

Memorandum

To: Robbie Weisz, Division 7 Project Engineer
From: RS&H Project Team
Subject: R-5889 Traffic Forecast Report
Date: June 19, 2023

This forecast was approved by NCDOT Transportation Planning Division on June 19, 2023.

Please find attached the traffic forecast for State Transportation Improvement Program (STIP) Project R-5889. This project falls within the Greensboro Urban Area Metropolitan Planning Organization's (GUAMPO) planning area. The North Carolina Department of Transportation (NCDOT) proposes the following improvements as part of this project:

- » **STIP Project R-5889** proposes to upgrade the US 29 (Future I-785) corridor to interstate standards, from Hicone Road (SR 2565) in Greensboro to US 158/NC 14 in Reidsville. This project is located in Guilford and Rockingham Counties, NCDOT Division 7.

This forecast was originally requested by Bryan Key, Divisions 7, 9 and 10 Project Management Unit (PMU) Team Lead and transitioned over to become a Division-managed project let by Robbie Weisz, Division 7 Project Engineer. This traffic forecast includes the following scenarios:

- » 2023 Base Year No Build (BYNB)
- » 2023 Base Year Build (BYB)
- » 2045 Future Year No Build (FYNB)
- » 2045 Future Year Build (FYB)

A previous traffic forecast was completed for the Feasibility Study (FS-1707A) in October 2017. This traffic forecast will be an update to the previous forecast.

The following persons were consulted during the development of this forecast:

<u>NCDOT Division 7</u>	<u>GUAMPO Planner</u>
Chris Smitherman	Tyler Meyer
Rob Weisz	
Dawn McPherson	<u>Rockingham County</u>
Jason Julian	Lance Metzler
	Leigh Cockram
<u>NCDOT TSU</u>	Hiram Marziano
Keith Dixon	
	<u>Guilford County</u>
<u>NCDOT MPO Coordinator</u>	Oliver Gass
Michael Abuya	

Certain Assumptions were made during the development of this forecast.

Fiscal Constraint:

The Piedmont Triad Regional Model (PTRM 5.2), effective February 2021, and the North Carolina Statewide Travel Model (NCSTM Gen 4.5) were used as tools to aid in the forecast development. Both models use 2017 as the base year, and 2045 as the future year and included all fiscally constrained projects documented in the Greensboro Area Metropolitan Transportation Plan (MTP) and projects funded for construction in the current NCDOT STIP (May 2023).

Methodology:

The traffic forecasts and traffic factors for the 2023 BYNB Conditions were developed using project specific traffic counts and historical Annual Average Daily Traffic (AADT) trends projected to 2023.

The 2023 BYB Conditions traffic forecasts were estimated by adjusting the 2023 BYNB Conditions traffic forecasts using the changes in traffic patterns selected based on the PTRM output, NCSTM output, and information from the previous forecast.

The 2045 FYNB Conditions traffic forecasts were estimated by extrapolating the 2023 BYNB Conditions traffic forecasts using growth rates selected based on the PTRM output, NCSTM output, historical traffic patterns, projected population and employment growth, information from the previous forecast, and input from stakeholders.

The 2045 FYB Conditions traffic forecasts were estimated by adjusting the 2045 FYNB Conditions traffic forecasts using the changes in traffic patterns selected based on the PTRM output, NCSTM output, and information from the previous forecast.

For each forecast scenario, the selected volumes, design hour factors, and quadrant movements were validated using NCDOT's Traffic Forecast Utility (TFU). Volumes were balanced at intersections and between roadway segments as needed. Quadrant movements and traffic factors were adjusted as needed based on the project specific traffic counts and engineering judgement.

Interpolation/Extrapolation:

To estimate AADT volumes between 2023 and 2045, straight line interpolation may be used. AADT volumes may be extrapolated for up to two years beyond 2045. If it is determined that any of these assumptions have become inconsistent with the project and surrounding area activity, please request updated traffic forecasts at this location.

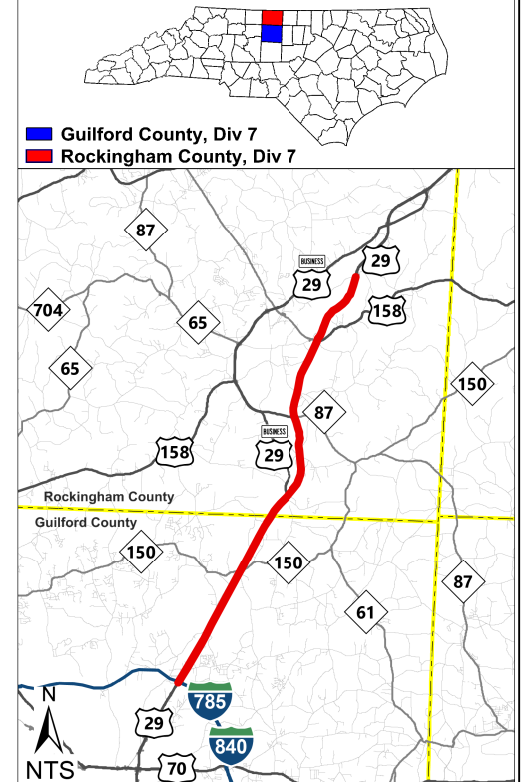
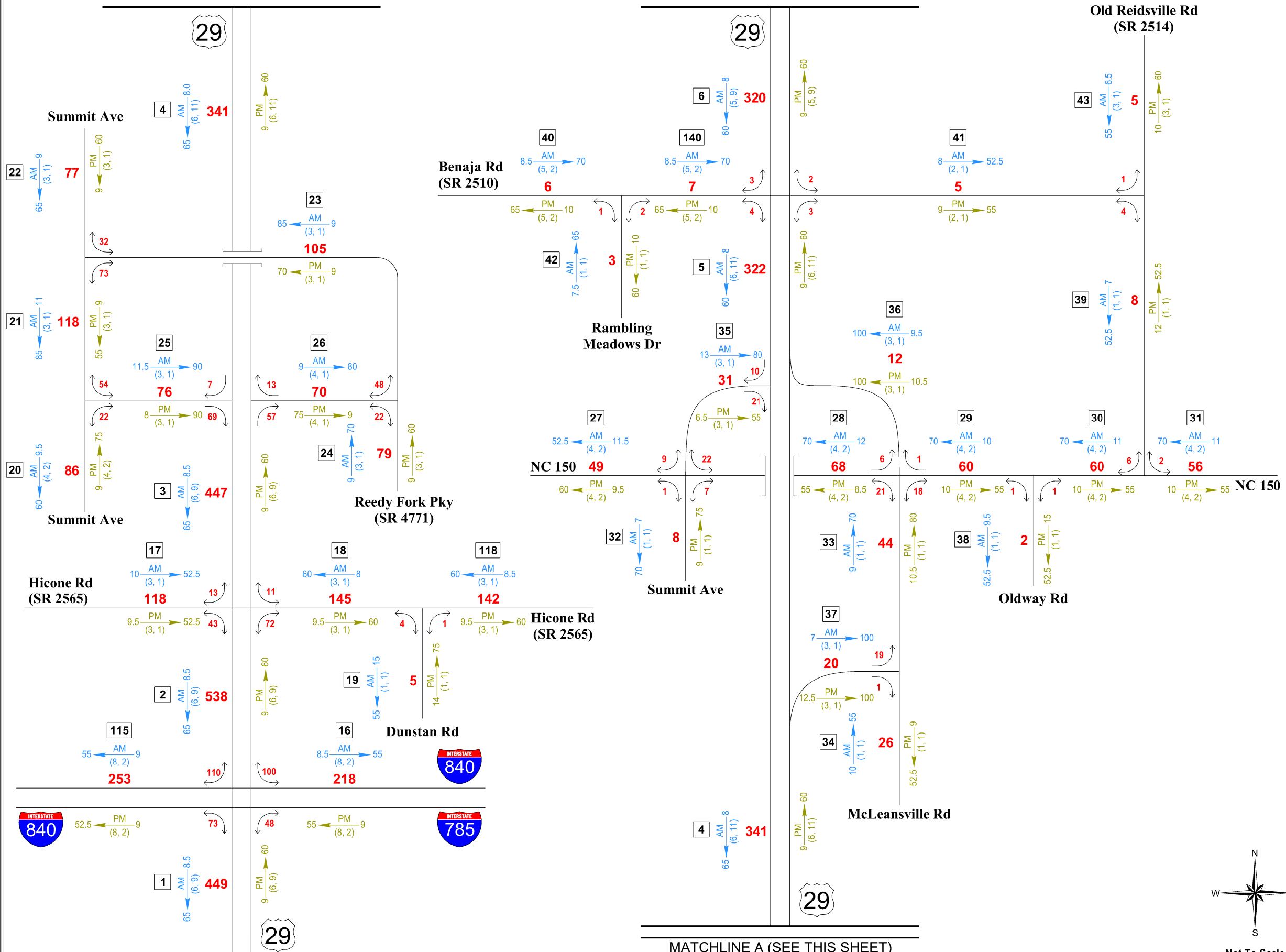
If we can be of any further assistance on this project, please do not hesitate to contact Vivek Hariharan Vivek.Hariharan@rsandh.com 703-220-2203.

CC (with Attachments):

TrafficForecast@ncdot.gov

MATCHLINE A (SEE THIS SHEET)

MATCHLINE B (SEE SHEET 2)



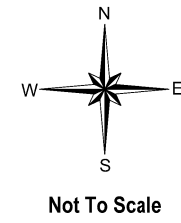
2023

ANNUAL AVERAGE
DAILY TRAFFIC FORECASTS
BASE YEAR
NO-BUILD CONDITIONS
FIGURE 1 SHEET 1 of 3

LEGEND

- DHV $\xrightarrow{(d,t)}$ D
- 000 No. of Vehicles Per Day in 100's
- DHV Design Hourly Volume (%)
- D Peak Hour Directional Split (%)
- AM/PM Peak Period
- \rightarrow Direction of D
- (d,t) Duals, TT-ST's (%)

TIP: R-5889	WBS: 48394.1.1
COUNTY: Guilford/Rockingham	DIVISION: 7
DATE: June 2023	
PREPARED BY: RS&H	
LOCATION: US 29 from I-785/I-840 to Narrow Gauge Rd (SR 2552)	
PROJECT: Upgrade US 29 to Interstate Standards from I-785/I-840 to Narrow Gauge Rd (SR 2552)	

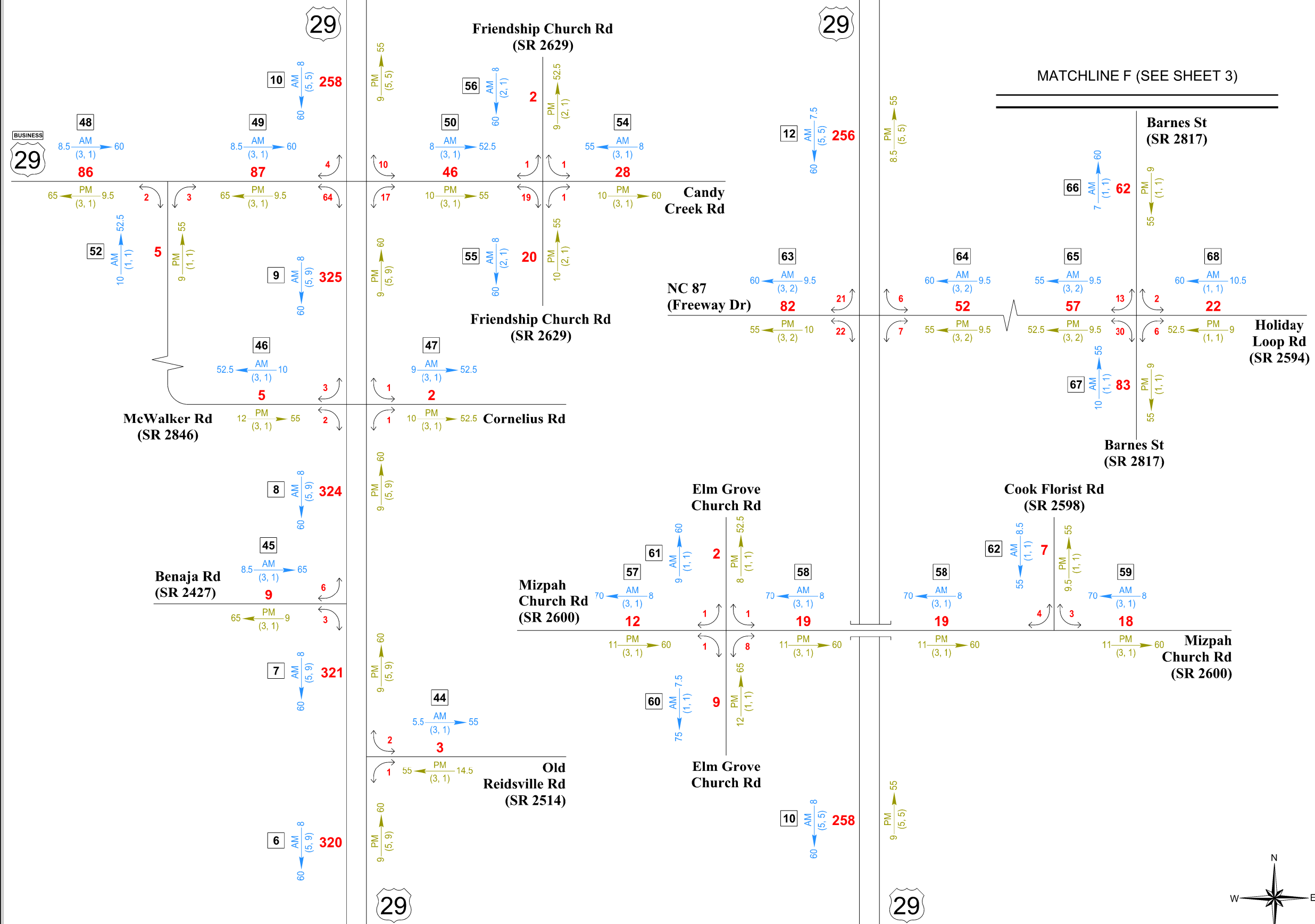


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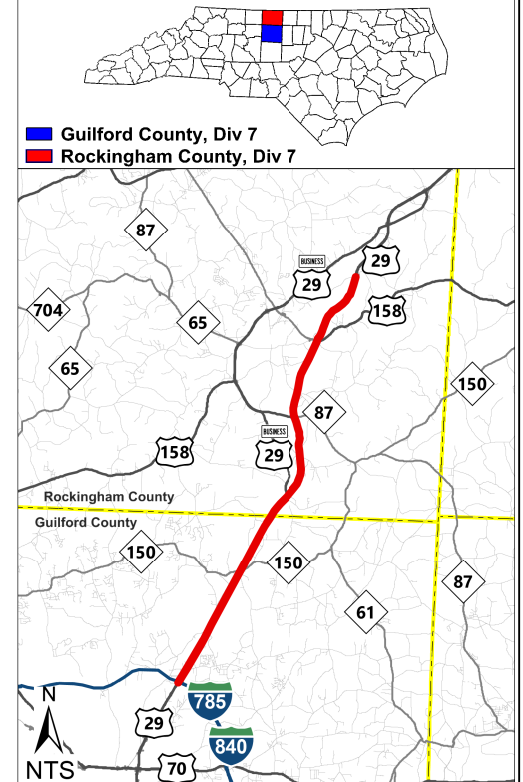
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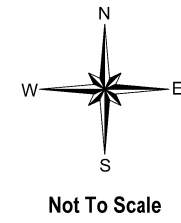
2023

ANNUAL AVERAGE
DAILY TRAFFIC FORECASTS
BASE YEAR
NO-BUILD CONDITIONS
FIGURE 1 SHEET 2 of 3

LEGEND

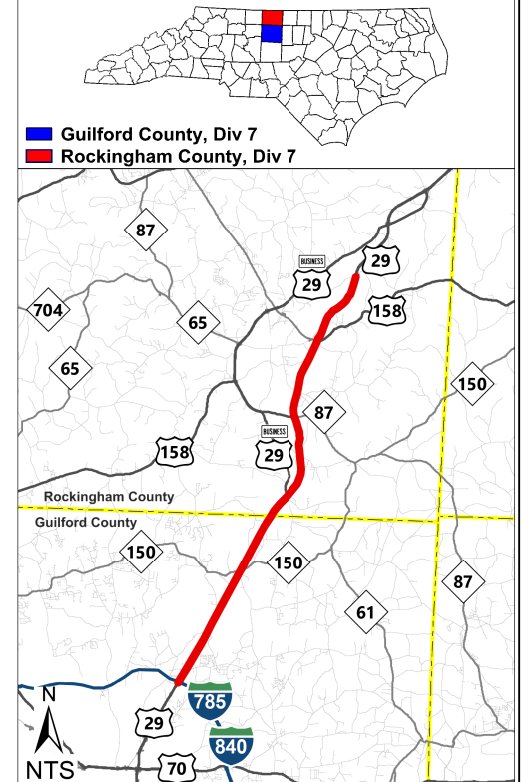
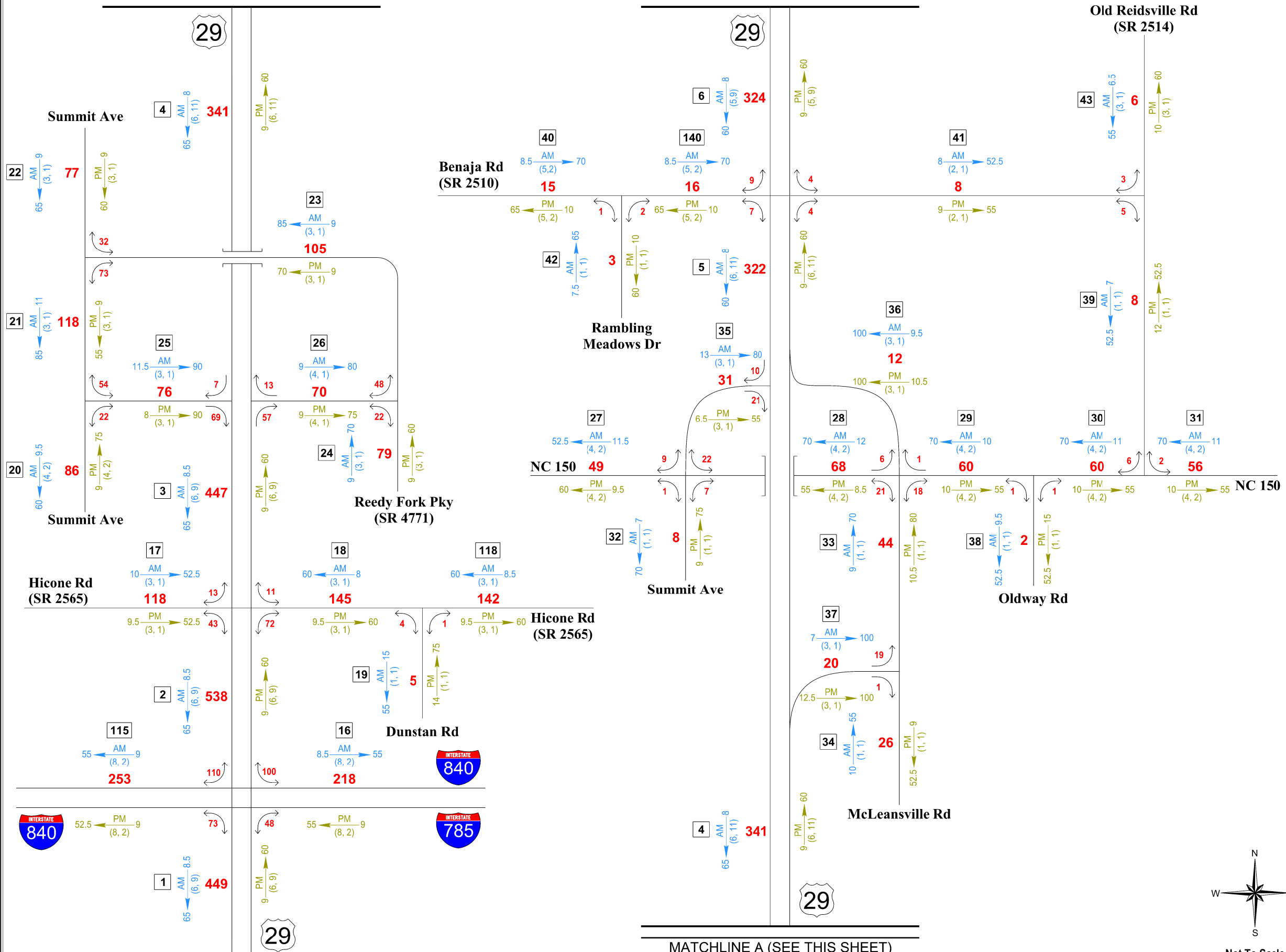
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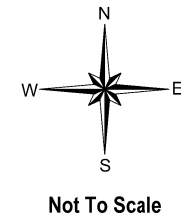
2023

ANNUAL AVERAGE
DAILY TRAFFIC FORECASTS
**BASE YEAR
BUILD CONDITIONS**
FIGURE 2 SHEET 1 of 3

LEGEND

- DHV $\xrightarrow{(d,t)}$ D
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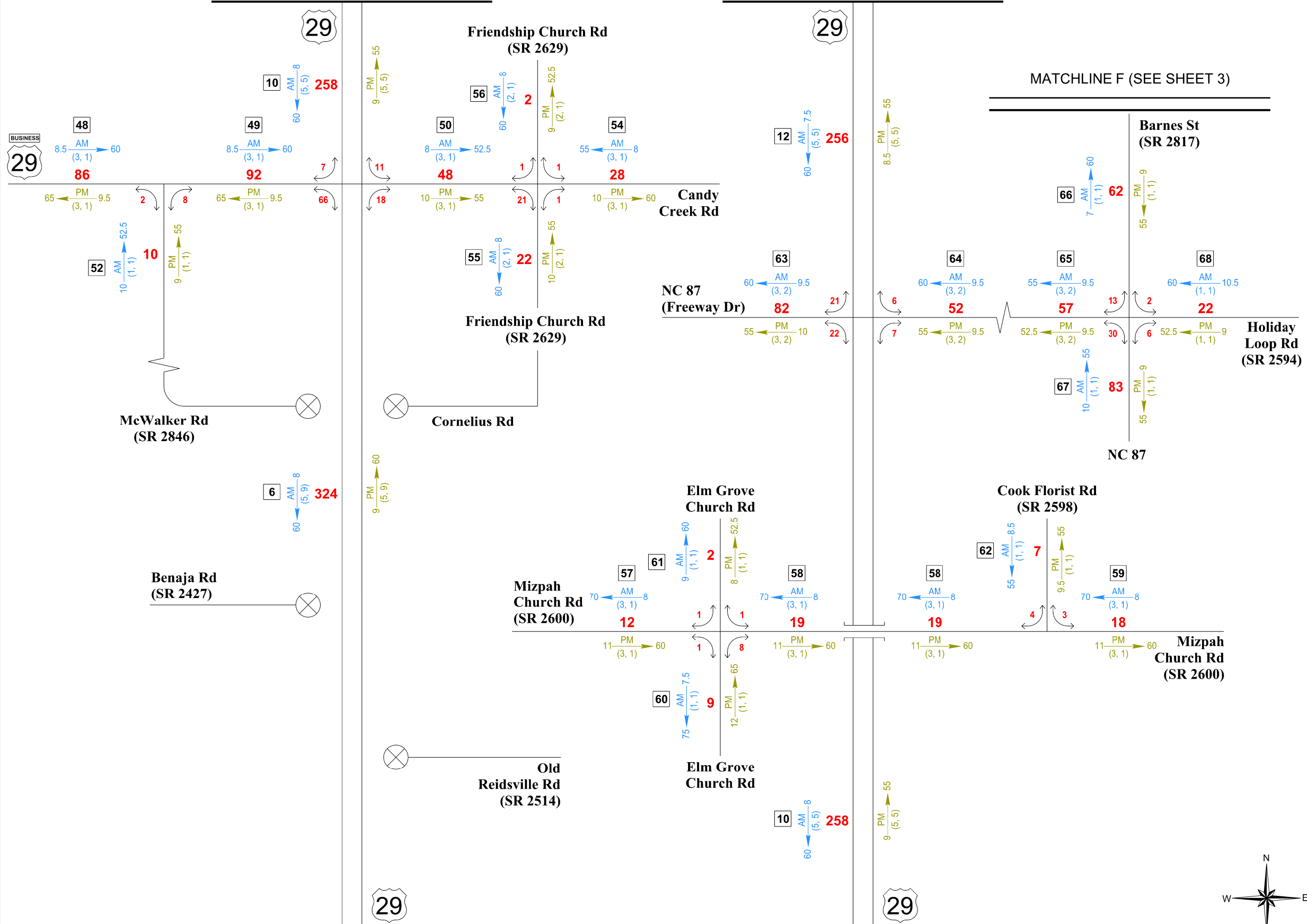


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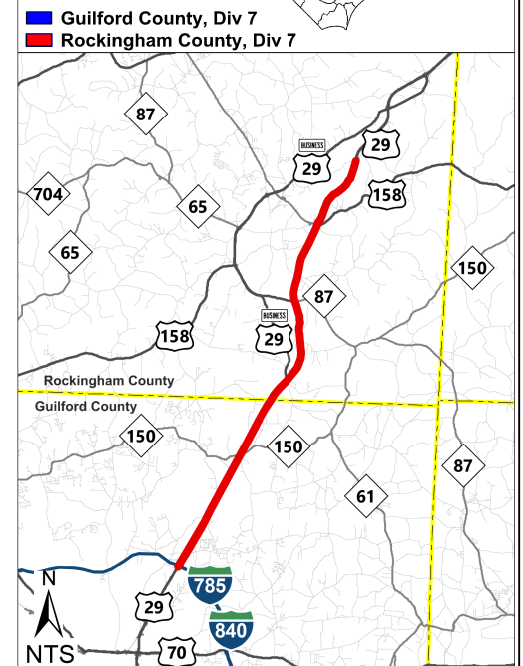
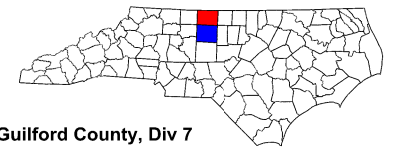
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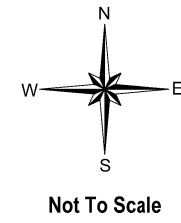
2023

ANNUAL AVERAGE
DAILY TRAFFIC FORECASTS
**BASE YEAR
BUILD CONDITIONS**
FIGURE 2 SHEET 2 of 3

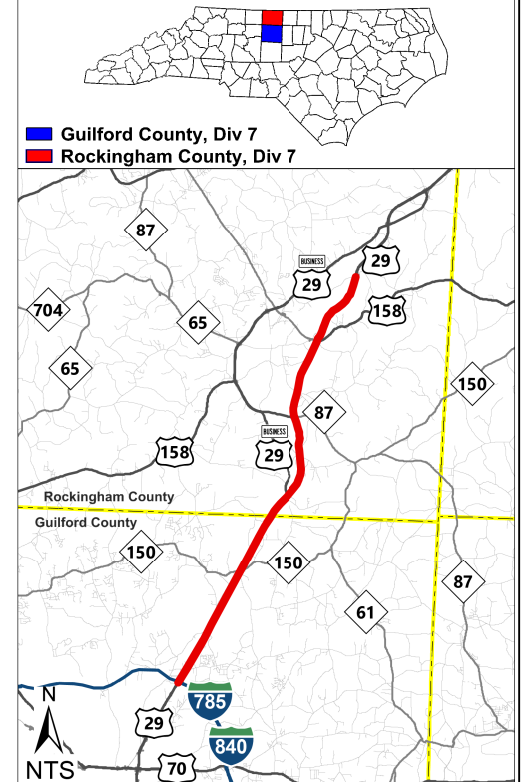
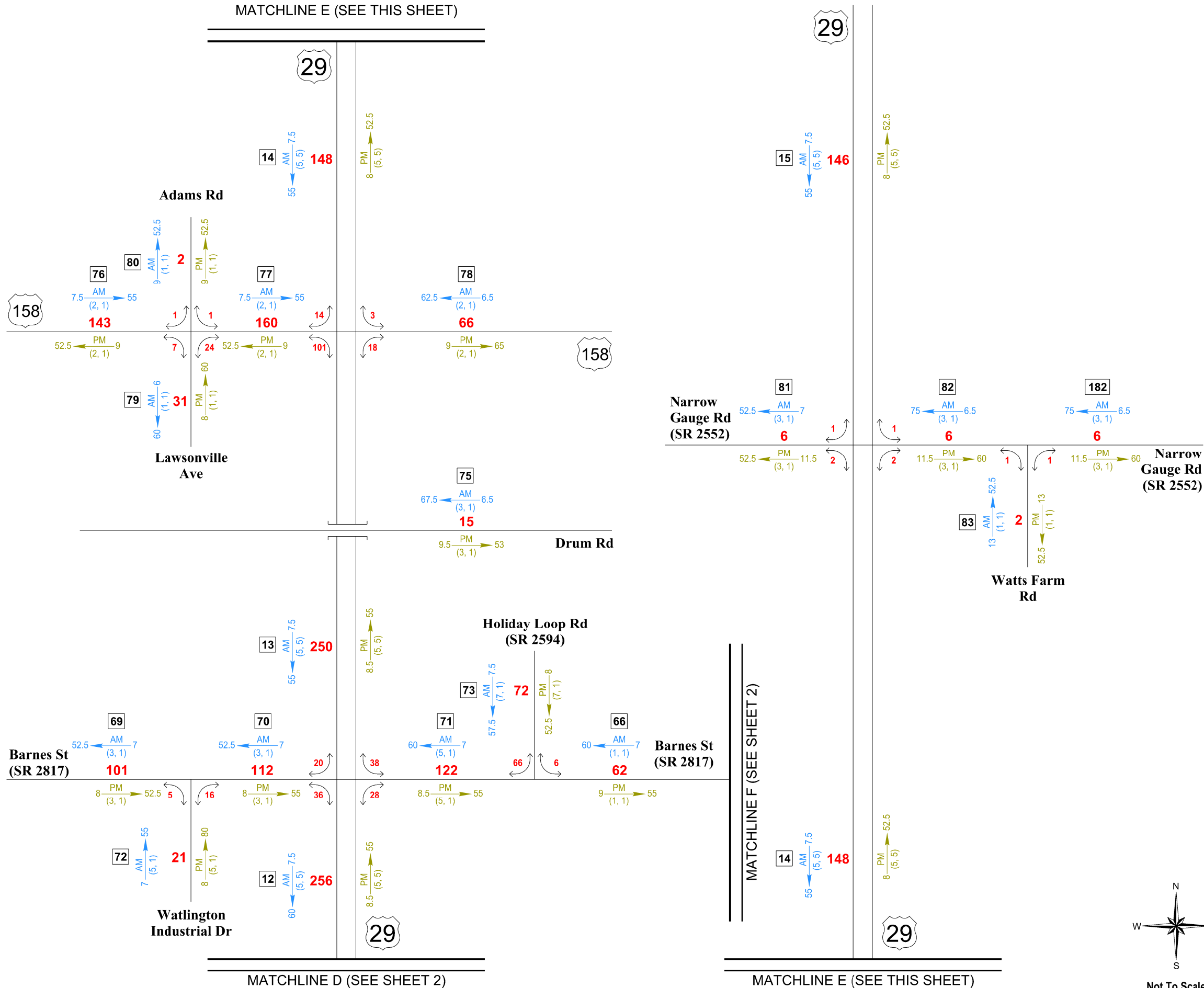
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MATCHLINE E (SEE THIS SHEET)

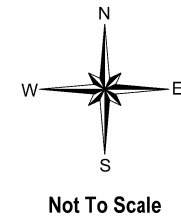


2023

ANNUAL AVERAGE
DAILY TRAFFIC FORECASTS
**BASE YEAR
BUILD CONDITIONS**
FIGURE 2 SHEET 3 of 3

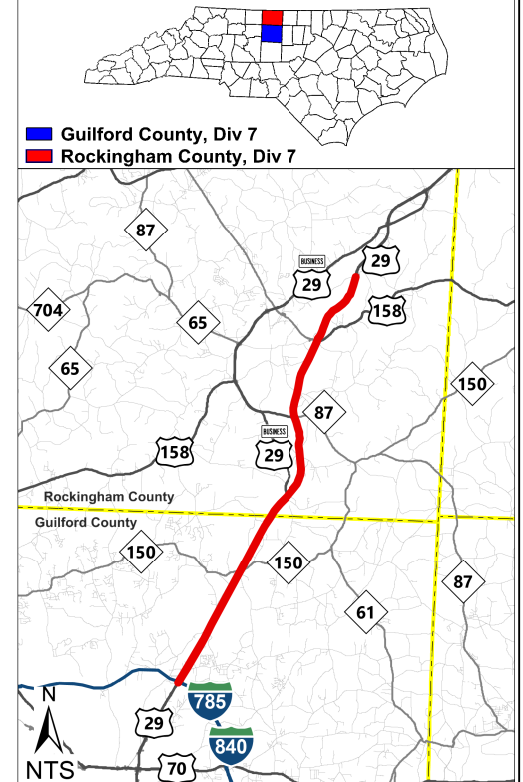
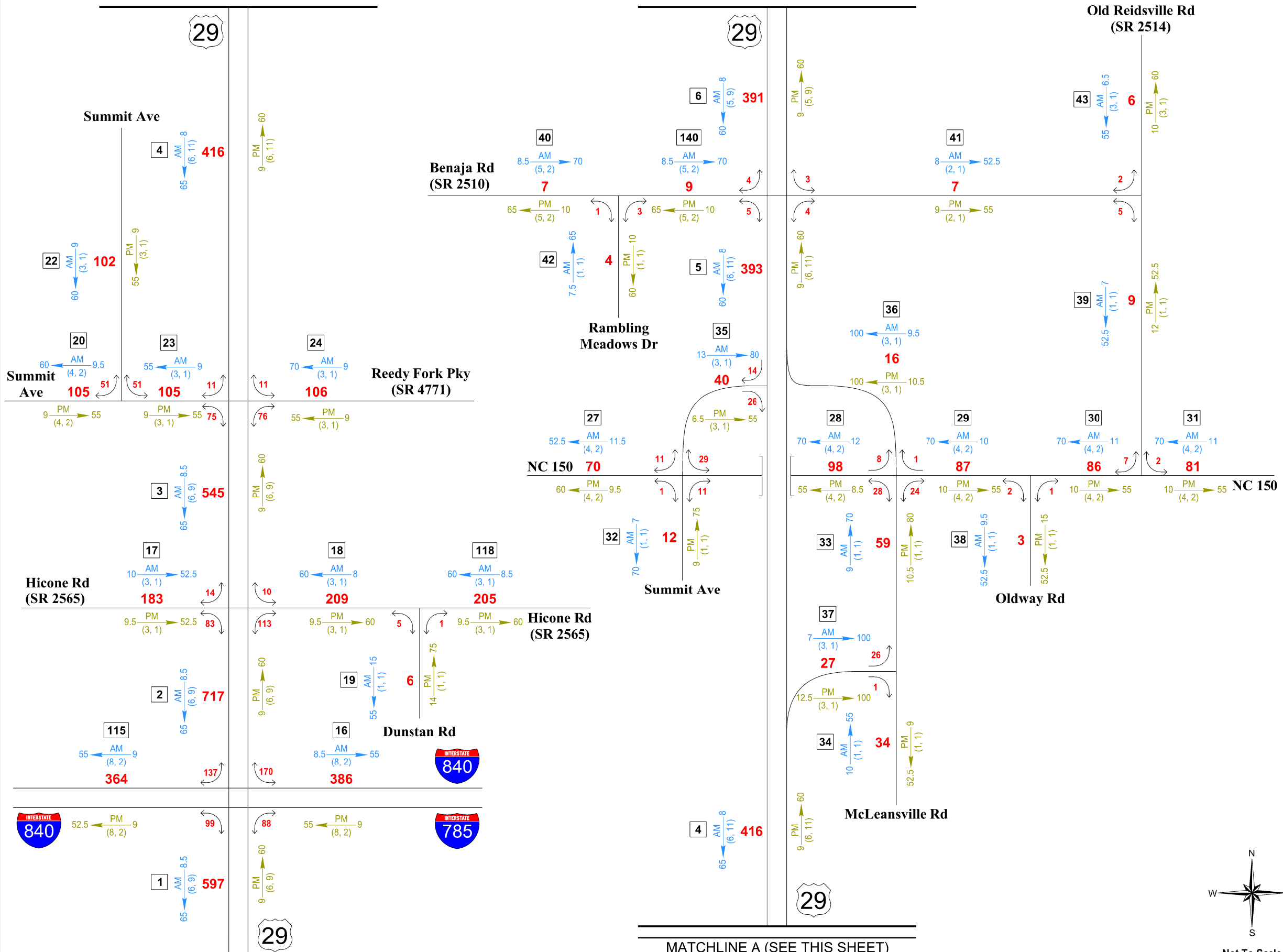
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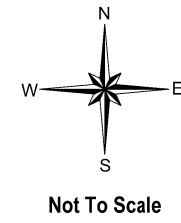
2045

ANNUAL AVERAGE
DAILY TRAFFIC FORECASTS
FUTURE YEAR
NO-BUILD CONDITIONS
FIGURE 3 SHEET 1 of 3

LEGEND

- 000 No. of Vehicles Per Day in 100's
- DHV Design Hourly Volume (%)
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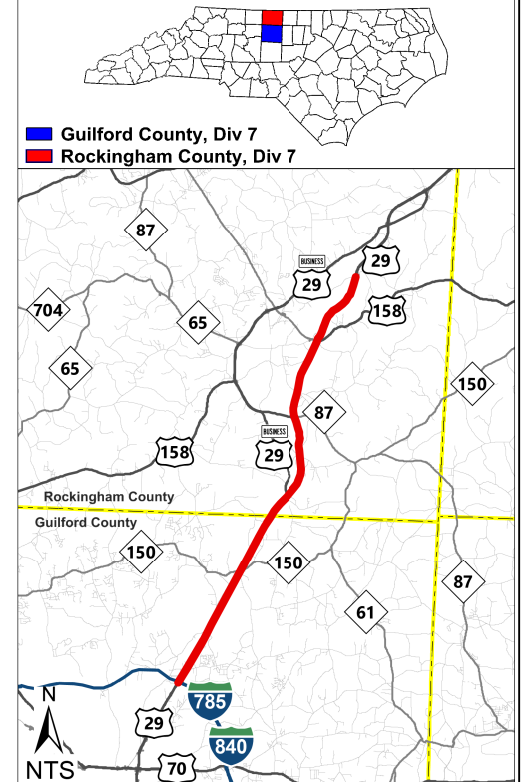
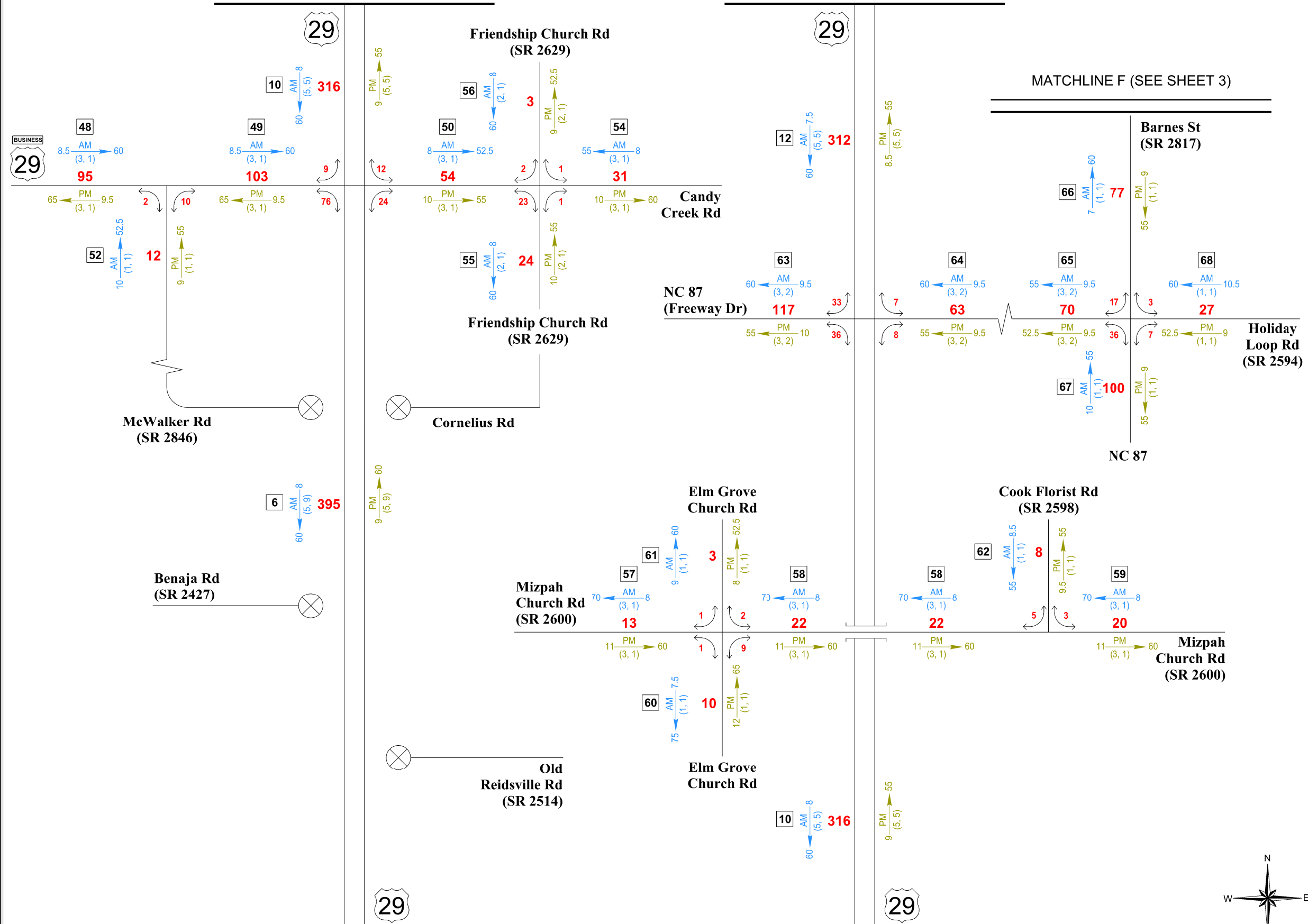
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MATCHLINE D (SEE SHEET 3)

MATCHLINE F (SEE SHEET 3)



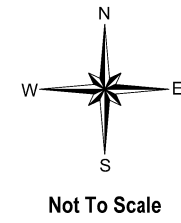
2045

ANNUAL AVERAGE
DAILY TRAFFIC FORECASTS
FUTURE YEAR
BUILD CONDITIONS
FIGURE 4 SHEET 2 of 3

LEGEND

- DHV $\frac{AM/PM}{(d,t)}$ \rightarrow D
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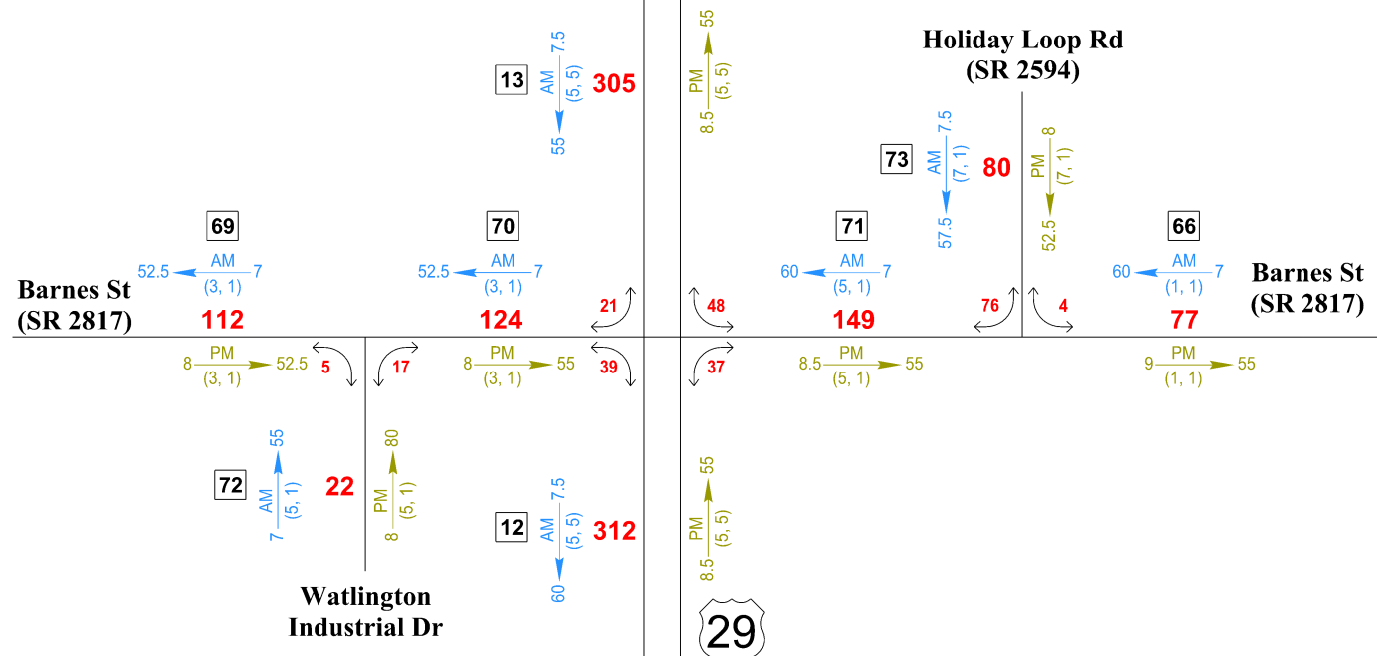
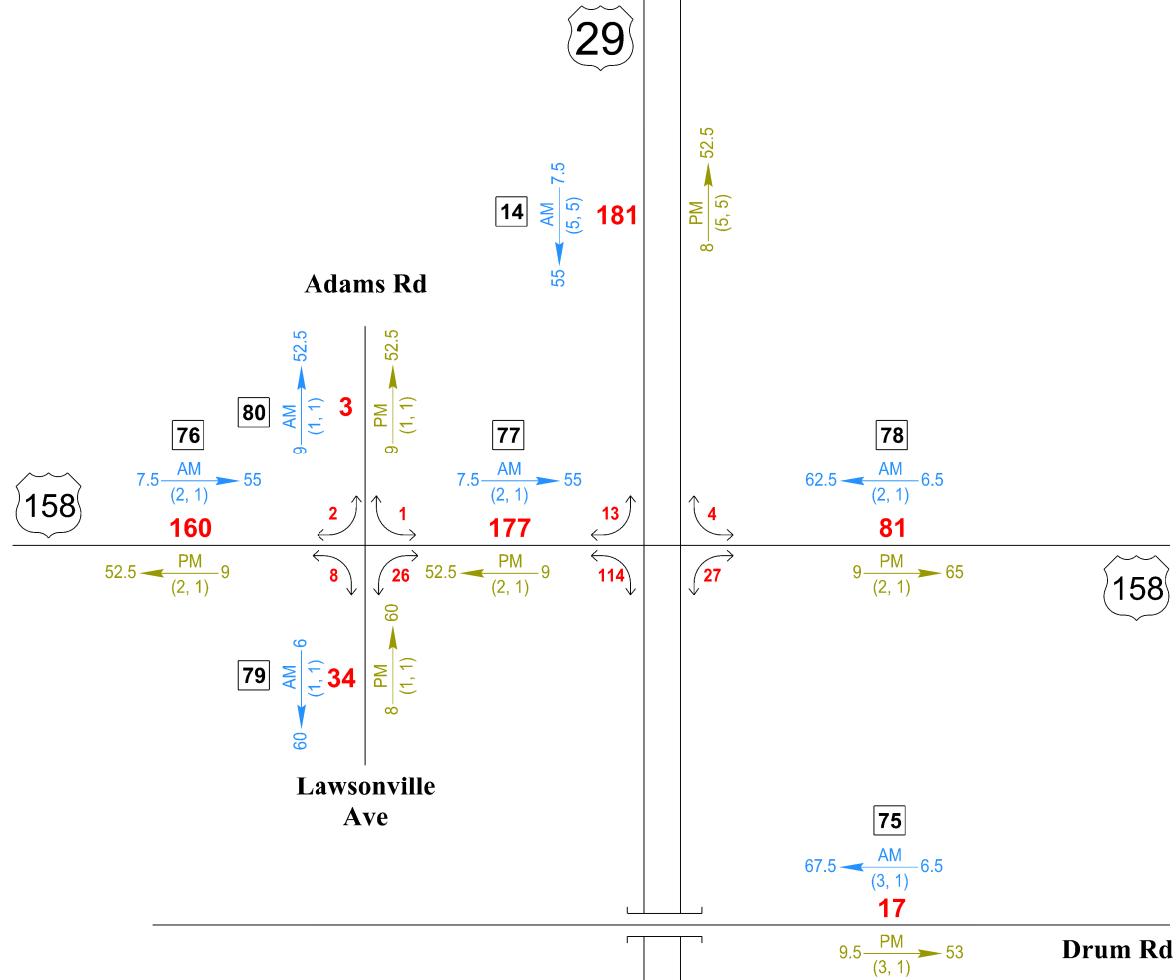
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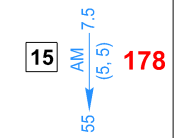
MATCHLINE B (SEE SHEET 1)

MATCHLINE C (SEE THIS SHEET)

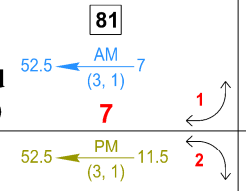
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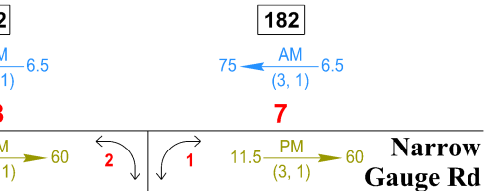
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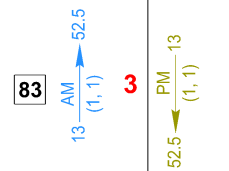
Narrow Gauge Rd (SR 2552)



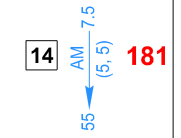
Narrow Gauge Rd (SR 2552)



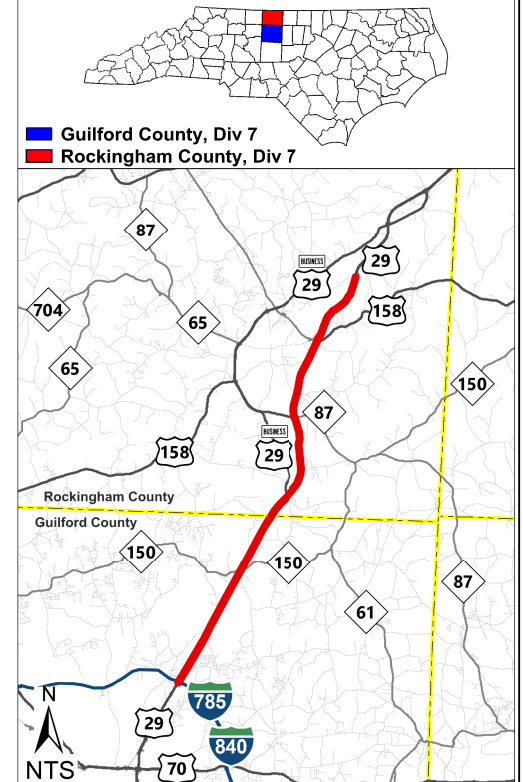
Watts Farm Rd



MATCHLINE F (SEE SHEET 2)



MATCHLINE E (SEE THIS SHEET)



2045

ANNUAL AVERAGE
DAILY TRAFFIC FORECASTS
FUTURE YEAR
BUILD CONDITIONS
FIGURE 4 SHEET 3 of 3

LEGEND

- 000 No. of Vehicles Per Day in 100's
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