



## Traffic Forecast Cover Letter

January 2024

TO: Bryan Sowell, PE, NCDOT Division 12 Project Team Lead

FROM: Trent Moody, PE  
STV Engineers, Inc.

SUBJECT: STIP Project No. U-5961, Division 12, Gaston County

***The NCDOT Transportation Planning Division has reviewed and approved this Traffic Forecast U-5961 as of January 17<sup>th</sup>, 2024.***

Please find attached the 2023/2050 traffic forecast for State Transportation Improvement Program (STIP) project number U-5961. The project proposes to upgrade NC 274 (Union Road) from Niblick Drive to Osceola Street in Gaston County. The project is located within the Gaston-Cleveland-Lincoln Metropolitan Planning Organization (GCLMPO). Included in the traffic forecast is the analysis for one 2023 base year scenarios (No-Build/Build) and one 2050 future year scenarios (No-Build/ Build).

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

- Bryan K. Sowell, PE – Division Project Team Lead, NCDOT Division 12
- Kenneth B. Cross – Deputy Division Traffic Engineer, NCDOT Division 12
- Mark Stafford, PE – Division Engineer, NCDOT Division 12
- Anil Panicker – Planning Engineer, NCDOT Division 12
- Cole G. Gurley, PE – Division Project Development Engineer, NCDOT Division 12
- Dean Ledbetter – Corridor Development Engineer, NCDOT Division 12
- Andy Bailey – Western Piedmont Planning Group Supervisor, NCDOT-TPD
- Randi Gates, AICP – MPO Contact for Gaston-Cleveland-Lincoln MPO
- Juan Garcia – Senior Transportation Planner, Gaston County
- Jamie Mendoza Kanburoglu – Director of Planning and Zoning, Gaston County
- Cory Steiss – City Traffic Engineer, City of Gastonia
- Rusty Bost – Director of Development Services, City of Gastonia
- Keith Lineberger – Assistant City Engineer, City of Gastonia

Fiscal Constraint: The 2020-2029 STIP and 2050 Metropolitan Transportation Plan were utilized in determining projects in the vicinity that may have impacts to traffic. Projects that are anticipated to directly affect the proposed project and are assumed to be complete and open to traffic by 2050 are listed below:

- U-5965 – Construct intersection improvements at US 29 (Franklin Boulevard) and NC 274 in Gastonia, NC
- H190681 – Widen NC 274 (Union Road) to five lanes from SR 2439 (Beaty Road) to SR 2416 (Robinson Road) in Gastonia, NC



- No ID – Widen NC 274 (Union Road) to 4 lane facility includes sidewalks and bike facilities along both sides from SR 2439 (Beaty Road) to South Carolina State Line in Gastonia, NC
- No ID – Construct new 3-lane facility with sidewalks and bike facilities from Gaston Day School Road to Kinmere Drive in Gastonia, NC

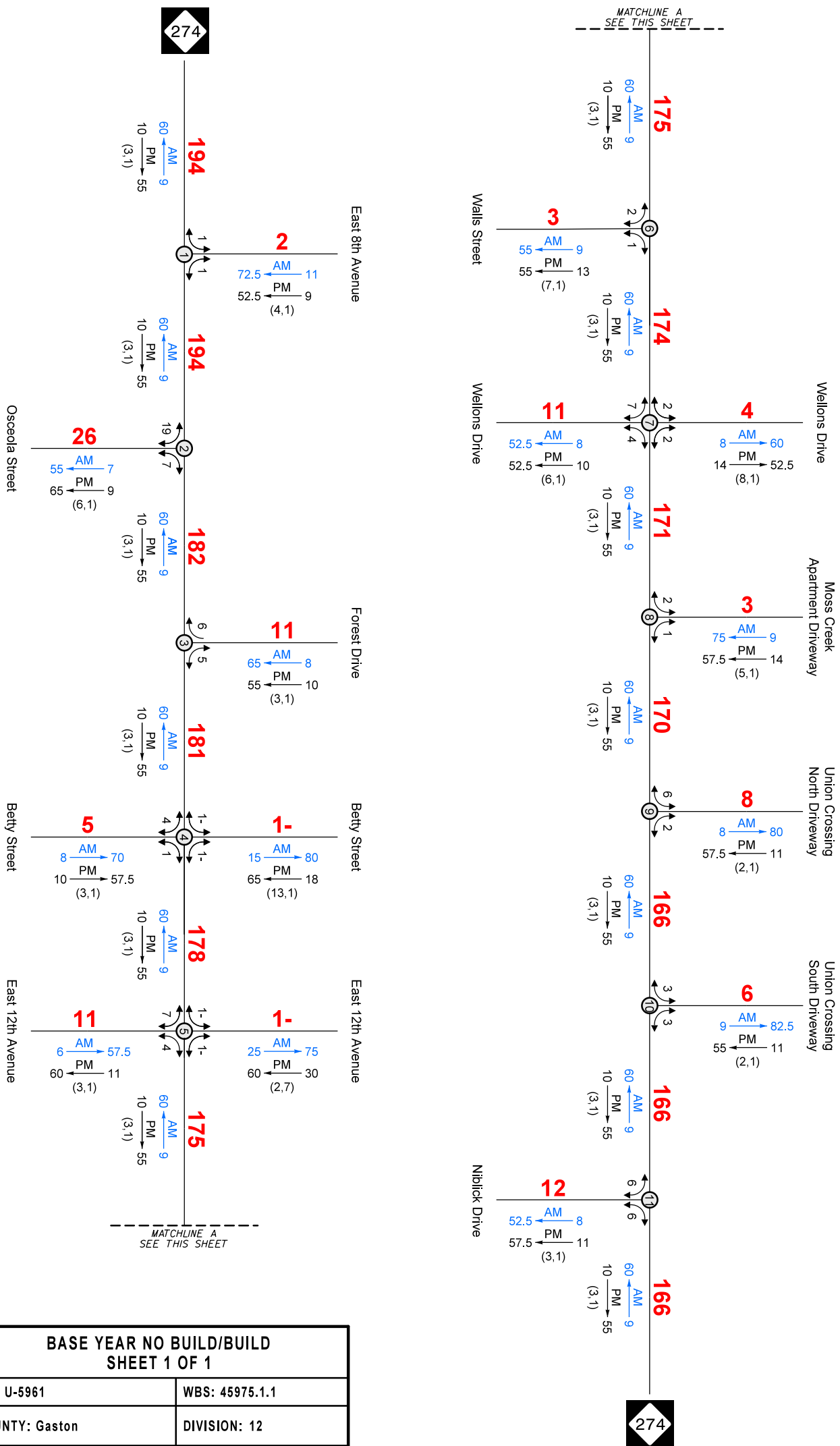
Development Activity: There is one development along NC 274 (Union Road) and Wellons Drive, in the western portion of the study area. Feedback from local planners & engineers expressed the majority of the development being residential in nature. Available development information was reviewed and considered when projecting growth in the area for the future forecast.

Travel Demand Model: The Metrolina Regional Travel Demand Model 22 Version 2.0 (MRM 22\_v2.0) was utilized in TransCAD® v8 Build 22305 in development of forecasting values. The model has a base year of 2018 and a design year of 2050. The model represents daily highway trips for each link as a part of the analysis.

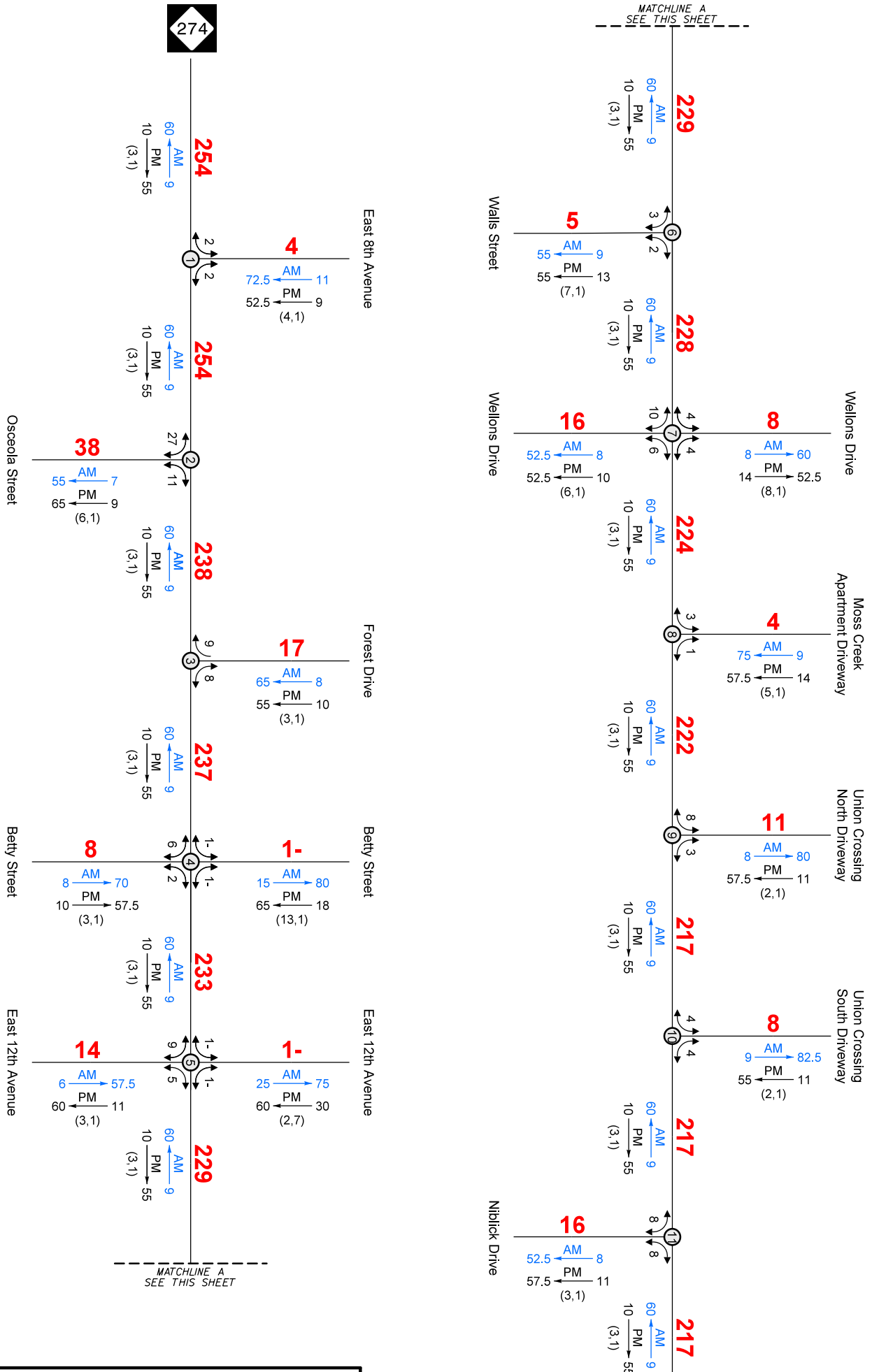
Forecast Methodology: The 2023 Base Year No-Build traffic volumes and design factors were developed based upon current counts and historic AADT. The 2050 Future Year No Build traffic volumes included the development of compound annual growth rates between 2023 and 2050 utilizing linear regression projection of historical AADT data and the MRM 22\_v2.0. Also, the Express Design Traffic Evaluation (EDTE) tool was used to develop the peak hour turning movement counts and origin-destination matrices for each scenario. Engineering judgment adjustments were applied as needed in finalizing the volumes in order to develop a balanced forecast.

Interpolation/Extrapolation: To estimate AADT volumes between 2023 and 2050, straight line interpolation may be used. AADT volumes may be extrapolated for up to two years immediately following 2050. 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 (with Attachments):  
Traffic Forecast@ncdot.gov  
Keith Dixon, Transportation Planning Division  
File Copy: U-5961 Gaston County



<b>2023</b> <b>LEGEND</b> K $\frac{AM/PM}{(d,t)}$ D ### No. of Vehicles Per Day (VPD) in 100s 1- Less than 50 VPD X Movement Prohibited Roadway - - - Proposed Roadway K Design Hour Factor (%) AM/PM AM/PM Peak Period D Peak Hour Directional Split → Indicates Direction of D (d,t)	<b>BASE YEAR NO BUILD/BUILD</b> <b>SHEET 1 OF 1</b>	
	<b>TIP:</b> U-5961 <b>COUNTY:</b> Gaston <b>DATE:</b> January 2024 <b>PREPARED BY:</b> STV Engineers, Inc. <b>LOCATION:</b> NC 274(Union Road) from Niblick Drive to Osceola Street <b>PROJECT:</b> NC 274 (Union Road) Upgrade Roadway	<b>WBS:</b> 45975.1.1 <b>DIVISION:</b> 12



MATCHLINE A  
SEE THIS SHEET

MATCHLINE A  
SEE THIS SHEET

<b>2050</b>	AVERAGE ANNUAL DAILY TRAFFIC	<b>FUTURE YEAR NO BUILD/BUILD SHEET 1 OF 1</b>	
	<b>LEGEND</b>	TIP: U-5961	WBS: 45975.1.1
	K $\frac{AM/PM}{(d,t)}$ D	COUNTY: Gaston	DIVISION: 12
###	No. of Vehicles Per Day (VPD) in 100s	DATE: January 2024	
1-	Less than 50 VPD	PREPARED BY: STV Engineers, Inc.	
X	Movement Prohibited	LOCATION: NC 274(Union Road) from Niblick Drive to Osceola Street	
---	Roadway	PROJECT: NC 274 (Union Road) Upgrade Roadway	
---	Proposed Roadway		
K	Design Hour Factor (%)		
AM/PM	AM/PM Peak Period		
D	Peak Hour Directional Split		
→	Indicates Direction of D		
(d,t)	Duals, TT-STs (%)		