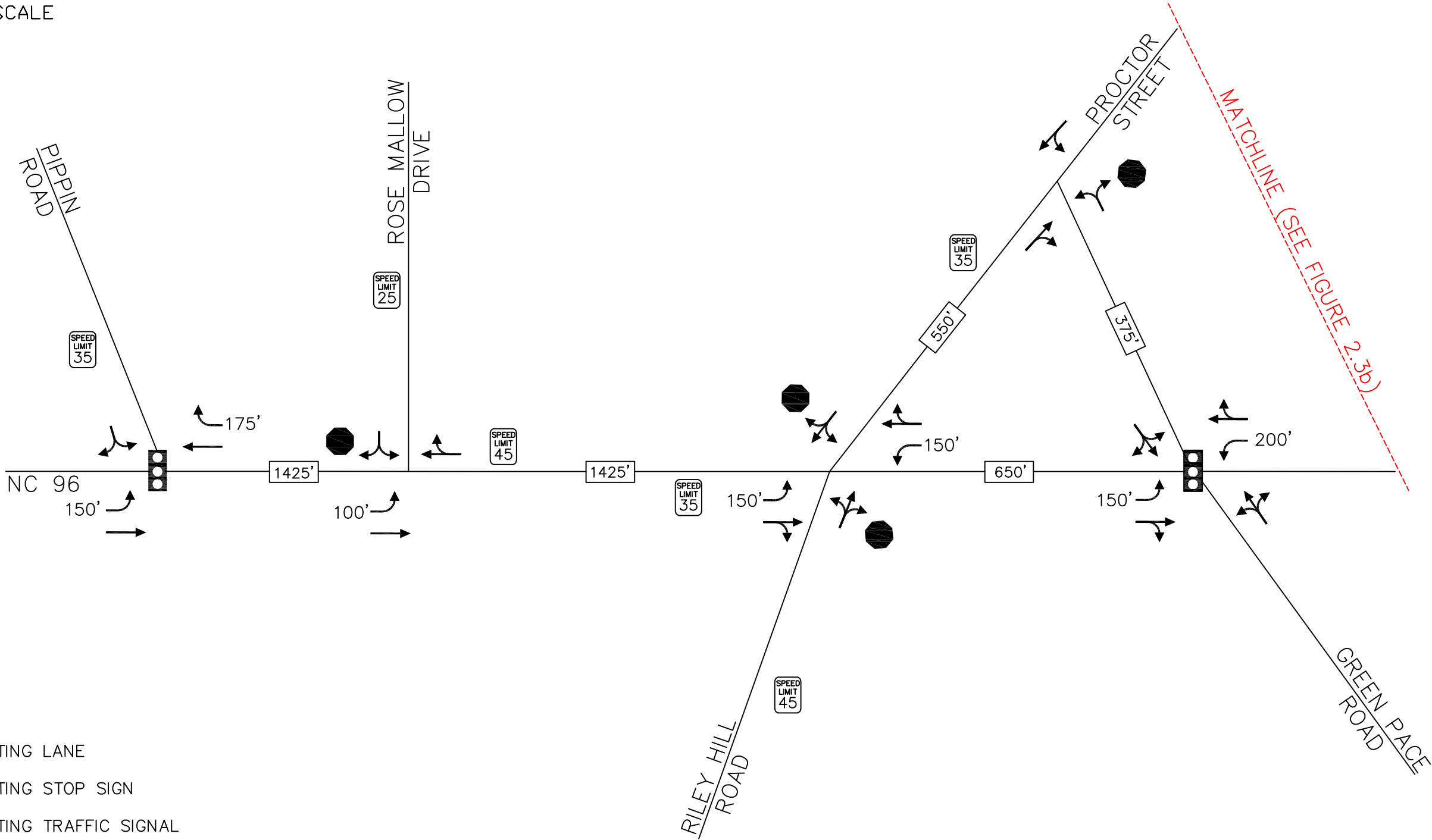


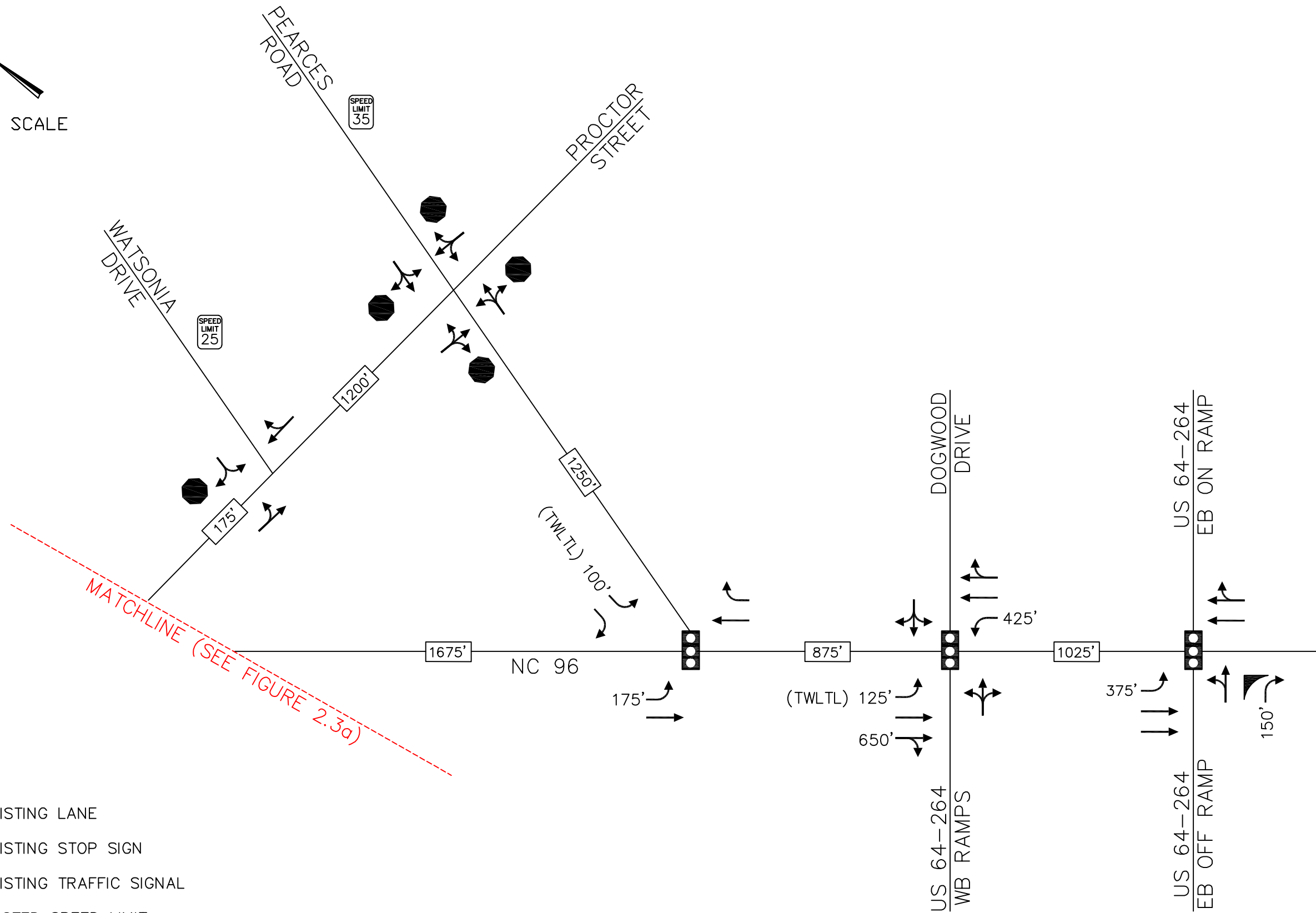
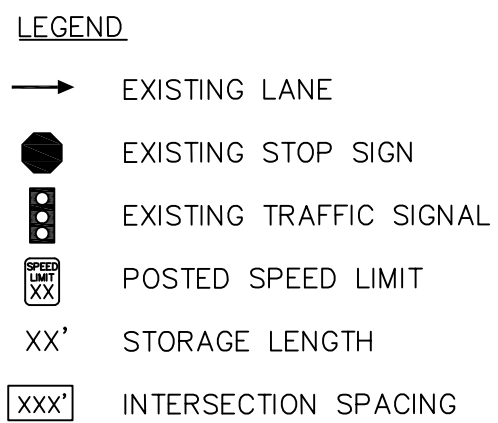
LEGEND

- EXISTING LANE
- EXISTING STOP SIGN
- ⬢ EXISTING TRAFFIC SIGNAL
- SPEED LIMIT
XX

 POSTED SPEED LIMIT
- XX' STORAGE LENGTH
- XXX'

 INTERSECTION SPACING





3.0 Traffic Generation

The traffic generation potential of the proposed development was determined using the traffic generation rates published in *Trip Generation* (Institute of Transportation Engineers, Eleventh Edition, 2021). As currently envisioned, the proposed development is planned to consist of 92,000 s.f. grocery-anchored shopping center. [Table 3.0](#) summarizes the estimated traffic generation for the proposed development.

Table 3.0 ITE Traffic Generation (Vehicles)												
Land Use		Intensity		Daily			AM Peak Hour			PM Peak Hour		
				Total	In	Out	Total	In	Out	Total	In	Out
821	Shopping Plaza (40-150k) – w/ Supermarket	92,000	s.f.	8,494	4,247	4,247	325	202	123	825	396	429
<i>Pass-By Reductions</i>				-1,600	-800	-800	-101	-63	-38	-160	-80	-80
Total Net New External Trips				6,894	3,447	3,447	224	139	85	665	316	349

[Table 3.0](#) shows that the proposed development has the potential to generate 6,894 new daily trips in a typical weekday with 224 new trips during the AM peak hour and 665 new trips during the PM peak hour.

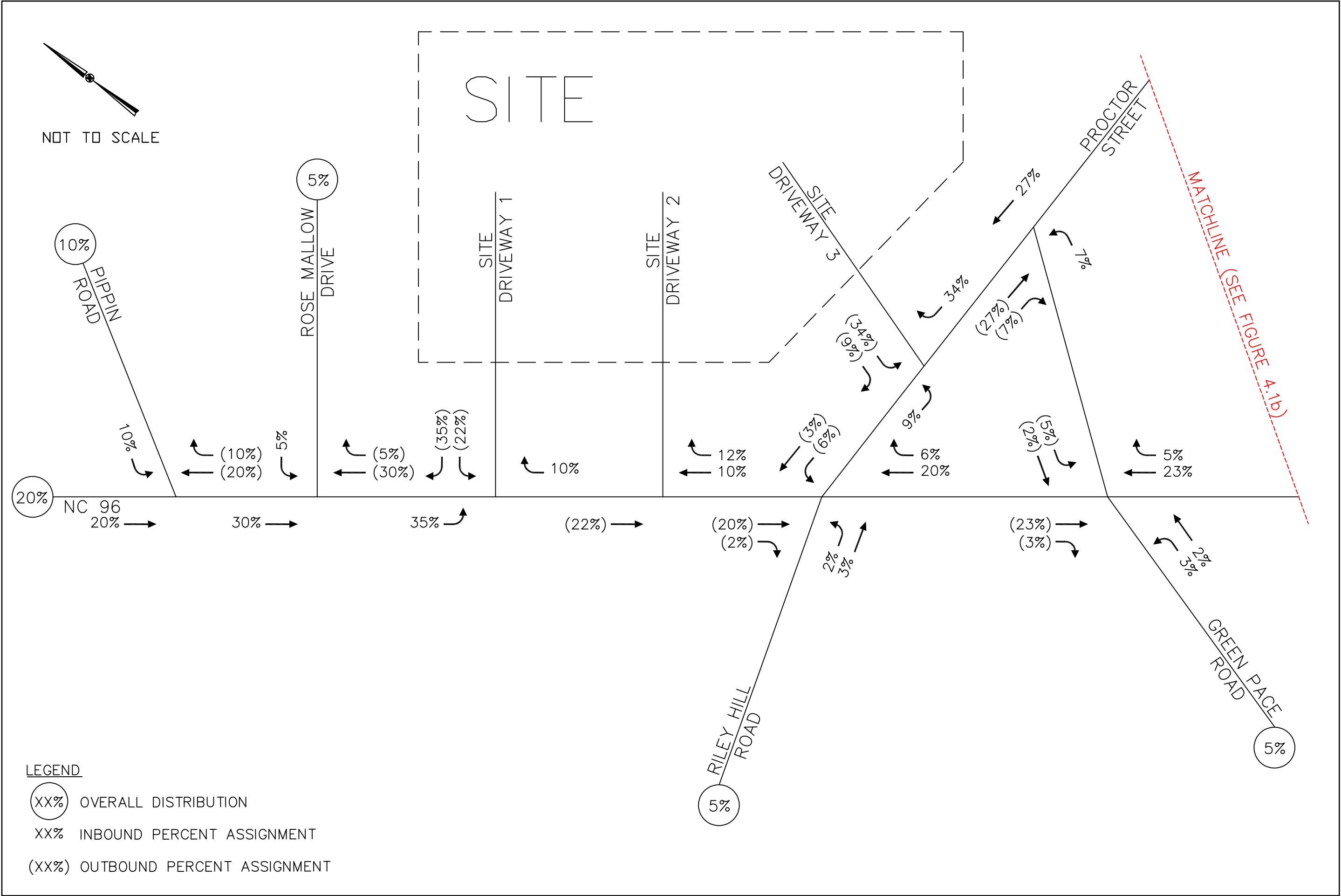
4.0 Site Traffic Distribution

The proposed site generated trips were assigned to the surrounding roadway network. The directional distribution and assignment are based on existing travel patterns.

- 20% to/from the north via NC 96
- 10% to/from the north via Pearces Road
- 10% to/from the east via Pippin Road
- 10% to/from the south via NC 96
- 10% to/from the east via Proctor Street
- 10% to/from the east via US 64-264
- 10% to/from the west via US 64-264
- 5% to/from the north via Watsonia Drive
- 5% to/from the east via Rose Mallow Drive
- 5% to/from the west via Riley Hill Road
- 5% to/from the west via Green Pace Road

The site traffic distribution and assignment are shown in **Figures 4.1a** and **Figure 4.1b**. The AM and PM pass-by trip distribution and assignments are shown in **Figure 4.2** and **Figure 4.3**, respectively.

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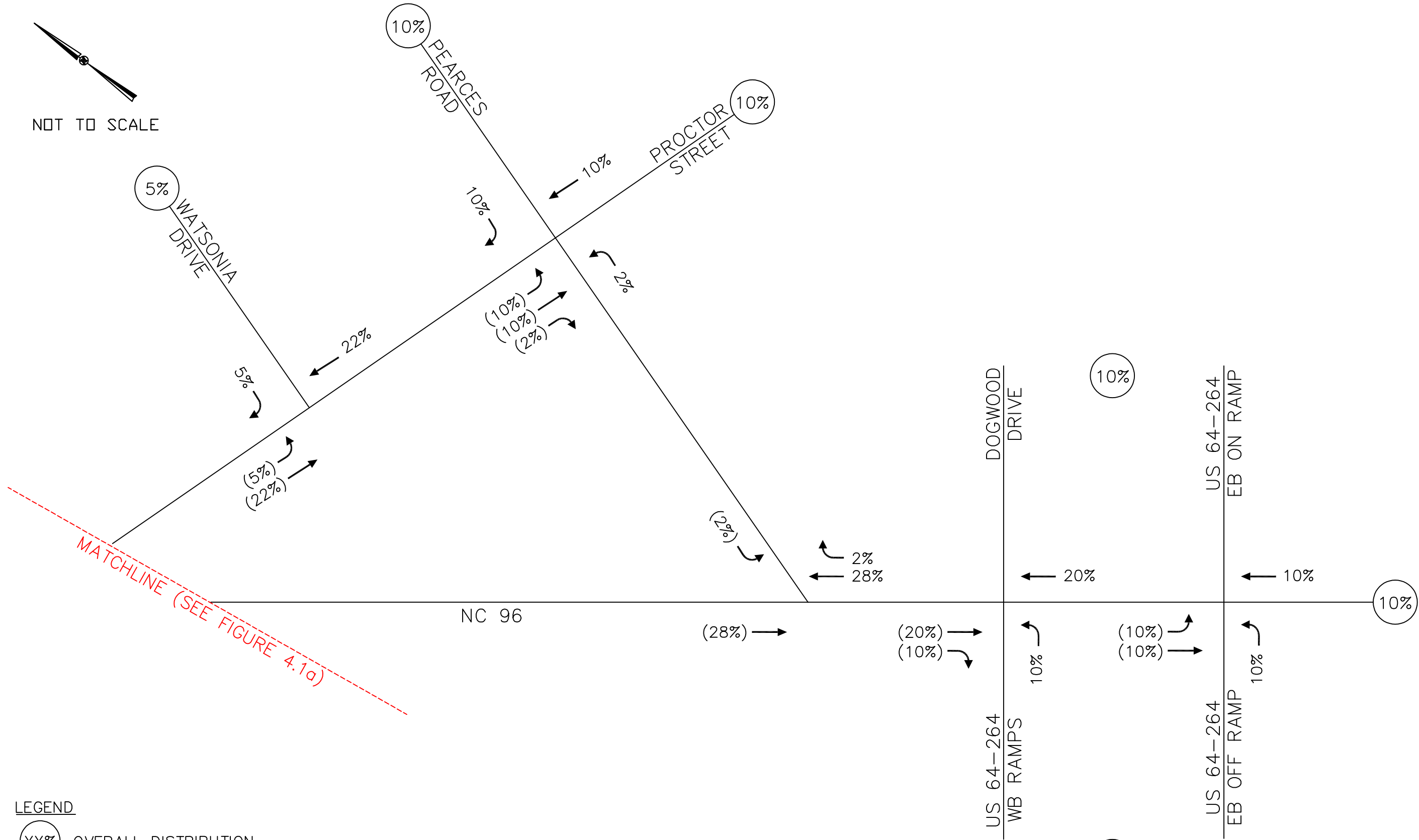


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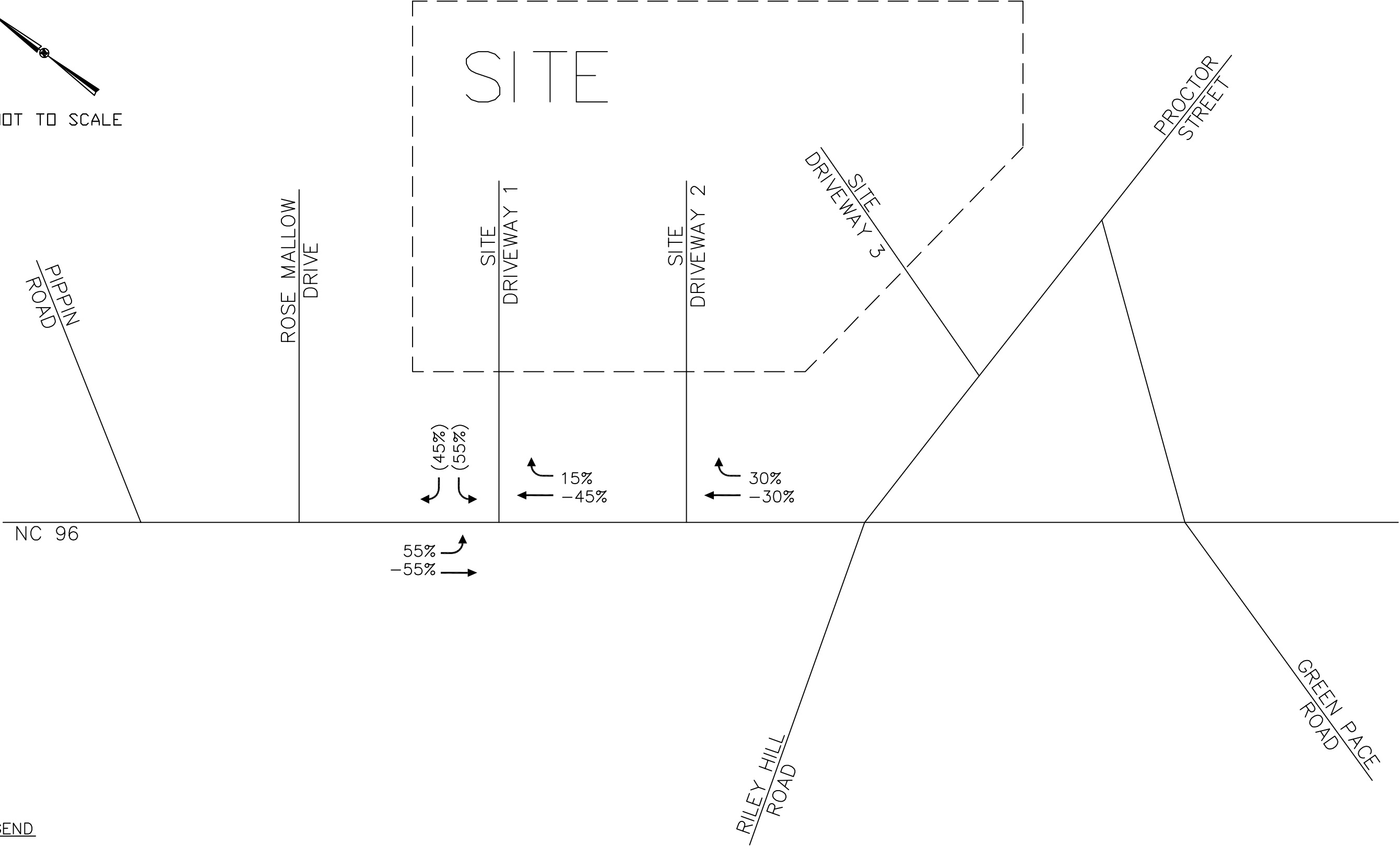
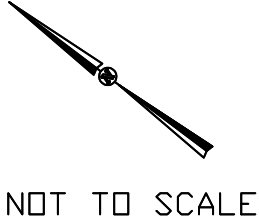
LEGEND

- (XX%) OVERALL DISTRIBUTION
XX% INBOUND PERCENT ASSIGNMENT
(XX%) OUTBOUND PERCENT ASSIGNMENT



LEGEND

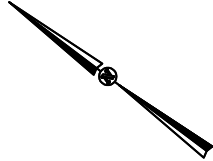
- XX% PASS-BY DISTRIBUTION
- XX% INBOUND PERCENT ASSIGNMENT
- (XX%) OUTBOUND PERCENT ASSIGNMENT



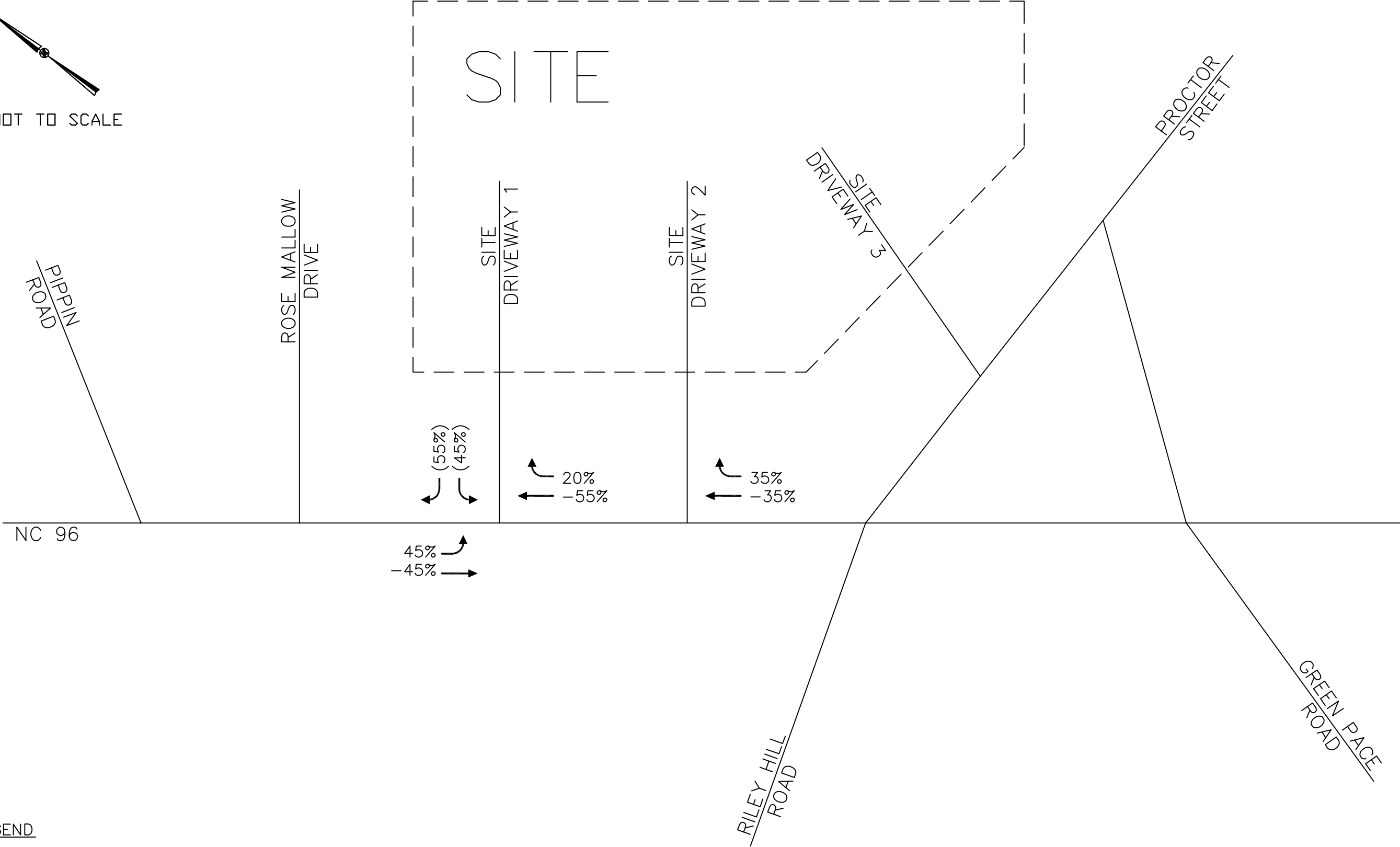
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LEGEND

- XX% PASS-BY DISTRIBUTION
- XX% INBOUND PERCENT ASSIGNMENT
- (XX%) OUTBOUND PERCENT ASSIGNMENT



NOT TO SCALE



ZEBULON GROCERY
ZEBULON, NC
TRAFFIC IMPACT ANALYSIS

PASS-BY ASSIGNMENTS PM PEAK HOUR

FIGURE
4.3

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5.0 Projected Traffic Volumes

5.1 Existing Traffic

AM peak hour (7:00 to 9:00 AM) and PM peak hour (4:00 to 6:00 PM) turning movement counts were performed at each of the following study intersections on January 28, 2025, while area schools were in session:

- NC 96 at Pippin Road
- NC 96 at Rose Mallow Drive
- NC 96 at Green Pace Road
- NC 96 at Pearces Road
- NC 96 at US 64-264 WB Ramps/Dogwood Drive
- NC 96 at US 64-264 EB Ramps
- Proctor Street at Green Pace Road
- Proctor Street at Watsonia Drive
- Proctor Street at Pearces Road

16-hour (6:00 AM to 10:00 PM) turning movement counts were also collected for the intersection of NC 96 at Riley Hill Road/Proctor Street. The existing AM and PM peak hour traffic volumes are shown on **Figure 5.1a** and **Figure 5.1b**, and the traffic count data are included in the Appendix.

5.2 Approved Development Traffic

Approved development traffic is generated by approved but not yet constructed projects in the vicinity of the proposed project. Based on discussions with the Town and NCDOT, there were six (6) approved developments in the study area that were identified for inclusion as background traffic. These approved developments include 7-Eleven Convenience Store, Clifton Grove (formerly Pearces Road Residential), Domino's, Pierce's Road PD (formerly Zebulon Residential), Zebulon Mixed-Use Development, and Weaver's Ridge.

7-Eleven Convenience Store

- Location: East of NC 96 and north of US 64-264
- Land Uses: 4,714 s.f. convenience store with 16 vehicle fueling pumps and 3 truck fueling pumps
- Data Source: *Zebulon 7-Eleven Convenience Store TIA* (Impact Designs, Inc., March 2023)

Clifton Grove (formerly Pearces Road Residential)

- Location: West of Pearces Road and south of Pippin Road
- Land Uses: 232 single family detached units
- Data Source: *Pearces Road Residential Development TIA* (Timmons Group, October 2020)

Zebulon Domino's

- Location: North of Dogwood Drive and east of NC 96
- Land Uses: 1,632 s.f. Domino's Restaurant

- Data Source: *Zebulon Domino's TIA* (DRMP, Inc., November 2024)

Pierce's Road PD (formerly Zebulon Residential)

- Location: Along Pearces Road, east of NC 96
- Land Uses: 340 single family detached units, 200 single family attached units, and a 160-student daycare center
- Data Source: *Zebulon Residential TIA* (Bolton & Menk, October 2024)

Zebulon Mixed Use

- Location: East of NC 96 and south of Pippin Road
- Land Uses: 240 apartment units, 26,000 s.f. of retail, 5,500 s.f. high-turnover restaurant, and 600 s.f. coffee shop with drive-through
- Data Source: *Zebulon Mixed-Use TIA* (DRMP, Inc., December 2024)

Weaver's Ridge

- Location: East of NC 96 across from Glory Road
- Land Uses: 124 townhomes and 58 single-family homes
- Data Source: *Weaver's Ridge Traffic Study* (Ramey Kemp & Associates, Inc., July 2019)

Approved development traffic volumes for the future year scenarios are shown on **Figure 5.2a** and **Figure 5.2b** for the AM and PM peak hours.

5.3 Historic Growth Traffic

Historic growth traffic is the increase in traffic due to usage increases and non-specific growth throughout the area. In addition to the approved development traffic and per Town requirements, study intersections were grown to the 2028 build-out year using an annual growth rate of 2.5%.

Projected future year (2028) background AM and PM peak hour traffic volumes are shown on **Figure 5.3a** and **Figure 5.3b**. Background growth calculations are detailed on intersection spreadsheets in the Appendix of this report.

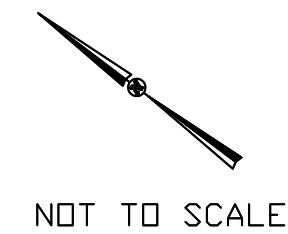
5.4 Site Traffic

The proposed site traffic was generated and assigned to the adjacent roadway network according to the distributions discussed previously in *Section 4.0*. The primary AM and PM peak hour site traffic volumes are shown on **Figure 5.4a** and **Figure 5.4b**. The pass-by AM and PM peak hour site traffic volumes are shown on **Figure 5.5**. The total AM and PM peak hour site traffic volumes are shown on **Figure 5.6a** and **Figure 5.6b**.

5.5 Build-Out Traffic

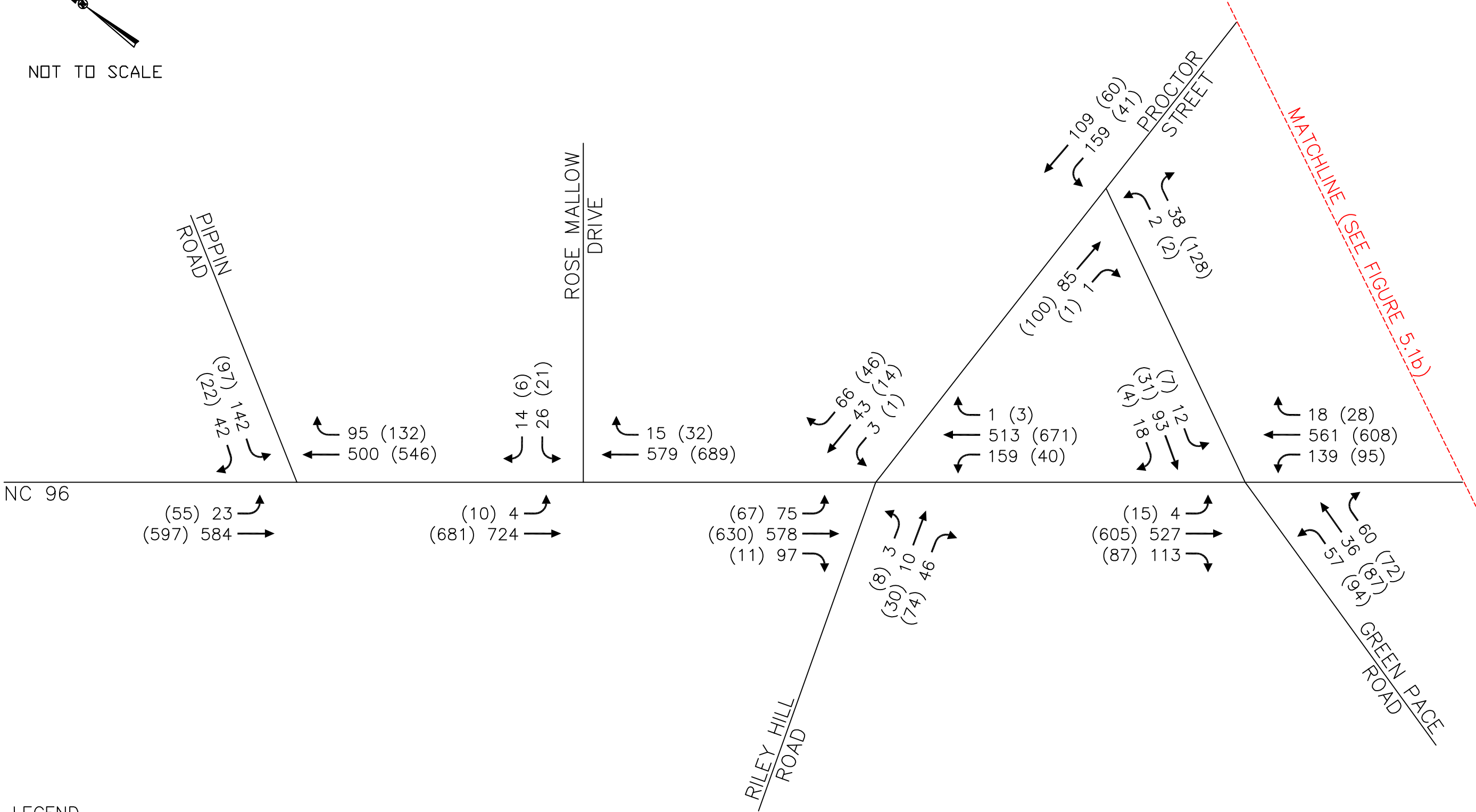
To obtain the projected (2028) build-out traffic volumes, the projected site traffic volumes were added to the projected (2028) background traffic. Traffic volume calculations are detailed in intersection spreadsheets in the Appendix of this report. **Figure 5.7a** and **Figure 5.7b** show the projected (2028) AM and PM peak hour build-out traffic volumes.

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LEGEND

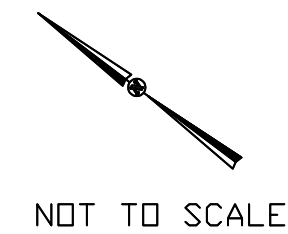
- XX AM PEAK HOUR
- (XX) PM PEAK HOUR



	ZEBULON GROCERY ZEBULON, NC TRAFFIC IMPACT ANALYSIS	EXISTING (2025) AM AND PM PEAK HOUR VOLUMES PIPPIN ROAD TO GREEN PACE ROAD	FIGURE 5.1a
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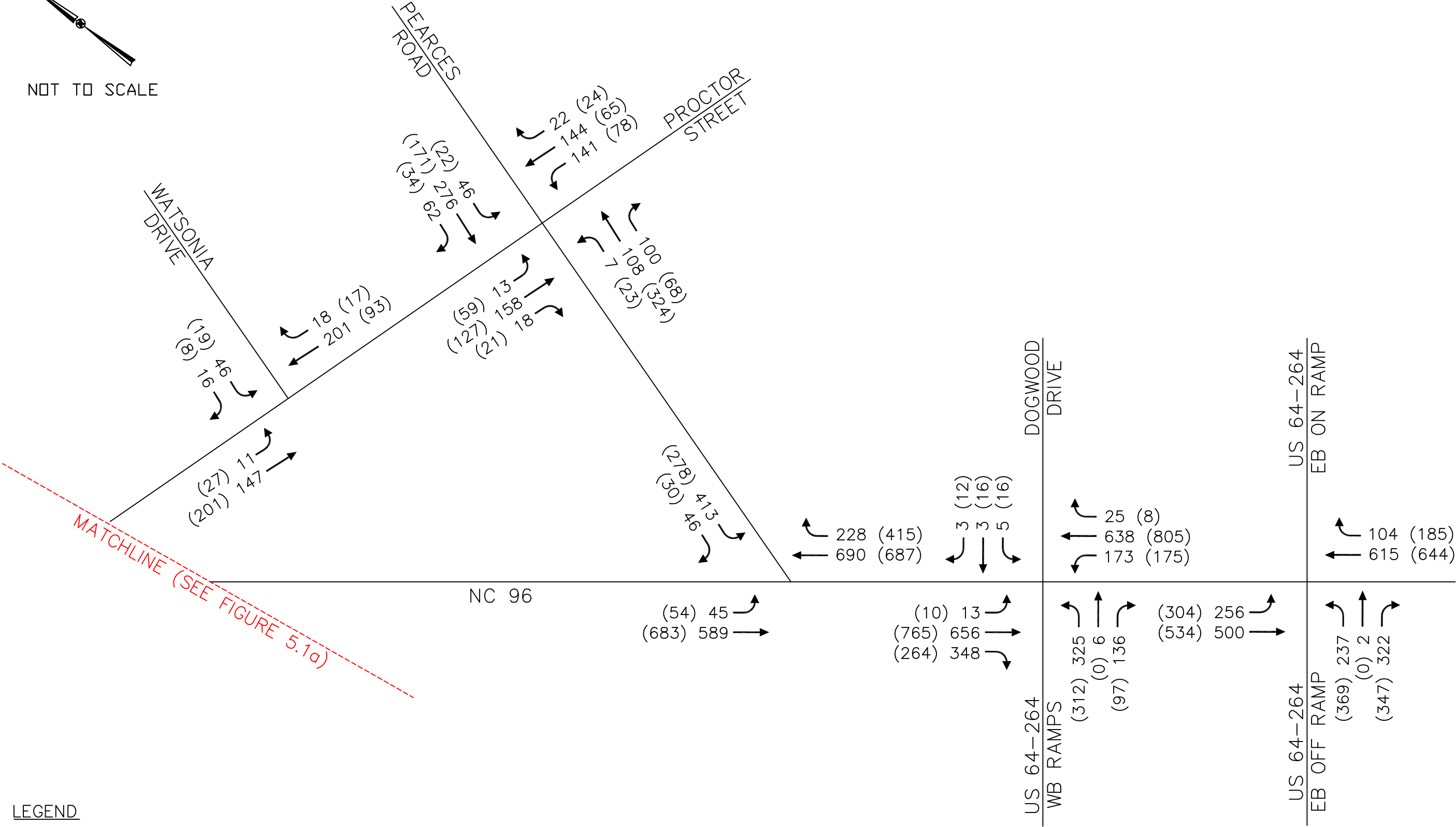
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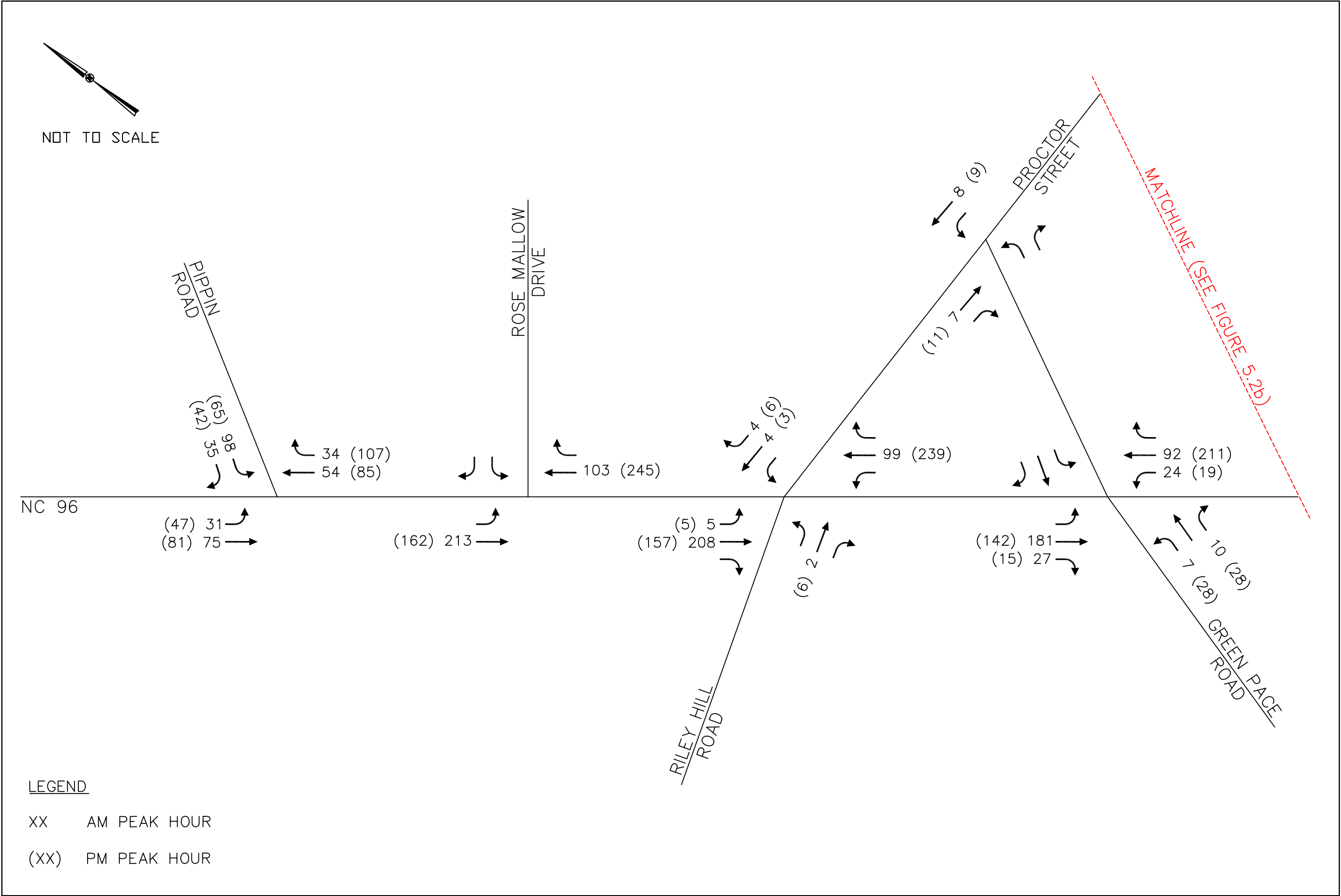


LEGEND

- XX AM PEAK HOUR
- (XX) PM PEAK HOUR



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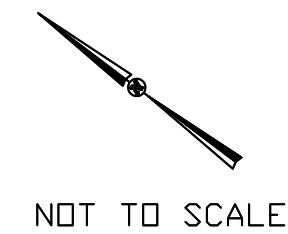
ZEBULON GROCERY
ZEBULON, NC
TRAFFIC IMPACT ANALYSIS

APPROVED DEVELOPMENT AM AND PM
PEAK HOUR VOLUMES
PIPPIN ROAD TO GREEN PACE ROAD

FIGURE
5.2a

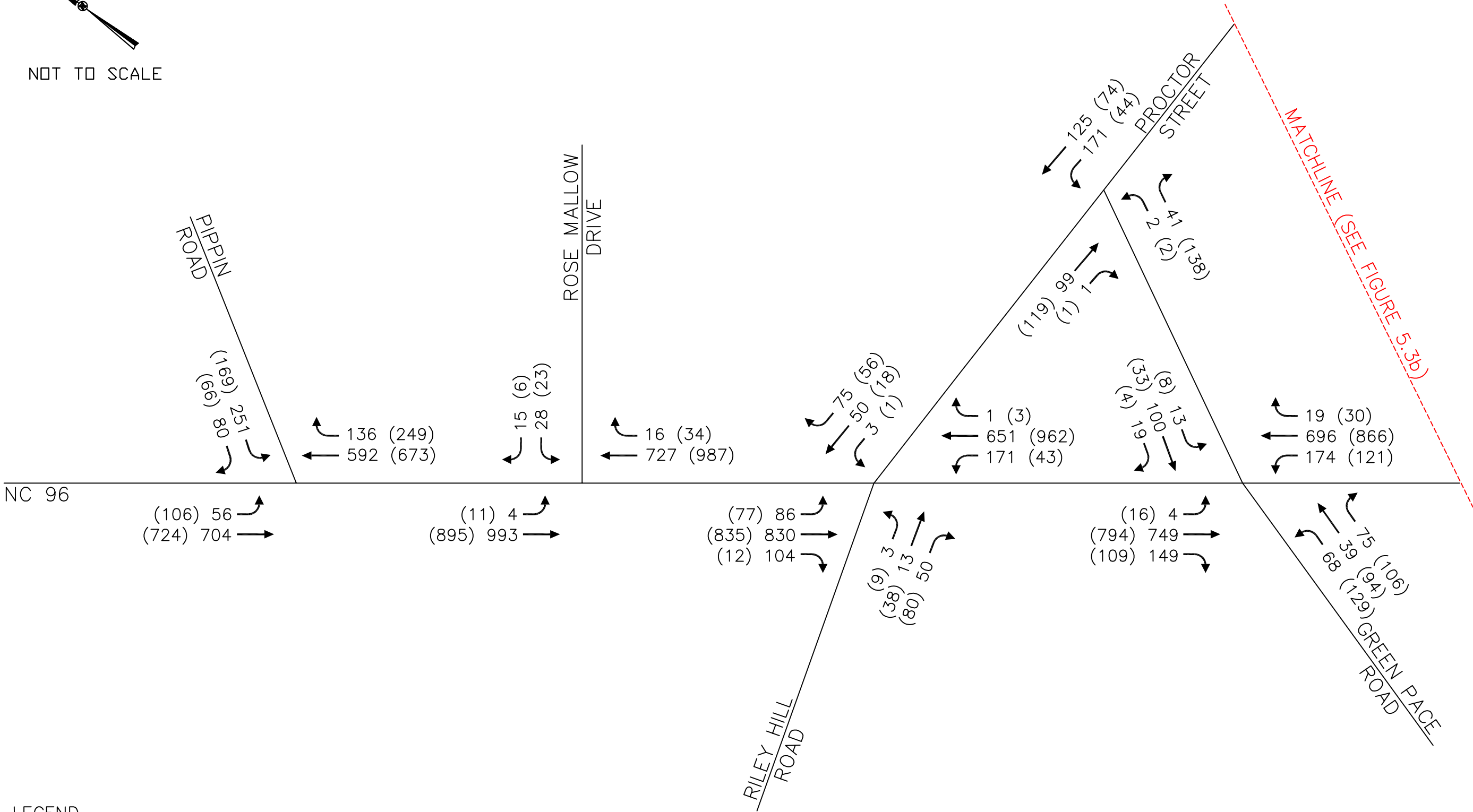
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LEGEND

- XX AM PEAK HOUR
- (XX) PM PEAK HOUR



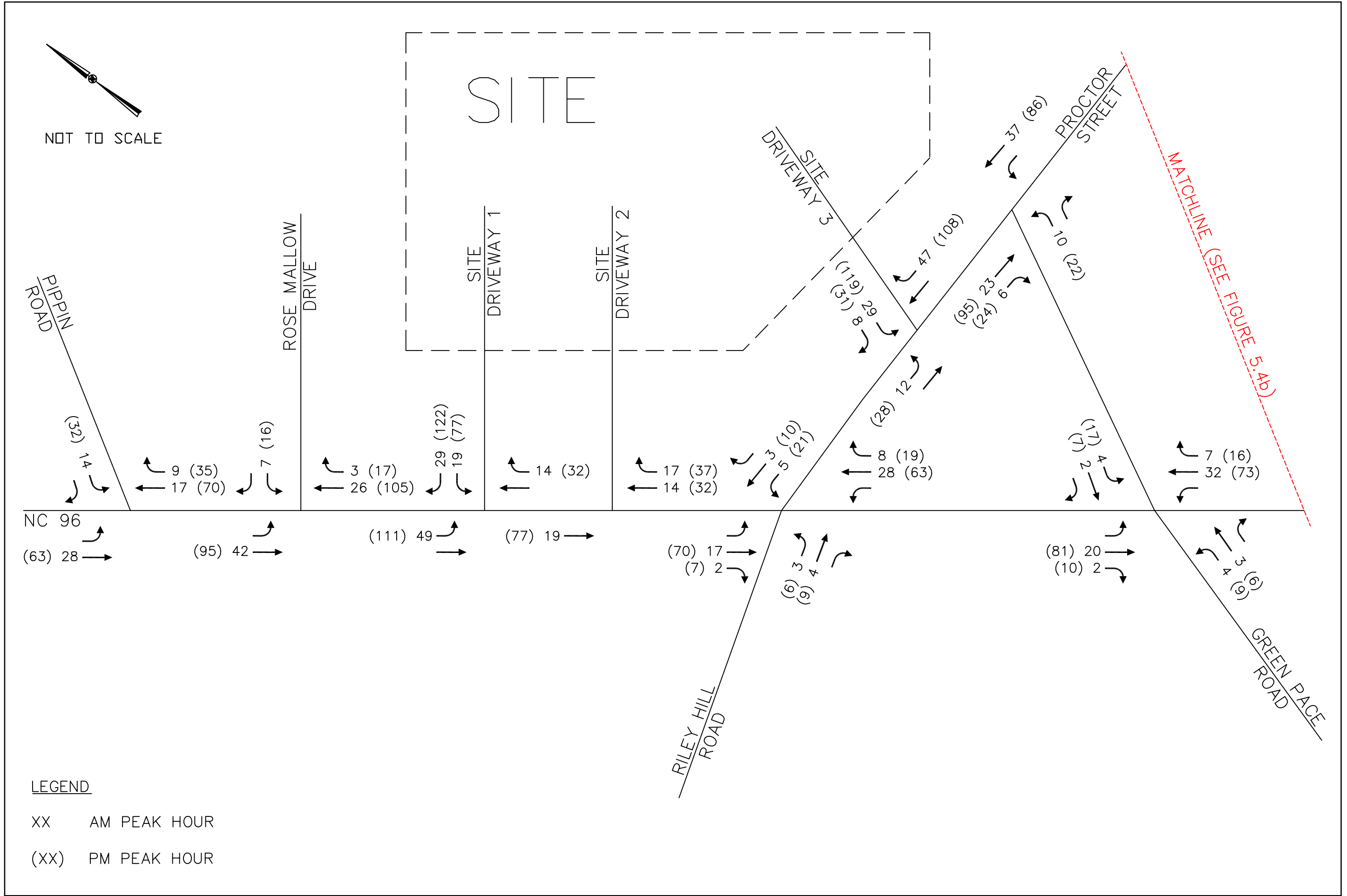
XX AM PEAK HOUR
(XX) PM PEAK HOUR



ZEBULON GROCERY
ZEBULON, NC
TRAFFIC IMPACT ANALYSIS

PROJECTED (2028) BACKGROUND AM AND
PM PEAK HOUR VOLUMES
SOUTH OF GREEN PACE ROAD

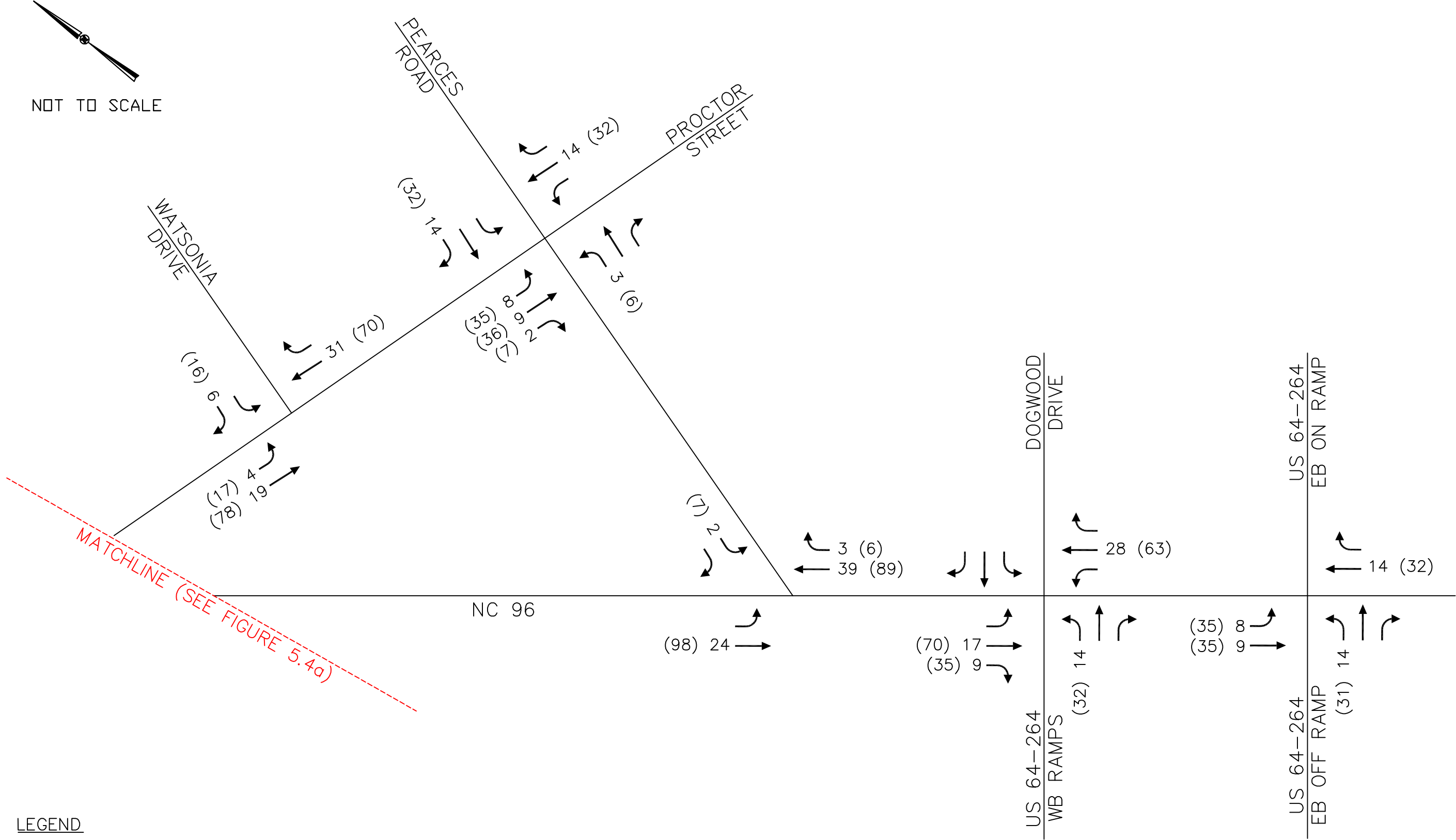
FIGURE 5.3b



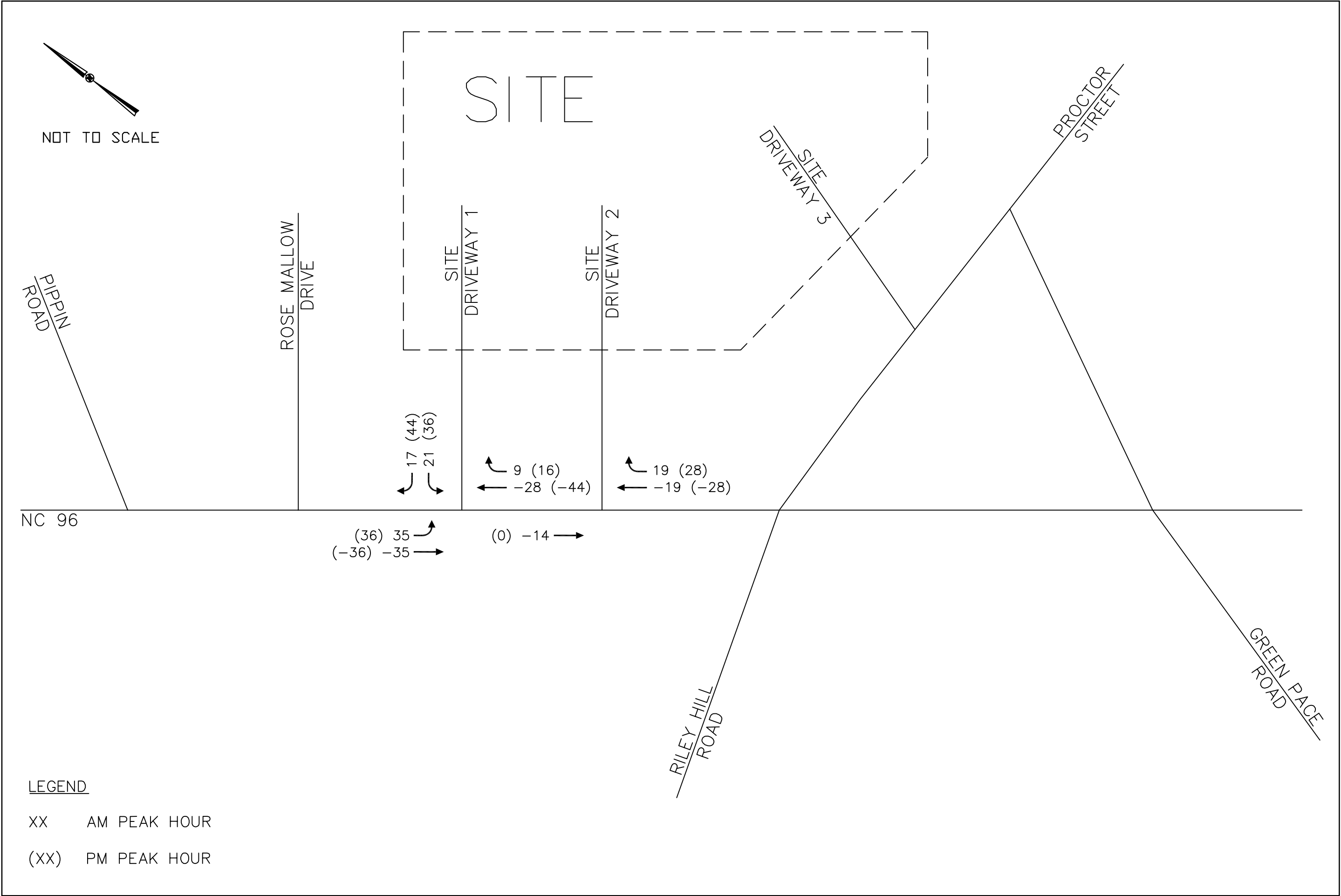
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LEGEND

- XX AM PEAK HOUR
- (XX) PM PEAK HOUR



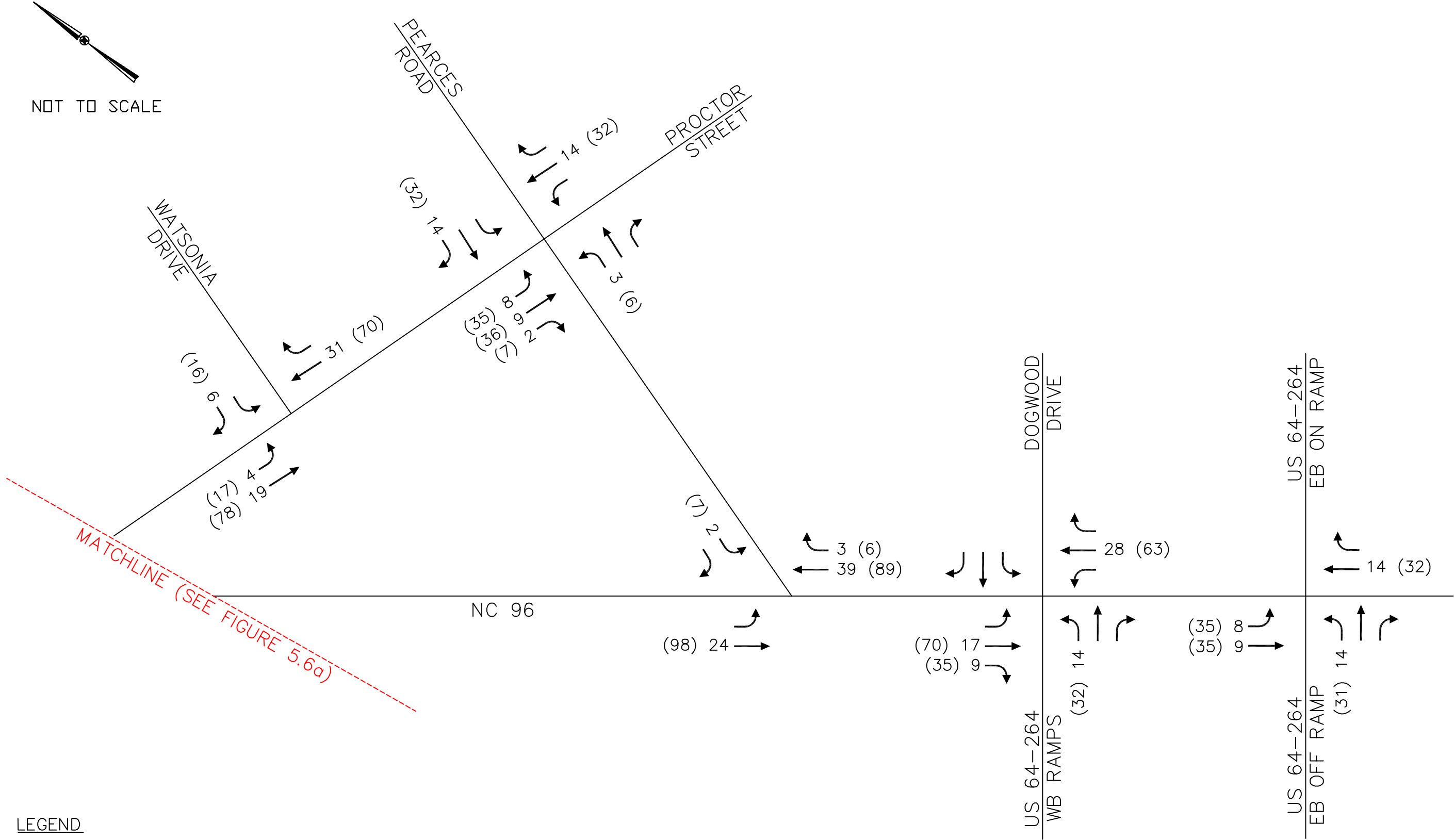
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LEGEND

- XX AM PEAK HOUR
- (XX) PM PEAK HOUR

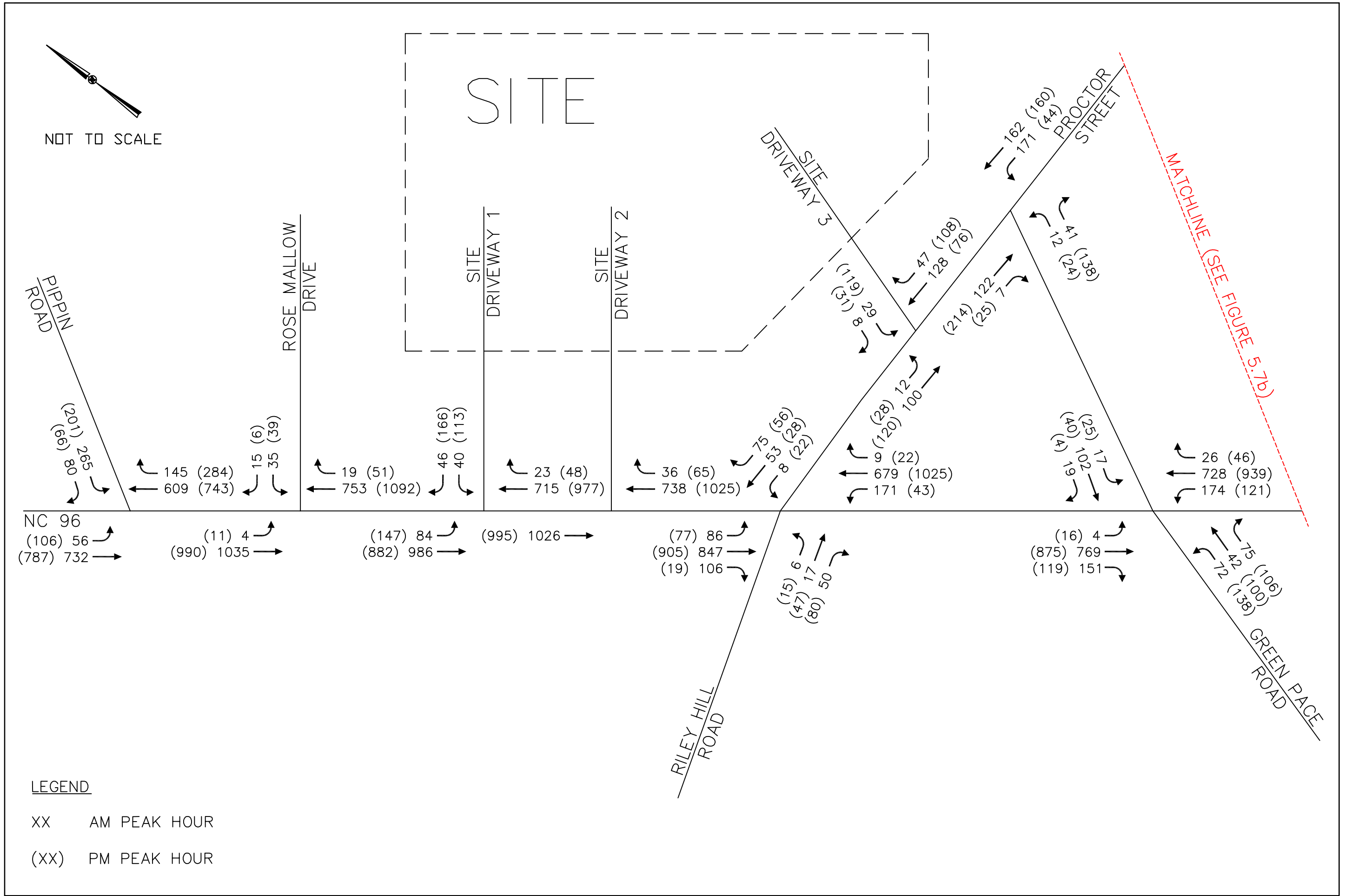


ZEBULON GROCERY
ZEBULON, NC
TRAFFIC IMPACT ANALYSIS

AM AND PM PEAK HOUR
TOTAL SITE TRIP ASSIGNMENTS
SOUTH OF GREEN PACE ROAD

FIGURE
5.6b

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6.0 Capacity Analysis

Capacity analyses (see Appendix) were performed for the AM and PM peak hours for the existing traffic condition (2025) and the projected (2028) background and build-out traffic conditions using Synchro/SimTraffic Version 12 software to determine the operating characteristics of the adjacent road network and the impacts of the proposed project.

Capacity is defined as the maximum number of vehicles that can pass over a particular road segment or through a particular intersection within a set time duration. Capacity is combined with Level-of-Service (LOS) to describe the operating characteristics of a road segment or intersection. LOS is a qualitative measure that describes operational conditions and motorist perceptions within a traffic stream. The *Highway Capacity Manual* defines six levels of service, LOS A through LOS F, with A representing the shortest average delays and F representing the longest average delays. LOS D is the typically accepted standard for signalized intersections in urbanized areas. For signalized intersections, LOS is defined for the overall intersection operation.

For unsignalized intersections, only the movements that must yield right-of-way experience control delay. Therefore, LOS criteria for the overall intersection is not reported by Synchro/SimTraffic Version 12 or computable using methodology published in the *Highway Capacity Manual*. It is typical for stop sign controlled side streets and driveways intersecting major streets to experience long delays during peak hours, while the majority of the traffic moving through the intersection on the major street experiences little or no delay. [Table 6.0](#) lists the LOS control delay thresholds published in the *Highway Capacity Manual* for signalized and unsignalized intersections.

Table 6.0 Level-of-Service Control Delay Thresholds			
Level-of-Service	Signalized Intersections – Control Delay Per Vehicle [sec/veh]	Unsignalized Intersections – Average Control Delay [sec/veh] & Qualitative Operational Description	
A	≤ 10	≤ 10	Short Delays
B	> 10 – 20	> 10 – 15	
C	> 20 – 35	> 15 – 25	
D	> 35 – 55	> 25 – 35	Moderate Delays
E	> 55 – 80	> 35 – 50	
F	> 80	> 50	Long Delays

Existing peak hour factors were used for existing (2025) traffic conditions. A peak hour factor of 0.9 was used for all future scenarios. Signal timings for coordinated traffic signals along NC 96 were optimized in all future traffic conditions.

Capacity analyses were performed for the existing (2025) traffic condition and projected (2028) background and build-out traffic conditions for the following intersections:

- NC 96 at Pippin Road
- NC 96 at Rose Mallow Drive

- NC 96 at Riley Hill Road/Proctor Street
- NC 96 at Green Pace Road
- NC 96 at Pearces Road
- NC 96 at US 64-264 WB Ramps/Dogwood Drive
- NC 96 at US 64-264 EB Ramps
- Proctor Street at Green Pace Road
- Proctor Street at Watsonia Drive
- Proctor Street at Pearces Road
- NC 96 at Site Driveway 1
- NC 96 at Site Driveway 2
- Proctor Street at Site Driveway 3

All capacity analyses are included in the Appendix and are briefly summarized in the following sub-sections.

6.1 NC 96 at Pippin Road

Analyses indicate that the signalized intersection of NC 96 at Pippin Road currently operates at LOS B in both peak hours. The signalized intersection is expected to operate at LOS C in the AM peak hour and LOS B in the PM peak hour under background (2028) traffic conditions. With the proposed development in place, the intersection is expected to operate at LOS C in both peak hours.

As site traffic is expected to have minimal impact on the operation of this intersection, no improvements are recommended to accommodate projected site traffic. However, improvements at nearby intersections result in slight changes in delay.

Table 6.1 summarizes the operation of the intersection of NC 96 at Pippin Road for existing (2025), background (2028), and build-out (2028) traffic conditions.

Table 6.1 NC 96 at Pippin Road (Signalized)		
Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2025) Traffic	Overall - B (13.4) WB - C (24.5) NB - B (13.0) SB - B (10.4)	Overall - B (12.1) WB - C (25.2) NB - B (13.4) SB - A (8.3)
Background (2028) Traffic	Overall - C (24.0) WB - C (29.4) NB - C (26.8) SB - B (18.9)	Overall - B (18.8) WB - D (37.1) NB - C (20.2) SB - B (12.0)
Build-out (2028) Traffic	Overall - C (24.6) WB - C (31.4) NB - C (26.7) SB - B (19.6)	Overall - C (21.7) WB - D (41.4) NB - C (22.9) SB - B (14.3)
Build-out (2028) Traffic - Improved	Overall - C (24.5) WB - C (31.2) NB - C (26.5) SB - B (19.7)	Overall - C (21.6) WB - D (40.8) NB - C (22.8) SB - B (14.5)

6.2 NC 96 at Rose Mallow Drive

Analyses indicate that the unsignalized intersection of NC 96 at Rose Mallow Drive currently operates with moderate delays in both peak hours for the minor-street approach (Rose Mallow Drive). The minor-street approach of this intersection is expected to operate with long delays in both peak hours, with or without the proposed project in place. Long delays are not uncommon for minor-street approaches at mainlines with heavy through volumes (in this case, NC 96). Additionally, if the intersection of NC 96 at Site Driveway 1 is signalized, future interconnectivity to this neighborhood is expected to be provided giving the neighborhood an alternative egress point. Therefore, no improvements are recommended to accommodate projected site traffic at this intersection. However, improvements at nearby intersections result in slight changes in delay.

Table 6.2 summarizes the operation of the intersection of NC 96 at Rose Mallow Drive for existing (2025), background (2028), and build-out (2028) traffic conditions.

Table 6.2 NC 96 at Rose Mallow Drive (Unsignalized)		
Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2025) Traffic	WB - D (27.2) SBL - A (8.8)	WB - D (32.7) SBL - A (9.3)
Background (2028) Traffic	WB - F (55.3) SBL - A (9.3)	WB - F (85.9) SBL - B (10.6)
Build-out (2028) Traffic	WB - F (76.7) SBL - A (9.4)	WB - F (249.9) SBL - B (11.3)
Build-out (2028) Traffic - Improved	WB - F (75.4) SBL - A (9.4)	WB - F (240.8) SBL - B (11.3)

6.3 NC 96 at Riley Hill Road/Proctor Street

Analyses indicate that the unsignalized intersection of NC 96 at Riley Hill Road/Proctor Street currently operates with moderate to long delays in both peak hours for the minor-street approaches (Riley Hill Road/Proctor Street). The minor-street approaches of this intersection are expected to operate with long delays in both peak hours, with or without the proposed project in place.

To accommodate the proposed site traffic, the following improvements are recommended at this intersection:

- Reconfigure the intersection to a Reduced Conflict Intersection (RCI) by restriping the eastbound and westbound approaches to allow only right-turns onto NC 96

With these improvements, the intersection is expected to operate with short to moderate delays in both peak hours.

Table 6.3 summarizes the operation of the intersection of NC 96 at Riley Hill Road/Proctor Street for existing (2025), background (2028), and build-out (2028) traffic conditions.

Table 6.3		
NC 96 at Riley Hill Road/Proctor Street (Unsignalized)		
Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2025) Traffic	EB - F (73.1) WB - F (139.9) NBL - B (10.1) SBL - A (8.8)	EB - F (54.6) WB - D (34.6) NBL - A (9.1) SBL - A (9.4)
Background (2028) Traffic	EB - F (>500)* WB - F (>500) NBL - B (12.0) SBL - A (9.5)	EB - F (>500) WB - F (>500) NBL - B (10.0) SBL - B (11.0)
Build-out (2028) Traffic	EB - F (>500)* WB - F (>500) NBL - B (12.2) SBL - A (9.6)	EB - F (>500) WB - F (>500)* NBL - B (10.4) SBL - B (11.5)
Build-out (2028) Traffic - Improved	EB - C (20.9) WB - C (15.7) NBL - B (13.2) SBL - A (9.6)	EB - D (25.3) WB - C (22.4) NBL - B (10.7) SBL - B (11.5)

*Due to Synchro limitations, no delay is available at this approach.

6.4 NC 96 at Green Pace Road

Analyses indicate that the signalized intersection of NC 96 at Green Pace Road currently operates at LOS B in the AM peak hour and LOS C in the PM peak hour. The signalized intersection is expected to continue to operate at LOS B in the AM peak hour and LOS C in the PM peak hour under the background (2028) traffic conditions. With the proposed development in place, the intersection is expected to operate at LOS C in both peak hours in the build (2028) traffic conditions.

To accommodate the proposed site traffic, the following improvements are recommended at this intersection:

- Construct an exclusive northbound right-turn lane with approximately 125 feet of storage
- Modify the existing traffic signal to accommodate this additional laneage and to provide permitted/protected phasing for the northbound and southbound left-turning movements

With these improvements, the intersection is expected to operate at LOS D in both peak hours. It should be noted that the expected increase in delay and levels of service is likely due both the permitted/protected phasing for the major street left-turn movements and the proposed restriction of NC 96 at Riley Hill Road/Proctor Street to an RCI, resulting in an increase in turning movement traffic at this intersection.

Table 6.4, located on the following page, summarizes the operation of the intersection of NC 96 at Green Pace Road for existing (2025), background (2028), and build-out (2028) traffic conditions.

Table 6.4 NC 96 at Green Pace Road (Signalized)		
Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2025) Traffic	Overall - B (15.5) EB - E (73.2) WB - D (44.3) NB - A (4.7) SB - A (8.4)	Overall - C (20.6) EB - E (70.0) WB - C (35.2) NB - B (11.9) SB - B (10.9)
Background (2028) Traffic	Overall - B (19.9) EB - F (88.0) WB - D (46.3) NB - A (6.3) SB - B (15.5)	Overall - C (25.7) EB - F (88.2) WB - D (36.6) NB - B (10.5) SB - B (19.5)
Build-out (2028) Traffic	Overall - C (21.4) EB - F (93.0) WB - D (46.8) NB - A (7.6) SB - B (16.8)	Overall - C (31.4) EB - F (100.5) WB - D (38.4) NB - B (15.5) SB - C (24.8)
Build-out (2028) Traffic - Improved	Overall - D (38.3) EB - F (83.8) WB - E (68.8) NB - C (23.0) SB - D (37.3)	Overall - D (43.2) EB - F (86.1) WB - E (68.9) NB - C (32.7) SB - D (37.3)

6.5 NC 96 at Pearces Road

Analyses indicate that the signalized intersection of NC 96 at Pearces Road currently operates at LOS C in the AM peak hour and LOS B in the PM peak hour.

The following improvements are committed to be performed as part of TIP project U-5118 FB:

- Provide an additional southbound through lane along NC 96 that begins approximately 830 feet north of this intersection and ends at US 64-264 WB Ramps/Dogwood Drive
- Restripe the existing westbound right-turn lane as a shared left/right-turn lane
- Modify existing traffic signal to accommodate laneage improvements

The signalized intersection is expected to continue to operate at LOS C in the AM peak hour and LOS B in the PM peak hour, with or without the proposed project in place.

As site traffic is expected to have minimal impact on the operation of this intersection, no improvements by the developer are recommended to accommodate projected site traffic. However, improvements at nearby intersections result in slight changes in delay as well as an overall LOS B during both peak hours analyzed.

Table 6.5 summarizes the operation of the intersection of NC 96 at Pearces Road for existing (2025), background (2028), and build-out (2028) traffic conditions.

Table 6.5 NC 96 at Pearces Road (Signalized)		
Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2025) Traffic	Overall - C (21.5) WB - D (42.3) NB - B (13.0) SB - B (18.7)	Overall - B (13.6) WB - D (50.4) NB - A (5.1) SB - B (10.8)
Background (2028) Traffic	Overall - C (20.7) WB - D (51.1) NB - A (8.6) SB - B (13.0)	Overall - B (14.7) WB - D (53.6) NB - A (5.1) SB - B (11.7)
Build-out (2028) Traffic	Overall - C (21.0) WB - D (51.3) NB - A (9.4) SB - B (13.5)	Overall - B (15.2) WB - D (53.8) NB - A (6.6) SB - B (11.7)
Build-out (2028) Traffic - Improved	Overall - B (19.0) WB - D (51.3) NB - A (9.4) SB - A (7.5)	Overall - B (13.9) WB - D (53.8) NB - A (6.6) SB - A (7.7)

6.6 NC 96 at US 64-264 WB Ramps/Dogwood Drive

Analyses indicate that the signalized intersection of NC 96 at US 64-264 WB Ramps/Dogwood Drive currently operates at LOS D in the AM peak hour and LOS C in the PM peak hour.

The following improvements are committed to be performed by others:

- Provide an exclusive westbound left-turn lane
- Provide an exclusive westbound left-turn lane and a westbound through/right-turn lane with approximately 150 feet of storage
- Extend the southbound through lane along NC 96 to US 64-264 WB Ramps/Dogwood Drive (U-5118 FB)

The signalized intersection is expected to operate at LOS C in both peak hours for the background (2028) traffic conditions. With the proposed development in place, the intersection is expected to operate at LOS D in both peak hours. As site traffic is expected to have minimal impact on the operation of this intersection, no improvements by the developer are recommended to accommodate projected site traffic. However, improvements at nearby intersections result in slight changes in delay.

Table 6.6 summarizes the operation of the intersection of NC 96 at US 64-264 WB Ramps/Dogwood Drive for existing (2025), background (2028), and build-out (2028) traffic conditions.

Table 6.6 NC 96 at US 64-264 WB Ramps/Dogwood Drive (Signalized)		
Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2025) Traffic	Overall - D (43.9) EB - F (154.9) WB - C (25.2) NB - A (7.1) SB - C (23.5)	Overall - C (34.2) EB - E (73.3) WB - C (25.8) NB - B (18.1) SB - C (34.3)
Background (2028) Traffic	Overall - C (34.7) EB - E (76.4) WB - F (93.9) NB - B (11.1) SB - C (25.9)	Overall - C (29.6) EB - E (63.7) WB - E (76.5) NB - B (14.0) SB - C (23.2)
Build-out (2028) Traffic	Overall - D (37.1) EB - F (84.7) WB - F (93.9) NB - B (10.9) SB - C (28.5)	Overall - D (35.3) EB - E (79.0) WB - E (76.5) NB - B (12.9) SB - C (33.3)
Build-out (2028) Traffic - Improved	Overall - D (43.0) EB - F (84.7) WB - F (93.9) NB - B (10.9) SB - D (42.0)	Overall - D (40.8) EB - E (79.0) WB - E (76.5) NB - B (12.9) SB - D (47.3)

6.7 NC 96 at US 64-264 EB Ramps

Analyses indicate that the signalized intersection of NC 96 at US 64-264 EB Ramps currently operates at LOS C in both peak hours analyzed. The signalized intersection is expected to operate at LOS C in the AM peak hour and LOS D in the PM peak hour, with or without the proposed project in place.

As site traffic is expected to have minimal impact on the operation of this intersection, no improvements are recommended to accommodate projected site traffic. However, improvements at nearby intersections result in slight changes in delay.

Table 6.7 summarizes the operation of the intersection of NC 96 at US 64-264 EB Ramps for existing (2025), background (2028), and build-out (2028) traffic conditions.

Table 6.7 NC 96 at US 64-264 EB Ramps (Signalized)		
Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2025) Traffic	Overall - C (26.2) EB - E (59.3) NB - C (22.4) SB - A (5.2)	Overall - C (33.0) EB - D (57.6) NB - C (26.0) SB - B (18.9)
Background (2028) Traffic	Overall - C (32.7) EB - E (59.4) NB - D (38.9) SB - B (11.4)	Overall - D (44.6) EB - E (65.9) NB - D (50.9) SB - C (21.3)
Build-out (2028) Traffic	Overall - C (33.7) EB - E (60.6) NB - D (39.5) SB - B (12.4)	Overall - D (51.4) EB - E (74.7) NB - D (54.9) SB - C (29.8)
Build-out (2028) Traffic - Improved	Overall - C (33.7) EB - E (60.6) NB - D (39.5) SB - B (12.4)	Overall - D (51.4) EB - E (74.7) NB - D (54.9) SB - C (29.9)

6.8 Proctor Street at Green Pace Road

Analyses indicate that the unsignalized intersection of Proctor Street at Green Pace Road currently operates with short delays in both peak hours for the minor-street approach (Green Pace Road). The minor-street approach of this intersection is expected to continue to operate with short delays in both peak hours, with or without the proposed project in place.

As site traffic is expected to have minimal impact on the operation of this intersection, no improvements are recommended to accommodate projected site traffic. However, improvements at nearby intersections result in slight changes in delay.

Table 6.8 summarizes the operation of the intersection of Proctor Street at Green Pace Road for existing (2025), background (2028), and build-out (2028) traffic conditions.

Table 6.8 Proctor Street at Green Pace Road (Unsignalized)		
Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2025) Traffic	NB - A (9.4) WBL - A (7.7)	NB - A (9.7) WBL - A (7.6)
Background (2028) Traffic	NB - A (9.5) WBL - A (7.8)	NB - A (9.8) WBL - A (7.6)
Build-out (2028) Traffic	NB - B (10.7) WBL - A (7.8)	NB - B (11.6) WBL - A (7.9)
Build-out (2028) Traffic - Improved	NB - B (11.4) WBL - A (8.0)	NB - B (12.9) WBL - A (8.0)

6.9 Proctor Street at Watsonia Drive

Analyses indicate that the unsignalized intersection of Proctor Street at Watsonia Drive currently operates with short delays in both peak hours for the minor-street approach (Watsonia Drive). The minor-street approach of this intersection is expected to continue to operate with short delays in both peak hours, with or without the proposed project in place.

As site traffic is expected to have minimal impact on the operation of this intersection, no improvements are recommended to accommodate projected site traffic.

Table 6.9 summarizes the operation of the intersection of Proctor Street at Watsonia Drive for existing (2025), background (2028), and build-out (2028) traffic conditions.

Table 6.9		
Proctor Street at Watsonia Drive (Unsignalized)		
Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2025) Traffic	EB - B (11.3) SBL - A (8.0)	EB - B (10.9) SBL - A (7.5)
Background (2028) Traffic	EB - B (11.8) SBL - A (8.1)	EB - B (11.0) SBL - A (7.6)
Build-out (2028) Traffic	EB - B (12.4) SBL - A (8.2)	EB - B (11.9) SBL - A (7.8)

6.10 Proctor Street at Pearces Road

Analyses indicate that the unsignalized, all-way stop-controlled intersection of Proctor Street at Pearces Road currently operates at LOS C in both peak hours.

The following improvements have been committed by TIP project HN-0018 and are to be constructed by a developer:

- Construct a modular roundabout

With this improvement, the intersection is expected to operate at LOS B in both peak hours, with or without the proposed project in place. As site traffic is expected to have minimal impact on the operation of this intersection, no improvements are recommended to accommodate projected site traffic.

Table 6.10 summarizes the operation of the intersection of Proctor Street at Pearces Road for existing (2025), background (2028), and build-out (2028) traffic conditions.

Table 6.10 Proctor Street at Pearces Road (All-Way Stop Control (Existing)/Roundabout (Future))		
Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2025) Traffic	Overall - C (19.5) EB - B (14.4) WB - C (19.7) NB - B (14.8) SB - C (24.5)	Overall - C (16.7) EB - B (13.6) WB - B (12.8) NB - C (21.6) SB - B (13.4)
Background (2028) Traffic	Overall - B (11.9) v/c - 0.714 EB - B (11.5) WB - A (7.6) NB - A (7.6) SB - C (16.7)	Overall - B (10.7) v/c - 0.676 EB - A (7.8) WB - A (9.8) NB - B (14.1) SB - A (7.4)
Build-out (2028) Traffic	Overall - B (12.9) v/c - 0.746 EB - B (12.3) WB - A (8.0) NB - A (7.9) SB - C (18.6)	Overall - B (12.7) v/c - 0.739 EB - A (9.3) WB - B (11.5) NB - C (17.6) SB - A (8.4)

6.11 NC 96 at Site Driveway 1

The Zebulon Grocery Development proposes to construct a full movement driveway along NC 96 approximately 700 feet south of Rose Mallow Drive. The following improvements are recommended to be constructed at this intersection as part of the proposed development:

- Construct Site Driveway 1 as a full-movement access with two egress lanes and one ingress lane
- Provide frontage widening via an additional northbound through lane along NC 96 that begins at Riley Hill Road/Proctor Street and ends as a northbound right-turn lane into Site Driveway 1
- Install traffic signal when warranted

With the recommended improvements in place, analyses indicate that the proposed driveway is expected to operate at LOS B in the AM peak hour and LOS C in the PM peak hour at project build-out.

Table 6.11 summarizes the operation of the intersection of NC 96 at Site Driveway 1 for build-out (2028) traffic conditions.

Table 6.11		
NC 96 at Site Driveway 1 (Unsignalized/Signalized (with Improvements))		
Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Build-out (2028) Traffic	WB - F (269.2) SBL - B (10.0)	WB - F (>500) SBL - B (13.0)
Build-out (2028) Traffic - Improved	Overall - B (13.0) WB - D (35.8) NBL - B (15.0) SB - A (9.9)	Overall - C (27.8) WB - E (61.1) NBL - C (30.8) SB - B (15.9)

6.12 NC 96 at Site Driveway 2

The Zebulon Grocery development proposes to construct a right-in only driveway on NC 96 approximately 500 feet north of Riley Hill Road/Proctor Street. The following improvements are recommended to be constructed at this intersection as part of the proposed development:

- Construct Site Driveway 2 with right-in only access and one ingress lane
- Provide frontage widening via an additional northbound through lane along NC 96 that begins at Riley Hill Road/Proctor Street and ends as a northbound right-turn lane into Site Driveway 1
- Provide a northbound right-turn lane with approximately 50 feet of storage

Due to Synchro limitations, no delay or level of service was calculated. However, SimTraffic shows minimal queues at this intersection with these improvements.

6.13 Proctor Street at Site Driveway 3

The Zebulon Grocery development proposes to construct a full movement driveway on Proctor Street approximately 500 feet east of NC 96. The following improvements are recommended to be constructed at this intersection as part of the proposed development:

- Construct Site Driveway 3 as a full-movement access with one ingress lane and two egress lanes to be striped as a left-turn lane and right-turn lane with approximately 50 feet of storage

With the recommended improvements in place, analyses indicate that the proposed driveway is expected to operate with short delays in the AM and PM peak hours at project build-out.

Table 6.13 summarizes the operation of the intersection of Proctor Street at Site Driveway 3 for build-out (2028) traffic conditions.

Table 6.13		
Proctor Street at Site Driveway 3 (Unsignalized)		
Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Build-out (2028) Traffic	SB - B (10.3) EBL - A (7.6)	SB - B (12.0) EBL - A (7.7)
Build-out (2028) Traffic - Improved	SB - B (10.0) EBL - A (7.5)	SB - B (11.9) EBL - A (7.7)

7.0 Recommendations

Committed Improvements by Others

The following improvements are committed to be performed by other developments in the area:

NC 96 at Pearces Road

- Provide an additional southbound through lane along NC 96 that begins approximately 830 feet north of this intersection and ends at US 64-264 WB Ramps/Dogwood Drive (U-5118 FB)
- Restripe the existing westbound right-turn lane as a shared left/right-turn lane (U-5118 FB)
- Modify existing traffic signal to accommodate laneage improvements (U-5118 FB)

NC 96 at US 64-264 WB Ramps/Dogwood Drive

- Provide an exclusive eastbound left-turn lane
- Provide an exclusive westbound left-turn lane and a westbound through/right-turn lane with approximately 150 feet of storage
- Extend the southbound through lane along NC 96 to US 64-264 WB Ramps/Dogwood Drive (U-5118 FB)

Proctor Street at Pearces Road

- Construct a modular roundabout (HN-0018)

Proposed Improvements by Zebulon Grocery Development

The following improvements are proposed to be performed in conjunction with the proposed development:

NC 96 at Riley Hill Road/Proctor Street

- Reconfigure the intersection to a Reduced Conflict Intersection (RCI) by restriping the eastbound and westbound approaches to allow only right-turns onto NC 96

NC 96 at Green Pace Road

- Construct an exclusive northbound right-turn lane with approximately 125 feet of storage
- Modify the existing traffic signal to accommodate this additional laneage and to provide permitted/protected phasing for the northbound and southbound left-turning movements

NC 96 at Site Driveway 1

- Construct Site Driveway 1 as a full-movement access with two egress lanes and one ingress lane
- Provide frontage widening via an additional northbound through lane along NC 96 that begins at Riley Hill Road/Proctor Street and ends as a northbound right-turn lane into Site Driveway 1
- Install traffic signal when warranted

NC 96 at Site Driveway 2

- Construct Site Driveway 2 with right-in only access and one ingress lane
- Provide frontage widening via an additional northbound through lane along NC 96 that begins at Riley Hill Road/Proctor Street and ends as a northbound right-turn lane into Site Driveway 1
- Provide a northbound right-turn lane with approximately 50 feet of storage

NC 96 at Site Driveway 3

- Construct Site Driveway 3 as a full-movement access with one ingress lane and two egress lanes to be striped as a left-turn lane and right-turn lane with approximately 50 feet of storage

Conclusions

With improvements committed by others in place, analyses indicate that the intersections of NC 96 at Pearces Road, NC 96 at US 64-264 WB Ramps/Dogwood Drive, and Proctor Street at Pearces Road are expected to operate at acceptable levels of service and delays in both peak hours.

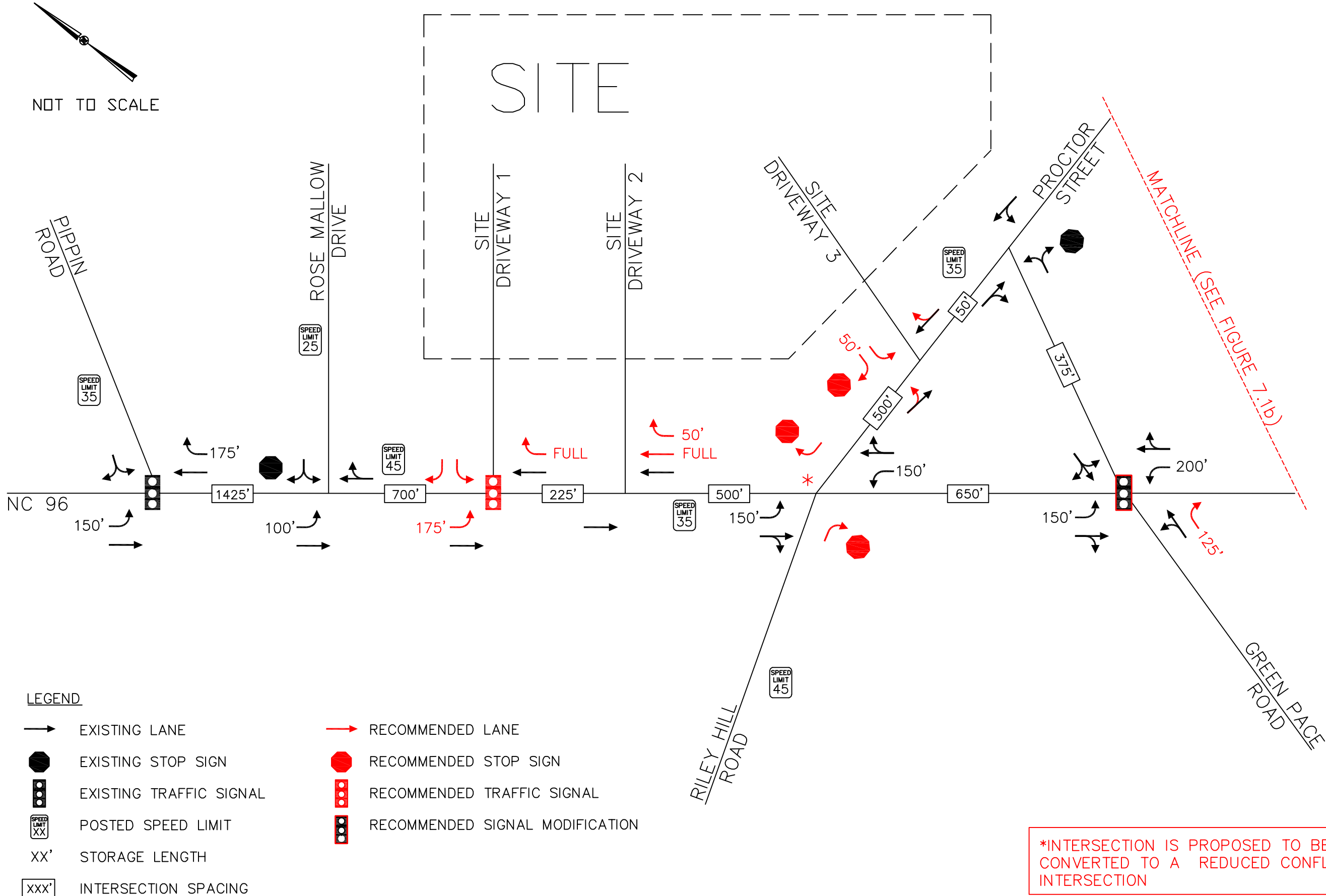
The intersection of NC 96 at Rose Mallow Drive is expected to operate with long delays at the minor street approach during both peak hours analyzed, with or without the proposed development in place. It should be noted that long delays are not uncommon at minor street approaches of mainlines with heavy through movements (NC 96). Additionally, the proposed traffic signal at Site Driveway 1 is expected to provide gaps that would allow vehicles on Rose Mallow Drive to turn onto NC 96.

The intersection of NC 96 at Riley Hill Road/Proctor Street currently operates and is expected to continue to operate with long delays at the minor street approaches in both peak hours under all traffic conditions and peak hours. With the conversion of this intersection to an RCI, the minor street approaches are expected to operate with short to moderate delays in both peak hours.

The intersection of NC 96 at Green Pace Road is expected to operate with acceptable levels of service and delays during both peak hours; however, to reduce queues along NC 96 in each direction permitted/protected phasing was added to the northbound and southbound left-turning movements at this intersection. As result of this improvement and turn restrictions at NC 96 at Riley Hill Road/Proctor Street, increases in delay are expected during both peak hours analyzed. An eastbound right-turn lane is proposed to reduce delays at the eastbound approach to less than those observed in background traffic conditions.

All other study intersections are expected to operate with acceptable delays and queues during both peak hours with the recommended improvements in place. The recommended roadway laneage with the committed and proposed improvements is shown on **Figure 7.1a** and **Figure 7.1b**.

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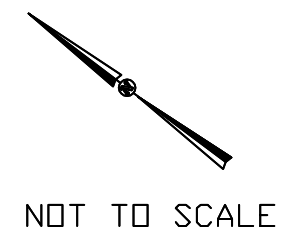
ZEBULON GROCERY
ZEBULON, NC
TRAFFIC IMPACT ANALYSIS

RECOMMENDED ROADWAY LANEAGE
PIPPIN ROAD TO GREEN PACE ROAD

FIGURE
7.1a

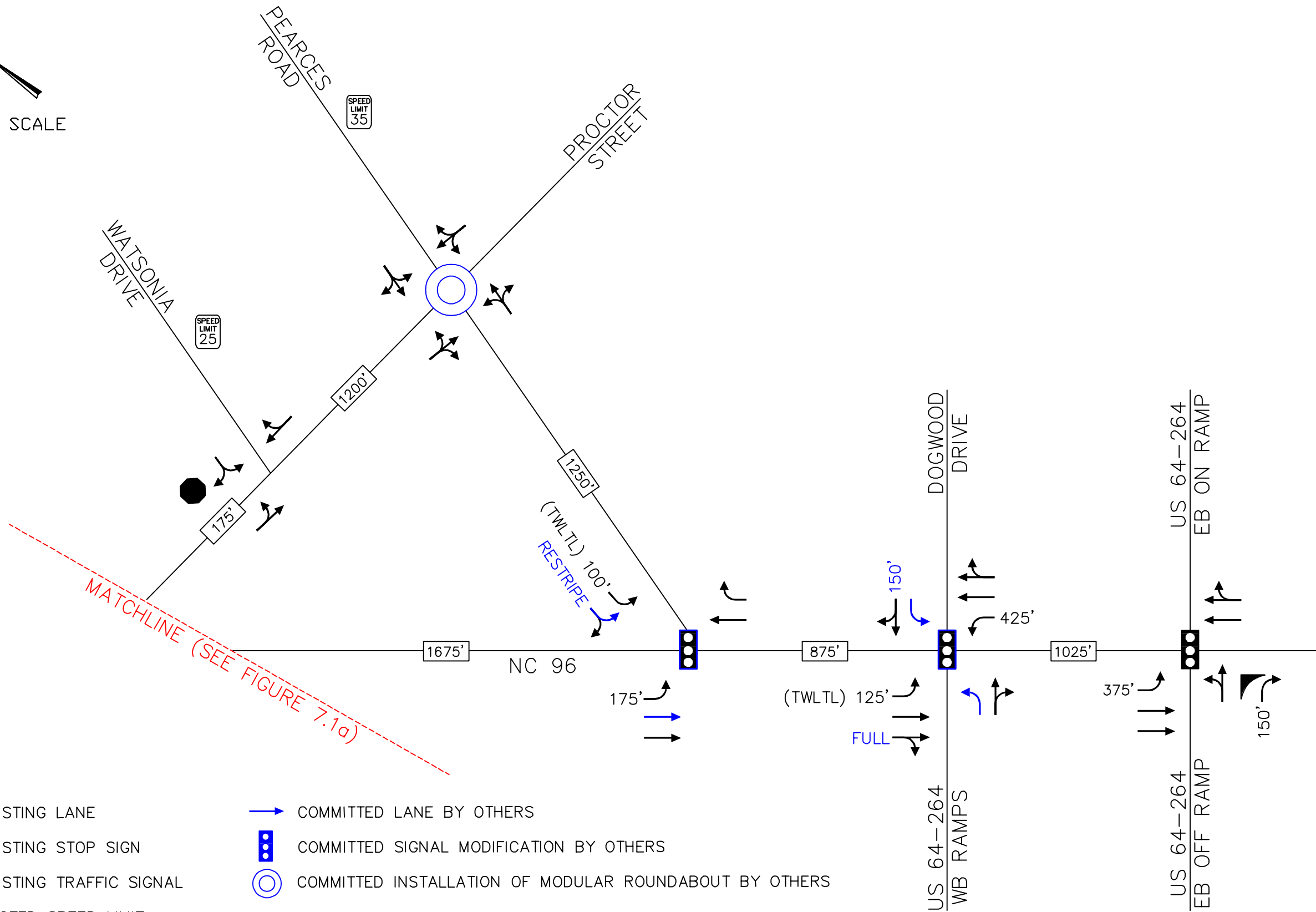
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LEGEND

- | | | | |
|------|-------------------------|--|--|
| | EXISTING LANE | | COMMITTED LANE BY OTHERS |
| | EXISTING STOP SIGN | | COMMITTED SIGNAL MODIFICATION BY OTHERS |
| | EXISTING TRAFFIC SIGNAL | | COMMITTED INSTALLATION OF MODULAR ROUNDABOUT BY OTHERS |
| | POSTED SPEED LIMIT | | |
| XX' | STORAGE LENGTH | | |
| XXX' | INTERSECTION SPACING | | |



Appendix

Appendix A:
Approved Assumptions Memorandum

Preliminary Assumptions – UPDATED – Zebulon Grocery Traffic Impact Analysis Zebulon, North Carolina

KHA will perform analyses for the Zebulon Grocery development, a proposed commercial project located along east of NC 96 and north of Proctor Street in Zebulon, North Carolina. The following assumptions will be used in the analysis of the site:

Study Intersections

The study area will consist of the following intersections:

- NC 96 at Pippin Road
- NC 96 at Rose Mallow Drive
- NC 96 at Riley Hill Road/Proctor Street
- NC 96 at Green Pace Road
- NC 96 at Pearces Road
- Proctor Street at Green Pace Road
- Proctor Street at Watsonia Drive
- Proctor Street at Pearces Road
- NC 96 at I-87 On Ramp
- NC 96 at I-87 Off Ramp
- NC 96 at Site Driveway 1 (*full movement access*)
- NC 96 at Site Driveway 2 (*right-in only access*)
- Proctor Street at Site Driveway 3 (*full movement access*)

Analysis Scenarios

Weekday AM and PM peak hour analyses will be performed for the following traffic conditions:

- Existing (2025)
- Background (2027 +1)*
- Build-out (2027 +1)*
- Build-out (2027 +1)* - with Improvements

**Per the Town of Zebulon Unified Development Ordinance (UDO), the future traffic conditions will be analyzed for the build-out year plus one year into the future after the development is completed (2028).*

Background Traffic Growth

Based on historical AADT data from NCDOT, an annual growth rate of 2.5% will be used to grow the existing traffic counts to the build-out year.

Approved Developments

Additionally, based on the Town of Zebulon Development Activity Map, the following approved developments were identified for inclusion in this analysis as background traffic:

- Weavers Ridge
- Clifton Grove
- Zebulon Mixed Use PD
- 7-Eleven
- Domino's
- Pierce's Road PD

Traffic for these approved developments will be obtained or developed from either site plans or traffic studies attained from the Town of Zebulon.

Roadway Improvements by Others

State Transportation Improvement Program (TIP) project HN-0018 proposes to construct a roundabout at the intersection of Proctor Street at Pearces Road. This project will begin construction in 2026. TIP project U-5118 FB proposes to construct access management improvements north of Pearces Road to Dogwood Drive along NC 96. This project will begin construction in 2025. These improvements will be included in this study as future roadway improvements.

Trip Distribution

The following overall distribution will be used for Zebulon Grocery Development entering and exiting traffic:

- 10% to/from the east on Proctor Street
- 20% to/from the north on NC 96
- 10% to/from the east on Pippin Road
- 5% to/from the west on Green Pace Road
- 10% to/from the east on Pearces Road
- 10% to/from the east on I-87
- 10% to/from the west on I-87
- 10% to/from the south on NC 96
- 5% to/from the west on Riley Hill Road
- 5% to/from the east on Rose Mallow Drive (*via Taryn Lake*)
- 5% to/from the east on Watsonia Drive (*via Taryn Meadows*)

Trip Generation

The property is currently vacant, and as currently envisioned the development will consist of approximately 92,000 square feet (SF) of general retail with a grocery store. See attached for a summary of the trip generation for the proposed Zebulon Grocery development.

Other Study Assumptions

Existing peak hour factors (PHF) will be used in each traffic condition where those exceed the default PHF of 0.90. For future traffic signals, inputs (right-turns on red, permitted + protected phasing) will be obtained from the signal plans, and optimized signal timings will be used in each of the traffic conditions.

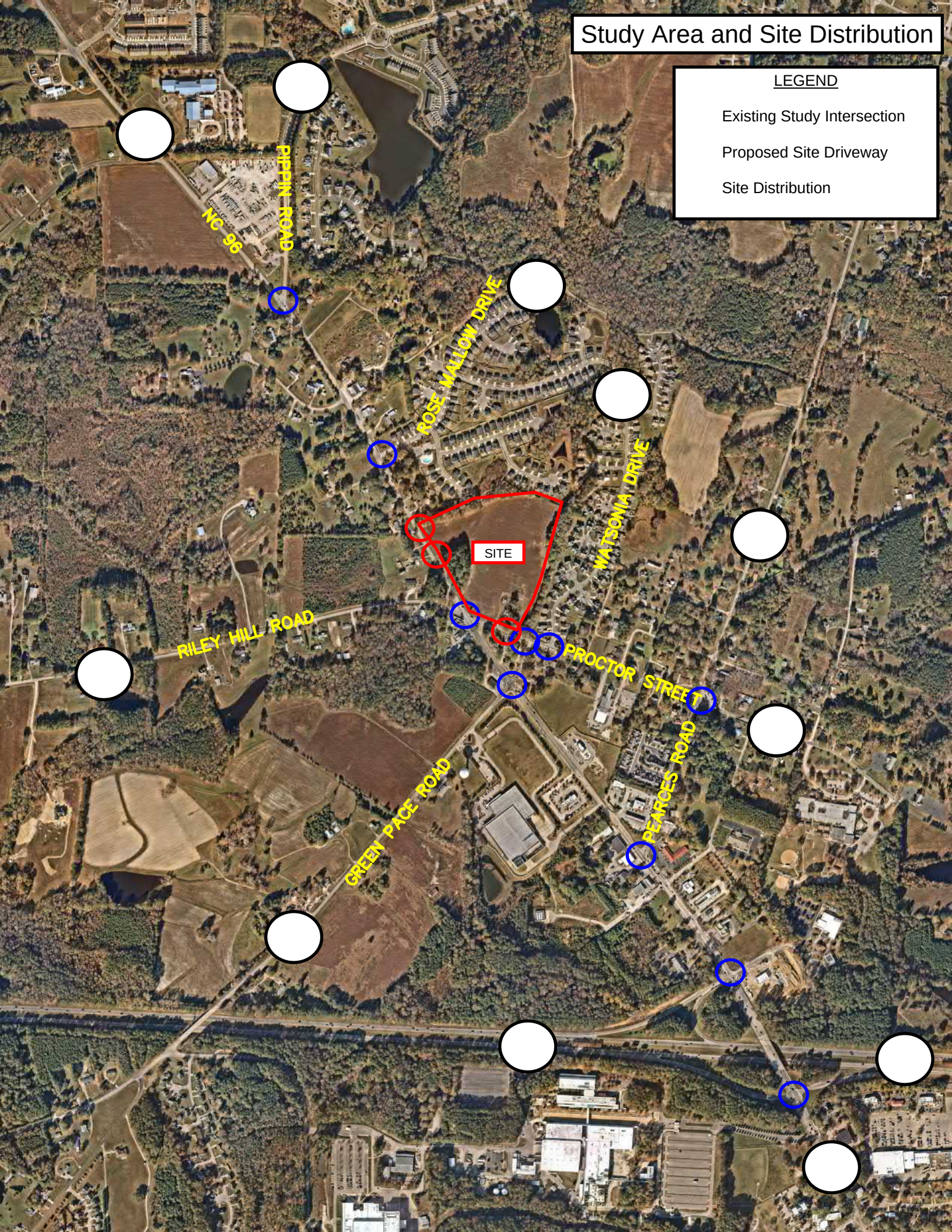
Study Area and Site Distribution

LEGEND

Existing Study Intersection

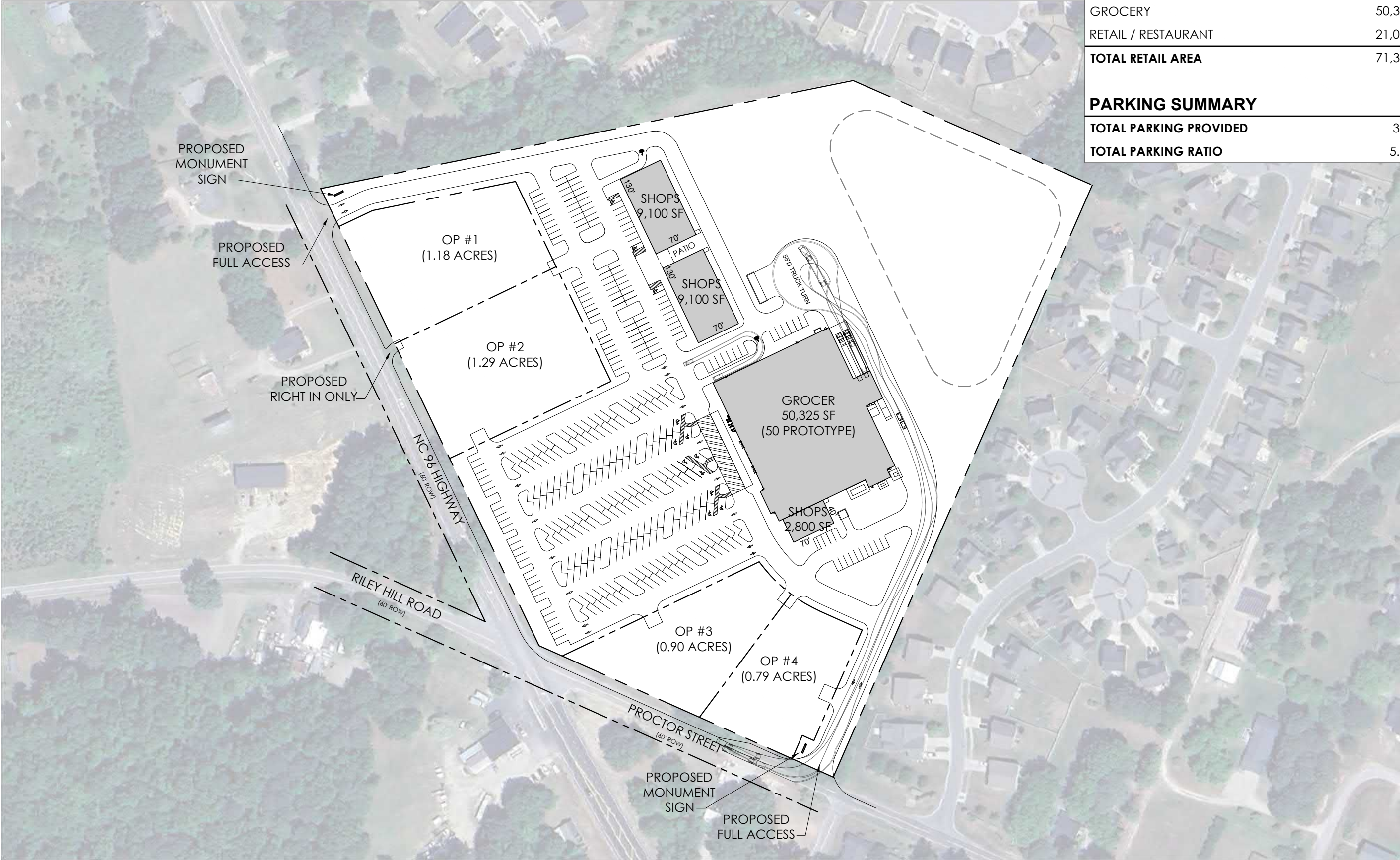
Proposed Site Driveway

Site Distribution



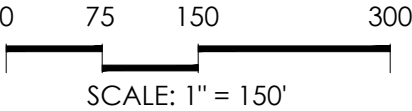
Zebulon Grocery
Table 1 - Trip Generation (11th Edition)

Land Use	Intensity	Daily			AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out	Total	In	Out
821 Shopping Plaza (40K-150K) w/ supermarket	92,000 s.f.	8,494	4,247	4,247	325	202	123	825	396	429
<u>Internal Capture</u>										
Internal Capture Total - ITE		0	0	0	0	0	0	0	0	0
Internal Capture Total - Reduced PM										
Total External Trips		8,494	4,247	4,247	325	202	123	825	396	429
<u>Pass-By Capture</u>										
821 Shopping Plaza (40K-150K)	<u>AM</u> <u>PM</u>									
	31% 40%	3,015	1508	1,507	101	63	38	330	158	172
	<i>Subtotal</i>	3,015	1,508	1,507	101	63	38	330	158	172
	<i>Adjacent Street Traffic</i>				1,590	795	795	1,590	795	795
	10% Adjacent Street Traffic	1,600	800	800	158	80	80	160	80	80
<i>Pass-By Capture Total</i>		1,600	800	800	101	63	38	160	80	80
Total Net New External Trips		6,894	3,447	3,447	224	139	85	665	316	349



BUILDING SUMMARY		
GROCERY	50,325	SF
RETAIL / RESTAURANT	21,000	SF
TOTAL RETAIL AREA	71,325	SF
PARKING SUMMARY		
TOTAL PARKING PROVIDED	357	SPACES
TOTAL PARKING RATIO	5.00	/1000

L0



Z E B U L O N
NC 96 HWY & PROCTOR ST.
Z E B U L O N , N C

SP-1.2
SCHEMATIC SITE PLAN (ZONING PLAN)
2024.12.06



Appendix B:

Trip Generation

Zebulon Grocery
Table 1 - Trip Generation (11th Edition)

Land Use	Intensity	Daily			AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out	Total	In	Out
821 Shopping Plaza (40K-150K) w/ supermarket	92,000 s.f.	8,494	4,247	4,247	325	202	123	825	396	429
<u>Internal Capture</u>										
Internal Capture Total - ITE		0	0	0	0	0	0	0	0	0
Internal Capture Total - Reduced PM										
Total External Trips		8,494	4,247	4,247	325	202	123	825	396	429
<u>Pass-By Capture</u>										
821 Shopping Plaza (40K-150K)	<u>AM</u> <u>PM</u>									
	31% 40%	3,015	1508	1,507	101	63	38	330	158	172
	<i>Subtotal</i>	3,015	1,508	1,507	101	63	38	330	158	172
	<i>Adjacent Street Traffic</i>				1,590	795	795	1,590	795	795
	10% Adjacent Street Traffic	1,600	800	800	158	80	80	160	80	80
<i>Pass-By Capture Total</i>		1,600	800	800	101	63	38	160	80	80
Total Net New External Trips		6,894	3,447	3,447	224	139	85	665	316	349

Appendix C:

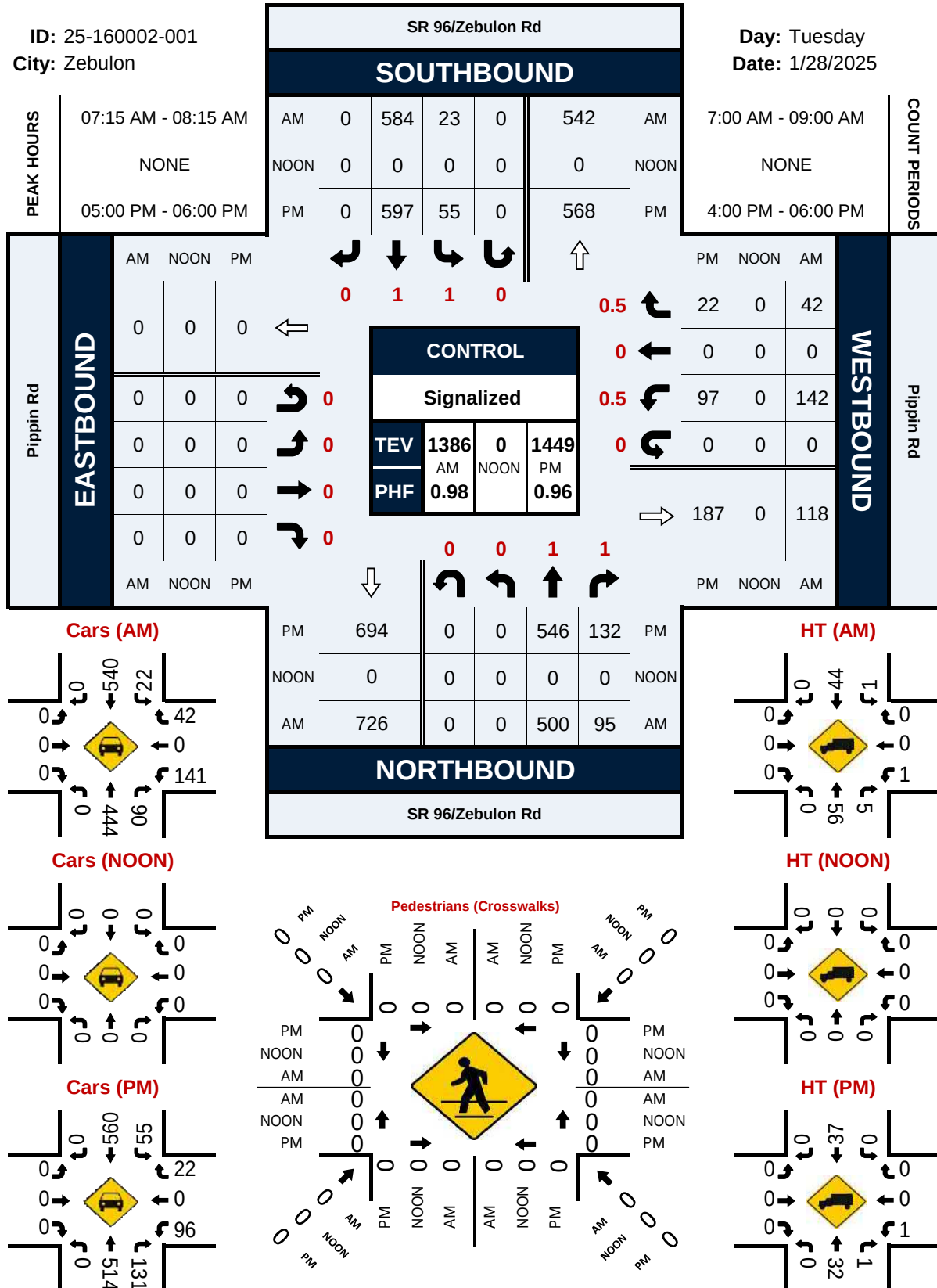
Traffic Count Data

SR 96/ Zebulon Rd & Pippin Rd

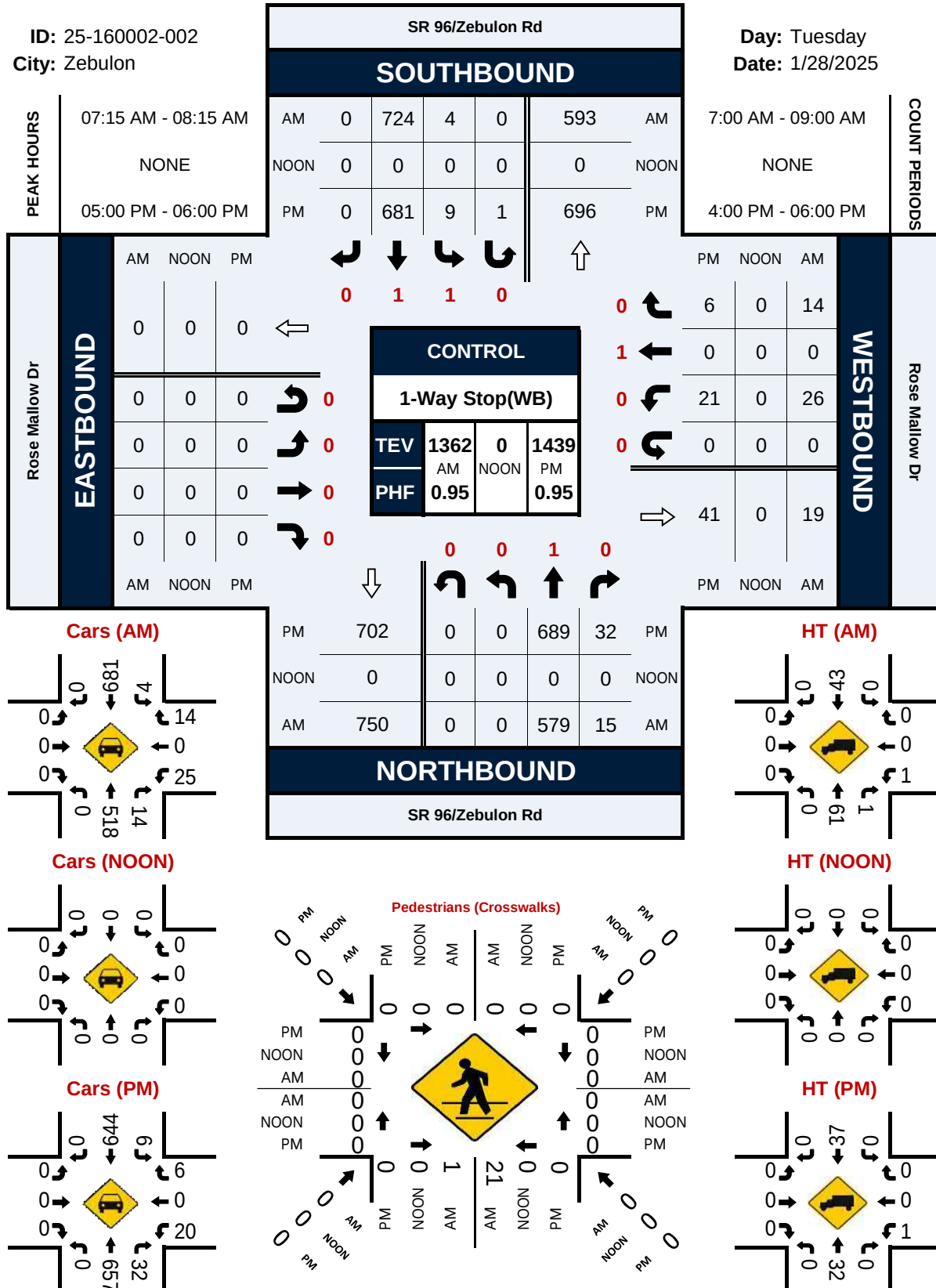
Peak Hour Turning Movement Count

ID: 25-160002-001
City: Zebulon

Day: Tuesday
Date: 1/28/2025



Day: Tuesday
Date: 1/28/2025



SR 96/Zebulon Rd/ N Arendell Ave & CR 2320/Proctor St/Riley Hill Rd

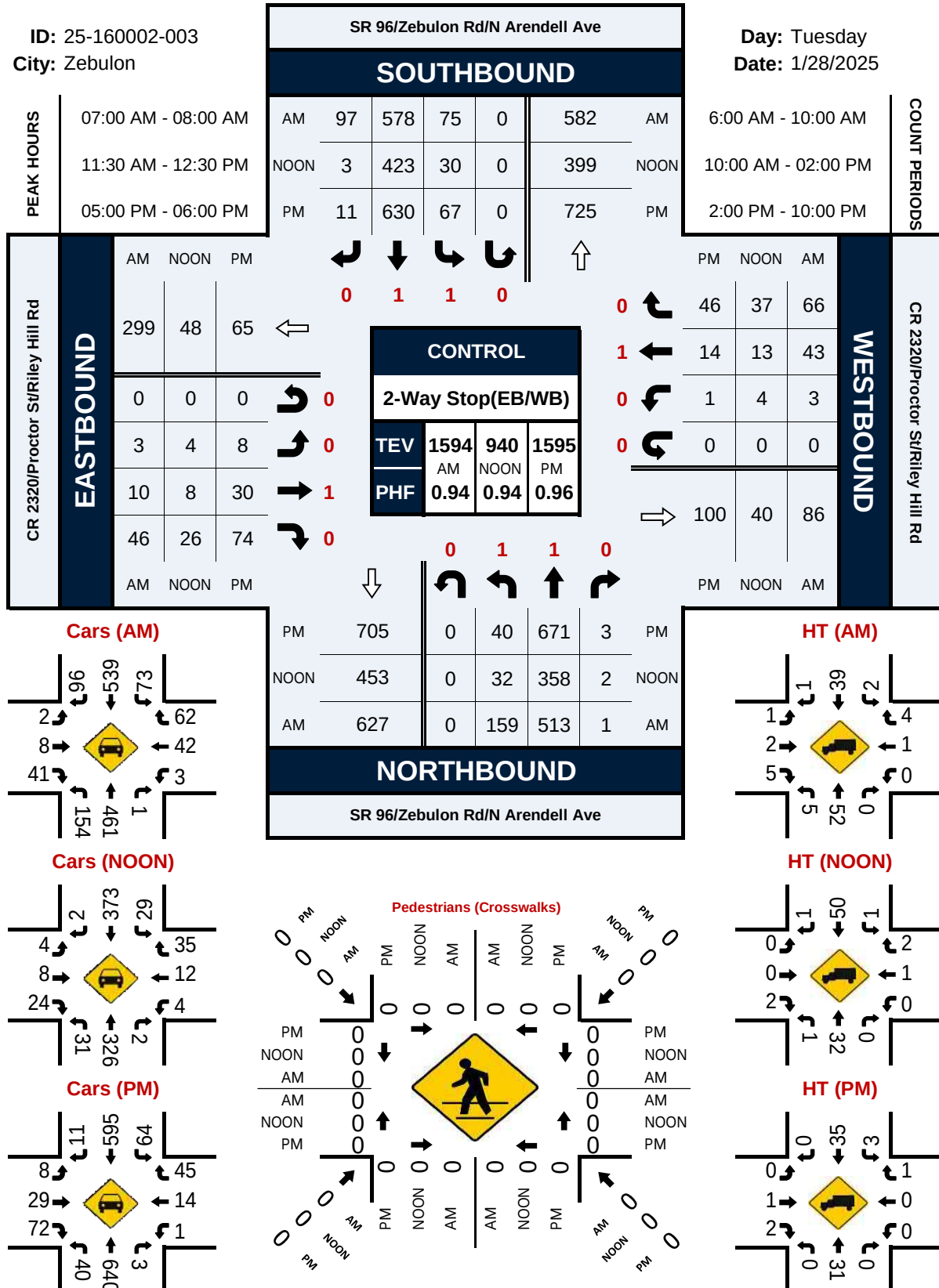
Peak Hour Turning Movement Count

ID: 25-160002-003

City: Zebulon

Day: Tuesday

Date: 1/28/2025

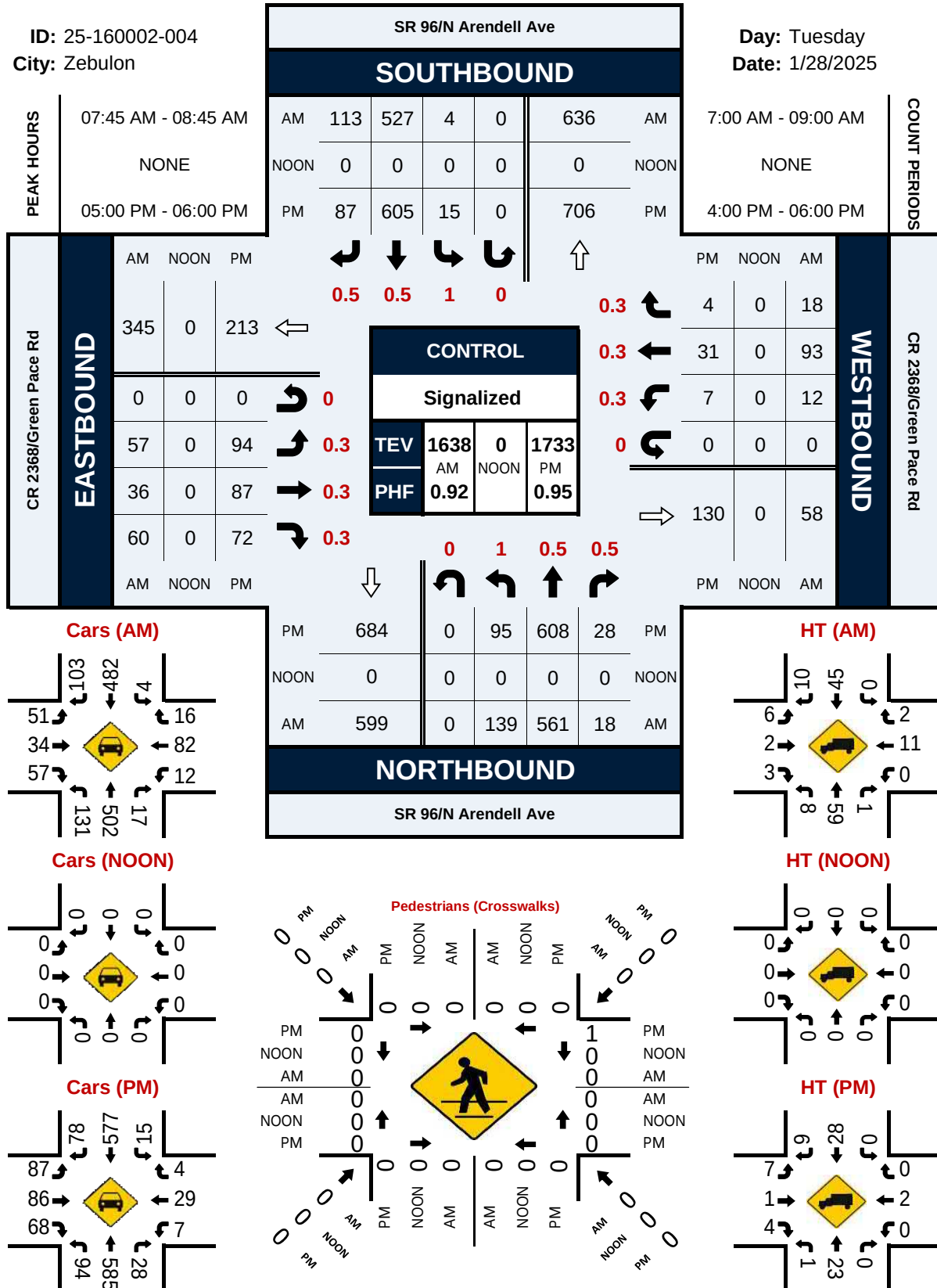


SR 96/ N Arendell Ave & CR 2368/ Green Pace Rd

Peak Hour Turning Movement Count

ID: 25-160002-004
City: Zebulon

Day: Tuesday
Date: 1/28/2025



SR 96/ N Arendell Ave & Pearces Rd/Five County Spay and Neuter Clinic Dwy

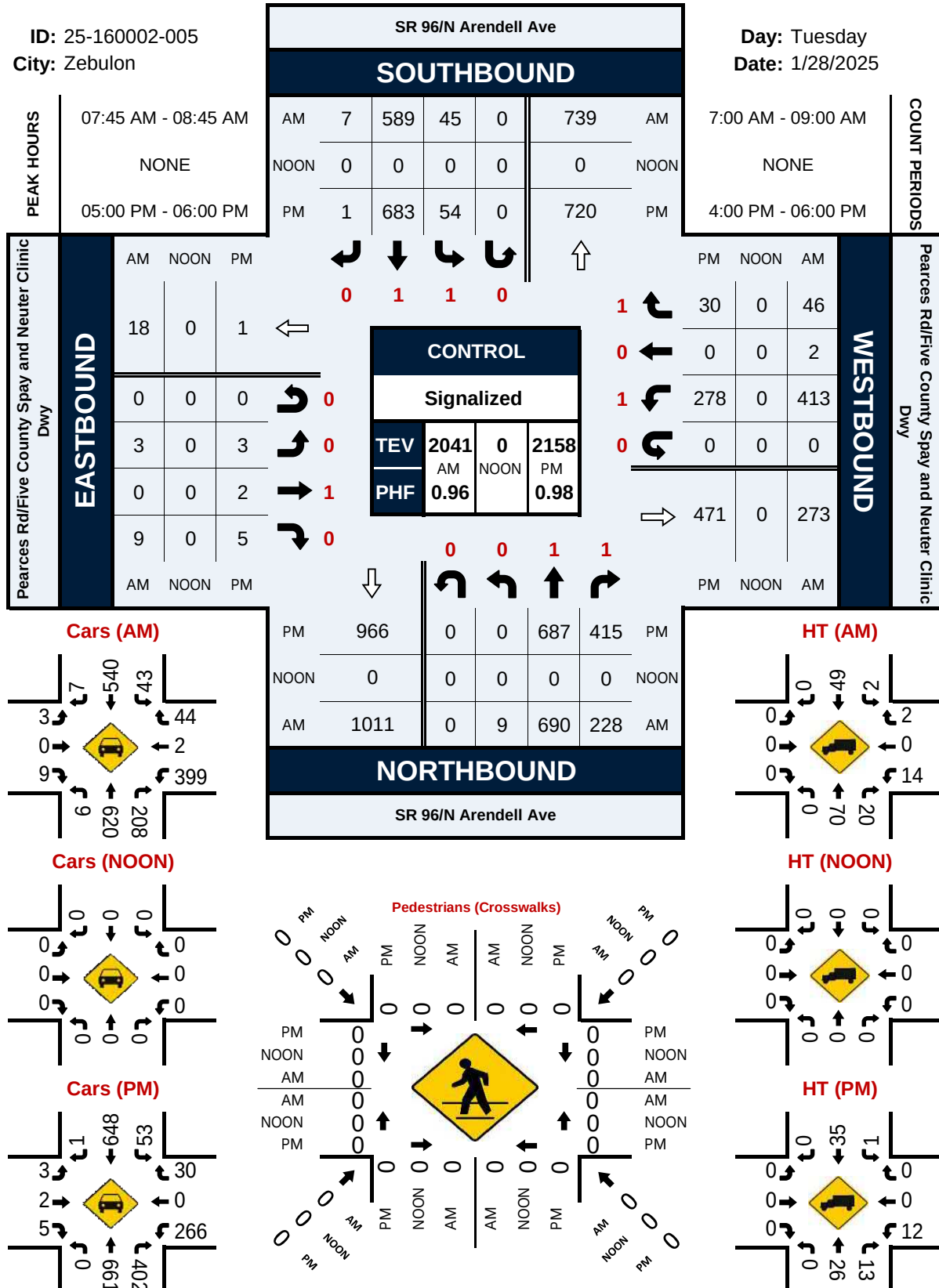
Peak Hour Turning Movement Count

ID: 25-160002-005

City: Zebulon

Day: Tuesday

Date: 1/28/2025

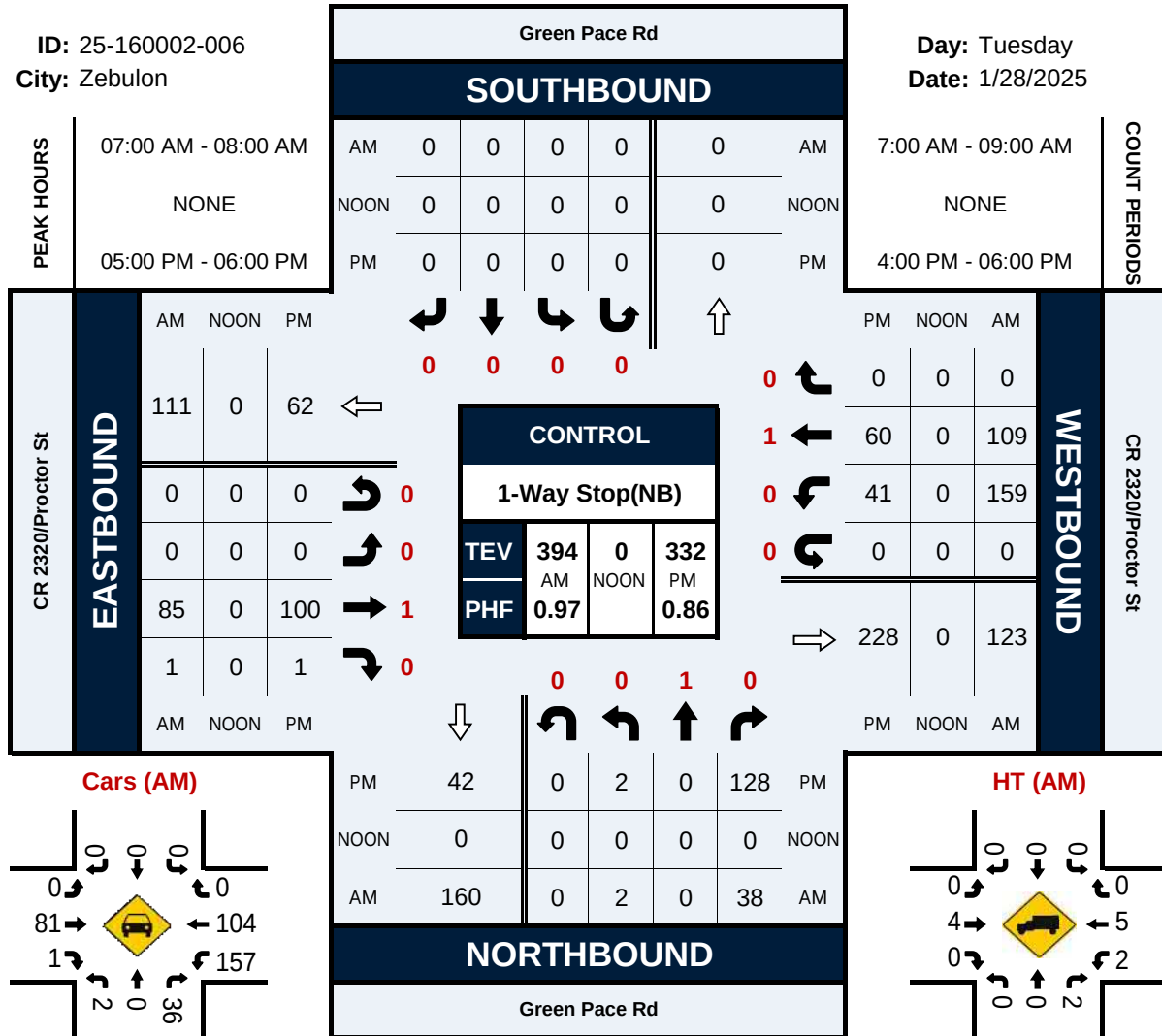


Green Pace Rd & CR 2320/Proctor St

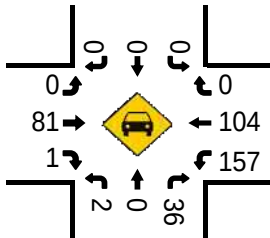
Peak Hour Turning Movement Count

ID: 25-160002-006
City: Zebulon

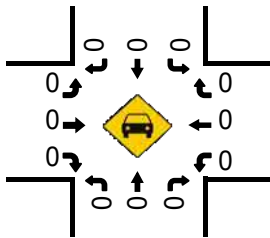
Day: Tuesday
Date: 1/28/2025



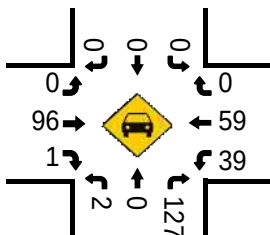
Cars (AM)



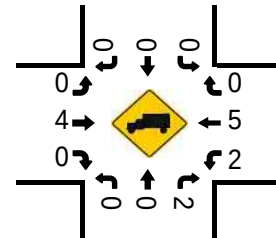
Cars (NOON)



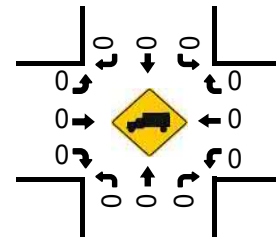
Cars (PM)



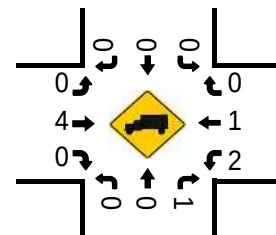
HT (AM)



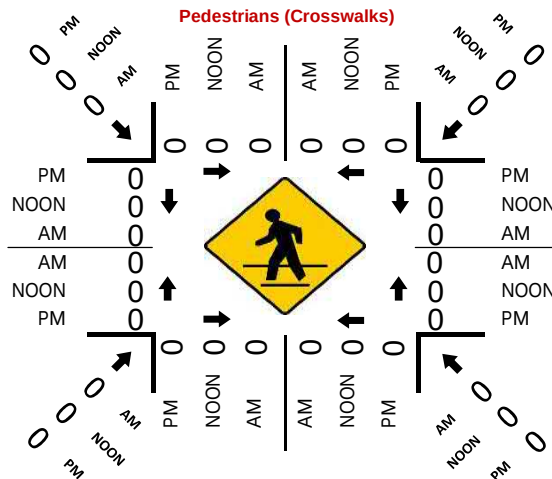
HT (NOON)



HT (PM)



Pedestrians (Crosswalks)

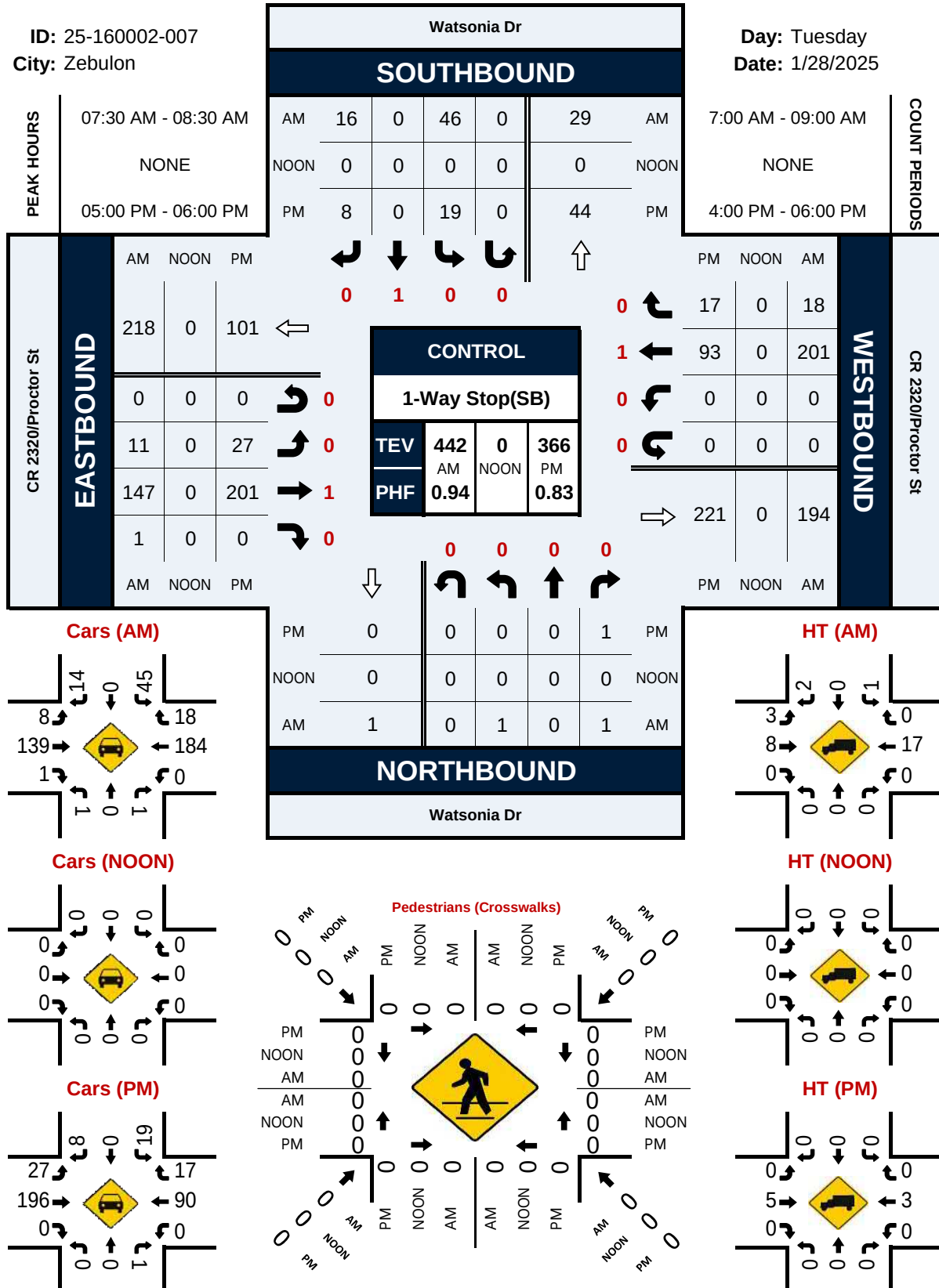


Watsonia Dr & CR 2320/Proctor St

Peak Hour Turning Movement Count

ID: 25-160002-007
City: Zebulon

Day: Tuesday
Date: 1/28/2025

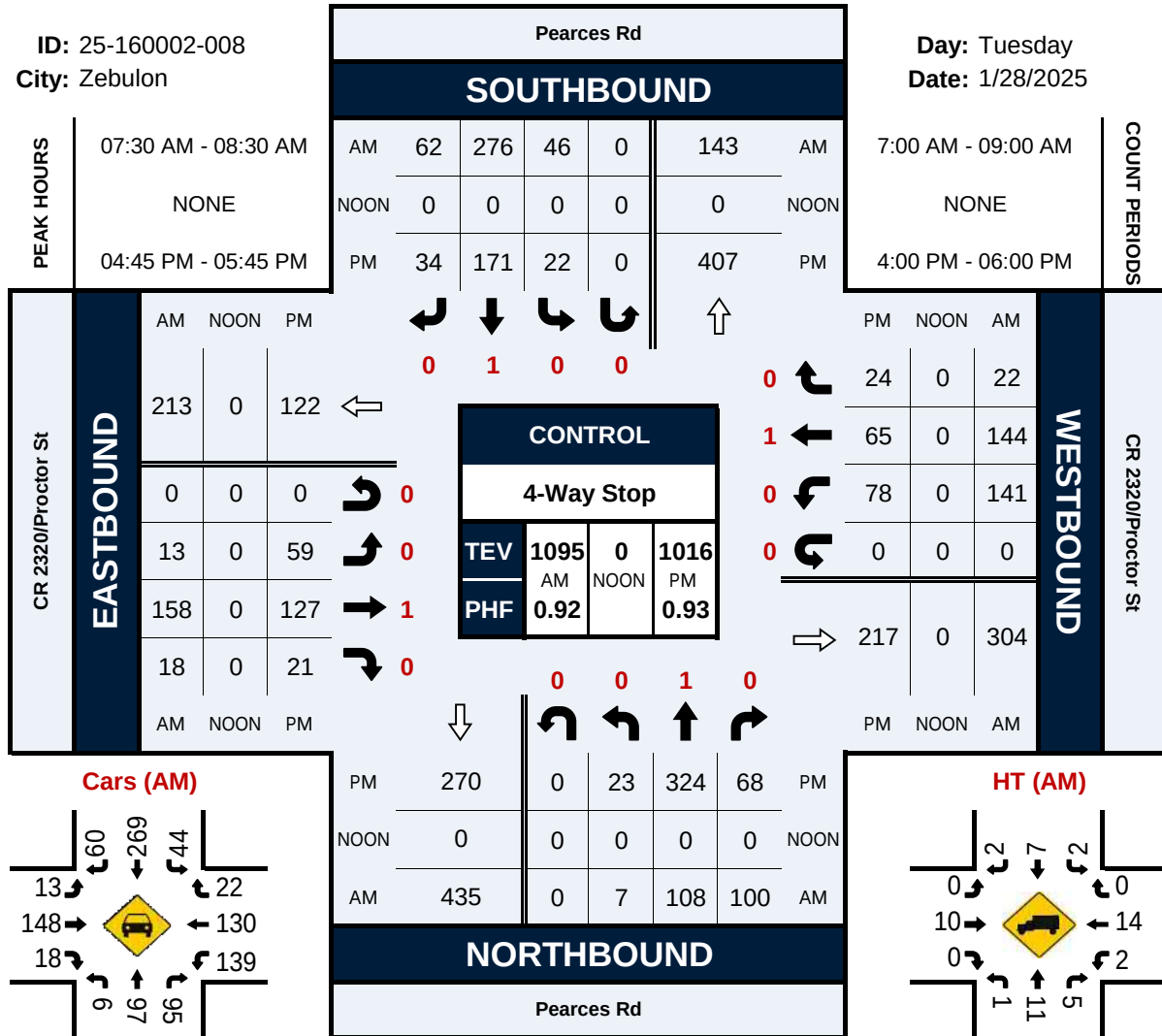


Pearces Rd & CR 2320/Proctor St

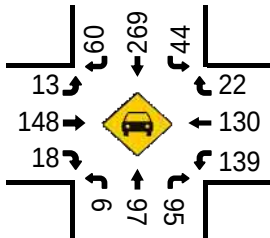
Peak Hour Turning Movement Count

ID: 25-160002-008
City: Zebulon

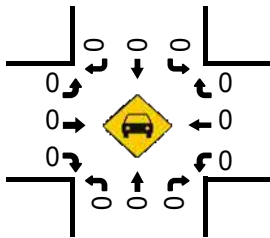
Day: Tuesday
Date: 1/28/2025



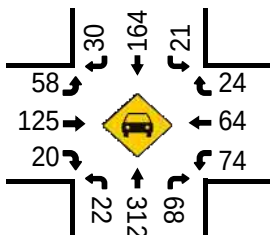
Cars (AM)



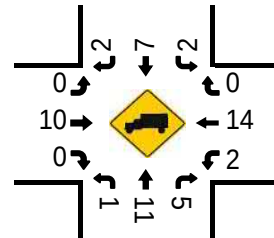
Cars (NOON)



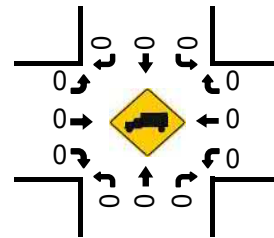
Cars (PM)



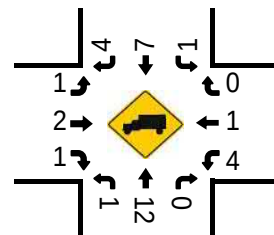
HT (AM)



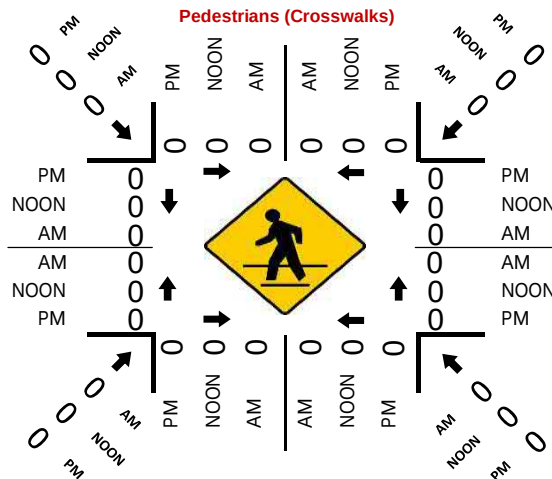
HT (NOON)



HT (PM)



Pedestrians (Crosswalks)



SR 96/ N Arendell Ave & US 264/64/CR 435/I-87/40 ALT WB Ramps/Dogwood Dr

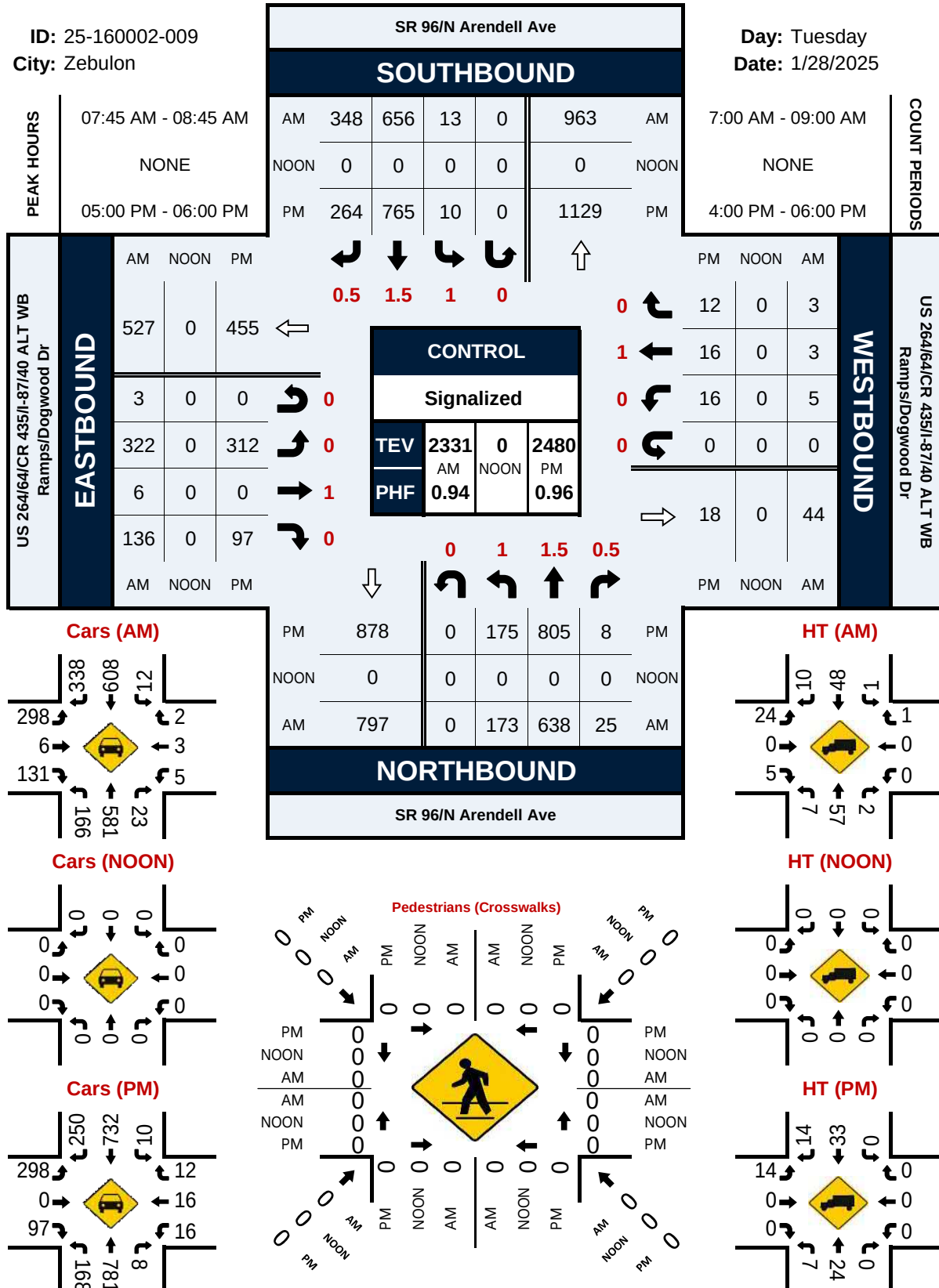
Peak Hour Turning Movement Count

ID: 25-160002-009

City: Zebulon

Day: Tuesday

Date: 1/28/2025



SR 96/ N Arendell Ave & US 264/64/CR 435/I-87/40 ALT EB Ramps

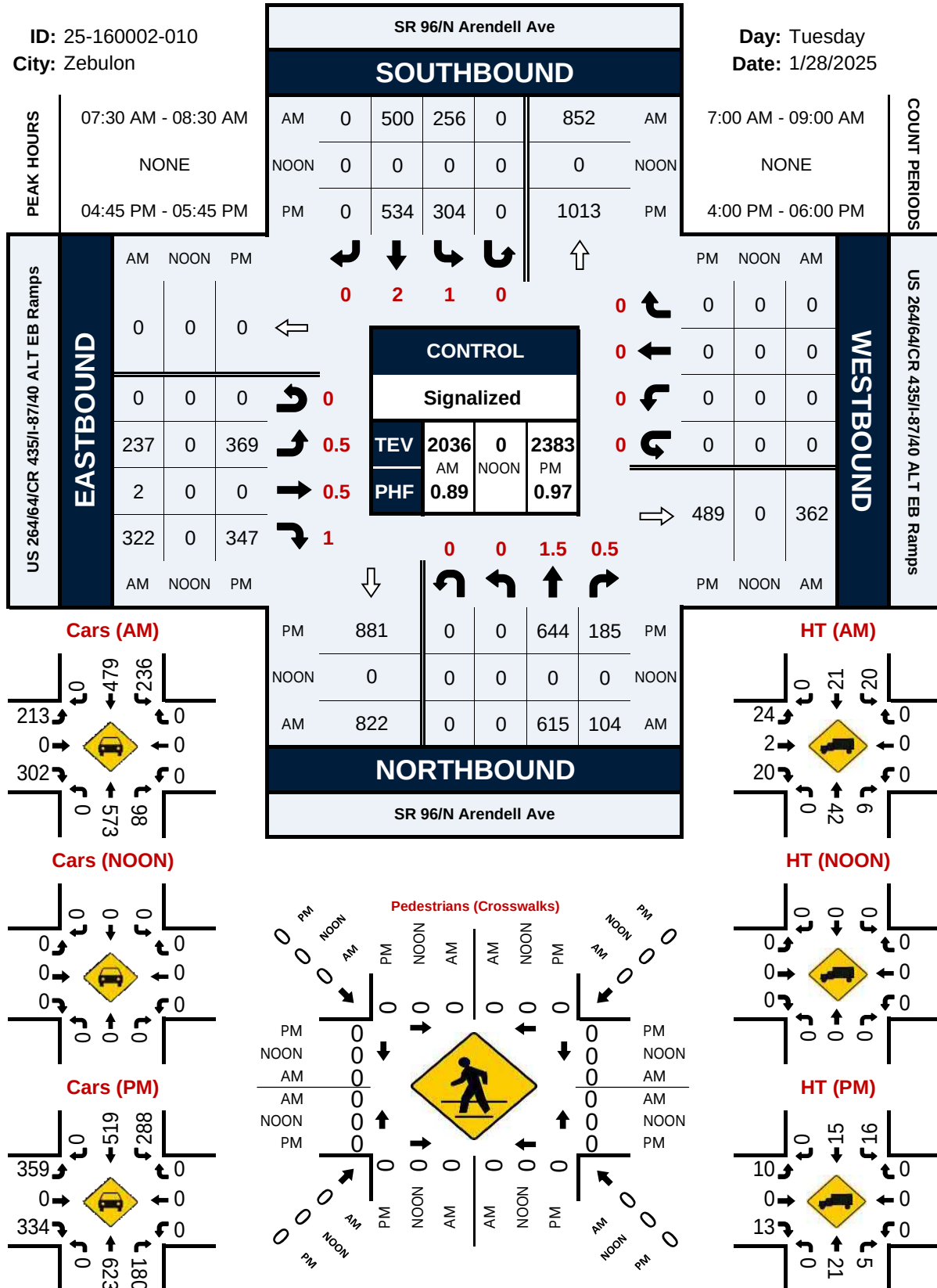
Peak Hour Turning Movement Count

ID: 25-160002-010

City: Zebulon

Day: Tuesday

Date: 1/28/2025



Appendix D:
Approved Development Information

TRAFFIC IMPACT ANALYSIS

Zebulon 7-Eleven Convenience Store

ZEBULON, NORTH CAROLINA



REPORT PREPARED FOR:

C4 CStore Holdings II, LLC
121 West Trade Street, Suite 2550
Charlotte, NC 28202

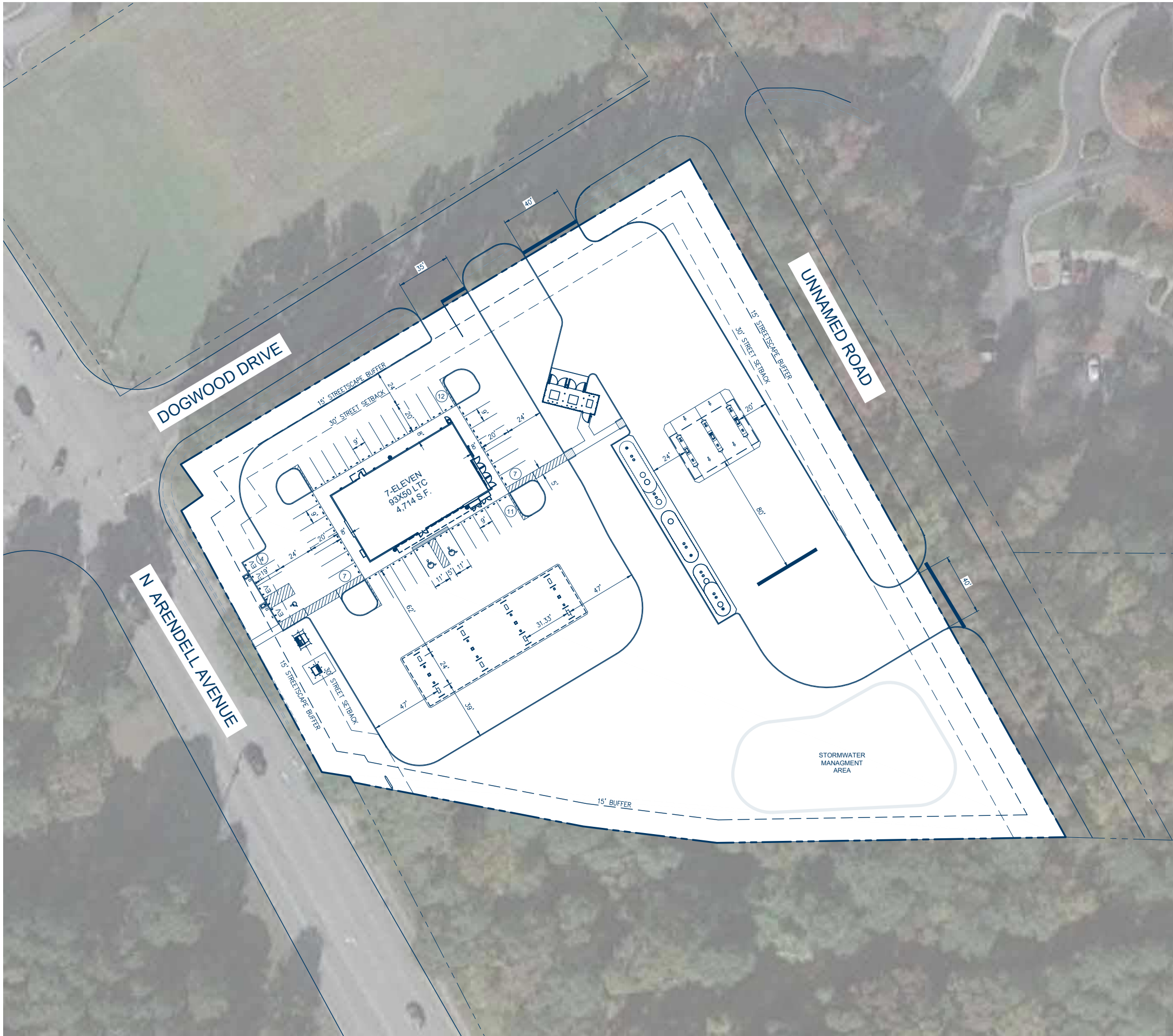
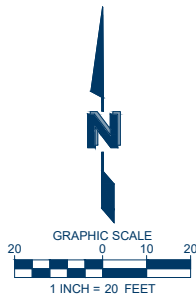
REPORT PREPARED BY

Impact Designs, Inc.
PO Box 3728
Mooresville, NC 28117
nick@impactdesignsinc.com

Drawing name: L:\Y-Eleven\2022\C22-144 & C22-145 - 1055397 - Zebulon, NC (N Arendell Ave & Dogwood Dr)\01 Preliminary\Site Sketch\C22144 - N Arendell & Dogwood - CSP1.dwg Oct 26, 2022 - 11:28am

- QUALIFICATIONS
1. THIS SITE PLAN WAS PRODUCED WITH THE BEST INFORMATION AVAILABLE AT DATE OF PRODUCTION.
 2. NO ALTA/TOPO SURVEY, NO TITLE REPORT, NO EASEMENT RESEARCH WAS AVAILABLE.
 3. TRANSPORTATION, UTILITY, ARCHEOLOGICAL, HISTORICAL RESEARCH WAS NOT PERFORMED.
 4. NO ZONING REQUIREMENTS, SETBACKS, BUFFERS WERE SUPPLIED AT THE DATE OF THIS PLAN. PROPOSED LAYOUT MAY NEED TO BE ADJUSTED PENDING ADDITIONAL INFORMATION.
 5. WATER QUALITY/QUANTITY TREATMENT LOCATION AND SIZE SUBJECT TO ENGINEERING CALCULATIONS AND AGENCY REVIEW.
 6. FOR ILLUSTRATIVE PURPOSES ONLY: NOT FOR LEASING DIMENSIONS OR CONSTRUCTION. ALL DIMENSIONS AND LAYOUT SUBJECT TO CHANGE.
 7. SITE PLAN WILL REQUIRE 7-ELEVEN AND CITY APPROVAL.

SITE SUMMARY	
AREA	152,875 S.F.±
PARKING SPACES	41



#	DATE	REVISION DESCRIPTION	BY
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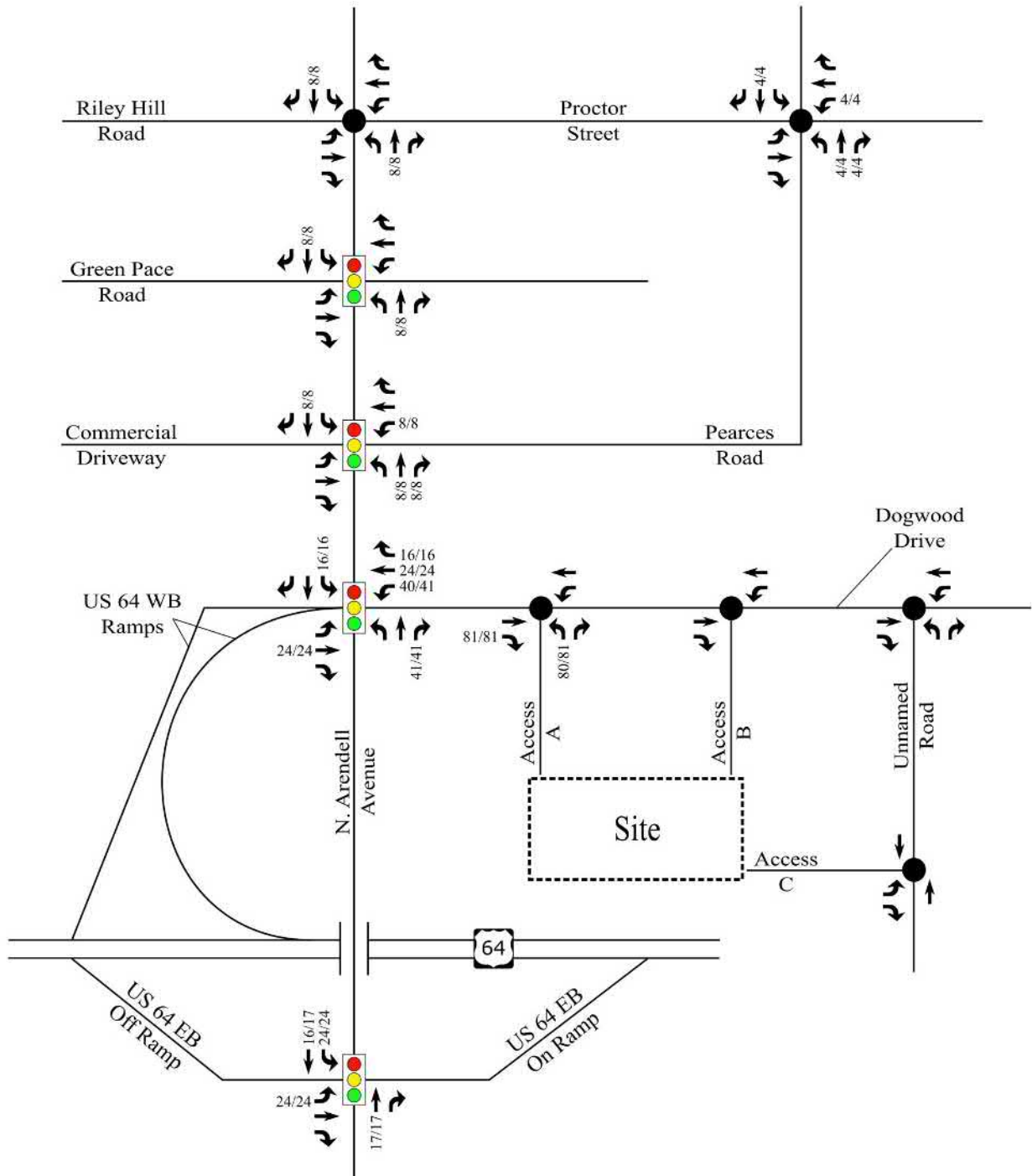
project no.	C22-144	drawn by	
date	10/26/2022 - 11:28 am	designed by	
dwg.	C22144 - N Arendell & Dogwood - CSP1.dwg	approved by	

CONCEPTUAL SITE PLAN	
N ARENDELL AVE & DOGWOOD DR	
ZEBULON, NC	

SHEET	
CSP1	

THE DIMENSION GROUP	
ARCHITECTURE - CIVIL ENGINEERING - MEP ENGINEERING	
10755 SANDHILL ROAD, DALLAS, TEXAS 75228	
TEL: 214-240-4400	
WWW.DIMENSIONGROUP.COM	

THIS PLAN IS THE PROPERTY OF THE DIMENSION GROUP. IT IS NOT TO BE REPRODUCED OR USED FOR ANY PURPOSE WITHOUT THE WRITTEN CONSENT OF THE DIMENSION GROUP.	
--	--



LEGEND

-  Signalized Intersection
-  Unsignalized Intersection
- X/Y → AM / PM Passenger Vehicle Site Trips

IMPACT
Designs, Inc.

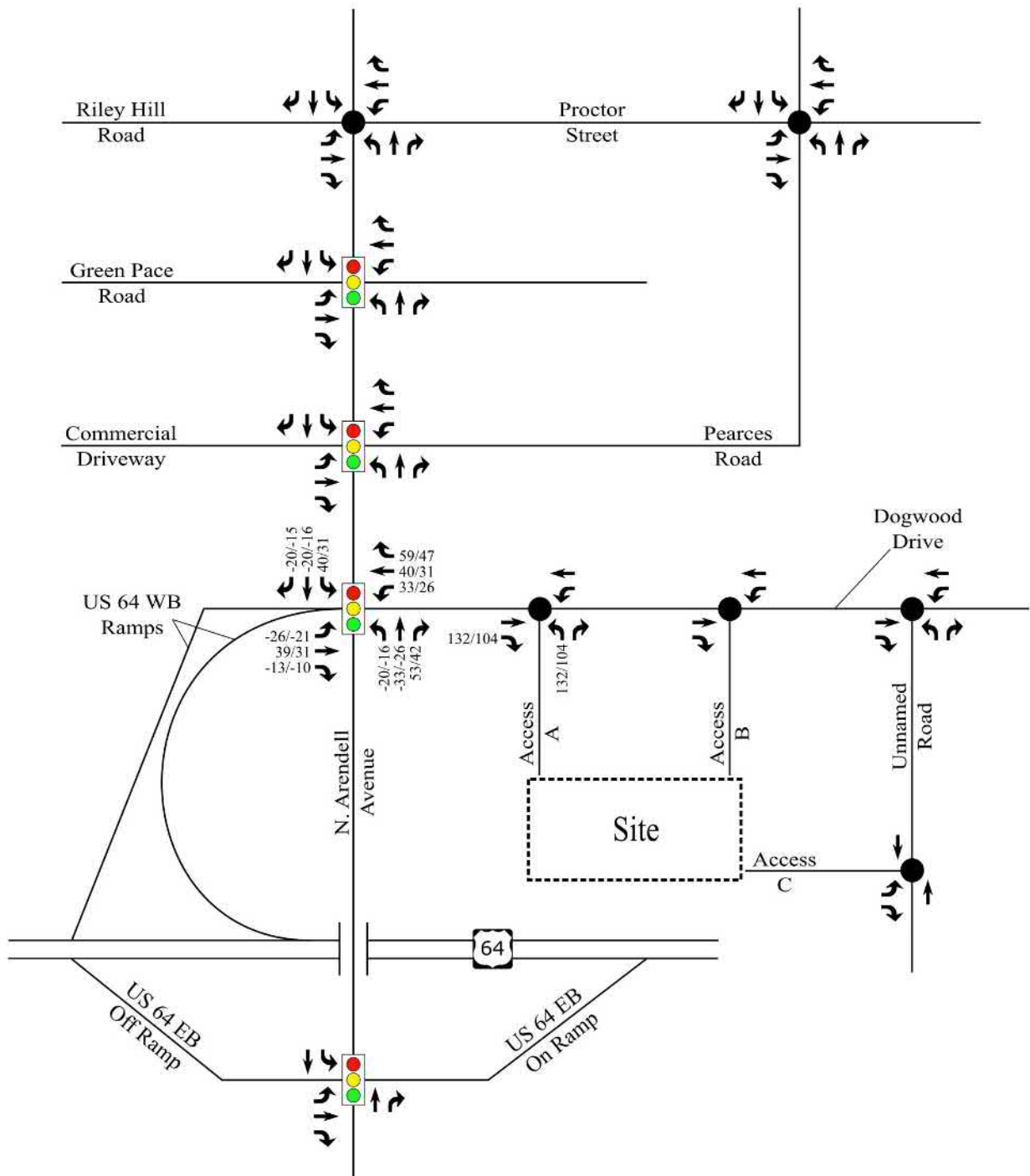
*Zebulon 7-Eleven
Zebulon, NC*

Primary Trip Assignments -
Passenger Vehicles

Scale: Not to Scale

Figure

8



LEGEND

-  Signalized Intersection
-  Unsignalized Intersection
- X/Y → AM / PM Pass-By Trips

IMPACT
Designs, Inc.

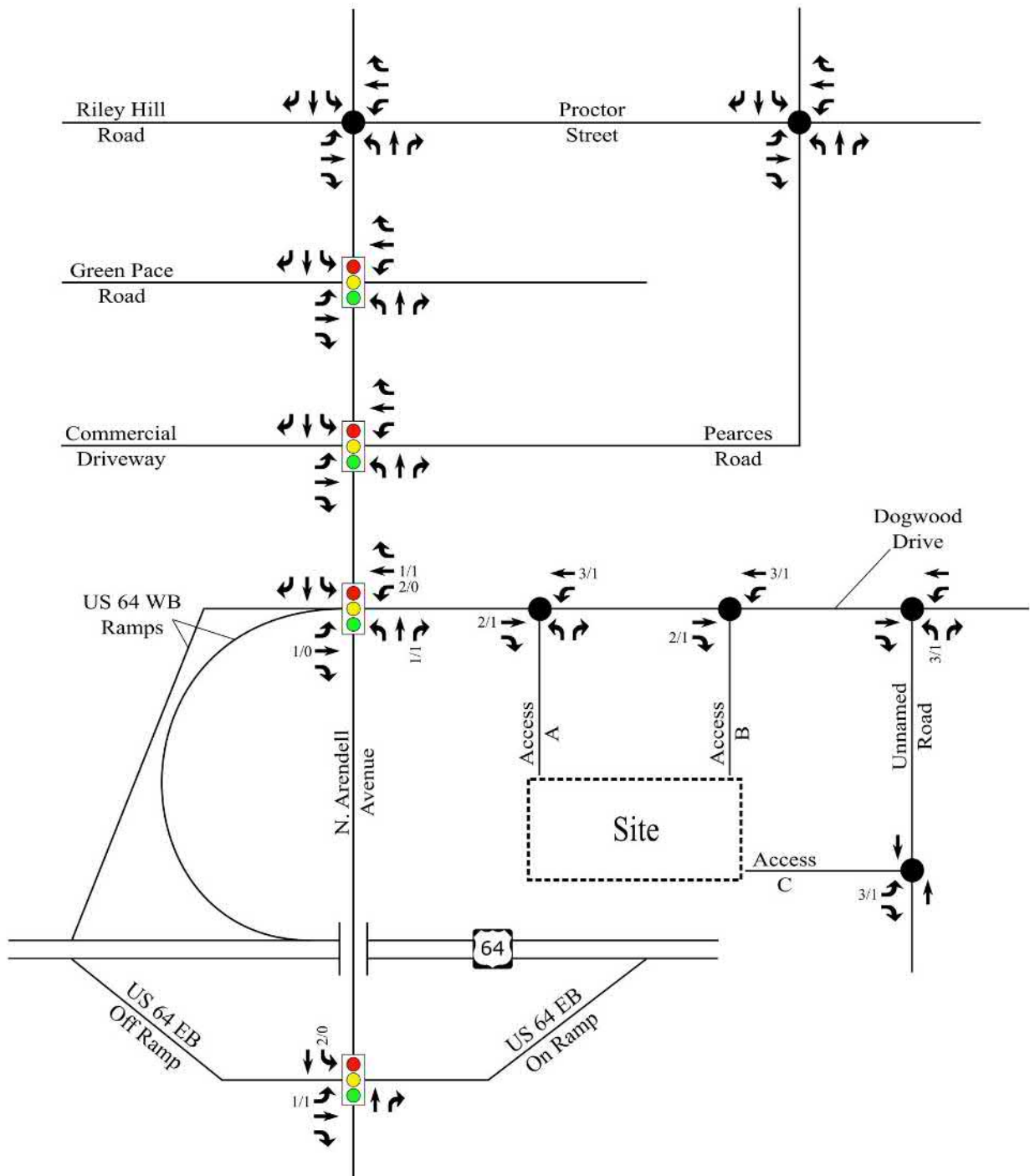
*Zebulon 7-Eleven
Zebulon, NC*

Pass-By Trip Assignments

Scale: Not to Scale

Figure

10



LEGEND

-  Signalized Intersection
-  Unsignalized Intersection
- X/Y → AM / PM Truck Site Trips

IMPACT
Designs, Inc.

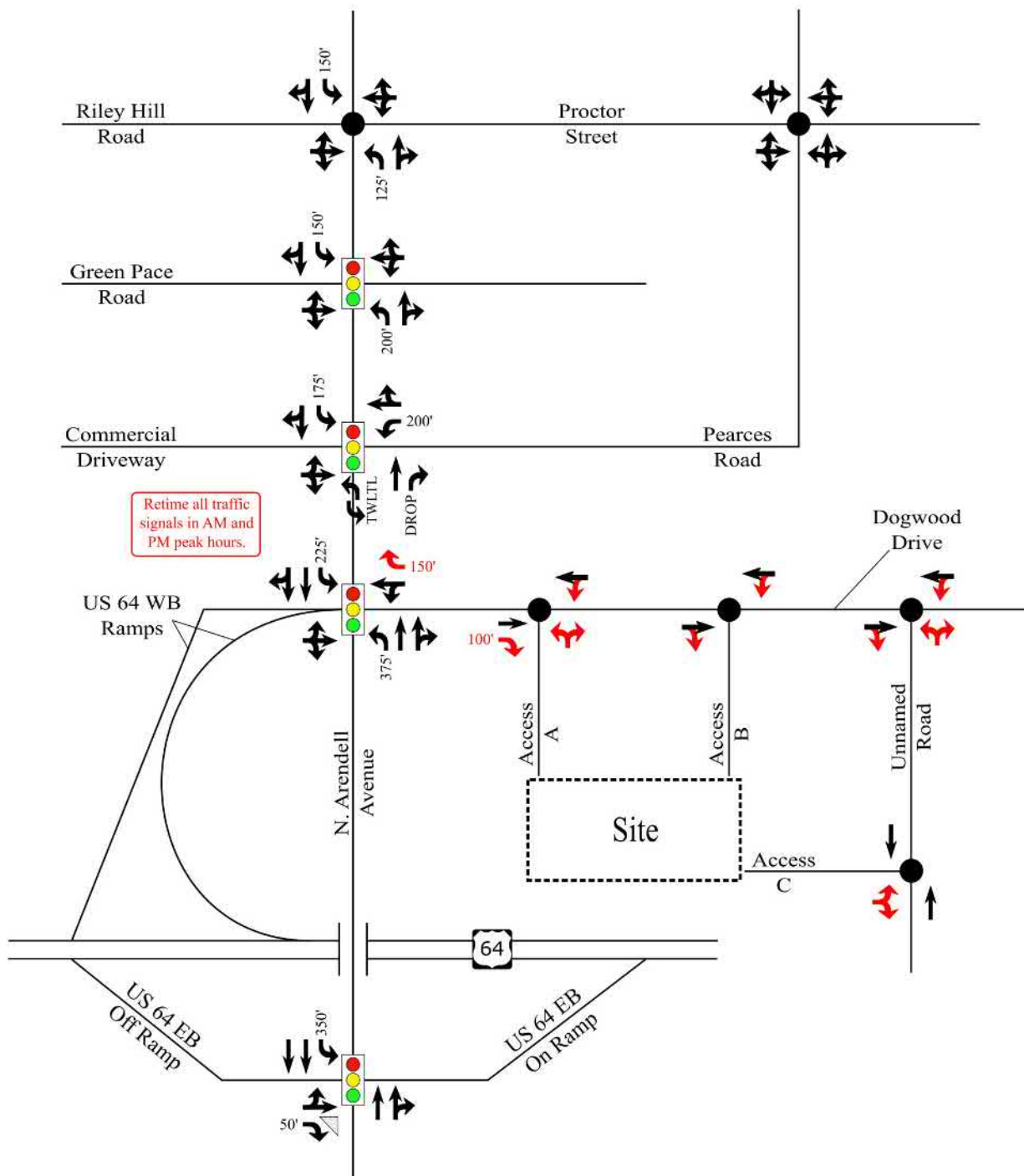
*Zebulon 7-Eleven
Zebulon, NC*

Primary Trip Assignments -
Trucks

Scale: Not to Scale

Figure

12



LEGEND

-  Signalized Intersection
-  Unsignalized Intersection
-  Existing Lane
-  Channelized Movement
-  Recommended Improvement
-  Storage (In Feet)

IMPACT
Designs, Inc.

*Zebulon 7-Eleven
Zebulon, NC*

Proposed Lane Configurations
and Traffic Control

Scale: Not to Scale

Figure

14

Pearces Road Residential Development

Traffic Impact Analysis

Zebulon, North Carolina

October 2020

Prepared for:

DR Horton



SITE DATA

SITE ADDRESSES:	1015 Pearces Road 0 Pippin Road 921 Pearces Road
Total Acreage:	±117.47 Ac.
Conservation Area (Includes Rec. Area)	61.24 Ac. (52.13%)
Development Area	56.23 Ac.
Total No. Lots:	232
Gross Density:	1.96 DU/AC
Watershed:	Moccasin Creek

Wm. G. Daniel & Assoc.
Engineering Planning
Site Design
1100-4E GUNNARD ROAD
SUITE 200
DURHAM, NC 27713
PH 919-467-3700, FX 919-460-7566
C 919-467-3700
FED ID# 56-1772588

Revisions

Project
D.R. Horton Property
Zebulon, NC

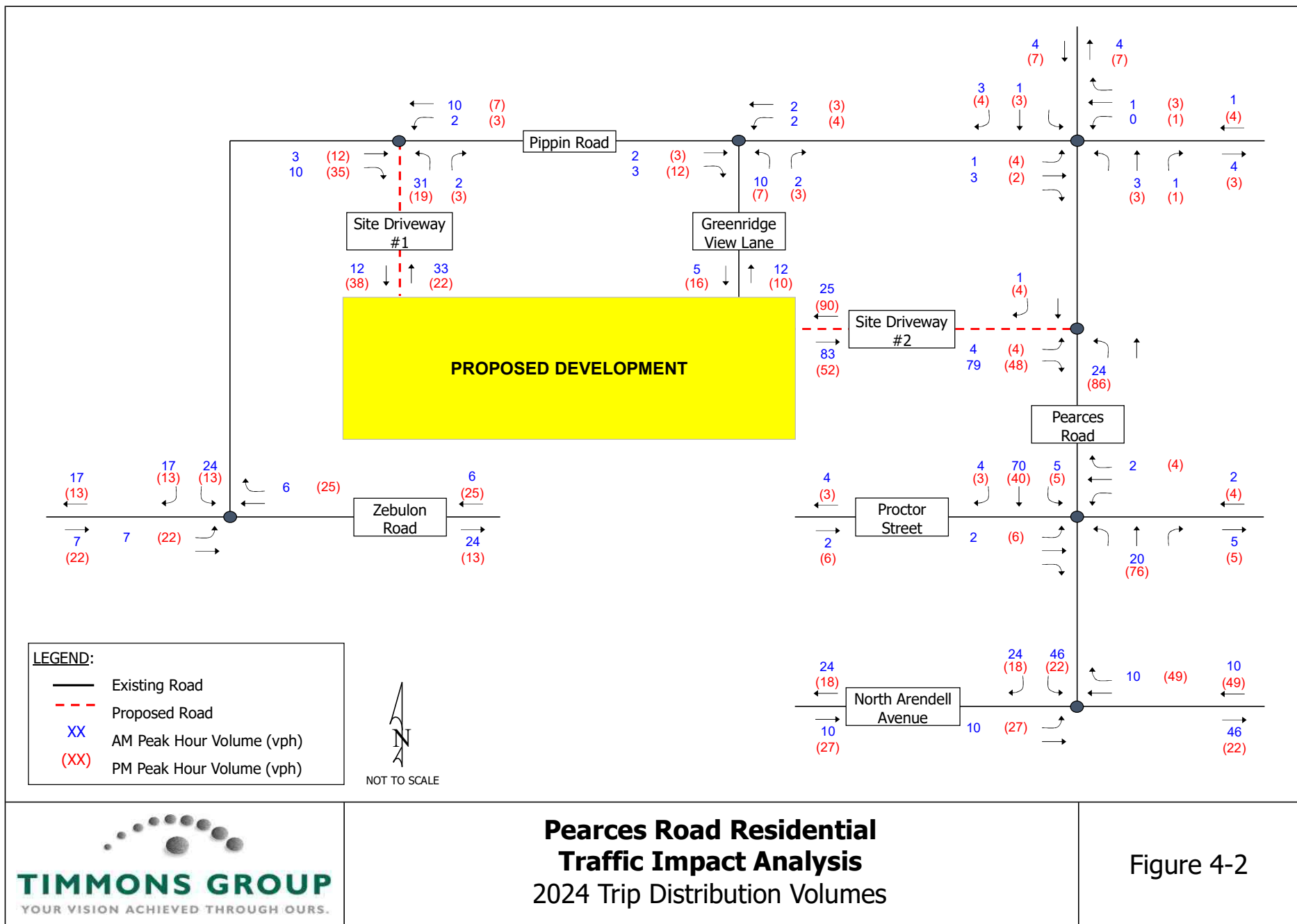
Conservation Subdivision
Development Areas Map

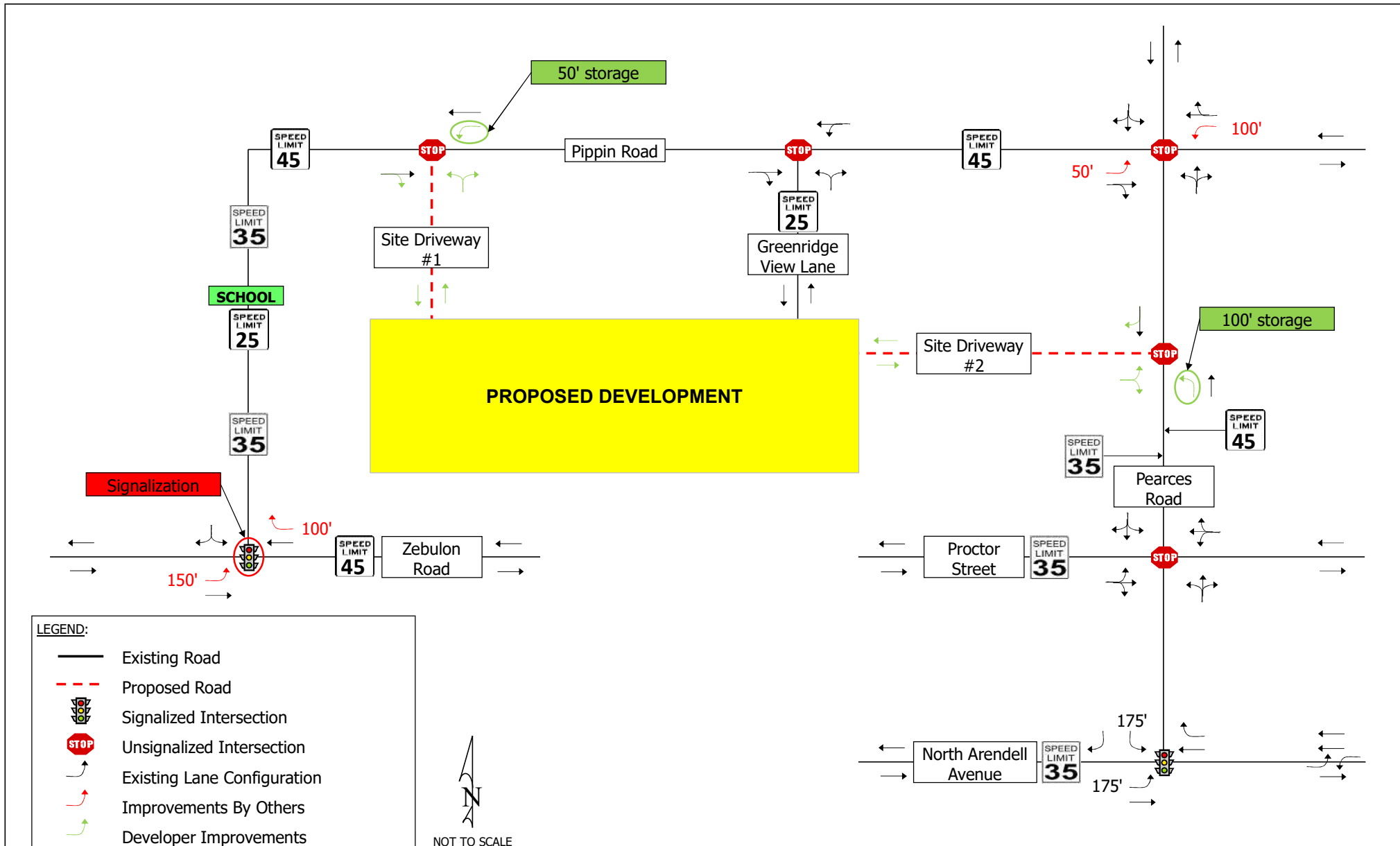
Date
July 2, 2020

Scale
1" = 200'

Sheet

1 of 1







**TRAFFIC IMPACT
ANALYSIS
FOR
ZEBULON DOMINO'S
LOCATED IN
ZEBULON, NORTH CAROLINA**

Prepared For:

Rivers & Associates, Inc.
353 E Six Forks Road
Suite 230
Raleigh, NC

Prepared By:

DRMP, Inc.
License #F-1524

SITE DATA TABLE	
PROPERTY INFORMATION / SITE ADDRESSES -	
	NC PIN - 27-0600-6772
	ADDRESS - 1000 HENDRICKS DR
	ZEBULON, WAKE COUNTY, NORTH CAROLINA 27597
TOWNSHIP -	LITTLE RIVER (PER MAPS)
OWNER/DEVELOPER -	JTS, INC.
	9101 S TRIVION ST STE. F, CHARLOTTE, NC 28273
SITE AREA -	0.913 AC (PER SURVEY)
LAND USE -	EXISTING - VACANT / STORMWATER CONTROL MEASURE
	PROPOSED - RESTAURANT, WALK-UP ONLY
	HC - HEAVY COMMERCIAL
ZONING -	STREET - 30'
SETBACKS -	SIDE - 0'; 3' IF PROVIDED
	REAR - 0'
BUFFERS -	10' STREETSCAPE BUFFER ALONG HENDRICKS DR & JONES ST
	10' TYPE "A" PERIMETER BUFFER ALONG ADJACENT PROPERTIES
BUILDING DATA -	PROPOSED BUILDING FOOTPRINT = +/- 1,632 SF
PARKING -	REQUIRED - 1 SPACE / EMPLOYEE ON LARGEST SHIFT
	1 SPACE / OUTDOOR SEATING LOCATION
	11 EMPLOYEES + 2 OUTDOOR SEATING LOCATIONS
	15 PARKING SPACES REQUIRED
	PROVIDED - 15 PARKING SPACES, INCL. 2 VAN ACCESSIBLE
	HANDICAP SPACES,
	MINIMUM DIMENSIONS: 10' X 20'
BICYCLE PARKING -	REQUIRED - 1 SPACE / 20 OFF-STREET AUTO PARKING SPACES
	< 20 SPACES ON SITE. NO BICYCLE PARKING
	REQUIRED
IMPERVIOUS SURFACE -	EXISTING - N/A
AREA	PROPOSED - ASPHALT PAVEMENT -
	(INCLUDES C+G)
	CONCRETE -
	+/- 2,231 SF
	BUILDING -
	+/- 1,632 SF
	TOTAL -
	+/- 16,771 SF
	(+/- 0.385 AC)
	PROPOSED IMPERVIOUS PERCENTAGE -
	+/- 42.17%

1. ALL SITE WORK SHALL BE DONE IN ACCORDANCE WITH THE PLANS PREPARED BY RIVERS AND CREEKS CONSULTING ENGINEERS, INC. (R&C) IN CONFORMANCE WITH THE APPLICABLE SECTIONS OF THE NCDOT STANDARD SPECIFICATIONS FOR ROADWAY CONSTRUCTION, AND ALL OTHER PERTINENT STATE AND LOCAL LAWS.
2. THE CONTRACTOR SHALL COMPLY AT ALL TIMES WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, PROVISIONS, AND POLICIES GOVERNING FEDERAL AID, INCLUDING THE FEDERAL CONSTRUCTION SAFETY ACT (PUBLIC LAW 91-54), FEDERAL REGISTER, FEDERAL HIGHWAY ADMINISTRATION (FHWA) REGULATIONS, FEDERAL SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION, AND SUBSEQUENT PUBLICATIONS UPDATING THESE REGULATIONS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EXAMINING THE AREAS AND CONDITIONS UNDER WHICH THE PROJECT IS TO BE CONSTRUCTED PRIOR TO THE SUBMISSION OF A BID. SUBMISSION OF A BID SHALL BE CONSIDERED TO MEAN THE CONTRACTOR HAS ACCEPTED THE SITE CONDITIONS, INCLUDING THE LIMITATIONS AND CONSTRAINTS OF THE SITE. BEFORE EXCAVATION, ALL UNDERGROUND UTILITIES SHALL BE LOCATED IN THE FIELD BY THE PROPER AUTHORITIES. THE CONTRACTOR SHALL NOTIFY NCE, ONE CALL AT 800-4-A-ONECALL, AND THE TOWN OF ZEBULON PRIOR TO ANY EXCAVATION. ALL UTILITIES ARE APPROXIMATE AND MAY NOT BE SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EXISTENCE, DEPTHS, LOCATION, AND ALL UTILITIES AND UNDERGROUND STRUCTURES.
5. CONTRACTOR SHALL REFER TO THE GEOLOGICAL REPORT PRIOR TO INITIATION OF ANY WORK.
6. CONTRACTOR SHALL NOTIFY PUBLIC WORKS STREET MAINTENANCE DIVISION 48 HOURS PRIOR TO MAKING CONNECTIONS TO EXISTING STORM DRAINS ORAINED WITH PUBLIC UTILITIES.
7. REFER TO C102 FOR SURVEY CONTROL POINTS.
8. CONTRACTOR SHALL REFER TO OTHER PLANS WITHIN THIS PROJECT SET FOR OTHER PERTINENT INFORMATION.
9. **PROJECT SITE 2706040000, DATED 7/7/14, THIS CONSTRUCTION IS IN ZONE X AND THEREFORE THERE IS NO REGULATORY FLOODPLAIN LOCATED ON THIS PROPERTY.**
10. BUILDINGS, STRUCTURES OR OTHER IMPROVEMENTS, MATERIALS AND SURFACES, EXISTING UTILITIES, AND ANY OTHER FEATURES, INCLUDING BUT NOT LIMITED TO, SIGNAGE, ADDITIONS AND APPURTENANCES THEREON, SIGNAGE, FENCES, WALLS, COLLECTION EQUIPMENT, CANOPIES, ANTENNAS, MASTS, DEBRIS, SODS, WASTE, MECHANICAL EQUIPMENT, AND OTHER STRUCTURES, SHALL BE PROTECTED FROM DAMAGE BY ENCROACH WITH AN APPROPRIATE EASEMENT WITHOUT PRIOR APPROVAL OF TOWN OF ZEBULON.
11. SOIL EROSION AND SEDIMENTATION CONTROL PLAN IS NOT APPLICABLE, THE SITE DISTURBANCE IS LESS THAN ONE ACRE.
12. WETLANDS ARE VALUABLE NATURAL RESOURCES THAT PROVIDE IMPORTANT ECOSYSTEM SERVICES. WETLANDS ARE PROTECTED BY FEDERAL AND STATE LAWS. WETLANDS ARE REGULATED BY THE FEDERAL GOVERNMENT UNDER SECTION 404 OF THE CLEAN WATER ACT. WETLANDS ARE ALSO REGULATED BY STATE LAWS. WETLANDS ARE A COMMON IN THIS REGION. IF ANY PRIVATE LAND OWNER, DEVELOPER, CORPORATION, OR OTHER PERSON PROPOSES TO UNDERTAKE CONSTRUCTION/FILLING ACTIVITIES IN OR ON WETLANDS, THE PROPOSED ACTIVITY MAY BE SUBJECT TO REGULATION BY THE STATE OR ITS AGENT WETLANDS. FEDERAL PERMIT AUTHORIZATION MAY BE REQUIRED FROM THE U.S. ARMY CORPS OF ENGINEERS PRIOR TO COMMENCING ANY CONSTRUCTION OR LAND-DISTURBING ACTIVITIES. PLEASE CONTACT MRS. TRACY WHEELER, TELEPHONE (552) 975-3666 FOR A WETLAND DETERMINATION AND INFORMATION REGARDING SPECIFIC REGULATIONS.
13. APPROVAL OF SITE PLAN DOES NOT CONSTITUTE APPROVAL OF SIGNS. SEPARATE SIGN PERMITS ARE REQUIRED.
14. ALL SIGNS SHALL BE 3' HIGH (OR NOT LESS THAN MAXIMUM UNLESS NOT OTHERWISE SPECIFIED).
15. ALL AREAS NOT PAVED SHALL BE TOPSOILED, SEEDED, MULCHED OR LANDSCAPED/COVERED UNLESS OTHERWISE NOTED IN THE CONSTRUCTION DRAWINGS, SPECIFICATIONS, OR PERMITS. ALL SIGNS SHALL BE INSTALLED IN ACCORDANCE WITH THE APPROVED REQUIREMENTS SHALL COMPLY WITH THE TOWN OF ZEBULON ZONING ORDINANCE.
16. TREE PROTECTION SHALL BE PROVIDED BY PRIVATE CONTRACTOR.
17. CONSTRUCTION OF ROADWAY EXCAVATION BY OTHERS

STORMWATER MANAGEMENT NOTES:

1. EXISTING STORMWATER MANAGEMENT DETENTION BASIN
A. ON-SITE ALLOWABLE IMPERVIOUS SURFACE AREA = 1.89 AC = 82,028 SF
B. EXISTING IMPERVIOUS SURFACE AREA = 0.84 AC = 36,560 SF
C. CAPITAL BARN IMPERVIOUS SURFACE AREA = 0.94 AC = 41,394 SF
D. ALLOWED IMPERVIOUS SURFACE AREA FOR SITE = 0.84 AC = 37,344 SF
E. 0.45 AC = 16,771 SF
2. PROPOSED IMPERVIOUS SURFACE AREA FOR SITE =
3. ALLOWED FUTURE IMPERVIOUS AREA = 21.344 SF - 18,771 SF = 5,473 SF

NOTE:

1. PAVEMENT MARKINGS WITHIN SITE CAN BE PAINTED, PAVEMENT MARKINGS WITHIN RIGHT OF WAY SHALL BE THERMOPLASTIC AND SHALL BE INSTALLED IN ACCORDANCE WITH NCDOT STANDARDS AND SPECIFICATIONS.
2. EXISTING ON-SITE FIBER OPTIC LINE TO BE REMOVED BY CONTRACTOR.

HC RAMPS:

1. ALL HIC RAMPS TO BE FIELD ADJUSTED WITH INPUT FROM THE TOWN OF ZEBULON FIELD INSPECTOR PRIOR TO INSTALLATION.
2. POWER POLES WHICH CONFLICT WITH FIELD LOCATED HC RAMPS ARE TO BE RELOCATED BY APPROPRIATE UTILITY COMPANY.

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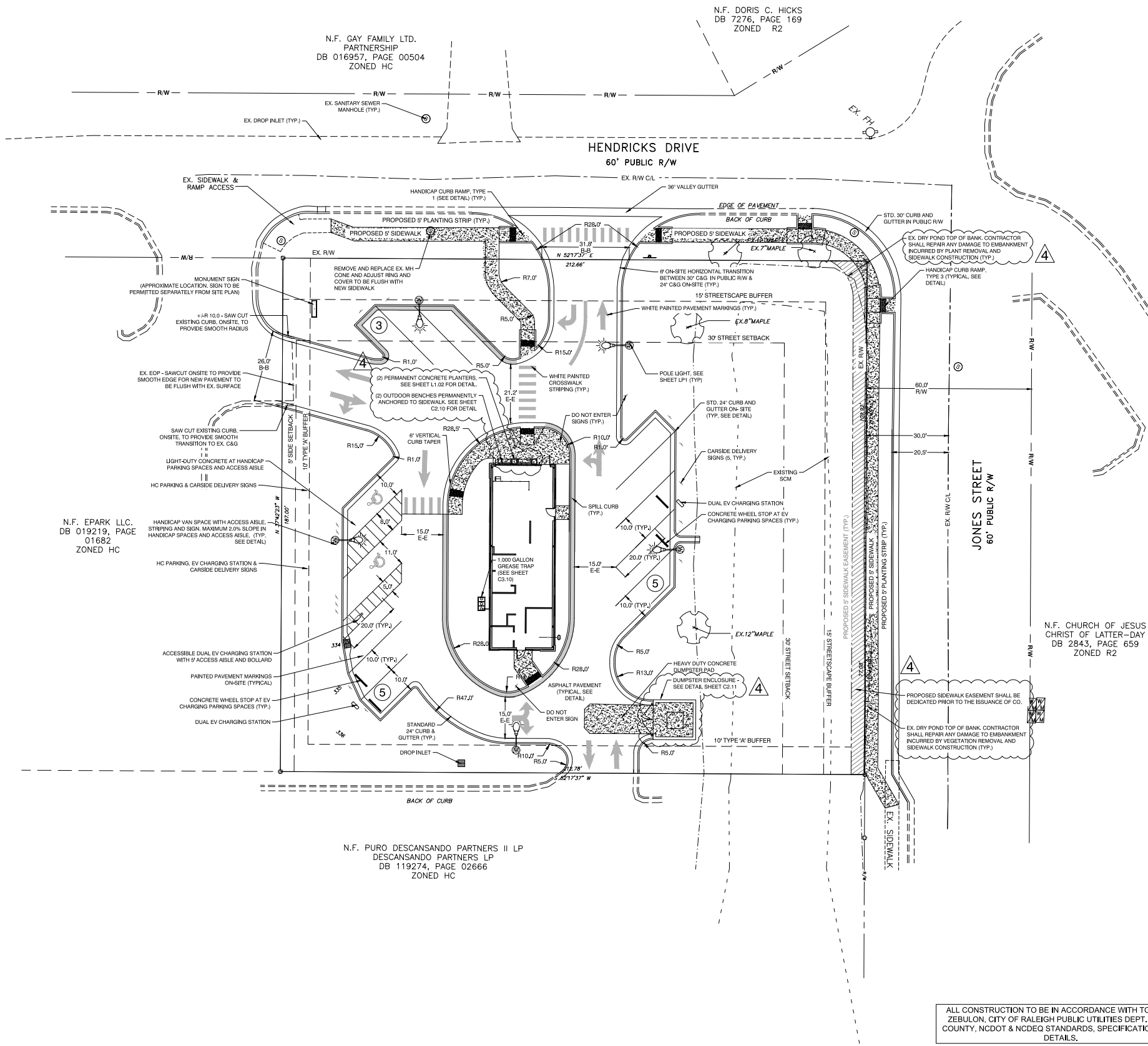
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NO.	DESCRIPTION	DATE	BY
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3	CONSTRUCTION DRAWINGS SUBMITTAL #4	06/22/24	
2	CONSTRUCTION DRAWINGS SUBMITTAL #3	01/19/24	
1	CONSTRUCTION DRAWINGS SUBMITTAL #2	12/07/23	
	TRC REVIEW PLAN	11/07/23	
	CONSTRUCTION DRAWINGS SUBMITTAL #1	06/01/23	

CONSTRUCTION DRAWINGS
DOMINO'S ZEBULON
TOWN OF ZEBULON - WAKE COUNTY - NORTH CAROLINA

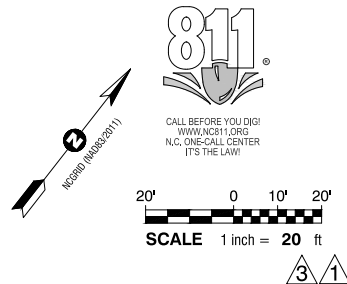
SITE PLAN

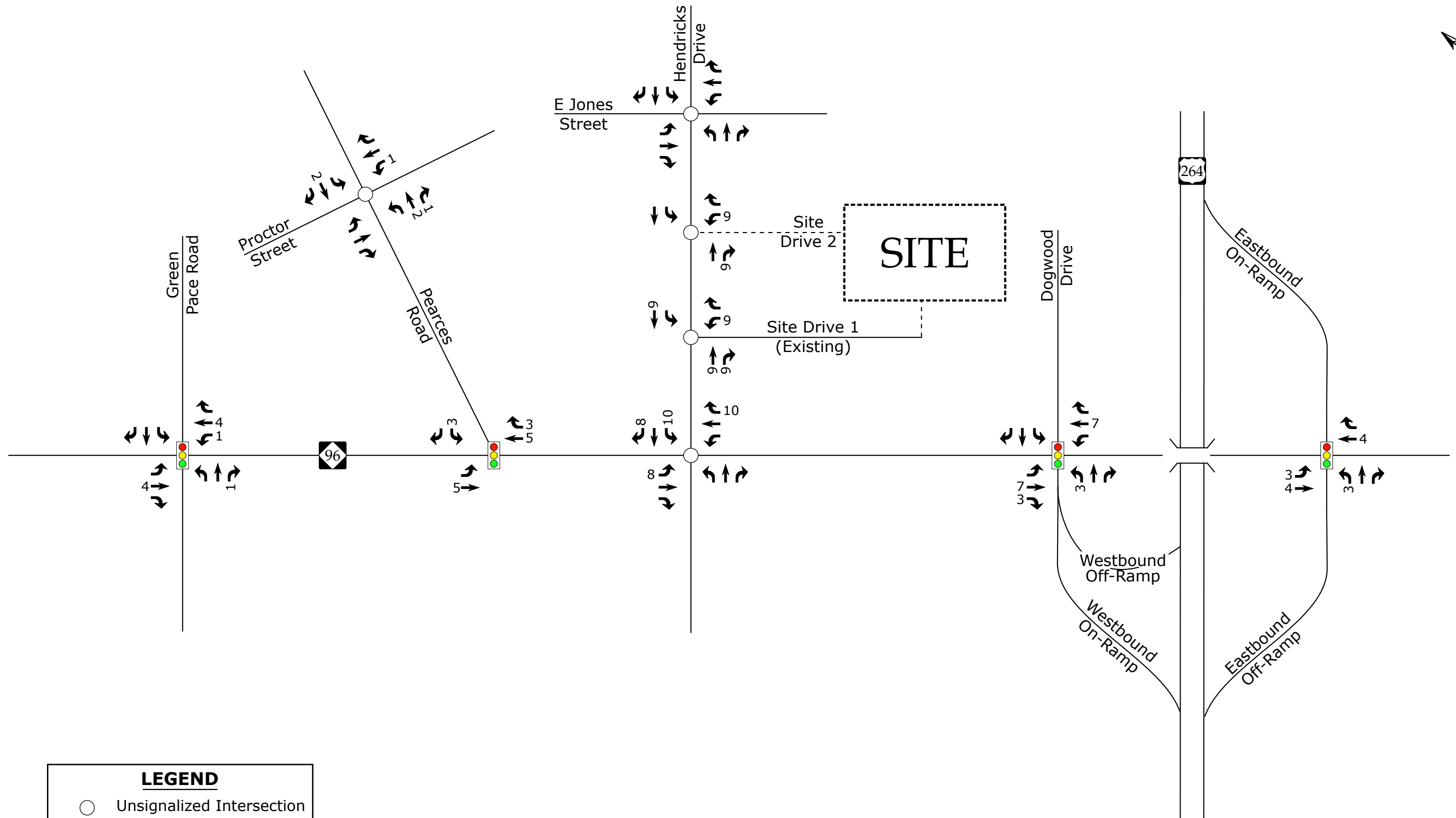
DATE:	
DESIGNED BY:	SF/MS
DRAWN BY:	SF/MS
CHECKED BY:	JSJ/PRM
PROJECT No.	2023018
DRAWING No.	W-4081
SCALE:	AS SHOWN
SHEET No.	

C2.01



ALL CONSTRUCTION TO BE IN ACCORDANCE WITH TOWN OF ZEBULON, CITY OF RALEIGH PUBLIC UTILITIES DEPT., WAKE COUNTY, NCDOT & NCDEQ STANDARDS, SPECIFICATIONS AND DETAILS.

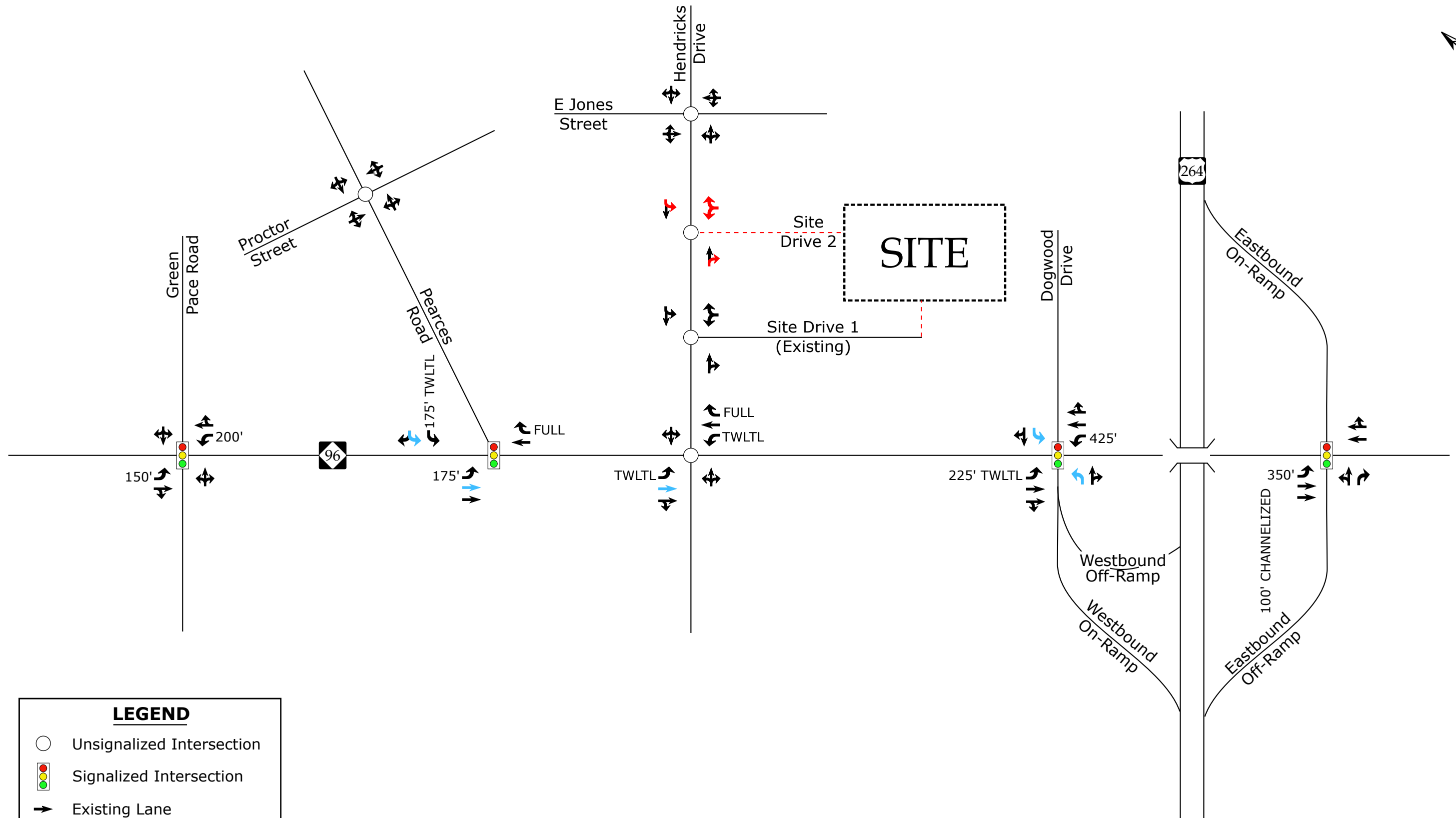




LEGEND

- Unsignalized Intersection
- ◫ Signalized Intersection
- X → Weekday PM Peak Hour Site Trips

	Zebulon Domino's Zebulon, NC	Site Trip Assignment	
		Scale: Not to Scale	Figure 7



LEGEND

- Unsignalized Intersection
- ⬆️⬆️⬆️ Signalized Intersection
- ➡️ Existing Lane
- ➡️ Improvement by Developer
- ➡️ NCDOT Improvement
- x' Storage (In Feet)

	Zebulon Domino's Zebulon, NC	Recommended Lane Configurations	
		Scale: Not to Scale	Figure 11

DRAFT – Traffic Impact Analysis

for

Zebulon Residential

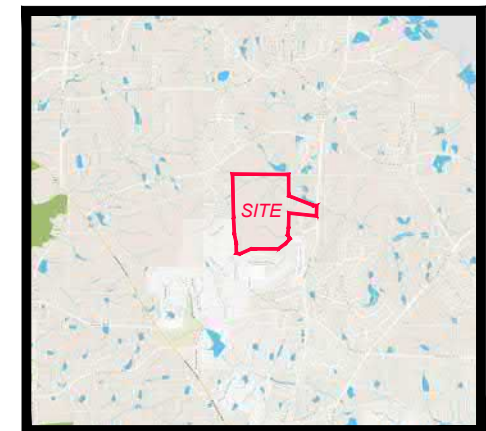
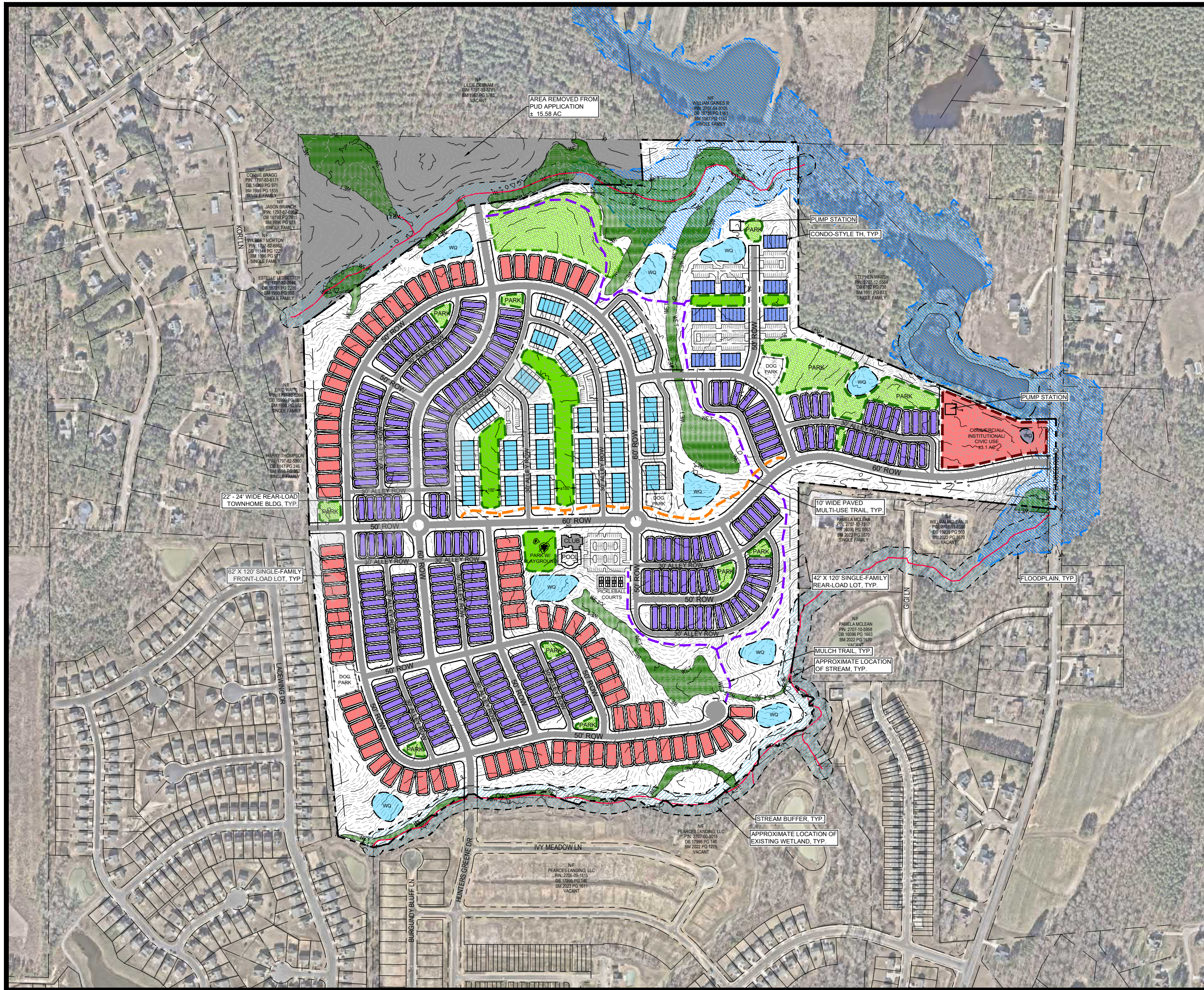
Zebulon, NC

October 2024

10/30/2024

Prepared By: AGW

Reviewed By: JTR/AMI



VICINITY MAP
NTS

PEARCES RD CONCEPT PLAN

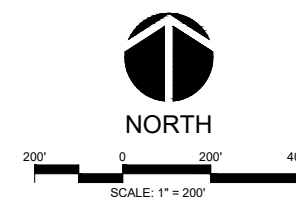
ZEBULON, NC
OCTOBER 22, 2024

SITE DATA

TOTAL PROJECT AREA=	±160.62 AC
PIN=	1797914808, 2707125054
EXISTING ZONING=	R-30 (WAKE COUNTY)
TOTAL INSTITUTIONAL/ COMM=	±3.1 AC
TOTAL UNITS=	±517 (3.21 DU/ AC)
TOWNHOMES=	±53 UNITS (CONDO-STYLE) ±144 UNITS (REAR-LOAD)
SINGLE FAMILY LOTS=	±231 (42' X 120' REAR-LOAD) ±89 (62' X 120' REAR-LOAD)
TOTAL LF OF ROADS=	±7,380 LF (60' ROW) ±10,240 LF (50' ROW) ±12,140 LF (30' ALLEY ROW)
OPEN SPACE REQUIRED=	±16.1 AC MIN. (10% OF DEV. AREA)

LEGEND

	18' WIDE CONDO-STYLE TOWNHOME
	22' - 24' WIDE REAR-LOAD TOWNHOME
	42' X 120' SINGLE-FAMILY REAR-LOAD LOT
	62' X 120' SINGLE-FAMILY FRONT-LOAD LOT
	POCKET PARK
	COMMON LAWN/ AMENITY SITE
	MULCH TRAIL
	10' WIDE PAVED MULTI-USE TRAIL



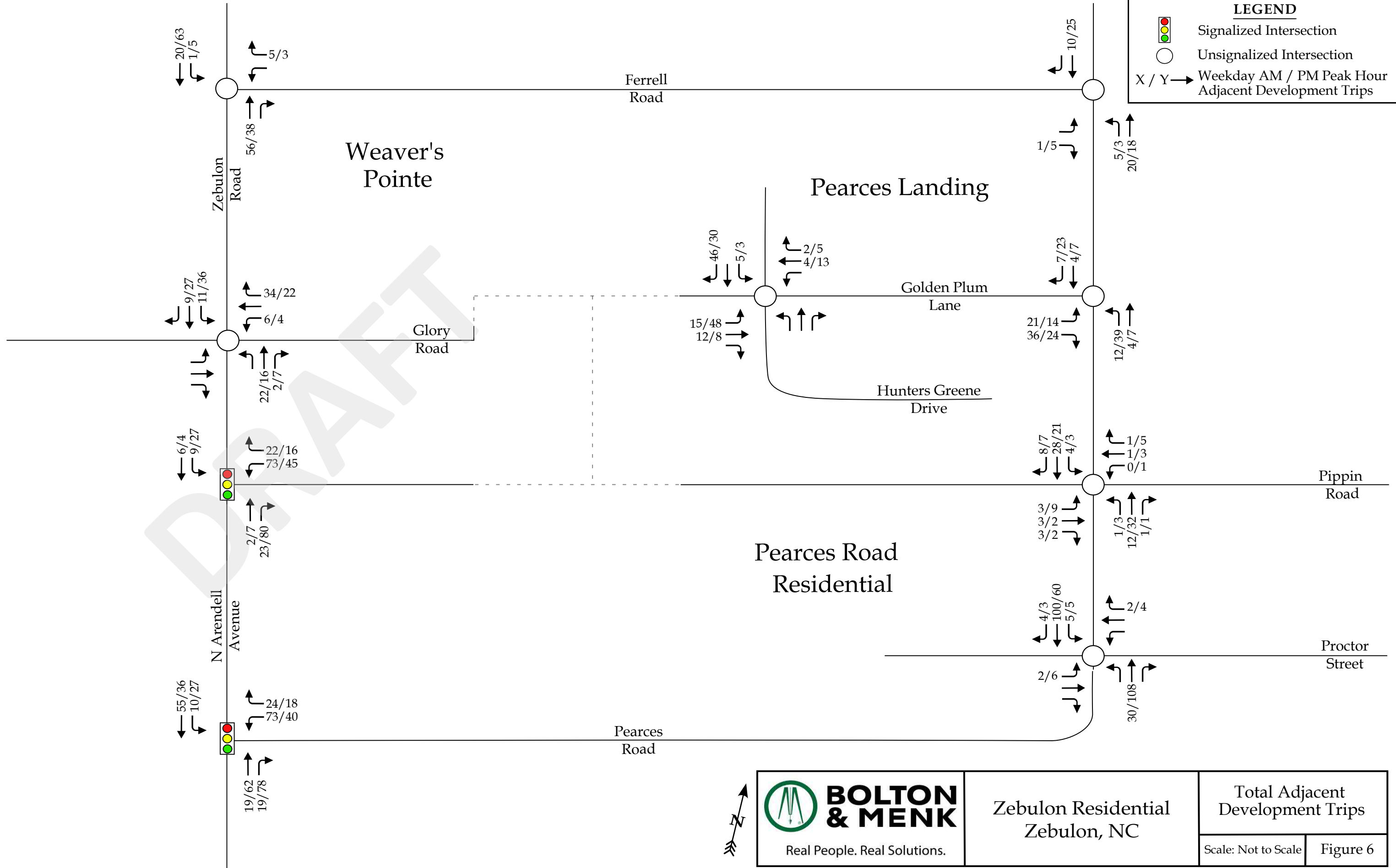
PRELIMINARY DESIGN
NOT RELEASED
FOR CONSTRUCTION



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FAX: 919-322-0032

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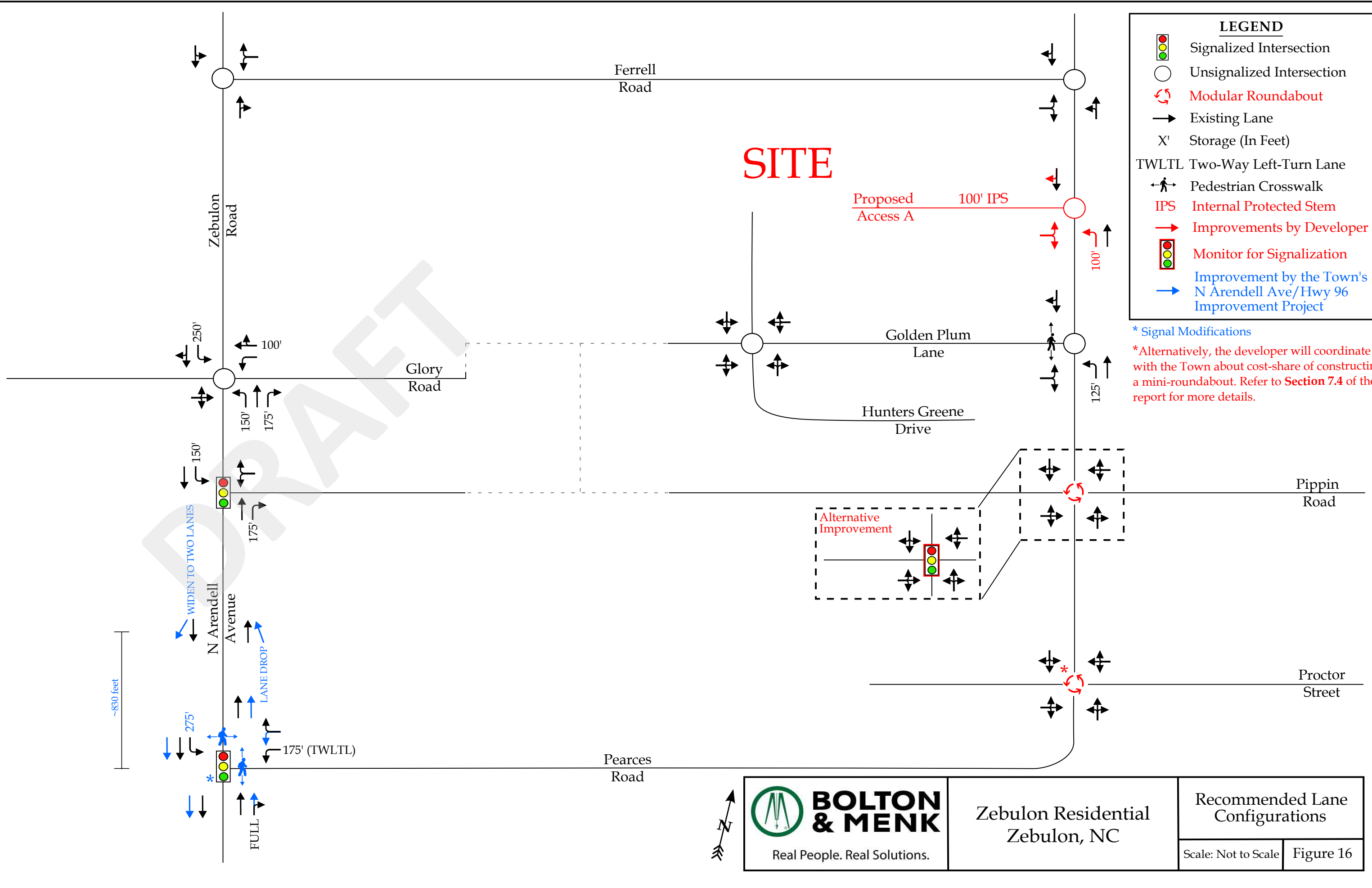
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Zebulon Residential
Zebulon, NC

Total Adjacent
Development Trips

Scale: Not to Scale

Figure 6





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Raleigh, NC 27609
Phone: 919-872-5115
www.rameykemp.com

July 25, 2019

Mr. Meade Bradshaw
Assistant Planning Director
Town of Zebulon
1003 N. Arendell Avenue
Zebulon, NC 27597
Phone: (919) 269-7455
Email: mbradshaw@townofzebulon.org

Subject: Traffic Study
Weaver's Ridge – Zebulon, North Carolina

Dear Mr. Bradshaw:

This letter provides the findings of the traffic study prepared by Ramey Kemp & Associates, Inc. (RKA) for the proposed Weaver's Ridge development located east of Zebulon Road (NC 96) across from Glory Road in Zebulon, North Carolina. The purpose of the study is to determine how traffic generated by the proposed development is expected to impact surrounding roadways and intersections.

The proposed residential development is assumed to consist of 124 townhomes and 58 single-family homes. Refer to Figure 1 for the site location map. Site access will be provided via one (1) full movement site driveway along Zebulon Road (NC 96) across from Glory Road and a connection to the Weaver's Pond Development via Golden Plum Lane.

Refer to Figure 2 for the preliminary site plan of the proposed development and Figure 3 for an illustration of the existing lane configurations within the study area.

The study analyzes traffic conditions for the study intersections during the weekday AM and PM peak hours for the following scenarios:

- Existing (2019) Traffic Conditions
- Background (2024 +1) Traffic Conditions
- Combined (2024 +1) Traffic Conditions
- Combined (2024 +1) Traffic Conditions with Improvements

Existing (2019) Peak Hour Conditions

Through coordination with the Town of Zebulon (Town) and the North Carolina Department of Transportation (NCDOT), existing peak hour traffic volumes were determined based on previous and current traffic studies conducted within the study area. The counts from the Weaver's Pond Development were conducted by Ramey Kemp & Associates, Inc. in August of 2017 and projected to the year 2019 for the existing (2019) volumes for the following intersections:

- Zebulon Road (NC 96) and Pippin Road
- Pippin Road and Pearces Road

Existing peak hour traffic volumes were determined based on traffic counts conducted at the study intersections listed below, in April of 2019 by Ramey Kemp & Associates, Inc. during a typical weekday AM (7:00 AM – 9:00 AM) and PM (4:00 PM – 6:00 PM) peak periods:

- Zebulon Road (NC 96) and Glory Road

The volumes conducted in 2017 were grown to the year 2019 using an annual 3% growth rate and then the volumes were balanced along Zebulon Road (NC 96) to account for any variance associated with the different count dates. Volumes were not balanced along Pippin Road due to the reasonable imbalance in comparison to the land uses between the intersections along Pippin Road. Refer to Figure 4 for existing weekday AM and PM peak hour traffic volumes. A copy of the count data is attached to this report. Through coordination with the Town and the NCDOT, it was determined that an annual growth rate of 3% would be used to generate projected traffic volumes. Refer to Figure 5 for projected (2025) traffic. It should be noted that the balanced existing (2019) traffic is not re-balanced after the growth rate is applied for the projected (2025) traffic volumes, which can result in minor (1 vehicle) imbalances due to rounding.

Adjacent Developments

Through coordination with the Town, the following residential developments were identified to be included as an adjacent development in this study:

- Weaver's Pond
- Taryn Lake & Taryn Creek

Adjacent development trips are shown in Figure 6. Refer to the appendix in the attachments for the adjacent development information.

Background (2025) Peak Hour Conditions

Background traffic is comprised of existing traffic growth within the study area and additional traffic created as a result of adjacent approved developments. The background (2025) traffic volumes were determined by projecting the existing (2019) peak hour traffic to the year 2025 and adding the adjacent development trips. Refer to Figure 7 for background (2025) peak hour traffic.

Future Roadway Improvements

The Weaver's Pond development has committed to improvements at the intersection of Zebulon Road (NC 96) and Pippin Road. The improvements are expected to consist of a northbound right-turn lane with at least 100 feet of storage and appropriate decel and taper, a southbound left-turn lane with at least 150 feet of storage and appropriate decel and taper, and signalization of the intersection.

Trip Generation

The proposed development is assumed to consist of 124 townhomes and 58 single-family homes. Average weekday daily, AM peak hour, and PM peak hour trips for the proposed development were estimated using methodology contained within the ITE *Trip Generation Manual*, 10th Edition. Refer to Table 1 for a detailed breakdown of the proposed site trip generation.

Table 1: Trip Generation Summary

Land Use (ITE Code)	Intensity	Daily Traffic (vpd)	AM Peak Hour Trips (vph)		PM Peak Hour Trips (vph)	
			Enter	Exit	Enter	Exit
Single-Family Detached Housing (210)	58 units	630	11	35	38	22
Multifamily Housing (Low-Rise) (Townhomes) (220)	124 units	900	14	45	45	27
Total Trips		1,530	25	80	83	49

It is estimated that the proposed development will generate approximately 1,530 total site trips on the roadway network during a typical 24-hour weekday period. Of the daily traffic volume, it is anticipated that 105 trips (25 entering and 80 exiting) will occur during the weekday AM peak hour and 132 trips (83 entering and 49 exiting) will occur during the weekday PM peak hour.

Site Trip Distribution and Assignment

Trip distribution percentages used in assigning site traffic for this development were estimated based on a combination of existing traffic patterns, population centers adjacent to the study area, and engineering judgment. All trip distributions were approved by the Town and NCDOT during the scoping process. It is estimated that trips will be regionally distributed as follows:

- 20% to/from the north via Pearces Road
- 5% to/from the south via Pearces Road
- 50% to/from the south via Zebulon Road (NC 96)
- 25% to/from the north via Zebulon Road (NC 96)

It should be noted that based on engineering judgement it was determined that 100% of site trips will exit the site using the full movement site driveway located along Zebulon Road (NC 96). The site trip distribution is shown in Figure 8. Refer to Figure 9 for the site trip assignment.

It is not expected that the traffic from the proposed development will utilize the Weaver's Pond access; however, it is expected that a portion of the Weaver's Pond development will utilize the new site drive along Zebulon Road (NC 96). Based on coordination with the NCDOT and Town, Phases 3A and 5 of the Weaver's Pond Master Plan are proposed to be rerouted from the Weaver's Pond access on Pippin Road to the new Zebulon Road (NC 96) site drive aligned with Glory Road. Phases 3A and 5 include 137 homes combined, or approximately 19% of the total homes in the Weaver's Pond development. 19% of the Weaver's Pond site trips were rerouted from Pippin Road to the proposed site drive. Figure 10 illustrates the anticipated rerouted Weaver's Pond development site trips through the proposed Weaver's Ridge site.

Combined (2025) Peak Hour Conditions

To estimate traffic conditions with the site fully built-out, the total site trips were added to the background (2025) traffic volumes to determine the combined (2025) traffic volumes. Refer to Figure 11 for an illustration of the combined (2025) peak hour traffic volumes with the proposed site fully developed.

Capacity Analysis

The existing (2019), background (2025), and combined (2025) weekday AM and PM peak hour traffic volumes were analyzed to determine the current levels of service at the study intersections under existing roadway conditions. The results of the analysis are presented in the following section of this report.

Zebulon Road (NC 96) and Pippin Road

The existing intersection of Zebulon Road (NC 96) and Pippin Road was analyzed under existing (2019), background (2025), and combined (2025) traffic conditions with the lane configurations and traffic control shown in Table 2. It should be noted that this intersection was analyzed as a signalized intersection for the background (2025) and combined (2025) scenarios. Refer to Table 2 for a summary of the analysis results. The Synchro capacity analysis reports are included in the attached appendix.

Table 2: Analysis Summary of Zebulon Road (NC 96) and Pippin Road

ANALYSIS SCENARIO	A P P O N D A C H	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
Existing (2019) Conditions	WB NB SB	1 LT-RT 1 TH-RT 1 LT-TH	C ² -- A ¹	N/A	D ² -- A ¹	N/A
Background (2025) Conditions - Signalized	WB NB SB	1 LT-RT 1 TH, <u>1 RT</u> <u>1 LT</u> , 1TH	C C B	C (22)	D C C	C (23)
Combined (2025) Conditions - Signalized	WB NB SB	1 LT-RT 1 TH, <u>1 RT</u> <u>1 LT</u> , 1TH	C C B	C (21)	D C C	C (26)

Improvements by Weaver's Pond shown underlined.

1. Level of service for major-street left-turn movement.
2. Level of service for minor-street approach.

Capacity analysis of existing (2019) traffic conditions indicates the minor-street approach at Zebulon Road (NC 96) and Pippin Road operates at LOS C during the weekday AM peak hour and LOS D during the weekday PM peak hour. The Weaver's Pond development is committed to constructing a northbound right-turn lane, a southbound left-turn lane and installing a signal at this intersection. These improvements were analyzed under future (2025) traffic conditions. Because signal plans and timings have not yet been finalized, the signal timings were optimized under background (2025) traffic conditions and the same timings were used to analyze combined (2025) traffic conditions. Under background (2025) and combined (2025) traffic conditions, the intersection is expected to operate at an overall LOS C or better.

It is anticipated that the improvements associated with the Weaver's Pond development will accommodate the proposed site traffic at this intersection.

Pippin Road and Pearces Road

The existing unsignalized intersection of Pippin Road and Pearces Road was analyzed under existing (2019), background (2025), and combined (2025) traffic conditions with the lane configurations and traffic control shown in Table 3. Refer to Table 3 for a summary of the analysis results. The Synchro capacity analysis reports are included in the attached appendix.

Table 3: Analysis Summary of Pippin Road and Pearces Road

ANALYSIS SCENARIO	A P P R O A C H	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
Existing (2019) Conditions	EB	1 LT-TH-RT	B ²	N/A	B ²	N/A
	WB	1 LT-TH-RT	B ²		B ²	
	NB	1 LT-TH-RT	A ¹		A ¹	
	SB	1 LT-TH-RT	A ¹		A ¹	
Background (2025) Conditions	EB	1 LT-TH-RT	C ²	N/A	C ²	N/A
	WB	1 LT-TH-RT	C ²		C ²	
	NB	1 LT-TH-RT	A ¹		A ¹	
	SB	1 LT-TH-RT	A ¹		A ¹	
Combined (2025) Conditions	EB	1 LT-TH-RT	C ²	N/A	C ²	N/A
	WB	1 LT-TH-RT	C ²		C ²	
	NB	1 LT-TH-RT	A ¹		A ¹	
	SB	1 LT-TH-RT	A ¹		A ¹	

1. Level of service for major-street left-turn movement.
2. Level of service for minor-street approach.

Capacity analysis of existing (2019), background (2025), and combined (2025) traffic conditions indicates the minor-street approaches and major-street left-turn movements at Pippin Road and Pearces Road are expected to operate at LOS C or better during both the weekday AM and PM peak hours.

Zebulon Road (NC 96) and Glory Road/Site Drive

The existing unsignalized intersection of Zebulon Road and Glory Road/Site Drive was analyzed under existing (2019), background (2025), and combined (2025) traffic conditions with the lane configurations and traffic control shown in Table 4. Refer to Table 4 for a summary of the analysis results. The Synchro capacity analysis reports are included in the attached appendix.

Table 4: Analysis Summary of Zebulon Road (NC 96) and Glory Road/Site Drive

ANALYSIS SCENARIO	A P P R O A C H	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
Existing (2019) Conditions	EB NB SB	1 LT-RT 1 LT-TH 1 TH-RT	C ² A ¹ --	N/A	B ² A ¹ --	N/A
Background (2025) Conditions	EB NB SB	1 LT-RT 1 LT-TH 1 TH-RT	C ² A ¹ --	N/A	C ² A ¹ --	N/A
Combined (2025) Conditions	EB WB NB SB	1 LT- TH -RT 1 LT, 1 TH-RT 1 LT-TH, 1 RT 1 LT -TH-RT	D ² F ² A ¹ A ¹	N/A	E ² F ² A ¹ A ¹	N/A
Combined (2025) Conditions – Signalized to meet UDO	EB WB NB SB	1 LT- TH -RT 1 LT, 1 TH-RT 1 LT-TH, 1 RT 1 LT , 1 TH-RT	D D B B	B (17)	D D A B	B (11)

Improvements by Developer shown in **bold**.

1. Level of service for major-street left-turn movement.
2. Level of service for minor-street approach.

Capacity analysis of existing (2019) and background (2025) traffic conditions indicates the minor-street approach and major-street left-turn movement at Pippin Road and Glory Road are expected to operate at LOS C or better during both the weekday AM and PM peak hours. Under combined (2025) traffic conditions, the proposed development is expected to add a 4th leg to the intersection. With the addition of the 4th leg, the eastbound minor-street approach is expected to operate at LOS D during the weekday AM peak hour and LOS E during the weekday PM peak hour, and the new westbound approach is expected to operate at LOS F during both the weekday AM and PM peak hours.

Right and left-turn lanes were analyzed and recommended per the NCDOT *Policy on Street and Driveway Access to North Carolina Highways* (Driveway Manual). A southbound left-turn lane with 50 feet of storage and appropriate decel and taper is recommended, as well as a northbound right-turn lane with 100 feet of storage and appropriate decel and taper.

Per the Town's UDO, if a site access operates at LOS D or worse, additional site access points may need to be considered. It should be noted that the proposed Weaver's Ridge development is expected to have connectivity to the Weaver's Pond development, which has two site access points along Pippin Road. Drivers will likely use an alternative site access if they experience significant delay at the more convenient site access.

In order to meet the Town's UDO, improvements must be identified to improve the intersection to an acceptable level-of-service. Signalization and/or additional capacity along Zebulon Road (NC 96) would be necessary for significant improvement at the intersection. A traffic signal was considered at this intersection, and combined (2025) traffic volumes were analyzed utilizing the criteria contained in the *Manual on Uniform Traffic Control Devices* (MUTCD). A traffic signal was warranted during both weekday peak hours under combined (2025) traffic conditions; however, due to the high volume of residential development, which typically generates trips during two peak hours each day, it is anticipated that a 4- or 8-hour signal warrant would not be met.

A traffic signal was analyzed at the intersection to meet the Town's UDO requirements. With a signal, the intersection is expected to operate at LOS B with all approaches operating at LOS D or better.

Conclusions

This traffic study was conducted to determine the potential traffic impacts for the proposed Weaver's Ridge residential development located east of Zebulon Road (NC 96) across from Glory Road in Zebulon, North Carolina.

The proposed residential development is assumed to consist of 124 townhomes and 58 single-family homes. The study analyzes traffic conditions during the weekday AM and PM peak hours for the following scenarios:

- Existing (2019) Traffic Conditions
- Background (2025) Traffic Conditions
- Combined (2025) Traffic Conditions
- Combined (2025) Traffic Conditions with Improvements

It is estimated that the proposed development will generate approximately 1,530 total site trips on the roadway network during a typical 24-hour weekday period. Of the daily traffic volume, it is anticipated that 105 trips (25 entering and 80 exiting) will occur during the weekday AM peak hour and 132 trips (83 entering and 49 exiting) will occur during the weekday PM peak hour.

Recommendations

Based on the findings of this study, specific geometric improvements have been identified and are recommended to accommodate future traffic conditions. See a more detailed description of the recommended improvements below. Refer to Figure 12 for an illustration of the recommended lane configuration for the proposed development.

Committed Improvements by Weaver's Pond

Zebulon Road (NC 96) and Pippin Road

- Provide designated northbound right-turn lane with at least 100 feet of storage and appropriate decel and taper.
- Provide designated southbound left-turn lane with at least 150 feet of storage and appropriate decel and taper.
- Install traffic signal at intersection when warranted.

Recommended Improvements by Developer

Zebulon Road (NC 96) and Glory Road / Site Drive 1

- Provide site access via westbound approach with one ingress lane and two egress lanes striped as one left-turn lane and one shared through/right-turn lane.
- Provide designated northbound right-turn lane with at least 100 feet of storage and appropriate decel and taper.
- Provide designated southbound left-turn lane with at least 50 feet of storage and appropriate decel and taper.
- Monitor intersection for signalization.

If you should have any questions, please feel free to contact me at (919) 872-5115.

Sincerely,



Joshua Reinke, P.E.
Transportation Engineer
Ramey Kemp & Associates, Inc.

NC Corporate License # C-0910

Attachments: Appendix



N/T
FIVE, TOWN B
PIN 1796-46-6657

N/T
ONE, TOWN B
PIN 1796-46-6657

N/T
FIVE, TOWN B
PIN 1796-46-6657

N/T
PINE, TOWN B
PIN 1796-46-6657

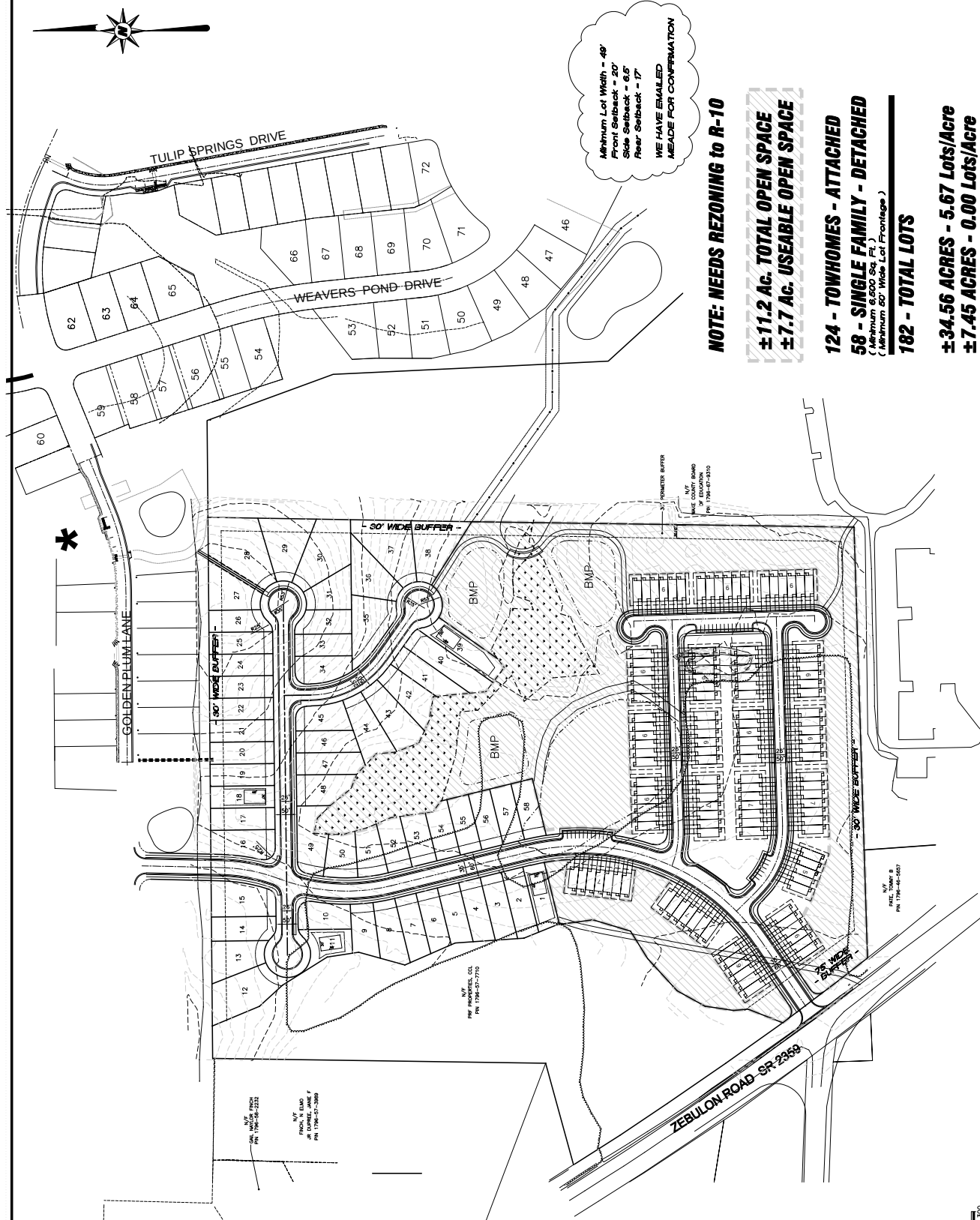
ZEBULON ROAD SR 2369

N/T
FIVE, TOWN B
PIN 1796-46-6657

N/T
FIVE, TOWN B
PIN 1796-46-6657

SCALE: 1" = 100'
0 100 200 250 300

MAY BE THE NAME IN A PERSONAL REPORT, BUT IT IS THE LARGEST REPORT, THAT PERSONAL, PROCEEDS IN 2



Minimum Lot Width - 49'
Front Setback - 20'
Side Setback - 6.5'
Rear Setback - 17'
WE HAVE EMAILED
MADE FOR CONFIRMATION

NOTE: NEEDS REZONING TO R-10

±11.2 AC. TOTAL OPEN SPACE
±7.7 AC. USEABLE OPEN SPACE

124 - TOWNHOMES - ATTACHED

58 - SINGLE FAMILY - DETACHED
(Minimum 6,000 Sq. Ft.)
(Minimum 50' Wide Lot Frontage)

182 - TOTAL LOTS

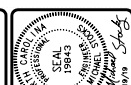
±34.56 ACRES - 5.67 Lots/Acre

±7.45 ACRES - 0.00 Lots/Acre

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ENGINEERING
801 EAST WASHINGTON STREET
NASHVILLE, N.C. 27854
WWW.STOCKSENGINEERING.COM
PHONE: (252) 459-8198
P.O. BOX 110

BLM-C-874

WEAVERS RIDGE - PRELIMINARY TOPO
ZEBULON, WAKE COUNTY, NORTH CAROLINA



MASTER MAP
LAYOUT

REVISIONS
NO. DATE BY
1 12/19/19 JAC
2 12/19/19 JAC
3 12/19/19 JAC
4 12/19/19 JAC
5 12/19/19 JAC
6 12/19/19 JAC
7 12/19/19 JAC
8 12/19/19 JAC
9 12/19/19 JAC
10 12/19/19 JAC

TOP



LEGEND



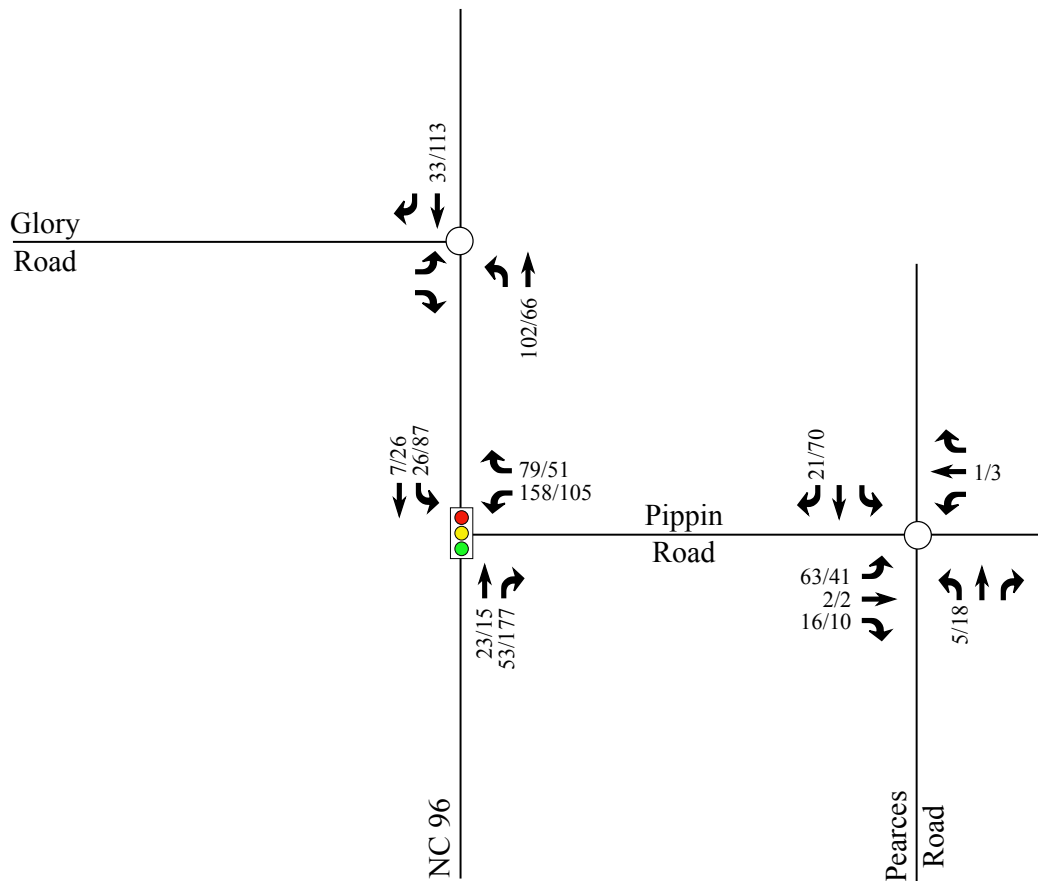
Unsignalized Intersection



Signalized Intersection

X / Y ➔

Weekday AM / PM Peak Hour
Adjacent Development Trips



Weaver's Ridge
Zebulon, NC

Peak Hour Adjacent
Development Trips

Scale: Not to Scale

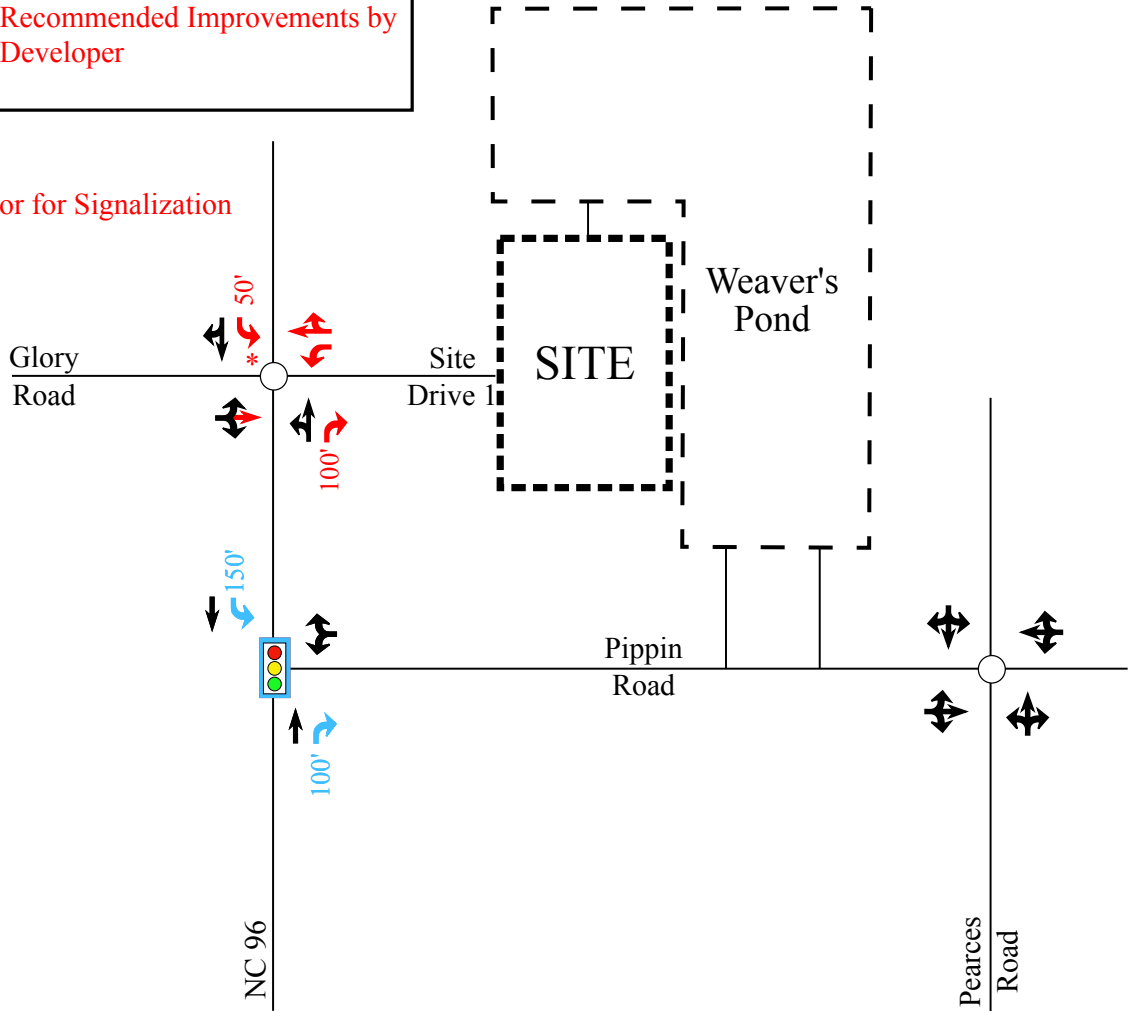
Figure 6

LEGEND

- Unsignalized Intersection
- ◻ Signalized Intersection
- ➡ Existing Lane
- ➡ Improvements Committed to by Weaver's Pond
- ➡ Recommended Improvements by Developer



* Monitor for Signalization



Weaver's Ridge
Zebulon, NC

Recommended Lane
Configuration

Scale: Not to Scale

Figure 12

**TRAFFIC IMPACT
ANALYSIS
FOR
ZEBULON MIXED-USE
LOCATED IN
ZEBULON, NC**



Caroline Cheeves

Prepared For:

Wendell Estates, LLC
10220 Chapel Hill Road
Morrisville, NC 27560

Prepared By:

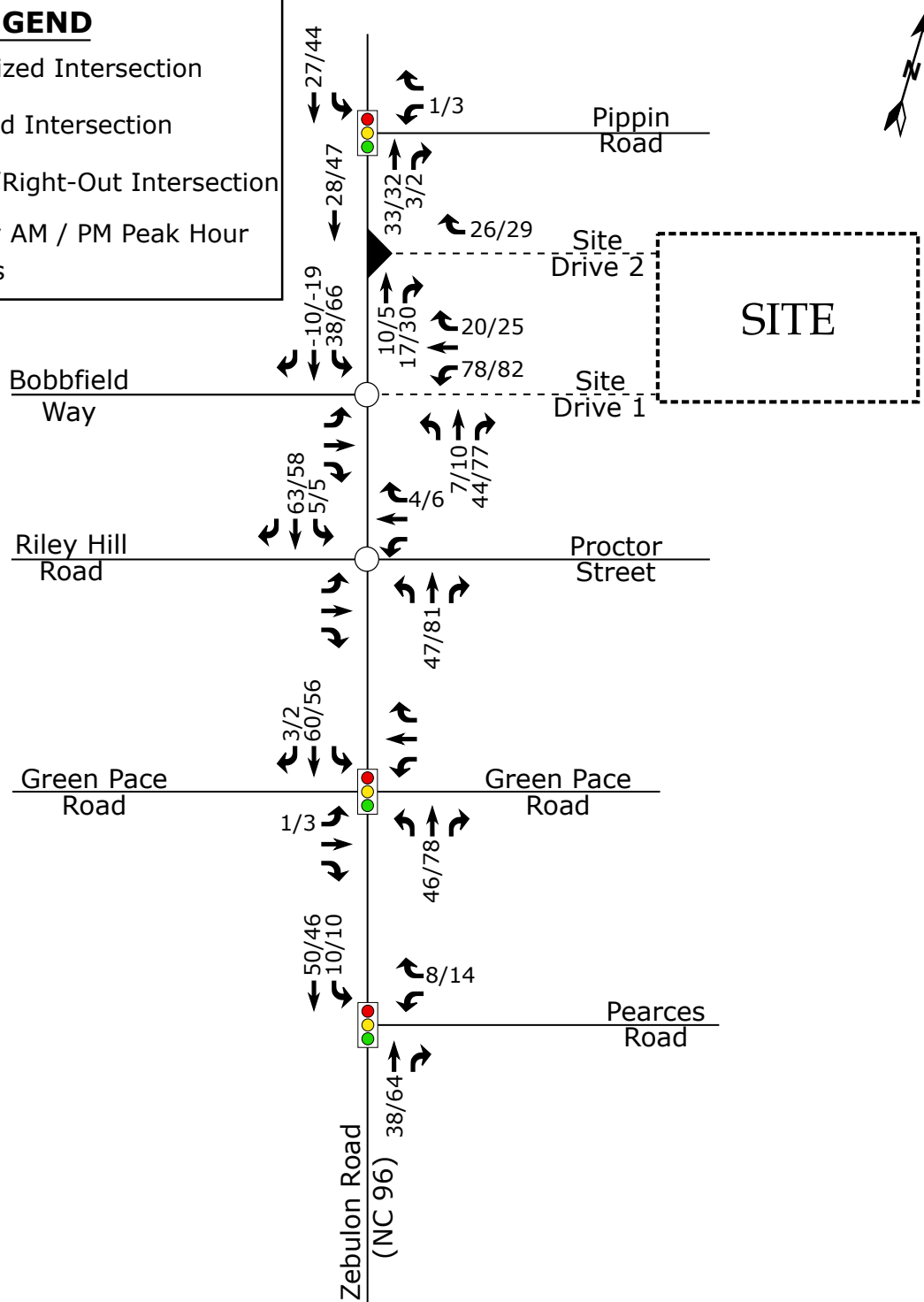
DRMP, Inc.
License #F-1524



PROJECT DATA TABLE							11.7.2024
Site Area							141,546 Ac
OUTPARCEL RETAIL							
Lot	Lot Area	Blg SF	Max. Seats	Pkg Provided	Deliv. Thru		
OP 1	30,418 sf	9,780 sf	144	36	Coral / 2019		
OP 2	30,119 sf	2,545 sf	88	23	Coral / 2019		
OP 3	14,122 sf	576 sf	0	6	Single / 1527		
MIXED - USE RETAIL							
Blg	Stories	Floorplate	Leasable SF	Pkg Required	Pkg Provided		
MU 1	1	20,898 sf	9,482 sf	37	37		
MU 2	1	20,856 sf	9,482 sf	37	37		
MIXED - USE APARTMENTS							
Blg	Stories	1.0M	2.0M	3.0M	Total Units		
MU 1	3	24	0	0	30		
MU 2	3	24	0	0	30		
APARTMENTS							
Blg	Stories	1.0M	2.0M	3.0M	Total Units		
A	4	16	36	0	52		
B	3	16	24	6	38		
C	3	12	9	12	33		
D	3	9	24	6	39		
Totals		64	109	24	223		
Mix %		42.2%	47.1%	10.8%			
Parking							
Resident Pkg (1.5 per unit)	343	327.5	86	396.5			
Visitor Pkg (0.25 per unit)	28.5	28.25	6	55.75			
Total Req'd Parking	366.5	355.75	42	390.25			
Total Required Parking - Mixed Use & Apps				464.75			
25% Parking Reduction				371.4			
Total Parking Provided				354			
Proposed Shared Parking				17			

LEGEND

- Unsignalized Intersection
- ◫ Signalized Intersection
- ▲ Right-In/Right-Out Intersection
- X / Y → Weekday AM / PM Peak Hour Site Trips

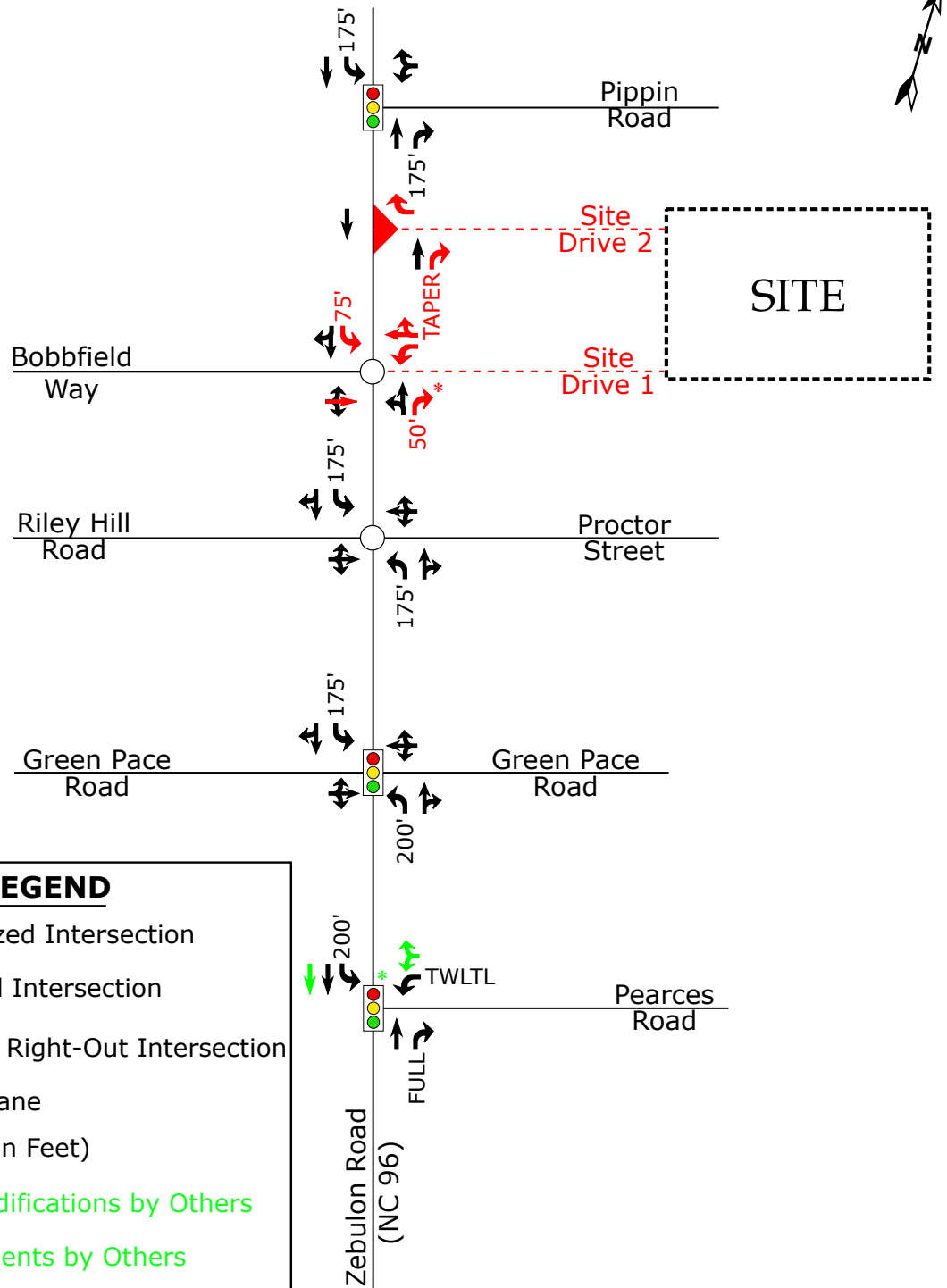


Zebulon Road Mixed-Use
Zebulon, NC

Total Site Trip
Assignment

Scale: Not to Scale Figure 10

*Potential ROW impacts. If so install taper.



Zebulon Road Mixed-Use
Zebulon, NC

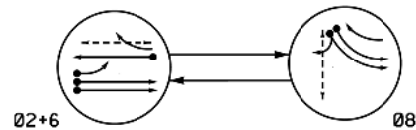
Recommended Lane
Configurations

Scale: Not to Scale Figure 12

Appendix E:

Future Roadway Improvements

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

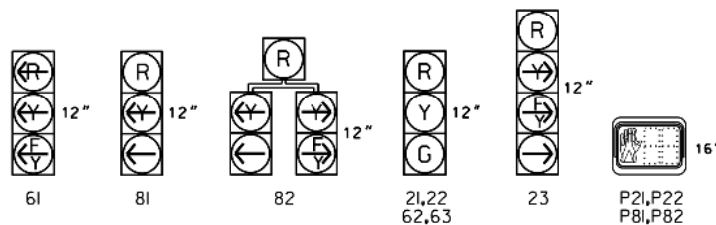
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE		
	02+6	08	FLUSH
21,22	G	R	Y
23	Y		
61	Y	R	Y
62,63	G	R	Y
81	R		R
82	R		R
P21,P22	W	DW	DRK
P81,P82	DW	W	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	PULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	6X6	70	4	Y	2	Y	Y	-	-	-	-	Y
6A	6X6	70	4	Y	6	Y	Y	-	-	-	-	Y
6B	6X6	70	4	Y	6	Y	Y	-	-	-	-	Y
6C	6X40	0	2-4-2	Y	6	Y	Y	-	-	-	-	Y
8A	6X40	0	2-4-2	Y	8	Y	Y	-	-	3	-	Y
8B	6X40	0	2-4-2	Y	8	Y	Y	-	-	5	-	Y
S9	6X6	+160	4	Y	-	-	-	-	-	-	Y	Y
S10	6X6	+160	4	Y	-	-	-	-	-	-	Y	Y
S11	6X6	+150	4	Y	-	-	-	-	-	-	Y	Y

2 Phase
Fully Actuated
(NC 96 - N. Arendell Ave. CLS)
Signal System #: D05_30_Zebulon

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.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Pedestrian pedestals are conceptual and shown for reference only. See Roadway Standard Drawings 1705.04 for pushbutton location details.
- Closed loop system data:
Controller Asset #: 1700.

LEGEND

PROPOSED	EXISTING

OASIS 2070 TIMING CHART

FEATURE	PHASE		
	2	6	8
Min Green 1 *	10	10	7
Extension 1 *	3.0	3.0	2.0
Max Green 1 *	45	45	20
Yellow Clearance	3.8	3.8	3.0
Red Clearance	2.6	2.6	3.9
Walk 1 *	7	-	7
Don't Walk 1	18	-	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	-	-	-
Simultaneous Gap	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.

NC Dept of Transportation
Division of Highways
Final Drawing Date: 10/19/2020
Decalsigned by: [Signature]
ITS & Signals Unit

Prepared in the Office of:



NC FIRM LICENSE No: P-0339
320 Executive Court
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)



750 N. Greenfield Pkwy, Garner, NC 27529
SCALE
0 40
1"=40'

NC 96 (N. Arendell Avenue)
at
SR 1001 (Pearces Road)

Division 5 Wake County Zebulon

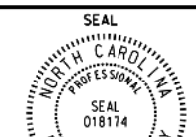
PLAN DATE: July 2020 REVIEWED BY: E. Sirgany

PREPARED BY: J. Smith REVIEWED BY:

REVISIONS INIT. DATE

DATE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



Decalsigned by: Edward W. Sirgany

DATE 10/5/2020

SIG. INVENTORY NO. 05-1700

5 Phase
Fully Actuated
(NC 96 - N. Arendell Ave. CLS)
Signal System #: D05-30_Zebulon
NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2024, "Standard Specifications for Roads and Structures" dated January 2024, and all applicable sections of the latest version of the generic Project Special Provisions. The PSP can be accessed at the following website:
<https://connect.ncdot.gov/resources/safety/pages/its-and-signals.aspx>
- 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.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "DON'T WALK" time only.
- Reposition existing signal head numbered 41, 42, 81, and 82.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Closed loop system data: Controller Asset #2250.

NC Dept of Transportation
Division of Highways

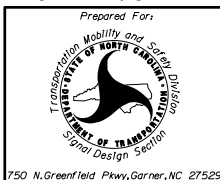
Final Drawing Date: 7/25/2024

ITS & Signals Unit

LEGEND

PROPOSED	EXISTING

Signal Upgrade



NC 96 (N. Arendell Avenue)

at
US 64-264 WB Ramps
and Dogwood Drive

Division 5 Wake County Zebulon

PLAN DATE: July 2024

REVIEWED BY: NE Burns

PREPARED BY: C. McDonald

IMPACT NO: 23096

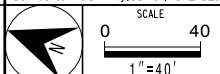
REVISIONS

INIT.

DATE

IMPACT

PO BOX 3728
MOORESVILLE, NC 28117
C-4720



DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

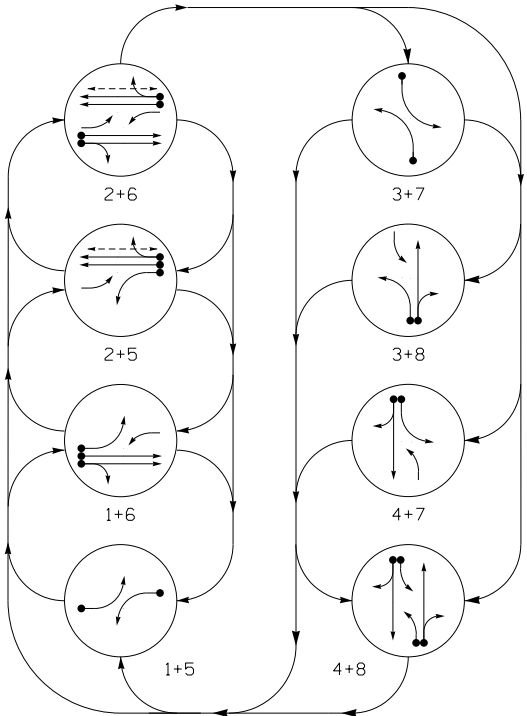
SEAL



7/25/2024

SIG. INVENTORY NO. 05-2250

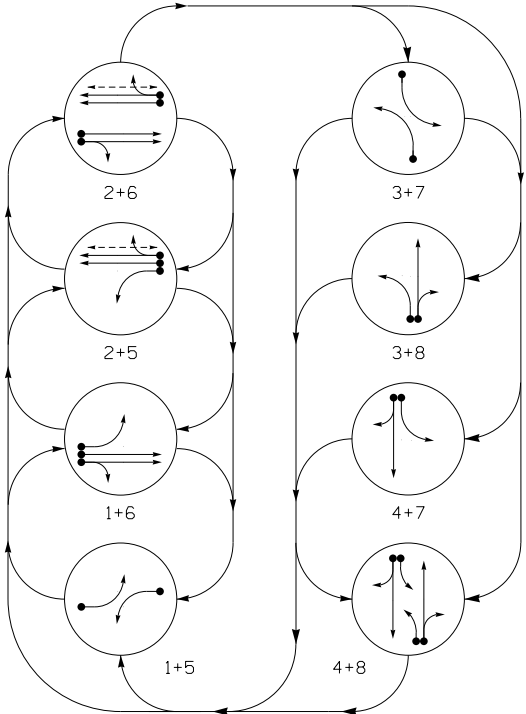
DEFAULT PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

ALTERNATE PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

DEFAULT PHASING
TABLE OF OPERATION

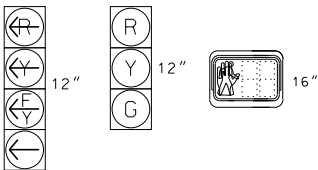
SIGNAL FACE	PHASE							
	1 + 5	1 + 6	2 + 5	2 + 7	3 + 8	4 + 7	4 + 8	FLASH
11	←	←	←	←	←	←	←	←
21,22	R	R	G	G	R	R	R	R
31	←	←	←	←	←	←	←	←
41,42	R	R	R	R	R	G	G	R
51	←	←	←	←	←	←	←	←
61,62	R	G	G	R	R	R	R	R
71	←	←	←	←	←	←	←	←
81,82	R	R	R	R	R	G	G	R
P21,P22	DW	DW	W	W	DW	DW	DW	DRK

ALTERNATE PHASING
TABLE OF OPERATION

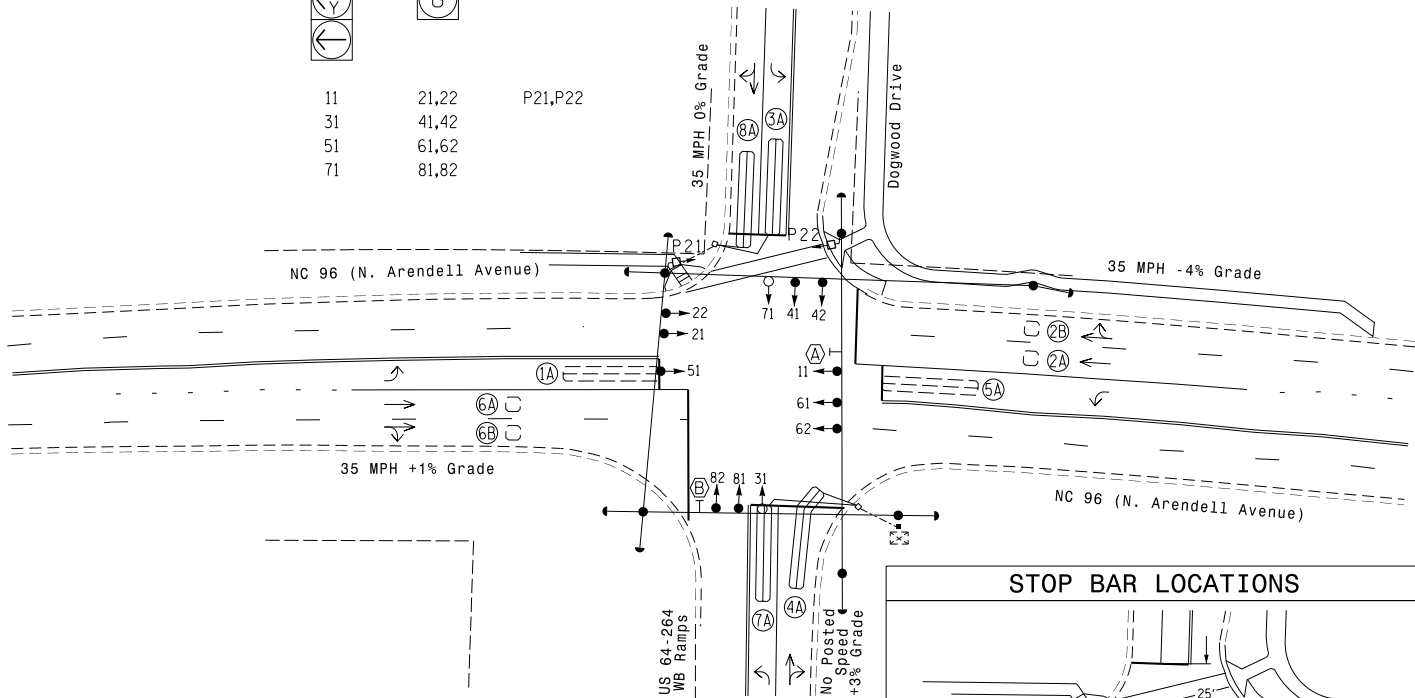
SIGNAL FACE	PHASE							
	1 + 5	1 + 6	2 + 5	2 + 7	3 + 8	4 + 7	4 + 8	FLASH
11	←	←	←	←	←	←	←	←
21,22	R	R	G	G	R	R	R	R
31	←	←	←	←	←	←	←	←
41,42	R	R	R	R	R	G	G	R
51	←	←	←	←	←	←	←	←
61,62	R	G	G	R	R	R	R	R
71	←	←	←	←	←	←	←	←
81,82	R	R	R	R	R	G	G	R
P21,P22	DW	DW	W	W	DW	DW	DW	DRK

SIGNAL FACE I.D.

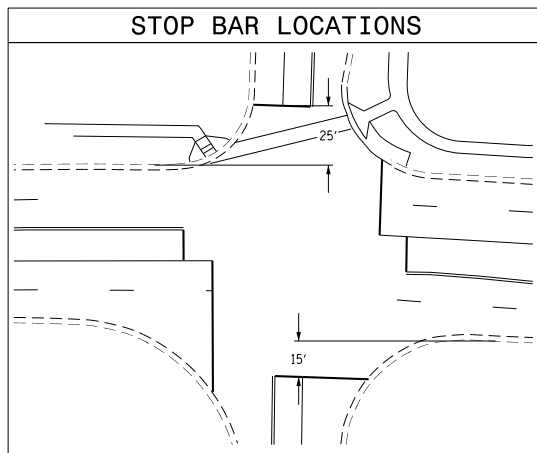
All Heads L.E.D.



11 21,22 P21,P22
31 41,42
51 61,62
71 81,82



STOP BAR LOCATIONS



FEATURE	PHASE							
	1	2	3	4	5	6	7	8
Min Green 1 *	7	10	7	7	7	10	7	7
Extension 1 *	2.0	3.0	2.0	2.0	2.0	3.0	2.0	2.0
Max Green 1 *	20	45	20	15	20	45	20	15
Yellow Clearance	3.0	4.1	3.0	3.8	3.0	4.1	3.0	3.8
Red Clearance	2.9	2.1	2.6	2.0	2.8	2.1	2.4	2.0
Walk 1 *	-	14	-	-	-	-	-	-
Don't Walk 1	-	14	-	-	-	-	-	-
Advanced Walk	-	7	-	-	-	-	-	-
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.

Appendix F:

Intersection Spreadsheets

INTERSECTION ANALYSIS SHEET

Project:	Zebulon Grocery	
Location:	Zebulon, NC	
Scenario:	0	
Ct. Date	1/28/2025	
Ct. Peaks	7:15 - 8:15 AM;	5:00 - 6:00 PM
E/W Street:	Pippin Road	
N/S Street:	NC 96	

	AM In	AM Out	PM In	PM Out
Residential New Trips:	0	0	0	0
Non-Residential New Trips:	139	85	316	349
Pass-By Trips:	63	38	80	80

Annual Growth Rate:	2.5%	Existing Year:	2025
Growth Factor:	0.077	Buildout Year:	2028

AM PEAK HOUR
PHF = 0.98

Description	Eastbound				Pippin Road Westbound				NC 96 Northbound				NC 96 Southbound			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
2025 Traffic Count	0	0	0	0	0	142	0	42	0	0	500	95	0	23	584	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2025 Existing Traffic	0	0	0	0	0	142	0	42	0	0	500	95	0	23	584	0
Growth Factor (0.025 per year)	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077
2028 Background Growth	0	0	0	0	0	11	0	3	0	0	38	7	0	2	45	0
Committed Projects																
7-Eleven	0	0	0	0	0	0	0	0	0	0	8	0	0	0	8	0
Clifton Grove (Pearces Road Residential)	0	0	0	0	0	24	0	17	0	0	0	6	0	7	0	0
Zebulon Domino's	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pierce's Road PD (Zebulon Residential)	0	0	0	0	0	73	0	12	0	0	0	25	0	4	0	0
Zebulon Mixed Use Development	0	0	0	0	0	1	0	0	0	0	33	3	0	0	27	0
Weaver's Ridge	0	0	0	0	0	0	0	6	0	0	13	0	0	20	40	0
Total Committed Traffic	0	0	0	0	0	98	0	35	0	0	54	34	0	31	75	0
2028 Background Traffic	0	0	0	0	0	251	0	80	0	0	592	136	0	56	704	0
Project Traffic																
Percent Assignment Inbound	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%
Percent Assignment Outbound	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(20%)	(10%)	(0%)	(0%)	(0%)	(0%)
Non-Residential Project Traffic	0	0	0	0	0	14	0	0	0	0	17	9	0	0	28	0
Total Project Traffic	0	0	0	0	0	14	0	0	0	0	17	9	0	0	28	0
2028 Buildout Total	0	0	0	0	0	265	0	80	0	0	609	145	0	56	732	0

PM PEAK HOUR
PHF = 0.96

Description	Eastbound				Pippin Road Westbound				NC 96 Northbound				NC 96 Southbound			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
2025 Traffic Count	0	0	0	0	0	97	0	22	0	0	546	132	0	55	597	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2025 Existing Traffic	0	0	0	0	0	97	0	22	0	0	546	132	0	55	597	0
Growth Factor (0.025 per year)	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077
2028 Background Growth	0	0	0	0	0	7	0	2	0	0	42	10	0	4	46	0
Committed Projects																
7-Eleven	0	0	0	0	0	0	0	0	0	0	8	0	0	0	8	0
Clifton Grove (Pearces Road Residential)	0	0	0	0	0	13	0	13	0	0	0	25	0	22	0	0
Zebulon Domino's	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0
Pierce's Road PD (Zebulon Residential)	0	0	0	0	0	49	0	8	0	0	0	80	0	13	0	0
Zebulon Mixed Use Development	0	0	0	0	0	3	0	0	0	0	32	2	0	0	44	0
Weaver's Ridge	0	0	0	0	0	0	0	21	0	0	41	0	0	12	25	0
Total Committed Traffic	0	0	0	0	0	65	0	42	0	0	85	107	0	47	81	0
2028 Background Traffic	0	0	0	0	0	169	0	66	0	0	673	249	0	106	724	0
Project Traffic																
Percent Assignment Inbound	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%
Percent Assignment Outbound	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(20%)	(10%)	(0%)	(0%)	(0%)	(0%)
Non-Residential Project Traffic	0	0	0	0	0	32	0	0	0	0	70	35	0	0	63	0
Total Project Traffic	0	0	0	0	0	32	0	0	0	0	70	35	0	0	63	0
2028 Buildout Total	0	0	0	0	0	201	0	66	0	0	743	284	0	106	787	0

INTERSECTION ANALYSIS SHEET

Project:	Zebulon Grocery	
Location:	Zebulon, NC	
Scenario:	0	
Ct. Date	1/28/2025	
Ct. Peaks	7:15 - 8:15 AM;	5:00 - 6:00 PM
E/W Street:	Rose Mallow Drive	
N/S Street:	NC 96	

	AM In	AM Out	PM In	PM Out
Residential New Trips:	0	0	0	0
Non-Residential New Trips:	139	85	316	349
Pass-By Trips:	63	38	80	80

Annual Growth Rate:	2.5%	Existing Year:	2025
Growth Factor:	0.077	Buildout Year:	2028

AM PEAK HOUR
PHF = 0.95

Description	Eastbound				Rose Mallow Drive Westbound				NC 96 Northbound				NC 96 Southbound			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
2025 Traffic Count	0	0	0	0	0	26	0	14	0	0	579	15	0	4	724	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2025 Existing Traffic	0	0	0	0	0	26	0	14	0	0	579	15	0	4	724	0
Growth Factor (0.025 per year)	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077
2028 Background Growth	0	0	0	0	0	2	0	1	0	0	45	1	0	0	56	0
Committed Projects																
7-Eleven	0	0	0	0	0	0	0	0	0	0	8	0	0	0	8	0
Clifton Grove (Pearces Road Residential)	0	0	0	0	0	0	0	0	0	0	6	0	0	0	24	0
Zebulon Domino's	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pierce's Road PD (Zebulon Residential)	0	0	0	0	0	0	0	0	0	0	25	0	0	0	73	0
Zebulon Mixed Use Development	0	0	0	0	0	0	0	0	0	0	51	0	0	0	68	0
Weaver's Ridge	0	0	0	0	0	0	0	0	0	0	13	0	0	0	40	0
Total Committed Traffic	0	0	0	0	0	0	0	0	0	0	103	0	0	0	213	0
2028 Background Traffic	0	0	0	0	0	28	0	15	0	0	727	16	0	4	993	0
Project Traffic																
Percent Assignment Inbound	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	30%	0%
Percent Assignment Outbound	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(30%)	(5%)	(0%)	(0%)	(0%)	(0%)
Non-Residential Project Traffic	0	0	0	0	0	7	0	0	0	0	26	3	0	0	42	0
Total Project Traffic	0	0	0	0	0	7	0	0	0	0	26	3	0	0	42	0
2028 Buildout Total	0	0	0	0	0	35	0	15	0	0	753	19	0	4	1035	0

PM PEAK HOUR
PHF = 0.95

Description	Eastbound				Rose Mallow Drive Westbound				NC 96 Northbound				NC 96 Southbound			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
2025 Traffic Count	0	0	0	0	0	21	0	6	0	0	689	32	0	10	681	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2025 Existing Traffic	0	0	0	0	0	21	0	6	0	0	689	32	0	10	681	0
Growth Factor (0.025 per year)	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077
2028 Background Growth	0	0	0	0	0	2	0	0	0	0	53	2	0	1	52	0
Committed Projects																
7-Eleven	0	0	0	0	0	0	0	0	0	0	8	0	0	0	8	0
Clifton Grove (Pearces Road Residential)	0	0	0	0	0	0	0	0	0	0	25	0	0	0	13	0
Zebulon Domino's	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0
Pierce's Road PD (Zebulon Residential)	0	0	0	0	0	0	0	0	0	0	80	0	0	0	49	0
Zebulon Mixed Use Development	0	0	0	0	0	0	0	0	0	0	87	0	0	0	63	0
Weaver's Ridge	0	0	0	0	0	0	0	0	0	0	41	0	0	0	25	0
Total Committed Traffic	0	0	0	0	0	0	0	0	0	0	245	0	0	0	162	0
2028 Background Traffic	0	0	0	0	0	23	0	6	0	0	987	34	0	11	895	0
Project Traffic																
Percent Assignment Inbound	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	30%	0%
Percent Assignment Outbound	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(30%)	(5%)	(0%)	(0%)	(0%)	(0%)
Non-Residential Project Traffic	0	0	0	0	0	16	0	0	0	0	105	17	0	0	95	0
Total Project Traffic	0	0	0	0	0	16	0	0	0	0	105	17	0	0	95	0
2028 Buildout Total	0	0	0	0	0	39	0	6	0	0	1092	51	0	11	990	0

INTERSECTION ANALYSIS SHEET

Project:	Zebulon Grocery		
Location:	Zebulon, NC		
Scenario:	0		
Ct. Date	1/28/2025		
Ct. Peaks	7:00 - 8:00 AM;	5:00 - 6:00 PM	
E/W Street:	Riley Hill Road/Proctor Street		
N/S Street:	NC 96		

	AM In	AM Out	PM In	PM Out
Residential New Trips:	0	0	0	0
Non-Residential New Trips:	139	85	316	349
Pass-By Trips:	63	38	80	80

Annual Growth Rate:	2.5%	Existing Year:	2025
Growth Factor:	0.077	Buildout Year:	2028

AM PEAK HOUR
PHF = 0.94

Description	Riley Hill Road Eastbound				Proctor Street Westbound				NC 96 Northbound				NC 96 Southbound			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
2025 Traffic Count	0	3	10	46	0	3	43	66	0	159	513	1	0	75	578	97
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2025 Existing Traffic	0	3	10	46	0	3	43	66	0	159	513	1	0	75	578	97
Growth Factor (0.025 per year)	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077
2028 Background Growth	0	0	1	4	0	0	3	5	0	12	39	0	0	6	44	7
Committed Projects																
7-Eleven	0	0	0	0	0	0	0	0	0	0	8	0	0	0	8	0
Clifton Grove (Pearces Road Residential)	0	0	2	0	0	0	4	0	0	0	6	0	0	0	24	0
Zebulon Domino's	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pierce's Road PD (Zebulon Residential)	0	0	0	0	0	0	0	0	0	0	25	0	0	0	73	0
Zebulon Mixed Use Development	0	0	0	0	0	0	0	4	0	0	47	0	0	5	63	0
Weaver's Ridge	0	0	0	0	0	0	0	0	0	0	13	0	0	0	40	0
Total Committed Traffic	0	0	2	0	0	0	4	4	0	0	99	0	0	5	208	0
2028 Background Traffic	0	3	13	50	0	3	50	75	0	171	651	1	0	86	830	104
Project Traffic																
Percent Assignment Inbound	0%	2%	3%	0%	0%	0%	0%	0%	0%	0%	20%	6%	0%	0%	0%	0%
Percent Assignment Outbound	(0%)	(0%)	(0%)	(0%)	(0%)	(6%)	(3%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(20%)	(2%)
Non-Residential Project Traffic	0	3	4	0	0	5	3	0	0	0	28	8	0	0	17	2
Total Project Traffic	0	3	4	0	0	5	3	0	0	0	28	8	0	0	17	2
2028 Buildout Total	0	6	17	50	0	8	53	75	0	171	679	9	0	86	847	106

PM PEAK HOUR
PHF = 0.96

Description	Riley Hill Road Eastbound				Proctor Street Westbound				NC 96 Northbound				NC 96 Southbound			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
2025 Traffic Count	0	8	30	74	0	1	14	46	0	40	671	3	0	67	630	11
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2025 Existing Traffic	0	8	30	74	0	1	14	46	0	40	671	3	0	67	630	11
Growth Factor (0.025 per year)	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077
2028 Background Growth	0	1	2	6	0	0	1	4	0	3	52	0	0	5	48	1
Committed Projects																
7-Eleven	0	0	0	0	0	0	0	0	0	0	8	0	0	0	8	0
Clifton Grove (Pearces Road Residential)	0	0	6	0	0	0	3	0	0	0	25	0	0	0	13	0
Zebulon Domino's	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0
Pierce's Road PD (Zebulon Residential)	0	0	0	0	0	0	0	0	0	0	80	0	0	0	49	0
Zebulon Mixed Use Development	0	0	0	0	0	0	0	6	0	0	81	0	0	5	58	0
Weaver's Ridge	0	0	0	0	0	0	0	0	0	0	41	0	0	0	25	0
Total Committed Traffic	0	0	6	0	0	0	3	6	0	0	239	0	0	5	157	0
2028 Background Traffic	0	9	38	80	0	1	18	56	0	43	962	3	0	77	835	12
Project Traffic																
Percent Assignment Inbound	0%	2%	3%	0%	0%	0%	0%	0%	0%	0%	20%	6%	0%	0%	0%	0%
Percent Assignment Outbound	(0%)	(0%)	(0%)	(0%)	(0%)	(6%)	(3%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(20%)	(2%)
Non-Residential Project Traffic	0	6	9	0	0	21	10	0	0	0	63	19	0	0	70	7
Total Project Traffic	0	6	9	0	0	21	10	0	0	0	63	19	0	0	70	7
2028 Buildout Total	0	15	47	80	0	22	28	56	0	43	1025	22	0	77	905	19

INTERSECTION ANALYSIS SHEET

Project:	Zebulon Grocery	
Location:	Zebulon, NC	
Scenario:	0	
Ct. Date	1/28/2025	
Ct. Peaks	7:45 - 8:45 AM;	5:00 - 6:00 PM
E/W Street:	Green Pace Road	
N/S Street:	NC 96	

	AM In	AM Out	PM In	PM Out
Residential New Trips:	0	0	0	0
Non-Residential New Trips:	139	85	316	349
Pass-By Trips:	63	38	80	80

Annual Growth Rate:	2.5%	Existing Year:	2025
Growth Factor:	0.077	Buildout Year:	2028

AM PEAK HOUR
PHF = 0.92

Description	Green Pace Road Eastbound				Green Pace Road Westbound				NC 96 Northbound				NC 96 Southbound			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
2025 Traffic Count	0	57	36	60	0	12	93	18	0	139	561	18	0	4	527	113
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2025 Existing Traffic	0	57	36	60	0	12	93	18	0	139	561	18	0	4	527	113
Growth Factor (0.025 per year)	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077
2028 Background Growth	0	4	3	5	0	1	7	1	0	11	43	1	0	0	41	9
Committed Projects																
7-Eleven	0	0	0	0	0	0	0	0	0	0	8	0	0	0	8	0
Clifton Grove (Pearces Road Residential)	0	6	0	10	0	0	0	0	0	24	0	0	0	0	0	24
Zebulon Domino's	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pierce's Road PD (Zebulon Residential)	0	0	0	0	0	0	0	0	0	0	25	0	0	0	73	0
Zebulon Mixed Use Development	0	1	0	0	0	0	0	0	0	0	46	0	0	0	60	3
Weaver's Ridge	0	0	0	0	0	0	0	0	0	0	13	0	0	0	40	0
Total Committed Traffic	0	7	0	10	0	0	0	0	0	24	92	0	0	0	181	27
2028 Background Traffic	0	68	39	75	0	13	100	19	0	174	696	19	0	4	749	149
Project Traffic																
Percent Assignment Inbound	0%	3%	2%	0%	0%	0%	0%	0%	0%	0%	23%	5%	0%	0%	0%	0%
Percent Assignment Outbound	(0%)	(0%)	(0%)	(0%)	(0%)	(5%)	(2%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(23%)	(3%)
Non-Residential Project Traffic	0	4	3	0	0	4	2	0	0	0	32	7	0	0	20	2
Total Project Traffic	0	4	3	0	0	4	2	0	0	0	32	7	0	0	20	2
2028 Buildout Total	0	72	42	75	0	17	102	19	0	174	728	26	0	4	769	151

PM PEAK HOUR
PHF = 0.95

Description	Green Pace Road Eastbound				Green Pace Road Westbound				NC 96 Northbound				NC 96 Southbound			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
2025 Traffic Count	0	94	87	72	0	7	31	4	0	95	608	28	0	15	605	87
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2025 Existing Traffic	0	94	87	72	0	7	31	4	0	95	608	28	0	15	605	87
Growth Factor (0.025 per year)	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077
2028 Background Growth	0	7	7	6	0	1	2	0	0	7	47	2	0	1	47	7
Committed Projects																
7-Eleven	0	0	0	0	0	0	0	0	0	0	8	0	0	0	8	0
Clifton Grove (Pearces Road Residential)	0	25	0	27	0	0	0	0	0	18	0	0	0	0	0	13
Zebulon Domino's	0	0	0	1	0	0	0	0	0	1	4	0	0	0	4	0
Pierce's Road PD (Zebulon Residential)	0	0	0	0	0	0	0	0	0	0	80	0	0	0	49	0
Zebulon Mixed Use Development	0	3	0	0	0	0	0	0	0	0	78	0	0	0	56	2
Weaver's Ridge	0	0	0	0	0	0	0	0	0	0	41	0	0	0	25	0
Total Committed Traffic	0	28	0	28	0	0	0	0	0	19	211	0	0	0	142	15
2028 Background Traffic	0	129	94	106	0	8	33	4	0	121	866	30	0	16	794	109
Project Traffic																
Percent Assignment Inbound	0%	3%	2%	0%	0%	0%	0%	0%	0%	0%	23%	5%	0%	0%	0%	0%
Percent Assignment Outbound	(0%)	(0%)	(0%)	(0%)	(0%)	(5%)	(2%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(23%)	(3%)
Non-Residential Project Traffic	0	9	6	0	0	17	7	0	0	0	73	16	0	0	81	10
Total Project Traffic	0	9	6	0	0	17	7	0	0	0	73	16	0	0	81	10
2028 Buildout Total	0	138	100	106	0	25	40	4	0	121	939	46	0	16	875	119

INTERSECTION ANALYSIS SHEET

Project:	Zebulon Grocery	
Location:	Zebulon, NC	
Scenario:	0	
Ct. Date	1/28/2025	
Ct. Peaks	7:45 - 8:45 AM;	5:00 - 6:00 PM
E/W Street:	Pearces Road	
N/S Street:	NC 96	

	AM In	AM Out	PM In	PM Out
Residential New Trips:	0	0	0	0
Non-Residential New Trips:	139	85	316	349
Pass-By Trips:	63	38	80	80

Annual Growth Rate:	2.5%	Existing Year:	2025
Growth Factor:	0.077	Buildout Year:	2028

AM PEAK HOUR
PHF = 0.96

Description	Eastbound				Pearces Road Westbound				NC 96 Northbound				NC 96 Southbound			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
2025 Traffic Count	0	0	0	0	0	413	0	46	0	0	690	228	0	45	589	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2025 Existing Traffic	0	0	0	0	0	413	0	46	0	0	690	228	0	45	589	0
Growth Factor (0.025 per year)	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077
2028 Background Growth	0	0	0	0	0	32	0	4	0	0	53	18	0	3	45	0
Committed Projects																
7-Eleven	0	0	0	0	0	8	0	0	0	0	8	8	0	0	8	0
Clifton Grove (Pearces Road Residential)	0	0	0	0	0	46	0	24	0	0	0	10	0	10	0	0
Zebulon Domino's	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pierce's Road PD (Zebulon Residential)	0	0	0	0	0	84	0	0	0	0	25	37	0	0	73	0
Zebulon Mixed Use Development	0	0	0	0	0	0	0	8	0	0	38	0	0	10	50	0
Weaver's Ridge	0	0	0	0	0	4	0	0	0	0	13	1	0	0	40	0
Total Committed Traffic	0	0	0	0	0	142	0	32	0	0	84	56	0	20	171	0
2028 Background Traffic	0	0	0	0	0	587	0	82	0	0	827	302	0	68	805	0
Project Traffic																
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	28%	2%	0%	0%	0%	0%
Percent Assignment Outbound	(0%)	(0%)	(0%)	(0%)	(0%)	(2%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(28%)	(0%)
Non-Residential Project Traffic	0	0	0	0	0	2	0	0	0	0	39	3	0	0	24	0
Total Project Traffic	0	0	0	0	0	2	0	0	0	0	39	3	0	0	24	0
2028 Buildout Total	0	0	0	0	0	589	0	82	0	0	866	305	0	68	829	0

PM PEAK HOUR
PHF = 0.98

Description	Eastbound				Pearces Road Westbound				NC 96 Northbound				NC 96 Southbound			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
2025 Traffic Count	0	0	0	0	0	278	0	30	0	0	687	415	0	54	683	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2025 Existing Traffic	0	0	0	0	0	278	0	30	0	0	687	415	0	54	683	0
Growth Factor (0.025 per year)	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077
2028 Background Growth	0	0	0	0	0	21	0	2	0	0	53	32	0	4	53	0
Committed Projects																
7-Eleven	0	0	0	0	0	8	0	0	0	0	8	8	0	0	8	0
Clifton Grove (Pearces Road Residential)	0	0	0	0	0	22	0	18	0	0	0	49	0	27	0	0
Zebulon Domino's	0	0	0	0	0	3	0	0	0	0	5	3	0	0	5	0
Pierce's Road PD (Zebulon Residential)	0	0	0	0	0	55	0	0	0	0	80	86	0	0	49	0
Zebulon Mixed Use Development	0	0	0	0	0	0	0	14	0	0	64	0	0	10	46	0
Weaver's Ridge	0	0	0	0	0	2	0	0	0	0	41	4	0	0	25	0
Total Committed Traffic	0	0	0	0	0	90	0	32	0	0	198	150	0	37	133	0
2028 Background Traffic	0	0	0	0	0	389	0	64	0	0	938	597	0	95	869	0
Project Traffic																
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	28%	2%	0%	0%	0%	0%
Percent Assignment Outbound	(0%)	(0%)	(0%)	(0%)	(0%)	(2%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(28%)	(0%)
Non-Residential Project Traffic	0	0	0	0	0	7	0	0	0	0	89	6	0	0	98	0
Total Project Traffic	0	0	0	0	0	7	0	0	0	0	89	6	0	0	98	0
2028 Buildout Total	0	0	0	0	0	396	0	64	0	0	1027	603	0	95	967	0

INTERSECTION ANALYSIS SHEET

Project:	Zebulon Grocery	
Location:	Zebulon, NC	
Scenario:	0	
Ct. Date	1/28/2025	
Ct. Peaks	7:45 - 8:45 AM;	5:00 - 6:00 PM
E/W Street:	US 64-264 WB Ramps/Dogwood Drive	
N/S Street:	NC 96	

	AM In	AM Out	PM In	PM Out
Residential New Trips:	0	0	0	0
Non-Residential New Trips:	139	85	316	349
Pass-By Trips:	63	38	80	80

Annual Growth Rate:	2.5%	Existing Year:	2025
Growth Factor:	0.077	Buildout Year:	2028

AM PEAK HOUR
PHF = 0.94

Description	US 64-264 WB Ramps				Dogwood Drive				NC 96				NC 96			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
2025 Traffic Count	0	325	6	136	0	5	3	3	0	173	638	25	0	13	656	348
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2025 Existing Traffic	0	325	6	136	0	5	3	3	0	173	638	25	0	13	656	348
Growth Factor (0.025 per year)	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077
2028 Background Growth	0	25	0	10	0	0	0	0	0	13	49	2	0	1	50	27
Committed Projects																
7-Eleven	0	-26	63	-13	0	75	65	75	0	-20	-33	94	0	56	-20	-20
Clifton Grove (Pearces Road Residential)	0	2	0	0	0	0	0	1	0	0	7	0	0	1	35	10
Zebulon Domino's	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pierce's Road PD (Zebulon Residential)	0	13	0	0	0	0	0	5	0	0	44	0	0	5	115	37
Zebulon Mixed Use Development	0	9	0	0	0	0	0	1	0	0	28	0	0	1	37	12
Weaver's Ridge	0	0	0	0	0	0	0	1	0	0	13	0	0	0	33	11
Total Committed Traffic	0	-2	63	-13	0	75	65	83	0	-20	59	94	0	63	200	50
2028 Background Traffic	0	348	69	133	0	80	68	86	0	166	746	121	0	77	906	425
Project Traffic																
Percent Assignment Inbound	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%
Percent Assignment Outbound	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(20%)	(10%)
Non-Residential Project Traffic	0	14	0	0	0	0	0	0	0	0	28	0	0	0	17	9
Total Project Traffic	0	14	0	0	0	0	0	0	0	0	28	0	0	0	17	9
2028 Buildout Total	0	362	69	133	0	80	68	86	0	166	774	121	0	77	923	434

PM PEAK HOUR
PHF = 0.96

Description	US 64-264 WB Ramps				Dogwood Drive				NC 96				NC 96			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
2025 Traffic Count	0	312	0	97	0	16	16	12	0	175	805	8	0	10	765	264
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2025 Existing Traffic	0	312	0	97	0	16	16	12	0	175	805	8	0	10	765	264
Growth Factor (0.025 per year)	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077
2028 Background Growth	0	24	0	7	0	1	1	1	0	13	62	1	0	1	59	20
Committed Projects																
7-Eleven	0	-21	55	-10	0	67	56	63	0	-16	-26	83	0	47	-16	-15
Clifton Grove (Pearces Road Residential)	0	10	0	0	0	0	0	4	0	0	35	0	0	2	15	5
Zebulon Domino's	0	3	0	0	0	0	0	0	0	0	7	0	0	0	7	3
Pierce's Road PD (Zebulon Residential)	0	40	0	0	0	0	0	3	0	0	123	0	0	2	77	25
Zebulon Mixed Use Development	0	15	0	0	0	0	0	2	0	0	47	0	0	1	34	11
Weaver's Ridge	0	0	0	0	0	0	0	5	0	0	40	0	0	0	20	7
Total Committed Traffic	0	47	55	-10	0	67	56	77	0	-16	226	83	0	52	137	36
2028 Background Traffic	0	383	55	94	0	84	73	90	0	172	1093	92	0	63	961	320
Project Traffic																
Percent Assignment Inbound	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%
Percent Assignment Outbound	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(20%)	(10%)
Non-Residential Project Traffic	0	32	0	0	0	0	0	0	0	0	63	0	0	0	70	35
Total Project Traffic	0	32	0	0	0	0	0	0	0	0	63	0	0	0	70	35
2028 Buildout Total	0	415	55	94	0	84	73	90	0	172	1156	92	0	63	1031	355

INTERSECTION ANALYSIS SHEET

Project:	Zebulon Grocery	
Location:	Zebulon, NC	
Scenario:	0	
Ct. Date	1/28/2025	
Ct. Peaks	7:30 - 8:30 AM;	4:45 - 5:45 PM
E/W Street:	US 64-264 EB Off Ramp	
N/S Street:	NC 96	

	AM In	AM Out	PM In	PM Out
Residential New Trips:	0	0	0	0
Non-Residential New Trips:	139	85	316	349
Pass-By Trips:	63	38	80	80

Annual Growth Rate:	2.5%	Existing Year:	2025
Growth Factor:	0.077	Buildout Year:	2028

AM PEAK HOUR
PHF = 0.89

Description	US 64-264 EB Off Ramp				NC 96				NC 96			
	U-Turn	Eastbound Left	Through	Right	U-Turn	Westbound Left	Through	Right	U-Turn	Northbound Left	Through	Right
2025 Traffic Count	0	237	2	322	0	0	0	0	0	0	615	104
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2025 Existing Traffic	0	237	2	322	0	0	0	0	0	0	615	104
Growth Factor (0.025 per year)	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077
2028 Background Growth	0	18	0	25	0	0	0	0	0	0	47	8
Committed Projects												
7-Eleven	0	25	0	0	0	0	0	0	0	0	17	0
Clifton Grove (Pearces Road Residential)	0	2	0	0	0	0	0	0	0	0	5	0
Zebulon Domino's	0	0	0	0	0	0	0	0	0	0	0	0
Pierce's Road PD (Zebulon Residential)	0	13	0	0	0	0	0	0	0	0	31	0
Zebulon Mixed Use Development	0	9	0	0	0	0	0	0	0	0	19	0
Weaver's Ridge	0	4	0	0	0	0	0	0	0	0	9	0
Total Committed Traffic	0	53	0	0	0	0	0	0	0	0	81	0
2028 Background Traffic	0	308	2	347	0	0	0	0	0	0	743	112
Project Traffic												
Percent Assignment Inbound	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%
Percent Assignment Outbound	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)
Non-Residential Project Traffic	0	14	0	0	0	0	0	0	0	0	14	0
Total Project Traffic	0	14	0	0	0	0	0	0	0	0	14	0
2028 Buildout Total	0	322	2	347	0	0	0	0	0	0	757	112

PM PEAK HOUR
PHF = 0.97

Description	US 64-264 EB Off Ramp				NC 96				NC 96			
	U-Turn	Eastbound Left	Through	Right	U-Turn	Westbound Left	Through	Right	U-Turn	Northbound Left	Through	Right
2025 Traffic Count	0	369	0	347	0	0	0	0	0	0	644	185
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2025 Existing Traffic	0	369	0	347	0	0	0	0	0	0	644	185
Growth Factor (0.025 per year)	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077
2028 Background Growth	0	28	0	27	0	0	0	0	0	0	50	14
Committed Projects												
7-Eleven	0	25	0	0	0	0	0	0	0	0	17	0
Clifton Grove (Pearces Road Residential)	0	10	0	0	0	0	0	0	0	0	25	0
Zebulon Domino's	0	3	0	0	0	0	0	0	0	0	4	0
Pierce's Road PD (Zebulon Residential)	0	40	0	0	0	0	0	0	0	0	83	0
Zebulon Mixed Use Development	0	15	0	0	0	0	0	0	0	0	32	0
Weaver's Ridge	0	13	0	0	0	0	0	0	0	0	27	0
Total Committed Traffic	0	106	0	0	0	0	0	0	0	0	188	0
2028 Background Traffic	0	503	0	374	0	0	0	0	0	0	882	199
Project Traffic												
Percent Assignment Inbound	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%
Percent Assignment Outbound	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)
Non-Residential Project Traffic	0	31	0	0	0	0	0	0	0	0	32	0
Total Project Traffic	0	31	0	0	0	0	0	0	0	0	32	0
2028 Buildout Total	0	534	0	374	0	0	0	0	0	0	914	199

INTERSECTION ANALYSIS SHEET

Project:	Zebulon Grocery	
Location:	Zebulon, NC	
Scenario:	0	
Ct. Date	1/28/2025	
Ct. Peaks	7:00 - 8:00 AM;	5:00 - 6:00 PM
E/W Street:	Proctor Street	
N/S Street:	Green Pace Road	

	AM In	AM Out	PM In	PM Out
Residential New Trips:	0	0	0	0
Non-Residential New Trips:	139	85	316	349
Pass-By Trips:	63	38	80	80

Annual Growth Rate:	2.5%	Existing Year:	2025
Growth Factor:	0.077	Buildout Year:	2028

AM PEAK HOUR
PHF = 0.97

Description	Proctor Street Eastbound				Proctor Street Westbound				Green Pace Road Northbound				Southbound			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
2025 Traffic Count	0	0	85	1	0	159	109	0	0	2	0	38	0	0	0	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2025 Existing Traffic	0	0	85	1	0	159	109	0	0	2	0	38	0	0	0	0
Growth Factor (0.025 per year)	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077
2028 Background Growth	0	0	7	0	0	12	8	0	0	0	0	3	0	0	0	0
Committed Projects																
7-Eleven	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Clifton Grove (Pearces Road Residential)	0	0	2	0	0	0	4	0	0	0	0	0	0	0	0	0
Zebulon Domino's	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pierce's Road PD (Zebulon Residential)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Zebulon Mixed Use Development	0	0	5	0	0	0	4	0	0	0	0	0	0	0	0	0
Weaver's Ridge	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	0	0	7	0	0	0	8	0	0	0	0	0	0	0	0	0
2028 Background Traffic	0	0	99	1	0	171	125	0	0	2	0	41	0	0	0	0
Project Traffic																
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	27%	0%	0%	7%	0%	0%	0%	0%	0%	0%
Percent Assignment Outbound	(0%)	(0%)	(27%)	(7%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)
Non-Residential Project Traffic	0	0	23	6	0	0	37	0	0	10	0	0	0	0	0	0
Total Project Traffic	0	0	23	6	0	0	37	0	0	10	0	0	0	0	0	0
2028 Buildout Total	0	0	122	7	0	171	162	0	0	12	0	41	0	0	0	0

PM PEAK HOUR
PHF = 0.86

Description	Proctor Street Eastbound				Proctor Street Westbound				Green Pace Road Northbound				Southbound			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
2025 Traffic Count	0	0	100	1	0	41	60	0	0	2	0	128	0	0	0	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2025 Existing Traffic	0	0	100	1	0	41	60	0	0	2	0	128	0	0	0	0
Growth Factor (0.025 per year)	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077
2028 Background Growth	0	0	8	0	0	3	5	0	0	0	0	10	0	0	0	0
Committed Projects																
7-Eleven	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Clifton Grove (Pearces Road Residential)	0	0	6	0	0	0	3	0	0	0	0	0	0	0	0	0
Zebulon Domino's	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pierce's Road PD (Zebulon Residential)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Zebulon Mixed Use Development	0	0	5	0	0	0	6	0	0	0	0	0	0	0	0	0
Weaver's Ridge	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	0	0	11	0	0	0	9	0	0	0	0	0	0	0	0	0
2028 Background Traffic	0	0	119	1	0	44	74	0	0	2	0	138	0	0	0	0
Project Traffic																
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	27%	0%	0%	7%	0%	0%	0%	0%	0%	0%
Percent Assignment Outbound	(0%)	(0%)	(27%)	(7%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)
Non-Residential Project Traffic	0	0	95	24	0	0	86	0	0	22	0	0	0	0	0	0
Total Project Traffic	0	0	95	24	0	0	86	0	0	22	0	0	0	0	0	0
2028 Buildout Total	0	0	214	25	0	44	160	0	0	24	0	138	0	0	0	0

INTERSECTION ANALYSIS SHEET

Project:	Zebulon Grocery	
Location:	Zebulon, NC	
Scenario:	0	
Ct. Date	1/28/2025	
Ct. Peaks	7:30 - 8:30 AM;	5:00 - 6:00 PM
E/W Street:	Proctor Street	
N/S Street:	Watsonia Drive	

	AM In	AM Out	PM In	PM Out
Residential New Trips:	0	0	0	0
Non-Residential New Trips:	139	85	316	349
Pass-By Trips:	63	38	80	80

Annual Growth Rate:	2.5%	Existing Year:	2025
Growth Factor:	0.077	Buildout Year:	2028

AM PEAK HOUR
PHF = 0.94

Description	Proctor Street Eastbound				Proctor Street Westbound				Northbound				Watsonia Drive Southbound			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
2025 Traffic Count	0	11	147	0	0	0	201	18	0	0	0	0	0	46	0	16
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2025 Existing Traffic	0	11	147	0	0	0	201	18	0	0	0	0	0	46	0	16
Growth Factor (0.025 per year)	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077
2028 Background Growth	0	1	11	0	0	0	15	1	0	0	0	0	0	4	0	1
Committed Projects																
7-Eleven	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Clifton Grove (Pearces Road Residential)	0	0	2	0	0	0	4	0	0	0	0	0	0	0	0	0
Zebulon Domino's	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pierce's Road PD (Zebulon Residential)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Zebulon Mixed Use Development	0	0	5	0	0	0	4	0	0	0	0	0	0	0	0	0
Weaver's Ridge	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	0	0	7	0	0	0	8	0	0	0	0	0	0	0	0	0
2028 Background Traffic	0	12	165	0	0	0	224	19	0	0	0	0	0	50	0	17
Project Traffic																
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	22%	0%	0%	0%	0%	0%	0%	0%	0%	5%
Percent Assignment Outbound	(0%)	(5%)	(22%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)
Non-Residential Project Traffic	0	4	19	0	0	0	31	0	0	0	0	0	0	0	0	6
Total Project Traffic	0	4	19	0	0	0	31	0	0	0	0	0	0	0	0	6
2028 Buildout Total	0	16	184	0	0	0	255	19	0	0	0	0	0	50	0	23

PM PEAK HOUR
PHF = 0.83

Description	Proctor Street Eastbound				Proctor Street Westbound				Northbound				Watsonia Drive Southbound			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
2025 Traffic Count	0	27	201	0	0	0	93	17	0	0	0	0	0	19	0	8
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2025 Existing Traffic	0	27	201	0	0	0	93	17	0	0	0	0	0	19	0	8
Growth Factor (0.025 per year)	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077
2028 Background Growth	0	2	15	0	0	0	7	1	0	0	0	0	0	1	0	1
Committed Projects																
7-Eleven	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Clifton Grove (Pearces Road Residential)	0	0	6	0	0	0	3	0	0	0	0	0	0	0	0	0
Zebulon Domino's	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pierce's Road PD (Zebulon Residential)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Zebulon Mixed Use Development	0	0	5	0	0	0	6	0	0	0	0	0	0	0	0	0
Weaver's Ridge	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	0	0	11	0	0	0	9	0	0	0	0	0	0	0	0	0
2028 Background Traffic	0	29	227	0	0	0	109	18	0	0	0	0	0	20	0	9
Project Traffic																
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	22%	0%	0%	0%	0%	0%	0%	0%	0%	5%
Percent Assignment Outbound	(0%)	(5%)	(22%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)
Non-Residential Project Traffic	0	17	78	0	0	0	70	0	0	0	0	0	0	0	0	16
Total Project Traffic	0	17	78	0	0	0	70	0	0	0	0	0	0	0	0	16
2028 Buildout Total	0	46	305	0	0	0	179	18	0	0	0	0	0	20	0	25

INTERSECTION ANALYSIS SHEET

Project:	Zebulon Grocery	
Location:	Zebulon, NC	
Scenario:	0	
Ct. Date	1/28/2025	
Ct. Peaks	7:30 - 8:30 AM;	4:45 - 5:45 PM
E/W Street:	Proctor Street	
N/S Street:	Pearces Road	

	AM In	AM Out	PM In	PM Out
Residential New Trips:	0	0	0	0
Non-Residential New Trips:	139	85	316	349
Pass-By Trips:	63	38	80	80

Annual Growth Rate:	2.5%	Existing Year:	2025
Growth Factor:	0.077	Buildout Year:	2028

AM PEAK HOUR
PHF = 0.92

Description	Proctor Street Eastbound				Proctor Street Westbound				Pearces Road Northbound				Pearces Road Southbound			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
2025 Traffic Count	0	13	158	18	0	141	144	22	0	7	108	100	0	46	276	62
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2025 Existing Traffic	0	13	158	18	0	141	144	22	0	7	108	100	0	46	276	62
Growth Factor (0.025 per year)	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077
2028 Background Growth	0	1	12	1	0	11	11	2	0	1	8	8	0	4	21	5
Committed Projects																
7-Eleven	0	0	0	0	0	4	0	0	0	0	4	4	0	0	4	0
Clifton Grove (Pearces Road Residential)	0	2	0	0	0	0	0	2	0	0	20	0	0	5	70	4
Zebulon Domino's	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pierce's Road PD (Zebulon Residential)	0	0	0	0	0	0	0	9	0	0	37	0	0	8	84	0
Zebulon Mixed Use Development	0	0	5	0	0	0	4	0	0	0	10	0	0	0	8	0
Weaver's Ridge	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4	0
Total Committed Traffic	0	2	5	0	0	4	4	11	0	0	72	4	0	13	170	4
2028 Background Traffic	0	16	175	19	0	156	159	35	0	8	188	112	0	63	467	71
Project Traffic																
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	10%	0%	0%	2%	0%	0%	0%	0%	0%	10%
Percent Assignment Outbound	(0%)	(10%)	(10%)	(2%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)
Non-Residential Project Traffic	0	8	9	2	0	0	14	0	0	3	0	0	0	0	0	14
Total Project Traffic	0	8	9	2	0	0	14	0	0	3	0	0	0	0	0	14
2028 Buildout Total	0	24	184	21	0	156	173	35	0	11	188	112	0	63	467	85

PM PEAK HOUR
PHF = 0.93

Description	Proctor Street Eastbound				Proctor Street Westbound				Pearces Road Northbound				Pearces Road Southbound			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
2025 Traffic Count	0	59	127	21	0	78	65	24	0	23	324	68	0	22	171	34
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2025 Existing Traffic	0	59	127	21	0	78	65	24	0	23	324	68	0	22	171	34
Growth Factor (0.025 per year)	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077
2028 Background Growth	0	5	10	2	0	6	5	2	0	2	25	5	0	2	13	3
Committed Projects																
7-Eleven	0	0	0	0	0	4	0	0	0	0	4	4	0	0	4	0
Clifton Grove (Pearces Road Residential)	0	6	0	0	0	0	0	4	0	0	76	0	0	5	40	3
Zebulon Domino's	0	0	0	0	0	1	0	0	0	0	2	1	0	0	2	0
Pierce's Road PD (Zebulon Residential)	0	0	0	0	0	0	0	4	0	0	86	0	0	5	55	0
Zebulon Mixed Use Development	0	0	5	0	0	0	6	0	0	0	10	0	0	0	14	0
Weaver's Ridge	0	0	0	0	0	0	0	0	0	0	4	0	0	0	2	0
Total Committed Traffic	0	6	5	0	0	5	6	8	0	0	182	5	0	10	117	3
2028 Background Traffic	0	70	142	23	0	89	76	34	0	25	531	78	0	34	301	40
Project Traffic																
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	10%	0%	0%	2%	0%	0%	0%	0%	0%	10%
Percent Assignment Outbound	(0%)	(10%)	(10%)	(2%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)
Non-Residential Project Traffic	0	35	36	7	0	0	32	0	0	6	0	0	0	0	0	32
Total Project Traffic	0	35	36	7	0	0	32	0	0	6	0	0	0	0	0	32
2028 Buildout Total	0	105	178	30	0	89	108	34	0	31	531	78	0	34	301	72

INTERSECTION ANALYSIS SHEET

Project:	Zebulon Grocery	
Location:	Zebulon, NC	
Scenario:	0	
Ct. Date	Balanced with NC 96 at Rose Mallow Drive	
Ct. Peaks	7:15 - 8:15 AM;	5:00 - 6:00 PM
E/W Street:	Site Driveway 1	
N/S Street:	NC 96	

	AM In	AM Out	PM In	PM Out
Residential New Trips:	0	0	0	0
Non-Residential New Trips:	139	85	316	349
Pass-By Trips:	63	38	80	80

Annual Growth Rate:	2.5%	Existing Year:	2025
Growth Factor:	0.077	Buildout Year:	2028

AM PEAK HOUR
PHF = 0.90

Description	Eastbound				Site Driveway 1 Westbound				NC 96 Northbound				NC 96 Southbound			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
2025 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	594	0	0	0	750	0
2025 Existing Traffic	0	0	0	0	0	0	0	0	0	0	594	0	0	0	750	0
Growth Factor (0.025 per year)	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077
2028 Background Growth	0	0	0	0	0	0	0	0	0	0	46	0	0	0	58	0
Committed Projects																
7-Eleven	0	0	0	0	0	0	0	0	0	0	8	0	0	0	8	0
Clifton Grove (Pearces Road Residential)	0	0	0	0	0	0	0	0	0	0	6	0	0	0	24	0
Zebulon Domino's	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pierce's Road PD (Zebulon Residential)	0	0	0	0	0	0	0	0	0	0	25	0	0	0	73	0
Zebulon Mixed Use Development	0	0	0	0	0	0	0	0	0	0	51	0	0	0	68	0
Weaver's Ridge	0	0	0	0	0	0	0	0	0	0	13	0	0	0	40	0
Total Committed Traffic	0	0	0	0	0	0	0	0	0	0	103	0	0	0	213	0
2028 Background Traffic	0	0	0	0	0	0	0	0	0	0	743	0	0	0	1021	0
Project Traffic																
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	35%	0%	0%
Percent Assignment Outbound	(0%)	(0%)	(0%)	(0%)	(0%)	(22%)	(0%)	(35%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)
Non-Residential Project Traffic	0	0	0	0	0	19	0	29	0	0	0	14	0	49	0	0
Total External Site Traffic	0	0	0	0	0	19	0	29	0	0	0	14	0	49	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	-28	0	0	0	-35	0
Pass-By Capture Assignment	0	0	0	0	0	21	0	17	0	0	0	9	0	35	0	0
Total Pass-By Traffic	0	0	0	0	0	21	0	17	0	0	-28	9	0	35	-35	0
Total Project Traffic	0	0	0	0	0	40	0	46	0	0	-28	23	0	84	-35	0
2028 Buildout Total	0	0	0	0	0	40	0	46	0	0	715	23	0	84	986	0

PM PEAK HOUR
PHF = 0.90

Description	Eastbound				Site Driveway 1 Westbound				NC 96 Northbound				NC 96 Southbound			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
2025 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	721	0	0	0	702	0
2025 Existing Traffic	0	0	0	0	0	0	0	0	0	0	721	0	0	0	702	0
Growth Factor (0.025 per year)	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077
2028 Background Growth	0	0	0	0	0	0	0	0	0	0	55	0	0	0	54	0
Committed Projects																
7-Eleven	0	0	0	0	0	0	0	0	0	0	8	0	0	0	8	0
Clifton Grove (Pearces Road Residential)	0	0	0	0	0	0	0	0	0	0	25	0	0	0	13	0
Zebulon Domino's	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0
Pierce's Road PD (Zebulon Residential)	0	0	0	0	0	0	0	0	0	0	80	0	0	0	49	0
Zebulon Mixed Use Development	0	0	0	0	0	0	0	0	0	0	87	0	0	0	63	0
Weaver's Ridge	0	0	0	0	0	0	0	0	0	0	41	0	0	0	25	0
Total Committed Traffic	0	0	0	0	0	0	0	0	0	0	245	0	0	0	162	0
2028 Background Traffic	0	0	0	0	0	0	0	0	0	0	1021	0	0	0	918	0
Project Traffic																
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	35%	0%	0%
Percent Assignment Outbound	(0%)	(0%)	(0%)	(0%)	(0%)	(22%)	(0%)	(35%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)
Non-Residential Project Traffic	0	0	0	0	0	77	0	122	0	0	0	32	0	111	0	0
Total External Site Traffic	0	0	0	0	0	77	0	122	0	0	0	32	0	111	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	-44	0	0	0	-36	0
Pass-By Capture Assignment	0	0	0	0	0	36	0	44	0	0	0	16	0	36	0	0
Total Pass-By Traffic	0	0	0	0	0	36	0	44	0	0	-44	16	0	36	-36	0
Total Project Traffic	0	0	0	0	0	113	0	166	0	0	-44	48	0	147	-36	0
2028 Buildout Total	0	0	0	0	0	113	0	166	0	0	977	48	0	147	882	0

INTERSECTION ANALYSIS SHEET

Project:	Zebulon Grocery	
Location:	Zebulon, NC	
Scenario:	0	
Ct. Date	Balanced with NC 96 at Rose Mallow Drive	
Ct. Peaks	7:15 - 8:15 AM;	5:00 - 6:00 PM
E/W Street:	Site Driveway 2	
N/S Street:	NC 96	

	AM In	AM Out	PM In	PM Out
Residential New Trips:	0	0	0	0
Non-Residential New Trips:	139	85	316	349
Pass-By Trips:	63	38	80	80

Annual Growth Rate:	2.5%	Existing Year:	2025
Growth Factor:	0.077	Buildout Year:	2028

AM PEAK HOUR
PHF = 0.90

Description	Eastbound				Site Driveway 2 Westbound				NC 96 Northbound				NC 96 Southbound			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
2025 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	594	0	0	0	750	0
2025 Existing Traffic	0	0	0	0	0	0	0	0	0	0	594	0	0	0	750	0
Growth Factor (0.025 per year)	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077
2028 Background Growth	0	0	0	0	0	0	0	0	0	0	46	0	0	0	58	0
Committed Projects																
7-Eleven	0	0	0	0	0	0	0	0	0	0	8	0	0	0	8	0
Clifton Grove (Pearces Road Residential)	0	0	0	0	0	0	0	0	0	0	6	0	0	0	24	0
Zebulon Domino's	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pierce's Road PD (Zebulon Residential)	0	0	0	0	0	0	0	0	0	0	25	0	0	0	73	0
Zebulon Mixed Use Development	0	0	0	0	0	0	0	0	0	0	51	0	0	0	68	0
Weaver's Ridge	0	0	0	0	0	0	0	0	0	0	13	0	0	0	40	0
Total Committed Traffic	0	0	0	0	0	0	0	0	0	0	103	0	0	0	213	0
2028 Background Traffic	0	0	0	0	0	0	0	0	0	0	743	0	0	0	1021	0
Project Traffic																
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	12%	0%	0%	0%	0%
Percent Assignment Outbound	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(22%)	(0%)
Non-Residential Project Traffic	0	0	0	0	0	0	0	0	0	0	14	17	0	0	19	0
Total External Site Traffic	0	0	0	0	0	0	0	0	0	0	14	17	0	0	19	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	-19	0	0	0	-35	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	19	0	0	21	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	-19	19	0	0	-14	0
Total Project Traffic	0	0	0	0	0	0	0	0	0	0	-5	36	0	0	5	0
2028 Buildout Total	0	0	0	0	0	0	0	0	0	0	738	36	0	0	1026	0

PM PEAK HOUR
PHF = 0.90

Description	Eastbound				Site Driveway 2 Westbound				NC 96 Northbound				NC 96 Southbound			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
2025 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	721	0	0	0	702	0
2025 Existing Traffic	0	0	0	0	0	0	0	0	0	0	721	0	0	0	702	0
Growth Factor (0.025 per year)	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077
2028 Background Growth	0	0	0	0	0	0	0	0	0	0	55	0	0	0	54	0
Committed Projects																
7-Eleven	0	0	0	0	0	0	0	0	0	0	8	0	0	0	8	0
Clifton Grove (Pearces Road Residential)	0	0	0	0	0	0	0	0	0	0	25	0	0	0	13	0
Zebulon Domino's	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0
Pierce's Road PD (Zebulon Residential)	0	0	0	0	0	0	0	0	0	0	80	0	0	0	49	0
Zebulon Mixed Use Development	0	0	0	0	0	0	0	0	0	0	87	0	0	0	63	0
Weaver's Ridge	0	0	0	0	0	0	0	0	0	0	41	0	0	0	25	0
Total Committed Traffic	0	0	0	0	0	0	0	0	0	0	245	0	0	0	162	0
2028 Background Traffic	0	0	0	0	0	0	0	0	0	0	1021	0	0	0	918	0
Project Traffic																
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	12%	0%	0%	0%	0%
Percent Assignment Outbound	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(22%)	(0%)
Non-Residential Project Traffic	0	0	0	0	0	0	0	0	0	0	32	37	0	0	77	0
Total External Site Traffic	0	0	0	0	0	0	0	0	0	0	32	37	0	0	77	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	-28	0	0	0	-36	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	28	0	0	36	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	-28	28	0	0	0	0
Total Project Traffic	0	0	0	0	0	0	0	0	0	0	4	65	0	0	77	0
2028 Buildout Total	0	0	0	0	0	0	0	0	0	0	1025	65	0	0	995	0

INTERSECTION ANALYSIS SHEET

Project:	Zebulon Grocery	
Location:	Zebulon, NC	
Scenario:	0	
Ct. Date	Balanced with Proctor Street at Green Pace Road	
Ct. Peaks	7:00 - 8:00 AM;	5:00 - 6:00 PM
E/W Street:	Proctor Street	
N/S Street:	Site Driveway 3	

	AM In	AM Out	PM In	PM Out
Residential New Trips:	0	0	0	0
Non-Residential New Trips:	139	85	316	349
Pass-By Trips:	63	38	80	80

Annual Growth Rate:	2.5%	Existing Year:	2025
Growth Factor:	0.077	Buildout Year:	2028

AM PEAK HOUR
PHF = 0.90

Description	Proctor Street Eastbound				Proctor Street Westbound				Northbound				Site Driveway 3 Southbound			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
2025 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	0	86	0	0	0	111	0	0	0	0	0	0	0	0	0
2025 Existing Traffic	0	0	86	0	0	0	111	0	0	0	0	0	0	0	0	0
Growth Factor (0.025 per year)	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077
2028 Background Growth	0	0	7	0	0	0	9	0	0	0	0	0	0	0	0	0
Committed Projects																
7-Eleven	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Clifton Grove (Pearces Road Residential)	0	0	2	0	0	0	4	0	0	0	0	0	0	0	0	0
Zebulon Domino's	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pierce's Road PD (Zebulon Residential)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Zebulon Mixed Use Development	0	0	5	0	0	0	4	0	0	0	0	0	0	0	0	0
Weaver's Ridge	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	0	0	7	0	0	0	8	0	0	0	0	0	0	0	0	0
2028 Background Traffic	0	0	100	0	0	0	128	0	0	0	0	0	0	0	0	0
Project Traffic																
Percent Assignment Inbound	0%	9%	0%	0%	0%	0%	0%	34%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Assignment Outbound	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(34%)	(0%)	(9%)
Non-Residential Project Traffic	0	12	0	0	0	0	0	47	0	0	0	0	0	29	0	8
Total Project Traffic	0	12	0	0	0	0	0	47	0	0	0	0	0	29	0	8
2028 Buildout Total	0	12	100	0	0	0	128	47	0	0	0	0	0	29	0	8

PM PEAK HOUR
PHF = 0.90

Description	Proctor Street Eastbound				Proctor Street Westbound				Northbound				Site Driveway 3 Southbound			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
2025 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	0	101	0	0	0	62	0	0	0	0	0	0	0	0	0
2025 Existing Traffic	0	0	101	0	0	0	62	0	0	0	0	0	0	0	0	0
Growth Factor (0.025 per year)	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077
2028 Background Growth	0	0	8	0	0	0	5	0	0	0	0	0	0	0	0	0
Committed Projects																
7-Eleven	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Clifton Grove (Pearces Road Residential)	0	0	6	0	0	0	3	0	0	0	0	0	0	0	0	0
Zebulon Domino's	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pierce's Road PD (Zebulon Residential)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Zebulon Mixed Use Development	0	0	5	0	0	0	6	0	0	0	0	0	0	0	0	0
Weaver's Ridge	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	0	0	11	0	0	0	9	0	0	0	0	0	0	0	0	0
2028 Background Traffic	0	0	120	0	0	0	76	0	0	0	0	0	0	0	0	0
Project Traffic																
Percent Assignment Inbound	0%	9%	0%	0%	0%	0%	0%	34%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Assignment Outbound	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(34%)	(0%)	(9%)
Non-Residential Project Traffic	0	28	0	0	0	0	0	108	0	0	0	0	0	119	0	31
Total Project Traffic	0	28	0	0	0	0	0	108	0	0	0	0	0	119	0	31
2028 Buildout Total	0	28	120	0	0	0	76	108	0	0	0	0	0	119	0	31

Appendix G:
Synchro Output: Existing (2025)

Zebulon Grocery
1: NC 96 & Pippin Road

Existing (2025) AM
02/10/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	142	42	500	95	23	584
Future Volume (vph)	142	42	500	95	23	584
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	2%		0%			0%
Storage Length (ft)	0	0		175	175	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25				100	
Satd. Flow (prot)	1721	0	1712	1538	1736	1759
Flt Permitted	0.963				0.349	
Satd. Flow (perm)	1721	0	1712	1538	638	1759
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	35		45			45
Link Distance (ft)	1396		1396			934
Travel Time (s)	27.2		21.2			14.2
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	11%	5%	4%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	188	0	510	97	23	596
Turn Type	Prot		NA	pm+ov	D.P+P	NA
Protected Phases	8		2	8	1	6
Permitted Phases				2	2	
Detector Phase	8		2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0		12.0	7.0	7.0	12.0
Minimum Split (s)	14.0		19.0	14.0	13.0	19.0
Total Split (s)	30.0		90.0	30.0	20.0	110.0
Total Split (%)	21.4%		64.3%	21.4%	14.3%	78.6%
Yellow Time (s)	3.0		4.5	3.0	3.0	4.5
All-Red Time (s)	2.4		1.0	2.4	1.6	1.0
Lost Time Adjust (s)	-0.4		-0.5	-0.4	0.4	-0.5
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		Min	None	None	Min
Act Effect Green (s)	11.7		24.3	45.6	26.2	27.7
Actuated g/C Ratio	0.23		0.48	0.90	0.52	0.55
v/c Ratio	0.47		0.62	0.07	0.05	0.62
Control Delay (s/veh)	24.5		15.2	1.6	5.3	10.6
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	24.5		15.2	1.6	5.3	10.6

Zebulon Grocery
1: NC 96 & Pippin Road

Existing (2025) AM
02/10/2025



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
LOS	C		B	A	A	B
Approach Delay (s/veh)	24.5		13.0			10.4
Approach LOS	C		B			B
Queue Length 50th (ft)	41		78	0	3	97
Queue Length 95th (ft)	134		266	16	11	212
Internal Link Dist (ft)	1316		1316			854
Turn Bay Length (ft)				175	175	
Base Capacity (vph)	943		1712	1476	713	1759
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	0.20		0.30	0.07	0.03	0.34

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 50.5

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.62

Intersection Signal Delay (s/veh): 13.4

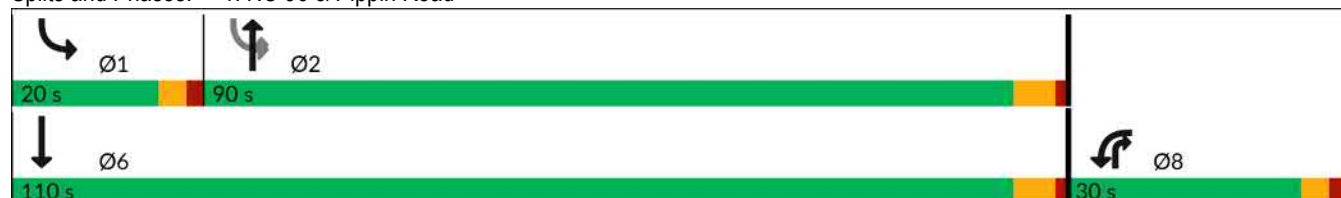
Intersection LOS: B

Intersection Capacity Utilization 49.5%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: NC 96 & Pippin Road



Zebulon Grocery
2: NC 96 & Rose Mallow Drive

Existing (2025) AM
02/10/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	26	14	579	15	4	724
Future Volume (vph)	26	14	579	15	4	724
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	125	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				100	
Satd. Flow (prot)	1697	0	1708	0	1770	1792
Flt Permitted	0.969				0.950	
Satd. Flow (perm)	1697	0	1708	0	1770	1792
Link Speed (mph)	25		45			45
Link Distance (ft)	881		1406			1396
Travel Time (s)	24.0		21.3			21.2
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	2%	11%	7%	2%	6%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	42	0	625	0	4	762
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	48.1%			ICU Level of Service A		
Analysis Period (min)	15					

Zebulon Grocery
2: NC 96 & Rose Mallow Drive

Existing (2025) AM
02/10/2025

Intersection						
Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	14	579	15	4	724
Future Vol, veh/h	26	14	579	15	4	724
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	-	-	-	125	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	2	11	7	2	6
Mvmt Flow	27	15	609	16	4	762

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1387	617	0	0	625
Stage 1	617	-	-	-	-
Stage 2	770	-	-	-	-
Critical Hdwy	6.44	6.22	-	-	4.12
Critical Hdwy Stg 1	5.44	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-
Follow-up Hdwy	3.536	3.318	-	-	2.218
Pot Cap-1 Maneuver	156	490	-	-	956
Stage 1	534	-	-	-	-
Stage 2	453	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	155	490	-	-	956
Mov Cap-2 Maneuver	155	-	-	-	-
Stage 1	534	-	-	-	-
Stage 2	451	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	27.2	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	204	956
HCM Lane V/C Ratio	-	-	0.206	0.004
HCM Control Delay (s/veh)	-	-	27.2	8.8
HCM Lane LOS	-	-	D	A
HCM 95th %tile Q (veh)	-	-	0.8	0

Zebulon Grocery
3: NC 96 & Riley Hill Road/Proctor Street

Existing (2025) AM
02/10/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	10	46	4	43	66	159	513	4	75	578	97
Future Volume (vph)	4	10	46	4	43	66	159	513	4	75	578	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%				0%				0%		0%	
Storage Length (ft)	0			0	0			0	150	0	150	0
Storage Lanes	0			0	0			0	1	0	1	0
Taper Length (ft)	25			25			100			100		
Satd. Flow (prot)	0	1492	0	0	1674	0	1752	1726	0	1752	1748	0
Flt Permitted	0.997				0.998		0.950				0.950	
Satd. Flow (perm)	0	1492	0	0	1674	0	1752	1726	0	1752	1748	0
Link Speed (mph)	35				35				35		35	
Link Distance (ft)	1315				563				623		1406	
Travel Time (s)	25.6				11.0				12.1		27.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	33%	20%	11%	2%	2%	6%	3%	10%	2%	3%	7%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)	0%				0%				0%		0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	64	0	0	120	0	169	550	0	80	718	0
Sign Control	Stop				Stop				Free		Free	
Intersection Summary												
Area Type:	Other											
Control Type: Unsignalized												
Intersection Capacity Utilization 62.6%												
ICU Level of Service B												
Analysis Period (min) 15												

Zebulon Grocery
3: NC 96 & Riley Hill Road/Proctor Street

Existing (2025) AM
02/10/2025

Intersection												
Int Delay, s/veh	14.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	10	46	4	43	66	159	513	4	75	578	97
Future Vol, veh/h	4	10	46	4	43	66	159	513	4	75	578	97
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	-	-	-	-	-	-	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	33	20	11	2	2	6	3	10	2	3	7	2
Mvmt Flow	4	11	49	4	46	70	169	546	4	80	615	103

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1771	1715	667	1743	1764	548	718	0	0	550	0	0
Stage 1	827	827	-	886	886	-	-	-	-	-	-	-
Stage 2	944	888	-	857	878	-	-	-	-	-	-	-
Critical Hdwy	7.43	6.7	6.31	7.12	6.52	6.26	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.43	5.7	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.43	5.7	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.797	4.18	3.399	3.518	4.018	3.354	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	54	82	443	68	84	529	878	-	-	1015	-	-
Stage 1	324	362	-	339	363	-	-	-	-	-	-	-
Stage 2	277	338	-	352	366	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	15	61	443	42	62	529	878	-	-	1015	-	-
Mov Cap-2 Maneuver	15	61	-	42	62	-	-	-	-	-	-	-
Stage 1	262	333	-	274	293	-	-	-	-	-	-	-
Stage 2	164	273	-	279	337	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s/v	73.1		139.9		2.4		0.9	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	878	-	-	112 124	1015	-	-
HCM Lane V/C Ratio	0.193	-	-	0.57 0.969	0.079	-	-
HCM Control Delay (s/veh)	10.1	-	-	73.1 139.9	8.8	-	-
HCM Lane LOS	B	-	-	F F	A	-	-
HCM 95th %tile Q (veh)	0.7	-	-	2.7 6.5	0.3	-	-

Zebulon Grocery
4: NC 96 & Green Pace Road

Existing (2025) AM

02/10/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	36	60	12	93	18	139	561	18	4	527	113
Future Volume (vph)	57	36	60	12	93	18	139	561	18	4	527	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		1%			-1%			2%			-2%	
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			50			100		
Satd. Flow (prot)	0	1636	0	0	1679	0	1686	1689	0	1787	1713	0
Flt Permitted		0.737			0.966		0.338			0.373		
Satd. Flow (perm)	0	1228	0	0	1630	0	600	1689	0	702	1713	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1850			373			1689			623	
Travel Time (s)		36.0			7.3			32.9			12.1	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	11%	6%	5%	2%	12%	11%	6%	11%	6%	2%	9%	9%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	166	0	0	134	0	151	630	0	4	696	0
Turn Type	Perm	NA		Perm	NA		D.Pm	NA		D.Pm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	2		2	6	
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)	25.0	25.0		25.0	25.0		75.0	75.0		75.0	75.0	
Total Split (%)	25.0%	25.0%		25.0%	25.0%		75.0%	75.0%		75.0%	75.0%	
Yellow Time (s)	3.8	3.8		3.9	3.9		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.5	1.5		1.2	1.2		1.3	1.3		1.3	1.3	
Lost Time Adjust (s)		-0.3			-0.1		-0.3	-0.3		-0.3	-0.3	
Total Lost Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effect Green (s)		16.2			16.2		73.8	73.8		73.8	73.8	
Actuated g/C Ratio		0.16			0.16		0.74	0.74		0.74	0.74	
v/c Ratio		0.84			0.51		0.34	0.51		0.01	0.55	
Control Delay (s/veh)		73.2			44.3		3.4	5.0		4.5	8.4	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)		73.2			44.3		3.4	5.0		4.5	8.4	

Zebulon Grocery
4: NC 96 & Green Pace Road

Existing (2025) AM
02/10/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		E			D		A	A		A	A	
Approach Delay (s/veh)		73.2			44.3			4.7			8.4	
Approach LOS		E			D			A			A	
Queue Length 50th (ft)		103			78		16	175		1	172	
Queue Length 95th (ft)		#188			133		m3	10		4	289	
Internal Link Dist (ft)		1770			293			1609			543	
Turn Bay Length (ft)							200			150		
Base Capacity (vph)		245			326		443	1247		518	1264	
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		0.68			0.41		0.34	0.51		0.01	0.55	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 11 (11%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay (s/veh): 15.5

Intersection LOS: B

Intersection Capacity Utilization 70.8%

ICU Level of Service C

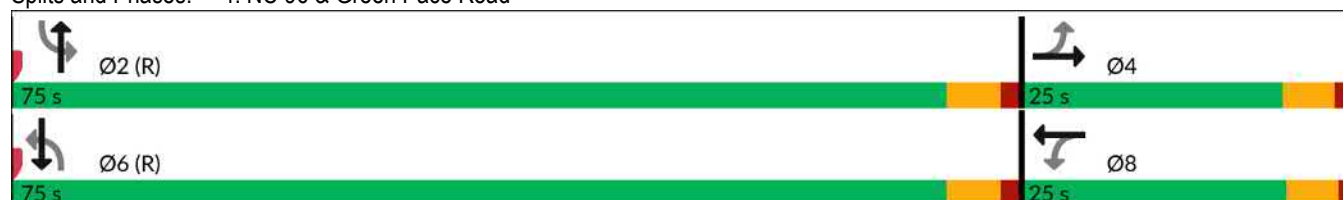
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 4: NC 96 & Green Pace Road



Zebulon Grocery
5: NC 96 & Pearces Road

Existing (2025) AM
02/10/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	413	46	690	228	45	589
Future Volume (vph)	413	46	690	228	45	589
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	1%		0%			1%
Storage Length (ft)	100	0		0	175	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				50	
Satd. Flow (prot)	1744	1545	1727	1482	1727	1750
Flt Permitted	0.950				0.249	
Satd. Flow (perm)	1744	1545	1727	1482	453	1750
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	35		35			35
Link Distance (ft)	661		1137			1689
Travel Time (s)	12.9		22.1			32.9
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	4%	10%	9%	4%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	430	48	719	238	47	614
Turn Type	Prot	Prot	NA	pm+ov	Perm	NA
Protected Phases	4	4	6	4		2
Permitted Phases				6	2	
Detector Phase	4	4	6	4	2	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	10.0	7.0	10.0	10.0
Minimum Split (s)	15.0	15.0	17.0	15.0	18.0	18.0
Total Split (s)	43.0	43.0	57.0	43.0	57.0	57.0
Total Split (%)	43.0%	43.0%	57.0%	43.0%	57.0%	57.0%
Yellow Time (s)	3.0	3.0	3.8	3.0	3.8	3.8
All-Red Time (s)	3.3	3.3	1.8	3.3	2.3	2.3
Lost Time Adjust (s)	-1.3	-1.3	-0.6	-1.3	-1.1	-1.1
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	None	C-Max	C-Max
Act Effect Green (s)	30.3	30.3	59.7	100.0	59.7	59.7
Actuated g/C Ratio	0.30	0.30	0.60	1.00	0.60	0.60
v/c Ratio	0.81	0.10	0.70	0.16	0.17	0.59
Control Delay (s/veh)	44.4	23.1	17.3	0.2	14.0	19.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	44.4	23.1	17.3	0.2	14.0	19.1



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
LOS	D	C	B	A	B	B
Approach Delay (s/veh)	42.3		13.0			18.7
Approach LOS	D		B			B
Queue Length 50th (ft)	251	22	245	0	17	285
Queue Length 95th (ft)	331	43	m519	m0	m39	483
Internal Link Dist (ft)	581		1057			1609
Turn Bay Length (ft)	100				175	
Base Capacity (vph)	662	587	1030	1478	270	1044
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	0.65	0.08	0.70	0.16	0.17	0.59

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 74 (74%), Referenced to phase 2:SBTL and 6:NBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay (s/veh): 21.5

Intersection LOS: C

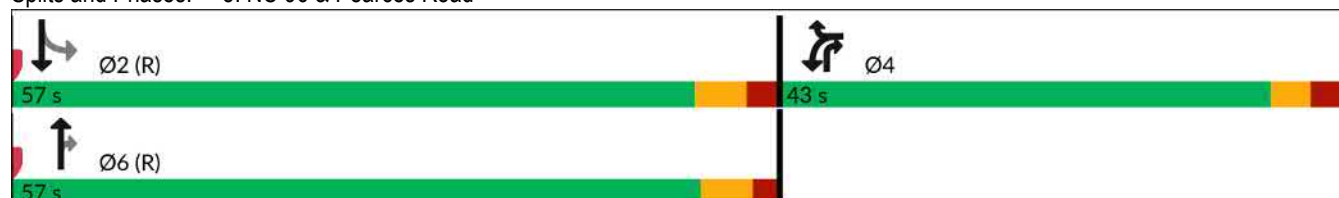
Intersection Capacity Utilization 68.6%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 5: NC 96 & Pearces Road



Zebulon Grocery
6: NC 96 & US 64-264 WB Ramps/Dogwood Drive

Existing (2025) AM

02/10/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	325	6	136	5	4	4	173	638	25	13	656	348
Future Volume (vph)	325	6	136	5	4	4	173	638	25	13	656	348
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			-4%			1%	
Storage Length (ft)	0		0	0		0	425		0	125		650
Storage Lanes	0		0	0		0	1		0	1		1
Taper Length (ft)	25			25			200			100		
Satd. Flow (prot)	0	1663	0	0	1601	0	1770	3359	0	1663	3224	0
Flt Permitted		0.785			0.890		0.142			0.349		
Satd. Flow (perm)	0	1351	0	0	1452	0	265	3359	0	611	3224	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		172			528			1048			1137	
Travel Time (s)		4.7			10.3			20.4			22.1	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	2%	4%	2%	2%	33%	4%	9%	8%	8%	7%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	497	0	0	13	0	184	706	0	14	1068	0
Turn Type	Perm	NA		Perm	NA		D.P+P	NA		D.Pm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		5	2		2	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	10.0		10.0	10.0	
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	17.0		17.0	17.0	
Total Split (s)	35.0	35.0		35.0	35.0		20.0	65.0		65.0	45.0	
Total Split (%)	35.0%	35.0%		35.0%	35.0%		20.0%	65.0%		65.0%	45.0%	
Yellow Time (s)	3.7	3.7		3.8	3.8		3.0	4.1		4.1	4.1	
All-Red Time (s)	1.7	1.7		1.6	1.6		2.4	1.3		1.3	1.3	
Lost Time Adjust (s)		-0.4			-0.4		-0.4	-0.4		-0.4	-0.4	
Total Lost Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Recall Mode	None	None		None	None		None	C-Max		C-Max	C-Max	
Act Effect Green (s)		30.0			30.0		55.0	60.0		60.0	43.7	
Actuated g/C Ratio		0.30			0.30		0.55	0.60		0.60	0.44	
v/c Ratio		1.23			0.03		0.58	0.35		0.04	0.76	
Control Delay (s/veh)		154.9			25.2		13.2	5.5		6.5	23.7	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)		154.9			25.2		13.2	5.5		6.5	23.7	

Zebulon Grocery
6: NC 96 & US 64-264 WB Ramps/Dogwood Drive

Existing (2025) AM

02/10/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		F			C		B	A		A	C	
Approach Delay (s/veh)		154.9			25.2			7.1			23.5	
Approach LOS		F			C			A			C	
Queue Length 50th (ft)		~393			6		42	138		2	257	
Queue Length 95th (ft)		#590			20		m46	28		m5	377	
Internal Link Dist (ft)		92			448			968			1057	
Turn Bay Length (ft)							425			125		
Base Capacity (vph)		405			435		379	2015		366	1407	
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		1.23			0.03		0.49	0.35		0.04	0.76	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 86 (86%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.23

Intersection Signal Delay (s/veh): 43.9

Intersection LOS: D

Intersection Capacity Utilization 84.7%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

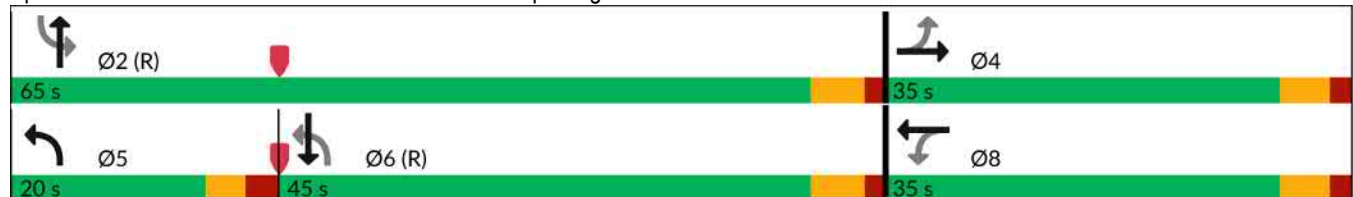
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 6: NC 96 & US 64-264 WB Ramps/Dogwood Drive



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	237	4	322	0	0	0	0	615	104	256	500	0
Future Volume (vph)	237	4	322	0	0	0	0	615	104	256	500	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		2%			0%			3%			-1%	
Storage Length (ft)	0		150	0		0	0		0	375		0
Storage Lanes	0		1	0		0	0		0	1		0
Taper Length (ft)	25			25			25			150		
Satd. Flow (prot)	0	1610	1508	0	0	0	0	3255	0	1680	3489	0
Flt Permitted		0.953								0.257		
Satd. Flow (perm)	0	1610	1508	0	0	0	0	3255	0	454	3489	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		677			713			666			1048	
Travel Time (s)		10.3			10.8			13.0			20.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	100%	6%	2%	2%	2%	2%	7%	6%	8%	4%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	270	362	0	0	0	0	808	0	288	562	0
Turn Type	Split	NA	Prot					NA		D.P+P	NA	
Protected Phases	4	4	4					2		1	6	
Permitted Phases										2		
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					33.0		14.0	17.0	
Total Split (s)	31.0	31.0	31.0					44.0		25.0	69.0	
Total Split (%)	31.0%	31.0%	31.0%					44.0%		25.0%	69.0%	
Yellow Time (s)	3.7	3.7	3.7					3.9		3.0	3.9	
All-Red Time (s)	1.9	1.9	1.9					1.9		2.8	1.9	
Lost Time Adjust (s)		-0.6	-0.6					-0.8		-0.8	-0.8	
Total Lost Time (s)		5.0	5.0					5.0		5.0	5.0	
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Recall Mode	None	None	None					C-Max		None	C-Max	
Act Effect Green (s)		25.4	25.4					45.7		59.6	64.6	
Actuated g/C Ratio		0.25	0.25					0.46		0.60	0.65	
v/c Ratio		0.66	0.95					0.54		0.65	0.25	
Control Delay (s/veh)		42.1	72.0					22.4		8.9	3.3	
Queue Delay		0.0	0.0					0.0		0.0	0.0	
Total Delay (s/veh)		42.1	72.0					22.4		8.9	3.3	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		D	E					C		A	A	
Approach Delay (s/veh)		59.3						22.4			5.2	
Approach LOS		E						C			A	
Queue Length 50th (ft)		153	225					188		55	54	
Queue Length 95th (ft)		238	#392					277		m34	m22	
Internal Link Dist (ft)		597			633			586			968	
Turn Bay Length (ft)			150							375		
Base Capacity (vph)		418	392					1486		532	2253	
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		0.65	0.92					0.54		0.54	0.25	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 39 (39%), Referenced to phase 2:NBSB and 6:SBT, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay (s/veh): 26.2

Intersection LOS: C

Intersection Capacity Utilization 60.3%

ICU Level of Service B

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 7: NC 96 & US 64-264 EB Off Ramp/US 64-264 EB On Ramp



Zebulon Grocery
8: Green Pace Road & Proctor Street

Existing (2025) AM
02/10/2025

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	85	4	159	109	4	38
Future Volume (vph)	85	4	159	109	4	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			25		25	
Satd. Flow (prot)	1801	0	0	1787	1585	0
Flt Permitted				0.971	0.995	
Satd. Flow (perm)	1801	0	0	1787	1585	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	563			141	373	
Travel Time (s)	11.0			2.7	7.3	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	2%	2%	5%	2%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	92	0	0	276	43	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	31.2%			ICU Level of Service A		
Analysis Period (min)	15					

Zebulon Grocery
8: Green Pace Road & Proctor Street

Existing (2025) AM
02/10/2025

Intersection						
Int Delay, s/veh	4.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	85	4	159	109	4	38
Future Vol, veh/h	85	4	159	109	4	38
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	97	97	97	97	97	97
Heavy Vehicles, %	5	2	2	5	2	5
Mvmt Flow	88	4	164	112	4	39

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	92	0	530	90
Stage 1	-	-	-	-	90	-
Stage 2	-	-	-	-	440	-
Critical Hdwy	-	-	4.12	-	6.42	6.25
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.345
Pot Cap-1 Maneuver	-	-	1503	-	510	960
Stage 1	-	-	-	-	934	-
Stage 2	-	-	-	-	649	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1503	-	451	960
Mov Cap-2 Maneuver	-	-	-	-	451	-
Stage 1	-	-	-	-	934	-
Stage 2	-	-	-	-	574	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	4.6	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	867	-	-	1503	-
HCM Lane V/C Ratio	0.05	-	-	0.109	-
HCM Control Delay (s/veh)	9.4	-	-	7.7	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q (veh)	0.2	-	-	0.4	-

Zebulon Grocery
9: Proctor Street & Watsonia Drive

Existing (2025) AM
02/10/2025



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	11	147	201	18	46	16
Future Volume (vph)	11	147	201	18	46	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	1776	1748	0	1686	0
Flt Permitted		0.996			0.964	
Satd. Flow (perm)	0	1776	1748	0	1686	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		141	1212		1127	
Travel Time (s)		2.7	23.6		30.7	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	27%	5%	8%	2%	2%	13%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	168	233	0	66	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 27.0% ICU Level of Service A

Analysis Period (min) 15

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	147	201	18	46	16
Future Vol, veh/h	11	147	201	18	46	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	94	94	94	94	94	94
Heavy Vehicles, %	27	5	8	2	2	13
Mvmt Flow	12	156	214	19	49	17
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	233	0	-	0	404	224
Stage 1	-	-	-	-	224	-
Stage 2	-	-	-	-	180	-
Critical Hdwy	4.37	-	-	-	6.42	6.33
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.443	-	-	-	3.518	3.417
Pot Cap-1 Maneuver	1201	-	-	-	603	789
Stage 1	-	-	-	-	813	-
Stage 2	-	-	-	-	851	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1201	-	-	-	596	789
Mov Cap-2 Maneuver	-	-	-	-	596	-
Stage 1	-	-	-	-	804	-
Stage 2	-	-	-	-	851	-
Approach	EB	WB		SB		
HCM Control Delay, s/v	0.6	0		11.3		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1201	-	-	-	636	
HCM Lane V/C Ratio	0.01	-	-	-	0.104	
HCM Control Delay (s/veh)	8	0	-	-	11.3	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q (veh)	0	-	-	-	0.3	

Zebulon Grocery
10: Pearces Road & Proctor Street

Existing (2025) AM
02/10/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	158	18	141	144	22	7	108	100	46	276	62
Future Volume (vph)	13	158	18	141	144	22	7	108	100	46	276	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1775	0	0	1739	0	0	1648	0	0	1791	0
Flt Permitted		0.997			0.978			0.998			0.994	
Satd. Flow (perm)	0	1775	0	0	1739	0	0	1648	0	0	1791	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1212			660			626			577	
Travel Time (s)		23.6			12.9			12.2			11.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	6%	2%	2%	10%	2%	14%	10%	5%	4%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	206	0	0	334	0	0	234	0	0	417	0
Sign Control		Stop			Stop			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	73.2%											
Analysis Period (min)	15											
	ICU Level of Service D											

Zebulon Grocery
10: Pearces Road & Proctor Street

Existing (2025) AM
02/10/2025

Intersection	
Intersection Delay, s/veh	19.5
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	158	18	141	144	22	7	108	100	46	276	62
Future Vol, veh/h	13	158	18	141	144	22	7	108	100	46	276	62
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	6	2	2	10	2	14	10	5	4	3	3
Mvmt Flow	14	172	20	153	157	24	8	117	109	50	300	67
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	14.4	19.7	14.8	24.5
HCM LOS	B	C	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	7%	46%	12%
Vol Thru, %	50%	84%	47%	72%
Vol Right, %	47%	10%	7%	16%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	215	189	307	384
LT Vol	7	13	141	46
Through Vol	108	158	144	276
RT Vol	100	18	22	62
Lane Flow Rate	234	205	334	417
Geometry Grp	1	1	1	1
Degree of Util (X)	0.433	0.392	0.613	0.728
Departure Headway (Hd)	6.673	6.863	6.61	6.277
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	535	520	544	572
Service Time	4.762	4.954	4.686	4.349
HCM Lane V/C Ratio	0.437	0.394	0.614	0.729
HCM Control Delay, s/veh	14.8	14.4	19.7	24.5
HCM Lane LOS	B	B	C	C
HCM 95th-tile Q	2.2	1.8	4.1	6.1

Zebulon Grocery
25: US 64-264 WB Ramps

Existing (2025) AM
02/10/2025

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	525	0	467
Future Volume (vph)	0	0	0	525	0	467
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			3%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		0	1
Taper Length (ft)			25		25	
Satd. Flow (prot)	0	0	0	1835	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	0	1835	0	1611
Link Speed (mph)	45			45	25	
Link Distance (ft)	412			172	567	
Travel Time (s)	6.2			2.6	15.5	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	571	0	508
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	32.2%			ICU Level of Service A		
Analysis Period (min)	15					

Zebulon Grocery
1: NC 96 & Pippin Road

Existing (2025) PM
02/10/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	97	22	546	132	55	597
Future Volume (vph)	97	22	546	132	55	597
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	2%		0%			0%
Storage Length (ft)	0	0		175	175	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25				100	
Satd. Flow (prot)	1728	0	1792	1583	1770	1792
Flt Permitted	0.961				0.298	
Satd. Flow (perm)	1728	0	1792	1583	555	1792
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	35		45			45
Link Distance (ft)	1396		1396			934
Travel Time (s)	27.2		21.2			14.2
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	6%	2%	2%	6%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	124	0	569	138	57	622
Turn Type	Prot		NA	pm+ov	D.P+P	NA
Protected Phases	8		2	8	1	6
Permitted Phases				2	2	
Detector Phase	8		2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0		12.0	7.0	7.0	12.0
Minimum Split (s)	14.0		19.0	14.0	13.0	19.0
Total Split (s)	30.0		90.0	30.0	20.0	110.0
Total Split (%)	21.4%		64.3%	21.4%	14.3%	78.6%
Yellow Time (s)	3.0		4.5	3.0	3.0	4.5
All-Red Time (s)	2.4		1.0	2.4	1.6	1.0
Lost Time Adjust (s)	-0.4		-0.5	-0.4	0.4	-0.5
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		Min	None	None	Min
Act Effect Green (s)	9.9		24.4	42.6	27.7	30.2
Actuated g/C Ratio	0.19		0.48	0.84	0.54	0.59
v/c Ratio	0.37		0.66	0.10	0.12	0.59
Control Delay (s/veh)	25.2		16.1	2.4	4.7	8.6
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	25.2		16.1	2.4	4.7	8.6

Zebulon Grocery
1: NC 96 & Pippin Road

Existing (2025) PM
02/10/2025



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
LOS	C		B	A	A	A
Approach Delay (s/veh)	25.2		13.4			8.3
Approach LOS	C		B			A
Queue Length 50th (ft)	36		144	11	5	87
Queue Length 95th (ft)	93		271	22	17	188
Internal Link Dist (ft)	1316		1316			854
Turn Bay Length (ft)				175	175	
Base Capacity (vph)	917		1792	1542	715	1792
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	0.14		0.32	0.09	0.08	0.35

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 51

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay (s/veh): 12.1

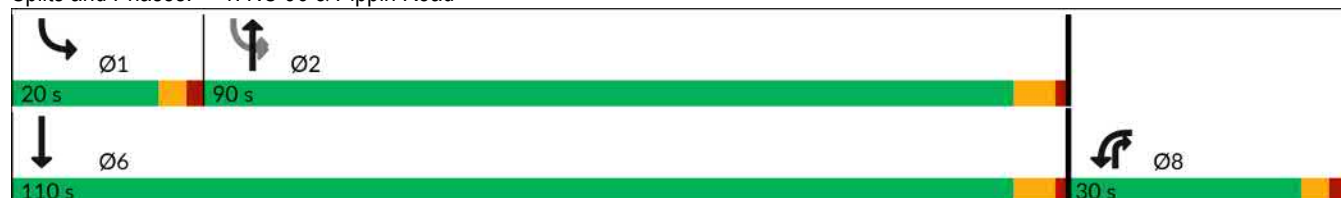
Intersection LOS: B

Intersection Capacity Utilization 53.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: NC 96 & Pippin Road



Zebulon Grocery
2: NC 96 & Rose Mallow Drive

Existing (2025) PM
02/10/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	21	6	689	32	10	681
Future Volume (vph)	21	6	689	32	10	681
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	125	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				100	
Satd. Flow (prot)	1701	0	1801	0	1770	1810
Flt Permitted	0.962				0.950	
Satd. Flow (perm)	1701	0	1801	0	1770	1810
Link Speed (mph)	25		45			45
Link Distance (ft)	881		1406			1396
Travel Time (s)	24.0		21.3			21.2
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	2%	5%	2%	2%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	28	0	759	0	11	717
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	48.2%			ICU Level of Service A		
Analysis Period (min)	15					

Zebulon Grocery
2: NC 96 & Rose Mallow Drive

Existing (2025) PM
02/10/2025

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	21	6	689	32	10	681
Future Vol, veh/h	21	6	689	32	10	681
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	-	-	-	125	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	5	2	5	2	2	5
Mvmt Flow	22	6	725	34	11	717
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1481	742	0	0	759	0
Stage 1	742	-	-	-	-	-
Stage 2	739	-	-	-	-	-
Critical Hdwy	6.45	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	136	416	-	-	852	-
Stage 1	465	-	-	-	-	-
Stage 2	467	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	134	416	-	-	852	-
Mov Cap-2 Maneuver	134	-	-	-	-	-
Stage 1	465	-	-	-	-	-
Stage 2	461	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s/v	32.7	0		0.1		
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	- 158		852	-	
HCM Lane V/C Ratio	-	- 0.18		0.012	-	
HCM Control Delay (s/veh)	-	- 32.7		9.3	-	
HCM Lane LOS	-	- D		A	-	
HCM 95th %tile Q (veh)	-	- 0.6		0	-	

Zebulon Grocery
3: NC 96 & Riley Hill Road/Proctor Street

Existing (2025) PM
02/10/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	30	74	4	14	46	40	671	4	67	630	11
Future Volume (vph)	8	30	74	4	14	46	40	671	4	67	630	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%				0%				0%		0%	
Storage Length (ft)	0		0	0		0	150		0	150		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			100			100		
Satd. Flow (prot)	0	1675	0	0	1677	0	1752	1808	0	1736	1790	0
Flt Permitted		0.997			0.997		0.950			0.950		
Satd. Flow (perm)	0	1675	0	0	1677	0	1752	1808	0	1736	1790	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1315			563			623			1406	
Travel Time (s)		25.6			11.0			12.1			27.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	3%	3%	2%	2%	2%	3%	5%	2%	4%	6%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	116	0	0	67	0	42	703	0	70	667	0
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	58.0%				ICU Level of Service B							
Analysis Period (min)	15											

Zebulon Grocery
3: NC 96 & Riley Hill Road/Proctor Street

Existing (2025) PM
02/10/2025

Intersection												
Int Delay, s/veh	5.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	30	74	4	14	46	40	671	4	67	630	11
Future Vol, veh/h	8	30	74	4	14	46	40	671	4	67	630	11
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	-	-	-	-	-	-	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	3	3	2	2	2	3	5	2	4	6	2
Mvmt Flow	8	31	77	4	15	48	42	699	4	70	656	11

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1619	1589	662	1641	1592	701	667	0	0	703	0	0
Stage 1	802	802	-	785	785	-	-	-	-	-	-	-
Stage 2	817	787	-	856	807	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.53	6.23	7.12	6.52	6.22	4.13	-	-	4.14	-	-
Critical Hdwy Stg 1	6.12	5.53	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.53	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.027	3.327	3.518	4.018	3.318	2.227	-	-	2.236	-	-
Pot Cap-1 Maneuver	83	107	460	80	107	439	918	-	-	885	-	-
Stage 1	378	395	-	386	404	-	-	-	-	-	-	-
Stage 2	370	401	-	352	394	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	59	94	460	45	94	439	918	-	-	885	-	-
Mov Cap-2 Maneuver	59	94	-	45	94	-	-	-	-	-	-	-
Stage 1	361	364	-	368	385	-	-	-	-	-	-	-
Stage 2	303	383	-	247	363	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s/v	54.6		34.6		0.5		0.9	
HCM LOS	F		D					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	918	-	-	182	187	885	-
HCM Lane V/C Ratio	0.045	-	-	0.641	0.357	0.079	-
HCM Control Delay (s/veh)	9.1	-	-	54.6	34.6	9.4	-
HCM Lane LOS	A	-	-	F	D	A	-
HCM 95th %tile Q (veh)	0.1	-	-	3.7	1.5	0.3	-

Zebulon Grocery
4: NC 96 & Green Pace Road

Existing (2025) PM

02/10/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	94	87	72	7	31	4	95	608	28	15	605	87
Future Volume (vph)	94	87	72	7	31	4	95	608	28	15	605	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		1%			-1%			2%			-2%	
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			50			100		
Satd. Flow (prot)	0	1701	0	0	1782	0	1752	1796	0	1787	1782	0
Flt Permitted		0.859			0.951		0.302			0.335		
Satd. Flow (perm)	0	1488	0	0	1709	0	557	1796	0	630	1782	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1850			373			1689			623	
Travel Time (s)		36.0			7.3			32.9			12.1	
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	2%	6%	2%	6%	2%	2%	4%	2%	2%	5%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	267	0	0	44	0	100	669	0	16	729	0
Turn Type	Perm	NA		Perm	NA		D.Pm	NA		D.Pm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	2		2	6	
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)	30.0	30.0		30.0	30.0		80.0	80.0		80.0	80.0	
Total Split (%)	27.3%	27.3%		27.3%	27.3%		72.7%	72.7%		72.7%	72.7%	
Yellow Time (s)	3.8	3.8		3.9	3.9		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.5	1.5		1.2	1.2		1.3	1.3		1.3	1.3	
Lost Time Adjust (s)		-0.3			-0.1		-0.3	-0.3		-0.3	-0.3	
Total Lost Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effect Green (s)		22.6			22.6		77.4	77.4		77.4	77.4	
Actuated g/C Ratio		0.21			0.21		0.70	0.70		0.70	0.70	
v/c Ratio		0.88			0.13		0.26	0.53		0.04	0.58	
Control Delay (s/veh)		70.0			35.2		11.5	12.0		6.0	11.0	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)		70.0			35.2		11.5	12.0		6.0	11.0	

Zebulon Grocery
4: NC 96 & Green Pace Road

Existing (2025) PM
02/10/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		E			D		B	B		A	B	
Approach Delay (s/veh)		70.0			35.2			11.9			10.9	
Approach LOS		E			D			B			B	
Queue Length 50th (ft)		178			25		25	169		3	249	
Queue Length 95th (ft)		#309			55		48	226		11	355	
Internal Link Dist (ft)		1770			293			1609			543	
Turn Bay Length (ft)							200			150		
Base Capacity (vph)		338			388		391	1263		443	1254	
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		0.79			0.11		0.26	0.53		0.04	0.58	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 55 (50%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay (s/veh): 20.6

Intersection LOS: C

Intersection Capacity Utilization 78.8%

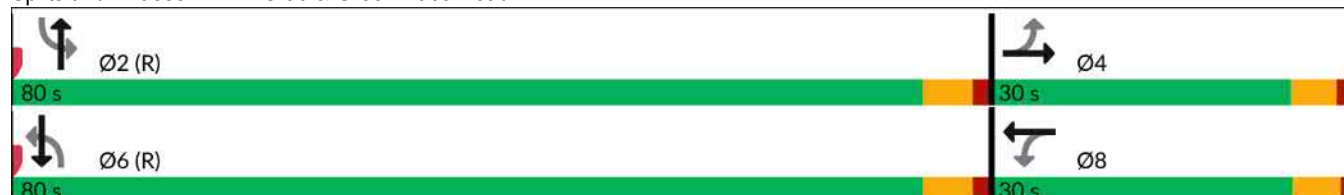
ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 4: NC 96 & Green Pace Road



Zebulon Grocery
5: NC 96 & Pearces Road

Existing (2025) PM
02/10/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	278	30	687	415	54	683
Future Volume (vph)	278	30	687	415	54	683
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	1%		0%			1%
Storage Length (ft)	100	0		0	175	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				50	
Satd. Flow (prot)	1727	1575	1827	1568	1761	1800
Flt Permitted	0.950				0.311	
Satd. Flow (perm)	1727	1575	1827	1568	576	1800
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	35		35			35
Link Distance (ft)	661		1137			1689
Travel Time (s)	12.9		22.1			32.9
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	2%	4%	3%	2%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	284	31	701	423	55	697
Turn Type	Prot	Prot	NA	pm+ov	Perm	NA
Protected Phases	4	4	6	4		2
Permitted Phases				6	2	
Detector Phase	4	4	6	4	2	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	10.0	7.0	10.0	10.0
Minimum Split (s)	15.0	15.0	17.0	15.0	18.0	18.0
Total Split (s)	40.0	40.0	70.0	40.0	70.0	70.0
Total Split (%)	36.4%	36.4%	63.6%	36.4%	63.6%	63.6%
Yellow Time (s)	3.0	3.0	3.8	3.0	3.8	3.8
All-Red Time (s)	3.3	3.3	1.8	3.3	2.3	2.3
Lost Time Adjust (s)	-1.3	-1.3	-0.6	-1.3	-1.1	-1.1
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	None	C-Max	C-Max
Act Effect Green (s)	24.0	24.0	76.0	110.0	76.0	76.0
Actuated g/C Ratio	0.22	0.22	0.69	1.00	0.69	0.69
v/c Ratio	0.75	0.09	0.56	0.27	0.14	0.56
Control Delay (s/veh)	52.4	32.0	7.9	0.4	9.0	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	52.4	32.0	7.9	0.4	9.0	11.0



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
LOS	D	C	A	A	A	B
Approach Delay (s/veh)	50.4		5.1			10.8
Approach LOS	D		A			B
Queue Length 50th (ft)	189	18	184	0	11	187
Queue Length 95th (ft)	258	39	m217	m0	m31	337
Internal Link Dist (ft)	581		1057			1609
Turn Bay Length (ft)	100				175	
Base Capacity (vph)	549	501	1261	1561	397	1242
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	0.52	0.06	0.56	0.27	0.14	0.56

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 50 (45%), Referenced to phase 2:SBTL and 6:NBT, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay (s/veh): 13.6

Intersection LOS: B

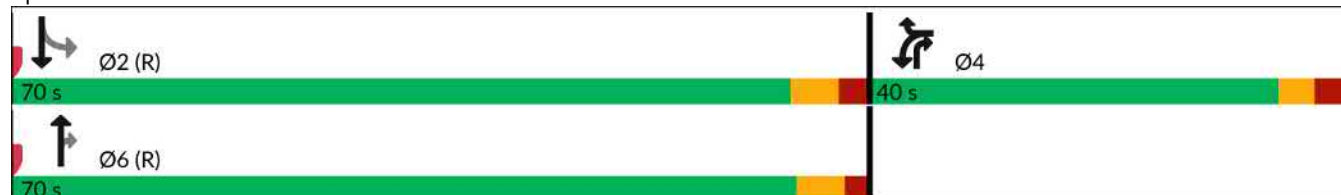
Intersection Capacity Utilization 68.6%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 5: NC 96 & Pearces Road



Zebulon Grocery
6: NC 96 & US 64-264 WB Ramps/Dogwood Drive

Existing (2025) PM

02/10/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	312	4	97	16	16	12	175	805	8	10	765	264
Future Volume (vph)	312	4	97	16	16	12	175	805	8	10	765	264
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			-4%			1%	
Storage Length (ft)	0		0	0		0	425		0	125		650
Storage Lanes	0		0	0		0	1		0	1		1
Taper Length (ft)	25			25			200			100		
Satd. Flow (prot)	0	1713	0	0	1762	0	1770	3572	0	1761	3314	0
Flt Permitted		0.748			0.848		0.122			0.279		
Satd. Flow (perm)	0	1329	0	0	1521	0	227	3572	0	517	3314	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		172			528			1048			1137	
Travel Time (s)		4.7			10.3			20.4			22.1	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%	4%	3%	2%	2%	4%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	430	0	0	47	0	182	847	0	10	1072	0
Turn Type	Perm	NA		Perm	NA		D.P+P	NA		D.Pm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		5	2		2	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	10.0		10.0	10.0	
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	17.0		17.0	17.0	
Total Split (s)	42.0	42.0		42.0	42.0		25.0	68.0		68.0	43.0	
Total Split (%)	38.2%	38.2%		38.2%	38.2%		22.7%	61.8%		61.8%	39.1%	
Yellow Time (s)	3.7	3.7		3.8	3.8		3.0	4.1		4.1	4.1	
All-Red Time (s)	1.7	1.7		1.6	1.6		2.4	1.3		1.3	1.3	
Lost Time Adjust (s)		-0.4			-0.4		-0.4	-0.4		-0.4	-0.4	
Total Lost Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Recall Mode	None	None		None	None		None	C-Max		C-Max	C-Max	
Act Effect Green (s)		36.7			36.7		58.3	63.3		63.3	45.2	
Actuated g/C Ratio		0.33			0.33		0.53	0.58		0.58	0.41	
v/c Ratio		0.97			0.09		0.60	0.41		0.03	0.79	
Control Delay (s/veh)		73.3			25.8		30.3	15.5		10.4	34.5	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)		73.3			25.8		30.3	15.5		10.4	34.5	

Zebulon Grocery
6: NC 96 & US 64-264 WB Ramps/Dogwood Drive

Existing (2025) PM
02/10/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		E			C		C	B		B	C	
Approach Delay (s/veh)		73.3			25.8			18.1			34.3	
Approach LOS		E			C			B			C	
Queue Length 50th (ft)		296			23		93	168		3	289	
Queue Length 95th (ft)		#500			50		m158	291		m5	#503	
Internal Link Dist (ft)		92			448			968			1057	
Turn Bay Length (ft)							425			125		
Base Capacity (vph)		447			511		409	2055		297	1362	
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		0.96			0.09		0.44	0.41		0.03	0.79	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 97 (88%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay (s/veh): 34.2

Intersection LOS: C

Intersection Capacity Utilization 81.9%

ICU Level of Service D

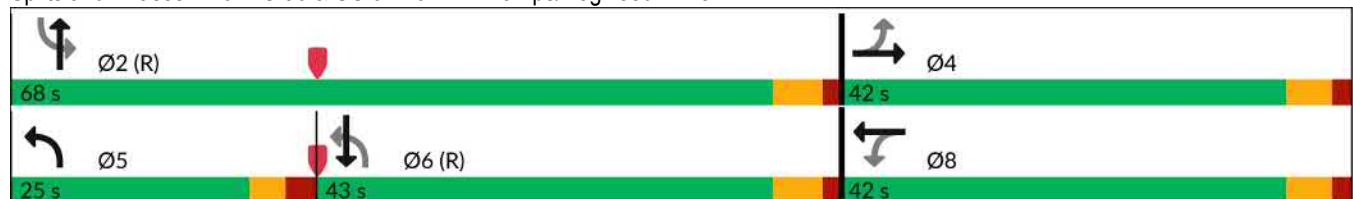
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 6: NC 96 & US 64-264 WB Ramps/Dogwood Drive



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	369	4	347	0	0	0	0	644	185	304	534	0
Future Volume (vph)	369	4	347	0	0	0	0	644	185	304	534	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		2%			0%			3%			-1%	
Storage Length (ft)	0		150	0		0	0		0	375		0
Storage Lanes	0		1	0		0	0		0	1		0
Taper Length (ft)	25			25			25			150		
Satd. Flow (prot)	0	1741	1537	0	0	0	0	3335	0	1728	3522	0
Flt Permitted		0.953								0.230		
Satd. Flow (perm)	0	1741	1537	0	0	0	0	3335	0	418	3522	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		677			713			666			1048	
Travel Time (s)		10.3			10.8			13.0			20.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	2%	4%	2%	2%	2%	2%	3%	3%	5%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	384	358	0	0	0	0	855	0	313	551	0
Turn Type	Split	NA	Prot					NA		D.P+P	NA	
Protected Phases	4	4	4					2		1	6	
Permitted Phases										2		
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					33.0		14.0	17.0	
Total Split (s)	38.0	38.0	38.0					46.0		26.0	72.0	
Total Split (%)	34.5%	34.5%	34.5%					41.8%		23.6%	65.5%	
Yellow Time (s)	3.7	3.7	3.7					3.9		3.0	3.9	
All-Red Time (s)	1.9	1.9	1.9					1.9		2.8	1.9	
Lost Time Adjust (s)		-0.6	-0.6					-0.8		-0.8	-0.8	
Total Lost Time (s)		5.0	5.0					5.0		5.0	5.0	
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Recall Mode	None	None	None					C-Max		None	C-Max	
Act Effect Green (s)		29.1	29.1					49.5		65.9	70.9	
Actuated g/C Ratio		0.26	0.26					0.45		0.60	0.64	
v/c Ratio		0.83	0.88					0.57		0.70	0.24	
Control Delay (s/veh)		54.0	61.4					26.0		35.6	9.5	
Queue Delay		0.0	0.0					0.0		0.0	0.0	
Total Delay (s/veh)		54.0	61.4					26.0		35.6	9.5	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		D	E					C		D	A	
Approach Delay (s/veh)		57.6						26.0			18.9	
Approach LOS		E						C			B	
Queue Length 50th (ft)		250	236					241		146	54	
Queue Length 95th (ft)		357	#370					336		m228	m119	
Internal Link Dist (ft)		597			633			586			968	
Turn Bay Length (ft)			150							375		
Base Capacity (vph)		522	461					1502		511	2268	
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		0.74	0.78					0.57		0.61	0.24	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 99 (90%), Referenced to phase 2:NBSB and 6:SBT, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay (s/veh): 33.0

Intersection LOS: C

Intersection Capacity Utilization 73.7%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 7: NC 96 & US 64-264 EB Off Ramp/US 64-264 EB On Ramp



Zebulon Grocery
8: Green Pace Road & Proctor Street

Existing (2025) PM
02/10/2025

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	100	4	41	60	4	128
Future Volume (vph)	100	4	41	60	4	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			25		25	
Satd. Flow (prot)	1817	0	0	1804	1615	0
Flt Permitted				0.980	0.998	
Satd. Flow (perm)	1817	0	0	1804	1615	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	563			141	373	
Travel Time (s)	11.0			2.7	7.3	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	2%	5%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	121	0	0	118	154	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	26.9%			ICU Level of Service A		
Analysis Period (min)	15					

Zebulon Grocery
8: Green Pace Road & Proctor Street

Existing (2025) PM
02/10/2025

Intersection						
Int Delay, s/veh	4.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	100	4	41	60	4	128
Future Vol, veh/h	100	4	41	60	4	128
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	86	86	86	86	86	86
Heavy Vehicles, %	4	2	5	2	2	2
Mvmt Flow	116	5	48	70	5	149
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	121	0	285	119
Stage 1	-	-	-	-	119	-
Stage 2	-	-	-	-	166	-
Critical Hdwy	-	-	4.15	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.245	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1448	-	705	933
Stage 1	-	-	-	-	906	-
Stage 2	-	-	-	-	863	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1448	-	681	933
Mov Cap-2 Maneuver	-	-	-	-	681	-
Stage 1	-	-	-	-	906	-
Stage 2	-	-	-	-	834	-
Approach	EB		WB		NB	
HCM Control Delay, s/v	0		3.1		9.7	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	923	-	-	1448	-	
HCM Lane V/C Ratio	0.166	-	-	0.033	-	
HCM Control Delay (s/veh)	9.7	-	-	7.6	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q (veh)	0.6	-	-	0.1	-	

Zebulon Grocery
9: Proctor Street & Watsonia Drive

Existing (2025) PM
02/10/2025



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	27	201	93	17	19	8
Future Volume (vph)	27	201	93	17	19	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	1852	1810	0	1726	0
Flt Permitted		0.994			0.966	
Satd. Flow (perm)	0	1852	1810	0	1726	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		141	1212		1127	
Travel Time (s)		2.7	23.6		30.7	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	275	132	0	33	0
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 28.7%				ICU Level of Service A		
Analysis Period (min) 15						

Zebulon Grocery
9: Proctor Street & Watsonia Drive

Existing (2025) PM
02/10/2025

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	27	201	93	17	19	8
Future Vol, veh/h	27	201	93	17	19	8
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	83	83	83	83	83	83
Heavy Vehicles, %	2	2	3	2	2	2
Mvmt Flow	33	242	112	20	23	10
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	132	0	-	0	430	122
Stage 1	-	-	-	-	122	-
Stage 2	-	-	-	-	308	-
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	1453	-	-	-	582	929
Stage 1	-	-	-	-	903	-
Stage 2	-	-	-	-	745	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1453	-	-	-	567	929
Mov Cap-2 Maneuver	-	-	-	-	567	-
Stage 1	-	-	-	-	880	-
Stage 2	-	-	-	-	745	-
Approach	EB	WB		SB		
HCM Control Delay, s/v	0.9	0		10.9		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1453	-	-	-	641	
HCM Lane V/C Ratio	0.022	-	-	-	0.051	
HCM Control Delay (s/veh)	7.5	0	-	-	10.9	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q (veh)	0.1	-	-	-	0.2	

Zebulon Grocery
10: Pearces Road & Proctor Street

Existing (2025) PM
02/10/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	127	21	78	65	24	23	324	68	22	171	34
Future Volume (vph)	59	127	21	78	65	24	23	324	68	22	171	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1805	0	0	1759	0	0	1787	0	0	1759	0
Flt Permitted		0.986			0.977			0.997			0.995	
Satd. Flow (perm)	0	1805	0	0	1759	0	0	1787	0	0	1759	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1212			660			626			577	
Travel Time (s)		23.6			12.9			12.2			11.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	5%	5%	2%	2%	4%	4%	2%	5%	4%	12%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	223	0	0	180	0	0	446	0	0	245	0
Sign Control		Stop			Stop			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	48.3%						ICU Level of Service A					
Analysis Period (min)	15											

Zebulon Grocery
10: Pearces Road & Proctor Street

Existing (2025) PM
02/10/2025

Intersection	
Intersection Delay, s/veh	16.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	59	127	21	78	65	24	23	324	68	22	171	34
Future Vol, veh/h	59	127	21	78	65	24	23	324	68	22	171	34
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	5	5	2	2	4	4	2	5	4	12
Mvmt Flow	63	137	23	84	70	26	25	348	73	24	184	37
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	13.6	12.8	21.6	13.4
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	6%	29%	47%	10%
Vol Thru, %	78%	61%	39%	75%
Vol Right, %	16%	10%	14%	15%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	415	207	167	227
LT Vol	23	59	78	22
Through Vol	324	127	65	171
RT Vol	68	21	24	34
Lane Flow Rate	446	223	180	244
Geometry Grp	1	1	1	1
Degree of Util (X)	0.711	0.396	0.328	0.414
Departure Headway (Hd)	5.737	6.404	6.574	6.1
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	634	561	546	588
Service Time	3.737	4.459	4.632	4.149
HCM Lane V/C Ratio	0.703	0.398	0.33	0.415
HCM Control Delay, s/veh	21.6	13.6	12.8	13.4
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	5.9	1.9	1.4	2

Zebulon Grocery
25: US 64-264 WB Ramps

Existing (2025) PM
02/10/2025

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	455	0	413
Future Volume (vph)	0	0	0	455	0	413
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			3%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		0	1
Taper Length (ft)			25		25	
Satd. Flow (prot)	0	0	0	1835	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	0	1835	0	1611
Link Speed (mph)	45			45	25	
Link Distance (ft)	412			172	567	
Travel Time (s)	6.2			2.6	15.5	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	495	0	449
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	28.9%			ICU Level of Service A		
Analysis Period (min)	15					

Appendix H:
Synchro Output: Background (2028)

Zebulon Grocery
1: NC 96 & Pippin Road

Background (2028) AM
02/17/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	251	80	592	136	56	704
Future Volume (vph)	251	80	592	136	56	704
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	2%		0%			0%
Storage Length (ft)	0	0		175	175	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25				100	
Satd. Flow (prot)	1719	0	1712	1538	1736	1759
Flt Permitted	0.964				0.184	
Satd. Flow (perm)	1719	0	1712	1538	336	1759
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	35		45		45	
Link Distance (ft)	1396		1396		934	
Travel Time (s)	27.2		21.2		14.2	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	11%	5%	4%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	338	0	604	139	57	718
Turn Type	Prot		NA	pm+ov	D.P+P	NA
Protected Phases	8		2	8	1	6
Permitted Phases				2	2	
Detector Phase	8		2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0		12.0	7.0	7.0	12.0
Minimum Split (s)	14.0		19.0	14.0	13.0	19.0
Total Split (s)	30.0		90.0	30.0	20.0	110.0
Total Split (%)	21.4%		64.3%	21.4%	14.3%	78.6%
Yellow Time (s)	3.0		4.5	3.0	3.0	4.5
All-Red Time (s)	2.4		1.0	2.4	1.6	1.0
Lost Time Adjust (s)	-0.4		-0.5	-0.4	0.4	-0.5
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		Min	None	None	Min
Act Effect Green (s)	25.6		32.0	64.1	37.0	40.8
Actuated g/C Ratio	0.33		0.42	0.84	0.48	0.53
v/c Ratio	0.59		0.84	0.11	0.20	0.77
Control Delay (s/veh)	29.4		32.6	2.0	9.4	19.7
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	29.4		32.6	2.0	9.4	19.7

Zebulon Grocery
1: NC 96 & Pippin Road

Background (2028) AM
02/17/2025



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
LOS	C		C	A	A	B
Approach Delay (s/veh)	29.4		26.8			18.9
Approach LOS	C		C			B
Queue Length 50th (ft)	138		264	11	12	245
Queue Length 95th (ft)	#276		397	20	27	369
Internal Link Dist (ft)	1316		1316			854
Turn Bay Length (ft)				175	175	
Base Capacity (vph)	574		1689	1286	459	1759
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	0.59		0.36	0.11	0.12	0.41

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 76.7

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay (s/veh): 24.0

Intersection LOS: C

Intersection Capacity Utilization 68.3%

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: NC 96 & Pippin Road



Zebulon Grocery
2: NC 96 & Rose Mallow Drive

Background (2028) AM
02/17/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	28	15	727	16	4	993
Future Volume (vph)	28	15	727	16	4	993
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	125	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				100	
Satd. Flow (prot)	1697	0	1708	0	1770	1792
Flt Permitted	0.969				0.950	
Satd. Flow (perm)	1697	0	1708	0	1770	1792
Link Speed (mph)	25		45			45
Link Distance (ft)	881		1406			1396
Travel Time (s)	24.0		21.3			21.2
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	2%	11%	7%	2%	6%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	45	0	782	0	4	1045
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	62.3%			ICU Level of Service B		
Analysis Period (min)	15					

Zebulon Grocery
2: NC 96 & Rose Mallow Drive

Background (2028) AM
02/17/2025

Intersection						
Int Delay, s/veh	1.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	28	15	727	16	4	993
Future Vol, veh/h	28	15	727	16	4	993
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	-	-	-	125	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	2	11	7	2	6
Mvmt Flow	29	16	765	17	4	1045

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1827	774	0	0	782
Stage 1	774	-	-	-	-
Stage 2	1053	-	-	-	-
Critical Hdwy	6.44	6.22	-	-	4.12
Critical Hdwy Stg 1	5.44	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-
Follow-up Hdwy	3.536	3.318	-	-	2.218
Pot Cap-1 Maneuver	83	398	-	-	836
Stage 1	451	-	-	-	-
Stage 2	333	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	83	398	-	-	836
Mov Cap-2 Maneuver	83	-	-	-	-
Stage 1	451	-	-	-	-
Stage 2	331	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	55.3	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	115	836
HCM Lane V/C Ratio	-	-	0.394	0.005
HCM Control Delay (s/veh)	-	-	55.3	9.3
HCM Lane LOS	-	-	F	A
HCM 95th %tile Q (veh)	-	-	1.6	0

Zebulon Grocery
3: NC 96 & Riley Hill Road/Proctor Street

Background (2028) AM

02/17/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	13	50	4	50	75	171	651	4	86	830	104
Future Volume (vph)	4	13	50	4	50	75	171	651	4	86	830	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	150		0	150		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			100			100		
Satd. Flow (prot)	0	1494	0	0	1676	0	1752	1726	0	1752	1755	0
Flt Permitted		0.997			0.999		0.950			0.950		
Satd. Flow (perm)	0	1494	0	0	1676	0	1752	1726	0	1752	1755	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1315			563			623			1406	
Travel Time (s)		25.6			11.0			12.1			27.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	33%	20%	11%	2%	2%	6%	3%	10%	2%	3%	7%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	71	0	0	137	0	182	697	0	91	994	0
Sign Control	Stop				Stop		Free				Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	78.0%					ICU Level of Service D						
Analysis Period (min)	15											

Intersection												
Int Delay, s/veh	53											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		+			+		+	+		+	+	
Traffic Vol, veh/h	4	13	50	4	50	75	171	651	4	86	830	104
Future Vol, veh/h	4	13	50	4	50	75	171	651	4	86	830	104
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	-	-	-	-	-	-	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	33	20	11	2	2	6	3	10	2	3	7	2
Mvmt Flow	4	14	53	4	53	80	182	693	4	91	883	111

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2247	2182	939	2213	2235	695	994	0	0	697	0	0
Stage 1	1121	1121	-	1059	1059	-	-	-	-	-	-	-
Stage 2	1126	1061	-	1154	1176	-	-	-	-	-	-	-
Critical Hdwy	7.43	6.7	6.31	7.12	6.52	6.26	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.43	5.7	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.43	5.7	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.797	4.18	3.399	3.518	4.018	3.354	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	24	41	308	31	~ 43	435	692	-	-	895	-	-
Stage 1	218	261	-	271	301	-	-	-	-	-	-	-
Stage 2	217	279	-	240	265	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	27	308	12	~ 28	435	692	-	-	895	-	-
Mov Cap-2 Maneuver	-	27	-	12	~ 28	-	-	-	-	-	-	-
Stage 1	161	234	-	200	222	-	-	-	-	-	-	-
Stage 2	99	206	-	168	238	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v		\$ 816.9	2.5	0.8
HCM LOS	-	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	692	-	-	- 56	895	-	-
HCM Lane V/C Ratio	0.263	-	-	- 2.451	0.102	-	-
HCM Control Delay (s/veh)	12	-	-	- \$ 816.9	9.5	-	-
HCM Lane LOS	B	-	-	- F	A	-	-
HCM 95th %tile Q (veh)	1.1	-	-	- 13.9	0.3	-	-

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

Zebulon Grocery
4: NC 96 & Green Pace Road

Background (2028) AM

02/17/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	39	75	13	100	19	174	696	19	4	749	149
Future Volume (vph)	68	39	75	13	100	19	174	696	19	4	749	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		1%			-1%			2%			-2%	
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			50			100		
Satd. Flow (prot)	0	1631	0	0	1679	0	1686	1690	0	1787	1717	0
Flt Permitted		0.717			0.961		0.190			0.288		
Satd. Flow (perm)	0	1191	0	0	1622	0	337	1690	0	542	1717	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1850			373			861			623	
Travel Time (s)		36.0			7.3			16.8			12.1	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	11%	6%	5%	2%	12%	11%	6%	11%	6%	2%	9%	9%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	198	0	0	144	0	189	778	0	4	976	0
Turn Type	Perm	NA		Perm	NA		D.Pm	NA		D.Pm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	2		2	6	
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)	26.0	26.0		26.0	26.0		84.0	84.0		84.0	84.0	
Total Split (%)	23.6%	23.6%		23.6%	23.6%		76.4%	76.4%		76.4%	76.4%	
Yellow Time (s)	3.8	3.8		3.9	3.9		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.5	1.5		1.2	1.2		1.3	1.3		1.3	1.3	
Lost Time Adjust (s)		-0.3			-0.1		-0.3	-0.3		-0.3	-0.3	
Total Lost Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effect Green (s)		20.0			20.0		80.0	80.0		80.0	80.0	
Actuated g/C Ratio		0.18			0.18		0.73	0.73		0.73	0.73	
v/c Ratio		0.92			0.49		0.77	0.63		0.01	0.78	
Control Delay (s/veh)		88.0			46.3		19.5	3.3		4.5	15.5	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)		88.0			46.3		19.5	3.3		4.5	15.5	

Zebulon Grocery
4: NC 96 & Green Pace Road

Background (2028) AM
02/17/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		F			D		B	A		A	B	
Approach Delay (s/veh)		88.0			46.3			6.5			15.5	
Approach LOS		F			D			A			B	
Queue Length 50th (ft)		137			91		14	56		1	394	
Queue Length 95th (ft)		#270			155		m#190	67		4	594	
Internal Link Dist (ft)		1770			293			781			543	
Turn Bay Length (ft)							200			150		
Base Capacity (vph)		227			309		245	1229		394	1249	
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		0.87			0.47		0.77	0.63		0.01	0.78	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 37 (34%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay (s/veh): 19.9

Intersection LOS: B

Intersection Capacity Utilization 87.7%

ICU Level of Service E

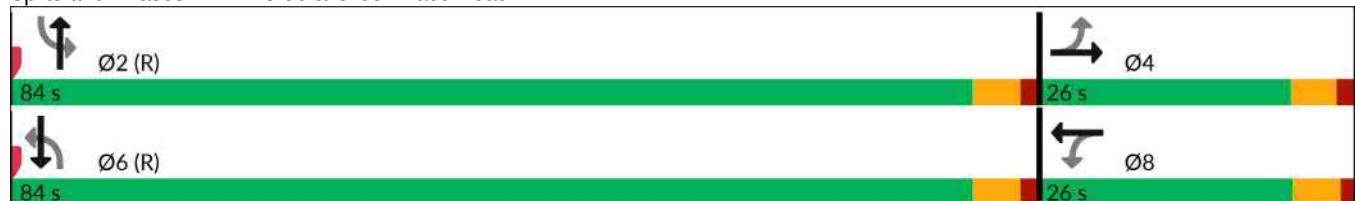
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 4: NC 96 & Green Pace Road



Zebulon Grocery
5: NC 96 & Pearces Road

Background (2028) AM
02/17/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	587	82	827	302	68	805
Future Volume (vph)	587	82	827	302	68	805
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	1%		0%			1%
Storage Length (ft)	100	0		0	275	
Storage Lanes	1	0		1	1	
Taper Length (ft)	100				50	
Satd. Flow (prot)	3346	0	1727	1482	1727	3326
Flt Permitted	0.958				0.208	
Satd. Flow (perm)	3346	0	1727	1482	378	3326
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	35		35			35
Link Distance (ft)	661		1137			829
Travel Time (s)	12.9		22.1			16.1
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	4%	10%	9%	4%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	696	0	861	315	71	839
Turn Type	Prot		NA	pm+ov	D.Pm	NA
Protected Phases	8		2	8		6
Permitted Phases				2	2	
Detector Phase	8		2	8	2	6
Switch Phase						
Minimum Initial (s)	7.0		10.0	7.0	10.0	10.0
Minimum Split (s)	31.0		33.0	31.0	33.0	18.0
Total Split (s)	33.0		77.0	33.0	77.0	77.0
Total Split (%)	30.0%		70.0%	30.0%	70.0%	70.0%
Yellow Time (s)	3.0		3.8	3.0	3.8	3.8
All-Red Time (s)	3.9		2.6	3.9	2.6	2.6
Lost Time Adjust (s)	-1.9		-1.4	-1.9	-1.4	-1.4
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None		C-Max	None	C-Max	C-Max
Act Effect Green (s)	26.8		73.2	110.0	73.2	73.2
Actuated g/C Ratio	0.24		0.67	1.00	0.67	0.67
v/c Ratio	0.86		0.75	0.21	0.28	0.38
Control Delay (s/veh)	51.1		11.7	0.2	15.2	12.8
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	51.1		11.7	0.2	15.2	12.8



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
LOS	D		B	A	B	B
Approach Delay (s/veh)	51.1		8.6			13.0
Approach LOS	D		A			B
Queue Length 50th (ft)	239		254	0	28	185
Queue Length 95th (ft)	310		m306	m0	m37	m241
Internal Link Dist (ft)	581		1057			749
Turn Bay Length (ft)	100				275	
Base Capacity (vph)	851		1149	1472	251	2214
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	0.82		0.75	0.21	0.28	0.38

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 12 (11%), Referenced to phase 2:NBSB and 6:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay (s/veh): 20.7

Intersection LOS: C

Intersection Capacity Utilization 83.7%

ICU Level of Service E

Analysis Period (min) 15

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

Splits and Phases: 5: NC 96 & Pearces Road



Zebulon Grocery
6: NC 96 & US 64-264 WB Ramps/Dogwood Drive

Background (2028) AM

02/17/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	348	69	133	80	68	86	166	746	121	77	906	425
Future Volume (vph)	348	69	133	80	68	86	166	746	121	77	906	425
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			-4%			1%	
Storage Length (ft)	0		0	0		150	425		0	125		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			25			200			100		
Satd. Flow (prot)	1687	1657	0	1770	1459	0	1770	3311	0	1663	3234	0
Flt Permitted	0.415			0.452			0.083			0.211		
Satd. Flow (perm)	737	1657	0	842	1459	0	155	3311	0	369	3234	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		172			528			1048			1137	
Travel Time (s)		4.7			10.3			20.4			22.1	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	2%	4%	2%	2%	33%	4%	9%	8%	8%	7%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	370	214	0	85	163	0	177	923	0	82	1416	0
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8			4			6			2		
Detector Phase	7	4		3	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)	14.0	14.0		14.0	14.0		14.0	36.0		14.0	18.0	
Total Split (s)	23.0	26.0		14.0	17.0		14.0	56.0		14.0	56.0	
Total Split (%)	20.9%	23.6%		12.7%	15.5%		12.7%	50.9%		12.7%	50.9%	
Yellow Time (s)	3.0	3.8		3.0	3.8		3.0	4.1		3.0	4.1	
All-Red Time (s)	2.4	2.0		2.6	2.0		2.8	2.1		2.9	2.1	
Lost Time Adjust (s)	-0.4	-0.8		-0.6	-0.8		-0.8	-1.2		-0.9	-1.2	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effect Green (s)	30.0	24.1		31.0	12.0		60.0	54.3		61.0	51.0	
Actuated g/C Ratio	0.27	0.22		0.28	0.11		0.55	0.49		0.55	0.46	
v/c Ratio	1.04	0.59		0.28	1.03		0.82	0.56		0.27	0.94	
Control Delay (s/veh)	93.1	47.7		29.6	127.4		38.3	5.9		6.4	27.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	93.1	47.7		29.6	127.4		38.3	5.9		6.4	27.0	

Zebulon Grocery
6: NC 96 & US 64-264 WB Ramps/Dogwood Drive

Background (2028) AM
02/17/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	F	D		C	F		D	A		A	C	
Approach Delay (s/veh)		76.4			93.9			11.1			25.9	
Approach LOS		E			F			B			C	
Queue Length 50th (ft)	~240	141		43	~123		76	105		11	356	
Queue Length 95th (ft)	#406	#227		81	#258		m#123	128		m15	#637	
Internal Link Dist (ft)		92			448			968			1057	
Turn Bay Length (ft)							425			125		
Base Capacity (vph)	356	363		315	159		216	1635		312	1499	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	1.04	0.59		0.27	1.03		0.82	0.56		0.26	0.94	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 19 (17%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.04

Intersection Signal Delay (s/veh): 34.7

Intersection LOS: C

Intersection Capacity Utilization 92.6%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

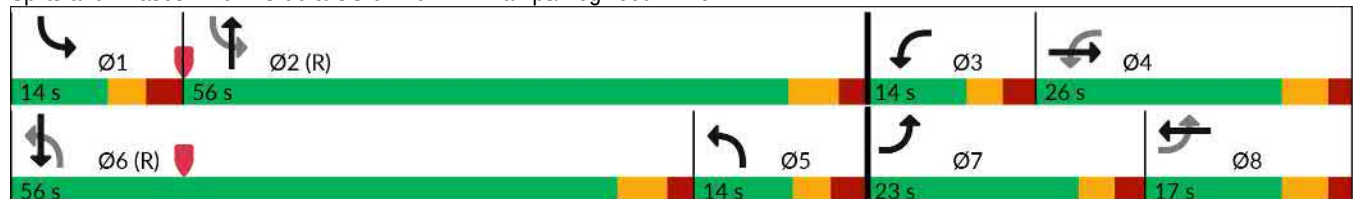
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 6: NC 96 & US 64-264 WB Ramps/Dogwood Drive



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	308	4	347	0	0	0	0	743	112	371	705	0
Future Volume (vph)	308	4	347	0	0	0	0	743	112	371	705	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		2%			0%			3%			-1%	
Storage Length (ft)	0		150	0		0	0		0	375		0
Storage Lanes	0		1	0		0	0		0	1		0
Taper Length (ft)	25			25			25			150		
Satd. Flow (prot)	0	1614	1508	0	0	0	0	3261	0	1680	3489	0
Flt Permitted		0.953								0.133		
Satd. Flow (perm)	0	1614	1508	0	0	0	0	3261	0	235	3489	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		677			713			666			1048	
Travel Time (s)		10.3			10.8			13.0			20.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	100%	6%	2%	2%	2%	2%	7%	6%	8%	4%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	346	386	0	0	0	0	950	0	412	783	0
Turn Type	Split	NA	Prot					NA		D.P+P	NA	
Protected Phases	4	4	4					2		1	6	
Permitted Phases										2		
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					33.0		14.0	17.0	
Total Split (s)	37.0	37.0	37.0					43.0		30.0	73.0	
Total Split (%)	33.6%	33.6%	33.6%					39.1%		27.3%	66.4%	
Yellow Time (s)	3.7	3.7	3.7					3.9		3.0	3.9	
All-Red Time (s)	1.9	1.9	1.9					1.9		2.8	1.9	
Lost Time Adjust (s)		-0.6	-0.6					-0.8		-0.8	-0.8	
Total Lost Time (s)		5.0	5.0					5.0		5.0	5.0	
Lead/Lag								Lead		Lag		
Lead-Lag Optimize?								Yes		Yes		
Recall Mode	None	None	None					C-Max		None	C-Max	
Act Effect Green (s)		30.4	30.4					39.6		64.6	69.6	
Actuated g/C Ratio		0.28	0.28					0.36		0.59	0.63	
v/c Ratio		0.78	0.93					0.81		0.88	0.35	
Control Delay (s/veh)		49.4	68.3					38.9		28.9	2.2	
Queue Delay		0.0	0.0					0.0		0.0	0.0	
Total Delay (s/veh)		49.4	68.3					38.9		28.9	2.2	

Zebulon Grocery
7: NC 96 & US 64-264 EB Off Ramp/US 64-264 EB On Ramp

Background (2028) AM

02/17/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		D	E					D		C	A	
Approach Delay (s/veh)		59.4						38.9			11.4	
Approach LOS		E						D			B	
Queue Length 50th (ft)		220	259					323		188	34	
Queue Length 95th (ft)		331	#434					409		m221	m33	
Internal Link Dist (ft)		597			633			586			968	
Turn Bay Length (ft)			150							375		
Base Capacity (vph)		469	438					1173		466	2206	
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		0.74	0.88					0.81		0.88	0.35	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 8 (7%), Referenced to phase 2:NBSB and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay (s/veh): 32.7

Intersection LOS: C

Intersection Capacity Utilization 74.4%

ICU Level of Service D

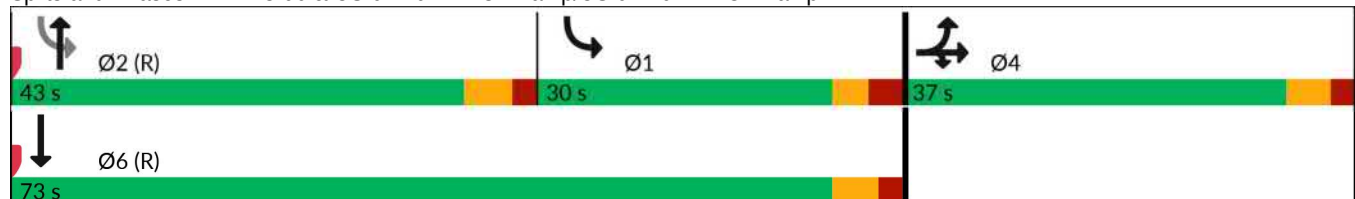
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 7: NC 96 & US 64-264 EB Off Ramp/US 64-264 EB On Ramp



Zebulon Grocery
8: Green Pace Road & Proctor Street

Background (2028) AM
02/17/2025

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	99	4	171	125	4	41
Future Volume (vph)	99	4	171	125	4	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			25		25	
Satd. Flow (prot)	1802	0	0	1788	1585	0
Flt Permitted				0.972	0.996	
Satd. Flow (perm)	1802	0	0	1788	1585	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	563			141	373	
Travel Time (s)	11.0			2.7	7.3	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	2%	2%	5%	2%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	106	0	0	305	46	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 32.7%				ICU Level of Service A		
Analysis Period (min) 15						

Zebulon Grocery
8: Green Pace Road & Proctor Street

Background (2028) AM
02/17/2025

Intersection						
Int Delay, s/veh	4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	99	4	171	125	4	41
Future Vol, veh/h	99	4	171	125	4	41
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	97	97	97	97	97	97
Heavy Vehicles, %	5	2	2	5	2	5
Mvmt Flow	102	4	176	129	4	42
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	106	0	585	104
Stage 1	-	-	-	-	104	-
Stage 2	-	-	-	-	481	-
Critical Hdwy	-	-	4.12	-	6.42	6.25
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.345
Pot Cap-1 Maneuver	-	-	1485	-	473	943
Stage 1	-	-	-	-	920	-
Stage 2	-	-	-	-	622	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1485	-	412	943
Mov Cap-2 Maneuver	-	-	-	-	412	-
Stage 1	-	-	-	-	920	-
Stage 2	-	-	-	-	542	-
Approach	EB	WB		NB		
HCM Control Delay, s/v	0	4.5		9.5		
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	846	-	-	1485	-	
HCM Lane V/C Ratio	0.055	-	-	0.119	-	
HCM Control Delay (s/veh)	9.5	-	-	7.8	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q (veh)	0.2	-	-	0.4	-	

Zebulon Grocery
9: Proctor Street & Watsonia Drive

Background (2028) AM
02/17/2025



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	12	165	224	19	50	17
Future Volume (vph)	12	165	224	19	50	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	1778	1749	0	1688	0
Flt Permitted		0.997			0.964	
Satd. Flow (perm)	0	1778	1749	0	1688	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		141	1212		1127	
Travel Time (s)		2.7	23.6		30.7	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	27%	5%	8%	2%	2%	13%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	189	258	0	71	0
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	29.0%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	12	165	224	19	50	17
Future Vol, veh/h	12	165	224	19	50	17
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	94	94	94	94	94	94
Heavy Vehicles, %	27	5	8	2	2	13
Mvmt Flow	13	176	238	20	53	18
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	258	0	-	0	450	248
Stage 1	-	-	-	-	248	-
Stage 2	-	-	-	-	202	-
Critical Hdwy	4.37	-	-	-	6.42	6.33
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.443	-	-	-	3.518	3.417
Pot Cap-1 Maneuver	1174	-	-	-	567	765
Stage 1	-	-	-	-	793	-
Stage 2	-	-	-	-	832	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1174	-	-	-	560	765
Mov Cap-2 Maneuver	-	-	-	-	560	-
Stage 1	-	-	-	-	783	-
Stage 2	-	-	-	-	832	-
Approach	EB	WB		SB		
HCM Control Delay, s/v	0.5	0		11.8		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1174	-	-	-	601	
HCM Lane V/C Ratio	0.011	-	-	-	0.119	
HCM Control Delay (s/veh)	8.1	0	-	-	11.8	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q (veh)	0	-	-	-	0.4	

Zebulon Grocery
10: Pearces Road & Proctor Street

Background (2028) AM
02/17/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	175	19	156	159	35	8	188	112	63	467	71
Future Volume (vph)	16	175	19	156	159	35	8	188	112	63	467	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1775	0	0	1736	0	0	1667	0	0	1804	0
Flt Permitted		0.996			0.978			0.999			0.995	
Satd. Flow (perm)	0	1775	0	0	1736	0	0	1667	0	0	1804	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1212			660			626			577	
Travel Time (s)		23.6			12.9			12.2			11.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	6%	2%	2%	10%	2%	14%	10%	5%	4%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	228	0	0	381	0	0	335	0	0	653	0
Sign Control		Yield			Yield			Yield			Yield	
Intersection Summary												
Area Type:	Other											
Control Type:	Roundabout											
Intersection Capacity Utilization	93.2%											
Analysis Period (min)	15											
	ICU Level of Service F											

Intersection				
Intersection Delay, s/veh	11.9			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	228	381	335	653
Demand Flow Rate, veh/h	239	402	362	673
Vehicles Circulating, veh/h	767	251	289	373
Vehicles Exiting, veh/h	279	400	717	280
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	11.5	7.6	7.6	16.7
Approach LOS	B	A	A	C
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	239	402	362	673
Cap Entry Lane, veh/h	631	1068	1028	943
Entry HV Adj Factor	0.952	0.947	0.924	0.970
Flow Entry, veh/h	228	381	335	653
Cap Entry, veh/h	601	1012	950	915
V/C Ratio	0.379	0.376	0.352	0.714
Control Delay, s/veh	11.5	7.6	7.6	16.7
LOS	B	A	A	C
95th %tile Queue, veh	2	2	2	6

Zebulon Grocery
25: US 64-264 WB Ramps

Background (2028) AM
02/17/2025



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑		↗
Traffic Volume (vph)	0	0	0	659	0	550
Future Volume (vph)	0	0	0	659	0	550
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			3%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		0	1
Taper Length (ft)			25		25	
Satd. Flow (prot)	0	0	0	1835	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	0	1835	0	1611
Link Speed (mph)	45			45	25	
Link Distance (ft)	412			172	567	
Travel Time (s)	6.2			2.6	15.5	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	716	0	598
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	38.0%			ICU Level of Service A		
Analysis Period (min)	15					

Zebulon Grocery
1: NC 96 & Pippin Road

Background (2028) PM
02/17/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	169	66	673	249	106	724
Future Volume (vph)	169	66	673	249	106	724
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	2%		0%			0%
Storage Length (ft)	0	0		175	175	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25				100	
Satd. Flow (prot)	1712	0	1792	1583	1770	1792
Flt Permitted	0.965				0.174	
Satd. Flow (perm)	1712	0	1792	1583	324	1792
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	35		45		45	
Link Distance (ft)	1396		1396		934	
Travel Time (s)	27.2		21.2		14.2	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	6%	2%	2%	6%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	245	0	701	259	110	754
Turn Type	Prot		NA	pm+ov	D.P+P	NA
Protected Phases	8		2	8	1	6
Permitted Phases				2	2	
Detector Phase	8		2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0		12.0	7.0	7.0	12.0
Minimum Split (s)	14.0		19.0	14.0	13.0	19.0
Total Split (s)	30.0		90.0	30.0	20.0	110.0
Total Split (%)	21.4%		64.3%	21.4%	14.3%	78.6%
Yellow Time (s)	3.0		4.5	3.0	3.0	4.5
All-Red Time (s)	2.4		1.0	2.4	1.6	1.0
Lost Time Adjust (s)	-0.4		-0.5	-0.4	0.4	-0.5
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		Min	None	None	Min
Act Effect Green (s)	17.1		36.3	58.7	43.5	48.7
Actuated g/C Ratio	0.22		0.48	0.77	0.57	0.64
v/c Ratio	0.64		0.82	0.21	0.34	0.66
Control Delay (s/veh)	37.1		26.7	2.6	9.1	12.4
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	37.1		26.7	2.6	9.1	12.4

Zebulon Grocery
1: NC 96 & Pippin Road

Background (2028) PM
02/17/2025



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
LOS	D		C	A	A	B
Approach Delay (s/veh)	37.1		20.2			12.0
Approach LOS	D		C			B
Queue Length 50th (ft)	103		260	23	17	189
Queue Length 95th (ft)	223		487	41	43	382
Internal Link Dist (ft)	1316		1316			854
Turn Bay Length (ft)				175	175	
Base Capacity (vph)	586		1732	1404	504	1792
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	0.42		0.40	0.18	0.22	0.42

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 76.3

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay (s/veh): 18.8

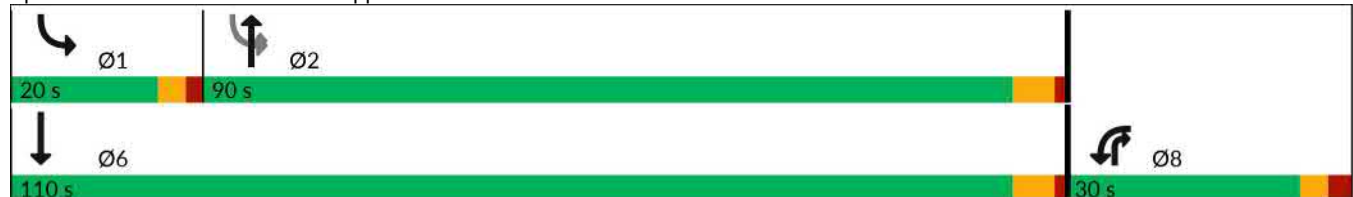
Intersection LOS: B

Intersection Capacity Utilization 67.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: NC 96 & Pippin Road



Zebulon Grocery
2: NC 96 & Rose Mallow Drive

Background (2028) PM
02/17/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	23	6	987	34	11	895
Future Volume (vph)	23	6	987	34	11	895
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	125	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				100	
Satd. Flow (prot)	1703	0	1802	0	1770	1810
Flt Permitted	0.962				0.950	
Satd. Flow (perm)	1703	0	1802	0	1770	1810
Link Speed (mph)	25		45			45
Link Distance (ft)	881		1406			1396
Travel Time (s)	24.0		21.3			21.2
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	2%	5%	2%	2%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	30	0	1075	0	12	942
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	64.0%			ICU Level of Service C		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	1.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	W	T	T	T	T
Traffic Vol, veh/h	23	6	987	34	11	895
Future Vol, veh/h	23	6	987	34	11	895
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	-	-	-	125	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	5	2	5	2	2	5
Mvmt Flow	24	6	1039	36	12	942
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	2023	1057	0	0	1075	0
Stage 1	1057	-	-	-	-	-
Stage 2	966	-	-	-	-	-
Critical Hdwy	6.45	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	62	273	-	-	649	-
Stage 1	330	-	-	-	-	-
Stage 2	365	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	61	273	-	-	649	-
Mov Cap-2 Maneuver	61	-	-	-	-	-
Stage 1	330	-	-	-	-	-
Stage 2	358	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s/v	85.9	0	0.1			
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	73	649	-	
HCM Lane V/C Ratio	-	-	0.418	0.018	-	
HCM Control Delay (s/veh)	-	-	85.9	10.6	-	
HCM Lane LOS	-	-	F	B	-	
HCM 95th %tile Q (veh)	-	-	1.6	0.1	-	

Zebulon Grocery
3: NC 96 & Riley Hill Road/Proctor Street

Background (2028) PM
02/17/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	38	80	4	18	56	43	962	4	77	835	12
Future Volume (vph)	9	38	80	4	18	56	43	962	4	77	835	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	150		0	150		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			100			100		
Satd. Flow (prot)	0	1684	0	0	1679	0	1752	1808	0	1736	1790	0
Flt Permitted		0.997			0.998		0.950			0.950		
Satd. Flow (perm)	0	1684	0	0	1679	0	1752	1808	0	1736	1790	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1315			563			623			1406	
Travel Time (s)		25.6			11.0			12.1			27.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	3%	3%	2%	2%	2%	3%	5%	2%	4%	6%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	132	0	0	81	0	45	1006	0	80	883	0
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	75.4%					ICU Level of Service D						
Analysis Period (min)	15											

Zebulon Grocery
3: NC 96 & Riley Hill Road/Proctor Street

Background (2028) PM
02/17/2025

Intersection												
Int Delay, s/veh	56.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	9	38	80	4	18	56	43	962	4	77	835	12
Future Vol, veh/h	9	38	80	4	18	56	43	962	4	77	835	12
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	-	-	-	-	-	-	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	3	3	2	2	2	3	5	2	4	6	2
Mvmt Flow	9	40	83	4	19	58	45	1002	4	80	870	13

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2170	2133	877	2192	2137	1004	883	0	0	1006	0	0
Stage 1	1037	1037	-	1094	1094	-	-	-	-	-	-	-
Stage 2	1133	1096	-	1098	1043	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.53	6.23	7.12	6.52	6.22	4.13	-	-	4.14	-	-
Critical Hdwy Stg 1	6.12	5.53	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.53	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.027	3.327	3.518	4.018	3.318	2.227	-	-	2.236	-	-
Pot Cap-1 Maneuver	34	49	346	33	49	294	762	-	-	681	-	-
Stage 1	279	307	-	259	290	-	-	-	-	-	-	-
Stage 2	247	288	-	258	306	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	15	41	346	~ 3	41	294	762	-	-	681	-	-
Mov Cap-2 Maneuver	15	41	-	~ 3	41	-	-	-	-	-	-	-
Stage 1	263	271	-	244	273	-	-	-	-	-	-	-
Stage 2	174	271	-	148	270	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	\$ 520.6		\$ 696		0.4		0.9	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	762	-	-	72	40	681	-	-
HCM Lane V/C Ratio	0.059	-	-	1.837	2.031	0.118	-	-
HCM Control Delay (s/veh)	10	-	-	\$ 520.6	\$ 696	11	-	-
HCM Lane LOS	B	-	-	F	F	B	-	-
HCM 95th %tile Q (veh)	0.2	-	-	11.8	8.7	0.4	-	-

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

Zebulon Grocery
4: NC 96 & Green Pace Road

Background (2028) PM

02/17/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	129	94	106	8	33	4	121	866	30	16	794	109
Future Volume (vph)	129	94	106	8	33	4	121	866	30	16	794	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		1%			-1%			2%			-2%	
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			50			100		
Satd. Flow (prot)	0	1685	0	0	1785	0	1752	1800	0	1787	1784	0
Flt Permitted		0.856			0.938		0.165			0.169		
Satd. Flow (perm)	0	1470	0	0	1687	0	304	1800	0	318	1784	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1850			373			857			623	
Travel Time (s)		36.0			7.3			16.7			12.1	
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	2%	6%	2%	6%	2%	2%	4%	2%	2%	5%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	347	0	0	47	0	127	944	0	17	951	0
Turn Type	Perm	NA		Perm	NA		D.Pm	NA		D.Pm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	2		2	6	
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)	34.0	34.0		34.0	34.0		86.0	86.0		86.0	86.0	
Total Split (%)	28.3%	28.3%		28.3%	28.3%		71.7%	71.7%		71.7%	71.7%	
Yellow Time (s)	3.8	3.8		3.9	3.9		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.5	1.5		1.2	1.2		1.3	1.3		1.3	1.3	
Lost Time Adjust (s)		-0.3			-0.1		-0.3	-0.3		-0.3	-0.3	
Total Lost Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effect Green (s)		29.0			29.0		81.0	81.0		81.0	81.0	
Actuated g/C Ratio		0.24			0.24		0.68	0.68		0.68	0.68	
v/c Ratio		0.98			0.12		0.62	0.78		0.08	0.79	
Control Delay (s/veh)		88.2			36.6		15.8	9.8		7.8	19.7	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)		88.2			36.6		15.8	9.8		7.8	19.7	

Zebulon Grocery
4: NC 96 & Green Pace Road

Background (2028) PM
02/17/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		F			D		B	A		A	B	
Approach Delay (s/veh)		88.2			36.6			10.5			19.5	
Approach LOS		F			D			B			B	
Queue Length 50th (ft)		268			29		37	277		4	467	
Queue Length 95th (ft)		#462			61		m54	333		13	669	
Internal Link Dist (ft)		1770			293			777			543	
Turn Bay Length (ft)							200			150		
Base Capacity (vph)		355			407		205	1215		214	1204	
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		0.98			0.12		0.62	0.78		0.08	0.79	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 38 (32%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay (s/veh): 25.7

Intersection LOS: C

Intersection Capacity Utilization 94.5%

ICU Level of Service F

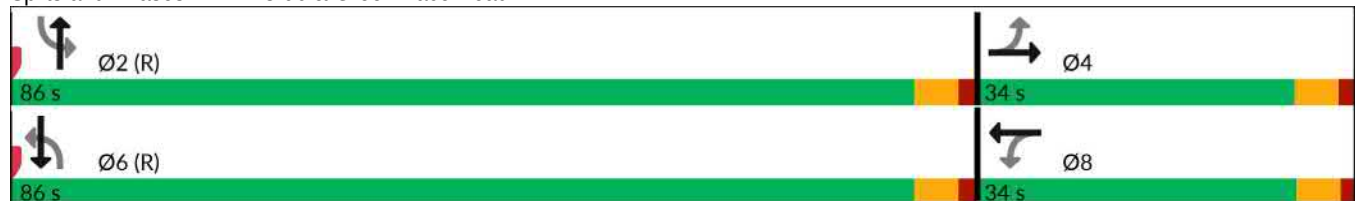
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 4: NC 96 & Green Pace Road



Zebulon Grocery
5: NC 96 & Pearces Road

Background (2028) PM
02/17/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	389	64	938	597	95	869
Future Volume (vph)	389	64	938	597	95	869
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	1%		0%			1%
Storage Length (ft)	100	0		0	275	
Storage Lanes	1	0		1	1	
Taper Length (ft)	100				50	
Satd. Flow (prot)	3320	0	1827	1568	1761	3421
Flt Permitted	0.959				0.199	
Satd. Flow (perm)	3320	0	1827	1568	369	3421
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	35		35		35	
Link Distance (ft)	661		1137		832	
Travel Time (s)	12.9		22.1		16.2	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	2%	4%	3%	2%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	462	0	957	609	97	887
Turn Type	Prot		NA	pm+ov	D.Pm	NA
Protected Phases	8		2	8		6
Permitted Phases				2	2	
Detector Phase	8		2	8	2	6
Switch Phase						
Minimum Initial (s)	7.0		10.0	7.0	10.0	10.0
Minimum Split (s)	30.0		33.0	30.0	33.0	20.0
Total Split (s)	30.0		90.0	30.0	90.0	90.0
Total Split (%)	25.0%		75.0%	25.0%	75.0%	75.0%
Yellow Time (s)	3.0		3.8	3.0	3.8	3.8
All-Red Time (s)	3.9		2.6	3.9	2.6	2.6
Lost Time Adjust (s)	-1.9		-1.4	-1.9	-1.4	-1.4
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None		C-Max	None	C-Max	C-Max
Act Effect Green (s)	22.5		87.5	120.0	87.5	87.5
Actuated g/C Ratio	0.19		0.73	1.00	0.73	0.73
v/c Ratio	0.74		0.72	0.39	0.36	0.36
Control Delay (s/veh)	53.6		8.1	0.4	15.5	11.3
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	53.6		8.1	0.4	15.5	11.3



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
LOS	D		A	A	B	B
Approach Delay (s/veh)	53.6		5.1			11.7
Approach LOS	D		A			B
Queue Length 50th (ft)	173		236	0	43	204
Queue Length 95th (ft)	228		m272	m0	m58	m242
Internal Link Dist (ft)	581		1057			752
Turn Bay Length (ft)	100				275	
Base Capacity (vph)	691		1331	1554	269	2493
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	0.67		0.72	0.39	0.36	0.36

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 118 (98%), Referenced to phase 2:NBSB and 6:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay (s/veh): 14.7

Intersection LOS: B

Intersection Capacity Utilization 83.3%

ICU Level of Service E

Analysis Period (min) 15

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

Splits and Phases: 5: NC 96 & Pearces Road



Zebulon Grocery
6: NC 96 & US 64-264 WB Ramps/Dogwood Drive

Background (2028) PM

02/17/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	383	55	94	84	73	90	172	1093	92	63	961	320
Future Volume (vph)	383	55	94	84	73	90	172	1093	92	63	961	320
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			-4%			1%	
Storage Length (ft)	0		0	0		150	425		0	125		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			25			200			100		
Satd. Flow (prot)	1736	1686	0	1770	1708	0	1770	3535	0	1761	3318	0
Flt Permitted	0.332			0.574			0.076			0.101		
Satd. Flow (perm)	607	1686	0	1069	1708	0	142	3535	0	187	3318	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		172			528			1048			1137	
Travel Time (s)		4.7			10.3			20.4			22.1	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%	4%	3%	2%	2%	4%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	399	155	0	88	170	0	179	1235	0	66	1334	0
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8			4			6			2		
Detector Phase	7	4		3	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)	14.0	14.0		14.0	14.0		14.0	36.0		14.0	18.0	
Total Split (s)	29.0	33.0		14.0	18.0		14.0	59.0		14.0	59.0	
Total Split (%)	24.2%	27.5%		11.7%	15.0%		11.7%	49.2%		11.7%	49.2%	
Yellow Time (s)	3.0	3.8		3.0	3.8		3.0	4.1		3.0	4.1	
All-Red Time (s)	2.4	2.0		2.6	2.0		2.8	2.1		2.9	2.1	
Lost Time Adjust (s)	-0.4	-0.8		-0.6	-0.8		-0.8	-1.2		-0.9	-1.2	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effect Green (s)	37.0	28.5		37.0	13.0		63.0	57.4		64.0	54.0	
Actuated g/C Ratio	0.31	0.24		0.31	0.11		0.53	0.48		0.53	0.45	
v/c Ratio	0.97	0.39		0.23	0.92		0.91	0.73		0.32	0.89	
Control Delay (s/veh)	72.1	42.0		28.6	101.3		46.6	9.3		10.8	23.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	72.1	42.0		28.6	101.3		46.6	9.3		10.8	23.9	

Zebulon Grocery
6: NC 96 & US 64-264 WB Ramps/Dogwood Drive

Background (2028) PM
02/17/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	E	D		C	F		D	A		B	C	
Approach Delay (s/veh)		63.7			76.5			14.0			23.2	
Approach LOS		E			E			B			C	
Queue Length 50th (ft)	259	102		46	132		89	196		11	325	
Queue Length 95th (ft)	#451	167		86	#267		m91	m230		m19	#355	
Internal Link Dist (ft)		92			448			968			1057	
Turn Bay Length (ft)							425			125		
Base Capacity (vph)	412	400		386	185		196	1691		218	1493	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.97	0.39		0.23	0.92		0.91	0.73		0.30	0.89	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 8 (7%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay (s/veh): 29.6

Intersection LOS: C

Intersection Capacity Utilization 93.6%

ICU Level of Service F

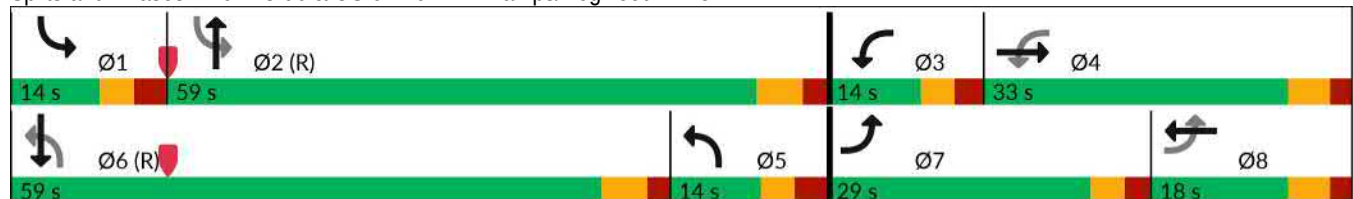
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 6: NC 96 & US 64-264 WB Ramps/Dogwood Drive



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	503	4	374	0	0	0	0	882	199	401	695	0
Future Volume (vph)	503	4	374	0	0	0	0	882	199	401	695	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		2%			0%			3%			-1%	
Storage Length (ft)	0		150	0		0	0		0	375		0
Storage Lanes	0		1	0		0	0		0	1		0
Taper Length (ft)	25			25			25			150		
Satd. Flow (prot)	0	1741	1537	0	0	0	0	3356	0	1728	3522	0
Flt Permitted		0.953								0.093		
Satd. Flow (perm)	0	1741	1537	0	0	0	0	3356	0	169	3522	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		677			713			666			1048	
Travel Time (s)		10.3			10.8			13.0			20.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	2%	4%	2%	2%	2%	2%	3%	3%	5%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	523	386	0	0	0	0	1114	0	413	716	0
Turn Type	Split	NA	Prot					NA		D.P+P	NA	
Protected Phases	4	4	4					2		1	6	
Permitted Phases										2		
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					33.0		14.0	17.0	
Total Split (s)	42.0	42.0	42.0					48.0		30.0	78.0	
Total Split (%)	35.0%	35.0%	35.0%					40.0%		25.0%	65.0%	
Yellow Time (s)	3.7	3.7	3.7					3.9		3.0	3.9	
All-Red Time (s)	1.9	1.9	1.9					1.9		2.8	1.9	
Lost Time Adjust (s)		-0.6	-0.6					-0.8		-0.8	-0.8	
Total Lost Time (s)		5.0	5.0					5.0		5.0	5.0	
Lead/Lag								Lead		Lag		
Lead-Lag Optimize?								Yes		Yes		
Recall Mode	None	None	None					C-Max		None	C-Max	
Act Effect Green (s)		37.0	37.0					43.0		68.0	73.0	
Actuated g/C Ratio		0.31	0.31					0.36		0.57	0.61	
v/c Ratio		0.98	0.82					0.93		0.98	0.33	
Control Delay (s/veh)		75.0	53.7					50.9		53.3	2.9	
Queue Delay		0.0	0.0					0.0		0.0	0.0	
Total Delay (s/veh)		75.0	53.7					50.9		53.3	2.9	

Zebulon Grocery
7: NC 96 & US 64-264 EB Off Ramp/US 64-264 EB On Ramp

Background (2028) PM

02/17/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		E	D					D		D	A	
Approach Delay (s/veh)		65.9						50.9			21.3	
Approach LOS		E						D			C	
Queue Length 50th (ft)		400	276					433		285	43	
Queue Length 95th (ft)		#625	#435					#570		m#376	m45	
Internal Link Dist (ft)		597			633			586			968	
Turn Bay Length (ft)			150							375		
Base Capacity (vph)		536	473					1202		420	2142	
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		0.98	0.82					0.93		0.98	0.33	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 117 (98%), Referenced to phase 2:NBSB and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay (s/veh): 44.6

Intersection LOS: D

Intersection Capacity Utilization 93.5%

ICU Level of Service F

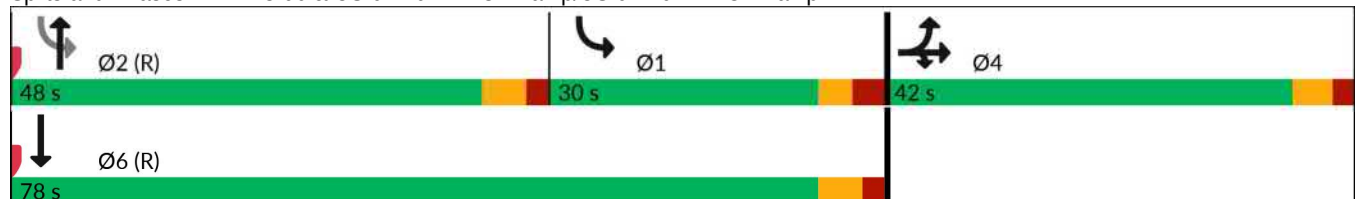
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 7: NC 96 & US 64-264 EB Off Ramp/US 64-264 EB On Ramp



Zebulon Grocery
8: Green Pace Road & Proctor Street

Background (2028) PM
02/17/2025

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	119	4	44	74	4	138
Future Volume (vph)	119	4	44	74	4	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			25		25	
Satd. Flow (prot)	1821	0	0	1809	1615	0
Flt Permitted				0.982	0.999	
Satd. Flow (perm)	1821	0	0	1809	1615	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	563			141	373	
Travel Time (s)	11.0			2.7	7.3	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	2%	5%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	136	0	0	131	157	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 31.6%				ICU Level of Service A		
Analysis Period (min) 15						

Zebulon Grocery
8: Green Pace Road & Proctor Street

Background (2028) PM
02/17/2025

Intersection						
Int Delay, s/veh	4.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	119	4	44	74	4	138
Future Vol, veh/h	119	4	44	74	4	138
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, %	4	2	5	2	2	2
Mvmt Flow	132	4	49	82	4	153

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	136	0	314
Stage 1	-	-	-	-	134
Stage 2	-	-	-	-	180
Critical Hdwy	-	-	4.15	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.245	-	3.518
Pot Cap-1 Maneuver	-	-	1430	-	679
Stage 1	-	-	-	-	892
Stage 2	-	-	-	-	851
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1430	-	655
Mov Cap-2 Maneuver	-	-	-	-	655
Stage 1	-	-	-	-	892
Stage 2	-	-	-	-	820

Approach	EB	WB	NB
HCM Control Delay, s/v	0	2.8	9.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	905	-	-	1430	-
HCM Lane V/C Ratio	0.174	-	-	0.034	-
HCM Control Delay (s/veh)	9.8	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q (veh)	0.6	-	-	0.1	-

Zebulon Grocery
9: Proctor Street & Watsonia Drive

Background (2028) PM
02/17/2025



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	29	227	109	18	20	9
Future Volume (vph)	29	227	109	18	20	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	1852	1812	0	1726	0
Flt Permitted		0.994			0.967	
Satd. Flow (perm)	0	1852	1812	0	1726	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		141	1212		1127	
Travel Time (s)		2.7	23.6		30.7	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	284	141	0	32	0
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	33.7%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	29	227	109	18	20	9
Future Vol, veh/h	29	227	109	18	20	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	3	2	2	2
Mvmt Flow	32	252	121	20	22	10
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	141	0	-	0	447	131
Stage 1	-	-	-	-	131	-
Stage 2	-	-	-	-	316	-
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	1442	-	-	-	569	919
Stage 1	-	-	-	-	895	-
Stage 2	-	-	-	-	739	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1442	-	-	-	554	919
Mov Cap-2 Maneuver	-	-	-	-	554	-
Stage 1	-	-	-	-	872	-
Stage 2	-	-	-	-	739	-
Approach	EB	WB		SB		
HCM Control Delay, s/v	0.9	0		11		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1442	-	-	-	632	
HCM Lane V/C Ratio	0.022	-	-	-	0.051	
HCM Control Delay (s/veh)	7.6	0	-	-	11	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q (veh)	0.1	-	-	-	0.2	

Zebulon Grocery
10: Pearces Road & Proctor Street

Background (2028) PM
02/17/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	142	23	89	76	34	25	531	78	34	301	40
Future Volume (vph)	70	142	23	89	76	34	25	531	78	34	301	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1806	0	0	1757	0	0	1797	0	0	1776	0
Flt Permitted		0.985			0.978			0.998			0.995	
Satd. Flow (perm)	0	1806	0	0	1757	0	0	1797	0	0	1776	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1212			660			626			577	
Travel Time (s)		23.6			12.9			12.2			11.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	5%	5%	2%	2%	4%	4%	2%	5%	4%	12%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	253	0	0	215	0	0	682	0	0	404	0
Sign Control		Yield			Yield			Yield			Yield	
Intersection Summary												
Area Type:	Other											
Control Type:	Roundabout											
Intersection Capacity Utilization	62.5%				ICU Level of Service B							
Analysis Period (min)	15											

Intersection				
Intersection Delay, s/veh	10.7			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	253	215	682	404
Demand Flow Rate, veh/h	259	223	708	424
Vehicles Circulating, veh/h	477	698	271	213
Vehicles Exiting, veh/h	160	281	464	709
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	7.8	9.8	14.1	7.4
Approach LOS	A	A	B	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	259	223	708	424
Cap Entry Lane, veh/h	848	677	1047	1110
Entry HV Adj Factor	0.977	0.966	0.963	0.953
Flow Entry, veh/h	253	215	682	404
Cap Entry, veh/h	828	654	1008	1058
V/C Ratio	0.305	0.329	0.676	0.382
Control Delay, s/veh	7.8	9.8	14.1	7.4
LOS	A	A	B	A
95th %tile Queue, veh	1	1	6	2

Zebulon Grocery
25: US 64-264 WB Ramps

Background (2028) PM
02/17/2025



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑		↗
Traffic Volume (vph)	0	0	0	565	0	532
Future Volume (vph)	0	0	0	565	0	532
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			3%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		0	1
Taper Length (ft)			25		25	
Satd. Flow (prot)	0	0	0	1835	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	0	1835	0	1611
Link Speed (mph)	45			45	25	
Link Distance (ft)	412			172	567	
Travel Time (s)	6.2			2.6	15.5	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	614	0	578
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	36.3%			ICU Level of Service A		
Analysis Period (min)	15					

Appendix I:
Synchro Output: Build-Out (2028)

Zebulon Grocery
1: NC 96 & Pippin Road

Build (2028) AM
02/17/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	265	80	609	145	56	732
Future Volume (vph)	265	80	609	145	56	732
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	2%		0%			0%
Storage Length (ft)	0	0		175	175	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25				100	
Satd. Flow (prot)	1721	0	1712	1538	1736	1759
Flt Permitted	0.963				0.178	
Satd. Flow (perm)	1721	0	1712	1538	325	1759
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	35		45		45	
Link Distance (ft)	1396		1396		934	
Travel Time (s)	27.2		21.2		14.2	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	11%	5%	4%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	352	0	621	148	57	747
Turn Type	Prot		NA	pm+ov	D.P+P	NA
Protected Phases	8		2	8	1	6
Permitted Phases				2	2	
Detector Phase	8		2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0		12.0	7.0	7.0	12.0
Minimum Split (s)	14.0		19.0	14.0	13.0	19.0
Total Split (s)	30.0		90.0	30.0	20.0	110.0
Total Split (%)	21.4%		64.3%	21.4%	14.3%	78.6%
Yellow Time (s)	3.0		4.5	3.0	3.0	4.5
All-Red Time (s)	2.4		1.0	2.4	1.6	1.0
Lost Time Adjust (s)	-0.4		-0.5	-0.4	0.4	-0.5
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		Min	None	None	Min
Act Effect Green (s)	25.6		33.3	65.4	38.4	42.1
Actuated g/C Ratio	0.33		0.43	0.84	0.49	0.54
v/c Ratio	0.62		0.85	0.11	0.20	0.79
Control Delay (s/veh)	31.4		32.6	2.0	9.4	20.4
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	31.4		32.6	2.0	9.4	20.4

Zebulon Grocery
1: NC 96 & Pippin Road

Build (2028) AM
02/17/2025



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
LOS	C		C	A	A	C
Approach Delay (s/veh)	31.4		26.7			19.6
Approach LOS	C		C			B
Queue Length 50th (ft)	149		275	12	12	262
Queue Length 95th (ft)	#319		412	22	26	392
Internal Link Dist (ft)	1316		1316			854
Turn Bay Length (ft)				175	175	
Base Capacity (vph)	565		1683	1290	453	1759
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	0.62		0.37	0.11	0.13	0.42

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 78

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay (s/veh): 24.6

Intersection LOS: C

Intersection Capacity Utilization 69.9%

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: NC 96 & Pippin Road



Zebulon Grocery
2: NC 96 & Rose Mallow Drive

Build (2028) AM
02/17/2025



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	35	15	753	19	4	1035
Future Volume (vph)	35	15	753	19	4	1035
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	125	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				100	
Satd. Flow (prot)	1702	0	1708	0	1770	1792
Flt Permitted	0.966				0.950	
Satd. Flow (perm)	1702	0	1708	0	1770	1792
Link Speed (mph)	25		45			45
Link Distance (ft)	881		677			1396
Travel Time (s)	24.0		10.3			21.2
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	2%	11%	7%	2%	6%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	53	0	813	0	4	1089
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 64.5% ICU Level of Service C

Analysis Period (min) 15

Intersection						
Int Delay, s/veh	2.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	35	15	753	19	4	1035
Future Vol, veh/h	35	15	753	19	4	1035
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	-	-	-	125	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	2	11	7	2	6
Mvmt Flow	37	16	793	20	4	1089

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1900	803	0	0	813
Stage 1	803	-	-	-	-
Stage 2	1097	-	-	-	-
Critical Hdwy	6.44	6.22	-	-	4.12
Critical Hdwy Stg 1	5.44	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-
Follow-up Hdwy	3.536	3.318	-	-	2.218
Pot Cap-1 Maneuver	75	383	-	-	814
Stage 1	437	-	-	-	-
Stage 2	317	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	75	383	-	-	814
Mov Cap-2 Maneuver	75	-	-	-	-
Stage 1	437	-	-	-	-
Stage 2	315	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	76.7	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	99	814
HCM Lane V/C Ratio	-	-	0.532	0.005
HCM Control Delay (s/veh)	-	-	76.7	9.4
HCM Lane LOS	-	-	F	A
HCM 95th %tile Q (veh)	-	-	2.4	0

Zebulon Grocery
3: NC 96 & Riley Hill Road/Proctor Street

Build (2028) AM
02/17/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	17	50	8	53	75	171	679	9	86	847	106
Future Volume (vph)	6	17	50	8	53	75	171	679	9	86	847	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%				0%				0%			
Storage Length (ft)	0			0	0			0	150	0	150	0
Storage Lanes	0			0	0			0	1	0	1	0
Taper Length (ft)	25			25				100				100
Satd. Flow (prot)	0	1495	0	0	1683	0	1752	1726	0	1752	1755	0
Flt Permitted	0.996				0.997		0.950				0.950	
Satd. Flow (perm)	0	1495	0	0	1683	0	1752	1726	0	1752	1755	0
Link Speed (mph)	35				35				35			
Link Distance (ft)	1315				505				623			
Travel Time (s)	25.6				9.8				12.1			
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	33%	20%	11%	2%	2%	6%	3%	10%	2%	3%	7%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)	0%				0%				0%			
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	77	0	0	145	0	182	732	0	91	1014	0
Sign Control	Stop				Stop				Free			
Intersection Summary												
Area Type:	Other											
Control Type: Unsignalized												
Intersection Capacity Utilization 80.0%												
ICU Level of Service D												
Analysis Period (min) 15												

Zebulon Grocery
3: NC 96 & Riley Hill Road/Proctor Street

Build (2028) AM
02/17/2025

Intersection												
Int Delay, s/veh	85.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		+			+		+	+		+	+	
Traffic Vol, veh/h	6	17	50	8	53	75	171	679	9	86	847	106
Future Vol, veh/h	6	17	50	8	53	75	171	679	9	86	847	106
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	-	-	-	-	-	-	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	33	20	11	2	2	6	3	10	2	3	7	2
Mvmt Flow	6	18	53	9	56	80	182	722	10	91	901	113

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2299	2236	958	2266	2287	727	1014	0	0	732	0	0
Stage 1	1140	1140	-	1091	1091	-	-	-	-	-	-	-
Stage 2	1159	1096	-	1175	1196	-	-	-	-	-	-	-
Critical Hdwy	7.43	6.7	6.31	7.12	6.52	6.26	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.43	5.7	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.43	5.7	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.797	4.18	3.399	3.518	4.018	3.354	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	22	38	300	29	~ 39	417	680	-	-	868	-	-
Stage 1	213	256	-	260	291	-	-	-	-	-	-	-
Stage 2	207	268	-	233	259	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	25	300	~ 8	~ 26	417	680	-	-	868	-	-
Mov Cap-2 Maneuver	-	25	-	~ 8	~ 26	-	-	-	-	-	-	-
Stage 1	156	229	-	190	213	-	-	-	-	-	-	-
Stage 2	90	196	-	158	232	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v		\$ 1300.7	2.4	0.8
HCM LOS	-	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	680	-	-	- 42	868	-	-
HCM Lane V/C Ratio	0.268	-	-	- 3.445	0.105	-	-
HCM Control Delay (s/veh)	12.2	-	-	\$ 1300.7	9.6	-	-
HCM Lane LOS	B	-	-	F	A	-	-
HCM 95th %tile Q (veh)	1.1	-	-	- 16.2	0.4	-	-

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

Zebulon Grocery
4: NC 96 & Green Pace Road

Build (2028) AM
02/17/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	42	75	17	102	19	174	728	26	4	769	151
Future Volume (vph)	72	42	75	17	102	19	174	728	26	4	769	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		1%			-1%			2%			-2%	
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			50			100		
Satd. Flow (prot)	0	1632	0	0	1683	0	1686	1689	0	1787	1717	0
Flt Permitted		0.710			0.943		0.176			0.266		
Satd. Flow (perm)	0	1181	0	0	1596	0	312	1689	0	500	1717	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1850			373			861			623	
Travel Time (s)		36.0			7.3			16.8			12.1	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	11%	6%	5%	2%	12%	11%	6%	11%	6%	2%	9%	9%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	206	0	0	150	0	189	819	0	4	1000	0
Turn Type	Perm	NA		Perm	NA		D.Pm	NA		D.Pm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	2		2	6	
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)	26.0	26.0		26.0	26.0		84.0	84.0		84.0	84.0	
Total Split (%)	23.6%	23.6%		23.6%	23.6%		76.4%	76.4%		76.4%	76.4%	
Yellow Time (s)	3.8	3.8		3.9	3.9		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.5	1.5		1.2	1.2		1.3	1.3		1.3	1.3	
Lost Time Adjust (s)		-0.3			-0.1		-0.3	-0.3		-0.3	-0.3	
Total Lost Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effect Green (s)		20.4			20.4		79.6	79.6		79.6	79.6	
Actuated g/C Ratio		0.19			0.19		0.72	0.72		0.72	0.72	
v/c Ratio		0.94			0.51		0.84	0.67		0.01	0.80	
Control Delay (s/veh)		93.0			46.8		26.4	3.3		4.5	16.8	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)		93.0			46.8		26.4	3.3		4.5	16.8	

Zebulon Grocery
4: NC 96 & Green Pace Road

Build (2028) AM
02/17/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		F			D		C	A		A	B	
Approach Delay (s/veh)		93.0			46.8			7.6			16.8	
Approach LOS		F			D			A			B	
Queue Length 50th (ft)		144			95		13	55		1	416	
Queue Length 95th (ft)		#286			162		m#188	61		4	636	
Internal Link Dist (ft)		1770			293			781			543	
Turn Bay Length (ft)							200			150		
Base Capacity (vph)		225			304		226	1222		362	1243	
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		0.92			0.49		0.84	0.67		0.01	0.80	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 40 (36%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay (s/veh): 21.4

Intersection LOS: C

Intersection Capacity Utilization 94.2%

ICU Level of Service F

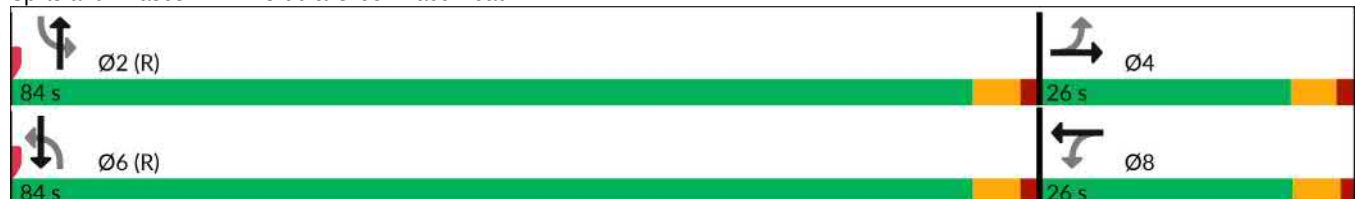
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 4: NC 96 & Green Pace Road



Zebulon Grocery
5: NC 96 & Pearces Road

Build (2028) AM
02/17/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	589	82	866	305	68	829
Future Volume (vph)	589	82	866	305	68	829
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	1%		0%			1%
Storage Length (ft)	100	0		0	275	
Storage Lanes	1	0		1	1	
Taper Length (ft)	100				50	
Satd. Flow (prot)	3346	0	1727	1482	1727	3326
Flt Permitted	0.958				0.186	
Satd. Flow (perm)	3346	0	1727	1482	338	3326
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	35		35			35
Link Distance (ft)	661		1137			829
Travel Time (s)	12.9		22.1			16.1
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	4%	10%	9%	4%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	699	0	902	318	71	864
Turn Type	Prot		NA	pm+ov	D.Pm	NA
Protected Phases	8		2	8		6
Permitted Phases				2	2	
Detector Phase	8		2	8	2	6
Switch Phase						
Minimum Initial (s)	7.0		10.0	7.0	10.0	10.0
Minimum Split (s)	31.0		33.0	31.0	33.0	18.0
Total Split (s)	33.0		77.0	33.0	77.0	77.0
Total Split (%)	30.0%		70.0%	30.0%	70.0%	70.0%
Yellow Time (s)	3.0		3.8	3.0	3.8	3.8
All-Red Time (s)	3.9		2.6	3.9	2.6	2.6
Lost Time Adjust (s)	-1.9		-1.4	-1.9	-1.4	-1.4
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None		C-Max	None	C-Max	C-Max
Act Effect Green (s)	26.8		73.2	110.0	73.2	73.2
Actuated g/C Ratio	0.24		0.67	1.00	0.67	0.67
v/c Ratio	0.86		0.79	0.21	0.32	0.39
Control Delay (s/veh)	51.3		12.6	0.2	16.3	13.2
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	51.3		12.6	0.2	16.3	13.2

Zebulon Grocery
5: NC 96 & Pearces Road

Build (2028) AM
02/17/2025



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
LOS	D		B	A	B	B
Approach Delay (s/veh)	51.3		9.4			13.5
Approach LOS	D		A			B
Queue Length 50th (ft)	240		266	0	29	196
Queue Length 95th (ft)	#312		m316	m0	m37	m241
Internal Link Dist (ft)	581		1057			749
Turn Bay Length (ft)	100				275	
Base Capacity (vph)	851		1149	1471	224	2213
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	0.82		0.79	0.22	0.32	0.39

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 14 (13%), Referenced to phase 2:NBSB and 6:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay (s/veh): 21.0

Intersection LOS: C

Intersection Capacity Utilization 84.2%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 5: NC 96 & Pearces Road



Zebulon Grocery
6: NC 96 & US 64-264 WB Ramps/Dogwood Drive

Build (2028) AM

02/17/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	362	69	133	80	68	86	166	774	121	77	923	434
Future Volume (vph)	362	69	133	80	68	86	166	774	121	77	923	434
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			-4%			1%	
Storage Length (ft)	0		0	0		150	425		0	125		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			25			200			100		
Satd. Flow (prot)	1687	1657	0	1770	1459	0	1770	3315	0	1663	3235	0
Flt Permitted	0.415			0.452			0.083			0.200		
Satd. Flow (perm)	737	1657	0	842	1459	0	155	3315	0	350	3235	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		172			528			1048			1137	
Travel Time (s)		4.7			10.3			20.4			22.1	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	2%	4%	2%	2%	33%	4%	9%	8%	8%	7%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	385	214	0	85	163	0	177	952	0	82	1444	0
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8			4			6			2		
Detector Phase	7	4		3	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)	14.0	14.0		14.0	14.0		14.0	36.0		14.0	18.0	
Total Split (s)	23.0	26.0		14.0	17.0		14.0	56.0		14.0	56.0	
Total Split (%)	20.9%	23.6%		12.7%	15.5%		12.7%	50.9%		12.7%	50.9%	
Yellow Time (s)	3.0	3.8		3.0	3.8		3.0	4.1		3.0	4.1	
All-Red Time (s)	2.4	2.0		2.6	2.0		2.8	2.1		2.9	2.1	
Lost Time Adjust (s)	-0.4	-0.8		-0.6	-0.8		-0.8	-1.2		-0.9	-1.2	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effect Green (s)	30.0	24.1		31.0	12.0		60.0	54.3		61.0	51.0	
Actuated g/C Ratio	0.27	0.22		0.28	0.11		0.55	0.49		0.55	0.46	
v/c Ratio	1.08	0.59		0.28	1.03		0.82	0.58		0.28	0.96	
Control Delay (s/veh)	105.2	47.7		29.6	127.4		37.6	6.0		6.5	29.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	105.2	47.7		29.6	127.4		37.6	6.0		6.5	29.7	

Zebulon Grocery
6: NC 96 & US 64-264 WB Ramps/Dogwood Drive

Build (2028) AM
02/17/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	F	D		C	F		D	A		A	C	
Approach Delay (s/veh)		84.7			93.9			10.9			28.5	
Approach LOS		F			F			B			C	
Queue Length 50th (ft)	~244	141		43	~123		76	112		10	358	
Queue Length 95th (ft)	#431	#227		81	#258		m#115	134		m15	#660	
Internal Link Dist (ft)		92			448			968			1057	
Turn Bay Length (ft)							425			125		
Base Capacity (vph)	356	363		315	159		216	1637		303	1499	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	1.08	0.59		0.27	1.03		0.82	0.58		0.27	0.96	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 21 (19%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay (s/veh): 37.1

Intersection LOS: D

Intersection Capacity Utilization 94.2%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

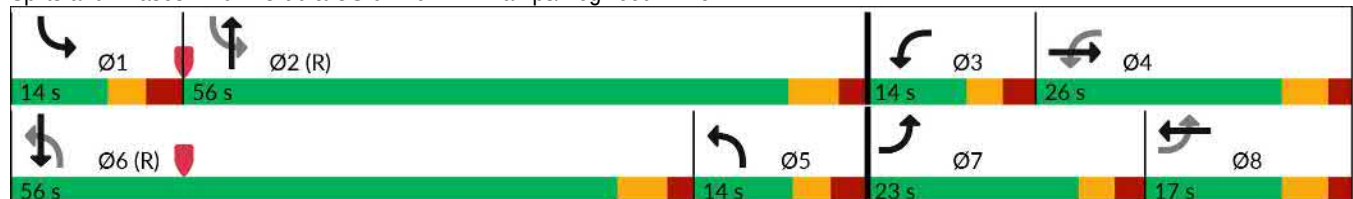
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 6: NC 96 & US 64-264 WB Ramps/Dogwood Drive



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	322	4	347	0	0	0	0	757	112	379	714	0
Future Volume (vph)	322	4	347	0	0	0	0	757	112	379	714	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		2%			0%			3%			-1%	
Storage Length (ft)	0		150	0		0	0		0	375		0
Storage Lanes	0		1	0		0	0		0	1		0
Taper Length (ft)	25			25			25			150		
Satd. Flow (prot)	0	1615	1508	0	0	0	0	3264	0	1680	3489	0
Flt Permitted		0.953								0.127		
Satd. Flow (perm)	0	1615	1508	0	0	0	0	3264	0	225	3489	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		677			713			666			1048	
Travel Time (s)		10.3			10.8			13.0			20.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	100%	6%	2%	2%	2%	2%	7%	6%	8%	4%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	362	386	0	0	0	0	965	0	421	793	0
Turn Type	Split	NA	Prot					NA		D.P+P	NA	
Protected Phases	4	4	4					2		1	6	
Permitted Phases										2		
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					33.0		14.0	17.0	
Total Split (s)	37.0	37.0	37.0					43.0		30.0	73.0	
Total Split (%)	33.6%	33.6%	33.6%					39.1%		27.3%	66.4%	
Yellow Time (s)	3.7	3.7	3.7					3.9		3.0	3.9	
All-Red Time (s)	1.9	1.9	1.9					1.9		2.8	1.9	
Lost Time Adjust (s)		-0.6	-0.6					-0.8		-0.8	-0.8	
Total Lost Time (s)		5.0	5.0					5.0		5.0	5.0	
Lead/Lag								Lead		Lag		
Lead-Lag Optimize?								Yes		Yes		
Recall Mode	None	None	None					C-Max		None	C-Max	
Act Effect Green (s)		30.4	30.4					39.6		64.6	69.6	
Actuated g/C Ratio		0.28	0.28					0.36		0.59	0.63	
v/c Ratio		0.81	0.93					0.82		0.91	0.36	
Control Delay (s/veh)		52.3	68.3					39.5		31.7	2.2	
Queue Delay		0.0	0.0					0.0		0.0	0.0	
Total Delay (s/veh)		52.3	68.3					39.5		31.7	2.2	

Zebulon Grocery
7: NC 96 & US 64-264 EB Off Ramp/US 64-264 EB On Ramp

Build (2028) AM
02/17/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		D	E					D		C	A	
Approach Delay (s/veh)		60.6						39.5			12.4	
Approach LOS		E						D			B	
Queue Length 50th (ft)		233	259					330		194	34	
Queue Length 95th (ft)		#371	#434					#420		m#229	m33	
Internal Link Dist (ft)		597			633			586			968	
Turn Bay Length (ft)			150							375		
Base Capacity (vph)		469	438					1174		462	2206	
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		0.77	0.88					0.82		0.91	0.36	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 10 (9%), Referenced to phase 2:NBSB and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay (s/veh): 33.7

Intersection LOS: C

Intersection Capacity Utilization 76.0%

ICU Level of Service D

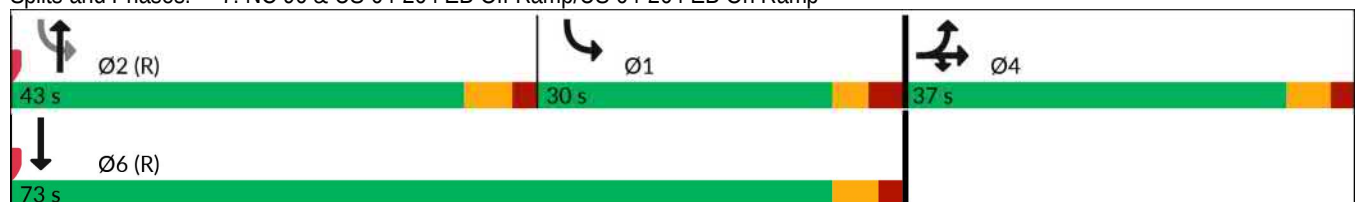
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 7: NC 96 & US 64-264 EB Off Ramp/US 64-264 EB On Ramp



Zebulon Grocery
8: Green Pace Road & Proctor Street

Build (2028) AM
02/17/2025



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	122	7	171	162	12	41
Future Volume (vph)	122	7	171	162	12	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			25		25	
Satd. Flow (prot)	1800	0	0	1791	1612	0
Flt Permitted				0.975	0.989	
Satd. Flow (perm)	1800	0	0	1791	1612	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	58			141	373	
Travel Time (s)	1.1			2.7	7.3	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	2%	2%	5%	2%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	133	0	0	343	54	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 38.2% ICU Level of Service A

Analysis Period (min) 15

Zebulon Grocery
8: Green Pace Road & Proctor Street

Build (2028) AM
02/17/2025

Intersection						
Int Delay, s/veh	3.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	122	7	171	162	12	41
Future Vol, veh/h	122	7	171	162	12	41
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	97	97	97	97	97	97
Heavy Vehicles, %	5	2	2	5	2	5
Mvmt Flow	126	7	176	167	12	42
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	133	0	649	130
Stage 1	-	-	-	-	130	-
Stage 2	-	-	-	-	519	-
Critical Hdwy	-	-	4.12	-	6.42	6.25
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.345
Pot Cap-1 Maneuver	-	-	1452	-	434	912
Stage 1	-	-	-	-	896	-
Stage 2	-	-	-	-	597	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1452	-	376	912
Mov Cap-2 Maneuver	-	-	-	-	376	-
Stage 1	-	-	-	-	896	-
Stage 2	-	-	-	-	517	-
Approach	EB	WB		NB		
HCM Control Delay, s/v	0	4		10.7		
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	689	-	-	1452	-	
HCM Lane V/C Ratio	0.079	-	-	0.121	-	
HCM Control Delay (s/veh)	10.7	-	-	7.8	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q (veh)	0.3	-	-	0.4	-	

Zebulon Grocery
9: Proctor Street & Watsonia Drive

Build (2028) AM
02/17/2025



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	16	184	255	19	50	23
Future Volume (vph)	16	184	255	19	50	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	1773	1750	0	1670	0
Flt Permitted		0.996			0.967	
Satd. Flow (perm)	0	1773	1750	0	1670	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		141	1212		1127	
Travel Time (s)		2.7	23.6		30.7	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	27%	5%	8%	2%	2%	13%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	213	291	0	77	0
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	33.8%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	16	184	255	19	50	23
Future Vol, veh/h	16	184	255	19	50	23
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	94	94	94	94	94	94
Heavy Vehicles, %	27	5	8	2	2	13
Mvmt Flow	17	196	271	20	53	24
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	291	0	-	0	511	281
Stage 1	-	-	-	-	281	-
Stage 2	-	-	-	-	230	-
Critical Hdwy	4.37	-	-	-	6.42	6.33
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.443	-	-	-	3.518	3.417
Pot Cap-1 Maneuver	1141	-	-	-	523	732
Stage 1	-	-	-	-	767	-
Stage 2	-	-	-	-	808	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1141	-	-	-	514	732
Mov Cap-2 Maneuver	-	-	-	-	514	-
Stage 1	-	-	-	-	754	-
Stage 2	-	-	-	-	808	-
Approach	EB	WB		SB		
HCM Control Delay, s/v	0.7	0		12.4		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1141	-	-	-	567	
HCM Lane V/C Ratio	0.015	-	-	-	0.137	
HCM Control Delay (s/veh)	8.2	0	-	-	12.4	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q (veh)	0	-	-	-	0.5	

Zebulon Grocery
10: Pearces Road & Proctor Street

Build (2028) AM
02/17/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	184	21	156	173	35	11	188	112	63	467	85
Future Volume (vph)	24	184	21	156	173	35	11	188	112	63	467	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1775	0	0	1735	0	0	1665	0	0	1799	0
Flt Permitted		0.995			0.979			0.998			0.995	
Satd. Flow (perm)	0	1775	0	0	1735	0	0	1665	0	0	1799	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1212			660			626			577	
Travel Time (s)		23.6			12.9			12.2			11.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	6%	2%	2%	10%	2%	14%	10%	5%	4%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	249	0	0	396	0	0	338	0	0	668	0
Sign Control		Yield			Yield			Yield			Yield	
Intersection Summary												
Area Type:	Other											
Control Type:	Roundabout											
Intersection Capacity Utilization	96.0%											
Analysis Period (min)	15											
	ICU Level of Service F											

Intersection				
Intersection Delay, s/veh	12.9			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	249	396	338	668
Demand Flow Rate, veh/h	262	419	366	689
Vehicles Circulating, veh/h	767	265	310	394
Vehicles Exiting, veh/h	316	411	719	290
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	12.3	8.0	7.9	18.6
Approach LOS	B	A	A	C
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	262	419	366	689
Cap Entry Lane, veh/h	631	1053	1006	923
Entry HV Adj Factor	0.950	0.946	0.923	0.969
Flow Entry, veh/h	249	396	338	668
Cap Entry, veh/h	600	996	928	895
V/C Ratio	0.415	0.398	0.364	0.746
Control Delay, s/veh	12.3	8.0	7.9	18.6
LOS	B	A	A	C
95th %tile Queue, veh	2	2	2	7

Zebulon Grocery
11: NC 96 & Site Driveway 1

Build (2028) AM
02/17/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	40	46	715	23	84	986
Future Volume (vph)	40	46	715	23	84	986
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	1689	0	1855	0	0	1855
Flt Permitted	0.977					0.996
Satd. Flow (perm)	1689	0	1855	0	0	1855
Link Speed (mph)	25		35			45
Link Distance (ft)	655		233			677
Travel Time (s)	17.9		4.5			10.3
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	95	0	820	0	0	1189
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 110.6%						
ICU Level of Service H						
Analysis Period (min) 15						

Intersection						
Int Delay, s/veh	12.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			A
Traffic Vol, veh/h	40	46	715	23	84	986
Future Vol, veh/h	40	46	715	23	84	986
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	44	51	794	26	93	1096

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	2089	807	0	0	820	0
Stage 1	807	-	-	-	-	-
Stage 2	1282	-	-	-	-	-
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	58	381	-	-	809	-
Stage 1	439	-	-	-	-	-
Stage 2	260	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 41	381	-	-	809	-
Mov Cap-2 Maneuver	~ 41	-	-	-	-	-
Stage 1	439	-	-	-	-	-
Stage 2	184	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v269.2		0	0.8
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	78	809
HCM Lane V/C Ratio	-	-	1.225	0.115
HCM Control Delay (s/veh)	-	-	269.2	10
HCM Lane LOS	-	-	F	B
HCM 95th %tile Q (veh)	-	-	7.2	0.4

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



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↶			↷
Traffic Volume (vph)	0	0	738	36	0	1026
Future Volume (vph)	0	0	738	36	0	1026
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	0	0		0	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	0	1852	0	0	1863
Flt Permitted						
Satd. Flow (perm)	0	0	1852	0	0	1863
Link Speed (mph)	25		35			35
Link Distance (ft)	578		496			233
Travel Time (s)	15.8		9.7			4.5
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	860	0	0	1140
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	57.3%			ICU Level of Service B		
Analysis Period (min)	15					

Zebulon Grocery
13: Proctor Street & Site Driveway 3

Build (2028) AM
02/17/2025



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	12	100	128	47	29	8
Future Volume (vph)	12	100	128	47	29	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	1853	1796	0	1738	0
Flt Permitted		0.995			0.962	
Satd. Flow (perm)	0	1853	1796	0	1738	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		505	58		435	
Travel Time (s)		9.8	1.1		11.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	124	194	0	41	0
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	25.3%			ICU Level of Service A		
Analysis Period (min)	15					

Zebulon Grocery
13: Proctor Street & Site Driveway 3

Build (2028) AM
02/17/2025

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	12	100	128	47	29	8
Future Vol, veh/h	12	100	128	47	29	8
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	13	111	142	52	32	9
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	194	0	-	0	305	168
Stage 1	-	-	-	-	168	-
Stage 2	-	-	-	-	137	-
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	1379	-	-	-	687	876
Stage 1	-	-	-	-	862	-
Stage 2	-	-	-	-	890	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1379	-	-	-	680	876
Mov Cap-2 Maneuver	-	-	-	-	680	-
Stage 1	-	-	-	-	853	-
Stage 2	-	-	-	-	890	-
Approach	EB	WB		SB		
HCM Control Delay, s/v	0.8	0		10.3		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1379	-	-	-	715	
HCM Lane V/C Ratio	0.01	-	-	-	0.057	
HCM Control Delay (s/veh)	7.6	0	-	-	10.3	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q (veh)	0	-	-	-	0.2	

Zebulon Grocery
25: US 64-264 WB Ramps

Build (2028) AM
02/17/2025



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑		↗
Traffic Volume (vph)	0	0	0	668	0	564
Future Volume (vph)	0	0	0	668	0	564
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			3%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		0	1
Taper Length (ft)			25		25	
Satd. Flow (prot)	0	0	0	1835	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	0	1835	0	1611
Link Speed (mph)	45			45	25	
Link Distance (ft)	412			172	567	
Travel Time (s)	6.2			2.6	15.5	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	726	0	613
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	38.5%			ICU Level of Service A		
Analysis Period (min)	15					

Zebulon Grocery
1: NC 96 & Pippin Road

Build (2028) PM
02/17/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	W	T	T	T	T
Traffic Volume (vph)	201	66	743	284	106	787
Future Volume (vph)	201	66	743	284	106	787
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	2%		0%			0%
Storage Length (ft)	0	0		175	175	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25				100	
Satd. Flow (prot)	1717	0	1792	1583	1770	1792
Flt Permitted	0.964				0.132	
Satd. Flow (perm)	1717	0	1792	1583	246	1792
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	35		45		45	
Link Distance (ft)	1396		1396		934	
Travel Time (s)	27.2		21.2		14.2	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	6%	2%	2%	6%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	278	0	774	296	110	820
Turn Type	Prot		NA	pm+ov	D.P+P	NA
Protected Phases	8		2	8	1	6
Permitted Phases				2	2	
Detector Phase	8		2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0		12.0	7.0	7.0	12.0
Minimum Split (s)	14.0		19.0	14.0	13.0	19.0
Total Split (s)	30.0		90.0	30.0	20.0	110.0
Total Split (%)	21.4%		64.3%	21.4%	14.3%	78.6%
Yellow Time (s)	3.0		4.5	3.0	3.0	4.5
All-Red Time (s)	2.4		1.0	2.4	1.6	1.0
Lost Time Adjust (s)	-0.4		-0.5	-0.4	0.4	-0.5
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		Min	None	None	Min
Act Effect Green (s)	21.0		43.3	69.5	50.5	55.7
Actuated g/C Ratio	0.24		0.50	0.80	0.58	0.64
v/c Ratio	0.67		0.87	0.23	0.41	0.72
Control Delay (s/veh)	41.4		30.8	2.4	11.2	14.8
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	41.4		30.8	2.4	11.2	14.8

Zebulon Grocery
1: NC 96 & Pippin Road

Build (2028) PM
02/17/2025



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
LOS	D		C	A	B	B
Approach Delay (s/veh)	41.4		22.9			14.3
Approach LOS	D		C			B
Queue Length 50th (ft)	133		357	27	21	274
Queue Length 95th (ft)	#290		566	46	42	435
Internal Link Dist (ft)	1316		1316			854
Turn Bay Length (ft)				175	175	
Base Capacity (vph)	511		1657	1354	430	1771
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	0.54		0.47	0.22	0.26	0.46

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 87

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay (s/veh): 21.7

Intersection LOS: C

Intersection Capacity Utilization 72.6%

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: NC 96 & Pippin Road



Zebulon Grocery
2: NC 96 & Rose Mallow Drive

Build (2028) PM
02/17/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	39	6	1092	51	11	990
Future Volume (vph)	39	6	1092	51	11	990
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	125	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				100	
Satd. Flow (prot)	1710	0	1801	0	1770	1810
Flt Permitted	0.958				0.950	
Satd. Flow (perm)	1710	0	1801	0	1770	1810
Link Speed (mph)	25		45			45
Link Distance (ft)	881		682			1396
Travel Time (s)	24.0		10.3			21.2
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	2%	5%	2%	2%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	47	0	1203	0	12	1042
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	70.6%		ICU Level of Service C			
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	5.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	39	6	1092	51	11	990
Future Vol, veh/h	39	6	1092	51	11	990
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	-	-	-	125	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	5	2	5	2	2	5
Mvmt Flow	41	6	1149	54	12	1042
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	2242	1176	0	0	1203	0
Stage 1	1176	-	-	-	-	-
Stage 2	1066	-	-	-	-	-
Critical Hdwy	6.45	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	45	233	-	-	580	-
Stage 1	289	-	-	-	-	-
Stage 2	327	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	44	233	-	-	580	-
Mov Cap-2 Maneuver	44	-	-	-	-	-
Stage 1	289	-	-	-	-	-
Stage 2	320	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s/v249.9		0	0.1			
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	49	580	-	
HCM Lane V/C Ratio	-	-	0.967	0.02	-	
HCM Control Delay (s/veh)	-	-	249.9	11.3	-	
HCM Lane LOS	-	-	F	B	-	
HCM 95th %tile Q (veh)	-	-	4.1	0.1	-	

Zebulon Grocery
3: NC 96 & Riley Hill Road/Proctor Street

Build (2028) PM
02/17/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	47	80	22	28	56	43	1025	22	77	905	19
Future Volume (vph)	15	47	80	22	28	56	43	1025	22	77	905	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	150		0	150		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			100			100		
Satd. Flow (prot)	0	1698	0	0	1713	0	1752	1805	0	1736	1788	0
Flt Permitted		0.995			0.990		0.950			0.950		
Satd. Flow (perm)	0	1698	0	0	1713	0	1752	1805	0	1736	1788	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1315			503			637			495	
Travel Time (s)		25.6			9.8			12.4			9.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	3%	3%	2%	2%	2%	3%	5%	2%	4%	6%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	148	0	0	110	0	45	1091	0	80	963	0
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type: Unsignalized												
Intersection Capacity Utilization 80.1% ICU Level of Service D												
Analysis Period (min) 15												

Intersection												
Int Delay, s/veh	146.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	47	80	22	28	56	43	1025	22	77	905	19
Future Vol, veh/h	15	47	80	22	28	56	43	1025	22	77	905	19
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	-	-	-	-	-	-	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	3	3	2	2	2	3	5	2	4	6	2
Mvmt Flow	16	49	83	23	29	58	45	1068	23	80	943	20
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2326	2294	953	2349	2293	1080	963	0	0	1091	0	0
Stage 1	1113	1113	-	1170	1170	-	-	-	-	-	-	-
Stage 2	1213	1181	-	1179	1123	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.53	6.23	7.12	6.52	6.22	4.13	-	-	4.14	-	-
Critical Hdwy Stg 1	6.12	5.53	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.53	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.027	3.327	3.518	4.018	3.318	2.227	-	-	2.236	-	-
Pot Cap-1 Maneuver	26	~ 39	313	25	39	265	711	-	-	632	-	-
Stage 1	253	283	-	235	267	-	-	-	-	-	-	-
Stage 2	222	263	-	232	281	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 4	~ 32	313	-	32	265	711	-	-	632	-	-
Mov Cap-2 Maneuver	~ 4	~ 32	-	-	32	-	-	-	-	-	-	-
Stage 1	237	247	-	220	250	-	-	-	-	-	-	-
Stage 2	143	246	-	119	245	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s/\$ 2410					0.4		0.9					
HCM LOS	F		-									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	711	-	-	26	-	632	-	-				
HCM Lane V/C Ratio	0.063	-	-	5.689	-	0.127	-	-				
HCM Control Delay (s/veh)	10.4	-	-	-\$ 2410	-	11.5	-	-				
HCM Lane LOS	B	-	-	F	-	B	-	-				
HCM 95th %tile Q (veh)	0.2	-	-	18.3	-	0.4	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined				*: All major volume in platoon				

Zebulon Grocery
4: NC 96 & Green Pace Road

Build (2028) PM
02/17/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	100	106	25	40	4	121	939	46	16	875	119
Future Volume (vph)	138	100	106	25	40	4	121	939	46	16	875	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		1%			-1%			2%			-2%	
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			50			100		
Satd. Flow (prot)	0	1686	0	0	1783	0	1752	1796	0	1787	1785	0
Flt Permitted		0.847			0.784		0.114			0.119		
Satd. Flow (perm)	0	1458	0	0	1423	0	210	1796	0	224	1785	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1850			379			844			637	
Travel Time (s)		36.0			7.4			16.4			12.4	
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	2%	6%	2%	6%	2%	2%	4%	2%	2%	5%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	362	0	0	72	0	127	1036	0	17	1046	0
Turn Type	Perm	NA		Perm	NA		D.Pm	NA		D.Pm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	2		2	6	
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)	34.0	34.0		34.0	34.0		86.0	86.0		86.0	86.0	
Total Split (%)	28.3%	28.3%		28.3%	28.3%		71.7%	71.7%		71.7%	71.7%	
Yellow Time (s)	3.8	3.8		3.9	3.9		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.5	1.5		1.2	1.2		1.3	1.3		1.3	1.3	
Lost Time Adjust (s)		-0.3			-0.1		-0.3	-0.3		-0.3	-0.3	
Total Lost Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effect Green (s)		29.0			29.0		81.0	81.0		81.0	81.0	
Actuated g/C Ratio		0.24			0.24		0.68	0.68		0.68	0.68	
v/c Ratio		1.03			0.21		0.90	0.85		0.11	0.87	
Control Delay (s/veh)		100.5			38.4		51.9	11.0		9.0	25.1	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)		100.5			38.4		51.9	11.0		9.0	25.1	

Zebulon Grocery
4: NC 96 & Green Pace Road

Build (2028) PM
02/17/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		F			D		D	B		A	C	
Approach Delay (s/veh)		100.5			38.4			15.5			24.8	
Approach LOS		F			D			B			C	
Queue Length 50th (ft)		~300			45		37	305		4	580	
Queue Length 95th (ft)		#490			m86		m#111	404		14	848	
Internal Link Dist (ft)		1770			299			764			557	
Turn Bay Length (ft)							200			150		
Base Capacity (vph)		352			343		141	1212		151	1204	
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		1.03			0.21		0.90	0.85		0.11	0.87	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 36 (30%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.03

Intersection Signal Delay (s/veh): 31.4

Intersection LOS: C

Intersection Capacity Utilization 100.1%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

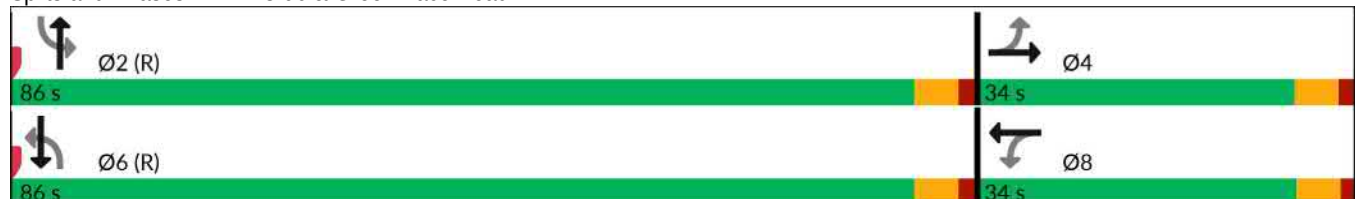
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 4: NC 96 & Green Pace Road



Zebulon Grocery
5: NC 96 & Pearces Road

Build (2028) PM
02/17/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	396	64	1027	603	95	967
Future Volume (vph)	396	64	1027	603	95	967
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	1%		0%			1%
Storage Length (ft)	100	0		0	275	
Storage Lanes	1	0		1	1	
Taper Length (ft)	100				50	
Satd. Flow (prot)	3320	0	1827	1568	1761	3421
Flt Permitted	0.959				0.154	
Satd. Flow (perm)	3320	0	1827	1568	285	3421
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	35		35			35
Link Distance (ft)	661		1137			832
Travel Time (s)	12.9		22.1			16.2
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	2%	4%	3%	2%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	469	0	1048	615	97	987
Turn Type	Prot		NA	pm+ov	D.Pm	NA
Protected Phases	8		2	8		6
Permitted Phases				2	2	
Detector Phase	8		2	8	2	6
Switch Phase						
Minimum Initial (s)	7.0		10.0	7.0	10.0	10.0
Minimum Split (s)	30.0		33.0	30.0	33.0	20.0
Total Split (s)	30.0		90.0	30.0	90.0	90.0
Total Split (%)	25.0%		75.0%	25.0%	75.0%	75.0%
Yellow Time (s)	3.0		3.8	3.0	3.8	3.8
All-Red Time (s)	3.9		2.6	3.9	2.6	2.6
Lost Time Adjust (s)	-1.9		-1.4	-1.9	-1.4	-1.4
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None		C-Max	None	C-Max	C-Max
Act Effect Green (s)	22.7		87.3	120.0	87.3	87.3
Actuated g/C Ratio	0.19		0.73	1.00	0.73	0.73
v/c Ratio	0.75		0.79	0.39	0.47	0.40
Control Delay (s/veh)	53.8		10.2	0.4	18.7	11.1
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	53.8		10.2	0.4	18.7	11.1



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
LOS	D		B	A	B	B
Approach Delay (s/veh)	53.8		6.6			11.7
Approach LOS	D		A			B
Queue Length 50th (ft)	176		267	0	46	230
Queue Length 95th (ft)	232		m293	m0	m60	m261
Internal Link Dist (ft)	581		1057			752
Turn Bay Length (ft)	100				275	
Base Capacity (vph)	691		1329	1553	207	2489
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	0.68		0.79	0.40	0.47	0.40

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay (s/veh): 15.2

Intersection LOS: B

Intersection Capacity Utilization 88.2%

ICU Level of Service E

Analysis Period (min) 15

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

Splits and Phases: 5: NC 96 & Pearces Road



Zebulon Grocery
6: NC 96 & US 64-264 WB Ramps/Dogwood Drive

Build (2028) PM

02/17/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	415	55	94	84	73	90	172	1156	92	63	1031	355
Future Volume (vph)	415	55	94	84	73	90	172	1156	92	63	1031	355
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			-4%			1%	
Storage Length (ft)	0		0	0		150	425		0	125		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			25			200			100		
Satd. Flow (prot)	1736	1686	0	1770	1708	0	1770	3538	0	1761	3314	0
Flt Permitted	0.332			0.574			0.076			0.083		
Satd. Flow (perm)	607	1686	0	1069	1708	0	142	3538	0	154	3314	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		172			528			1048			1137	
Travel Time (s)		4.7			10.3			20.4			22.1	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%	4%	3%	2%	2%	4%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	432	155	0	88	170	0	179	1300	0	66	1444	0
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8			4			6			2		
Detector Phase	7	4		3	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)	14.0	14.0		14.0	14.0		14.0	36.0		14.0	18.0	
Total Split (s)	29.0	33.0		14.0	18.0		14.0	59.0		14.0	59.0	
Total Split (%)	24.2%	27.5%		11.7%	15.0%		11.7%	49.2%		11.7%	49.2%	
Yellow Time (s)	3.0	3.8		3.0	3.8		3.0	4.1		3.0	4.1	
All-Red Time (s)	2.4	2.0		2.6	2.0		2.8	2.1		2.9	2.1	
Lost Time Adjust (s)	-0.4	-0.8		-0.6	-0.8		-0.8	-1.2		-0.9	-1.2	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effect Green (s)	37.0	28.5		37.0	13.0		63.0	57.4		64.0	54.0	
Actuated g/C Ratio	0.31	0.24		0.31	0.11		0.53	0.48		0.53	0.45	
v/c Ratio	1.05	0.39		0.23	0.92		0.91	0.77		0.35	0.97	
Control Delay (s/veh)	92.2	42.0		28.6	101.3		41.5	8.9		14.2	34.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	92.2	42.0		28.6	101.3		41.5	8.9		14.2	34.1	

Zebulon Grocery
6: NC 96 & US 64-264 WB Ramps/Dogwood Drive

Build (2028) PM
02/17/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	F	D		C	F		D	A		B	C	
Approach Delay (s/veh)		79.0			76.5			12.9			33.3	
Approach LOS		E			E			B			C	
Queue Length 50th (ft)	~309	102		46	132		81	212		12	354	
Queue Length 95th (ft)	#509	167		86	#267		m80	m218		m26	#712	
Internal Link Dist (ft)		92			448			968			1057	
Turn Bay Length (ft)							425			125		
Base Capacity (vph)	412	400		386	185		196	1692		203	1491	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	1.05	0.39		0.23	0.92		0.91	0.77		0.33	0.97	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 9 (8%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.05

Intersection Signal Delay (s/veh): 35.3

Intersection LOS: D

Intersection Capacity Utilization 98.4%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

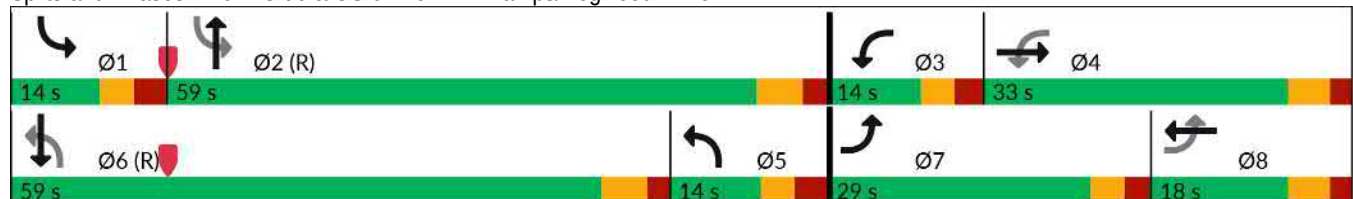
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 6: NC 96 & US 64-264 WB Ramps/Dogwood Drive



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	534	4	374	0	0	0	0	914	199	436	730	0
Future Volume (vph)	534	4	374	0	0	0	0	914	199	436	730	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		2%			0%			3%			-1%	
Storage Length (ft)	0		150	0		0	0		0	375		0
Storage Lanes	0		1	0		0	0		0	1		0
Taper Length (ft)	25			25			25			150		
Satd. Flow (prot)	0	1741	1537	0	0	0	0	3359	0	1728	3522	0
Flt Permitted		0.953								0.093		
Satd. Flow (perm)	0	1741	1537	0	0	0	0	3359	0	169	3522	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		677			713			666			1048	
Travel Time (s)		10.3			10.8			13.0			20.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	2%	4%	2%	2%	2%	2%	3%	3%	5%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	555	386	0	0	0	0	1147	0	449	753	0
Turn Type	Split	NA	Prot					NA		D.P+P	NA	
Protected Phases	4	4	4					2		1	6	
Permitted Phases										2		
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					33.0		14.0	17.0	
Total Split (s)	42.0	42.0	42.0					48.0		30.0	78.0	
Total Split (%)	35.0%	35.0%	35.0%					40.0%		25.0%	65.0%	
Yellow Time (s)	3.7	3.7	3.7					3.9		3.0	3.9	
All-Red Time (s)	1.9	1.9	1.9					1.9		2.8	1.9	
Lost Time Adjust (s)		-0.6	-0.6					-0.8		-0.8	-0.8	
Total Lost Time (s)		5.0	5.0					5.0		5.0	5.0	
Lead/Lag								Lead		Lag		
Lead-Lag Optimize?								Yes		Yes		
Recall Mode	None	None	None					C-Max		None	C-Max	
Act Effect Green (s)		37.0	37.0					43.0		68.0	73.0	
Actuated g/C Ratio		0.31	0.31					0.36		0.57	0.61	
v/c Ratio		1.04	0.82					0.95		1.07	0.35	
Control Delay (s/veh)		89.4	53.7					54.9		74.9	3.0	
Queue Delay		0.0	0.0					0.0		0.0	0.0	
Total Delay (s/veh)		89.4	53.7					54.9		74.9	3.0	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		F	D					D		E	A	
Approach Delay (s/veh)		74.7						54.9			29.8	
Approach LOS		E						D			C	
Queue Length 50th (ft)		~462	276					452		~348	43	
Queue Length 95th (ft)		#680	#435					#598		m#397	m45	
Internal Link Dist (ft)		597			633			586			968	
Turn Bay Length (ft)			150							375		
Base Capacity (vph)		536	473					1203		420	2142	
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		1.04	0.82					0.95		1.07	0.35	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.07

Intersection Signal Delay (s/veh): 51.4

Intersection LOS: D

Intersection Capacity Utilization 98.1%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

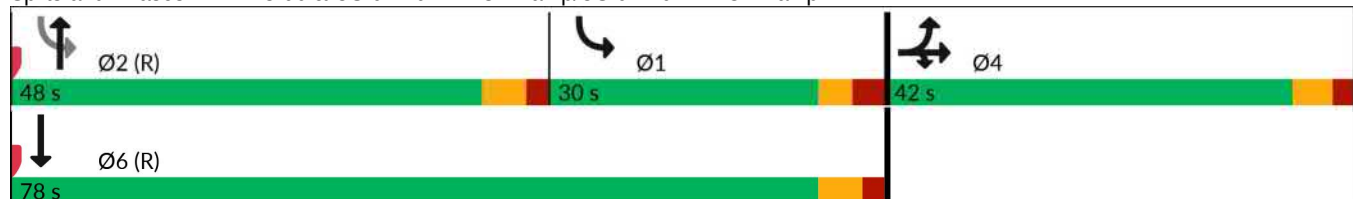
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 7: NC 96 & US 64-264 EB Off Ramp/US 64-264 EB On Ramp



Zebulon Grocery
8: Green Pace Road & Proctor Street

Build (2028) PM
02/17/2025



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	214	25	44	160	24	138
Future Volume (vph)	214	25	44	160	24	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			25		25	
Satd. Flow (prot)	1805	0	0	1831	1637	0
Flt Permitted				0.989	0.993	
Satd. Flow (perm)	1805	0	0	1831	1637	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	62			141	379	
Travel Time (s)	1.2			2.7	7.4	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	2%	5%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	266	0	0	227	180	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 43.5% ICU Level of Service A

Analysis Period (min) 15

Zebulon Grocery
8: Green Pace Road & Proctor Street

Build (2028) PM
02/17/2025

Intersection						
Int Delay, s/veh	3.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	214	25	44	160	24	138
Future Vol, veh/h	214	25	44	160	24	138
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, %	4	2	5	2	2	2
Mvmt Flow	238	28	49	178	27	153

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	266	0	528	252
Stage 1	-	-	-	-	252	-
Stage 2	-	-	-	-	276	-
Critical Hdwy	-	-	4.15	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.245	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1281	-	511	787
Stage 1	-	-	-	-	790	-
Stage 2	-	-	-	-	771	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1281	-	490	787
Mov Cap-2 Maneuver	-	-	-	-	490	-
Stage 1	-	-	-	-	790	-
Stage 2	-	-	-	-	739	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	1.7	11.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	722	-	-	1281	-
HCM Lane V/C Ratio	0.249	-	-	0.038	-
HCM Control Delay (s/veh)	11.6	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q (veh)	1	-	-	0.1	-

Zebulon Grocery
9: Proctor Street & Watsonia Drive

Build (2028) PM
02/17/2025



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	46	305	179	18	20	25
Future Volume (vph)	46	305	179	18	20	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	1852	1824	0	1683	0
Flt Permitted		0.994			0.978	
Satd. Flow (perm)	0	1852	1824	0	1683	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		141	1212		1127	
Travel Time (s)		2.7	23.6		30.7	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	390	219	0	50	0
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	42.4%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	46	305	179	18	20	25
Future Vol, veh/h	46	305	179	18	20	25
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	3	2	2	2
Mvmt Flow	51	339	199	20	22	28
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	219	0	-	0	650	209
Stage 1	-	-	-	-	209	-
Stage 2	-	-	-	-	441	-
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	1350	-	-	-	434	831
Stage 1	-	-	-	-	826	-
Stage 2	-	-	-	-	648	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1350	-	-	-	414	831
Mov Cap-2 Maneuver	-	-	-	-	414	-
Stage 1	-	-	-	-	787	-
Stage 2	-	-	-	-	648	-
Approach	EB	WB		SB		
HCM Control Delay, s/v	1	0		11.9		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1350	-	-	-	574	
HCM Lane V/C Ratio	0.038	-	-	-	0.087	
HCM Control Delay (s/veh)	7.8	0	-	-	11.9	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q (veh)	0.1	-	-	-	0.3	

Zebulon Grocery
10: Pearces Road & Proctor Street

Build (2028) PM
02/17/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	178	30	89	108	34	31	531	78	34	301	72
Future Volume (vph)	105	178	30	89	108	34	31	531	78	34	301	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1802	0	0	1771	0	0	1798	0	0	1751	0
Flt Permitted		0.983			0.981			0.998			0.996	
Satd. Flow (perm)	0	1802	0	0	1771	0	0	1798	0	0	1751	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1212			660			626			577	
Travel Time (s)		23.6			12.9			12.2			11.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	5%	5%	2%	2%	4%	4%	2%	5%	4%	12%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	336	0	0	249	0	0	688	0	0	438	0
Sign Control		Yield			Yield			Yield			Yield	
Intersection Summary												
Area Type:	Other											
Control Type:	Roundabout											
Intersection Capacity Utilization	68.0%											
Analysis Period (min)	15											
	ICU Level of Service C											

Intersection				
Intersection Delay, s/veh	12.7			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	336	249	688	438
Demand Flow Rate, veh/h	344	257	714	462
Vehicles Circulating, veh/h	477	743	349	253
Vehicles Exiting, veh/h	238	320	472	747
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	9.3	11.5	17.6	8.4
Approach LOS	A	B	C	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	344	257	714	462
Cap Entry Lane, veh/h	848	647	967	1066
Entry HV Adj Factor	0.977	0.968	0.964	0.948
Flow Entry, veh/h	336	249	688	438
Cap Entry, veh/h	829	626	932	1011
V/C Ratio	0.406	0.397	0.739	0.433
Control Delay, s/veh	9.3	11.5	17.6	8.4
LOS	A	B	C	A
95th %tile Queue, veh	2	2	7	2

Zebulon Grocery
11: NC 96 & Site Driveway 1

Build (2028) PM
02/17/2025



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	113	166	977	48	147	882
Future Volume (vph)	113	166	977	48	147	882
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	1679	0	1852	0	0	1850
Flt Permitted	0.980					0.993
Satd. Flow (perm)	1679	0	1852	0	0	1850
Link Speed (mph)	25		35			45
Link Distance (ft)	569		229			682
Travel Time (s)	15.5		4.5			10.3
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	310	0	1139	0	0	1143
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	135.3%
Analysis Period (min)	15
	ICU Level of Service H

Intersection						
Int Delay, s/veh	464.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			A
Traffic Vol, veh/h	113	166	977	48	147	882
Future Vol, veh/h	113	166	977	48	147	882
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	126	184	1086	53	163	980
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	2419	1113	0	0	1139	0
Stage 1	1113	-	-	-	-	-
Stage 2	1306	-	-	-	-	-
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	~ 36	254	-	-	613	-
Stage 1	314	-	-	-	-	-
Stage 2	254	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 15	254	-	-	613	-
Mov Cap-2 Maneuver	~ 15	-	-	-	-	-
Stage 1	314	-	-	-	-	-
Stage 2	~ 106	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s/veh	3879.1	0		1.9		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	34	613	-	
HCM Lane V/C Ratio	-	-	9.118	0.266	-	
HCM Control Delay (s/veh)	-	\$	3879.1	13	0	
HCM Lane LOS	-	-	F	B	A	
HCM 95th %tile Q (veh)	-	-	37.6	1.1	-	
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	1025	65	0	995
Future Volume (vph)	0	0	1025	65	0	995
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	0	0		0	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	0	1848	0	0	1863
Flt Permitted						
Satd. Flow (perm)	0	0	1848	0	0	1863
Link Speed (mph)	25		35			35
Link Distance (ft)	481		495			229
Travel Time (s)	13.1		9.6			4.5
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	1211	0	0	1106
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	61.2%		ICU Level of Service B			
Analysis Period (min)	15					

Zebulon Grocery
13: Proctor Street & Site Driveway 3

Build (2028) PM
02/17/2025



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	28	120	76	108	119	31
Future Volume (vph)	28	120	76	108	119	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	1846	1716	0	1742	0
Flt Permitted		0.991			0.962	
Satd. Flow (perm)	0	1846	1716	0	1742	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		503	62		460	
Travel Time (s)		9.8	1.2		12.5	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	164	204	0	166	0
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	37.0%			ICU Level of Service A		
Analysis Period (min)	15					

Zebulon Grocery
13: Proctor Street & Site Driveway 3

Build (2028) PM
02/17/2025

Intersection						
Int Delay, s/veh	4.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	28	120	76	108	119	31
Future Vol, veh/h	28	120	76	108	119	31
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	31	133	84	120	132	34
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	204	0	-	0	339	144
Stage 1	-	-	-	-	144	-
Stage 2	-	-	-	-	195	-
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	1368	-	-	-	657	903
Stage 1	-	-	-	-	883	-
Stage 2	-	-	-	-	838	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1368	-	-	-	641	903
Mov Cap-2 Maneuver	-	-	-	-	641	-
Stage 1	-	-	-	-	862	-
Stage 2	-	-	-	-	838	-
Approach	EB	WB		SB		
HCM Control Delay, s/v	1.5	0		12		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1368	-	-	-	682	
HCM Lane V/C Ratio	0.023	-	-	-	0.244	
HCM Control Delay (s/veh)	7.7	0	-	-	12	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q (veh)	0.1	-	-	-	1	

Zebulon Grocery
25: US 64-264 WB Ramps

Build (2028) PM
02/17/2025



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑		↗
Traffic Volume (vph)	0	0	0	280	0	564
Future Volume (vph)	0	0	0	280	0	564
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			3%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		0	1
Taper Length (ft)			25		25	
Satd. Flow (prot)	0	0	0	1835	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	0	1835	0	1611
Link Speed (mph)	45			45	25	
Link Distance (ft)	412			172	567	
Travel Time (s)	6.2			2.6	15.5	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	304	0	613
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	38.3%			ICU Level of Service A		
Analysis Period (min)	15					

Appendix J:
Synchro Output: Build-Output (2028) – with
Improvements

Zebulon Grocery
1: NC 96 & Pippin Road

Build (2028) AM - with Improvements

02/25/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	265	80	606	145	56	732
Future Volume (vph)	265	80	606	145	56	732
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	2%		0%			0%
Storage Length (ft)	0	0		175	175	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25				100	
Satd. Flow (prot)	1721	0	1712	1538	1736	1759
Flt Permitted	0.963				0.180	
Satd. Flow (perm)	1721	0	1712	1538	329	1759
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	35		45		45	
Link Distance (ft)	1396		1396		934	
Travel Time (s)	27.2		21.2		14.2	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	11%	5%	4%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	352	0	618	148	57	747
Turn Type	Prot		NA	pm+ov	D.P+P	NA
Protected Phases	8		2	8	1	6
Permitted Phases				2	2	
Detector Phase	8		2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0		12.0	7.0	7.0	12.0
Minimum Split (s)	14.0		19.0	14.0	13.0	19.0
Total Split (s)	30.0		90.0	30.0	20.0	110.0
Total Split (%)	21.4%		64.3%	21.4%	14.3%	78.6%
Yellow Time (s)	3.0		4.5	3.0	3.0	4.5
All-Red Time (s)	2.4		1.0	2.4	1.6	1.0
Lost Time Adjust (s)	-0.4		-0.5	-0.4	0.4	-0.5
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		Min	None	None	Min
Act Effect Green (s)	25.6		33.2	65.2	38.2	42.0
Actuated g/C Ratio	0.33		0.43	0.84	0.49	0.54
v/c Ratio	0.62		0.85	0.11	0.20	0.79
Control Delay (s/veh)	31.2		32.4	2.0	9.3	20.5
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	31.2		32.4	2.0	9.3	20.5

Zebulon Grocery
1: NC 96 & Pippin Road

Build (2028) AM - with Improvements

02/25/2025



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
LOS	C		C	A	A	C
Approach Delay (s/veh)	31.2		26.5			19.7
Approach LOS	C		C			B
Queue Length 50th (ft)	148		273	12	12	262
Queue Length 95th (ft)	#317		410	22	26	392
Internal Link Dist (ft)	1316		1316			854
Turn Bay Length (ft)				175	175	
Base Capacity (vph)	565		1684	1289	455	1759
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	0.62		0.37	0.11	0.13	0.42

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 77.8

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay (s/veh): 24.5

Intersection LOS: C

Intersection Capacity Utilization 69.8%

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: NC 96 & Pippin Road



Zebulon Grocery
2: NC 96 & Rose Mallow Drive

Build (2028) AM - with Improvements

02/25/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	35	15	750	19	4	1035
Future Volume (vph)	35	15	750	19	4	1035
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	125	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				100	
Satd. Flow (prot)	1702	0	1708	0	1770	1792
Flt Permitted	0.966				0.950	
Satd. Flow (perm)	1702	0	1708	0	1770	1792
Link Speed (mph)	25		45			45
Link Distance (ft)	881		677			1396
Travel Time (s)	24.0		10.3			21.2
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	2%	11%	7%	2%	6%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	53	0	809	0	4	1089
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	64.5%			ICU Level of Service C		
Analysis Period (min)	15					

Zebulon Grocery
2: NC 96 & Rose Mallow Drive

Build (2028) AM - with Improvements

02/25/2025

Intersection						
Int Delay, s/veh	2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	35	15	750	19	4	1035
Future Vol, veh/h	35	15	750	19	4	1035
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	-	-	-	125	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	2	11	7	2	6
Mvmt Flow	37	16	789	20	4	1089
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1896	799	0	0	809	0
Stage 1	799	-	-	-	-	-
Stage 2	1097	-	-	-	-	-
Critical Hdwy	6.44	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	76	386	-	-	817	-
Stage 1	439	-	-	-	-	-
Stage 2	317	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	76	386	-	-	817	-
Mov Cap-2 Maneuver	76	-	-	-	-	-
Stage 1	439	-	-	-	-	-
Stage 2	315	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s/v	75.4	0	0			
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	100	817	-	
HCM Lane V/C Ratio	-	-	0.526	0.005	-	
HCM Control Delay (s/veh)	-	-	75.4	9.4	-	
HCM Lane LOS	-	-	F	A	-	
HCM 95th %tile Q (veh)	-	-	2.4	0	-	

Zebulon Grocery
3: NC 96 & Riley Hill Road/Proctor Street

Build (2028) AM - with Improvements

02/25/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	70	0	0	75	227	679	9	86	847	106
Future Volume (vph)	0	0	70	0	0	75	227	679	9	86	847	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%				0%			0%			0%	
Storage Length (ft)	0		0	0		0	150		0	150		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25			25			100			100		
Satd. Flow (prot)	0	0	1481	0	0	1550	1752	1726	0	1752	1755	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1481	0	0	1550	1752	1726	0	1752	1755	0
Link Speed (mph)	35				35			35			35	
Link Distance (ft)	1315				505			623			496	
Travel Time (s)	25.6				9.8			12.1			9.7	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	33%	20%	11%	2%	2%	6%	3%	10%	2%	3%	7%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)	0%				0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	74	0	0	80	241	732	0	91	1014	0
Sign Control	Stop				Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type: Unsignalized												
Intersection Capacity Utilization 70.3%				ICU Level of Service C								
Analysis Period (min) 15												

Zebulon Grocery
3: NC 96 & Riley Hill Road/Proctor Street

Build (2028) AM - with Improvements

02/25/2025

Intersection												
Int Delay, s/veh	3.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↖	↖		↖	↖	
Traffic Vol, veh/h	0	0	70	0	0	75	227	679	9	86	847	106
Future Vol, veh/h	0	0	70	0	0	75	227	679	9	86	847	106
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	-	-	0	-	-	0	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	33	20	11	2	2	6	3	10	2	3	7	2
Mvmt Flow	0	0	74	0	0	80	241	722	10	91	901	113
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	958	-	-	727	1014	0	0	732	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.31	-	-	6.26	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.399	-	-	3.354	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	0	0	300	0	0	417	680	-	-	868	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	300	-	-	417	680	-	-	868	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s/v	20.9		15.7		3.3		0.8					
HCM LOS	C		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	680	-	-	300	417	868	-	-				
HCM Lane V/C Ratio	0.355	-	-	0.248	0.191	0.105	-	-				
HCM Control Delay (s/veh)	13.2	-	-	20.9	15.7	9.6	-	-				
HCM Lane LOS	B	-	-	C	C	A	-	-				
HCM 95th %tile O (veh)	1.6	-	-	1	0.7	0.4	-	-				

Zebulon Grocery
4: NC 96 & Green Pace Road

Build (2028) AM - with Improvements

02/25/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	42	75	22	102	75	174	728	26	24	761	151
Future Volume (vph)	72	42	75	22	102	75	174	728	26	24	761	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		1%			-1%			2%			-2%	
Storage Length (ft)	0		125	0		0	200		0	150		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			50			100		
Satd. Flow (prot)	0	1680	1530	0	1631	0	1686	1689	0	1787	1717	0
Flt Permitted		0.437			0.954		0.095			0.217		
Satd. Flow (perm)	0	757	1530	0	1564	0	169	1689	0	408	1717	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1850			373			861			623	
Travel Time (s)		36.0			7.3			16.8			12.1	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	11%	6%	5%	2%	12%	11%	6%	11%	6%	2%	9%	9%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	124	82	0	217	0	189	819	0	26	991	0
Turn Type	Perm	NA	pm+ov	Perm	NA		D.P+P	NA		D.P+P	NA	
Protected Phases		4	5		8		5	2		1	6	
Permitted Phases	4		4	8			6			2		
Detector Phase	4	4	5	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0		14.0	17.0		14.0	17.0	
Total Split (s)	24.0	24.0	14.0	24.0	24.0		14.0	72.0		14.0	72.0	
Total Split (%)	21.8%	21.8%	12.7%	21.8%	21.8%		12.7%	65.5%		12.7%	65.5%	
Yellow Time (s)	3.8	3.8	5.0	3.9	3.9		5.0	4.0		5.0	4.0	
All-Red Time (s)	1.5	1.5	2.0	1.2	1.2		2.0	1.3		2.0	1.3	
Lost Time Adjust (s)		-0.3	-2.0		-0.1		-2.0	-0.3		-2.0	-0.3	
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0		5.0	5.0	
Lead/Lag			Lead				Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes				Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Act Effect Green (s)		18.6	32.8		18.6		76.4	73.0		78.4	67.2	
Actuated g/C Ratio		0.17	0.30		0.17		0.69	0.66		0.71	0.61	
v/c Ratio		0.97	0.18		0.82		0.78	0.73		0.06	0.95	
Control Delay (s/veh)		119.5	29.9		68.8		30.0	21.3		4.3	38.6	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)		119.5	29.9		68.8		30.0	21.3		4.3	38.6	

Zebulon Grocery
4: NC 96 & Green Pace Road

Build (2028) AM - with Improvements

02/25/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		F	C		E		C	C		A	D	
Approach Delay (s/veh)		83.8			68.8			23.0			37.7	
Approach LOS		F			E			C			D	
Queue Length 50th (ft)		88	43		149		71	407		4	603	
Queue Length 95th (ft)		#207	82		#272		m96	555		11	#935	
Internal Link Dist (ft)		1770			293			781			543	
Turn Bay Length (ft)			125				200			150		
Base Capacity (vph)		130	457		270		243	1120		403	1048	
Starvation Cap Reductn		0	0		0		0	0		0	0	
Spillback Cap Reductn		0	0		0		0	0		0	0	
Storage Cap Reductn		0	0		0		0	0		0	0	
Reduced v/c Ratio		0.95	0.18		0.80		0.78	0.73		0.06	0.95	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

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

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay (s/veh): 38.3

Intersection LOS: D

Intersection Capacity Utilization 92.9%

ICU Level of Service F

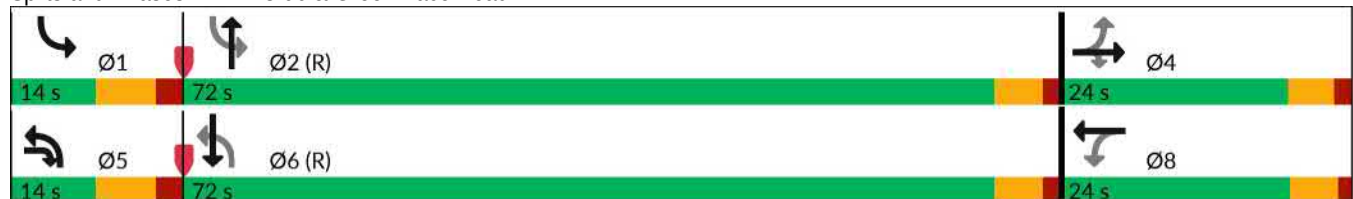
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 4: NC 96 & Green Pace Road



Zebulon Grocery
5: NC 96 & Pearces Road

Build (2028) AM - with Improvements

02/25/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	589	82	866	305	68	829
Future Volume (vph)	589	82	866	305	68	829
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	1%		0%			1%
Storage Length (ft)	100	0		0	275	
Storage Lanes	1	0		1	1	
Taper Length (ft)	100				50	
Satd. Flow (prot)	3346	0	1727	1482	1727	3326
Flt Permitted	0.958				0.186	
Satd. Flow (perm)	3346	0	1727	1482	338	3326
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	35		35			35
Link Distance (ft)	661		1137			829
Travel Time (s)	12.9		22.1			16.1
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	4%	10%	9%	4%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	699	0	902	318	71	864
Turn Type	Prot		NA	pm+ov	D.Pm	NA
Protected Phases	8		2	8		6
Permitted Phases				2	2	
Detector Phase	8		2	8	2	6
Switch Phase						
Minimum Initial (s)	7.0		10.0	7.0	10.0	10.0
Minimum Split (s)	31.0		33.0	31.0	33.0	18.0
Total Split (s)	33.0		77.0	33.0	77.0	77.0
Total Split (%)	30.0%		70.0%	30.0%	70.0%	70.0%
Yellow Time (s)	3.0		3.8	3.0	3.8	3.8
All-Red Time (s)	3.9		2.6	3.9	2.6	2.6
Lost Time Adjust (s)	-1.9		-1.4	-1.9	-1.4	-1.4
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None		C-Max	None	C-Max	C-Max
Act Effect Green (s)	26.8		73.2	110.0	73.2	73.2
Actuated g/C Ratio	0.24		0.67	1.00	0.67	0.67
v/c Ratio	0.86		0.79	0.21	0.32	0.39
Control Delay (s/veh)	51.3		12.6	0.2	9.5	7.3
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	51.3		12.6	0.2	9.5	7.3



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
LOS	D		B	A	A	A
Approach Delay (s/veh)	51.3		9.4			7.5
Approach LOS	D		A			A
Queue Length 50th (ft)	240		266	0	13	86
Queue Length 95th (ft)	#312		m316	m0	m18	m107
Internal Link Dist (ft)	581		1057			749
Turn Bay Length (ft)	100				275	
Base Capacity (vph)	851		1149	1471	224	2213
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	0.82		0.79	0.22	0.32	0.39

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 14 (13%), Referenced to phase 2:NBSB and 6:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay (s/veh): 19.0

Intersection LOS: B

Intersection Capacity Utilization 84.2%

ICU Level of Service E

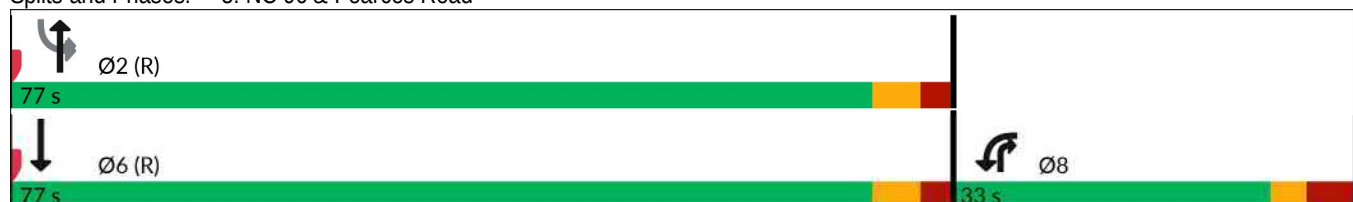
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 5: NC 96 & Pearces Road



Zebulon Grocery
6: NC 96 & US 64-264 WB Ramps/Dogwood Drive

Build (2028) AM - with Improvements

02/25/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	362	69	133	80	68	86	166	774	121	77	923	434
Future Volume (vph)	362	69	133	80	68	86	166	774	121	77	923	434
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			-4%			1%	
Storage Length (ft)	0		0	0		150	425		0	125		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			25			200			100		
Satd. Flow (prot)	1687	1657	0	1770	1459	0	1770	3315	0	1663	3235	0
Flt Permitted	0.415			0.452			0.083			0.200		
Satd. Flow (perm)	737	1657	0	842	1459	0	155	3315	0	350	3235	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		172			528			1048			1137	
Travel Time (s)		4.7			10.3			20.4			22.1	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	2%	4%	2%	2%	33%	4%	9%	8%	8%	7%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	385	214	0	85	163	0	177	952	0	82	1444	0
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8			4			6			2		
Detector Phase	7	4		3	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)	14.0	14.0		14.0	14.0		14.0	36.0		14.0	18.0	
Total Split (s)	23.0	26.0		14.0	17.0		14.0	56.0		14.0	56.0	
Total Split (%)	20.9%	23.6%		12.7%	15.5%		12.7%	50.9%		12.7%	50.9%	
Yellow Time (s)	3.0	3.8		3.0	3.8		3.0	4.1		3.0	4.1	
All-Red Time (s)	2.4	2.0		2.6	2.0		2.8	2.1		2.9	2.1	
Lost Time Adjust (s)	-0.4	-0.8		-0.6	-0.8		-0.8	-1.2		-0.9	-1.2	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effect Green (s)	30.0	24.1		31.0	12.0		60.0	54.3		61.0	51.0	
Actuated g/C Ratio	0.27	0.22		0.28	0.11		0.55	0.49		0.55	0.46	
v/c Ratio	1.08	0.59		0.28	1.03		0.82	0.58		0.28	0.96	
Control Delay (s/veh)	105.2	47.7		29.6	127.4		37.6	6.0		10.9	44.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	105.2	47.7		29.6	127.4		37.6	6.0		10.9	44.0	

Zebulon Grocery
6: NC 96 & US 64-264 WB Ramps/Dogwood Drive

Build (2028) AM - with Improvements

02/25/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	F	D		C	F		D	A		B	D	
Approach Delay (s/veh)		84.7			93.9			10.9			42.2	
Approach LOS		F			F			B			D	
Queue Length 50th (ft)	~244	141		43	~123		76	112		19	565	
Queue Length 95th (ft)	#431	#227		81	#258		m#115	134		m29	#686	
Internal Link Dist (ft)		92			448			968			1057	
Turn Bay Length (ft)							425			125		
Base Capacity (vph)	356	363		315	159		216	1637		303	1499	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	1.08	0.59		0.27	1.03		0.82	0.58		0.27	0.96	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 21 (19%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay (s/veh): 43.0

Intersection LOS: D

Intersection Capacity Utilization 94.2%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

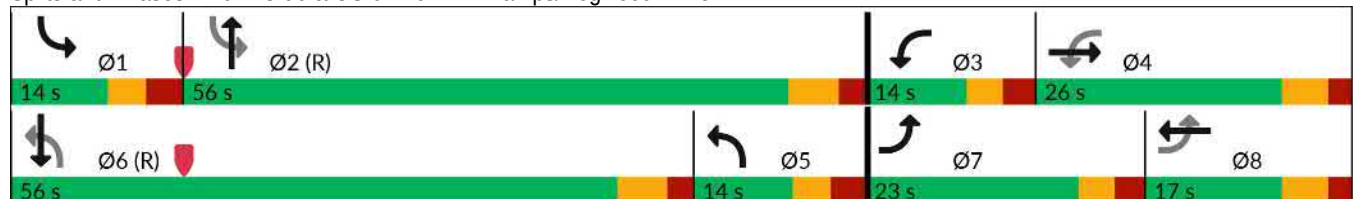
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 6: NC 96 & US 64-264 WB Ramps/Dogwood Drive



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	322	4	347	0	0	0	0	757	112	379	714	0
Future Volume (vph)	322	4	347	0	0	0	0	757	112	379	714	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		2%			0%			3%			-1%	
Storage Length (ft)	0		150	0		0	0		0	375		0
Storage Lanes	0		1	0		0	0		0	1		0
Taper Length (ft)	25			25			25			150		
Satd. Flow (prot)	0	1615	1508	0	0	0	0	3264	0	1680	3489	0
Flt Permitted		0.953								0.127		
Satd. Flow (perm)	0	1615	1508	0	0	0	0	3264	0	225	3489	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		677			713			666			1048	
Travel Time (s)		10.3			10.8			13.0			20.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	100%	6%	2%	2%	2%	2%	7%	6%	8%	4%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	362	386	0	0	0	0	965	0	421	793	0
Turn Type	Split	NA	Prot					NA		D.P+P	NA	
Protected Phases	4	4	4					2		1	6	
Permitted Phases										2		
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					33.0		14.0	17.0	
Total Split (s)	37.0	37.0	37.0					43.0		30.0	73.0	
Total Split (%)	33.6%	33.6%	33.6%					39.1%		27.3%	66.4%	
Yellow Time (s)	3.7	3.7	3.7					3.9		3.0	3.9	
All-Red Time (s)	1.9	1.9	1.9					1.9		2.8	1.9	
Lost Time Adjust (s)		-0.6	-0.6					-0.8		-0.8	-0.8	
Total Lost Time (s)		5.0	5.0					5.0		5.0	5.0	
Lead/Lag								Lead		Lag		
Lead-Lag Optimize?								Yes		Yes		
Recall Mode	None	None	None					C-Max		None	C-Max	
Act Effect Green (s)		30.4	30.4					39.6		64.6	69.6	
Actuated g/C Ratio		0.28	0.28					0.36		0.59	0.63	
v/c Ratio		0.81	0.93					0.82		0.91	0.36	
Control Delay (s/veh)		52.3	68.3					39.5		31.7	2.2	
Queue Delay		0.0	0.0					0.0		0.0	0.0	
Total Delay (s/veh)		52.3	68.3					39.5		31.7	2.2	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		D	E					D		C	A	
Approach Delay (s/veh)		60.6						39.5			12.4	
Approach LOS		E						D			B	
Queue Length 50th (ft)		233	259					330		195	35	
Queue Length 95th (ft)		#371	#434					#420		m#230	m33	
Internal Link Dist (ft)		597			633			586			968	
Turn Bay Length (ft)			150							375		
Base Capacity (vph)		469	438					1174		462	2206	
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		0.77	0.88					0.82		0.91	0.36	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 10 (9%), Referenced to phase 2:NBSB and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay (s/veh): 33.7

Intersection LOS: C

Intersection Capacity Utilization 76.0%

ICU Level of Service D

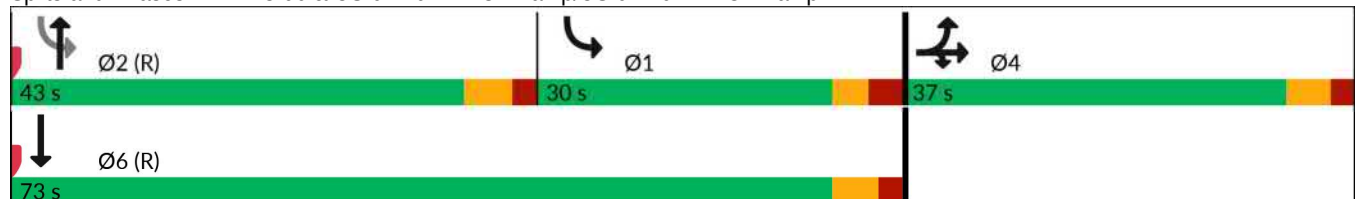
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 7: NC 96 & US 64-264 EB Off Ramp/US 64-264 EB On Ramp



Zebulon Grocery
8: Green Pace Road & Proctor Street

Build (2028) AM - with Improvements

02/25/2025

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	118	15	224	109	19	58
Future Volume (vph)	118	15	224	109	19	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			25		25	
Satd. Flow (prot)	1788	0	0	1784	1619	0
Flt Permitted				0.967	0.988	
Satd. Flow (perm)	1788	0	0	1784	1619	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	58			141	373	
Travel Time (s)	1.1			2.7	7.3	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	2%	2%	5%	2%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	137	0	0	343	80	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 39.9%				ICU Level of Service A		
Analysis Period (min) 15						

Zebulon Grocery
8: Green Pace Road & Proctor Street

Build (2028) AM - with Improvements

02/25/2025

Intersection						
Int Delay, s/veh	4.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	118	15	224	109	19	58
Future Vol, veh/h	118	15	224	109	19	58
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	97	97	97	97	97	97
Heavy Vehicles, %	5	2	2	5	2	5
Mvmt Flow	122	15	231	112	20	60
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	137	0	704	130
Stage 1	-	-	-	-	130	-
Stage 2	-	-	-	-	574	-
Critical Hdwy	-	-	4.12	-	6.42	6.25
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.345
Pot Cap-1 Maneuver	-	-	1447	-	403	912
Stage 1	-	-	-	-	896	-
Stage 2	-	-	-	-	563	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1447	-	334	912
Mov Cap-2 Maneuver	-	-	-	-	334	-
Stage 1	-	-	-	-	896	-
Stage 2	-	-	-	-	467	-
Approach	EB		WB		NB	
HCM Control Delay, s/v	0		5.4		11.4	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	639	-	-	1447	-	
HCM Lane V/C Ratio	0.124	-	-	0.16	-	
HCM Control Delay (s/veh)	11.4	-	-	8	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q (veh)	0.4	-	-	0.6	-	

Zebulon Grocery
9: Proctor Street & Watsonia Drive

Build (2028) AM - with Improvements

02/25/2025



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	16	184	255	19	50	23
Future Volume (vph)	16	184	255	19	50	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	1773	1750	0	1670	0
Flt Permitted		0.996			0.967	
Satd. Flow (perm)	0	1773	1750	0	1670	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		141	1212		1127	
Travel Time (s)		2.7	23.6		30.7	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	27%	5%	8%	2%	2%	13%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	213	291	0	77	0
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	33.8%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	16	184	255	19	50	23
Future Vol, veh/h	16	184	255	19	50	23
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	94	94	94	94	94	94
Heavy Vehicles, %	27	5	8	2	2	13
Mvmt Flow	17	196	271	20	53	24
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	291	0	-	0	511	281
Stage 1	-	-	-	-	281	-
Stage 2	-	-	-	-	230	-
Critical Hdwy	4.37	-	-	-	6.42	6.33
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.443	-	-	-	3.518	3.417
Pot Cap-1 Maneuver	1141	-	-	-	523	732
Stage 1	-	-	-	-	767	-
Stage 2	-	-	-	-	808	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1141	-	-	-	514	732
Mov Cap-2 Maneuver	-	-	-	-	514	-
Stage 1	-	-	-	-	754	-
Stage 2	-	-	-	-	808	-
Approach	EB	WB		SB		
HCM Control Delay, s/v	0.7	0		12.4		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1141	-	-	-	567	
HCM Lane V/C Ratio	0.015	-	-	-	0.137	
HCM Control Delay (s/veh)	8.2	0	-	-	12.4	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q (veh)	0	-	-	-	0.5	

Zebulon Grocery
10: Pearces Road & Proctor Street

Build (2028) AM - with Improvements

02/25/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	184	21	156	173	35	11	188	112	63	467	85
Future Volume (vph)	24	184	21	156	173	35	11	188	112	63	467	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1775	0	0	1735	0	0	1665	0	0	1799	0
Flt Permitted		0.995			0.979			0.998			0.995	
Satd. Flow (perm)	0	1775	0	0	1735	0	0	1665	0	0	1799	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1212			660			626			577	
Travel Time (s)		23.6			12.9			12.2			11.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	6%	2%	2%	10%	2%	14%	10%	5%	4%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	249	0	0	396	0	0	338	0	0	668	0
Sign Control		Yield			Yield			Yield			Yield	
Intersection Summary												
Area Type:	Other											
Control Type:	Roundabout											
Intersection Capacity Utilization	96.0%											
Analysis Period (min)	15											
ICU Level of Service F												

Intersection				
Intersection Delay, s/veh	12.9			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	249	396	338	668
Demand Flow Rate, veh/h	262	419	366	689
Vehicles Circulating, veh/h	767	265	310	394
Vehicles Exiting, veh/h	316	411	719	290
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	12.3	8.0	7.9	18.6
Approach LOS	B	A	A	C
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	262	419	366	689
Cap Entry Lane, veh/h	631	1053	1006	923
Entry HV Adj Factor	0.950	0.946	0.923	0.969
Flow Entry, veh/h	249	396	338	668
Cap Entry, veh/h	600	996	928	895
V/C Ratio	0.415	0.398	0.364	0.746
Control Delay, s/veh	12.3	8.0	7.9	18.6
LOS	B	A	A	C
95th %tile Queue, veh	2	2	2	7

Zebulon Grocery
11: NC 96 & Site Driveway 1

Build (2028) AM - with Improvements

02/25/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	40	46	712	23	84	986
Future Volume (vph)	40	46	712	23	84	986
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	175	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				100	
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.950				0.210	
Satd. Flow (perm)	1770	1583	1863	1583	391	1863
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		35		45	
Link Distance (ft)	330		233		677	
Travel Time (s)	9.0		4.5		10.3	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	44	51	791	26	93	1096
Turn Type	Prot	Perm	NA	pm+ov	D.P+P	NA
Protected Phases	8		2	8	1	6
Permitted Phases		8		2	2	
Detector Phase	8	8	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	10.0	7.0	7.0	10.0
Minimum Split (s)	25.0	25.0	25.0	25.0	14.0	25.0
Total Split (s)	25.0	25.0	71.0	25.0	14.0	85.0
Total Split (%)	22.7%	22.7%	64.5%	22.7%	12.7%	77.3%
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	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	Min	None	None	Min
Act Effect Green (s)	11.4	11.4	46.7	58.4	51.5	57.0
Actuated g/C Ratio	0.16	0.16	0.65	0.81	0.71	0.79
v/c Ratio	0.16	0.20	0.66	0.02	0.20	0.75
Control Delay (s/veh)	35.4	36.2	15.5	2.2	4.2	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	35.4	36.2	15.5	2.2	4.2	10.3

Zebulon Grocery
11: NC 96 & Site Driveway 1

Build (2028) AM - with Improvements

02/25/2025



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
LOS	D	D	B	A	A	B
Approach Delay (s/veh)	35.8		15.0			9.9
Approach LOS	D		B			A
Queue Length 50th (ft)	18	21	267	2	10	259
Queue Length 95th (ft)	60	68	438	6	23	505
Internal Link Dist (ft)	250		153			597
Turn Bay Length (ft)					175	
Base Capacity (vph)	545	487	1621	1424	469	1768
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	0.08	0.10	0.49	0.02	0.20	0.62

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 72.4

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay (s/veh): 13.0

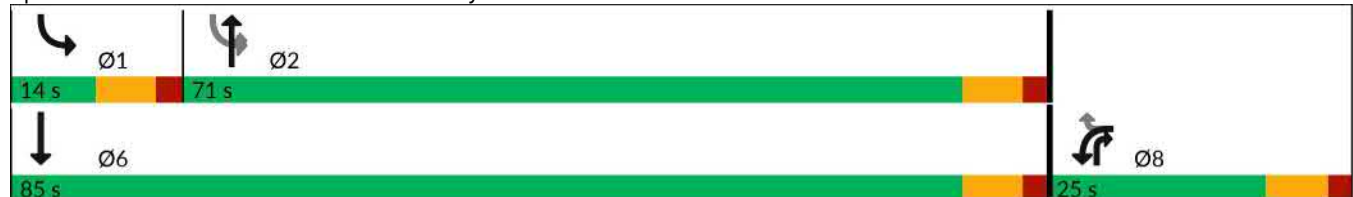
Intersection LOS: B

Intersection Capacity Utilization 66.1%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 11: NC 96 & Site Driveway 1



Zebulon Grocery
12: NC 96 & Site Driveway 2

Build (2028) AM - with Improvements

02/25/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	735	33	0	1026
Future Volume (vph)	0	0	735	33	0	1026
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		50	0	
Storage Lanes	0	0		1	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	0	3539	1583	0	1863
Flt Permitted						
Satd. Flow (perm)	0	0	3539	1583	0	1863
Link Speed (mph)	25		35			35
Link Distance (ft)	293		496			233
Travel Time (s)	8.0		9.7			4.5
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	817	37	0	1140
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	57.3%			ICU Level of Service B		
Analysis Period (min)	15					

Zebulon Grocery
13: Proctor Street & Site Driveway 3

Build (2028) AM - with Improvements

02/25/2025



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	8	96	75	54	37	4
Future Volume (vph)	8	96	75	54	37	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	50
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	1855	1757	0	1770	1583
Flt Permitted		0.996			0.950	
Satd. Flow (perm)	0	1855	1757	0	1770	1583
Link Speed (mph)		35	35		25	
Link Distance (ft)		505	58		435	
Travel Time (s)		9.8	1.1		11.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	116	143	0	41	4
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	21.7%			ICU Level of Service A		
Analysis Period (min)	15					

Zebulon Grocery
13: Proctor Street & Site Driveway 3

Build (2028) AM - with Improvements

02/25/2025

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	96	75	54	37	4
Future Vol, veh/h	8	96	75	54	37	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	50
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	107	83	60	41	4
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	143	0	-	0	238	113
Stage 1	-	-	-	-	113	-
Stage 2	-	-	-	-	125	-
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	1440	-	-	-	750	940
Stage 1	-	-	-	-	912	-
Stage 2	-	-	-	-	901	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1440	-	-	-	745	940
Mov Cap-2 Maneuver	-	-	-	-	745	-
Stage 1	-	-	-	-	906	-
Stage 2	-	-	-	-	901	-
Approach	EB	WB		SB		
HCM Control Delay, s/v	0.6	0		10		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1440	-	-	-	745	940
HCM Lane V/C Ratio	0.006	-	-	-	0.055	0.005
HCM Control Delay (s/veh)	7.5	0	-	-	10.1	8.8
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q (veh)	0	-	-	-	0.2	0

Zebulon Grocery
25: US 64-264 WB Ramps

Build (2028) AM - with Improvements

02/25/2025



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑		↗
Traffic Volume (vph)	0	0	0	668	0	564
Future Volume (vph)	0	0	0	668	0	564
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			3%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		0	1
Taper Length (ft)			25		25	
Satd. Flow (prot)	0	0	0	1835	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	0	1835	0	1611
Link Speed (mph)	45			45	25	
Link Distance (ft)	412			172	567	
Travel Time (s)	6.2			2.6	15.5	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	726	0	613
Sign Control	Free			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	38.5%			ICU Level of Service A		
Analysis Period (min)	15					

Zebulon Grocery
1: NC 96 & Pippin Road

Build (2028) PM - with Improvements

02/25/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	201	66	734	284	106	787
Future Volume (vph)	201	66	734	284	106	787
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	2%		0%			0%
Storage Length (ft)	0	0		175	175	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25				100	
Satd. Flow (prot)	1717	0	1792	1583	1770	1792
Flt Permitted	0.964				0.134	
Satd. Flow (perm)	1717	0	1792	1583	250	1792
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	35		45		45	
Link Distance (ft)	1396		1396		934	
Travel Time (s)	27.2		21.2		14.2	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	6%	2%	2%	6%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	278	0	765	296	110	820
Turn Type	Prot		NA	pm+ov	D.P+P	NA
Protected Phases	8		2	8	1	6
Permitted Phases				2	2	
Detector Phase	8		2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0		12.0	7.0	7.0	12.0
Minimum Split (s)	14.0		19.0	14.0	13.0	19.0
Total Split (s)	30.0		90.0	30.0	20.0	110.0
Total Split (%)	21.4%		64.3%	21.4%	14.3%	78.6%
Yellow Time (s)	3.0		4.5	3.0	3.0	4.5
All-Red Time (s)	2.4		1.0	2.4	1.6	1.0
Lost Time Adjust (s)	-0.4		-0.5	-0.4	0.4	-0.5
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None		Min	None	None	Min
Act Effect Green (s)	20.9		42.6	68.6	49.7	54.9
Actuated g/C Ratio	0.24		0.49	0.80	0.58	0.64
v/c Ratio	0.67		0.86	0.23	0.41	0.72
Control Delay (s/veh)	40.8		30.6	2.5	11.2	14.9
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	40.8		30.6	2.5	11.2	14.9

Zebulon Grocery
1: NC 96 & Pippin Road

Build (2028) PM - with Improvements

02/25/2025



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
LOS	D		C	A	B	B
Approach Delay (s/veh)	40.8		22.8			14.5
Approach LOS	D		C			B
Queue Length 50th (ft)	131		348	27	21	273
Queue Length 95th (ft)	#283		555	47	42	437
Internal Link Dist (ft)	1316		1316			854
Turn Bay Length (ft)				175	175	
Base Capacity (vph)	516		1667	1354	433	1774
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	0.54		0.46	0.22	0.25	0.46

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 86.1

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay (s/veh): 21.6

Intersection LOS: C

Intersection Capacity Utilization 72.2%

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: NC 96 & Pippin Road



Zebulon Grocery
2: NC 96 & Rose Mallow Drive

Build (2028) PM - with Improvements

02/25/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	39	6	1083	51	11	990
Future Volume (vph)	39	6	1083	51	11	990
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	125	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				100	
Satd. Flow (prot)	1710	0	1801	0	1770	1810
Flt Permitted	0.958				0.950	
Satd. Flow (perm)	1710	0	1801	0	1770	1810
Link Speed (mph)	25		45			45
Link Distance (ft)	881		682			1396
Travel Time (s)	24.0		10.3			21.2
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	2%	5%	2%	2%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	47	0	1194	0	12	1042
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 70.1%			ICU Level of Service C			
Analysis Period (min) 15						

Zebulon Grocery
2: NC 96 & Rose Mallow Drive

Build (2028) PM - with Improvements

02/25/2025

Intersection						
Int Delay, s/veh	5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	39	6	1083	51	11	990
Future Vol, veh/h	39	6	1083	51	11	990
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	-	-	-	125	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	5	2	5	2	2	5
Mvmt Flow	41	6	1140	54	12	1042
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	2233	1167	0	0	1194	0
Stage 1	1167	-	-	-	-	-
Stage 2	1066	-	-	-	-	-
Critical Hdwy	6.45	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	46	236	-	-	585	-
Stage 1	292	-	-	-	-	-
Stage 2	327	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	45	236	-	-	585	-
Mov Cap-2 Maneuver	45	-	-	-	-	-
Stage 1	292	-	-	-	-	-
Stage 2	320	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s/v240.8		0		0.1		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	50	585	-	
HCM Lane V/C Ratio	-	-	0.947	0.02	-	
HCM Control Delay (s/veh)	-	-	240.8	11.3	-	
HCM Lane LOS	-	-	F	B	-	
HCM 95th %tile Q (veh)	-	-	4.1	0.1	-	

Zebulon Grocery
3: NC 96 & Riley Hill Road/Proctor Street

Build (2028) PM - with Improvements

02/25/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	133	0	0	56	81	1025	22	77	905	19
Future Volume (vph)	0	0	133	0	0	56	81	1025	22	77	905	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%				0%			0%			0%	
Storage Length (ft)	0		0	0		0	150		0	150		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25			25			100			100		
Satd. Flow (prot)	0	0	1596	0	0	1611	1752	1805	0	1736	1788	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1596	0	0	1611	1752	1805	0	1736	1788	0
Link Speed (mph)	35				35			35			35	
Link Distance (ft)	1315				503			637			495	
Travel Time (s)	25.6				9.8			12.4			9.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	3%	3%	2%	2%	2%	3%	5%	2%	4%	6%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)	0%				0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	139	0	0	58	84	1091	0	80	963	0
Sign Control	Stop				Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type: Unsignalized												
Intersection Capacity Utilization 66.2%												
ICU Level of Service C												
Analysis Period (min) 15												

Zebulon Grocery
3: NC 96 & Riley Hill Road/Proctor Street

Build (2028) PM - with Improvements

02/25/2025

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↖	↖		↖	↖	
Traffic Vol, veh/h	0	0	133	0	0	56	81	1025	22	77	905	19
Future Vol, veh/h	0	0	133	0	0	56	81	1025	22	77	905	19
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	-	-	0	-	-	0	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	3	3	2	2	2	3	5	2	4	6	2
Mvmt Flow	0	0	139	0	0	58	84	1068	23	80	943	20
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	953	-	-	1080	963	0	0	1091	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.23	-	-	6.22	4.13	-	-	4.14	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.327	-	-	3.318	2.227	-	-	2.236	-	-
Pot Cap-1 Maneuver	0	0	313	0	0	265	711	-	-	632	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	313	-	-	265	711	-	-	632	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s/v	25.3		22.4		0.8		0.9					
HCM LOS	D		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	711	-	-	313	265	632	-	-				
HCM Lane V/C Ratio	0.119	-	-	0.443	0.22	0.127	-	-				
HCM Control Delay (s/veh)	10.7	-	-	25.3	22.4	11.5	-	-				
HCM Lane LOS	B	-	-	D	C	B	-	-				
HCM 95th %tile O (veh)	0.4	-	-	2.2	0.8	0.4	-	-				

Zebulon Grocery
4: NC 96 & Green Pace Road

Build (2028) PM - with Improvements

02/25/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	100	106	46	40	32	121	939	46	69	853	119
Future Volume (vph)	138	100	106	46	40	32	121	939	46	69	853	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		1%			-1%			2%			-2%	
Storage Length (ft)	0		125	0		0	200		0	150		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			50			100		
Satd. Flow (prot)	0	1752	1516	0	1745	0	1752	1796	0	1787	1784	0
Flt Permitted		0.713			0.508		0.070			0.074		
Satd. Flow (perm)	0	1285	1516	0	904	0	129	1796	0	139	1784	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1850			379			844			637	
Travel Time (s)		36.0			7.4			16.4			12.4	
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	2%	6%	2%	6%	2%	2%	4%	2%	2%	5%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	250	112	0	124	0	127	1036	0	73	1023	0
Turn Type	Perm	NA	pm+ov	Perm	NA		D.P+P	NA		D.P+P	NA	
Protected Phases		4	5		8		5	2		1	6	
Permitted Phases	4		4	8			6			2		
Detector Phase	4	4	5	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0		14.0	17.0		14.0	17.0	
Total Split (s)	28.0	28.0	14.0	28.0	28.0		14.0	78.0		14.0	78.0	
Total Split (%)	23.3%	23.3%	11.7%	23.3%	23.3%		11.7%	65.0%		11.7%	65.0%	
Yellow Time (s)	3.8	3.8	5.0	3.9	3.9		5.0	4.0		5.0	4.0	
All-Red Time (s)	1.5	1.5	2.0	1.2	1.2		2.0	1.3		2.0	1.3	
Lost Time Adjust (s)		-0.3	-2.0		-0.1		-2.0	-0.3		-2.0	-0.3	
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0		5.0	5.0	
Lead/Lag			Lead				Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes				Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Act Effect Green (s)		23.0	37.0		23.0		82.0	75.8		83.0	73.0	
Actuated g/C Ratio		0.19	0.31		0.19		0.68	0.63		0.69	0.61	
v/c Ratio		1.02	0.24		0.72		0.61	0.91		0.33	0.94	
Control Delay (s/veh)		110.0	32.7		68.9		24.4	33.8		10.0	39.3	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)		110.0	32.7		68.9		24.4	33.8		10.0	39.3	

Zebulon Grocery
4: NC 96 & Green Pace Road

Build (2028) PM - with Improvements

02/25/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		F	C		E		C	C		A	D	
Approach Delay (s/veh)		86.1			68.9			32.7			37.3	
Approach LOS		F			E			C			D	
Queue Length 50th (ft)		~200	65		91		48	740		14	683	
Queue Length 95th (ft)		#371	114		m#186		m74	#1035		30	#1027	
Internal Link Dist (ft)		1770			299			764			557	
Turn Bay Length (ft)			125				200			150		
Base Capacity (vph)		246	467		173		209	1134		219	1085	
Starvation Cap Reductn		0	0		0		0	0		0	0	
Spillback Cap Reductn		0	0		0		0	0		0	0	
Storage Cap Reductn		0	0		0		0	0		0	0	
Reduced v/c Ratio		1.02	0.24		0.72		0.61	0.91		0.33	0.94	

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: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay (s/veh): 43.2

Intersection LOS: D

Intersection Capacity Utilization 90.9%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

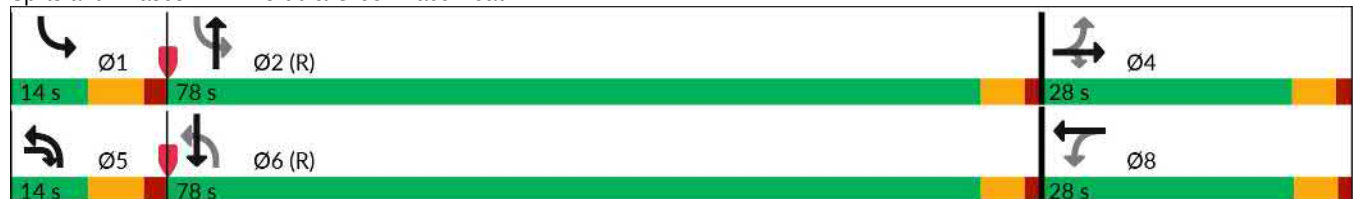
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 4: NC 96 & Green Pace Road



Zebulon Grocery
5: NC 96 & Pearces Road

Build (2028) PM - with Improvements

02/25/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	396	64	1027	603	95	967
Future Volume (vph)	396	64	1027	603	95	967
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	1%		0%			1%
Storage Length (ft)	100	0		0	275	
Storage Lanes	1	0		1	1	
Taper Length (ft)	100				50	
Satd. Flow (prot)	3320	0	1827	1568	1761	3421
Flt Permitted	0.959				0.154	
Satd. Flow (perm)	3320	0	1827	1568	285	3421
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	35		35		35	
Link Distance (ft)	661		1137		832	
Travel Time (s)	12.9		22.1		16.2	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	2%	4%	3%	2%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	469	0	1048	615	97	987
Turn Type	Prot		NA	pm+ov	D.Pm	NA
Protected Phases	8		2	8		6
Permitted Phases				2	2	
Detector Phase	8		2	8	2	6
Switch Phase						
Minimum Initial (s)	7.0		10.0	7.0	10.0	10.0
Minimum Split (s)	30.0		33.0	30.0	33.0	20.0
Total Split (s)	30.0		90.0	30.0	90.0	90.0
Total Split (%)	25.0%		75.0%	25.0%	75.0%	75.0%
Yellow Time (s)	3.0		3.8	3.0	3.8	3.8
All-Red Time (s)	3.9		2.6	3.9	2.6	2.6
Lost Time Adjust (s)	-1.9		-1.4	-1.9	-1.4	-1.4
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None		C-Max	None	C-Max	C-Max
Act Effect Green (s)	22.7		87.3	120.0	87.3	87.3
Actuated g/C Ratio	0.19		0.73	1.00	0.73	0.73
v/c Ratio	0.75		0.79	0.39	0.47	0.40
Control Delay (s/veh)	53.8		10.2	0.4	12.7	7.3
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	53.8		10.2	0.4	12.7	7.3

Zebulon Grocery
5: NC 96 & Pearces Road

Build (2028) PM - with Improvements

02/25/2025



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
LOS	D		B	A	B	A
Approach Delay (s/veh)	53.8		6.6			7.7
Approach LOS	D		A			A
Queue Length 50th (ft)	176		267	0	27	141
Queue Length 95th (ft)	232		m293	m0	m35	m168
Internal Link Dist (ft)	581		1057			752
Turn Bay Length (ft)	100				275	
Base Capacity (vph)	691		1329	1553	207	2489
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	0.68		0.79	0.40	0.47	0.40

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay (s/veh): 13.9

Intersection LOS: B

Intersection Capacity Utilization 88.2%

ICU Level of Service E

Analysis Period (min) 15

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

Splits and Phases: 5: NC 96 & Pearces Road



Zebulon Grocery
6: NC 96 & US 64-264 WB Ramps/Dogwood Drive

Build (2028) PM - with Improvements

02/25/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	415	55	94	84	73	90	172	1156	92	63	1031	355
Future Volume (vph)	415	55	94	84	73	90	172	1156	92	63	1031	355
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			-4%			1%	
Storage Length (ft)	0		0	0		150	425		0	125		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			25			200			100		
Satd. Flow (prot)	1736	1686	0	1770	1708	0	1770	3538	0	1761	3314	0
Flt Permitted	0.332			0.574			0.076			0.083		
Satd. Flow (perm)	607	1686	0	1069	1708	0	142	3538	0	154	3314	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		172			528			1048			1137	
Travel Time (s)		4.7			10.3			20.4			22.1	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%	4%	3%	2%	2%	4%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	432	155	0	88	170	0	179	1300	0	66	1444	0
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8			4			6			2		
Detector Phase	7	4		3	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)	14.0	14.0		14.0	14.0		14.0	36.0		14.0	18.0	
Total Split (s)	29.0	33.0		14.0	18.0		14.0	59.0		14.0	59.0	
Total Split (%)	24.2%	27.5%		11.7%	15.0%		11.7%	49.2%		11.7%	49.2%	
Yellow Time (s)	3.0	3.8		3.0	3.8		3.0	4.1		3.0	4.1	
All-Red Time (s)	2.4	2.0		2.6	2.0		2.8	2.1		2.9	2.1	
Lost Time Adjust (s)	-0.4	-0.8		-0.6	-0.8		-0.8	-1.2		-0.9	-1.2	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effect Green (s)	37.0	28.5		37.0	13.0		63.0	57.4		64.0	54.0	
Actuated g/C Ratio	0.31	0.24		0.31	0.11		0.53	0.48		0.53	0.45	
v/c Ratio	1.05	0.39		0.23	0.92		0.91	0.77		0.35	0.97	
Control Delay (s/veh)	92.2	42.0		28.6	101.3		41.5	8.9		17.6	48.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	92.2	42.0		28.6	101.3		41.5	8.9		17.6	48.7	

Zebulon Grocery
6: NC 96 & US 64-264 WB Ramps/Dogwood Drive

Build (2028) PM - with Improvements

02/25/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	F	D		C	F		D	A		B	D	
Approach Delay (s/veh)		79.0			76.5			12.9			47.3	
Approach LOS		E			E			B			D	
Queue Length 50th (ft)	~309	102		46	132		81	212		21	626	
Queue Length 95th (ft)	#509	167		86	#267		m80	m218		m36	#753	
Internal Link Dist (ft)		92			448			968			1057	
Turn Bay Length (ft)							425			125		
Base Capacity (vph)	412	400		386	185		196	1692		203	1491	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	1.05	0.39		0.23	0.92		0.91	0.77		0.33	0.97	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 9 (8%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.05

Intersection Signal Delay (s/veh): 40.8

Intersection LOS: D

Intersection Capacity Utilization 98.4%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

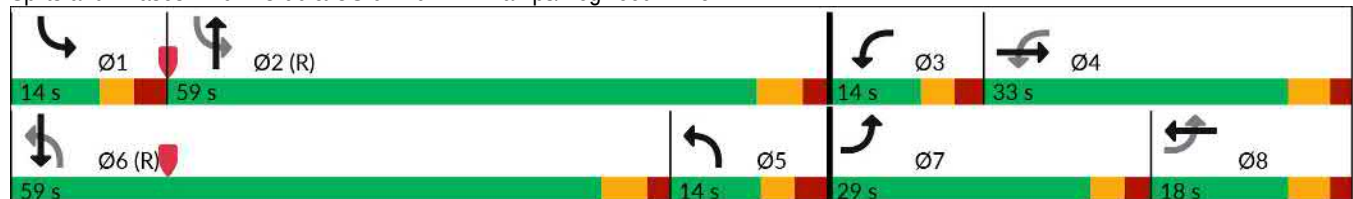
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 6: NC 96 & US 64-264 WB Ramps/Dogwood Drive



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	534	4	374	0	0	0	0	914	199	436	730	0
Future Volume (vph)	534	4	374	0	0	0	0	914	199	436	730	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		2%			0%			3%			-1%	
Storage Length (ft)	0		150	0		0	0		0	375		0
Storage Lanes	0		1	0		0	0		0	1		0
Taper Length (ft)	25			25			25			150		
Satd. Flow (prot)	0	1741	1537	0	0	0	0	3359	0	1728	3522	0
Flt Permitted		0.953								0.093		
Satd. Flow (perm)	0	1741	1537	0	0	0	0	3359	0	169	3522	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		677			713			666			1048	
Travel Time (s)		10.3			10.8			13.0			20.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	2%	4%	2%	2%	2%	2%	3%	3%	5%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	555	386	0	0	0	0	1147	0	449	753	0
Turn Type	Split	NA	Prot					NA		D.P+P	NA	
Protected Phases	4	4	4					2		1	6	
Permitted Phases										2		
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					33.0		14.0	17.0	
Total Split (s)	42.0	42.0	42.0					48.0		30.0	78.0	
Total Split (%)	35.0%	35.0%	35.0%					40.0%		25.0%	65.0%	
Yellow Time (s)	3.7	3.7	3.7					3.9		3.0	3.9	
All-Red Time (s)	1.9	1.9	1.9					1.9		2.8	1.9	
Lost Time Adjust (s)		-0.6	-0.6					-0.8		-0.8	-0.8	
Total Lost Time (s)		5.0	5.0					5.0		5.0	5.0	
Lead/Lag								Lead		Lag		
Lead-Lag Optimize?								Yes		Yes		
Recall Mode	None	None	None					C-Max		None	C-Max	
Act Effect Green (s)		37.0	37.0					43.0		68.0	73.0	
Actuated g/C Ratio		0.31	0.31					0.36		0.57	0.61	
v/c Ratio		1.04	0.82					0.95		1.07	0.35	
Control Delay (s/veh)		89.4	53.7					54.9		75.0	3.0	
Queue Delay		0.0	0.0					0.0		0.0	0.0	
Total Delay (s/veh)		89.4	53.7					54.9		75.0	3.0	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		F	D					D		E	A	
Approach Delay (s/veh)		74.7						54.9			29.9	
Approach LOS		E						D			C	
Queue Length 50th (ft)		~462	276					452		~348	43	
Queue Length 95th (ft)		#680	#435					#598		m#398	m45	
Internal Link Dist (ft)		597			633			586			968	
Turn Bay Length (ft)			150							375		
Base Capacity (vph)		536	473					1203		420	2142	
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		1.04	0.82					0.95		1.07	0.35	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.07

Intersection Signal Delay (s/veh): 51.4

Intersection LOS: D

Intersection Capacity Utilization 98.1%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

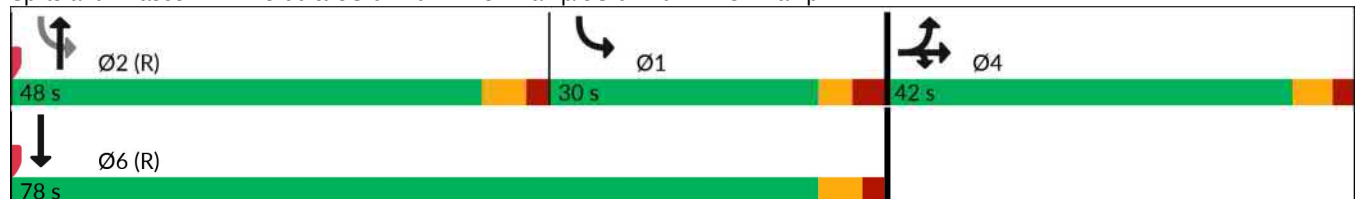
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 7: NC 96 & US 64-264 EB Off Ramp/US 64-264 EB On Ramp



Zebulon Grocery
8: Green Pace Road & Proctor Street

Build (2028) PM - with Improvements

02/25/2025



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	205	56	63	141	39	176
Future Volume (vph)	205	56	63	141	39	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			25		25	
Satd. Flow (prot)	1781	0	0	1818	1641	0
Flt Permitted				0.985	0.991	
Satd. Flow (perm)	1781	0	0	1818	1641	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	62			141	379	
Travel Time (s)	1.2			2.7	7.4	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	2%	5%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	290	0	0	227	239	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 48.1% ICU Level of Service A

Analysis Period (min) 15

Zebulon Grocery
8: Green Pace Road & Proctor Street

Build (2028) PM - with Improvements

02/25/2025

Intersection						
Int Delay, s/veh	4.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	205	56	63	141	39	176
Future Vol, veh/h	205	56	63	141	39	176
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, %	4	2	5	2	2	2
Mvmt Flow	228	62	70	157	43	196
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	290	0	556	259
Stage 1	-	-	-	-	259	-
Stage 2	-	-	-	-	297	-
Critical Hdwy	-	-	4.15	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.245	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1255	-	492	780
Stage 1	-	-	-	-	784	-
Stage 2	-	-	-	-	754	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1255	-	462	780
Mov Cap-2 Maneuver	-	-	-	-	462	-
Stage 1	-	-	-	-	784	-
Stage 2	-	-	-	-	708	-
Approach	EB		WB		NB	
HCM Control Delay, s/v	0		2.5		12.9	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	693	-	-	1255	-	
HCM Lane V/C Ratio	0.345	-	-	0.056	-	
HCM Control Delay (s/veh)	12.9	-	-	8	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q (veh)	1.5	-	-	0.2	-	

Zebulon Grocery
9: Proctor Street & Watsonia Drive

Build (2028) PM - with Improvements

02/25/2025



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	46	305	179	18	20	25
Future Volume (vph)	46	305	179	18	20	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	1852	1824	0	1683	0
Flt Permitted		0.994			0.978	
Satd. Flow (perm)	0	1852	1824	0	1683	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		141	1212		1127	
Travel Time (s)		2.7	23.6		30.7	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	390	219	0	50	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 42.4% ICU Level of Service A

Analysis Period (min) 15

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	46	305	179	18	20	25
Future Vol, veh/h	46	305	179	18	20	25
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	3	2	2	2
Mvmt Flow	51	339	199	20	22	28
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	219	0	-	0	650	209
Stage 1	-	-	-	-	209	-
Stage 2	-	-	-	-	441	-
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	1350	-	-	-	434	831
Stage 1	-	-	-	-	826	-
Stage 2	-	-	-	-	648	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1350	-	-	-	414	831
Mov Cap-2 Maneuver	-	-	-	-	414	-
Stage 1	-	-	-	-	787	-
Stage 2	-	-	-	-	648	-
Approach	EB	WB		SB		
HCM Control Delay, s/v	1	0		11.9		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1350	-	-	-	574	
HCM Lane V/C Ratio	0.038	-	-	-	0.087	
HCM Control Delay (s/veh)	7.8	0	-	-	11.9	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q (veh)	0.1	-	-	-	0.3	

Zebulon Grocery
10: Pearces Road & Proctor Street

Build (2028) PM - with Improvements

02/25/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	178	30	89	108	34	31	531	78	34	301	72
Future Volume (vph)	105	178	30	89	108	34	31	531	78	34	301	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1802	0	0	1771	0	0	1798	0	0	1751	0
Flt Permitted		0.983			0.981			0.998			0.996	
Satd. Flow (perm)	0	1802	0	0	1771	0	0	1798	0	0	1751	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1212			660			626			577	
Travel Time (s)		23.6			12.9			12.2			11.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	5%	5%	2%	2%	4%	4%	2%	5%	4%	12%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	336	0	0	249	0	0	688	0	0	438	0
Sign Control		Yield			Yield			Yield			Yield	
Intersection Summary												
Area Type:	Other											
Control Type:	Roundabout											
Intersection Capacity Utilization	68.0%											
Analysis Period (min)	15											
ICU Level of Service C												

Intersection				
Intersection Delay, s/veh	12.7			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	336	249	688	438
Demand Flow Rate, veh/h	344	257	714	462
Vehicles Circulating, veh/h	477	743	349	253
Vehicles Exiting, veh/h	238	320	472	747
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	9.3	11.5	17.6	8.4
Approach LOS	A	B	C	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	344	257	714	462
Cap Entry Lane, veh/h	848	647	967	1066
Entry HV Adj Factor	0.977	0.968	0.964	0.948
Flow Entry, veh/h	336	249	688	438
Cap Entry, veh/h	829	626	932	1011
V/C Ratio	0.406	0.397	0.739	0.433
Control Delay, s/veh	9.3	11.5	17.6	8.4
LOS	A	B	C	A
95th %tile Queue, veh	2	2	7	2

Zebulon Grocery
11: NC 96 & Site Driveway 1

Build (2028) PM - with Improvements

02/25/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	113	166	968	48	147	882
Future Volume (vph)	113	166	968	48	147	882
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	175	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				100	
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.950				0.057	
Satd. Flow (perm)	1770	1583	1863	1583	106	1863
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		35			45
Link Distance (ft)	323		229			682
Travel Time (s)	8.8		4.5			10.3
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	126	184	1076	53	163	980
Turn Type	Prot	Perm	NA	pm+ov	D.P+P	NA
Protected Phases	8		2	8	1	6
Permitted Phases		8		2	2	
Detector Phase	8	8	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	10.0	7.0	7.0	10.0
Minimum Split (s)	14.0	14.0	17.0	14.0	14.0	17.0
Total Split (s)	23.0	23.0	83.0	23.0	14.0	97.0
Total Split (%)	19.2%	19.2%	69.2%	19.2%	11.7%	80.8%
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	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	Min	None	None	Min
Act Effect Green (s)	17.0	17.0	69.5	91.6	78.6	83.7
Actuated g/C Ratio	0.15	0.15	0.63	0.83	0.71	0.75
v/c Ratio	0.46	0.76	0.92	0.04	0.77	0.70
Control Delay (s/veh)	51.5	67.7	32.2	1.6	50.1	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	51.5	67.7	32.2	1.6	50.1	10.2

Zebulon Grocery
11: NC 96 & Site Driveway 1

Build (2028) PM - with Improvements

02/25/2025



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
LOS	D	E	C	A	D	B
Approach Delay (s/veh)	61.1		30.8			15.9
Approach LOS	E		C			B
Queue Length 50th (ft)	90	139	637	5	68	316
Queue Length 95th (ft)	154	#252	#1015	10	#184	445
Internal Link Dist (ft)	243		149			602
Turn Bay Length (ft)					175	
Base Capacity (vph)	291	261	1331	1325	212	1546
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	0.43	0.70	0.81	0.04	0.77	0.63

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 110.9

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay (s/veh): 27.8

Intersection LOS: C

Intersection Capacity Utilization 77.9%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 11: NC 96 & Site Driveway 1



Zebulon Grocery
12: NC 96 & Site Driveway 2

Build (2028) PM - with Improvements

02/25/2025

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	1016	59	0	995
Future Volume (vph)	0	0	1016	59	0	995
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		50	0	
Storage Lanes	0	0		1	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	0	3539	1583	0	1863
Flt Permitted						
Satd. Flow (perm)	0	0	3539	1583	0	1863
Link Speed (mph)	25		35			35
Link Distance (ft)	329		495			229
Travel Time (s)	9.0		9.6			4.5
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	1129	66	0	1106
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	55.7%		ICU Level of Service B			
Analysis Period (min)	15					

Zebulon Grocery
13: Proctor Street & Site Driveway 3

Build (2028) PM - with Improvements

02/25/2025



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	19	111	57	123	150	4
Future Volume (vph)	19	111	57	123	150	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	50
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	1850	1691	0	1770	1583
Flt Permitted		0.993			0.950	
Satd. Flow (perm)	0	1850	1691	0	1770	1583
Link Speed (mph)		35	35		25	
Link Distance (ft)		503	62		460	
Travel Time (s)		9.8	1.2		12.5	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	144	200	0	167	4
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	35.8%			ICU Level of Service A		
Analysis Period (min)	15					

Zebulon Grocery
13: Proctor Street & Site Driveway 3

Build (2028) PM - with Improvements

02/25/2025

Intersection						
Int Delay, s/veh	4.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	19	111	57	123	150	4
Future Vol, veh/h	19	111	57	123	150	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	50
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	21	123	63	137	167	4
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	200	0	-	0	297	132
Stage 1	-	-	-	-	132	-
Stage 2	-	-	-	-	165	-
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	1372	-	-	-	694	917
Stage 1	-	-	-	-	894	-
Stage 2	-	-	-	-	864	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1372	-	-	-	683	917
Mov Cap-2 Maneuver	-	-	-	-	683	-
Stage 1	-	-	-	-	880	-
Stage 2	-	-	-	-	864	-
Approach	EB	WB		SB		
HCM Control Delay, s/v	1.1	0		11.9		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1372	-	-	-	683	917
HCM Lane V/C Ratio	0.015	-	-	-	0.244	0.005
HCM Control Delay (s/veh)	7.7	0	-	-	12	8.9
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q (veh)	0	-	-	-	1	0

Zebulon Grocery
25: US 64-264 WB Ramps

Build (2028) PM - with Improvements

02/25/2025



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑		↗
Traffic Volume (vph)	0	0	0	280	0	564
Future Volume (vph)	0	0	0	280	0	564
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			3%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		0	1
Taper Length (ft)			25		25	
Satd. Flow (prot)	0	0	0	1835	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	0	1835	0	1611
Link Speed (mph)	45			45	25	
Link Distance (ft)	412			172	567	
Travel Time (s)	6.2			2.6	15.5	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	304	0	613
Sign Control	Free			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 38.3% ICU Level of Service A

Analysis Period (min) 15

Appendix K:

SimTraffic Reports

Queuing and Blocking Report
Existing (2025) AM

02/27/2025

Intersection: 1: NC 96 & Pippin Road

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	R	L	T
Maximum Queue (ft)	136	189	41	43	174
Average Queue (ft)	71	78	8	12	76
95th Queue (ft)	117	152	31	37	144
Link Distance (ft)	1340	1360			885
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			175	175	
Storage Blk Time (%)		0			0
Queuing Penalty (veh)		0			0

Intersection: 2: NC 96 & Rose Mallow Drive

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	63	22
Average Queue (ft)	27	1
95th Queue (ft)	54	11
Link Distance (ft)	846	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		125
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: NC 96 & Riley Hill Road/Proctor Street

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	247	433	178	194	46	150
Average Queue (ft)	84	293	83	21	6	25
95th Queue (ft)	218	558	159	141	26	97
Link Distance (ft)	1229	436		502		1268
Upstream Blk Time (%)		35		0		
Queuing Penalty (veh)		40		1		
Storage Bay Dist (ft)			150		150	
Storage Blk Time (%)			3	0		0
Queuing Penalty (veh)			17	0		0

Queuing and Blocking Report
Existing (2025) AM

02/27/2025

Intersection: 4: NC 96 & Green Pace Road

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	309	220	144	334	17	270
Average Queue (ft)	127	81	58	62	2	114
95th Queue (ft)	274	170	116	288	10	227
Link Distance (ft)	1809	282		1594		502
Upstream Blk Time (%)		0		0		
Queuing Penalty (veh)		0		1		
Storage Bay Dist (ft)			200		150	
Storage Blk Time (%)			0	1		3
Queuing Penalty (veh)			0	2		0

Intersection: 5: NC 96 & Pearces Road

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	200	370	326	72	209	372
Average Queue (ft)	162	121	132	10	50	186
95th Queue (ft)	233	324	264	44	141	344
Link Distance (ft)		573	1085	1085		1594
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	100				175	
Storage Blk Time (%)	35	0				8
Queuing Penalty (veh)	16	2				3

Intersection: 6: NC 96 & US 64-264 WB Ramps/Dogwood Drive

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	TR
Maximum Queue (ft)	149	48	178	228	189	81	276	347
Average Queue (ft)	105	8	90	104	81	9	133	183
95th Queue (ft)	128	33	155	199	170	47	232	316
Link Distance (ft)	95	482		990	990		1085	
Upstream Blk Time (%)	64							
Queuing Penalty (veh)	297							
Storage Bay Dist (ft)			425			125		650
Storage Blk Time (%)							8	
Queuing Penalty (veh)							53	

Queuing and Blocking Report
Existing (2025) AM

02/27/2025

Intersection: 7: NC 96 & US 64-264 EB Off Ramp/US 64-264 EB On Ramp

Movement	EB	EB	NB	NB	SB	SB	SB
Directions Served	LT	R	T	TR	L	T	T
Maximum Queue (ft)	585	250	296	266	249	125	123
Average Queue (ft)	283	192	150	112	114	49	40
95th Queue (ft)	565	291	261	219	205	106	100
Link Distance (ft)	627		642	642		990	990
Upstream Blk Time (%)	5						
Queuing Penalty (veh)	0						
Storage Bay Dist (ft)		150			375		
Storage Blk Time (%)	14	33					
Queuing Penalty (veh)	46	80					

Intersection: 8: Green Pace Road & Proctor Street

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	3	96	118
Average Queue (ft)	0	49	41
95th Queue (ft)	3	127	141
Link Distance (ft)	436	93	282
Upstream Blk Time (%)		31	3
Queuing Penalty (veh)		68	2
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Proctor Street & Watsonia Drive

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	38	619	363
Average Queue (ft)	3	281	129
95th Queue (ft)	20	974	470
Link Distance (ft)	93	1152	1092
Upstream Blk Time (%)		7	
Queuing Penalty (veh)		14	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report

Existing (2025) AM

02/27/2025

Intersection: 10: Pearces Road & Proctor Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	118	256	178	241
Average Queue (ft)	50	118	65	119
95th Queue (ft)	88	372	155	339
Link Distance (ft)	1152	632	569	548
Upstream Blk Time (%)		6		7
Queuing Penalty (veh)		0		0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 25: US 64-264 WB Ramps

Movement	NB
Directions Served	R
Maximum Queue (ft)	596
Average Queue (ft)	480
95th Queue (ft)	689
Link Distance (ft)	551
Upstream Blk Time (%)	43
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 642

Queuing and Blocking Report
Existing (2025) PM

02/27/2025

Intersection: 1: NC 96 & Pippin Road

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	R	L	T
Maximum Queue (ft)	127	174	40	69	156
Average Queue (ft)	56	72	10	24	69
95th Queue (ft)	98	139	33	56	133
Link Distance (ft)	1340	1360			885
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			175	175	
Storage Blk Time (%)		0			0
Queuing Penalty (veh)		0			0

Intersection: 2: NC 96 & Rose Mallow Drive

Movement	WB	NB	SB
Directions Served	LR	TR	L
Maximum Queue (ft)	58	2	28
Average Queue (ft)	22	0	4
95th Queue (ft)	51	2	20
Link Distance (ft)	846	1268	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			125
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: NC 96 & Riley Hill Road/Proctor Street

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	344	87	65	24	66	54
Average Queue (ft)	182	22	23	1	11	3
95th Queue (ft)	444	66	53	11	41	25
Link Distance (ft)	1229	436		502		1268
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			150		150	
Storage Blk Time (%)						0
Queuing Penalty (veh)						0

Queuing and Blocking Report
Existing (2025) PM

02/27/2025

Intersection: 4: NC 96 & Green Pace Road

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	313	79	135	252	30	290
Average Queue (ft)	181	28	49	143	6	135
95th Queue (ft)	285	67	101	229	22	255
Link Distance (ft)	1809	282		1594		502
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			200		150	
Storage Blk Time (%)				2		5
Queuing Penalty (veh)				2		1

Intersection: 5: NC 96 & Pearces Road

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	199	292	332	156	191	401
Average Queue (ft)	146	62	126	38	48	182
95th Queue (ft)	207	199	270	98	125	331
Link Distance (ft)		573	1085	1085		1594
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	100				175	
Storage Blk Time (%)	30	0				8
Queuing Penalty (veh)	9	0				4

Intersection: 6: NC 96 & US 64-264 WB Ramps/Dogwood Drive

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	TR
Maximum Queue (ft)	130	80	206	296	251	187	409	432
Average Queue (ft)	99	29	93	137	119	18	239	274
95th Queue (ft)	113	67	162	239	214	98	356	399
Link Distance (ft)	95	482		990	990		1085	
Upstream Blk Time (%)	52							
Queuing Penalty (veh)	217							
Storage Bay Dist (ft)			425			125		650
Storage Blk Time (%)							28	
Queuing Penalty (veh)							184	

Queuing and Blocking Report
Existing (2025) PM

02/27/2025

Intersection: 7: NC 96 & US 64-264 EB Off Ramp/US 64-264 EB On Ramp

Movement	EB	EB	NB	NB	SB	SB	SB
Directions Served	LT	R	T	TR	L	T	T
Maximum Queue (ft)	624	250	326	321	327	154	141
Average Queue (ft)	344	221	203	191	161	72	60
95th Queue (ft)	584	296	302	290	279	131	120
Link Distance (ft)	627		642	642		990	990
Upstream Blk Time (%)	2						
Queuing Penalty (veh)	0						
Storage Bay Dist (ft)		150			375		
Storage Blk Time (%)	31	27			1		
Queuing Penalty (veh)	107	103			1		

Intersection: 8: Green Pace Road & Proctor Street

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	3	35	85
Average Queue (ft)	0	4	37
95th Queue (ft)	3	22	64
Link Distance (ft)	436	93	282
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Proctor Street & Watsonia Drive

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	40	41
Average Queue (ft)	4	18
95th Queue (ft)	22	42
Link Distance (ft)	93	1092
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report
Existing (2025) PM

02/27/2025

Intersection: 10: Pearces Road & Proctor Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	108	98	176	110
Average Queue (ft)	53	47	82	55
95th Queue (ft)	87	78	138	92
Link Distance (ft)	1152	632	569	548
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 25: US 64-264 WB Ramps

Movement	NB
Directions Served	R
Maximum Queue (ft)	430
Average Queue (ft)	233
95th Queue (ft)	421
Link Distance (ft)	551
Upstream Blk Time (%)	1
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 628

Queuing and Blocking Report

Background (2028) AM

02/27/2025

Intersection: 1: NC 96 & Pippin Road

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	R	L	T
Maximum Queue (ft)	359	312	117	125	385
Average Queue (ft)	165	106	11	28	166
95th Queue (ft)	503	244	67	73	413
Link Distance (ft)	1340	1360			885
Upstream Blk Time (%)	2				3
Queuing Penalty (veh)	0				0
Storage Bay Dist (ft)			175	175	
Storage Blk Time (%)		3			7
Queuing Penalty (veh)		4			4

Intersection: 2: NC 96 & Rose Mallow Drive

Movement	WB	SB	SB
Directions Served	LR	L	T
Maximum Queue (ft)	107	25	136
Average Queue (ft)	39	2	59
95th Queue (ft)	135	12	509
Link Distance (ft)	846		1360
Upstream Blk Time (%)			4
Queuing Penalty (veh)			35
Storage Bay Dist (ft)		125	
Storage Blk Time (%)			4
Queuing Penalty (veh)			0

Intersection: 3: NC 96 & Riley Hill Road/Proctor Street

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	1073	449	250	516	133	456
Average Queue (ft)	680	434	141	168	11	110
95th Queue (ft)	1331	475	283	484	64	567
Link Distance (ft)	1229	436		502		1268
Upstream Blk Time (%)	17	90		5		4
Queuing Penalty (veh)	0	116		42		43
Storage Bay Dist (ft)			150		150	
Storage Blk Time (%)			34	3		6
Queuing Penalty (veh)			222	5		5

Queuing and Blocking Report
Background (2028) AM

02/27/2025

Intersection: 4: NC 96 & Green Pace Road

Movement	EB	WB	NB	NB	B27	B27	SB	SB
Directions Served	LTR	LTR	L	TR	T		L	TR
Maximum Queue (ft)	889	228	250	850	675	374	23	449
Average Queue (ft)	384	55	136	469	257	71	4	231
95th Queue (ft)	1147	174	294	1099	810	429	18	451
Link Distance (ft)	1809	282		797	742	742		502
Upstream Blk Time (%)	5	0		30	17	8		5
Queuing Penalty (veh)	0	0		272	76	35		41
Storage Bay Dist (ft)			200				150	
Storage Blk Time (%)			19	28				15
Queuing Penalty (veh)			141	48				1

Intersection: 5: NC 96 & Pearces Road

Movement	WB	WB	B15	NB	NB	SB	SB	SB	B27
Directions Served	L	LR	T	T	R	L	T	T	T
Maximum Queue (ft)	200	503	118	1022	1008	242	583	449	330
Average Queue (ft)	88	183	24	516	469	98	181	142	56
95th Queue (ft)	226	500	178	1275	1290	264	573	463	388
Link Distance (ft)		559	544	1074	1074		742	742	797
Upstream Blk Time (%)		6	0	21	21		7	6	5
Queuing Penalty (veh)		38	1	121	120		28	25	43
Storage Bay Dist (ft)	100					275			
Storage Blk Time (%)	21	30				11	7		
Queuing Penalty (veh)	78	86				44	5		

Intersection: 6: NC 96 & US 64-264 WB Ramps/Dogwood Drive

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	126	113	506	245	470	909	907	153	410	436
Average Queue (ft)	99	68	311	194	177	305	291	39	198	224
95th Queue (ft)	114	130	610	292	448	915	907	94	596	653
Link Distance (ft)	96	96	482			983	983		1074	1074
Upstream Blk Time (%)	67	20	28			12	12		5	1
Queuing Penalty (veh)	183	56	0			63	63		36	8
Storage Bay Dist (ft)				150	425			125		
Storage Blk Time (%)			6	57	1	22		0	17	
Queuing Penalty (veh)			10	45	2	35		0	13	

Queuing and Blocking Report
Background (2028) AM

02/27/2025

Intersection: 7: NC 96 & US 64-264 EB Off Ramp/US 64-264 EB On Ramp

Movement	EB	EB	NB	NB	SB	SB	SB
Directions Served	LT	R	T	TR	L	T	T
Maximum Queue (ft)	652	250	544	550	325	98	96
Average Queue (ft)	392	196	300	278	130	33	25
95th Queue (ft)	684	326	574	565	267	76	67
Link Distance (ft)	627		642	642		983	983
Upstream Blk Time (%)	15		11	11			
Queuing Penalty (veh)	0		0	0			
Storage Bay Dist (ft)		150			375		
Storage Blk Time (%)	35	30			0		
Queuing Penalty (veh)	120	93			0		

Intersection: 8: Green Pace Road & Proctor Street

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	96	148	260
Average Queue (ft)	10	95	118
95th Queue (ft)	73	132	308
Link Distance (ft)	436	93	282
Upstream Blk Time (%)		87	21
Queuing Penalty (veh)		211	13
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Proctor Street & Watsonia Drive

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	59	1191	887
Average Queue (ft)	12	980	450
95th Queue (ft)	62	1576	1025
Link Distance (ft)	93	1127	1092
Upstream Blk Time (%)	6	69	7
Queuing Penalty (veh)	9	165	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report
Background (2028) AM

02/27/2025

Intersection: 10: Pearces Road & Proctor Street

Movement	EB	WB	NB	B15	SB
Directions Served	LTR	LTR	LTR	T	LTR
Maximum Queue (ft)	709	650	575	462	551
Average Queue (ft)	293	440	252	180	411
95th Queue (ft)	993	860	714	613	733
Link Distance (ft)	1127	606	544	559	523
Upstream Blk Time (%)	9	63	32	22	69
Queuing Penalty (veh)	18	0	118	82	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 25: US 64-264 WB Ramps

Movement	WB	NB
Directions Served	T	R
Maximum Queue (ft)	6	602
Average Queue (ft)	0	562
95th Queue (ft)	6	634
Link Distance (ft)	96	551
Upstream Blk Time (%)		88
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 3021

Queuing and Blocking Report

Background (2028) PM

02/27/2025

Intersection: 1: NC 96 & Pippin Road

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	R	L	T
Maximum Queue (ft)	214	310	168	115	244
Average Queue (ft)	105	123	30	48	110
95th Queue (ft)	178	232	99	88	199
Link Distance (ft)	1340	1360			885
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			175	175	
Storage Blk Time (%)		2			1
Queuing Penalty (veh)		6			1

Intersection: 2: NC 96 & Rose Mallow Drive

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	87	31
Average Queue (ft)	27	6
95th Queue (ft)	69	25
Link Distance (ft)	846	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		125
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: NC 96 & Riley Hill Road/Proctor Street

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	1265	414	75	33	79	123
Average Queue (ft)	957	264	28	1	15	9
95th Queue (ft)	1531	499	62	18	51	77
Link Distance (ft)	1229	436		502		1268
Upstream Blk Time (%)	46	14				
Queuing Penalty (veh)	0	11				
Storage Bay Dist (ft)			150		150	
Storage Blk Time (%)					0	0
Queuing Penalty (veh)					0	0

Queuing and Blocking Report

Background (2028) PM

02/27/2025

Intersection: 4: NC 96 & Green Pace Road

Movement	EB	WB	NB	NB	B27	SB	SB
Directions Served	LTR	LTR	L	TR	T	L	TR
Maximum Queue (ft)	573	99	222	543	176	121	455
Average Queue (ft)	324	32	96	156	25	12	238
95th Queue (ft)	573	73	201	503	221	68	432
Link Distance (ft)	1809	282		794	744		502
Upstream Blk Time (%)				3	0		0
Queuing Penalty (veh)				29	0		3
Storage Bay Dist (ft)			200			150	
Storage Blk Time (%)			7	3			15
Queuing Penalty (veh)			63	4			2

Intersection: 5: NC 96 & Pearces Road

Movement	WB	WB	NB	NB	SB	SB	SB	B27
Directions Served	L	LR	T	R	L	T	T	T
Maximum Queue (ft)	200	326	364	180	300	433	386	160
Average Queue (ft)	139	178	174	49	181	192	173	11
95th Queue (ft)	218	285	309	129	332	452	353	160
Link Distance (ft)		558	1074	1074		744	744	794
Upstream Blk Time (%)						2	0	0
Queuing Penalty (veh)						7	0	3
Storage Bay Dist (ft)	100				275			
Storage Blk Time (%)	23	37			18	0		
Queuing Penalty (veh)	60	72			77	0		

Intersection: 6: NC 96 & US 64-264 WB Ramps/Dogwood Drive

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	119	102	333	248	418	358	307	197	418	429
Average Queue (ft)	99	66	123	137	230	149	127	49	216	228
95th Queue (ft)	109	117	284	237	456	379	303	139	390	393
Link Distance (ft)	96	96	482			983	983		1074	1074
Upstream Blk Time (%)	59	17	0							
Queuing Penalty (veh)	159	44	0							
Storage Bay Dist (ft)				150	425			125		
Storage Blk Time (%)			8	15	6	2		0	23	
Queuing Penalty (veh)			13	13	35	3		0	15	

Queuing and Blocking Report

Background (2028) PM

02/27/2025

Intersection: 7: NC 96 & US 64-264 EB Off Ramp/US 64-264 EB On Ramp

Movement	EB	EB	NB	NB	SB	SB	SB
Directions Served	LT	R	T	TR	L	T	T
Maximum Queue (ft)	681	250	600	580	506	631	552
Average Queue (ft)	639	240	401	379	366	280	205
95th Queue (ft)	711	294	567	535	604	850	720
Link Distance (ft)	627		642	642		983	983
Upstream Blk Time (%)	58		0	0		0	0
Queuing Penalty (veh)	0		0	0		1	0
Storage Bay Dist (ft)		150			375		
Storage Blk Time (%)	55	39			27	0	
Queuing Penalty (veh)	206	196			93	0	

Intersection: 8: Green Pace Road & Proctor Street

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	75	118
Average Queue (ft)	19	46
95th Queue (ft)	74	109
Link Distance (ft)	93	282
Upstream Blk Time (%)	9	1
Queuing Penalty (veh)	11	2
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: Proctor Street & Watsonia Drive

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	45	207	76
Average Queue (ft)	4	36	24
95th Queue (ft)	24	255	64
Link Distance (ft)	93	1127	1092
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report
Background (2028) PM

02/27/2025

Intersection: 10: Pearces Road & Proctor Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	92	94	190	98
Average Queue (ft)	35	40	73	35
95th Queue (ft)	75	78	160	80
Link Distance (ft)	1127	606	544	523
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 25: US 64-264 WB Ramps

Movement	NB
Directions Served	R
Maximum Queue (ft)	600
Average Queue (ft)	565
95th Queue (ft)	634
Link Distance (ft)	551
Upstream Blk Time (%)	90
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 1127

Queuing and Blocking Report

Build (2028) AM

02/27/2025

Intersection: 1: NC 96 & Pippin Road

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	R	L	T
Maximum Queue (ft)	933	245	60	176	737
Average Queue (ft)	298	80	8	30	280
95th Queue (ft)	938	184	35	103	755
Link Distance (ft)	1340	1360			885
Upstream Blk Time (%)	8				15
Queuing Penalty (veh)	0				0
Storage Bay Dist (ft)			175	175	
Storage Blk Time (%)		1			20
Queuing Penalty (veh)		2			11

Intersection: 2: NC 96 & Rose Mallow Drive

Movement	WB	SB	SB
Directions Served	LR	L	T
Maximum Queue (ft)	248	19	1120
Average Queue (ft)	71	1	293
95th Queue (ft)	242	8	1199
Link Distance (ft)	845		1360
Upstream Blk Time (%)			18
Queuing Penalty (veh)			174
Storage Bay Dist (ft)		125	
Storage Blk Time (%)			21
Queuing Penalty (veh)			1

Intersection: 3: NC 96 & Riley Hill Road/Proctor Street

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	1156	396	239	402	213	353
Average Queue (ft)	793	234	73	127	77	127
95th Queue (ft)	1378	528	216	428	237	386
Link Distance (ft)	1233	396		503		362
Upstream Blk Time (%)	21	42		10		24
Queuing Penalty (veh)	0	58		81		241
Storage Bay Dist (ft)			150		150	
Storage Blk Time (%)			15	16	30	6
Queuing Penalty (veh)			105	27	282	5

Intersection: 4: NC 96 & Green Pace Road

Movement	EB	WB	NB	NB	B27	B27	SB	SB
Directions Served	LTR	LTR	L	TR	T		L	TR
Maximum Queue (ft)	1676	271	243	876	748	345	71	426
Average Queue (ft)	909	69	67	604	435	140	7	166
95th Queue (ft)	2108	246	212	1192	1022	607	43	374
Link Distance (ft)	1809	286		797	742	742		503
Upstream Blk Time (%)	27	0		58	50	15		0
Queuing Penalty (veh)	0	0		551	236	71		0
Storage Bay Dist (ft)			200				150	
Storage Blk Time (%)			7	60				9
Queuing Penalty (veh)			55	105				0

Intersection: 5: NC 96 & Pearces Road

Movement	WB	WB	B15	NB	NB	SB	SB	SB
Directions Served	L	LR	T	T	R	L	T	T
Maximum Queue (ft)	200	465	56	1087	1098	202	324	288
Average Queue (ft)	87	171	11	653	592	74	119	110
95th Queue (ft)	230	477	82	1418	1454	219	393	366
Link Distance (ft)		559	544	1074	1074		742	742
Upstream Blk Time (%)		5		49	48		1	3
Queuing Penalty (veh)		33		294	287		5	13
Storage Bay Dist (ft)	100					275		
Storage Blk Time (%)	17	34				8	5	
Queuing Penalty (veh)	64	98				31	3	

Intersection: 6: NC 96 & US 64-264 WB Ramps/Dogwood Drive

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	123	118	504	223	376	1001	1003	158	382	411
Average Queue (ft)	98	43	311	164	102	522	508	42	138	127
95th Queue (ft)	109	117	613	254	335	1250	1251	141	396	324
Link Distance (ft)	96	96	482			983	983		1074	1074
Upstream Blk Time (%)	78	12	42			41	40			
Queuing Penalty (veh)	220	35	0			213	211			
Storage Bay Dist (ft)				150	425			125		
Storage Blk Time (%)			21	49	1	46		7	7	
Queuing Penalty (veh)			32	39	6	75		30	6	

Intersection: 7: NC 96 & US 64-264 EB Off Ramp/US 64-264 EB On Ramp

Movement	EB	EB	NB	NB	SB	SB	SB
Directions Served	LT	R	T	TR	L	T	T
Maximum Queue (ft)	649	250	656	642	342	86	75
Average Queue (ft)	477	138	407	388	109	27	20
95th Queue (ft)	766	322	749	731	273	70	60
Link Distance (ft)	627		642	642		983	983
Upstream Blk Time (%)	40		36	24			
Queuing Penalty (veh)	0		0	0			
Storage Bay Dist (ft)		150			375		
Storage Blk Time (%)	57	22			0		
Queuing Penalty (veh)	194	75			0		

Intersection: 8: Green Pace Road & Proctor Street

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	56	118	304
Average Queue (ft)	17	91	225
95th Queue (ft)	44	129	405
Link Distance (ft)	-10	93	286
Upstream Blk Time (%)	15	90	63
Queuing Penalty (veh)	19	251	45
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Proctor Street & Watsonia Drive

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	12	1201	1084
Average Queue (ft)	0	996	674
95th Queue (ft)	8	1578	1293
Link Distance (ft)	93	1127	1092
Upstream Blk Time (%)		72	25
Queuing Penalty (veh)		196	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

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Intersection: 10: Pearces Road & Proctor Street

Movement	EB	WB	NB	B15	SB
Directions Served	LTR	LTR	LTR	T	LTR
Maximum Queue (ft)	429	627	505	377	546
Average Queue (ft)	120	442	258	162	408
95th Queue (ft)	450	853	700	570	718
Link Distance (ft)	1127	606	544	559	523
Upstream Blk Time (%)		66	33	20	70
Queuing Penalty (veh)		0	122	75	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 11: NC 96 & Site Driveway 1

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	436	4	615
Average Queue (ft)	154	0	198
95th Queue (ft)	409	3	615
Link Distance (ft)	608	172	624
Upstream Blk Time (%)	0		22
Queuing Penalty (veh)	0		228
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: NC 96 & Site Driveway 2

Movement	SB
Directions Served	T
Maximum Queue (ft)	162
Average Queue (ft)	46
95th Queue (ft)	172
Link Distance (ft)	172
Upstream Blk Time (%)	23
Queuing Penalty (veh)	234
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 13: Proctor Street & Site Driveway 3

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	379	54	396
Average Queue (ft)	214	19	225
95th Queue (ft)	518	37	483
Link Distance (ft)	396	-10	406
Upstream Blk Time (%)	40	65	27
Queuing Penalty (veh)	44	113	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 25: US 64-264 WB Ramps

Movement	WB	NB
Directions Served	T	R
Maximum Queue (ft)	6	594
Average Queue (ft)	0	561
95th Queue (ft)	6	608
Link Distance (ft)	96	551
Upstream Blk Time (%)		93
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 5295

Queuing and Blocking Report
Build (2028) PM

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Intersection: 1: NC 96 & Pippin Road

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	R	L	T
Maximum Queue (ft)	360	283	185	154	392
Average Queue (ft)	162	101	25	46	172
95th Queue (ft)	511	224	102	107	439
Link Distance (ft)	1340	1360			885
Upstream Blk Time (%)	2				3
Queuing Penalty (veh)	0				0
Storage Bay Dist (ft)			175	175	
Storage Blk Time (%)		2		0	7
Queuing Penalty (veh)		6		0	7

Intersection: 2: NC 96 & Rose Mallow Drive

Movement	WB	SB	SB
Directions Served	LR	L	T
Maximum Queue (ft)	196	56	408
Average Queue (ft)	67	5	106
95th Queue (ft)	181	34	606
Link Distance (ft)	845		1360
Upstream Blk Time (%)			4
Queuing Penalty (veh)			38
Storage Bay Dist (ft)		125	
Storage Blk Time (%)			8
Queuing Penalty (veh)			1

Intersection: 3: NC 96 & Riley Hill Road/Proctor Street

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	1270	411	70	12	122	253
Average Queue (ft)	1044	384	17	1	19	50
95th Queue (ft)	1520	477	52	8	91	232
Link Distance (ft)	1229	396		517		356
Upstream Blk Time (%)	56	75				5
Queuing Penalty (veh)	0	80				53
Storage Bay Dist (ft)			150		150	
Storage Blk Time (%)						7
Queuing Penalty (veh)						6

Intersection: 4: NC 96 & Green Pace Road

Movement	EB	WB	NB	NB	B27	B27	SB	SB
Directions Served	LTR	LTR	L	TR	T		L	TR
Maximum Queue (ft)	1844	144	244	876	757	692	194	520
Average Queue (ft)	1178	50	93	629	439	240	35	293
95th Queue (ft)	2259	120	248	1178	1003	812	124	530
Link Distance (ft)	1809	294		781	744	744		517
Upstream Blk Time (%)	41			50	34	23		6
Queuing Penalty (veh)	0			543	184	128		57
Storage Bay Dist (ft)			200				150	
Storage Blk Time (%)			7	50			2	22
Queuing Penalty (veh)			73	61			19	4

Intersection: 5: NC 96 & Pearces Road

Movement	WB	WB	B15	NB	NB	SB	SB	SB	B27
Directions Served	L	LR	T	T	R	L	T	T	T
Maximum Queue (ft)	200	592	359	1101	1099	253	538	518	257
Average Queue (ft)	137	305	105	631	545	101	209	220	61
95th Queue (ft)	244	629	457	1350	1369	222	542	531	401
Link Distance (ft)		558	544	1074	1074		744	744	781
Upstream Blk Time (%)		18	10	30	29		7	6	6
Queuing Penalty (veh)		75	42	245	237		34	29	55
Storage Bay Dist (ft)	100					275			
Storage Blk Time (%)	35	58				2	10		
Queuing Penalty (veh)	92	115				7	9		

Intersection: 6: NC 96 & US 64-264 WB Ramps/Dogwood Drive

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	120	102	498	250	594	1004	1005	211	740	888
Average Queue (ft)	100	46	256	169	241	505	491	53	283	346
95th Queue (ft)	114	110	559	275	602	1165	1162	166	686	847
Link Distance (ft)	96	96	482			983	983		1074	1074
Upstream Blk Time (%)	73	12	29			22	21		0	1
Queuing Penalty (veh)	207	34	0			160	151		3	5
Storage Bay Dist (ft)				150	425			125		
Storage Blk Time (%)			13	37	5	38		0	27	
Queuing Penalty (veh)			20	31	28	64		1	17	

Intersection: 7: NC 96 & US 64-264 EB Off Ramp/US 64-264 EB On Ramp

Movement	EB	EB	NB	NB	SB	SB	SB
Directions Served	LT	R	T	TR	L	T	T
Maximum Queue (ft)	680	250	676	680	476	644	559
Average Queue (ft)	638	201	533	527	282	223	164
95th Queue (ft)	712	355	787	780	576	786	656
Link Distance (ft)	627		642	642		983	983
Upstream Blk Time (%)	66		40	40		1	0
Queuing Penalty (veh)	0		0	0		8	1
Storage Bay Dist (ft)		150			375		
Storage Blk Time (%)	68	25			20	0	
Queuing Penalty (veh)	254	134			75	0	

Intersection: 8: Green Pace Road & Proctor Street

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	73	106	317
Average Queue (ft)	15	75	221
95th Queue (ft)	56	135	404
Link Distance (ft)	-2	93	294
Upstream Blk Time (%)	1	53	50
Queuing Penalty (veh)	1	108	81
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Proctor Street & Watsonia Drive

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	64	729	227
Average Queue (ft)	6	253	82
95th Queue (ft)	34	695	233
Link Distance (ft)	93	1127	1092
Upstream Blk Time (%)	0	1	
Queuing Penalty (veh)	0	3	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report
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Intersection: 10: Pearces Road & Proctor Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	375	298	292	384
Average Queue (ft)	70	75	61	96
95th Queue (ft)	289	287	189	350
Link Distance (ft)	1127	606	544	523
Upstream Blk Time (%)		3		7
Queuing Penalty (veh)		0		0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 11: NC 96 & Site Driveway 1

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	560	23	598
Average Queue (ft)	538	1	241
95th Queue (ft)	554	10	623
Link Distance (ft)	529	172	628
Upstream Blk Time (%)	100		6
Queuing Penalty (veh)	0		58
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: NC 96 & Site Driveway 2

Movement	SB
Directions Served	T
Maximum Queue (ft)	58
Average Queue (ft)	16
95th Queue (ft)	96
Link Distance (ft)	172
Upstream Blk Time (%)	5
Queuing Penalty (veh)	49
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 13: Proctor Street & Site Driveway 3

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	76	64	461
Average Queue (ft)	7	29	317
95th Queue (ft)	37	58	579
Link Distance (ft)	396	-2	431
Upstream Blk Time (%)		64	49
Queuing Penalty (veh)		118	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 25: US 64-264 WB Ramps

Movement	NB
Directions Served	R
Maximum Queue (ft)	600
Average Queue (ft)	567
95th Queue (ft)	589
Link Distance (ft)	551
Upstream Blk Time (%)	95
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 3811

Queuing and Blocking Report
Build (2028) AM - with Improvements

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Intersection: 1: NC 96 & Pippin Road

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	R	L	T
Maximum Queue (ft)	383	292	210	108	359
Average Queue (ft)	185	110	19	31	174
95th Queue (ft)	555	228	98	77	436
Link Distance (ft)	1340	1360			885
Upstream Blk Time (%)	3				4
Queuing Penalty (veh)	0				0
Storage Bay Dist (ft)			175	175	
Storage Blk Time (%)		2			7
Queuing Penalty (veh)		3			4

Intersection: 2: NC 96 & Rose Mallow Drive

Movement	WB	SB	SB
Directions Served	LR	L	T
Maximum Queue (ft)	143	23	219
Average Queue (ft)	52	1	76
95th Queue (ft)	152	12	553
Link Distance (ft)	845		1360
Upstream Blk Time (%)			4
Queuing Penalty (veh)			39
Storage Bay Dist (ft)		125	
Storage Blk Time (%)			6
Queuing Penalty (veh)			0

Intersection: 3: NC 96 & Riley Hill Road/Proctor Street

Movement	EB	WB	NB	NB	SB	SB
Directions Served	R	R	L	TR	L	TR
Maximum Queue (ft)	212	74	250	524	197	343
Average Queue (ft)	75	16	219	403	51	131
95th Queue (ft)	191	48	323	697	190	354
Link Distance (ft)	1233	393		503		368
Upstream Blk Time (%)				26		6
Queuing Penalty (veh)				226		59
Storage Bay Dist (ft)			150		150	
Storage Blk Time (%)			75	5	6	8
Queuing Penalty (veh)			521	12	54	7

Queuing and Blocking Report
Build (2028) AM - with Improvements

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Intersection: 4: NC 96 & Green Pace Road

Movement	EB	EB	WB	NB	NB	B27	B27	SB	SB
Directions Served	LT	R	LTR	L	TR	T		L	TR
Maximum Queue (ft)	1730	225	303	250	896	741	511	190	511
Average Queue (ft)	966	72	224	185	729	391	74	27	357
95th Queue (ft)	2059	229	373	334	1124	950	406	129	593
Link Distance (ft)	1806		286		785	742	742		503
Upstream Blk Time (%)	22		39		47	13	2		1
Queuing Penalty (veh)	0		92		441	61	7		13
Storage Bay Dist (ft)		125		200				150	
Storage Blk Time (%)	83	2		12	51				26
Queuing Penalty (veh)	63	2		89	89				6

Intersection: 5: NC 96 & Pearces Road

Movement	WB	WB	B15	NB	NB	SB	SB	SB
Directions Served	L	LR	T	T	R	L	T	T
Maximum Queue (ft)	200	568	64	981	877	168	160	180
Average Queue (ft)	165	324	7	577	420	60	83	92
95th Queue (ft)	268	631	48	1269	1239	142	150	163
Link Distance (ft)		559	544	1074	1074		742	742
Upstream Blk Time (%)		5		14	16			
Queuing Penalty (veh)		34		82	94			
Storage Bay Dist (ft)	100					275		
Storage Blk Time (%)	40	50				0		
Queuing Penalty (veh)	152	149				1		

Intersection: 6: NC 96 & US 64-264 WB Ramps/Dogwood Drive

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	135	108	483	250	499	777	761	225	516	736
Average Queue (ft)	101	70	277	192	239	349	330	70	258	293
95th Queue (ft)	120	128	547	292	564	986	973	186	461	562
Link Distance (ft)	96	96	482			983	983		1074	1074
Upstream Blk Time (%)	63	21	17			11	10			0
Queuing Penalty (veh)	178	60	0			59	51			1
Storage Bay Dist (ft)				150	425			125		
Storage Blk Time (%)			10	51	2	25		0	29	
Queuing Penalty (veh)			16	40	6	41		0	23	

Queuing and Blocking Report
Build (2028) AM - with Improvements

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Intersection: 7: NC 96 & US 64-264 EB Off Ramp/US 64-264 EB On Ramp

Movement	EB	EB	NB	NB	SB	SB	SB
Directions Served	LT	R	T	TR	L	T	T
Maximum Queue (ft)	624	250	600	585	398	105	93
Average Queue (ft)	412	208	332	311	170	37	29
95th Queue (ft)	717	318	630	620	328	81	70
Link Distance (ft)	627		642	642		983	983
Upstream Blk Time (%)	16		15	14			
Queuing Penalty (veh)	0		0	0			
Storage Bay Dist (ft)		150			375		
Storage Blk Time (%)	38	31			0		
Queuing Penalty (veh)	132	102			1		

Intersection: 8: Green Pace Road & Proctor Street

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	66	132	124
Average Queue (ft)	33	72	49
95th Queue (ft)	69	139	166
Link Distance (ft)	-10	93	286
Upstream Blk Time (%)	6	45	6
Queuing Penalty (veh)	8	125	6
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Proctor Street & Watsonia Drive

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	50	925	442
Average Queue (ft)	5	459	168
95th Queue (ft)	27	1277	603
Link Distance (ft)	93	1127	1092
Upstream Blk Time (%)	0	19	2
Queuing Penalty (veh)	0	51	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report
Build (2028) AM - with Improvements

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Intersection: 10: Pearces Road & Proctor Street

Movement	EB	WB	NB	B15	SB
Directions Served	LTR	LTR	LTR	T	LTR
Maximum Queue (ft)	132	318	206	59	498
Average Queue (ft)	41	131	68	31	242
95th Queue (ft)	102	443	301	244	575
Link Distance (ft)	1127	606	544	559	523
Upstream Blk Time (%)		11	5	5	25
Queuing Penalty (veh)		0	20	18	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 11: NC 96 & Site Driveway 1

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	101	91	186	29	146	368
Average Queue (ft)	38	31	101	4	41	181
95th Queue (ft)	115	72	205	19	119	443
Link Distance (ft)	276	276	174	174		610
Upstream Blk Time (%)	1		2			5
Queuing Penalty (veh)	0		8			50
Storage Bay Dist (ft)					175	
Storage Blk Time (%)						9
Queuing Penalty (veh)						8

Intersection: 12: NC 96 & Site Driveway 2

Movement	NB	NB	SB
Directions Served	T	T	T
Maximum Queue (ft)	191	10	101
Average Queue (ft)	22	0	25
95th Queue (ft)	106	8	122
Link Distance (ft)	368	368	174
Upstream Blk Time (%)	0		5
Queuing Penalty (veh)	0		54
Storage Bay Dist (ft)			
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Intersection: 13: Proctor Street & Site Driveway 3

Movement	EB	WB	SB	SB
Directions Served	LT	TR	L	R
Maximum Queue (ft)	172	48	129	39
Average Queue (ft)	51	15	51	4
95th Queue (ft)	239	49	188	24
Link Distance (ft)	393	-10	406	
Upstream Blk Time (%)	7		2	
Queuing Penalty (veh)	6		0	
Storage Bay Dist (ft)				50
Storage Blk Time (%)			13	0
Queuing Penalty (veh)			1	0

Intersection: 25: US 64-264 WB Ramps

Movement	WB	NB
Directions Served	T	R
Maximum Queue (ft)	6	600
Average Queue (ft)	0	567
95th Queue (ft)	6	591
Link Distance (ft)	96	551
Upstream Blk Time (%)		92
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 3363

Queuing and Blocking Report
Build (2028) PM - with Improvements

02/27/2025

Intersection: 1: NC 96 & Pippin Road

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	R	L	T
Maximum Queue (ft)	359	313	256	183	382
Average Queue (ft)	151	139	40	59	161
95th Queue (ft)	337	261	145	129	375
Link Distance (ft)	1340	1360			885
Upstream Blk Time (%)					2
Queuing Penalty (veh)					0
Storage Bay Dist (ft)			175	175	
Storage Blk Time (%)		4			6
Queuing Penalty (veh)		12			6

Intersection: 2: NC 96 & Rose Mallow Drive

Movement	WB	NB	SB	SB
Directions Served	LR	TR	L	T
Maximum Queue (ft)	218	4	42	137
Average Queue (ft)	85	0	7	38
95th Queue (ft)	238	4	28	399
Link Distance (ft)	845	615		1360
Upstream Blk Time (%)				2
Queuing Penalty (veh)				17
Storage Bay Dist (ft)			125	
Storage Blk Time (%)				3
Queuing Penalty (veh)				0

Intersection: 3: NC 96 & Riley Hill Road/Proctor Street

Movement	EB	WB	NB	NB	SB	SB
Directions Served	R	R	L	TR	L	TR
Maximum Queue (ft)	791	64	119	104	233	361
Average Queue (ft)	415	17	53	9	38	130
95th Queue (ft)	965	44	104	58	131	347
Link Distance (ft)	1229	393		517		365
Upstream Blk Time (%)	3					3
Queuing Penalty (veh)	0					32
Storage Bay Dist (ft)			150		150	
Storage Blk Time (%)			0	0	0	11
Queuing Penalty (veh)			2	0	0	8

Queuing and Blocking Report
Build (2028) PM - with Improvements

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Intersection: 4: NC 96 & Green Pace Road

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	LT	R	LTR	L	TR	L	TR
Maximum Queue (ft)	963	225	239	250	567	250	531
Average Queue (ft)	520	169	106	117	392	82	448
95th Queue (ft)	1071	301	218	256	573	243	599
Link Distance (ft)	1807		294		769		517
Upstream Blk Time (%)			2				5
Queuing Penalty (veh)			2				56
Storage Bay Dist (ft)		125		200		150	
Storage Blk Time (%)	72	6		0	20		33
Queuing Penalty (veh)	77	14		3	24		23

Intersection: 5: NC 96 & Pearces Road

Movement	WB	WB	NB	NB	SB	SB	SB	B27
Directions Served	L	LR	T	R	L	T	T	T
Maximum Queue (ft)	200	382	322	181	306	519	440	190
Average Queue (ft)	149	196	173	45	203	245	181	36
95th Queue (ft)	223	334	292	122	365	598	423	298
Link Distance (ft)		558	1074	1074		744	744	769
Upstream Blk Time (%)		0				5	0	3
Queuing Penalty (veh)		0				23	0	25
Storage Bay Dist (ft)	100				275			
Storage Blk Time (%)	27	40			29	0		
Queuing Penalty (veh)	71	80			139	0		

Intersection: 6: NC 96 & US 64-264 WB Ramps/Dogwood Drive

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	123	106	290	237	391	381	297	225	663	676
Average Queue (ft)	101	59	111	132	210	164	134	72	357	376
95th Queue (ft)	112	112	256	223	428	399	323	193	658	669
Link Distance (ft)	96	96	482			983	983		1074	1074
Upstream Blk Time (%)	63	12							0	0
Queuing Penalty (veh)	178	33							1	1
Storage Bay Dist (ft)				150	425			125		
Storage Blk Time (%)			7	12	5	1		0	37	
Queuing Penalty (veh)			11	10	27	2		0	23	

Intersection: 7: NC 96 & US 64-264 EB Off Ramp/US 64-264 EB On Ramp

Movement	EB	EB	NB	NB	SB	SB	SB
Directions Served	LT	R	T	TR	L	T	T
Maximum Queue (ft)	679	250	641	638	525	911	890
Average Queue (ft)	639	237	450	435	397	312	206
95th Queue (ft)	718	300	656	635	619	898	727
Link Distance (ft)	627		642	642		983	983
Upstream Blk Time (%)	56		3	2		1	0
Queuing Penalty (veh)	0		0	0		5	1
Storage Bay Dist (ft)		150			375		
Storage Blk Time (%)	58	34			31	0	
Queuing Penalty (veh)	217	185			113	0	

Intersection: 8: Green Pace Road & Proctor Street

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	90	75	153
Average Queue (ft)	46	17	65
95th Queue (ft)	86	57	114
Link Distance (ft)	-2	93	294
Upstream Blk Time (%)	2	1	
Queuing Penalty (veh)	4	2	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Proctor Street & Watsonia Drive

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	68	38	56
Average Queue (ft)	11	2	24
95th Queue (ft)	44	39	50
Link Distance (ft)	93	1127	1092
Upstream Blk Time (%)	0		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report
Build (2028) PM - with Improvements

02/27/2025

Intersection: 10: Pearces Road & Proctor Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	118	106	196	133
Average Queue (ft)	43	44	71	45
95th Queue (ft)	87	84	148	103
Link Distance (ft)	1127	606	544	523
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 11: NC 96 & Site Driveway 1

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	181	241	189	39	241	429
Average Queue (ft)	75	116	170	6	90	191
95th Queue (ft)	155	214	216	27	188	383
Link Distance (ft)	272	272	175	175		615
Upstream Blk Time (%)	1	1	11			2
Queuing Penalty (veh)	0	0	58			23
Storage Bay Dist (ft)					175	
Storage Blk Time (%)					0	8
Queuing Penalty (veh)					3	12

Intersection: 12: NC 96 & Site Driveway 2

Movement	NB	NB	SB
Directions Served	T	T	T
Maximum Queue (ft)	322	37	147
Average Queue (ft)	113	2	22
95th Queue (ft)	271	21	112
Link Distance (ft)	365	365	175
Upstream Blk Time (%)	0		3
Queuing Penalty (veh)	1		27
Storage Bay Dist (ft)			
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Intersection: 13: Proctor Street & Site Driveway 3

Movement	EB	WB	SB	SB
Directions Served	LT	TR	L	R
Maximum Queue (ft)	59	67	123	33
Average Queue (ft)	7	30	45	4
95th Queue (ft)	41	77	99	22
Link Distance (ft)	393	-2	432	
Upstream Blk Time (%)		0	0	
Queuing Penalty (veh)		0	0	
Storage Bay Dist (ft)				50
Storage Blk Time (%)			4	0
Queuing Penalty (veh)			0	0

Intersection: 25: US 64-264 WB Ramps

Movement	NB
Directions Served	R
Maximum Queue (ft)	600
Average Queue (ft)	570
95th Queue (ft)	593
Link Distance (ft)	551
Upstream Blk Time (%)	93
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

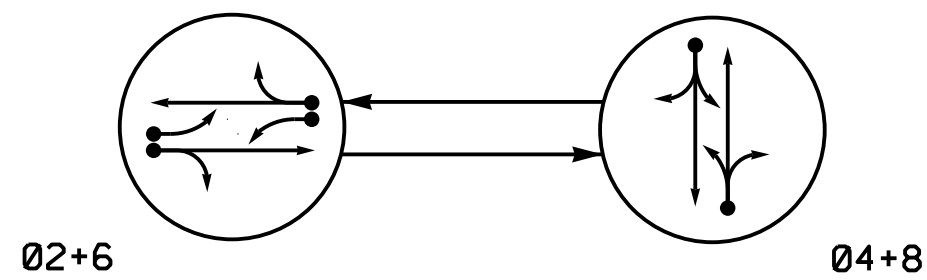
Network Summary

Network wide Queuing Penalty: 1550

Appendix L:

Signal Plans

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

SIGNAL FACE	PHASE		
	02+6	04+8	FLD
21	F	R	Y
22,23	G	R	Y
41,42	R	G	R
61	F	R	Y
62,63	G	R	Y
81,82	R	G	R

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART											
INDUCTIVE LOOPS					DETECTOR PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP
2A/S12	6X6	200	5	Y	2	Y	Y	-	-	-	Y
2B	6X40	0	2-4-2	Y	2	Y	Y	Y	-	3	-
4A	6X40	0	2-4-2	Y	4	Y	Y	-	-	5	-
6A/S13	6X6	200	5	Y	6	Y	Y	-	-	-	Y
6B	6X40	0	2-4-2	Y	6	Y	Y	Y	-	3	-
8A	6X40	0	2-4-2	Y	8	Y	Y	-	-	5	-

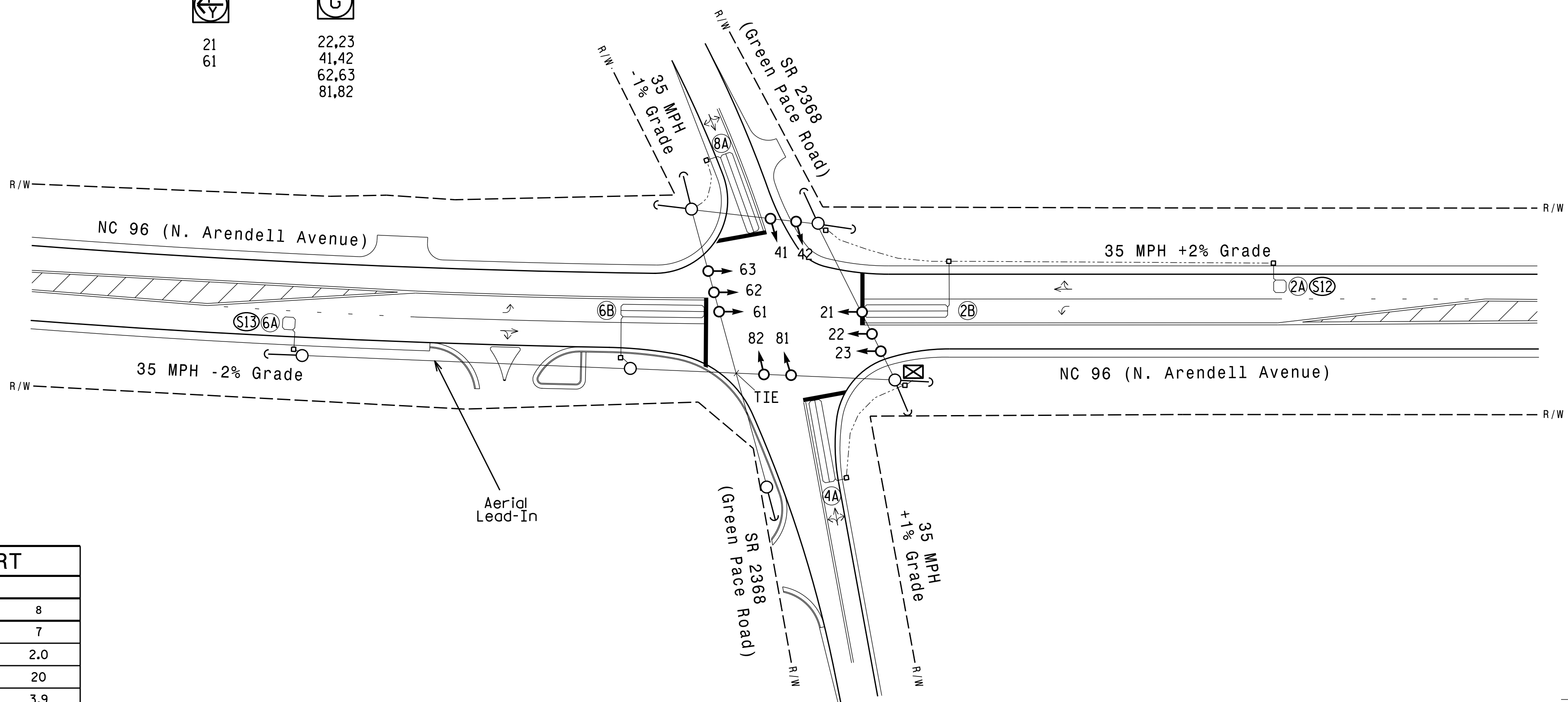
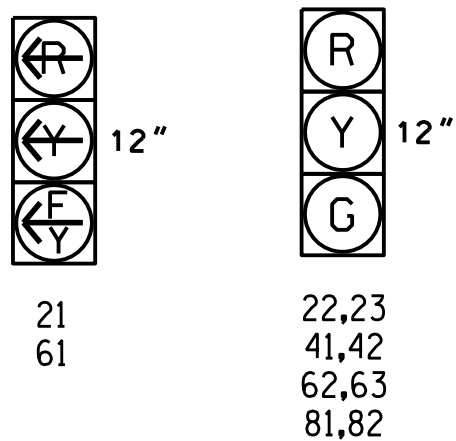
2 Phase
Fully Actuated
(NC 96 - N. Arendell Ave. CLS)
Signal System #: D05-30_Zebulon

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.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- Set all detector units to presence mode.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Closed loop system data: Controller asset #: 0886

SIGNAL FACE I.D.

All Heads L.E.D.



OASIS 2070 TIMING CHART				
FEATURE	PHASE			
	2	4	6	8
Min Green 1 *	10	7	10	7
Extension 1 *	5.0	2.0	5.0	2.0
Max Green 1 *	45	20	45	20
Yellow Clearance	4.0	3.8	4.0	3.9
Red Clearance	1.3	1.5	1.3	1.2
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	2.5	-	2.5	-
Max Variable Initial *	24	-	24	-
Time Before Reduction *	15	-	15	-
Time To Reduce *	30	-	30	-
Minimum Gap	3.0	-	3.0	-
Recall Mode	MIN RECALL	-	MIN RECALL	-
Vehicle Call Memory	YELLOW	-	YELLOW	-
Dual Entry	-	ON	-	ON
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.

LEGEND

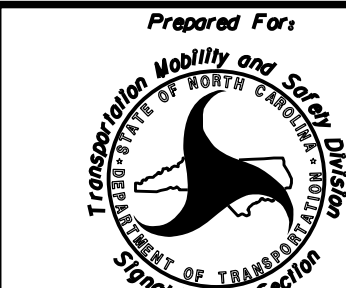
- | PROPOSED | EXISTING |
|--|--|
| Traffic Signal Head | Traffic Signal Head |
| Modified Signal Head | N/A |
| Sign | Sign |
| Pedestrian Signal Head With Push Button & Sign | Pedestrian Signal Head With Push Button & Sign |
| Signal Pole with Guy | Signal Pole with Guy |
| Signal Pole with Sidewalk Guy | Signal Pole with Sidewalk Guy |
| Inductive Loop Detector | Inductive Loop Detector |
| Controller & Cabinet | Controller & Cabinet |
| Junction Box | Junction Box |
| 2-in Underground Conduit | 2-in Underground Conduit |
| N/A | Right of Way |
| Directional Arrow | Directional Arrow |

NC Dept of Transportation
Division of Highways
Final Drawing Date: 04/25/2022
ITS & Signal Section

Prepared in the Office of:

SUMMIT
DESIGN AND ENGINEERING SERVICES
NC FIRM LICENSE No: P-0339
320 Executive Court
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

New Installation



NC 96 (N. Arendell Avenue)
at
SR 2368 (Green Pace Road)

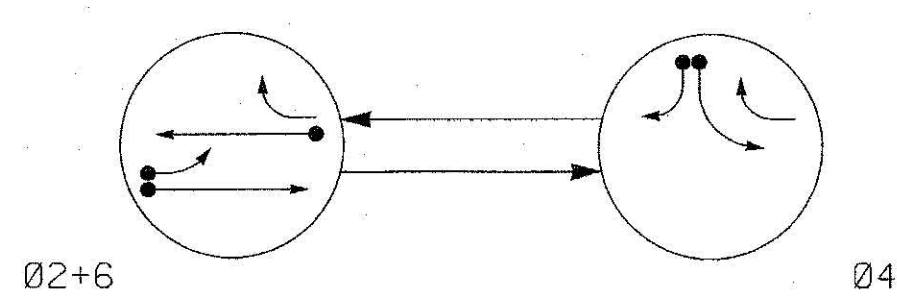
Division 5 Wake County Zebulon
PLAN DATE: November 2021 REVIEWED BY: E. Sirgany

PREPARED BY: M. Parker REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA
PROFESSIONAL
SEAL
018174
ENGINEER
EDWARD W. SIRGANY
DocuSigned by:
Edward W. Sirgany
4/12/2022
SIG. INVENTORY NO. 05-0886

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- ◄ UNDETECTED MOVEMENT (OVERLAP)
- ◄ UNSIGNALIZED MOVEMENT
- ◄ PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE		
	02	04	06
21, 22	G	R	Y
41, 42	R	G	R
61	G	R	Y
62	G	R	Y

OASIS 2070L LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS				DETECTOR PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURN	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME
2A	6X40	+5	2-4-2	-	2	Y	Y	-	-	-
2B	6X6	70	3	-	2	Y	Y	-	-	-
4A	6X40	0	2-4-2	Y	4	Y	Y	-	-	3
4B	6X40	0	2-4-2	Y	4	Y	Y	-	-	15
6A	6X6	70	4	Y	6	Y	Y	-	-	-
S9	6X6	+150	3	-	-	-	-	-	-	Y
S10	6X6	+135	3	-	-	-	-	-	-	Y

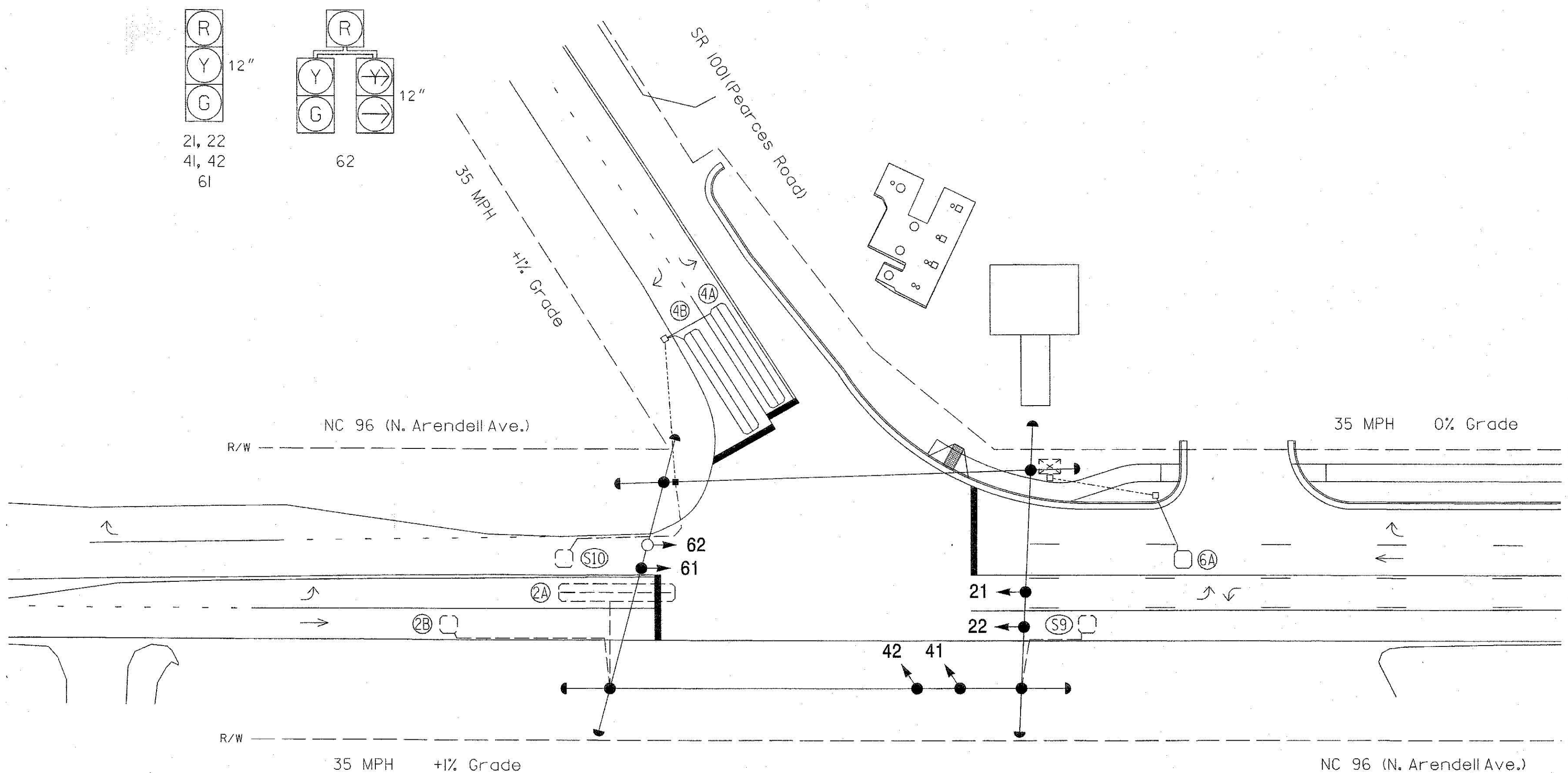
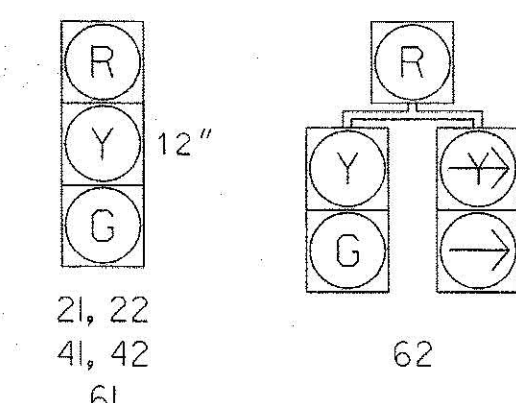
2 Phase
Fully Actuated
(NC 96 - Arendell Ave. Closed Loop System)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated July 2006 and "Standard Specifications for Roads and Structures" dated July 2006.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Set all detector units to presence mode.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Closed loop system data: Controller Asset #1700.

SIGNAL FACE I.D.

All Heads L.E.D.

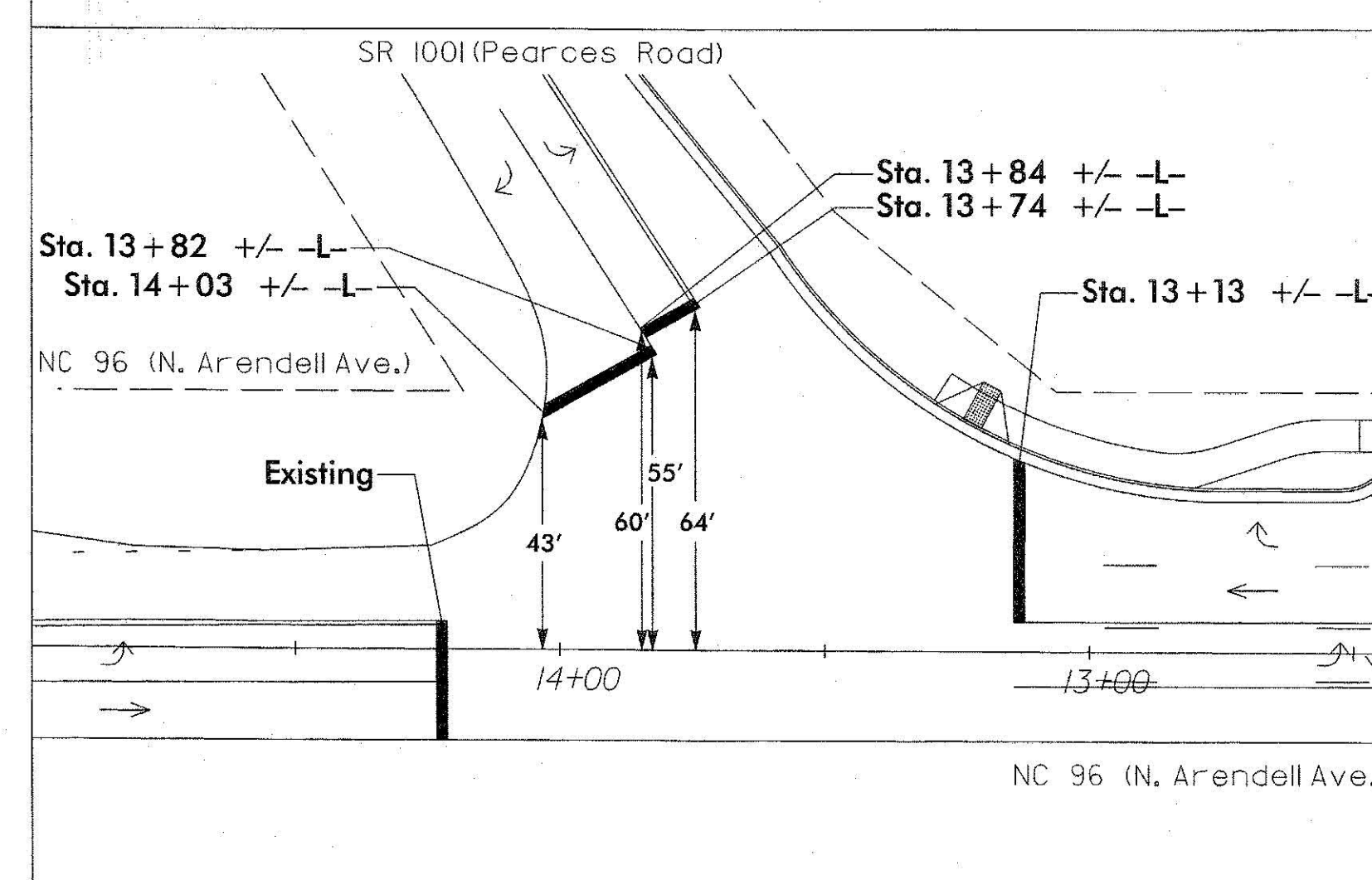


OASIS 2070L TIMING CHART

FEATURE	PHASE		
	2	4	6
Min Green 1 *	10	7	10
Extension 1 *	3.0	2.0	3.0
Max Green 1 *	45	20	45
Yellow Clearance	3.8	3.0	3.8
Red Clearance	2.3	3.3	1.8
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

* 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.

INSET - STOP BAR LOCATIONS



PROPOSED	EXISTING
○ Traffic Signal Head	N/A
◄ Modified Signal Head	N/A
Sign	N/A
◄ Pedestrian Signal Head With Push Button & Sign	N/A
Signal Pole with Guy	●
Signal Pole with Sidewalk Guy	●
Inductive Loop Detector	◻
Controller & Cabinet	◻
Junction Box	◻
2-in Underground Conduit	◻
Right of Way	---
Directional Arrow	→

Signal Upgrade

Prepared in the Offices of:

1025 Wade Avenue
Raleigh, NC 27605
Tel: 919-789-9977
Fax: 919-789-9591
License #: C-2197

NC 96 (N. Arendell Avenue)
at
SR 1001 (Pearces Road)
Zebulon Wake County

PLAN DATE: August 2011
REVIEWED BY: J. Hochanadel
PREPARED BY: A. Nau
REVIEWED BY:

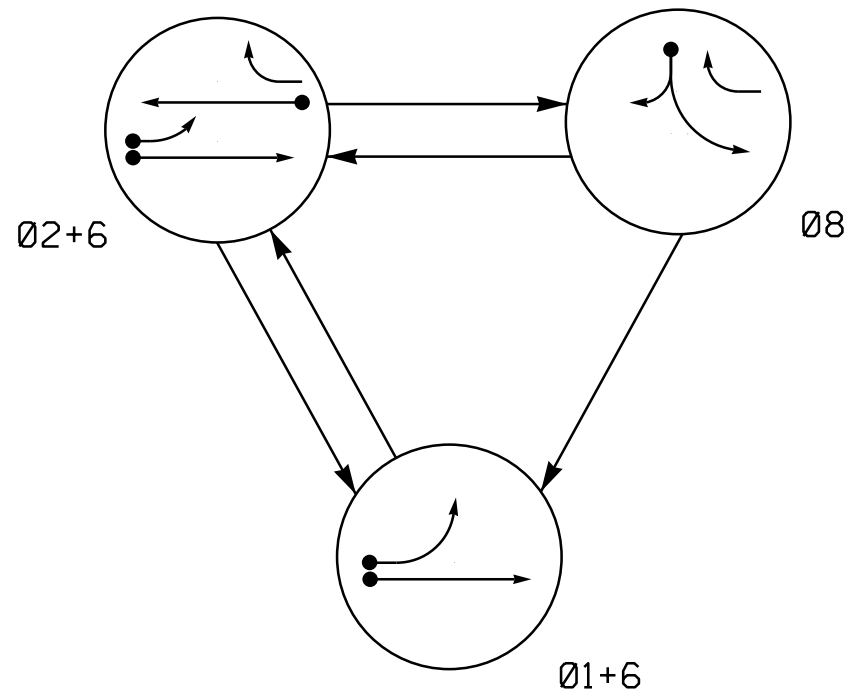
REVISIONS

SCALE: 0 30
1" = 30'

SEAL
NORTH CAROLINA
PROFESSIONAL
ENGINEER
JEFFREY P. HOCHANADEL
28430

SIGNATURE: *Jeffrey P. Hochanadel*
DATE: 8/10/11
SIG. INVENTORY NO. 05-1700

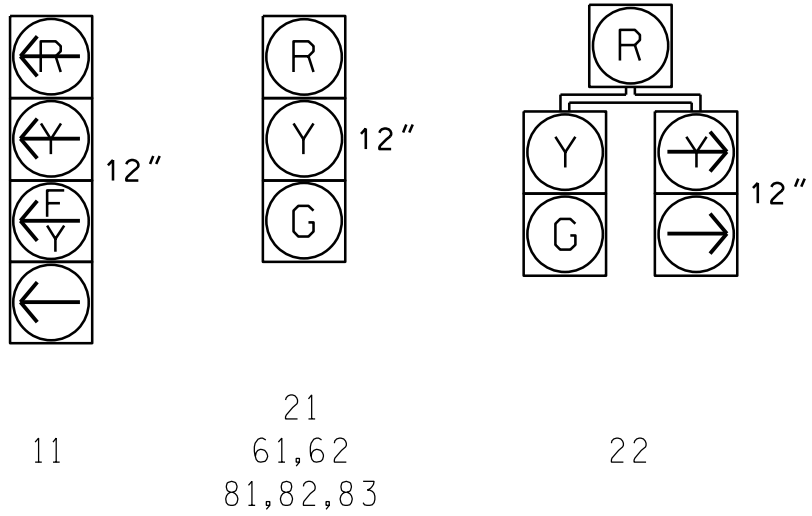
PHASING DIAGRAM



SIGNAL FACE	PHASE			
	Ø 1 + 6	Ø 2 + 6	Ø 8	FLASH
11	←	←	←	←
21	R	G	R	Y
22	R	G	R	Y
61,62	G	G	R	Y
81,82,83	R	R	G	R

SIGNAL FACE I.D.

All Heads L.E.D.



OASIS 2070 LOOP & DETECTOR INSTALLATION CHART											
INDUCTIVE LOOPS						DETECTOR PROGRAMMING					
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP NEW CARD
1A	6X40	0	2-4-2	Y	1	Y	Y	-	-	15	- Y
2A	6X6	300	5	Y	2	Y	Y	-	-	3	- Y
6A	6X6	300	5	Y	6	Y	Y	-	-	-	- Y
8A	6X40	0	2-4-2	Y	8	Y	Y	-	-	10	- Y

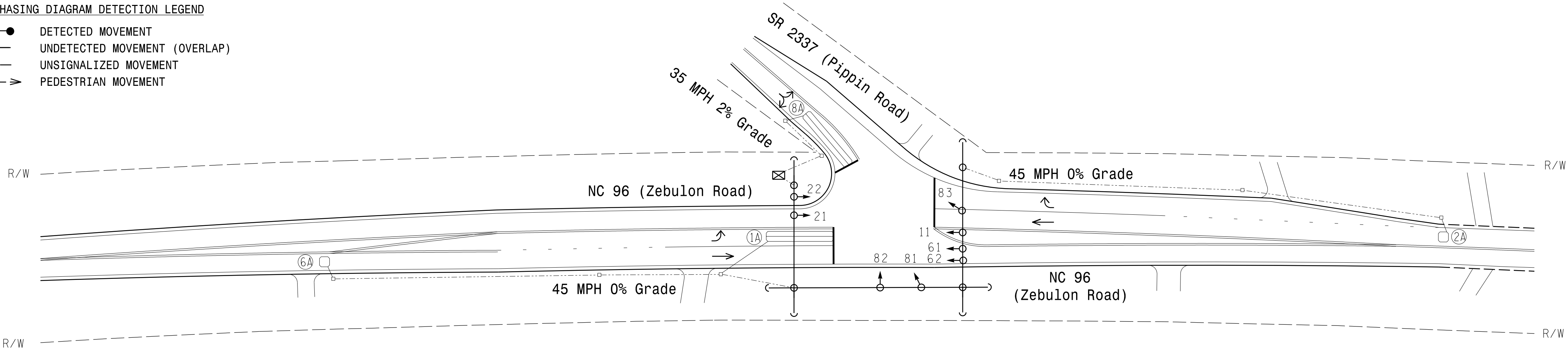
3 Phase
Fully Actuated
(Isolated)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2018, "Standard Specifications for Roads and Structures" dated January 2018 and all applicable sections of the latest version of the generic Project Special Provisions. The PSP can be accessed at the following website:
<https://connect.ncdot.gov/resources/safety/pages/its-and-signals.aspx>
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 may be lagged.
- Set all detector units to presence mode.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.

PHASING DIAGRAM DETECTION LEGEND

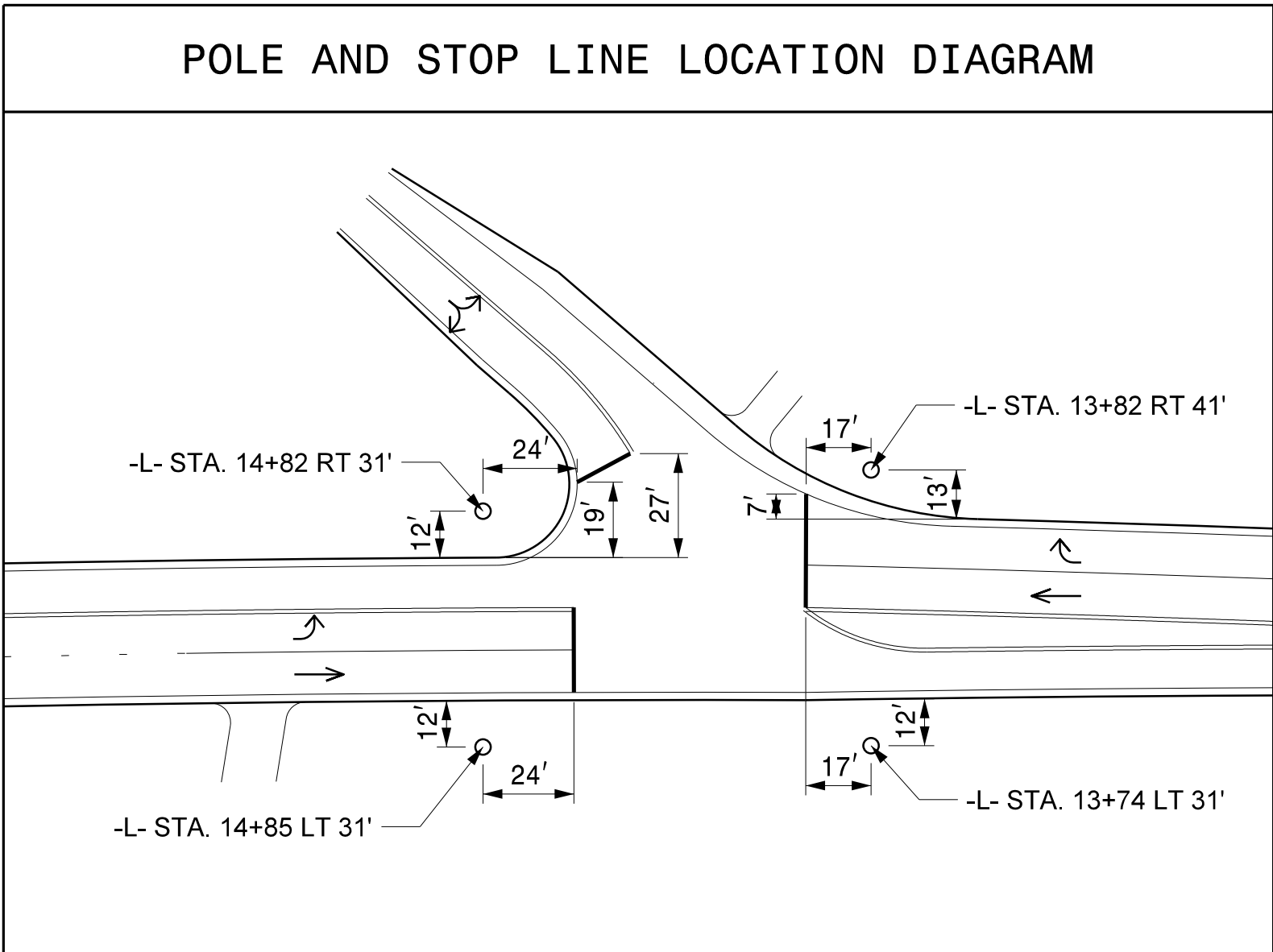
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT



OASIS 2070 TIMING CHART				
FEATURE	PHASE			
	1	2	6	8
Min Green 1 *	7	12	12	7
Extension 1 *	2.0	6.0	6.0	2.0
Max Green 1 *	20	90	90	30
Yellow Clearance	3.0	4.5	4.5	3.0
Red Clearance	1.6	1.0	1.0	2.4
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	-	2.5	2.5	-
Max Variable Initial *	-	34	34	-
Time Before Reduction *	-	15	15	-
Time To Reduce *	-	45	45	-
Minimum Gap	-	3.0	3.0	-
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.

POLE AND STOP LINE LOCATION DIAGRAM



NC Dept of Transportation
Division of Highways
Final Drawing Date: 6/14/2019
Changshik Baik
ITS & Signals Unit

LEGEND

- | PROPOSED | EXISTING |
|--|-------------------------------|
| Traffic Signal Head | Modified Signal Head |
| Sign | Signal Pole with Guy |
| Pedestrian Signal Head With Push Button & Sign | Signal Pole with Sidewalk Guy |
| Inductive Loop Detector | Controller & Cabinet |
| Junction Box | 2-in Underground Conduit |
| Right of Way | Directional Arrow |

New Installation

Prepared in the offices of:

RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers
5808 Farington Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-5416 Fax.
www.rameykemp.com, NC License No. C-0910

Prepared for:

**NC 96 (Zebulon Road)
at
SR 2337 (Pippin Road)**

Division 5 Wake County Zebulon

PLAN DATE: May 2019 REVIEWED BY: WJ Hamilton

PREPARED BY: DJ Pedersen RKA PROJ. NO: 17162.01 (040)

REVISIONS

SCALE: 0 40
1" = 40'

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

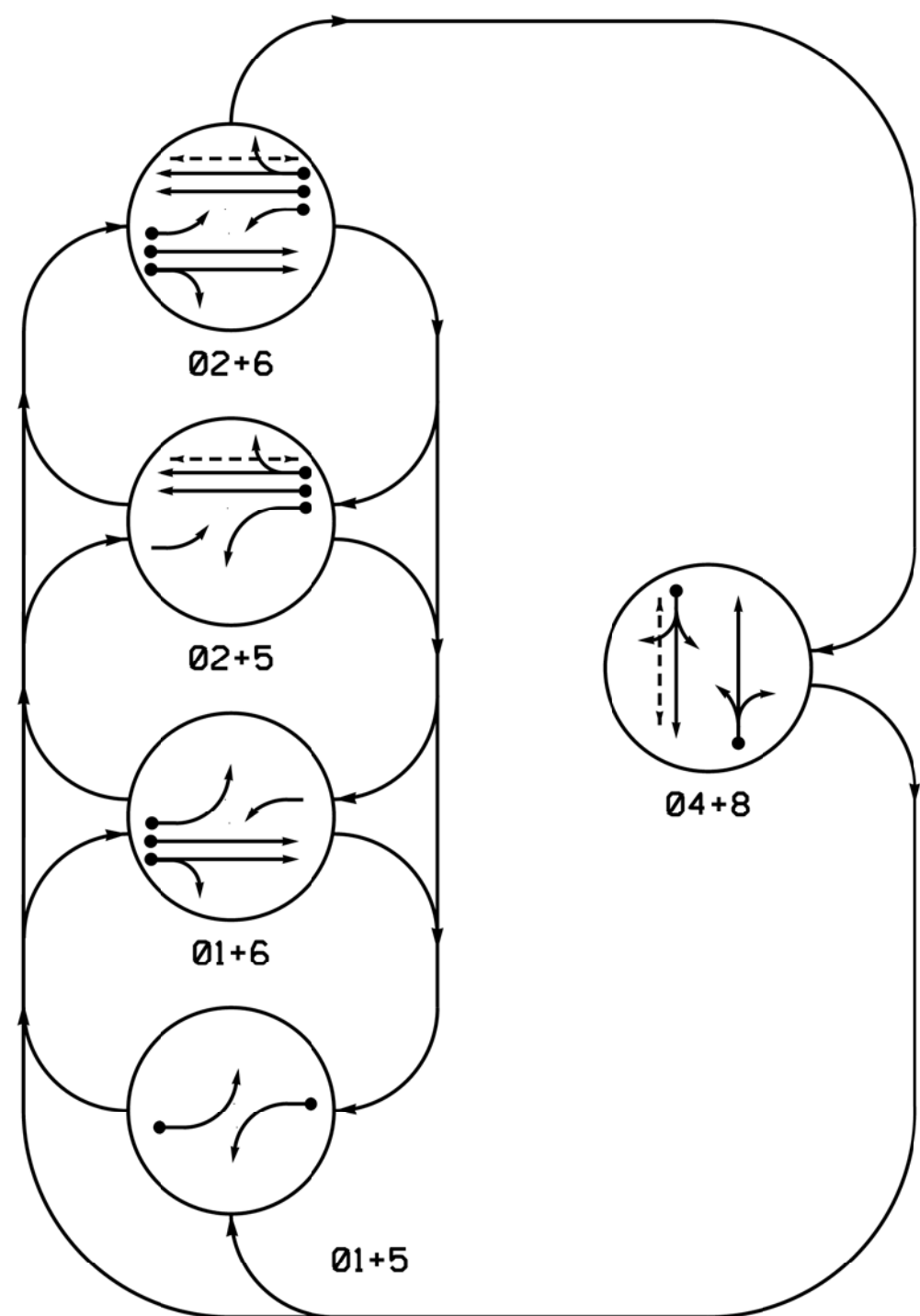
SEAL

WILLIAM J. HAMILTON
NORTH CAROLINA
PROFESSIONAL
ENGINEER
SEAL 32396

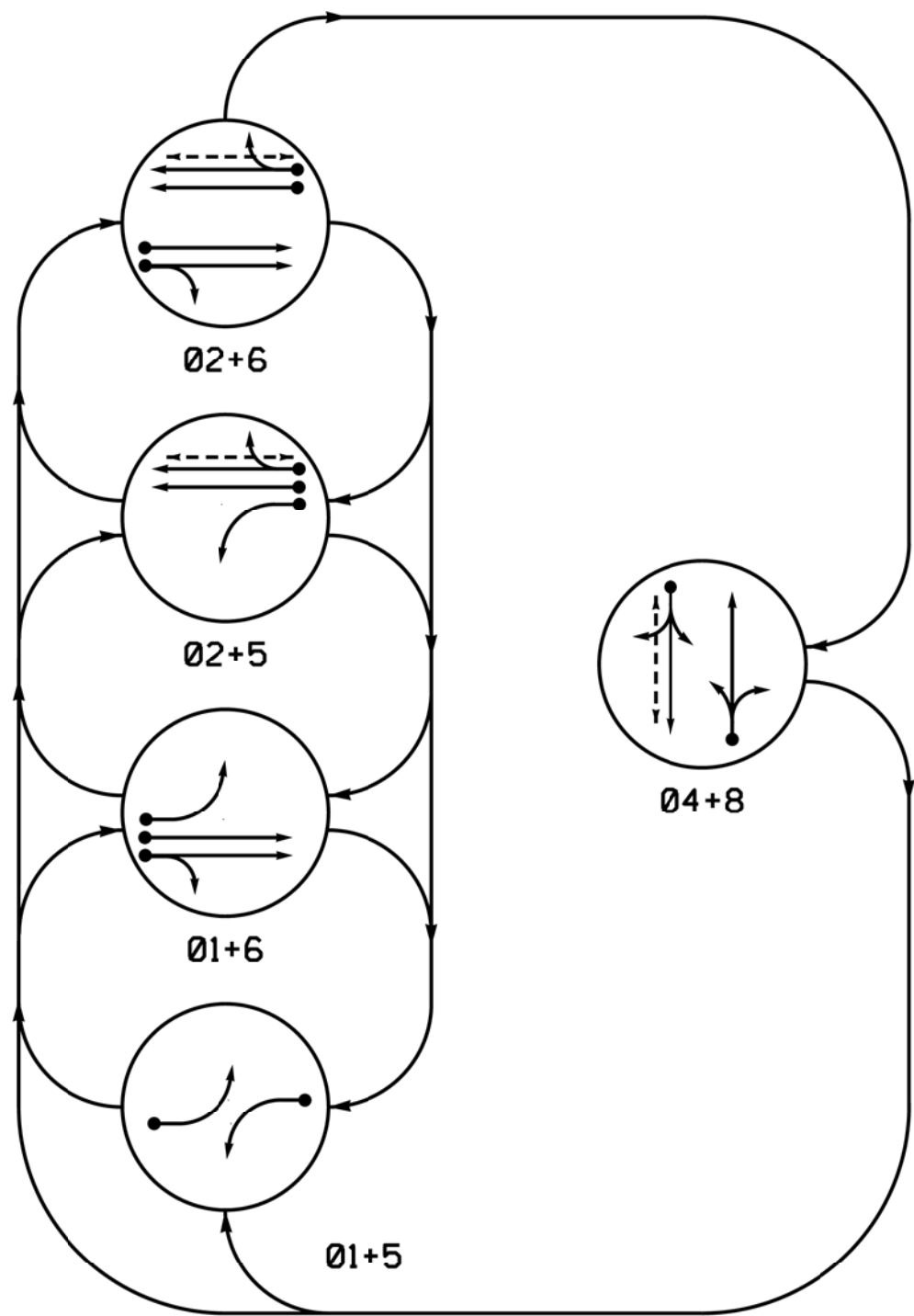
SIGNATURE DATE: 5-31-19

SIG. INVENTORY NO. 05-1754

DEFAULT PHASING DIAGRAM



ALTERNATE PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

DEFAULT PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE					
	01+5	01+6	02+5	02+6	04+8	FL
11	---	---	---	---	---	---
21,22	R	R	G	G	R	Y
41,42	R	R	R	R	G	R
51	---	---	---	---	---	---
61,62	R	G	R	G	R	Y
81,82	R	R	R	R	G	R
P21,P22	DW	DW	W	W	DW	DRK
P81,P82	DW	DW	DW	DW	W	DRK

ALTERNATE PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE					
	01+5	01+6	02+5	02+6	04+8	FL
11	---	---	---	---	---	---
21,22	R	R	G	G	R	Y
41,42	R	R	R	R	G	R
51	---	---	---	---	---	---
61,62	R	G	R	G	R	Y
81,82	R	R	R	R	G	R
P21,P22	DW	DW	W	W	DW	DRK
P81,P82	DW	DW	DW	DW	W	DRK

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART									
INDUCTIVE LOOPS					DETECTOR PROGRAMMING				
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	URNS	NEW LOOP	PHASE	CALLING	EXTENSION	STRETCH TIME	DELAY TIME
1A	6X40	0	2-4-2	Y	1	Y	Y	-	15*
2A	6X6	70	4	Y	2	Y	Y	-	-
2B	6X6	70	4	Y	2	Y	Y	-	-
4A	6X40	0	2-4-2	Y	4	Y	Y	-	5
4B	6X15	0	2-4-2	Y	4	Y	Y	-	15
5A	6X40	0	2-4-2	Y	5	Y	Y	-	15*
6A	6X6	70	4	Y	6	Y	Y	-	-
6B	6X6	70	4	Y	6	Y	Y	-	-
8A	6X40	0	2-4-2	Y	8	Y	Y	-	10
S1	6X6	+160	4	Y	-	-	-	-	Y
S2	6X6	+160	4	Y	-	-	-	-	Y

*Reduce Delay time to 3 seconds during Alternate phasing operation.
#Disable phase call during Alternate phasing operation.

5 Phase
Fully Actuated
(NC 96 - N. Arendell Ave. CLS)
Signal System #: D05_30_Zebulon

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.
- Phase 1 and/or phase 5 may be lagged.
- Set all detector units to presence mode.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- The Division Traffic Engineer will determine the hours of use for each phasing plan.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Pedestrian pedestals are conceptual and shown for reference only. See Roadway Standard Drawings 1705.04 for pushbutton location details.
- Closed loop system data:
Controller Asset #: 2250.

LEGEND

PROPOSED	EXISTING
	N/A
N/A	
N/A	

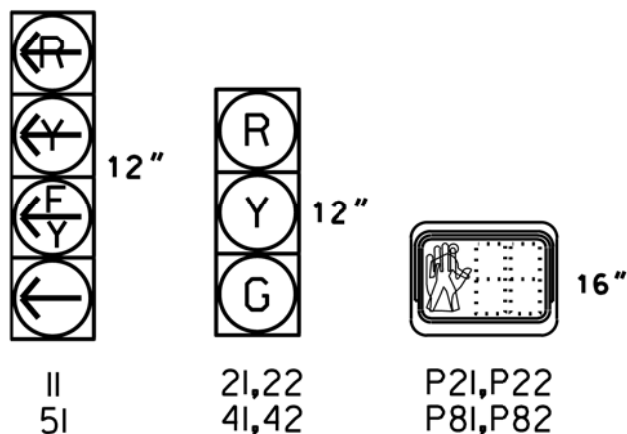
OASIS 2070 TIMING CHART

FEATURE	PHASE					
	1	2	4	5	6	8
Min Green 1 *	7	10	7	7	10	7
Extension 1 *	2.0	3.0	2.0	2.0	3.0	2.0
Max Green 1 *	20	45	15	20	45	15
Yellow Clearance	3.0	4.1	3.7	3.0	4.1	3.8
Red Clearance	2.4	1.6	2.2	2.3	1.6	1.6
Walk 1 *	-	7	-	-	-	7
Don't Walk 1	-	16	-	-	-	22
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

* 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.

SIGNAL FACE I.D.

All Heads L.E.D.



51
21,22
41,42
61,62
81,82

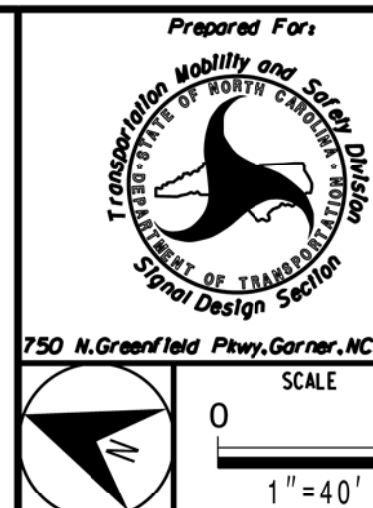
NC Dept of Transportation
Division of Highways
Final Drawing Date: 10/19/2020
ITS & Signals

Prepared in the Office of:



NC FIRM LICENSE No: P-0339
320 Executive Court
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

Signal Upgrade - Final Design



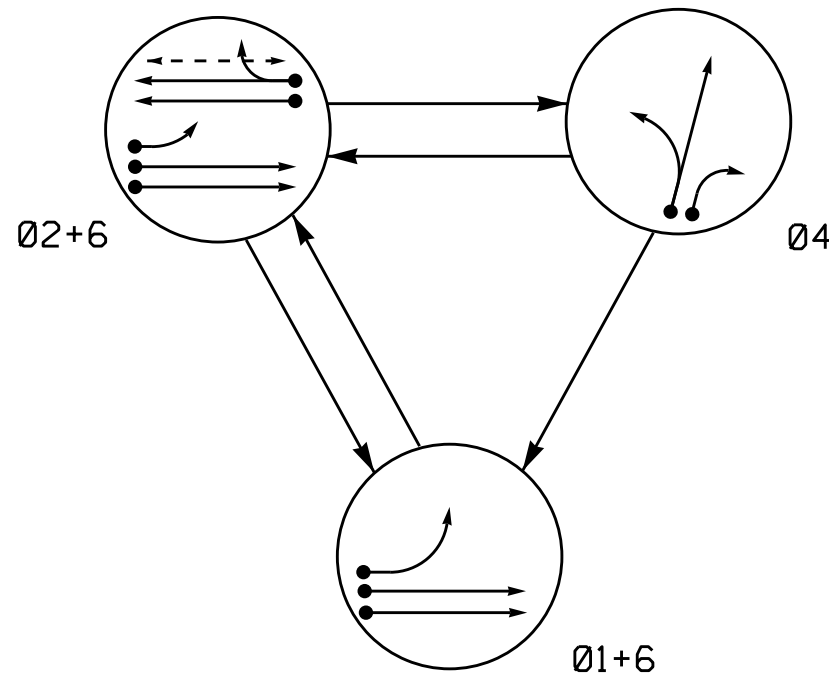
NC 96 (N. Arendell Avenue)
at
US 64-264 WB Ramps
and Dogwood Drive

Division 5	Wake County	Zebulon
PLAN DATE: July 2020	REVIEWED BY: E. Sirgany	
PREPARED BY: J. Smith	REVIEWED BY:	
REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



PHASING DIAGRAM



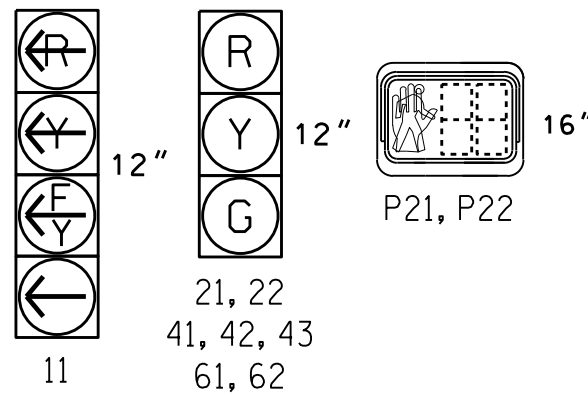
PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

SIGNAL FACE	PHASE			
	Ø 1 + 6	Ø 2 + 6	Ø 4	FL TURNS
11	←	←	←	←
21, 22	R	G	R	Y
41, 42, 43	R	R	G	R
61, 62	G	G	R	Y
P21, P22	DW	W	DW	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



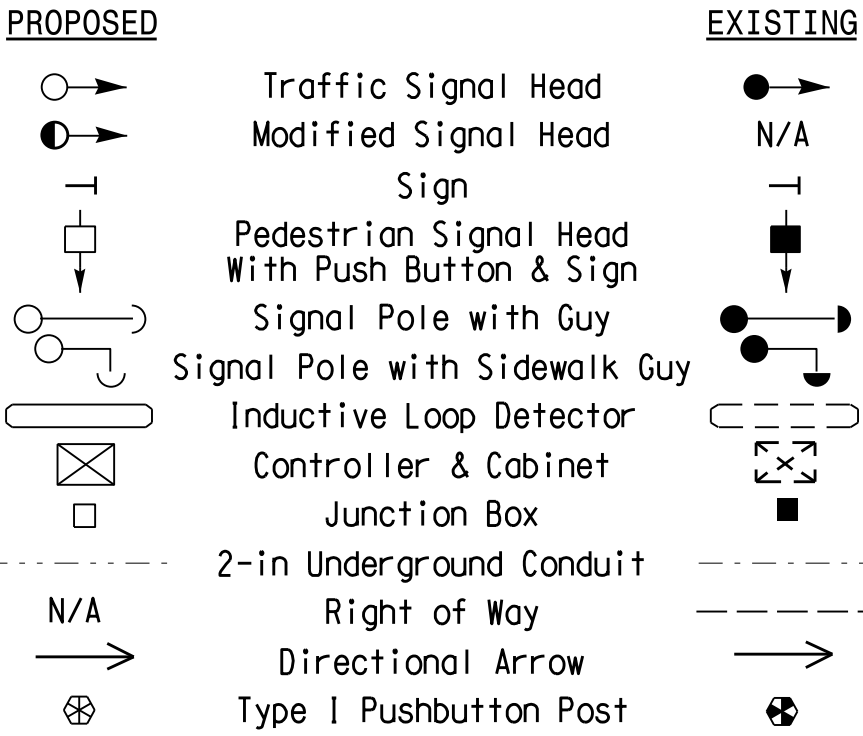
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART									
INDUCTIVE LOOPS				DETECTOR PROGRAMMING					
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	STRETCH TIME	DELAY TIME
1A	6X40	+10	2-4-2	-	1	Y	Y	-	15
2A, 2B	6X6	70	3	-	6	Y	Y	-	-
4A	6X40	0	2-4-2	-	4	Y	Y	-	-
4B	6X40	0	2-4-2	-	4	Y	Y	-	15
6A, 6B	6X6	70	3	-	6	Y	Y	-	-
S3	6X6	+150	3	-	-	Y	Y	-	Y
S4	6X6	+150	3	-	-	Y	Y	-	Y
S5	6X6	+100	3	-	-	Y	Y	-	Y
S6	6X6	+100	3	-	-	Y	Y	-	Y

3 Phase
Fully Actuated
NC 96 (N Arendell Ave) CLS

NOTES

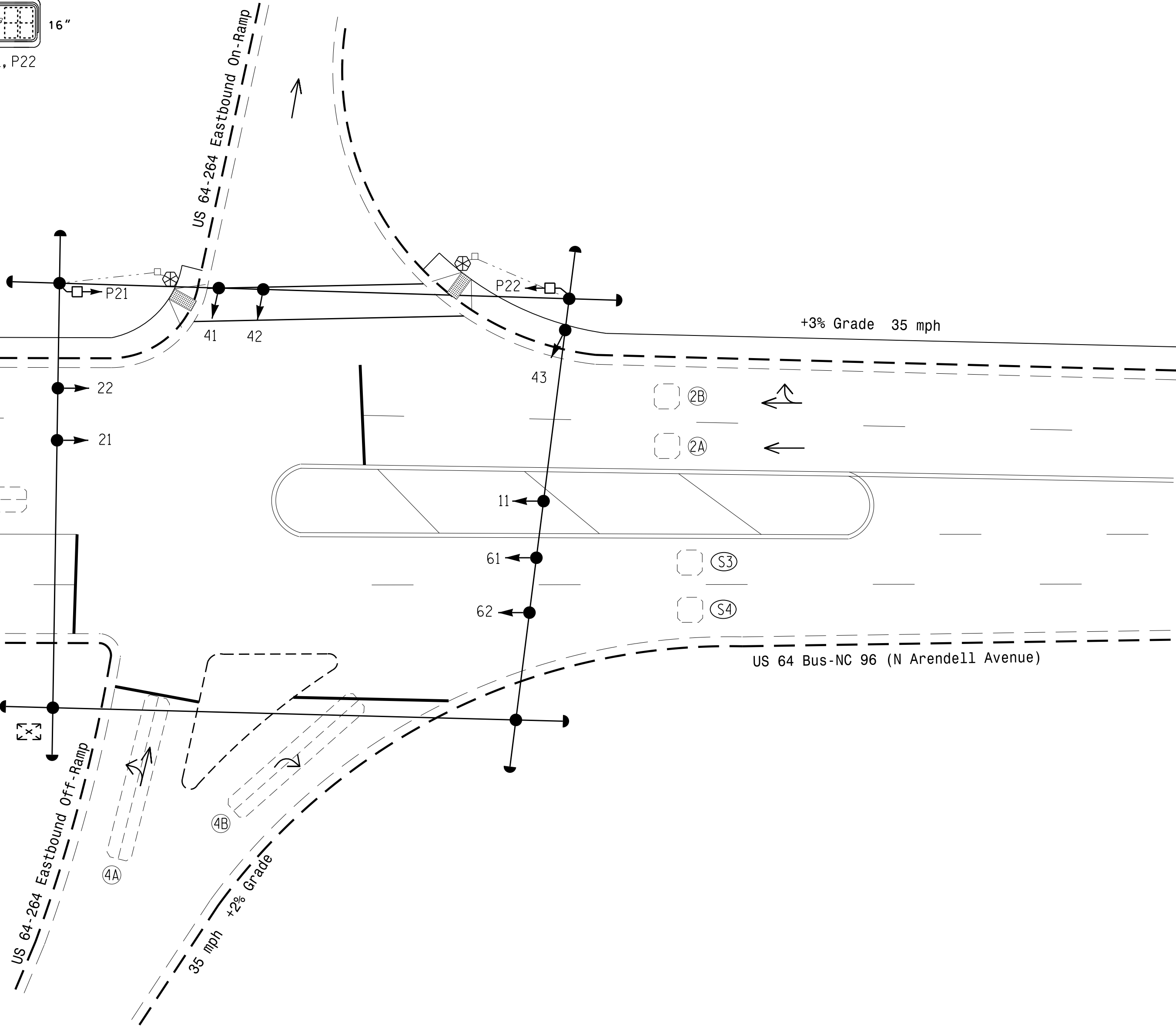
- Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 may be lagged.
- Set all detector units to presence mode.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- Pedestrian pedestals are conceptual and shown for reference only. See sheets P1-P3 for pushbutton location details.
- Pavement markings are existing.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Closed loop system data: Controller Asset #: 2292.

LEGEND



OASIS 2070 TIMING CHART				
FEATURE	PHASE			
	1	2	4	6
Min Green 1 *	7	10	7	10
Extension 1 *	2.0	3.0	2.0	3.0
Max Green 1 *	15	45	20	45
Yellow Clearance	3.0	3.9	3.7	3.9
Red Clearance	2.8	1.9	1.9	1.9
Red Revert	2.0	2.0	2.0	2.0
Walk 1 *	-	7	-	-
Don't Walk 1	-	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	-	-	-	-
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.



Signal Upgrade

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 Bus-NC 96/NC 96
(N Arendell Avenue)
at
US 64-264 Eastbound Ramps

Division 5 Wake County Zebulon

PLAN DATE: January 2017 REVIEWED BY: Alexander

PREPARED BY: Alexander REVIEWED BY:

REVISIONS INIT. DATE

SCALE
0 20
1"=20'

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER
RYAN W. HOUGH
036833
2/2/2017
DATE
SIG. INVENTORY NO. 05-2292