Modernization of SR 1322 (Murrayville Road)

Project Level Traffic Forecast Report

STIP PROJECT H171786

Prepared for:

North Carolina Department of Transportation

Prepared by:

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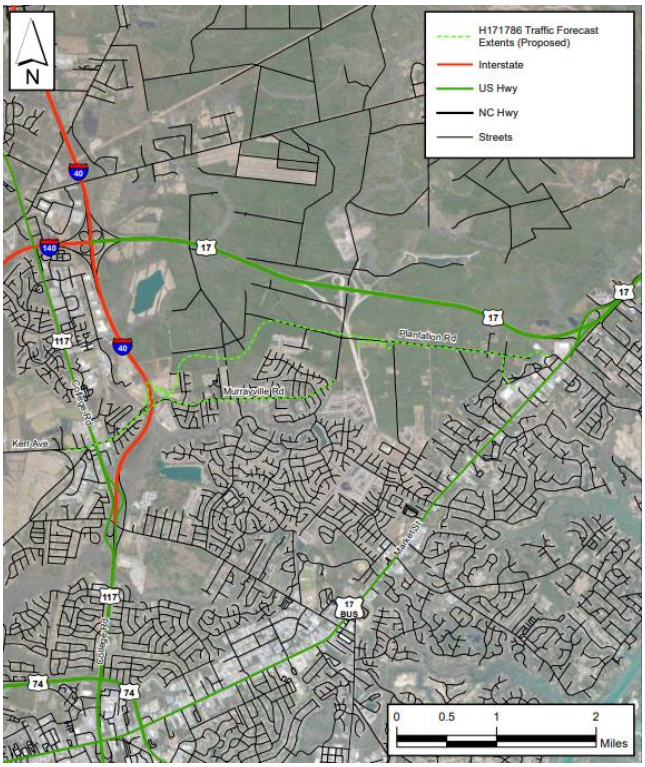

Traffic Forecast Cover Letter

February 17, 2023

MEMORANDUM TO: Mike Haley
Central Corridor Development Unit Engineer, NCDOT

FROM: Kimberly Levine
Three Oaks Engineering, Inc.

SUBJECT: Traffic Forecast for STIP Project H171786
Division 3, New Hanover County
Modernization of SR 1322 (Murrayville Road)

The NCDOT Transportation Planning Division (TPD) has reviewed and approved this traffic forecast for delivery as of February 16, 2023.

Please find attached the 2022 and 2045 traffic forecasts for STIP Project H171786. The project area is located within New Hanover County, which is in the eastern part of North Carolina. It is located within NCDOT Division 3 and within the Wilmington Metropolitan Planning Organization (WMPO) boundary. This project includes modernization of SR 1322 (Murrayville Road) from US 117 (College Road) east to where it terminates at the Hanover Reserve development (under construction). The project also considers additional build alternatives as described below.

The following scenarios are provided in this forecast:

- Base Year 2022 No-Build (BYNB) – Existing Conditions
- Future Year 2045 No-Build (FYNB)/Build Alternative 1 (FYB1) – Modernization of existing Murrayville Road
- Future Year 2045 Build Alternative 2 (FYB2) – Modernization of existing Murrayville Road and construction of a new connection from existing Murrayville Road just east of I-40 to US 17 Business by way of Porter's Neck Road and Hays Road
- Future Year 2045 Build Alternative 3 (FYB3) – Modernization of existing Murrayville Road and construction of a new interchange of I-40 and Murrayville Road (converting the existing grade separation to a full interchange)
- Future Year 2045 Build Alternative 4 (FYB4) – Modernization of existing Murrayville Road, construction of a new connection from existing Murrayville Road just east of I-40 to US 17 Business by way of Porter's Neck Road and Hays Road, and construction of a new interchange of I-40 and Murrayville Road (converting the existing grade separation to a full interchange)

The following individuals were consulted in the development of this forecast: Emma Stogner (WMPO Transportation Planner), Rachel McIntyre (WMPO Associate Transportation Planner), Abigail Lorenzo (WMPO Deputy Director), Chad Kimes (NCDOT Division 3 Engineer), Adrienne Cox (NCDOT Division 3 Planning Engineer), Benjamin Hughes (NCDOT District Engineer), and Rebekah Roth (New Hanover County), Ken Vafier (New Hanover County), Nazia Sarder (Wilmington MPO NCDOT).

Certain assumptions were made in the development of this forecast:

FISCAL CONSTRAINT

The following projects are assumed to be complete and open to traffic by 2045 and are anticipated to affect the travel patterns on the subject project:

- U-4751 - SR 1409 (Military Cutoff Extension) to US 17 (Market Street) in Wilmington. Multi-lanes on new location.

FORECAST METHODOLOGY

The 2022 Base Year No-Build traffic volumes and design factors were determined based on traffic count data from May of 2018, March of 2019, October of 2020, February and March of 2021, and September of 2022 and historical AADT stations.

The 2045 Future Year No-Build/Build Alternative 1 AADT values were developed by applying a chosen growth rate to the 2022 Base Year No-Build AADT values.

The 2045 Future Year Build Alternative 2 forecast assumed that the new facility would provide direct access to developments located between I-40 and the proposed Military Cutoff Extension. As such, traffic from the area around existing Murrayville Road was routed to the new facility assuming that those new connections were constructed.

The 2045 Future Year Build Alternative 3 volumes were developed by comparing model runs with and without an interchange of Murrayville Road and I-40. This new interchange will likely cause a change for some drivers that wish to access I-40 to and from the north that must currently utilize the interchange at Gordon Road. The new interchange will also attract drivers that wish to travel from the Murrayville Road area east of I-40 to and from areas south of the Murrayville Road intersection with US 17.

The 2045 Future Year Build Alternative 4 volumes were developed by combining the trip diversions associated with Alternatives 2 and 3.

INTERPOLATION/EXTRAPOLATION

To estimate AADT volumes between 2022 and 2045, straight line interpolation between the 2022 and the 2045 scenarios is acceptable. AADT volumes may be extrapolated for up to two years immediately following 2045. If it is determined that any of these assumptions have become inconsistent with the project and surrounding area activity, please request updated projections at this location.

cc: FILE (New Hanover County, TIP Project H171786)

cc: *Final distribution for your records via e-mail. Diagrams as PDF attachment.*

Mike Reese, NCDOT Congestion Management (mikereese@ncdot.gov)
Brenda Moore, PE, NCDOT Roadway Design Unit (roadwaydesign@ncdot.gov)
Clark Morrison, NCDOT Pavement Management Unit (cmorrison@ncdot.gov)
Chad Kimes, PE, NCDOT Division 3 Division Engineer (ckimes@ncdot.gov)
Adrienne Cox, PE, NCDOT Division 3 Planning Engineer (amcox1@ncdot.gov)
Keith Dixon, State Traffic Forecast Engineer (kgdixon@ncdot.gov)
Traffic Forecasting GIS Support (trafficforecastinggissupport@ncdot.gov)

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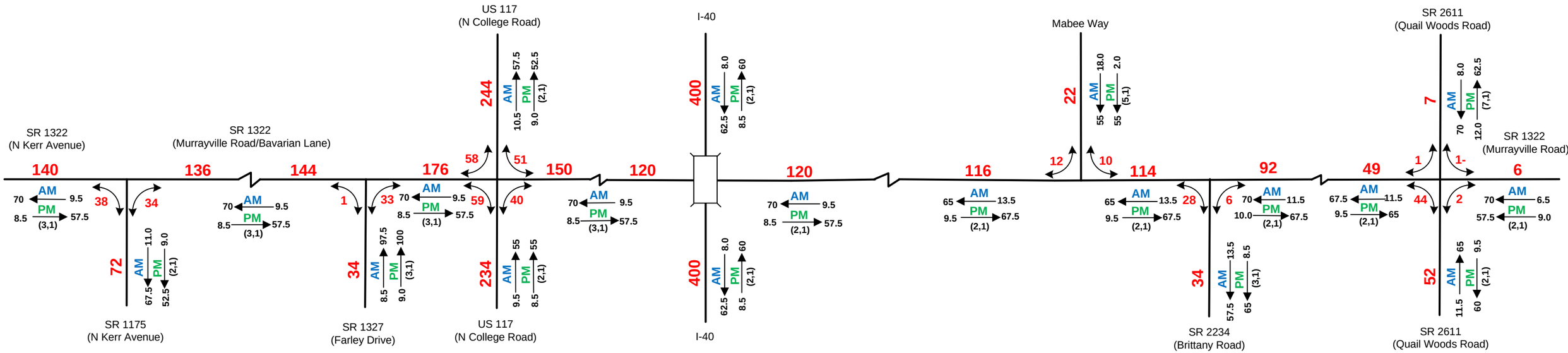


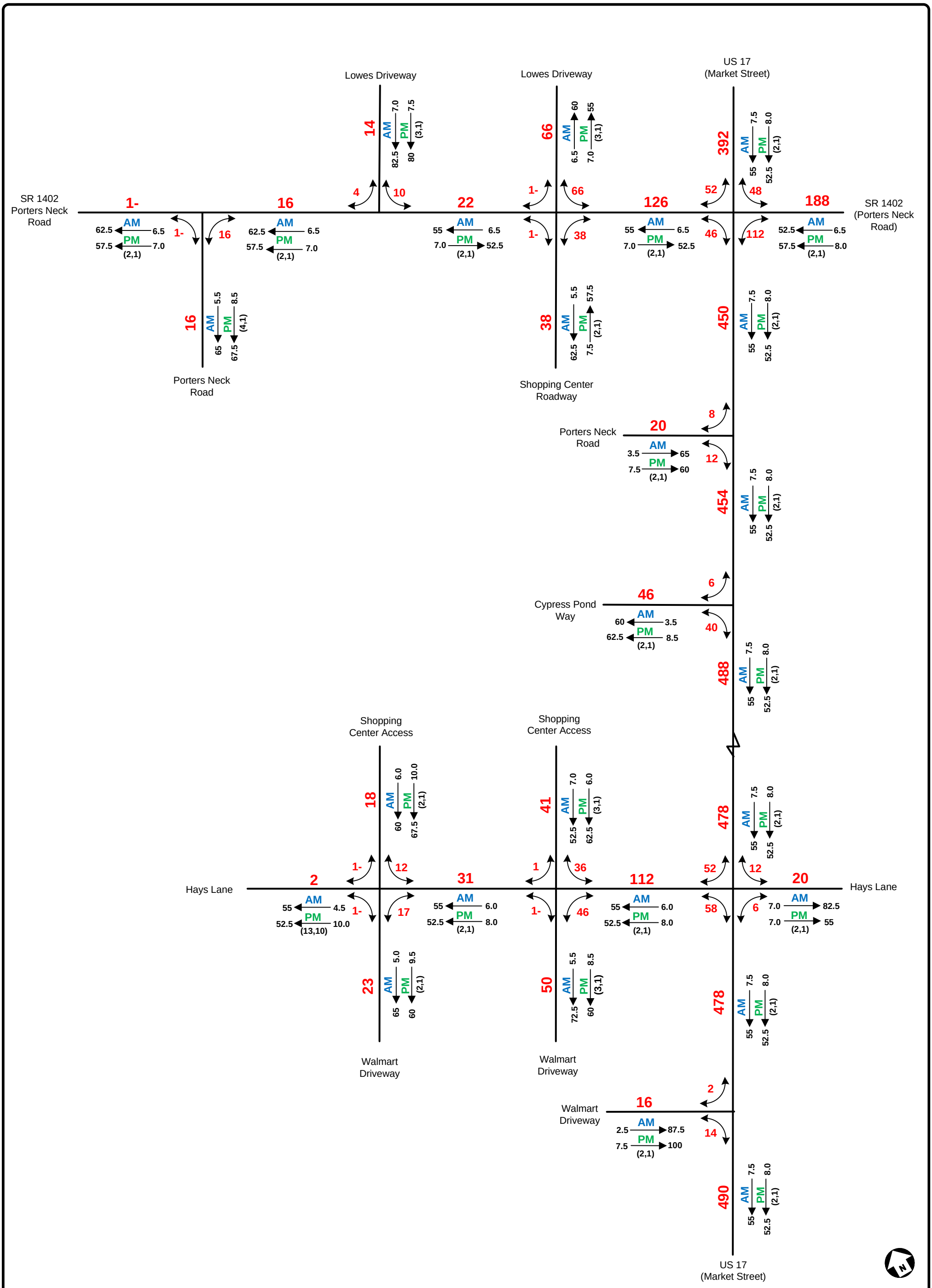
2022 Base Year No-Build

SHEET 1 OF 2

Legend

###	No. of Vehicles Per Day (VPD) in 100s	K	Design Hour Factor (%)
1-	Less than 50 VPD	AM	AM Peak Period
X	Movement Prohibited	D	Peak Hour Directional Split
.....	Proposed Roadway	→	Indicates Direction of D
		(d, t)	Duals, TT-STs (%)

TIP: H171786	**WBS:** 34263.1.1
COUNTY: New Hanover	**DIVISION:** 3
DATE: February 2023	
PREPARED BY: Three Oaks Engineering	
LOCATION: US 117 (College Road) east to Hanover Reserve development	
PROJECT: Modernization of SR 1322 (Murrayville Road)	



2022 Base Year No-Build

SHEET 2 OF 2

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K AM D
(d, t)

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1-	Less than 50 VPD	AM	AM Peak Period
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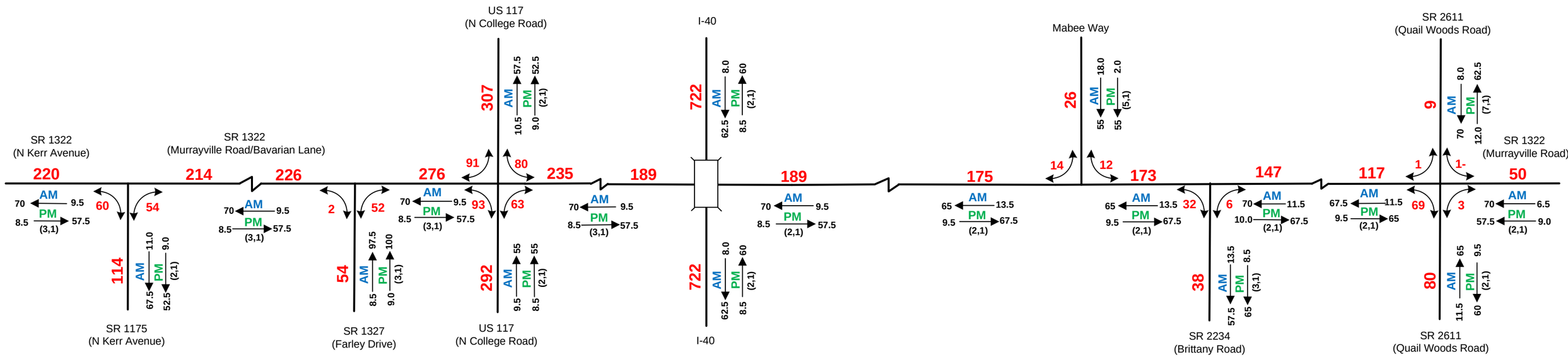

N

2045 Future Year No-Build/Build Alternative 1

SHEET 1 OF 2

Legend

K — AM → D
(d, t)

###	No. of Vehicles Per Day (VPD) in 100s	K	Design Hour Factor (%)
1-	Less than 50 VPD	AM	AM Peak Period
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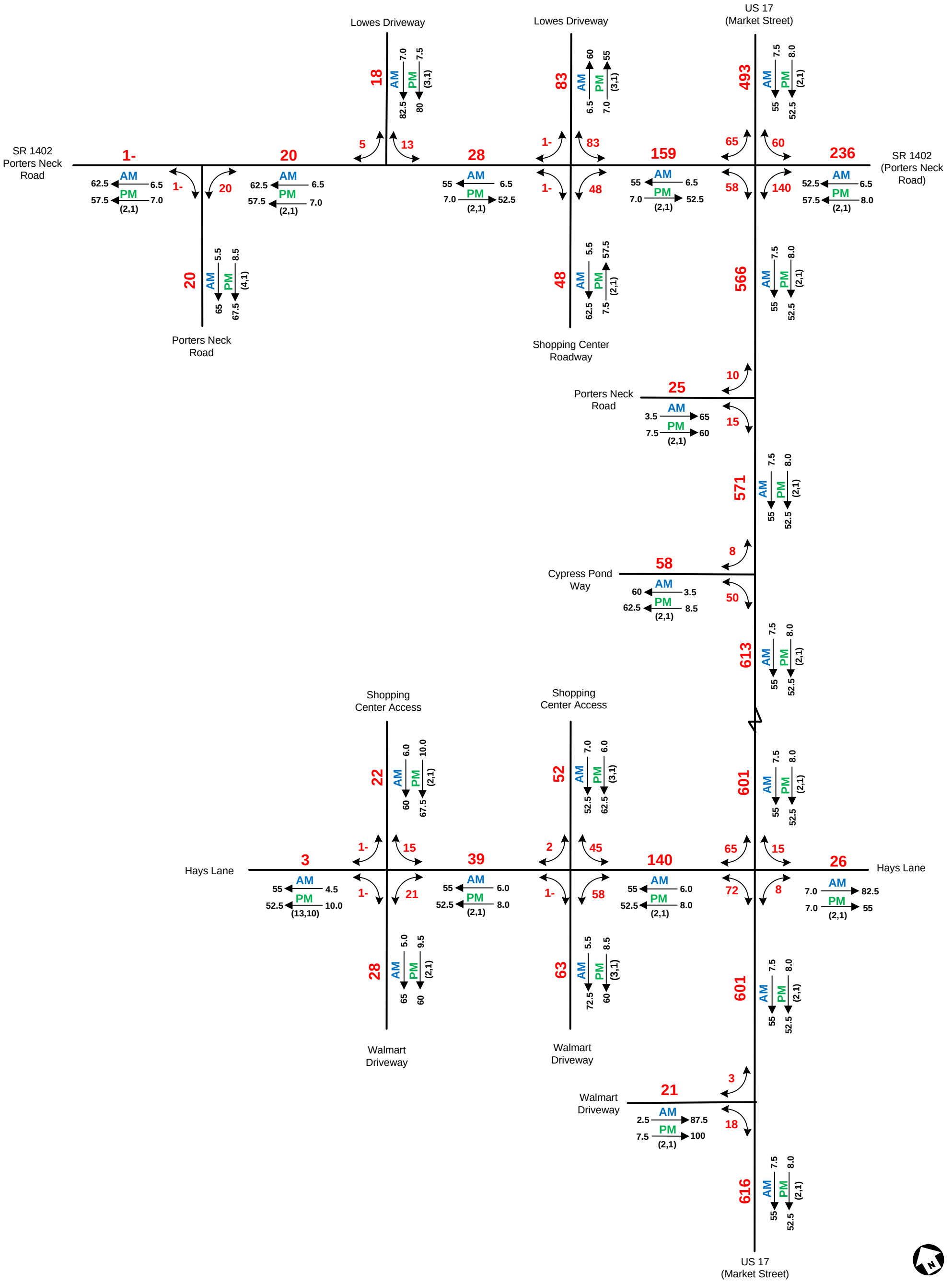

2045 Future Year No-Build/Build Alternative 1

SHEET 2 OF 2

Legend

K — AM — D
(d, t)

###	No. of Vehicles Per Day (VPD) in 100s	K	Design Hour Factor (%)
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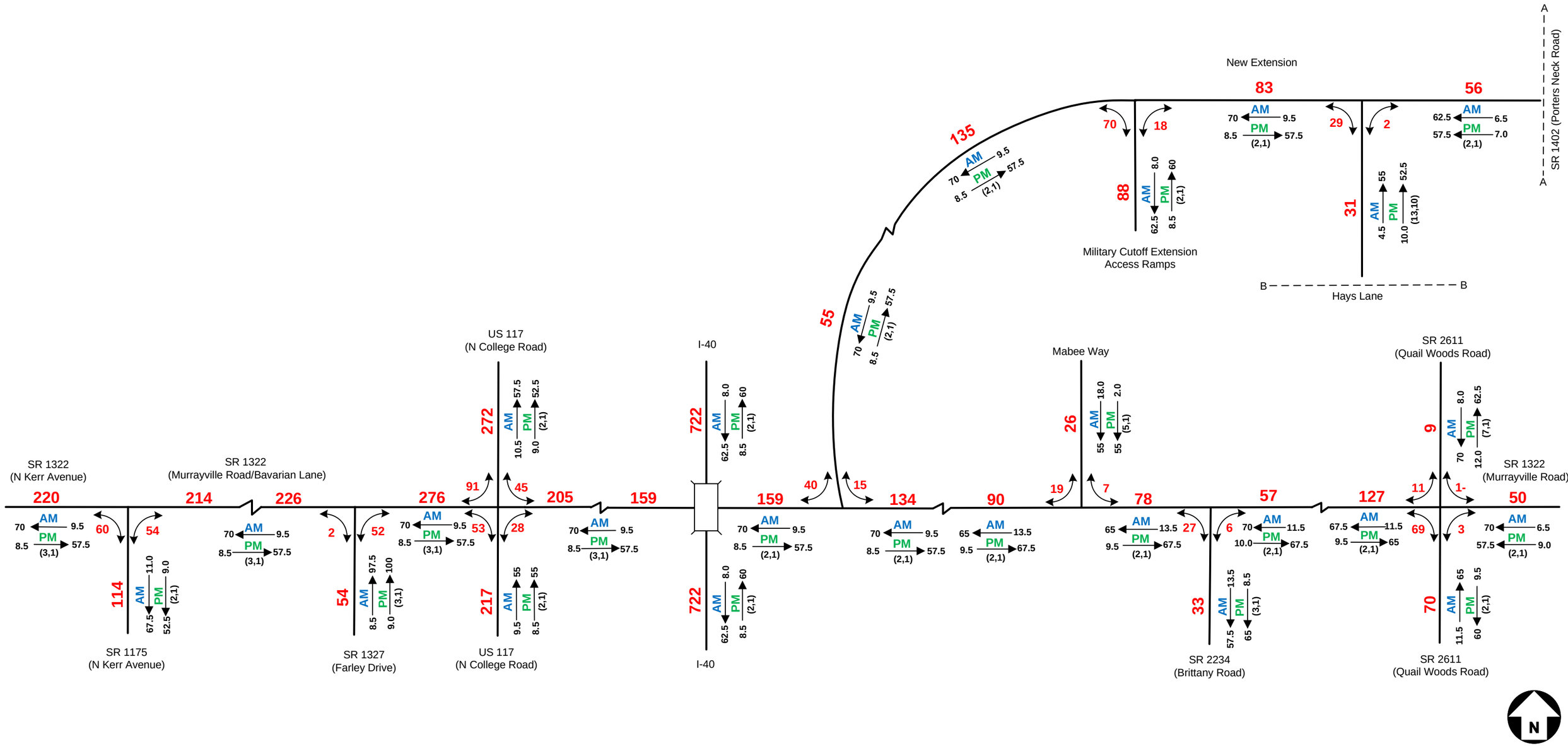

2045 Future Year Build Alternative 2

SHEET 1 OF 2

Legend

###	No. of Vehicles Per Day (VPD) in 100s	K	Design Hour Factor (%)
1-	Less than 50 VPD	AM	AM Peak Period
X	Movement Prohibited	D	Peak Hour Directional Split
·····	Proposed Roadway	→	Indicates Direction of D
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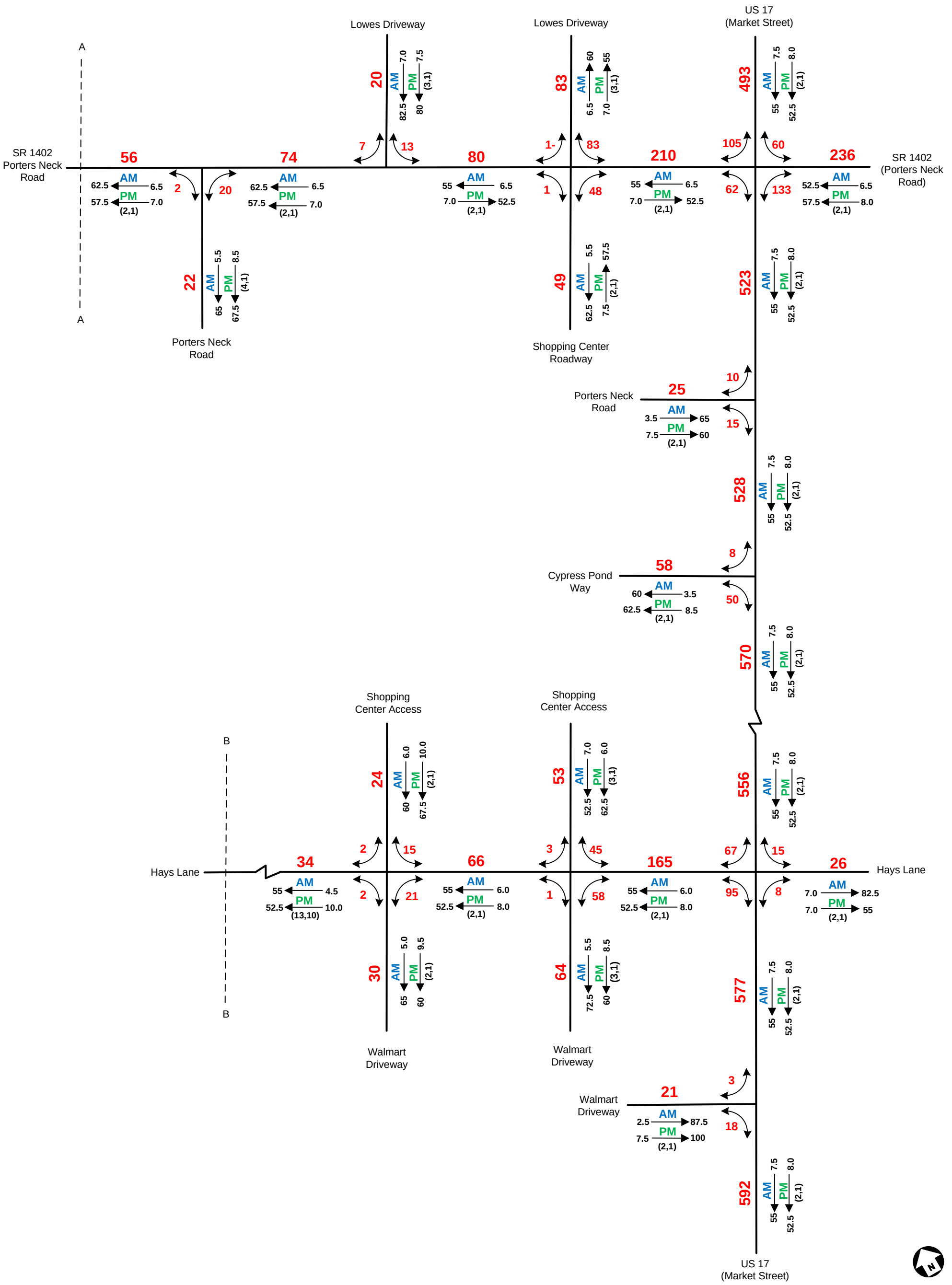

2045 Future Year Build Alternative 2

SHEET 2 OF 2

Legend

###	No. of Vehicles Per Day (VPD) in 100s	K	Design Hour Factor (%)
1-	Less than 50 VPD	AM	AM Peak Period
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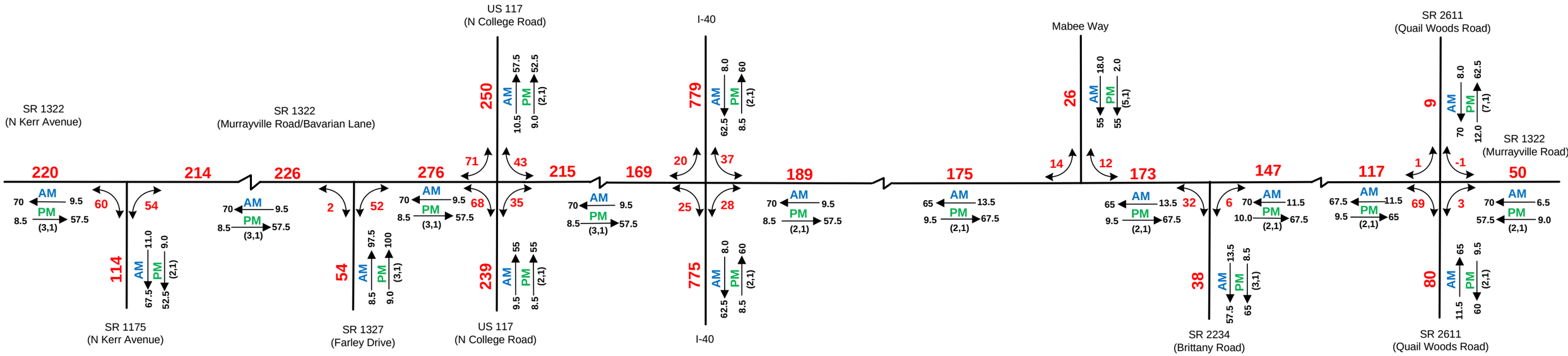

N

2045 Future Year Build Alternative 3

SHEET 1 OF 2

Legend

###	No. of Vehicles Per Day (VPD) in 100s
1-	Less than 50 VPD
X	Movement Prohibited
.....	Proposed Roadway

K — AM / (d, t) → D

K	Design Hour Factor (%)
AM	AM Peak Period
D	Peak Hour Directional Split
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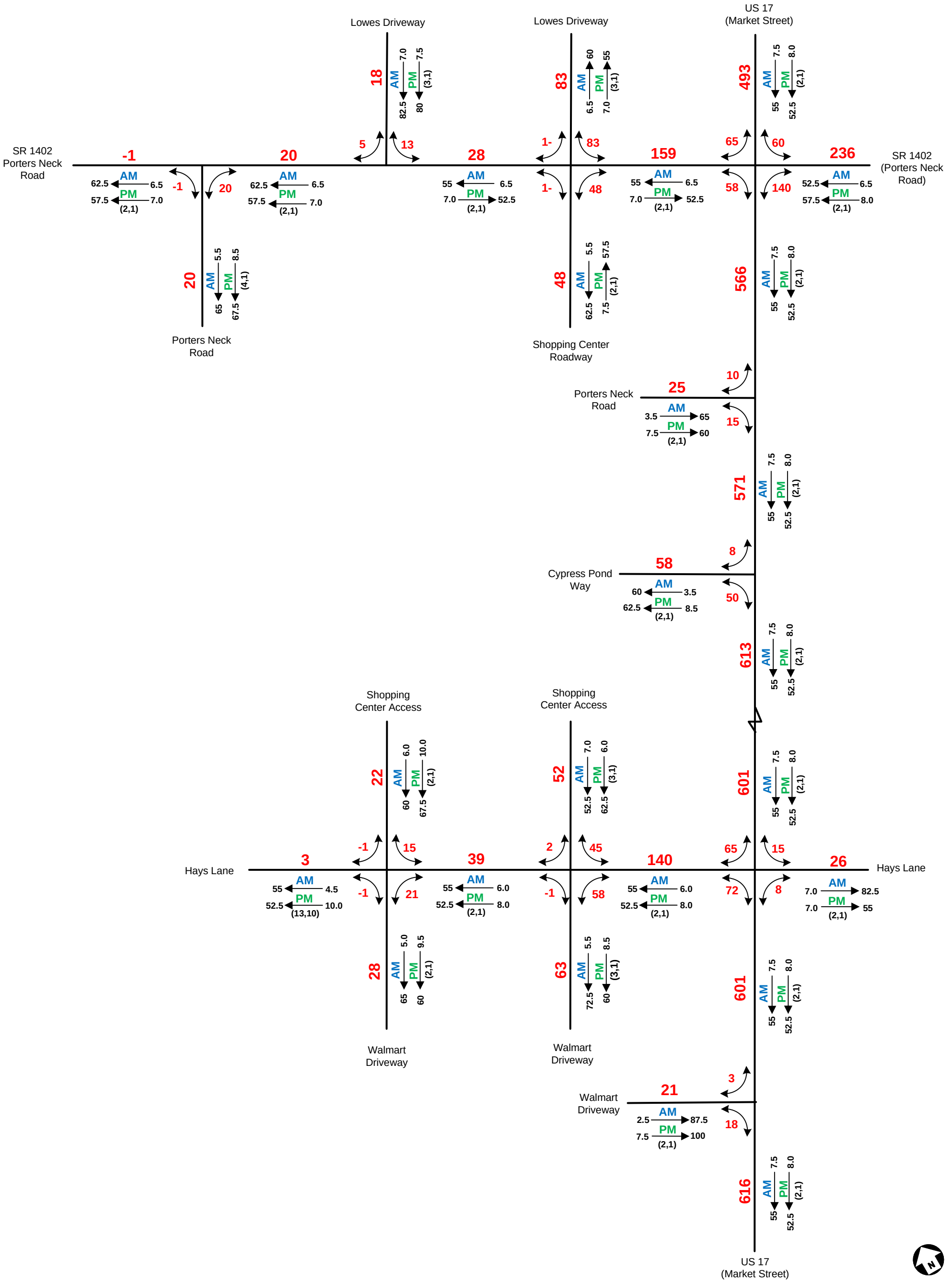

2045 Future Year Build Alternative 3

SHEET 2 OF 2

Legend

###	No. of Vehicles Per Day (VPD) in 100s	K	Design Hour Factor (%)
1-	Less than 50 VPD	AM	AM Peak Period
X	Movement Prohibited	D	Peak Hour Directional Split
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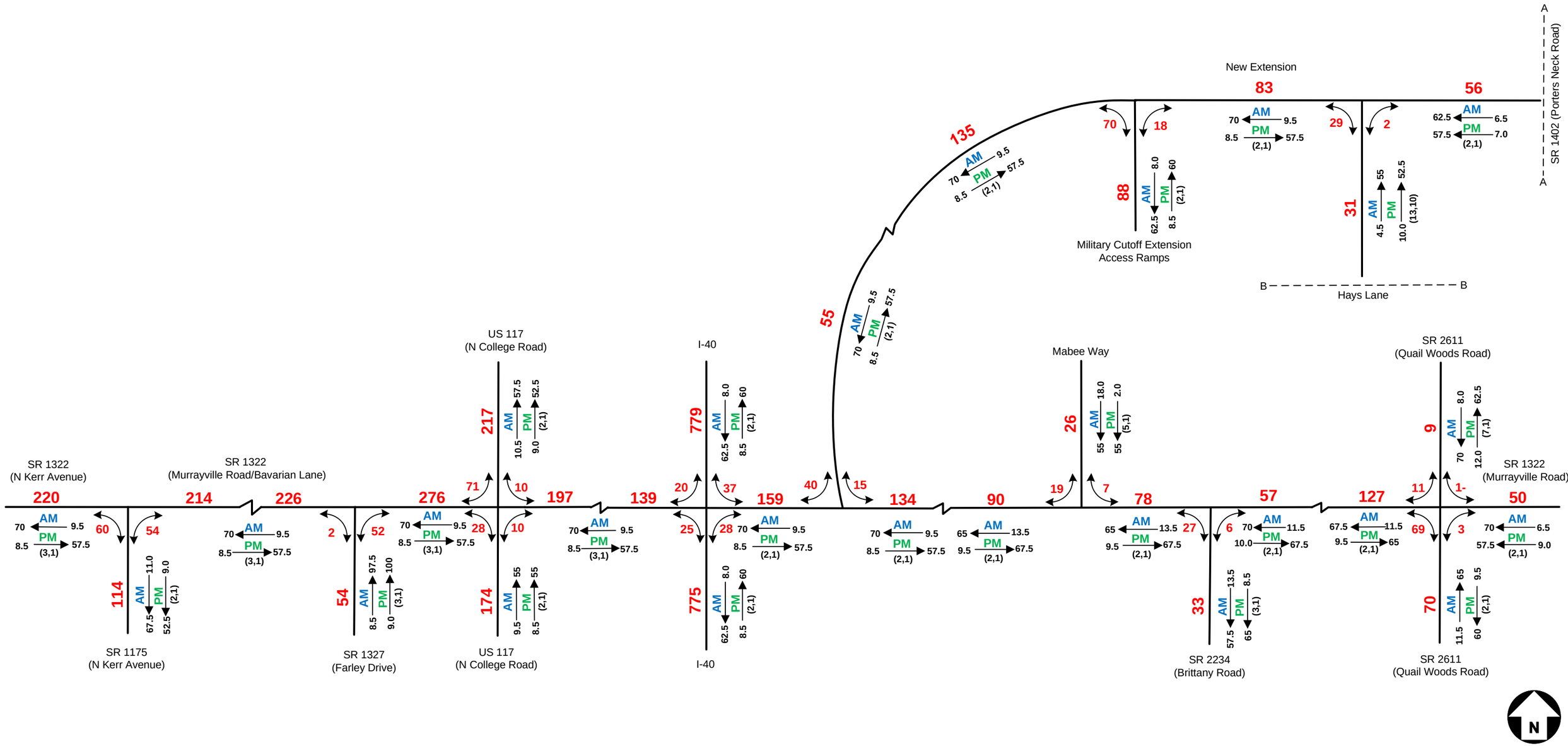

2045 Future Year Build Alternative 4

SHEET 1 OF 2

Legend

###	No. of Vehicles Per Day (VPD) in 100s	K	Design Hour Factor (%)
1-	Less than 50 VPD	AM	AM Peak Period
X	Movement Prohibited	D	Peak Hour Directional Split
·····	Proposed Roadway	→	Indicates Direction of D
		(d, t)	Duals, TT-STs (%)

K AM D
(d, t)

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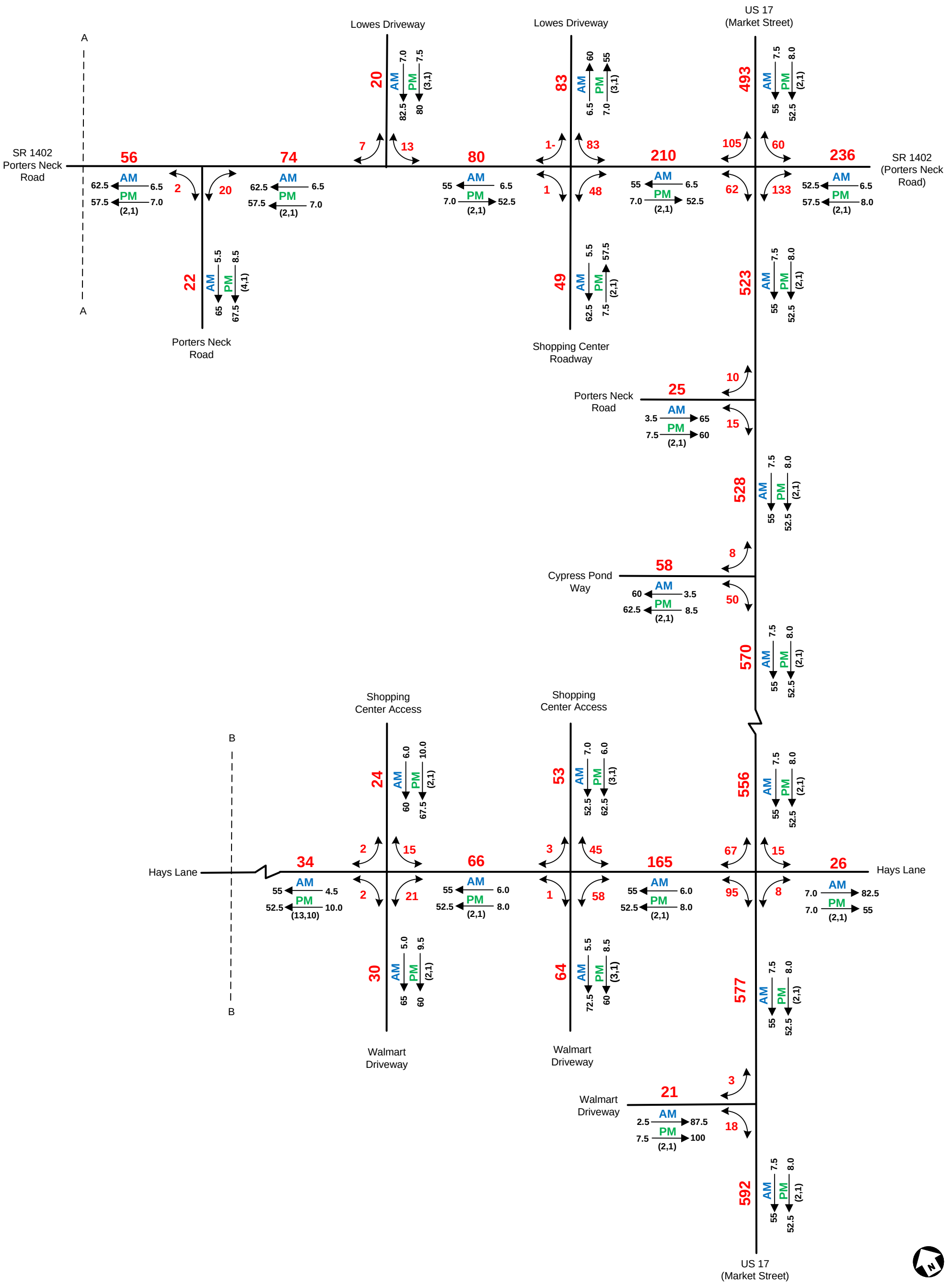

2045 Future Year Build Alternative 4

SHEET 2 OF 2

Legend

###	No. of Vehicles Per Day (VPD) in 100s	K	Design Hour Factor (%)
1-	Less than 50 VPD	AM	AM Peak Period
X	Movement Prohibited	D	Peak Hour Directional Split
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LOCATION: US 117 (College Road) east to Hanover Reserve development	
PROJECT: Modernization of SR 1322 (Murrayville Road)	

TRAFFIC FORECAST REPORT

1 PROJECT BACKGROUND

1.1 Project Request Information

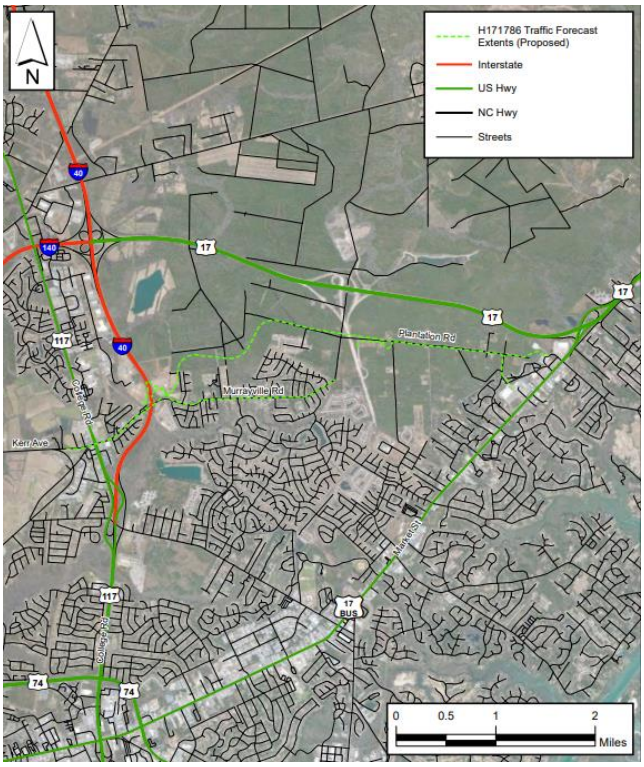
The traffic forecast for this project was requested by the STIP H171786 project team. This project includes modernization of SR 1322 (Murrayville Road) from US 117 (College Road) east to where it terminates at the Hanover Reserve development (under construction). The project also considers additional build alternatives which include a new connection at the I-40 bridge, creating an interchange with I-40, spanning Military Cutoff Extension, and tying into US 17 (Market Street) via Hays Lane and/or Porters Neck Road in Murrayville in New Hanover County (NCDOT Division 3). This is the first request for a traffic forecast at this location. However, the January 17, 2011 US 17 Corridor Study FEIS was consulted during the development of this forecast. This traffic forecast includes five scenarios:

- Base Year 2022 No-Build (BYNB) – Existing Conditions
- Future Year 2045 No-Build (FYNB)/Build Alternative 1 (FYB1) – Modernization of existing Murrayville Road
- Future Year 2045 Build Alternative 2 (FYB2) – Modernization of existing Murrayville Road and construction of a new connection from existing Murrayville Road just east of I-40 to US 17 Business by way of Porter's Neck Road and Hays Road
- Future Year 2045 Build Alternative 3 (FYB3) – Modernization of existing Murrayville Road and construction of a new interchange of I-40 and Murrayville Road (converting the existing grade separation to a full interchange)
- Future Year 2045 Build Alternative 4 (FYB4) – Modernization of existing Murrayville Road, construction of a new connection from existing Murrayville Road just east of I-40 to US 17 Business by way of Porter's Neck Road and Hays Road, and construction of a new interchange of I-40 and Murrayville Road (converting the existing grade separation to a full interchange)

1.2 Project Description

The North Carolina Department of Transportation (NCDOT) State Transportation Improvement Program (STIP) Project H171786 proposes the modernization of SR 1322 (Murrayville Road) from US 117 (College Road) east to where it terminates at the Hanover Reserve development (under construction) in Murrayville in New Hanover County. **Figure 1** shows the project study area for this forecast.

Figure 1 – Forecast Area



1.3 Forecast History

This is the first request for a traffic forecast at this location. However, the January 17, 2011 US 17 Corridor Study FEIS was consulted during the development of this forecast.

1.4 Area Information

The project area is located within New Hanover County, which is in the eastern part of North Carolina. The project is located within NCDOT Division 3 and within the Wilmington Urban Area MPO (WMPO) boundary. New Hanover County has an estimated population of 225,702 and Murrayville has a population of 16,582 based on 2020 census data. The county covers approximately 328 square miles and consists of several cities and towns including Murrayville, Wilmington (which is the county seat), Myrtle Grove, Kings Grant, Ogden, Porters Neck, Silver Lake, Carolina Beach, and Wrightsboro.

1.5 Route Information

SR 1322/SR 1175 (N Kerr Avenue) is a two-lane roadway with a posted speed limit of 55 mph. Land use along the facility is a mix of commercial and residential. It is classified as a Minor Arterial according to the Federal Highway Classification System.

SR 1322 (Murrayville Road/Bavarian Lane) is a two-lane roadway with a posted speed limit of 45 mph and a school speed limit of 35 mph between N Kerr Avenue and Clewis Avenue. The speed limit reduces to 35 mph east of Clewis Avenue. Land use is predominantly residential with commercial buildings at the intersection with US 117 (N College Road). Based on the Federal Highway

Classification System, it is classified as a Minor Arterial west of US 117 (N College Road) and as Local east of US 117 (N College Road).

Farley Drive is a two-lane roadway with a posted speed limit of 55 mph. Land use is predominantly residential with a few commercial buildings. It is classified as a Minor Arterial based on the Federal Highway Classification System.

US 117 (N College Road) is a four-lane roadway in the project area. US 117 (N College Road) includes a two-way-left-turn-lane to the north of Murrayville Road. To the south of Murrayville Road, US 117 (N College Road) is median divided. It has a posted speed limit of 45 mph and land use is predominantly commercial. It is classified as Other Principal Arterial according to the Federal Highway Classification System.

I-40 is a four-lane roadway with a posted speed limit of 70 mph in the project area. I-40 runs north-south within the project limits and connects to major cities like Raleigh to the north and Wilmington to the south. It is classified as an Interstate according to the Federal Highway Classification System.

Maybee Way is a two-lane roadway with no posted speed limit. It provides access to Murrayville Elementary School and is classified as Local according to the Federal Highway Classification System.

SR 2234 (Brittany Road) is a two-lane roadway with a posted speed limit of 35 mph and no pavement markings. It leads to a residential community and is classified as Local according to the Federal Highway Classification System.

SR 2611 (Quail Wood Road) is a two-lane roadway with no pavement markings and a posted speed limit of 35 mph. Land use is residential, and it is classified as Local according to the Federal Highway Classification System.

US 17 (Market Street) is a four-lane, median divided roadway with a posted speed limit of 45 mph in the project area. Land use is predominantly commercial. It is classified as Other Principal Arterial according to the Federal Highway Classification System.

SR 1402 (Porters Neck Road) is a two-lane roadway with a posted speed limit of 45 mph. Land use is commercial to the west of US 17 (Market Street). It provides access to a shopping center, Lowes, and a church. To the east of US 17 (Market Street) land use is predominantly residential and the facility provides access to the Porters Neck Elementary School. Porters Neck Road loops around the shopping center on the western side of US 17 (Market Street) and intersects with US 17 (Market Street) as a right-in right-out "T" intersection to the south. It is classified as Local according to the Federal Highway Classification System.

Cypress Pond Way is two-lane roadway with no posted speed limit. It intersects with US 17 (Market Street) as a right-in right-out intersection with a left-over. Land use is commercial at the intersection with US 17 (Market Street) and residential further west. It is classified as Local according to the Federal Highway Classification System.

Hays Lane is a two-lane roadway with no posted speed limit. Land use is commercial, and it provides access to a Walmart on the southern side and a shopping center on the northern side of Hays Lane.

To the east of US 17 (Market Street) the facility provides access to healthcare facilities. Hays Lane is classified as Local according to the Federal Highway Classification System.

1.6 Future Area Roadway Improvements

The following projects are assumed to be complete and open to traffic by 2045 and are anticipated to affect the travel patterns on the subject project:

- U-4751 - SR 1409 (Military Cutoff Extension) to US 17 (Market Street) in Wilmington. Multi-lanes on new location.

2 SOURCE OF INFORMATION AND DATA

2.1 Historic Average Annual Daily Traffic (AADT)

The existing AADT for the study area was collected from the NCDOT - Traffic Survey Group from 2000 to 2020. The historical AADT can be found in Appendix A - Table 1.

2.2 Field Data Collection (Traffic Survey Group)

Traffic counts were taken at key locations along the project to assist in the development of the base year forecast and in choosing the design factors. 13-hour turning movement counts were obtained. The 13-hour data was converted to a 24-hour estimate using appropriate Transportation Planning Division factors for use in the development of the forecast.

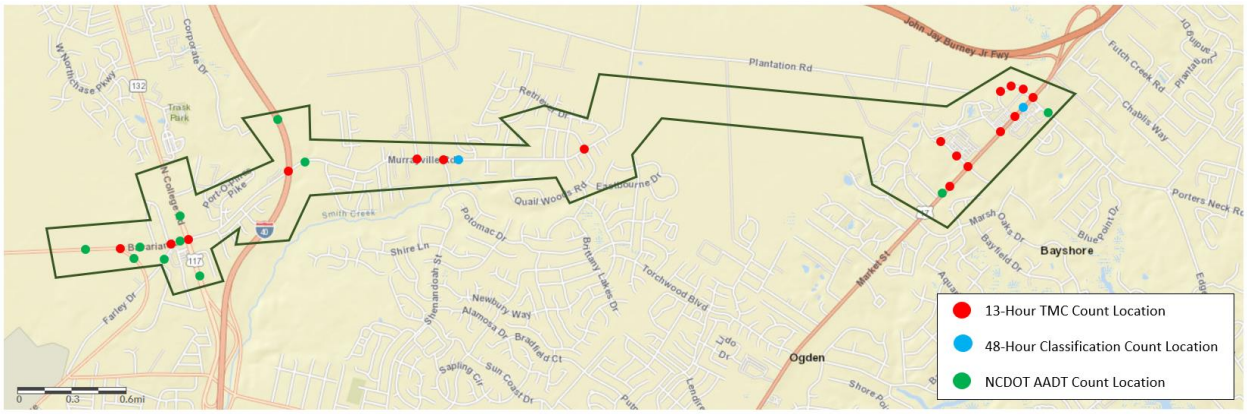
Traffic counts were collected by NCDOT TPD in September of 2022. Additional traffic data from May of 2018, March of 2019, October of 2020, February of 2021, and March of 2021 was also utilized in the development of the forecast. Once the traffic counts were collected, the volumes were converted to AADTs. Locations of traffic counts for this project are shown below in Table 1. Additionally, the traffic count locations are displayed in Figure 2.

A review of the NCDOT AADT Web Map shows I-40 as ATR group 12, US 117 (College Road) as ATR group 4, and all other roads in the project area as ATR group 1.

Table 1 – Traffic Count Locations

Count ID	Count Location	Count Type	Date	County
9083	SR 1322 (Murrayville Road) and SR 1175 (N Kerr Avenue)	13-Hour TMC	09/08/2022	New Hanover
9084	SR 1322 (Murrayville Road) and SR 1327 (Farley Drive)	13-Hour TMC	09/08/2022	New Hanover
1169	SR 1322 (Murrayville Road) and US 117 (College Road)	13-Hour TMC	03/05/2019	New Hanover
9085	SR 1322 (Murrayville Road) and Mabee Way	13-Hour TMC	09/08/2022	New Hanover
18-05756	SR 1322 (Murrayville Road) at SR 2234 (Brittany Road)	13-Hour TMC	05/21/2018	New Hanover
9086	SR 1322 (Murrayville Road) and SR 2611 (Quail Woods Road)	13-Hour TMC	09/08/2022	New Hanover
7105	US 17 (Market Street) and SR 1402 (Porters Neck Road)	13-Hour TMC	02/25/2021	New Hanover
9087	Porters Neck Road and Shopping Center Roadway/Lowes Driveway	13-Hour TMC	09/08/2022	New Hanover
9088	Porters Neck Road and Lowes Driveway	13-Hour TMC	09/08/2022	New Hanover
9089	Porters Neck Road and Porters Neck Road	13-Hour TMC	09/08/2022	New Hanover
9090	US 17 (Market Street) and Porters Neck Road (south)	13-Hour TMC	09/08/2022	New Hanover
9091	US 17 (Market Street) and Cypress Pond Way	13-Hour TMC	09/08/2022	New Hanover
7104	US 17 (Market Street) and Hays Lane	13-Hour TMC	03/02/2021	New Hanover
9092	Hays Lane and Walmart Driveway (north)	13-Hour TMC	09/08/2022	New Hanover
9093	Hays Lane and Walmart Driveway (south)	13-Hour TMC	09/08/2022	New Hanover
9094	US 17 (Market Street) and Walmart Driveway	13-Hour TMC	09/08/2022	New Hanover
9095	SR 1322 (Murrayville Road) east of SR 2234 (Brittany Road)	48-Hour Classification	09/07/2022	New Hanover
9096	US 17 (Market Street) west of Porters Neck Road	48-Hour Classification	09/07/2022	New Hanover
6958	I-40 east of I-140	13-Hour TMC	10/22/2020	New Hanover

Figure 2 – Traffic Count Location Map



2.3 Field Investigation

A field investigation of the forecast study area was conducted on December 15, 2022.

2.4 Other Sources

The individuals noted in **Table 2** were sent a questionnaire regarding this forecast and the surrounding areas. This questionnaire and the responses can be seen in **Appendix B**.

Table 2 – Contact Table

Name	Organization	Date of Contact	Email
Emma Stogner	WMPO Transportation Planner	12/8/22, 1/3/23	emma.stogner@wilmingtonnc.gov
Rachel McIntyre	WMPO Associate Transportation Planner	12/8/22, 1/3/23	rachel.mcintyre@wilmingtonnc.gov
Abigail Lorenzo	WMPO Deputy Director	12/8/22, 1/3/23	abigail.lorenzo@wilmingtonnc.gov
Chad Kimes	NCDOT Division 3 Engineer	12/8/22, 1/3/23	ckimes@ncdot.gov
Adrienne Cox	NCDOT Division 3 Planning Engineer	12/8/22, 1/3/23	amcox1@ncdot.gov
Benjamin Hughes	NCDOT District Engineer	12/8/22, 1/3/23	bthughes@ncdot.gov
Rebekah Roth*	New Hanover County	12/8/22, 1/3/23	rroth@nhcgov.com
Ken Vafier	New Hanover County	12/8/22, 1/3/23	kvafier@nhcgov.com
Nazia Sarder*	Wilmington MPO NCDOT	12/8/22, 1/3/23	nsarder@ncdot.gov

*Individuals noted with an asterisk (*) provided a response

The following information was garnered from the questionnaire provided to the above individuals.

- A growth rate of approximately 2% throughout the Murrayville Road and I-40 area seems reasonable.
- A growth rate of approximately 1% throughout the US 17 (Market Street) area seems reasonable.
- No change is expected in the current growth patterns.

3 2022 BASE YEAR NO-BUILD FORECAST

3.1 Assumptions

The 2022 Base Year No-Build forecast was developed assuming that the field data collected for this project was representative of a typical day and was not affected by any unusual event or road construction. It was also assumed that there is no current development activity in the area that affects the base year forecast.

3.2 Methodology

The 2022 Base Year No-Build forecast was primarily based on traffic count data from May of 2018, March of 2019, October of 2020, February and March of 2021, and September of 2022 and historical AADT stations. The traffic count data was converted to AADT volumes by applying the corridor-specific seasonal factors (as discussed in Section 2.2) and 13-hour to 24-hour traffic count adjustment factors.

The historical AADT was used to determine 10-year and 20-year historical growth rates which were then used to linearly extrapolate the predicted 2022 volumes. These historical values were used to better understand the existing volumes and growth rates for the study area. The historical AADT, historical growth rates, count-derived AADT, and selected 2022 No-Build forecast volumes are shown in Appendix A – Table 1.

3.3 Determination of Base Year No-Build Design Factors

The base year design factors for the forecast study area were determined from the 48-hour and 13-hour traffic count data. Factors were calculated for both the AM and PM peak hours. The table for these factors is located in Appendix A – Table 2.

3.3.1 Truck Percentages (Duals, TTST)

Truck percentages are calculated by computing the percentage of trucks at each count location. Both “duals” (FHWA class 4-7) and “TTSTs” (FHWA class 8-13) were counted separately, and the total number of duals and TTSTs were compared to the total vehicular traffic in order to compute percentages for each.

3.3.2 Peak Hour Factor (K, DHV)

The peak hour factor (K) is the percentage of the AADT that occurs during the peak hour and is intended to approximate K_{30}, which is the percentage of traffic that would occur during the 30th highest peak hour volume during any given year. To determine the peak hour factor, the total approach volume (incoming and outgoing) during each peak hour (AM and PM) was divided by the daily approach total.

3.3.3 Directional Distribution (D)

The directional distribution (D) is the percentage of vehicles traveling in a certain direction along a given approach during the peak hour. These values are typically presented as the higher percentage and direction of travel for that approach. To determine these factors, the larger directional approach volume (incoming or outgoing relative to the intersection) during the peak hour was divided by the hourly approach total. This value was then rounded up to the nearest 2.5%. Generally, the value is capped at 80% unless there is strong evidence that supports a higher value.

4 GENERAL MODEL DATA

4.1 Model Information

The Wilmington MPO Travel Demand Model dated 1/10/2019 (TransCAD version 7 Build 12420 – Base Year 2015, Future Year 2045) was used as one tool in the development of the forecast. This model was used primarily to help determine growth rates.

5 2045 FUTURE YEAR NO-BUILD/BUILD ALTERNATIVE 1 FORECAST

5.1 Assumptions

The basic assumption for this forecast is that the socio-economic growth will occur in a manner that is consistent with locally approved socio-economic data projections. It was also assumed that all fiscally constrained projects were constructed.

5.2 Fiscal Constraint

All 2045 fiscally constrained projects were incorporated into the 2045 No-Build/Build Alternative 1 forecast. These projects are listed in Section 1.6.

5.3 Development Activity

Based on the input from local planners and engineers and available development data for the area, it was assumed for the entire project area that traffic growth from any planned or current developments is included in the model growth rate.

5.4 Methodology

The 2045 Future Year No-Build/Build Alternative 1 AADT values were estimated by applying a chosen growth rate to the 2022 Base Year No-Build AADT values. The growth rate was determined through engineering judgement by analyzing the historical growth rates, model growth rates and model volume differences. The historical growth rates were determined through linear interpolation of the historical AADT data, and the model growth rates were determined using the compound annual growth rate. The historical growth rates, model growth rates, chosen growth rate, as well as the 2045 model and forecast volumes can be found in Appendix A – Table 3.

Appendix A – Table 4 and Appendix A – Table 5 show the model validation comparisons and the travel demand model data.

Additionally, known future land uses and any changes to nearby roadways were considered and incorporated into the growth rates.

5.5 Design Factors

It was assumed that growth along the corridor would follow a similar pattern as has been experienced in the past. Also, it was assumed that no developments would be added that would change the nature of travel in the area. Therefore, no changes were made to the design factors for the 2045 Future Year No-Build.

6 2045 FUTURE YEAR BUILD ALTERNATIVE 2 FORECAST

6.1 Assumptions

The basic assumption for this forecast is that the socio-economic growth will occur in a manner that is consistent with locally approved socio-economic data projections. It was also assumed that all fiscally constrained projects were constructed.

6.2 Fiscal Constraint

All 2045 fiscally constrained projects were incorporated into the 2045 No-Build/Build Alternative 1 forecast. These projects are listed in Section 1.6.

6.3 Development Activity

Based on the input from local planners and engineers and available development data for the area, it was assumed for the entire project area that traffic growth from any planned or current developments is included in the model growth rate.

6.4 Methodology

The 2045 Future Year Build Alternative 2 forecast assumes that in addition to the modernization of SR 1322 (Murrayville Road) from US 117 (N College Road) to Hanover Reserve (2045 Future Year No-Build/Build Alternative 1), a new two-lane roadway will be constructed which intersects with SR 1322 (Murrayville Road) at a new location east of the existing I-40 bridge and extends east to intersect with US 17 (Market Street). Two intersection options with US 17 (Market Street) were assumed, one at Hays Lane and the other at SR 1402 (Porters Neck Road). Additionally, Military Cutoff Extension is assumed to be extended to intersect with the new roadway between the intersections with SR 1322 (Murrayville Road) and US 17 (Market Street).

The forecast for Alternative 2 assumed that the new facility would provide direct access to developments located between I-40 and the proposed Military Cutoff Extension. As such, traffic from the area around existing Murrayville Road was routed to the new facility assuming that those new connections were constructed.

Further, it was assumed that the new facility would provide access to proposed Military Cutoff Extension by way of a “T” intersection on the new facility that would lead to ramps accessing Military Cutoff Extension. As such, all traffic to and from Military Cutoff Extension was provided at a single intersection on the new facility. Existing Murrayville Road was not assumed to have direct access to Military Cutoff Extension. (Note that the traffic diversion due to the connection from the new facility to Military Cut Off is not shown on the diversion figure). The break line seen on the new extension was to allow for all the assumed development along this roadway to have a place to be added.

There were local trips that currently make use of US 117, Gordon Road, and the system of roads serving the residential developments in the Murrayville Road area. Some of the changes are evident in the forecast, while others occur on roadways outside of the forecast study area (such as Gordon Road, Torchwood Boulevard, Brittany Lakes Drive, Brittany Road south of Murrayville, and Qual Woods Road south of Murrayville Road). Specific examples of this rerouting include the following:

Trips that currently utilize US 117 to travel from Murrayville Road/Kerr Avenue to commercial uses along US 17 Business and to head north on US 17 Business beyond the study area can now utilize the new facility to access Military Cutoff Extension (then to NC 140).

Trips that currently travel to and from the residential areas north of Murrayville Road and east of I-40 to US 17 Business (by way of the street system between Murrayville Road and Gordon Road) can now make that trip via the new facility. Due to this new direct access, not as many vehicles will be accessing US 117 from the east.

Some trips that currently travel to and from the residential areas south of Murrayville Road and east of I-40 to US 17 Business (by way of the street system between Murrayville Road and Gordon Road) can now make that trip via the new facility. Only a portion of these trips were assumed to relocate to the new facility, as their current path to US 17 Business is shorter for many motorists.

The forecast assumed that the new facility would tie into exiting Porters Neck Road and existing Hayes Lane (both of which intersect with US 17 Business). While much of the traffic heading to and from the area around the existing Murrayville Road area that wished to travel to and from the northwest would utilize Military Cutoff Extension and US 17 Bypass, some of the traffic was assumed to be destined for the commercial areas along US 17 Business south of the I-140 Bypass. Of the traffic heading to and from the US 17 Business area, 65% was routed along Porters Neck Road and 35% was routed to Hays Lane. These percentages were chosen based on the concentration of commercial uses along the path and the availability of competing routes.

A figure showing the diversion for Alternative 2 can be found in Appendix C.

6.5 Design Factors

It was assumed that growth along the corridor would follow a similar pattern to what has been experienced in the past. Also, it was assumed that no developments would be added that would change the nature of travel in the area. Therefore, no changes were made to the design factors for the 2045 Future Year No-Build for existing facilities. Since the new facility would serve traffic similar to that on existing Murrayville Road, the design factors for the new facility were chosen to be very similar to those of existing Murrayville Road.

7 2045 FUTURE BUILD ALTERNATIVE 3 FORECAST

7.1 Assumptions

The basic assumption for this forecast is that the socio-economic growth will occur in a manner that is consistent with locally approved socio-economic data projections. It was also assumed that all fiscally constrained projects were constructed.

7.2 Fiscal Constraint

All 2045 fiscally constrained projects were incorporated into the 2045 No-Build/Build Alternative 1 forecast. These projects are listed in Section 1.6.

7.3 Development Activity

Based on the input from local planners and engineers and available development data for the area, it was assumed for the entire project area that traffic growth from any planned or current developments is included in the model growth rate.

7.4 Methodology

The 2045 Future Year Build Alternative 3 forecast assumes that in addition to the modernization of SR 1322 (Murrayville Road) from US 117 (N College Road) to Hanover Reserve (2045 Future Year No-Build/Build Alternative 1), a new interchange is constructed at I-40. Additionally, SR 1322 (Murrayville Road) is widened to four-lanes to the west of the new interchange to US 117 (N College Road). Also, in this alternative, no new extension is constructed (as with Alternatives 2 and 4) and no connection is provided to Military Cutoff Extension.

The forecast for this alternative was developed by comparing model runs with and without an interchange of Murrayville Road and I-40. This new interchange will likely cause a change for some drivers that wish to access I-40 to and from the north that must currently utilize the interchange at Gordon Road. The new interchange will also attract drivers that wish to travel from the Murrayville Road area east of I-40 to and from areas south of the Murrayville Road intersection with US 17.

A figure showing the diversion for Alternative 3 can be found in Appendix C.

7.5 Design Factors

It was assumed that growth along the corridor would follow a similar pattern as has been experienced in the past. Also, it was assumed that no developments would be added that would change the nature of travel in the area. Therefore, no changes were made to the design factors for the 2045 Future Year No-Build for existing facilities. The new interchange was not assumed to change design factors on I-40, so those remained the same as without the interchange.

8 2045 FUTURE BUILD ALTERNATIVE 4 FORECAST

8.1 Assumptions

The basic assumption for this forecast is that the socio-economic growth will occur in a manner that is consistent with locally approved socio-economic data projections. It was also assumed that all fiscally constrained projects were constructed.

8.2 Fiscal Constraint

All 2045 fiscally constrained projects were incorporated into the 2045 No-Build/Build Alternative 1 forecast. These projects are listed in Section 1.6.

8.3 Development Activity

Based on the input from local planners and engineers and available development data for the area, it was assumed for the entire project area that traffic growth from any planned or current developments is included in the model growth rate.

8.4 Methodology

The 2045 Future Year Build Alternative 4 forecast includes all the assumptions listed under the previous three build alternatives - the modernization of SR 1322 (Murrayville Road) between US 117 (N College Road) and Hanover Reserve, a new interchange at I-40, widening of SR 1322 (Murrayville Road) to four-lanes between US 117 (N College Road) and the new interchange at I-40, a new two-lane roadway connection at SR 1322 (Murrayville Road) east of the new I-40 interchange and extending east to intersect US 17 (Market Street) with proposed intersections options at Hays Lane and Porters Neck Road, and extension of Military Cut-off Road to intersect with the new roadway between its intersections with SR 1322 (Murrayville Road) and US 17 (Market Street).

With this alternative essentially combining the improvements of Alternative 2 and 3, the forecast was developed by combining the trip diversions associated with Alternatives 2 and 3.

8.5 Design Factors

With Alternative 4 being a combination of Alternatives 2 and 3, the design factors chosen for those alternatives were incorporated into the forecast for Alternative 4.

Appendices

Appendix A – Data Tables

Appendix A Table 1 - Historical Data

ID #	Forecast Location	Unique ID	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020***	2032 (2009 – 2032) 10-Year AADT Estimate +	2032 (2002–2032) 30-Year AADT Estimate ++	Count Date May 2019	Count Date March 2019	Count Date October 2020	Count Date February 2021	Count Date March 2021	2022 Project Specific Count Data		2022 Traffic Forecast
																															TMC*	Mainline**	
1	SR 1322 (N Kerr Avenue), West of SR 1322 (N Kerr Avenue)	6520000322	-	12,000	-	13,000	-	14,000	-	11,000	-	11,000	-	10,000	-	11,000	-	12,000	-	12,000	-	12,500	11,000	13,600	11,400	-	-	-	-	-	14,300	-	14,000
2	SR 1322 (N Kerr Avenue), South of SR 1322 (N Kerr Avenue)	6520002290	-	3,500	-	3,600	-	4,400	-	3,700	-	5,200	-	3,900	-	5,000	-	5,600	-	5,700	-	5,500	4,900	6,600	6,200	-	-	-	-	-	7,300	-	7,200
3	SR 1322 (Murrayville Road), East of SR 1322 (N Kerr Avenue)	6520000417	-	-	-	-	-	-	-	-	-	8,900	-	-	-	10,000	-	11,000	-	-	-	11,500	10,000	12,400	-	-	-	-	-	-	13,700	-	13,600
4	SR 1322 (Murrayville Road),West of SR 1327 (Farley Drive)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14,900	-	14,400
5	SR 1327 (Farley Drive), South of SR 1322 (Murrayville Road)	6520000416	-	-	-	-	-	-	-	-	-	2,700	-	-	-	2,900	-	3,100	-	2,800	-	2,700	2,400	2,700	-	-	-	-	-	-	3,400	-	3,400
6	SR 1322 (Murrayville Road), West of US 117 (N College Road)	6520002291	-	14,000	-	10,000	-	17,000	-	15,000	-	-	-	-	-	13,000	-	15,000	-	18,000	-	15,000	13,500	18,000	-	-	16,300	-	-	-	18,300	-	17,600
7	US 117 (N College Road), North of SR 1322 (Murrayville Road)	6520000360	-	-	-	21,000	-	22,000	-	23,000	-	20,000	-	23,000	-	23,000	-	24,000	-	23,000	-	23,000	20,000	23,200	24,000	-	25,300	-	-	-	-	-	24,400
8	US 117 (N College Road), South of SR 1322 (Murrayville Road)	6520000349	-	20,000	-	21,000	-	25,000	-	22,000	-	22,000	-	23,000	-	23,000	-	25,000	-	23,000	-	23,500	20,500	23,900	24,300	-	25,300	-	-	-	-	-	23,400
9	SR 1322 (Murrayville Road), East of US 117 (N College Road)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13,500	-	-	-	-	-	15,000
10	SR 1322 (Murrayville Road), West of Mabee Way	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11,500	-	11,600
11	Mabee Way, North of SR 1322 (Murrayville Road)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,100	-	2,200
12	SR 1322 (Murrayville Road), West of SR 2234 (Brittany Road)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8,900	-	-	-	-	11,400	-	11,400
13	SR 2234 (Brittany Road), South of SR 1322 (Murrayville Road)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3,000	-	-	-	-	-	-	3,400
14	SR 1322 (Murrayville Road), East of SR 2234 (Brittany Road)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7,000	-	-	-	-	-	8,000	9,200
15	SR 1322 (Murrayville Road), West of SR 2611 (Quail Woods Road)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,900	-	4,900
16	SR 2611 (Quail Woods Road), North of SR 1322 (Murrayville Road)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	700	-	700
17	SR 2611 (Quail Woods Road), South of SR 1322 (Murrayville Road)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5,200	-	5,200
18	SR 1322 (Murrayville Road), East of SR 2611 (Quail Woods Road)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	600	-	600
19	SR 1402 (Porters Neck Road), East of US 17 (Market Street)	6520002210	-	8,800	-	9,100	-	10,000	-	13,000	-	12,000	-	12,000	-	13,000	-	15,000	-	14,000	-	15,500	14,000	16,700	16,600	-	-	-	19,000	-	-	-	18,800
20	US 17 (Market Street), North of SR 1402 (Porters Neck Road)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39,700	-	-	-	39,200
21	US 17 (Market Street), North of Porters Neck Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	45,500	-	46,300	43,700	45,000
22	SR 1402 (Porters Neck Road), West of US 17 (Market Street)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12,800	-	12,600	-	12,600
23	Lowes Driveway, North of SR 1402 (Porters Neck Road)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6,800	-	6,600
24	Shopping Center Roadway, South of SR 1402 (Porters Neck Road)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3,900	-	3,800
25	SR 1402 (Porters Neck Road), West of Lowes Driveway/Shopping Center Roadway	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6,100 2,000	-	2,200
26	Lowes Driveway, North of SR 1402 (Porters Neck Road)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,500	-	1,400
27	SR 1402 (Porters Neck Road), West of Lowes Driveway	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,600 1,300	-	1,600
28	Porters Neck Road, South of SR 1402 (Porters Neck Road)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,300	-	1,600
29	SR 1402 (Porters Neck Road), West of Porters Neck Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0
30	Porters Neck Road, West of US 17 (Market Street)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,100	-	2,000
31	US 17 (Market Street), North of Cypress Pond Way	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	46,700 47,600	-	45,400
32	Cypress Pond Way, West of US 17 (Market Street)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,600	-	4,600
33	US 17 (Market Street), South of Cypress Pond Way	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	41,100	50,900	-	48,800
34	US 17 (Market Street), North of Hays Lane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	47,800
35	US 17 (Market Street), North of Walmart Driveway	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	41,100	49,800	-	47,800
36	Hays Lane, East of US 17 (Market Street)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,900	-	-	2,000
37	Hays Lane, West of US 17 (Market Street)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11,200	10,900	-	11,200
38	Shopping Center Access, North of Hays Lane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,100	-	4,100
39	Walmart Driveway, South of Hays Lane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5,000	-	5,000
40	Hays Lane, West of Shopping Center Access/Walmart Driveway	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3,000 3,100	-	3,100
41	Shopping Center Access, North of Hays Lane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,700	-	1,800
42	Walmart Driveway, South of Hays Lane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,200	-	2,300
43	Hays Lane, West of Shopping Center Access/Walmart Driveway	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	200	-	200
44	US 17 (Market Street), South of Walmart Driveway	6520000039	-	-	-	36,000	-	41,000	-	39,000	-	-	-	36,000	-	32,000	-	-	-	42,000	-	44,500	38,500	48,100	41,700	-	-	-	-	-	51,100	-	49,000
45	Walmart Driveway, West of US 17 (Market Street)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,500	-	1,600
46	SR 1322 (Murrayville Road),West of I-40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12,000
47	I-40, North of SR 1322 (Murrayville Road)	6520000385	-	-	-	-	-	-	28,000	27,000	25,000	26,000	25,000	25,000	26,000	27,000	30,000	31,000	33,000	35,000	38,000	37,500	33,500	42,500	38,100	-	-	44,000	-	-	-	-	-	40,000
48	I-40, South of SR 1322 (Murrayville Road)	6520000385	-	-	-	-	-	-	28,000	27,000	25,000	26,000	25,000	25,000	26,000	27,000	30,000	31,000	33,000	35,000	38,000	37,500	33,500	42,500	38,100	-	-	44,000	-	-	-	-	-	40,000
49	SR 1322 (Murrayville Road), East of I-40	6520000382	-	-	-	7,200	-	8,200	-	8,500	-	8,600	-	8,700	-	9,100	-	9,800	-	9,900	-	9,700	8,500	10,500	10,600	-	-	-	-	-	-	-	12,000
50	New Extension, North of SR 1322 (Murrayville Road)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
51	New Extension, West of Military Cutoff Extension Access Ramps	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
52	SR 1322 (Murrayville Road), East of New Extension	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12,000
53	Military Cutoff Extension Access Ramps, South of New Extension	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
54	New Extension, East of Military Cutoff Extension Access Ramps	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
55	Hays Lane, South of Future Proposed Alignment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

+ 10-year AADT estimated linearly
++ 20-year AADT estimated linearly

*Turning movement counts taken September 8, 2022
** VSC counts taken on Septemeber 7-8, 2022
*** 2020 volumes went down due to COVID. As such, they were removed from growth % calculations

Appendix A Table 2 - Design Data

ID #	Forecast Location	ATR Group	Peak Hour Factor																Directional Distribution																Truck Percentage						
			Count Data May 2018		Count Data March 2019		Count Data October 2020		Count Data February 2021		Count Data March 2021		TMC		VSC		Selected 2022 BY NB Value*		Count Data May 2018		Count Data March 2019		Count Data October 2020		Count Data February 2021		Count Data March 2021		TMC		VSC		Selected 2022 BY NB Value*		Count Data May 2018	Count Data March 2019	Count Data October 2020	Count Data February 2021	Count Data March 2021	TMC	VSC	Published Class Data**	Selected 2022 BY NB Value*
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM								
1	SR 1322 (N Kerr Avenue), West of SR 1322 (N Kerr Avenue)	1	-	-	-	-	-	-	-	-	-	-	9.5%	8.0%	-	-	9.5%	8.5%	-	-	-	-	-	-	-	-	-	-	65% WB	57.5% EB	-	-	70% WB	57.5% EB	-	-	-	-	-	5,1	-	0,0	3,1
2	SR 1322 (N Kerr Avenue), South of SR 1322 (N Kerr Avenue)	1	-	-	-	-	-	-	-	-	-	-	11.0%	9.0%	-	-	11.0%	9.0%	-	-	-	-	-	-	-	-	-	-	47.5% SB	52.5% SB	-	-	47.5% SB	52.5% SB	-	-	-	-	-	3,0	-	0,0	2,1
3	SR 1322 (Murrayville Road), East of SR 1322 (N Kerr Avenue)	1	-	-	-	-	-	-	-	-	-	-	9.5%	8.5%	-	-	9.5%	8.5%	-	-	-	-	-	-	-	-	-	-	75% WB	55% EB	-	-	70% WB	57.5% EB	-	-	-	-	-	4,1	-	0,0	3,1
4	SR 1322 (Murrayville Road),West of SR 1327 (Farley Drive)	1	-	-	-	-	-	-	-	-	-	-	9.5%	8.5%	-	-	9.5%	8.5%	-	-	-	-	-	-	-	-	-	-	75% WB	57.5% EB	-	-	70% WB	57.5% EB	-	-	-	-	-	3,1	-	0,0	3,1
5	SR 1327 (Farley Drive), South of SR 1322 (Murrayville Road)	1	-	-	-	-	-	-	-	-	-	-	8.5%	9.0%	-	-	8.5%	9.0%	-	-	-	-	-	-	-	-	-	-	97.5% NB	100% NB	-	-	97.5% NB	100% NB	-	-	-	-	-	3,0	-	0,0	3,1
6	SR 1322 (Murrayville Road), West of US 117 (N College Road)	1	-	-	9.0%	8.5%	-	-	-	-	-	-	9.5%	8.5%	-	-	9.5%	8.5%	-	-	65% WB	65% EB	-	-	-	-	-	-	62.5% WB	65% EB	-	-	70% WB	57.5% EB	-	4,1	-	-	-	3,1	-	0,0	3,1
7	US 117 (N College Road), North of SR 1322 (Murrayville Road)	4	-	-	10.5%	9.0%	-	-	-	-	-	-	-	-	-	-	10.5%	9.0%	-	-	57.5% NB	52.5% NB	-	-	-	-	-	-	-	-	-	-	57.5% NB	52.5% NB	-	3,1	-	-	-	-	-	5,1	2,1
8	US 117 (N College Road), South of SR 1322 (Murrayville Road)	4	-	-	9.5%	8.5%	-	-	-	-	-	-	-	-	-	-	9.5%	8.5%	-	-	55% NB	55% NB	-	-	-	-	-	-	-	-	-	-	55% NB	55% NB	-	3,1	-	-	-	-	-	5,1	2,1
9	SR 1322 (Murrayville Road), East of US 117 (N College Road)	1	-	-	9.5%	9.0%	-	-	-	-	-	-	-	-	-	-	9.5%	8.5%	-	-	72.5% WB	67.5% EB	-	-	-	-	-	-	-	-	-	-	70% WB	57.5% EB	-	2,0	-	-	-	-	-	-	3,1
10	SR 1322 (Murrayville Road), West of Mabee Way	1	-	-	-	-	-	-	-	-	-	-	13.5%	9.5%	-	-	13.5%	9.5%	-	-	-	-	-	-	-	-	-	-	65% WB	67.5% EB	-	-	65% WB	67.5% EB	-	-	-	-	-	1,0	-	-	2,1
11	Mabee Way, North of SR 1322 (Murrayville Road)	1	-	-	-	-	-	-	-	-	-	-	36.0%	2.0%	-	-	18.0%	2.0%	-	-	-	-	-	-	-	-	-	-	55% SB	55% SB	-	-	55% SB	55% SB	-	-	-	-	-	2,0	-	-	5,1
12	SR 1322 (Murrayville Road), West of SR 2234 (Brittany Road)	1	13.0%	10.0%	-	-	-	-	-	-	-	-	13.5%	9.5%	-	-	13.5%	9.5%	65% WB	70% EB	-	-	-	-	-	-	-	-	62.5% WB	67.5% EB	-	-	65% WB	67.5% EB	1,1	-	-	-	-	1,0	-	-	2,1
13	SR 2234 (Brittany Road), South of SR 1322 (Murrayville Road)	1	13.5%	8.5%	-	-	-	-	-	-	-	-	-	-	-	-	13.5%	8.5%	57.5% SB	65% SB	-	-	-	-	-	-	-	-	-	-	-	-	57.5% SB	65% SB	2,1	-	-	-	-	-	-	-	3,1
14	SR 1322 (Murrayville Road), East of SR 2234 (Brittany Road)	1	12.0%	10.0%	-	-	-	-	-	-	-	-	-	-	11.5%	10.0%	11.5%	9.5%	75% WB	67.5% EB	-	-	-	-	-	-	-	-	-	-	75% WB	65% EB	70% WB	67.5% EB	1,1	-	-	-	-	-	2,0	-	2,1
15	SR 1322 (Murrayville Road), West of SR 2611 (Quail Woods Road)	1	-	-	-	-	-	-	-	-	-	-	11.5%	9.5%	-	-	11.5%	9.5%	-	-	-	-	-	-	-	-	-	-	67.5% WB	65% EB	-	-	67.5% WB	65% EB	-	-	-	-	-	1,0	-	-	2,1
16	SR 2611 (Quail Woods Road), North of SR 1322 (Murrayville Road)	1	-	-	-	-	-	-	-	-	-	-	8.0%	12.0%	-	-	8.0%	12.0%	-	-	-	-	-	-	-	-	-	-	70% SB	62.5% NB	-	-	70% SB	62.5% NB	-	-	-	-	-	1,0	-	-	7,1
17	SR 2611 (Quail Woods Road), South of SR 1322 (Murrayville Road)	1	-	-	-	-	-	-	-	-	-	-	11.5%	9.5%	-	-	11.5%	9.5%	-	-	-	-	-	-	-	-	-	-	65% NB	60% SB	-	-	65% NB	60% SB	-	-	-	-	-	1,0	-	-	2,1
18	SR 1322 (Murrayville Road), East of SR 2611 (Quail Woods Road)	1	-	-	-	-	-	-	-	-	-	-	6.5%	9.0%	-	-	6.5%	9.0%	-	-	-	-	-	-	-	-	-	-	70% WB	57.5% EB	-	-	70% WB	57.5% WB	-	-	-	-	-	1,0	-	-	2,1
19	SR 1402 (Porters Neck Road), East of US 17 (Market Street)	1	-	-	-	-	-	-	6.5%	8.0%	-	-	-	-	-	-	6.5%	8.0%	-	-	-	-	-	-	52.5% WB	57.5% WB	-	-	-	-	-	-	52.5% WB	57.5% WB	-	-	-	2,0	-	-	-	0,0	2,1
20	US 17 (Market Street), North of SR 1402 (Porters Neck Road)	1	-	-	-	-	-	-	7.0%	8.5%	-	-	-	-	-	-	7.5%	8.0%	-	-	-	-	-	-	62.5% SB	55% NB	-	-	-	-	-	-	55% SB	52.5% SB	-	-	-	2,1	-	-	-	-	2,1
21	US 17 (Market Street), North of Porters Neck Road	1	-	-	-	-	-	-	7.0%	8.0%	-	-	7.5%	8.0%	8.0%	8.0%	7.5%	8.0%	-	-	-	-	-	-	60% SB	52.5% NB	-	-	57.5% SB	52.5% SB	57.5% SB	52.5% SB	55% SB	52.5% SB	-	-	-	2,0	-	2,0	2,1	1,0	2,1
22	SR 1402 (Porters Neck Road), West of US 17 (Market Street)	1	-	-	-	-	-	-	6.0%	7.5%	-	-	6.5%	7.0%	-	-	6.5%	7.0%	-	-	-	-	-	-	60% WB	52.5% EB	-	-	55% WB	52.5% EB	-	-	55% WB	52.5% EB	-	-	-	2,0	-	2,0	-	-	2,1
23	Lowes Driveway, North of SR 1402 (Porters Neck Road)	1	-	-	-	-	-	-	-	-	-	-	6.5%	7.0%	-	-	6.5%	7.0%	-	-	-	-	-	-	-	-	-	-	60% NB	55% NB	-	-	60% NB	55% NB	-	-	-	-	-	2,0	-	-	3,1
24	Shopping Center Roadway, South of SR 1402 (Porters Neck Road)	1	-	-	-	-	-	-	-	-	-	-	5.5%	7.5%	-	-	5.5%	7.5%	-	-	-	-	-	-	-	-	-	-	62.5% SB	57.5% NB	-	-	62.5% SB	57.5% NB	-	-	-	-	-	1,0	-	-	2,1
25	SR 1402 (Porters Neck Road), West of Lowes Driveway/Shopping Center Roadway	1	-	-	-	-	-	-	-	-	-	-	7.0% 7.0%	7.0% 7.5%	-	-	6.5%	7.0%	-	-	-	-	-	-	-	-	-	-	55% EB 62.5% EB	50% WB 62.5% EB	-	-	55% WB	52.5% EB	-	-	-	-	-	2,1 4,2	-	-	2,1
26	Lowes Driveway, North of SR 1402 (Porters Neck Road)	1	-	-	-	-	-	-	-	-	-	-	7.0%	7.5%	-	-	7.0%	7.5%	-	-	-	-	-	-	-	-	-	-	82.5% SB	80% SB	-	-	82.5% SB	80% SB	-	-	-	-	-	5,2	-	-	3,1
27	SR 1402 (Porters Neck Road), West of Lowes Driveway	1	-	-	-	-	-	-	-	-	-	-	6.5% 5.5%	8.0% 8.5%	-	-	6.5%	7.0%	-	-	-	-	-	-	-	-	-	-	62.5% WB 65% WB	57.5% WB 67.5% WB	-	-	62.5%WB	57.5% WB	-	-	-	-	-	1,1 1,1	-	-	2,1
28	Porters Neck Road, South of SR 1402 (Porters Neck Road)	1	-	-	-	-	-	-	-	-	-	-	5.5%	8.5%	-	-	5.5%	8.5%	-	-	-	-	-	-	-	-	-	-	65% SB	67.5% SB	-	-	65% SB	67.5% SB	-	-	-	-	-	1,1	-	-	4,1
29	SR 1402 (Porters Neck Road), West of Porters Neck Road	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.5%	7.0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	62.5%WB	57.5% WB	-	-	-	-	-	-	-	-	2,1
30	Porters Neck Road, West of US 17 (Market Street)	1	-	-	-	-	-	-	-	-	-	-	3.5%	7.5%	-	-	3.5%	7.5%	-	-	-	-	-	-	-	-	-	-	65% EB	60% EB	-	-	65% EB	60% EB	-	-	-	-	-	1,2	-	-	2,1
31	US 17 (Market Street), North of Cypress Pond Way	1	-	-	-	-	-	-	-	-	-	-	7.5% 7.5%	8.0% 8.0%	-	-	7.5%	8.0%	-	-	-	-	-	-	-	-	-	-	57.5% SB 57.5% SB	52.5% SB 52.5% SB	-	-	55% SB	52.5% SB	-	-	-	-	-	2,0 2,0	-	1,0	2,1
32	Cypress Pond Way, West of US 17 (Market Street)	1	-	-	-	-	-	-	-	-	-	-	3.5%	8.5%	-	-	3.5%	8.5%	-	-	-	-	-	-	-	-	-	-	60% WB	62.5% WB	-	-	60% WB	62.5% WB	-	-	-	-	-	2,0	-	-	2,1
33	US 17 (Market Street), South of Cypress Pond Way	1	-	-	-	-	-	-	-	-	-	-	7.0%	8.0%	-	-	7.5%	8.0%	-	-	-	-	-	-	-	-	-	-	55% SB	52.5% NB	-	-	55% SB	52.5% SB	-	-	-	-	-	2,0	-	1,0	2,1
34	US 17 (Market Street), North of Hays Lane	1	-	-	-	-	-	-	-	-	7.5%	7.5%	-	-	-	-	7.5%	8.0%	-	-	-	-	-	-	55% SB	55% SB	-	-	-	-	-	-	55% SB	52.5% SB	-	-	-	-	2,0	-	-	-	2,1
35	US 17 (Market Street), North of Walmart Driveway	1	-	-	-	-	-	-	-	-	7.5%	7.5%	7.0%	8.0%	-	-	7.5%	8.0%	-	-	-	-	-	-	52.5% SB	55% SB	52.5% SB	52.5% NB	-	-	-	-	55% SB	52.5% SB	-	-	-	-	2,0	2,0	-	1,0	2,1
36	Hays Lane, East of US 17 (Market Street)	1	-	-	-	-	-	-	-	-	7.0%	7.0%	-	-	-	-	7.0%	7.0%	-	-	-	-	-	-	82.5% EB	55% EB	-	-	-	-	-	-	82.5% EB	55% EB	-	-	-	-	2,0	-	-	-	2,1
37	Hays Lane, West of US 17 (Market Street)	1	-	-	-	-	-	-	-	-	4.5%	7.0%	6.0%	8.0%	-	-	6.0%	8.0%	-	-	-	-	-	-	60% WB	52.5% WB	62.5% WB	52.5% WB	-	-	-	-	55% WB	52.5% WB	-	-	-	-	1,0	1,0	-	-	2,1
38	Shopping Center Access, North of Hays Lane	1	-	-	-	-	-	-	-	-	-	-	7.0%	6.0%	-	-	7.0%	6.0%	-	-	-	-	-	-	-	-	52.5% SB	62.5% SB	-	-	-	-	52.5% SB	62.5% SB	-	-	-	-	-	1,0	-	-	3,1
39	Walmart Driveway, South of Hays Lane	1	-	-	-	-	-	-	-	-	-	-	5.5%	8.5%	-	-	5.5%	8.5%	-	-	-	-	-	-	-	-	72.5% SB	60% SB	-	-	-	-	72.5% SB	60% SB	-	-	-	-	-	0,0	-	-	3,1
40	Hays Lane, West of Shopping Center Access/Walmart Driveway	1	-	-	-	-	-	-	-	-	-	-	5.0% 5.0%	8.5% 9.5%	-	-	6.0%	8.0%	-	-	-	-	-	-	-	-	-	-	55% WB 55% WB	52.5% WB 52.5% EB	-	-	55% WB	52.5% WB	-	-	-	-	-	1,1 1,1	-	-	2,3
41	Shopping Center Access, North of Hays Lane	1	-	-	-	-	-	-	-	-	-	-	6.0%	10.0%	-	-	6.0%	10.0%	-	-	-	-	-	-	-	-	-	-	60% SB	67.5% SB	-	-	60% SB	67.5% SB	-	-	-	-	-	1,0	-	-	2,1
42	Walmart Driveway, South of Hays Lane	1	-	-	-	-	-	-	-	-	-	-	5.0%	9.5%	-	-	5.0%	9.5%	-	-	-	-	-	-	-	-	-	-	65% SB	60% SB	-	-	65% SB	60% SB	-	-	-	-	-	0,0	-	-	2,1
43	Hays Lane, West of Shopping Center Access/Walmart Driveway	1	-	-	-	-	-	-	-	-	-	-	4.5%	10.0%	-	-	4.5%	10.0%	-	-	-	-	-	-	-	-	-	-	60% WB	50% WB	-	-	55% WB	52.5% WB	-	-	-	-	-	25,20	-	-	13,10
44	US 17 (Market Street), South of Walmart Driveway	1	-	-	-	-	-	-	-	-	-	-	7.0%	8.0%	-	-	7.5%	8.0%	-	-	-	-	-	-	-	-	-	-	52.5% SB	52.5% SB	-	-	55% SB	52.5% SB	-	-	-	-	-	2,0	-	1,0	2,1
45	Walmart Driveway, West of US 17 (Market Street)	1	-	-	-	-	-	-	-	-	-	-	2.5%	7.5%	-	-	2.5%	7.5%	-	-	-	-	-	-	-	-	-	-	87.5% EB	100% EB	-	-	87.5% EB	100% EB	-	-	-	-	-	0,5	-	-	2,3
46	SR 1322 (Murrayville Road),West of I-40	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.5%	8.5%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	70% WB	57.5% EB	-	-	-	-	-	-	-	-	3,1
47	I-40, North of SR 1322 (Murrayville Road)	12	-	-	-	-	8.0%	8.5%	-	-	-	-	-	-	-	-	8.0%	8.5%	-	-	-	-	62.5% SB	60% NB	-	-	-	-	-	-	-	-	62.5% SB	60% NB	-	-	3,2	-	-	-	-	2,1	2,1
48	I-40, South of SR 1322 (Murrayville Road)	12	-	-	-	-	8.0%	8.5%	-	-	-	-	-	-	-	-	8.0%	8.5%	-	-	-	-	62.5% SB	60% NB	-	-	-	-	-	-	-	-	62.5% SB	60% NB	-	-	3,2	-	-	-	-	2,1	2,1
49	SR 1322 (Murrayville Road), East of I-40	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.5%	8.5%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	70% WB	57.5% EB	-	-	-	-	-	-	-	-	2,1
50	New Extension, North of SR 1322 (Murrayville Road)	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.5%	8.5%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	70% WB	57.5% EB	-	-	-	-	-	-	-	-	2,1
51	New Extension, West of Military Cutoff Extension Access Ramps	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.5%	8.5%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	70% WB	57.5% EB	-	-	-	-	-	-	-	-	2,1
52	SR 1322 (Murrayville Road), East of New Extension	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.5%	8.5%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	70% WB	57.5% EB	-	-	-	-	-	-	-	-	2,1
53	Military Cutoff Extension Access Ramps, South of New Extension	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.0%	8.5%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	62.5% SB	60% NB	-	-	-	-	-	-	-	-	2,1
54	New Extension, East of Military Cutoff Extension Access Ramps	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.5%	8.5%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	70% WB	57.5% EB	-	-	-	-	-	-	-	-	2,1
55	Hays Lane, South of Future Proposed Alignment	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.5%	10.0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	55% NB	52.5% NB	-	-	-	-	-	-	-	-	13,10

*All data factors on a roadway were considered before choosing the best fit

**https://rodot.maps.arcgis.com/home/webmap/viewer.html?webmap=ff72d8f9626f40aa89738d49fc4c6380

Appendix A Table 3 - Growth Rates

ID #	Forecast Location	Forecast (2022)	Historic Growth Rate		Model Growth Rate	Applied Rate	Future Volumes	
		AADT	10 Year	20 Year			Model (2045)	Forecast (2045)
1	SR 1322 (N Kerr Avenue), West of SR 1322 (N Kerr Avenue)	14,000	2.65%	-0.34%	2.00%	1.98%	16,248	22,000
2	SR 1322 (N Kerr Avenue), South of SR 1322 (N Kerr Avenue)	7,200	3.90%	2.81%	3.52%	2.02%	3,676	11,400
3	SR 1322 (Murrayville Road), East of SR 1322 (N Kerr Avenue)	13,600	2.15%	-	1.65%	1.99%	12,834	21,400
4	SR 1322 (Murrayville Road),West of SR 1327 (Farley Drive)	14,400	0.00%	0.00%	1.55%	1.98%	13,001	22,600
5	SR 1327 (Farley Drive), South of SR 1322 (Murrayville Road)	3,400	-1.55%	-	1.90%	2.03%	9,252	5,400
6	SR 1322 (Murrayville Road), West of US 117 (N College Road)	17,600	3.00%	1.03%	1.70%	1.98%	22,159	27,600
7	US 117 (N College Road), North of SR 1322 (Murrayville Road)	24,400	0.00%	0.60%	0.81%	1.00%	23,990	30,700
8	US 117 (N College Road), South of SR 1322 (Murrayville Road)	23,400	0.21%	0.47%	0.75%	0.97%	25,141	29,200
9	SR 1322 (Murrayville Road), East of US 117 (N College Road)	15,000	-	-	0.85%	1.97%	12,210	23,500
10	SR 1322 (Murrayville Road), West of Mabee Way	11,600	0.00%	0.00%	1.77%	1.80%	11,567	17,500
11	Mabee Way, North of SR 1322 (Murrayville Road)	2,200	-	-	-	0.73%	-	2,600
12	SR 1322 (Murrayville Road), West of SR 2234 (Brittany Road)	11,400	-	-	1.77%	1.83%	11,567	17,300
13	SR 2234 (Brittany Road), South of SR 1322 (Murrayville Road)	3,400	-	-	0.30%	0.48%	2,792	3,800
14	SR 1322 (Murrayville Road), East of SR 2234 (Brittany Road)	9,200	-	-	2.08%	2.06%	12,686	14,700
15	SR 1322 (Murrayville Road), West of SR 2611 (Quail Woods Road)	4,900	-	-	4.50%	3.86%	8,839	11,700
16	SR 2611 (Quail Woods Road), North of SR 1322 (Murrayville Road)	700	-	-	-	1.10%	-	900
17	SR 2611 (Quail Woods Road), South of SR 1322 (Murrayville Road)	5,200	-	-	2.80%	1.89%	5,403	8,000
18	SR 1322 (Murrayville Road), East of SR 2611 (Quail Woods Road)	600	-	-	-	9.66%	10,698	5,000
19	SR 1402 (Porters Neck Road), East of US 17 (Market Street)	18,800	2.93%	3.08%	1.04%	0.99%	15,242	23,600
20	US 17 (Market Street), North of SR 1402 (Porters Neck Road)	39,200	-	-	1.38%	1.00%	34,257	49,300
21	US 17 (Market Street), North of Porters Neck Road	45,000	-	-	1.13%	1.00%	41,470	56,600
22	SR 1402 (Porters Neck Road), West of US 17 (Market Street)	12,600	-	-	-	1.02%	-	15,900
23	Lowes Driveway, North of SR 1402 (Porters Neck Road)	6,600	-	-	-	1.00%	-	8,300
24	Shopping Center Roadway, South of SR 1402 (Porters Neck Road)	3,800	-	-	-	1.02%	-	4,800
25	SR 1402 (Porters Neck Road), West of Lowes Driveway/Shopping Center Roadway	2,200	-	-	-	1.05%	-	2,800
26	Lowes Driveway, North of SR 1402 (Porters Neck Road)	1,400	-	-	-	1.10%	-	1,800
27	SR 1402 (Porters Neck Road), West of Lowes Driveway	1,600	-	-	-	0.97%	-	2,000
28	Porters Neck Road, South of SR 1402 (Porters Neck Road)	1,600	-	-	-	0.97%	-	2,000
29	SR 1402 (Porters Neck Road), West of Porters Neck Road	0	-	-	-	-	-	0
30	Porters Neck Road, West of US 17 (Market Street)	2,000	-	-	-	0.97%	-	2,500
31	US 17 (Market Street), North of Cypress Pond Way	45,400	-	-	1.13%	1.00%	41,470	57,100
32	Cypress Pond Way, West of US 17 (Market Street)	4,600	-	-	-	1.01%	0	5,800
33	US 17 (Market Street), South of Cypress Pond Way	48,800	-	-	1.13%	1.00%	41,470	61,300
34	US 17 (Market Street), North of Hays Lane	47,800	0.00%	0.00%	1.13%	1.00%	41,470	60,100
35	US 17 (Market Street), North of Walmart Driveway	47,800	-	-	1.13%	1.00%	41,470	60,100
36	Hays Lane, East of US 17 (Market Street)	2,000	-	-	-	1.15%	0	2,600
37	Hays Lane, West of US 17 (Market Street)	11,200	-	-	-	0.97%	0	14,000
38	Shopping Center Access, North of Hays Lane	4,100	-	-	-	1.04%	0	5,200
39	Walmart Driveway, South of Hays Lane	5,000	-	-	-	1.01%	0	6,300
40	Hays Lane, West of Shopping Center Access/Walmart Driveway	3,100	-	-	-	1.00%	0	3,900
41	Shopping Center Access, North of Hays Lane	1,800	-	-	-	0.88%	0	2,200
42	Walmart Driveway, South of Hays Lane	2,300	-	-	-	0.86%	0	2,800
43	Hays Lane, West of Shopping Center Access/Walmart Driveway	200	-	-	-	1.78%	0	300
44	US 17 (Market Street), South of Walmart Driveway	49,000	3.58%	0.70%	1.13%	1.00%	41,470	61,600
45	Walmart Driveway, West of US 17 (Market Street)	1,600	-	-	-	1.19%	0	2,100
46	SR 1322 (Murrayville Road),West of I-40	12,000	0.00%	0.00%	1.57%	1.99%	12,283	18,900
47	I-40, North of SR 1322 (Murrayville Road)	40,000	5.43%	3.20%	2.90%	2.60%	58,120	72,200
48	I-40, South of SR 1322 (Murrayville Road)	40,000	5.43%	3.20%	2.90%	2.60%	58,120	72,200
49	SR 1322 (Murrayville Road), East of I-40	12,000	1.50%	1.74%	1.57%	1.99%	12,283	18,900
50	New Extension, North of SR 1322 (Murrayville Road)	-	0.00%	0.00%	-	-	0	-
51	New Extension, West of Military Cutoff Extension Access Ramps	-	0.00%	0.00%	-	-	0	-
52	SR 1322 (Murrayville Road), East of New Extension	12,000	-	-	1.57%	-	12,283	18,900
53	Military Cutoff Extension Access Ramps, South of New Extension	-	-	-	-	-	0	-
54	New Extension, East of Military Cutoff Extension Access Ramps	-	-	-	-	-	0	-
55	Hays Lane, South of Future Proposed Alignment	-	0.00%	0.00%	-	-	0	-

Appendix A Table 4 - Model Validation

ID #	Forecast Location	Model Validation		Forecast	Model Validation FY NB 2045	
		Model (2015)	AADT (2015)	BY 2022	Model	Forecast
1	SR 1322 (N Kerr Avenue), West of SR 1322 (N Kerr Avenue)	8,976	12,000	14,000	16,248	22,000
2	SR 1322 (N Kerr Avenue), South of SR 1322 (N Kerr Avenue)	1,303	5,600	7,200	3,676	11,400
3	SR 1322 (Murrayville Road), East of SR 1322 (N Kerr Avenue)	7,856	11,000	13,600	12,834	21,400
4	SR 1322 (Murrayville Road),West of SR 1327 (Farley Drive)	8,196	-	14,400	13,001	22,600
5	SR 1327 (Farley Drive), South of SR 1322 (Murrayville Road)	5,260	3,100	3,400	9,252	5,400
6	SR 1322 (Murrayville Road), West of US 117 (N College Road)	13,364	15,000	17,600	22,159	27,600
7	US 117 (N College Road), North of SR 1322 (Murrayville Road)	18,860	24,000	24,400	23,990	30,700
8	US 117 (N College Road), South of SR 1322 (Murrayville Road)	20,088	25,000	23,400	25,141	29,200
9	SR 1322 (Murrayville Road), East of US 117 (N College Road)	9,479	-	15,000	12,210	23,500
10	SR 1322 (Murrayville Road), West of Mabee Way	6,833	-	11,600	11,567	17,500
11	Mabee Way, North of SR 1322 (Murrayville Road)	-	-	2,200	-	2,600
12	SR 1322 (Murrayville Road), West of SR 2234 (Brittany Road)	6,833	-	11,400	11,567	17,300
13	SR 2234 (Brittany Road), South of SR 1322 (Murrayville Road)	2,555	-	3,400	2,792	3,800
14	SR 1322 (Murrayville Road), East of SR 2234 (Brittany Road)	6,843	-	9,200	12,686	14,700
15	SR 1322 (Murrayville Road), West of SR 2611 (Quail Woods Road)	2,357	-	4,900	8,839	11,700
16	SR 2611 (Quail Woods Road), North of SR 1322 (Murrayville Road)	-	-	700	-	900
17	SR 2611 (Quail Woods Road), South of SR 1322 (Murrayville Road)	2,357	-	5,200	5,403	8,000
18	SR 1322 (Murrayville Road), East of SR 2611 (Quail Woods Road)	-	-	600	10,698	5,000
19	SR 1402 (Porters Neck Road), East of US 17 (Market Street)	11,164	15,000	18,800	15,242	23,600
20	US 17 (Market Street), North of SR 1402 (Porters Neck Road)	22,695	-	39,200	34,257	49,300
21	US 17 (Market Street), North of Porters Neck Road	29,563	-	45,000	41,470	56,600
22	SR 1402 (Porters Neck Road), West of US 17 (Market Street)	-	-	12,600	-	15,900
23	Lowes Driveway, North of SR 1402 (Porters Neck Road)	-	-	6,600	-	8,300
24	Shopping Center Roadway, South of SR 1402 (Porters Neck Road)	-	-	3,800	-	4,800
25	SR 1402 (Porters Neck Road), West of Lowes Driveway/Shopping Center Roadway	-	-	2,200	-	2,800
26	Lowes Driveway, North of SR 1402 (Porters Neck Road)	-	-	1,400	-	1,800
27	SR 1402 (Porters Neck Road), West of Lowes Driveway	-	-	1,600	-	2,000
28	Porters Neck Road, South of SR 1402 (Porters Neck Road)	-	-	1,600	-	2,000
29	SR 1402 (Porters Neck Road), West of Porters Neck Road	-	-	0	-	0
30	Porters Neck Road, West of US 17 (Market Street)	-	-	2,000	-	2,500
31	US 17 (Market Street), North of Cypress Pond Way	29,563	-	45,400	41,470	57,100
32	Cypress Pond Way, West of US 17 (Market Street)	-	-	4,600	-	5,800
33	US 17 (Market Street), South of Cypress Pond Way	29,563	-	48,800	41,470	61,300
34	US 17 (Market Street), North of Hays Lane	29,563	-	47,800	41,470	60,100
35	US 17 (Market Street), North of Walmart Driveway	29,563	-	47,800	41,470	60,100
36	Hays Lane, East of US 17 (Market Street)	-	-	2,000	-	2,600
37	Hays Lane, West of US 17 (Market Street)	-	-	11,200	-	14,000
38	Shopping Center Access, North of Hays Lane	-	-	4,100	-	5,200
39	Walmart Driveway, South of Hays Lane	-	-	5,000	-	6,300
40	Hays Lane, West of Shopping Center Access/Walmart Driveway	-	-	3,100	-	3,900
41	Shopping Center Access, North of Hays Lane	-	-	1,800	-	2,200
42	Walmart Driveway, South of Hays Lane	-	-	2,300	-	2,800
43	Hays Lane, West of Shopping Center Access/Walmart Driveway	-	-	200	-	300
44	US 17 (Market Street), South of Walmart Driveway	29,563	-	49,000	41,470	61,600
45	Walmart Driveway, West of US 17 (Market Street)	-	-	1,600	-	2,100
46	SR 1322 (Murrayville Road),West of I-40	7,689	-	12,000	12,283	18,900
47	I-40, North of SR 1322 (Murrayville Road)	24,673	31,000	40,000	58,120	72,200
48	I-40, South of SR 1322 (Murrayville Road)	24,673	31,000	40,000	58,120	72,200
49	SR 1322 (Murrayville Road), East of I-40	7,689	9,800	12,000	12,283	18,900
50	New Extension, North of SR 1322 (Murrayville Road)	-	-	-	-	-
51	New Extension, West of Military Cutoff Extension Access Ramps	-	-	-	-	-
52	SR 1322 (Murrayville Road), East of New Extension	7,689	-	12,000	12,283	-
53	Military Cutoff Extension Access Ramps, South of New Extension	-	-	-	-	-
54	New Extension, East of Military Cutoff Extension Access Ramps	-	-	-	-	-
55	Hays Lane, South of Future Proposed Alignment	-	-	-	-	-

Appendix A Table 5 - Travel Demand Model Data

ID #	Forecast Location	BY NB 2015	FY NB / FY B1 2045	Growth (FY B1 2045 - BY 2015)	Future Year 2045 Build Alternative 2			Future Year 2045 Build Alternative 3			Future Year 2045 Build Alternative 4		
					FY B2 2045	FY 2045 Diversion (FY B2 - FY NB)	FY 2045 Diversion % (FY B2 - FY NB)	FY B3 2045	FY 2045 Diversion (FY B3 - FY NB)	FY 2045 Diversion % (FY B3 - FY NB)	FY B4 2045	FY 2045 Diversion (FY B4 - FY NB)	FY 2045 Diversion % (FY B4 - FY NB)
1	SR 1322 (N Kerr Avenue), West of SR 1322 (N Kerr Avenue)	8976	16248	7272	16325	77	0.47%	16339	91	0.56%	16445	197	1.21%
2	SR 1322 (N Kerr Avenue), South of SR 1322 (N Kerr Avenue)	1303	3676	2373	3683	7	0.19%	3611	-65	-1.77%	3612	-64	-1.74%
3	SR 1322 (Murrayville Road), East of SR 1322 (N Kerr Avenue)	7856	12834	4978	12905	71	0.55%	12993	159	1.24%	13099	265	2.06%
4	SR 1322 (Murrayville Road),West of SR 1327 (Farley Drive)	8196	13001	4805	13071	70	0.54%	13171	170	1.31%	13276	275	2.12%
5	SR 1327 (Farley Drive), South of SR 1322 (Murrayville Road)	5260	9252	3992	9135	-117	-1.26%	9106	-146	-1.58%	8857	-395	-4.27%
6	SR 1322 (Murrayville Road), West of US 117 (N College Road)	13364	22159	8795	22111	-48	-0.22%	22182	23	0.10%	22038	-121	-0.55%
7	US 117 (N College Road), North of SR 1322 (Murrayville Road)	18860	23990	5130	24091	101	0.42%	22779	-1211	-5.05%	22810	-1180	-4.92%
8	US 117 (N College Road), South of SR 1322 (Murrayville Road)	20088	25141	5053	24754	-387	-1.54%	24412	-729	-2.90%	23963	-1178	-4.69%
9	SR 1322 (Murrayville Road), East of US 117 (N College Road)	9479	12210	2731	12383	173	1.42%	11908	-302	-2.47%	12254	44	0.36%
10	SR 1322 (Murrayville Road), West of Mabee Way	6833	11567	4734	10963	-604	-5.22%	13125	1558	13.47%	12947	1380	11.93%
11	Mabee Way, North of SR 1322 (Murrayville Road)	-	-	-	-	-	-	-	-	-	-	-	-
12	SR 1322 (Murrayville Road), West of SR 2234 (Brittany Road)	6833	11567	4734	10963	-604	-5.22%	13125	1558	13.47%	13633	2066	17.86%
13	SR 2234 (Brittany Road), South of SR 1322 (Murrayville Road)	2555	2792	237	2880	88	3.15%	2665	-127	-4.55%	2738	-54	-1.93%
14	SR 1322 (Murrayville Road), East of SR 2234 (Brittany Road)	6843	12686	5843	12246	-440	-3.47%	13813	1127	8.88%	13633	947	7.46%
15	SR 1322 (Murrayville Road), West of SR 2611 (Quail Woods Road)	2357	8839	6482	8558	-281	-3.18%	9160	321	3.63%	9058	219	2.48%
16	SR 2611 (Quail Woods Road), North of SR 1322 (Murrayville Road)	-	-	-	-	-	-	-	-	-	-	-	-
17	SR 2611 (Quail Woods Road), South of SR 1322 (Murrayville Road)	2357	5403	3046	5454	51	0.94%	5294	-109	-2.02%	5310	-93	-1.72%
18	SR 1322 (Murrayville Road), East of SR 2611 (Quail Woods Road)	-	10698	-	10601	-97	-0.91%	10515	-183	-1.71%	10455	-243	-2.27%
19	SR 1402 (Porters Neck Road), East of US 17 (Market Street)	11164	15242	4078	15245	3	0.02%	15245	3	0.02%	15245	3	0.02%
20	US 17 (Market Street), North of SR 1402 (Porters Neck Road)	22695	34257	11562	33340	-917	-2.68%	34330	73	0.21%	33150	-1107	-3.23%
21	US 17 (Market Street), North of Porters Neck Road	29563	41470	11907	41185	-285	-0.69%	41429	-41	-0.10%	41327	-143	-0.34%
22	SR 1402 (Porters Neck Road), West of US 17 (Market Street)	-	-	-	-	-	-	-	-	-	0	-	-
23	Lowes Driveway, North of SR 1402 (Porters Neck Road)	-	-	-	-	-	-	-	-	-	-	-	-
24	Shopping Center Roadway, South of SR 1402 (Porters Neck Road)	-	-	-	-	-	-	-	-	-	-	-	-
25	SR 1402 (Porters Neck Road), West of Lowes Driveway/Shopping Center Roadway	-	-	-	-	-	-	-	-	-	0	-	-
26	Lowes Driveway, North of SR 1402 (Porters Neck Road)	-	-	-	-	-	-	-	-	-	-	-	-
27	SR 1402 (Porters Neck Road), West of Lowes Driveway	-	-	-	-	-	-	-	-	-	0	-	-
28	Porters Neck Road, South of SR 1402 (Porters Neck Road)	-	-	-	-	-	-	-	-	-	-	-	-
29	SR 1402 (Porters Neck Road), West of Porters Neck Road	-	-	-	-	-	-	-	-	-	0	-	-
30	Porters Neck Road, West of US 17 (Market Street)	-	-	-	-	-	-	-	-	-	-	-	-
31	US 17 (Market Street), North of Cypress Pond Way	29563	41470	11907	41185	-285	-0.69%	41429	-41	-0.10%	41327	-143	-0.34%
32	Cypress Pond Way, West of US 17 (Market Street)	-	-	-	-	-	-	-	-	-	-	-	-
33	US 17 (Market Street), South of Cypress Pond Way	29563	41470	11907	41185	-285	-0.69%	41429	-41	-0.10%	41327	-143	-0.34%
34	US 17 (Market Street), North of Hays Lane	29563	41470	11907	41185	-285	-0.69%	41429	-41	-0.10%	41327	-143	-0.34%
35	US 17 (Market Street), North of Walmart Driveway	29563	41470	11907	42661	1191	2.87%	41429	-41	-0.10%	42596	1126	2.72%
36	Hays Lane, East of US 17 (Market Street)	-	-	-	-	-	-	-	-	-	-	-	-
37	Hays Lane, West of US 17 (Market Street)	-	-	-	2200	-	-	-	-	-	2545	-	-
38	Shopping Center Access, North of Hays Lane	-	-	-	-	-	-	-	-	-	-	-	-
39	Walmart Driveway, South of Hays Lane	-	-	-	-	-	-	-	-	-	-	-	-
40	Hays Lane, West of Shopping Center Access/Walmart Driveway	-	-	-	2200	-	-	-	-	-	2545	-	-
41	Shopping Center Access, North of Hays Lane	-	-	-	-	-	-	-	-	-	-	-	-
42	Walmart Driveway, South of Hays Lane	-	-	-	-	-	-	-	-	-	-	-	-
43	Hays Lane, West of Shopping Center Access/Walmart Driveway	-	-	-	2200	-	-	-	-	-	2545	-	-
44	US 17 (Market Street), South of Walmart Driveway	29563	41470	11907	42661	1191	2.87%	41429	-41	-0.10%	42596	1126	2.72%
45	Walmart Driveway, West of US 17 (Market Street)	-	-	-	-	-	-	-	-	-	-	-	-
46	SR 1322 (Murrayville Road),West of I-40	7689	12283	4594	12749	466	3.79%	11449	-834	-6.79%	11731	-552	-4.49%
47	I-40, North of SR 1322 (Murrayville Road)	24673	58120	33447	58096	-24	-0.04%	59174	1054	1.81%	58880	760	1.31%
48	I-40, South of SR 1322 (Murrayville Road)	24673	58120	33447	58096	-24	-0.04%	59648	1528	2.63%	59928	1808	3.11%
49	SR 1322 (Murrayville Road), East of I-40	7689	12283	4594	12749	466	3.79%	14118	1835	14.94%	13880	1597	13.00%
50	New Extension, North of SR 1322 (Murrayville Road)	-	-	-	1188	-	-	-	-	-	1613	-	-
51	New Extension, West of Military Cutoff Extension Access Ramps	-	-	-	1188	-	-	-	-	-	1613	-	-
52	SR 1322 (Murrayville Road), East of New Extension	7689	12283	4594	11561	-722	-5.88%	14118	1835	14.94%	13880	1597	13.00%
53	Military Cutoff Extension Access Ramps, South of New Extension	-	-	-	1012	-	-	-	-	-	932	-	-
54	New Extension, East of Military Cutoff Extension Access Ramps	-	-	-	2200	-	-	-	-	-	2545	-	-
55	Hays Lane, South of Future Proposed Alignment	-	-	-	2200	-	-	-	-	-	2545	-	-

Appendix A Table 6 - Future Year Build Diversion

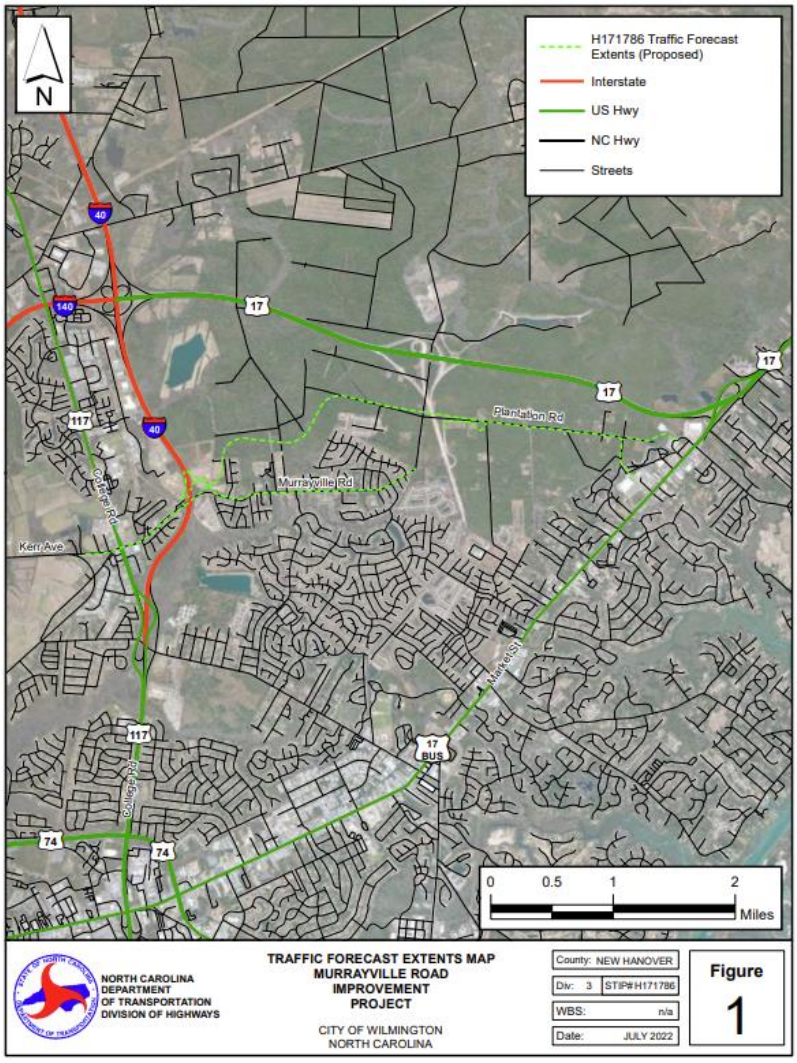
ID #	Forecast Location	FY 2045 No-Build/B1 Volumes		Future Year 2045 Build Alternative 2						Future Year 2045 Build Alternative 3						Future Year 2045 Build Alternative 4					
				FY 2045 Build Volumes		FY 2045 Model Diversion		FY 2045 Forecast Diversion		FY 2045 Build Volumes		FY 2045 Model Diversion		FY 2045 Forecast Diversion		FY 2045 Build Volumes		FY 2045 Model Diversion		FY 2045 Forecast Diversion	
		Model	Forecast	Model	Forecast	(FY B - FY NB)	%	(FY B - FY NB)	%	Model	Forecast	(FY B - FY NB)	%	(FY B - FY NB)	%	Model	Forecast	(FY B - FY NB)	%	(FY B - FY NB)	%
1	SR 1322 (N Kerr Avenue), West of SR 1322 (N Kerr Avenue)	16,248	22,000	16,325	22,000	77	0.47%	0	0.00%	16,339	22,000	91	0.56%	0	0.00%	16,445	22,000	197	1.21%	0	0.00%
2	SR 1322 (N Kerr Avenue), South of SR 1322 (N Kerr Avenue)	3,676	11,400	3,683	11,400	7	0.19%	0	0.00%	3,611	11,400	-65	-1.77%	0	0.00%	3,612	11,400	-64	-1.74%	0	0.00%
3	SR 1322 (Murrayville Road), East of SR 1322 (N Kerr Avenue)	12,834	21,400	12,905	21,400	71	0.55%	0	0.00%	12,993	21,400	159	1.24%	0	0.00%	13,099	21,400	265	2.06%	0	0.00%
4	SR 1322 (Murrayville Road),West of SR 1327 (Farley Drive)	13,001	22,600	13,071	22,600	70	0.54%	0	0.00%	13,171	22,600	170	1.31%	0	0.00%	13,276	22,600	275	2.12%	0	0.00%
5	SR 1327 (Farley Drive), South of SR 1322 (Murrayville Road)	9,252	5,400	9,135	5,400	-117	-1.26%	0	0.00%	9,106	5,400	-146	-1.58%	0	0.00%	8,857	5,400	-395	-4.27%	0	0.00%
6	SR 1322 (Murrayville Road), West of US 117 (N College Road)	22,159	27,600	22,111	27,600	-48	-0.22%	0	0.00%	22,182	27,600	23	0.10%	0	0.00%	22,038	27,600	-121	-0.55%	0	0.00%
7	US 117 (N College Road), North of SR 1322 (Murrayville Road)	23,990	30,700	24,091	27,200	101	0.42%	-3,500	-11.40%	22,779	25,000	-1,211	-5.05%	-5,700	-18.57%	22,810	21,700	-1,180	-4.92%	-9,000	-29.32%
8	US 117 (N College Road), South of SR 1322 (Murrayville Road)	25,141	29,200	24,754	21,700	-387	-1.54%	-7,500	-25.68%	24,412	23,900	-729	-2.90%	-5,300	-18.15%	23,963	17,400	-1,178	-4.69%	-11,800	-40.41%
9	SR 1322 (Murrayville Road), East of US 117 (N College Road)	12,210	23,500	12,383	20,500	173	1.42%	-3,000	-12.77%	11,908	21,500	-302	-2.47%	-2,000	-8.51%	12,254	19,700	44	0.36%	-3,800	-16.17%
10	SR 1322 (Murrayville Road), West of Mabee Way	11,567	17,500	10,963	9,000	-604	-5.22%	-8,500	-48.57%	13,125	17,500	1,558	13.47%	0	0.00%	12,947	9,000	1,380	11.93%	-8,500	-48.57%
11	Mabee Way, North of SR 1322 (Murrayville Road)	-	2,600	-	2,600	-	-	0	0.00%	-	2,600	-	-	0	0.00%	-	2,600	-	-	0	0.00%
12	SR 1322 (Murrayville Road), West of SR 2234 (Brittany Road)	11,567	17,300	10,963	7,800	-604	-5.22%	-9,500	-54.91%	13,125	17,300	1,558	13.47%	0	0.00%	13,633	7,800	2,066	17.86%	-9,500	-54.91%
13	SR 2234 (Brittany Road), South of SR 1322 (Murrayville Road)	2,792	3,800	2,880	3,300	88	3.15%	-500	-13.16%	2,665	3,800	-127	-4.55%	0	0.00%	2,738	3,300	-54	-1.93%	-500	-13.16%
14	SR 1322 (Murrayville Road), East of SR 2234 (Brittany Road)	12,686	14,700	12,246	5,700	-440	-3.47%	-9,000	-61.22%	13,813	14,700	1,127	8.88%	0	0.00%	13,633	5,700	947	7.46%	-9,000	-61.22%
15	SR 1322 (Murrayville Road), West of SR 2611 (Quail Woods Road)	8,839	11,700	8,558	12,700	-281	-3.18%	1,000	8.55%	9,160	11,700	321	3.63%	0	0.00%	9,058	12,700	219	2.48%	1,000	8.55%
16	SR 2611 (Quail Woods Road), North of SR 1322 (Murrayville Road)	-	900	-	900	-	-	0	0.00%	-	900	-	-	0	0.00%	-	900	-	-	0	0.00%
17	SR 2611 (Quail Woods Road), South of SR 1322 (Murrayville Road)	5,403	8,000	5,454	7,000	51	0.94%	-1,000	-12.50%	5,294	8,000	-109	-2.02%	0	0.00%	5,310	7,000	-93	-1.72%	-1,000	-12.50%
18	SR 1322 (Murrayville Road), East of SR 2611 (Quail Woods Road)	10,698	5,000	10,601	5,000	-97	-0.91%	0	0.00%	10,515	5,000	-183	-1.71%	0	0.00%	10,455	5,000	-243	-2.27%	0	0.00%
19	SR 1402 (Porters Neck Road), East of US 17 (Market Street)	15,242	23,600	15,245	23,600	3	0.02%	0	0.00%	15,245	23,600	3	0.02%	0	0.00%	15,245	23,600	3	0.02%	0	0.00%
20	US 17 (Market Street), North of SR 1402 (Porters Neck Road)	34,257	49,300	33,340	49,300	-917	-2.68%	0	0.00%	34,330	49,300	73	0.21%	0	0.00%	33,150	49,300	-1,107	-3.23%	0	0.00%
21	US 17 (Market Street), North of Porters Neck Road	41,470	56,600	41,185	52,300	-285	-0.69%	-4,300	-7.60%	41,429	56,600	-41	-0.10%	0	0.00%	41,327	52,300	-143	-0.34%	-4,300	-7.60%
22	SR 1402 (Porters Neck Road), West of US 17 (Market Street)	-	15,900	-	21,000	-	-	5,100	32.08%	-	15,900	-	-	0	0.00%	0	21,000	-	-	5,100	32.08%
23	Lowes Driveway, North of SR 1402 (Porters Neck Road)	-	8,300	-	8,300	-	-	0	0.00%	-	8,300	-	-	0	0.00%	-	8,300	-	-	0	0.00%
24	Shopping Center Roadway, South of SR 1402 (Porters Neck Road)	-	4,800	-	4,900	-	-	100	2.08%	-	4,800	-	-	0	0.00%	-	4,900	-	-	100	2.08%
25	SR 1402 (Porters Neck Road), West of Lowes Driveway/Shopping Center Roadway	-	2,800	-	8,000	-	-	5,200	185.71%	-	2,800	-	-	0	0.00%	0	8,000	-	-	5,200	185.71%
26	Lowes Driveway, North of SR 1402 (Porters Neck Road)	-	1,800	-	2,000	-	-	200	11.11%	-	1,800	-	-	0	0.00%	-	2,000	-	-	200	11.11%
27	SR 1402 (Porters Neck Road), West of Lowes Driveway	-	2,000	-	7,400	-	-	5,400	270.00%	-	2,000	-	-	0	0.00%	0	7,400	-	-	5,400	270.00%
28	Porters Neck Road, South of SR 1402 (Porters Neck Road)	-	2,000	-	2,200	-	-	200	10.00%	-	2,000	-	-	0	0.00%	-	2,200	-	-	200	10.00%
29	SR 1402 (Porters Neck Road), West of Porters Neck Road	-	0	-	5,600	-	-	5,600	-	-	0	-	-	0	-	0	5,600	-	-	5,600	#DIV/0!
30	Porters Neck Road, West of US 17 (Market Street)	-	2,500	-	2,500	-	-	0	0.00%	-	2,500	-	-	0	0.00%	-	2,500	-	-	0	0.00%
31	US 17 (Market Street), North of Cypress Pond Way	41,470	57,100	41,185	52,800	-285	-0.69%	-4,300	-7.53%	41,429	57,100	-41	-0.10%	0	0.00%	41,327	52,800	-143	-0.34%	-4,300	-7.53%
32	Cypress Pond Way, West of US 17 (Market Street)	-	5,800	-	5,800	-	-	0	0.00%	-	5,800	-	-	0	0.00%	-	5,800	-	-	0	0.00%
33	US 17 (Market Street), South of Cypress Pond Way	41,470	61,300	41,185	57,000	-285	-0.69%	-4,300	-7.01%	41,429	61,300	-41	-0.10%	0	0.00%	41,327	57,000	-143	-0.34%	-4,300	-7.01%
34	US 17 (Market Street), North of Hays Lane	41,470	60,100	41,185	55,600	-285	-0.69%	-4,500	-7.49%	41,429	60,100	-41	-0.10%	0	0.00%	41,327	55,600	-143	-0.34%	-4,500	-7.49%
35	US 17 (Market Street), North of Walmart Driveway	41,470	60,100	42,661	57,700	1,191	2.87%	-2,400	-3.99%	41,429	60,100	-41	-0.10%	0	0.00%	42,596	57,700	1,126	2.72%	-2,400	-3.99%
36	Hays Lane, East of US 17 (Market Street)	-	2,600	-	2,600	-	-	0	0.00%	-	2,600	-	-	0	0.00%	-	2,600	-	-	0	0.00%
37	Hays Lane, West of US 17 (Market Street)	-	14,000	2,200	16,500	-	-	2,500	17.86%	-	14,000	-	-	0	0.00%	2,545	16,500	-	-	2,500	17.86%
38	Shopping Center Access, North of Hays Lane	-	5,200	-	5,300	-	-	100	1.92%	-	5,200	-	-	0	0.00%	-	5,300	-	-	100	1.92%
39	Walmart Driveway, South of Hays Lane	-	6,300	-	6,400	-	-	100	1.59%	-	6,300	-	-	0	0.00%	-	6,400	-	-	100	1.59%
40	Hays Lane, West of Shopping Center Access/Walmart Driveway	-	3,900	2,200	6,600	-	-	2,700	69.23%	-	3,900	-	-	0	0.00%	2,545	6,600	-	-	2,700	69.23%
41	Shopping Center Access, North of Hays Lane	-	2,200	-	2,400	-	-	200	9.09%	-	2,200	-	-	0	0.00%	-	2,400	-	-	200	9.09%
42	Walmart Driveway, South of Hays Lane	-	2,800	-	3,000	-	-	200	7.14%	-	2,800	-	-	0	0.00%	-	3,000	-	-	200	7.14%
43	Hays Lane, West of Shopping Center Access/Walmart Driveway	-	300	2,200	3,400	-	-	3,100	1033.33%	-	300	-	-	0	0.00%	2,545	3,400	-	-	3,100	1033.33%
44	US 17 (Market Street), South of Walmart Driveway	41,470	61,600	42,661	59,200	1,191	2.87%	-2,400	-3.90%	41,429	61,600	-41	-0.10%	0	0.00%	42,596	59,200	1,126	2.72%	-2,400	-3.90%
45	Walmart Driveway, West of US 17 (Market Street)	-	2,100	-	2,100	-	-	0	0.00%	-	2,100	-	-	0	0.00%	-	2,100	-	-	0	0.00%
46	SR 1322 (Murrayville Road),West of I-40	12,283	18,900	12,749	15,900	466	3.79%	-3,000	-15.87%	11,449	16,900	-834	-6.79%	-2,000	-10.58%	11,731	13,900	-552	-4.49%	-5,000	-26.46%
47	I-40, North of SR 1322 (Murrayville Road)	58,120	72,200	58,096	72,200	-24	-0.04%	0	0.00%	59,174	77,900	1,054	1.81%	5,700	7.89%	58,880	77,900	760	1.31%	5,700	7.89%
48	I-40, South of SR 1322 (Murrayville Road)	58,120	72,200	58,096	72,200	-24	-0.04%	0	0.00%	59,648	77,500	1,528	2.63%	5,300	7.34%	59,928	77,500	1,808	3.11%	5,300	7.34%
49	SR 1322 (Murrayville Road), East of I-40	12,283	18,900	12,749	15,900	466	3.79%	-3,000	-15.87%	14,118	18,900	1,835	14.94%	0	0.00%	13,880	15,900	1,597	13.00%	-3,000	-15.87%
50	New Extension, North of SR 1322 (Murrayville Road)	-	-	1,188	5,500	-	-	-	-	-	-	-	-	-	-	1,613	5,500	-	-	-	-
51	New Extension, West of Military Cutoff Extension Access Ramps	-	-	1,188	13,500	-	-	-	-	-	-	-	-	-	-	1,613	13,500	-	-	-	-
52	SR 1322 (Murrayville Road), East of New Extension	12,283	18,900	11,561	13,400	-722	-5.88%	-5,500	-29.10%	14,118	18,900	1,835	14.94%	0	0.00%	13,880	13,400	1,597	13.00%	-5,500	-29.10%
53	Military Cutoff Extension Access Ramps, South of New Extension	-	-	1,012	8,800	-	-	-	-	-	-	-	-	-	-	932	8,800	-	-	-	-
54	New Extension, East of Military Cutoff Extension Access Ramps	-	-	2,200	8,300	-	-	-	-	-	-	-	-	-	-	2,545	8,300	-	-	-	-
55	Hays Lane, South of Future Proposed Alignment	-	-	2,200	3,100	-	-	-	-	-	-	-	-	-	-	2,545	3,100	-	-	-	-

Appendix B – Questionnaire and Responses

Questionnaire

Three Oaks Engineering is currently in the process of developing a traffic forecast for the NCDOT H171786 Murrayville Road modernization Project. This project includes modernization of SR 1322 (Murrayville Road) from US 117 (College Road) east to where it terminates at the Hanover Reserve development (under construction). The project is also considering concepts on new location, creating an interchange with I-40, spanning Military Cutoff Road, and tying into Bus 17 (Market Street) via Hays Lane and/or Porters Neck Road in Murrayville in New Hanover County (NCDOT Division 3). Forecasts will be developed for the Base Year (2022), Future Year (2045), Future Year (2045) Alternative 1, Future Year (2045) Alternative 2, Future Year (2045) Alternative 3, and Future Year (2045) Alternative 4.

We are seeking input from local planners and engineers. Below are a few questions that will help us with the development of the forecast and would appreciate your time in answering them. You may return your answers to me at kimberly.levine@threeoaksengineering.com. We would appreciate your responses returned by December 16th.



1. Do you think that 2% per year is a reasonable growth rate for the Murrayville Road area?

2. Do you think that 2.5% for I-40 in this area is a reasonable growth rate?

3. Do you think that 1% for the US 17 (Market Street) in the project area is a reasonable growth rate?

4. Have you noticed any growth patterns in or around the study area that may not be captured by the historical traffic data?

5. This project includes forecast volumes for Hanover Reserve near Military Cutoff Extension. Do you know of any other reasonably foreseeable transportation project that may affect the traffic volumes in the forecast study area?

6. Do you have any additional comments that would be helpful for the development of the traffic forecast?

This questionnaire is being sent to the following individuals:

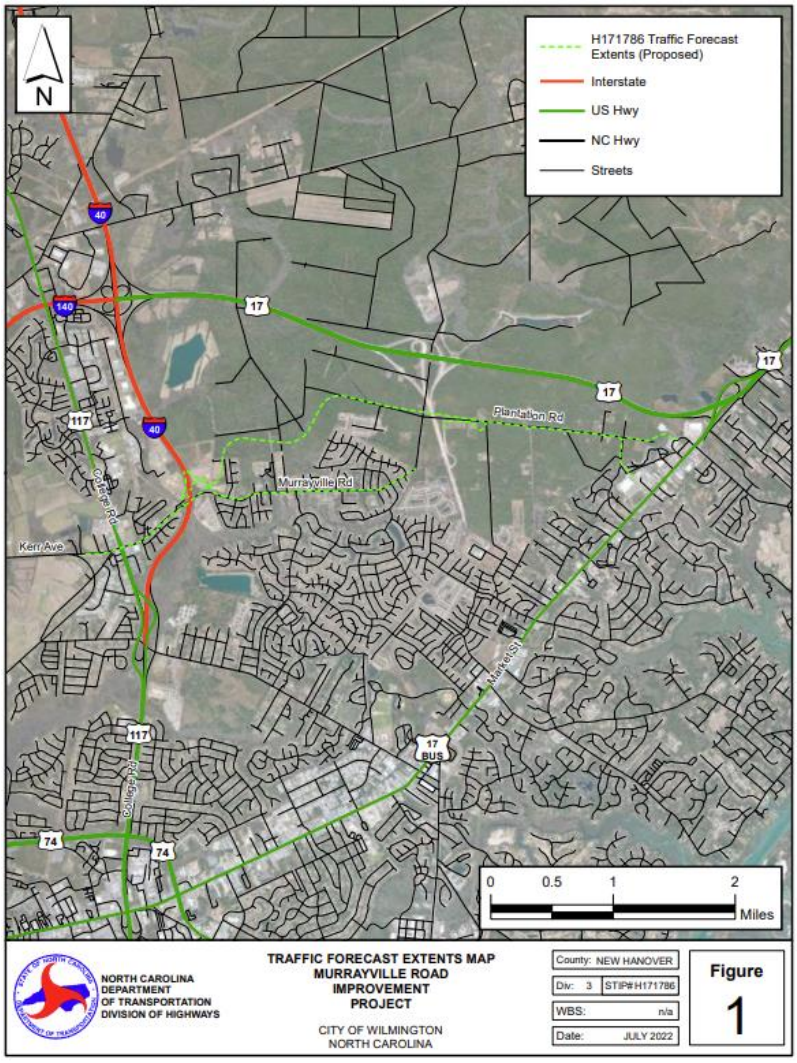
i. Emma Stogner, Wilmington Urban Area MPO Associate Transportation Planner (emma.stogner@wilmingtonnc.gov)
ii. Rachel McIntyre, PLA, ASLA, Wilmington Urban Area MPO Associate Transportation Planner (rachel.mcintyre@wilmingtonnc.gov)
iii. Chad Kimes, PE, NCDOT Division 3 Engineer (ckimes@ncdot.gov)
iv. Adrienne Cox, NCDOT Division 3 Planning Engineer (amcox1@ncdot.gov)
v. Benjamin Hughes, PE, NCDOT District Engineer (bthughes@ncdot.gov)
vi. Rebekah Roth, CZO, AICP, New Hanover County (rroth@nhcgov.com)
vii. Ken Vafier, CFM, AICP, New Hanover County (kvafier@nhcgov.com)
viii. Nazia Sarder, Wilmington MPO NCDOT (nsarder@ncdot.gov)

Are there any other individuals whom you think we should contact to discuss this forecast?

Responses

Three Oaks Engineering is currently in the process of developing a traffic forecast for the NCDOT H171786 Murrayville Road modernization Project. This project includes modernization of SR 1322 (Murrayville Road) from US 117 (College Road) east to where it terminates at the Hanover Reserve development (under construction). The project is also considering concepts on new location, creating an interchange with I-40, spanning Military Cutoff Road, and tying into Bus 17 (Market Street) via Hays Lane and/or Porters Neck Road in Murrayville in New Hanover County (NCDOT Division 3). Forecasts will be developed for the Base Year (2022), Future Year (2045), Future Year (2045) Alternative 1, Future Year (2045) Alternative 2, Future Year (2045) Alternative 3, and Future Year (2045) Alternative 4.

We are seeking input from local planners and engineers. Below are a few questions that will help us with the development of the forecast and would appreciate your time in answering them. You may return your answers to me at kimberly.levine@threeoaksengineering.com. We would appreciate your responses returned by December 16th.



1. Do you think that 2% per year is a reasonable growth rate for the Murrayville Road area? **[YES]**

   This response is couched a bit as the existing traffic counts on Murrayville Road are not up to date, as the most recent NCDOT AADT is from 2019 and changes to development patterns in the area will be delayed. Much new development in this area will not occur until water/sewer lines currently in the design phase are complete in 2024 and constructed around 2026. However, once this occurs, and the Hanover Reserves mixed use project connects the roadway to Military Cutoff Extension, this is a reasonable growth rate. There are approximately 1,145 acres of undeveloped land between Murrayville Rd. and I-140 that once built-out would also contribute to that level of traffic growth.

2. Do you think that 2.5% for I-40 in this area is a reasonable growth rate? **[Yes]**

   In addition to continued tourist traffic and commuter traffic from central Pender, this portion of I-40 will also be affected by continued growth in eastern New Hanover (Porters Neck and Scotts Hill) and Pender using I-140.

3. Do you think that 1% for the US 17 (Market Street) in the project area is a reasonable growth rate? **[Yes]**

   While this traffic in this section of the study area may grow less because of alternate routes such as Military Cutoff Extension coming online, we continue to see new development in this area of infill sites and new businesses.

4. Have you noticed any growth patterns in or around the study area that may not be captured by the historical traffic data?

   We continue to see development west of N. College Rd., both residential and commerce, which may impact east-west travel in this area. Additional growth in Castle Hayne, coupled with delayed improvements to Castle Hayne Rd., may also impact I-40 traffic.

5. This project includes forecast volumes for Hanover Reserve near Military Cutoff Extension. Do you know of any other reasonably foreseeable transportation project that may affect the traffic volumes in the forecast study area? **[Not other than NCDOT STIP projects already in process, though if improvements are made at the Market St./ I-140 intersection, a connection between Military Cutoff Ext. and Porters Neck would likely become more usable for residents in the Murrayville area and potentially parts of Wrightsboro.]**

6. Do you have any additional comments that would be helpful for the development of the traffic forecast?

   This questionnaire is being sent to the following individuals:

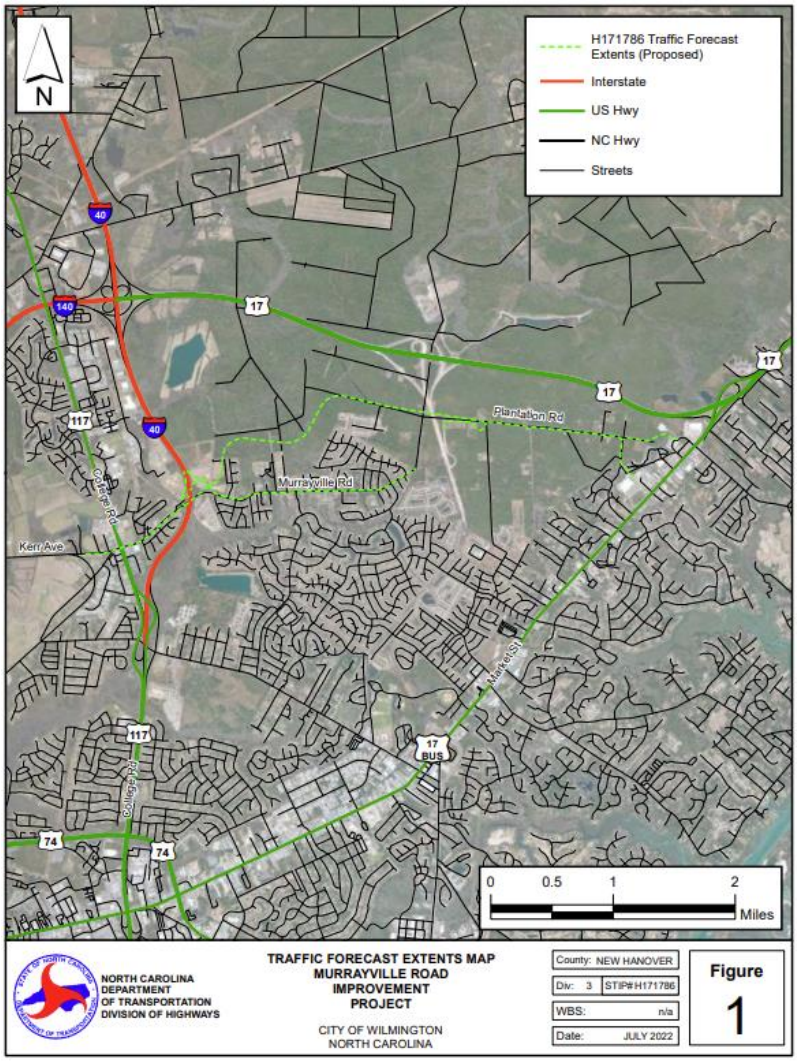
   i. Emma Stogner, Wilmington Urban Area MPO Associate Transportation Planner (emma.stogner@wilmingtonnc.gov)
   ii. Rachel McIntyre, PLA, ASLA, Wilmington Urban Area MPO Associate Transportation Planner (rachel.mcintyre@wilmingtonnc.gov)

iii. Chad Kimes, PE, NCDOT Division 3 Engineer (ckimes@ncdot.gov)
iv. Adrienne Cox, NCDOT Division 3 Planning Engineer (amcox1@ncdot.gov)
v. Benjamin Hughes, PE, NCDOT District Engineer (bthughes@ncdot.gov)
vi. Rebekah Roth, CZO, AICP, New Hanover County (rroth@nhcgov.com)
vii. Ken Vafier, CFM, AICP, New Hanover County (kvafier@nhcgov.com)
viii. Nazia Sarder, Wilmington MPO NCDOT (nsarder@ncdot.gov)

Are there any other individuals whom you think we should contact to discuss this forecast?

Three Oaks Engineering is currently in the process of developing a traffic forecast for the NCDOT H171786 Murrayville Road modernization Project. This project includes modernization of SR 1322 (Murrayville Road) from US 117 (College Road) east to where it terminates at the Hanover Reserve development (under construction). The project is also considering concepts on new location, creating an interchange with I-40, spanning Military Cutoff Road, and tying into Bus 17 (Market Street) via Hays Lane and/or Porters Neck Road in Murrayville in New Hanover County (NCDOT Division 3). Forecasts will be developed for the Base Year (2022), Future Year (2045), Future Year (2045) Alternative 1, Future Year (2045) Alternative 2, Future Year (2045) Alternative 3, and Future Year (2045) Alternative 4.

We are seeking input from local planners and engineers. Below are a few questions that will help us with the development of the forecast and would appreciate your time in answering them. You may return your answers to me at kimberly.levine@threeoaksengineering.com. We would appreciate your responses returned by December 16th.



1. Do you think that 2% per year is a reasonable growth rate for the Murrayville Road area?

   Yes

2. Do you think that 2.5% for I-40 in this area is a reasonable growth rate?

   Yes

3. Do you think that 1% for the US 17 (Market Street) in the project area is a reasonable growth rate?
   Yes

4. Have you noticed any growth patterns in or around the study area that may not be captured by the historical traffic data?

   As I am not a local, I have not physically seen the pattern. However, the SE data provided by locals suggests reasonable growth from 2015 to 2045.

5. This project includes forecast volumes for Hanover Reserve near Military Cutoff Extension. Do you know of any other reasonably foreseeable transportation project that may affect the traffic volumes in the forecast study area?

   N/A

6. Do you have any additional comments that would be helpful for the development of the traffic forecast?
   As you may be aware, there is an official 2045 Travel Demand Model for Wilmington MPO. We are currently working on a 2050 Travel Demand Model but it will not be adopted until the next MTP adoption.

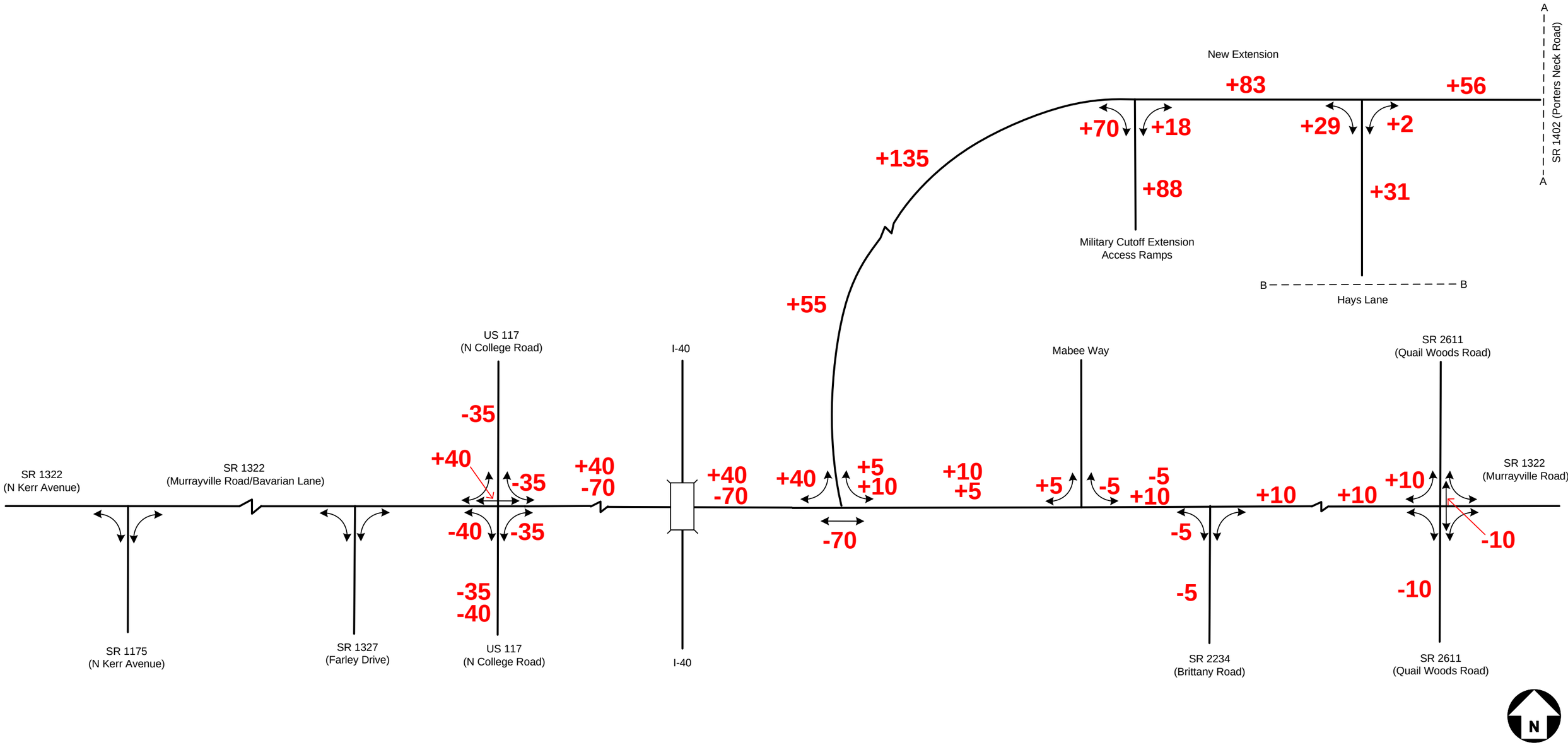
   **Answers provided throughout the questionnaire are based on the 2045 Wilmington MPO's Travel Demand Model (BY 2015 and FY 2045).*

   This questionnaire is being sent to the following individuals:

   i. Emma Stogner, Wilmington Urban Area MPO Associate Transportation Planner (emma.stogner@wilmingtonnc.gov)
   ii. Rachel McIntyre, PLA, ASLA, Wilmington Urban Area MPO Associate Transportation Planner (rachel.mcintyre@wilmingtonnc.gov)
   iii. Chad Kimes, PE, NCDOT Division 3 Engineer (ckimes@ncdot.gov)
   iv. Adrienne Cox, NCDOT Division 3 Planning Engineer (amcox1@ncdot.gov)
   v. Benjamin Hughes, PE, NCDOT District Engineer (bthughes@ncdot.gov)
   vi. Rebekah Roth, CZO, AICP, New Hanover County (rroth@nhcgov.com)
   vii. Ken Vafier, CFM, AICP, New Hanover County (kvafier@nhcgov.com)
   viii. Nazia Sarder, Wilmington MPO NCDOT (nsarder@ncdot.gov)

   Are there any other individuals whom you think we should contact to discuss this forecast?

Appendix C – Diversion Figures



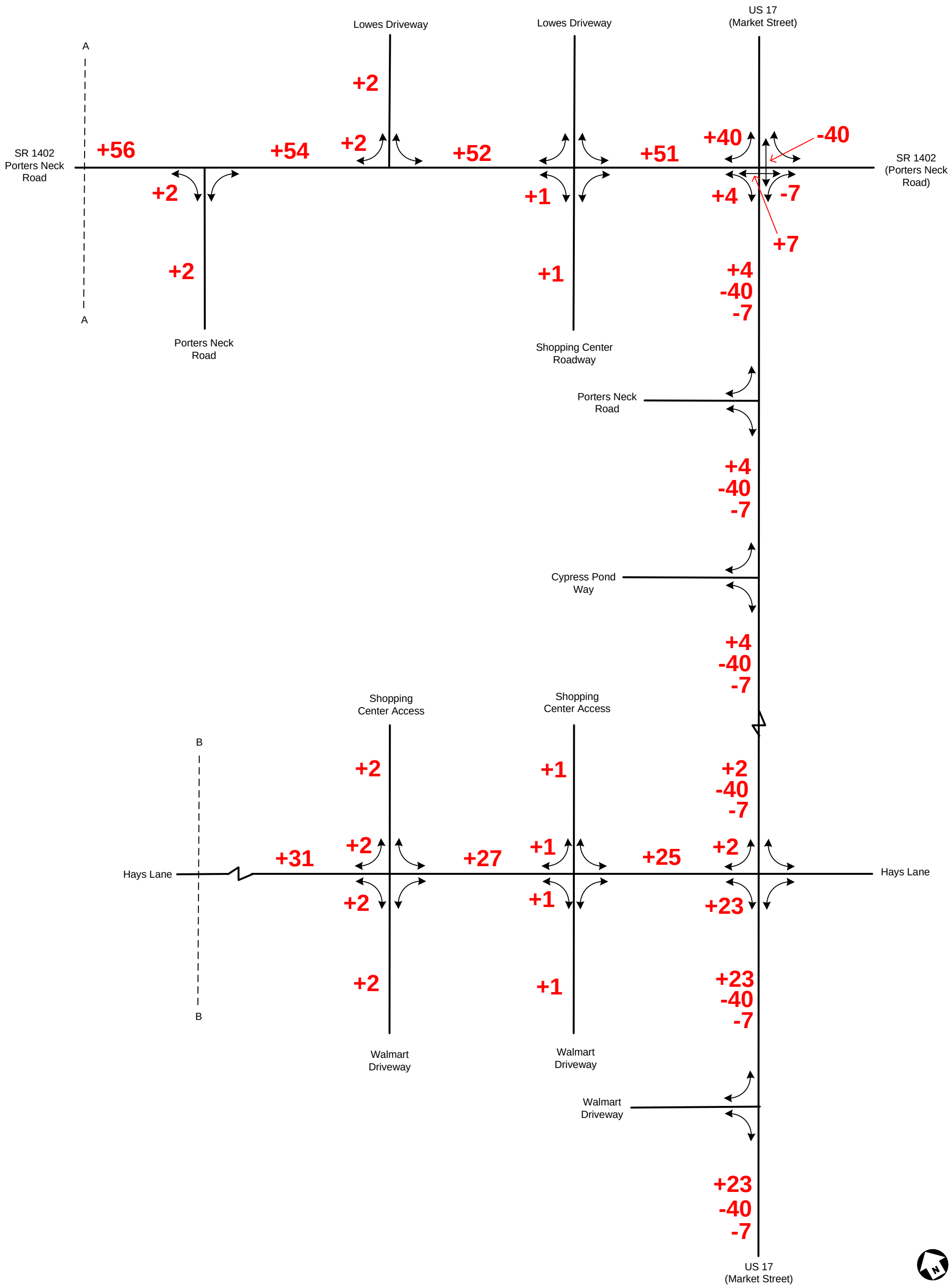
2045 Future Year Build Alternative 2 Diversion

SHEET 1 OF 2

Legend

XX Diversion

TIP: H171786	**WBS:** 34263.1.1
COUNTY: New Hanover	**DIVISION:** 3
DATE: February 2023	
PREPARED BY: Three Oaks Engineering	
LOCATION: US 117 (College Road) east to Hanover Reserve development	
PROJECT: Modernization of SR 1322 (Murrayville Road)	



2045 Future Year Build Alternative 2 Diversion

SHEET 2 OF 2

Legend

XX Diversion

TIP: H171786	**WBS:** 34263.1.1
COUNTY: New Hanover	**DIVISION:** 3
DATE: February 2023	
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LOCATION: US 117 (College Road) east to Hanover Reserve development	
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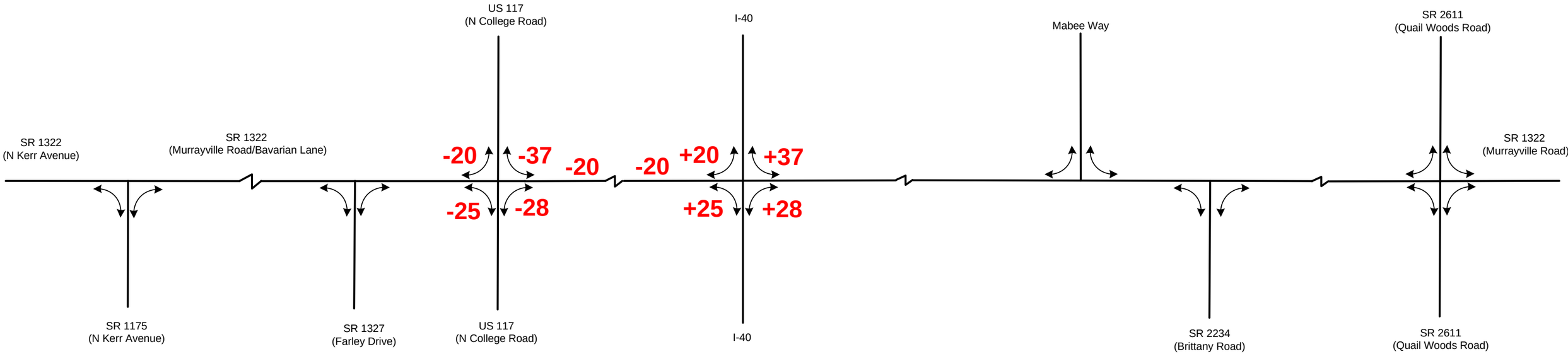


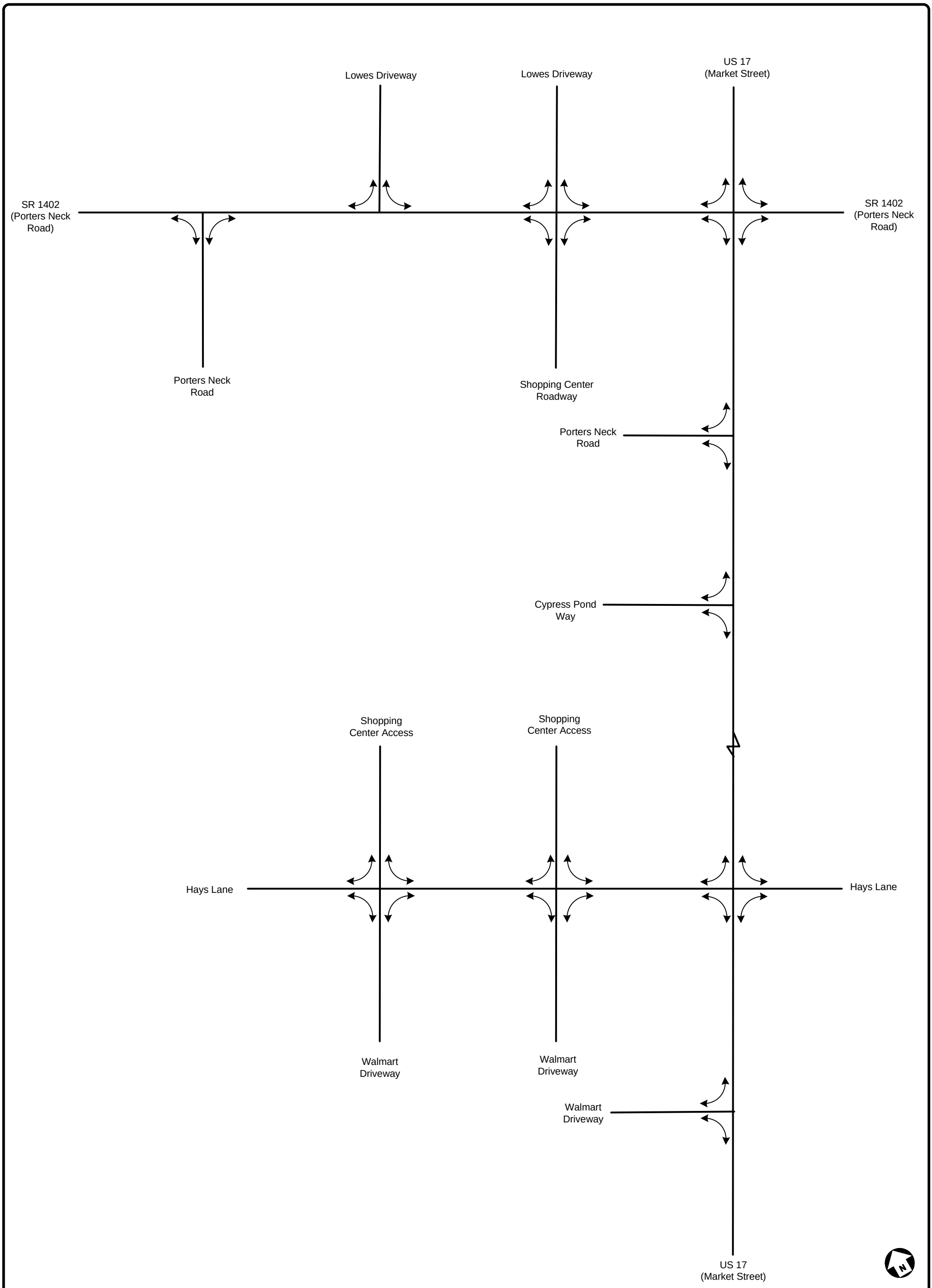
2045 Future Year Build Alternative 3 Diversion

SHEET 1 OF 2

Legend

XX Diversion

TIP: H171786	**WBS:** 34263.1.1
COUNTY: New Hanover	**DIVISION:** 3
DATE: February 2023	
PREPARED BY: Three Oaks Engineering	
LOCATION: US 117 (College Road) east to Hanover Reserve development	
PROJECT: Modernization of SR 1322 (Murrayville Road)	



2045 Future Year Build Alternative 3 Diversion

SHEET 2 OF 2

Legend

XX Diversion

TIP: H171786	**WBS:** 34263.1.1
COUNTY: New Hanover	**DIVISION:** 3
DATE: February 2023	
PREPARED BY: Three Oaks Engineering	
LOCATION: US 117 (College Road) east to Hanover Reserve development	
PROJECT: Modernization of SR 1322 (Murrayville Road)	