

MEMORANDUM

Date: April 19, 2019

To: Tierre Peterson, PE
NCDOT Structures Management Unit

From: Bradley Reynolds, PE, Michael Eagle, PE, and Ryan Casburn
Kittelison & Associates, Inc.

Subject: Traffic Forecast for STIP Project B-5949, Division 10, Union County

Please find attached the 2019/2045 Traffic Forecast for State Transportation Improvement Program (STIP) Project B-5949, NC 200 at Stewart's Creek in Monroe, NC (Union County). This forecast was requested on January 2, 2019 by North Carolina Department of Transportation (NCDOT) Transportation Planning Division (TPD) as part of the Traffic Forecasting Limited Services Contract to be performed by Kittelson and Associates, Inc. This forecast was requested by the NCDOT TPD for the NCDOT Structures Management Unit (SMU). B-5949 is being managed by the SMU. Based upon information provided by the SMU B-5949 has a Let Date of January 19, 2021. This forecast was approved by the NCDOT TPD on April 11, 2019.

STIP Project B-5949 is located in Union County and the Rocky River RPO planning area. This project will include the replacement of the NC 200 bridge (Bridge #890053) over Stewart's Creek. The project is tentatively scheduled for right-of-way to begin in fiscal year 2025 and for construction to begin in fiscal year 2026 as of the February 2019 Amended STIP.

The traffic forecast study area for STIP Project B-5949 includes NC 200 north and south of Deese Rd, and Deese Rd just to the west of NC 200. The following scenarios are included in this traffic forecast:

- 2019 Base Year No-Build
- 2045 Future Year Build

Certain assumptions were made in the development of this forecast:

Travel Demand Model

The 2045 Metrolina Regional Model version 1.1 (MRM18v1.1), effective 12/3/2018, was utilized as a tool in the development of this traffic forecast. The model has a base year of 2015 and a future year of 2045.

Interpolation

To determine any intermediate years, straight-line interpolation may be used. AADT volumes can be extrapolated for up to two years immediately following 2045.

Fiscal Constraint

This forecast is fiscally constrained to the MTP. This means that only projects programmed for construction in the MTP are considered constructed and open to traffic in the future year. Relevant transportation projects programmed for construction in the STIP that would impact forecasted traffic volumes in the forecast study area is the STIP Project R-3329/R-2559, which is assumed in the forecasted growth.

Development Activity

There are potential developments in the study area but none are anticipated to substantially affect the traffic volumes in the study area. The recent opening of the STIP Project R-3329/R-2559 has the potential to alter future development. However, all potential developments are assumed to be included in the forecasted growth.

Forecast Methodology

The 2019 base year no-build scenario includes an estimate of existing study area conditions. Field collected 2019 count data was primarily used to determine the 2019 base year no-build estimate. Historical AADT linear regression lines were also considered with engineering judgement to select a 2019 AADT estimate.

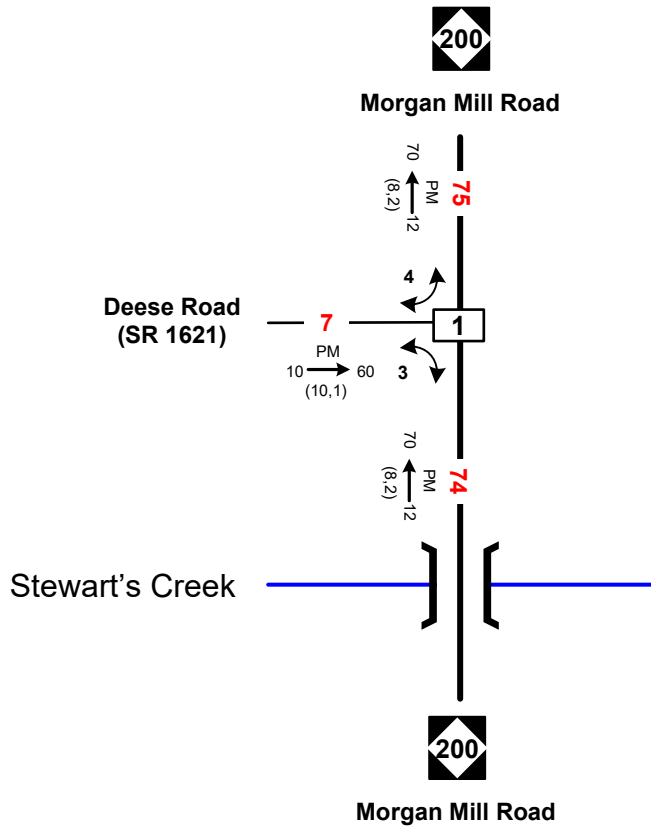
The 2045 future year build forecast volumes were developed by applying a linear growth rate to the 2019 no-build traffic volumes. An applied growth rate was selected for each segment based on a review of model growth rates, historical growth rates, surrounding population and employment growth projections, 2045 model volumes, and nearby historical forecasts.

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.

If you have any questions or I can be of further assistance, please do not hesitate to call me at 919.694.3630 or email me at breyolds@kittelson.com.

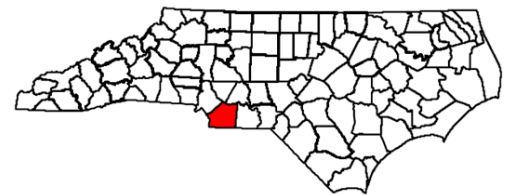
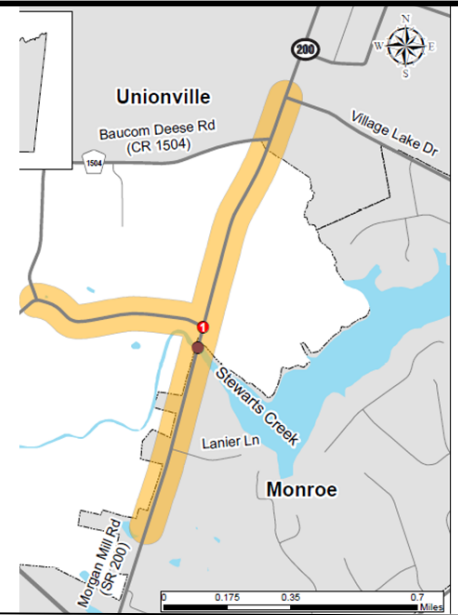
cc:

Mike Reese, PE, NCDOT Congestion Management
Brenda Moore, PE, CPM, NCDOT Roadway Design
Clark Morrison, PhD, PE, NCDOT Pavement Management
Stuart Basham, Highway Division 10 Planning Engineer
Dana M. Stoogenke, AICP, Rocky River RPO Chairperson
Andy Bailey, NCDOT TPD Planning Team Supervisor
Keith Dixon, NCDOT State Traffic Forecast Engineer



2019 Base Year

NTS



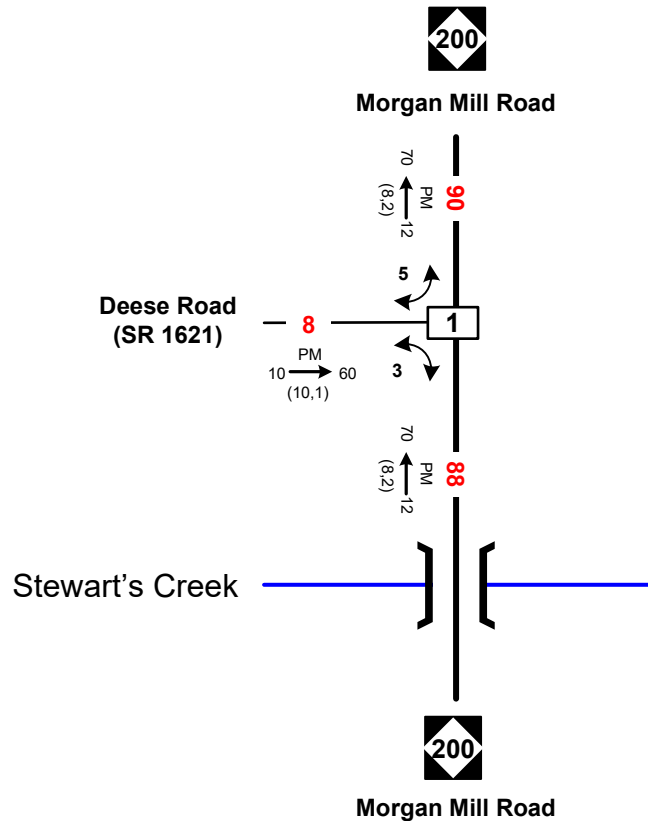
2019/2045

AVERAGE ANNUAL DAILY TRAFFIC

**BASE/FUTURE YEAR
NO-BUILD/BUILD**

LEGEND

- ### No. of Vehicles Per Day (VPD) in 100s
- 1- Less than 50 VPD
- X Movement Prohibited
- Proposed Roadway
- DHV $\xrightarrow{\text{PM}}$ D
(d, t)
- DHV Design Hourly Volume (%) = K30
- PM PM Peak Period
- D Peak Hour Directional Split (%)
- \rightarrow Indicates Direction of D
- (d, t) Duals, TT-STs (%)



2045 Future Year

NTS



TIP: B-5949

WBS: 45981.1.1

COUNTY: Union

DIVISION: 10

DATE: 04-16-2019

PREPARED BY: Kittelson & Associates, Inc

LOCATION: NC 200 Morgan Mill Rd
south of SR 1621 Deese Rd

PROJECT: Replace bridge over Stewart's
Creek (Bridge #890053)