

MEMORANDUM

To: Lynnise Hawes, PE – NCDOT Feasibility Studies Unit

From: Tommy Pate, PE – Mott MacDonald

Date: October 26, 2021

Re: Traffic Forecast for H090760 (WBS: 34263.1.1)
Harnett and Lee Counties
US 421 Improvements

This forecast was approved by the NCDOT Transportation Planning Division on October 26, 2021.

Please find attached the 2020/2045 traffic forecast for H090760 in Harnett and Lee Counties. This forecast was requested by Lynnise Hawes with the NCDOT Feasibility Studies Unit.

The proposed project will improve US 421 in Lee and Durham Counties by providing modernization and widening to 4-lanes between Lillington and Sanford. This project is located within the Triangle Area Rural Planning Organization (TARPO) and the Mid-Carolina RPO.

This is the first forecast for this project. The following individuals were contacted during the development of this forecast:

- Behshad Norowzi, CPM – NCDOT TPD
- Scott Walston, PE, CPM – NCDOT TPD
- Hemal Shah – NCDOT TPD
- Mike Rutan – Mid-Carolina RPO
- Phil Geary, PE – NCDOT TPD
- Julie Bogle, PE – NCDOT TPD
- Chris Lukasina – Capital Area MPO
- Matt Day, AICP – Triangle Area RPO
- Lynnise Hawes, PE – NCDOT Feasibility Studies Unit
- Jay Sikes – Harnett County Planning Services
- Marshall Downey, AICP – Sanford Planning & Development
- Joshua Perry – Lillington Planning
- Darius Sturdivant – NCDOT Division 6
- Bryan Kluchar, PE – NCDOT Division 8

The following scenarios are provided as part of this forecast.

Table 1: Scenarios

Scenario	Alternative [Model Run]	Description
2020 Base Year No-Build	1A [1]	No-Build/Modernization
2020 Base Year Build	1B [2]	Modernization with US 401 Bypass
2020 Base Year Build	2A [3]	4-lane Widening
2020 Base Year Build	2B [4]	4-lane Widening with US 401 Bypass
2045 Future Year No-Build	1A [5]	No-Build/Modernization
2045 Future Year Build	1B [6]	Modernization with US 401 Bypass
2045 Future Year Build	2A [7]	4-lane Widening
2045 Future Year Build	2B [8]	4-lane Widening with US 401 Bypass

Modernization improvements to US 421 are not assumed to substantially increase the capacity of, or traffic volumes along, US 421. Therefore, the No-Build Traffic Forecast scenarios are suitable for use in analyzing modernization alternatives.

Certain assumptions were made in the development of the forecast:

FISCAL CONSTRAINT

NCDOT's latest STIP document was reviewed for project in the area that might affect the future traffic volume and travel patterns. There are no projects along the study area roadways; however, some were found just outside of the study area. These are not anticipated to have any effect on the future traffic volume or travel patterns.

DEVELOPMENT ACTIVITY

Based on a site visit and input from stakeholders, there are no developments or projects within the study area that would be anticipated to significantly impact the forecast.

METHODOLOGY

The 2020 Base Year No-Build forecast was developed based on the traffic data collected for this forecast, historic traffic counts, and trends. The 2045 Future Year Build forecast was prepared by applying growth rates developed from trend data, information from the travel demand model, and an assessment of development potential. The North Carolina Statewide Transportation Model (NCSTM Gen 3, 2019) and the Lee County Travel Demand Model (2019) were used as tools in the development of the traffic forecasts.

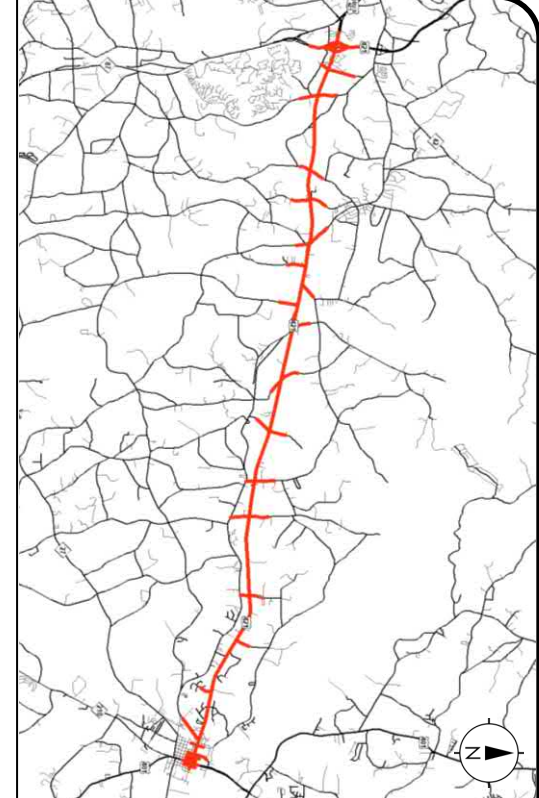
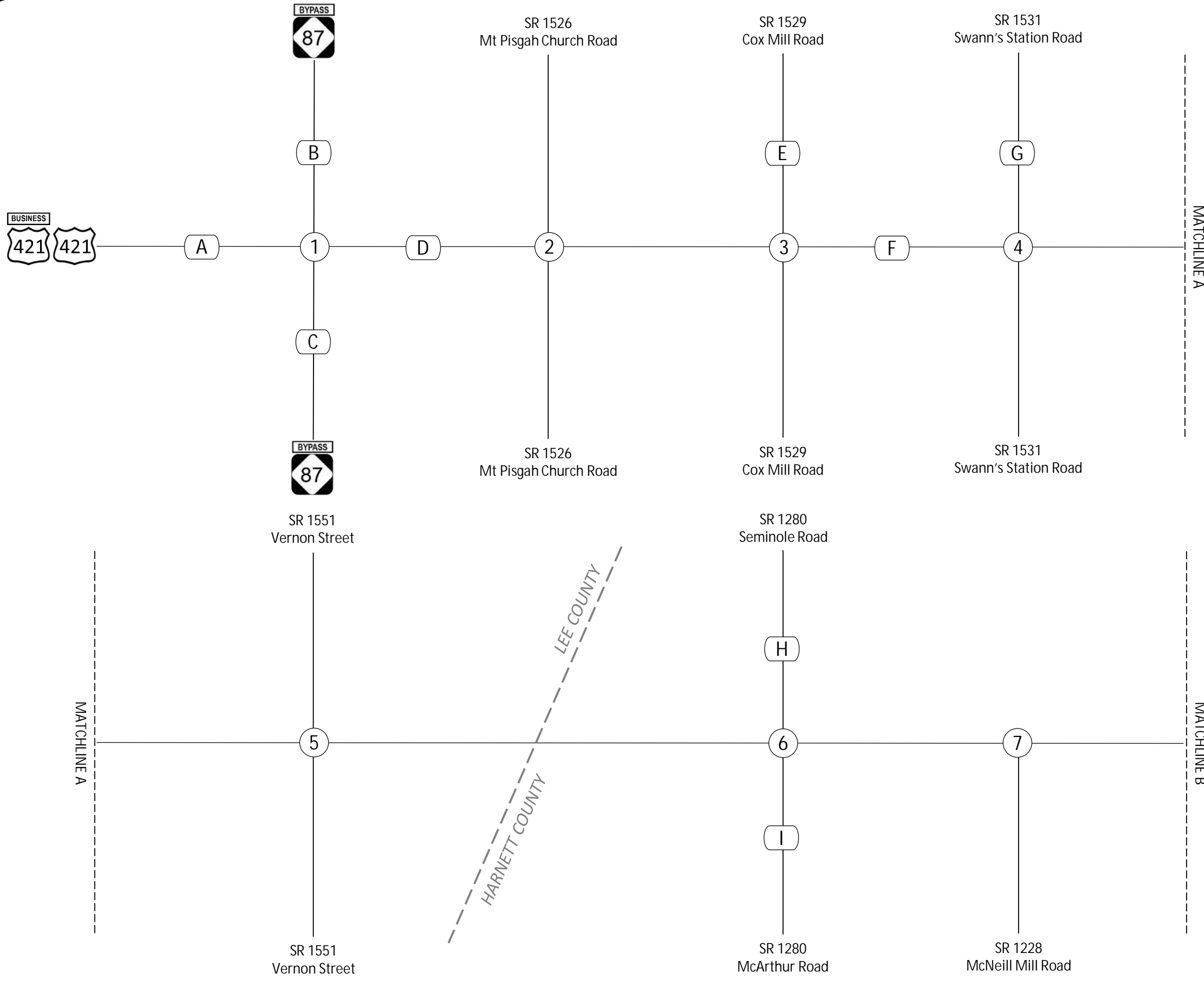
INTERPOLATION & EXTRAPOLATION

To determine any intermediate years, straight-line interpolation may be used between the 2020 Base Year No-Build and 2045 Future Year No-Build scenarios, as well as the 2020 Base Year Build and 2045 Future Year Build scenarios. 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.

Should you need any additional information or have any questions, please do not hesitate to contact me at 919.552.2253 or at tommy.pate@mottmac.com.

Cc: (via email as PDF attachment)

- TrafficForecast@ncdot.gov

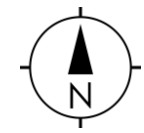


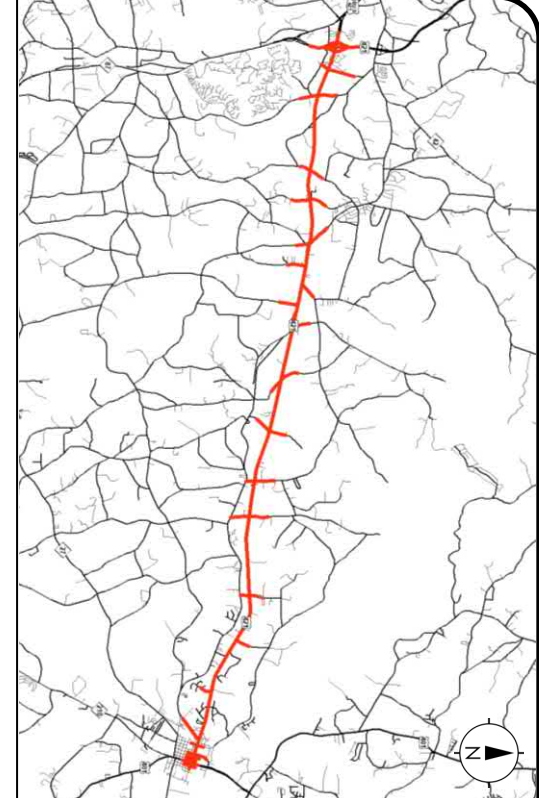
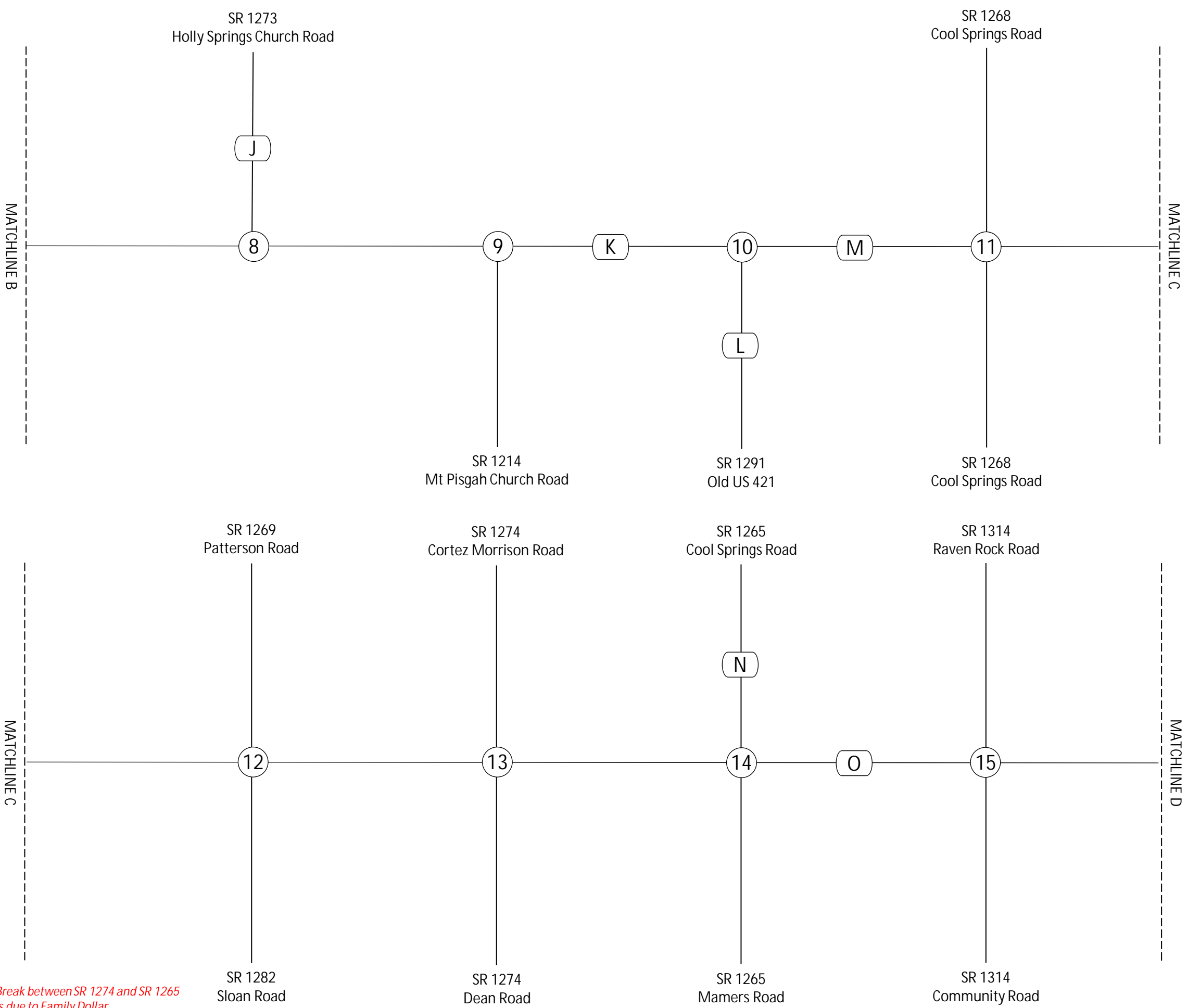
H090760

KEY

SHEET 1 OF 4

TIP: H090760	WBS: 34263.1.1
COUNTY: HARNETT/LEE	DIVISION: 6/8
DATE: 7/16/2021	
PREPARED BY: Mott MacDonald I&E, LLC	
LOCATION: US 421 from US 401 in Lillington to NC 87 in Sanford.	
PROJECT: US 421 Improvements	





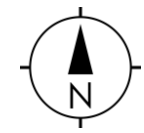
H090760

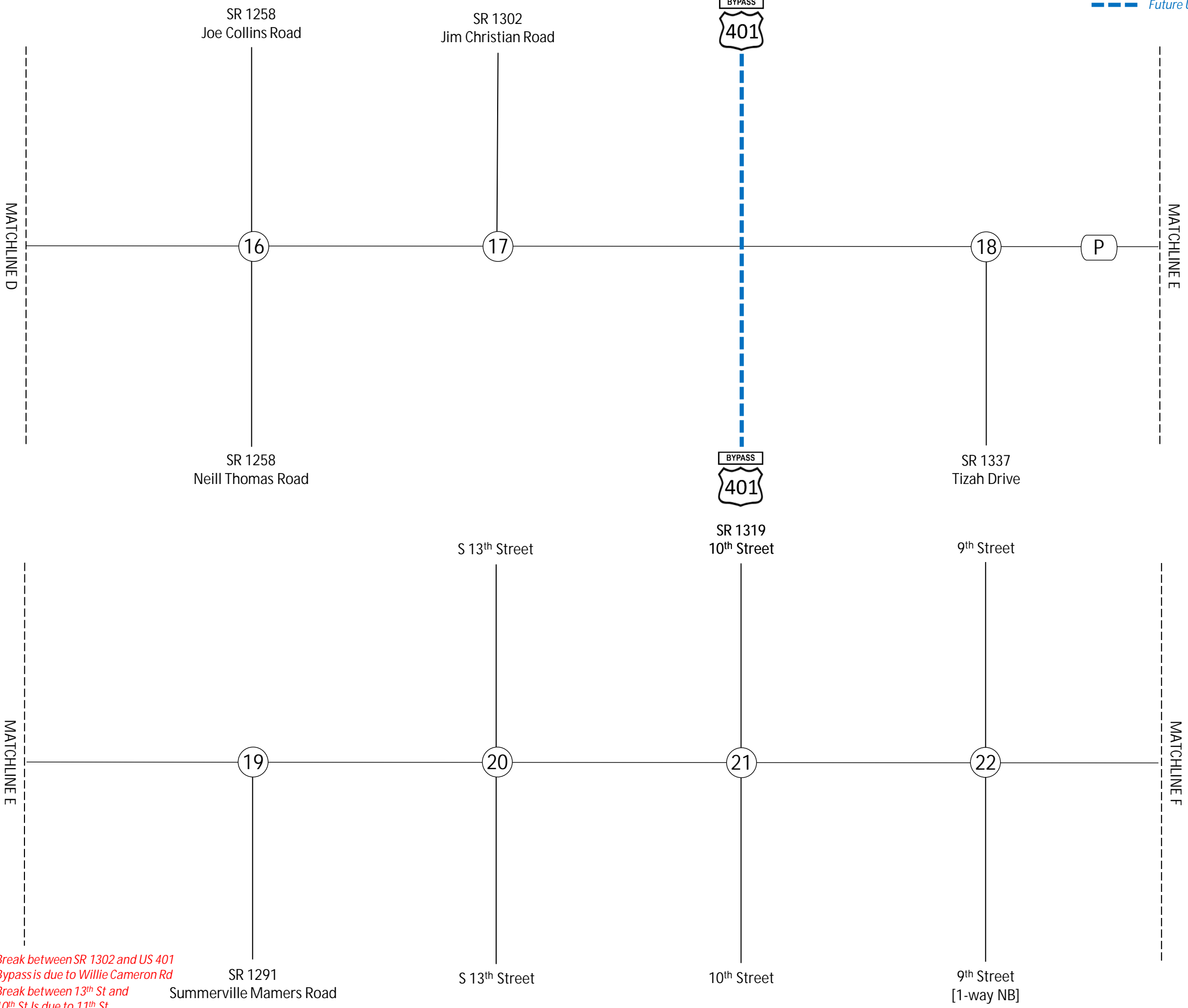
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SHEET 2 OF 4

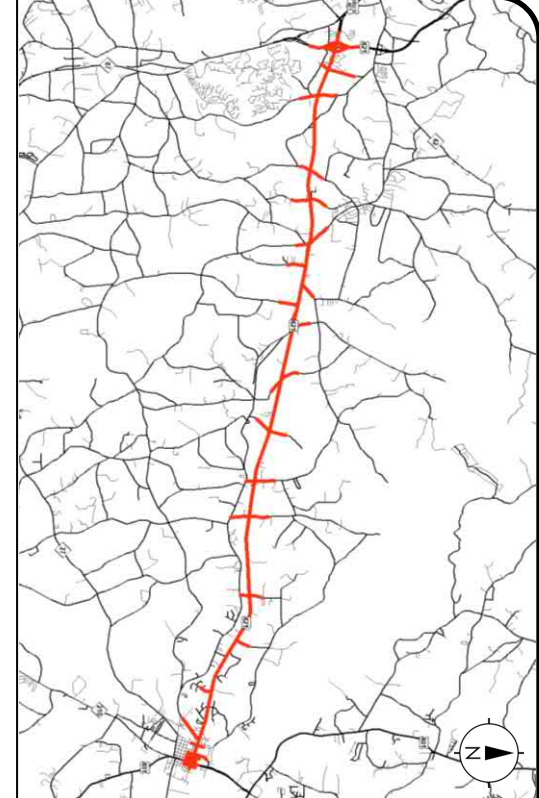
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Break between SR 1274 and SR 1265 is due to Family Dollar





--- Future US 401 Bypass



H090760

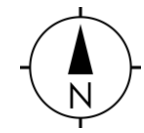
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SHEET 3 OF 4

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DATE: 7/16/2021	
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LOCATION: US 421 from US 401 in Lillington to NC 87 in Sanford.	
PROJECT: US 421 Improvements	

Break between SR 1302 and US 401 Bypass is due to Willie Cameron Rd

Break between 13th St and 10th St is due to 11th St



MATCHLINE F

8th Street

1st Street



R

23

Q

24

25

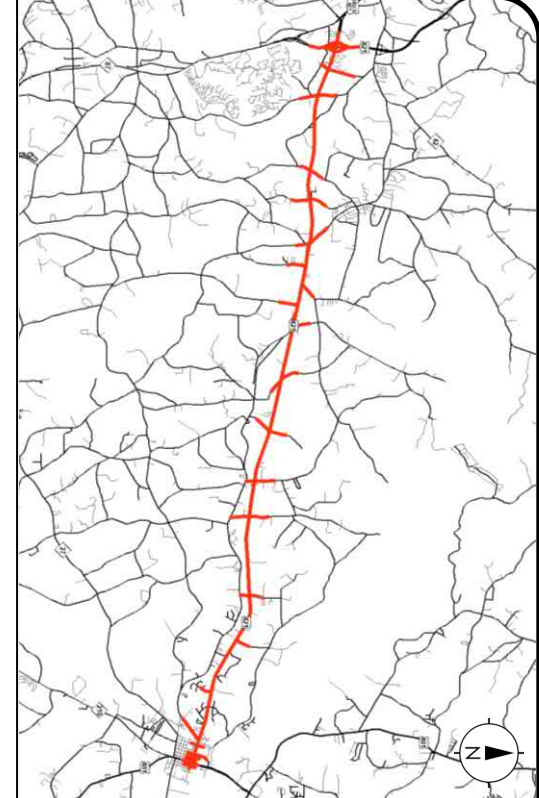
E Front Street

S

8th Street
[1-way SB]



1st Street



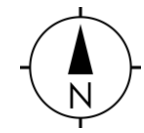
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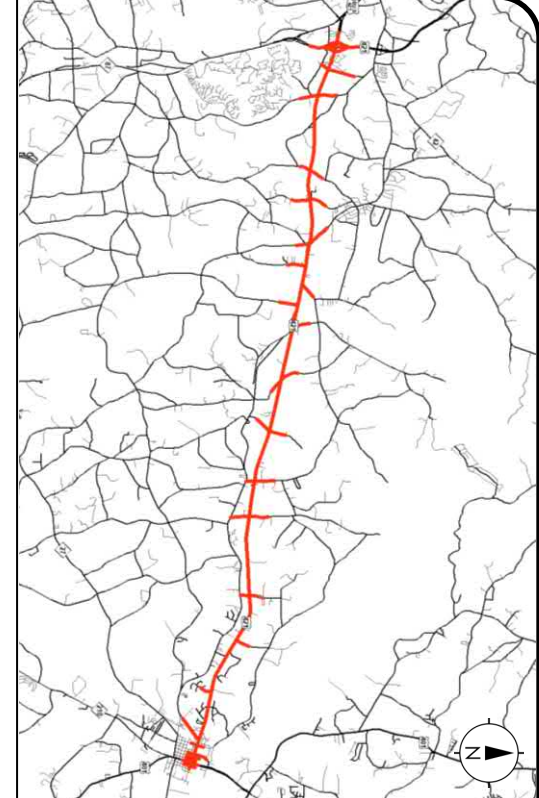
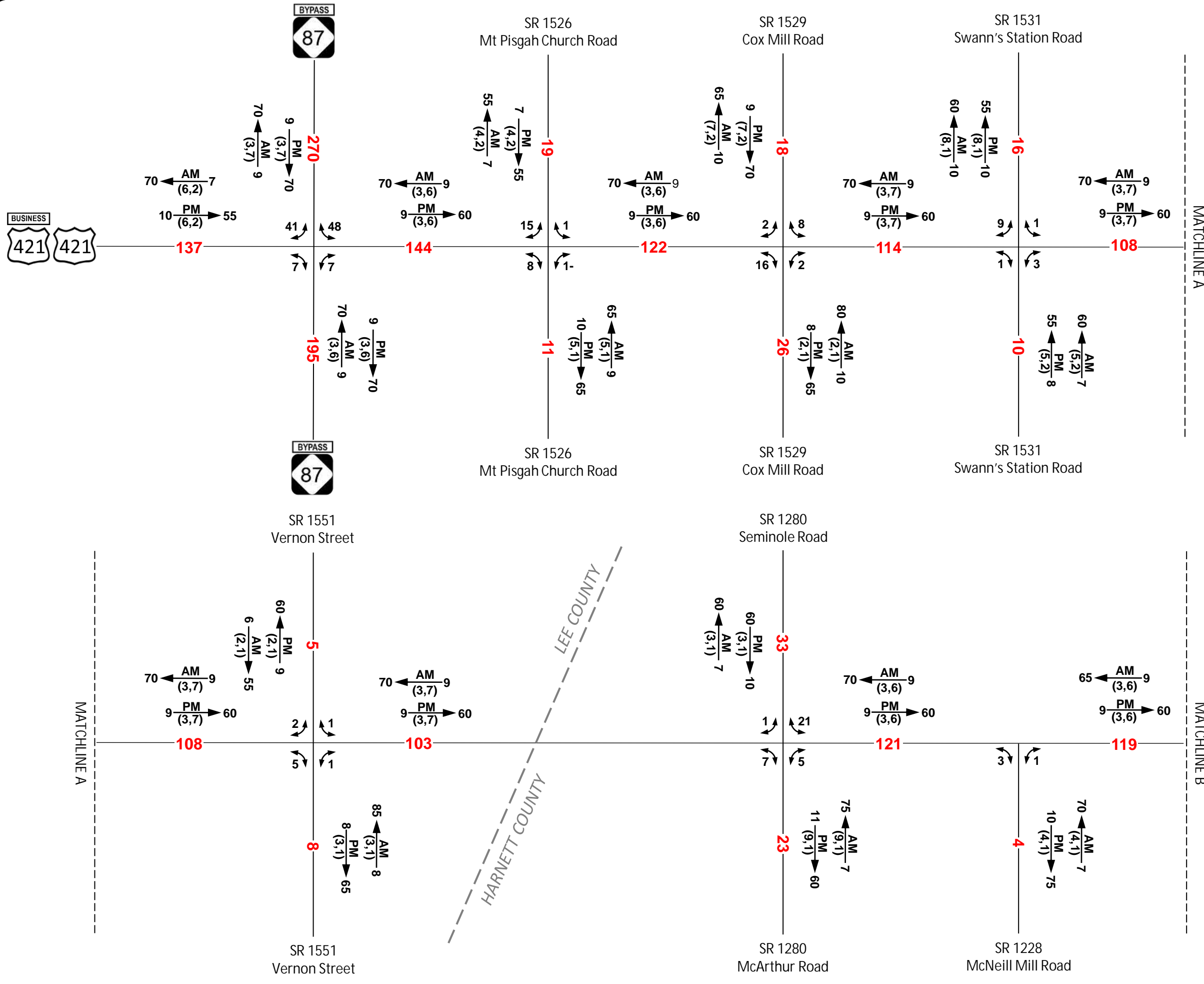
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SHEET 4 OF 4

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DATE: 7/16/2021	
PREPARED BY: Mott MacDonald I&E, LLC	
LOCATION: US 421 from US 401 in Lillington to NC 87 in Sanford.	
PROJECT: US 421 Improvements	

Break between US 401-421/NC 210 and 1st St is due to CVS





2020 AVERAGE ANNUAL DAILY TRAFFIC

BASE YEAR NO-BUILD ALTERNATIVE 1A [SHEET 1 OF 4]

LEGEND

K $\frac{AM/PM}{(d,t)}$ \rightarrow D

No. of Vehicles Per Day (VPD) in 100s

1- Less than 50 VPD

X Movement Prohibited Roadway

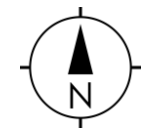
K Design Hour Factor (%)

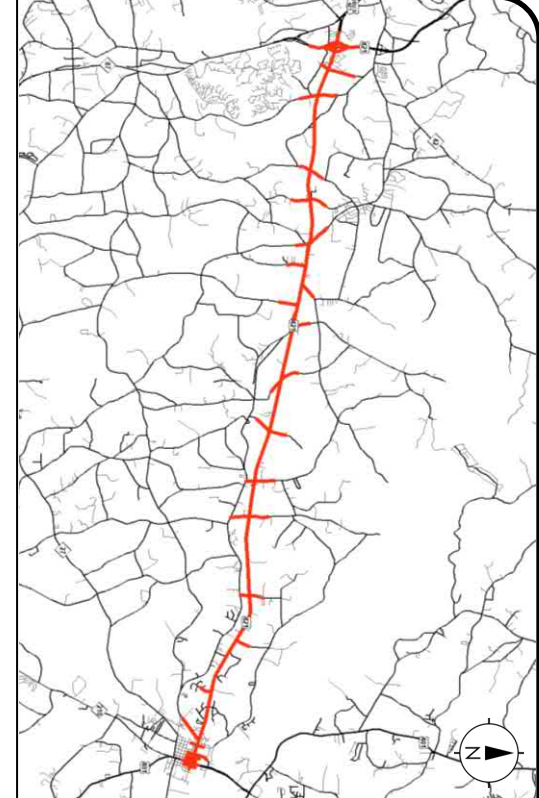
AM/PM AM/PM Peak Period

\rightarrow Peak Hour Directional Split

D Indicates Direction of D (d,t) Duals, TT-STs (%)

TIP: H090760	WBS: 34263.1.1
COUNTY: HARNETT/LEE	DIVISION: 6/8
DATE: 10/26/2021	
PREPARED BY: Mott MacDonald I&E, LLC	
LOCATION: US 421 from US 401 in Lillington to NC 87 in Sanford.	
PROJECT: US 421 Improvements: No-Build/Modernization	





2020 AVERAGE ANNUAL DAILY TRAFFIC
BASE YEAR NO-BUILD ALTERNATIVE 1A
[SHEET 2 OF 4]

LEGEND

K $\frac{AM/PM}{(d,t)} \rightarrow D$

No. of Vehicles Per Day (VPD) in 100s

1- Less than 50 VPD

X Movement Prohibited Roadway

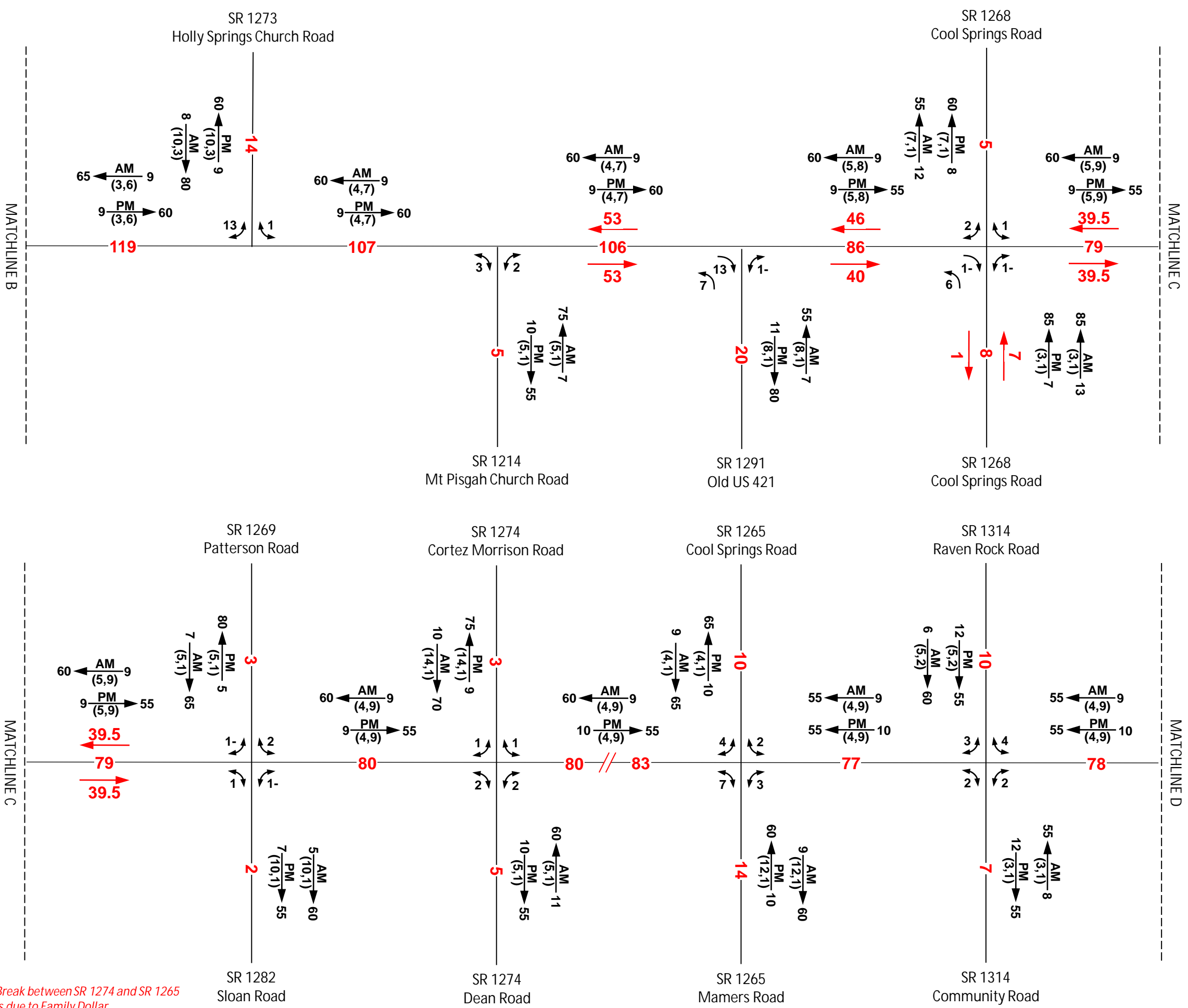
K Design Hour Factor (%)

AM/PM AM/PM Peak Period

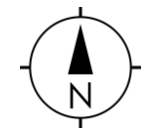
\rightarrow Peak Hour Directional Split

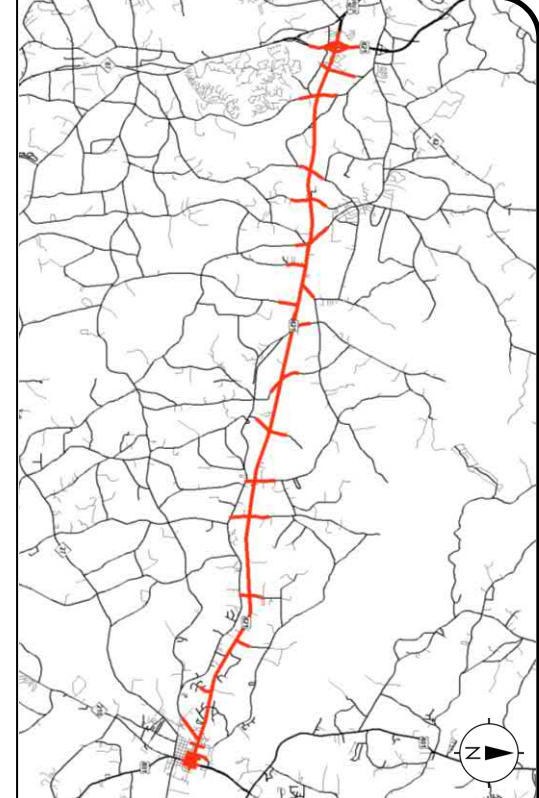
D Indicates Direction of D (d,t) Duals, TT-STs (%)

TIP: H090760	WBS: 34263.1.1
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DATE: 10/26/2021	
PREPARED BY: Mott MacDonald I&E, LLC	
LOCATION: US 421 from US 401 in Lillington to NC 87 in Sanford.	
PROJECT: US 421 Improvements: No-Build/Modernization	



Break between SR 1274 and SR 1265 is due to Family Dollar





2020 AVERAGE ANNUAL DAILY TRAFFIC

BASE YEAR NO-BUILD ALTERNATIVE 1A [SHEET 3 OF 4]

LEGEND

K $\frac{AM/PM}{(d,t)}$ \rightarrow D

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

TIP: H090760 WBS: 34263.1.1

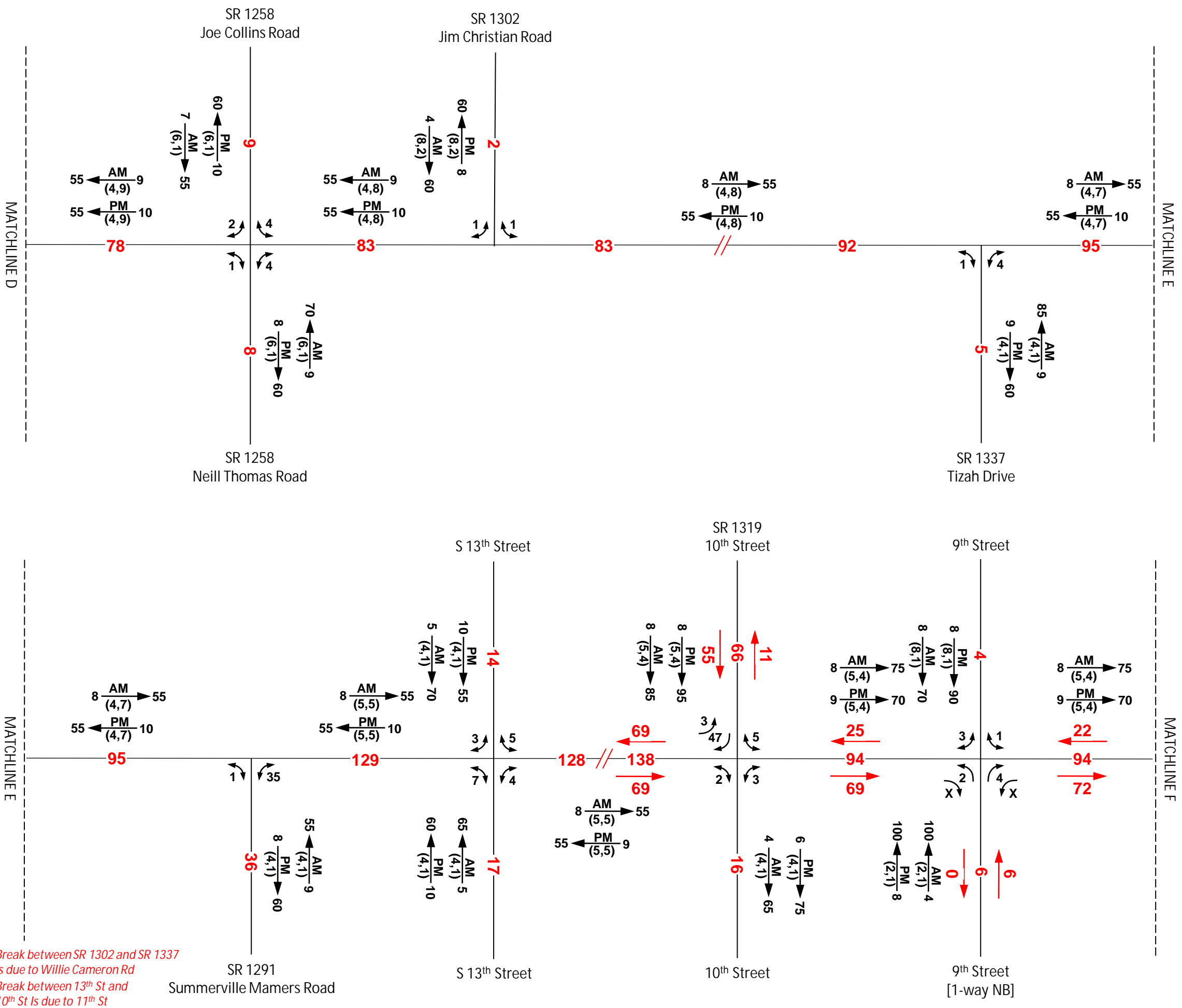
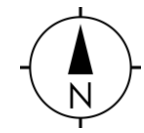
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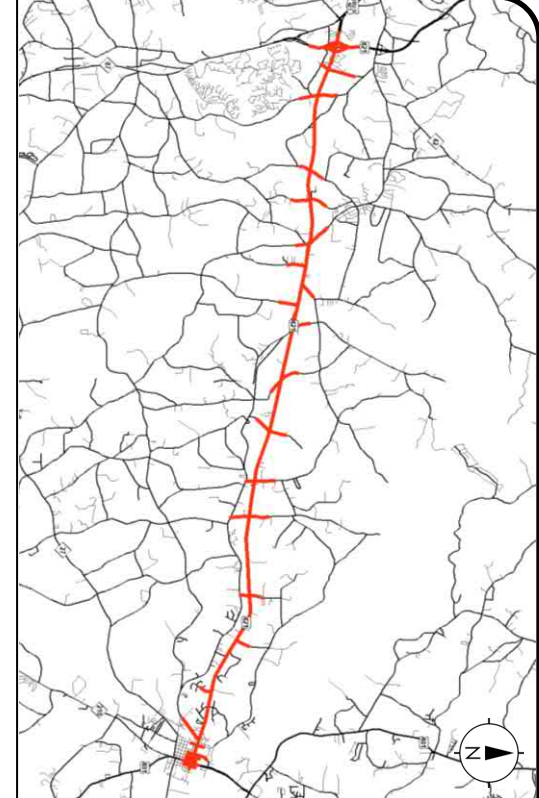
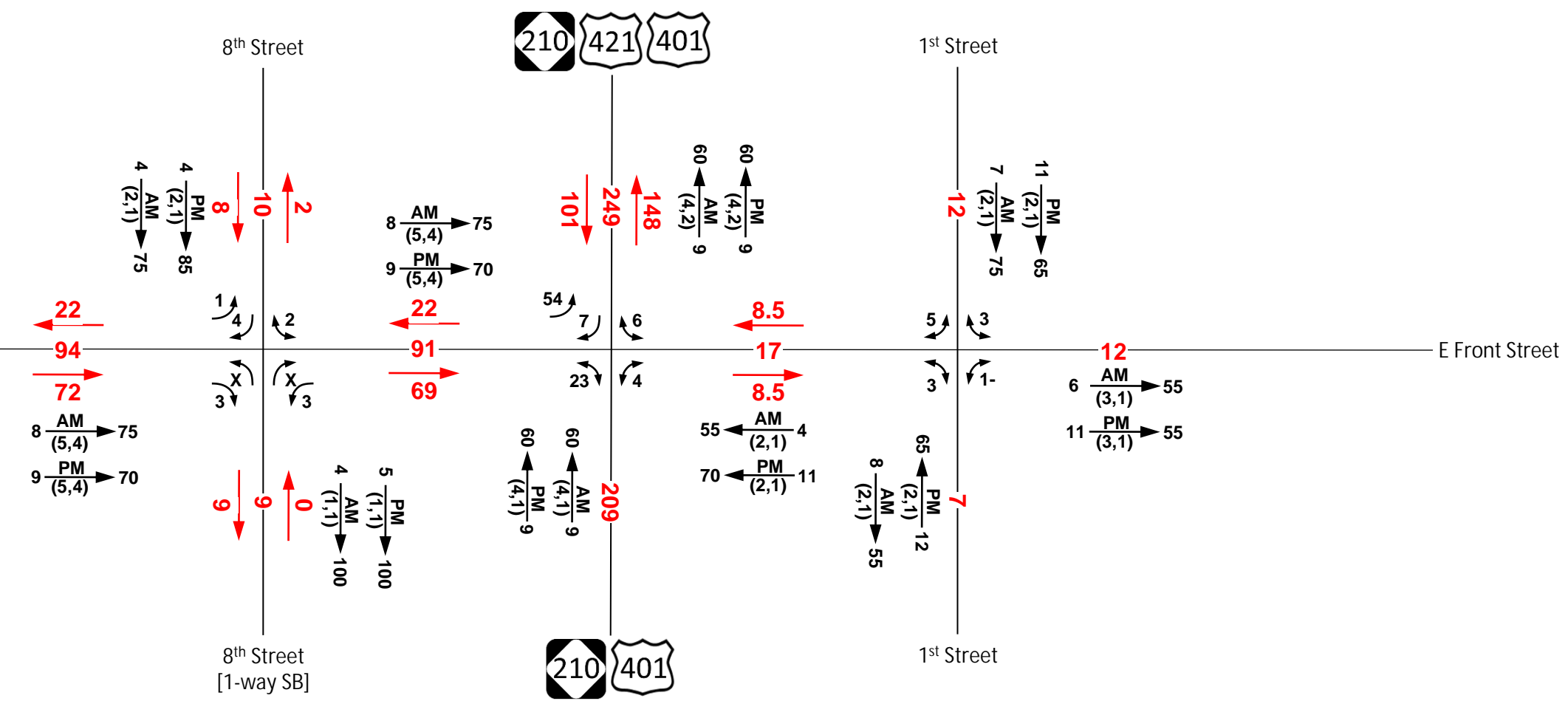
PROJECT: US 421 Improvements: No-Build/Modernization



Break between SR 1302 and SR 1337 is due to Willie Cameron Rd

Break between 13th St and 10th St is due to 11th St

MATCHLINE F



2020 AVERAGE ANNUAL DAILY TRAFFIC

BASE YEAR NO-BUILD ALTERNATIVE 1A [SHEET 4 OF 4]

LEGEND

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

TIP: H090760 WBS: 34263.1.1

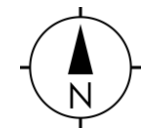
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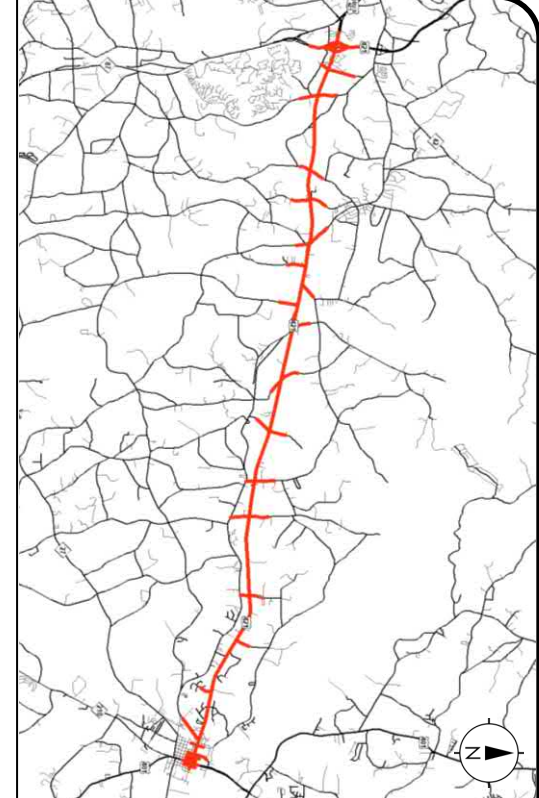
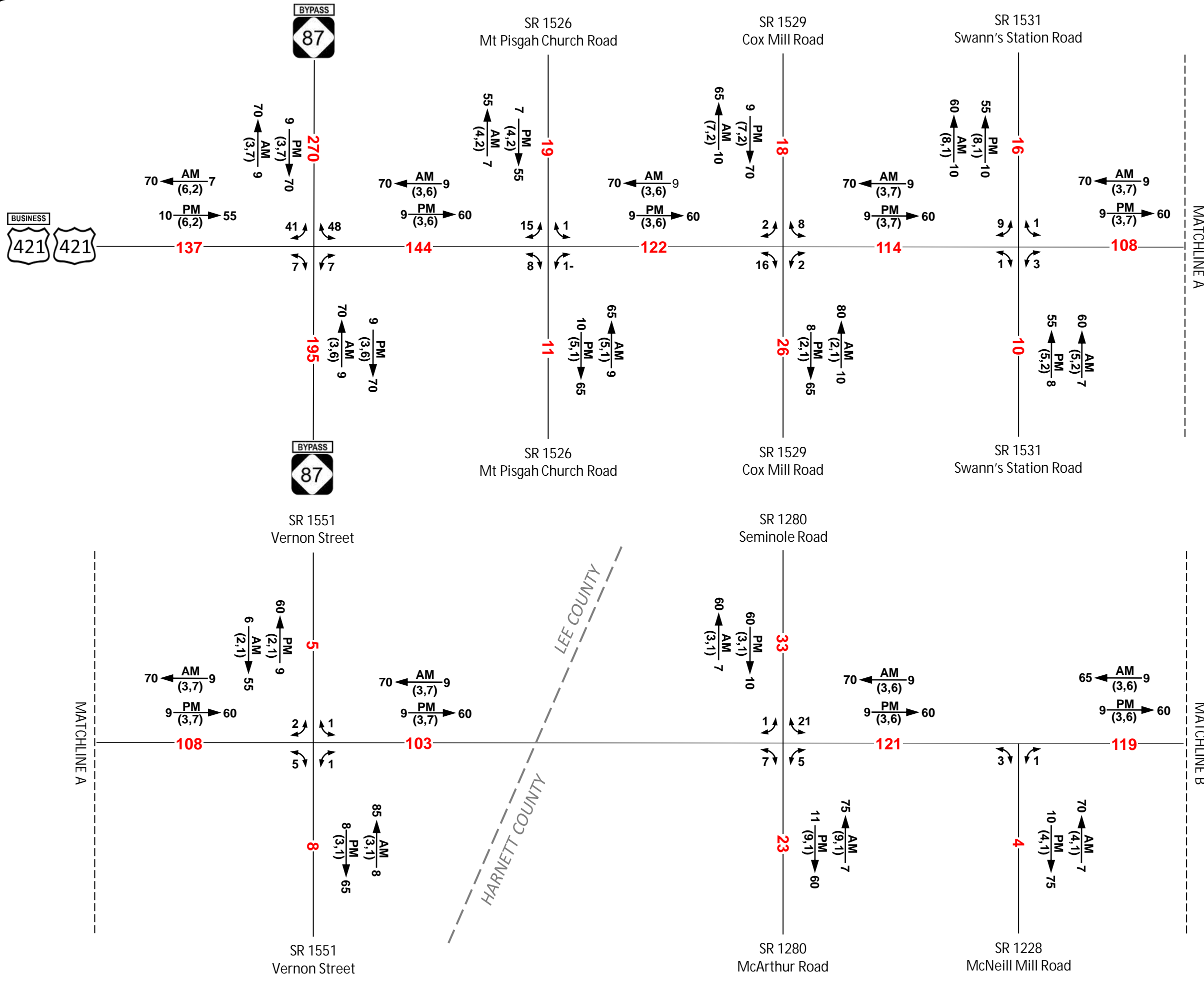
DATE: 10/26/2021

PREPARED BY: Mott MacDonald I&E, LLC

LOCATION: US 421 from US 401 in Lillington to NC 87 in Sanford.

PROJECT: US 421 Improvements: No-Build/Modernization





2020 AVERAGE ANNUAL DAILY TRAFFIC

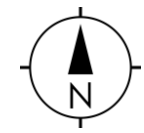
BASE YEAR BUILD ALTERNATIVE 1B [SHEET 1 OF 4]

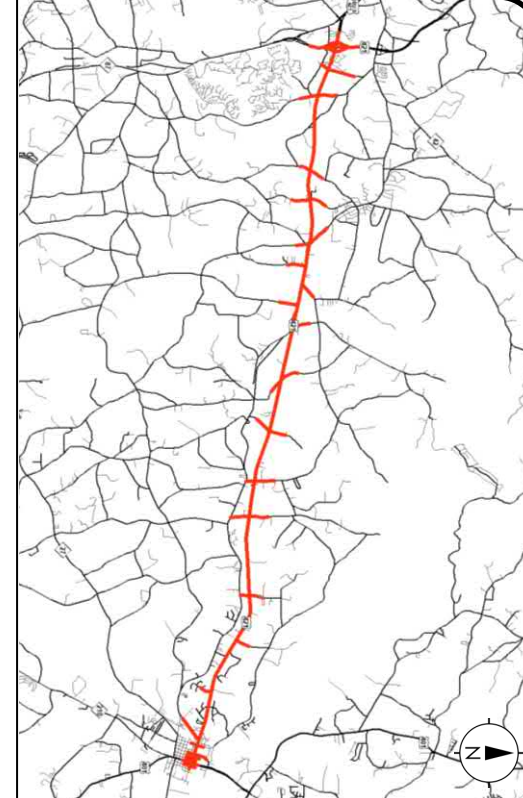
LEGEND

$K \xrightarrow{\text{AM/PM}} D$
 (d, t)

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

TIP: H090760	WBS: 34263.1.1
COUNTY: HARNETT/LEE	DIVISION: 6/8
DATE: 10/26/2021	
PREPARED BY: Mott MacDonald I&E, LLC	
LOCATION: US 421 from US 401 in Lillington to NC 87 in Sanford.	
PROJECT: US 421 Improvements: Modernization with US 401 Bypass	





2020 AVERAGE ANNUAL DAILY TRAFFIC

BASE YEAR BUILD ALTERNATIVE 1B [SHEET 2 OF 4]

LEGEND

- $\overleftarrow{K} \frac{AM/PM}{(d,t)} \rightarrow D$
- ### No. of Vehicles Per Day (VPD) in 100s
- 1- Less than 50 VPD
- X Movement Prohibited Roadway
- K Design Hour Factor (%)
- AM/PM AM/PM Peak Period
- \rightarrow Peak Hour Directional Split
- D Indicates Direction of D (d,t)
- Duals, TT-STs (%)

TIP: H090760 WBS: 34263.1.1

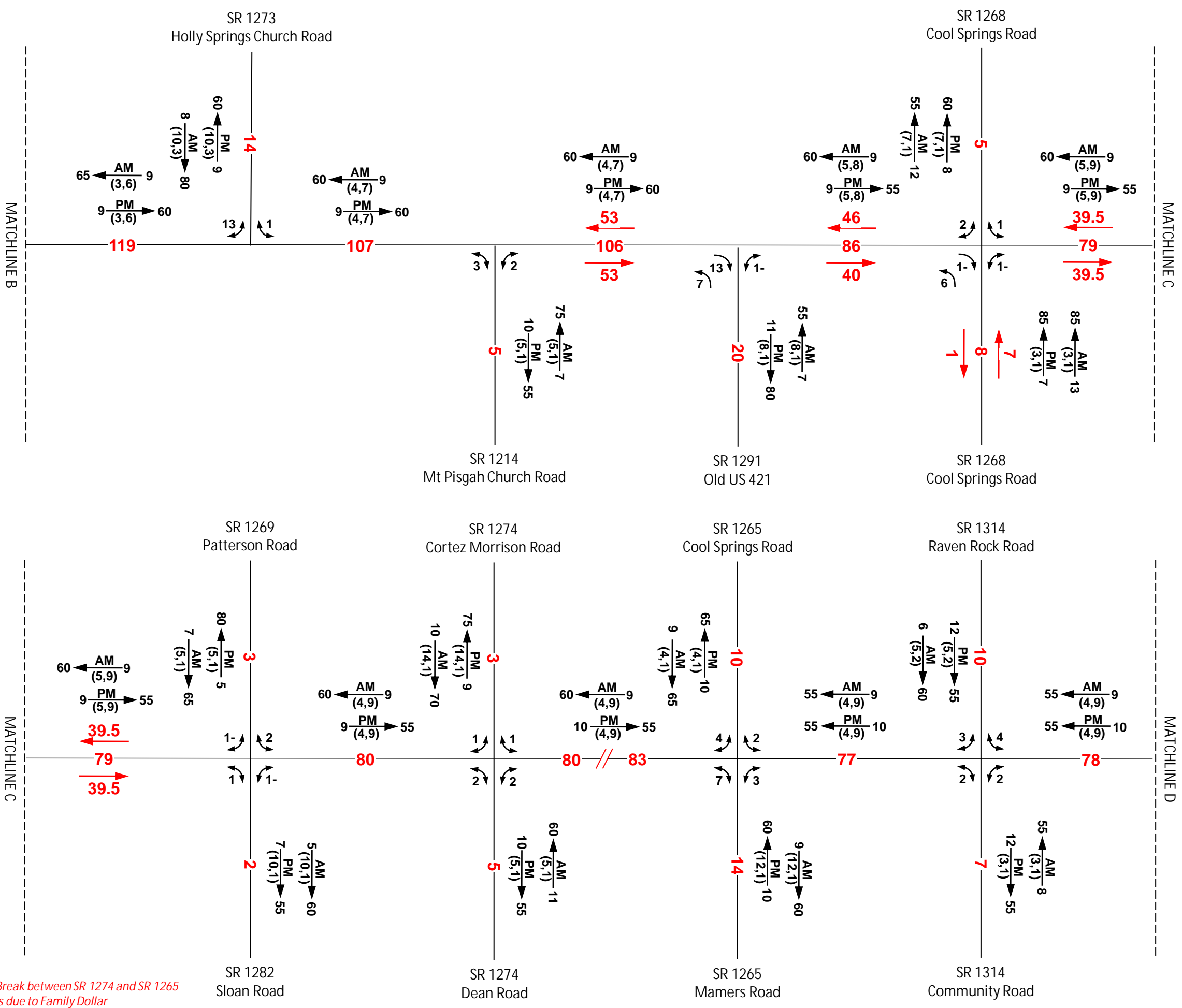
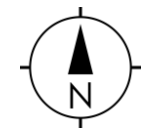
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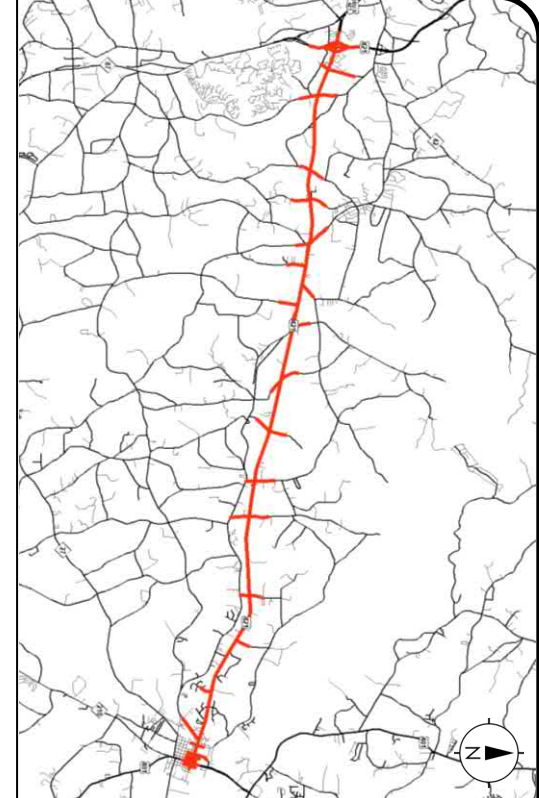
LOCATION: US 421 from US 401 in Lillington to NC 87 in Sanford.

PROJECT: US 421 Improvements: Modernization with US 401 Bypass



Break between SR 1274 and SR 1265 is due to Family Dollar

--- Future US 401 Bypass



2020 AVERAGE ANNUAL DAILY TRAFFIC

BASE YEAR BUILD ALTERNATIVE 1B [SHEET 3 OF 4]

LEGEND

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

TIP: H090760 WBS: 34263.1.1

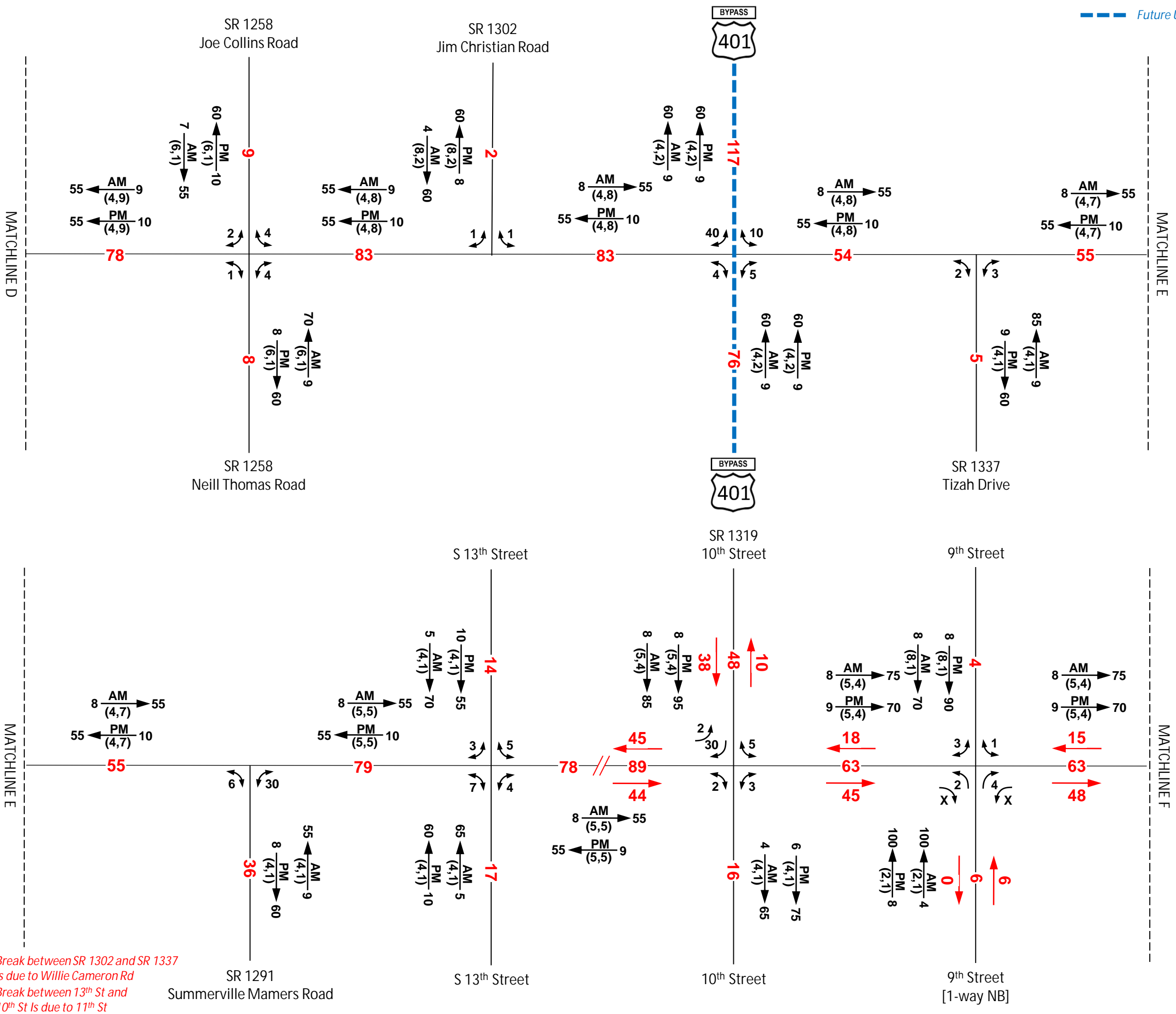
COUNTY: HARNETT/LEE DIVISION: 6/8

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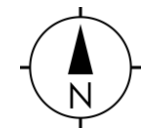
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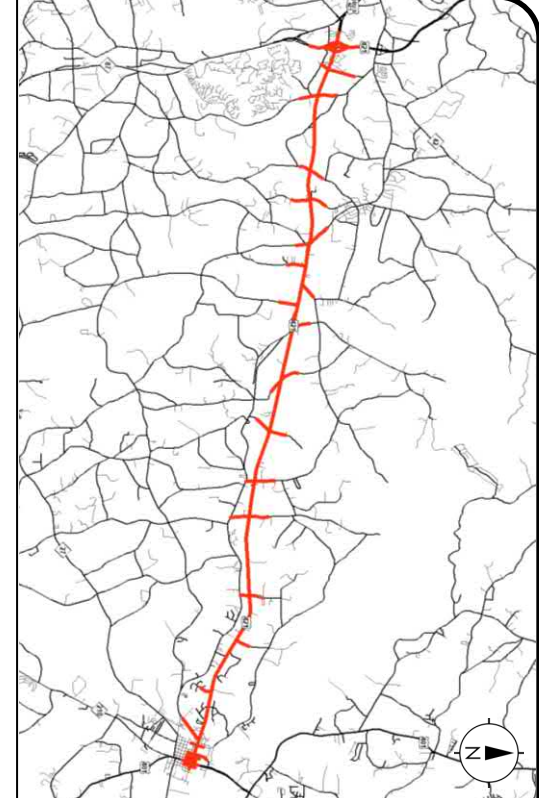
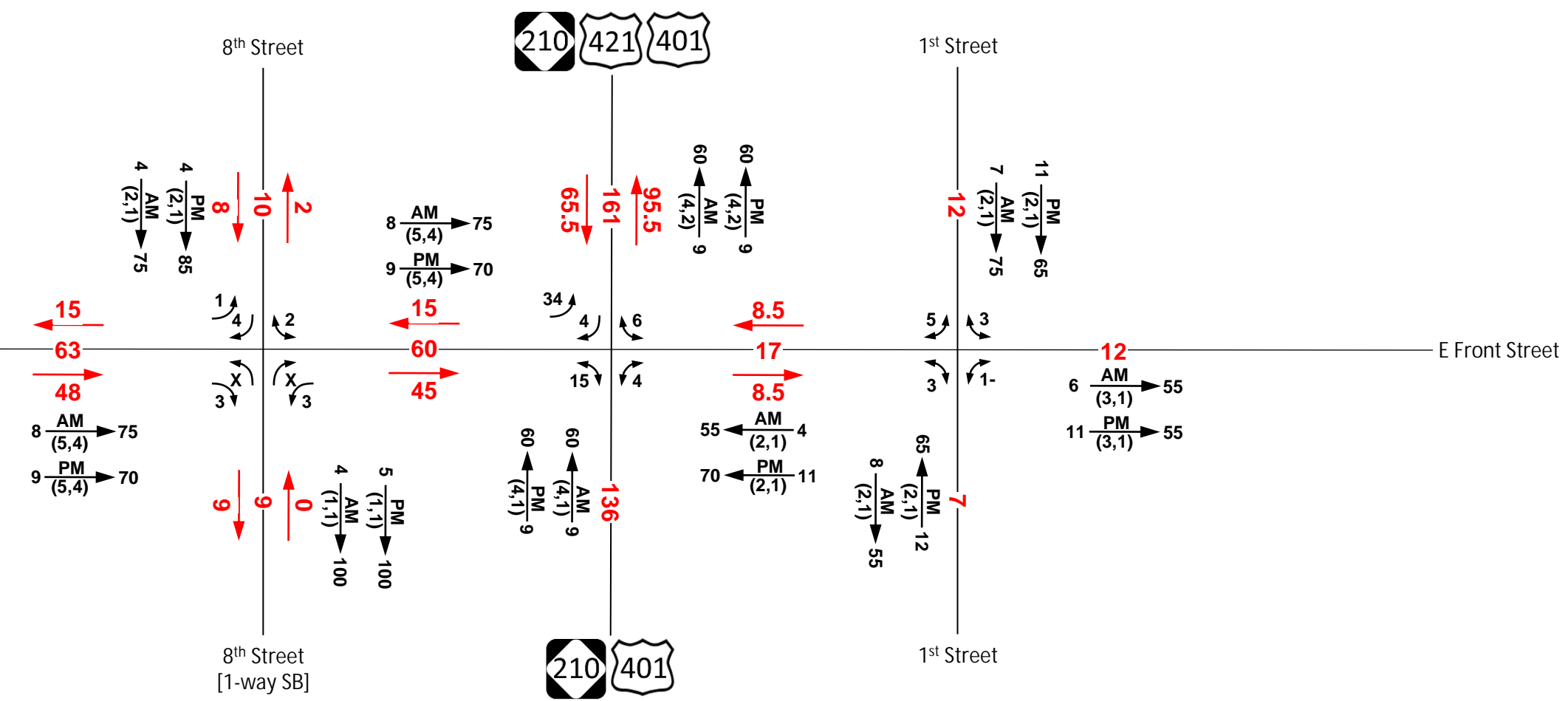


/// Break between SR 1302 and SR 1337 is due to Willie Cameron Rd

/// Break between 13th St and 10th St is due to 11th St



MATCHLINE F

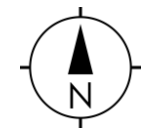


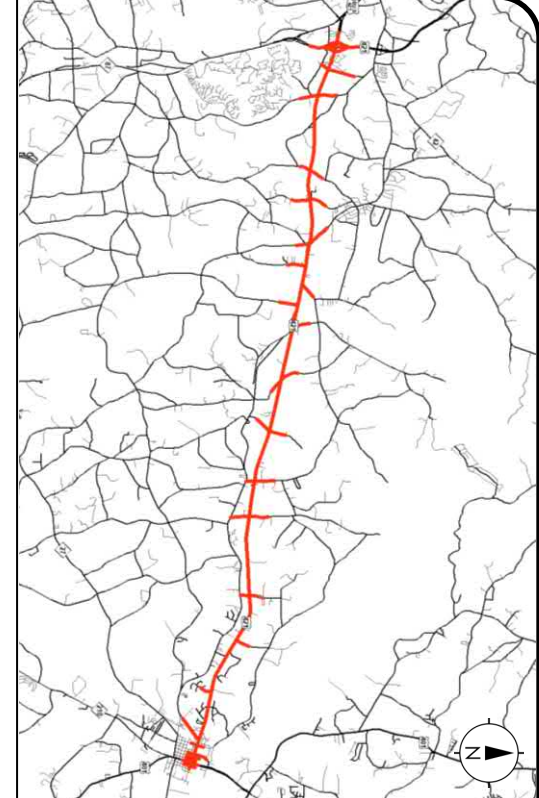
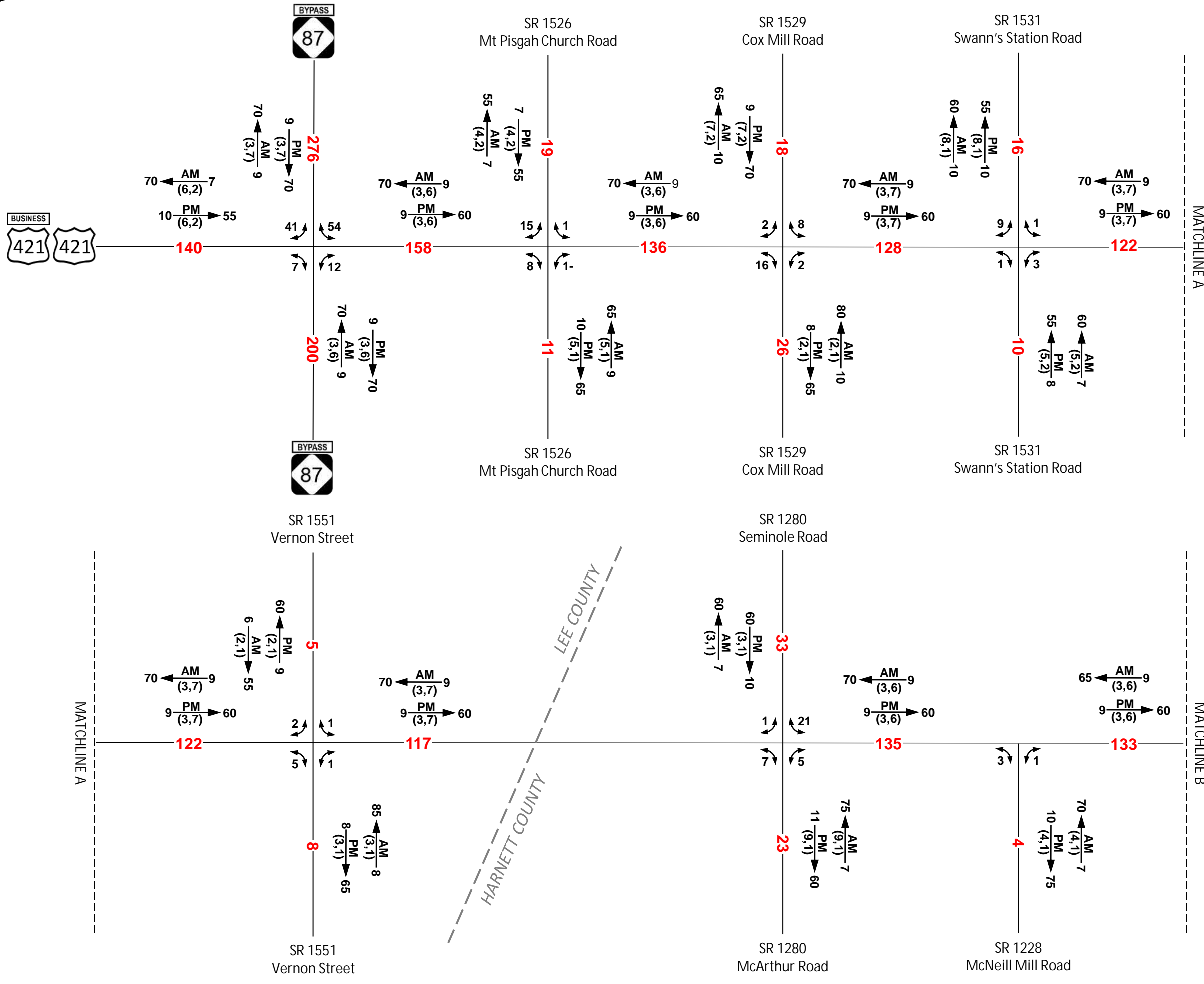
2020 AVERAGE ANNUAL DAILY TRAFFIC

BASE YEAR BUILD ALTERNATIVE 1B [SHEET 4 OF 4]

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

TIP: H090760	WBS: 34263.1.1
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LOCATION: US 421 from US 401 in Lillington to NC 87 in Sanford.	
PROJECT: US 421 Improvements: Modernization with US 401 Bypass	





2020 AVERAGE ANNUAL DAILY TRAFFIC

BASE YEAR BUILD ALTERNATIVE 2A [SHEET 1 OF 4]

LEGEND

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

TIP: H090760 WBS: 34263.1.1

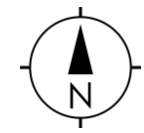
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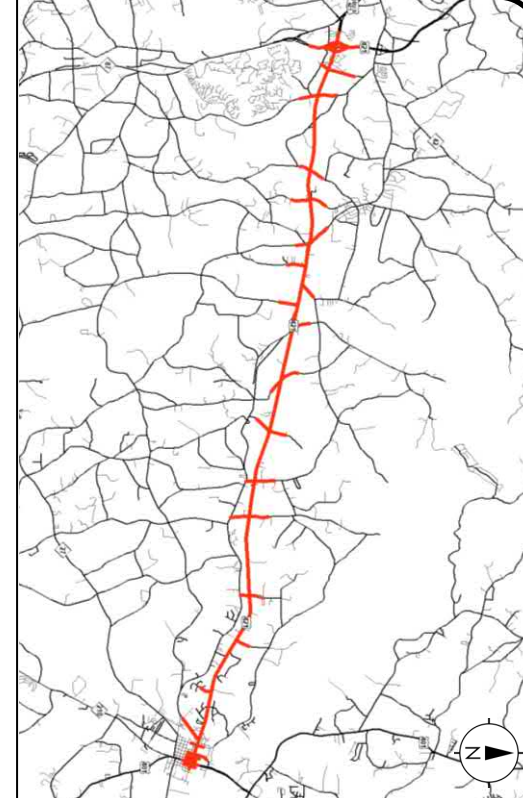
DATE: 10/26/2021

PREPARED BY: Mott MacDonald I&E, LLC

LOCATION: US 421 from US 401 in Lillington to NC 87 in Sanford.

PROJECT: US 421 Improvements: 4-lane Widening





2020 AVERAGE ANNUAL DAILY TRAFFIC

BASE YEAR BUILD ALTERNATIVE 2A [SHEET 2 OF 4]

LEGEND

$\overleftarrow{K} \frac{AM/PM}{(d,t)} \rightarrow D$
No. of Vehicles Per Day (VPD) in 100s
1- Less than 50 VPD
X Movement Prohibited Roadway
K Design Hour Factor (%)
AM/PM AM/PM Peak Period
 \rightarrow Peak Hour Directional Split
D Indicates Direction of D (d,t)
(d,t) Duals, TT-STs (%)

TIP: H090760 WBS: 34263.1.1

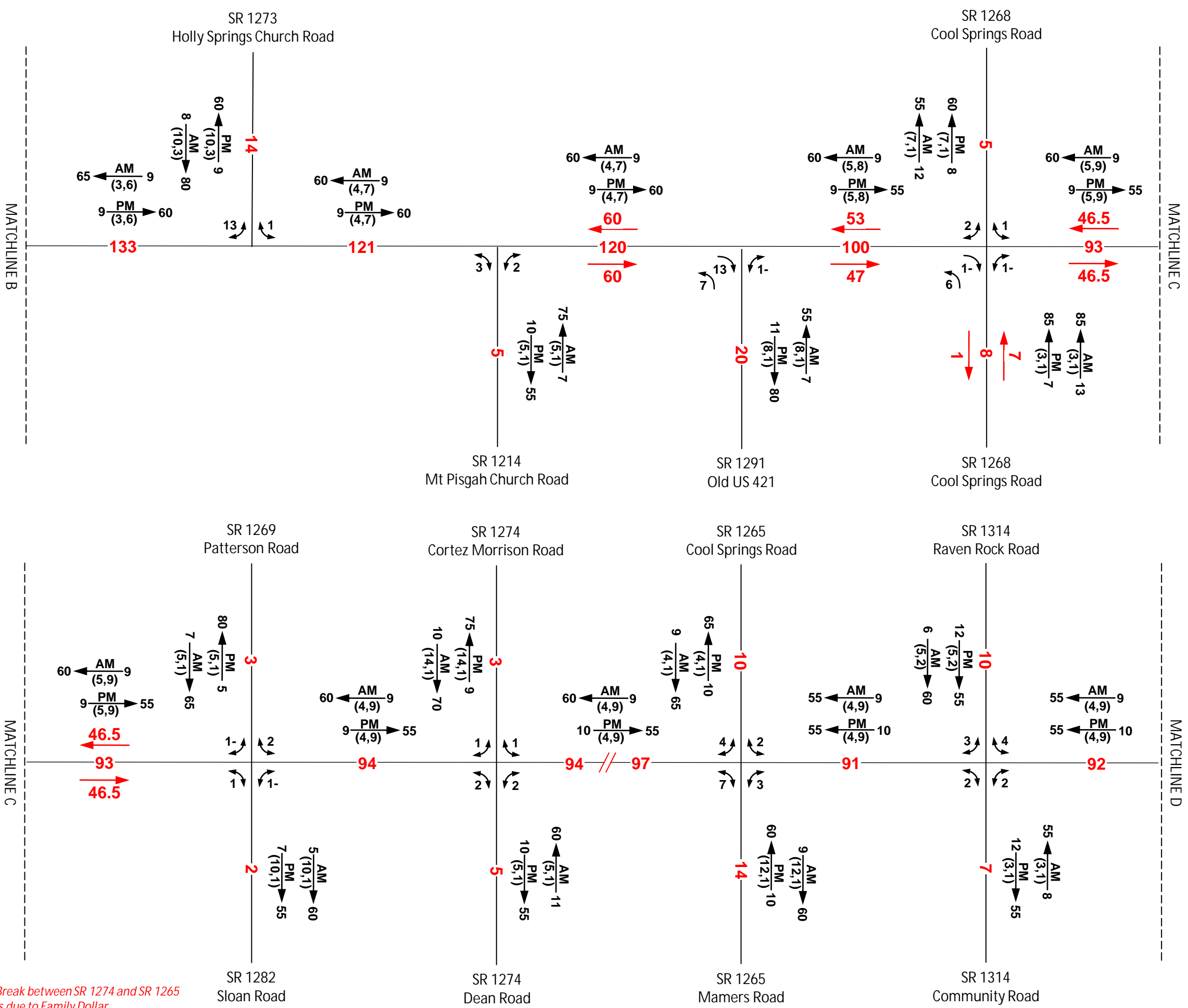
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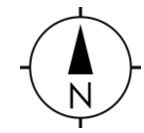
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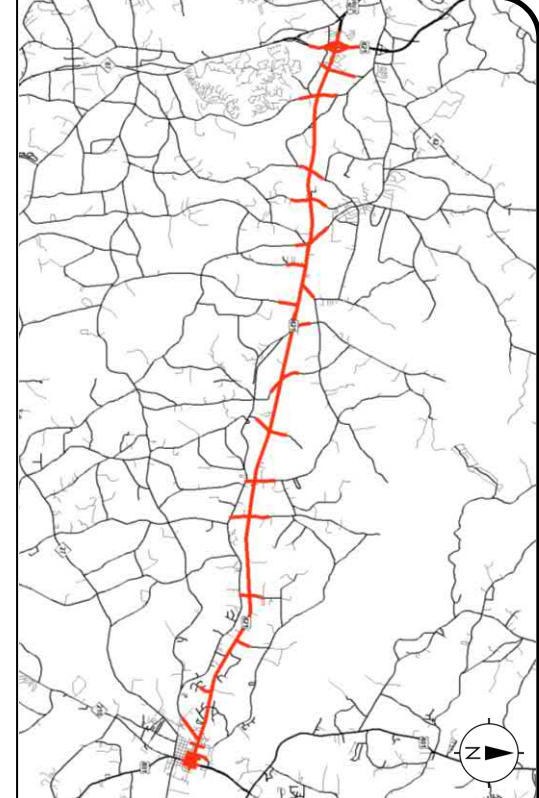
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PROJECT: US 421 Improvements: 4-lane Widening



Break between SR 1274 and SR 1265 is due to Family Dollar





2020 AVERAGE ANNUAL DAILY TRAFFIC

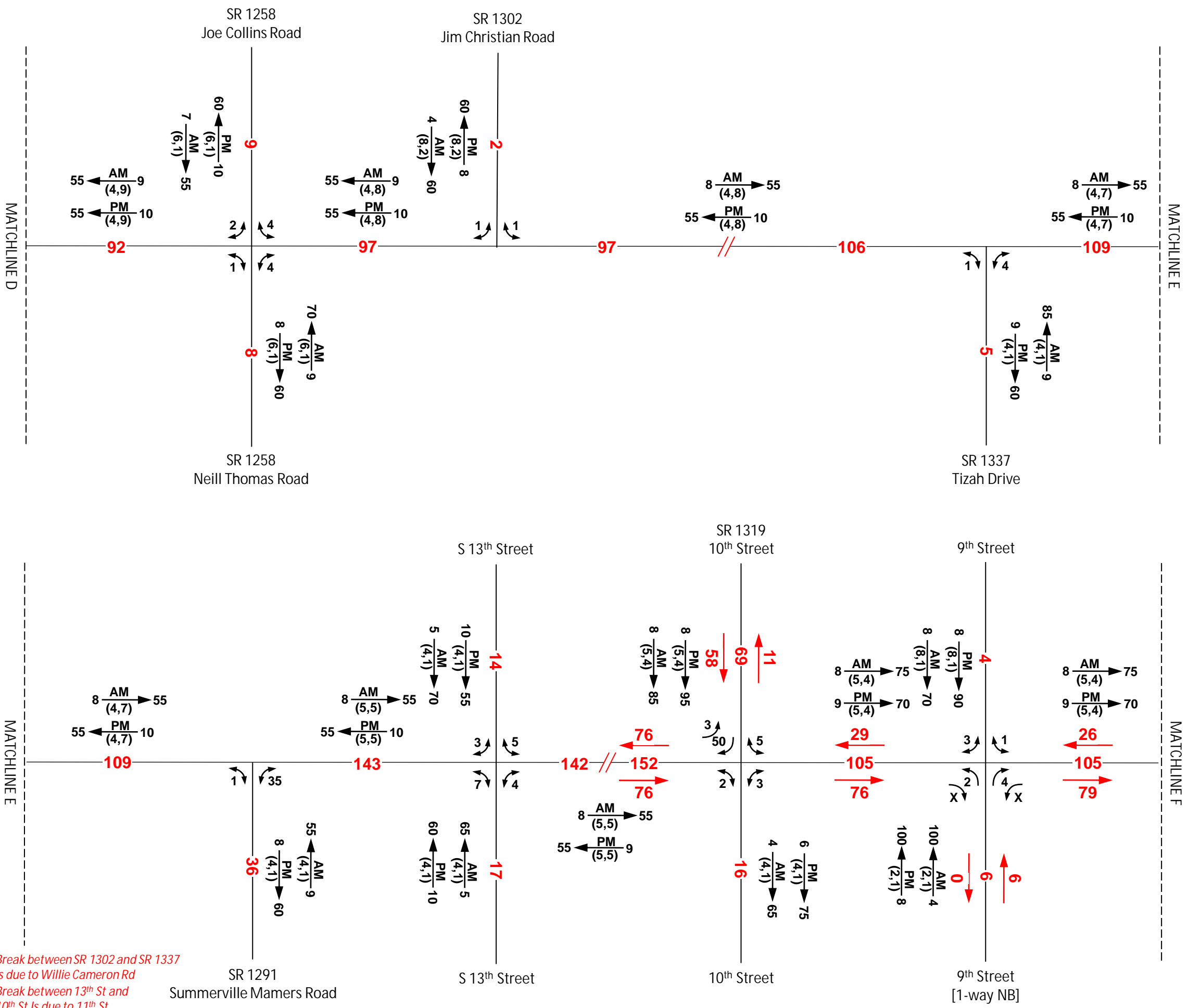
BASE YEAR BUILD ALTERNATIVE 2A [SHEET 3 OF 4]

LEGEND

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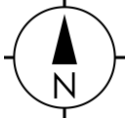
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- \rightarrow Peak Hour Directional Split
- D Indicates Direction of D (d,t) Duals, TT-STs (%)

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DATE: 10/26/2021	
PREPARED BY: Mott MacDonald I&E, LLC	
LOCATION: US 421 from US 401 in Lillington to NC 87 in Sanford.	
PROJECT: US 421 Improvements: 4-lane Widening	

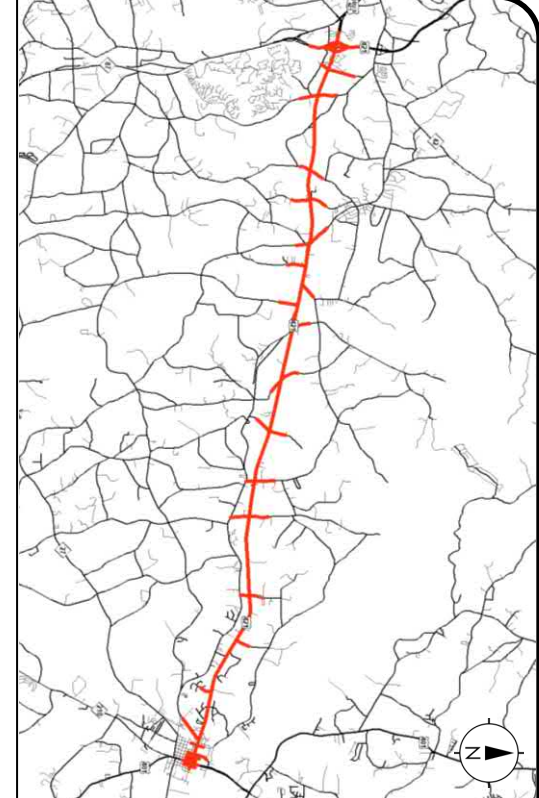
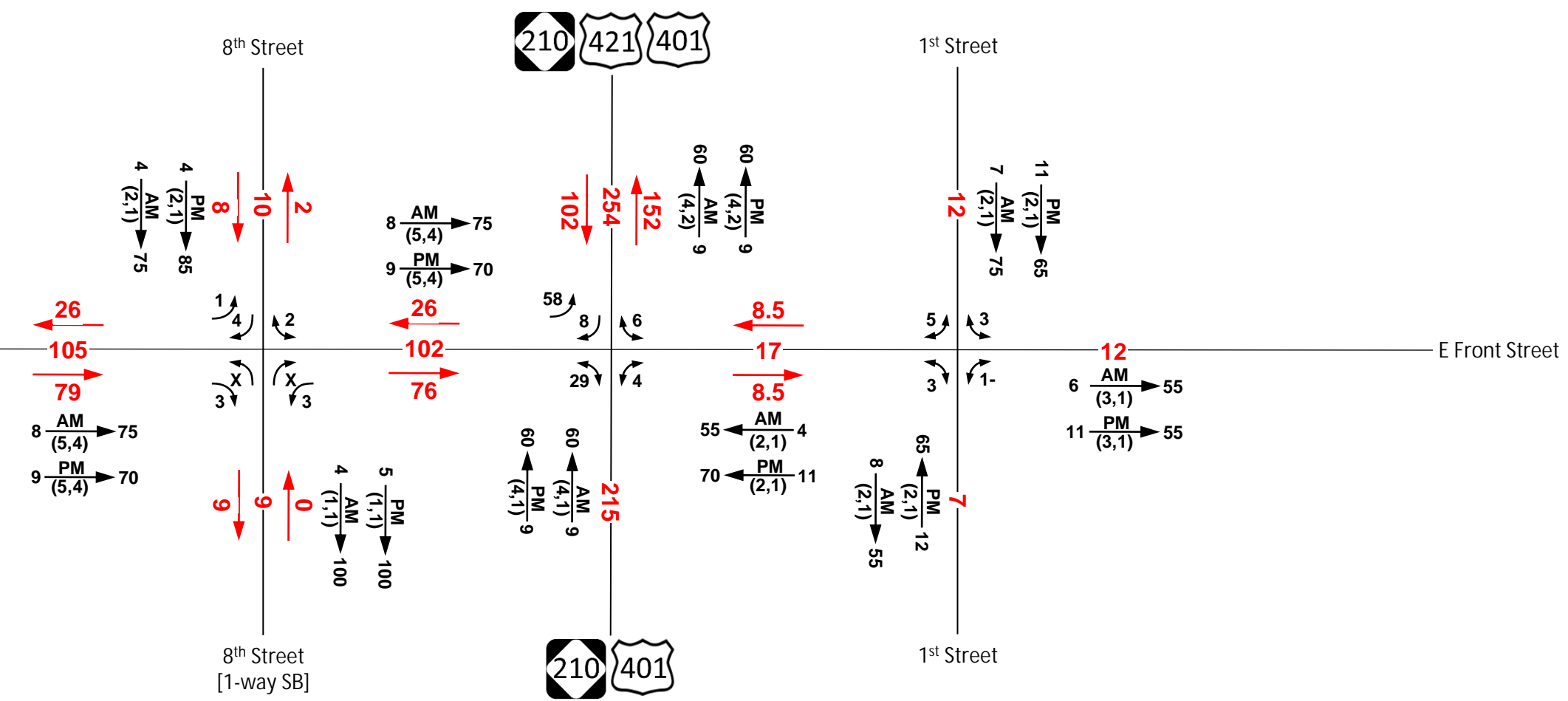


Break between SR 1302 and SR 1337 is due to Willie Cameron Rd

Break between 13th St and 10th St is due to 11th St



MATCHLINE F

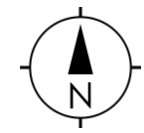


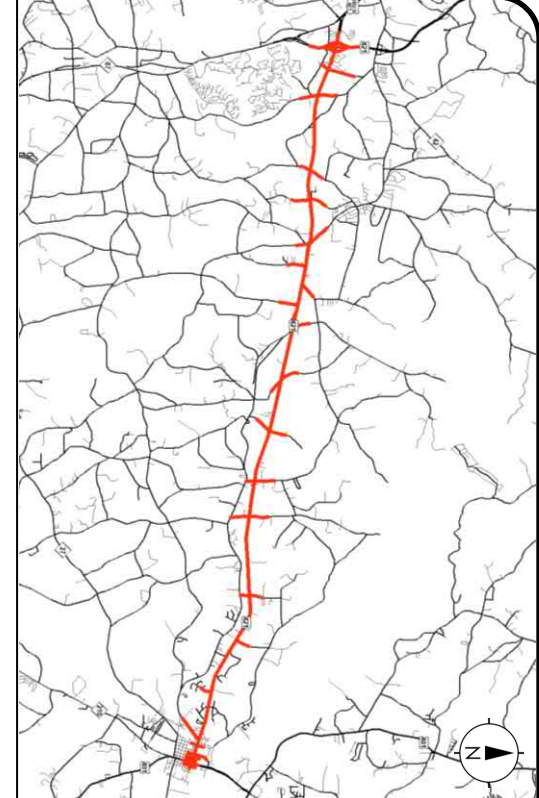
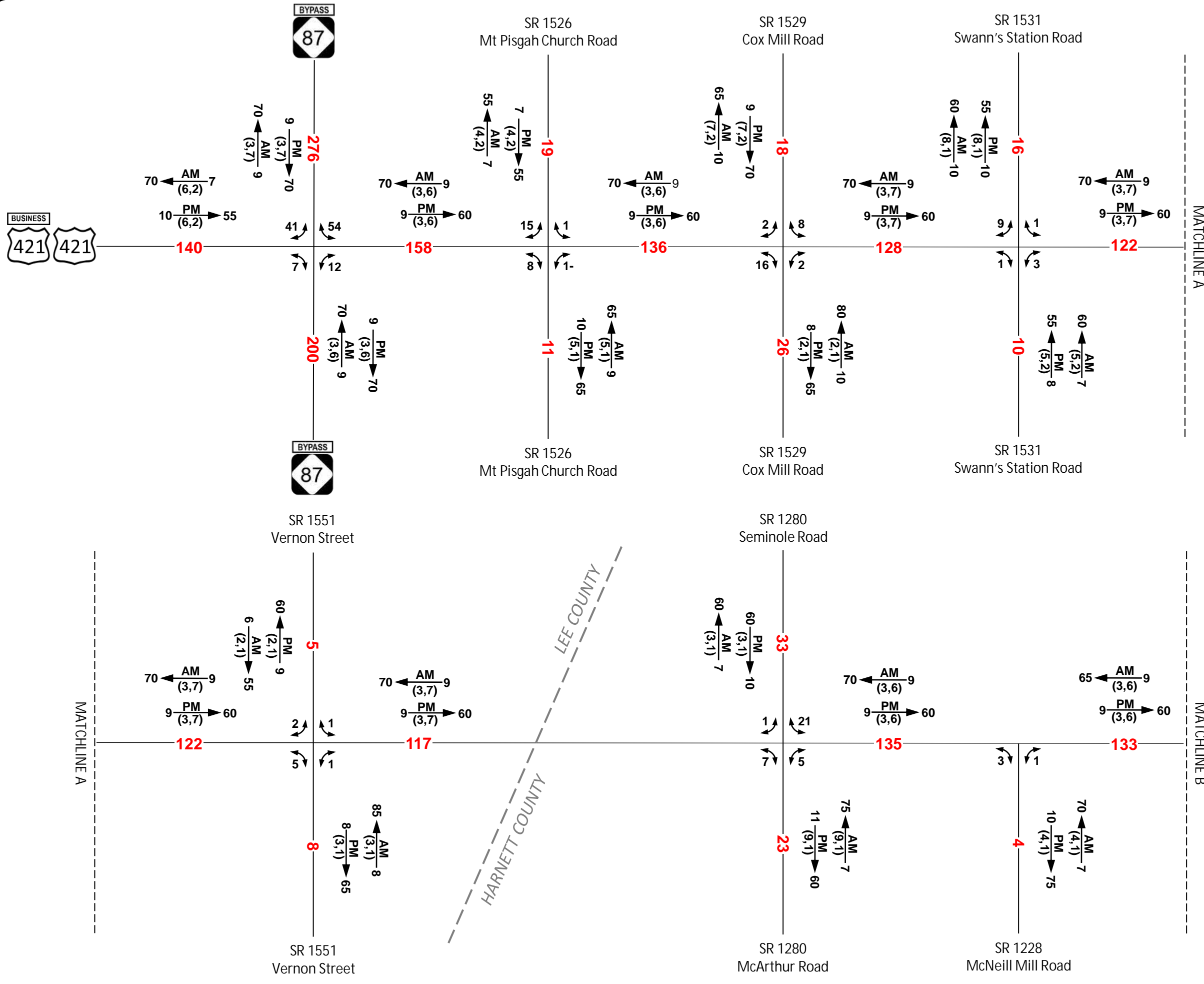
2020 AVERAGE ANNUAL DAILY TRAFFIC

BASE YEAR BUILD ALTERNATIVE 2A [SHEET 4 OF 4]

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

TIP: H090760	WBS: 34263.1.1
COUNTY: HARNETT/LEE	DIVISION: 6/8
DATE: 10/26/2021	
PREPARED BY: Mott MacDonald I&E, LLC	
LOCATION: US 421 from US 401 in Lillington to NC 87 in Sanford.	
PROJECT: US 421 Improvements: 4-lane Widening	





2020 AVERAGE ANNUAL DAILY TRAFFIC

BASE YEAR BUILD ALTERNATIVE 2B [SHEET 1 OF 4]

LEGEND

K $\frac{AM/PM}{(d,t)}$ \rightarrow D

No. of Vehicles Per Day (VPD) in 100s

1- Less than 50 VPD

X Movement Prohibited Roadway

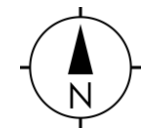
K Design Hour Factor (%)

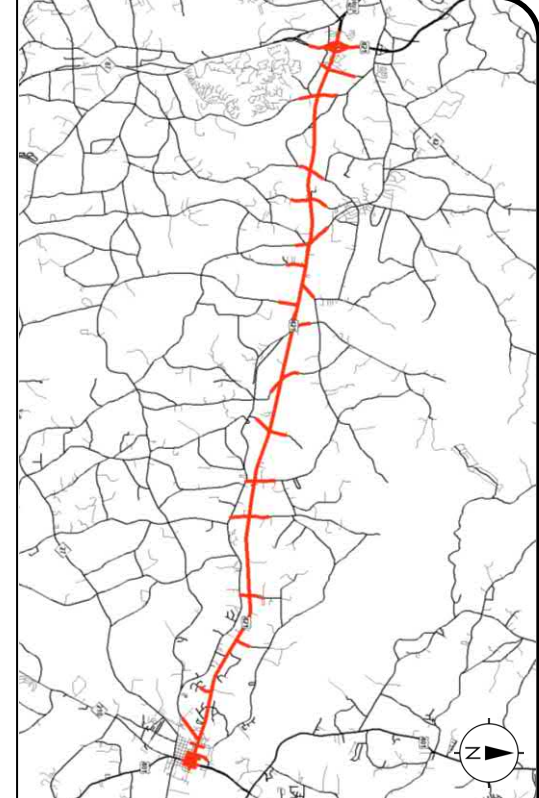
AM/PM AM/PM Peak Period

\rightarrow Peak Hour Directional Split

D Indicates Direction of D (d,t) Duals, TT-STs (%)

TIP: H090760	WBS: 34263.1.1
COUNTY: HARNETT/LEE	DIVISION: 6/8
DATE: 10/26/2021	
PREPARED BY: Mott MacDonald I&E, LLC	
LOCATION: US 421 from US 401 in Lillington to NC 87 in Sanford.	
PROJECT: US 421 Improvements: 4-lane Widening with US 401 Bypass	





2020 AVERAGE ANNUAL DAILY TRAFFIC

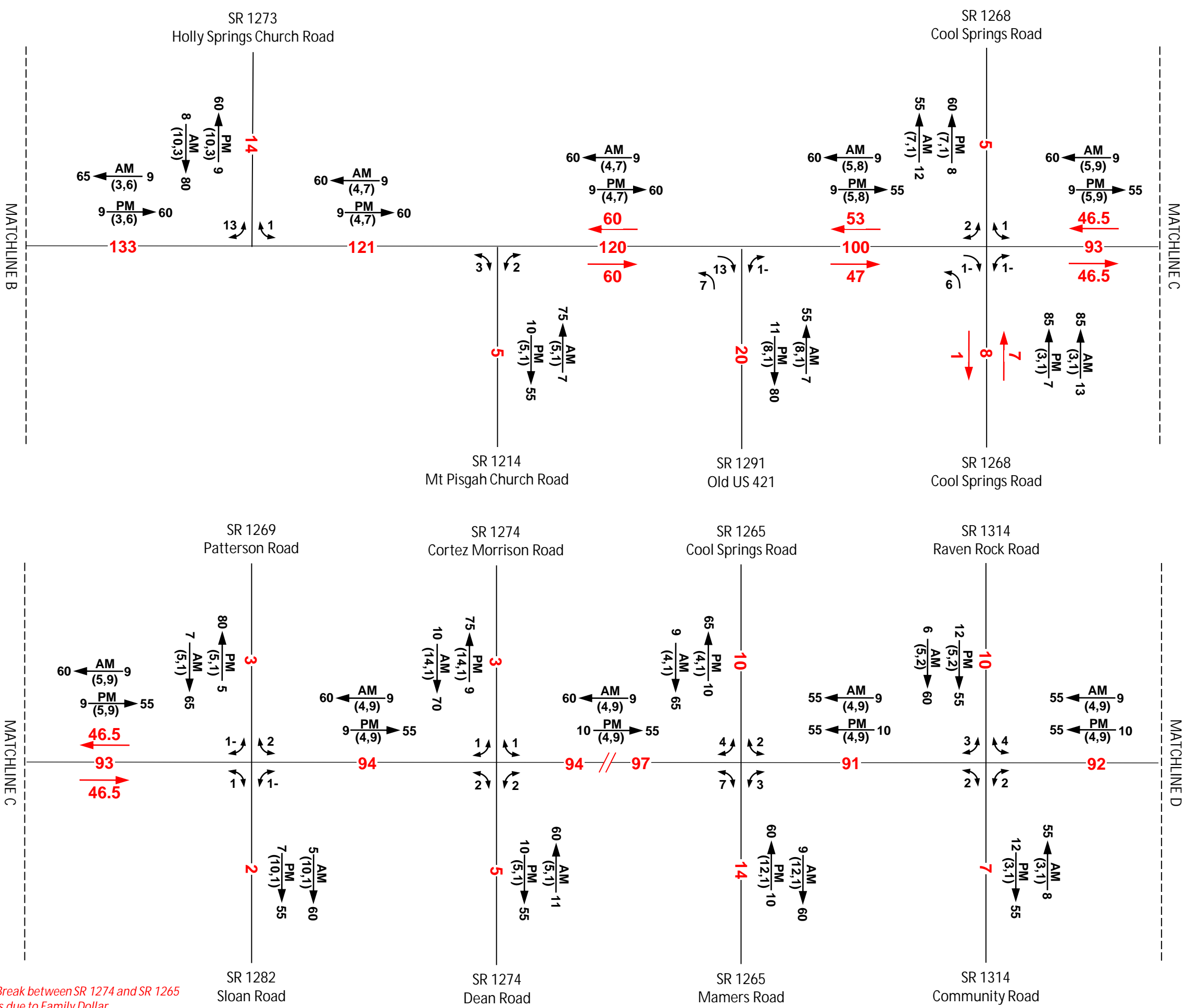
BASE YEAR BUILD ALTERNATIVE 2B [SHEET 2 OF 4]

LEGEND

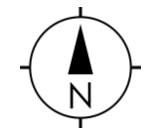
K $\frac{AM/PM}{(d,t)} \rightarrow D$

- ### No. of Vehicles Per Day (VPD) in 100s
- 1- Less than 50 VPD
- X Movement Prohibited Roadway
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- AM/PM AM/PM Peak Period
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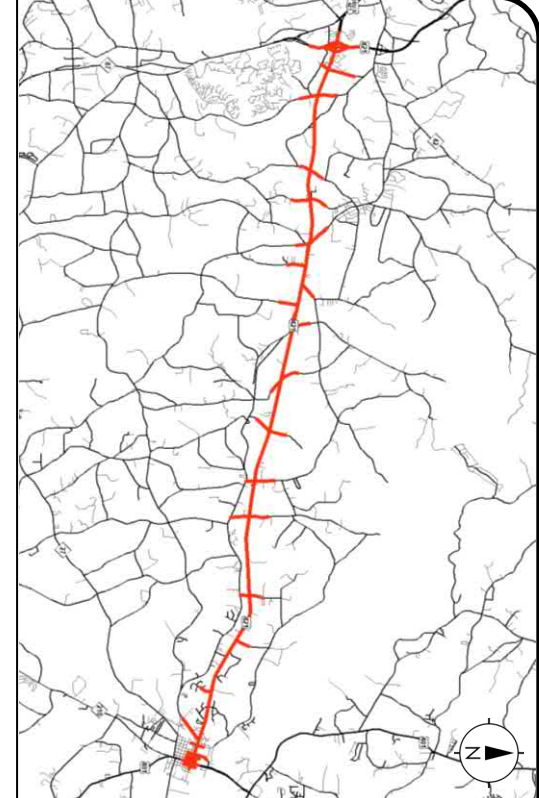
TIP: H090760	WBS: 34263.1.1
COUNTY: HARNETT/LEE	DIVISION: 6/8
DATE: 10/26/2021	
PREPARED BY: Mott MacDonald I&E, LLC	
LOCATION: US 421 from US 401 in Lillington to NC 87 in Sanford.	
PROJECT: US 421 Improvements: 4-lane Widening with US 401 Bypass	



Break between SR 1274 and SR 1265 is due to Family Dollar



--- Future US 401 Bypass



2020 AVERAGE ANNUAL DAILY TRAFFIC

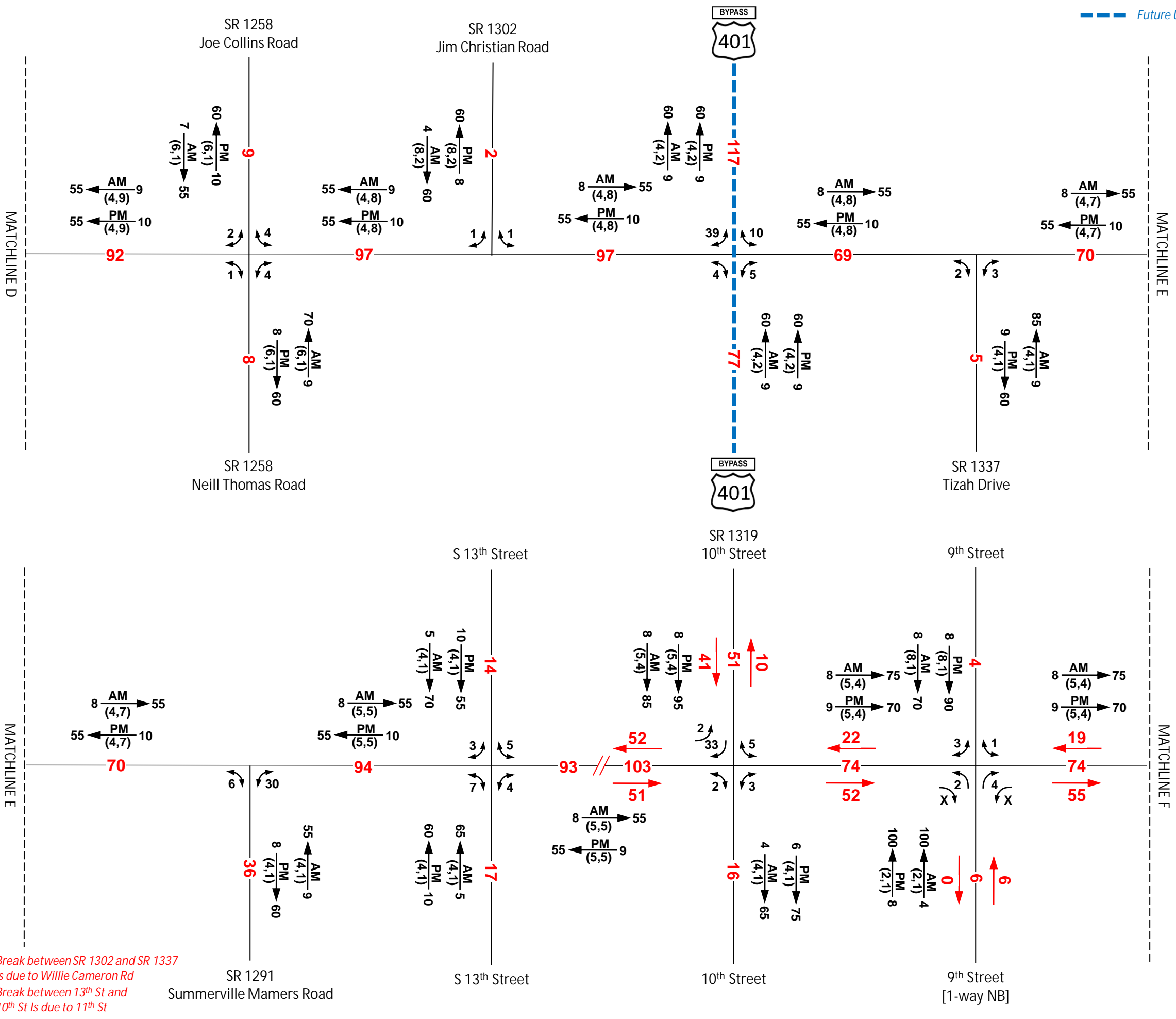
BASE YEAR BUILD ALTERNATIVE 2B [SHEET 3 OF 4]

LEGEND

K $\frac{AM/PM}{(d,t)}$ \rightarrow D

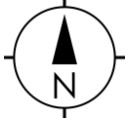
- ### No. of Vehicles Per Day (VPD) in 100s
- 1- Less than 50 VPD
- X Movement Prohibited Roadway
- K Design Hour Factor (%)
- AM/PM AM/PM Peak Period
- \rightarrow Peak Hour Directional Split
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- (d,t) Duals, TT-STs (%)

TIP: H090760	WBS: 34263.1.1
COUNTY: HARNETT/LEE	DIVISION: 6/8
DATE: 10/26/2021	
PREPARED BY: Mott MacDonald I&E, LLC	
LOCATION: US 421 from US 401 in Lillington to NC 87 in Sanford.	
PROJECT: US 421 Improvements: 4-lane Widening with US 401 Bypass	

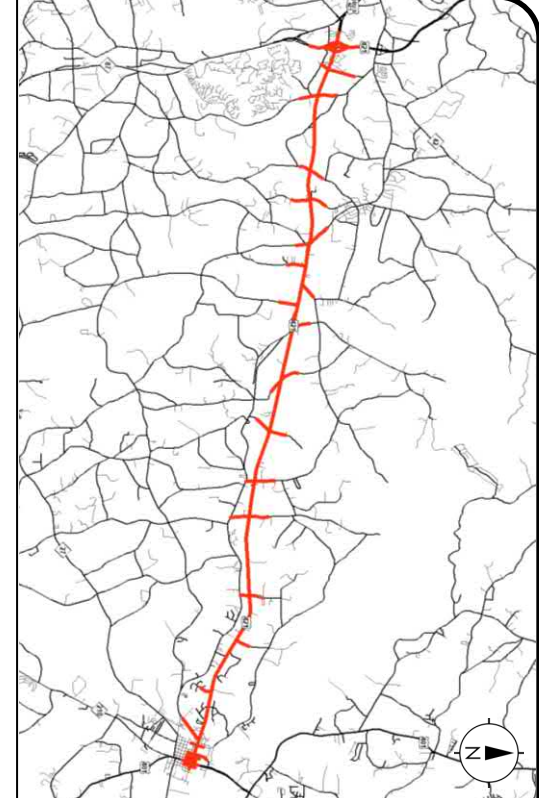
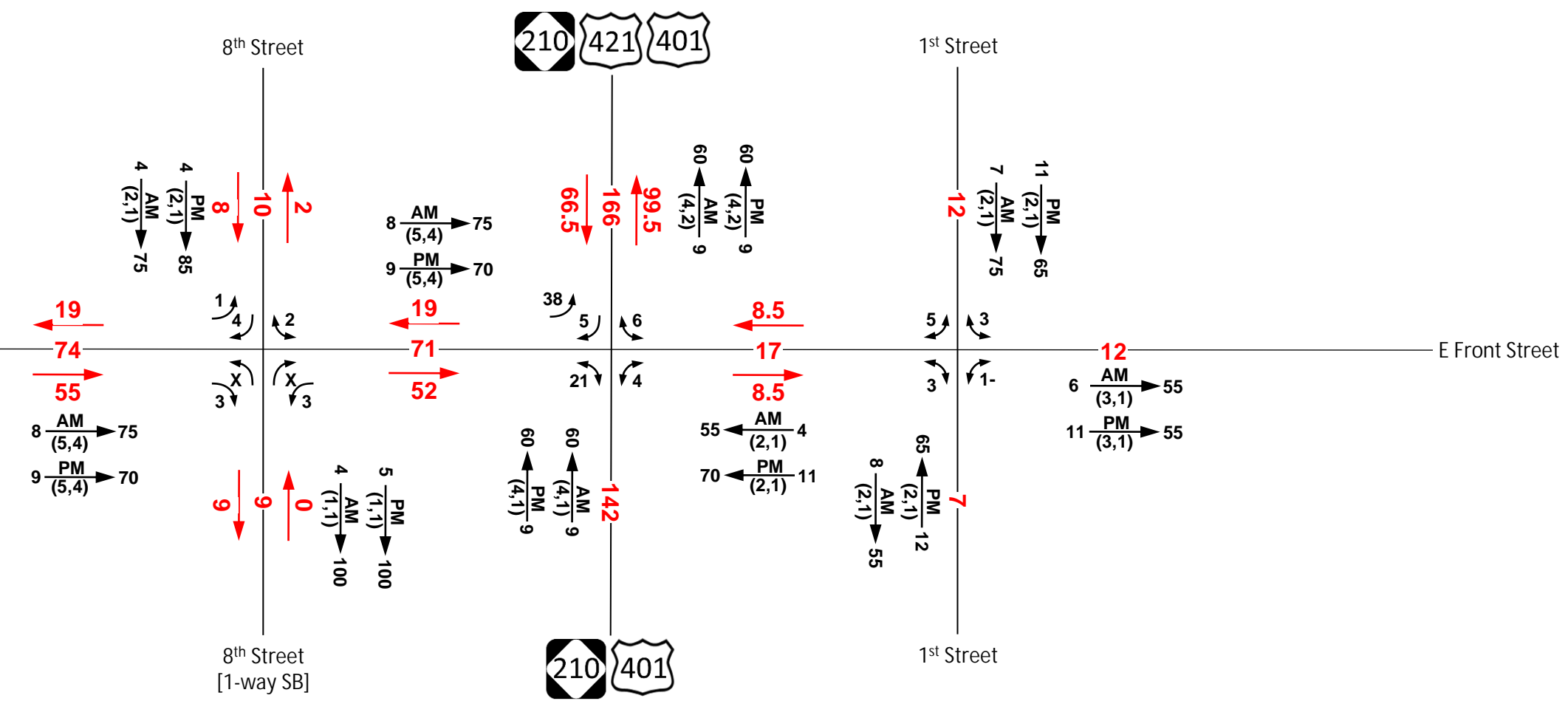


/// Break between SR 1302 and SR 1337 is due to Willie Cameron Rd

/// Break between 13th St and 10th St is due to 11th St



MATCHLINE F



2020 AVERAGE ANNUAL DAILY TRAFFIC

BASE YEAR BUILD ALTERNATIVE 2B [SHEET 4 OF 4]

LEGEND

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

TIP: H090760 WBS: 34263.1.1

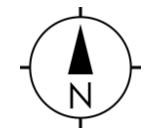
COUNTY: HARNETT/LEE DIVISION: 6/8

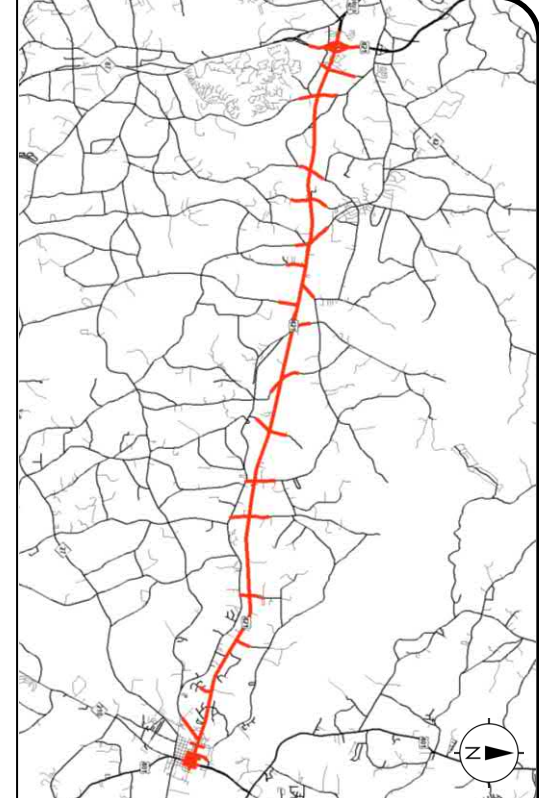
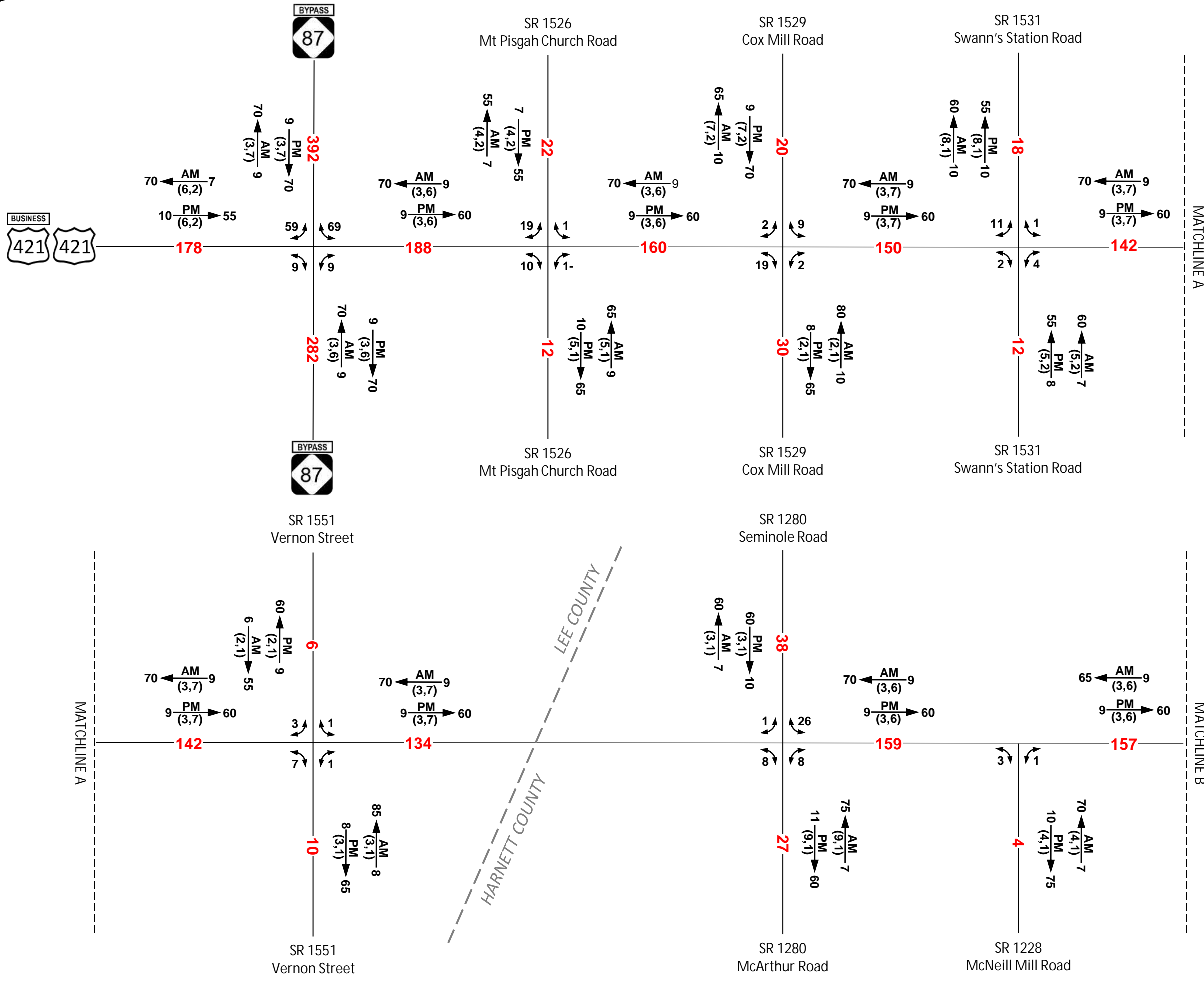
DATE: 10/26/2021

PREPARED BY: Mott MacDonald I&E, LLC

LOCATION: US 421 from US 401 in Lillington to NC 87 in Sanford.

PROJECT: US 421 Improvements: 4-lane Widening with US 401 Bypass





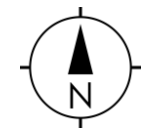
2045 AVERAGE ANNUAL DAILY TRAFFIC

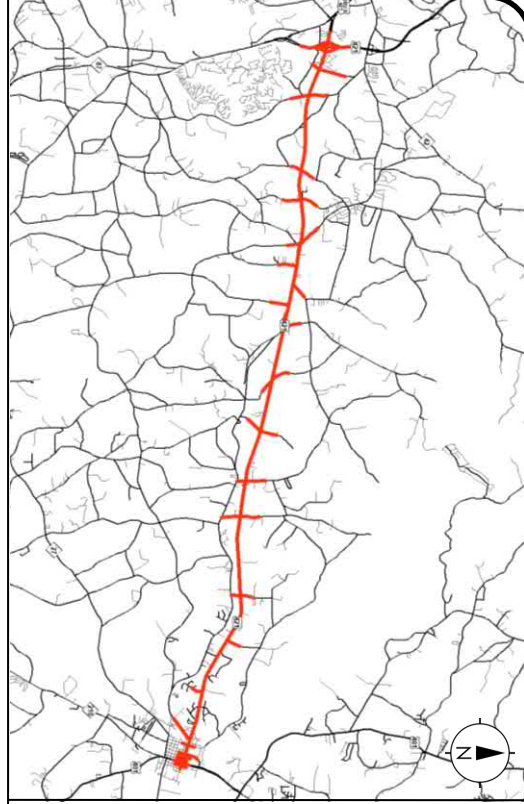
FUTURE YEAR NO-BUILD ALTERNATIVE 1A [SHEET 1 OF 4]

LEGEND

$\overleftarrow{K} \frac{AM/PM}{(d,t)} \rightarrow D$
No. of Vehicles Per Day (VPD) in 100s
1- Less than 50 VPD
X Movement Prohibited Roadway
K Design Hour Factor (%)
AM/PM AM/PM Peak Period
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(d,t) Duals, TT-STs (%)

TIP: H090760	WBS: 34263.1.1
COUNTY: HARNETT/LEE	DIVISION: 6/8
DATE: 10/26/2021	
PREPARED BY: Mott MacDonald I&E, LLC	
LOCATION: US 421 from US 401 in Lillington to NC 87 in Sanford.	
PROJECT: US 421 Improvements: No-Build/Modernization	





2045 AVERAGE ANNUAL DAILY TRAFFIC

FUTURE YEAR NO-BUILD ALTERNATIVE 1A [SHEET 2 OF 4]

LEGEND

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

TIP: H090760 WBS: 34263.1.1

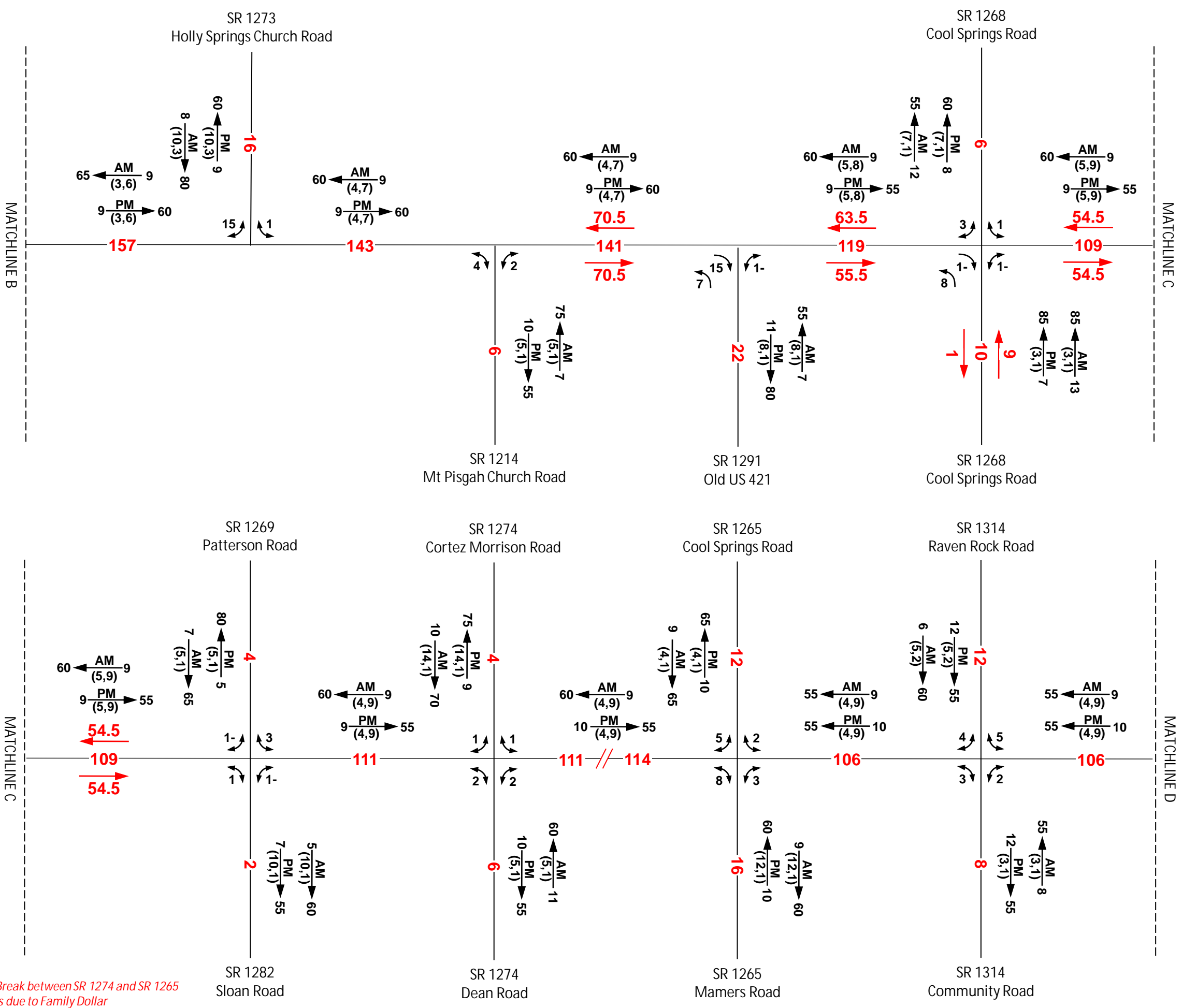
COUNTY: HARNETT/LEE DIVISION: 6/8

DATE: 10/26/2021

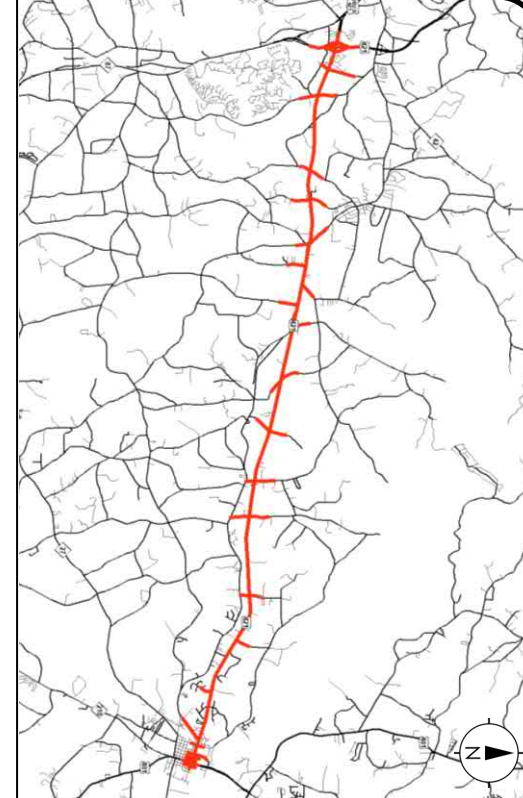
PREPARED BY: Mott MacDonald I&E, LLC

LOCATION: US 421 from US 401 in Lillington to NC 87 in Sanford.

PROJECT: US 421 Improvements: No-Build/Modernization



// Break between SR 1274 and SR 1265 is due to Family Dollar



2045 AVERAGE ANNUAL DAILY TRAFFIC

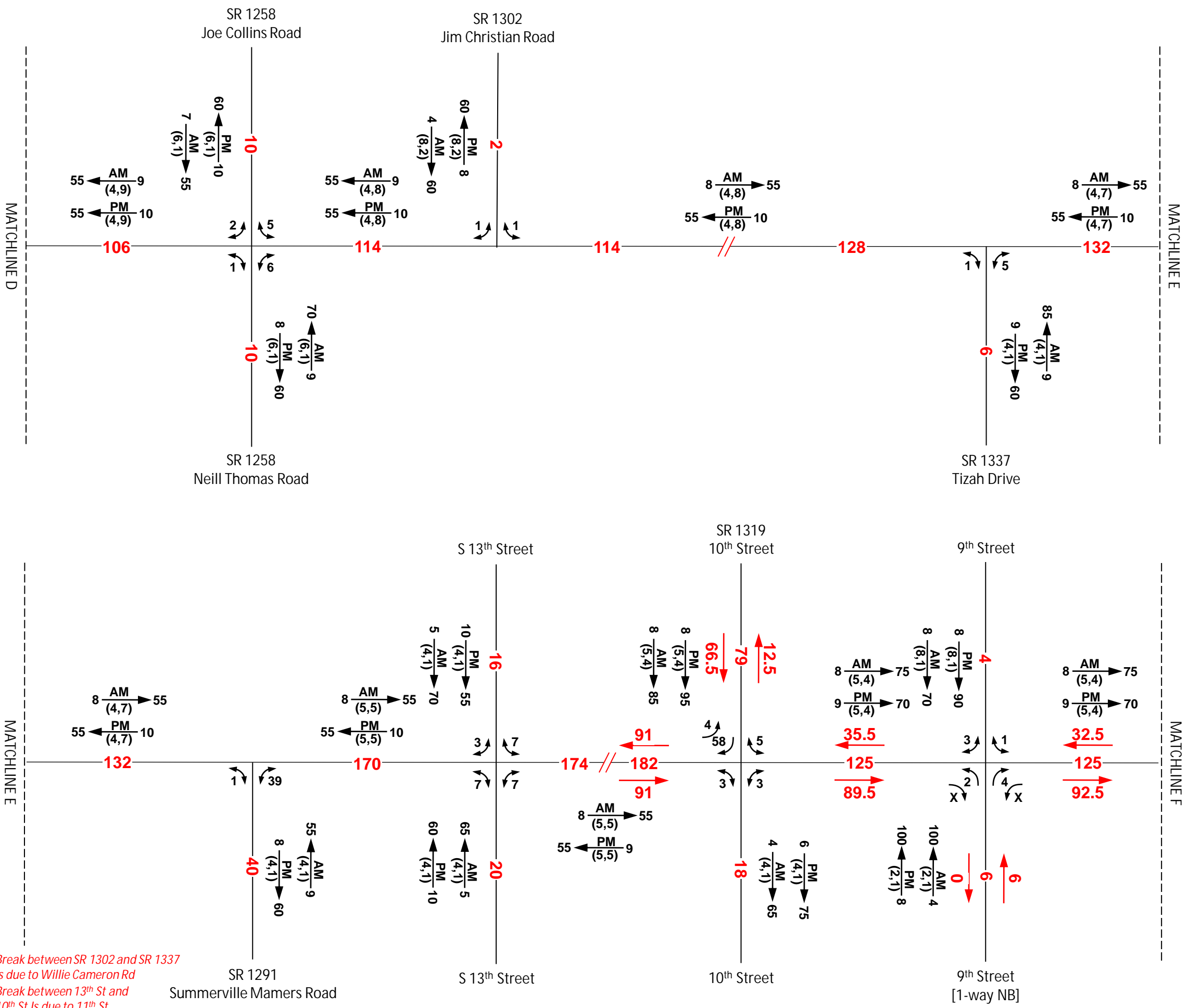
FUTURE YEAR NO-BUILD ALTERNATIVE 1A [SHEET 3 OF 4]

LEGEND

K $\frac{AM/PM}{(d,t)}$ \rightarrow D

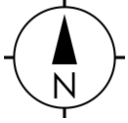
- ### No. of Vehicles Per Day (VPD) in 100s
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- X Movement Prohibited Roadway
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- AM/PM AM/PM Peak Period
- \rightarrow Peak Hour Directional Split
- D Indicates Direction of D (d,t) Duals, TT-STs (%)

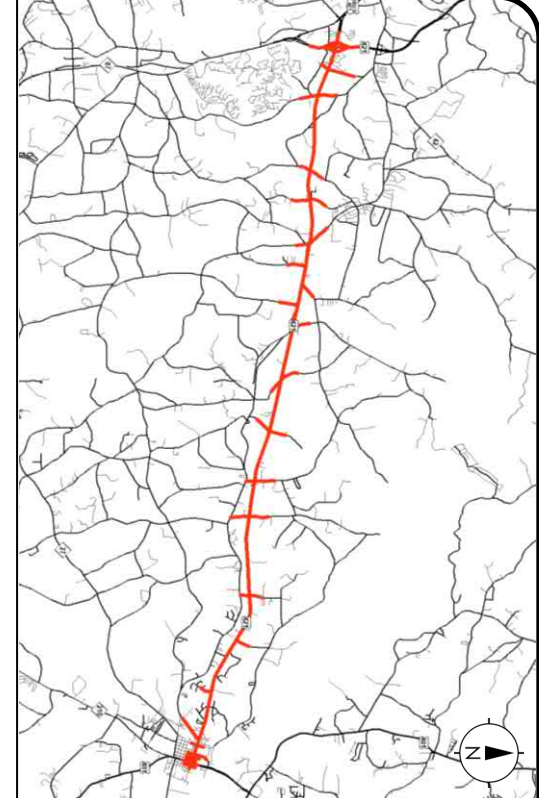
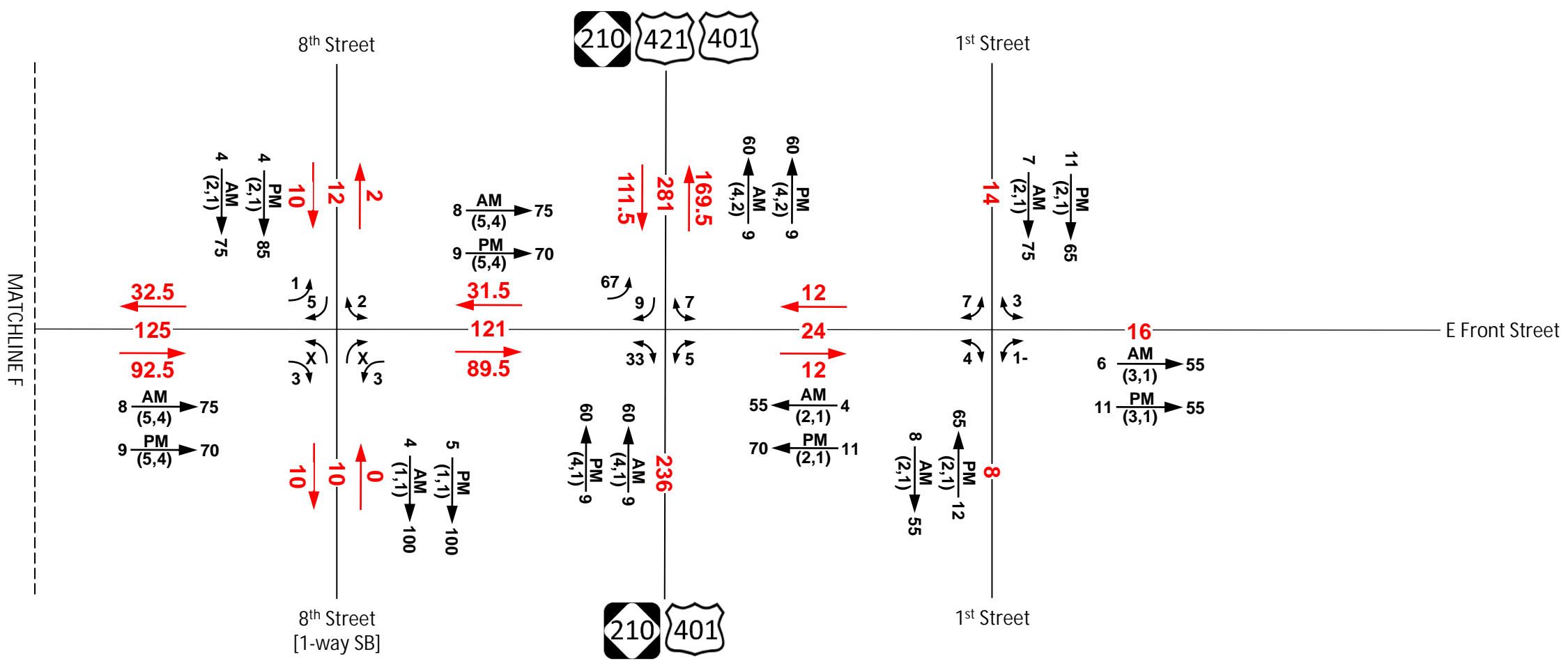
TIP: H090760	WBS: 34263.1.1
COUNTY: HARNETT/LEE	DIVISION: 6/8
DATE: 10/26/2021	
PREPARED BY: Mott MacDonald I&E, LLC	
LOCATION: US 421 from US 401 in Lillington to NC 87 in Sanford.	
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Break between SR 1302 and SR 1337 is due to Willie Cameron Rd

Break between 13th St and 10th St is due to 11th St





2045 AVERAGE ANNUAL DAILY TRAFFIC

FUTURE YEAR NO-BUILD ALTERNATIVE 1A [SHEET 4 OF 4]

- LEGEND**
- ### No. of Vehicles Per Day (VPD) in 100s
 - 1- Less than 50 VPD
 - X Movement Prohibited
 - Roadway
 - K Design Hour Factor (%)
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TIP: H090760 WBS: 34263.1.1

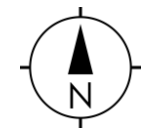
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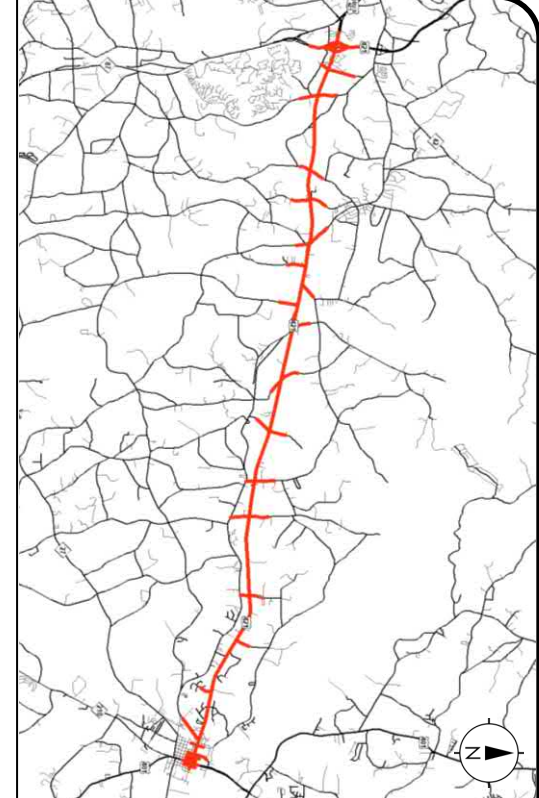
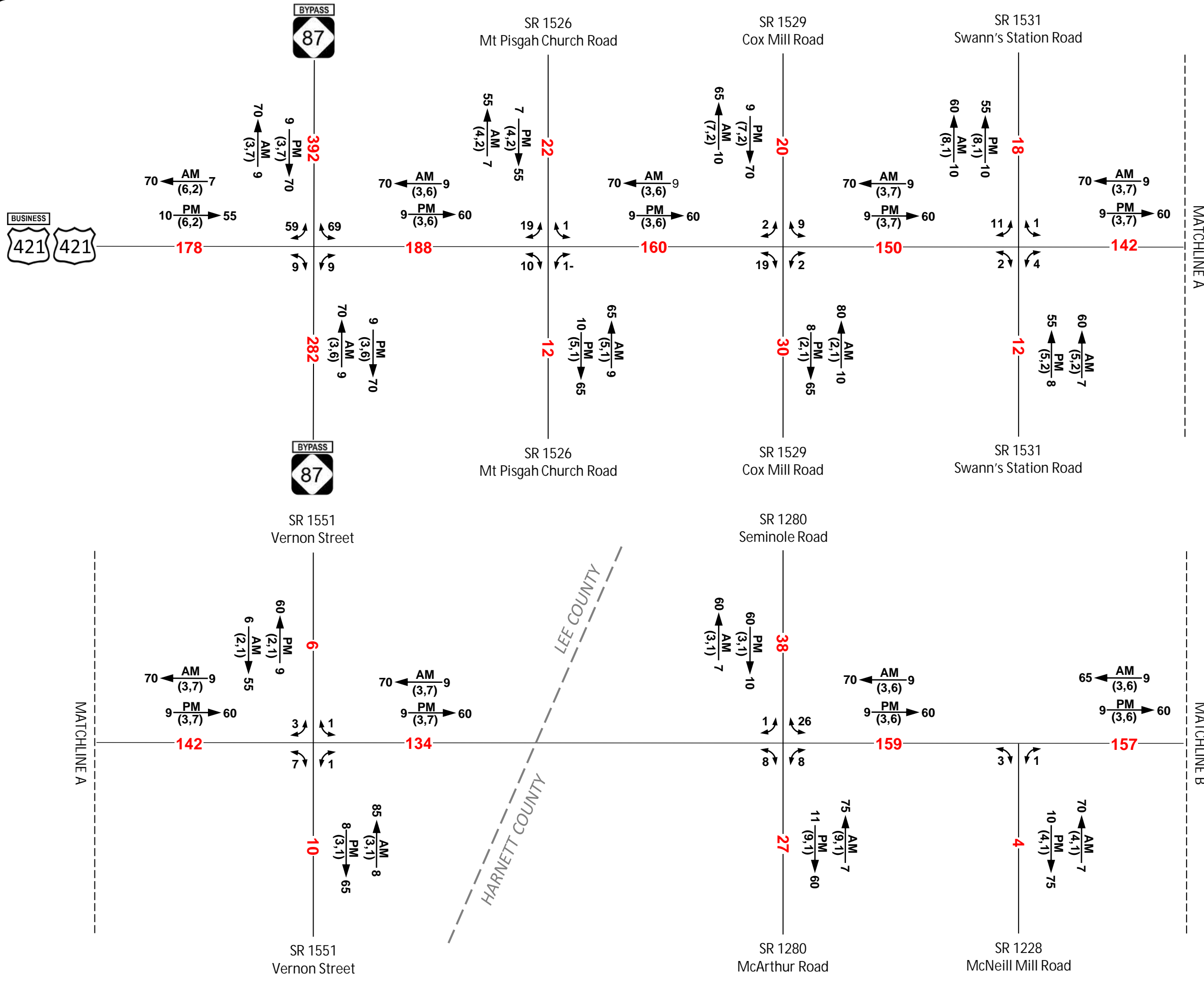
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2045 AVERAGE ANNUAL DAILY TRAFFIC

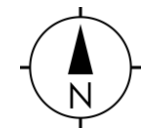
FUTURE YEAR BUILD ALTERNATIVE 1B [SHEET 1 OF 4]

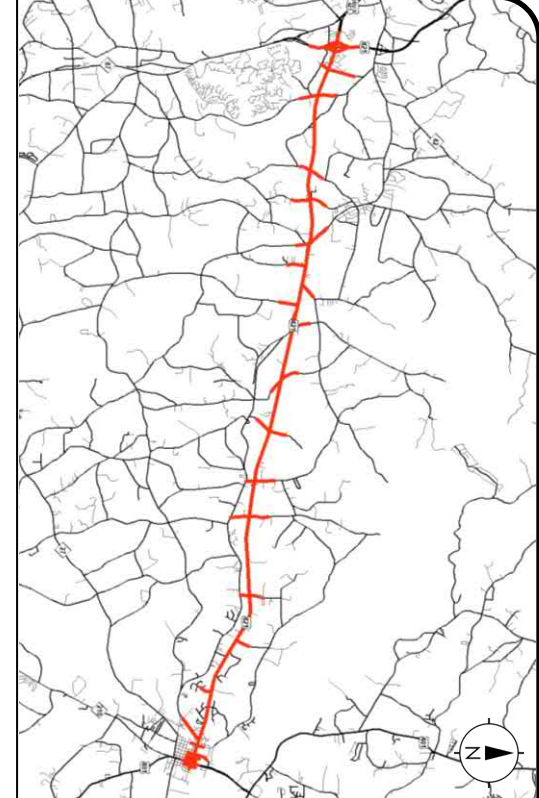
LEGEND

$\overleftarrow{K} \frac{AM/PM}{(d,t)} \rightarrow D$

- ### No. of Vehicles Per Day (VPD) in 100s
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- K Design Hour Factor (%)
- AM/PM AM/PM Peak Period
- \rightarrow Peak Hour Directional Split
- D Indicates Direction of D
- (d,t) Duals, TT-STs (%)

TIP: H090760	WBS: 34263.1.1
COUNTY: HARNETT/LEE	DIVISION: 6/8
DATE: 10/26/2021	
PREPARED BY: Mott MacDonald I&E, LLC	
LOCATION: US 421 from US 401 in Lillington to NC 87 in Sanford.	
PROJECT: US 421 Improvements: Modernization with US 401 Bypass	





2045 AVERAGE ANNUAL DAILY TRAFFIC

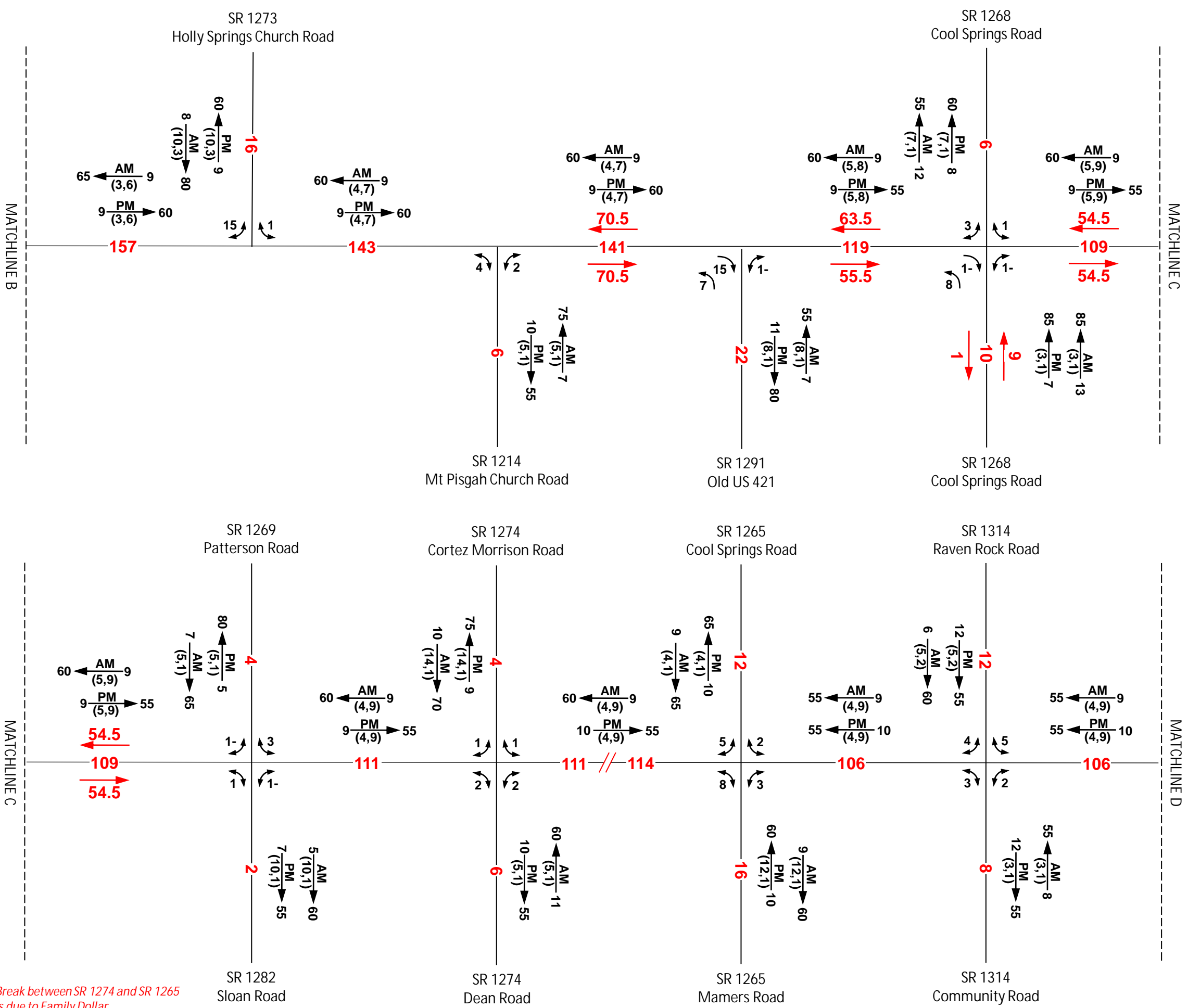
FUTURE YEAR BUILD ALTERNATIVE 1B [SHEET 2 OF 4]

LEGEND

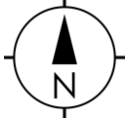
K $\frac{AM/PM}{(d,t)} \rightarrow D$

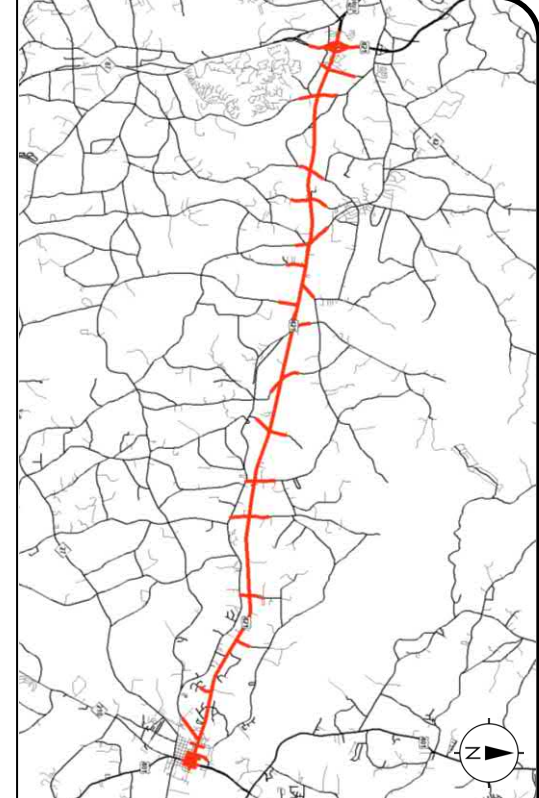
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LOCATION: US 421 from US 401 in Lillington to NC 87 in Sanford.	
PROJECT: US 421 Improvements: Modernization with US 401 Bypass	



Break between SR 1274 and SR 1265 is due to Family Dollar





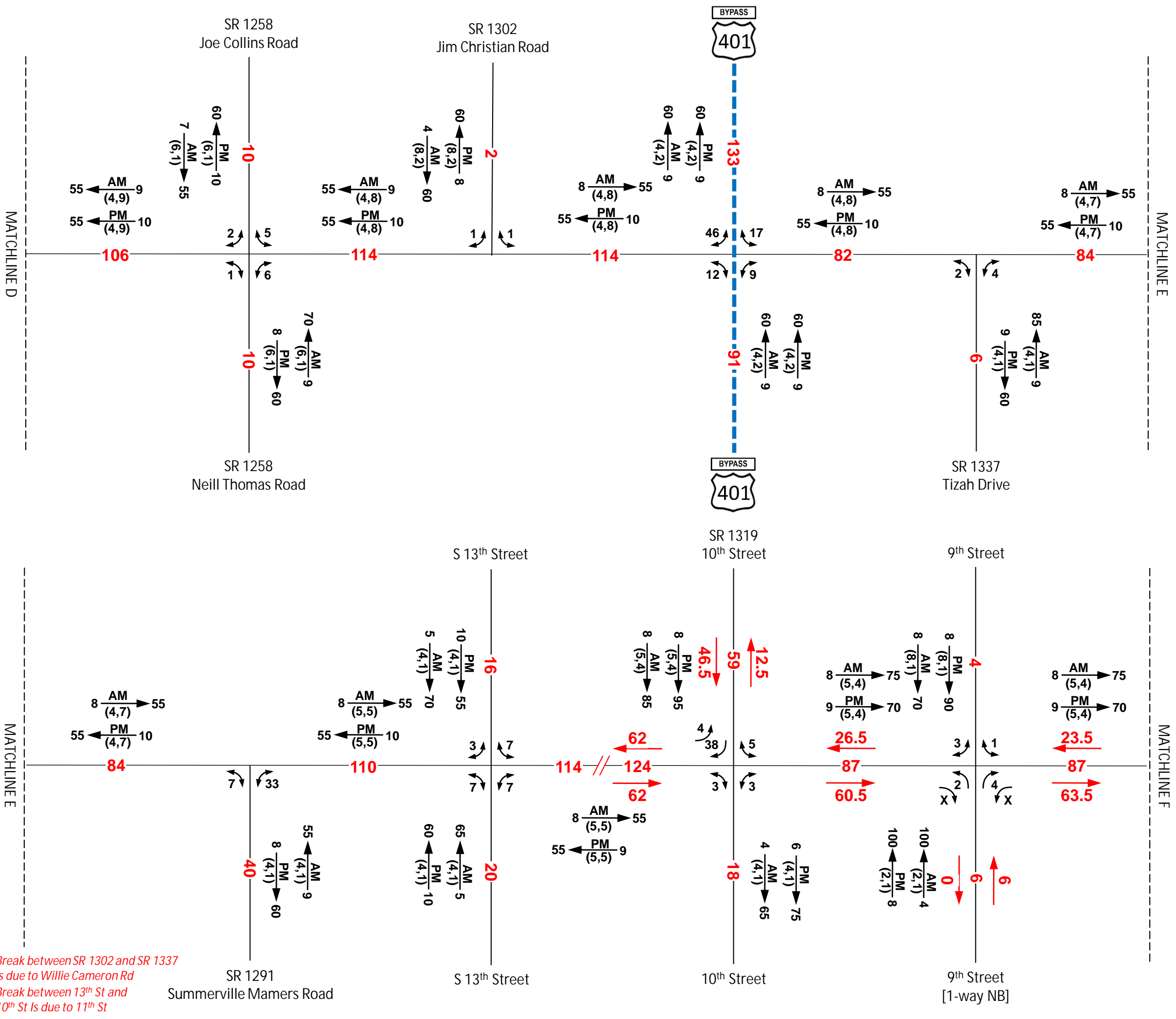
2045 AVERAGE ANNUAL DAILY TRAFFIC

FUTURE YEAR BUILD ALTERNATIVE 1B [SHEET 3 OF 4]

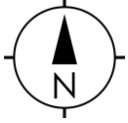
LEGEND

$K \frac{AM/PM}{(d,t)} \rightarrow D$
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K Design Hour Factor (%)
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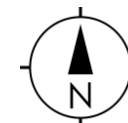
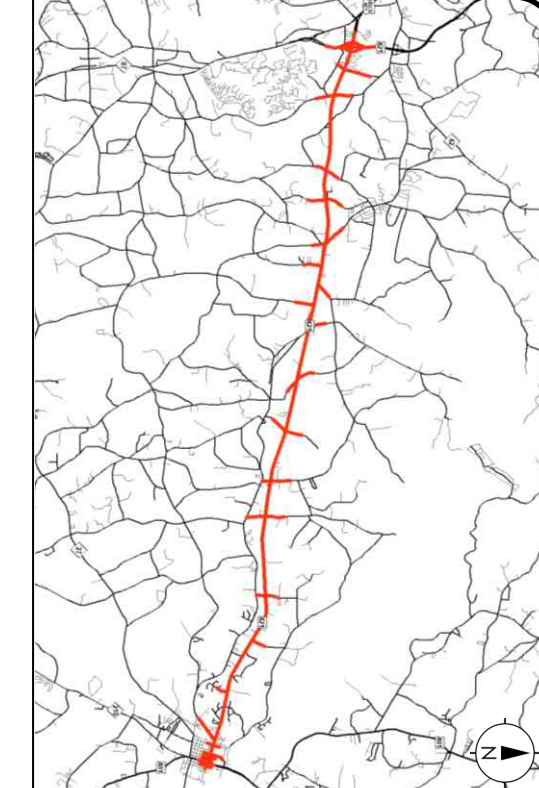
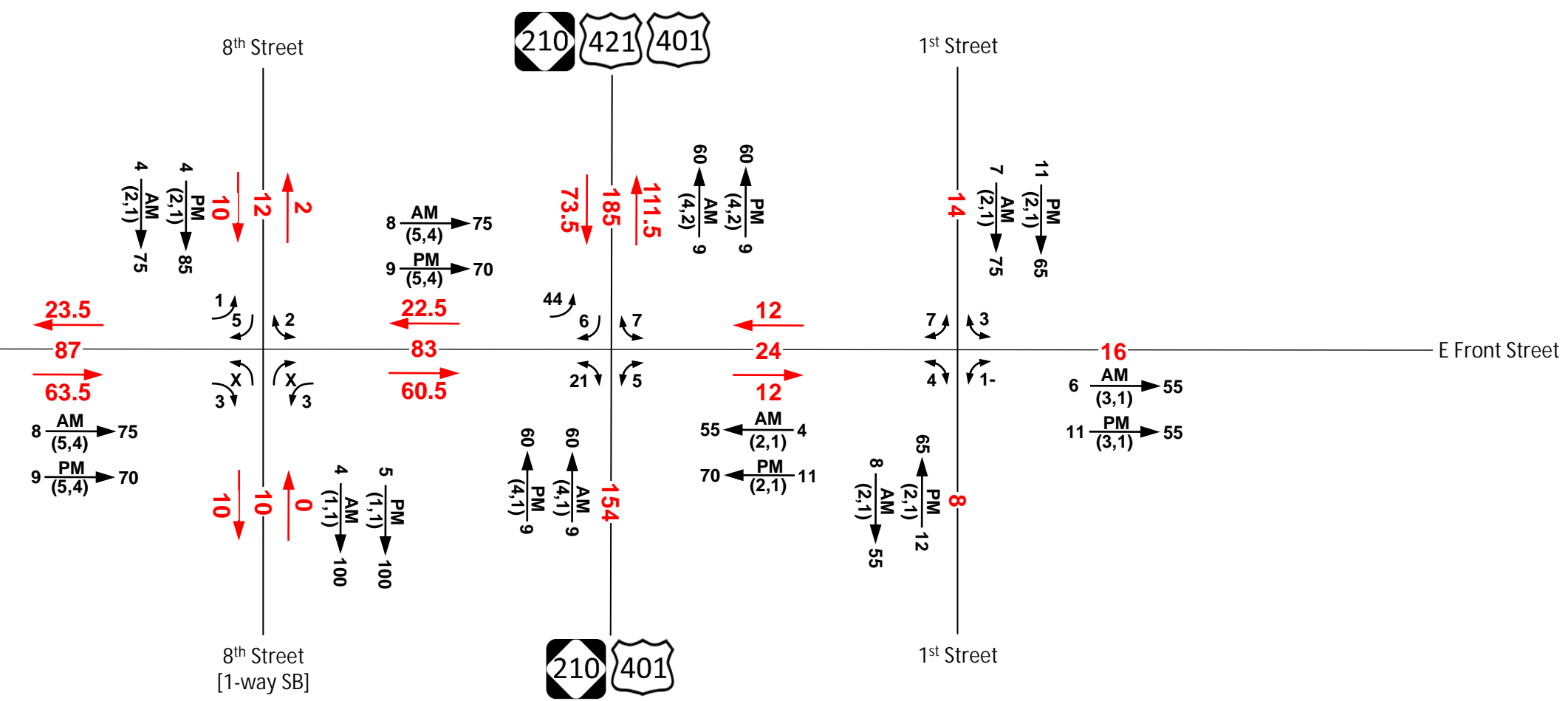
TIP: H090760	WBS: 34263.1.1
COUNTY: HARNETT/LEE	DIVISION: 6/8
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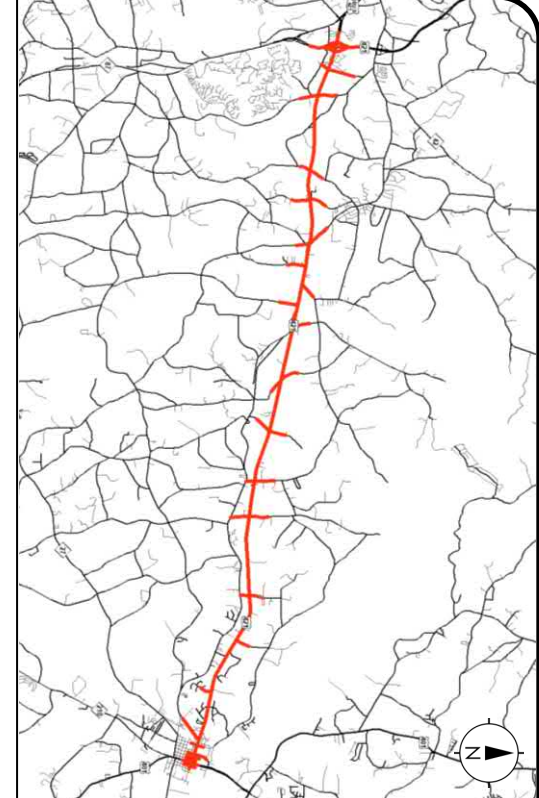
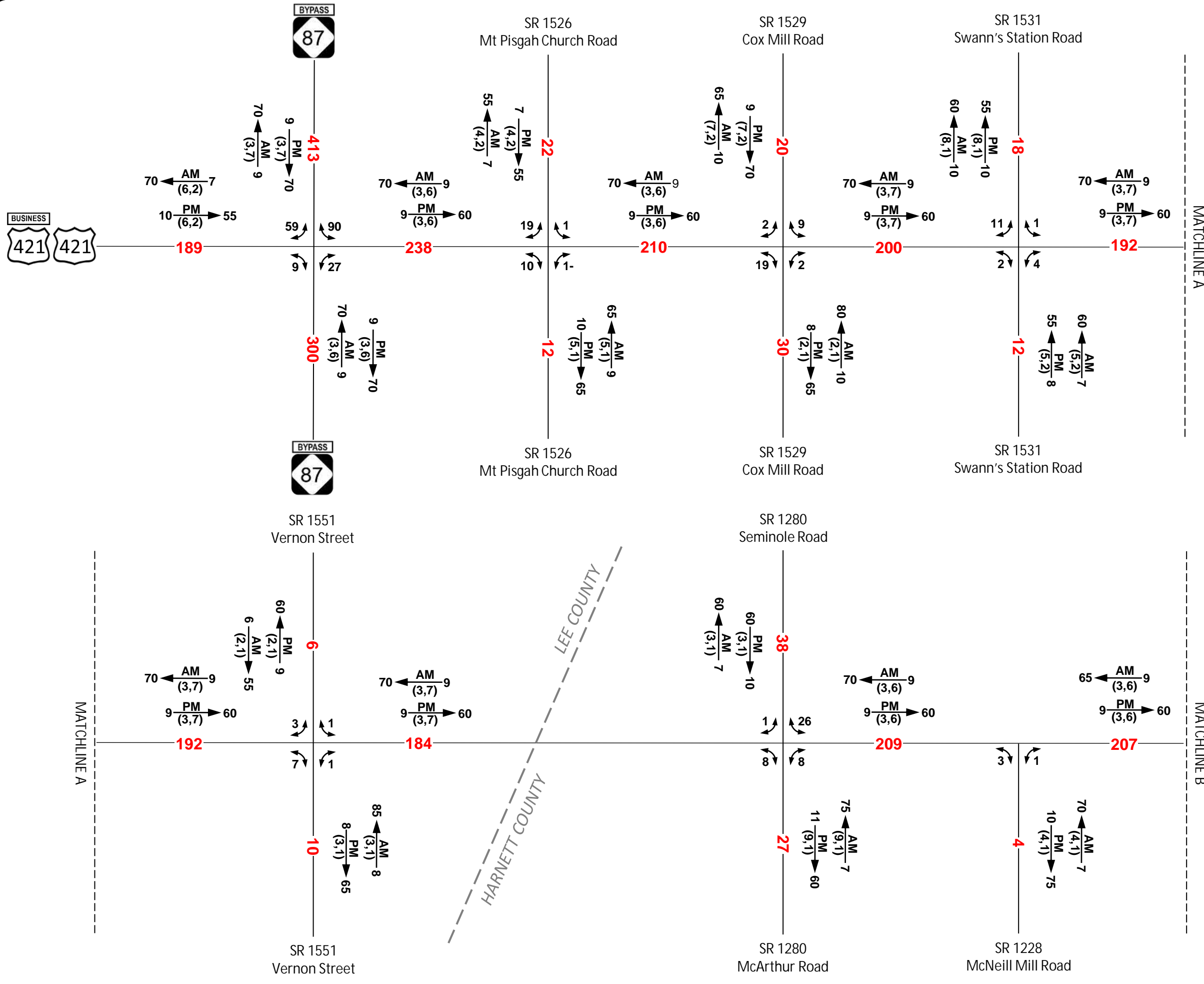


// Break between SR 1302 and SR 1337 is due to Willie Cameron Rd
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MATCHLINE F





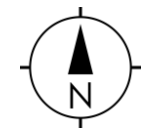
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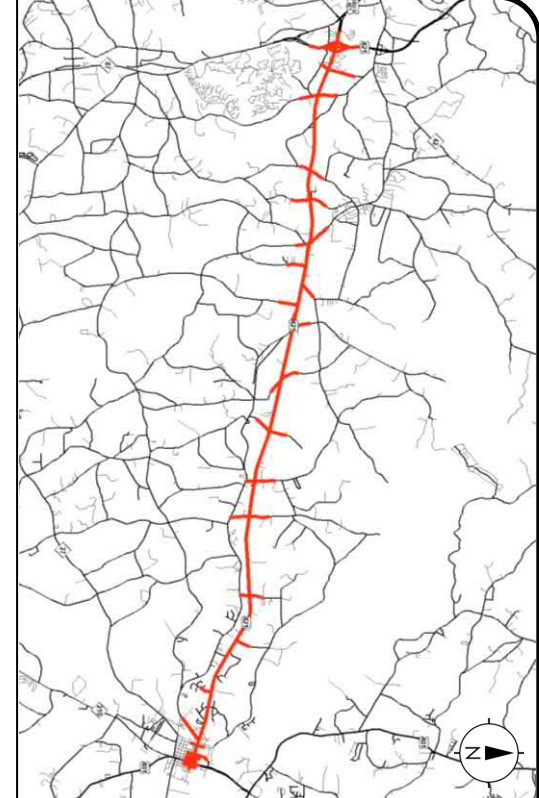
FUTURE YEAR BUILD ALTERNATIVE 2A [SHEET 1 OF 4]

LEGEND

$\overleftarrow{K} \frac{AM/PM}{(d,t)} \rightarrow D$
 ### No. of Vehicles Per Day (VPD) in 100s
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TIP: H090760	WBS: 34263.1.1
COUNTY: HARNETT/LEE	DIVISION: 6/8
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LOCATION: US 421 from US 401 in Lillington to NC 87 in Sanford.	
PROJECT: US 421 Improvements: 4-lane Widening	





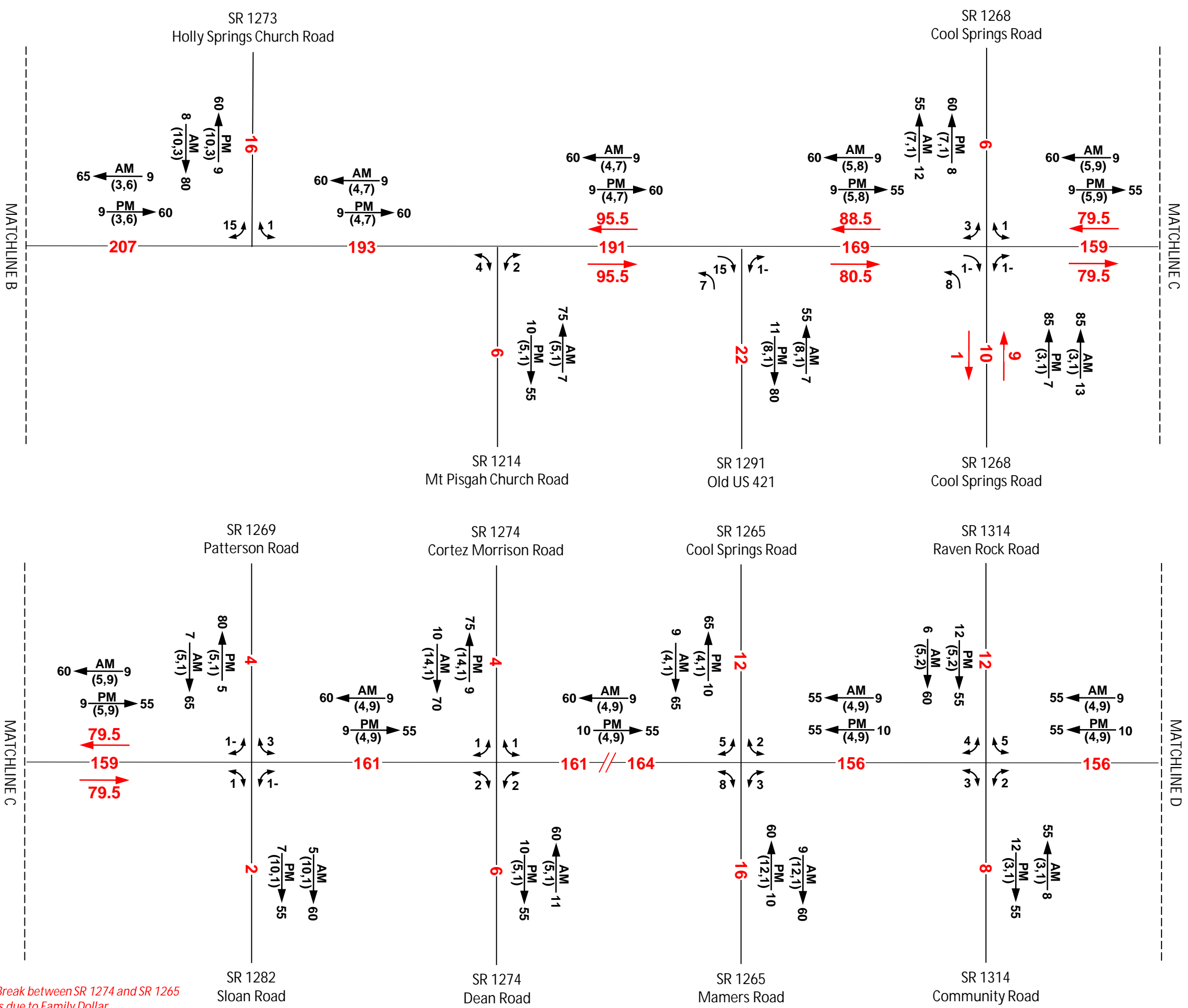
2045 AVERAGE ANNUAL DAILY TRAFFIC

FUTURE YEAR BUILD ALTERNATIVE 2A [SHEET 2 OF 4]

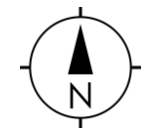
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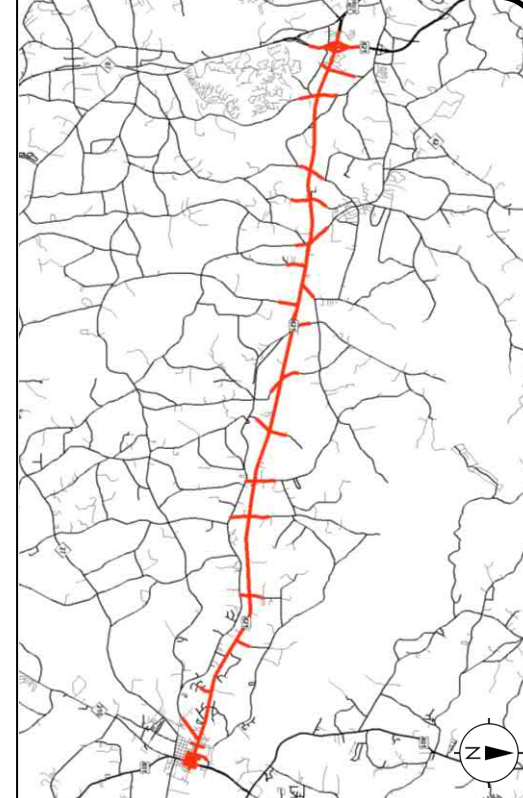
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TIP: H090760	WBS: 34263.1.1
COUNTY: HARNETT/LEE	DIVISION: 6/8
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2045 AVERAGE ANNUAL DAILY TRAFFIC

FUTURE YEAR BUILD ALTERNATIVE 2A [SHEET 3 OF 4]

LEGEND

K $\frac{AM/PM}{(d,t)}$ \rightarrow D

- ### No. of Vehicles Per Day (VPD) in 100s
- 1- Less than 50 VPD
- X Movement Prohibited Roadway
- K Design Hour Factor (%)
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TIP: H090760 WBS: 34263.1.1

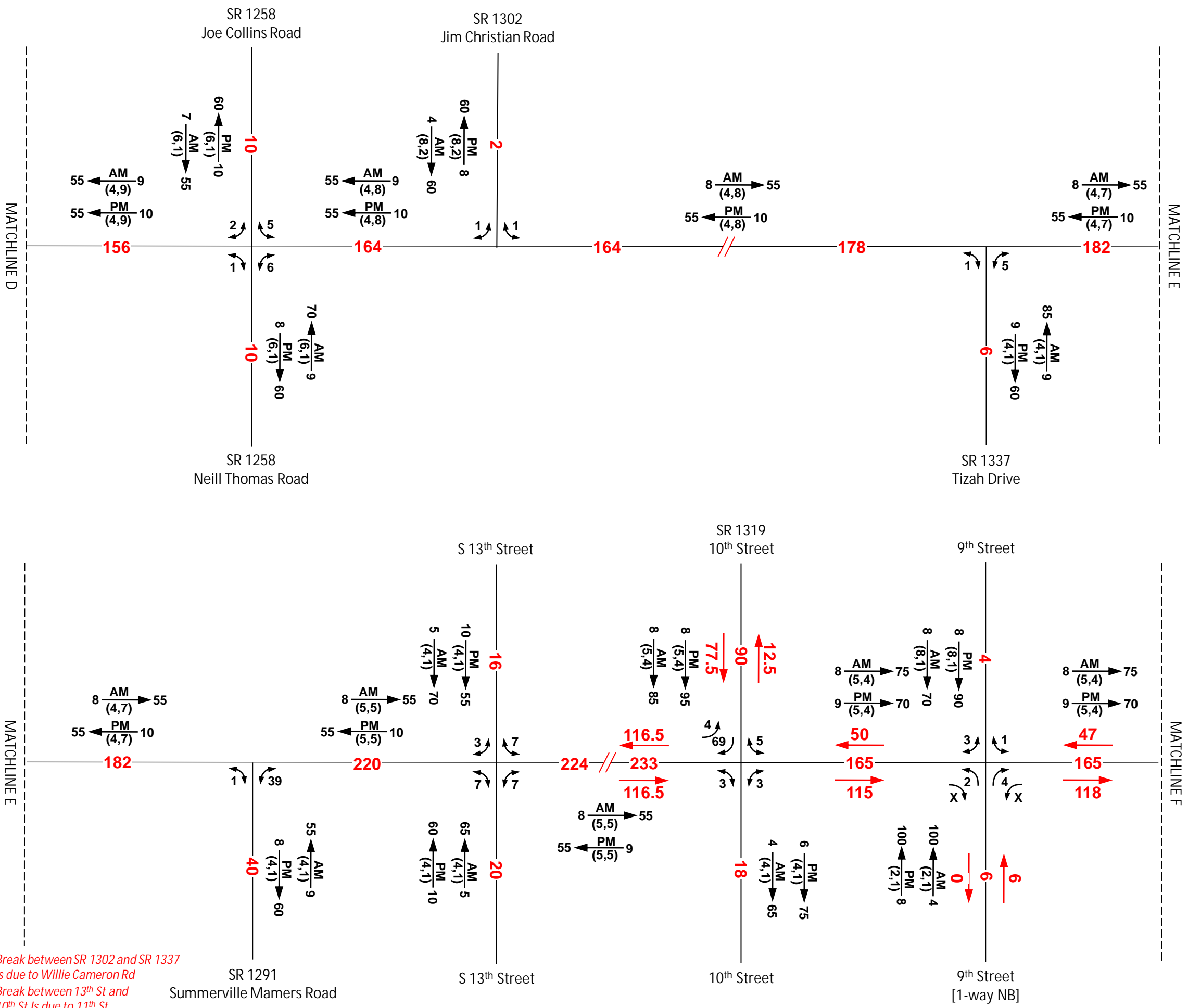
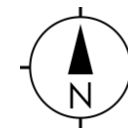
COUNTY: HARNETT/LEE DIVISION: 6/8

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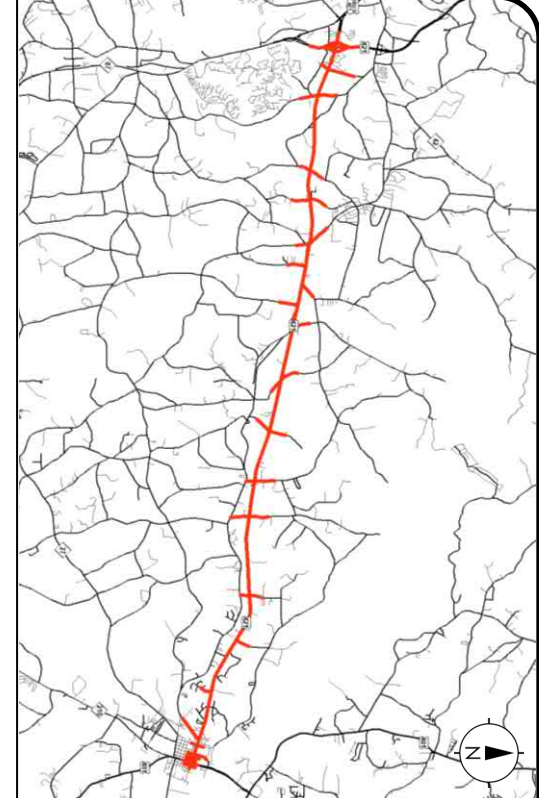
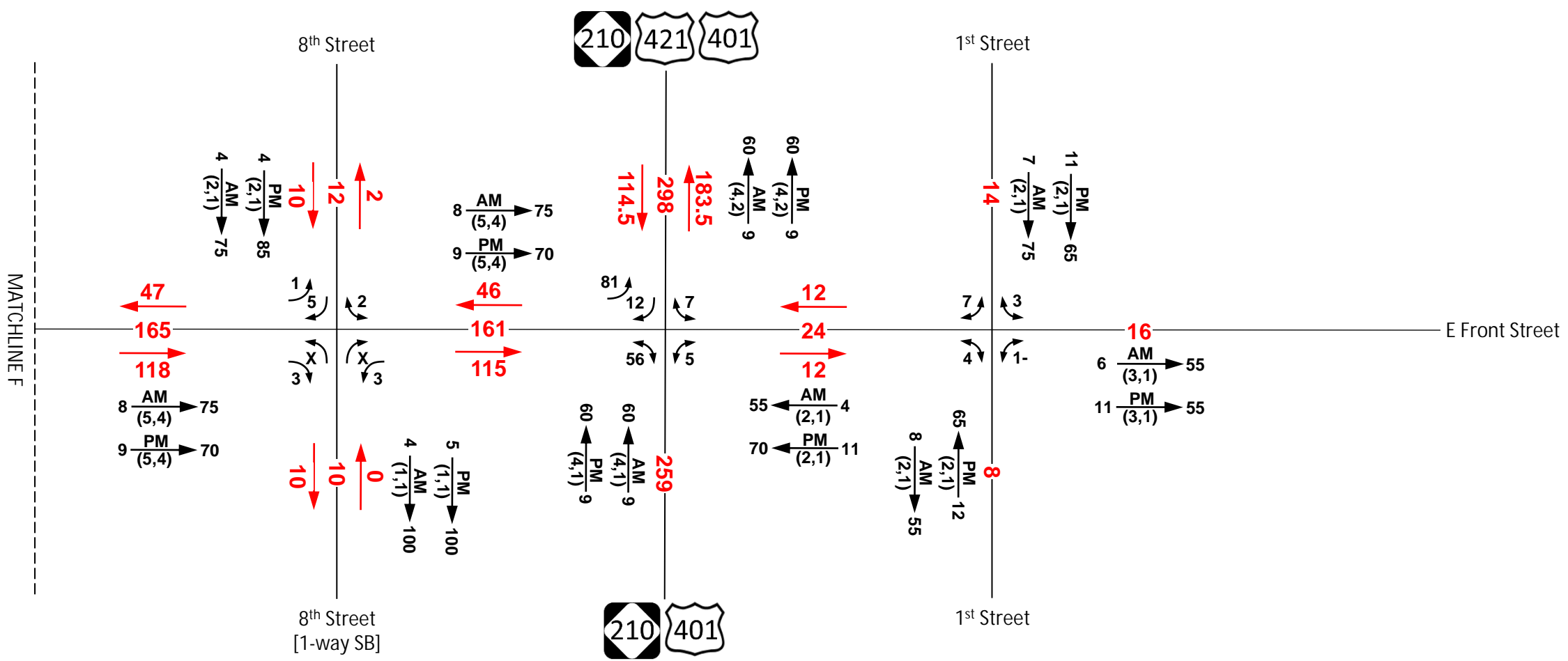
LOCATION: US 421 from US 401 in Lillington to NC 87 in Sanford.

PROJECT: US 421 Improvements: 4-lane Widening



Break between SR 1302 and SR 1337 is due to Willie Cameron Rd

Break between 13th St and 10th St is due to 11th St

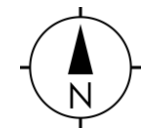


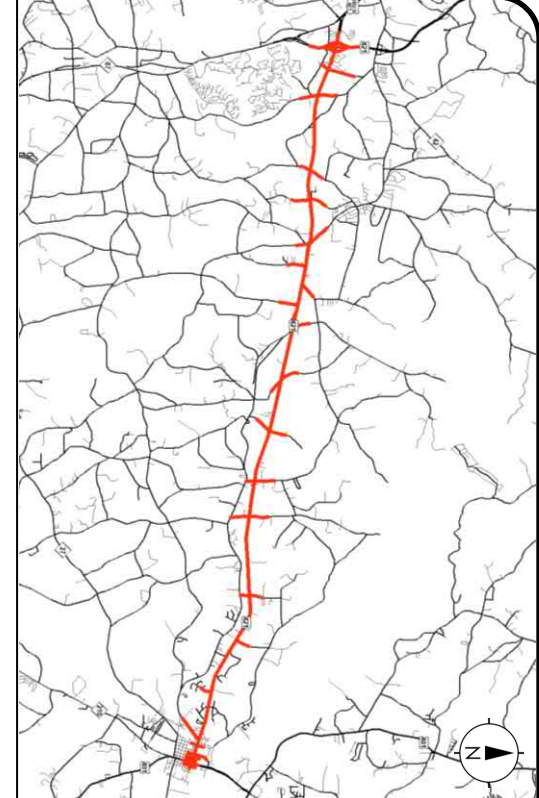
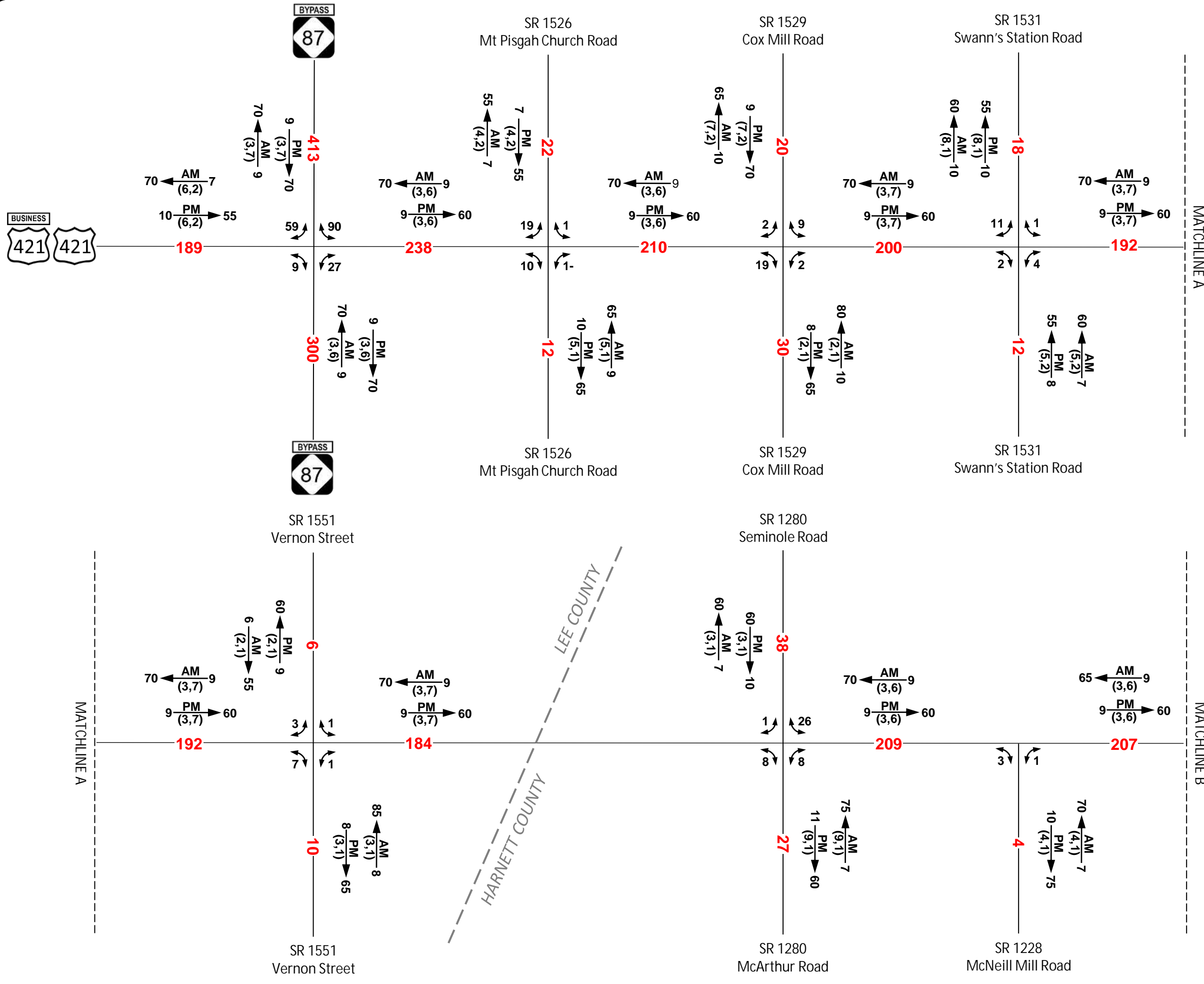
2045 AVERAGE ANNUAL DAILY TRAFFIC

FUTURE YEAR BUILD ALTERNATIVE 2A [SHEET 4 OF 4]

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

TIP: H090760	WBS: 34263.1.1
COUNTY: HARNETT/LEE	DIVISION: 6/8
DATE: 10/26/2021	
PREPARED BY: Mott MacDonald I&E, LLC	
LOCATION: US 421 from US 401 in Lillington to NC 87 in Sanford.	
PROJECT: US 421 Improvements: 4-lane Widening	





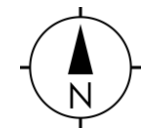
2045 AVERAGE ANNUAL DAILY TRAFFIC

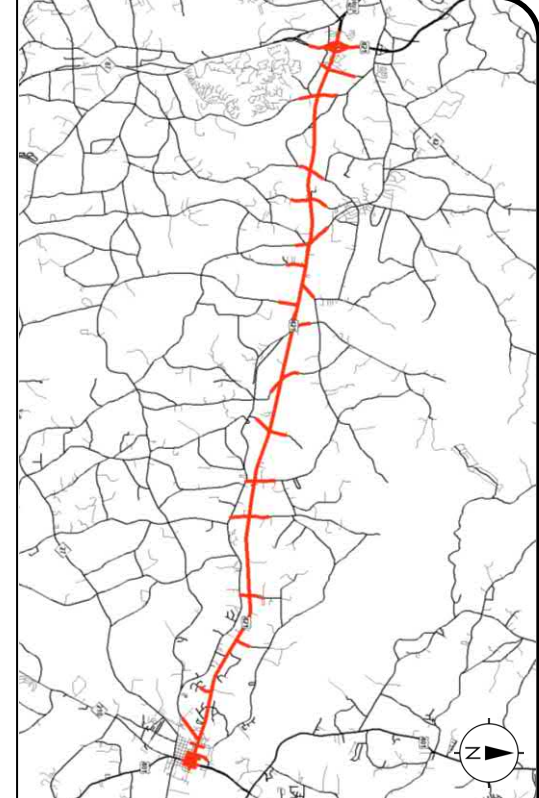
FUTURE YEAR BUILD ALTERNATIVE 2B [SHEET 1 OF 4]

LEGEND

$K \frac{AM/PM}{(d,t)} \rightarrow D$
No. of Vehicles Per Day (VPD) in 100s
1- Less than 50 VPD
X Movement Prohibited Roadway
K Design Hour Factor (%)
AM/PM AM/PM Peak Period
 \rightarrow Peak Hour Directional Split
D Indicates Direction of D (d,t)
(d,t) Duals, TT-STs (%)

TIP: H090760	WBS: 34263.1.1
COUNTY: HARNETT/LEE	DIVISION: 6/8
DATE: 10/26/2021	
PREPARED BY: Mott MacDonald I&E, LLC	
LOCATION: US 421 from US 401 in Lillington to NC 87 in Sanford.	
PROJECT: US 421 Improvements: 4-lane Widening with US 401 Bypass	





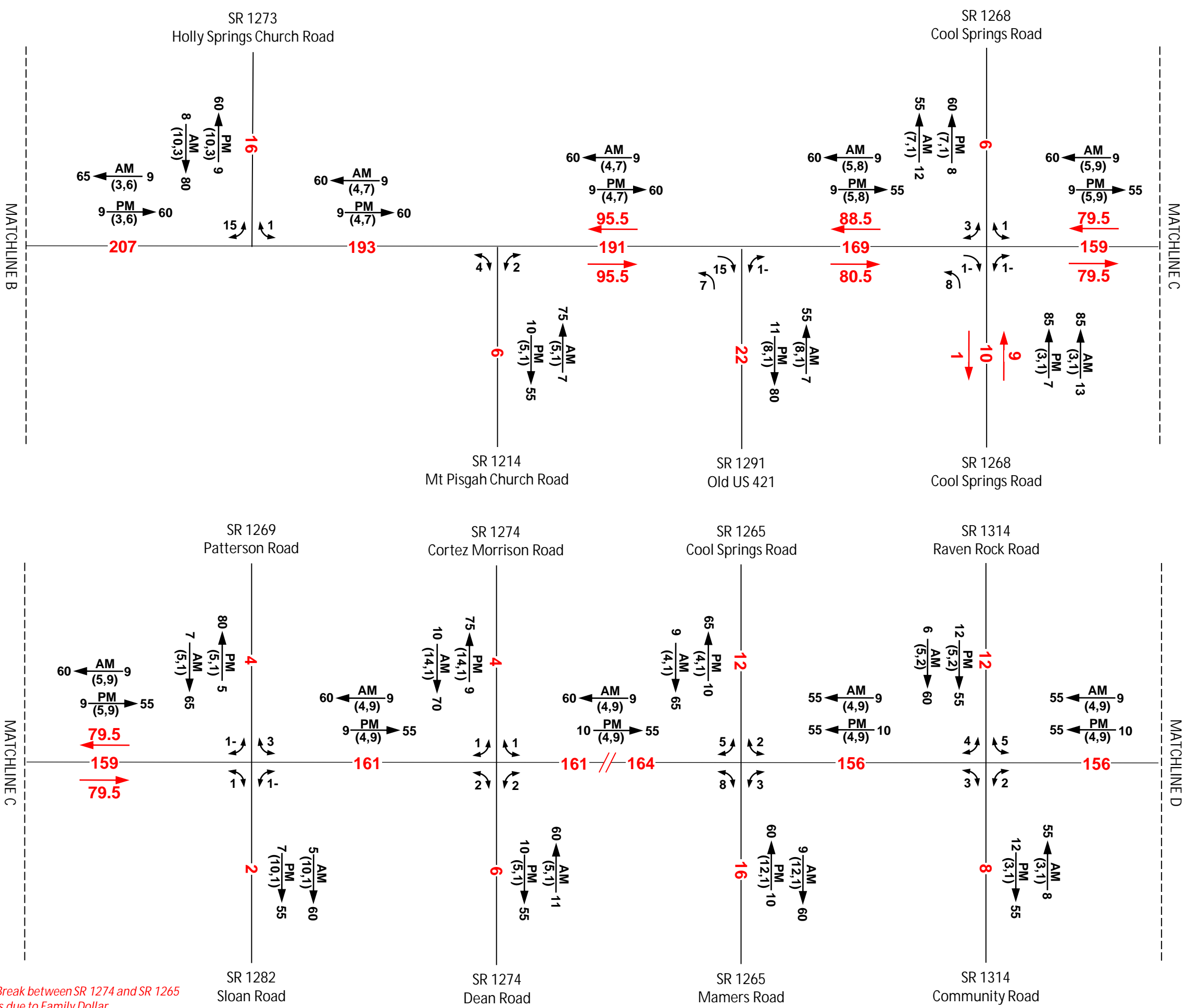
2045 AVERAGE ANNUAL DAILY TRAFFIC

FUTURE YEAR BUILD ALTERNATIVE 2B [SHEET 2 OF 4]

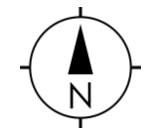
LEGEND

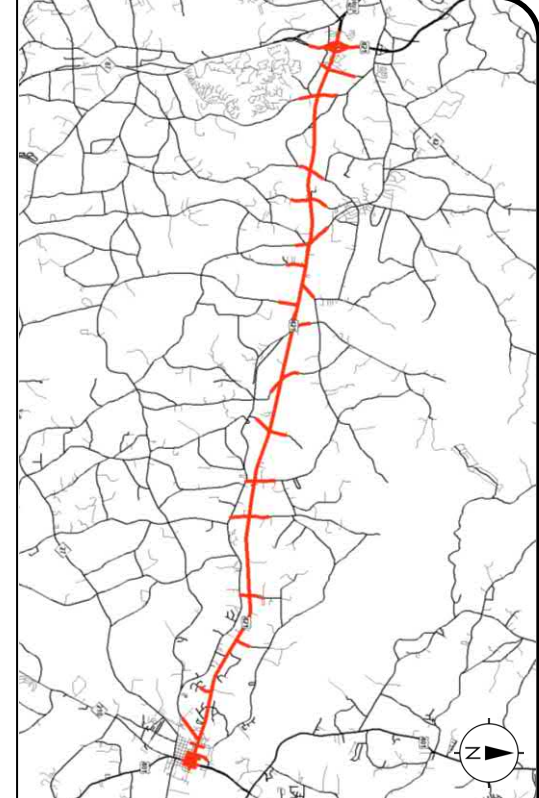
$\overleftarrow{K} \frac{AM/PM}{(d,t)} \rightarrow D$
No. of Vehicles Per Day (VPD) in 100s
1- Less than 50 VPD
X Movement Prohibited Roadway
K Design Hour Factor (%)
AM/PM AM/PM Peak Period
 \rightarrow Peak Hour Directional Split
D Indicates Direction of D (d,t) Duals, TT-STs (%)

TIP: H090760	WBS: 34263.1.1
COUNTY: HARNETT/LEE	DIVISION: 6/8
DATE: 10/26/2021	
PREPARED BY: Mott MacDonald I&E, LLC	
LOCATION: US 421 from US 401 in Lillington to NC 87 in Sanford.	
PROJECT: US 421 Improvements: 4-lane Widening with US 401 Bypass	



// Break between SR 1274 and SR 1265 is due to Family Dollar





2045 AVERAGE ANNUAL DAILY TRAFFIC

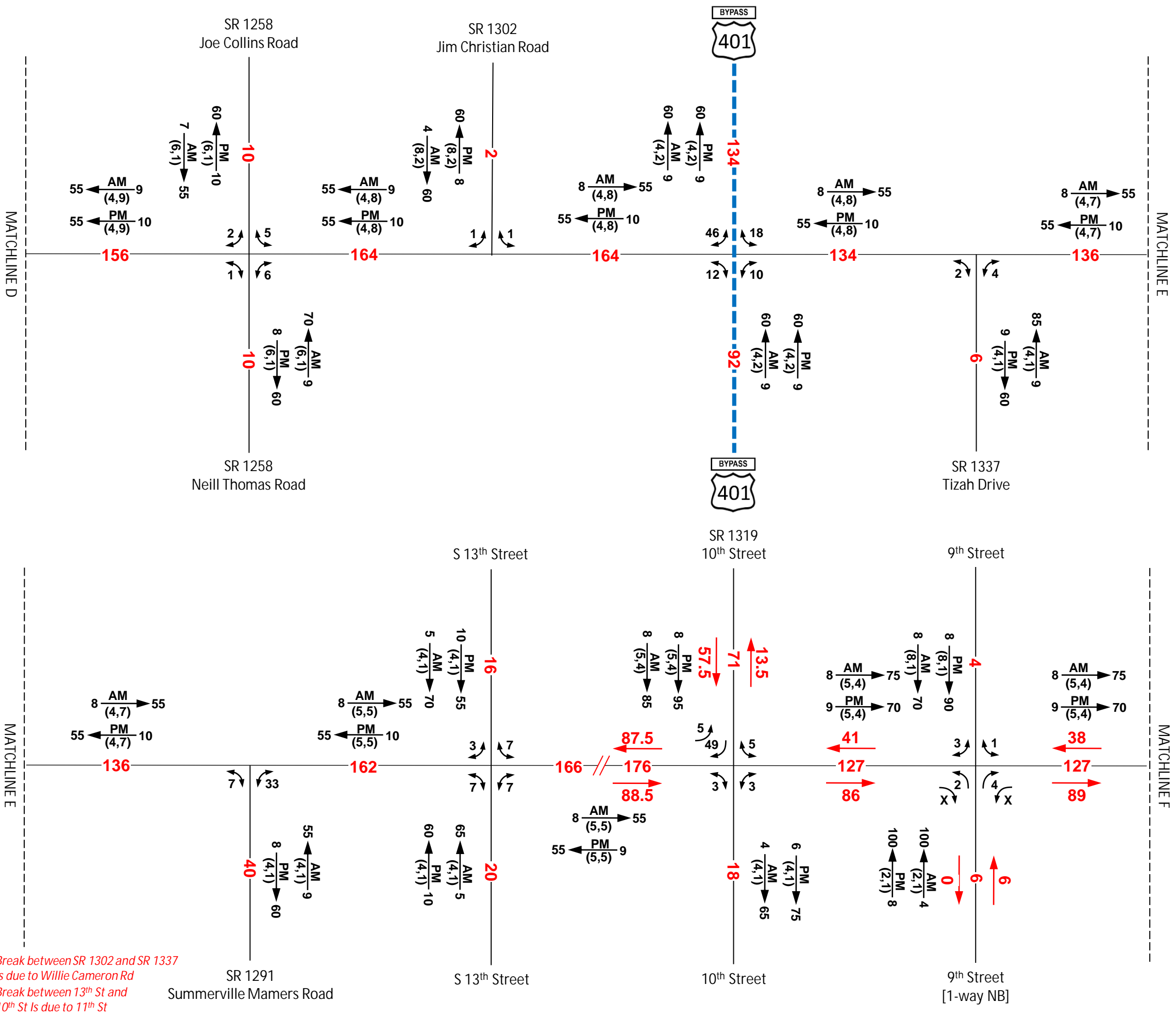
FUTURE YEAR BUILD ALTERNATIVE 2B [SHEET 3 OF 4]

LEGEND

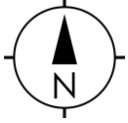
$K \frac{AM/PM}{(d,t)} \rightarrow D$

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

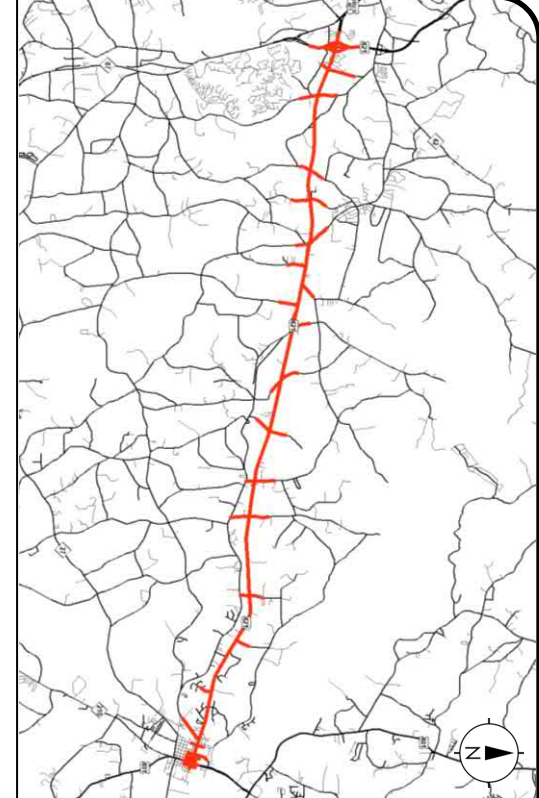
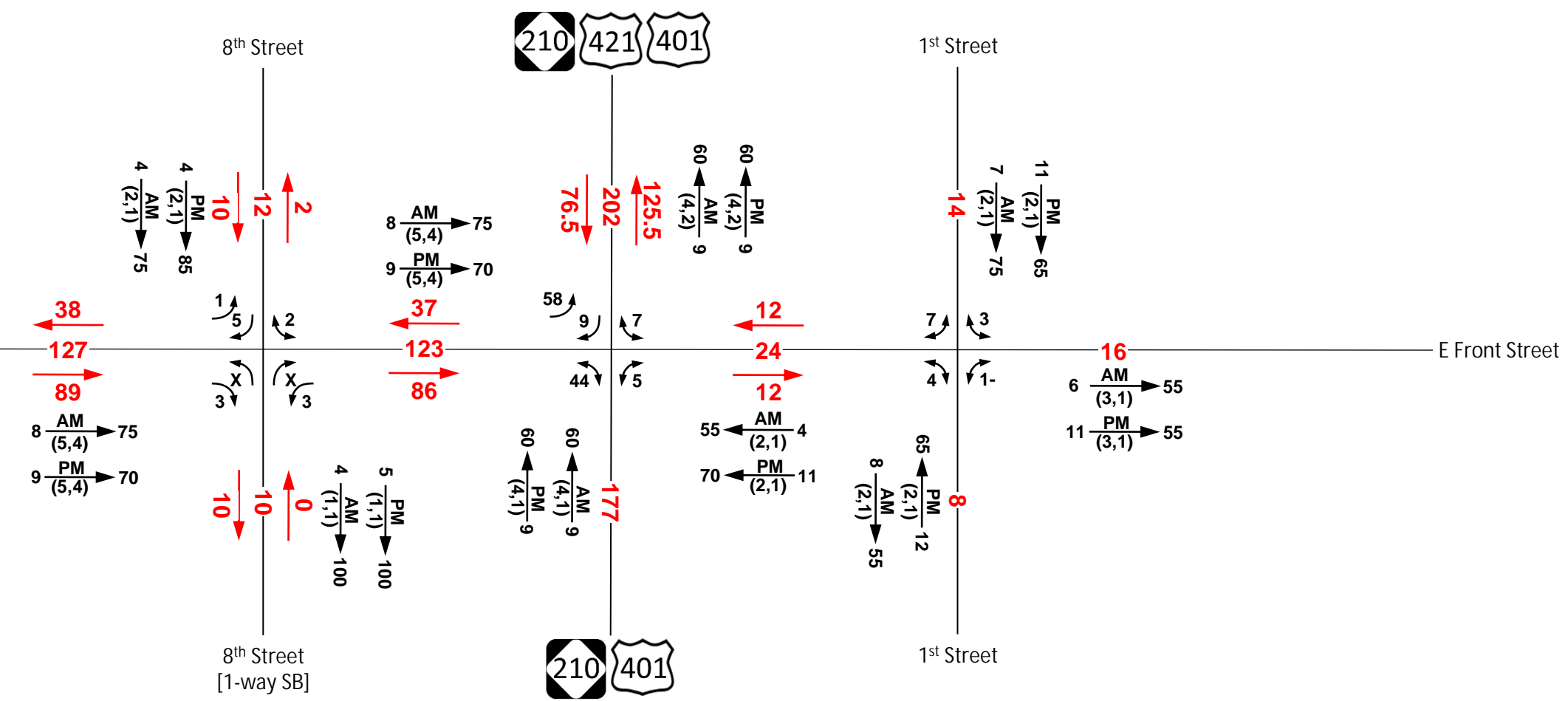
TIP: H090760	WBS: 34263.1.1
COUNTY: HARNETT/LEE	DIVISION: 6/8
DATE: 10/26/2021	
PREPARED BY: Mott MacDonald I&E, LLC	
LOCATION: US 421 from US 401 in Lillington to NC 87 in Sanford.	
PROJECT: US 421 Improvements: 4-lane Widening with US 401 Bypass	



// Break between SR 1302 and SR 1337 is due to Willie Cameron Rd
 // Break between 13th St and 10th St is due to 11th St



MATCHLINE F



2045 AVERAGE ANNUAL DAILY TRAFFIC

FUTURE YEAR BUILD ALTERNATIVE 2B [SHEET 4 OF 4]

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

TIP: H090760	WBS: 34263.1.1
COUNTY: HARNETT/LEE	DIVISION: 6/8
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