Traffic Forecast Cover Letter

February 25, 2025

MEMORANDUM TO: Shane York, PE
Feasibility Study Unit, NCDOT

FROM: Kimberly Levine
Three Oaks Engineering, Inc.

SUBJECT: Traffic Forecast for STIP Project H230309 H230310
Division 2, Carteret and Craven Counties
Northern Carteret Bypass

The NCDOT Transportation Planning Division (TPD) has reviewed and approved this traffic forecast for delivery as of February 24, 2025.

Please find attached the 2024 and 2050 traffic forecasts for STIP Project H230309 H230310. H230309 H230310 Northern Carteret Bypass includes upgrading portions of US 70 and NC 101 to interstate standards and building a new interstate between the two roadways north of Newport. The project area is located within Carteret and Craven Counties, which is in the eastern part of North Carolina, and is located within NCDOT Division 2 and within the Down East Rural Planning Organization (DERPO) boundary. This project proposes the development of the Northern Carteret Bypass.

The following scenarios are provided in this forecast:

- Base Year 2024 No-Build/Alternative 1 – Base Year with existing conditions/US 70 being upgraded
- Base Year 2024 Build Alternative 2A – Base Year with proposed new bypass on new alignment
- Base Year 2024Build Alternative 2B – Base Year with proposed new bypass on new alignment
- Base Year 2024 Build Alternative 3 – Base Year with proposed new bypass on new alignment
- Future Year 2050 No-Build/Alternative 1 – Future Year with existing conditions/US 70 being upgraded
- Future Year 2050 Build Alternative 2A – Future Year with proposed new bypass on new alignment
- Future Year 2050 Build Alternative 2B – Future Year with proposed new bypass on new alignment
- Future Year 2050 Build Alternative 3 – Future Year with proposed new bypass on new alignment

The following individuals were consulted in the development of this forecast: Mary Beth Houston, PE (NCDOT Division 2 Engineer), Cadmus Capehart, PE (NCDOT Deputy Division 2 Engineer), Robby Taylor (NCDOT District Engineer), David Bone (Down East RPO, Director), Amanda Killian (NCDOT Contact, Down East RPO), Mickey Anderson (NCDOT Down East RPO), Grogory Hartman (Assistant Planning Director, Carteret County), Annie Bunnell (Morehead City Planner), Jason Frederick (Assistant Planning Director, Craven County), Katrina Marshall, AICP (Havelock, Director), Patrick Flanagan (Transportation Services Director for CCATS), Leonard White (NCDOT Division 2 Planning Engineer).

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 expected to affect the travel patterns on the subject project:

- H129124 (US 70 Havelock Bypass) – Construct multilane facility on new location north of Pine Grove to north of Carteret County line
- R-5727 – SR 1176 (Bridges Street Extension) from SR 1176 (Bridges Street Extension) to SR 1147 (Mcabe Road)
- R-5945 – Upgrade Roadway from SR 1429 (Olga Road) to SR 130 (Whitehurst Road)

FORECAST METHODOLOGY

The 2024 Base Year No-Build/Alternative 1 forecast was primarily based on traffic count data collected in September of 2024 and historical AADT stations. The traffic count data was converted to AADT volumes by applying the corridor-specific seasonal factors and 13-hour to 24-hour traffic count adjustment factors. With no comparable options for travel through this area, upgrading the existing facility was not assumed to affect growth rates. Therefore, the 2024 Base Year No-Build and the 2024 Build Alternative 1 forecasts have the same volumes. One forecast was developed for both scenarios.

The 2050 Future Year No-Build/Build Alternative 1 AADT values were estimated by applying a chosen growth rate to the 2024 Base Year No-Build/Alternative 1 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. With no comparable options for travel through this area, upgrading the existing facility was not assumed to affect growth rates. Therefore, the 2050 Future Year No-Build and the 2050 Build Alternative 1 forecasts have the same volumes. One forecast was developed for both scenarios.

The 2024 Base Year and 2050 Future Year Build Alternative 2A forecasts assume that the Carteret bypass will be constructed with a western connection at the Havelock Bypass and US 70 interchange and an eastern connection at the intersection of US 70 and SR 1300 (Merrimon Road). Additionally, the bypass intersects US 101.

The 2024 Base Year and 2050 Future Year Build Alternative 2B forecasts assume that the Carteret bypass will be constructed with a western connection at US 70 interchange just north of SR 1247 (Chatham Road) and an eastern connection at the intersection of US 70 and SR 1300 (Merrimon Road). Additionally, the bypass intersects US 101.

The 2024 Base Year and 2050 Future Year Build Alternative 3 forecasts assume that the Carteret bypass will be constructed with a western connection at US 70 interchange just north of SR 1247 (Chatham Road) and an eastern connection at the intersection of US 70 and SR 1300 (Merrimon Road). Additionally, the bypass intersects US 101.

StreetLight Data (“Big Data” supplier) was used to determine the origin and destinations of traffic traveling in the area.

Assumptions include:

- Through trips to and from the north-western portion of the area that wished to access the Atlantic Beach Bridge would utilize the Carteret Bypass
- Trips that currently use the North River Bridge and utilize NC 101 to travel to and from US 70 north-west of the study area would reroute to the Carteret Bypass and to the Havelock Bypass
- Trips that are currently made outside of the forecast area, but access US 70 from the east will reroute to the new bypass.
- Trips utilizing Laurel Road to access NC 101 were rerouted to the bypass.
- All trips were rerouted to the assumed quickest path.

The Build Alternatives were developed by combining the trip diversions associated with Alternatives 2A, 2B and 3 with the No-Build forecasts.

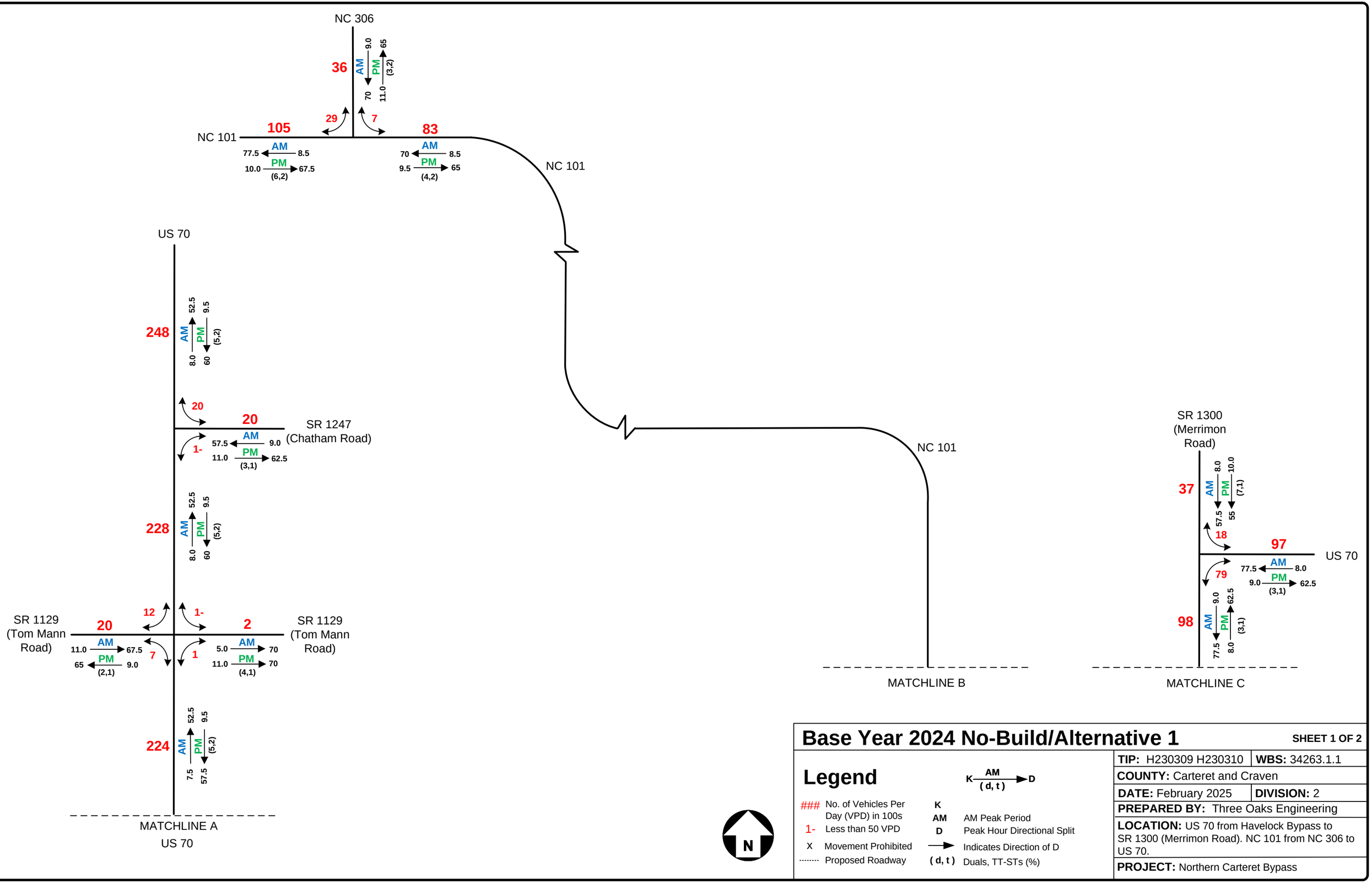
INTERPOLATION/EXTRAPOLATION

Due to the potential effects of the H230309 H230310 project on forecast volumes, contact the State Traffic Forecast engineer before interpolating or extrapolating values. 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 (Craven County, TIP Project H230309 H230310)
FILE (Carteret County, TIP Project H230309 H230310)

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)
Mary Beth Houston, PE, NCDOT Division 2 Division Engineer (mbhouston@ncdot@ncdot.gov)
Keith Dixon, State Traffic Forecast Engineer (kgdixon@ncdot.gov)
Traffic Forecasting GIS Support (trafficforecastinggissupport@ncdot.gov)



Base Year 2024 No-Build/Alternative 1

SHEET 1 OF 2

Legend

K AM D
(d, t)

###	No. of Vehicles Per Day (VPD) in 100s	K	
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: H230309 H230310 | **WBS:** 34263.1.1

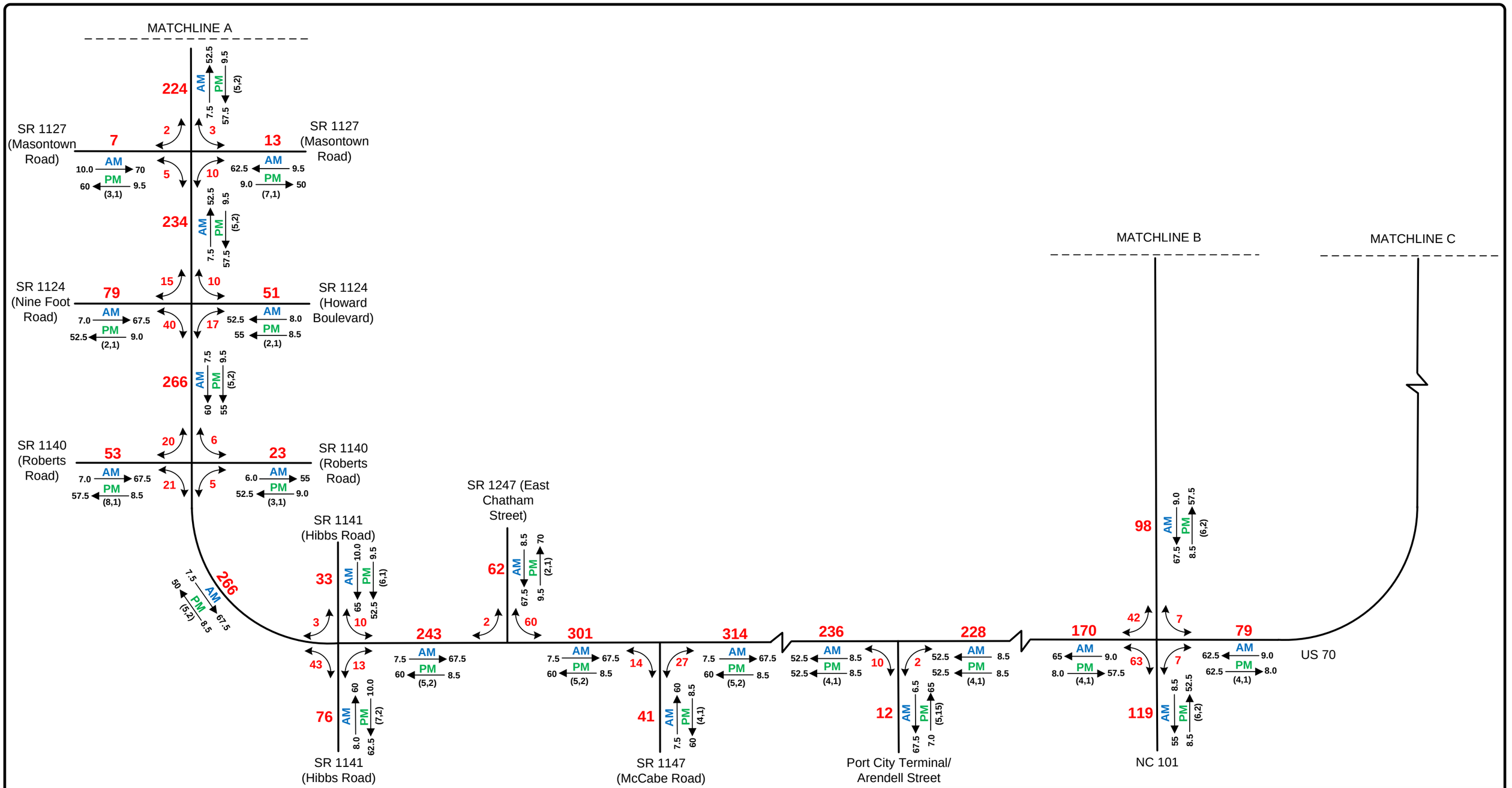
COUNTY: Carteret and Craven

DATE: February 2025 | **DIVISION:** 2

PREPARED BY: Three Oaks Engineering

LOCATION: US 70 from Havelock Bypass to SR 1300 (Merrimon Road). NC 101 from NC 306 to US 70.

PROJECT: Northern Carteret Bypass



Base Year 2024 No-Build/Alternative 1

SHEET 2 OF 2

Legend

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

K — AM — D
(d, t)

K	
AM	AM Peak Period
D	Peak Hour Directional Split
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(d, t)	Duals, TT-STs (%)

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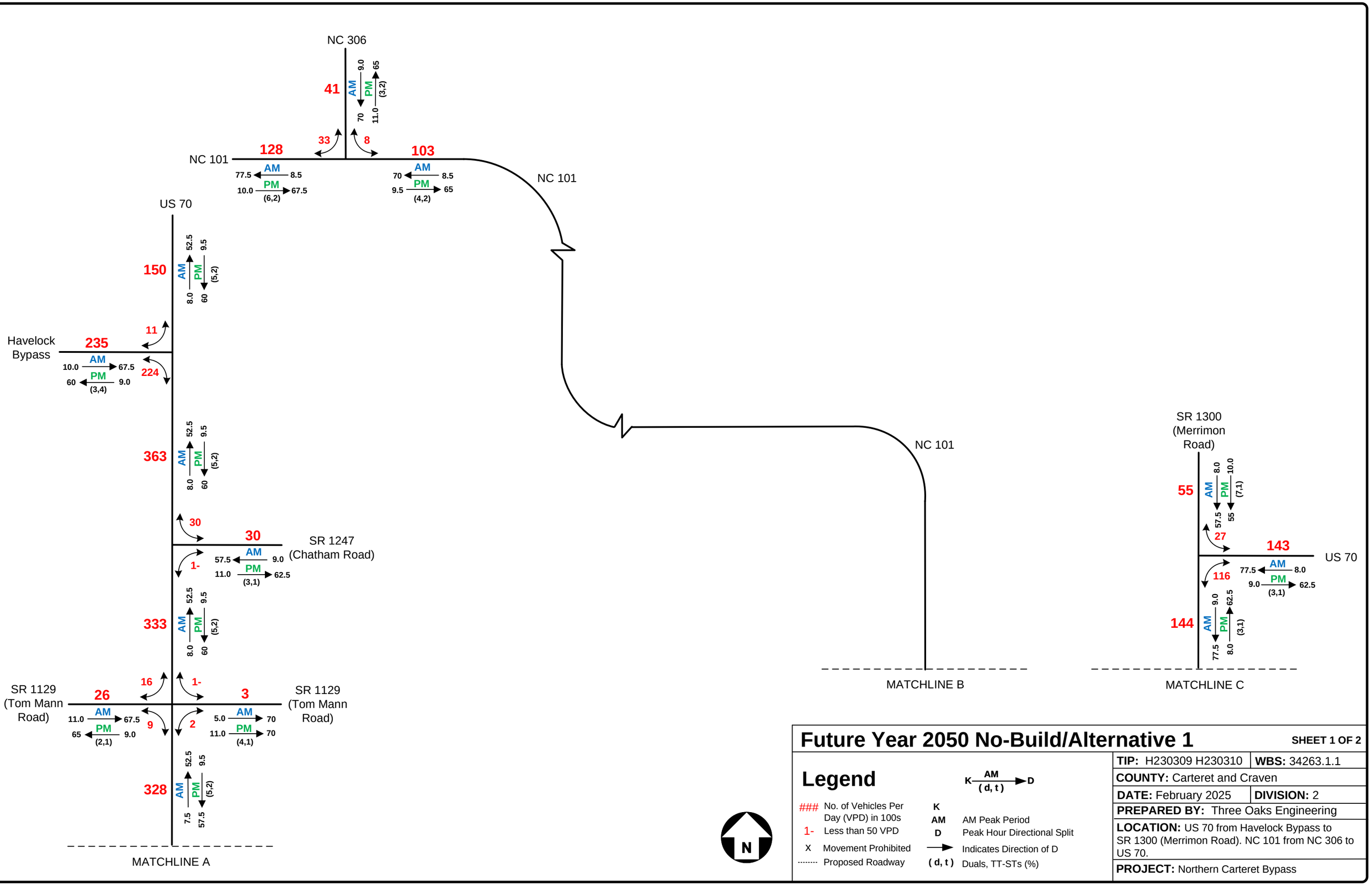

Future Year 2050 No-Build/Alternative 1

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	AM Peak Period
D	Peak Hour Directional Split
→	Indicates Direction of D
(d, t)	Duals, TT-STs (%)

K —AM→ D
(d, t)

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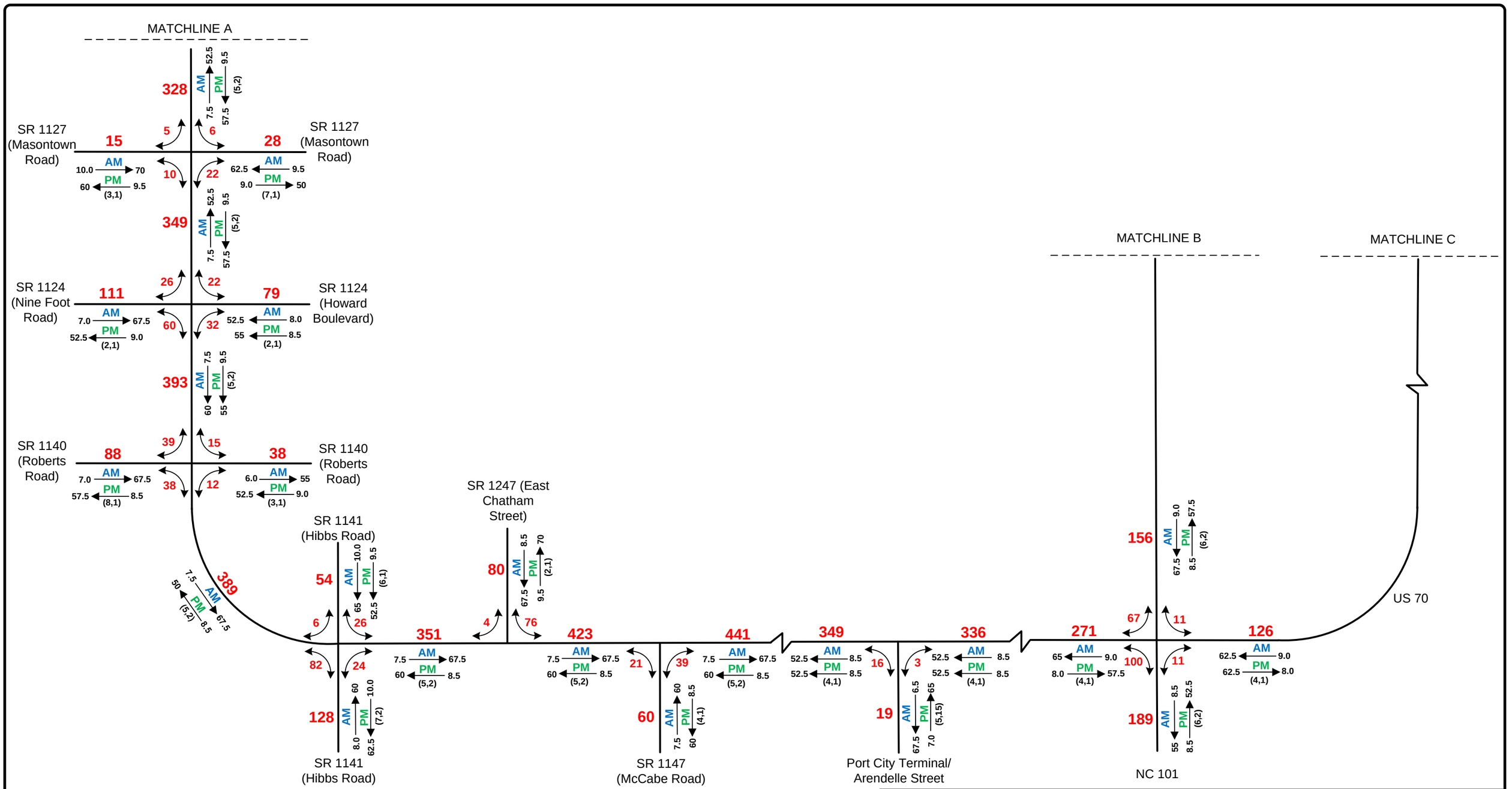

Future Year 2050 No-Build/Alternative 1

SHEET 2 OF 2

Legend

AM: K → D (d, t)

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1-	Less than 50 VPD
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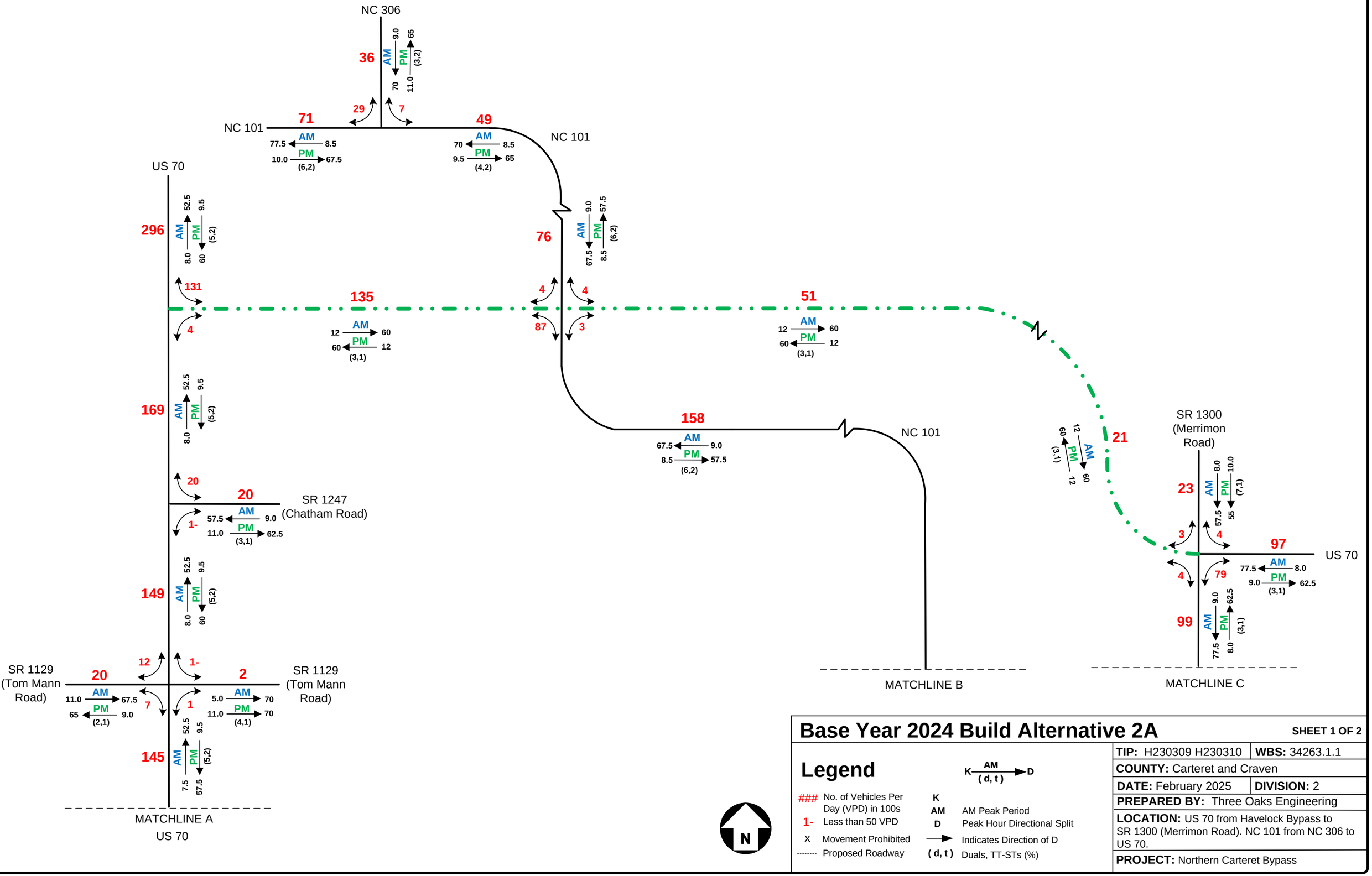

Base Year 2024 Build Alternative 2A

SHEET 1 OF 2

Legend

AM: K → D (d, t)

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

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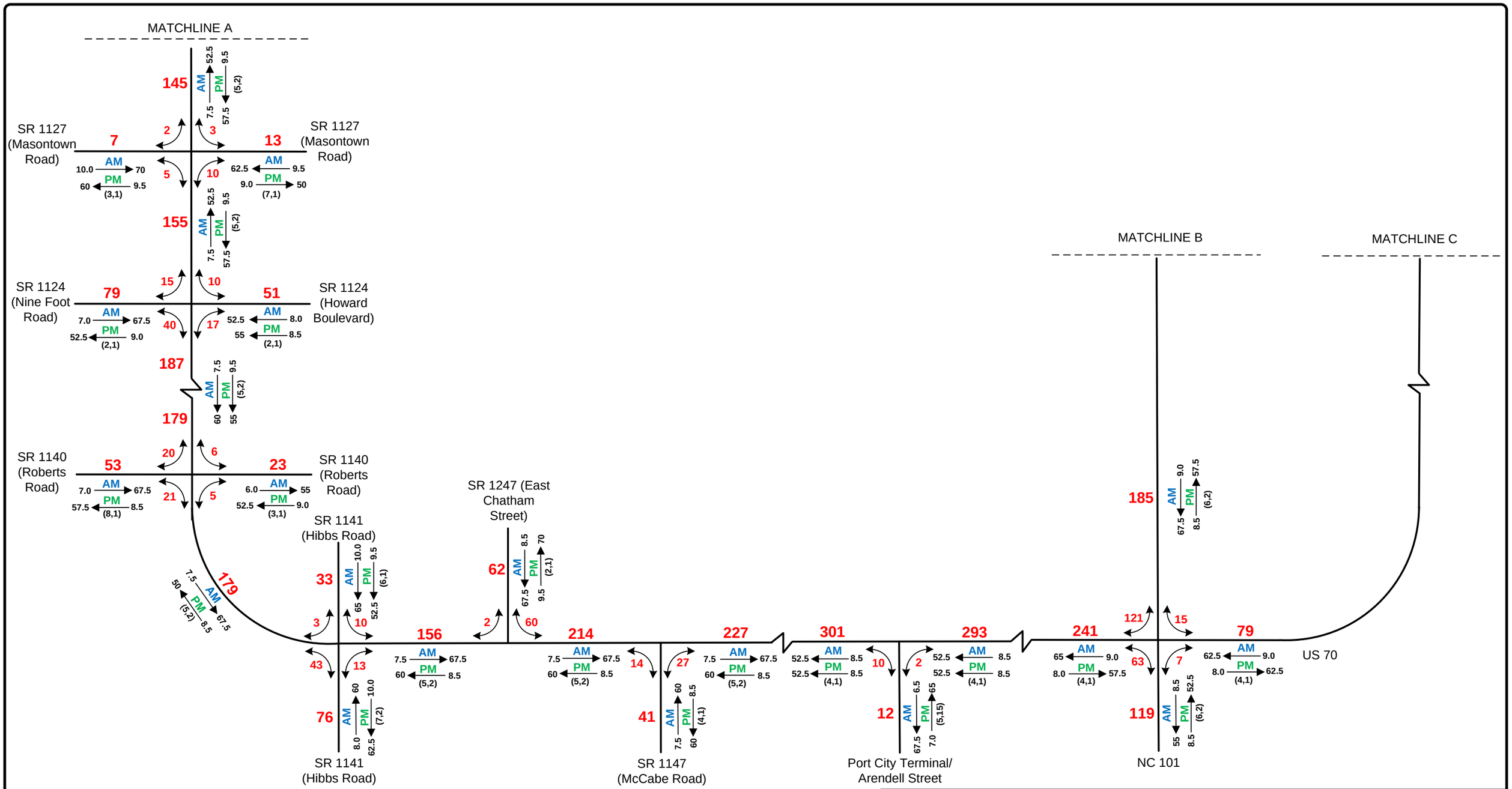

Base Year 2024 Build Alternative 2A

SHEET 2 OF 2

Legend

AM: K → D (d, t)

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1-	Less than 50 VPD
X	Movement Prohibited
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K	
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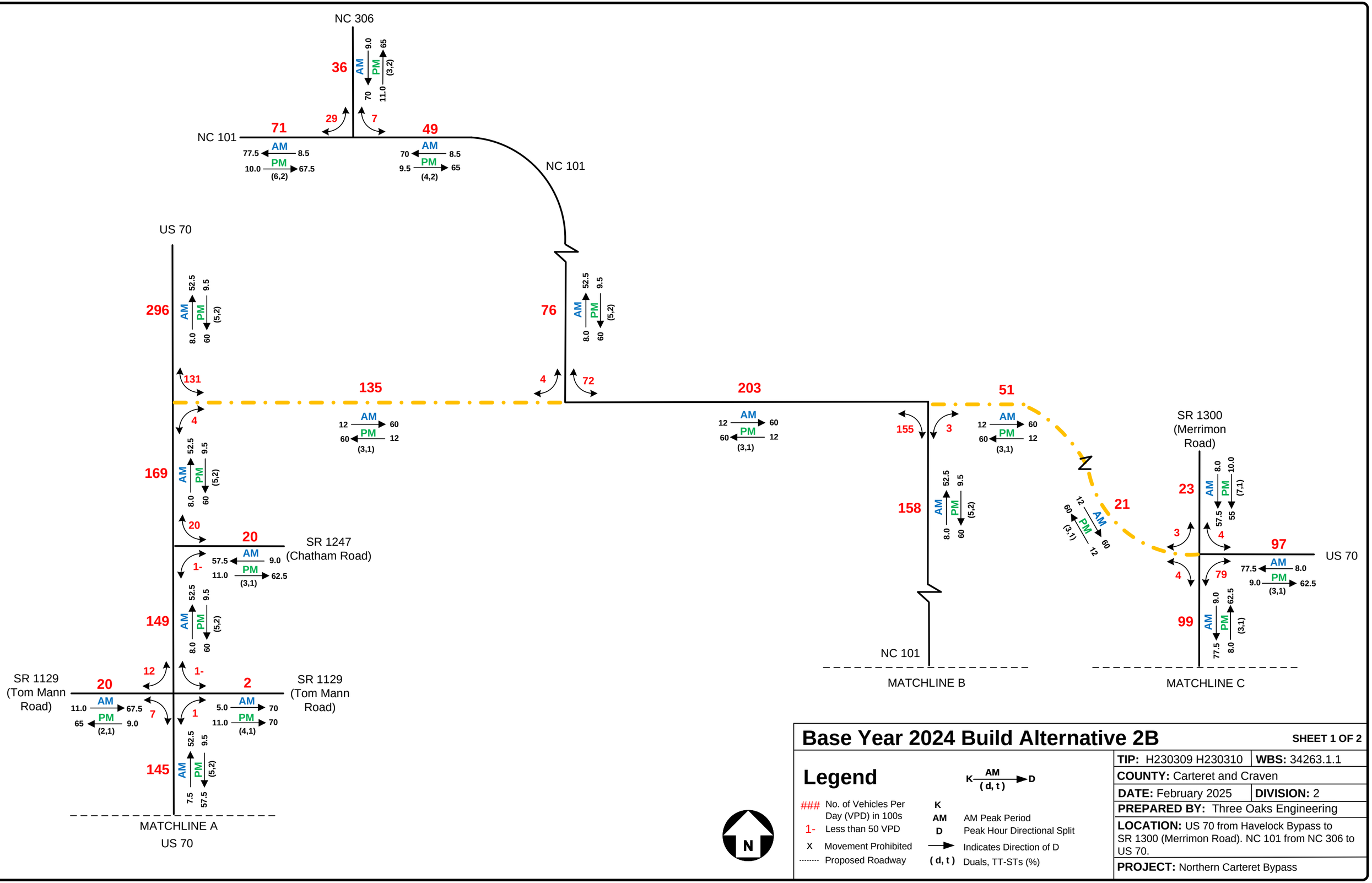

Base Year 2024 Build Alternative 2B

SHEET 1 OF 2

Legend

K —AM (d, t)→ D

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

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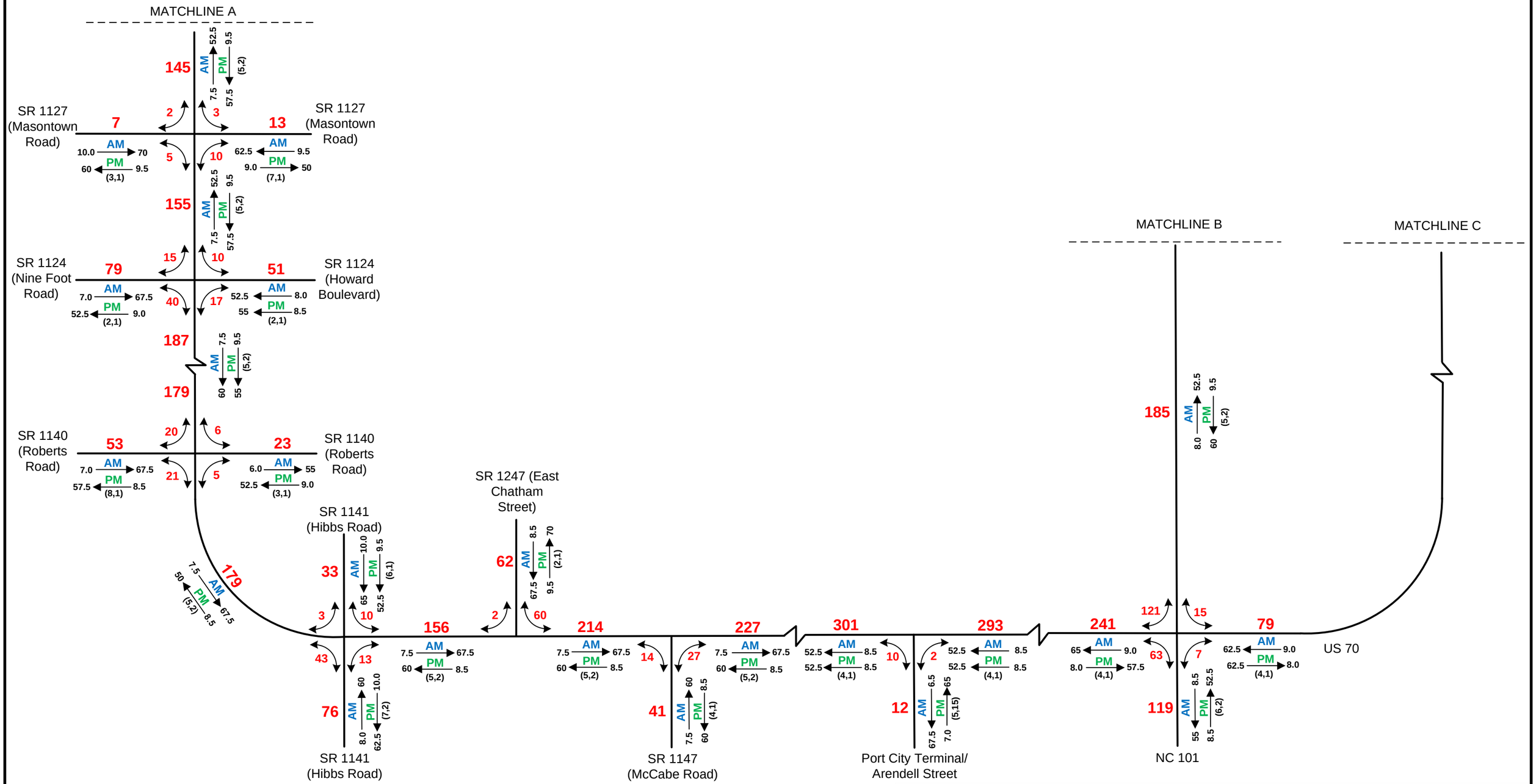

Base Year 2024 Build Alternative 2B

SHEET 2 OF 2

Legend

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

K — AM → D
(d, t)

K	
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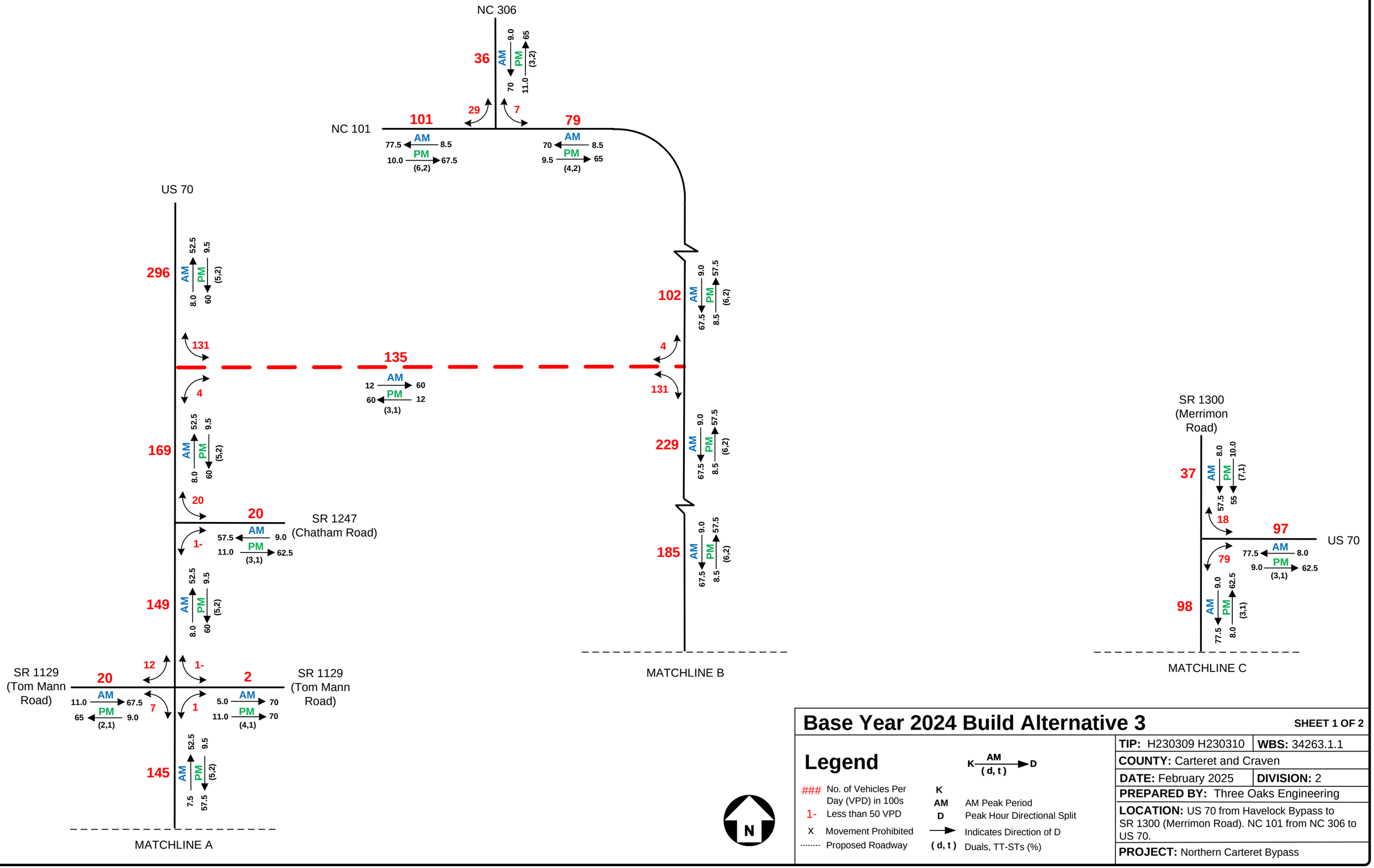

Base Year 2024 Build Alternative 3

Legend

K AM (d, t) D

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

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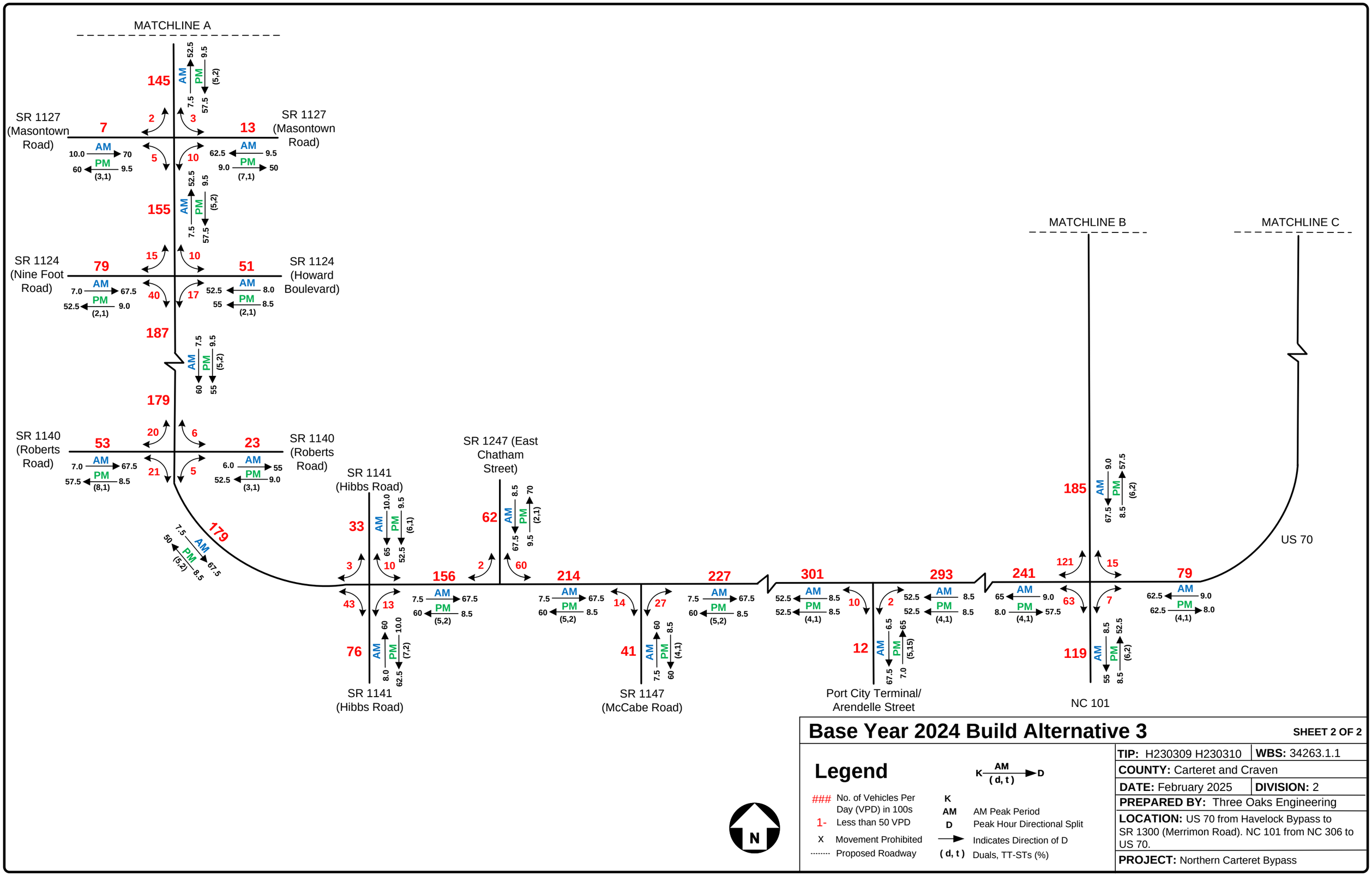

Base Year 2024 Build Alternative 3

SHEET 2 OF 2

Legend

K — AM (d, t) → D

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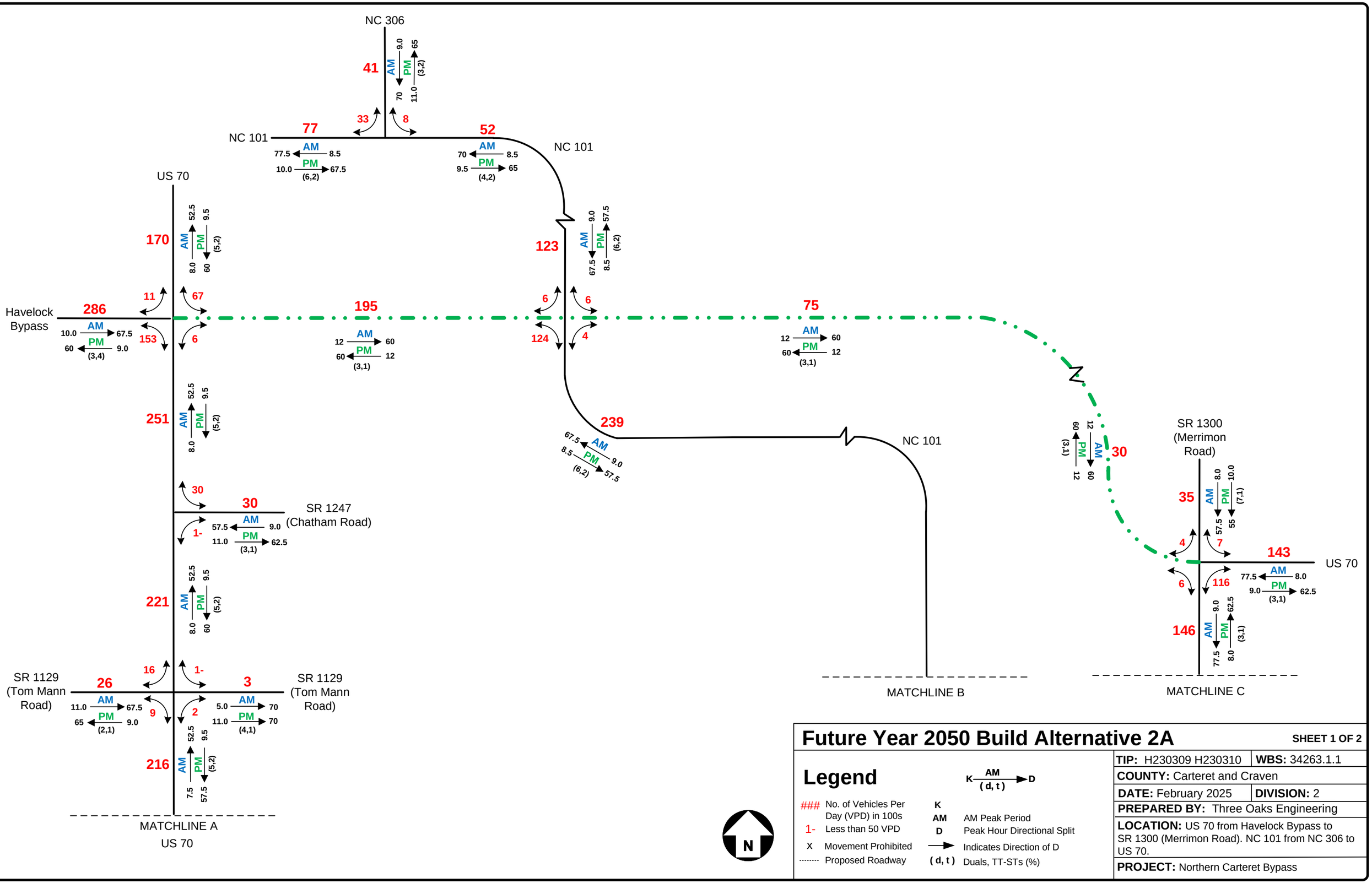

Future Year 2050 Build Alternative 2A

SHEET 1 OF 2

Legend

K — AM → D
(d, t)

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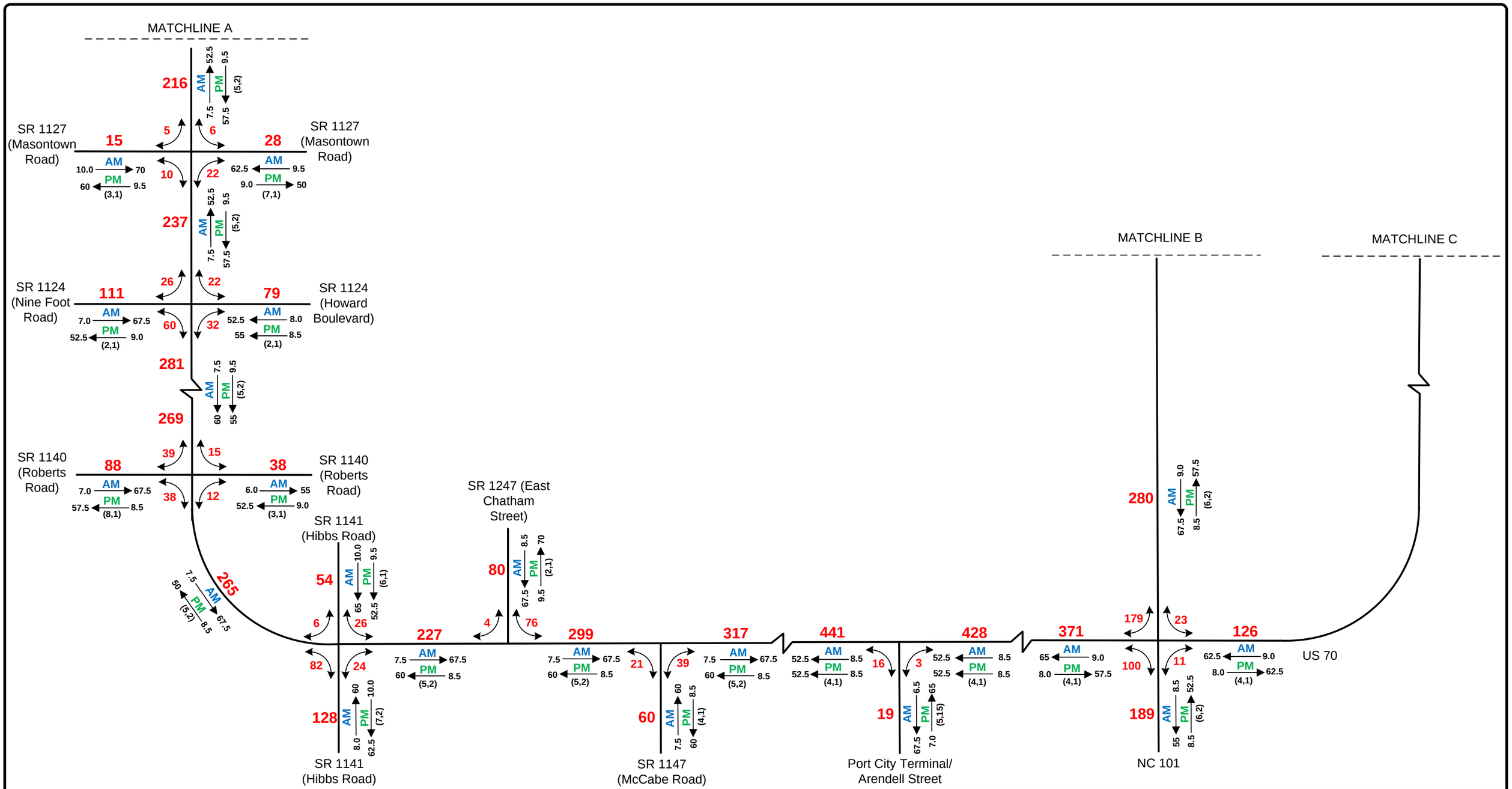

Future Year 2050 Build Alternative 2A

SHEET 2 OF 2

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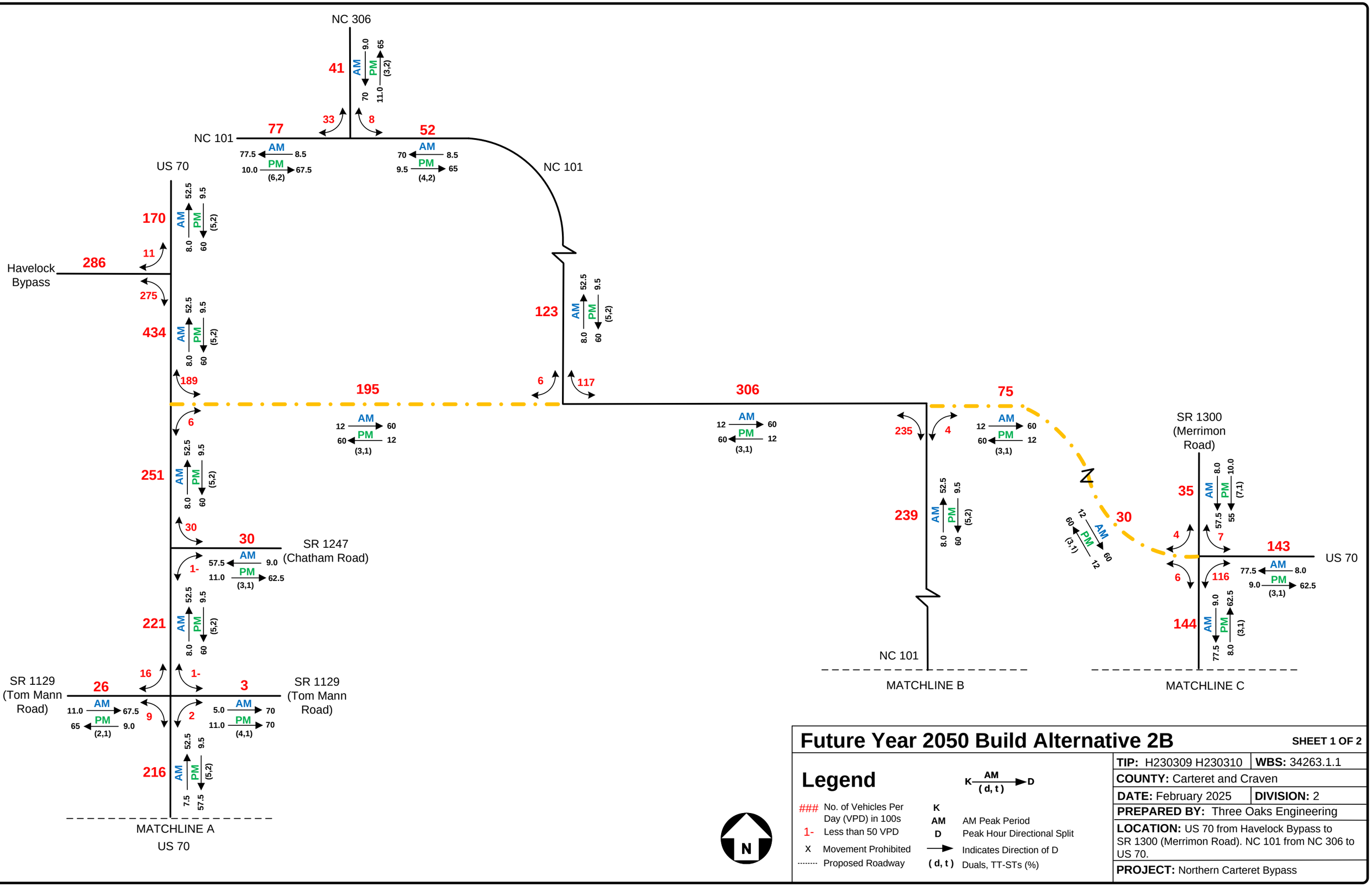

Future Year 2050 Build Alternative 2B

SHEET 1 OF 2

Legend

K AM (d, t) D

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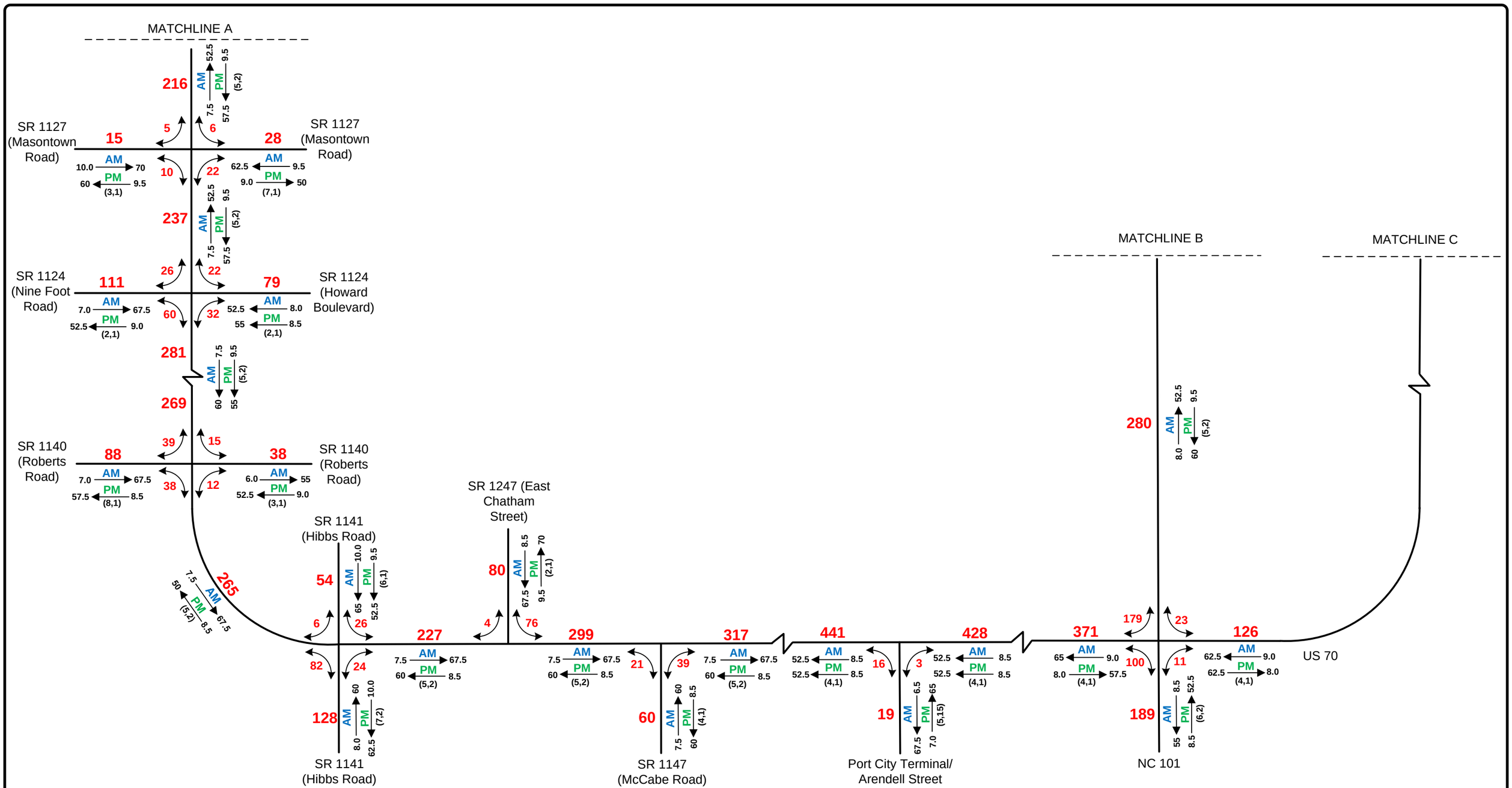

Future Year 2050 Build Alternative 2B

SHEET 2 OF 2

Legend

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1-	Less than 50 VPD
X	Movement Prohibited
.....	Proposed Roadway

K — AM → D
(d, t)

K	
AM	AM Peak Period
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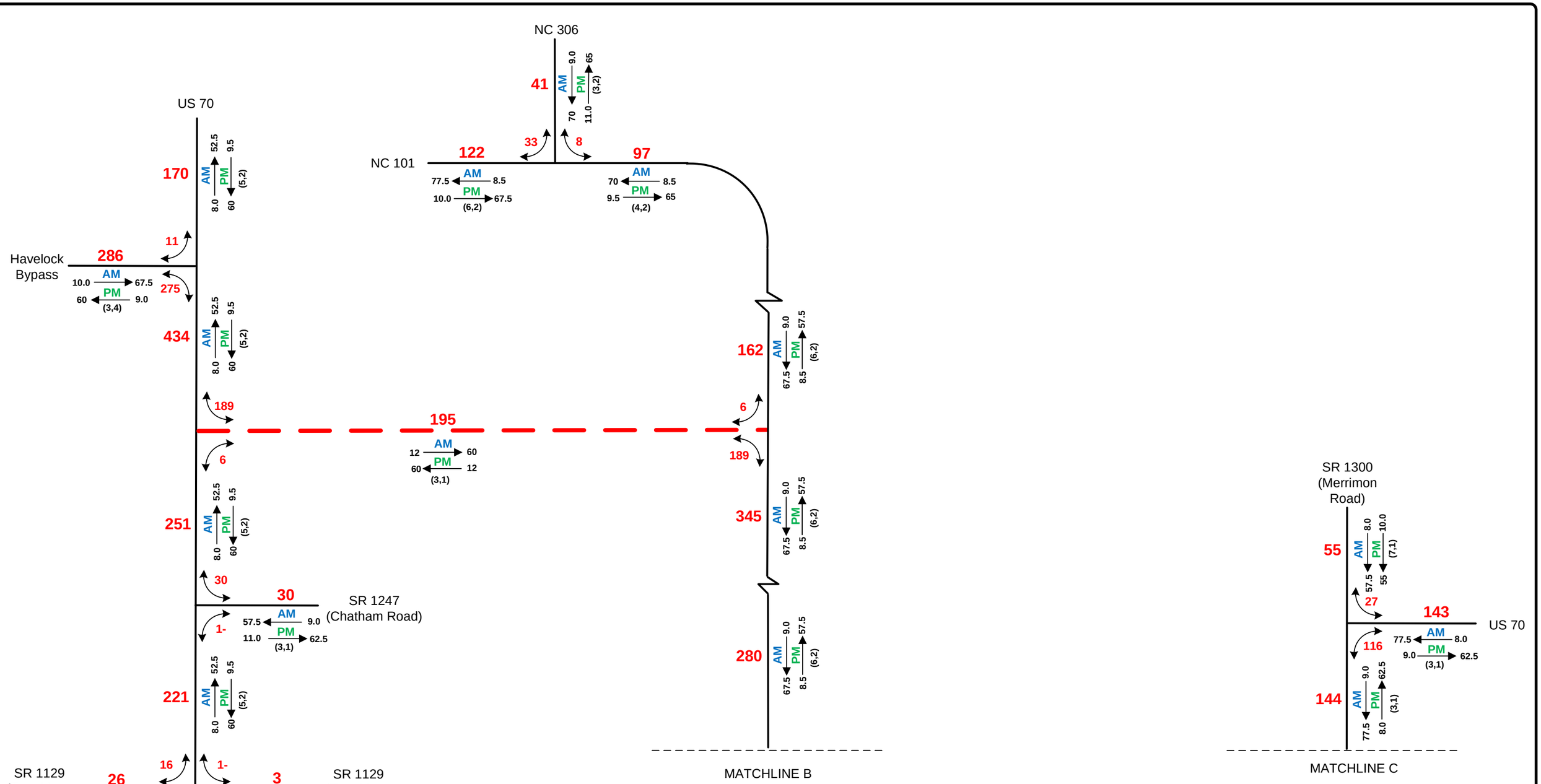

Future Year 2050 Build Alternative 3

SHEET 1 OF 2

Legend

K AM D (d, t)

###	No. of Vehicles Per Day (VPD) in 100s
1-	Less than 50 VPD
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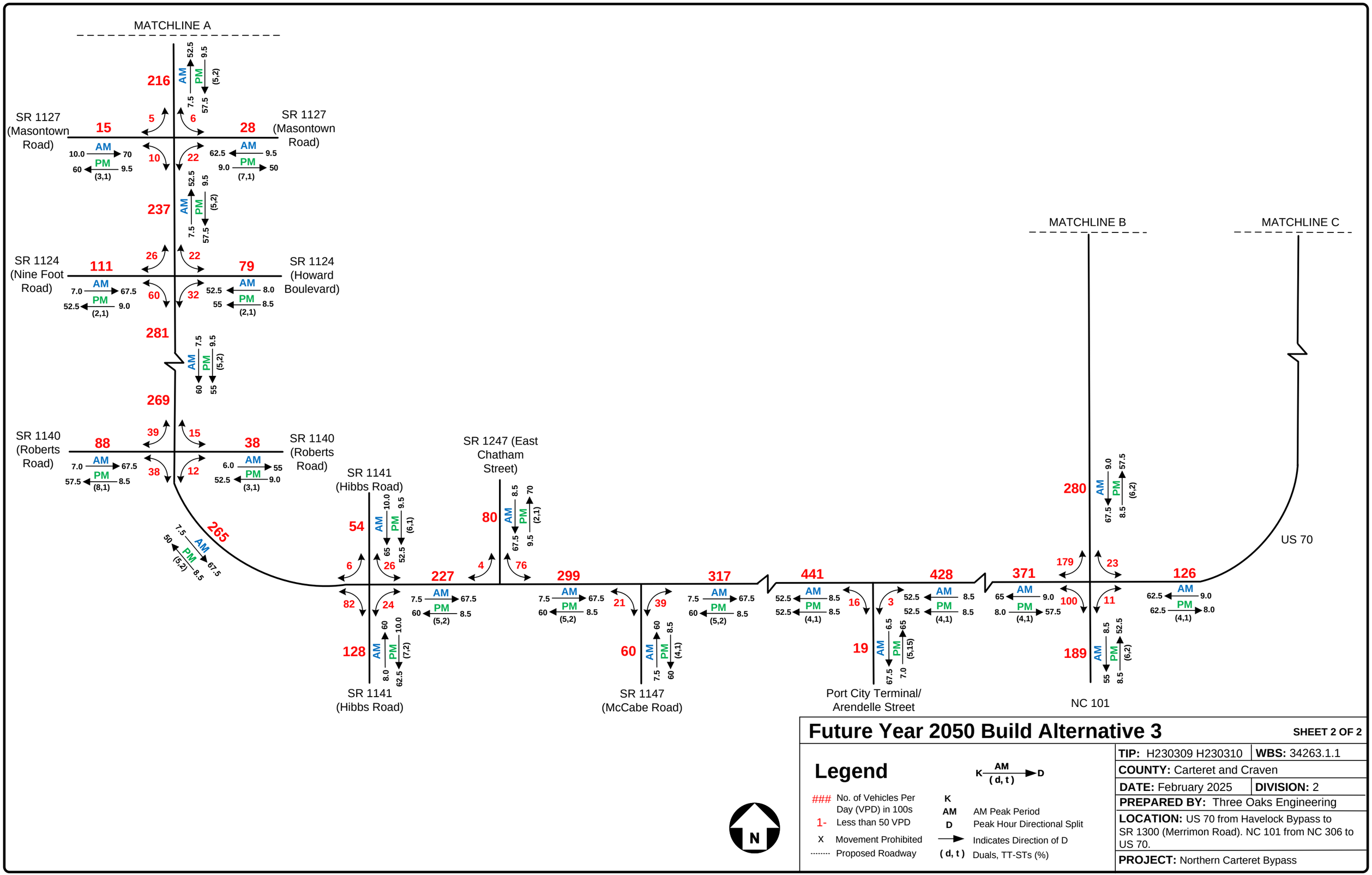

Future Year 2050 Build Alternative 3

SHEET 2 OF 2

Legend

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

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