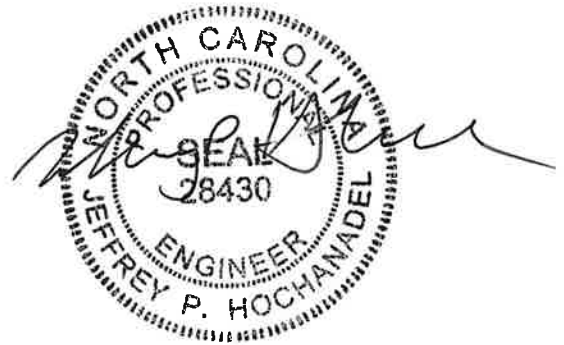


The Haven at Griffith Meadows

Traffic Impact Analysis

Knightdale, North Carolina

May 2022



5/9/22

Prepared for:

Deacon Development Group

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1 INTRODUCTION

This report presents the proposed Haven at Griffith Meadows** residential development traffic impact analysis (TIA) findings. The development will be located on the northern side of Poole Road in Knightdale, NC (see **Figure 1-1**) and will consist of 191 single-family residential units. To cover any potential site plan updates, 200 single-family residential units were analyzed in this study.

** The subject TIA was originally named "Poole Road Martin." All project figures and appendices include the "Poole Road Martin" project name.

The proposed development is planned for construction in 2025. Per Town of Knightdale standards / guidelines, analyses were completed for the 2022 Existing traffic volumes, 2026 Background traffic volumes (2025 Build + 1 year), 2026 Build traffic volumes (Background + site trips), and 2035 Horizon Year traffic volumes (2025 Build + 10 years). At the Town's request, additional vehicular capacity analyses were provided for the 2026 Background and Build traffic volumes including non-approved area developments.

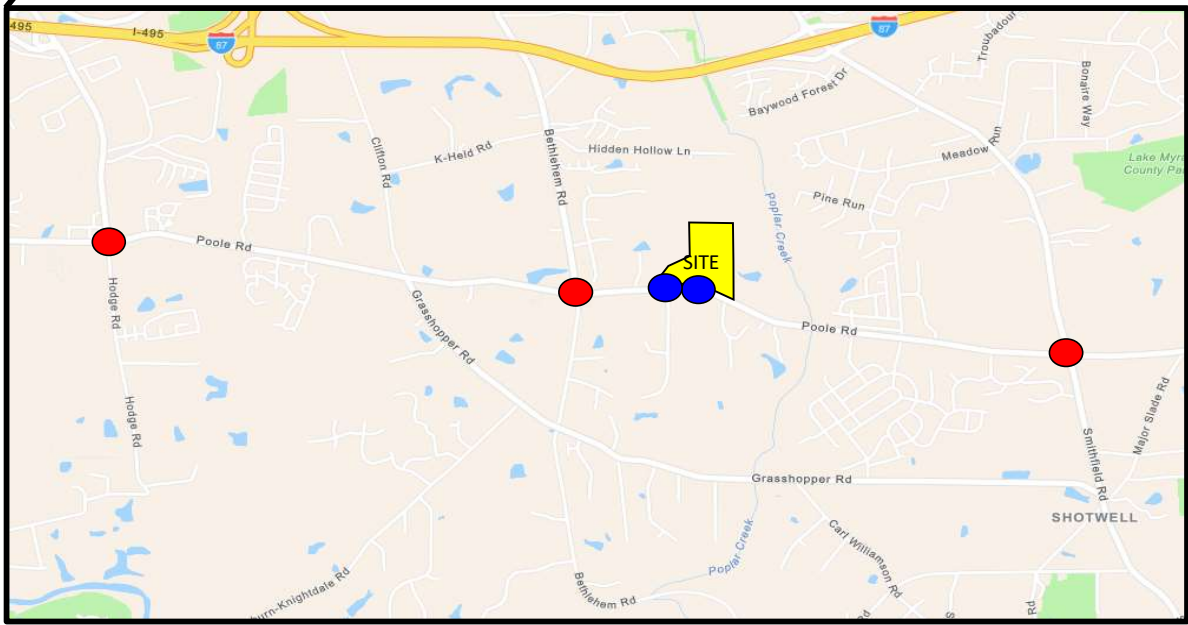
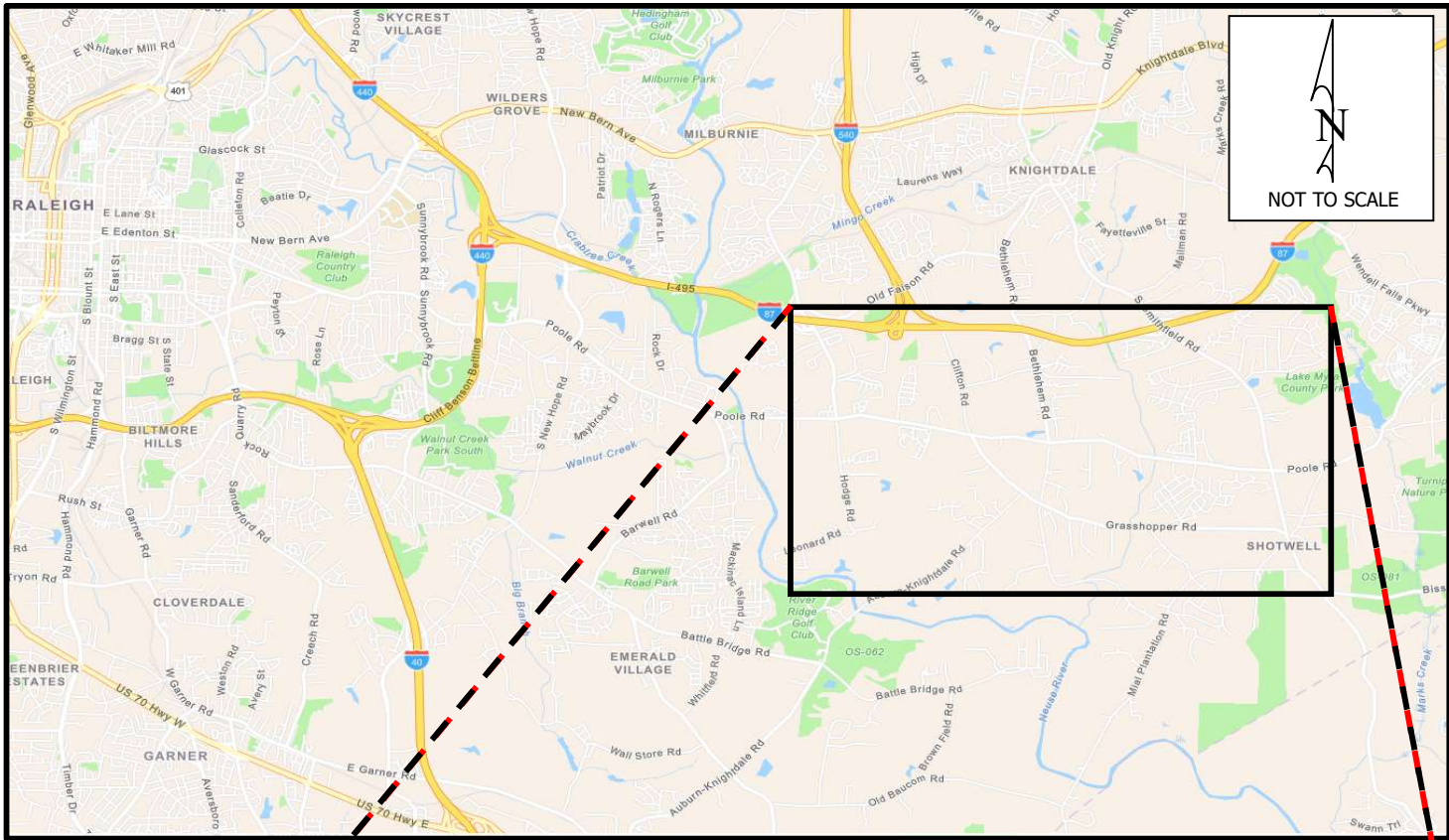
The purpose of this assessment is as follows:

1. Verify that the existing geometry provided within the study area is sufficient to accommodate the projected traffic volumes; and
2. Determine what, if any, improvements are necessary at the proposed site access connections to the subject development.

The following steps were taken to determine the potential traffic impacts associated with this project:

1. Data Collection – AM (7:00 – 9:00) and PM (4:00 – 6:00) peak period turning movement counts were collected in March 2022 at the following signalized intersections:
 - SR-1007 (Poole Road) / SR-2516 (Hodge Road);
 - SR-1007 (Poole Road) / SR-2049 (Bethlehem Road); and
 - SR-1007 (Poole Road) / SR-2233 (Smithfield Road).
2. Trip Generation/Future Traffic – Traffic generated by the proposed development was estimated using the 10th Edition of the Institute of Transportation Engineers' *Trip Generation Manual*. Trip generation was calculated following the NCDOT trip generation standards and practices. Projected traffic volumes were calculated using a 3% ambient growth rate through 2026, and a 1% ambient growth rate between 2026 and 2035. Per the scoping document (see **Appendix A**), trips from the approved Poole Road Apartments Development were included with all future traffic.
3. Trip Distribution and Projections – The site-generated trip distribution was based on the existing area traffic distribution, direction from the Town of Knightdale, and Engineering judgement.
4. Traffic Capacity Analysis – Level of service analyses were performed using SYNCHRO Version 10.3 for the following intersections:
 - SR-1007 (Poole Road) / SR-2516 (Hodge Road);
 - SR-1007 (Poole Road) / SR-2049 (Bethlehem Road);
 - SR-1007 (Poole Road) / Site Access 1;
 - SR-1007 (Poole Road) / Site Access 2; and
 - SR-1007 (Poole Road) / SR-2233 (Smithfield Road).

5. Review of Proposed Improvements – Roadway improvements proposed to accommodate projected site-generated traffic were evaluated.



- Legend**
- = Study Area Intersection
 - = Future Site Access Connection



Poole Road Martin Traffic Impact Analysis Site Location Map

Figure
1-1

2 EXISTING INFORMATION

The proposed development will be located on the northern side of Poole Road in Knightdale, NC, as shown in **Figure 1-1**.

2.1 STUDY LIMITS

Access to the proposed site will be provided via two full movement site accesses to Poole Road. Site Access 1 will be located approximately 1,730 feet east of Bethlehem Road. Site Access 2 will be located approximately 875 feet east of Site Access 1.

The entrances are shown graphically in **Figure 1-1** and on the preliminary proposed development site layout in **Figure 2-1** (all figures are located at the end of their respective chapter).

The study limits include the following five (5) intersections:

- SR-1007 (Poole Road) / SR-2516 (Hodge Road);
- SR-1007 (Poole Road) / SR-2049 (Bethlehem Road);
- SR-1007 (Poole Road) / Site Access 1;
- SR-1007 (Poole Road) / Site Access 2; and
- SR-1007 (Poole Road) / SR-2233 (Smithfield Road).

2.2 EXISTING ROADWAYS

SR-1007 (Poole Road) is a two-lane undivided facility that runs approximately east-west in the project study area. The facility is classified as a minor arterial and has a posted 45-mph speed limit west of Grasshopper Road and 55-mph east of Grasshopper Road. Locally, Poole Road connects to New Bern Road in the west and to Wendell Falls Parkway in the east. Per 2020 NCDOT Average Annual Daily Traffic (AADT) count maps, Poole Road carries 4,000 vehicles per day (VPD) west of Smithfield Road.

SR-2516 (Hodge Road) is a two-lane undivided facility that runs approximately north-south in the project study area. The facility has a posted 45-mph speed limit north of Poole Road and 35-mph south of Poole Road. The facility, classified as a major collector north of Poole Road and local road south of Poole Road, primarily services residential land uses in the project study area. Per 2020 NCDOT AADT count maps, Hodge Road carries 13,500 VPD north of Poole Road.

SR-2049 (Bethlehem Road) is a two-lane undivided facility that runs approximately north-south in the project study area. The facility, classified as a major collector north of Poole Road and local road south of Poole Road, has a posted 45-mph speed limit. Per 2020 NCDOT AADT count maps, Bethlehem Road carries 4,900 VPD north of Poole Road.

SR-2233 (Smithfield Road) is a two-lane undivided facility that runs approximately north-south in the project study area. The facility is classified as a minor arterial north of Poole Road and a major collector south of Poole Road, and has a posted 55-mph speed limit. Per 2017 NCDOT AADT count maps, Poole Road carries 14,000 VPD north of Poole Road.

2.3 EXISTING INTERSECTIONS

Using available aerial imagery and site visits, Timmons Group compiled the existing geometry for each study area intersection. The existing intersection geometry is shown in **Figure 2-2**.

Poole Road / Hodge Road is a three-phase signalized intersection with protected-permitted eastbound left-turn phasing. The north, east, and westbound approaches consist of an exclusive left-turn lane and a shared through / right-turn lane. The southbound approach consists of an exclusive left-turn lane, a single through lane and an exclusive right-turn lane.

Poole Road / Bethlehem Drive is a two-phase signalized intersection. All four (4) approaches consist of a shared left-turn / through / right-turn lane.

Poole Road / Smithfield Road is a two-phase signalized intersection. All four (4) approaches consist of a shared left-turn / through / right-turn lane.

2.4 TRAFFIC VOLUMES

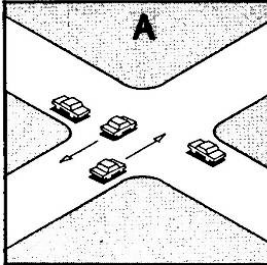
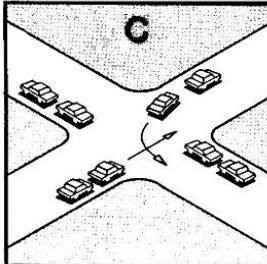
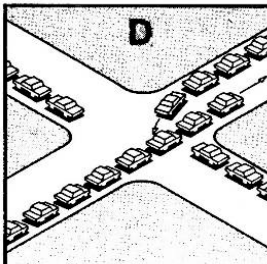
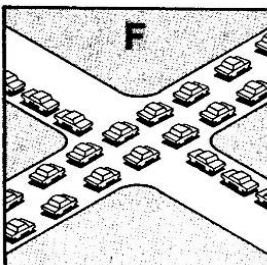
Timmons Group calculated peak hour volumes for the study area intersections using the AM (7:00 – 9:00) and PM (4:00 – 6:00) peak period turning movement counts undertaken in March 2022. Turning movement traffic count data is summarized in **Figure 2-3**. The complete traffic count data can be found in **Appendix B**.

2.5 CAPACITY ANALYSIS

Using field observations, aerial photography, and traffic count data, traffic operations were analyzed during 2022 (existing), 2026 (without and with the proposed development site trips), and 2035 (horizon year).

Capacity analysis allows traffic engineers to determine the impacts of traffic on the surrounding roadway network. The Transportation Research Board's (TRB) *Highway Capacity Manual* (HCM) methodologies govern how the capacity analyses are conducted and how the results are interpreted. There are six letter grades of Levels of Service (LOS) from A to F, with LOS A representing the best operating conditions and LOS F the worst operating conditions. At signalized intersections, an overall intersection LOS E is generally considered unacceptable. At unsignalized intersections, a LOS E is generally considered acceptable only if the side street encounters delay. Nevertheless, side streets typically function at a LOS F during peak traffic periods, because the traffic volumes often do not warrant a traffic signal to assist side street traffic. **Table 2-1** shows in detail how each of these levels of service are interpreted.

Table 2-1: Level of Service Definitions

Level of Service	Roadway Segments or Controlled Access Highways	Intersections	
A	Free flow, low traffic density.	No vehicle waits longer than one signal indication.	
B	Delay is not unreasonable, stable traffic flow.	On a rare occasion motorists wait through more than one signal indication.	
C	Stable condition, movements somewhat restricted due to higher volumes, but not objectionable for motorists.	Intermittently drivers wait through more than one signal indication, and occasionally backups may develop behind left turning vehicles, traffic flow still stable and acceptable.	
D	Movements more restricted, queues and delays may occur during short peaks, but lower demands occur often enough to permit clearing, thus preventing excessive backups.	Delays at intersections may become extensive with some, especially left-turning vehicles waiting two or more signal indications, but enough cycles with lower demand occur to permit periodic clearance, thus preventing excessive backups.	
E	Actual capacity of the roadway involves delay to all motorists due to congestion.	Very long queues may create lengthy delays, especially for left-turning vehicles.	
F	Forced flow with demand volumes greater than capacity resulting in complete congestion. Volumes drop to zero in extreme cases.	Backups from locations downstream restrict or prevent movement of vehicles out of approach creating a storage area during part or all of an hour.	

SOURCE: "A Policy on Design of Design of Urban Highways and Arterial Streets" - AASHTO, 1973 based upon material published in "Highway Capacity Manual", National Academy of Sciences, 1965.

For signalized and unsignalized intersections, level of service is defined in terms of **delay**, a measure of driver discomfort, frustration, fuel consumption and lost travel time. **Table 2-2** summarizes the delay associated with each LOS category:

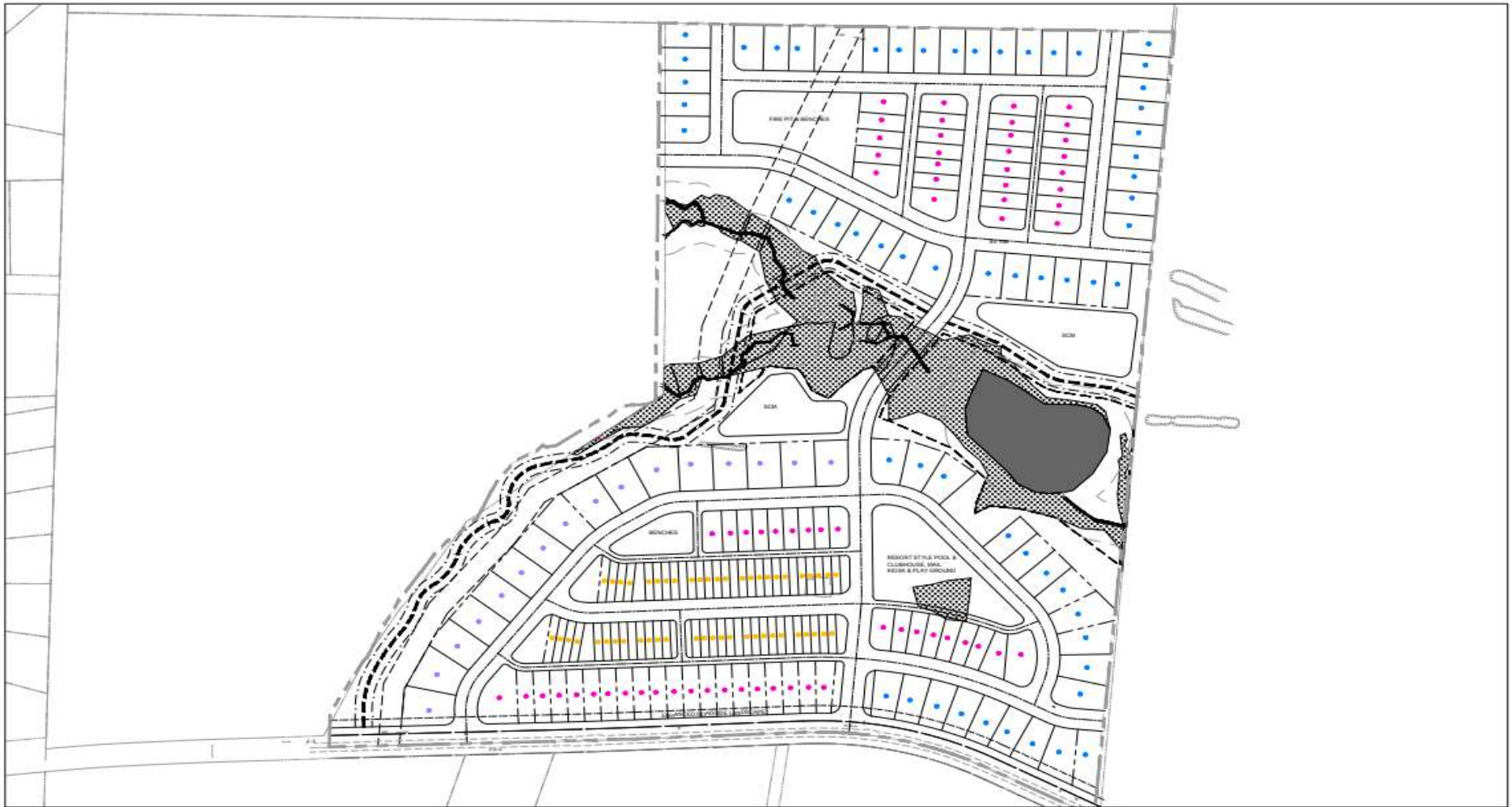
Table 2-2: Signalized and Unsignalized Intersection Level of Service Criteria

Signalized Intersections		Unsignalized Intersections	
Level of Service	Control Delay per Vehicle (sec/veh)	Level of Service	Average Control Delay (sec/veh)
A	≤ 10	A	0 to 10
B	> 10 to ≤ 20	B	> 10 to ≤ 15
C	> 20 to ≤ 35	C	> 15 to ≤ 25
D	> 35 to ≤ 55	D	> 25 to ≤ 35
E	> 55 to ≤ 80	E	> 35 to ≤ 50
F	> 80	F	> 50

Source: Exhibit 16-2 and Exhibit 17-2 from TRB's "Highway Capacity Manual 2000"

Capacity analyses were performed to assess operational conditions. Study area intersections were analyzed using SYNCHRO Version 10.3 based on Highway Capacity Manual (HCM) methodologies with the following assumptions:

- Existing grades;
- 12-foot lane widths;
- No parking activity, bus stops, or pedestrians;
- Peak hour factor (PHF) of 0.90;
- Heavy vehicle percentages 2%;
- Minimum 4 vehicles per hour (VPH) for all allowed permissible movements; and
- Existing signal data found in the provided traffic signal plans (see **Appendix C**);



POOLE ROAD

Preliminary Concept Sketch - April 20, 2022

AREA: 60.15 AC
 PINS: 1752-59-9261, 1752-59-7507, & 1752-69-3484
 EXISTING ZONING: RT
 PROPOSED ZONING: PUD
 OVERALL DENSITY: 3.14 DU/A

- 51 - 30' x 100' REAR LOAD TOWNHOMES
- 66 - 30' x 110' REAR LOAD SINGLE FAMILY LOTS
- 58 - 60' x 120' 7,200 SF FRONT LOAD SINGLE FAMILY LOTS
- 16 - 80' x 120' 9,600 SF FRONT LOAD SINGLE FAMILY LOTS

TOTAL # OF LOTS: 191



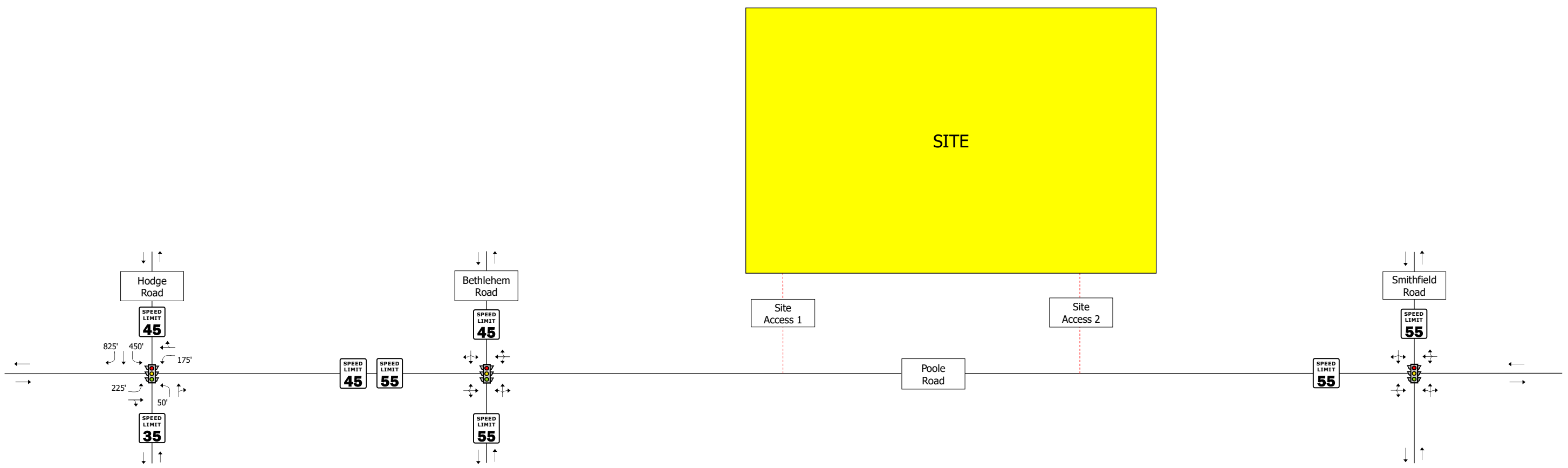
SCALE 1"=200'

- GENERAL NOTES
1. BOUNDARY & TOPOGRAPHIC INFORMATION TAKEN FROM SURVEY BY TIMMONS GROUP DATED 4/16/2022.
 2. THIS PLAN IS CONCEPTUAL IN NATURE AND HAS NOT BEEN REVIEWED BY ANY AGENCY.
 3. UNIT COUNT IS SUBJECT TO CHANGE PENDING WETLAND AND STREAM DETERMINATIONS, AND PERMITTING, GRADING, SEWER, AND STORMWATER DESIGN.
 4. THIS SITE IS LOCATED IN THE NEUSE RIVER BASIN.
 5. THIS SITE WILL REQUIRE TOWN OF KNIGHTDALE MASTER PLAN REZONING & SUBDIVISION APPROVAL.



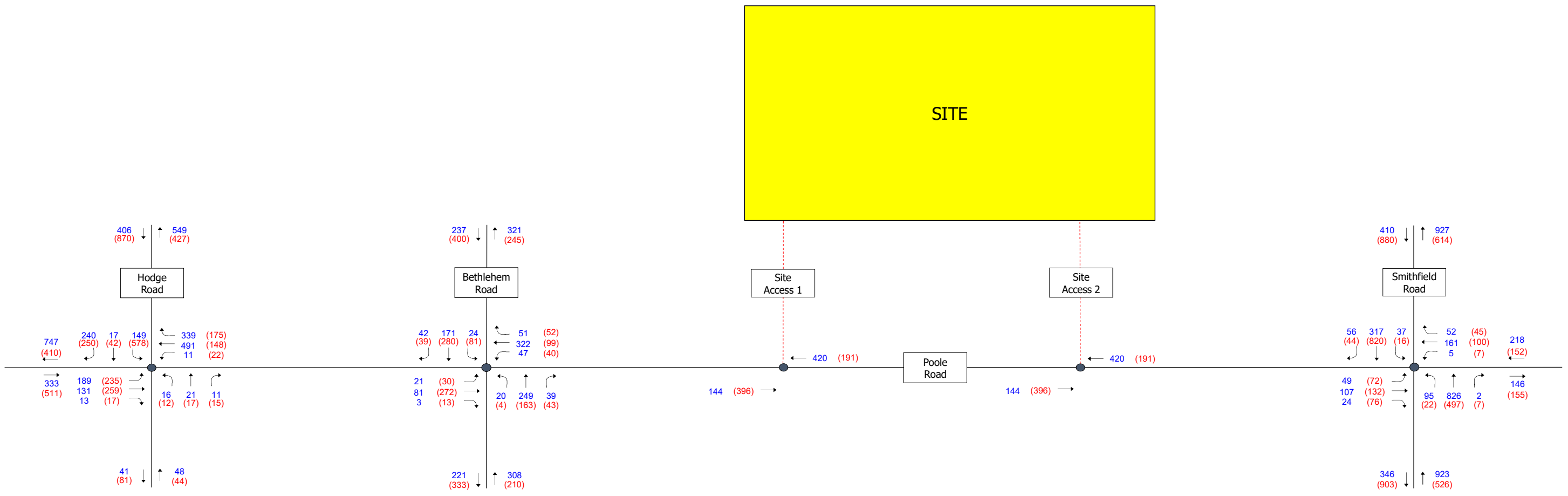
**Poole Road Martin
 Traffic Impact Analysis
 Preliminary Site Plan**

Figure 2-1



LEGEND:

- Existing Road
- - - Proposed Road
- 🚦 Signalized Intersection
- 🛑 Unsignalized Intersection
- ↔ Existing Lane Configuration



3 EXISTING AND BACKGROUND CONDITIONS AND ANALYSIS

3.1 2022 EXISTING ANALYSES

Table 3-1 summarizes the 2022 Existing intersection LOS and delay based on the geometry shown in **Figure 2-2** and the 2022 Existing traffic volumes shown in **Figure 2-3**. The corresponding SYNCHRO output is included in **Appendix D**.

The signalized intersection of Hodge Road / Poole Road is currently operating at a LOS C and LOS E during the 2022 Existing AM and PM peak hours, respectively. The southbound intersection approach is currently operating unacceptably during the PM peak hour. All other intersection approaches are currently operating at a LOS D or better during both peak hours.

The signalized intersection of Bethlehem Road / Poole Road is currently operating at a LOS B and LOS C during the 2022 Existing AM and PM peak hours, respectively. The southbound intersection approach is currently operating unacceptably during the PM peak hour. All other intersection approaches are currently operating at a LOS C or better during both peak hours.

The signalized intersection of Smithfield Road / Poole Road is currently operating at a LOS C during both 2022 Existing peak hours. The eastbound intersection approach is currently operating unacceptably during the PM peak hour. All other intersection approaches are currently operating at a LOS D or better during both peak hours.

**Table 3-1: Intersection Level of Service and Delay Summary
2022 Existing Traffic Volumes**

Intersection	Movement and Approach	AM PEAK HOUR		PM PEAK HOUR	
		Delay ¹ (sec/veh)	LOS ¹	Delay ¹ (sec/veh)	LOS ¹
1: Hodge Rd & Poole Rd	EB Approach	19.4	B	14.3	B
	WB Approach	34.3	C	33.6	C
	NB Approach	43.4	D	16.5	B
	SB Approach	47.1	D	115.0	F
	Overall	34.7	C	67.6	E
2: Bethlehem Rd & Poole Rd	EB Approach	6.5	A	9.3	A
	WB Approach	11.3	B	8.0	A
	NB Approach	23.7	C	14.4	B
	SB Approach	18.9	B	59.2	E
	Overall	16.1	B	27.9	C
5: Smithfield Rd & Poole Rd	EB Approach	55.0	D	55.9	E
	WB Approach	47.1	D	38.6	D
	NB Approach	27.3	C	13.3	B
	SB Approach	10.3	B	25.5	C
	Overall	28.6	C	27.7	C

¹ Overall intersection LOS and delay reported for signalized intersections and roundabouts only.

** Delay greater than 9999.99 seconds cannot be calculated by SYNCHRO for signalized intersections.

+ Delay greater than 9999.99 seconds cannot be calculated by SYNCHRO for unsignalized intersections.

SYNCHRO does not provide level of service or delay for unsignalized movements with no conflicting volumes.

3.2 2026 BACKGROUND TRAFFIC VOLUMES

Figure 3-1 and **Figure 3-2** show the 2026 and 2035 ambient traffic volumes, respectively, calculated using a 3% ambient growth rate through 2026 and a 1% ambient growth rate between 2026 to 2035.

Currently there is one (1) approved development in the project study area that will be fully build-out by 2026: Poole Road Apartment Development (see **Appendix E**). Listed below are the site trip distribution assumptions, and proposed offsite improvements.

- Poole Road Apartment Development TIA
 - TIA completed by Davenport – Sealed 10/20/21
 - Located in the northwest quadrant of Hodge Road / Poole Road intersection
 - Assumed to be fully constructed in 2023
 - 364 Multi-Family Housing (apartments) and 30 Multi-Family Housing (townhomes)
 - No off-site intersection improvements recommended
 - Trip Distribution assumed to follow patterns found in the Poole Road Apartment Development TIA (see **Appendix E**) and Engineering judgement

Projected and distributed trips from the approved area development (see **Appendix E**) are located in **Figure 3-3**. These trips were added to the 2026 ambient volumes (**Figure 3-1**) to determine the 2026 Background traffic volumes (see **Figure 3-4**).

Additionally, there is a public improvement project (HL-0031) that will widen the intersection of Poole Road / Smithfield Road. Left-turn lanes will be constructed on all four (4) intersection approaches. The project will be constructed by 2023 (see **Appendix F**). These improvements were included in all future year analyses.

3.3 2026 BACKGROUND ANALYSIS

Table 3-2 summarizes the 2026 Background intersection LOS and delay based on the geometry shown in **Figure 2-2** (including HL-0031 improvements) and the 2026 Background traffic volumes shown in **Figure 3-4**. The corresponding SYNCHRO output is included in **Appendix D**.

The signalized intersection of Hodge Road / Poole Road is projected to operate at a LOS D and LOS F during the 2026 Background AM and PM peak hours, respectively. The southbound intersection approach is projected to operate unacceptably at LOS E and LOS F during the AM and PM peak hours, respectively. The eastbound intersection approach is projected to operate unacceptably during the AM peak hour. All other intersection approaches are projected to operate at a LOS D or better during both peak hours.

The signalized intersection of Bethlehem Road / Poole Road is projected to operate at a LOS C and LOS D during the 2026 Background AM and PM peak hours, respectively. The southbound intersection approach is projected to operate unacceptably during the PM peak hour. All other intersection approaches are projected to operate at a LOS C or better during both peak hours.

The signalized intersection of Smithfield Road / Poole Road is projected to operate at a LOS C during both 2026 Background peak hours. The eastbound intersection approach is projected to operate unacceptably at LOS E during the PM peak hour. All other intersection approaches are projected to operate at a LOS D or better during both peak hours.

**Table 3-2: Intersection Level of Service and Delay Summary
2026 Background Traffic Volumes**

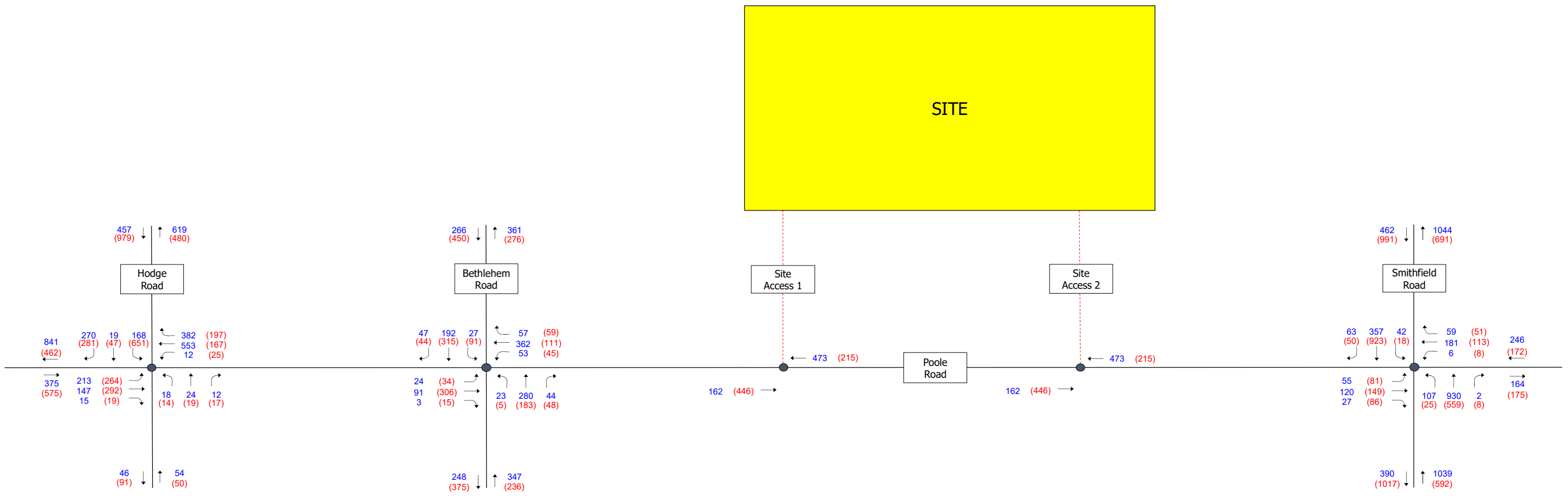
Intersection	Movement and Approach	AM PEAK HOUR		PM PEAK HOUR	
		Delay ¹ (sec/veh)	LOS ¹	Delay ¹ (sec/veh)	LOS ¹
1: Hodge Rd & Poole Rd	EB Approach	60.7	E	16.5	B
	WB Approach	41.5	D	34.3	C
	NB Approach	47.0	D	18.0	B
	SB Approach	58.0	E	181.1	F
	Overall	49.7	D	100.7	F
2: Bethlehem Rd & Poole Rd	EB Approach	6.4	A	10.2	B
	WB Approach	12.2	B	8.5	A
	NB Approach	32.8	C	15.5	B
	SB Approach	25.0	C	101.4	F
	Overall	20.4	C	43.4	D
5: Smithfield Rd & Poole Rd	EB Approach	32.6	C	62.0	E
	WB Approach	38.0	D	45.1	D
	NB Approach	22.7	C	8.6	A
	SB Approach	19.0	B	33.8	C
	Overall	24.8	C	31.9	C

¹ Overall intersection LOS and delay reported for signalized intersections and roundabouts only.

** Delay greater than 9999.99 seconds cannot be calculated by SYNCHRO for signalized intersections.

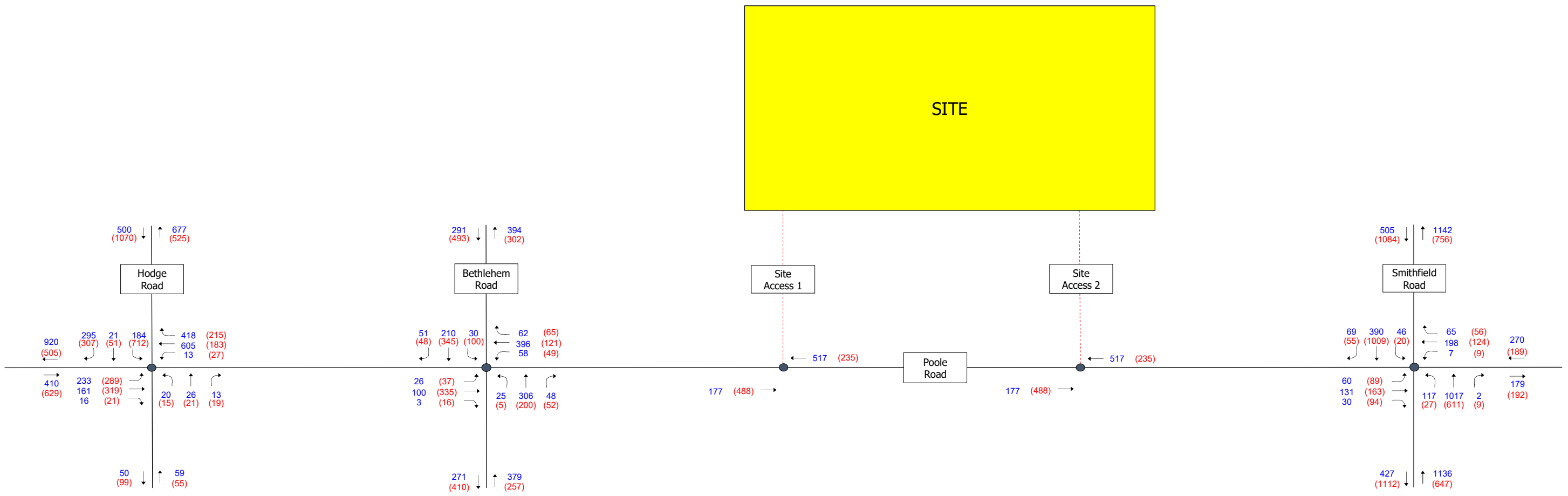
+ Delay greater than 9999.99 seconds cannot be calculated by SYNCHRO for unsignalized intersections.

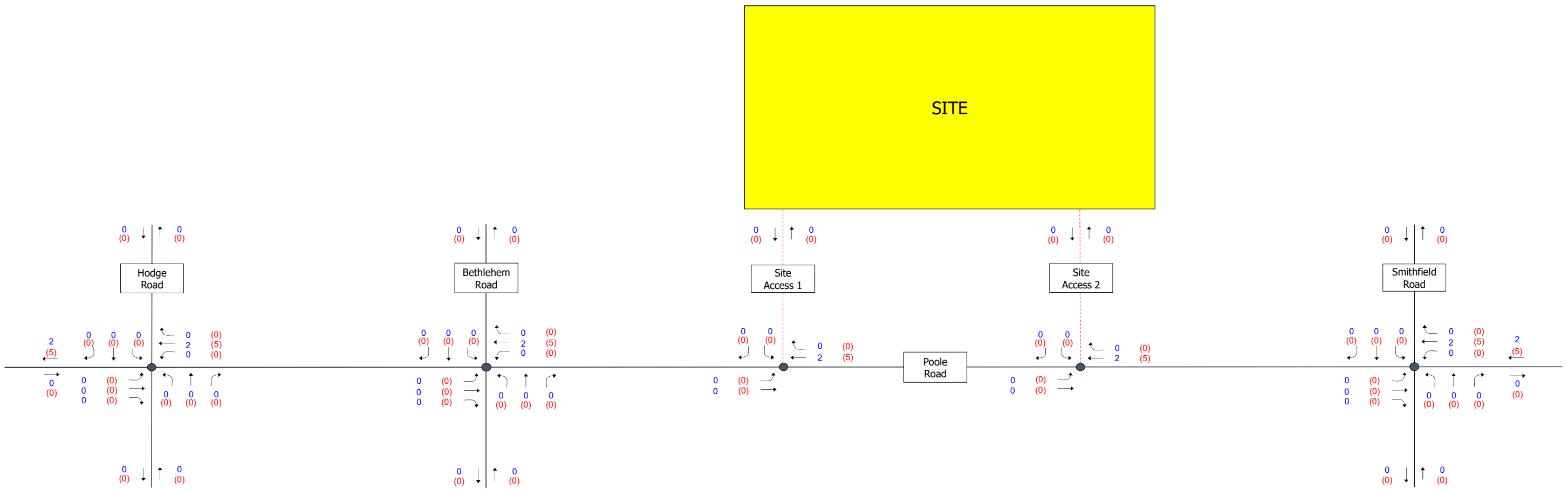
SYNCHRO does not provide level of service or delay for unsignalized movements with no conflicting volumes.



LEGEND:

- Existing Road
- - - Proposed Road
- XX AM Peak Hour Volume (vph)
- (XX) PM Peak Hour Volume (vph)





LEGEND:

- Existing Road
- - - Proposed Road
- XX AM Peak Hour Volume (vph)
- (XX) PM Peak Hour Volume (vph)

4 SITE TRIP GENERATION AND DISTRIBUTION

The subject residential development site trips were estimated based on the proposed land use supplied by the developer and subsequently distributed onto the surrounding roadway network.

4.1 TRIP GENERATION

The site-generated trips shown in **Table 4-1** are based on trip generation information provided in the 10th Edition of the Institute of Transportation Engineers’ (ITE’s) *Trip Generation Manual* and the anticipated residential development. The trip generation was calculated using the proposed number of residential units as the independent variable. The provided equation was used to help generate trips (per NCDOT standards).

Table 4-1: Trip Generation Summary

ITE Land Use Code	Independent Variable	Daily Traffic	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
210 – Single-Family Detached Housing	200 Units	1,967	37	110	147	125	73	198

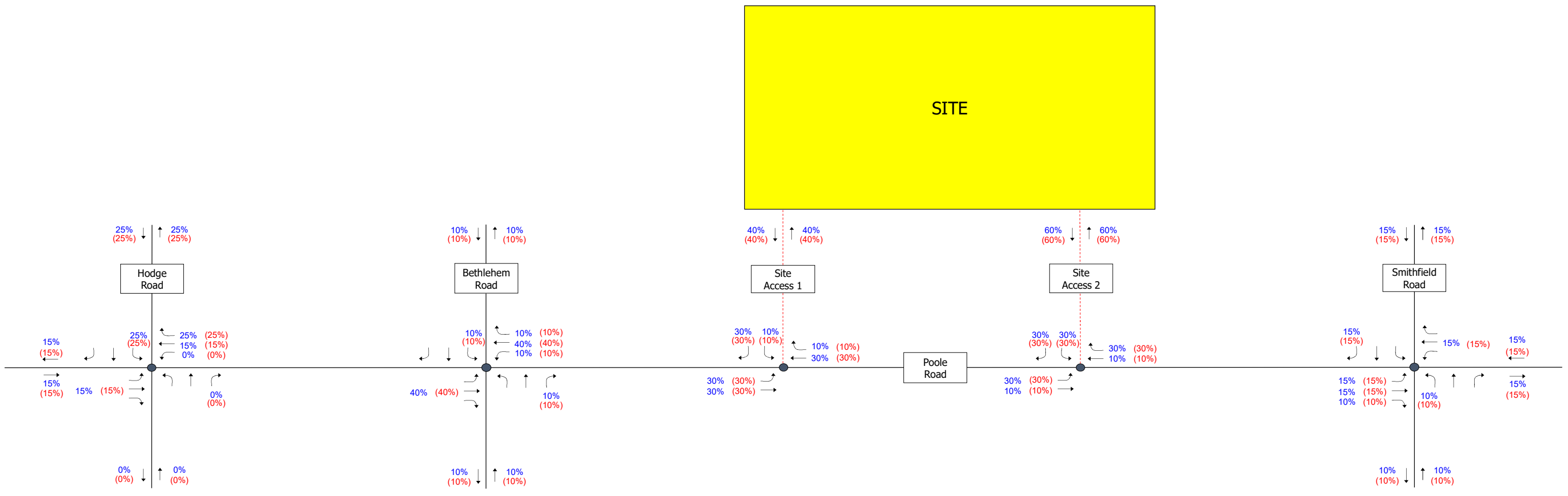
SOURCE: Institute of Transportation Engineers’ *Trip Generation Manual* 10th Edition (2017)

AM peak hour trips generated totaled 37 incoming and 110 outgoing where PM peak hour trips totaled 125 incoming and 73 outgoing. Average daily traffic (ADT) volumes generated by the development totaled 1,967 VPD. No reduction in trips was included due to internal capture and/or pass-by trips.

4.2 TRIP DISTRIBUTION

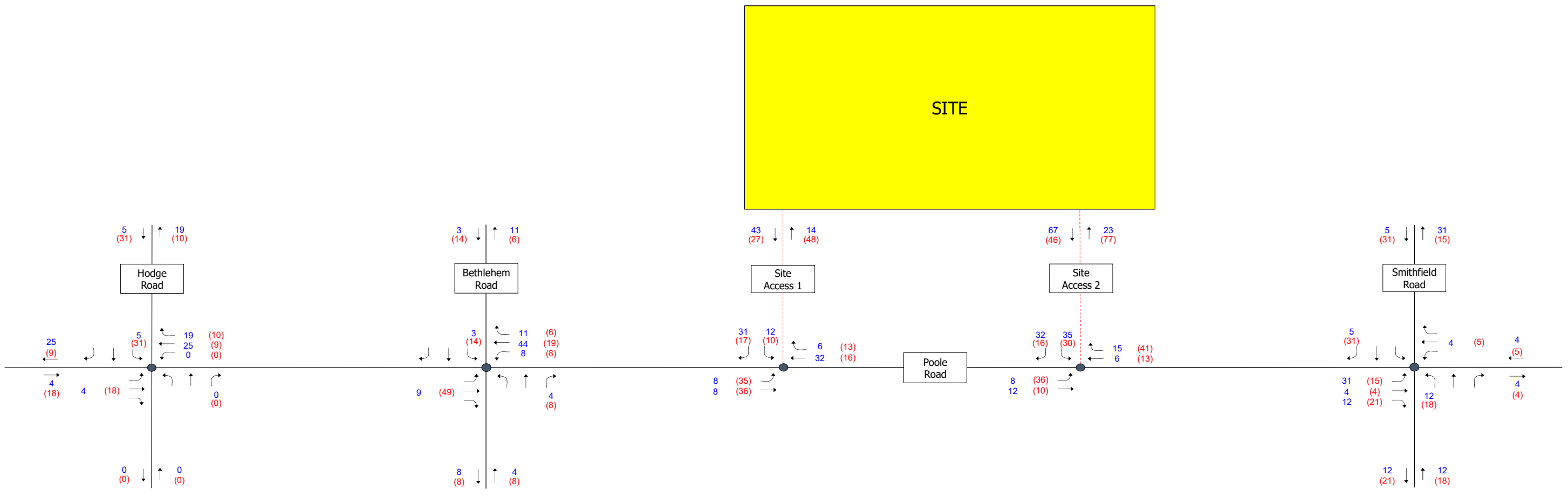
The directional traffic patterns, or site trip distribution, was determined using the existing AM and PM peak hour traffic characteristics of the surrounding traffic network, discussions during the scoping meeting, and Engineering judgement. Total trips into and out of the study area using Poole Road, Hodge Road, Bethlehem Road, and Smithfield Road form the basis for the percentage distribution. The percentages were routed, via shortest path, to and from the proposed development. The distribution percentages were then applied to the generated trips to predict routes and project 2026 Build traffic volumes.

Figure 4-1 shows the trip distribution percentages and **Figure 4-2** shows the trip distribution volumes. 2026 Build traffic volumes were determined by adding the total trip distribution volumes (**Figure 4-2**) to the 2026 Background traffic volumes (see **Figure 3-4**).



LEGEND:

- Existing Road
- - - Proposed Road
- XX% AM Peak Hour Percentages
- (XX%) PM Peak Hour Percentages



LEGEND:

- Existing Road
- - - Proposed Road
- XX AM Peak Hour Volume (vph)
- (XX) PM Peak Hour Volume (vph)

5 2026 BUILD CONDITION AND ANALYSIS

To complete the 2026 Build analyses (including proposed development site traffic), the estimated site trips were added to the 2026 Background traffic volumes. The projected total volumes, along with the existing intersection geometry, were used to complete the capacity analyses.

5.1 2026 BUILD TRAFFIC VOLUMES

Background traffic volumes (**Figure 3-4**) were added to the projected residential development site trips (**Figure 4-2**) to generate the 2026 Build traffic volumes (background + site) shown in **Figure 5-1**.

To summarize, the 2026 Build traffic volumes (**Figure 5-1**) contain the following:

- 2022 traffic volumes grown exponentially for 4 years at a 3% ambient growth rate (**Figure 3-1**);
- Area approved development site trips (**Figure 3-3**); and
- Total site trips generated by the subject development (see **Figure 4-2**).

5.2 2026 BUILD ANALYSIS

Table 5-1 summarizes the intersection LOS and delay based on the geometry shown in **Figure 2-2** (including HL-0031 improvements) and the 2026 Build traffic volumes shown in **Figure 5-1**. The corresponding SYNCHRO output is included in **Appendix D**.

The signalized intersection of Hodge Road / Poole Road is projected to operate at a LOS E and LOS F during the 2026 Build AM and PM peak hours, respectively. The southbound intersection approach is projected to operate unacceptably at LOS E and LOS F during the AM and PM peak hours, respectively. The eastbound intersection approach is projected to operate unacceptably at LOS F during the AM peak hour. All other intersection approaches are projected to operate at a LOS D or better during both peak hours. To improve intersection operations, construction of a westbound right-turn lane or an additional southbound left-turn lane were considered. However, these improvements are not feasible due to right-of-way constraints and the location of the convenience store in the northeast corner of the intersection. Instead, the traffic signal phasing at the intersection should be modified to provide for a southbound left-turn protected/permissive phase. **Table 5-2** shows the resulting LOS after the improvements. As shown in **Table 5-2**, following the construction of this improvement, several signalized intersection approaches are still projected to operate unacceptably during both peak hours. However, the overall intersection LOS improved from LOS F to LOS E for the PM peak hour.

The signalized intersection of Bethlehem Road / Poole Road is projected to operate at a LOS C and LOS D during the 2026 Build AM and PM peak hours, respectively. The southbound intersection approach is projected to operate unacceptably at LOS F during the PM peak hour. All other intersection approaches are projected to operate at a LOS D or better during both peak hours. To improve intersection operations, consideration should be given to optimizing the traffic signal timings. Because the intersection is projected to operate acceptably overall during both peak hours, no improvements are recommended at this intersection.

All Poole Road / Site Access 1 unsignalized intersection approaches are projected to operate at a LOS B or better during both 2026 Build peak hours. Per the NCDOT Policy on Street and Driveway Access to North Carolina Highways Manual:

“Generally left and right turn lanes and tapers shall be considered when:

- *In accordance with G.S. 137-18(29), the average daily traffic meets or exceeds 4,000 vehicles per day on any secondary route (the average daily traffic should include both the existing traffic plus traffic generated by the proposed development)”*

With the addition of proposed development site traffic, the 2026 AADT along Poole Road is projected to exceed 4,000 VPD. Because of this, turn lanes were considered at Site Access 1. Per the NCDOT Nomograph (see **Appendix G**) and projected 2026 peak hour volumes, a 50-foot eastbound left-turn lane (with appropriate taper) is recommended. Per **Table 5-2**, following this improvement, all approaches are projected to continue to operate acceptably. No additional improvements are recommended at this intersection due to the proposed development's construction.

All Poole Road / Site Access 2 unsignalized intersection approaches are project to operate at a LOS C or better during both 2026 Build peak hours. Because the 2026 AADT along Poole Road is projected to exceed 4,000 VPD, turn lanes were considered at Site Access 2. Per the NCDOT Nomograph (see **Appendix G**) and projected 2026 peak hour volumes, a 50-foot eastbound left-turn lane (with appropriate taper) is recommended. A 50-foot westbound right-turn lane (with appropriate taper) is also recommended. Per **Table 5-2**, following these improvements, all approaches are projected to continue to operate acceptably. No additional improvements are recommended at this intersection due to the proposed development's construction.

The signalized intersection of Smithfield Road / Poole Road is projected to operate at a LOS C and LOS D during the 2026 Build AM and PM peak hours, respectively. The eastbound intersection approach is projected to operate unacceptably at LOS E during the PM peak hour. All other intersection approaches are projected to operate at a LOS D or better during both peak hours. Because the intersection is projected to operate acceptably overall and the proposed turn lanes will be able to handle the projected queues during both peak hours, no improvements are recommended at this intersection.

**Table 5-1: Intersection Level of Service and Delay Summary
2026 Build Traffic Volumes**

Intersection	Movement and Approach	AM PEAK HOUR		PM PEAK HOUR	
		Delay ¹ (sec/veh)	LOS ¹	Delay ¹ (sec/veh)	LOS ¹
1: Hodge Rd & Poole Rd	EB Approach	88.0	F	16.9	B
	WB Approach	45.0	D	34.7	C
	NB Approach	47.3	D	18.7	B
	SB Approach	62.4	E	212.8	F
	Overall	58.0	E	116.2	F
2: Bethlehem Rd & Poole Rd	EB Approach	6.0	A	11.0	B
	WB Approach	13.1	B	9.1	A
	NB Approach	40.6	D	16.6	B
	SB Approach	30.9	C	129.8	F
	Overall	23.6	C	52.1	D
3: Poole Rd & Site Access 1	EB Approach	0.4	A	0.5	A
	WB Approach	0.0	A	0.0	A
	SB Approach	13.6	B	12.8	B
4: Poole Rd & Site Access 2	EB Approach	0.4	A	0.6	A
	WB Approach	0.0	A	0.0	A
	SB Approach	14.9	B	15.7	C
5: Smithfield Rd & Poole Rd	EB Approach	37.4	D	73.3	E
	WB Approach	38.3	D	45.4	D
	NB Approach	23.0	C	9.9	A
	SB Approach	19.4	B	40.7	D
	Overall	25.9	C	37.8	D

¹ Overall intersection LOS and delay reported for signalized intersections and roundabouts only.

** Delay greater than 9999.99 seconds cannot be calculated by SYNCHRO for signalized intersections.

+ Delay greater than 9999.99 seconds cannot be calculated by SYNCHRO for unsignalized intersections.

SYNCHRO does not provide level of service or delay for unsignalized movements with no conflicting volumes.

**Table 5-2: Intersection Level of Service and Delay Summary
2026 Build + Improvement Traffic Volumes**

Intersection	Movement and Approach	AM PEAK HOUR		PM PEAK HOUR	
		Delay ¹ (sec/veh)	LOS ¹	Delay ¹ (sec/veh)	LOS ¹
1: Hodge Rd & Poole Rd	EB Approach	51.3	D	29.5	C
	WB Approach	47.9	D	53.3	D
	NB Approach	66.3	E	43.5	D
	SB Approach	82.2	F	71.9	E
	Overall	57.5	E	55.3	E
3: Poole Rd & Site Access 1	EB Approach	0.4	A	0.5	A
	WB Approach	0.0	A	0.0	A
	SB Approach	13.6	B	12.8	B
4: Poole Rd & Site Access 2	EB Approach	0.4	A	0.6	A
	WB Approach	0.0	A	0.0	A
	SB Approach	14.7	B	15.2	C

¹ Overall intersection LOS and delay reported for signalized intersections and roundabouts only.

** Delay greater than 9999.99 seconds cannot be calculated by SYNCHRO for signalized intersections.

+ Delay greater than 9999.99 seconds cannot be calculated by SYNCHRO for unsignalized intersections.

SYNCHRO does not provide level of service or delay for unsignalized movements with no conflicting volumes.

5.3 2035 BUILD ANALYSIS

To complete the 2035 Horizon Year analyses (including the proposed development), the 2022 Existing traffic volumes were grown at a 3% ambient growth rate from 2022 to 2026 and a 1% ambient growth rate from 2026 to 2035, and added to the estimated site trips. The projected total volumes, along with the proposed intersection geometry (see **Figure 7-1**), were used to complete the capacity analyses.

The 2035 Build traffic volumes shown on **Figure 5-2** contain the following:

- Existing 2022 turning movement traffic count volumes grown at a 3% ambient growth rate from 2022 to 2026 and a 1% ambient growth rate from 2026 to 2035 (**Figure 3-2**);
- Area approved development site trips (**Figure 3-3**); and
- Total site trips generated by the subject development (**Figure 4-2**).

Table 5-3 summarizes the intersection LOS and Delay based on the 2035 Build Year traffic volumes (see **Figure 5-2**). The corresponding SYNCHRO output is included in **Appendix D**.

The signalized intersection of Hodge Road / Poole Road is projected to operate at a LOS E during both 2035 Build peak hours. The southbound intersection approach is projected to operate unacceptably at LOS F during both peak hours. The north and westbound intersection approaches are projected to operate unacceptably during both peak hours. The eastbound intersection approach is projected to operate unacceptably during the AM peak hour. All other intersection approaches are projected to operate at a LOS D during both peak hours.

The signalized intersection of Bethlehem Road / Poole Road is projected to operate at a LOS C and LOS E during the 2035 Build AM and PM peak hours, respectively. The southbound intersection approach is projected to operate at LOS F during the PM peak hour. The northbound intersection approach is projected to operate at LOS E during the AM peak hour. All other intersection approaches are projected to operate at a LOS D or better during both peak hours.

All Poole Road / Site Access 1 unsignalized intersection approaches are projected to operate at a LOS B or better during both 2035 Build peak hours.

All Poole Road / Site Access 2 unsignalized intersection approaches are project to operate at a LOS C or better during both 2035 Build peak hours.

The signalized intersection of Smithfield Road / Poole Road is projected to operate at a LOS C and LOS D during the 2035 Build AM and PM peak hours, respectively. The eastbound intersection approach is projected to operate at LOS F during the PM peak hour. The westbound intersection approach is projected to operate at LOS E during the PM peak hour. All other intersection approaches are projected to operate at a LOS D or better during both peak hours.

**Table 5-3: Intersection Level of Service and Delay Summary
2035 Build Traffic Volumes**

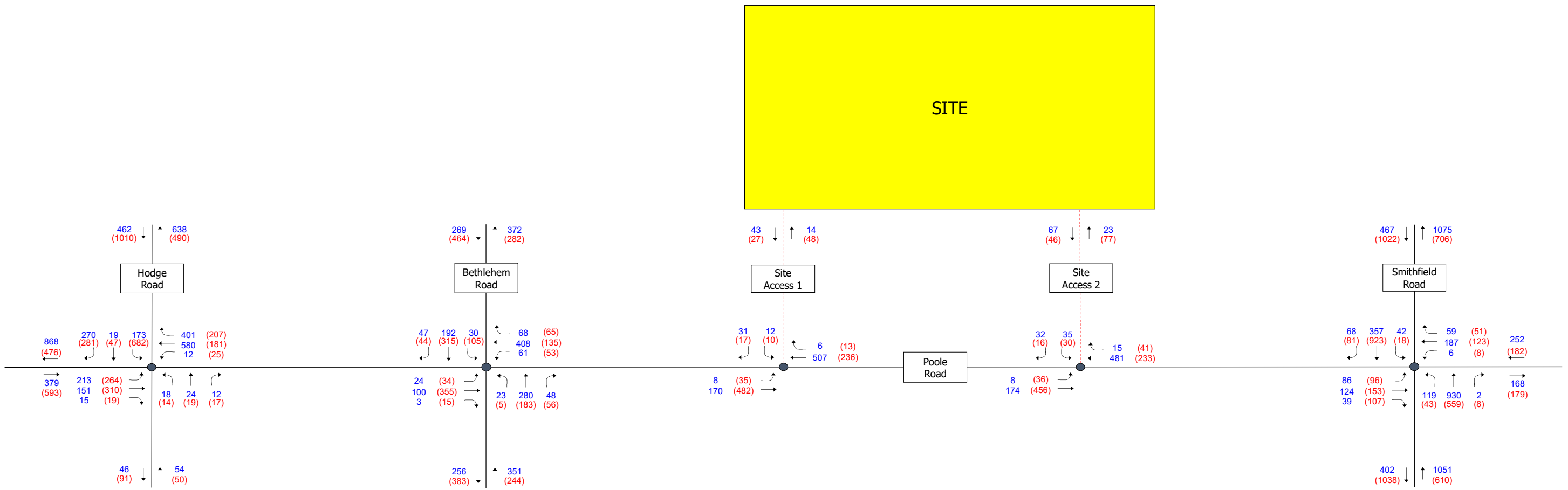
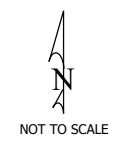
Intersection	Movement and Approach	AM PEAK HOUR		PM PEAK HOUR	
		Delay ¹ (sec/veh)	LOS ¹	Delay ¹ (sec/veh)	LOS ¹
1: Hodge Rd & Poole Rd	EB Approach	79.7	E	47.2	D
	WB Approach	68.0	E	70.2	E
	NB Approach	66.6	E	59.8	E
	SB Approach	94.6	F	84.2	F
	Overall	76.8	E	70.2	E
2: Bethlehem Rd & Poole Rd	EB Approach	5.9	A	11.7	B
	WB Approach	13.8	B	9.3	A
	NB Approach	65.5	E	19.6	B
	SB Approach	49.1	D	188.6	F
	Overall	34.6	C	73.1	E
3: Poole Rd & Site Access 1	EB Approach	0.4	A	0.5	A
	WB Approach	0.0	A	0.0	A
	SB Approach	14.3	B	13.4	B
4: Poole Rd & Site Access 2	EB Approach	0.4	A	0.5	A
	WB Approach	0.0	A	0.0	A
	SB Approach	15.8	C	16.2	C
5: Smithfield Rd & Poole Rd	EB Approach	45.6	D	112.9	F
	WB Approach	44.0	D	66.3	E
	NB Approach	28.7	C	13.7	B
	SB Approach	24.2	C	47.7	D
	Overall	31.7	C	50.4	D

¹ Overall intersection LOS and delay reported for signalized intersections and roundabouts only.

** Delay greater than 9999.99 seconds cannot be calculated by SYNCHRO for signalized intersections.

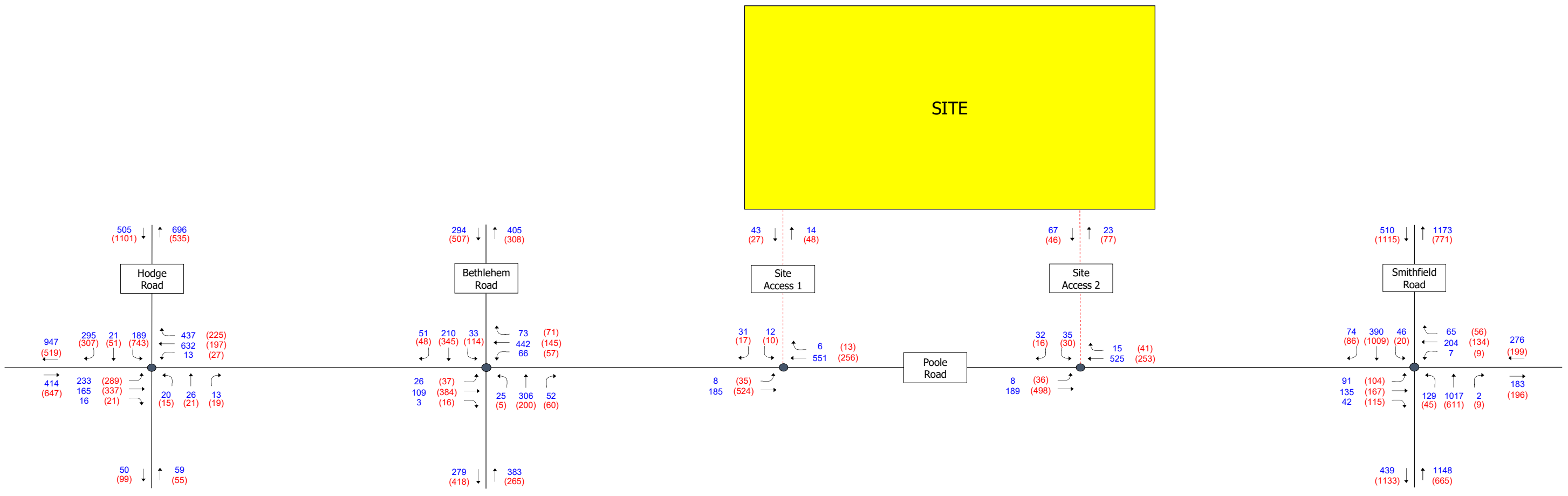
+ Delay greater than 9999.99 seconds cannot be calculated by SYNCHRO for unsignalized intersections.

SYNCHRO does not provide level of service or delay for unsignalized movements with no conflicting volumes.



Poole Road Martin Traffic Impact Analysis
2026 Build Traffic Volumes

Figure 5-1



6 BACKGROUND AND BUILD CONDITIONS (NON-APPROVED DEVELOPMENT TRAFFIC)

Per the scoping information (see **Appendix A**), the Town of Knightdale requested that additional analyses be performed for Background and Build Conditions with the addition of non-approved development site traffic. Provided below are these additional analyses.

Currently there are two (2) planned (but not approved) developments in the project study area: Poole at Smithfield Development and Knightdale Assemblage (see **Appendix H**). Listed below are the site trip distribution assumptions, and proposed offsite improvements.

- Poole at Smithfield Development
 - Located in the northeast and northwest Smithfield Road / Poole Road intersection quadrants
 - Assumed to be fully constructed in 2026
 - 354 Single-Family Detached Housing, 326 Multi-Family Housing (townhomes) and 312 Multi-Family Housing (apartments)
 - Trip Distribution assumed to follow patterns based on existing traffic volumes and Engineering judgement (see **Appendix H**)

- Knightdale Assemblage
 - Located on the northern side of Poole Road, east of Smithfield Road
 - Assumed to be fully constructed in 2026
 - 234 Single-Family Detached Housing
 - Trip Distribution assumed to follow patterns based on existing traffic volumes and Engineering judgement (see **Appendix H**)

Projected and distributed trip volumes from the two non-approved area developments (see **Appendix H**) are located in **Figure 6-1**. These trips were added to the 2026 background volumes (**Figure 3-4**) to determine the 2026 Background with Non-Approved Developments traffic volumes (see **Figure 6-2**).

6.1 2026 BACKGROUND ANALYSIS (WITH NON-APPROVED DEVELOPMENT TRAFFIC)

Table 6-1 summarizes the 2026 Background with Non-Approved Developments intersection LOS and delay based on the geometry shown in **Figure 2-2** (including HL-0031 improvements), and the 2026 Background with Non-Approved Developments traffic volumes shown in **Figure 6-2**. The corresponding SYNCHRO output is included in **Appendix D**.

The signalized intersection of Hodge Road / Poole Road is projected to operate at a LOS E and LOS F during the 2026 Background with Non-Approved Developments AM and PM peak hours, respectively. The southbound intersection approach is projected to operate at LOS E and LOS F during the AM and PM peak hours, respectively. The eastbound intersection approach is projected to operate at LOS F during the AM peak hour. All other intersection approaches are projected to operate at a LOS D or better during both peak hours.

The signalized intersection of Bethlehem Road / Poole Road is projected to operate at a LOS C and LOS D during the 2026 Background with Non-Approved Developments AM and PM peak hours, respectively. The southbound intersection approach is projected to operate at LOS F during the PM peak hour. All other intersection approaches are projected to operate at a LOS D or better during both peak hours.

The signalized intersection of Smithfield Road / Poole Road is projected to operate at a LOS D during both 2026 Background with Non-Approved Developments peak hours. The eastbound intersection approach is projected to operate at LOS F during the PM peak hour. The westbound intersection approach is projected

to operate at LOS E during both peak hours. All other intersection approaches are projected to operate at a LOS D or better during both peak hours.

**Table 6-1: Intersection Level of Service and Delay Summary
2024 Background with Non-Approved Developments Traffic Volumes**

Intersection	Movement and Approach	AM PEAK HOUR		PM PEAK HOUR	
		Delay ¹ (sec/veh)	LOS ¹	Delay ¹ (sec/veh)	LOS ¹
1: Hodge Rd & Poole Rd	EB Approach	87.1	F	17.2	B
	WB Approach	44.4	D	34.8	C
	NB Approach	47.4	D	19.1	B
	SB Approach	62.4	E	192.9	F
	Overall	57.6	E	103.2	F
2: Bethlehem Rd & Poole Rd	EB Approach	6.3	A	11.1	B
	WB Approach	12.9	B	8.8	A
	NB Approach	37.2	D	16.2	B
	SB Approach	27.9	C	107.8	F
	Overall	21.9	C	43.8	D
5: Smithfield Rd & Poole Rd	EB Approach	40.5	D	82.8	F
	WB Approach	57.1	E	67.3	E
	NB Approach	26.4	C	15.4	B
	SB Approach	44.1	D	42.6	D
	Overall	37.5	D	44.5	D

¹ Overall intersection LOS and delay reported for signalized intersections and roundabouts only.

** Delay greater than 9999.99 seconds cannot be calculated by SYNCHRO for signalized intersections.

+ Delay greater than 9999.99 seconds cannot be calculated by SYNCHRO for unsignalized intersections.

SYNCHRO does not provide level of service or delay for unsignalized movements with no conflicting volumes.

6.2 2026 BUILD TRAFFIC VOLUMES (WITH NON-APPROVED DEVELOPMENT TRAFFIC)

Background with Non-Approved Development traffic volumes (**Figure 6-2**) were added to the projected residential development site trips (**Figure 4-2**) to generate the 2026 Build with Non-Approved Developments traffic volumes shown in **Figure 6-3**.

To summarize, the 2026 Build with Non-Approved Development traffic volumes (**Figure 6-3**) contain the following:

- 2022 traffic volumes grown exponentially for four (4) years at a 3% ambient growth rate (**Figure 3-1**);
- Area approved development site trips (**Figure 3-3**);
- Total site trips generated by the subject development (**Figure 4-2**); and
- Non-Approved Development trip distribution volumes (**Figure 6-1**).

6.3 2026 BUILD ANALYSIS (NON-APPROVED DEVELOPMENT TRAFFIC)

Table 6-2 summarizes the intersection LOS and delay based on the geometry shown in **Figure 2-2** (including HL-0031 improvements) and the 2026 Build with Non-Approved Development traffic volumes shown in **Figure 6-3**. The corresponding SYNCHRO output is included in **Appendix D**.

The signalized intersection of Hodge Road / Poole Road is projected to operate at a LOS E and LOS F during the 2026 Build with Non-Approved Developments AM and PM peak hours, respectively. The southbound intersection approach is projected to operate at LOS E and LOS F during the AM and PM peak hours, respectively. The eastbound intersection approach is projected to operate at LOS F during the AM peak hour. The westbound intersection approach is projected to operate at LOS E during the AM peak hour. All other intersection approaches are projected to operate at a LOS D or better during both peak hours.

The signalized intersection of Bethlehem Road / Poole Road is projected to operate at a LOS C and LOS D during the 2026 Build with Non-Approved Developments AM and PM peak hours, respectively. The southbound intersection approach is projected to operate at LOS F during the PM peak hour. All other intersection approaches are projected to operate at a LOS D or better during both peak hours.

All Poole Road / Site Access 1 unsignalized intersection approaches are projected to operate at a LOS B or better during both 2026 Build with Non-Approved Developments peak hours.

All Poole Road / Site Access 2 unsignalized intersection approaches are project to operate at a LOS C or better during both 2026 Build with Non-Approved Developments peak hours.

The signalized intersection of Smithfield Road / Poole Road is projected to operate at a LOS D during both 2026 Build with Non-Approved Developments peak hours. The east and westbound intersection approaches are projected to operate unacceptably during the AM and PM peak hours. The southbound intersection approach is projected to operate at LOS E during the PM peak hour. All other intersection approaches are projected to operate at a LOS D or better during both peak hours.

**Table 6-2: Intersection Level of Service and Delay Summary
2026 Build with Non-Approved Developments Traffic Volumes**

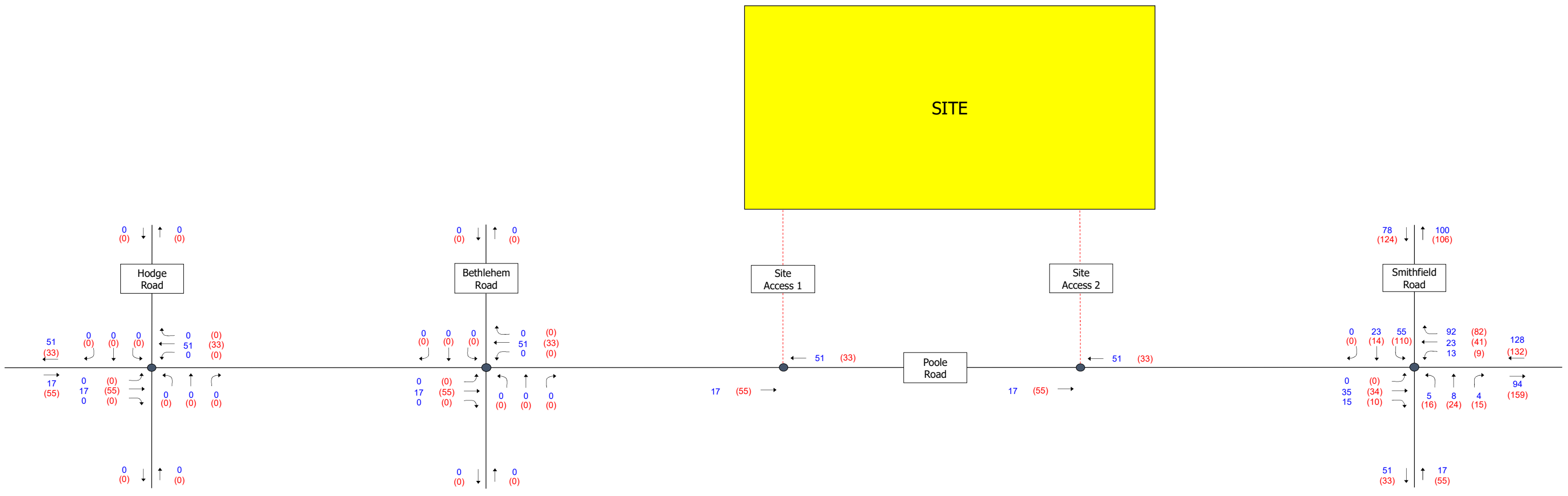
Intersection	Movement and Approach	AM PEAK HOUR		PM PEAK HOUR	
		Delay ¹ (sec/veh)	LOS ¹	Delay ¹ (sec/veh)	LOS ¹
1: Hodge Rd & Poole Rd	EB Approach	102.7	F	17.6	B
	WB Approach	55.6	E	35.1	D
	NB Approach	47.3	D	19.8	B
	SB Approach	63.2	E	226.6	F
	Overall	66.7	E	119.2	F
2: Bethlehem Rd & Poole Rd	EB Approach	5.9	A	12.0	B
	WB Approach	13.8	B	9.2	A
	NB Approach	47.6	D	18.4	B
	SB Approach	36.1	D	141.9	F
	Overall	26.2	C	54.0	D
3: Poole Rd & Site Access 1	EB Approach	0.4	A	0.5	A
	WB Approach	0.0	A	0.0	A
	SB Approach	14.5	B	13.7	B
4: Poole Rd & Site Access 2	EB Approach	0.4	A	0.5	A
	WB Approach	0.0	A	0.0	A
	SB Approach	16.1	C	17.3	C
5: Smithfield Rd & Poole Rd	EB Approach	63.6	E	83.7	F
	WB Approach	55.6	E	62.9	E
	NB Approach	27.5	C	18.5	B
	SB Approach	48.7	D	55.8	E
	Overall	41.9	D	51.3	D

¹ Overall intersection LOS and delay reported for signalized intersections and roundabouts only.

** Delay greater than 9999.99 seconds cannot be calculated by SYNCHRO for signalized intersections.

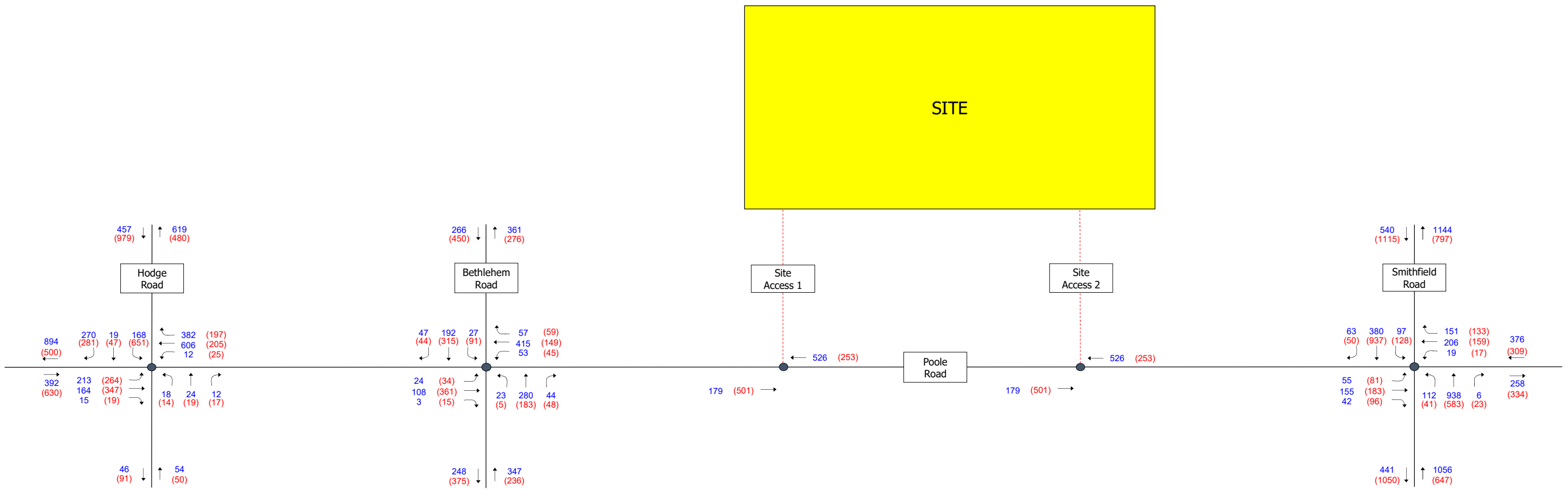
+ Delay greater than 9999.99 seconds cannot be calculated by SYNCHRO for unsignalized intersections.

SYNCHRO does not provide level of service or delay for unsignalized movements with no conflicting volumes.



LEGEND:

- Existing Road
- - - Proposed Road
- XX AM Peak Hour Volume (vph)
- (XX) PM Peak Hour Volume (vph)



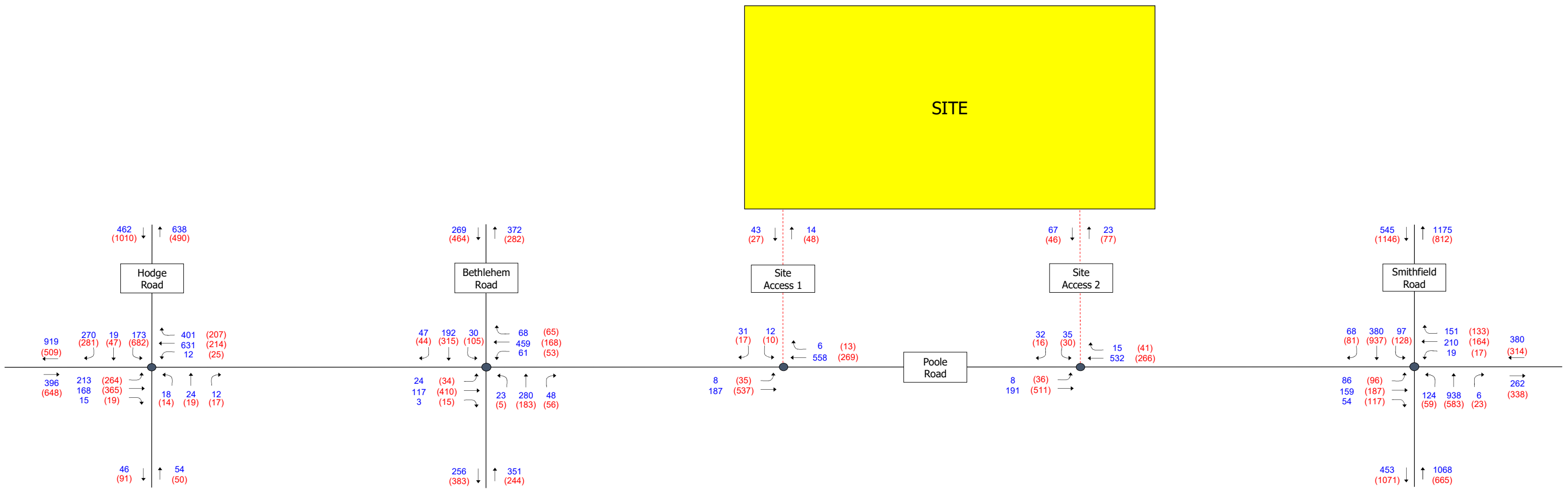
LEGEND:

- Existing Road
- - - Proposed Road
- XX AM Peak Hour Volume (vph)
- (XX) PM Peak Hour Volume (vph)



Poole Road Martin Traffic Impact Analysis
 2026 Background with Non-Approved Developments Traffic Volumes

Figure 6-2



LEGEND:

- Existing Road
- - - Proposed Road
- XX AM Peak Hour Volume (vph)
- (XX) PM Peak Hour Volume (vph)

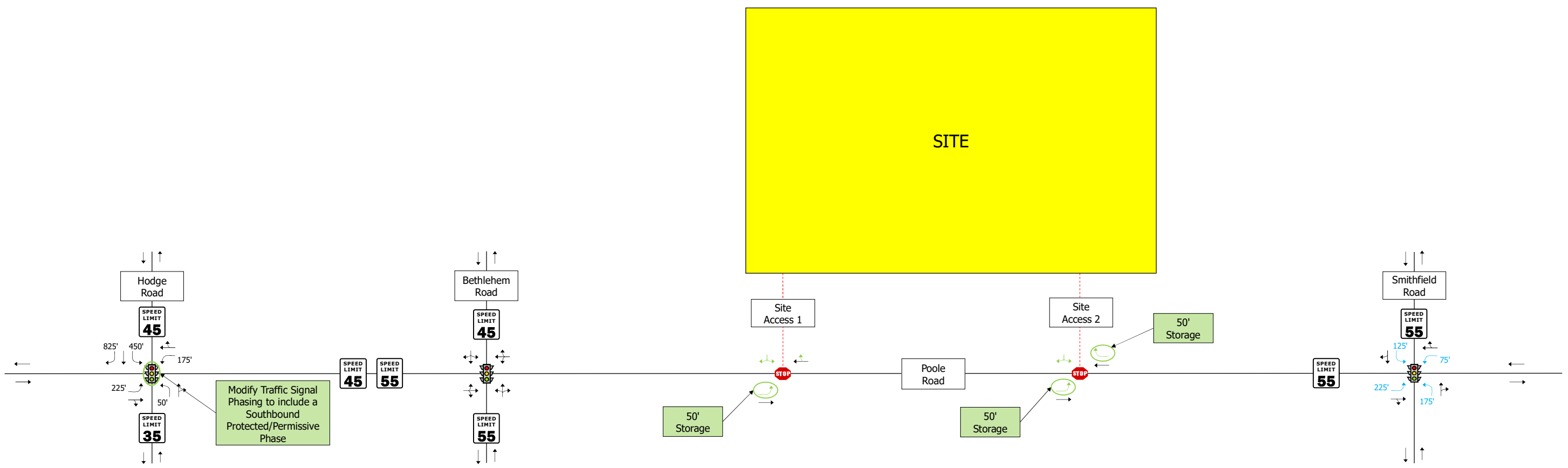
7 CONCLUSIONS AND RECOMMENDATIONS

Capacity analyses were performed for the following scenarios:

- 2022 Existing
- 2026 Background (existing + ambient growth + approved development traffic)
- 2026 Build (Background + site trips)
- 2035 Horizon Build (existing + ambient growth + approved development traffic)
- 2026 Background with Non-Approved Development Traffic
- 2026 Build with Non-Approved Development Traffic

In closing, the following improvements (see **Figure 7-1**) are recommended in conjunction with the construction of the proposed development:

- Hodge Road / Poole Road
 - Modify traffic signal phasing to provide for a southbound left-turn protected/permissive phase
- Poole Road / Site Access 1
 - Construction of a 50-foot eastbound left-turn lane (with appropriate taper)
- Poole Road / Site Access 2
 - Construction of a 50-foot eastbound left-turn lane (with appropriate taper)
 - Construction of a 50-foot westbound right-turn lane (with appropriate taper)



LEGEND:

- Existing Road
- - - Proposed Road
- 🚦 Signalized Intersection
- 🛑 Unsignalized Intersection
- ↔ Existing Lane Configuration
- ↗ Improvements by Others
- ↘ Recommended Improvements

Appendix A – Scoping Information

March 30, 2022

Memorandum of Understanding (Poole Road Martin TIA)

TO: Andrew Spiliotis
Senior Planner - Transportation
Development Services
Town of Knightdale

FROM: Jeff Hochanadel PE, PTOE
Principal | North Carolina Transportation Group Leader
Timmons Group

SUBJECT: Traffic Impact Analysis (TIA) Scope
Poole Road Martin TIA

Scoping Meeting

A scoping meeting was held on March 10, 2022 between the NCDOT, Town of Knightdale, and Timmons Group to discuss project assumptions for the Poole Road Martin TIA.

Introduction

The proposed development will be located off Poole Road in Knightdale, NC. The proposed development will be built in one phase and is assumed to consist of the following:

- (up to) 185 single family homes

The purpose of this study is to determine the impacts of the proposed development on the existing traffic network.

Study Intersections

The Town of Knightdale recommended the following study area intersection(s):

- Poole Road / Hodge Road
- Poole Road / Bethlehem Road
- Poole Road / Smithfield Road
- Poole Road / Site Access 1
- Poole Road / Site Access 2

Study Scenarios

The study shall consist of the following scenarios as outlined in the scoping meeting.

1. Existing Year (2022)
2. Background + 1 Year (2026)

3. Build-Out + 1 (2026)
4. Build-Out + 1 (2026) with non-approved development traffic
5. Full Build-Out + 10 (2036)

Trip Generation

Provide assumptions pertaining to the following:

1. Existing Traffic Counts
 - a. Peak hour assumptions: 7:00 a.m. – 9:00 a.m. and 4:00 p.m. to 6:00 p.m.
 - b. Time of day / week / year assumptions: Tuesday – Thursday / School in session
 - i. Count date: March 15th, 2022
2. Growth Rate assumptions
 - a. 3% ambient growth rate through 2026 (Build + 1)
 - b. 1% ambient growth rate between 2026 (Build + 1) and 2036 (Build + 10)
3. Background Developments
 - a. Town of Knightdale provided the TIA for all approved area developments
 - i. Poole Road Apartment Development (aka Riverview Commons)
 - b. Town of Knightdale provided site plans for all non-approved area developments
 - ii. Knightdale Assemblage residential development (east side of Smithfield Road)
 - iii. Poole at Smithfield residential development (west side of Smithfield Road)
 - iv. Additional information will be sent when available.
4. Background Projects
 - a. HL-0031 will improve the Poole Road / Smithfield Street intersection. It is planned for 2023 construction and will be included in all 2026 and 2036 Background and Build analyses.
5. Proposed Development
 - a. Trips generated will be determined using the ITE Trip Generation Manual (Institute of Transportation Engineers, 10th Edition, 2017). Trip generation calculated using the proposed number of residential units and provided equation (per NCDOT guidelines).
 - b. AM peak hours trips generated total 34 incoming and 102 outgoing where PM peak hour trips totaled 115 incoming and 68 outgoing.

Table 1: Trip Generation Summary

ITE Land Use Code	Independent Variable	ADT	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
210 – Single Family Detached Housing	185 DU	1,831	34	102	136	115	68	183

SOURCE: Institute of Transportation Engineers' *Trip Generation Manual* 10th Edition (2017)

Trip Distribution / Assignment

The site trip distribution used for this site is based on collected traffic counts, engineering judgement, and discussions during the scoping meeting. The proposed trip distribution percentages are attached.

Analysis Methods

General assumptions: All projected trips will follow the approved trip distribution patterns.

Software / Synchro assumptions: Vehicular levels of service analysis will be performed using Synchro, supplemented by SimTraffic (where necessary)

Internal capture assumptions: None

Multi-modal reduction assumptions: No reduction will be assumed due to multi-modal

Heavy Vehicle percentage assumptions: 2%

Signalized Intersections assumptions: Timings will be based on signal plans.

A PHF of 0.90 will be used for all AM and PM analyses.

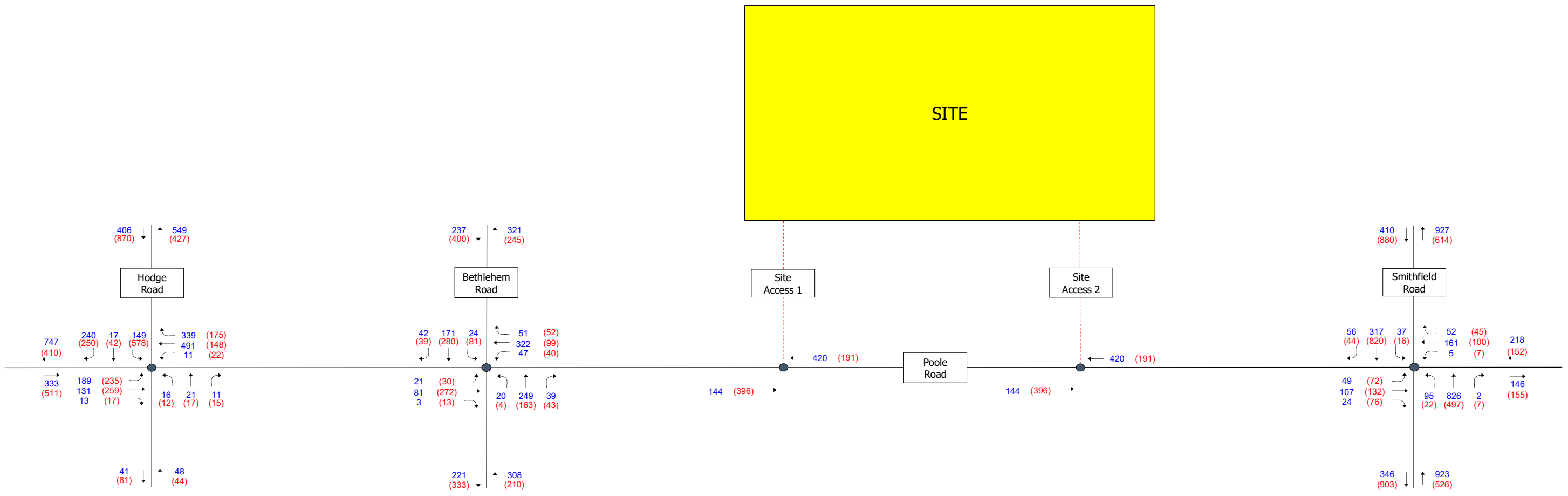


POOLE ROAD - KNIGHTDALE, NC
 Conceptual Development Plan - January 26, 2022



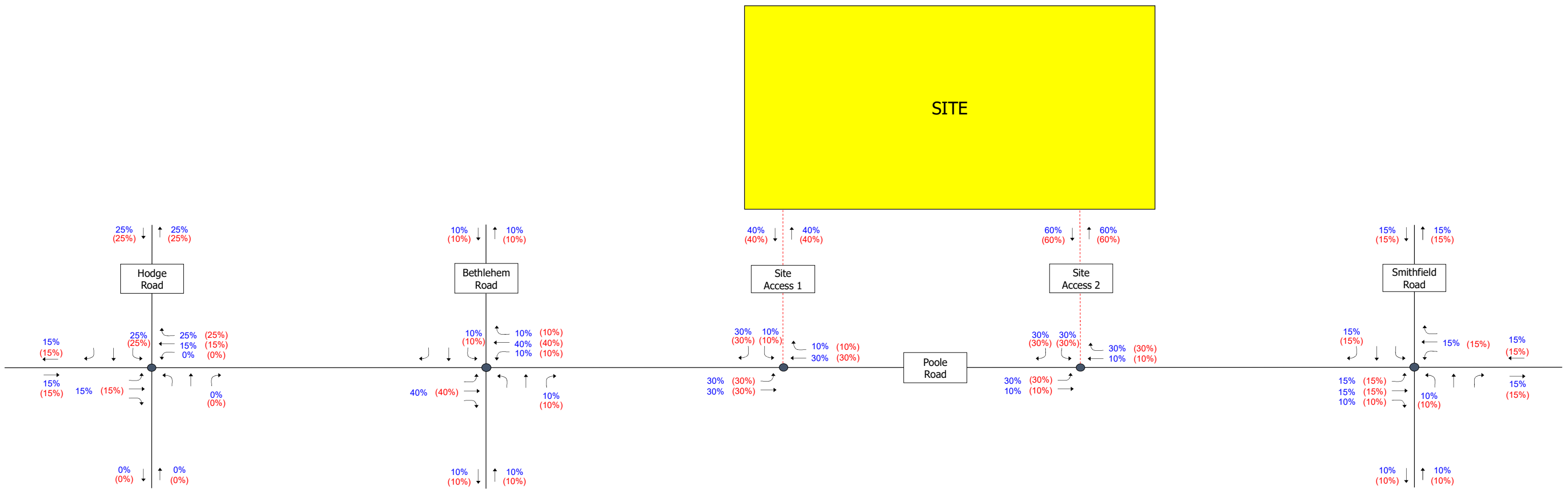
Poole Road Martin
Traffic Impact Analysis
 Preliminary Site Plan

Figure 2-1



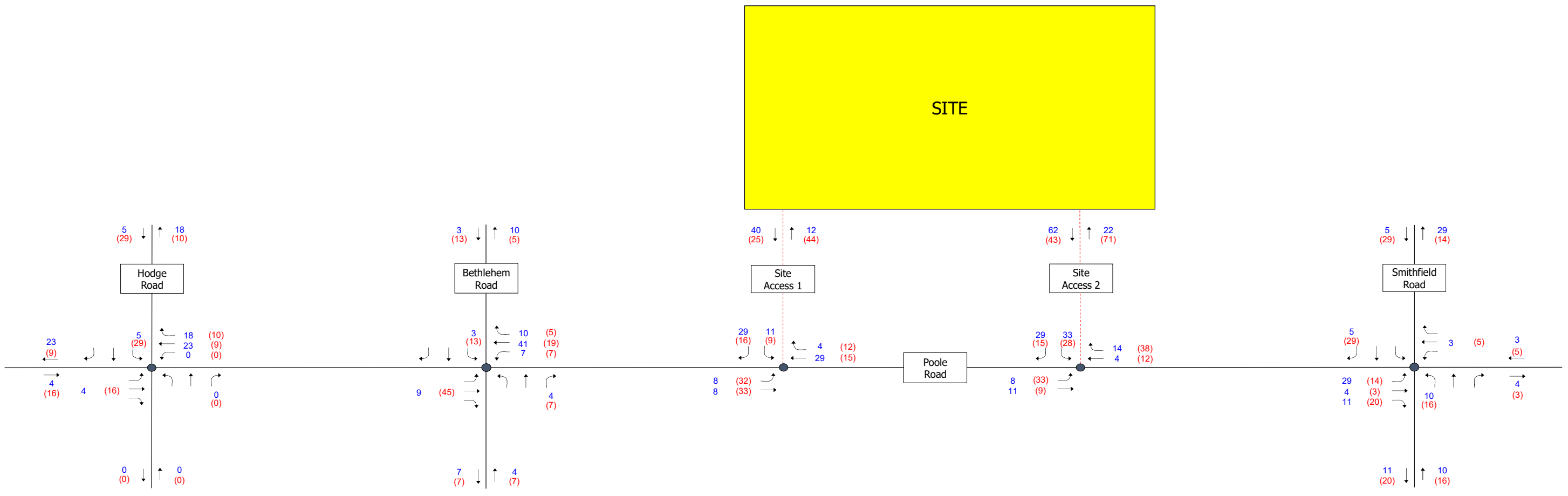
LEGEND:

- Existing Road
- - - Proposed Road
- XX AM Peak Hour Volume (vph)
- (XX) PM Peak Hour Volume (vph)



LEGEND:

- Existing Road
- - - Proposed Road
- XX% AM Peak Hour Percentages
- (XX%) PM Peak Hour Percentages



LEGEND:

- Existing Road
- - - Proposed Road
- XX AM Peak Hour Volume (vph)
- (XX) PM Peak Hour Volume (vph)



Poole Road Martin TIA Meeting Minutes (3/10/22)

Attendees:

Clarence Bunting	NCDOT	cbunting@ncdot.gov
Kevin Lewis	Town of Knightdale	kevin.lewis@knightdalenc.gov
Andrew Spiliotis	Town of Knightdale	andrew.spiliotis@knightdalenc.gov
Beth Blackmon	Timmons Group	beth.blackmon@timmons.com
Jeff Hochanadel	Timmons Group	jeff.hochanadel@timmons.com

Items Discussed:

- Meeting was held to discuss the Poole Road Martin TIA scoping
- The project build-out will include:
 - 172 single-family homes
 - Potential site plan change (MOU to include finalized trip generation if possible)
- The project will be constructed by 2025
- Analyses will include:
 - 2021 Existing
 - 2026 Background
 - 2026 Build
 - 2026 Build (with non-approved development traffic)
 - 2036 Future
- Holistic look at 1,400+ lots along Poole Road for Town Council
- The project study area intersections will include the following:
 - Poole Road / Hodge Road
 - Poole Road / Bethlehem Road
 - Poole Road / Smithfield Road
 - Poole Road / Site Access 1
 - Poole Road / Site Access 2
- Traffic counts to be conducted when traditional calendar schools are in session (assumed – March 15th, 2022)
- 3% ambient growth rate through 2026 (Build + 1)
- 1% ambient growth rate between 2026 (Build + 1) and 2036 (Build + 10)
- HL-0031 will improve the Poole Road / Smithfield Road intersection
- There is one approved development within the study area:
 - Riverview Commons Apartments
 - NW Poole Road / Hodge Road intersection quadrant
 - Town of Knightdale (Town) to provide TIA
- There are two non-approved developments within the study area:
 - Terramor Homes Residential Development
 - To be constructed off Smithfield Road (east side)
 - TIA scoped with Ramey-Kemp & Associates (RKA)
 - RKA finalizing trip generation
 - Residential development
 - To be constructed off Smithfield Road (west side)
 - Town to provide information to Timmons Group
- Trip distribution suggestions:
 - Overall based on existing traffic patterns
 - ~5% to/from Clayton
 - Percentage towards Bethlehem Road / I-40
 - Percentage eastbound along Poole Road towards Lake Myra Elementary
 - Percentage eastbound along Poole Road towards Wendell Falls Commercial
- Greenway east-west through site (needed on site plan) – maybe side path along Poole
- Timmons Group to provide meeting minutes and MOU
- MOU will be provided in lieu of the NCDOT's TIA scoping checklist

From: [Brennan, Sean P](#)
To: [Jeff Hochanadel](#); [Andrew Spiliotis](#); [Bunting, Clarence B](#); [Kevin Lewis](#)
Cc: [Beth Blackmon](#); [Chuck Jones](#); [Warren, Jeremy L](#)
Subject: Re: [External] RE: Poole Road Martin TIA MOU
Date: Friday, April 1, 2022 11:34:30 AM
Attachments: [image007.png](#)
[image008.png](#)
[Poole Road Martin TIA MOU - 2022-03-30.pdf](#)

Jeff,

I'm okay with the MOU.

Regards,

Sean Brennan, PE
Senior Assistant District Engineer
Division 5/District 1
Department of Transportation

919-733-3213 office
919-715-5778 fax
spbrennan@ncdot.gov

4009 District Drive (Physical Address)
Raleigh, NC 27607

1575 Mail Service Center (Mailing Address)
Raleigh, NC 27699-1575

cid:image001.png@01D10DA4.5CC88DA0



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

From: Jeff Hochanadel <Jeff.Hochanadel@timmons.com>
Sent: Wednesday, March 30, 2022 2:50 PM
To: Andrew Spiliotis <andrew.spiliotis@knightdalenc.gov>; Bunting, Clarence B <cbunting@ncdot.gov>; Kevin Lewis <kevin.lewis@knightdalenc.gov>; Brennan, Sean P <spbrennan@ncdot.gov>
Cc: Beth Blackmon <Beth.Blackmon@timmons.com>; Chuck Jones <Chuck.Jones@timmons.com>
Subject: [External] RE: Poole Road Martin TIA MOU

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

All,

Please see the attached (updated) TIA MOU. The attached includes the trip distribution percentages / assignment.

Thanks!

Jeff

Jeff Hochanadel, PE, PTOE

Principal | North Carolina Transportation Group Leader

TIMMONS GROUP | www.timmons.com

5410 Trinity Rd, Suite 102 | Raleigh, NC 27607

Office: 919.866.4511 | Fax: 919.859.5663

Cell: 919.426.8405

jeff.hochanadel@timmons.com

Your Vision Achieved Through Ours

To send me files greater than 20MB [click here](#)

From: Andrew Spiliotis <andrew.spiliotis@knightdalenc.gov>

Sent: Monday, March 28, 2022 2:27 PM


To: Jeff Hochanadel <Jeff.Hochanadel@timmons.com>; cbunting@ncdot.gov; Kevin Lewis <kevin.lewis@knightdalenc.gov>; Brennan, Sean P <spbrennan@ncdot.gov>

Cc: Beth Blackmon <Beth.Blackmon@timmons.com>; Chuck Jones <Chuck.Jones@timmons.com>

Subject: RE: Poole Road Martin TIA MOU

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Thanks for sending this along Jeff. **Please also add in proposed trip assignment percentages to the MOU so that we may review and reach an agreement before the TIA is submitted.**

Also, I've link some of the background developments to assist with the TIA ( [Poole Road TIA Background Info](#)). They include:

Approved Developments:

- Riverview Commons (aka Poole Road Apartment Development)

Proposed Developments (optional / encouraged to model – let me know if you have any questions on this):

- Poole Rd Assemblage – link includes project info / site plan, will forward MOU when it's available
- Residential development west of Smithfield Road – attached project info / site plan, the land

has been purchased but project has not advanced to pursuing a TIA yet

I've also attached the NCDOT intersection improvement plans for the Smithfield Rd at Poole Rd intersection.

Let me know if you have any questions.

Thanks,

Andrew Spiliotis

Senior Planner – Transportation & Land Use



Town of Knightdale | KnightdaleNC.gov

950 Steeple Square Ct. | Knightdale, NC 27545 | 919-217-2247



This message and any attachments may be considered public record and are subject to public review.



From: Jeff Hochanadel <Jeff.Hochanadel@timmons.com>

Sent: Tuesday, March 22, 2022 8:31 PM

To: cbunting@ncdot.gov; Kevin Lewis <kevin.lewis@knightdalenc.gov>; Andrew Spiliotis <andrew.spiliotis@knightdalenc.gov>; Brennan, Sean P <spbrennan@ncdot.gov>

Cc: Beth Blackmon <Beth.Blackmon@timmons.com>; Chuck Jones <Chuck.Jones@timmons.com>

Subject: Poole Road Martin TIA MOU

Be Advised: This email originated from outside of the Town of Knightdale, NC

All,

Attached is the Poole Road Martin TIA MOU. For your reference, I have included the TIA scoping meeting minutes.

It should be noted that the current site plan shows 172 single-family units. The site plan will be updated; however, the number of residential units should not increase beyond 185 units (as shown in the MOU).

Please do not hesitate to contact me with any questions.

Thank You!

Jeff

Jeff Hochanadel, PE, PTOE

Principal | North Carolina Transportation Group Leader

TIMMONS GROUP | www.timmons.com

5410 Trinity Rd, Suite 102 | Raleigh, NC 27607

Office: 919.866.4511 | Fax: 919.859.5663

Cell: 919.426.8405

jeff.hochanadel@timmons.com

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Appendix B – Traffic Counts



TRAFFIC DATA COLLECTION

File Name : Knightdale(Poole and Bethlehem)
 Site Code :
 Start Date : 3/17/2022
 Page No : 1

Groups Printed- Cars + - Trucks

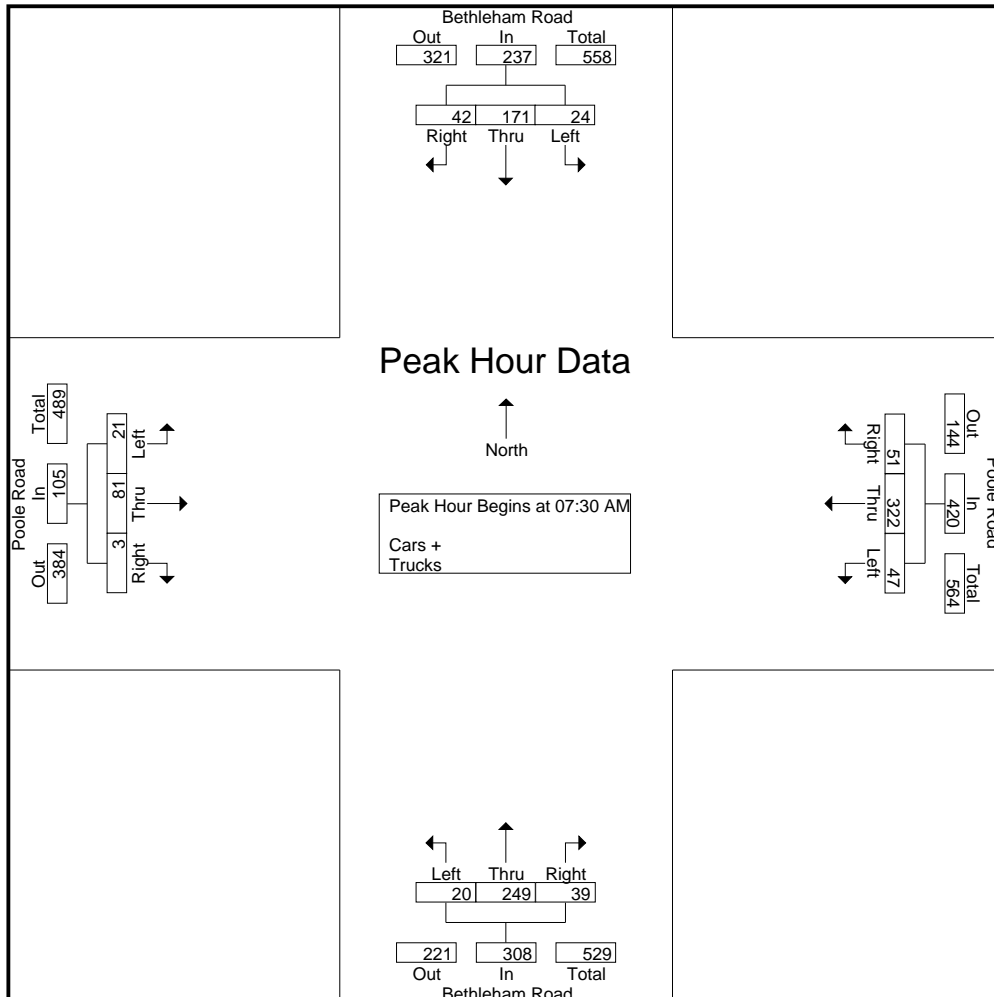
Start Time	Bethlehem Road Southbound				Poole Road Westbound				Bethlehem Road Northbound				Poole Road Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
07:00 AM	0	15	6	21	11	36	4	51	4	40	2	46	0	7	4	11	129
07:15 AM	3	24	4	31	14	57	7	78	6	61	1	68	0	8	4	12	189
07:30 AM	7	55	6	68	11	71	9	91	11	63	11	85	0	21	11	32	276
07:45 AM	13	44	4	61	15	79	14	108	13	68	5	86	0	22	4	26	281
Total	23	138	20	181	51	243	34	328	34	232	19	285	0	58	23	81	875
08:00 AM	7	29	5	41	17	92	12	121	5	60	3	68	1	23	1	25	255
08:15 AM	15	43	9	67	8	80	12	100	10	58	1	69	2	15	5	22	258
08:30 AM	7	35	7	49	11	72	9	92	10	40	2	52	1	39	17	57	250
08:45 AM	3	39	9	51	16	27	12	55	6	42	2	50	3	23	13	39	195
Total	32	146	30	208	52	271	45	368	31	200	8	239	7	100	36	143	958
Grand Total	55	284	50	389	103	514	79	696	65	432	27	524	7	158	59	224	1833
Apprch %	14.1	73	12.9		14.8	73.9	11.4		12.4	82.4	5.2		3.1	70.5	26.3		
Total %	3	15.5	2.7	21.2	5.6	28	4.3	38	3.5	23.6	1.5	28.6	0.4	8.6	3.2	12.2	
Cars +	54	275	50	379	101	510	77	688	62	423	25	510	7	153	55	215	1792
% Cars +	98.2	96.8	100	97.4	98.1	99.2	97.5	98.9	95.4	97.9	92.6	97.3	100	96.8	93.2	96	97.8
Trucks	1	9	0	10	2	4	2	8	3	9	2	14	0	5	4	9	41
% Trucks	1.8	3.2	0	2.6	1.9	0.8	2.5	1.1	4.6	2.1	7.4	2.7	0	3.2	6.8	4	2.2



TRAFFIC DATA COLLECTION

File Name : Knightdale(Poole and Bethlehem)
 Site Code :
 Start Date : 3/17/2022
 Page No : 2

Start Time	Bethlehem Road Southbound				Poole Road Westbound				Bethlehem Road Northbound				Poole Road Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	7	55	6	68	11	71	9	91	11	63	11	85	0	21	11	32	276
07:45 AM	13	44	4	61	15	79	14	108	13	68	5	86	0	22	4	26	281
08:00 AM	7	29	5	41	17	92	12	121	5	60	3	68	1	23	1	25	255
08:15 AM	15	43	9	67	8	80	12	100	10	58	1	69	2	15	5	22	258
Total Volume	42	171	24	237	51	322	47	420	39	249	20	308	3	81	21	105	1070
% App. Total	17.7	72.2	10.1		12.1	76.7	11.2		12.7	80.8	6.5		2.9	77.1	20		
PHF	.700	.777	.667	.871	.750	.875	.839	.868	.750	.915	.455	.895	.375	.880	.477	.820	.952





TRAFFIC DATA COLLECTION

File Name : Knightdale(Poole and Bethlehem)
 Site Code :
 Start Date : 3/17/2022
 Page No : 1

Groups Printed- Cars + - Trucks

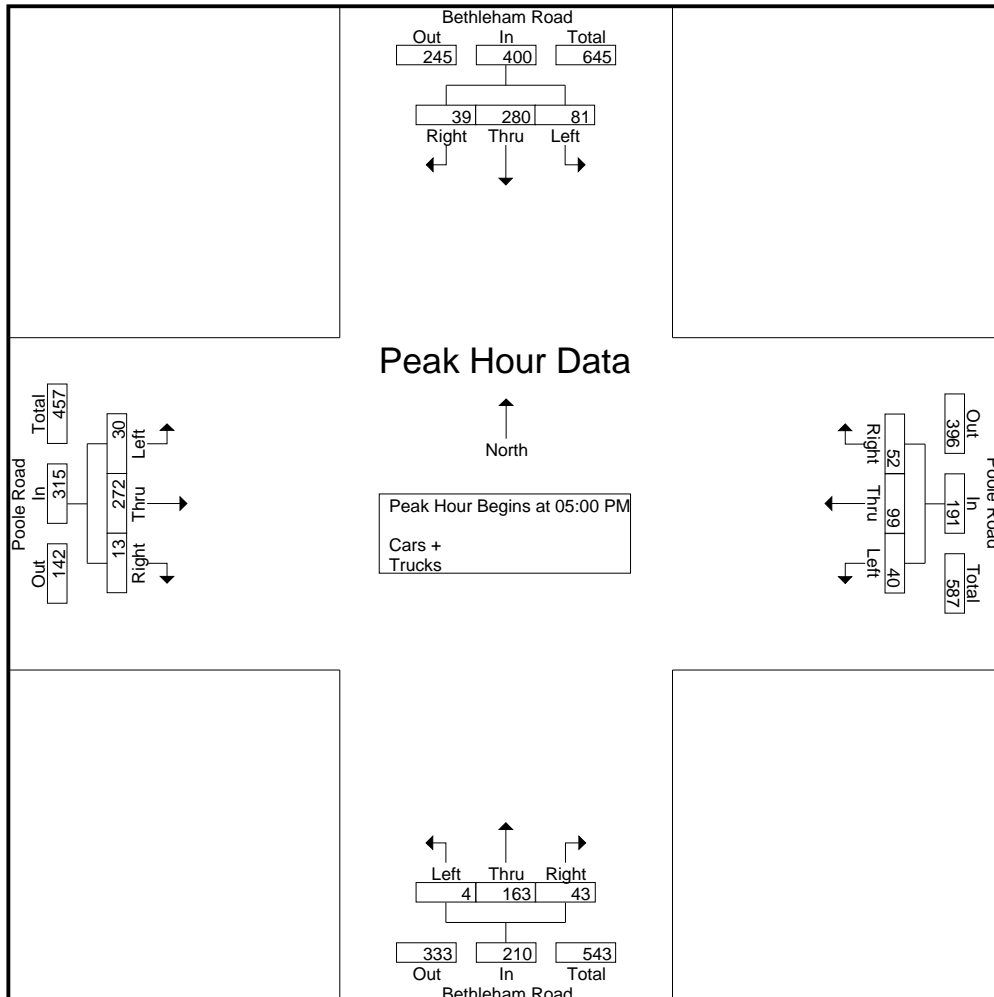
Start Time	Bethlehem Road Southbound				Poole Road Westbound				Bethlehem Road Northbound				Poole Road Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
04:00 PM	14	49	22	85	8	14	9	31	5	27	0	32	4	36	16	56	204
04:15 PM	12	62	17	91	15	15	12	42	10	30	2	42	0	48	21	69	244
04:30 PM	15	66	15	96	8	27	8	43	12	34	1	47	2	56	8	66	252
04:45 PM	11	41	15	67	10	30	10	50	14	44	2	60	3	64	9	76	253
Total	52	218	69	339	41	86	39	166	41	135	5	181	9	204	54	267	953
05:00 PM	16	76	19	111	11	19	11	41	8	35	0	43	1	62	11	74	269
05:15 PM	13	74	18	105	15	27	8	50	21	50	1	72	3	72	8	83	310
05:30 PM	7	62	22	91	16	29	9	54	5	44	2	51	4	72	6	82	278
05:45 PM	3	68	22	93	10	24	12	46	9	34	1	44	5	66	5	76	259
Total	39	280	81	400	52	99	40	191	43	163	4	210	13	272	30	315	1116
Grand Total	91	498	150	739	93	185	79	357	84	298	9	391	22	476	84	582	2069
Apprch %	12.3	67.4	20.3		26.1	51.8	22.1		21.5	76.2	2.3		3.8	81.8	14.4		
Total %	4.4	24.1	7.2	35.7	4.5	8.9	3.8	17.3	4.1	14.4	0.4	18.9	1.1	23	4.1	28.1	
Cars +	91	485	148	724	92	182	76	350	79	286	8	373	21	469	82	572	2019
% Cars +	100	97.4	98.7	98	98.9	98.4	96.2	98	94	96	88.9	95.4	95.5	98.5	97.6	98.3	97.6
Trucks	0	13	2	15	1	3	3	7	5	12	1	18	1	7	2	10	50
% Trucks	0	2.6	1.3	2	1.1	1.6	3.8	2	6	4	11.1	4.6	4.5	1.5	2.4	1.7	2.4



TRAFFIC DATA COLLECTION

File Name : Knightdale(Poole and Bethlehem)
 Site Code :
 Start Date : 3/17/2022
 Page No : 2

Start Time	Bethlehem Road Southbound				Poole Road Westbound				Bethlehem Road Northbound				Poole Road Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	16	76	19	111	11	19	11	41	8	35	0	43	1	62	11	74	269
05:15 PM	13	74	18	105	15	27	8	50	21	50	1	72	3	72	8	83	310
05:30 PM	7	62	22	91	16	29	9	54	5	44	2	51	4	72	6	82	278
05:45 PM	3	68	22	93	10	24	12	46	9	34	1	44	5	66	5	76	259
Total Volume	39	280	81	400	52	99	40	191	43	163	4	210	13	272	30	315	1116
% App. Total	9.8	70	20.2		27.2	51.8	20.9		20.5	77.6	1.9		4.1	86.3	9.5		
PHF	.609	.921	.920	.901	.813	.853	.833	.884	.512	.815	.500	.729	.650	.944	.682	.949	.900





TRAFFIC DATA COLLECTION

File Name : Knightdale(Poole and Hedge)
 Site Code :
 Start Date : 3/17/2022
 Page No : 1

Groups Printed- Cars + - Trucks

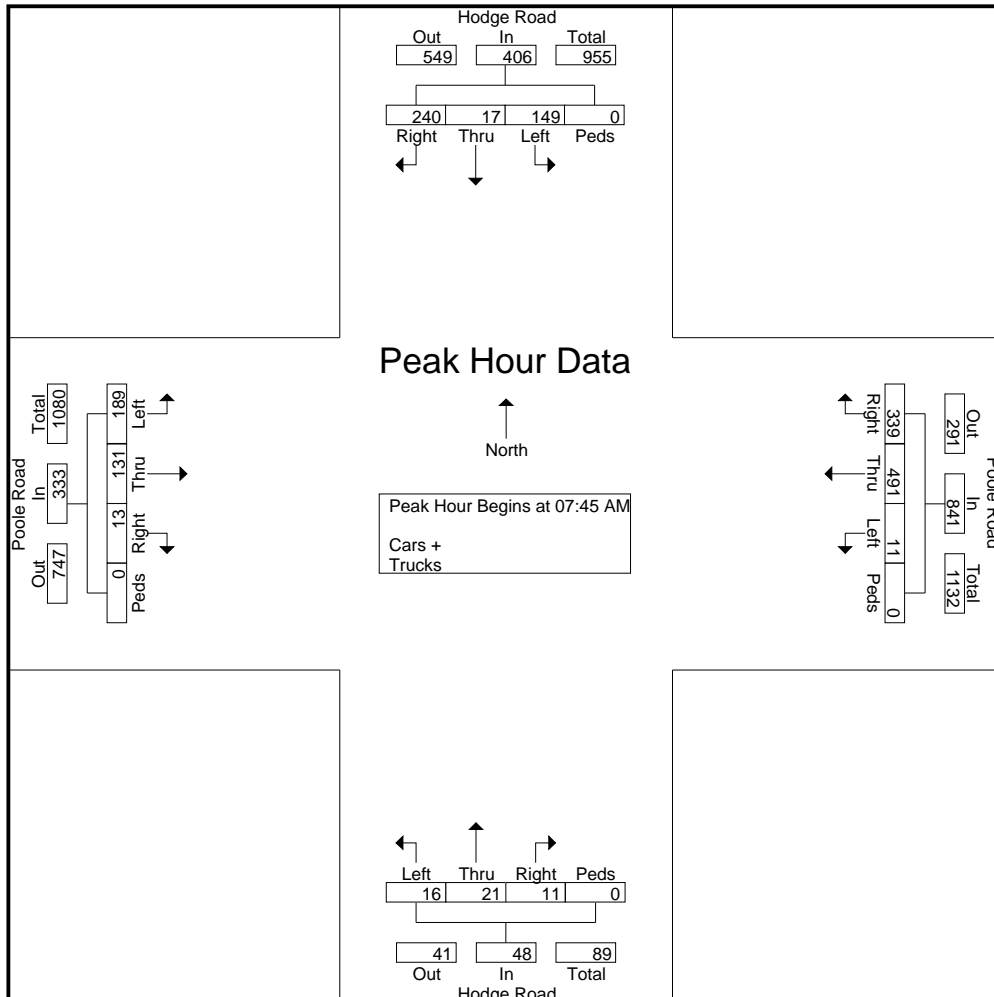
Start Time	Hodge Road Southbound					Poole Road Westbound					Hodge Road Northbound					Poole Road Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	22	3	24	0	49	115	71	0	0	186	1	10	2	0	13	2	13	44	0	59	307
07:15 AM	32	5	35	0	72	109	83	2	0	194	7	9	2	0	18	4	23	41	0	68	352
07:30 AM	41	6	27	0	74	105	104	0	1	210	1	12	5	0	18	2	30	41	0	73	375
07:45 AM	47	5	50	0	102	87	121	4	0	212	4	5	5	0	14	3	33	43	0	79	407
Total	142	19	136	0	297	416	379	6	1	802	13	36	14	0	63	11	99	169	0	279	1441
08:00 AM	62	1	35	0	98	92	136	1	0	229	3	7	5	0	15	4	21	48	0	73	415
08:15 AM	53	7	27	0	87	88	125	5	0	218	3	3	3	0	9	4	22	34	0	60	374
08:30 AM	78	4	37	0	119	72	109	1	0	182	1	6	3	0	10	2	55	64	0	121	432
08:45 AM	63	7	42	0	112	75	93	3	0	171	3	4	7	0	14	1	47	52	0	100	397
Total	256	19	141	0	416	327	463	10	0	800	10	20	18	0	48	11	145	198	0	354	1618
Grand Total	398	38	277	0	713	743	842	16	1	1602	23	56	32	0	111	22	244	367	0	633	3059
Apprch %	55.8	5.3	38.8	0		46.4	52.6	1	0.1		20.7	50.5	28.8	0		3.5	38.5	58	0		
Total %	13	1.2	9.1	0	23.3	24.3	27.5	0.5	0	52.4	0.8	1.8	1	0	3.6	0.7	8	12	0	20.7	
Cars +	394	37	271	0	702	740	839	16	1	1596	23	56	32	0	111	22	243	364	0	629	3038
% Cars +	99	97.4	97.8	0	98.5	99.6	99.6	100	100	99.6	100	100	100	0	100	100	99.6	99.2	0	99.4	99.3
Trucks	4	1	6	0	11	3	3	0	0	6	0	0	0	0	0	0	1	3	0	4	21
% Trucks	1	2.6	2.2	0	1.5	0.4	0.4	0	0	0.4	0	0	0	0	0	0	0.4	0.8	0	0.6	0.7



TRAFFIC DATA COLLECTION

File Name : Knightdale(Poole and Hedge)
 Site Code :
 Start Date : 3/17/2022
 Page No : 2

Start Time	Hodge Road Southbound					Poole Road Westbound					Hodge Road Northbound					Poole Road Eastbound					Int. Total	
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total		
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 07:45 AM																						
07:45 AM	47	5	50	0	102	87	121	4	0	212	4	5	5	0	14	3	33	43	0	79	407	
08:00 AM	62	1	35	0	98	92	136	1	0	229	3	7	5	0	15	4	21	48	0	73	415	
08:15 AM	53	7	27	0	87	88	125	5	0	218	3	3	3	0	9	4	22	34	0	60	374	
08:30 AM	78	4	37	0	119	72	109	1	0	182	1	6	3	0	10	2	55	64	0	121	432	
Total Volume	240	17	149	0	406	339	491	11	0	841	11	21	16	0	48	13	131	189	0	333	1628	
% App. Total	59.1	4.2	36.7	0		40.3	58.4	1.3	0		22.9	43.8	33.3	0		3.9	39.3	56.8	0			
PHF	.769	.607	.745	.000	.853	.921	.903	.550	.000	.918	.688	.750	.800	.000	.800	.813	.595	.738	.000	.688	.942	





TRAFFIC DATA COLLECTION

File Name : Knightdale(Poole and Hedge)
 Site Code :
 Start Date : 3/17/2022
 Page No : 1

Groups Printed- Cars + - Trucks

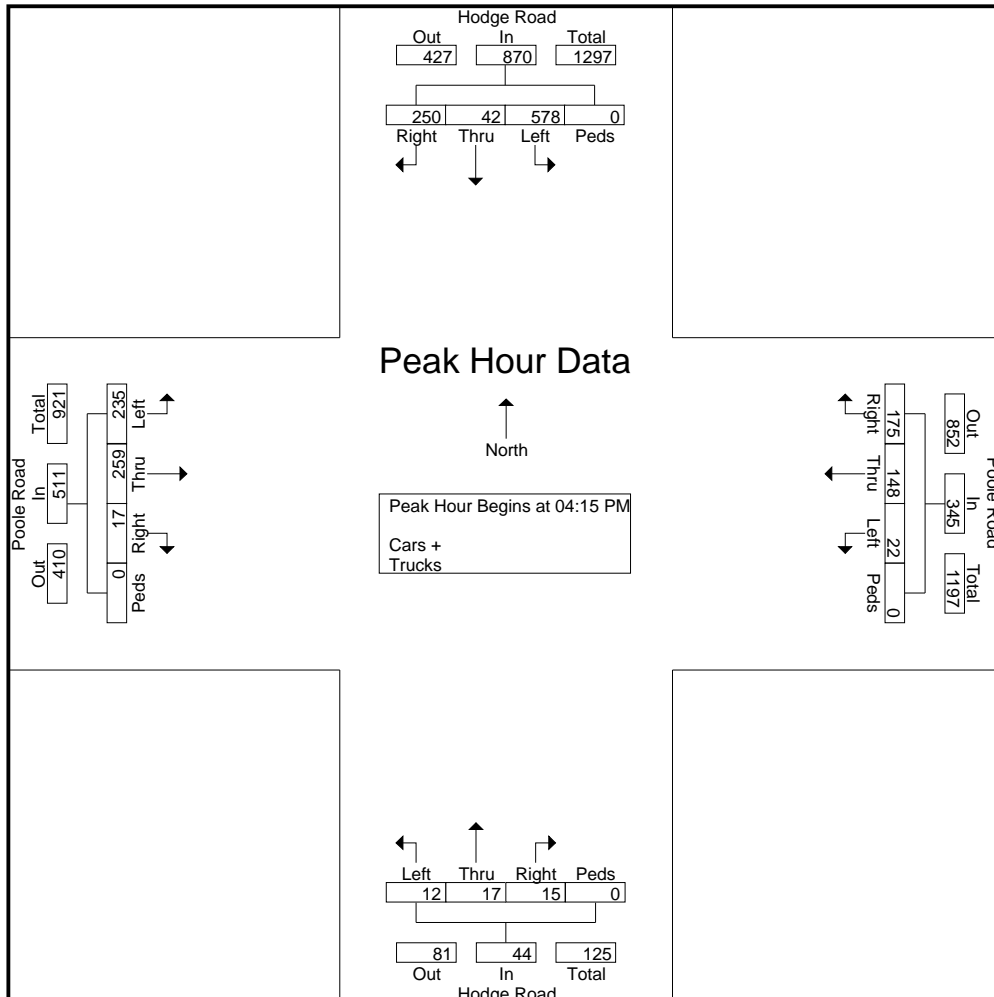
Start Time	Hodge Road Southbound					Poole Road Westbound					Hodge Road Northbound					Poole Road Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
04:00 PM	48	8	113	0	169	39	27	3	1	70	2	5	1	0	8	4	58	54	0	116	363
04:15 PM	60	9	139	0	208	47	31	6	0	84	5	6	1	0	12	5	68	61	0	134	438
04:30 PM	64	9	142	0	215	42	38	4	0	84	4	3	3	0	10	4	69	48	0	121	430
04:45 PM	61	12	131	0	204	41	42	8	0	91	4	3	5	0	12	5	54	68	0	127	434
Total	233	38	525	0	796	169	138	21	1	329	15	17	10	0	42	18	249	231	0	498	1665
05:00 PM	65	12	166	0	243	45	37	4	0	86	2	5	3	0	10	3	68	58	0	129	468
05:15 PM	60	9	132	0	201	42	35	5	0	82	3	2	1	0	6	2	87	49	0	138	427
05:30 PM	54	9	128	0	191	41	27	5	0	73	3	8	2	0	13	5	82	58	0	145	422
05:45 PM	66	8	140	0	214	40	39	2	0	81	3	1	1	0	5	0	73	44	0	117	417
Total	245	38	566	0	849	168	138	16	0	322	11	16	7	0	34	10	310	209	0	529	1734
Grand Total	478	76	1091	0	1645	337	276	37	1	651	26	33	17	0	76	28	559	440	0	1027	3399
Apprch %	29.1	4.6	66.3	0		51.8	42.4	5.7	0.2		34.2	43.4	22.4	0		2.7	54.4	42.8	0		
Total %	14.1	2.2	32.1	0	48.4	9.9	8.1	1.1	0	19.2	0.8	1	0.5	0	2.2	0.8	16.4	12.9	0	30.2	
Cars +	476	76	1087	0	1639	337	274	37	1	649	26	33	17	0	76	28	556	439	0	1023	3387
% Cars +	99.6	100	99.6	0	99.6	100	99.3	100	100	99.7	100	100	100	0	100	100	99.5	99.8	0	99.6	99.6
Trucks	2	0	4	0	6	0	2	0	0	2	0	0	0	0	0	0	3	1	0	4	12
% Trucks	0.4	0	0.4	0	0.4	0	0.7	0	0	0.3	0	0	0	0	0	0	0.5	0.2	0	0.4	0.4



TRAFFIC DATA COLLECTION

File Name : Knightdale(Poole and Hedge)
 Site Code :
 Start Date : 3/17/2022
 Page No : 2

Start Time	Hodge Road Southbound					Poole Road Westbound					Hodge Road Northbound					Poole Road Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	60	9	139	0	208	47	31	6	0	84	5	6	1	0	12	5	68	61	0	134	438
04:30 PM	64	9	142	0	215	42	38	4	0	84	4	3	3	0	10	4	69	48	0	121	430
04:45 PM	61	12	131	0	204	41	42	8	0	91	4	3	5	0	12	5	54	68	0	127	434
05:00 PM	65	12	166	0	243	45	37	4	0	86	2	5	3	0	10	3	68	58	0	129	468
Total Volume	250	42	578	0	870	175	148	22	0	345	15	17	12	0	44	17	259	235	0	511	1770
% App. Total	28.7	4.8	66.4	0		50.7	42.9	6.4	0		34.1	38.6	27.3	0		3.3	50.7	46	0		
PHF	.962	.875	.870	.000	.895	.931	.881	.688	.000	.948	.750	.708	.600	.000	.917	.850	.938	.864	.000	.953	.946





TRAFFIC DATA COLLECTION

File Name : Knightdale(Poole and Smithfield)
 Site Code :
 Start Date : 3/17/2022
 Page No : 1

Groups Printed- Cars + - Trucks

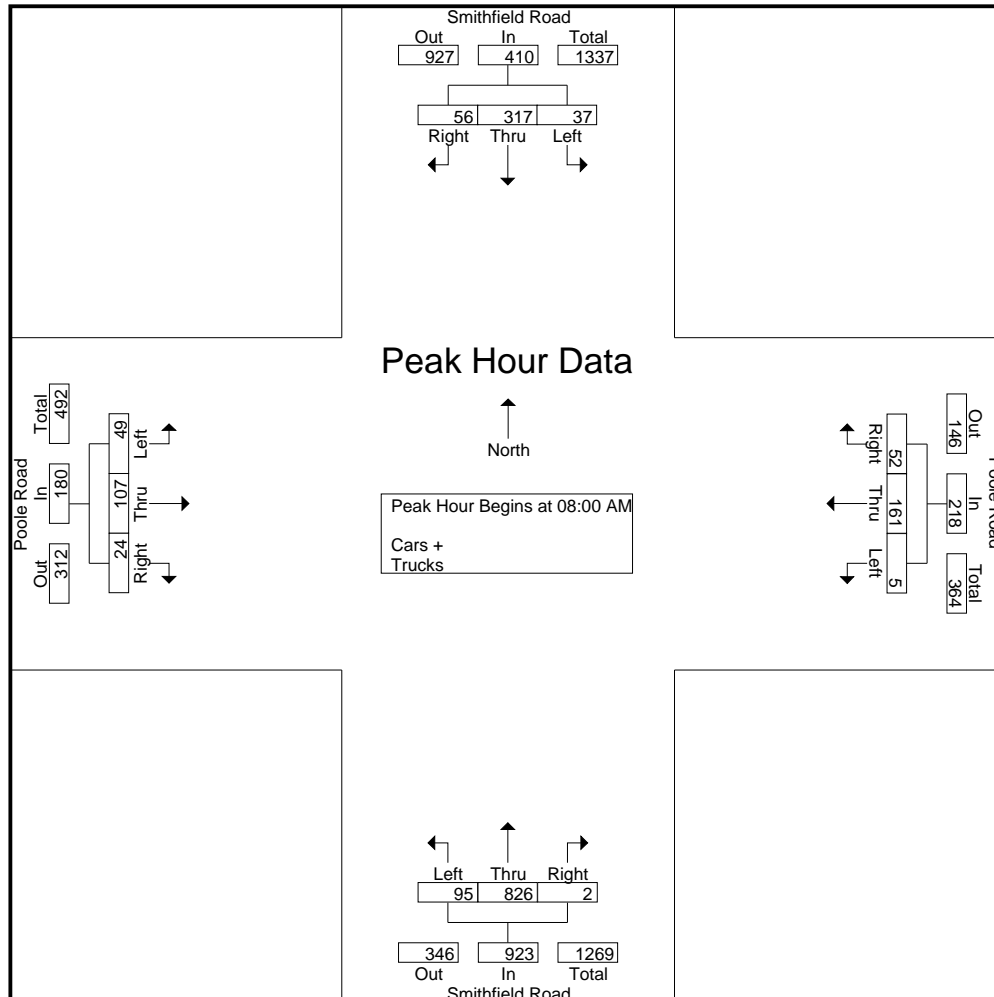
Start Time	Smithfield Road Southbound				Poole Road Westbound				Smithfield Road Northbound				Poole Road Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
07:00 AM	6	52	1	59	5	13	1	19	0	241	2	243	3	13	15	31	352
07:15 AM	7	67	4	78	12	23	0	35	1	230	6	237	8	20	9	37	387
07:30 AM	7	78	5	90	15	44	2	61	0	194	4	198	7	31	6	44	393
07:45 AM	13	79	2	94	5	45	1	51	0	166	41	207	5	31	14	50	402
Total	33	276	12	321	37	125	4	166	1	831	53	885	23	95	44	162	1534
08:00 AM	15	92	7	114	8	47	1	56	0	220	39	259	7	26	11	44	473
08:15 AM	23	72	7	102	9	46	2	57	0	219	16	235	5	9	11	25	419
08:30 AM	6	65	10	81	2	28	2	32	1	201	29	231	8	40	16	64	408
08:45 AM	12	88	13	113	33	40	0	73	1	186	11	198	4	32	11	47	431
Total	56	317	37	410	52	161	5	218	2	826	95	923	24	107	49	180	1731
Grand Total	89	593	49	731	89	286	9	384	3	1657	148	1808	47	202	93	342	3265
Apprch %	12.2	81.1	6.7		23.2	74.5	2.3		0.2	91.6	8.2		13.7	59.1	27.2		
Total %	2.7	18.2	1.5	22.4	2.7	8.8	0.3	11.8	0.1	50.8	4.5	55.4	1.4	6.2	2.8	10.5	
Cars +	81	557	44	682	88	279	9	376	3	1632	148	1783	46	193	88	327	3168
% Cars +	91	93.9	89.8	93.3	98.9	97.6	100	97.9	100	98.5	100	98.6	97.9	95.5	94.6	95.6	97
Trucks	8	36	5	49	1	7	0	8	0	25	0	25	1	9	5	15	97
% Trucks	9	6.1	10.2	6.7	1.1	2.4	0	2.1	0	1.5	0	1.4	2.1	4.5	5.4	4.4	3



TRAFFIC DATA COLLECTION

File Name : Knightdale(Poole and Smithfield)
 Site Code :
 Start Date : 3/17/2022
 Page No : 2

Start Time	Smithfield Road Southbound				Poole Road Westbound				Smithfield Road Northbound				Poole Road Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	15	92	7	114	8	47	1	56	0	220	39	259	7	26	11	44	473
08:15 AM	23	72	7	102	9	46	2	57	0	219	16	235	5	9	11	25	419
08:30 AM	6	65	10	81	2	28	2	32	1	201	29	231	8	40	16	64	408
08:45 AM	12	88	13	113	33	40	0	73	1	186	11	198	4	32	11	47	431
Total Volume	56	317	37	410	52	161	5	218	2	826	95	923	24	107	49	180	1731
% App. Total	13.7	77.3	9		23.9	73.9	2.3		0.2	89.5	10.3		13.3	59.4	27.2		
PHF	.609	.861	.712	.899	.394	.856	.625	.747	.500	.939	.609	.891	.750	.669	.766	.703	.915





TRAFFIC DATA COLLECTION

File Name : Knightdale(Poole and Smithfield)
 Site Code :
 Start Date : 3/17/2022
 Page No : 1

Groups Printed- Cars + - Trucks

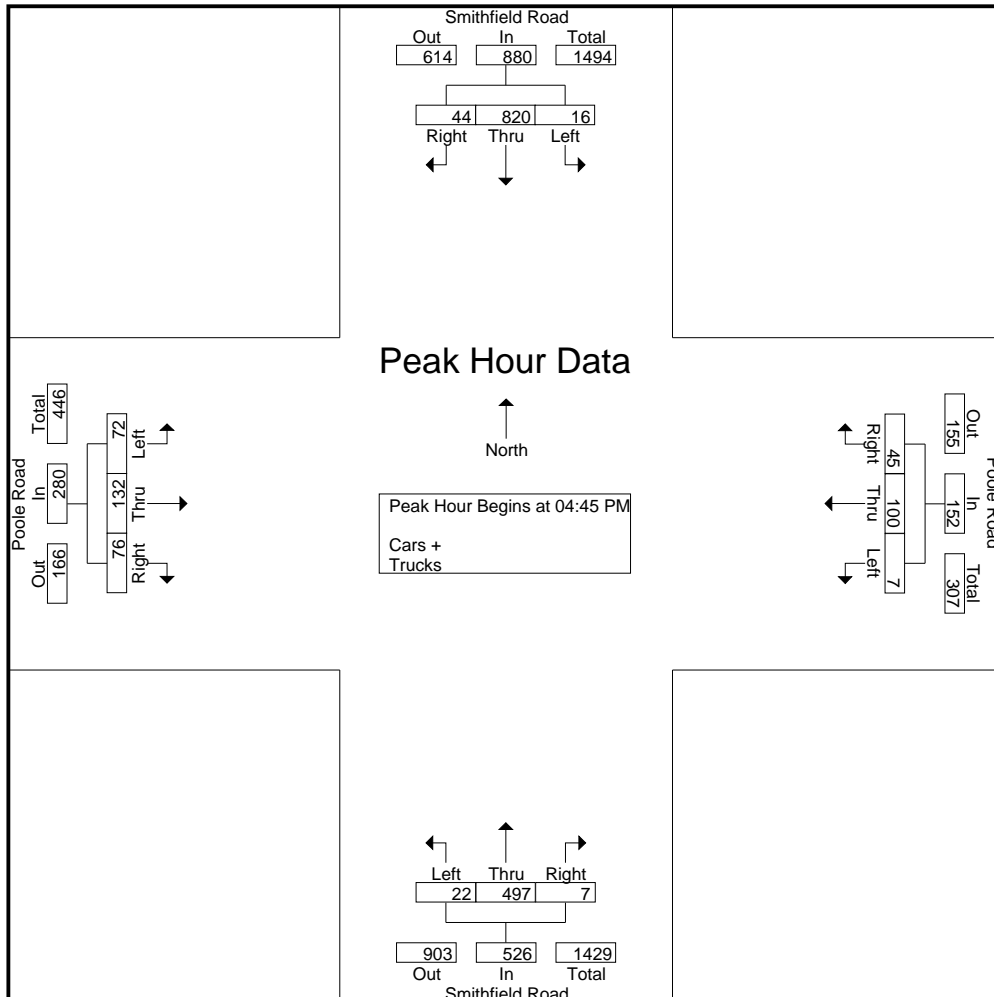
Start Time	Smithfield Road Southbound				Poole Road Westbound				Smithfield Road Northbound				Poole Road Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
04:00 PM	13	171	4	188	32	33	1	66	1	110	2	113	9	30	11	50	417
04:15 PM	10	175	3	188	13	23	1	37	0	120	0	120	8	24	15	47	392
04:30 PM	10	202	4	216	11	27	0	38	0	109	2	111	15	30	16	61	426
04:45 PM	11	216	6	233	11	17	1	29	2	117	7	126	13	35	15	63	451
Total	44	764	17	825	67	100	3	170	3	456	11	470	45	119	57	221	1686
05:00 PM	9	213	4	226	15	29	2	46	2	124	3	129	17	24	18	59	460
05:15 PM	16	198	3	217	8	27	1	36	2	129	5	136	25	36	19	80	469
05:30 PM	8	193	3	204	11	27	3	41	1	127	7	135	21	37	20	78	458
05:45 PM	8	185	5	198	7	24	1	32	1	106	4	111	18	29	20	67	408
Total	41	789	15	845	41	107	7	155	6	486	19	511	81	126	77	284	1795
Grand Total	85	1553	32	1670	108	207	10	325	9	942	30	981	126	245	134	505	3481
Apprch %	5.1	93	1.9		33.2	63.7	3.1		0.9	96	3.1		25	48.5	26.5		
Total %	2.4	44.6	0.9	48	3.1	5.9	0.3	9.3	0.3	27.1	0.9	28.2	3.6	7	3.8	14.5	
Cars +	80	1525	32	1637	107	202	10	319	9	920	28	957	122	239	131	492	3405
% Cars +	94.1	98.2	100	98	99.1	97.6	100	98.2	100	97.7	93.3	97.6	96.8	97.6	97.8	97.4	97.8
Trucks	5	28	0	33	1	5	0	6	0	22	2	24	4	6	3	13	76
% Trucks	5.9	1.8	0	2	0.9	2.4	0	1.8	0	2.3	6.7	2.4	3.2	2.4	2.2	2.6	2.2



TRAFFIC DATA COLLECTION

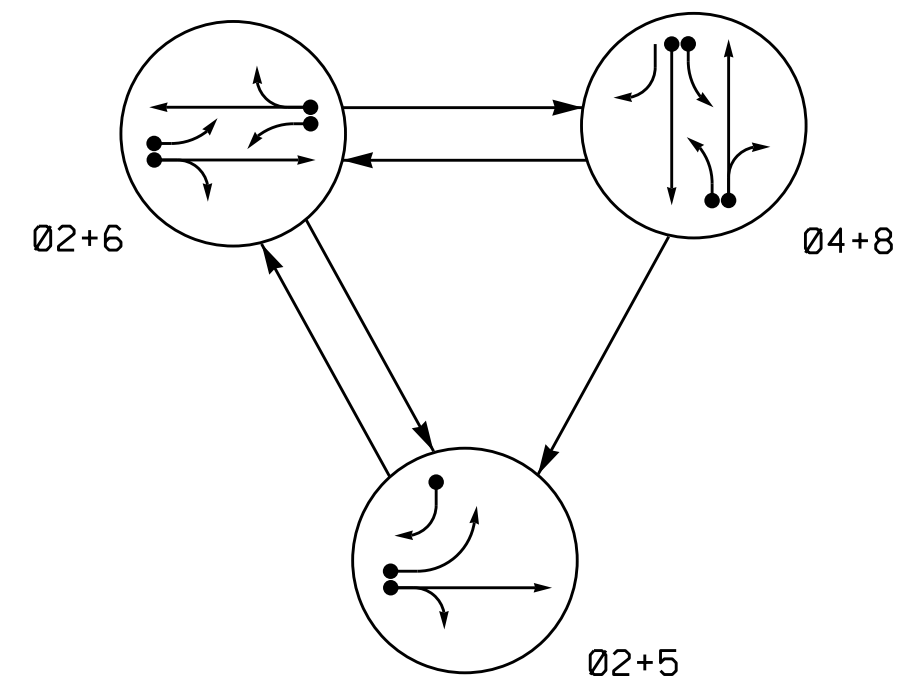
File Name : Knightdale(Poole and Smithfield)
 Site Code :
 Start Date : 3/17/2022
 Page No : 2

Start Time	Smithfield Road Southbound				Poole Road Westbound				Smithfield Road Northbound				Poole Road Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	11	216	6	233	11	17	1	29	2	117	7	126	13	35	15	63	451
05:00 PM	9	213	4	226	15	29	2	46	2	124	3	129	17	24	18	59	460
05:15 PM	16	198	3	217	8	27	1	36	2	129	5	136	25	36	19	80	469
05:30 PM	8	193	3	204	11	27	3	41	1	127	7	135	21	37	20	78	458
Total Volume	44	820	16	880	45	100	7	152	7	497	22	526	76	132	72	280	1838
% App. Total	5	93.2	1.8		29.6	65.8	4.6		1.3	94.5	4.2		27.1	47.1	25.7		
PHF	.688	.949	.667	.944	.750	.862	.583	.826	.875	.963	.786	.967	.760	.892	.900	.875	.980



Appendix C – Traffic Signal Plans

PHASING DIAGRAM



SIGNAL FACE	PHASE			
	02+5	02+6	04+8	F L S A H
21	G	R	Y	
22	G	G	R	Y
41	R	R	G	R
42	R	R	G	R
61, 62	R	G	R	Y
81, 82	R	R	G	R

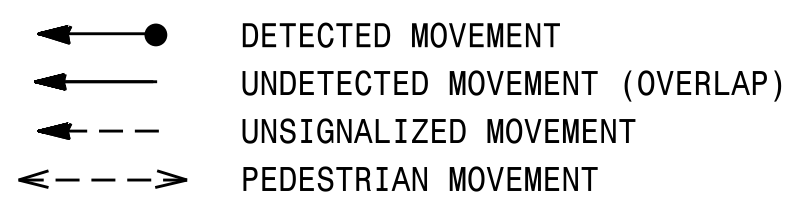
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	DETECTOR PROGRAMMING								
				NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	6x6	300	EXISTING	-	2	Y	Y	-	-	-	-	-
4A	6x40	0	2-4-2	-	4	Y	Y	-	-	-	3	-
4B	6x40	0	2-4-2	-	4	Y	Y	-	-	-	-	-
5A	6x40	0	2-4-2	-	5	Y	Y	-	-	15	-	-
5B	6x40	0	2-4-2	-	5	Y	Y	-	-	15	-	-
6A	6x6	300	EXISTING	-	6	Y	Y	-	-	-	-	-
6B	6x40	0	2-4-2	-	6	Y	Y	-	-	3	-	-
8A	6x40	0	2-4-2	-	8	Y	Y	-	-	3	-	-
8B	6x40	0	2-4-2	-	8	Y	Y	-	-	10	-	-

3 Phase Fully Actuated (Isolated)

NOTES

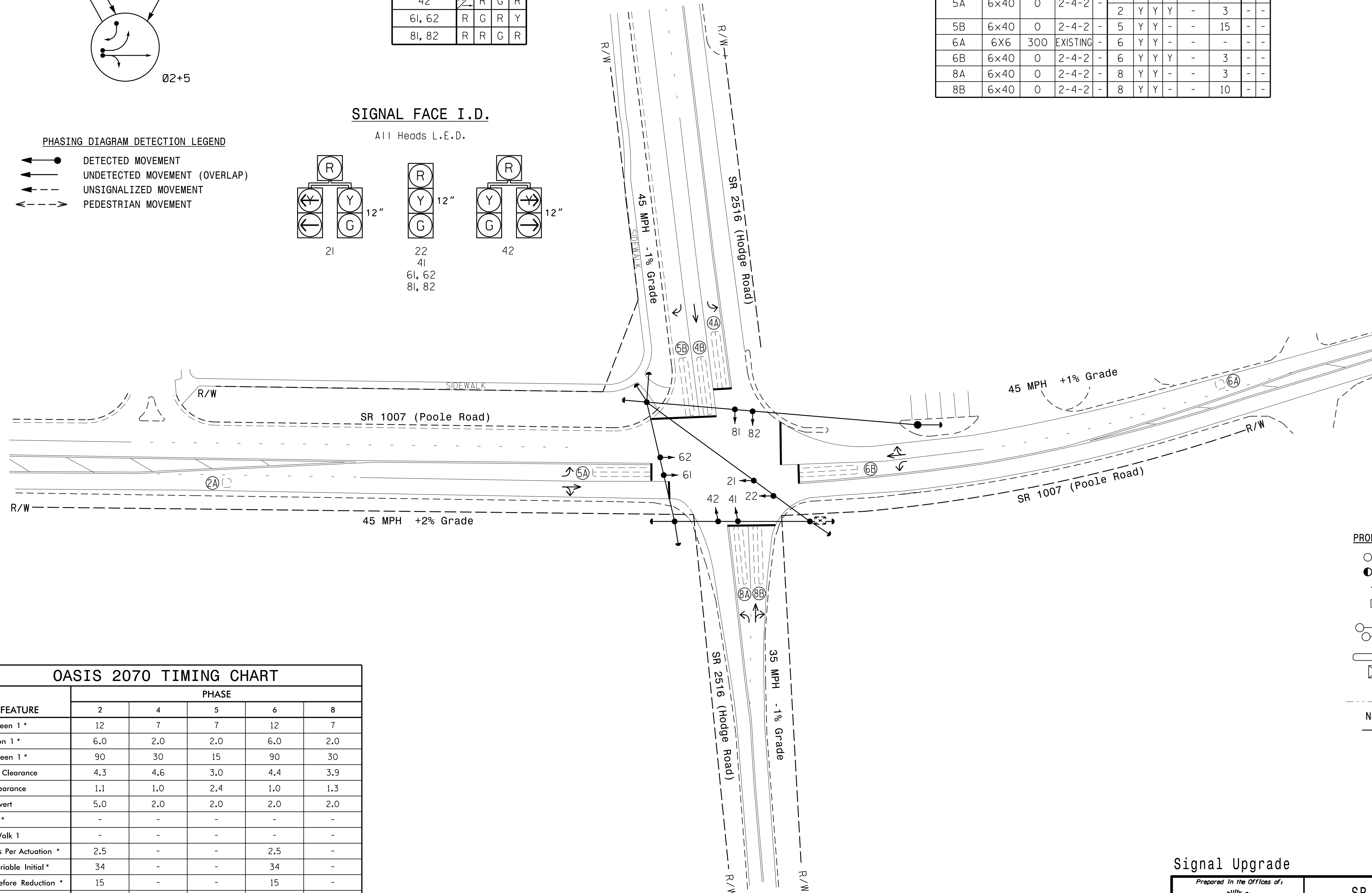
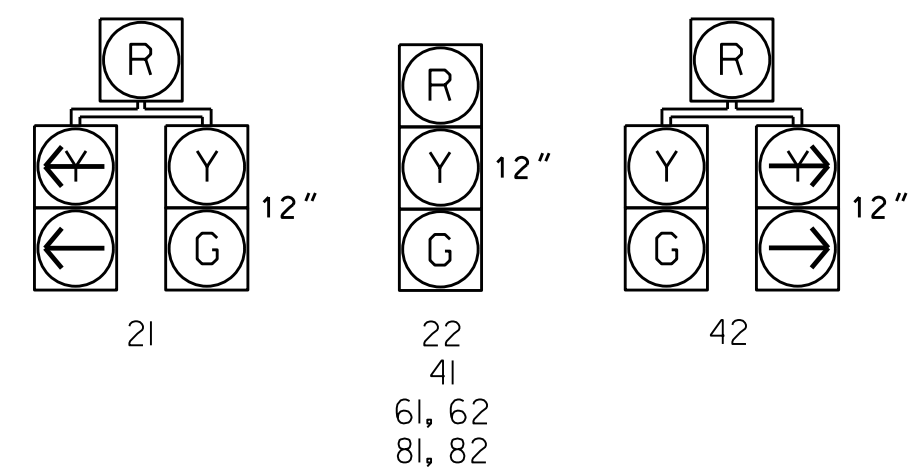
1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Enable Backup Protect for phase 2 to allow the controller to clear from phase 2+6 to phase 2+5 by progressing through an all red display.
4. Set all detector units to presence mode.
5. Pavement markings are existing.

PHASING DIAGRAM DETECTION LEGEND



SIGNAL FACE I.D.

All Heads L.E.D.

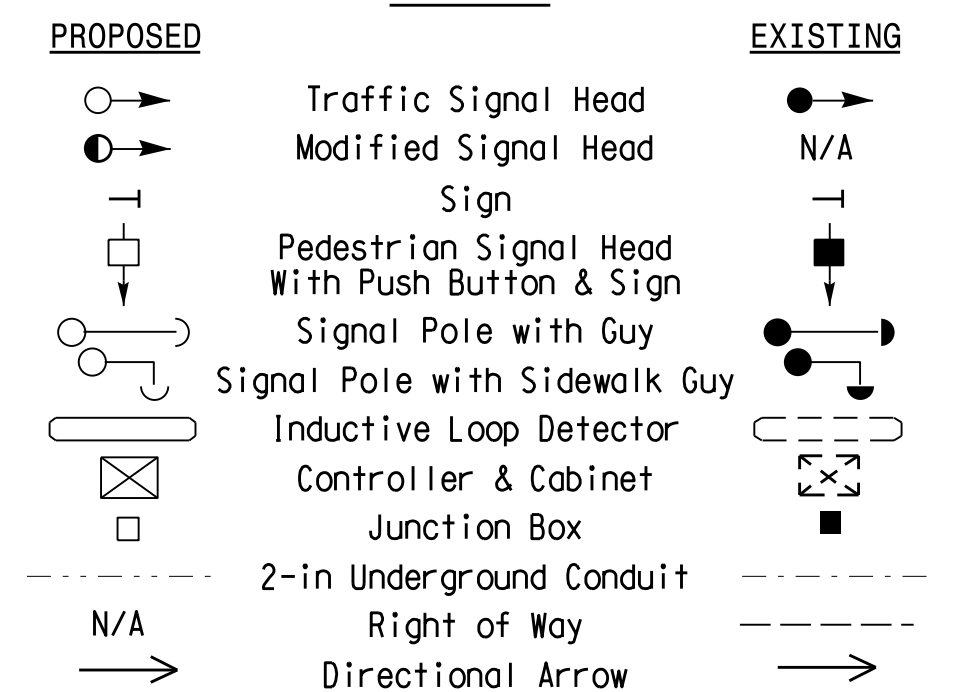


OASIS 2070 TIMING CHART

FEATURE	PHASE				
	2	4	5	6	8
Min Green 1 *	12	7	7	12	7
Extension 1 *	6.0	2.0	2.0	6.0	2.0
Max Green 1 *	90	30	15	90	30
Yellow Clearance	4.3	4.6	3.0	4.4	3.9
Red Clearance	1.1	1.0	2.4	1.0	1.3
Red Revert	5.0	2.0	2.0	2.0	2.0
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 *	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	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



Signal Upgrade

Prepared in the Offices of:

 750 N. Greenleaf Pkwy, Garner, NC 27529

SR 1007 (Poole Road) at SR 2516 (Hodge Road)

Division 5 Wake County Knightdale

PLAN DATE: October 2020 REVIEWED BY: [Signature]
 PREPARED BY: C.E. Carter REVIEWED BY: [Signature]

REVISIONS: [Table with columns for REVISIONS, INIT., DATE]

SCALE: 1" = 40'

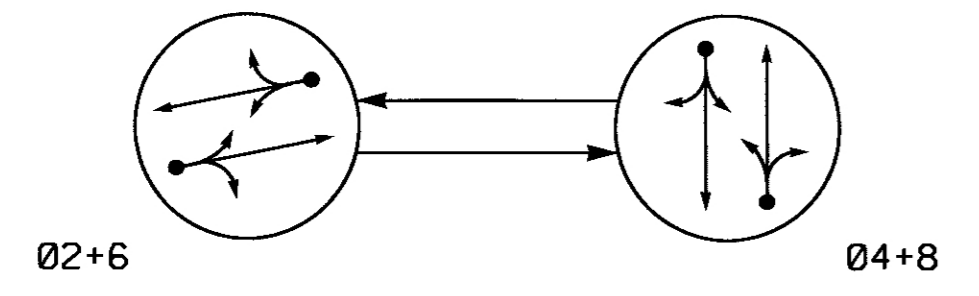
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER ROBERT J. ZIEMBA 026486

11/18/2020

SIG. INVENTORY NO. 05-0977

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

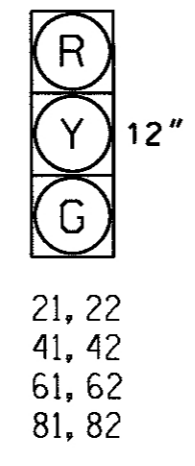
- ←●→ DETECTED MOVEMENT
- ←○→ UNDETECTED MOVEMENT (OVERLAP)
- ←---→ UNSIGNALIZED MOVEMENT
- ←- - -> PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE		
	02+6	04+8	FLUSH
21, 22	G	R	Y
41, 42	R	G	R
61, 62	G	R	Y
81, 82	R	G	R

SIGNAL FACE I.D.

All Heads L.E.D.



OASIS 2070L LOOP & DETECTOR INSTALLATION CHART

LOOP	INDUCTIVE LOOPS				DETECTOR PROGRAMMING							
	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	6X6	420	6	Y	2	Y	Y	-	-	-	-	Y
2B	6X60	+5	2-4-2	-	2	Y	Y	Y	2.0	5.0	-	-
4A	6X6	420	EXIST	-	4	-	Y	-	-	-	-	-
4B	6X40	+5	2-4-2	-	4	Y	Y	Y	2.0	5.0	-	-
6A	6X6	420	6	Y	6	Y	Y	-	-	-	-	Y
6B	6X60	+5	2-4-2	-	6	Y	Y	Y	2.0	5.0	-	-
8A	6X6	420	EXIST	-	8	-	Y	-	-	-	-	-
8B	6X40	0	2-4-2	Y	8	Y	Y	Y	2.0	5.0	-	Y

2 Phase Fully Actuated (Isolated)

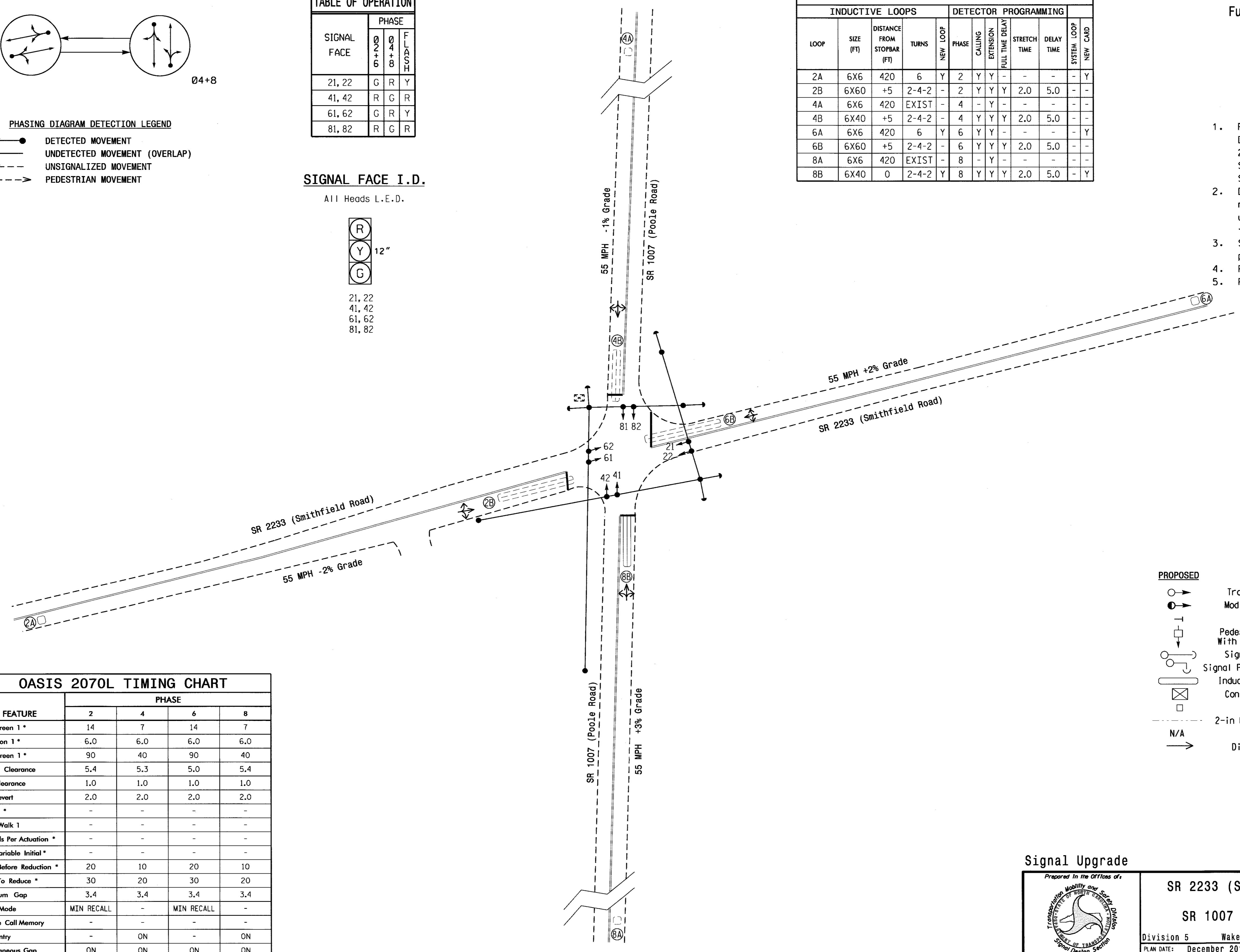
NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. Pavement markings are existing.
5. Rewire phases in cabinet as shown.

OASIS 2070L TIMING CHART

FEATURE	PHASE			
	2	4	6	8
Min Green 1 *	14	7	14	7
Extension 1 *	6.0	6.0	6.0	6.0
Max Green 1 *	90	40	90	40
Yellow Clearance	5.4	5.3	5.0	5.4
Red Clearance	1.0	1.0	1.0	1.0
Red Revert	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	-	-	-	-
Max Variable Initial *	-	-	-	-
Time Before Reduction *	20	10	20	10
Time To Reduce *	30	20	30	20
Minimum Gap	3.4	3.4	3.4	3.4
Recall Mode	MIN RECALL	-	MIN RECALL	-
Vehicle Call Memory	-	-	-	-
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	- - - Right of Way
→ Directional Arrow	→ Directional Arrow

Signal Upgrade

	SR 2233 (Smithfield Road) at SR 1007 (Poole Road)		
	Division 5 Wake County E. of Raleigh PLAN DATE: December 2012 REVIEWED BY:	PREPARED BY: C. J. Collins REVIEWED BY:	
750 N. Greenfield Pkwy, Garner, NC 27529	INIT. DATE	INIT. DATE	DATE: 2/1/13 SIG. INVENTORY NO. 05-1361

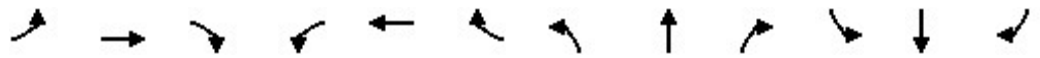
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Appendix D – Synchro Outputs

2022 Existing Traffic Volumes

Poole Rd Martin TIA
1: Hodge Rd & Poole Rd

04/05/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	189	131	13	11	491	339	16	21	11	149	17	240
Future Volume (vph)	189	131	13	11	491	339	16	21	11	149	17	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			-1%			-1%	
Storage Length (ft)	225		0	175		0	50		0	450		825
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t		0.987			0.939			0.949				0.850
Fl _t Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1820	0	1761	1740	0	1778	1777	0	1778	1872	1591
Fl _t Permitted	0.099			0.656			0.745			0.734		
Satd. Flow (perm)	183	1820	0	1216	1740	0	1395	1777	0	1374	1872	1591
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		839			1354			1147			722	
Travel Time (s)		12.7			20.5			22.3			10.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	210	146	14	12	546	377	18	23	12	166	19	267
Shared Lane Traffic (%)												
Lane Group Flow (vph)	210	160	0	12	923	0	18	35	0	166	19	267
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	12.4	22.5		22.5	22.5		22.5	22.5		22.5	22.5	12.4
Total Split (s)	15.0	90.0		90.0	90.0		30.0	30.0		30.0	30.0	15.0
Total Split (%)	11.1%	66.7%		66.7%	66.7%		22.2%	22.2%		22.2%	22.2%	11.1%
Maximum Green (s)	9.6	84.6		84.6	84.6		24.8	24.8		24.4	24.4	9.6
Yellow Time (s)	3.0	4.3		4.4	4.4		3.9	3.9		4.6	4.6	3.0
All-Red Time (s)	2.4	1.1		1.0	1.0		1.3	1.3		1.0	1.0	2.4
Lost Time Adjust (s)	-0.4	-0.4		-0.4	-0.4		-0.2	-0.2		-0.6	-0.6	-0.4
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Vehicle Extension (s)	2.0	6.0		6.0	6.0		2.0	2.0		2.0	2.0	2.0
Minimum Gap (s)	2.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	2.0

Poole Rd Martin TIA
1: Hodge Rd & Poole Rd

04/05/2022

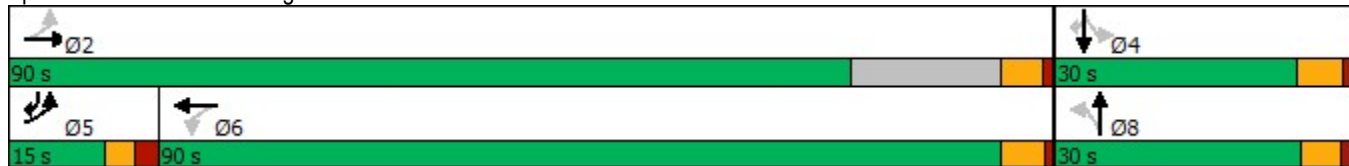


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Time Before Reduce (s)	0.0	15.0		15.0	15.0		0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	0.0	30.0		30.0	30.0		0.0	0.0		0.0	0.0	0.0
Recall Mode	None	Min		Min	Min		None	None		None	None	None
Act Effct Green (s)	76.2	76.2		60.3	60.3		17.6	17.6		17.6	17.6	33.5
Actuated g/C Ratio	0.73	0.73		0.58	0.58		0.17	0.17		0.17	0.17	0.32
v/c Ratio	0.72	0.12		0.02	0.92		0.08	0.12		0.72	0.06	0.52
Control Delay	30.6	4.7		9.5	34.7		43.7	43.3		63.3	43.1	37.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	30.6	4.7		9.5	34.7		43.7	43.3		63.3	43.1	37.3
LOS	C	A		A	C		D	D		E	D	D
Approach Delay		19.4			34.3			43.4			47.1	
Approach LOS		B			C			D			D	
Queue Length 50th (ft)	51	27		3	507		10	20		106	11	146
Queue Length 95th (ft)	#118	56		12	836		37	58		219	37	293
Internal Link Dist (ft)		759			1274			1067			642	
Turn Bay Length (ft)	225			175			50			450		825
Base Capacity (vph)	293	1628		993	1420		356	453		350	478	511
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.72	0.10		0.01	0.65		0.05	0.08		0.47	0.04	0.52

Intersection Summary

Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 104.5
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 34.7
 Intersection LOS: C
 Intersection Capacity Utilization 84.4%
 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.

Splits and Phases: 1: Hodge Rd & Poole Rd



Poole Rd Martin TIA
2: Bethlehem Rd & Poole Rd

04/05/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	21	81	4	47	322	51	20	249	39	24	171	42
Future Volume (vph)	21	81	4	47	322	51	20	249	39	24	171	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			2%			-2%			3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.984			0.983			0.976	
Flt Protected		0.990			0.994			0.997			0.995	
Satd. Flow (prot)	0	1798	0	0	1804	0	0	1844	0	0	1782	0
Flt Permitted		0.878			0.955			0.965			0.930	
Satd. Flow (perm)	0	1595	0	0	1733	0	0	1785	0	0	1665	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			45	
Link Distance (ft)		1637			1700			1025			956	
Travel Time (s)		20.3			21.1			12.7			14.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	23	90	4	52	358	57	22	277	43	27	190	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	117	0	0	467	0	0	342	0	0	264	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.03	1.03	1.03	1.01	1.01	1.01	0.99	0.99	0.99	1.02	1.02	1.02
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	21.3	21.3		21.4	21.4		15.0	15.0		15.0	15.0	
Total Split (s)	120.0	120.0		120.0	120.0		15.0	15.0		15.0	15.0	
Total Split (%)	88.9%	88.9%		88.9%	88.9%		11.1%	11.1%		11.1%	11.1%	
Maximum Green (s)	114.2	114.2		114.0	114.0		8.6	8.6		8.7	8.7	
Yellow Time (s)	4.8	4.8		5.0	5.0		5.4	5.4		5.3	5.3	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-0.8			-1.0			-1.4			-1.3	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0		1.0	1.0		1.0	1.0	
Minimum Gap (s)	3.2	3.2		3.2	3.2		1.0	1.0		1.0	1.0	
Time Before Reduce (s)	15.0	15.0		15.0	15.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	45.0	45.0		45.0	45.0		0.0	0.0		0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	

Poole Rd Martin TIA
 2: Bethlehem Rd & Poole Rd

04/05/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		16.6			16.6			10.0			10.0	
Actuated g/C Ratio		0.45			0.45			0.27			0.27	
v/c Ratio		0.16			0.59			0.70			0.58	
Control Delay		6.5			11.3			23.7			18.9	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		6.5			11.3			23.7			18.9	
LOS		A			B			C			B	
Approach Delay		6.5			11.3			23.7			18.9	
Approach LOS		A			B			C			B	
Queue Length 50th (ft)		12			62			59			44	
Queue Length 95th (ft)		30			121			#165			#123	
Internal Link Dist (ft)		1557			1620			945			876	
Turn Bay Length (ft)												
Base Capacity (vph)		1595			1733			487			455	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.07			0.27			0.70			0.58	

Intersection Summary

Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 36.6
 Natural Cycle: 40
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.70
 Intersection Signal Delay: 16.1
 Intersection LOS: B
 Intersection Capacity Utilization 54.6%
 ICU Level of Service A
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 2: Bethlehem Rd & Poole Rd

	120 s		15 s
	120 s		15 s

Poole Rd Martin TIA
5: Smithfield Rd & Poole Rd

04/05/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	49	107	24	5	161	52	95	826	4	37	317	56
Future Volume (vph)	49	107	24	5	161	52	95	826	4	37	317	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-1%			-2%			2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.982			0.968			0.999			0.982	
Flt Protected		0.987			0.999			0.995			0.996	
Satd. Flow (prot)	0	1778	0	0	1810	0	0	1870	0	0	1804	0
Flt Permitted		0.708			0.992			0.900			0.856	
Satd. Flow (perm)	0	1276	0	0	1798	0	0	1692	0	0	1550	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		4706			2490			978			962	
Travel Time (s)		58.3			30.9			12.1			11.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	54	119	27	6	179	58	106	918	4	41	352	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	200	0	0	243	0	0	1028	0	0	455	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.02	1.02	1.02	0.99	0.99	0.99	0.99	0.99	0.99	1.01	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		14.0	14.0		14.0	14.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.4	20.4		20.0	20.0	
Total Split (s)	40.0	40.0		40.0	40.0		90.0	90.0		90.0	90.0	
Total Split (%)	30.8%	30.8%		30.8%	30.8%		69.2%	69.2%		69.2%	69.2%	
Maximum Green (s)	33.7	33.7		33.6	33.6		83.6	83.6		84.0	84.0	
Yellow Time (s)	5.3	5.3		5.4	5.4		5.4	5.4		5.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-1.3			-1.4			-1.4			-1.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Gap (s)	3.4	3.4		3.4	3.4		3.4	3.4		3.4	3.4	
Time Before Reduce (s)	10.0	10.0		10.0	10.0		20.0	20.0		20.0	20.0	
Time To Reduce (s)	20.0	20.0		20.0	20.0		30.0	30.0		30.0	30.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	

Poole Rd Martin TIA
5: Smithfield Rd & Poole Rd

04/05/2022

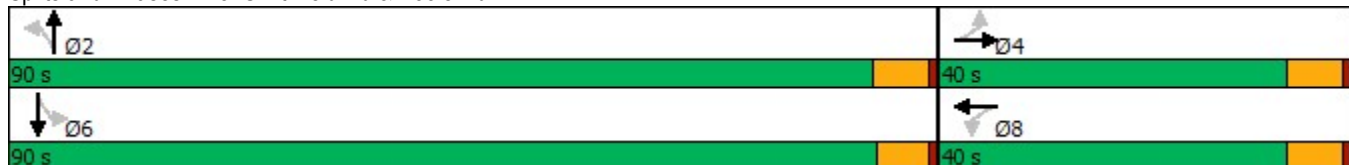


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		26.1			26.1			78.1			78.1	
Actuated g/C Ratio		0.23			0.23			0.68			0.68	
v/c Ratio		0.69			0.59			0.89			0.43	
Control Delay		55.0			47.1			27.3			10.3	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		55.0			47.1			27.3			10.3	
LOS		D			D			C			B	
Approach Delay		55.0			47.1			27.3			10.3	
Approach LOS		D			D			C			B	
Queue Length 50th (ft)		147			174			557			137	
Queue Length 95th (ft)		232			259			#1089			249	
Internal Link Dist (ft)		4626			2410			898			882	
Turn Bay Length (ft)												
Base Capacity (vph)		400			564			1284			1176	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.50			0.43			0.80			0.39	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 114.4
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 28.6 Intersection LOS: C
 Intersection Capacity Utilization 101.1% ICU Level of Service G
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 5: Smithfield Rd & Poole Rd



Poole Rd Martin TIA
1: Hodge Rd & Poole Rd

04/05/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	235	259	17	22	148	175	12	17	15	578	42	250
Future Volume (vph)	235	259	17	22	148	175	12	17	15	578	42	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			-1%				-1%
Storage Length (ft)	225		0	175		0	50		0	450		825
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991			0.919			0.929				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1828	0	1761	1703	0	1778	1739	0	1778	1872	1591
Flt Permitted	0.262			0.573			0.726			0.734		
Satd. Flow (perm)	483	1828	0	1062	1703	0	1359	1739	0	1374	1872	1591
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35				45
Link Distance (ft)		839			1354			1147				722
Travel Time (s)		12.7			20.5			22.3				10.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	261	288	19	24	164	194	13	19	17	642	47	278
Shared Lane Traffic (%)												
Lane Group Flow (vph)	261	307	0	24	358	0	13	36	0	642	47	278
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	12.4	22.5		22.5	22.5		22.5	22.5		22.5	22.5	12.4
Total Split (s)	15.0	90.0		90.0	90.0		30.0	30.0		30.0	30.0	15.0
Total Split (%)	11.1%	66.7%		66.7%	66.7%		22.2%	22.2%		22.2%	22.2%	11.1%
Maximum Green (s)	9.6	84.6		84.6	84.6		24.8	24.8		24.4	24.4	9.6
Yellow Time (s)	3.0	4.3		4.4	4.4		3.9	3.9		4.6	4.6	3.0
All-Red Time (s)	2.4	1.1		1.0	1.0		1.3	1.3		1.0	1.0	2.4
Lost Time Adjust (s)	-0.4	-0.4		-0.4	-0.4		-0.2	-0.2		-0.6	-0.6	-0.4
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Vehicle Extension (s)	2.0	6.0		6.0	6.0		2.0	2.0		2.0	2.0	2.0
Minimum Gap (s)	2.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	2.0

Poole Rd Martin TIA
1: Hodge Rd & Poole Rd

04/05/2022

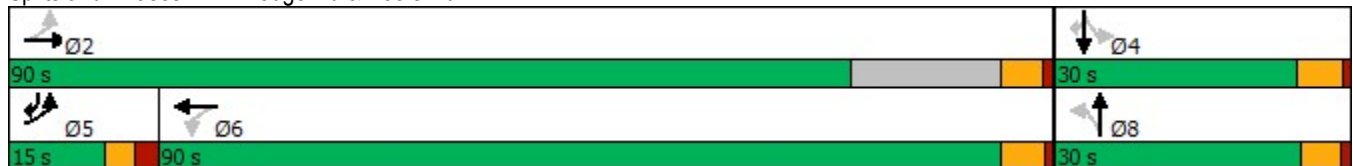


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Time Before Reduce (s)	0.0	15.0		15.0	15.0		0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	0.0	30.0		30.0	30.0		0.0	0.0		0.0	0.0	0.0
Recall Mode	None	Min		Min	Min		None	None		None	None	None
Act Effct Green (s)	33.9	33.9		18.9	18.9		25.1	25.1		25.1	25.1	40.1
Actuated g/C Ratio	0.49	0.49		0.27	0.27		0.36	0.36		0.36	0.36	0.58
v/c Ratio	0.62	0.34		0.08	0.77		0.03	0.06		1.29	0.07	0.30
Control Delay	17.3	11.7		18.5	34.7		16.5	16.4		167.9	16.5	9.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	17.3	11.7		18.5	34.7		16.5	16.4		167.9	16.5	9.4
LOS	B	B		B	C		B	B		F	B	A
Approach Delay		14.3			33.6			16.5			115.0	
Approach LOS		B			C			B			F	
Queue Length 50th (ft)	62	74		8	139		4	10		~354	13	54
Queue Length 95th (ft)	105	122		24	226		16	31		#608	37	118
Internal Link Dist (ft)		759			1274			1067			642	
Turn Bay Length (ft)	225			175			50			450		825
Base Capacity (vph)	421	1828		1062	1703		494	632		499	680	925
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.62	0.17		0.02	0.21		0.03	0.06		1.29	0.07	0.30

Intersection Summary

Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 69
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.29
 Intersection Signal Delay: 67.6
 Intersection LOS: E
 Intersection Capacity Utilization 82.7%
 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.

Splits and Phases: 1: Hodge Rd & Poole Rd



Poole Rd Martin TIA
2: Bethlehem Rd & Poole Rd

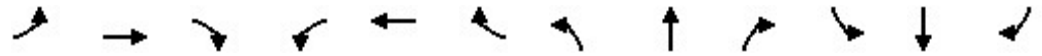
04/05/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	30	272	13	40	99	52	4	163	43	81	280	39
Future Volume (vph)	30	272	13	40	99	52	4	163	43	81	280	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			2%			-2%			3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.963			0.972			0.987	
Flt Protected		0.995			0.990			0.999			0.990	
Satd. Flow (prot)	0	1807	0	0	1758	0	0	1827	0	0	1793	0
Flt Permitted		0.956			0.873			0.989			0.895	
Satd. Flow (perm)	0	1736	0	0	1550	0	0	1809	0	0	1621	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			45	
Link Distance (ft)		1637			1700			1025			956	
Travel Time (s)		20.3			21.1			12.7			14.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	33	302	14	44	110	58	4	181	48	90	311	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	349	0	0	212	0	0	233	0	0	444	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.03	1.03	1.03	1.01	1.01	1.01	0.99	0.99	0.99	1.02	1.02	1.02
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	21.3	21.3		21.4	21.4		15.0	15.0		15.0	15.0	
Total Split (s)	120.0	120.0		120.0	120.0		15.0	15.0		15.0	15.0	
Total Split (%)	88.9%	88.9%		88.9%	88.9%		11.1%	11.1%		11.1%	11.1%	
Maximum Green (s)	114.2	114.2		114.0	114.0		8.6	8.6		8.7	8.7	
Yellow Time (s)	4.8	4.8		5.0	5.0		5.4	5.4		5.3	5.3	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-0.8			-1.0			-1.4			-1.3	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0		1.0	1.0		1.0	1.0	
Minimum Gap (s)	3.2	3.2		3.2	3.2		1.0	1.0		1.0	1.0	
Time Before Reduce (s)	15.0	15.0		15.0	15.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	45.0	45.0		45.0	45.0		0.0	0.0		0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	

Poole Rd Martin TIA
 2: Bethlehem Rd & Poole Rd

04/05/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		16.0			16.0			10.0			10.0	
Actuated g/C Ratio		0.44			0.44			0.28			0.28	
v/c Ratio		0.45			0.31			0.46			0.99	
Control Delay		9.3			8.0			14.4			59.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		9.3			8.0			14.4			59.2	
LOS		A			A			B			E	
Approach Delay		9.3			8.0			14.4			59.2	
Approach LOS		A			A			B			E	
Queue Length 50th (ft)		43			24			37			85	
Queue Length 95th (ft)		84			52			77			#210	
Internal Link Dist (ft)		1557			1620			945			876	
Turn Bay Length (ft)												
Base Capacity (vph)		1736			1550			502			450	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.20			0.14			0.46			0.99	

Intersection Summary

Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 36
 Natural Cycle: 50
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.99
 Intersection Signal Delay: 27.9
 Intersection LOS: C
 Intersection Capacity Utilization 64.6%
 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: 2: Bethlehem Rd & Poole Rd

	120 s		15 s
	120 s		15 s

Poole Rd Martin TIA
5: Smithfield Rd & Poole Rd

04/05/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	72	132	76	7	100	45	22	497	7	16	820	44
Future Volume (vph)	72	132	76	7	100	45	22	497	7	16	820	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-1%			-2%			2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.964			0.960			0.998			0.993	
Flt Protected		0.987			0.998			0.998			0.999	
Satd. Flow (prot)	0	1746	0	0	1794	0	0	1874	0	0	1829	0
Flt Permitted		0.825			0.980			0.942			0.986	
Satd. Flow (perm)	0	1459	0	0	1761	0	0	1769	0	0	1806	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		4706			2490			978			962	
Travel Time (s)		58.3			30.9			12.1			11.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	80	147	84	8	111	50	24	552	8	18	911	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	311	0	0	169	0	0	584	0	0	978	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.02	1.02	1.02	0.99	0.99	0.99	0.99	0.99	0.99	1.01	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		14.0	14.0		14.0	14.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.4	20.4		20.0	20.0	
Total Split (s)	40.0	40.0		40.0	40.0		90.0	90.0		90.0	90.0	
Total Split (%)	30.8%	30.8%		30.8%	30.8%		69.2%	69.2%		69.2%	69.2%	
Maximum Green (s)	33.7	33.7		33.6	33.6		83.6	83.6		84.0	84.0	
Yellow Time (s)	5.3	5.3		5.4	5.4		5.4	5.4		5.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-1.3			-1.4			-1.4			-1.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Gap (s)	3.4	3.4		3.4	3.4		3.4	3.4		3.4	3.4	
Time Before Reduce (s)	10.0	10.0		10.0	10.0		20.0	20.0		20.0	20.0	
Time To Reduce (s)	20.0	20.0		20.0	20.0		30.0	30.0		30.0	30.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	

Poole Rd Martin TIA
5: Smithfield Rd & Poole Rd

04/05/2022

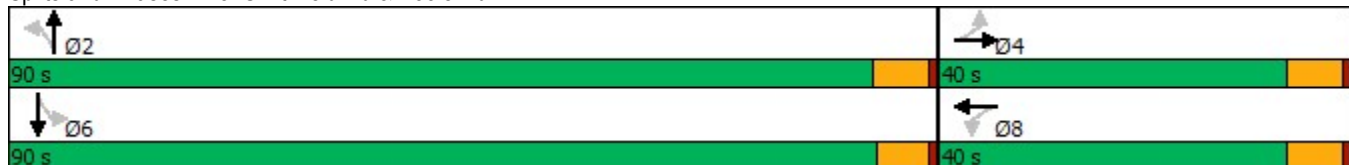


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)		31.3			31.3			73.0			73.0	
Actuated g/C Ratio		0.27			0.27			0.64			0.64	
v/c Ratio		0.78			0.35			0.52			0.85	
Control Delay		55.9			38.6			13.3			25.5	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		55.9			38.6			13.3			25.5	
LOS		E			D			B			C	
Approach Delay		55.9			38.6			13.3			25.5	
Approach LOS		E			D			B			C	
Queue Length 50th (ft)		237			112			236			578	
Queue Length 95th (ft)		#388			184			325			807	
Internal Link Dist (ft)		4626			2410			898			882	
Turn Bay Length (ft)												
Base Capacity (vph)		462			557			1332			1360	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.67			0.30			0.44			0.72	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 114.7
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 27.7
 Intersection LOS: C
 Intersection Capacity Utilization 88.1%
 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.

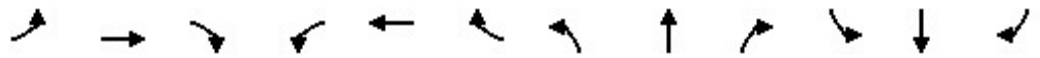
Splits and Phases: 5: Smithfield Rd & Poole Rd



2026 Background Traffic Volumes

Poole Rd Martin TIA
1: Hodge Rd & Poole Rd

04/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	213	147	15	12	555	382	18	24	12	168	19	270
Future Volume (vph)	213	147	15	12	555	382	18	24	12	168	19	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			-1%			-1%	
Storage Length (ft)	225		0	175		0	50		0	450		825
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.986			0.939			0.951			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1818	0	1761	1740	0	1778	1780	0	1778	1872	1591
Flt Permitted	0.066			0.644			0.744			0.731		
Satd. Flow (perm)	122	1818	0	1194	1740	0	1393	1780	0	1368	1872	1591
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		839			1354			1147			722	
Travel Time (s)		12.7			20.5			22.3			10.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	237	163	17	13	617	424	20	27	13	187	21	300
Shared Lane Traffic (%)												
Lane Group Flow (vph)	237	180	0	13	1041	0	20	40	0	187	21	300
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	12.4	22.5		22.5	22.5		22.5	22.5		22.5	22.5	12.4
Total Split (s)	15.0	90.0		90.0	90.0		30.0	30.0		30.0	30.0	15.0
Total Split (%)	11.1%	66.7%		66.7%	66.7%		22.2%	22.2%		22.2%	22.2%	11.1%
Maximum Green (s)	9.6	84.6		84.6	84.6		24.8	24.8		24.4	24.4	9.6
Yellow Time (s)	3.0	4.3		4.4	4.4		3.9	3.9		4.6	4.6	3.0
All-Red Time (s)	2.4	1.1		1.0	1.0		1.3	1.3		1.0	1.0	2.4
Lost Time Adjust (s)	-0.4	-0.4		-0.4	-0.4		-0.2	-0.2		-0.6	-0.6	-0.4
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Vehicle Extension (s)	2.0	6.0		6.0	6.0		2.0	2.0		2.0	2.0	2.0
Minimum Gap (s)	2.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	2.0

Poole Rd Martin TIA
1: Hodge Rd & Poole Rd

04/27/2022

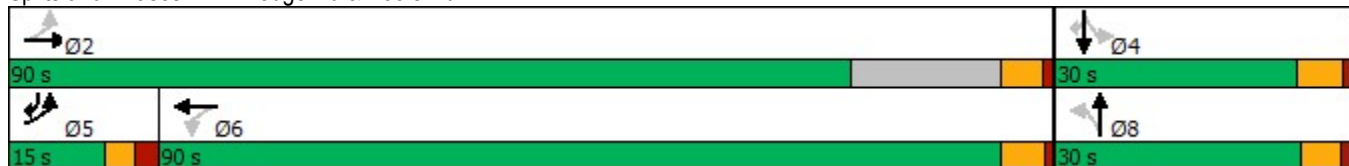


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Time Before Reduce (s)	0.0	15.0		15.0	15.0		0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	0.0	30.0		30.0	30.0		0.0	0.0		0.0	0.0	0.0
Recall Mode	None	Min		Min	Min		None	None		None	None	None
Act Effct Green (s)	92.2	92.2		76.9	76.9		20.9	20.9		20.9	20.9	36.2
Actuated g/C Ratio	0.75	0.75		0.62	0.62		0.17	0.17		0.17	0.17	0.29
v/c Ratio	1.05	0.13		0.02	0.96		0.09	0.13		0.81	0.07	0.64
Control Delay	103.1	4.9		9.4	41.9		46.7	47.1		77.0	46.1	46.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	103.1	4.9		9.4	41.9		46.7	47.1		77.0	46.1	46.9
LOS	F	A		A	D		D	D		E	D	D
Approach Delay		60.7			41.5			47.0			58.0	
Approach LOS		E			D			D			E	
Queue Length 50th (ft)	~159	39		4	770		15	30		157	15	228
Queue Length 95th (ft)	#337	62		13	#1158		39	64		#266	40	333
Internal Link Dist (ft)		759			1274			1067			642	
Turn Bay Length (ft)	225			175			50			450		825
Base Capacity (vph)	226	1474		840	1225		288	368		283	387	467
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.05	0.12		0.02	0.85		0.07	0.11		0.66	0.05	0.64

Intersection Summary

Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 123.3
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.05
 Intersection Signal Delay: 49.7 Intersection LOS: D
 Intersection Capacity Utilization 92.8% 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.

Splits and Phases: 1: Hodge Rd & Poole Rd



Poole Rd Martin TIA
2: Bethlehem Rd & Poole Rd

04/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	24	91	4	53	364	57	23	280	44	27	192	47
Future Volume (vph)	24	91	4	53	364	57	23	280	44	27	192	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			2%			-2%			3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.984			0.983			0.976	
Flt Protected		0.990			0.994			0.997			0.995	
Satd. Flow (prot)	0	1800	0	0	1804	0	0	1844	0	0	1782	0
Flt Permitted		0.861			0.952			0.960			0.906	
Satd. Flow (perm)	0	1565	0	0	1728	0	0	1775	0	0	1622	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			45	
Link Distance (ft)		1637			1700			1025			956	
Travel Time (s)		20.3			21.1			12.7			14.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	27	101	4	59	404	63	26	311	49	30	213	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	132	0	0	526	0	0	386	0	0	295	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.03	1.03	1.03	1.01	1.01	1.01	0.99	0.99	0.99	1.02	1.02	1.02
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	21.3	21.3		21.4	21.4		15.0	15.0		15.0	15.0	
Total Split (s)	120.0	120.0		120.0	120.0		15.0	15.0		15.0	15.0	
Total Split (%)	88.9%	88.9%		88.9%	88.9%		11.1%	11.1%		11.1%	11.1%	
Maximum Green (s)	114.2	114.2		114.0	114.0		8.6	8.6		8.7	8.7	
Yellow Time (s)	4.8	4.8		5.0	5.0		5.4	5.4		5.3	5.3	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-0.8			-1.0			-1.4			-1.3	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0		1.0	1.0		1.0	1.0	
Minimum Gap (s)	3.2	3.2		3.2	3.2		1.0	1.0		1.0	1.0	
Time Before Reduce (s)	15.0	15.0		15.0	15.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	45.0	45.0		45.0	45.0		0.0	0.0		0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	

Poole Rd Martin TIA
 2: Bethlehem Rd & Poole Rd

04/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)		17.5			17.5			10.0			10.0	
Actuated g/C Ratio		0.47			0.47			0.27			0.27	
v/c Ratio		0.18			0.65			0.81			0.68	
Control Delay		6.4			12.2			32.8			25.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		6.4			12.2			32.8			25.0	
LOS		A			B			C			C	
Approach Delay		6.4			12.2			32.8			25.0	
Approach LOS		A			B			C			C	
Queue Length 50th (ft)		14			74			69			50	
Queue Length 95th (ft)		33			142			#211			#160	
Internal Link Dist (ft)		1557			1620			945			876	
Turn Bay Length (ft)												
Base Capacity (vph)		1565			1728			474			432	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.08			0.30			0.81			0.68	

Intersection Summary






















Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 37.6
 Natural Cycle: 45
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 20.4
 Intersection LOS: C
 Intersection Capacity Utilization 60.5%
 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.

Splits and Phases: 2: Bethlehem Rd & Poole Rd

	120 s		15 s
	120 s		15 s

Poole Rd Martin TIA
5: Smithfield Rd & Poole Rd

04/27/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	120	27	6	183	59	107	930	4	42	357	63
Future Volume (vph)	55	120	27	6	183	59	107	930	4	42	357	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-1%			-2%			2%	
Storage Length (ft)	225		0	75		0	175		0	125		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t		0.972			0.963			0.999				0.978
Fl _t Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1743	1783	0	1778	1803	0	1787	1879	0	1752	1804	0
Fl _t Permitted	0.402			0.621			0.950			0.106		
Satd. Flow (perm)	738	1783	0	1163	1803	0	1787	1879	0	195	1804	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55				55
Link Distance (ft)		4706			2490			978				962
Travel Time (s)		58.3			30.9			12.1				11.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	61	133	30	7	203	66	119	1033	4	47	397	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	61	163	0	7	269	0	119	1037	0	47	467	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.02	1.02	1.02	0.99	0.99	0.99	0.99	0.99	0.99	1.01	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Prot	NA		D.Pm		NA
Protected Phases		4			8		5	2				6
Permitted Phases	4			8						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	14.0		14.0		14.0
Minimum Split (s)	20.0	20.0		20.0	20.0		14.0	21.0		21.0		21.0
Total Split (s)	25.0	25.0		25.0	25.0		18.0	65.0		65.0		47.0
Total Split (%)	27.8%	27.8%		27.8%	27.8%		20.0%	72.2%		72.2%		52.2%
Maximum Green (s)	18.0	18.0		18.0	18.0		11.0	58.0		58.0		40.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0		5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0		2.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0		-2.0
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 Optimize?							Yes					Yes
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	6.0		6.0		6.0
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	3.4		3.4		3.4

Poole Rd Martin TIA
5: Smithfield Rd & Poole Rd

04/27/2022

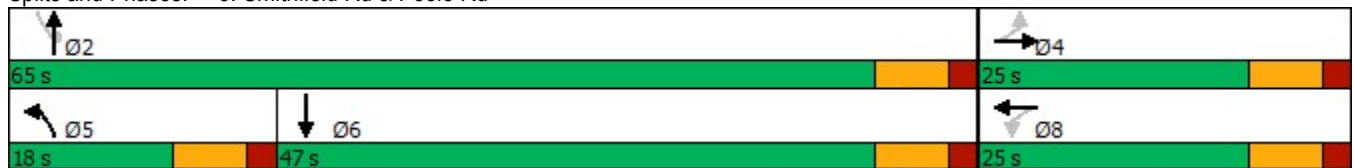


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	15.0		15.0	15.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	30.0		30.0	30.0	
Recall Mode	None	None		None	None		None	Min		Min	Min	
Act Effct Green (s)	16.5	16.5		16.5	16.5		11.5	46.9		46.9	34.5	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.16	0.63		0.63	0.47	
v/c Ratio	0.37	0.41		0.03	0.67		0.43	0.87		0.38	0.56	
Control Delay	35.9	31.4		27.5	38.2		38.6	20.8		17.3	19.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	35.9	31.4		27.5	38.2		38.6	20.8		17.3	19.2	
LOS	D	C		C	D		D	C		B	B	
Approach Delay		32.6			38.0			22.7			19.0	
Approach LOS		C			D			C			B	
Queue Length 50th (ft)	26	70		3	123		55	358		10	170	
Queue Length 95th (ft)	69	139		15	226		117	602		39	278	
Internal Link Dist (ft)		4626			2410			898			882	
Turn Bay Length (ft)	225			75			175			125		
Base Capacity (vph)	212	511		333	517		333	1514		157	1126	
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	0.29	0.32		0.02	0.52		0.36	0.68		0.30	0.41	

Intersection Summary

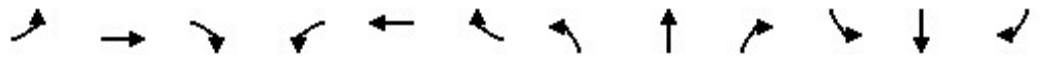
Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	74.1
Natural Cycle:	65
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.87
Intersection Signal Delay:	24.8
Intersection LOS:	C
Intersection Capacity Utilization:	96.6%
ICU Level of Service:	F
Analysis Period (min):	15

Splits and Phases: 5: Smithfield Rd & Poole Rd



Poole Rd Martin TIA
1: Hodge Rd & Poole Rd

04/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	264	292	19	25	172	197	14	19	17	651	47	281
Future Volume (vph)	264	292	19	25	172	197	14	19	17	651	47	281
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			-1%			-1%	
Storage Length (ft)	225		0	175		0	50		0	450		825
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t		0.991			0.920			0.929				0.850
Fl _t Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1828	0	1761	1705	0	1778	1739	0	1778	1872	1591
Fl _t Permitted	0.233			0.554			0.723			0.731		
Satd. Flow (perm)	430	1828	0	1027	1705	0	1353	1739	0	1368	1872	1591
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		839			1354			1147			722	
Travel Time (s)		12.7			20.5			22.3			10.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	293	324	21	28	191	219	16	21	19	723	52	312
Shared Lane Traffic (%)												
Lane Group Flow (vph)	293	345	0	28	410	0	16	40	0	723	52	312
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	12.4	22.5		22.5	22.5		22.5	22.5		22.5	22.5	12.4
Total Split (s)	15.0	90.0		90.0	90.0		30.0	30.0		30.0	30.0	15.0
Total Split (%)	11.1%	66.7%		66.7%	66.7%		22.2%	22.2%		22.2%	22.2%	11.1%
Maximum Green (s)	9.6	84.6		84.6	84.6		24.8	24.8		24.4	24.4	9.6
Yellow Time (s)	3.0	4.3		4.4	4.4		3.9	3.9		4.6	4.6	3.0
All-Red Time (s)	2.4	1.1		1.0	1.0		1.3	1.3		1.0	1.0	2.4
Lost Time Adjust (s)	-0.4	-0.4		-0.4	-0.4		-0.2	-0.2		-0.6	-0.6	-0.4
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Vehicle Extension (s)	2.0	6.0		6.0	6.0		2.0	2.0		2.0	2.0	2.0
Minimum Gap (s)	2.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	2.0

Poole Rd Martin TIA
1: Hodge Rd & Poole Rd

04/27/2022

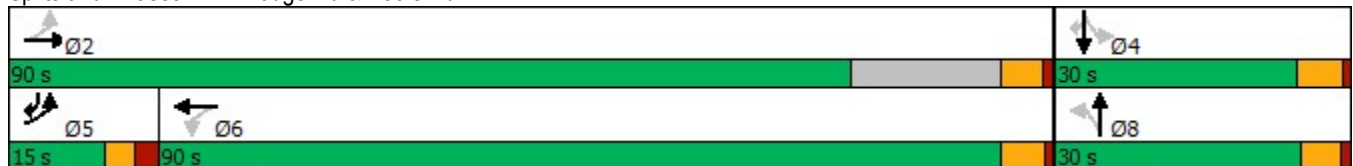


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Time Before Reduce (s)	0.0	15.0		15.0	15.0		0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	0.0	30.0		30.0	30.0		0.0	0.0		0.0	0.0	0.0
Recall Mode	None	Min		Min	Min		None	None		None	None	None
Act Effct Green (s)	36.7	36.7		21.7	21.7		25.1	25.1		25.1	25.1	40.2
Actuated g/C Ratio	0.51	0.51		0.30	0.30		0.35	0.35		0.35	0.35	0.56
v/c Ratio	0.73	0.37		0.09	0.80		0.03	0.07		1.52	0.08	0.35
Control Delay	22.3	11.7		17.9	35.4		18.0	18.0		266.2	18.0	11.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	22.3	11.7		17.9	35.4		18.0	18.0		266.2	18.0	11.2
LOS	C	B		B	D		B	B		F	B	B
Approach Delay		16.5			34.3			18.0			181.1	
Approach LOS		B			C			B			F	
Queue Length 50th (ft)	71	86		9	165		5	12		~455	15	69
Queue Length 95th (ft)	#133	137		26	262		19	35		#739	43	149
Internal Link Dist (ft)		759			1274			1067			642	
Turn Bay Length (ft)	225			175			50			450		825
Base Capacity (vph)	404	1828		1027	1705		472	607		477	653	889
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.73	0.19		0.03	0.24		0.03	0.07		1.52	0.08	0.35

Intersection Summary

Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 71.9
 Natural Cycle: 120
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.52
 Intersection Signal Delay: 100.7
 Intersection LOS: F
 Intersection Capacity Utilization 91.0%
 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.

Splits and Phases: 1: Hodge Rd & Poole Rd



Poole Rd Martin TIA
2: Bethlehem Rd & Poole Rd

04/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	34	306	15	45	116	59	5	183	48	91	315	44
Future Volume (vph)	34	306	15	45	116	59	5	183	48	91	315	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			2%			-2%			3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994			0.964			0.973			0.987	
Flt Protected		0.995			0.990			0.999			0.990	
Satd. Flow (prot)	0	1805	0	0	1760	0	0	1829	0	0	1793	0
Flt Permitted		0.950			0.861			0.981			0.885	
Satd. Flow (perm)	0	1724	0	0	1531	0	0	1796	0	0	1603	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			45	
Link Distance (ft)		1637			1700			1025			956	
Travel Time (s)		20.3			21.1			12.7			14.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	38	340	17	50	129	66	6	203	53	101	350	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	395	0	0	245	0	0	262	0	0	500	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.03	1.03	1.03	1.01	1.01	1.01	0.99	0.99	0.99	1.02	1.02	1.02
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	21.3	21.3		21.4	21.4		15.0	15.0		15.0	15.0	
Total Split (s)	120.0	120.0		120.0	120.0		15.0	15.0		15.0	15.0	
Total Split (%)	88.9%	88.9%		88.9%	88.9%		11.1%	11.1%		11.1%	11.1%	
Maximum Green (s)	114.2	114.2		114.0	114.0		8.6	8.6		8.7	8.7	
Yellow Time (s)	4.8	4.8		5.0	5.0		5.4	5.4		5.3	5.3	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-0.8			-1.0			-1.4			-1.3	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0		1.0	1.0		1.0	1.0	
Minimum Gap (s)	3.2	3.2		3.2	3.2		1.0	1.0		1.0	1.0	
Time Before Reduce (s)	15.0	15.0		15.0	15.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	45.0	45.0		45.0	45.0		0.0	0.0		0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	

Poole Rd Martin TIA
 2: Bethlehem Rd & Poole Rd

04/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		16.0			16.0			10.0			10.0	
Actuated g/C Ratio		0.44			0.44			0.28			0.28	
v/c Ratio		0.52			0.36			0.53			1.12	
Control Delay		10.2			8.5			15.5			101.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		10.2			8.5			15.5			101.4	
LOS		B			A			B			F	
Approach Delay		10.2			8.5			15.5			101.4	
Approach LOS		B			A			B			F	
Queue Length 50th (ft)		50			29			43			~123	
Queue Length 95th (ft)		98			60			87			#241	
Internal Link Dist (ft)		1557			1620			945			876	
Turn Bay Length (ft)												
Base Capacity (vph)		1724			1531			498			445	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.23			0.16			0.53			1.12	

Intersection Summary

Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 36
 Natural Cycle: 50
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.12
 Intersection Signal Delay: 43.4
 Intersection LOS: D
 Intersection Capacity Utilization 71.2%
 ICU Level of Service C
 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.

Splits and Phases: 2: Bethlehem Rd & Poole Rd

Ø2	Ø4
120 s	15 s
Ø6	Ø8
120 s	15 s

Poole Rd Martin TIA
5: Smithfield Rd & Poole Rd

04/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	149	86	8	118	51	25	559	8	18	923	50
Future Volume (vph)	81	149	86	8	118	51	25	559	8	18	923	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-1%			-2%				2%
Storage Length (ft)	225		0	75		0	175		0	125		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.945			0.955			0.998				0.992
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1743	1734	0	1778	1788	0	1787	1878	0	1752	1829	0
Flt Permitted	0.473			0.288			0.950			0.369		
Satd. Flow (perm)	868	1734	0	539	1788	0	1787	1878	0	680	1829	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55				55
Link Distance (ft)		4706			2490			978				962
Travel Time (s)		58.3			30.9			12.1				11.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	90	166	96	9	131	57	28	621	9	20	1026	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	90	262	0	9	188	0	28	630	0	20	1082	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.02	1.02	1.02	0.99	0.99	0.99	0.99	0.99	0.99	1.01	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Prot	NA		D.Pm		NA
Protected Phases		4			8		5	2				6
Permitted Phases	4			8						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	14.0		14.0		14.0
Minimum Split (s)	20.0	20.0		20.0	20.0		14.0	21.0		21.0		21.0
Total Split (s)	22.0	22.0		22.0	22.0		14.0	78.0		78.0		64.0
Total Split (%)	22.0%	22.0%		22.0%	22.0%		14.0%	78.0%		78.0%		64.0%
Maximum Green (s)	15.0	15.0		15.0	15.0		7.0	71.0		71.0		57.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0		5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0		2.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0		-2.0
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 Optimize?							Yes					Yes
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	6.0		6.0		6.0
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	3.4		3.4		3.4

Poole Rd Martin TIA
5: Smithfield Rd & Poole Rd

04/27/2022

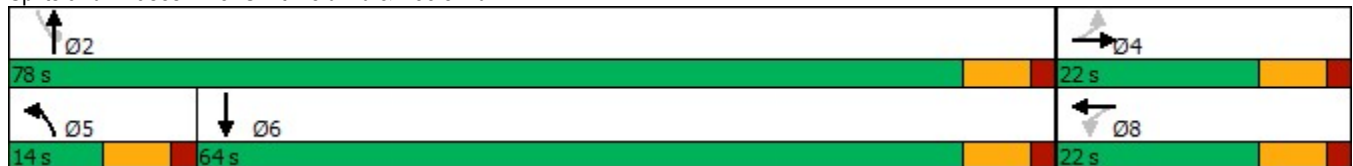


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	15.0		15.0	15.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	30.0		30.0	30.0	
Recall Mode	None	None		None	None		None	Min		Min	Min	
Act Effct Green (s)	16.7	16.7		16.7	16.7		9.1	67.1		67.1	59.2	
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.10	0.71		0.71	0.63	
v/c Ratio	0.58	0.85		0.09	0.59		0.16	0.47		0.04	0.94	
Control Delay	54.5	64.6		38.0	45.5		44.2	7.0		4.1	34.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	54.5	64.6		38.0	45.5		44.2	7.0		4.1	34.3	
LOS	D	E		D	D		D	A		A	C	
Approach Delay		62.0			45.1			8.6			33.8	
Approach LOS		E			D			A			C	
Queue Length 50th (ft)	54	165		5	112		17	139		3	~649	
Queue Length 95th (ft)	#123	#310		20	186		44	199		9	#969	
Internal Link Dist (ft)		4626			2410			898			882	
Turn Bay Length (ft)	225			75			175			125		
Base Capacity (vph)	158	315		98	325		172	1468		532	1156	
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	0.57	0.83		0.09	0.58		0.16	0.43		0.04	0.94	

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 93.9
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.94
 Intersection Signal Delay: 31.9
 Intersection LOS: C
 Intersection Capacity Utilization 83.0%
 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.

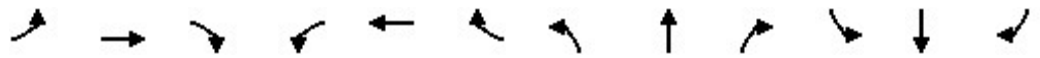
Splits and Phases: 5: Smithfield Rd & Poole Rd



2026 Build Traffic Volumes

Poole Rd Martin TIA
1: Hodge Rd & Poole Rd

04/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	213	151	15	12	580	401	18	24	12	173	19	270
Future Volume (vph)	213	151	15	12	580	401	18	24	12	173	19	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			-1%			-1%	
Storage Length (ft)	225		0	175		0	50		0	450		825
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.986			0.939			0.951			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1818	0	1761	1740	0	1778	1780	0	1778	1872	1591
Flt Permitted	0.053			0.641			0.744			0.731		
Satd. Flow (perm)	98	1818	0	1188	1740	0	1393	1780	0	1368	1872	1591
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		839			1354			1147			722	
Travel Time (s)		12.7			20.5			22.3			10.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	237	168	17	13	644	446	20	27	13	192	21	300
Shared Lane Traffic (%)												
Lane Group Flow (vph)	237	185	0	13	1090	0	20	40	0	192	21	300
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	12.4	22.5		22.5	22.5		22.5	22.5		22.5	22.5	12.4
Total Split (s)	15.0	90.0		90.0	90.0		30.0	30.0		30.0	30.0	15.0
Total Split (%)	11.1%	66.7%		66.7%	66.7%		22.2%	22.2%		22.2%	22.2%	11.1%
Maximum Green (s)	9.6	84.6		84.6	84.6		24.8	24.8		24.4	24.4	9.6
Yellow Time (s)	3.0	4.3		4.4	4.4		3.9	3.9		4.6	4.6	3.0
All-Red Time (s)	2.4	1.1		1.0	1.0		1.3	1.3		1.0	1.0	2.4
Lost Time Adjust (s)	-0.4	-0.4		-0.4	-0.4		-0.2	-0.2		-0.6	-0.6	-0.4
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Vehicle Extension (s)	2.0	6.0		6.0	6.0		2.0	2.0		2.0	2.0	2.0
Minimum Gap (s)	2.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	2.0

Poole Rd Martin TIA
1: Hodge Rd & Poole Rd

04/27/2022

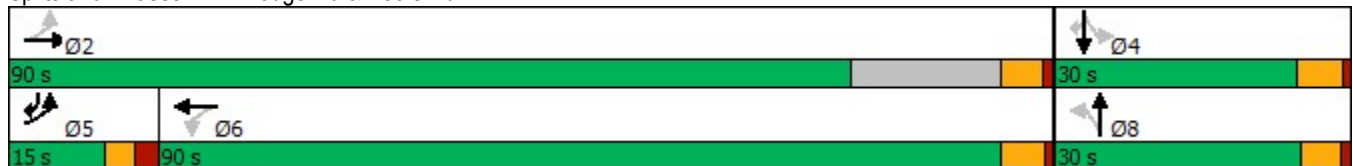


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Time Before Reduce (s)	0.0	15.0		15.0	15.0		0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	0.0	30.0		30.0	30.0		0.0	0.0		0.0	0.0	0.0
Recall Mode	None	Min		Min	Min		None	None		None	None	None
Act Effct Green (s)	99.0	99.0		84.0	84.0		21.8	21.8		21.8	21.8	36.8
Actuated g/C Ratio	0.76	0.76		0.64	0.64		0.17	0.17		0.17	0.17	0.28
v/c Ratio	1.18	0.13		0.02	0.98		0.09	0.14		0.85	0.07	0.67
Control Delay	152.8	4.9		9.4	45.4		46.9	47.6		83.5	46.3	50.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	152.8	4.9		9.4	45.4		46.9	47.6		83.5	46.3	50.1
LOS	F	A		A	D		D	D		F	D	D
Approach Delay		88.0			45.0			47.3			62.4	
Approach LOS		F			D			D			E	
Queue Length 50th (ft)	~192	41		4	881		15	30		161	15	228
Queue Length 95th (ft)	#367	64		13	#1247		39	64		#277	40	333
Internal Link Dist (ft)		759			1274			1067			642	
Turn Bay Length (ft)	225			175			50			450		825
Base Capacity (vph)	201	1392		773	1133		266	340		262	358	447
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.18	0.13		0.02	0.96		0.08	0.12		0.73	0.06	0.67

Intersection Summary

Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 130.8
 Natural Cycle: 130
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.18
 Intersection Signal Delay: 58.0
 Intersection LOS: E
 Intersection Capacity Utilization 95.6%
 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.

Splits and Phases: 1: Hodge Rd & Poole Rd



Poole Rd Martin TIA
2: Bethlehem Rd & Poole Rd

04/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	24	100	4	61	408	68	23	280	48	30	192	47
Future Volume (vph)	24	100	4	61	408	68	23	280	48	30	192	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			2%			-2%			3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.983			0.982			0.976	
Flt Protected		0.991			0.994			0.997			0.994	
Satd. Flow (prot)	0	1802	0	0	1802	0	0	1842	0	0	1780	0
Flt Permitted		0.861			0.949			0.957			0.880	
Satd. Flow (perm)	0	1565	0	0	1720	0	0	1768	0	0	1576	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			45	
Link Distance (ft)		1637			1700			1025			956	
Travel Time (s)		20.3			21.1			12.7			14.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	27	111	4	68	453	76	26	311	53	33	213	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	142	0	0	597	0	0	390	0	0	298	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.03	1.03	1.03	1.01	1.01	1.01	0.99	0.99	0.99	1.02	1.02	1.02
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	21.3	21.3		21.4	21.4		15.0	15.0		15.0	15.0	
Total Split (s)	120.0	120.0		120.0	120.0		15.0	15.0		15.0	15.0	
Total Split (%)	88.9%	88.9%		88.9%	88.9%		11.1%	11.1%		11.1%	11.1%	
Maximum Green (s)	114.2	114.2		114.0	114.0		8.6	8.6		8.7	8.7	
Yellow Time (s)	4.8	4.8		5.0	5.0		5.4	5.4		5.3	5.3	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-0.8			-1.0			-1.4			-1.3	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0		1.0	1.0		1.0	1.0	
Minimum Gap (s)	3.2	3.2		3.2	3.2		1.0	1.0		1.0	1.0	
Time Before Reduce (s)	15.0	15.0		15.0	15.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	45.0	45.0		45.0	45.0		0.0	0.0		0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	

Poole Rd Martin TIA
 2: Bethlehem Rd & Poole Rd

04/27/2022

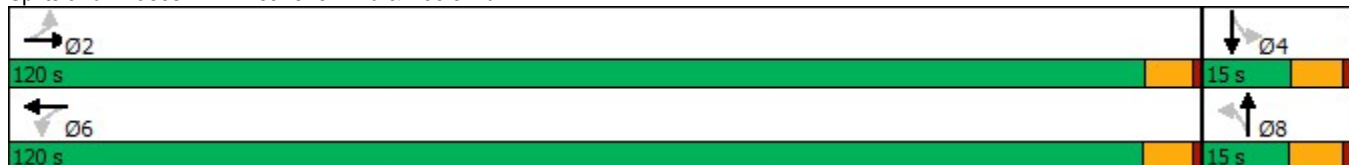


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		19.4			19.4			10.1			10.1	
Actuated g/C Ratio		0.49			0.49			0.26			0.26	
v/c Ratio		0.19			0.71			0.86			0.74	
Control Delay		6.0			13.1			40.6			30.9	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		6.0			13.1			40.6			30.9	
LOS		A			B			D			C	
Approach Delay		6.0			13.1			40.6			30.9	
Approach LOS		A			B			D			C	
Queue Length 50th (ft)		15			89			79			58	
Queue Length 95th (ft)		34			167			#243			#188	
Internal Link Dist (ft)		1557			1620			945			876	
Turn Bay Length (ft)												
Base Capacity (vph)		1565			1720			451			401	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.09			0.35			0.86			0.74	

Intersection Summary

Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 39.5
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 23.6
 Intersection LOS: C
 Intersection Capacity Utilization 64.9%
 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: 2: Bethlehem Rd & Poole Rd



Poole Rd Martin TIA
 3: Poole Rd & Site Access 1

04/27/2022



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	8	170	507	6	12	31
Future Volume (vph)	8	170	507	6	12	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.998		0.902	
Flt Protected		0.998			0.986	
Satd. Flow (prot)	0	1859	1859	0	1657	0
Flt Permitted		0.998			0.986	
Satd. Flow (perm)	0	1859	1859	0	1657	0
Link Speed (mph)		55	55		25	
Link Distance (ft)		1700	878		988	
Travel Time (s)		21.1	10.9		26.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	9	189	563	7	13	34
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	198	570	0	47	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	37.0%
Analysis Period (min)	15
	ICU Level of Service A

Poole Rd Martin TIA
 3: Poole Rd & Site Access 1

04/27/2022

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	8	170	507	6	12	31
Future Vol, veh/h	8	170	507	6	12	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	9	189	563	7	13	34

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	570	0	-	0	774 567
Stage 1	-	-	-	-	567 -
Stage 2	-	-	-	-	207 -
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	1002	-	-	-	367 523
Stage 1	-	-	-	-	568 -
Stage 2	-	-	-	-	828 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1002	-	-	-	363 523
Mov Cap-2 Maneuver	-	-	-	-	363 -
Stage 1	-	-	-	-	562 -
Stage 2	-	-	-	-	828 -

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	13.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1002	-	-	-	466
HCM Lane V/C Ratio	0.009	-	-	-	0.103
HCM Control Delay (s)	8.6	0	-	-	13.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Poole Rd Martin TIA
 4: Poole Rd & Site Access 2

04/27/2022



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	8	174	481	15	35	32
Future Volume (vph)	8	174	481	15	35	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.996		0.935	
Flt Protected		0.998			0.975	
Satd. Flow (prot)	0	1859	1855	0	1698	0
Flt Permitted		0.998			0.975	
Satd. Flow (perm)	0	1859	1855	0	1698	0
Link Speed (mph)		55	55		25	
Link Distance (ft)		878	3565		1000	
Travel Time (s)		10.9	44.2		27.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	9	193	534	17	39	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	202	551	0	75	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	36.8%
Analysis Period (min)	15
	ICU Level of Service A

Poole Rd Martin TIA
4: Poole Rd & Site Access 2

04/27/2022

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Vol, veh/h	8	174	481	15	35	32
Future Vol, veh/h	8	174	481	15	35	32
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	9	193	534	17	39	36

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	551	0	-	0	754 543
Stage 1	-	-	-	-	543 -
Stage 2	-	-	-	-	211 -
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	1019	-	-	-	377 540
Stage 1	-	-	-	-	582 -
Stage 2	-	-	-	-	824 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1019	-	-	-	373 540
Mov Cap-2 Maneuver	-	-	-	-	373 -
Stage 1	-	-	-	-	576 -
Stage 2	-	-	-	-	824 -

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	14.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1019	-	-	-	438
HCM Lane V/C Ratio	0.009	-	-	-	0.17
HCM Control Delay (s)	8.6	0	-	-	14.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.6

Poole Rd Martin TIA
5: Smithfield Rd & Poole Rd

04/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	124	39	6	187	59	119	930	4	42	357	68
Future Volume (vph)	86	124	39	6	187	59	119	930	4	42	357	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-1%			-2%			2%	
Storage Length (ft)	225		0	75		0	175		0	125		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t		0.964			0.964			0.999			0.976	
Fl _t Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1743	1769	0	1778	1805	0	1787	1879	0	1752	1800	0
Fl _t Permitted	0.393			0.582			0.950			0.106		
Satd. Flow (perm)	721	1769	0	1090	1805	0	1787	1879	0	195	1800	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		4706			2490			978			962	
Travel Time (s)		58.3			30.9			12.1			11.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	96	138	43	7	208	66	132	1033	4	47	397	76
Shared Lane Traffic (%)												
Lane Group Flow (vph)	96	181	0	7	274	0	132	1037	0	47	473	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.02	1.02	1.02	0.99	0.99	0.99	0.99	0.99	0.99	1.01	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Prot	NA		D.Pm	NA	
Protected Phases		4			8			5		2		6
Permitted Phases	4			8						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	14.0		14.0	14.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		14.0	21.0		21.0	21.0	
Total Split (s)	25.0	25.0		25.0	25.0		18.0	65.0		65.0	47.0	
Total Split (%)	27.8%	27.8%		27.8%	27.8%		20.0%	72.2%		72.2%	52.2%	
Maximum Green (s)	18.0	18.0		18.0	18.0		11.0	58.0		58.0	40.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	
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 Optimize?							Yes					Yes
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	6.0		6.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	3.4		3.4	3.4	

Poole Rd Martin TIA
5: Smithfield Rd & Poole Rd

04/27/2022

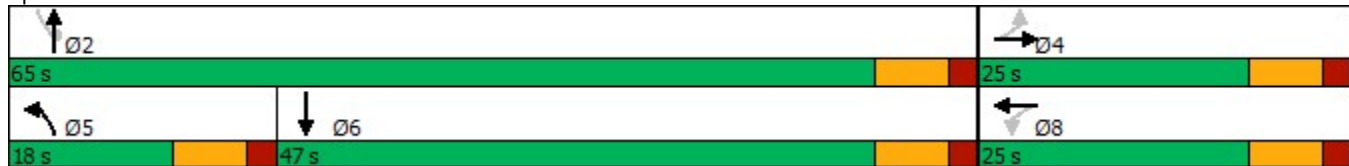


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	15.0		15.0	15.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	30.0		30.0	30.0	
Recall Mode	None	None		None	None		None	Min		Min	Min	
Act Effct Green (s)	16.7	16.7		16.7	16.7		11.7	47.1		47.1	34.5	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.16	0.63		0.63	0.46	
v/c Ratio	0.60	0.46		0.03	0.68		0.47	0.87		0.38	0.57	
Control Delay	47.2	32.3		27.5	38.6		39.4	20.9		17.3	19.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	47.2	32.3		27.5	38.6		39.4	20.9		17.3	19.6	
LOS	D	C		C	D		D	C		B	B	
Approach Delay		37.4			38.3			23.0			19.4	
Approach LOS		D			D			C			B	
Queue Length 50th (ft)	43	79		3	126		62	364		10	178	
Queue Length 95th (ft)	#117	153		15	229		128	602		39	282	
Internal Link Dist (ft)		4626			2410			898			882	
Turn Bay Length (ft)	225			75			175			125		
Base Capacity (vph)	206	505		311	515		332	1509		156	1080	
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	0.47	0.36		0.02	0.53		0.40	0.69		0.30	0.44	

Intersection Summary

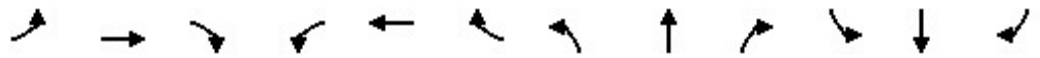
Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 74.4
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 25.9
 Intersection LOS: C
 Intersection Capacity Utilization 96.8%
 ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 5: Smithfield Rd & Poole Rd



Poole Rd Martin TIA
1: Hodge Rd & Poole Rd

04/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	264	310	19	25	181	207	14	19	17	682	47	281
Future Volume (vph)	264	310	19	25	181	207	14	19	17	682	47	281
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			-1%			-1%	
Storage Length (ft)	225		0	175		0	50		0	450		825
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991			0.920			0.929				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1828	0	1761	1705	0	1778	1739	0	1778	1872	1591
Flt Permitted	0.221			0.544			0.723			0.731		
Satd. Flow (perm)	408	1828	0	1008	1705	0	1353	1739	0	1368	1872	1591
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35				45
Link Distance (ft)		839			1354			1147				722
Travel Time (s)		12.7			20.5			22.3				10.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	293	344	21	28	201	230	16	21	19	758	52	312
Shared Lane Traffic (%)												
Lane Group Flow (vph)	293	365	0	28	431	0	16	40	0	758	52	312
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	12.4	22.5		22.5	22.5		22.5	22.5		22.5	22.5	12.4
Total Split (s)	15.0	90.0		90.0	90.0		30.0	30.0		30.0	30.0	15.0
Total Split (%)	11.1%	66.7%		66.7%	66.7%		22.2%	22.2%		22.2%	22.2%	11.1%
Maximum Green (s)	9.6	84.6		84.6	84.6		24.8	24.8		24.4	24.4	9.6
Yellow Time (s)	3.0	4.3		4.4	4.4		3.9	3.9		4.6	4.6	3.0
All-Red Time (s)	2.4	1.1		1.0	1.0		1.3	1.3		1.0	1.0	2.4
Lost Time Adjust (s)	-0.4	-0.4		-0.4	-0.4		-0.2	-0.2		-0.6	-0.6	-0.4
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Vehicle Extension (s)	2.0	6.0		6.0	6.0		2.0	2.0		2.0	2.0	2.0
Minimum Gap (s)	2.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	2.0

Poole Rd Martin TIA
1: Hodge Rd & Poole Rd

04/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Time Before Reduce (s)	0.0	15.0		15.0	15.0		0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	0.0	30.0		30.0	30.0		0.0	0.0		0.0	0.0	0.0
Recall Mode	None	Min		Min	Min		None	None		None	None	None
Act Effct Green (s)	37.9	37.9		22.8	22.8		25.1	25.1		25.1	25.1	40.2
Actuated g/C Ratio	0.52	0.52		0.31	0.31		0.34	0.34		0.34	0.34	0.55
v/c Ratio	0.74	0.39		0.09	0.81		0.03	0.07		1.61	0.08	0.36
Control Delay	23.3	11.7		17.6	35.8		18.7	18.6		308.8	18.7	11.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	23.3	11.7		17.6	35.8		18.7	18.6		308.8	18.7	11.9
LOS	C	B		B	D		B	B		F	B	B
Approach Delay		16.9			34.7			18.7			212.8	
Approach LOS		B			C			B			F	
Queue Length 50th (ft)	71	92		9	176		5	12		~499	16	72
Queue Length 95th (ft)	#137	145		26	277		20	36		#798	44	156
Internal Link Dist (ft)		759			1274			1067			642	
Turn Bay Length (ft)	225			175			50			450		825
Base Capacity (vph)	396	1828		1008	1705		465	598		470	643	875
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.74	0.20		0.03	0.25		0.03	0.07		1.61	0.08	0.36

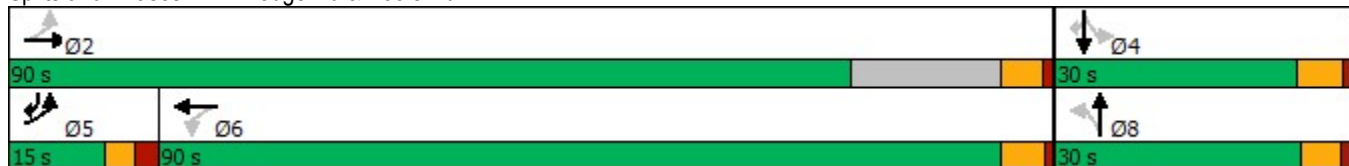
Intersection Summary

Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 73.1
 Natural Cycle: 120
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.61
 Intersection Signal Delay: 116.2
 Intersection Capacity Utilization 93.8%
 Analysis Period (min) 15
 Intersection LOS: F
 ICU Level of Service F

~ 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.

Splits and Phases: 1: Hodge Rd & Poole Rd



Poole Rd Martin TIA
2: Bethlehem Rd & Poole Rd

04/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	34	355	15	53	135	65	5	183	56	105	315	44
Future Volume (vph)	34	355	15	53	135	65	5	183	56	105	315	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			2%			-2%			3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.965			0.969			0.987	
Flt Protected		0.996			0.990			0.999			0.989	
Satd. Flow (prot)	0	1809	0	0	1762	0	0	1821	0	0	1791	0
Flt Permitted		0.953			0.841			0.981			0.867	
Satd. Flow (perm)	0	1731	0	0	1497	0	0	1788	0	0	1570	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			45	
Link Distance (ft)		1637			1700			1025			956	
Travel Time (s)		20.3			21.1			12.7			14.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	38	394	17	59	150	72	6	203	62	117	350	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	449	0	0	281	0	0	271	0	0	516	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.03	1.03	1.03	1.01	1.01	1.01	0.99	0.99	0.99	1.02	1.02	1.02
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	21.3	21.3		21.4	21.4		15.0	15.0		15.0	15.0	
Total Split (s)	120.0	120.0		120.0	120.0		15.0	15.0		15.0	15.0	
Total Split (%)	88.9%	88.9%		88.9%	88.9%		11.1%	11.1%		11.1%	11.1%	
Maximum Green (s)	114.2	114.2		114.0	114.0		8.6	8.6		8.7	8.7	
Yellow Time (s)	4.8	4.8		5.0	5.0		5.4	5.4		5.3	5.3	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-0.8			-1.0			-1.4			-1.3	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0		1.0	1.0		1.0	1.0	
Minimum Gap (s)	3.2	3.2		3.2	3.2		1.0	1.0		1.0	1.0	
Time Before Reduce (s)	15.0	15.0		15.0	15.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	45.0	45.0		45.0	45.0		0.0	0.0		0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	

Poole Rd Martin TIA
 2: Bethlehem Rd & Poole Rd

04/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		16.4			16.4			10.0			10.0	
Actuated g/C Ratio		0.45			0.45			0.27			0.27	
v/c Ratio		0.58			0.42			0.55			1.20	
Control Delay		11.0			9.1			16.6			129.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		11.0			9.1			16.6			129.8	
LOS		B			A			B			F	
Approach Delay		11.0			9.1			16.6			129.8	
Approach LOS		B			A			B			F	
Queue Length 50th (ft)		59			34			44			~133	
Queue Length 95th (ft)		115			71			#101			#274	
Internal Link Dist (ft)		1557			1620			945			876	
Turn Bay Length (ft)												
Base Capacity (vph)		1731			1497			491			431	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.26			0.19			0.55			1.20	

Intersection Summary

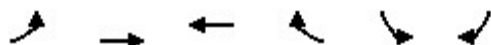
Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 36.4
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.20
 Intersection Signal Delay: 52.1
 Intersection LOS: D
 Intersection Capacity Utilization 77.3%
 ICU Level of Service D
 Analysis Period (min) 15
 ~ Volume 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.

Splits and Phases: 2: Bethlehem Rd & Poole Rd

	120 s		15 s
	120 s		15 s

Poole Rd Martin TIA
 3: Poole Rd & Site Access 1

04/27/2022



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	35	482	236	13	10	17
Future Volume (vph)	35	482	236	13	10	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.993		0.914	
Flt Protected		0.997			0.982	
Satd. Flow (prot)	0	1857	1850	0	1672	0
Flt Permitted		0.997			0.982	
Satd. Flow (perm)	0	1857	1850	0	1672	0
Link Speed (mph)		55	55		25	
Link Distance (ft)		1700	878		988	
Travel Time (s)		21.1	10.9		26.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	39	536	262	14	11	19
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	575	276	0	30	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	53.8%
Analysis Period (min)	15
	ICU Level of Service A

Poole Rd Martin TIA
 3: Poole Rd & Site Access 1

04/27/2022

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	35	482	236	13	10	17
Future Vol, veh/h	35	482	236	13	10	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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	39	536	262	14	11	19

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	276	0	-	0	883 269
Stage 1	-	-	-	-	269 -
Stage 2	-	-	-	-	614 -
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	1287	-	-	-	316 770
Stage 1	-	-	-	-	776 -
Stage 2	-	-	-	-	540 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1287	-	-	-	302 770
Mov Cap-2 Maneuver	-	-	-	-	302 -
Stage 1	-	-	-	-	743 -
Stage 2	-	-	-	-	540 -

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	12.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1287	-	-	-	489
HCM Lane V/C Ratio	0.03	-	-	-	0.061
HCM Control Delay (s)	7.9	0	-	-	12.8
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

Poole Rd Martin TIA
 4: Poole Rd & Site Access 2

04/27/2022



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↔		↘	↙
Traffic Volume (vph)	36	456	233	41	30	16
Future Volume (vph)	36	456	233	41	30	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.980		0.952	
Flt Protected		0.996			0.969	
Satd. Flow (prot)	0	1855	1825	0	1718	0
Flt Permitted		0.996			0.969	
Satd. Flow (perm)	0	1855	1825	0	1718	0
Link Speed (mph)		55	55		25	
Link Distance (ft)		878	3565		1000	
Travel Time (s)		10.9	44.2		27.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	40	507	259	46	33	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	547	305	0	51	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	54.1%
Analysis Period (min)	15
	ICU Level of Service A

Poole Rd Martin TIA
4: Poole Rd & Site Access 2

04/27/2022

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	36	456	233	41	30	16
Future Vol, veh/h	36	456	233	41	30	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	507	259	46	33	18

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	305	0	-	0	869 282
Stage 1	-	-	-	-	282 -
Stage 2	-	-	-	-	587 -
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	1256	-	-	-	322 757
Stage 1	-	-	-	-	766 -
Stage 2	-	-	-	-	556 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1256	-	-	-	308 757
Mov Cap-2 Maneuver	-	-	-	-	308 -
Stage 1	-	-	-	-	732 -
Stage 2	-	-	-	-	556 -

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	15.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1256	-	-	-	388
HCM Lane V/C Ratio	0.032	-	-	-	0.132
HCM Control Delay (s)	8	0	-	-	15.7
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

Poole Rd Martin TIA
5: Smithfield Rd & Poole Rd

04/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	153	107	8	123	51	43	559	8	18	923	81
Future Volume (vph)	96	153	107	8	123	51	43	559	8	18	923	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-1%			-2%			2%	
Storage Length (ft)	225		0	75		0	175		0	125		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t		0.938			0.956			0.998			0.988	
Fl _t Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1743	1721	0	1778	1790	0	1787	1878	0	1752	1822	0
Fl _t Permitted	0.461			0.234			0.950			0.368		
Satd. Flow (perm)	846	1721	0	438	1790	0	1787	1878	0	679	1822	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		4706			2490			978			962	
Travel Time (s)		58.3			30.9			12.1			11.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	107	170	119	9	137	57	48	621	9	20	1026	90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	107	289	0	9	194	0	48	630	0	20	1116	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.02	1.02	1.02	0.99	0.99	0.99	0.99	0.99	0.99	1.01	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Prot	NA		D.Pm	NA	
Protected Phases		4			8		5	2				6
Permitted Phases	4			8						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	14.0		14.0	14.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		14.0	21.0		21.0	21.0	
Total Split (s)	22.0	22.0		22.0	22.0		14.0	78.0		78.0	64.0	
Total Split (%)	22.0%	22.0%		22.0%	22.0%		14.0%	78.0%		78.0%	64.0%	
Maximum Green (s)	15.0	15.0		15.0	15.0		7.0	71.0		71.0	57.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	
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 Optimize?							Yes					Yes
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	6.0		6.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	3.4		3.4	3.4	

Poole Rd Martin TIA
5: Smithfield Rd & Poole Rd

04/27/2022

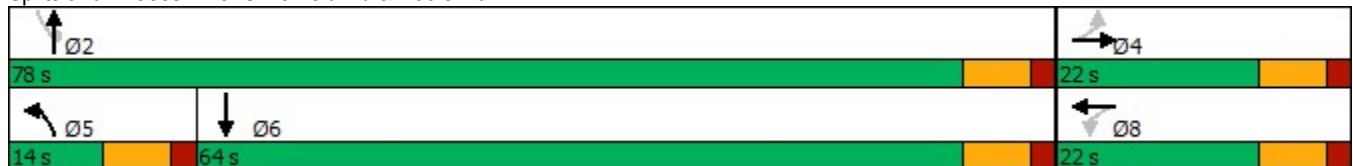


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	15.0		15.0	15.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	30.0		30.0	30.0	
Recall Mode	None	None		None	None		None	Min		Min	Min	
Act Effct Green (s)	17.1	17.1		17.1	17.1		9.0	67.3		67.3	59.3	
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.10	0.71		0.71	0.63	
v/c Ratio	0.70	0.93		0.11	0.60		0.28	0.47		0.04	0.98	
Control Delay	64.0	76.7		39.4	45.6		46.6	7.1		4.1	41.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	64.0	76.7		39.4	45.6		46.6	7.1		4.1	41.4	
LOS	E	E		D	D		D	A		A	D	
Approach Delay		73.3			45.4			9.9			40.7	
Approach LOS		E			D			A			D	
Queue Length 50th (ft)	66	186		5	116		29	139		3	~772	
Queue Length 95th (ft)	#155	#353		20	191		65	199		9	#1019	
Internal Link Dist (ft)		4626			2410			898			882	
Turn Bay Length (ft)	225			75			175			125		
Base Capacity (vph)	153	311		79	324		171	1460		527	1144	
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	0.70	0.93		0.11	0.60		0.28	0.43		0.04	0.98	

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 94.4
 Natural Cycle: 100
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 37.8
 Intersection LOS: D
 Intersection Capacity Utilization 86.4%
 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.

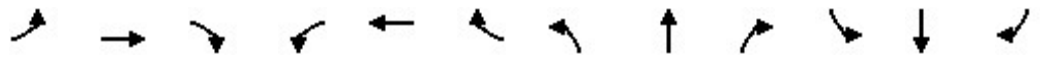
Splits and Phases: 5: Smithfield Rd & Poole Rd



2026 Build + Improvements Traffic Volumes

Poole Rd Martin TIA
1: Hodge Rd & Poole Rd

04/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	213	151	15	12	580	401	18	24	12	173	19	270
Future Volume (vph)	213	151	15	12	580	401	18	24	12	173	19	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			-1%			-1%	
Storage Length (ft)	225		0	175		0	50		0	450		825
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.986			0.939			0.951			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1818	0	1761	1740	0	1778	1780	0	1778	1872	1591
Flt Permitted	0.045			0.641			0.744			0.731		
Satd. Flow (perm)	83	1818	0	1188	1740	0	1393	1780	0	1368	1872	1591
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		839			1354			1147			722	
Travel Time (s)		12.7			20.5			22.3			10.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	237	168	17	13	644	446	20	27	13	192	21	300
Shared Lane Traffic (%)												
Lane Group Flow (vph)	237	185	0	13	1090	0	20	40	0	192	21	300
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		Perm	NA		D.Pm	NA		D.P+P	NA	pm+ov
Protected Phases	5	2			6			8		7	4	5
Permitted Phases	2			6			4			8		4
Detector Phase	5	2		6	6		4	8		7	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	12.4	22.5		22.5	22.5		22.5	22.5		14.0	22.5	12.4
Total Split (s)	20.2	113.5		93.3	93.3		36.5	22.5		14.0	36.5	20.2
Total Split (%)	13.5%	75.7%		62.2%	62.2%		24.3%	15.0%		9.3%	24.3%	13.5%
Maximum Green (s)	14.8	108.1		87.9	87.9		30.9	17.3		7.0	30.9	14.8
Yellow Time (s)	3.0	4.3		4.4	4.4		4.6	3.9		5.0	4.6	3.0
All-Red Time (s)	2.4	1.1		1.0	1.0		1.0	1.3		2.0	1.0	2.4
Lost Time Adjust (s)	-0.4	-0.4		-0.4	-0.4		-0.6	-0.2		-2.0	-0.6	-0.4
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lag			Lead		Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes		Yes
Vehicle Extension (s)	2.0	6.0		6.0	6.0		2.0	2.0		3.0	2.0	2.0
Minimum Gap (s)	2.0	3.0		3.0	3.0		2.0	2.0		3.0	2.0	2.0

Poole Rd Martin TIA
1: Hodge Rd & Poole Rd

04/27/2022

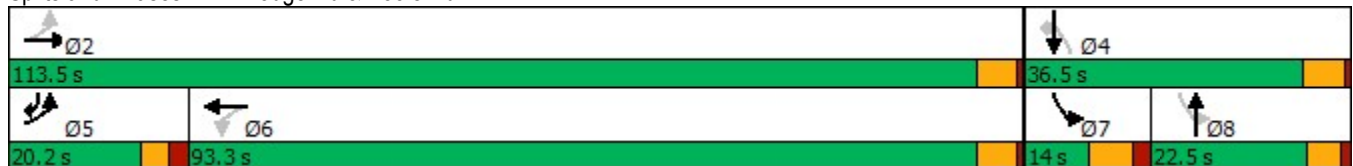


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Time Before Reduce (s)	0.0	15.0		15.0	15.0		0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	0.0	30.0		30.0	30.0		0.0	0.0		0.0	0.0	0.0
Recall Mode	None	Min		Min	Min		None	None		None	None	None
Act Effct Green (s)	108.7	108.7		88.5	88.5		19.8	8.4		15.9	19.8	40.0
Actuated g/C Ratio	0.78	0.78		0.64	0.64		0.14	0.06		0.11	0.14	0.29
v/c Ratio	0.96	0.13		0.02	0.98		0.10	0.37		1.05	0.08	0.65
Control Delay	88.0	4.3		10.5	48.4		51.7	73.6		135.2	50.9	50.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	88.0	4.3		10.5	48.4		51.7	73.6		135.2	50.9	50.4
LOS	F	A		B	D		D	E		F	D	D
Approach Delay		51.3			47.9			66.3			82.2	
Approach LOS		D			D			E			F	
Queue Length 50th (ft)	165	37		4	934		16	36		~170	17	237
Queue Length 95th (ft)	#352	63		14	#1339		41	77		#323	43	342
Internal Link Dist (ft)		759			1274			1067			642	
Turn Bay Length (ft)	225			175			50			450		825
Base Capacity (vph)	248	1426		758	1111		317	225		183	426	459
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.96	0.13		0.02	0.98		0.06	0.18		1.05	0.05	0.65

Intersection Summary

Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 138.5
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.05
 Intersection Signal Delay: 57.5 Intersection LOS: E
 Intersection Capacity Utilization 95.6% 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.

Splits and Phases: 1: Hodge Rd & Poole Rd



Poole Rd Martin TIA
2: Bethlehem Rd & Poole Rd

04/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	24	100	4	61	408	68	23	280	48	30	192	47
Future Volume (vph)	24	100	4	61	408	68	23	280	48	30	192	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			2%			-2%			3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.983			0.982			0.976	
Flt Protected		0.991			0.994			0.997			0.994	
Satd. Flow (prot)	0	1802	0	0	1802	0	0	1842	0	0	1780	0
Flt Permitted		0.861			0.949			0.957			0.880	
Satd. Flow (perm)	0	1565	0	0	1720	0	0	1768	0	0	1576	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			45	
Link Distance (ft)		1637			1700			1025			956	
Travel Time (s)		20.3			21.1			12.7			14.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	27	111	4	68	453	76	26	311	53	33	213	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	142	0	0	597	0	0	390	0	0	298	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.03	1.03	1.03	1.01	1.01	1.01	0.99	0.99	0.99	1.02	1.02	1.02
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	21.3	21.3		21.4	21.4		15.0	15.0		15.0	15.0	
Total Split (s)	120.0	120.0		120.0	120.0		15.0	15.0		15.0	15.0	
Total Split (%)	88.9%	88.9%		88.9%	88.9%		11.1%	11.1%		11.1%	11.1%	
Maximum Green (s)	114.2	114.2		114.0	114.0		8.6	8.6		8.7	8.7	
Yellow Time (s)	4.8	4.8		5.0	5.0		5.4	5.4		5.3	5.3	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-0.8			-1.0			-1.4			-1.3	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0		1.0	1.0		1.0	1.0	
Minimum Gap (s)	3.2	3.2		3.2	3.2		1.0	1.0		1.0	1.0	
Time Before Reduce (s)	15.0	15.0		15.0	15.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	45.0	45.0		45.0	45.0		0.0	0.0		0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	

Poole Rd Martin TIA
 2: Bethlehem Rd & Poole Rd

04/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		19.4			19.4			10.1			10.1	
Actuated g/C Ratio		0.49			0.49			0.26			0.26	
v/c Ratio		0.19			0.71			0.86			0.74	
Control Delay		6.0			13.1			40.6			30.9	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		6.0			13.1			40.6			30.9	
LOS		A			B			D			C	
Approach Delay		6.0			13.1			40.6			30.9	
Approach LOS		A			B			D			C	
Queue Length 50th (ft)		15			89			79			58	
Queue Length 95th (ft)		34			167			#243			#188	
Internal Link Dist (ft)		1557			1620			945			876	
Turn Bay Length (ft)												
Base Capacity (vph)		1565			1720			451			401	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.09			0.35			0.86			0.74	

Intersection Summary

Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 39.5
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 23.6
 Intersection LOS: C
 Intersection Capacity Utilization 64.9%
 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: 2: Bethlehem Rd & Poole Rd

Ø2	Ø4
120 s	15 s
Ø6	Ø8
120 s	15 s

Poole Rd Martin TIA
 3: Poole Rd & Site Access 1

04/27/2022



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	8	170	507	6	12	31
Future Volume (vph)	8	170	507	6	12	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.998		0.902	
Flt Protected	0.950				0.986	
Satd. Flow (prot)	1770	1863	1859	0	1657	0
Flt Permitted	0.950				0.986	
Satd. Flow (perm)	1770	1863	1859	0	1657	0
Link Speed (mph)		55	55		25	
Link Distance (ft)		1700	878		988	
Travel Time (s)		21.1	10.9		26.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	9	189	563	7	13	34
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	189	570	0	47	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
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

Poole Rd Martin TIA
 3: Poole Rd & Site Access 1

04/27/2022

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	170	507	6	12	31
Future Vol, veh/h	8	170	507	6	12	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	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	189	563	7	13	34

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	570	0	-	0	774 567
Stage 1	-	-	-	-	567 -
Stage 2	-	-	-	-	207 -
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	1002	-	-	-	367 523
Stage 1	-	-	-	-	568 -
Stage 2	-	-	-	-	828 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1002	-	-	-	364 523
Mov Cap-2 Maneuver	-	-	-	-	364 -
Stage 1	-	-	-	-	563 -
Stage 2	-	-	-	-	828 -

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	13.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1002	-	-	-	466
HCM Lane V/C Ratio	0.009	-	-	-	0.103
HCM Control Delay (s)	8.6	-	-	-	13.6
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Poole Rd Martin TIA
 4: Poole Rd & Site Access 2

04/27/2022



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	8	174	481	15	35	32
Future Volume (vph)	8	174	481	15	35	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50			50	0	0
Storage Lanes	1			1	1	0
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850	0.935	
Flt Protected	0.950				0.975	
Satd. Flow (prot)	1770	1863	1863	1583	1698	0
Flt Permitted	0.950				0.975	
Satd. Flow (perm)	1770	1863	1863	1583	1698	0
Link Speed (mph)		55	55		25	
Link Distance (ft)		878	3565		1000	
Travel Time (s)		10.9	44.2		27.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	9	193	534	17	39	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	193	534	17	75	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	35.9%
ICU Level of Service	A
Analysis Period (min)	15

Poole Rd Martin TIA
4: Poole Rd & Site Access 2

04/27/2022

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	174	481	15	35	32
Future Vol, veh/h	8	174	481	15	35	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	50	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	193	534	17	39	36

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	551	0	-	0	745
Stage 1	-	-	-	-	534
Stage 2	-	-	-	-	211
Critical Hdwy	4.12	-	-	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	2.218	-	-	-	3.518
Pot Cap-1 Maneuver	1019	-	-	-	382
Stage 1	-	-	-	-	588
Stage 2	-	-	-	-	824
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1019	-	-	-	379
Mov Cap-2 Maneuver	-	-	-	-	379
Stage 1	-	-	-	-	583
Stage 2	-	-	-	-	824

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	14.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1019	-	-	-	444
HCM Lane V/C Ratio	0.009	-	-	-	0.168
HCM Control Delay (s)	8.6	-	-	-	14.7
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.6

Poole Rd Martin TIA
5: Smithfield Rd & Poole Rd

04/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	124	39	6	187	59	119	930	4	42	357	68
Future Volume (vph)	86	124	39	6	187	59	119	930	4	42	357	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-1%			-2%			2%	
Storage Length (ft)	225		0	75		0	175		0	125		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t		0.964			0.964			0.999			0.976	
Fl _t Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1743	1769	0	1778	1805	0	1787	1879	0	1752	1800	0
Fl _t Permitted	0.393			0.582			0.950			0.106		
Satd. Flow (perm)	721	1769	0	1090	1805	0	1787	1879	0	195	1800	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		4706			2490			978			962	
Travel Time (s)		58.3			30.9			12.1			11.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	96	138	43	7	208	66	132	1033	4	47	397	76
Shared Lane Traffic (%)												
Lane Group Flow (vph)	96	181	0	7	274	0	132	1037	0	47	473	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.02	1.02	1.02	0.99	0.99	0.99	0.99	0.99	0.99	1.01	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Prot	NA		D.Pm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8						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	14.0		14.0	14.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		14.0	21.0		21.0	21.0	
Total Split (s)	25.0	25.0		25.0	25.0		18.0	65.0		65.0	47.0	
Total Split (%)	27.8%	27.8%		27.8%	27.8%		20.0%	72.2%		72.2%	52.2%	
Maximum Green (s)	18.0	18.0		18.0	18.0		11.0	58.0		58.0	40.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	
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 Optimize?							Yes				Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	6.0		6.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	3.4		3.4	3.4	

Poole Rd Martin TIA
5: Smithfield Rd & Poole Rd

04/27/2022

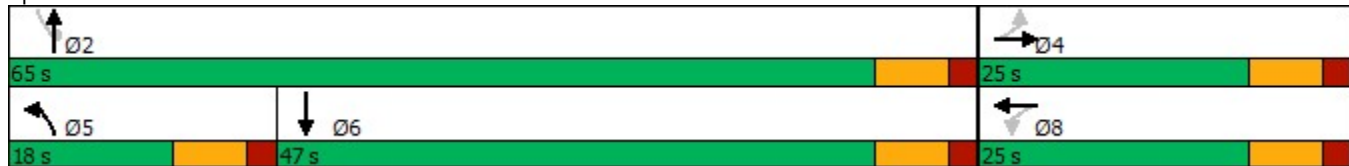


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	15.0		15.0	15.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	30.0		30.0	30.0	
Recall Mode	None	None		None	None		None	Min		Min	Min	
Act Effct Green (s)	16.7	16.7		16.7	16.7		11.7	47.1		47.1	34.5	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.16	0.63		0.63	0.46	
v/c Ratio	0.60	0.46		0.03	0.68		0.47	0.87		0.38	0.57	
Control Delay	47.2	32.3		27.5	38.6		39.4	20.9		17.3	19.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	47.2	32.3		27.5	38.6		39.4	20.9		17.3	19.6	
LOS	D	C		C	D		D	C		B	B	
Approach Delay		37.4			38.3			23.0			19.4	
Approach LOS		D			D			C			B	
Queue Length 50th (ft)	43	79		3	126		62	364		10	178	
Queue Length 95th (ft)	#117	153		15	229		128	602		39	282	
Internal Link Dist (ft)		4626			2410			898			882	
Turn Bay Length (ft)	225			75			175			125		
Base Capacity (vph)	206	505		311	515		332	1509		156	1080	
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	0.47	0.36		0.02	0.53		0.40	0.69		0.30	0.44	

Intersection Summary

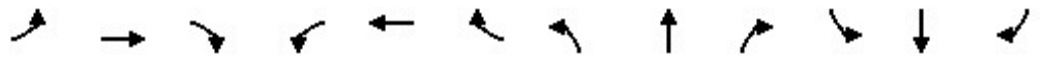
Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 74.4
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 25.9
 Intersection LOS: C
 Intersection Capacity Utilization 96.8%
 ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 5: Smithfield Rd & Poole Rd



Poole Rd Martin TIA
1: Hodge Rd & Poole Rd

04/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	264	310	19	25	181	207	14	19	17	682	47	281
Future Volume (vph)	264	310	19	25	181	207	14	19	17	682	47	281
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			-1%			-1%	
Storage Length (ft)	225		0	175		0	50		0	450		825
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t		0.991			0.920			0.929				0.850
Fl _t Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1828	0	1761	1705	0	1778	1739	0	1778	1872	1591
Fl _t Permitted	0.164			0.544			0.723			0.731		
Satd. Flow (perm)	302	1828	0	1008	1705	0	1353	1739	0	1368	1872	1591
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35				45
Link Distance (ft)		839			1354			1147				722
Travel Time (s)		12.7			20.5			22.3				10.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	293	344	21	28	201	230	16	21	19	758	52	312
Shared Lane Traffic (%)												
Lane Group Flow (vph)	293	365	0	28	431	0	16	40	0	758	52	312
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		Perm	NA		D.Pm	NA		D.P+P	NA	pm+ov
Protected Phases	5	2			6			8		7	4	5
Permitted Phases	2			6			4			8		4
Detector Phase	5	2		6	6		4	8		7	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	12.4	22.5		22.5	22.5		22.5	22.5		14.0	22.5	12.4
Total Split (s)	19.4	57.5		38.1	38.1		62.5	22.5		40.0	62.5	19.4
Total Split (%)	16.2%	47.9%		31.8%	31.8%		52.1%	18.8%		33.3%	52.1%	16.2%
Maximum Green (s)	14.0	52.1		32.7	32.7		56.9	17.3		33.0	56.9	14.0
Yellow Time (s)	3.0	4.3		4.4	4.4		4.6	3.9		5.0	4.6	3.0
All-Red Time (s)	2.4	1.1		1.0	1.0		1.0	1.3		2.0	1.0	2.4
Lost Time Adjust (s)	-0.4	-0.4		-0.4	-0.4		-0.6	-0.2		-2.0	-0.6	-0.4
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lag			Lead		Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes		Yes
Vehicle Extension (s)	2.0	6.0		6.0	6.0		2.0	2.0		3.0	2.0	2.0
Minimum Gap (s)	2.0	3.0		3.0	3.0		2.0	2.0		3.0	2.0	2.0

Poole Rd Martin TIA
1: Hodge Rd & Poole Rd

04/27/2022

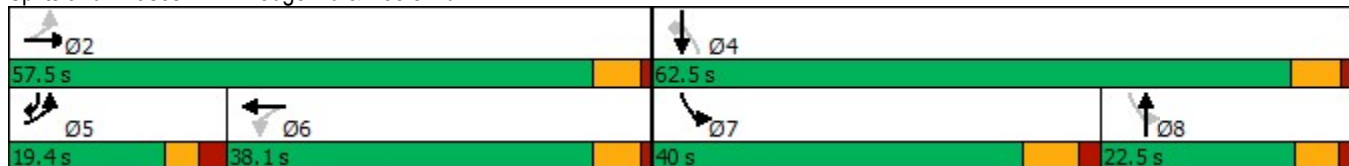


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Time Before Reduce (s)	0.0	15.0		15.0	15.0		0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	0.0	30.0		30.0	30.0		0.0	0.0		0.0	0.0	0.0
Recall Mode	None	Min		Min	Min		None	None		None	None	None
Act Effct Green (s)	49.3	49.3		29.7	29.7		42.9	8.0		40.1	42.9	62.5
Actuated g/C Ratio	0.48	0.48		0.29	0.29		0.42	0.08		0.39	0.42	0.61
v/c Ratio	0.83	0.41		0.10	0.87		0.03	0.29		1.12	0.07	0.32
Control Delay	41.5	19.8		29.2	54.9		18.1	53.6		100.6	18.4	11.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	41.5	19.8		29.2	54.9		18.1	53.6		100.6	18.4	11.1
LOS	D	B		C	D		B	D		F	B	B
Approach Delay		29.5			53.3			43.5			71.9	
Approach LOS		C			D			D			E	
Queue Length 50th (ft)	125	162		14	283		6	27		~562	21	100
Queue Length 95th (ft)	#290	250		38	#469		20	63		#772	45	151
Internal Link Dist (ft)		759			1274			1067			642	
Turn Bay Length (ft)	225			175			50			450		825
Base Capacity (vph)	352	949		330	558		769	300		678	1064	972
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.83	0.38		0.08	0.77		0.02	0.13		1.12	0.05	0.32

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 102.3
 Natural Cycle: 120
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.12
 Intersection Signal Delay: 55.3
 Intersection LOS: E
 Intersection Capacity Utilization 93.8%
 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.

Splits and Phases: 1: Hodge Rd & Poole Rd



Poole Rd Martin TIA
2: Bethlehem Rd & Poole Rd

04/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	34	355	15	53	135	65	5	183	56	105	315	44
Future Volume (vph)	34	355	15	53	135	65	5	183	56	105	315	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			2%			-2%			3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.965			0.969			0.987	
Flt Protected		0.996			0.990			0.999			0.989	
Satd. Flow (prot)	0	1809	0	0	1762	0	0	1821	0	0	1791	0
Flt Permitted		0.953			0.841			0.981			0.867	
Satd. Flow (perm)	0	1731	0	0	1497	0	0	1788	0	0	1570	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			45	
Link Distance (ft)		1637			1700			1025			956	
Travel Time (s)		20.3			21.1			12.7			14.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	38	394	17	59	150	72	6	203	62	117	350	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	449	0	0	281	0	0	271	0	0	516	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.03	1.03	1.03	1.01	1.01	1.01	0.99	0.99	0.99	1.02	1.02	1.02
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	21.3	21.3		21.4	21.4		15.0	15.0		15.0	15.0	
Total Split (s)	120.0	120.0		120.0	120.0		15.0	15.0		15.0	15.0	
Total Split (%)	88.9%	88.9%		88.9%	88.9%		11.1%	11.1%		11.1%	11.1%	
Maximum Green (s)	114.2	114.2		114.0	114.0		8.6	8.6		8.7	8.7	
Yellow Time (s)	4.8	4.8		5.0	5.0		5.4	5.4		5.3	5.3	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-0.8			-1.0			-1.4			-1.3	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0		1.0	1.0		1.0	1.0	
Minimum Gap (s)	3.2	3.2		3.2	3.2		1.0	1.0		1.0	1.0	
Time Before Reduce (s)	15.0	15.0		15.0	15.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	45.0	45.0		45.0	45.0		0.0	0.0		0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	

Poole Rd Martin TIA
 2: Bethlehem Rd & Poole Rd

04/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		16.4			16.4			10.0			10.0	
Actuated g/C Ratio		0.45			0.45			0.27			0.27	
v/c Ratio		0.58			0.42			0.55			1.20	
Control Delay		11.0			9.1			16.6			129.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		11.0			9.1			16.6			129.8	
LOS		B			A			B			F	
Approach Delay		11.0			9.1			16.6			129.8	
Approach LOS		B			A			B			F	
Queue Length 50th (ft)		59			34			44			~133	
Queue Length 95th (ft)		115			71			#101			#274	
Internal Link Dist (ft)		1557			1620			945			876	
Turn Bay Length (ft)												
Base Capacity (vph)		1731			1497			491			431	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.26			0.19			0.55			1.20	

Intersection Summary

Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 36.4
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.20
 Intersection Signal Delay: 52.1
 Intersection LOS: D
 Intersection Capacity Utilization 77.3%
 ICU Level of Service D
 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.

Splits and Phases: 2: Bethlehem Rd & Poole Rd

	120 s		15 s
	120 s		15 s

Poole Rd Martin TIA
 3: Poole Rd & Site Access 1

04/27/2022



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	35	482	236	13	10	17
Future Volume (vph)	35	482	236	13	10	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.993		0.914	
Flt Protected	0.950				0.982	
Satd. Flow (prot)	1770	1863	1850	0	1672	0
Flt Permitted	0.950				0.982	
Satd. Flow (perm)	1770	1863	1850	0	1672	0
Link Speed (mph)		55	55		25	
Link Distance (ft)		1700	878		988	
Travel Time (s)		21.1	10.9		26.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	39	536	262	14	11	19
Shared Lane Traffic (%)						
Lane Group Flow (vph)	39	536	276	0	30	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	35.4%
ICU Level of Service	A
Analysis Period (min)	15

Poole Rd Martin TIA
 3: Poole Rd & Site Access 1

04/27/2022

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	35	482	236	13	10	17
Future Vol, veh/h	35	482	236	13	10	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	50	-	-	-	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	39	536	262	14	11	19

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	276	0	-	0	883 269
Stage 1	-	-	-	-	269 -
Stage 2	-	-	-	-	614 -
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	1287	-	-	-	316 770
Stage 1	-	-	-	-	776 -
Stage 2	-	-	-	-	540 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1287	-	-	-	307 770
Mov Cap-2 Maneuver	-	-	-	-	307 -
Stage 1	-	-	-	-	753 -
Stage 2	-	-	-	-	540 -

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	12.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1287	-	-	-	494
HCM Lane V/C Ratio	0.03	-	-	-	0.061
HCM Control Delay (s)	7.9	-	-	-	12.8
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

Poole Rd Martin TIA
4: Poole Rd & Site Access 2

04/27/2022



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	36	456	233	41	30	16
Future Volume (vph)	36	456	233	41	30	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50			50	0	0
Storage Lanes	1			1	1	0
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850	0.952	
Flt Protected	0.950				0.969	
Satd. Flow (prot)	1770	1863	1863	1583	1718	0
Flt Permitted	0.950				0.969	
Satd. Flow (perm)	1770	1863	1863	1583	1718	0
Link Speed (mph)		55	55		25	
Link Distance (ft)		878	3565		1000	
Travel Time (s)		10.9	44.2		27.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	40	507	259	46	33	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	40	507	259	46	51	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	34.0%
ICU Level of Service	A
Analysis Period (min)	15

Poole Rd Martin TIA
4: Poole Rd & Site Access 2

04/27/2022

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	36	456	233	41	30	16
Future Vol, veh/h	36	456	233	41	30	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	50	-	-	50	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	40	507	259	46	33	18

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	305	0	-	0	846 259
Stage 1	-	-	-	-	259 -
Stage 2	-	-	-	-	587 -
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	1256	-	-	-	333 780
Stage 1	-	-	-	-	784 -
Stage 2	-	-	-	-	556 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1256	-	-	-	322 780
Mov Cap-2 Maneuver	-	-	-	-	322 -
Stage 1	-	-	-	-	759 -
Stage 2	-	-	-	-	556 -

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	15.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1256	-	-	-	405
HCM Lane V/C Ratio	0.032	-	-	-	0.126
HCM Control Delay (s)	8	-	-	-	15.2
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

Poole Rd Martin TIA
5: Smithfield Rd & Poole Rd

04/27/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	153	107	8	123	51	43	559	8	18	923	81
Future Volume (vph)	96	153	107	8	123	51	43	559	8	18	923	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-1%			-2%				2%
Storage Length (ft)	225		0	75		0	175		0	125		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.938			0.956			0.998				0.988
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1743	1721	0	1778	1790	0	1787	1878	0	1752	1822	0
Flt Permitted	0.461			0.234			0.950			0.368		
Satd. Flow (perm)	846	1721	0	438	1790	0	1787	1878	0	679	1822	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55				55
Link Distance (ft)		4706			2490			978				962
Travel Time (s)		58.3			30.9			12.1				11.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	107	170	119	9	137	57	48	621	9	20	1026	90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	107	289	0	9	194	0	48	630	0	20	1116	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.02	1.02	1.02	0.99	0.99	0.99	0.99	0.99	0.99	1.01	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Prot	NA		D.Pm		NA
Protected Phases		4			8		5	2				6
Permitted Phases	4			8						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	14.0		14.0		14.0
Minimum Split (s)	20.0	20.0		20.0	20.0		14.0	21.0		21.0		21.0
Total Split (s)	22.0	22.0		22.0	22.0		14.0	78.0		78.0		64.0
Total Split (%)	22.0%	22.0%		22.0%	22.0%		14.0%	78.0%		78.0%		64.0%
Maximum Green (s)	15.0	15.0		15.0	15.0		7.0	71.0		71.0		57.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0		5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0		2.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0		-2.0
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 Optimize?							Yes					Yes
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	6.0		6.0		6.0
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	3.4		3.4		3.4

Poole Rd Martin TIA
5: Smithfield Rd & Poole Rd

04/27/2022

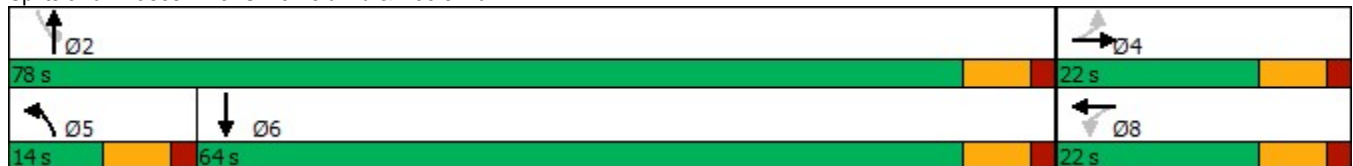


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	15.0		15.0	15.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	30.0		30.0	30.0	
Recall Mode	None	None		None	None		None	Min		Min	Min	
Act Effct Green (s)	17.1	17.1		17.1	17.1		9.0	67.3		67.3	59.3	
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.10	0.71		0.71	0.63	
v/c Ratio	0.70	0.93		0.11	0.60		0.28	0.47		0.04	0.98	
Control Delay	64.0	76.7		39.4	45.6		46.6	7.1		4.1	41.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	64.0	76.7		39.4	45.6		46.6	7.1		4.1	41.4	
LOS	E	E		D	D		D	A		A	D	
Approach Delay		73.3			45.4			9.9			40.7	
Approach LOS		E			D			A			D	
Queue Length 50th (ft)	66	186		5	116		29	139		3	~772	
Queue Length 95th (ft)	#155	#353		20	191		65	199		9	#1019	
Internal Link Dist (ft)		4626			2410			898			882	
Turn Bay Length (ft)	225			75			175			125		
Base Capacity (vph)	153	311		79	324		171	1460		527	1144	
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	0.70	0.93		0.11	0.60		0.28	0.43		0.04	0.98	

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 94.4
 Natural Cycle: 100
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 37.8 Intersection LOS: D
 Intersection Capacity Utilization 86.4% 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.

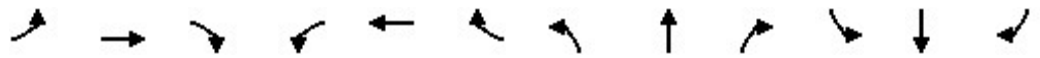
Splits and Phases: 5: Smithfield Rd & Poole Rd



2035 Build Traffic Volumes

Poole Rd Martin TIA
1: Hodge Rd & Poole Rd

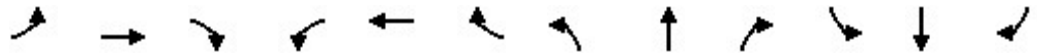
04/28/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	233	165	16	13	632	437	20	26	13	189	21	295
Future Volume (vph)	233	165	16	13	632	437	20	26	13	189	21	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			-1%			-1%	
Storage Length (ft)	225		0	175		0	50		0	450		825
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.939			0.951			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1820	0	1761	1740	0	1778	1780	0	1778	1872	1591
Flt Permitted	0.042			0.632			0.742			0.729		
Satd. Flow (perm)	77	1820	0	1171	1740	0	1389	1780	0	1365	1872	1591
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		839			1354			1147			722	
Travel Time (s)		12.7			20.5			22.3			10.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	259	183	18	14	702	486	22	29	14	210	23	328
Shared Lane Traffic (%)												
Lane Group Flow (vph)	259	201	0	14	1188	0	22	43	0	210	23	328
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		Perm	NA		D.Pm	NA		D.P+P	NA	pm+ov
Protected Phases	5	2			6			8		7	4	5
Permitted Phases	2			6			4			8		4
Detector Phase	5	2		6	6		4	8		7	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	12.4	22.5		22.5	22.5		22.5	22.5		14.0	22.5	12.4
Total Split (s)	19.0	113.5		94.5	94.5		36.5	22.5		14.0	36.5	19.0
Total Split (%)	12.7%	75.7%		63.0%	63.0%		24.3%	15.0%		9.3%	24.3%	12.7%
Maximum Green (s)	13.6	108.1		89.1	89.1		30.9	17.3		7.0	30.9	13.6
Yellow Time (s)	3.0	4.3		4.4	4.4		4.6	3.9		5.0	4.6	3.0
All-Red Time (s)	2.4	1.1		1.0	1.0		1.0	1.3		2.0	1.0	2.4
Lost Time Adjust (s)	-0.4	-0.4		-0.4	-0.4		-0.6	-0.2		-2.0	-0.6	-0.4
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lag			Lead		Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes		Yes
Vehicle Extension (s)	2.0	6.0		6.0	6.0		2.0	2.0		3.0	2.0	2.0
Minimum Gap (s)	2.0	3.0		3.0	3.0		2.0	2.0		3.0	2.0	2.0

Poole Rd Martin TIA
1: Hodge Rd & Poole Rd

04/28/2022

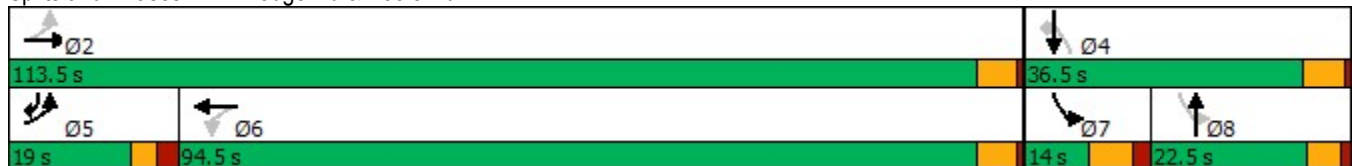


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Time Before Reduce (s)	0.0	15.0		15.0	15.0		0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	0.0	30.0		30.0	30.0		0.0	0.0		0.0	0.0	0.0
Recall Mode	None	Min		Min	Min		None	None		None	None	None
Act Effct Green (s)	108.7	108.7		89.7	89.7		20.0	8.6		16.0	20.0	39.0
Actuated g/C Ratio	0.78	0.78		0.65	0.65		0.14	0.06		0.12	0.14	0.28
v/c Ratio	1.13	0.14		0.02	1.06		0.11	0.39		1.14	0.09	0.73
Control Delay	138.1	4.4		10.2	68.7		51.8	74.2		160.3	51.0	55.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	138.1	4.4		10.2	68.7		51.8	74.2		160.3	51.0	55.6
LOS	F	A		B	E		D	E		F	D	E
Approach Delay		79.7			68.0			66.6			94.6	
Approach LOS		E			E			E			F	
Queue Length 50th (ft)	~227	41		4	~1202		17	39		~205	18	268
Queue Length 95th (ft)	#422	69		14	#1522		45	80		#258	45	382
Internal Link Dist (ft)		759			1274			1067			642	
Turn Bay Length (ft)	225			175			50			450		825
Base Capacity (vph)	229	1426		756	1124		316	224		184	426	447
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.13	0.14		0.02	1.06		0.07	0.19		1.14	0.05	0.73

Intersection Summary

Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 138.7
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.14
 Intersection Signal Delay: 76.8 Intersection LOS: E
 Intersection Capacity Utilization 102.5% 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.

Splits and Phases: 1: Hodge Rd & Poole Rd



Poole Rd Martin TIA
2: Bethlehem Rd & Poole Rd

04/28/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	26	109	4	66	442	73	25	306	52	33	210	51
Future Volume (vph)	26	109	4	66	442	73	25	306	52	33	210	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			2%			-2%			3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.983			0.982			0.976	
Flt Protected		0.991			0.994			0.997			0.994	
Satd. Flow (prot)	0	1802	0	0	1802	0	0	1842	0	0	1780	0
Flt Permitted		0.854			0.948			0.945			0.835	
Satd. Flow (perm)	0	1553	0	0	1719	0	0	1746	0	0	1495	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			45	
Link Distance (ft)		1637			1700			1025			956	
Travel Time (s)		20.3			21.1			12.7			14.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	29	121	4	73	491	81	28	340	58	37	233	57
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	154	0	0	645	0	0	426	0	0	327	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.03	1.03	1.03	1.01	1.01	1.01	0.99	0.99	0.99	1.02	1.02	1.02
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	21.3	21.3		21.4	21.4		15.0	15.0		15.0	15.0	
Total Split (s)	120.0	120.0		120.0	120.0		15.0	15.0		15.0	15.0	
Total Split (%)	88.9%	88.9%		88.9%	88.9%		11.1%	11.1%		11.1%	11.1%	
Maximum Green (s)	114.2	114.2		114.0	114.0		8.6	8.6		8.7	8.7	
Yellow Time (s)	4.8	4.8		5.0	5.0		5.4	5.4		5.3	5.3	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-0.8			-1.0			-1.4			-1.3	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0		1.0	1.0		1.0	1.0	
Minimum Gap (s)	3.2	3.2		3.2	3.2		1.0	1.0		1.0	1.0	
Time Before Reduce (s)	15.0	15.0		15.0	15.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	45.0	45.0		45.0	45.0		0.0	0.0		0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	

Poole Rd Martin TIA
 2: Bethlehem Rd & Poole Rd

04/28/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		20.8			20.8			10.1			10.1	
Actuated g/C Ratio		0.51			0.51			0.25			0.25	
v/c Ratio		0.20			0.74			0.99			0.89	
Control Delay		5.9			13.8			65.5			49.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		5.9			13.8			65.5			49.1	
LOS		A			B			E			D	
Approach Delay		5.9			13.8			65.5			49.1	
Approach LOS		A			B			E			D	
Queue Length 50th (ft)		17			101			96			71	
Queue Length 95th (ft)		36			188			#282			#224	
Internal Link Dist (ft)		1557			1620			945			876	
Turn Bay Length (ft)												
Base Capacity (vph)		1553			1719			429			367	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.10			0.38			0.99			0.89	

Intersection Summary

Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 41
 Natural Cycle: 50
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.99
 Intersection Signal Delay: 34.6
 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: 2: Bethlehem Rd & Poole Rd

	120 s		15 s
	120 s		15 s

Poole Rd Martin TIA
 3: Poole Rd & Site Access 1

04/28/2022



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	8	185	551	6	12	31
Future Volume (vph)	8	185	551	6	12	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.998		0.902	
Flt Protected	0.950				0.986	
Satd. Flow (prot)	1770	1863	1859	0	1657	0
Flt Permitted	0.950				0.986	
Satd. Flow (perm)	1770	1863	1859	0	1657	0
Link Speed (mph)		55	55		25	
Link Distance (ft)		1700	878		988	
Travel Time (s)		21.1	10.9		26.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	9	206	612	7	13	34
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	206	619	0	47	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	39.4%
ICU Level of Service	A
Analysis Period (min)	15

Poole Rd Martin TIA
 3: Poole Rd & Site Access 1

04/28/2022

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	185	551	6	12	31
Future Vol, veh/h	8	185	551	6	12	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	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	206	612	7	13	34

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	619	0	-	0	840 616
Stage 1	-	-	-	-	616 -
Stage 2	-	-	-	-	224 -
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	961	-	-	-	335 491
Stage 1	-	-	-	-	539 -
Stage 2	-	-	-	-	813 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	961	-	-	-	332 491
Mov Cap-2 Maneuver	-	-	-	-	332 -
Stage 1	-	-	-	-	534 -
Stage 2	-	-	-	-	813 -

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	14.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	961	-	-	-	433
HCM Lane V/C Ratio	0.009	-	-	-	0.11
HCM Control Delay (s)	8.8	-	-	-	14.3
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.4

Poole Rd Martin TIA
4: Poole Rd & Site Access 2

04/28/2022



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	8	189	525	15	35	32
Future Volume (vph)	8	189	525	15	35	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50			50	0	0
Storage Lanes	1			1	1	0
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850	0.935	
Flt Protected	0.950				0.975	
Satd. Flow (prot)	1770	1863	1863	1583	1698	0
Flt Permitted	0.950				0.975	
Satd. Flow (perm)	1770	1863	1863	1583	1698	0
Link Speed (mph)		55	55		25	
Link Distance (ft)		878	3565		1000	
Travel Time (s)		10.9	44.2		27.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	9	210	583	17	39	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	210	583	17	75	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
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

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗	↘	↘	↗
Traffic Vol, veh/h	8	189	525	15	35	32
Future Vol, veh/h	8	189	525	15	35	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	50	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	210	583	17	39	36

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	600	0	-	0	811 583
Stage 1	-	-	-	-	583 -
Stage 2	-	-	-	-	228 -
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	977	-	-	-	349 512
Stage 1	-	-	-	-	558 -
Stage 2	-	-	-	-	810 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	977	-	-	-	346 512
Mov Cap-2 Maneuver	-	-	-	-	346 -
Stage 1	-	-	-	-	553 -
Stage 2	-	-	-	-	810 -

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	15.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	977	-	-	-	409
HCM Lane V/C Ratio	0.009	-	-	-	0.182
HCM Control Delay (s)	8.7	-	-	-	15.8
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.7

Poole Rd Martin TIA
5: Smithfield Rd & Poole Rd

04/28/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	135	42	7	204	65	129	1017	4	46	390	74
Future Volume (vph)	91	135	42	7	204	65	129	1017	4	46	390	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-1%			-2%			2%	
Storage Length (ft)	225		0	75		0	175		0	125		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t		0.964			0.964			0.999				0.976
Fl _t Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1743	1769	0	1778	1805	0	1787	1879	0	1752	1800	0
Fl _t Permitted	0.334			0.536			0.950			0.075		
Satd. Flow (perm)	613	1769	0	1003	1805	0	1787	1879	0	138	1800	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55				55
Link Distance (ft)		4706			2490			978				962
Travel Time (s)		58.3			30.9			12.1				11.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	101	150	47	8	227	72	143	1130	4	51	433	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	101	197	0	8	299	0	143	1134	0	51	515	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.02	1.02	1.02	0.99	0.99	0.99	0.99	0.99	0.99	1.01	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Prot	NA		D.Pm		NA
Protected Phases		4			8		5	2				6
Permitted Phases	4			8						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	14.0		14.0		14.0
Minimum Split (s)	20.0	20.0		20.0	20.0		14.0	21.0		21.0		21.0
Total Split (s)	25.0	25.0		25.0	25.0		19.0	65.0		65.0		46.0
Total Split (%)	27.8%	27.8%		27.8%	27.8%		21.1%	72.2%		72.2%		51.1%
Maximum Green (s)	18.0	18.0		18.0	18.0		12.0	58.0		58.0		39.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0		5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0		2.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0		-2.0
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 Optimize?							Yes					Yes
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	6.0		6.0		6.0
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	3.4		3.4		3.4

Poole Rd Martin TIA
5: Smithfield Rd & Poole Rd

04/28/2022

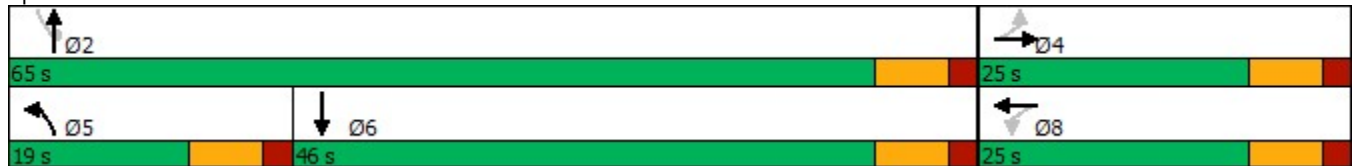


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	15.0		15.0	15.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	30.0		30.0	30.0	
Recall Mode	None	None		None	None		None	Min		Min	Min	
Act Effct Green (s)	18.1	18.1		18.1	18.1		12.3	53.5		53.5	36.0	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.15	0.65		0.65	0.44	
v/c Ratio	0.75	0.50		0.04	0.75		0.53	0.92		0.57	0.65	
Control Delay	66.5	34.9		28.1	44.5		42.5	27.0		38.0	22.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	66.5	34.9		28.1	44.5		42.5	27.0		38.0	22.9	
LOS	E	C		C	D		D	C		D	C	
Approach Delay		45.6			44.0			28.7			24.2	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	54	99		4	159		76	478		13	213	
Queue Length 95th (ft)	#140	167		15	#275		135	#848		#80	323	
Internal Link Dist (ft)		4626			2410			898			882	
Turn Bay Length (ft)	225			75			175			125		
Base Capacity (vph)	154	445		252	454		314	1402		103	930	
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	0.66	0.44		0.03	0.66		0.46	0.81		0.50	0.55	

Intersection Summary

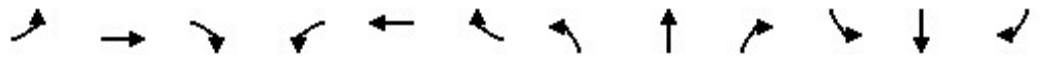
Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 81.9
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 31.7
 Intersection LOS: C
 Intersection Capacity Utilization 102.6%
 ICU Level of Service G
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 5: Smithfield Rd & Poole Rd



Poole Rd Martin TIA
1: Hodge Rd & Poole Rd

04/28/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	289	337	21	27	197	225	15	21	19	743	51	307
Future Volume (vph)	289	337	21	27	197	225	15	21	19	743	51	307
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			-1%			-1%	
Storage Length (ft)	225		0	175		0	50		0	450		825
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t		0.991			0.920			0.928				0.850
Fl _t Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1828	0	1761	1705	0	1778	1737	0	1778	1872	1591
Fl _t Permitted	0.124			0.528			0.720			0.728		
Satd. Flow (perm)	229	1828	0	979	1705	0	1348	1737	0	1363	1872	1591
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35				45
Link Distance (ft)		839			1354			1147				722
Travel Time (s)		12.7			20.5			22.3				10.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	321	374	23	30	219	250	17	23	21	826	57	341
Shared Lane Traffic (%)												
Lane Group Flow (vph)	321	397	0	30	469	0	17	44	0	826	57	341
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		Perm	NA		D.Pm	NA		D.P+P	NA	pm+ov
Protected Phases	5	2			6			8		7	4	5
Permitted Phases	2			6			4			8		4
Detector Phase	5	2		6	6		4	8		7	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	12.4	22.5		22.5	22.5		22.5	22.5		14.0	22.5	12.4
Total Split (s)	25.4	72.5		47.1	47.1		77.5	22.5		55.0	77.5	25.4
Total Split (%)	16.9%	48.3%		31.4%	31.4%		51.7%	15.0%		36.7%	51.7%	16.9%
Maximum Green (s)	20.0	67.1		41.7	41.7		71.9	17.3		48.0	71.9	20.0
Yellow Time (s)	3.0	4.3		4.4	4.4		4.6	3.9		5.0	4.6	3.0
All-Red Time (s)	2.4	1.1		1.0	1.0		1.0	1.3		2.0	1.0	2.4
Lost Time Adjust (s)	-0.4	-0.4		-0.4	-0.4		-0.6	-0.2		-2.0	-0.6	-0.4
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag			Lag		Lead		Lead
Lead-Lag Optimize?	Yes			Yes	Yes			Yes		Yes		Yes
Vehicle Extension (s)	2.0	6.0		6.0	6.0		2.0	2.0		3.0	2.0	2.0
Minimum Gap (s)	2.0	3.0		3.0	3.0		2.0	2.0		3.0	2.0	2.0

Poole Rd Martin TIA
1: Hodge Rd & Poole Rd

04/28/2022

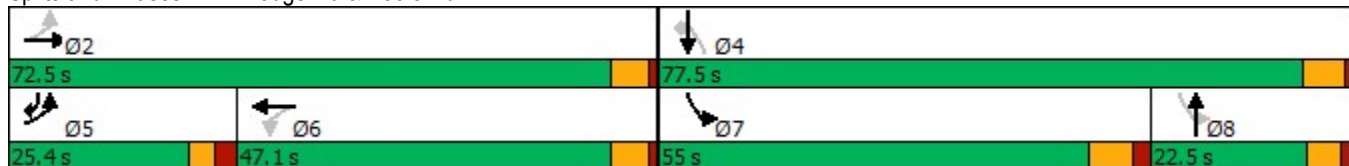


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Time Before Reduce (s)	0.0	15.0		15.0	15.0		0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	0.0	30.0		30.0	30.0		0.0	0.0		0.0	0.0	0.0
Recall Mode	None	Min		Min	Min		None	None		None	None	None
Act Effct Green (s)	66.7	66.7		41.2	41.2		61.2	8.7		57.3	61.2	86.7
Actuated g/C Ratio	0.48	0.48		0.30	0.30		0.44	0.06		0.42	0.44	0.63
v/c Ratio	0.96	0.45		0.10	0.92		0.03	0.40		1.15	0.07	0.34
Control Delay	72.9	26.3		37.9	72.2		21.6	74.5		117.8	22.2	13.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	72.9	26.3		37.9	72.2		21.6	74.5		117.8	22.2	13.3
LOS	E	C		D	E		C	E		F	C	B
Approach Delay		47.2			70.2			59.8			84.2	
Approach LOS		D			E			E			F	
Queue Length 50th (ft)	220	237		20	416		9	40		~816	29	139
Queue Length 95th (ft)	#434	342		49	#649		24	82		#1043	56	197
Internal Link Dist (ft)		759			1274			1067			642	
Turn Bay Length (ft)	225			175			50			450		825
Base Capacity (vph)	336	898		300	522		711	221		717	988	1000
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.96	0.44		0.10	0.90		0.02	0.20		1.15	0.06	0.34

Intersection Summary

Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 137.9
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.15
 Intersection Signal Delay: 70.2 Intersection LOS: E
 Intersection Capacity Utilization 100.5% 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.

Splits and Phases: 1: Hodge Rd & Poole Rd



Poole Rd Martin TIA
2: Bethlehem Rd & Poole Rd

04/28/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	37	384	16	57	145	71	5	200	60	114	345	48
Future Volume (vph)	37	384	16	57	145	71	5	200	60	114	345	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			2%			-2%			3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.965			0.969			0.987	
Flt Protected		0.996			0.990			0.999			0.989	
Satd. Flow (prot)	0	1809	0	0	1762	0	0	1821	0	0	1791	0
Flt Permitted		0.950			0.845			0.979			0.851	
Satd. Flow (perm)	0	1726	0	0	1504	0	0	1785	0	0	1541	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			45	
Link Distance (ft)		1637			1700			1025			956	
Travel Time (s)		20.3			21.1			12.7			14.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	41	427	18	63	161	79	6	222	67	127	383	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	486	0	0	303	0	0	295	0	0	563	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.03	1.03	1.03	1.01	1.01	1.01	0.99	0.99	0.99	1.02	1.02	1.02
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	21.3	21.3		21.4	21.4		15.0	15.0		15.0	15.0	
Total Split (s)	120.0	120.0		120.0	120.0		15.0	15.0		15.0	15.0	
Total Split (%)	88.9%	88.9%		88.9%	88.9%		11.1%	11.1%		11.1%	11.1%	
Maximum Green (s)	114.2	114.2		114.0	114.0		8.6	8.6		8.7	8.7	
Yellow Time (s)	4.8	4.8		5.0	5.0		5.4	5.4		5.3	5.3	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-0.8			-1.0			-1.4			-1.3	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0		1.0	1.0		1.0	1.0	
Minimum Gap (s)	3.2	3.2		3.2	3.2		1.0	1.0		1.0	1.0	
Time Before Reduce (s)	15.0	15.0		15.0	15.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	45.0	45.0		45.0	45.0		0.0	0.0		0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	

Poole Rd Martin TIA
 2: Bethlehem Rd & Poole Rd

04/28/2022

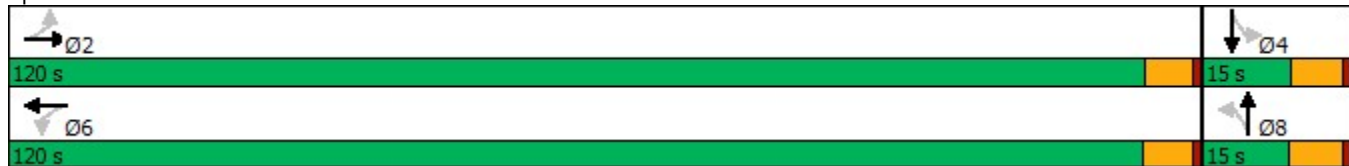


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		16.7			16.7			10.0			10.0	
Actuated g/C Ratio		0.46			0.46			0.27			0.27	
v/c Ratio		0.62			0.44			0.61			1.34	
Control Delay		11.7			9.3			19.6			188.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		11.7			9.3			19.6			188.6	
LOS		B			A			B			F	
Approach Delay		11.7			9.3			19.6			188.6	
Approach LOS		B			A			B			F	
Queue Length 50th (ft)		66			37			49			~155	
Queue Length 95th (ft)		128			77			#139			#318	
Internal Link Dist (ft)		1557			1620			945			876	
Turn Bay Length (ft)												
Base Capacity (vph)		1726			1504			486			420	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.28			0.20			0.61			1.34	

Intersection Summary

Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 36.7
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.34
 Intersection Signal Delay: 73.1
 Intersection LOS: E
 Intersection Capacity Utilization 82.8%
 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.

Splits and Phases: 2: Bethlehem Rd & Poole Rd



Poole Rd Martin TIA
 3: Poole Rd & Site Access 1

04/28/2022



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	35	524	256	13	10	17
Future Volume (vph)	35	524	256	13	10	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.994		0.914	
Flt Protected	0.950				0.982	
Satd. Flow (prot)	1770	1863	1852	0	1672	0
Flt Permitted	0.950				0.982	
Satd. Flow (perm)	1770	1863	1852	0	1672	0
Link Speed (mph)		55	55		25	
Link Distance (ft)		1700	878		988	
Travel Time (s)		21.1	10.9		26.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	39	582	284	14	11	19
Shared Lane Traffic (%)						
Lane Group Flow (vph)	39	582	298	0	30	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	37.6%
ICU Level of Service	A
Analysis Period (min)	15

Poole Rd Martin TIA
 3: Poole Rd & Site Access 1

04/28/2022

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	35	524	256	13	10	17
Future Vol, veh/h	35	524	256	13	10	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	50	-	-	-	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	39	582	284	14	11	19

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	298	0	-	0	951 291
Stage 1	-	-	-	-	291 -
Stage 2	-	-	-	-	660 -
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	1263	-	-	-	288 748
Stage 1	-	-	-	-	759 -
Stage 2	-	-	-	-	514 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1263	-	-	-	279 748
Mov Cap-2 Maneuver	-	-	-	-	279 -
Stage 1	-	-	-	-	735 -
Stage 2	-	-	-	-	514 -

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	13.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1263	-	-	-	461
HCM Lane V/C Ratio	0.031	-	-	-	0.065
HCM Control Delay (s)	7.9	-	-	-	13.4
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

Poole Rd Martin TIA
4: Poole Rd & Site Access 2

04/28/2022



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	36	498	253	41	30	16
Future Volume (vph)	36	498	253	41	30	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50			50	0	0
Storage Lanes	1			1	1	0
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850	0.952	
Flt Protected	0.950				0.969	
Satd. Flow (prot)	1770	1863	1863	1583	1718	0
Flt Permitted	0.950				0.969	
Satd. Flow (perm)	1770	1863	1863	1583	1718	0
Link Speed (mph)		55	55		25	
Link Distance (ft)		878	3565		1000	
Travel Time (s)		10.9	44.2		27.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	40	553	281	46	33	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	40	553	281	46	51	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	36.2%
ICU Level of Service	A
Analysis Period (min)	15

Poole Rd Martin TIA
4: Poole Rd & Site Access 2

04/28/2022

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	36	498	253	41	30	16
Future Vol, veh/h	36	498	253	41	30	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	50	-	-	50	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	40	553	281	46	33	18

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	327	0	-	0	914 281
Stage 1	-	-	-	-	281 -
Stage 2	-	-	-	-	633 -
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	1233	-	-	-	303 758
Stage 1	-	-	-	-	767 -
Stage 2	-	-	-	-	529 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1233	-	-	-	293 758
Mov Cap-2 Maneuver	-	-	-	-	293 -
Stage 1	-	-	-	-	742 -
Stage 2	-	-	-	-	529 -

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	16.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1233	-	-	-	372
HCM Lane V/C Ratio	0.032	-	-	-	0.137
HCM Control Delay (s)	8	-	-	-	16.2
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

Poole Rd Martin TIA
5: Smithfield Rd & Poole Rd

04/28/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	167	115	9	134	56	45	611	9	20	1009	86
Future Volume (vph)	104	167	115	9	134	56	45	611	9	20	1009	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-1%			-2%			2%	
Storage Length (ft)	225		0	75		0	175		0	125		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.939			0.956			0.998			0.988	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1743	1723	0	1778	1790	0	1787	1878	0	1752	1822	0
Flt Permitted	0.367			0.148			0.950			0.338		
Satd. Flow (perm)	673	1723	0	277	1790	0	1787	1878	0	623	1822	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		4706			2490			978			962	
Travel Time (s)		58.3			30.9			12.1			11.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	116	186	128	10	149	62	50	679	10	22	1121	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	116	314	0	10	211	0	50	689	0	22	1217	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.02	1.02	1.02	0.99	0.99	0.99	0.99	0.99	0.99	1.01	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Prot	NA		D.Pm	NA	
Protected Phases		4			8			5		2		6
Permitted Phases	4			8						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	14.0		14.0	14.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		14.0	21.0		21.0	21.0	
Total Split (s)	32.0	32.0		32.0	32.0		14.0	118.0		118.0	104.0	
Total Split (%)	21.3%	21.3%		21.3%	21.3%		9.3%	78.7%		78.7%	69.3%	
Maximum Green (s)	25.0	25.0		25.0	25.0		7.0	111.0		111.0	97.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	
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 Optimize?							Yes					Yes
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	6.0		6.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	3.4		3.4	3.4	

Poole Rd Martin TIA
5: Smithfield Rd & Poole Rd

04/28/2022

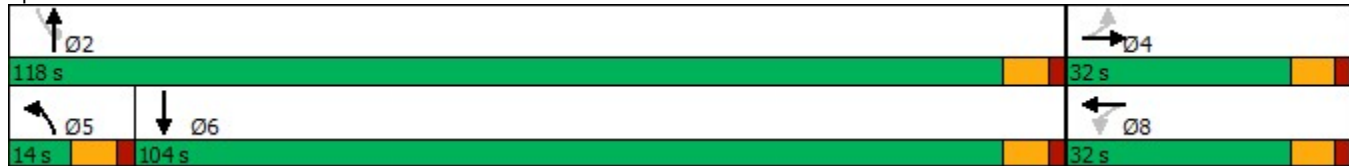


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	15.0		15.0	15.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	30.0		30.0	30.0	
Recall Mode	None	None		None	None		None	Min		Min	Min	
Act Effct Green (s)	27.0	27.0		27.0	27.0		9.0	110.1		110.1	99.2	
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.06	0.75		0.75	0.67	
v/c Ratio	0.94	0.99		0.20	0.64		0.46	0.49		0.05	0.99	
Control Delay	125.7	108.2		63.7	66.4		82.0	8.7		5.0	48.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	125.7	108.2		63.7	66.4		82.0	8.7		5.0	48.5	
LOS	F	F		E	E		F	A		A	D	
Approach Delay		112.9			66.3			13.7			47.7	
Approach LOS		F			E			B			D	
Queue Length 50th (ft)	114	~317		8	194		48	235		5	~1188	
Queue Length 95th (ft)	#248	#519		29	287		95	308		13	#1515	
Internal Link Dist (ft)		4626			2410			898			882	
Turn Bay Length (ft)	225			75			175			125		
Base Capacity (vph)	123	316		50	329		109	1443		479	1227	
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	0.94	0.99		0.20	0.64		0.46	0.48		0.05	0.99	

Intersection Summary

Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 147.2
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.99
 Intersection Signal Delay: 50.4
 Intersection LOS: D
 Intersection Capacity Utilization 92.5%
 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.

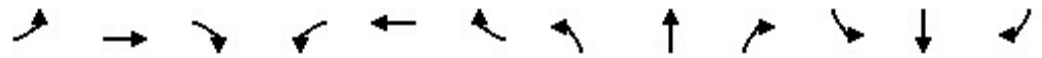
Splits and Phases: 5: Smithfield Rd & Poole Rd



**2026 Background with Non-Approved
Developments Traffic Volumes**

Poole Rd Martin TIA
1: Hodge Rd & Poole Rd

04/28/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	213	164	15	12	606	382	18	24	12	168	19	270
Future Volume (vph)	213	164	15	12	606	382	18	24	12	168	19	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			-1%			-1%	
Storage Length (ft)	225		0	175		0	50		0	450		825
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.942			0.951			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1820	0	1761	1746	0	1778	1780	0	1778	1872	1591
Flt Permitted	0.052			0.633			0.744			0.731		
Satd. Flow (perm)	96	1820	0	1173	1746	0	1393	1780	0	1368	1872	1591
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		839			1354			1147			722	
Travel Time (s)		12.7			20.5			22.3			10.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	237	182	17	13	673	424	20	27	13	187	21	300
Shared Lane Traffic (%)												
Lane Group Flow (vph)	237	199	0	13	1097	0	20	40	0	187	21	300
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	12.4	22.5		22.5	22.5		22.5	22.5		22.5	22.5	12.4
Total Split (s)	15.0	90.0		90.0	90.0		30.0	30.0		30.0	30.0	15.0
Total Split (%)	11.1%	66.7%		66.7%	66.7%		22.2%	22.2%		22.2%	22.2%	11.1%
Maximum Green (s)	9.6	84.6		84.6	84.6		24.8	24.8		24.4	24.4	9.6
Yellow Time (s)	3.0	4.3		4.4	4.4		3.9	3.9		4.6	4.6	3.0
All-Red Time (s)	2.4	1.1		1.0	1.0		1.3	1.3		1.0	1.0	2.4
Lost Time Adjust (s)	-0.4	-0.4		-0.4	-0.4		-0.2	-0.2		-0.6	-0.6	-0.4
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Vehicle Extension (s)	2.0	6.0		6.0	6.0		2.0	2.0		2.0	2.0	2.0
Minimum Gap (s)	2.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	2.0

Poole Rd Martin TIA
1: Hodge Rd & Poole Rd

04/28/2022

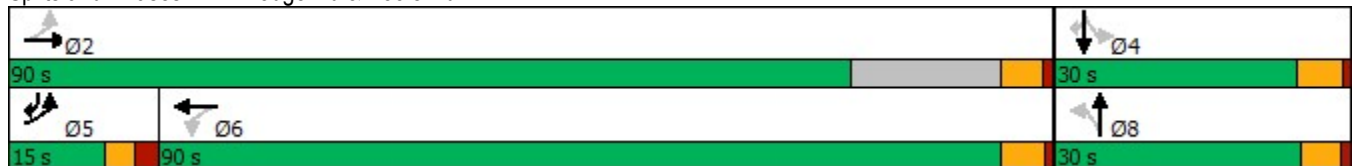


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Time Before Reduce (s)	0.0	15.0		15.0	15.0		0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	0.0	30.0		30.0	30.0		0.0	0.0		0.0	0.0	0.0
Recall Mode	None	Min		Min	Min		None	None		None	None	None
Act Effct Green (s)	99.4	99.4		84.4	84.4		21.4	21.4		21.4	21.4	36.4
Actuated g/C Ratio	0.76	0.76		0.65	0.65		0.16	0.16		0.16	0.16	0.28
v/c Ratio	1.19	0.14		0.02	0.97		0.09	0.14		0.84	0.07	0.68
Control Delay	156.1	4.9		9.4	44.8		46.9	47.7		83.0	46.4	50.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	156.1	4.9		9.4	44.8		46.9	47.7		83.0	46.4	50.6
LOS	F	A		A	D		D	D		F	D	D
Approach Delay		87.1			44.4			47.4			62.4	
Approach LOS		F			D			D			E	
Queue Length 50th (ft)	~192	43		4	876		15	30		157	15	228
Queue Length 95th (ft)	#370	69		13	#1257		39	64		#266	40	333
Internal Link Dist (ft)		759			1274			1067			642	
Turn Bay Length (ft)	225			175			50			450		825
Base Capacity (vph)	199	1394		763	1137		266	340		261	358	442
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.19	0.14		0.02	0.96		0.08	0.12		0.72	0.06	0.68

Intersection Summary

Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 130.8
 Natural Cycle: 130
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.19
 Intersection Signal Delay: 57.6
 Intersection LOS: E
 Intersection Capacity Utilization 95.5%
 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.

Splits and Phases: 1: Hodge Rd & Poole Rd



Poole Rd Martin TIA
2: Bethlehem Rd & Poole Rd

04/28/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	24	108	4	53	415	57	23	280	44	27	192	47
Future Volume (vph)	24	108	4	53	415	57	23	280	44	27	192	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			2%			-2%			3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.985			0.983			0.976	
Flt Protected		0.991			0.995			0.997			0.995	
Satd. Flow (prot)	0	1802	0	0	1807	0	0	1844	0	0	1782	0
Flt Permitted		0.869			0.955			0.958			0.898	
Satd. Flow (perm)	0	1580	0	0	1735	0	0	1772	0	0	1608	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			45	
Link Distance (ft)		1637			1700			1025			956	
Travel Time (s)		20.3			21.1			12.7			14.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	27	120	4	59	461	63	26	311	49	30	213	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	151	0	0	583	0	0	386	0	0	295	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.03	1.03	1.03	1.01	1.01	1.01	0.99	0.99	0.99	1.02	1.02	1.02
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	21.3	21.3		21.4	21.4		15.0	15.0		15.0	15.0	
Total Split (s)	120.0	120.0		120.0	120.0		15.0	15.0		15.0	15.0	
Total Split (%)	88.9%	88.9%		88.9%	88.9%		11.1%	11.1%		11.1%	11.1%	
Maximum Green (s)	114.2	114.2		114.0	114.0		8.6	8.6		8.7	8.7	
Yellow Time (s)	4.8	4.8		5.0	5.0		5.4	5.4		5.3	5.3	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-0.8			-1.0			-1.4			-1.3	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0		1.0	1.0		1.0	1.0	
Minimum Gap (s)	3.2	3.2		3.2	3.2		1.0	1.0		1.0	1.0	
Time Before Reduce (s)	15.0	15.0		15.0	15.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	45.0	45.0		45.0	45.0		0.0	0.0		0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	

Poole Rd Martin TIA
 2: Bethlehem Rd & Poole Rd

04/28/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		18.8			18.8			10.1			10.1	
Actuated g/C Ratio		0.48			0.48			0.26			0.26	
v/c Ratio		0.20			0.70			0.84			0.71	
Control Delay		6.3			12.9			37.2			27.9	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		6.3			12.9			37.2			27.9	
LOS		A			B			D			C	
Approach Delay		6.3			12.9			37.2			27.9	
Approach LOS		A			B			D			C	
Queue Length 50th (ft)		16			86			76			56	
Queue Length 95th (ft)		36			162			#227			#174	
Internal Link Dist (ft)		1557			1620			945			876	
Turn Bay Length (ft)												
Base Capacity (vph)		1580			1735			458			415	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.10			0.34			0.84			0.71	

Intersection Summary

Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 38.9
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 21.9
 Intersection LOS: C
 Intersection Capacity Utilization 63.9%
 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.

Splits and Phases: 2: Bethlehem Rd & Poole Rd

	120 s		15 s
	120 s		15 s

Poole Rd Martin TIA
5: Smithfield Rd & Poole Rd

04/28/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	155	42	19	206	151	112	938	6	97	380	63
Future Volume (vph)	55	155	42	19	206	151	112	938	6	97	380	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-1%			-2%				2%
Storage Length (ft)	225		0	75		0	175		0	125		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.968			0.937			0.999				0.979
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1743	1776	0	1778	1754	0	1787	1879	0	1752	1805	0
Flt Permitted	0.199			0.503			0.950			0.084		
Satd. Flow (perm)	365	1776	0	942	1754	0	1787	1879	0	155	1805	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55				55
Link Distance (ft)		4706			2490			978				962
Travel Time (s)		58.3			30.9			12.1				11.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	61	172	47	21	229	168	124	1042	7	108	422	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	61	219	0	21	397	0	124	1049	0	108	492	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.02	1.02	1.02	0.99	0.99	0.99	0.99	0.99	0.99	1.01	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Prot	NA		D.Pm	NA	
Protected Phases		4			8		5	2				6
Permitted Phases	4			8						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	14.0		14.0		14.0
Minimum Split (s)	20.0	20.0		20.0	20.0		14.0	21.0		21.0		21.0
Total Split (s)	28.0	28.0		28.0	28.0		17.0	62.0		62.0		45.0
Total Split (%)	31.1%	31.1%		31.1%	31.1%		18.9%	68.9%		68.9%		50.0%
Maximum Green (s)	21.0	21.0		21.0	21.0		10.0	55.0		55.0		38.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0		5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0		2.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0		-2.0
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 Optimize?							Yes					Yes
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	6.0		6.0		6.0
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	3.4		3.4		3.4

Poole Rd Martin TIA
5: Smithfield Rd & Poole Rd

04/28/2022

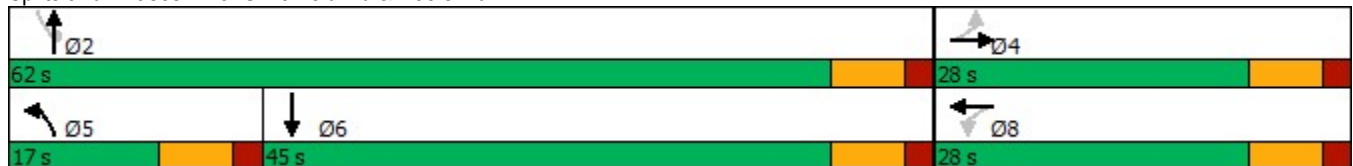


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	15.0		15.0	15.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	30.0		30.0	30.0	
Recall Mode	None	None		None	None		None	Min		Min	Min	
Act Effct Green (s)	22.4	22.4		22.4	22.4		11.1	57.0		57.0	40.9	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.12	0.64		0.64	0.46	
v/c Ratio	0.67	0.49		0.09	0.90		0.56	0.88		1.09	0.60	
Control Delay	67.5	33.0		26.8	58.6		47.0	23.9		143.7	22.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	67.5	33.0		26.8	58.6		47.0	23.9		143.7	22.3	
LOS	E	C		C	E		D	C		F	C	
Approach Delay		40.5			57.1			26.4			44.1	
Approach LOS		D			E			C			D	
Queue Length 50th (ft)	31	106		9	218		67	445		~70	207	
Queue Length 95th (ft)	#97	176		28	#382		123	#779		#119	311	
Internal Link Dist (ft)		4626			2410			898			882	
Turn Bay Length (ft)	225			75			175			125		
Base Capacity (vph)	94	456		242	451		240	1198		99	825	
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	0.65	0.48		0.09	0.88		0.52	0.88		1.09	0.60	

Intersection Summary






















Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 89.4
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.09
 Intersection Signal Delay: 37.5
 Intersection LOS: D
 Intersection Capacity Utilization 104.0%
 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.

Splits and Phases: 5: Smithfield Rd & Poole Rd



Poole Rd Martin TIA
1: Hodge Rd & Poole Rd

04/28/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	264	347	19	25	205	197	14	19	17	651	47	281
Future Volume (vph)	264	347	19	25	205	197	14	19	17	651	47	281
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			-1%			-1%	
Storage Length (ft)	225		0	175		0	50		0	450		825
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.927			0.929				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1829	0	1761	1718	0	1778	1739	0	1778	1872	1591
Flt Permitted	0.211			0.523			0.723			0.731		
Satd. Flow (perm)	389	1829	0	969	1718	0	1353	1739	0	1368	1872	1591
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		839			1354			1147			722	
Travel Time (s)		12.7			20.5			22.3			10.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	293	386	21	28	228	219	16	21	19	723	52	312
Shared Lane Traffic (%)												
Lane Group Flow (vph)	293	407	0	28	447	0	16	40	0	723	52	312
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	12.4	22.5		22.5	22.5		22.5	22.5		22.5	22.5	12.4
Total Split (s)	15.0	90.0		90.0	90.0		30.0	30.0		30.0	30.0	15.0
Total Split (%)	11.1%	66.7%		66.7%	66.7%		22.2%	22.2%		22.2%	22.2%	11.1%
Maximum Green (s)	9.6	84.6		84.6	84.6		24.8	24.8		24.4	24.4	9.6
Yellow Time (s)	3.0	4.3		4.4	4.4		3.9	3.9		4.6	4.6	3.0
All-Red Time (s)	2.4	1.1		1.0	1.0		1.3	1.3		1.0	1.0	2.4
Lost Time Adjust (s)	-0.4	-0.4		-0.4	-0.4		-0.2	-0.2		-0.6	-0.6	-0.4
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Vehicle Extension (s)	2.0	6.0		6.0	6.0		2.0	2.0		2.0	2.0	2.0
Minimum Gap (s)	2.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	2.0

Poole Rd Martin TIA
1: Hodge Rd & Poole Rd

04/28/2022



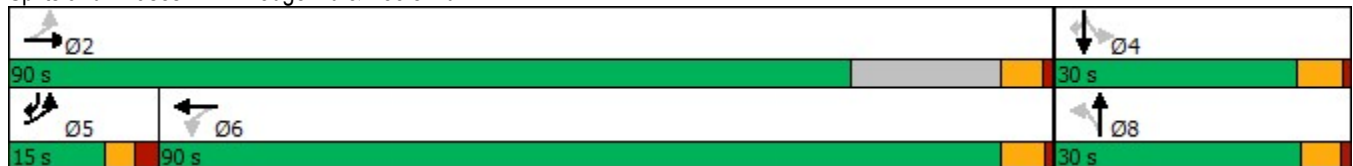
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Time Before Reduce (s)	0.0	15.0		15.0	15.0		0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	0.0	30.0		30.0	30.0		0.0	0.0		0.0	0.0	0.0
Recall Mode	None	Min		Min	Min		None	None		None	None	None
Act Effct Green (s)	38.6	38.6		23.5	23.5		25.1	25.1		25.1	25.1	40.2
Actuated g/C Ratio	0.52	0.52		0.32	0.32		0.34	0.34		0.34	0.34	0.54
v/c Ratio	0.75	0.43		0.09	0.82		0.03	0.07		1.55	0.08	0.36
Control Delay	24.2	12.1		17.4	35.8		19.1	19.1		283.4	19.1	12.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	24.2	12.1		17.4	35.8		19.1	19.1		283.4	19.1	12.3
LOS	C	B		B	D		B	B		F	B	B
Approach Delay		17.2			34.8			19.1			192.9	
Approach LOS		B			C			B			F	
Queue Length 50th (ft)	71	106		9	185		5	12		~474	16	74
Queue Length 95th (ft)	#142	164		26	288		20	37		#769	44	160
Internal Link Dist (ft)		759			1274			1067			642	
Turn Bay Length (ft)	225			175			50			450		825
Base Capacity (vph)	389	1829		969	1718		460	592		465	637	866
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.75	0.22		0.03	0.26		0.03	0.07		1.55	0.08	0.36

Intersection Summary

Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 73.8
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.55
 Intersection Signal Delay: 103.2
 Intersection Capacity Utilization 92.7%
 Analysis Period (min) 15
 Intersection LOS: F
 ICU Level of Service F

~ 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.

Splits and Phases: 1: Hodge Rd & Poole Rd



Poole Rd Martin TIA
2: Bethlehem Rd & Poole Rd

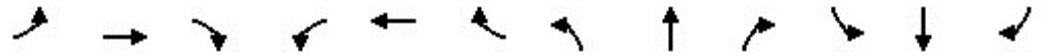
04/28/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	34	361	15	45	149	59	5	183	48	91	315	44
Future Volume (vph)	34	361	15	45	149	59	5	183	48	91	315	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			2%			-2%			3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.968			0.973			0.987	
Flt Protected		0.996			0.991			0.999			0.990	
Satd. Flow (prot)	0	1809	0	0	1769	0	0	1829	0	0	1793	0
Flt Permitted		0.953			0.865			0.981			0.884	
Satd. Flow (perm)	0	1731	0	0	1544	0	0	1796	0	0	1601	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			45	
Link Distance (ft)		1637			1700			1025			956	
Travel Time (s)		20.3			21.1			12.7			14.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	38	401	17	50	166	66	6	203	53	101	350	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	456	0	0	282	0	0	262	0	0	500	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.03	1.03	1.03	1.01	1.01	1.01	0.99	0.99	0.99	1.02	1.02	1.02
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	21.3	21.3		21.4	21.4		15.0	15.0		15.0	15.0	
Total Split (s)	120.0	120.0		120.0	120.0		15.0	15.0		15.0	15.0	
Total Split (%)	88.9%	88.9%		88.9%	88.9%		11.1%	11.1%		11.1%	11.1%	
Maximum Green (s)	114.2	114.2		114.0	114.0		8.6	8.6		8.7	8.7	
Yellow Time (s)	4.8	4.8		5.0	5.0		5.4	5.4		5.3	5.3	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-0.8			-1.0			-1.4			-1.3	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0		1.0	1.0		1.0	1.0	
Minimum Gap (s)	3.2	3.2		3.2	3.2		1.0	1.0		1.0	1.0	
Time Before Reduce (s)	15.0	15.0		15.0	15.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	45.0	45.0		45.0	45.0		0.0	0.0		0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	

Poole Rd Martin TIA
 2: Bethlehem Rd & Poole Rd

04/28/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)		16.5			16.5			10.0			10.0	
Actuated g/C Ratio		0.45			0.45			0.27			0.27	
v/c Ratio		0.58			0.41			0.53			1.14	
Control Delay		11.1			8.8			16.2			107.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		11.1			8.8			16.2			107.8	
LOS		B			A			B			F	
Approach Delay		11.1			8.8			16.2			107.8	
Approach LOS		B			A			B			F	
Queue Length 50th (ft)		60			34			43			~124	
Queue Length 95th (ft)		117			70			97			#265	
Internal Link Dist (ft)		1557			1620			945			876	
Turn Bay Length (ft)												
Base Capacity (vph)		1731			1544			492			439	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.26			0.18			0.53			1.14	

Intersection Summary






















Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 36.5
 Natural Cycle: 50
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.14
 Intersection Signal Delay: 43.8
 Intersection LOS: D
 Intersection Capacity Utilization 74.4%
 ICU Level of Service D
 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.

Splits and Phases: 2: Bethlehem Rd & Poole Rd

Ø2	Ø4
120 s	15 s
Ø6	Ø8
120 s	15 s

Poole Rd Martin TIA
5: Smithfield Rd & Poole Rd

04/28/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	183	96	17	159	133	41	583	23	128	937	50
Future Volume (vph)	81	183	96	17	159	133	41	583	23	128	937	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-1%			-2%			2%	
Storage Length (ft)	225		0	75		0	175		0	125		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.948			0.932			0.994			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1743	1739	0	1778	1745	0	1787	1870	0	1752	1829	0
Flt Permitted	0.223			0.250			0.950			0.327		
Satd. Flow (perm)	409	1739	0	468	1745	0	1787	1870	0	603	1829	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		4706			2490			978			962	
Travel Time (s)		58.3			30.9			12.1			11.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	90	203	107	19	177	148	46	648	26	142	1041	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	90	310	0	19	325	0	46	674	0	142	1097	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.02	1.02	1.02	0.99	0.99	0.99	0.99	0.99	0.99	1.01	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Prot	NA		D.Pm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8						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	14.0		14.0	14.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		14.0	21.0		21.0	21.0	
Total Split (s)	38.0	38.0		38.0	38.0		14.0	102.0		102.0	88.0	
Total Split (%)	27.1%	27.1%		27.1%	27.1%		10.0%	72.9%		72.9%	62.9%	
Maximum Green (s)	31.0	31.0		31.0	31.0		7.0	95.0		95.0	81.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	
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 Optimize?							Yes				Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	6.0		6.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	3.4		3.4	3.4	

Poole Rd Martin TIA
5: Smithfield Rd & Poole Rd

04/28/2022

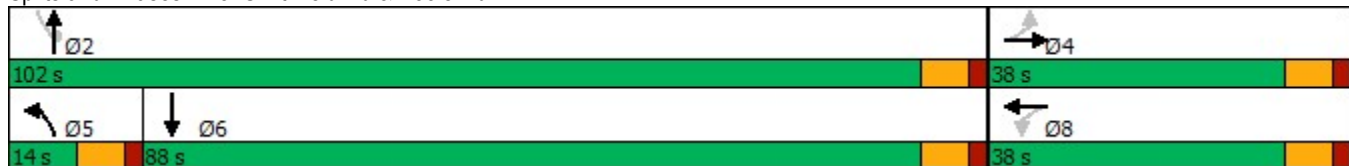


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	15.0		15.0	15.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	30.0		30.0	30.0	
Recall Mode	None	None		None	None		None	Min		Min	Min	
Act Effct Green (s)	30.1	30.1		30.1	30.1		9.1	93.7		93.7	83.0	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.07	0.70		0.70	0.62	
v/c Ratio	0.99	0.79		0.18	0.83		0.38	0.52		0.34	0.97	
Control Delay	143.0	65.3		47.9	68.5		72.5	11.5		11.0	46.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	143.0	65.3		47.9	68.5		72.5	11.5		11.0	46.7	
LOS	F	E		D	E		E	B		B	D	
Approach Delay		82.8			67.3			15.4			42.6	
Approach LOS		F			E			B			D	
Queue Length 50th (ft)	81	265		14	280		41	271		48	~1001	
Queue Length 95th (ft)	#196	#379		39	#420		85	361		87	#1311	
Internal Link Dist (ft)		4626			2410			898			882	
Turn Bay Length (ft)	225			75			175			125		
Base Capacity (vph)	101	432		116	434		120	1366		440	1144	
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	0.89	0.72		0.16	0.75		0.38	0.49		0.32	0.96	

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 133.9
 Natural Cycle: 130
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.99
 Intersection Signal Delay: 44.5
 Intersection LOS: D
 Intersection Capacity Utilization 97.2%
 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.

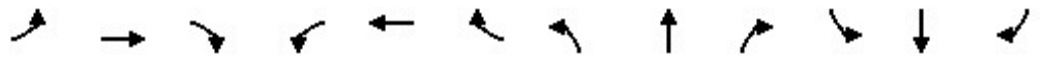
Splits and Phases: 5: Smithfield Rd & Poole Rd



**2026 Build with Non-Approved
Developments Traffic Volumes**

Poole Rd Martin TIA
1: Hodge Rd & Poole Rd

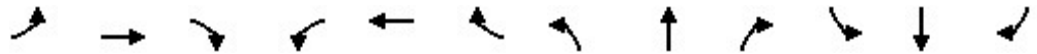
04/28/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	213	168	15	12	631	401	18	24	12	173	19	270
Future Volume (vph)	213	168	15	12	631	401	18	24	12	173	19	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			-1%			-1%	
Storage Length (ft)	225		0	175		0	50		0	450		825
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t		0.987			0.942			0.951				0.850
Fl _t Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1820	0	1761	1746	0	1778	1780	0	1778	1872	1591
Fl _t Permitted	0.044			0.630			0.744			0.731		
Satd. Flow (perm)	81	1820	0	1168	1746	0	1393	1780	0	1368	1872	1591
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		839			1354			1147			722	
Travel Time (s)		12.7			20.5			22.3			10.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	237	187	17	13	701	446	20	27	13	192	21	300
Shared Lane Traffic (%)												
Lane Group Flow (vph)	237	204	0	13	1147	0	20	40	0	192	21	300
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	12.4	22.5		22.5	22.5		22.5	22.5		22.5	22.5	12.4
Total Split (s)	15.0	90.0		90.0	90.0		30.0	30.0		30.0	30.0	15.0
Total Split (%)	11.1%	66.7%		66.7%	66.7%		22.2%	22.2%		22.2%	22.2%	11.1%
Maximum Green (s)	9.6	84.6		84.6	84.6		24.8	24.8		24.4	24.4	9.6
Yellow Time (s)	3.0	4.3		4.4	4.4		3.9	3.9		4.6	4.6	3.0
All-Red Time (s)	2.4	1.1		1.0	1.0		1.3	1.3		1.0	1.0	2.4
Lost Time Adjust (s)	-0.4	-0.4		-0.4	-0.4		-0.2	-0.2		-0.6	-0.6	-0.4
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Vehicle Extension (s)	2.0	6.0		6.0	6.0		2.0	2.0		2.0	2.0	2.0
Minimum Gap (s)	2.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	2.0

Poole Rd Martin TIA
1: Hodge Rd & Poole Rd

04/28/2022

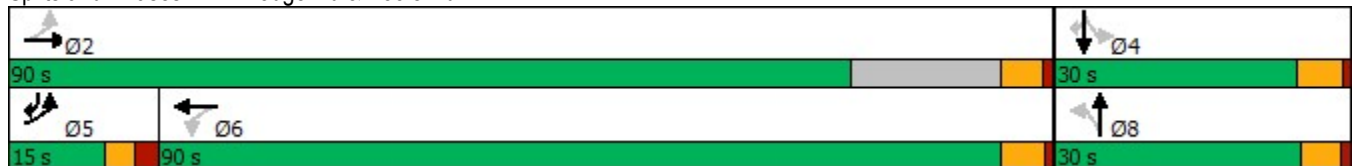


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Time Before Reduce (s)	0.0	15.0		15.0	15.0		0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	0.0	30.0		30.0	30.0		0.0	0.0		0.0	0.0	0.0
Recall Mode	None	Min		Min	Min		None	None		None	None	None
Act Effct Green (s)	100.1	100.1		85.1	85.1		21.8	21.8		21.8	21.8	36.8
Actuated g/C Ratio	0.76	0.76		0.65	0.65		0.17	0.17		0.17	0.17	0.28
v/c Ratio	1.26	0.15		0.02	1.02		0.09	0.14		0.85	0.07	0.68
Control Delay	186.8	5.0		9.4	56.1		46.9	47.6		84.6	46.3	50.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	186.8	5.0		9.4	56.1		46.9	47.6		84.6	46.3	50.7
LOS	F	A		A	E		D	D		F	D	D
Approach Delay		102.7			55.6			47.3			63.2	
Approach LOS		F			E			D			E	
Queue Length 50th (ft)	~213	45		4	~1078		15	30		161	15	228
Queue Length 95th (ft)	#389	71		13	#1351		39	64		#277	40	333
Internal Link Dist (ft)		759			1274			1067			642	
Turn Bay Length (ft)	225			175			50			450		825
Base Capacity (vph)	188	1381		753	1126		264	337		259	355	444
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.26	0.15		0.02	1.02		0.08	0.12		0.74	0.06	0.68

Intersection Summary

Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 131.9
 Natural Cycle: 130
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.26
 Intersection Signal Delay: 66.7
 Intersection LOS: E
 Intersection Capacity Utilization 98.2%
 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.

Splits and Phases: 1: Hodge Rd & Poole Rd



Poole Rd Martin TIA
2: Bethlehem Rd & Poole Rd

04/28/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	24	117	4	61	459	68	23	280	48	30	192	47
Future Volume (vph)	24	117	4	61	459	68	23	280	48	30	192	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			2%			-2%			3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.984			0.982			0.976	
Flt Protected		0.992			0.995			0.997			0.994	
Satd. Flow (prot)	0	1805	0	0	1806	0	0	1842	0	0	1780	0
Flt Permitted		0.868			0.952			0.954			0.866	
Satd. Flow (perm)	0	1580	0	0	1728	0	0	1763	0	0	1551	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			45	
Link Distance (ft)		1637			1700			1025			956	
Travel Time (s)		20.3			21.1			12.7			14.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	27	130	4	68	510	76	26	311	53	33	213	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	161	0	0	654	0	0	390	0	0	298	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.03	1.03	1.03	1.01	1.01	1.01	0.99	0.99	0.99	1.02	1.02	1.02
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	21.3	21.3		21.4	21.4		15.0	15.0		15.0	15.0	
Total Split (s)	120.0	120.0		120.0	120.0		15.0	15.0		15.0	15.0	
Total Split (%)	88.9%	88.9%		88.9%	88.9%		11.1%	11.1%		11.1%	11.1%	
Maximum Green (s)	114.2	114.2		114.0	114.0		8.6	8.6		8.7	8.7	
Yellow Time (s)	4.8	4.8		5.0	5.0		5.4	5.4		5.3	5.3	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-0.8			-1.0			-1.4			-1.3	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0		1.0	1.0		1.0	1.0	
Minimum Gap (s)	3.2	3.2		3.2	3.2		1.0	1.0		1.0	1.0	
Time Before Reduce (s)	15.0	15.0		15.0	15.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	45.0	45.0		45.0	45.0		0.0	0.0		0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	

Poole Rd Martin TIA
 2: Bethlehem Rd & Poole Rd

04/28/2022

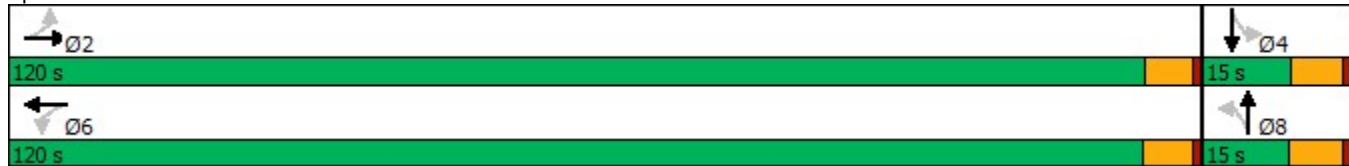


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effect Green (s)		21.0			21.0			10.1			10.1	
Actuated g/C Ratio		0.51			0.51			0.25			0.25	
v/c Ratio		0.20			0.74			0.90			0.78	
Control Delay		5.9			13.8			47.6			36.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		5.9			13.8			47.6			36.1	
LOS		A			B			D			D	
Approach Delay		5.9			13.8			47.6			36.1	
Approach LOS		A			B			D			D	
Queue Length 50th (ft)		17			102			85			63	
Queue Length 95th (ft)		37			191			#256			#200	
Internal Link Dist (ft)		1557			1620			945			876	
Turn Bay Length (ft)												
Base Capacity (vph)		1580			1728			432			380	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.10			0.38			0.90			0.78	

Intersection Summary

Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 41.2
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 26.2
 Intersection LOS: C
 Intersection Capacity Utilization 68.4%
 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: 2: Bethlehem Rd & Poole Rd



Poole Rd Martin TIA
 3: Poole Rd & Site Access 1

04/28/2022



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	8	187	558	6	12	31
Future Volume (vph)	8	187	558	6	12	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.998		0.902	
Flt Protected		0.998			0.986	
Satd. Flow (prot)	0	1859	1859	0	1657	0
Flt Permitted		0.998			0.986	
Satd. Flow (perm)	0	1859	1859	0	1657	0
Link Speed (mph)		55	55		25	
Link Distance (ft)		1700	878		988	
Travel Time (s)		21.1	10.9		26.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	9	208	620	7	13	34
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	217	627	0	47	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	39.7%
Analysis Period (min)	15
	ICU Level of Service A

Poole Rd Martin TIA
 3: Poole Rd & Site Access 1

04/28/2022

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	8	187	558	6	12	31
Future Vol, veh/h	8	187	558	6	12	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	9	208	620	7	13	34

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	627	0	-	0	850 624
Stage 1	-	-	-	-	624 -
Stage 2	-	-	-	-	226 -
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	955	-	-	-	331 485
Stage 1	-	-	-	-	534 -
Stage 2	-	-	-	-	812 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	955	-	-	-	327 485
Mov Cap-2 Maneuver	-	-	-	-	327 -
Stage 1	-	-	-	-	528 -
Stage 2	-	-	-	-	812 -

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	14.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	955	-	-	-	427
HCM Lane V/C Ratio	0.009	-	-	-	0.112
HCM Control Delay (s)	8.8	0	-	-	14.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.4

Poole Rd Martin TIA
4: Poole Rd & Site Access 2

04/28/2022



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	8	191	532	15	35	32
Future Volume (vph)	8	191	532	15	35	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.996		0.935	
Flt Protected		0.998			0.975	
Satd. Flow (prot)	0	1859	1855	0	1698	0
Flt Permitted		0.998			0.975	
Satd. Flow (perm)	0	1859	1855	0	1698	0
Link Speed (mph)		55	55		25	
Link Distance (ft)		878	3565		1000	
Travel Time (s)		10.9	44.2		27.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	9	212	591	17	39	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	221	608	0	75	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	39.5%
Analysis Period (min)	15
	ICU Level of Service A

Poole Rd Martin TIA
4: Poole Rd & Site Access 2

04/28/2022

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	↷
Traffic Vol, veh/h	8	191	532	15	35	32
Future Vol, veh/h	8	191	532	15	35	32
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	9	212	591	17	39	36

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	608	0	-	0	830 600
Stage 1	-	-	-	-	600 -
Stage 2	-	-	-	-	230 -
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	970	-	-	-	340 501
Stage 1	-	-	-	-	548 -
Stage 2	-	-	-	-	808 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	970	-	-	-	336 501
Mov Cap-2 Maneuver	-	-	-	-	336 -
Stage 1	-	-	-	-	542 -
Stage 2	-	-	-	-	808 -

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	16.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	970	-	-	-	399
HCM Lane V/C Ratio	0.009	-	-	-	0.187
HCM Control Delay (s)	8.7	0	-	-	16.1
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.7

Poole Rd Martin TIA
5: Smithfield Rd & Poole Rd

04/28/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	159	54	19	210	151	124	938	6	97	380	68
Future Volume (vph)	86	159	54	19	210	151	124	938	6	97	380	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-1%			-2%			2%	
Storage Length (ft)	225		0	75		0	175		0	125		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.962			0.937			0.999			0.977	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1743	1765	0	1778	1754	0	1787	1879	0	1752	1802	0
Flt Permitted	0.201			0.474			0.950			0.080		
Satd. Flow (perm)	369	1765	0	887	1754	0	1787	1879	0	148	1802	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		4706			2490			978			962	
Travel Time (s)		58.3			30.9			12.1			11.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	96	177	60	21	233	168	138	1042	7	108	422	76
Shared Lane Traffic (%)												
Lane Group Flow (vph)	96	237	0	21	401	0	138	1049	0	108	498	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.02	1.02	1.02	0.99	0.99	0.99	0.99	0.99	0.99	1.01	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Prot	NA		D.Pm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8						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	14.0		14.0	14.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		14.0	21.0		21.0	21.0	
Total Split (s)	28.0	28.0		28.0	28.0		17.0	62.0		62.0	45.0	
Total Split (%)	31.1%	31.1%		31.1%	31.1%		18.9%	68.9%		68.9%	50.0%	
Maximum Green (s)	21.0	21.0		21.0	21.0		10.0	55.0		55.0	38.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	
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 Optimize?							Yes				Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	6.0		6.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	3.4		3.4	3.4	

Poole Rd Martin TIA
5: Smithfield Rd & Poole Rd

04/28/2022

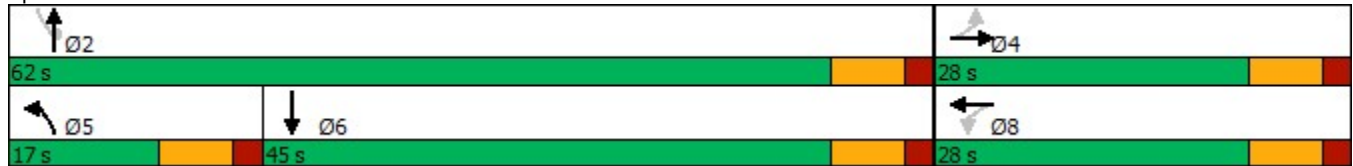


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	15.0		15.0	15.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	30.0		30.0	30.0	
Recall Mode	None	None		None	None		None	Min		Min	Min	
Act Effct Green (s)	23.0	23.0		23.0	23.0		11.3	57.0		57.0	40.7	
Actuated g/C Ratio	0.26	0.26		0.26	0.26		0.13	0.63		0.63	0.45	
v/c Ratio	1.02	0.53		0.09	0.90		0.62	0.88		1.16	0.61	
Control Delay	137.2	33.8		27.0	57.1		49.8	24.6		167.8	22.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	137.2	33.8		27.0	57.1		49.8	24.6		167.8	22.9	
LOS	F	C		C	E		D	C		F	C	
Approach Delay		63.6			55.6			27.5			48.7	
Approach LOS		E			E			C			D	
Queue Length 50th (ft)	~56	116		9	220		75	445		~73	210	
Queue Length 95th (ft)	#156	190		28	#387		135	#779		#124	316	
Internal Link Dist (ft)		4626			2410			898			882	
Turn Bay Length (ft)	225			75			175			125		
Base Capacity (vph)	94	451		226	448		238	1190		93	815	
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	1.02	0.53		0.09	0.90		0.58	0.88		1.16	0.61	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.16
 Intersection Signal Delay: 41.9 Intersection LOS: D
 Intersection Capacity Utilization 104.2% 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.

Splits and Phases: 5: Smithfield Rd & Poole Rd



Poole Rd Martin TIA
1: Hodge Rd & Poole Rd

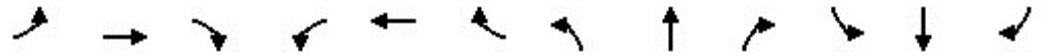
04/28/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	264	365	19	25	214	207	14	19	17	682	47	281
Future Volume (vph)	264	365	19	25	214	207	14	19	17	682	47	281
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			1%			-1%			-1%	
Storage Length (ft)	225		0	175		0	50		0	450		825
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993			0.926			0.929				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1831	0	1761	1716	0	1778	1739	0	1778	1872	1591
Flt Permitted	0.202			0.514			0.723			0.731		
Satd. Flow (perm)	373	1831	0	953	1716	0	1353	1739	0	1368	1872	1591
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		839			1354			1147			722	
Travel Time (s)		12.7			20.5			22.3			10.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	293	406	21	28	238	230	16	21	19	758	52	312
Shared Lane Traffic (%)												
Lane Group Flow (vph)	293	427	0	28	468	0	16	40	0	758	52	312
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2			6			8			4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	12.4	22.5		22.5	22.5		22.5	22.5		22.5	22.5	12.4
Total Split (s)	15.0	90.0		90.0	90.0		30.0	30.0		30.0	30.0	15.0
Total Split (%)	11.1%	66.7%		66.7%	66.7%		22.2%	22.2%		22.2%	22.2%	11.1%
Maximum Green (s)	9.6	84.6		84.6	84.6		24.8	24.8		24.4	24.4	9.6
Yellow Time (s)	3.0	4.3		4.4	4.4		3.9	3.9		4.6	4.6	3.0
All-Red Time (s)	2.4	1.1		1.0	1.0		1.3	1.3		1.0	1.0	2.4
Lost Time Adjust (s)	-0.4	-0.4		-0.4	-0.4		-0.2	-0.2		-0.6	-0.6	-0.4
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?	Yes			Yes	Yes							Yes
Vehicle Extension (s)	2.0	6.0		6.0	6.0		2.0	2.0		2.0	2.0	2.0
Minimum Gap (s)	2.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	2.0

Poole Rd Martin TIA
1: Hodge Rd & Poole Rd

04/28/2022

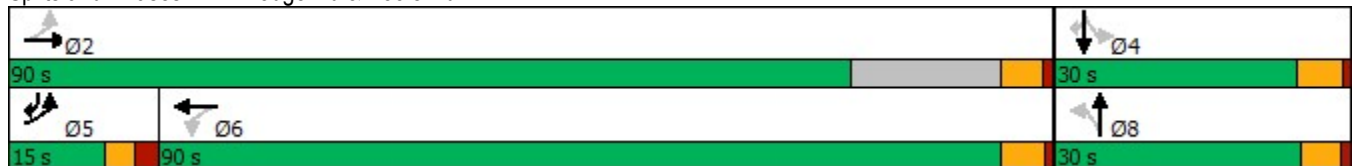


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Time Before Reduce (s)	0.0	15.0		15.0	15.0		0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	0.0	30.0		30.0	30.0		0.0	0.0		0.0	0.0	0.0
Recall Mode	None	Min		Min	Min		None	None		None	None	None
Act Effct Green (s)	39.9	39.9		24.8	24.8		25.2	25.2		25.2	25.2	40.2
Actuated g/C Ratio	0.53	0.53		0.33	0.33		0.34	0.34		0.34	0.34	0.54
v/c Ratio	0.77	0.44		0.09	0.83		0.04	0.07		1.66	0.08	0.37
Control Delay	25.5	12.1		17.1	36.1		19.9	19.8		328.7	19.8	13.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	25.5	12.1		17.1	36.1		19.9	19.8		328.7	19.8	13.0
LOS	C	B		B	D		B	B		F	B	B
Approach Delay		17.6			35.1			19.8			226.6	
Approach LOS		B			D			B			F	
Queue Length 50th (ft)	71	112		9	197		5	12		~520	16	77
Queue Length 95th (ft)	#145	173		26	305		20	38		#830	46	167
Internal Link Dist (ft)		759			1274			1067			642	
Turn Bay Length (ft)	225			175			50			450		825
Base Capacity (vph)	382	1831		953	1716		452	582		457	626	852
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.77	0.23		0.03	0.27		0.04	0.07		1.66	0.08	0.37

Intersection Summary

Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 75.1
 Natural Cycle: 130
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.66
 Intersection Signal Delay: 119.2 Intersection LOS: F
 Intersection Capacity Utilization 95.5% 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.

Splits and Phases: 1: Hodge Rd & Poole Rd



Poole Rd Martin TIA
2: Bethlehem Rd & Poole Rd

04/28/2022



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	34	410	15	53	168	65	5	183	56	105	315	44
Future Volume (vph)	34	410	15	53	168	65	5	183	56	105	315	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			2%			-2%			3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.969			0.969			0.987	
Flt Protected		0.996			0.991			0.999			0.989	
Satd. Flow (prot)	0	1811	0	0	1771	0	0	1821	0	0	1791	0
Flt Permitted		0.955			0.855			0.980			0.864	
Satd. Flow (perm)	0	1736	0	0	1528	0	0	1787	0	0	1565	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			45	
Link Distance (ft)		1637			1700			1025			956	
Travel Time (s)		20.3			21.1			12.7			14.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	38	456	17	59	187	72	6	203	62	117	350	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	511	0	0	318	0	0	271	0	0	516	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.03	1.03	1.03	1.01	1.01	1.01	0.99	0.99	0.99	1.02	1.02	1.02
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	21.3	21.3		21.4	21.4		15.0	15.0		15.0	15.0	
Total Split (s)	120.0	120.0		120.0	120.0		15.0	15.0		15.0	15.0	
Total Split (%)	88.9%	88.9%		88.9%	88.9%		11.1%	11.1%		11.1%	11.1%	
Maximum Green (s)	114.2	114.2		114.0	114.0		8.6	8.6		8.7	8.7	
Yellow Time (s)	4.8	4.8		5.0	5.0		5.4	5.4		5.3	5.3	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		-0.8			-1.0			-1.4			-1.3	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0		1.0	1.0		1.0	1.0	
Minimum Gap (s)	3.2	3.2		3.2	3.2		1.0	1.0		1.0	1.0	
Time Before Reduce (s)	15.0	15.0		15.0	15.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	45.0	45.0		45.0	45.0		0.0	0.0		0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	

Poole Rd Martin TIA
 2: Bethlehem Rd & Poole Rd

04/28/2022

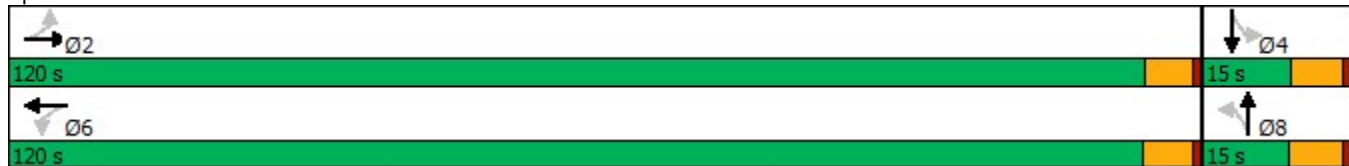


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		17.1			17.1			10.0			10.0	
Actuated g/C Ratio		0.46			0.46			0.27			0.27	
v/c Ratio		0.64			0.45			0.56			1.23	
Control Delay		12.0			9.2			18.4			141.9	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		12.0			9.2			18.4			141.9	
LOS		B			A			B			F	
Approach Delay		12.0			9.2			18.4			141.9	
Approach LOS		B			A			B			F	
Queue Length 50th (ft)		70			39			44			~133	
Queue Length 95th (ft)		137			81			#128			#298	
Internal Link Dist (ft)		1557			1620			945			876	
Turn Bay Length (ft)												
Base Capacity (vph)		1736			1528			481			421	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.29			0.21			0.56			1.23	

Intersection Summary

Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 37.2
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.23
 Intersection Signal Delay: 54.0
 Intersection LOS: D
 Intersection Capacity Utilization 80.1%
 ICU Level of Service D
 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.

Splits and Phases: 2: Bethlehem Rd & Poole Rd



Poole Rd Martin TIA
 3: Poole Rd & Site Access 1

04/28/2022



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	35	537	269	13	10	17
Future Volume (vph)	35	537	269	13	10	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.994		0.914	
Flt Protected		0.997			0.982	
Satd. Flow (prot)	0	1857	1852	0	1672	0
Flt Permitted		0.997			0.982	
Satd. Flow (perm)	0	1857	1852	0	1672	0
Link Speed (mph)		55	55		25	
Link Distance (ft)		1700	878		988	
Travel Time (s)		21.1	10.9		26.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	39	597	299	14	11	19
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	636	313	0	30	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	58.5%
ICU Level of Service	B
Analysis Period (min)	15

Poole Rd Martin TIA
 3: Poole Rd & Site Access 1

04/28/2022

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	35	537	269	13	10	17
Future Vol, veh/h	35	537	269	13	10	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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	39	597	299	14	11	19

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	313	0	-	0	981 306
Stage 1	-	-	-	-	306 -
Stage 2	-	-	-	-	675 -
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	1247	-	-	-	277 734
Stage 1	-	-	-	-	747 -
Stage 2	-	-	-	-	506 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1247	-	-	-	264 734
Mov Cap-2 Maneuver	-	-	-	-	264 -
Stage 1	-	-	-	-	712 -
Stage 2	-	-	-	-	506 -

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	13.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1247	-	-	-	442
HCM Lane V/C Ratio	0.031	-	-	-	0.068
HCM Control Delay (s)	8	0	-	-	13.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

Poole Rd Martin TIA
 4: Poole Rd & Site Access 2

04/28/2022



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	36	511	266	41	30	16
Future Volume (vph)	36	511	266	41	30	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.982		0.952	
Flt Protected		0.997			0.969	
Satd. Flow (prot)	0	1857	1829	0	1718	0
Flt Permitted		0.997			0.969	
Satd. Flow (perm)	0	1857	1829	0	1718	0
Link Speed (mph)		55	55		25	
Link Distance (ft)		878	3565		1000	
Travel Time (s)		10.9	44.2		27.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	40	568	296	46	33	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	608	342	0	51	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	58.7%
Analysis Period (min)	15
	ICU Level of Service B

Poole Rd Martin TIA
4: Poole Rd & Site Access 2

04/28/2022

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	↷
Traffic Vol, veh/h	36	511	266	41	30	16
Future Vol, veh/h	36	511	266	41	30	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	568	296	46	33	18






















Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	342	0	-	0	967 319
Stage 1	-	-	-	-	319 -
Stage 2	-	-	-	-	648 -
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	1217	-	-	-	282 722
Stage 1	-	-	-	-	737 -
Stage 2	-	-	-	-	521 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1217	-	-	-	268 722
Mov Cap-2 Maneuver	-	-	-	-	268 -
Stage 1	-	-	-	-	702 -
Stage 2	-	-	-	-	521 -

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	17.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1217	-	-	-	343
HCM Lane V/C Ratio	0.033	-	-	-	0.149
HCM Control Delay (s)	8.1	0	-	-	17.3
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

Poole Rd Martin TIA
5: Smithfield Rd & Poole Rd

04/28/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	187	117	17	164	133	59	583	23	128	937	81
Future Volume (vph)	96	187	117	17	164	133	59	583	23	128	937	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-1%			-2%			2%	
Storage Length (ft)	225		0	75		0	175		0	125		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t		0.942			0.933			0.994			0.988	
Fl _t Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1743	1728	0	1778	1747	0	1787	1870	0	1752	1822	0
Fl _t Permitted	0.244			0.230			0.950			0.320		
Satd. Flow (perm)	448	1728	0	431	1747	0	1787	1870	0	590	1822	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		4706			2490			978			962	
Travel Time (s)		58.3			30.9			12.1			11.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	107	208	130	19	182	148	66	648	26	142	1041	90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	107	338	0	19	330	0	66	674	0	142	1131	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.02	1.02	1.02	0.99	0.99	0.99	0.99	0.99	0.99	1.01	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Prot	NA		D.Pm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8						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	14.0		14.0	14.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		14.0	21.0		21.0	21.0	
Total Split (s)	38.0	38.0		38.0	38.0		14.0	102.0		102.0	88.0	
Total Split (%)	27.1%	27.1%		27.1%	27.1%		10.0%	72.9%		72.9%	62.9%	
Maximum Green (s)	31.0	31.0		31.0	31.0		7.0	95.0		95.0	81.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	
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 Optimize?							Yes				Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	6.0		6.0	6.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		2.0	3.4		3.4	3.4	

Poole Rd Martin TIA
5: Smithfield Rd & Poole Rd

04/28/2022

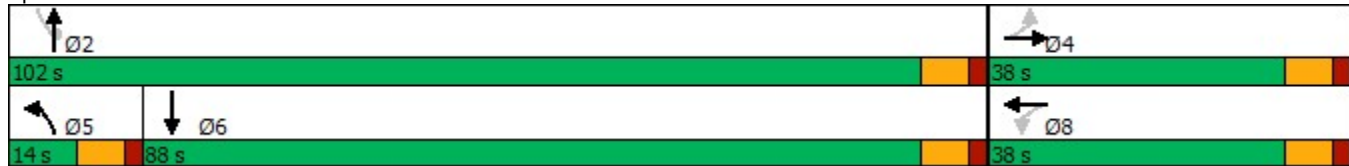


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	15.0		15.0	15.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	30.0		30.0	30.0	
Recall Mode	None	None		None	None		None	Min		Min	Min	
Act Effct Green (s)	33.1	33.1		33.1	33.1		9.0	94.1		94.1	83.1	
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.07	0.69		0.69	0.61	
v/c Ratio	1.00	0.81		0.18	0.79		0.56	0.53		0.35	1.02	
Control Delay	138.8	66.2		48.4	63.8		82.4	12.3		11.7	61.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	138.8	66.2		48.4	63.8		82.4	12.3		11.7	61.3	
LOS	F	E		D	E		F	B		B	E	
Approach Delay		83.7			62.9			18.5			55.8	
Approach LOS		F			E			B			E	
Queue Length 50th (ft)	~100	295		14	285		60	271		48	~1117	
Queue Length 95th (ft)	#229	#450		40	#431		#120	361		88	#1381	
Internal Link Dist (ft)		4626			2410			898			882	
Turn Bay Length (ft)	225			75			175			125		
Base Capacity (vph)	107	416		103	420		117	1324		417	1104	
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	1.00	0.81		0.18	0.79		0.56	0.51		0.34	1.02	

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 137.2
 Natural Cycle: 140
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.02
 Intersection Signal Delay: 51.3
 Intersection LOS: D
 Intersection Capacity Utilization 99.5%
 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.

Splits and Phases: 5: Smithfield Rd & Poole Rd



Appendix E – Approved Area Developments



Transportation Impact Analysis

Poole Road Apartment Development Knightdale, NC

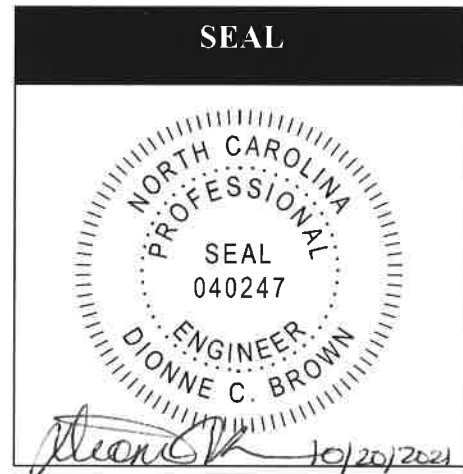
Prepared for Signature Property Group
October 15, 2021

Analysis by: Dionne C. Brown, P.E.

Drafting/Graphics by: Dionne C. Brown, P.E.

Reviewed by: Erin Govea, P.E.

Sealed by: Dionne C. Brown, P.E.



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Home Office:
119 Brookstown Ave. Suite PH1
Winston-Salem, NC 27101
Main: 336.744.1636; Fax: 336.458.9377

Triangle Regional Office:
4600 Marriott Drive Suite 340
Raleigh, NC 27612
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Serving the Southeast since 2002



**Poole Road Apartment Development – Transportation Impact Analysis
Knightdale, NC
Prepared for Signature Property Group
October 15, 2021**

Executive Summary

Site Overview

The Poole Road Apartment Development is to be located on the northwest quadrant of Hodge Road and Poole Road in Knightdale, North Carolina. As currently planned, this site development will consist of 364 dwelling units of apartments and 30 dwelling units of townhomes. The full build-out year is assumed as 2023. This development utilizes two (2) site accesses, one (1) full movement access on Hodge Road and one (1) full movement access on Poole Road.

Trip Generation

Based on the rates and equations in the ITE Trip Generation Manual (10th Edition) this development has a trip generation potential of 2,168 daily trips, 137 trips in the AM peak and 173 trips in the PM peak.

Conclusion

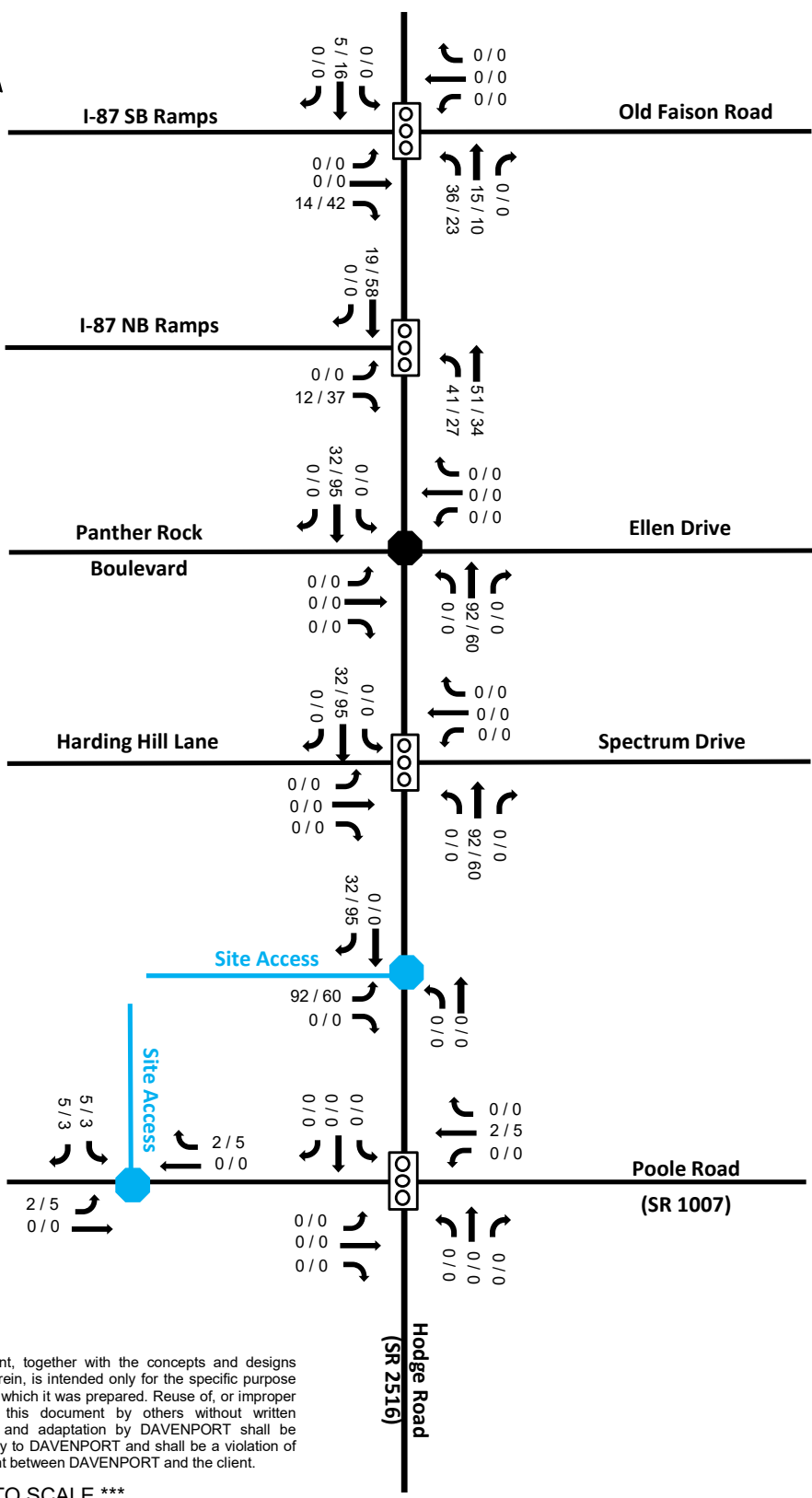
Based on the analysis, study intersections are expected to operate at LOS D or better with the exception of Hodge Road at I-87 Northbound Ramp, Spectrum Drive and Poole Road. Though they are expected to operate at LOS E or F, they are within the 25% allowable increase by NCDOT Congestion Management. The site trips of the proposed developments are approximately 5% of the intersection volumes. **However, the planned improvements by the Town of Knightdale and City of Raleigh to widen Hodge Road should be pursued as it will increase capacity for the future volumes along the study intersections.**

Based on NCDOT turn lane warrants and AADT on the roadways, it is recommended to provide right and left turn lanes at the site accesses for the proposed development.

In conclusion, this study has reviewed the impacts of both background traffic and this development traffic. Please note that all site accesses should be designed according to the NCDOT Standards.

The recommended improvements at the study intersections for 2023 full build are summarized in Table A.

Table A – Recommended Improvements Summary	
Intersection	Full Build
I-87 Southbound Ramp at Hodge Road	<ul style="list-style-type: none"> No Improvements are recommended
I-87 Northbound Ramp at Hodge Road	<ul style="list-style-type: none"> No Improvements are recommended
Hodge Road at Panther Rock Road	<ul style="list-style-type: none"> No Improvements are recommended
Hodge Road at Spectrum Drive	<ul style="list-style-type: none"> No Improvements are recommended
Hodge Road at Poole Road	<ul style="list-style-type: none"> No Improvements are recommended
Hodge Road at Site Access	<ul style="list-style-type: none"> Provide a southbound right turn lane with 100 feet of storage and appropriate taper length Provide a northbound left turn lane with 100 feet of storage and appropriate taper length Design site access according to NCDOT standards
Poole Road at Site Access	<ul style="list-style-type: none"> Provide an eastbound left turn lane with 100 feet of storage and appropriate taper length Provide a westbound right turn lane with 100 feet of storage and appropriate taper length Design site access according to NCDOT standards



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*** NOT TO SCALE ***

LEGEND	
	SIGNALIZED INTERSECTION
	UNSIGNALIZED INTERSECTION
	ROADWAY
	TRAFFIC MOVEMENT
	BLACK = EXISTING BLUE = PROPOSED
	AM/PM PEAK HOURS

**FIGURE 7
RESIDENTIAL SITE
TRIPS**

POOLE ROAD APARTMENT
DEVELOPMENT
KNIGHTDALE, NC

PROJECT NUMBER 210410

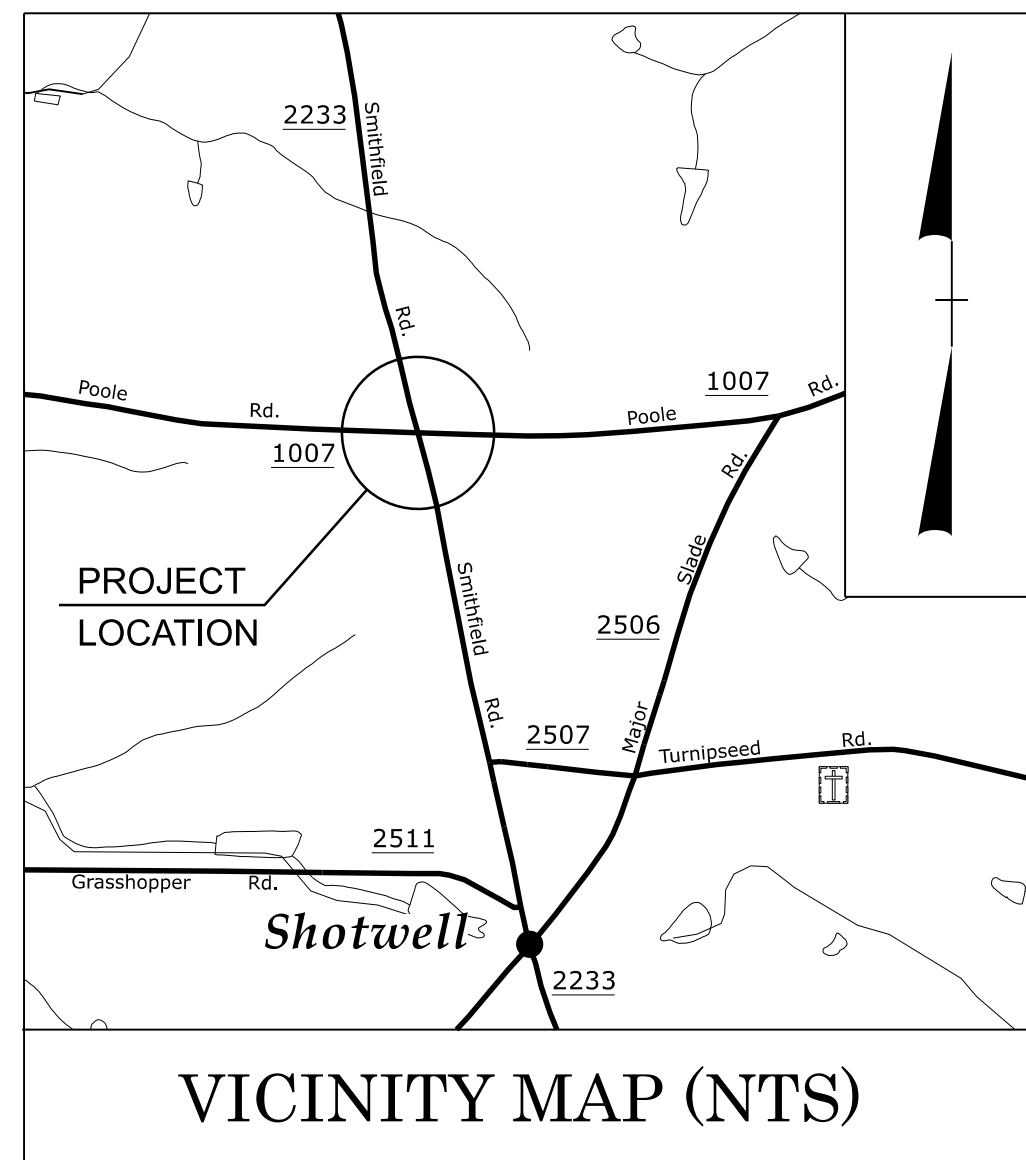
Appendix F
Public Improvement Projects

09/08/09

TIP PROJECT: HL-0031

CONTRACT:

See Sheet 1A For Index of Sheets



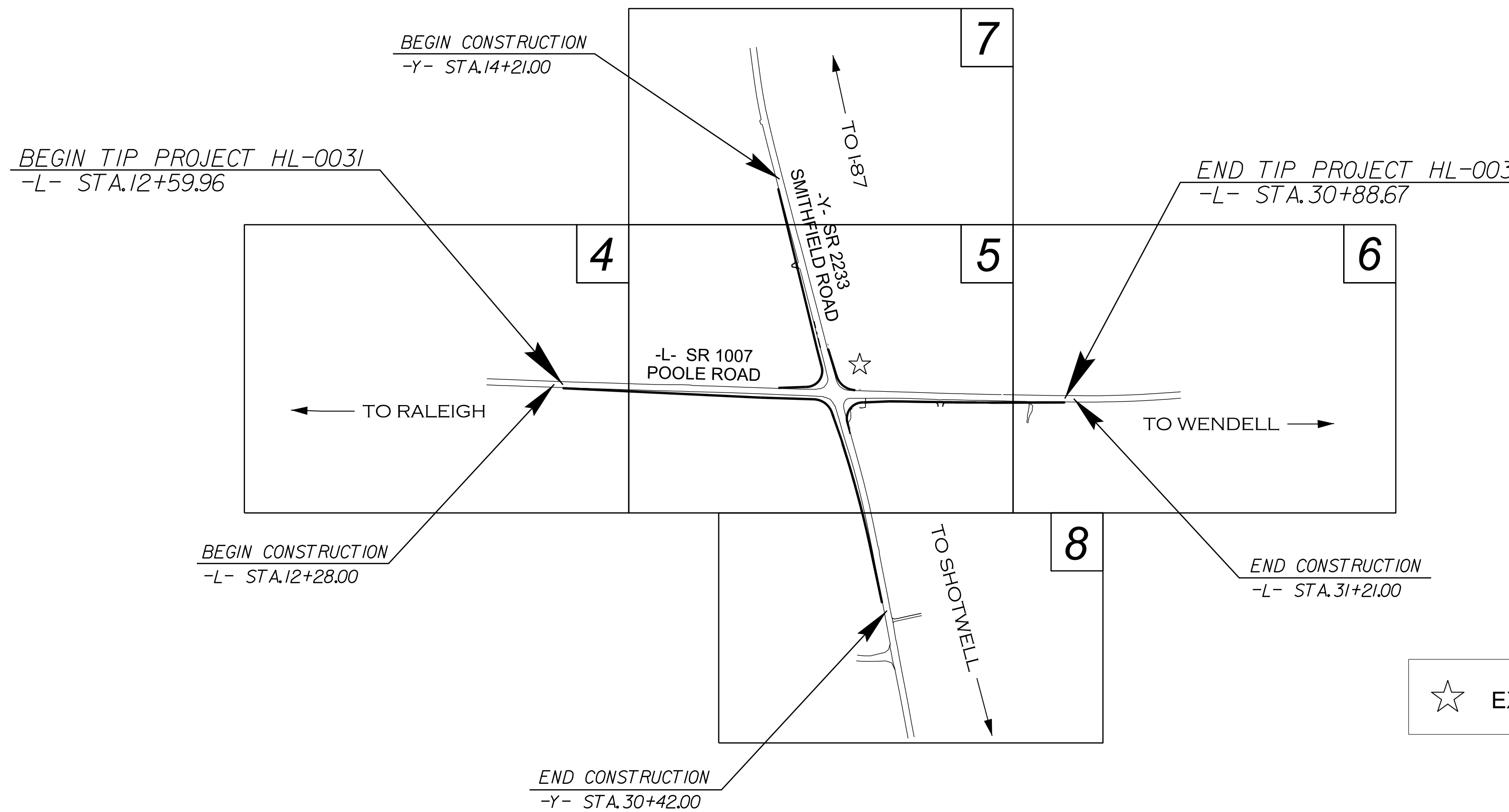
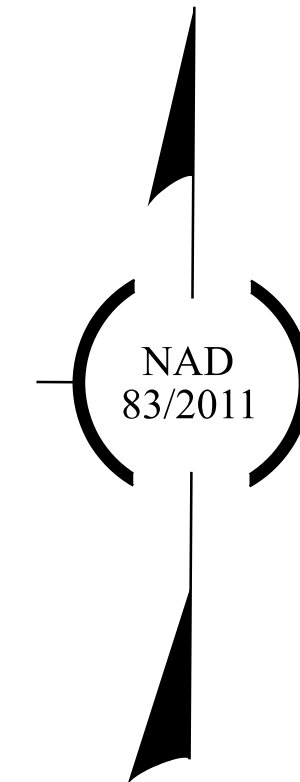
STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

WAKE COUNTY

LOCATION: *CONSTRUCT LEFT TURN LANES AT SR 1007
(POOLE ROAD) AND SR 2233 (SMITHFIELD
ROAD) INTERSECTION*

TYPE OF WORK: *GRADING, DRAINAGE, PAVING AND SIGNAL*

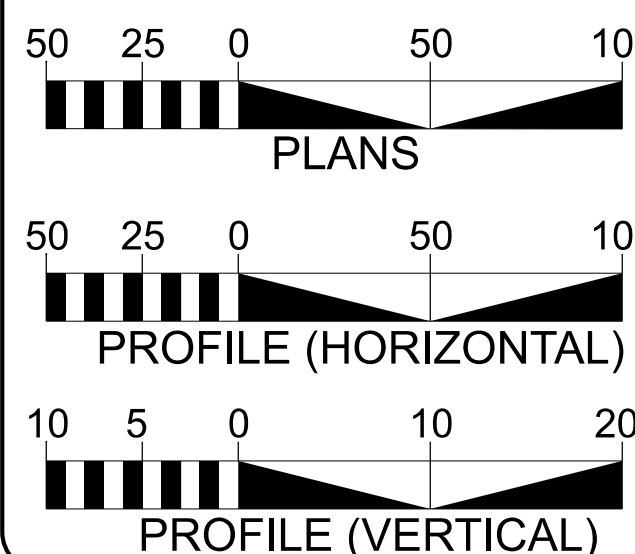
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HL-0031	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
48996.1.1	N/A	PE	
49616.2.1	N/A	R/W	
49616.2.2	N/A	UTIL	



CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

SR 1007
ADT 2019 = 4,700
V = 60 MPH

SR 2233
ADT 2019 = 14,500
V = 50 MPH

FUNC CLASS = MINOR
ARTERIAL (SR 1007)

SUB-REGIONAL TIER

PROJECT LENGTH

TOTAL LENGTH TIP PROJECT HL-0031 = 0.346 MILES

NCDOT CONTACT: JOHN BRAXTON - DIVISION 5 PROJECT DELIVERY

Prepared in the Office of:



320 Executive Ct.
Hillsborough, NC 27278-8551
Voice: (919) 732-3883
Fax: (919) 732-6776
www.summitde.net

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MARCH 15, 2022

LETTING DATE:
OCTOBER 26, 2022

BRANDON JOHNSON, PE
PROJECT ENGINEER

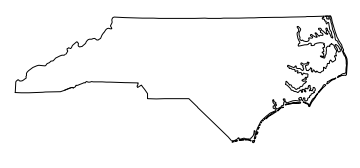
SPENCER MERRITT, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

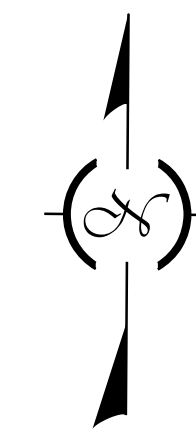
SIGNATURE: _____ P.E.
ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.





CUR DATA -L-
Plc 27+50.30
 $\Delta c = 00^{\circ}59'28.3''$ (LT)
 $D = 00^{\circ}30'00.2''$
 $Lc = 198.22$
 $Tc = 99.11$
 $R = 11,458$
SE = EXIST.



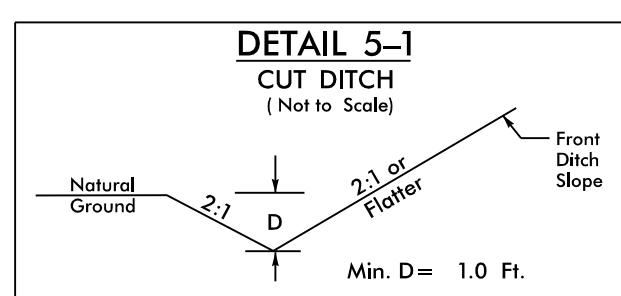
MATCHLINE -Y- STA. 17+00.00 SEE SHEET 7

MATCHLINE -L- STA. 15+00.00 SEE SHEET 4

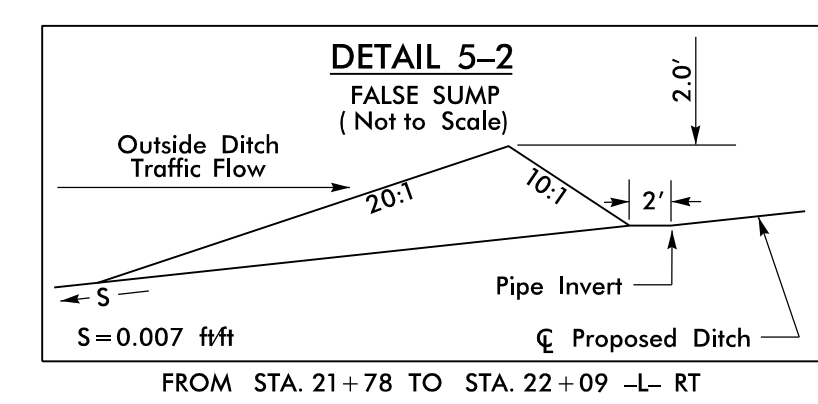
MATCHLINE -L- STA. 29+00.00 SEE SHEET 6

MATCHLINE -Y- STA. 26+00.00 SEE SHEET 8

FOR -L- PROFILE, SEE SHEET 9

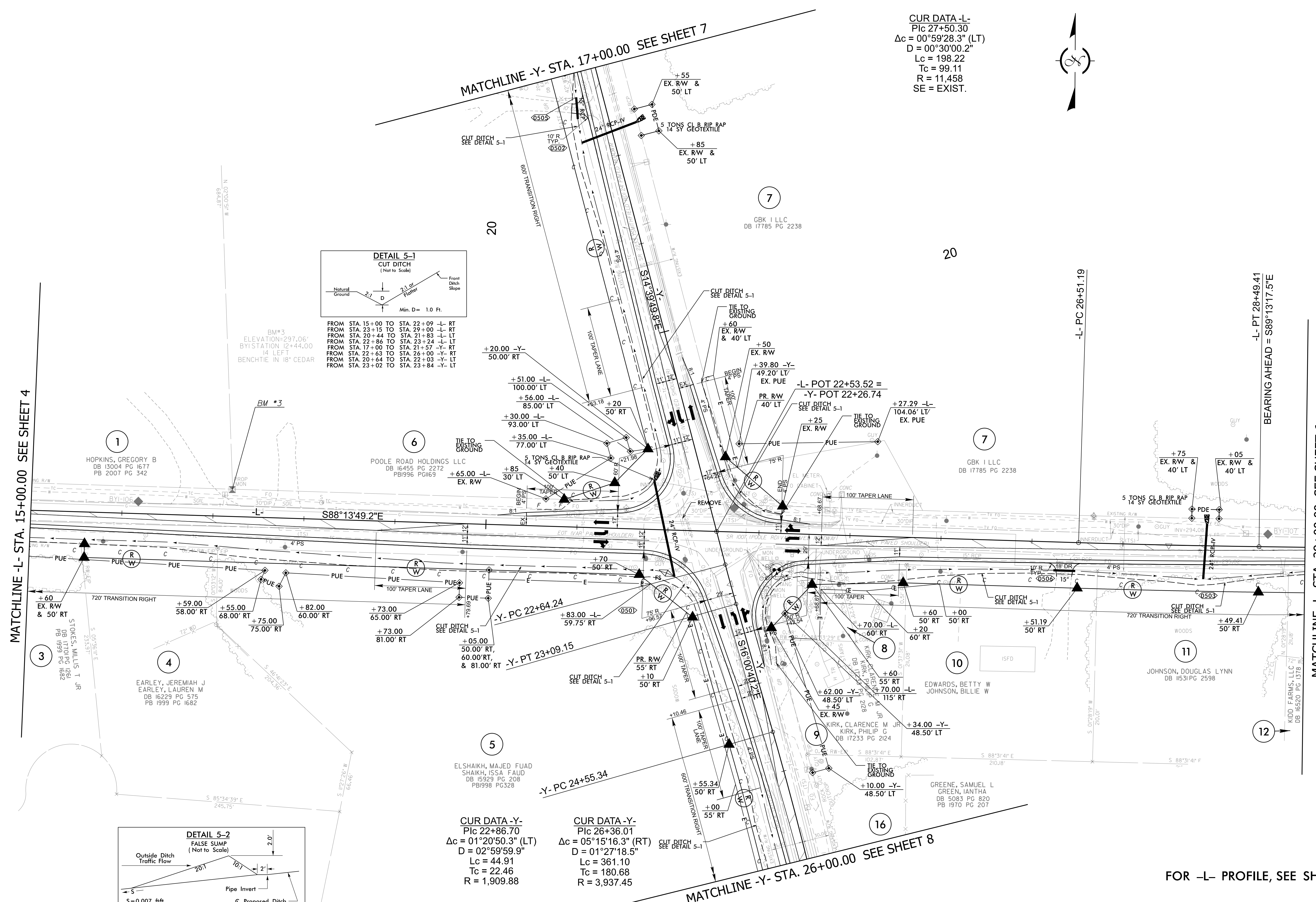


FROM STA. 15+00 TO STA. 22+09 -L- RT
FROM STA. 23+15 TO STA. 29+00 -L- RT
FROM STA. 20+44 TO STA. 21+83 -L- LT
FROM STA. 22+86 TO STA. 23+24 -L- LT
FROM STA. 17+00 TO STA. 21+57 -Y- RT
FROM STA. 22+63 TO STA. 26+00 -Y- RT
FROM STA. 20+64 TO STA. 22+03 -Y- LT
FROM STA. 23+02 TO STA. 23+84 -Y- LT



CUR DATA -Y-
Plc 22+86.70
 $\Delta c = 01^{\circ}20'50.3''$ (LT)
 $D = 02^{\circ}59'59.9''$
 $Lc = 44.91$
 $Tc = 22.46$
 $R = 1,909.88$

CUR DATA -Y-
Plc 26+36.01
 $\Delta c = 05^{\circ}15'16.3''$ (RT)
 $D = 01^{\circ}27'18.5''$
 $Lc = 361.10$
 $Tc = 180.68$
 $R = 3,937.45$



Appendix G
NCDOT Nomographs

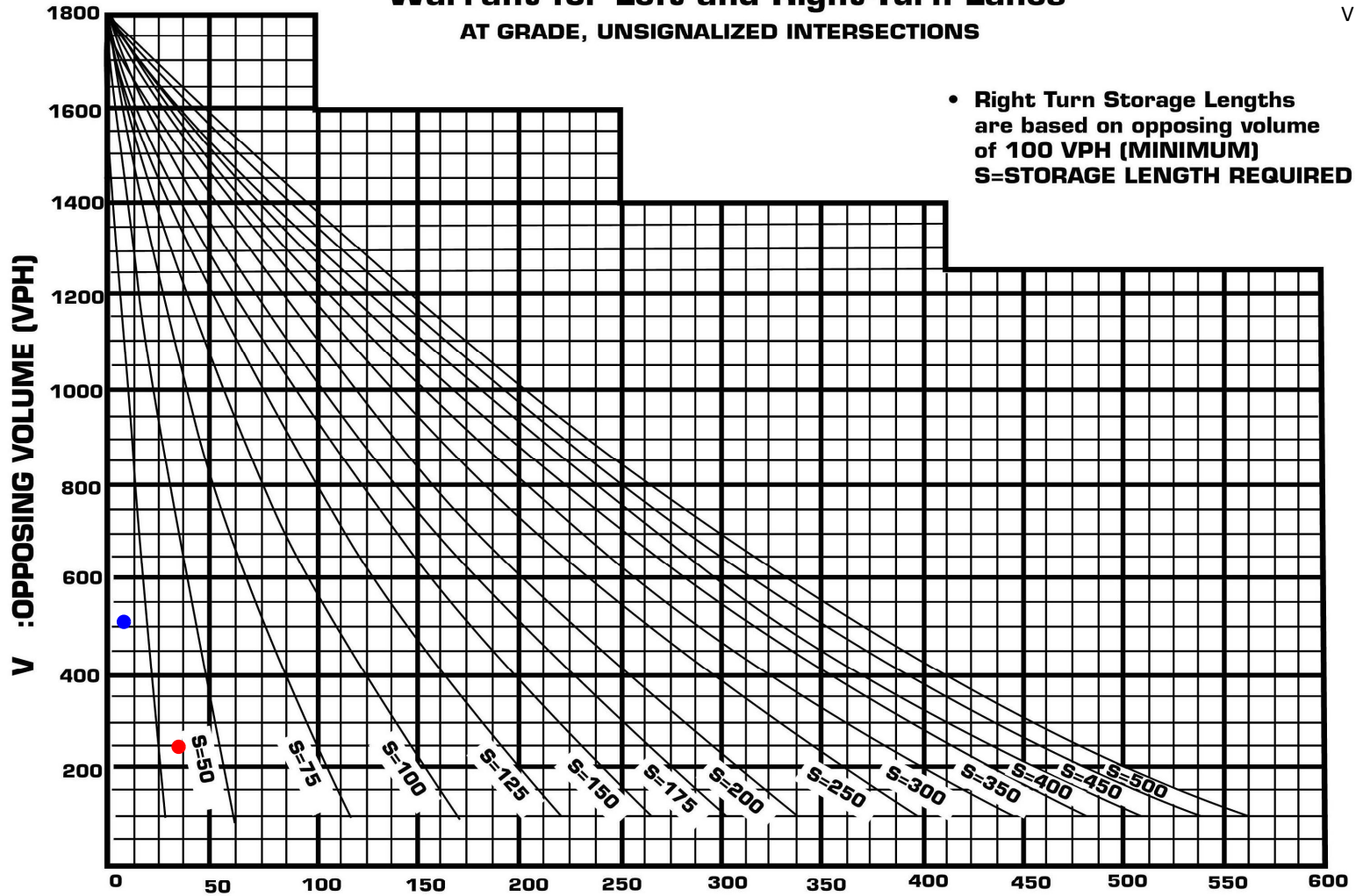
AM Peak Hour

VL = 8
V = 513

PM Peak Hour

VL = 35
V = 249

Warrant for Left and Right-Turn Lanes AT GRADE, UNSIGNALIZED INTERSECTIONS



• Right Turn Storage Lengths are based on opposing volume of 100 VPH (MINIMUM)
S=STORAGE LENGTH REQUIRED

Policy On Street And Driveway Access to North Carolina Highways

V_L: LEFT TURNING VOLUME (VPH)
V_R: RIGHT TURNING VOLUME (VPH)

Note: Where adjacent signalization may provide opportunities for gaps in the traffic stream a reduction in the above storage values can be considered on a case by case basis.

Poole Road / Site Access 1
Eastbound Left-Turn
2026 Build AM and PM Peak Hours

LEGEND

- = AM Peak
- = PM Peak

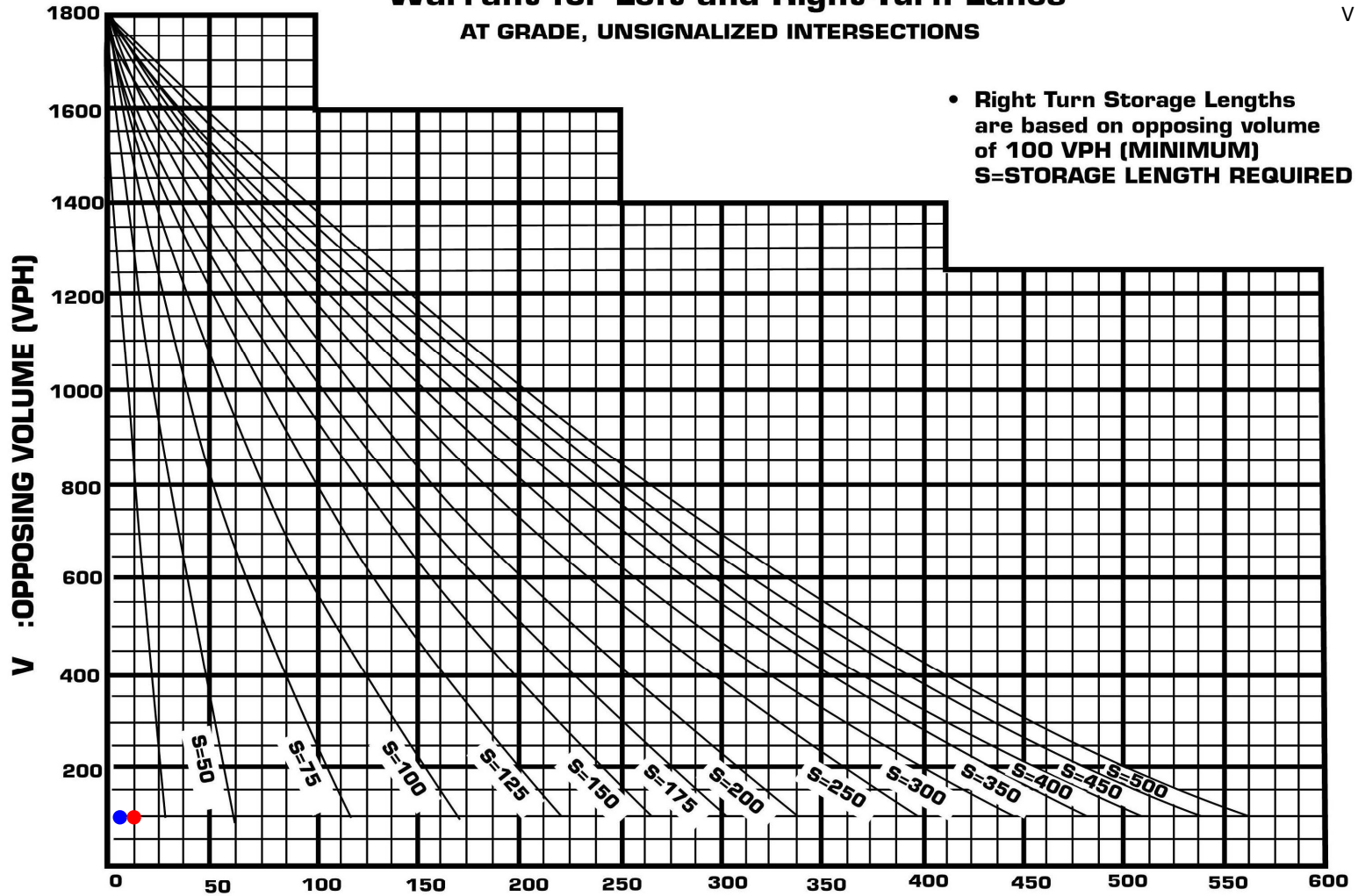
AM Peak Hour

VR = 6
V = 100

PM Peak Hour

VR = 13
V = 100

Warrant for Left and Right-Turn Lanes AT GRADE, UNSIGNALIZED INTERSECTIONS



- Right Turn Storage Lengths are based on opposing volume of 100 VPH (MINIMUM)
S=STORAGE LENGTH REQUIRED

Policy On Street And Driveway Access to North Carolina Highways

V_L: LEFT TURNING VOLUME (VPH)
V_R: RIGHT TURNING VOLUME (VPH)

Note: Where adjacent signalization may provide opportunities for gaps in the traffic stream a reduction in the above storage values can be considered on a case by case basis.

Poole Road / Site Access 1
Westbound Right-Turn
2026 Build AM and PM Peak Hours

LEGEND

- = AM Peak
- = PM Peak

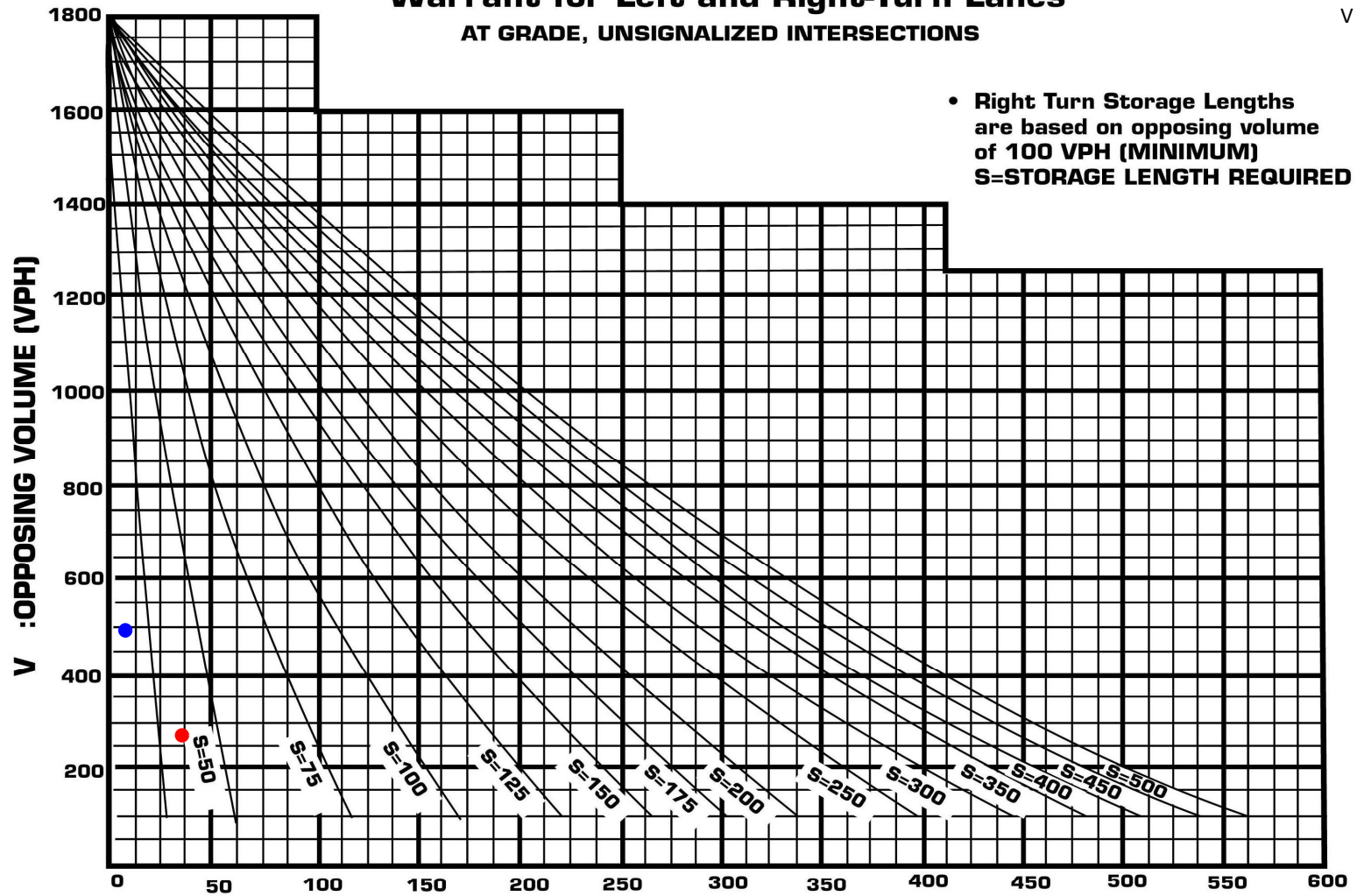
AM Peak Hour

VL = 8
V = 496

PM Peak Hour

VL = 36
V = 274

Warrant for Left and Right-Turn Lanes AT GRADE, UNSIGNALIZED INTERSECTIONS



- Right Turn Storage Lengths are based on opposing volume of 100 VPH (MINIMUM)
S=STORAGE LENGTH REQUIRED

Policy On Street And Driveway Access to North Carolina Highways

VL: LEFT TURNING VOLUME (VPH)
VR: RIGHT TURNING VOLUME (VPH)

Note: Where adjacent signalization may provide opportunities for gaps in the traffic stream a reduction in the above storage values can be considered on a case by case basis.

Poole Road / Site Access 2
Eastbound Left-Turn
2026 Build AM and PM Peak Hours

LEGEND

- = AM Peak
- = PM Peak

AM Peak Hour

VR = 15

V = 100

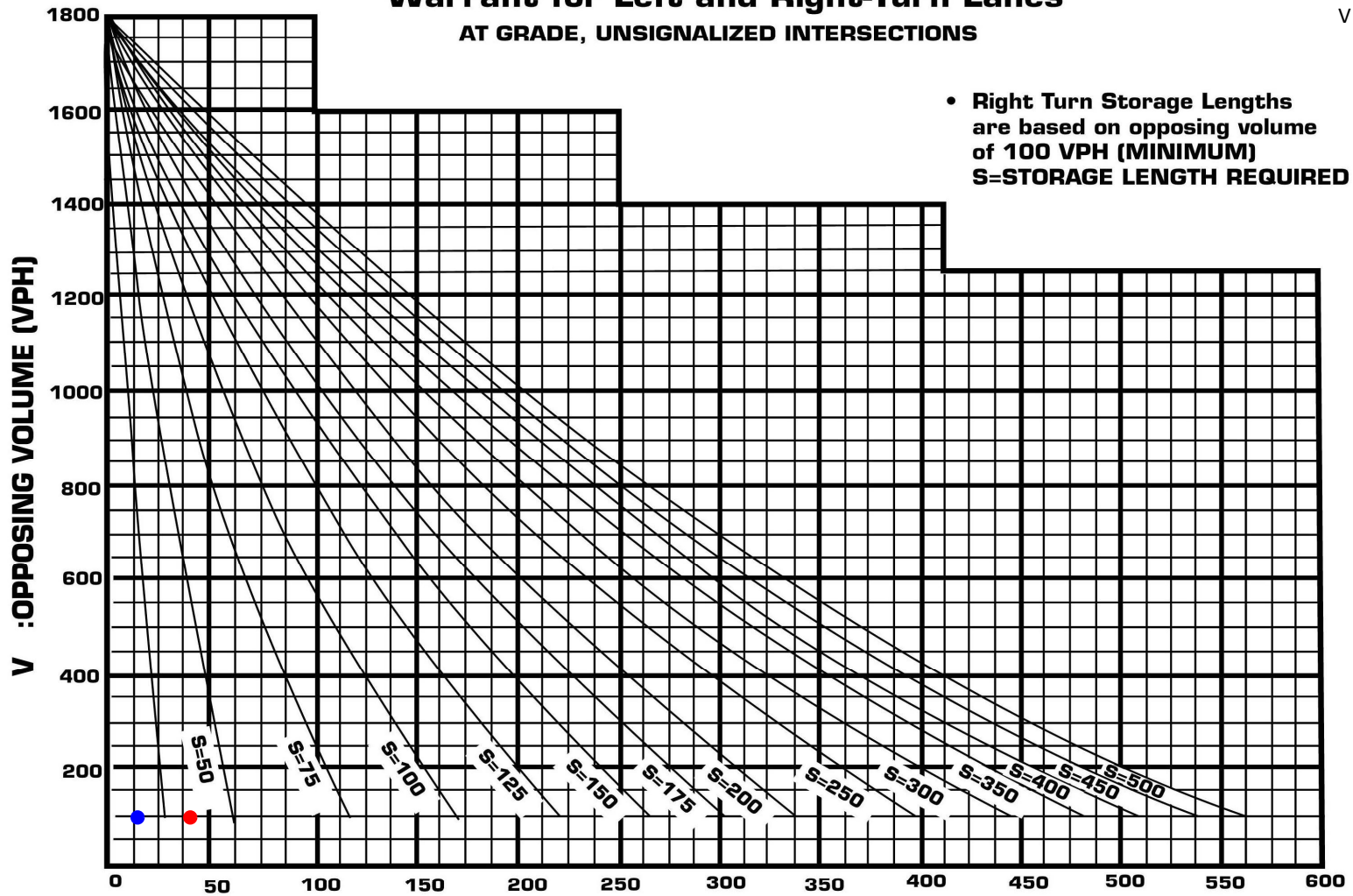
PM Peak Hour

VR = 41

V = 100

Warrant for Left and Right-Turn Lanes

AT GRADE, UNSIGNALIZED INTERSECTIONS



- Right Turn Storage Lengths are based on opposing volume of 100 VPH (MINIMUM)
- S=STORAGE LENGTH REQUIRED

Policy On Street And Driveway Access to North Carolina Highways

V_L: LEFT TURNING VOLUME (VPH)
 V_R: RIGHT TURNING VOLUME (VPH)

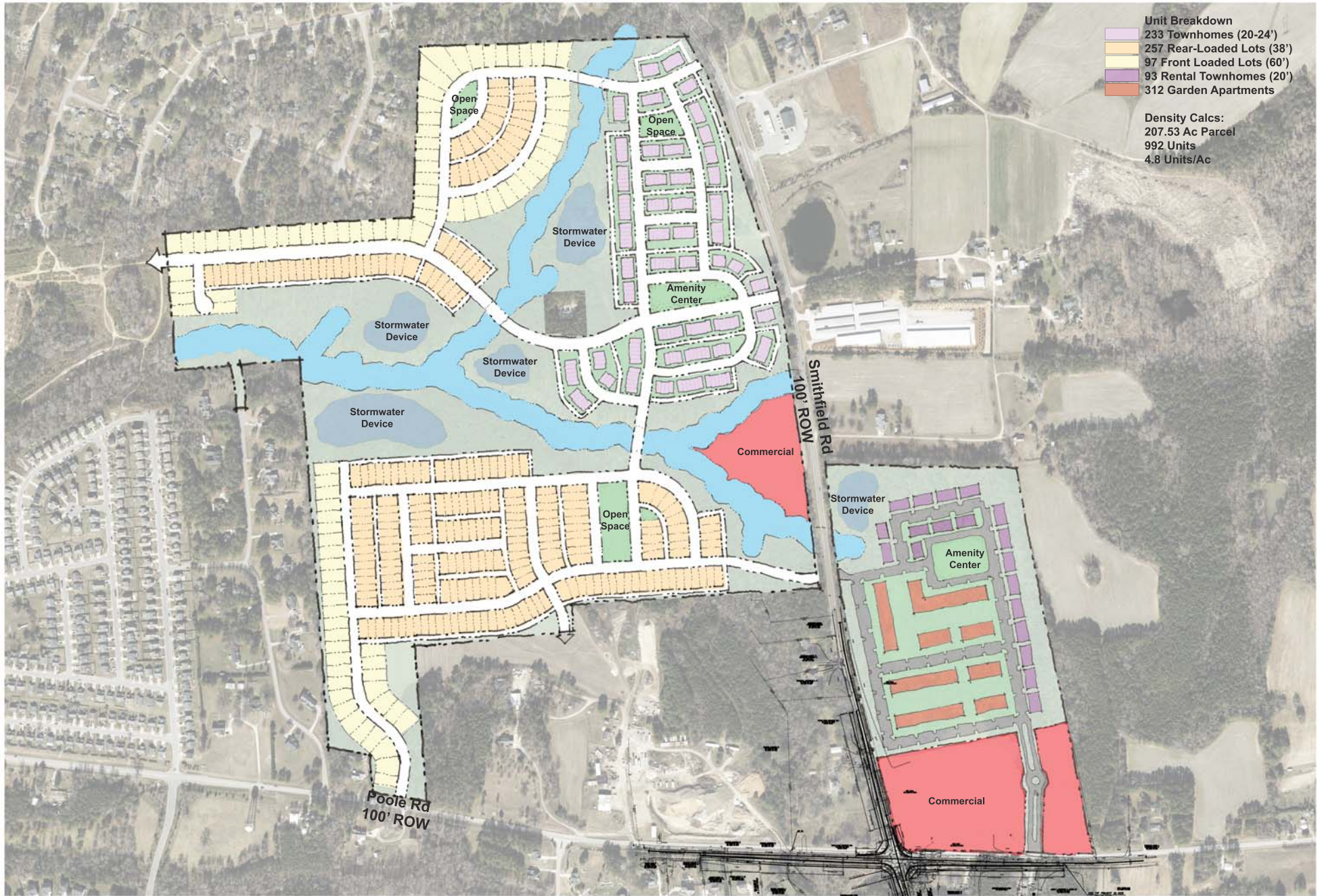
Note: Where adjacent signalization may provide opportunities for gaps in the traffic stream a reduction in the above storage values can be considered on a case by case basis.

Poole Road / Site Access 2
 Westbound Right-Turn
 2026 Build AM and PM Peak Hours

LEGEND

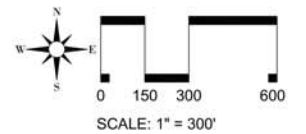
- = AM Peak
- = PM Peak

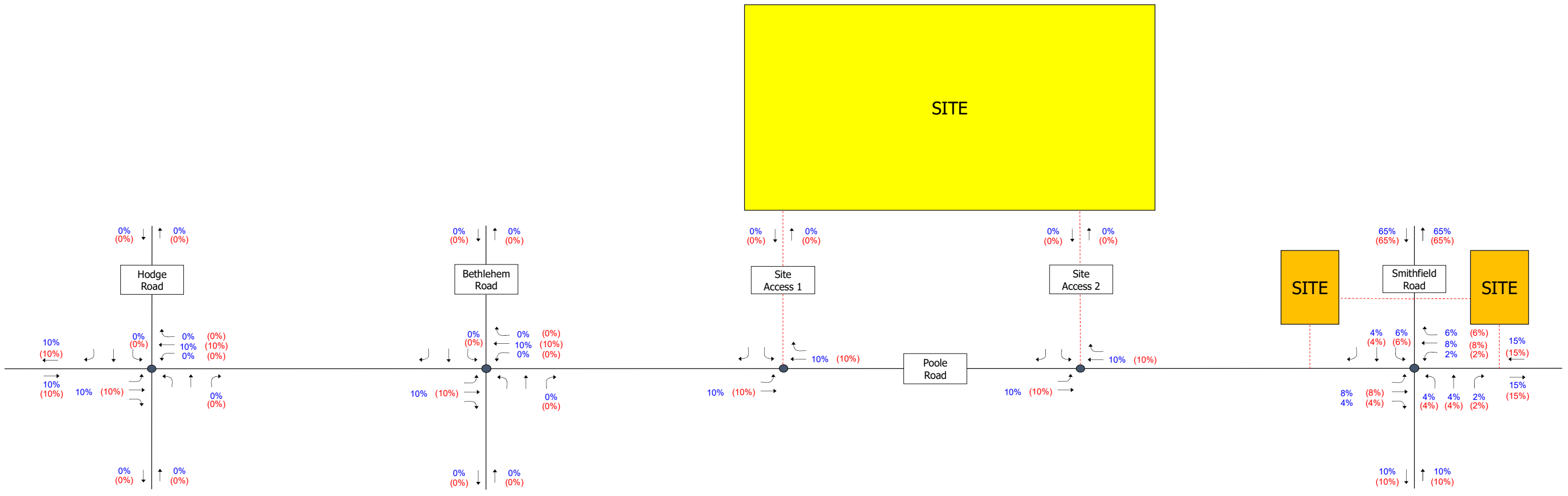
Appendix H
Non-Approved Area Developments



A Project of:
 Gander Development

Poole at Smithfield Development
 Mixed Ownership Concept
 12.9.2021





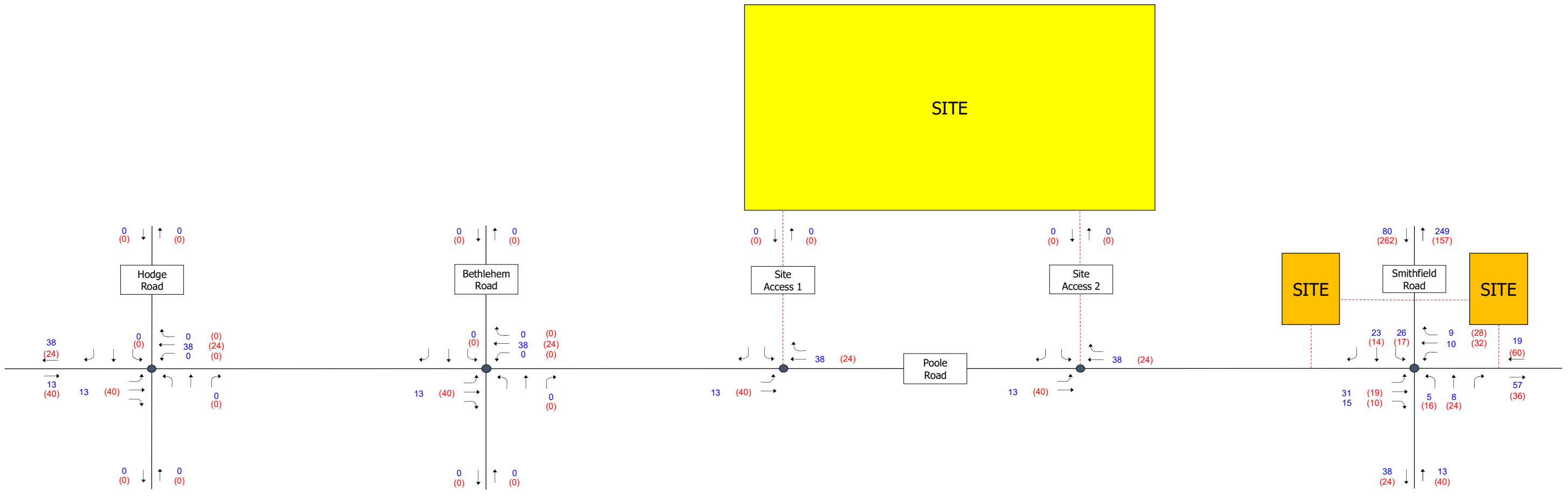
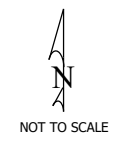
LEGEND:

- Existing Road
- - - Proposed Road
- XX% AM Peak Hour Percentages
- (XX%) PM Peak Hour Percentages



Poolle Road Martin Traffic Impact Analysis
 Poolle at Smithfield Development
 Trip Distribution Percentages

Figure D2A



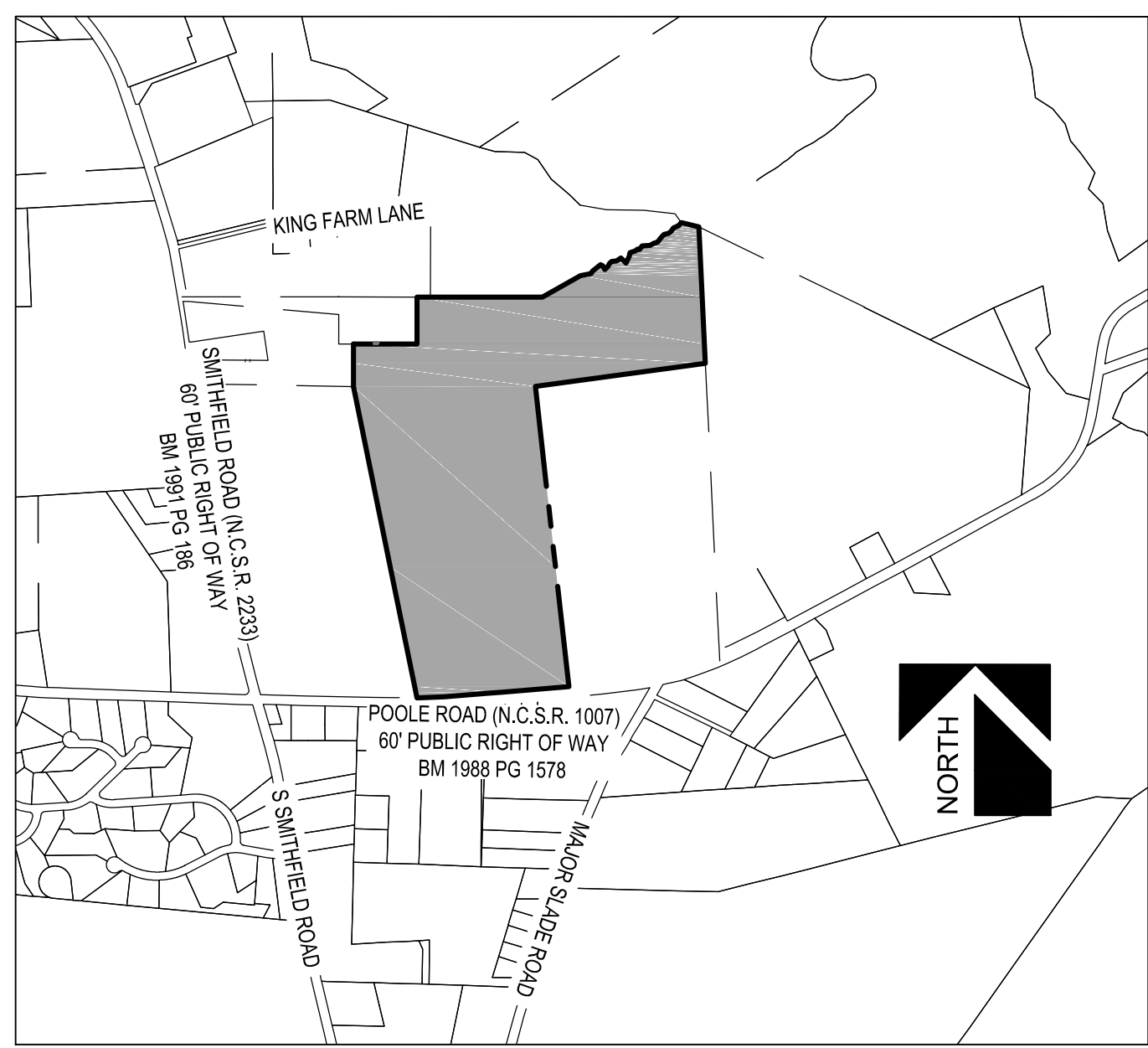
LEGEND:

- Existing Road
- - - Proposed Road
- XX AM Peak Hour Volume (vph)
- (XX) PM Peak Hour Volume (vph)

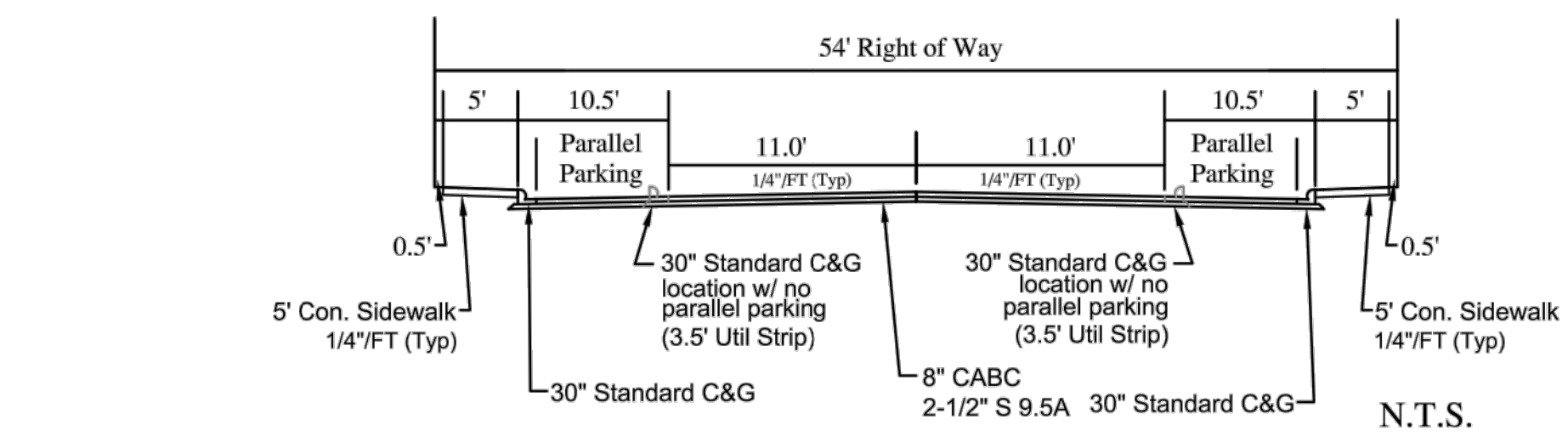
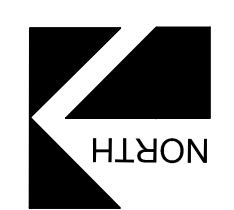


Poole Road Martin Traffic Impact Analysis
 Poole at Smithfield Development
 Trip Distribution Volumes

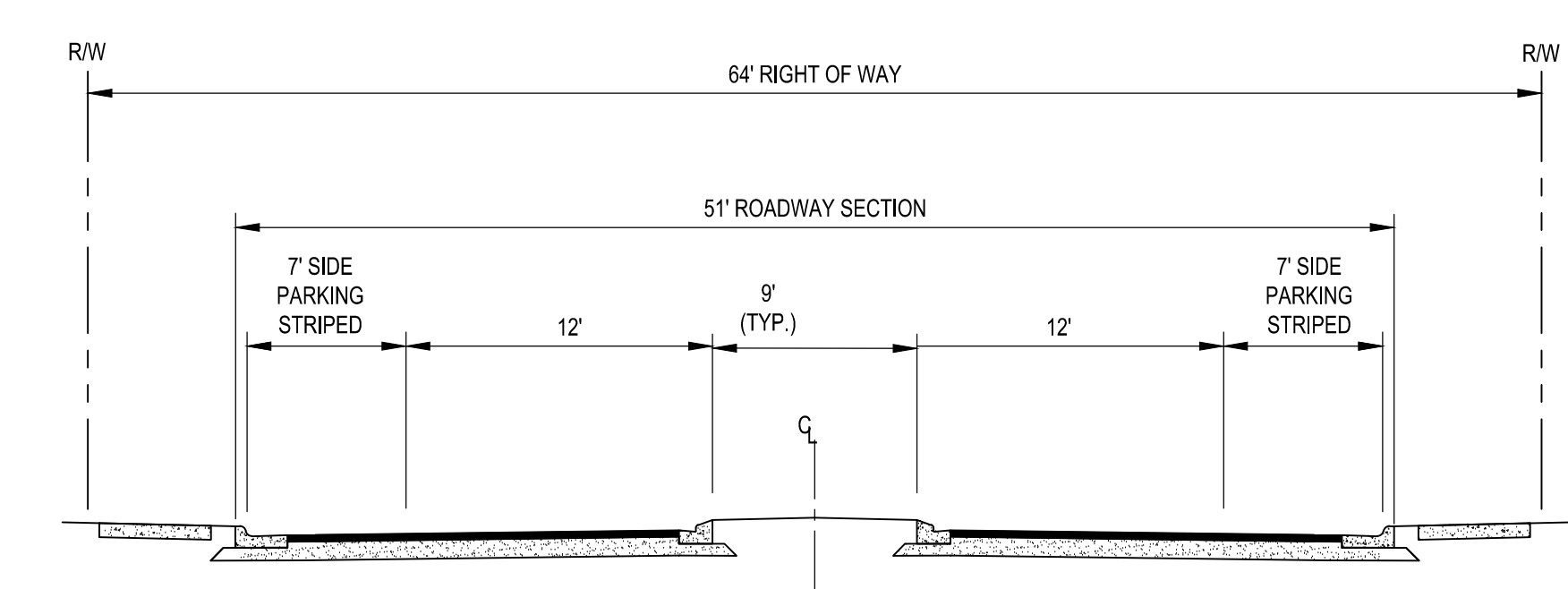
Figure D2B



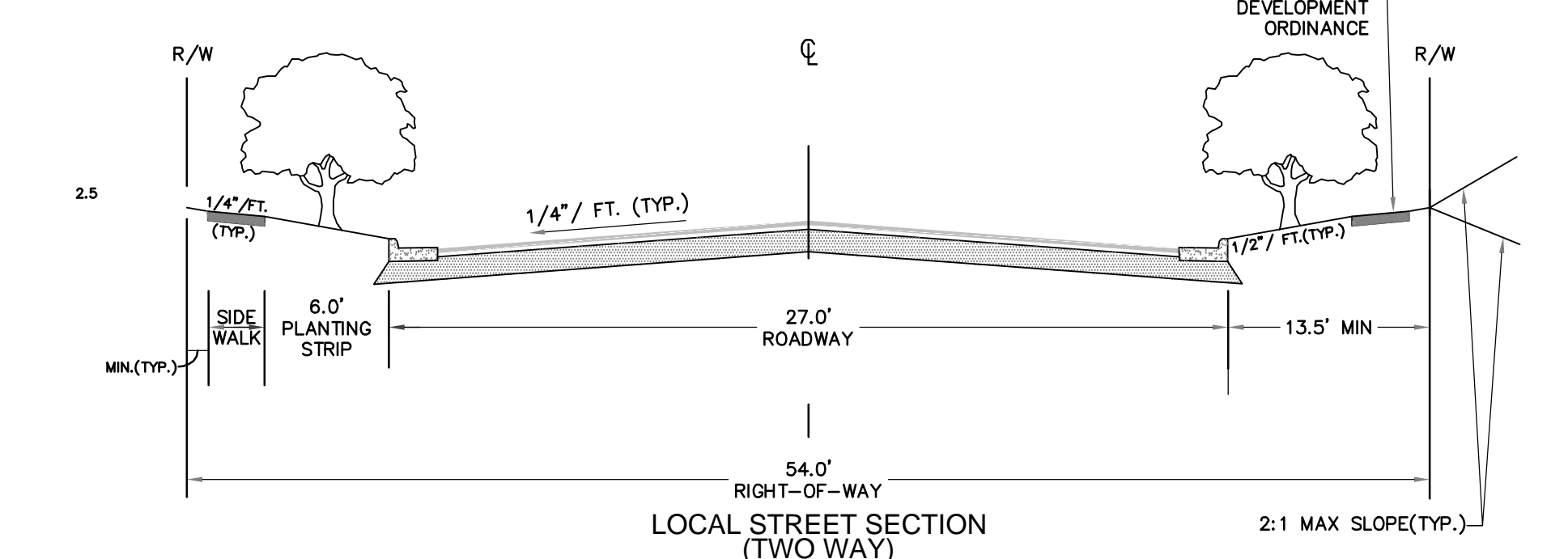
VICINITY MAP
SCALE: 1" = 1000'



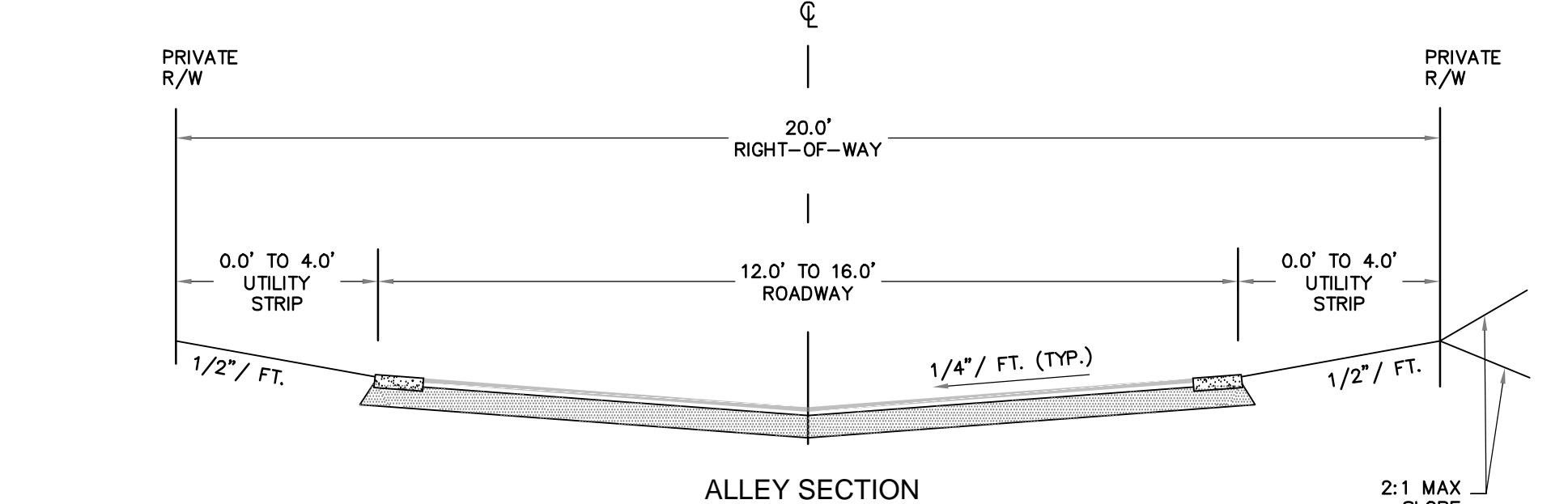
LOCAL RESIDENTIAL STREET
W/PARALLEL PARKING
(TWO WAY)
ROAD C, D, E, F



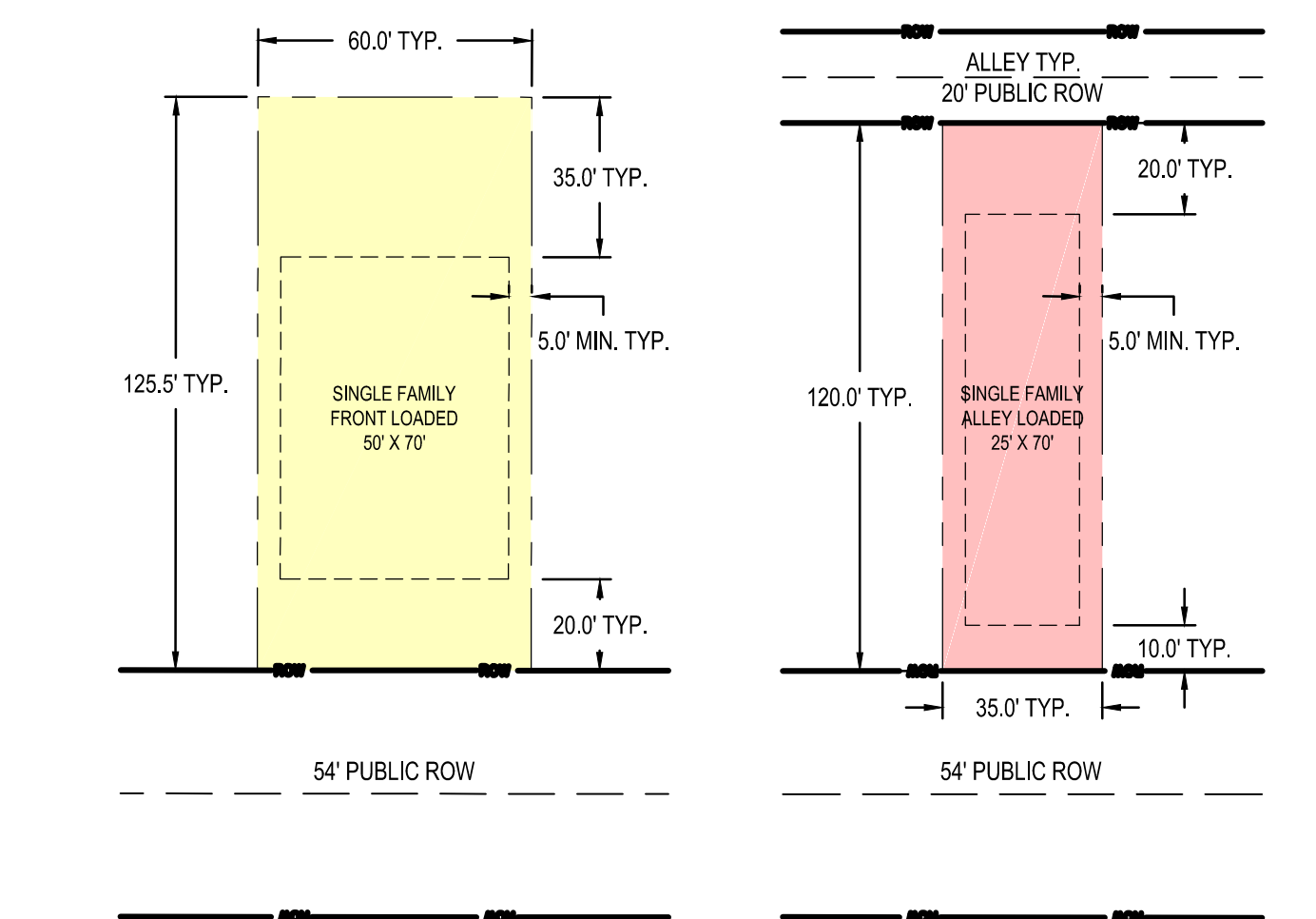
MAIN STREET SECTION
SIDE PARKING W/MEDIAN
(TWO WAY)
ROAD A & B



LOCAL STREET SECTION
(TWO WAY)
ROAD G, H, I, J, K, L, M



ALLEY SECTION



TYPICAL LOT LAYOUTS
SCALE: 1" = 40'

LEGEND

- ON STREET PARKING-STRIPED
- TYPICAL MEDIANS
- STREAM BUFFER
- PERIMETER BUFFER
- TREE SAVE
- POND
- ACTIVE OPEN SPACE (AOS)
- PASSIVE OPEN SPACE (POS)
- 35' SINGLE FAMILY
- 60' SINGLE FAMILY

WATER ALLOCATION	PTS
MAJOR SUBDIVISION	15
RESORT STYLE POOL	2
DECK/PATIO GREATER THAN 3000 SF	3
FOUNTAIN IN BMP/SCM	4
CLUBHOUSE W/BATHHOUSE ONLY	3
ARCHITECTURAL	35
IPEMA CERTIFIED PLAYGROUND EQUIPMENT	4
ON-STREET PARKING	4
ENHANCED ROADSIDE LANDSCAPE	2
TOTAL	52

SITE DATA TABLE

OWNER	Kevin D Williams and Debbie A. Williams
DEVELOPER	D.R. Horton
EXISTING ZONING	
EXISTING USE (VACANT/AG)	
PROPOSED ZONING/PLD	
PROPOSED USE (SF RESIDENTIAL)	
FRONT LOAD 60' SINGLE FAMILY	131
ALLEY LOAD 35' SINGLE FAMILY	103
TOTAL	234
DENSITY DU/AC	3.2
MAXIMUM DENSITY DU/AC	
CONNECTIVITY INDEX	1.3
TREE SAVE AREA	
REQUIRED @10% (AC)	7.23
PROVIDED (AC)	8.11

SETBACKS	FRONT (FT)	SIDE (FT)	REAR (FT)	MIN FRONT LOT WIDTH (FT)	MIN AREA (SF)
FRONT LOAD 60' SINGLE FAMILY	20	5	5	60	3500
ALLEY LOAD 35' SINGLE FAMILY	10	5	5	30	1750

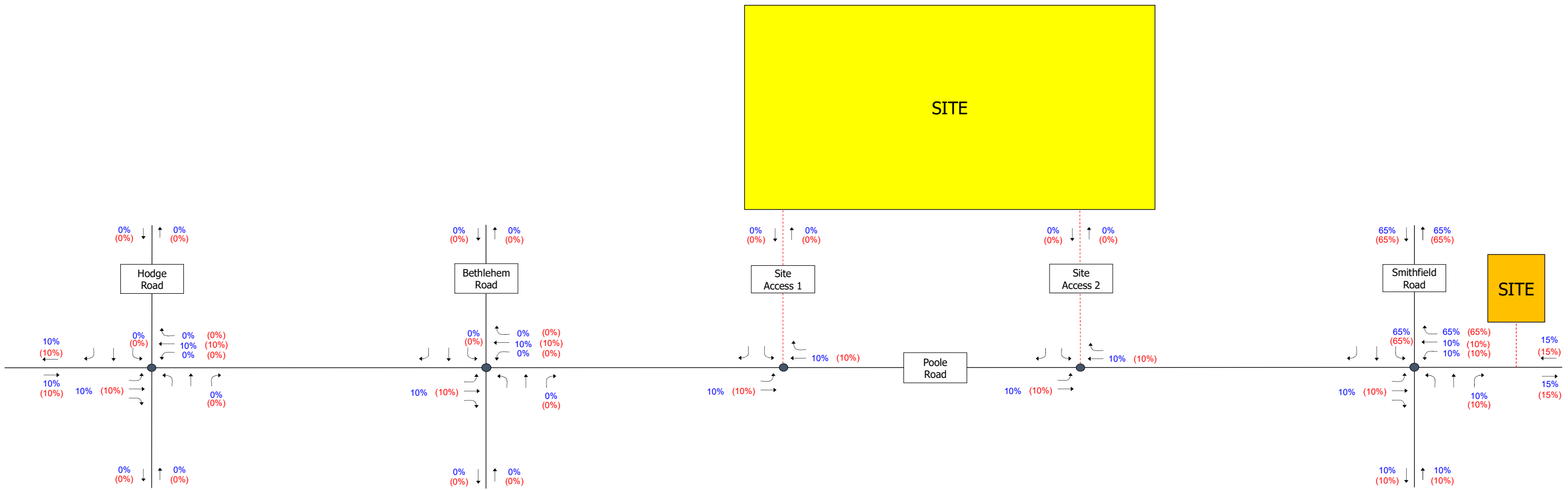
OPEN SPACE	UNITS	FACTOR	BEDS
TOTAL BEDS OUTSIDE 1/2 MILE	234	3.5	819
OPEN SPACE CALC.	520	425,880	9.78
REDUCTION 25%	319,410	7.33	
REQUIRED ACTIVE OPEN SPACE	159,705	3.67	
REQUIRED PASSIVE OPEN SPACE	159,705	3.67	

PROVIDED OPEN SPACE	SF	AC
ACTIVE OPEN SPACE	176,531	4.05
PASSIVE OPEN SPACE	154,980	3.79
TOTAL	341,511	7.84
ADDITIONAL OPEN SPACE	SF	0.00
ENVIRONMENTAL OPEN SPACE	211,652	4.86
TOTAL OPEN SPACE	894,674	20.54
% TOTAL OPEN SPACE		28.4%

NOTES
1) STREETS TREES TO BE PROVIDED EVERY 40 FT

KNIGHTDALE ASSEMBLAGE

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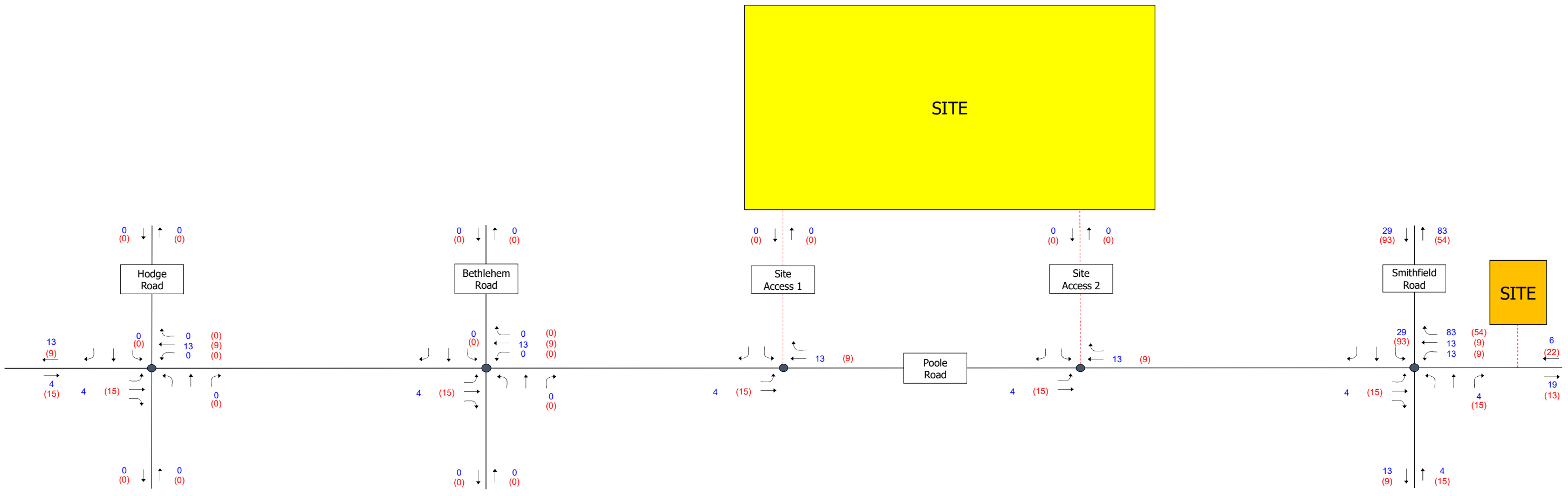
LEGEND:

- Existing Road
- - - Proposed Road
- XX% AM Peak Hour Percentages
- (XX%) PM Peak Hour Percentages



Poole Road Martin Traffic Impact Analysis
 Knightdale Assemblage
 Trip Distribution Percentages

Figure D3A



LEGEND:

- Existing Road
- - - Proposed Road
- XX AM Peak Hour Volume (vph)
- (XX) PM Peak Hour Volume (vph)