TRAFFIC FORECAST COVER LETTER

August 28, 2024

MEMORANDUM TO:	Trace Howell, PE, PMP NCDOT Division 3 Project Engineer
FROM:	Peter Trencansky, PE, PTOE, AICP Patriot Transportation Engineering, PLLC
SUBJECT:	Traffic Forecast for U-5792/U-3338C New Hanover County New interchange and upgrade roadway, US 117/NC 132 (N College Road) @ US 74 (Martin Luther King Jr. Parkway) to Gordon Rd (SR 2048)/New interchange, N Kerr Avenue (SR 1175) @ US 74 (Martin Luther King Jr. Parkway)

This forecast has been reviewed and approved by the NCDOT Transportation Planning Division as of August 28, 2024.

Please find attached the 2024 and 2045 traffic forecast for NCDOT STIP Projects U-5792 and U-3338C in New Hanover County. The proposed project, U-5792, would upgrade US 117/NC 132 (N College Road) from US 17 BUS (Market Street) to Gordon Road (SR 2148) and construct a new interchange at the intersection of US 117/NC 132 (N College Road) and US 74 (Martin Luther King Jr. Parkway). The proposed project, U-3338C, would construct a new interchange at the intersection of N Kerr Avenue (SR 1175) and US 74 (Martin Luther King Jr. Parkway). The traffic forecast for this project was requested by the NCDOT Feasibility Studies Unit in support of project development activities for the project.

The project is located within the boundaries of the Wilmington Urban Area Metropolitan Planning Organization (WMPO). The following four scenarios are provided in this forecast:

- 2024 Base Year (Existing Conditions)
- 2045 Future Year Build
- 2045 Future Year No-Build, without U-5792
- 2045 Future Year No-Build, without U-3338C

Fiscal Constraint

The project is located within the WMPO boundaries; therefore, the travel demand model and traffic estimate are developed to match the assumptions of the corresponding Metropolitan Transportation Plan (MTP).

The study projects are included in the WMPO *Cape Fear Moving Forward 2045 Metropolitan Transportation Plan* (adopted on November 18, 2020).

The 2045 MTP includes the following projects in the area which may affect travel patterns on the subject project and is described as follows:

- RW-99 – Murrayville Road (SR 1322) Widening and Extension, from US 117/NC 132 (N College Road) to US 17 (Market Street)

- U-6202 – Gordon Road (SR 2048) Widening, from I-40 to US 17 BUS (Market Street)
- U-5881 – US 117/NC132 (N College Road) Upgrade Roadway
- U-4902B/C – US 17 BUS (Market Street) Access Management Improvements
- U-4434 – Independence Boulevard (SR 1209) Extension to US 74 (Martin Luther King Jr. Parkway)
- U-5702A – US 117/NC132 (S College Road) Upgrade Roadway
- RW-10 – New Centre Drive Extension

Travel Demand Model

The Wilmington MPO Travel Demand Model (2015/2045, received 12/04/23), provided by NCDOT, was utilized as a tool in the development of the traffic estimate.

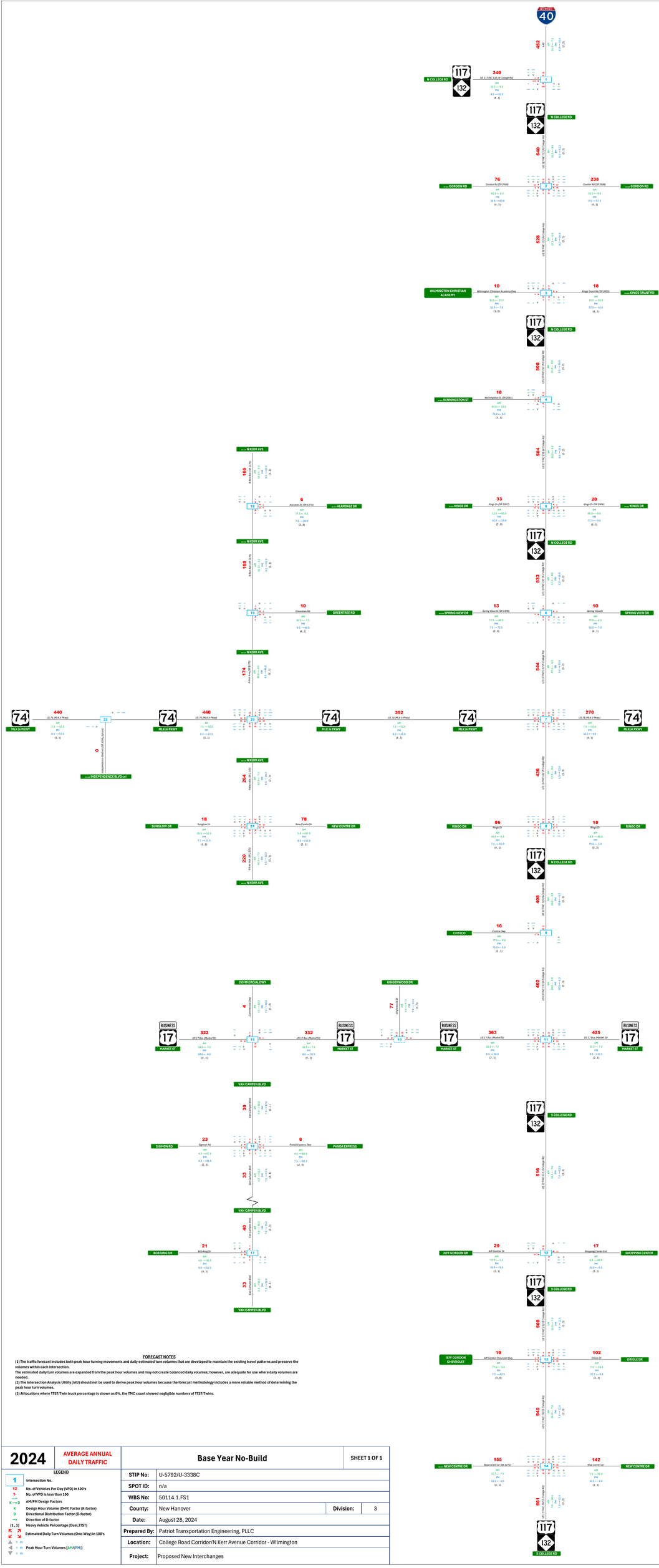
Forecast Methodology

The 2024 Base Year No-Build traffic volumes and design factors were developed based upon current counts, historic counts and historic AADT trend projections. The 2045 future year build traffic volumes generally included the development of compound annual growth rates between two model years. The no-build alternative volumes generally included the development of diversion rates between like model years with different scenarios. The compound annual growth rates or diversion rates were then applied to the AADT volumes from another scenario to develop initial volumes for each scenario. Engineering judgment adjustments were applied as needed in finalizing the volumes in order to develop the forecast.

Interpolation/Extrapolation

To estimate AADT volumes between 2024 and 2045, straight line interpolation between the 2024 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: Katie Hite, Division 3, Division Project Development Engineer (kehite@ncdot.gov)
NCDOT Traffic Forecast Engineer (trafficforecast@ncdot.gov)
NCDOT Connect Site



FORECAST NOTES

(1) The traffic forecast includes both peak hour turning movements and daily estimated turn volumes that are developed to maintain the existing travel patterns and preserve the volumes within each intersection.
The estimated daily turn volumes are expanded from the peak hour volumes and may not create balanced daily volumes; however, are adequate for use where daily volumes are needed.
(2) The Intersection Analysis Utility (IAU) should not be used to derive peak hour volumes because the forecast methodology includes a more reliable method of determining the peak hour turn volumes.
(3) At locations where TTST/Twin truck percentage is shown as 0%, the TMC count showed negligible numbers of TTST/Twins.

2024 | **AVERAGE ANNUAL DAILY TRAFFIC**

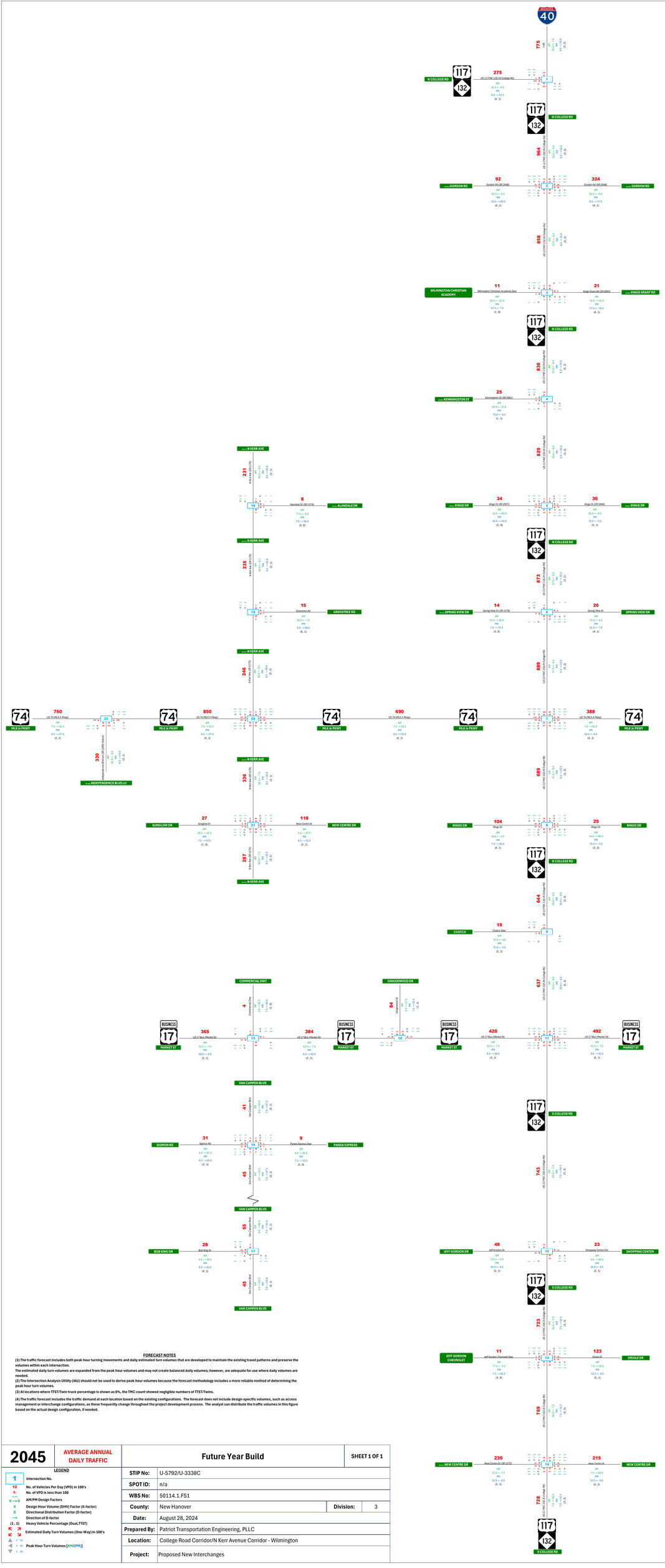
Base Year No-Build

SHEET 1 OF 1

LEGEND

- 1 — Intersection No.
- 12 — No. of Vehicles Per Day (VPD) in 100's
- 9+ — No. of VPD is less than 100
- K ⟷ D — AM/PM Design Factors
- K — Design Hour Volume (DHV) Factor (K-factor)
- D — Directional Distribution Factor (D-factor)
- ⟶ — Direction of D-factor
- (1 , 1) — Heavy Vehicle Percentage (Dual,TTST)
- Estimated Daily Turn Volumes (One-Way) in 100's
- Peak Hour Turn Volumes [AM|PM]

STIP No:	U-5792/U-3338C
SPOT ID:	n/a
WBS No:	50114.1.FS1
County:	New Hanover **Division:** 3
Date:	August 28, 2024
Prepared By:	Patriot Transportation Engineering, PLLC
Location:	College Road Corridor/N Kerr Avenue Corridor - Wilmington
Project:	Proposed New Interchanges



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(4) The traffic forecast includes the traffic demand at each location based on the existing configurations. The forecast does not include design-specific volumes, such as access management or interchange configurations, as these frequently change throughout the project development process. The analyst can distribute the traffic volumes in this figure based on the actual design configuration, if needed.

2045 AVERAGE ANNUAL DAILY TRAFFIC

LEGEND

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- Estimated Daily Turn Volumes (One-Way) in 100's
- AM / PM — Peak Hour Turn Volumes [AM/PM]

Future Year Build

SHEET 1 OF 1

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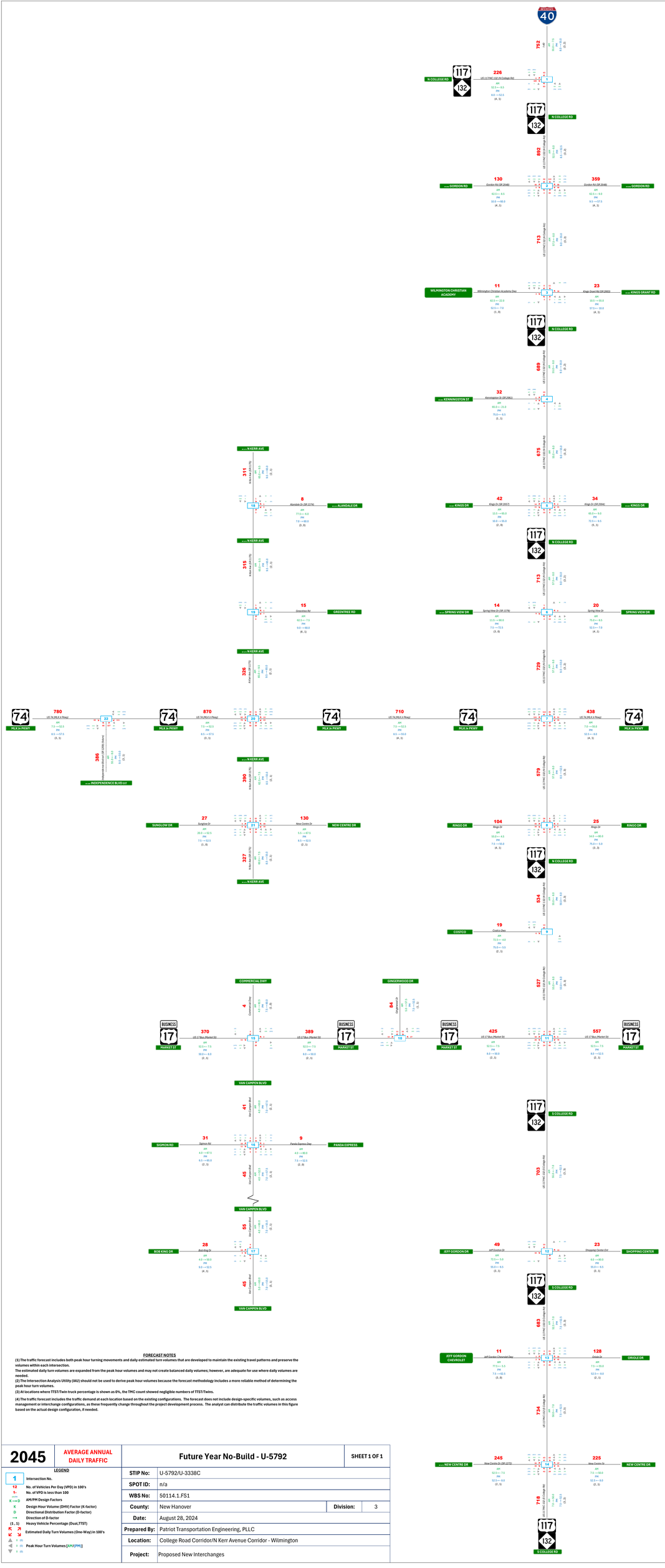

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Future Year No-Build - U-5792

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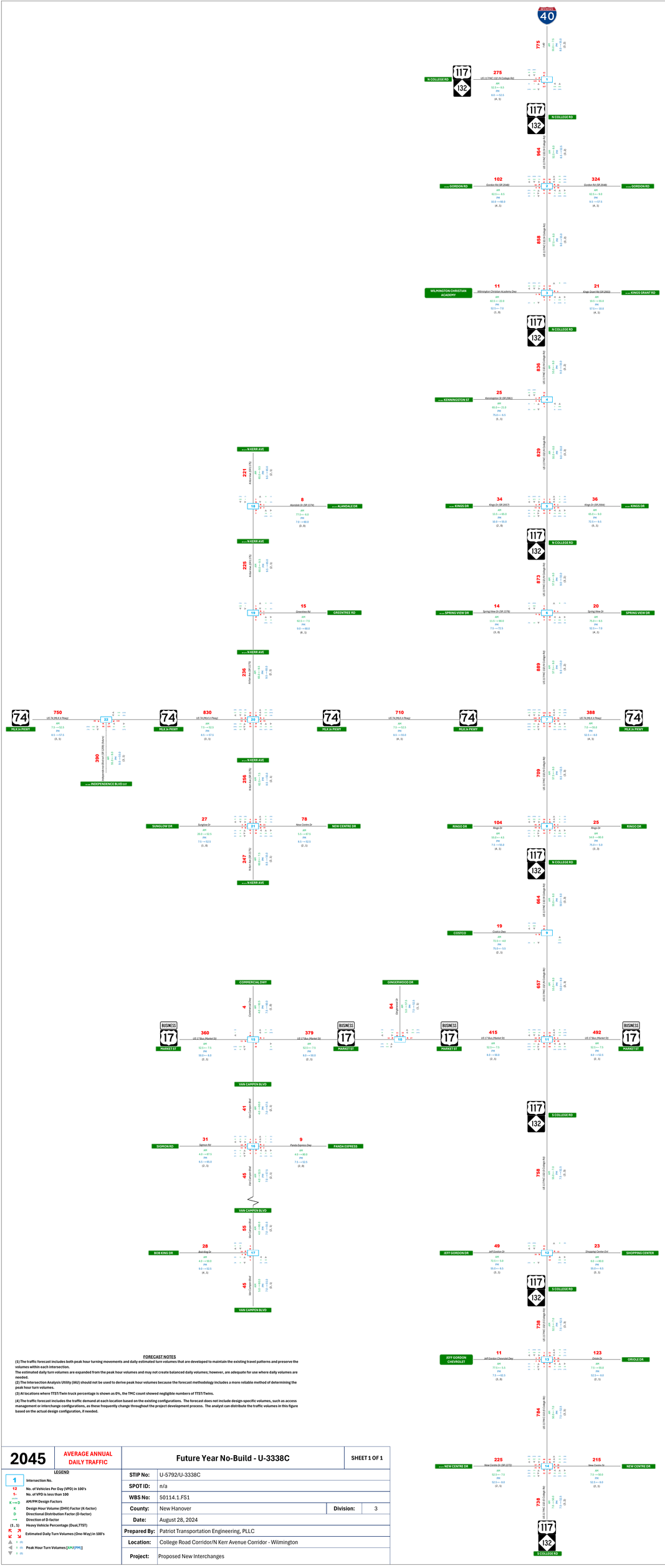

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