NC 53 Improvements

Onslow County

SR 1308 (Gum Branch Rd) to US 17 (Marine Blvd)

(U-6081) WBS: 47466.1.1

Jacksonville Parkway Extension

Onslow County

NC 53 to US 17

(U-5791) WBS: 44363.1.1

Traffic Forecast Report

Prepared For:

North Carolina Department of Transportation

Prepared By:

Patriot Transportation Engineering, PLLC

August 2018

TRAFFIC FORECAST COVER LETTER

August 30, 2018

MEMORANDUM TO: Trace Howell, PE
NCDOT Division 3 Design Engineer

FROM: Peter Trencansky, PE, PTOE, AICP
Patriot Transportation Engineering, PLLC

SUBJECT: Traffic Forecast for U-5791 (SR 2714 (Jacksonville Parkway Extension) from NC 24 to US 17) and U-6081 (NC 53 (Western Boulevard) Improvements)
Onslow County

Please find attached the 2018 and 2040 traffic forecast for STIP Projects U-5791 and U-6081 in Onslow County. The proposed project for U-5791 would extend Jacksonville Parkway from NC 53 (Western Boulevard) to US 17 while the proposed project for U-6081 would widen NC 53 (Western Boulevard) to a six-lane roadway with a modified superstreet configuration. This forecast was requested for use in the project development activities associated with the project, including the environmental documentation and Preliminary Roadway Design.

This is the first forecast for the U-6081 project and an update to the previous traffic forecast (completed in May 2017) for the U-5791 project. The projects are located within the boundaries of the Jacksonville Urban Area Metropolitan Planning Organization. The following four scenarios are provided in this forecast:

- 2018 Base Year (Existing Conditions)
- 2018 Base Year Build
- 2040 Future Year No-Build for U-5791
- 2040 Future Year No-Build for U-6081
- 2040 Future Year Build

Kirsten Spirakis (NCDOT Division 3 - Senior Assistant Traffic Engineer), Stephen Gurganus (NCDOT Division 3 Assistant District 1 Engineer), Alan Pytcher (NCDOT Division 3 Division Corridor Development Engineer), Zack O'Keefe, PE (NCDOT Transportation Planning Division - Jacksonville Urban Area MPO Coordinator), Stephanie Kutz (Jacksonville Urban Area MPO – Transportation Planner), Deanna Trebil (Jacksonville Urban Area MPO – MPO Administrator), and Jeremy Smith (City of Jacksonville – Senior Planner) were consulted during the development of this forecast.

Fiscal Constraint

The project is located within the boundaries of the Jacksonville Urban Area Metropolitan Planning Organization; therefore, the travel demand model and traffic forecast are fiscally constrained to match the assumptions of the corresponding Long Range Transportation Plan (LRTP).

The *Jacksonville Urban Area Metropolitan Planning Organization 2040 Long Range Transportation Plan (Amendment 1)* approved in March 2018 includes the U-5791 in the 2016-2025 Short-term Opportunity

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Band and the U-6081 project in the 2026-2030 Funding Band. The projects are described in the plan as follows:

- STIP U-5791 – SR 2714 (Jacksonville Parkway Extension) – NC 53 (Western Boulevard) to US 17 (New Bern Highway) – Widen to multi-lanes, part on new location
- STIP U-6081 – NC 53 (Western Boulevard) from US 17 to Gum Branch Road – Upgrade to 6-lane superstreet

Additionally, the following projects that directly affect the proposed project are included in the 2040 LRTP and are assumed to be constructed prior to 2040:

- LRTP H111194 – Henderson Drive extension, from NC 53 (Western Boulevard) to Jacksonville Parkway Extension
- LRTP H111197 – Henderson Drive widening, from Gum Branch Road to NC 53 (Western Boulevard)
- LRTP H111207 – Ramsey Road widening, from Gum Branch Road to Jacksonville Parkway Extension
- LRTP H090479 – Country Club Road widening, from Bell Fork Road to Piney Green Road
- LRTP H090913 – Gum Branch Road access management and widening, from NC 53 (Western Boulevard) to NC 24
- TIP U-5951 – US 17 – Upgrade US 17/US 17 Business intersection to interchange
- TIP U-5736 – NC 53 (Western Boulevard) – US 17 (Marine Boulevard) to NC 24 (Lejeune Boulevard) – Construct access management improvements
- TIP U-5878 – Commerce Drive – Commerce Drive to SR 1406 (Piney Green Road) – Construct roadway on new location
- TIP U-5787 – SR 2715 (Trade Street) – NC 53 (Western Boulevard) to McDaniel Drive – Construct roadway on new location
- TIP U-5789 – NC 53 (Western Boulevard) – Improve intersection at SR 2714 (Jacksonville Parkway)
- TIP U-4906 – SR 1308 (Gum Branch Road) – SR 1313 (Mills Fields Road) to SR 1324 (Ramsey Road) – Roadway widening
- TIP U-5793 – SR 1308 (Gum Branch Road) – Summersill School Road to Country Club Boulevard – Roadway widening

Travel Demand Model

The Jacksonville Travel Demand Model was utilized as a tool in the development of the forecast.

Forecast Methodology

The 2018 Base Year No-Build traffic volumes and design factors were developed based upon current counts and historic AADT trend projections. The 2040 future year no-build traffic volumes generally included the development of compound annual growth rates between two model years, while the 2018 base year build and 2040 future year build 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 a balanced forecast.

Interpolation/Extrapolation

To estimate AADT volumes between 2018 and 2040, straight line interpolation between the 2018 and the 2040 scenarios is acceptable. AADT volumes may be extrapolated for up to two years immediately following

2040. 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.

This forecast has been reviewed and approved by the NCDOT Transportation Planning Division on August 30, 2018.

cc: (Final distribution for your records via e-mail as PDF attachments):
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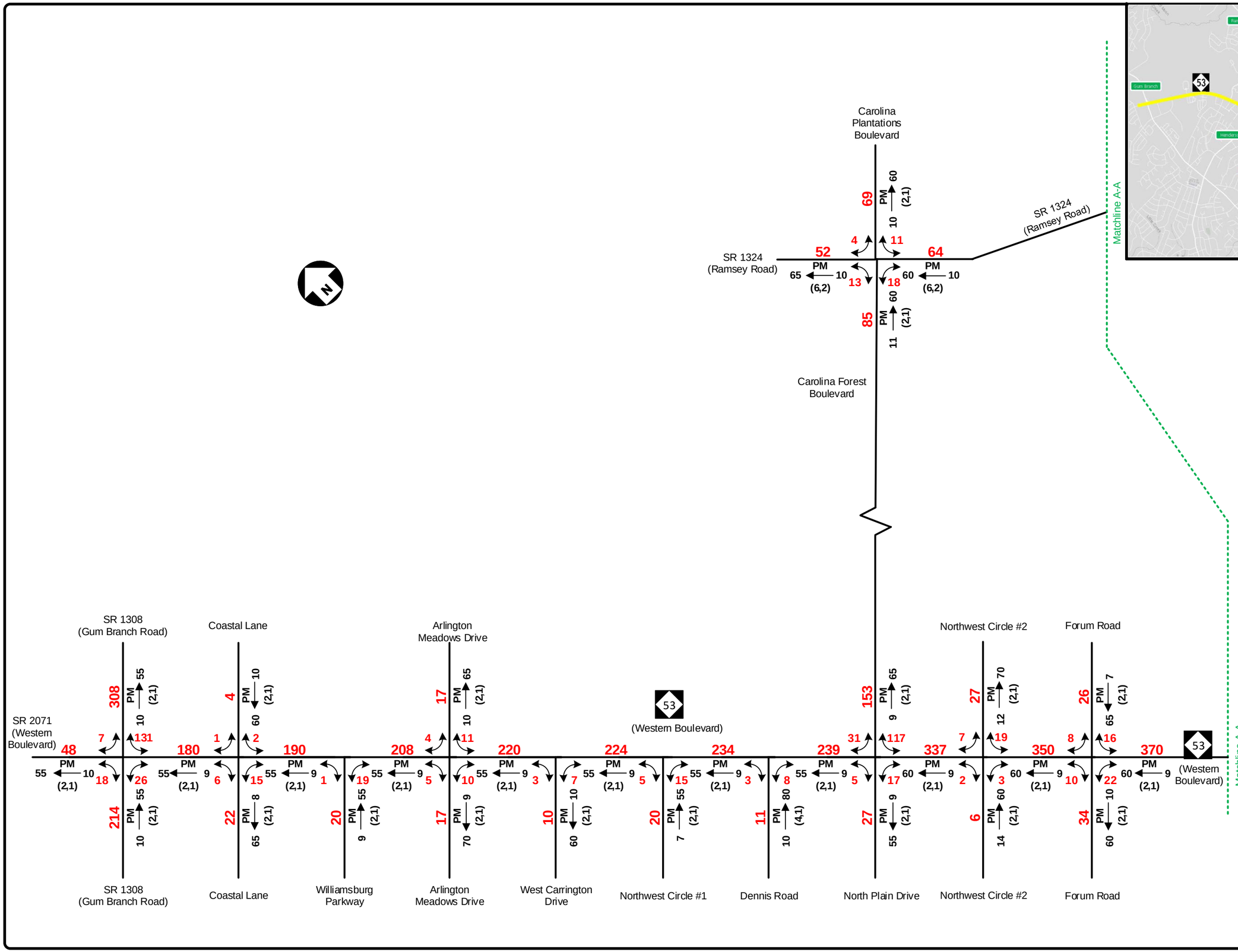
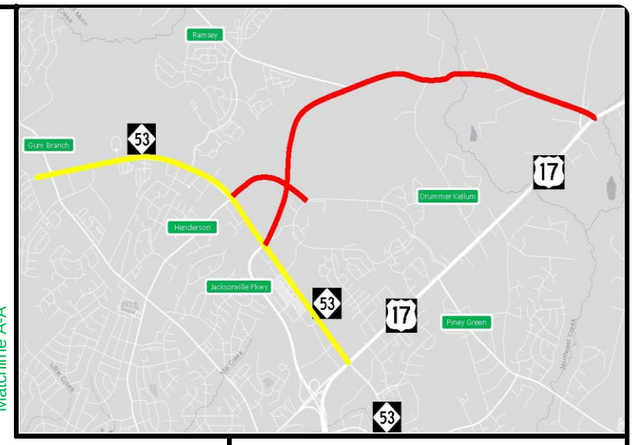




2018

AVERAGE ANNUAL DAILY TRAFFIC

BASE YEAR NO-BUILD

SHEET 1 OF 2

LEGEND

K — PM (d, t) → D

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

COUNTY: Onslow | **DIVISION:** 3

DATE: 08-30-2018

PREPARED BY: Patriot Transportation Engineering, PLLC

TIP: U-6081 | **WBS:** 47466.1.1

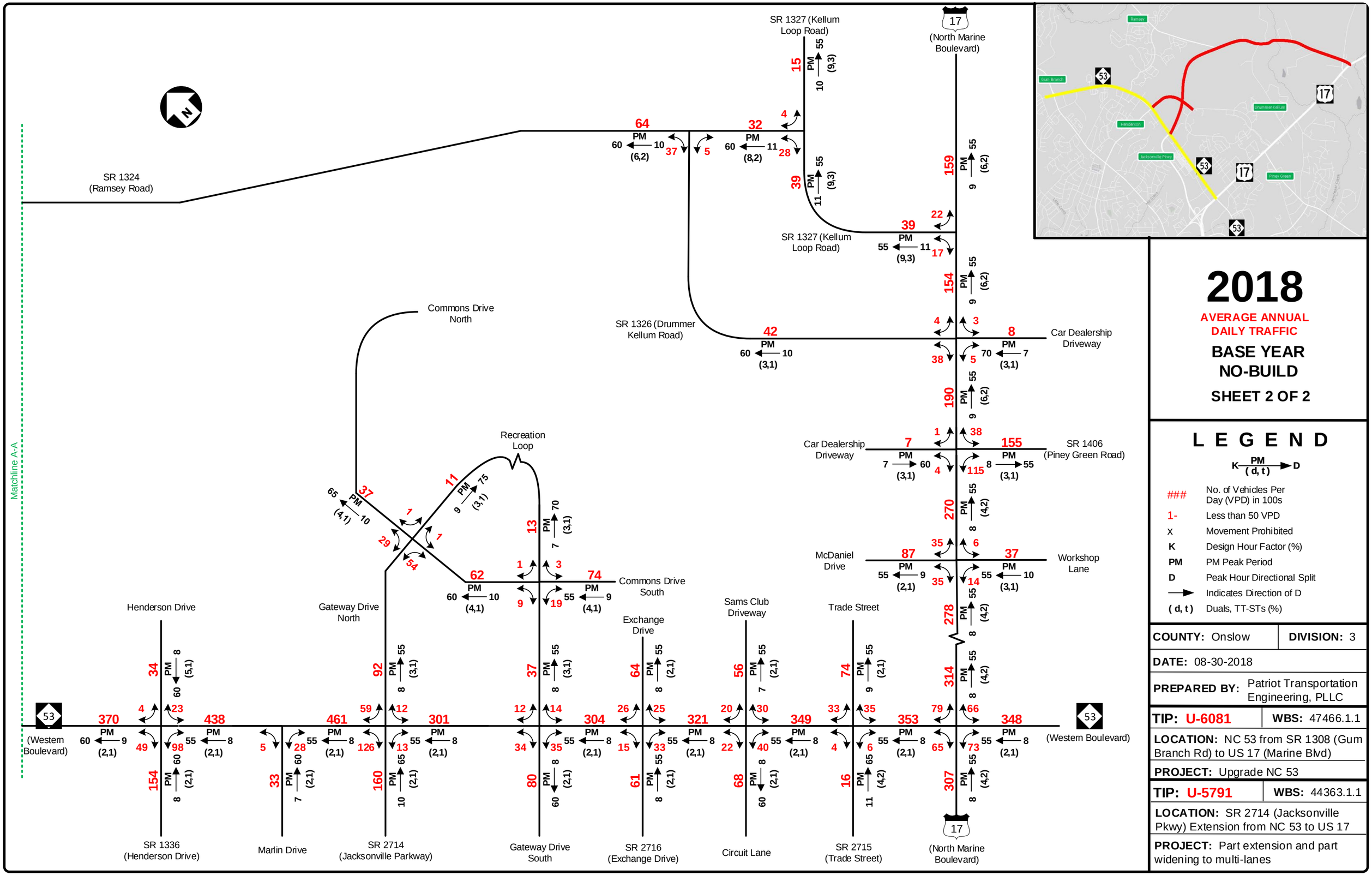
LOCATION: NC 53 from SR 1308 (Gum Branch Rd) to US 17 (Marine Blvd)

PROJECT: Upgrade NC 53

TIP: U-5791 | **WBS:** 44363.1.1

LOCATION: SR 2714 (Jacksonville Pkwy) Extension from NC 53 to US 17

PROJECT: Part extension and part widening to multi-lanes



2018

AVERAGE ANNUAL DAILY TRAFFIC

BASE YEAR NO-BUILD

SHEET 2 OF 2

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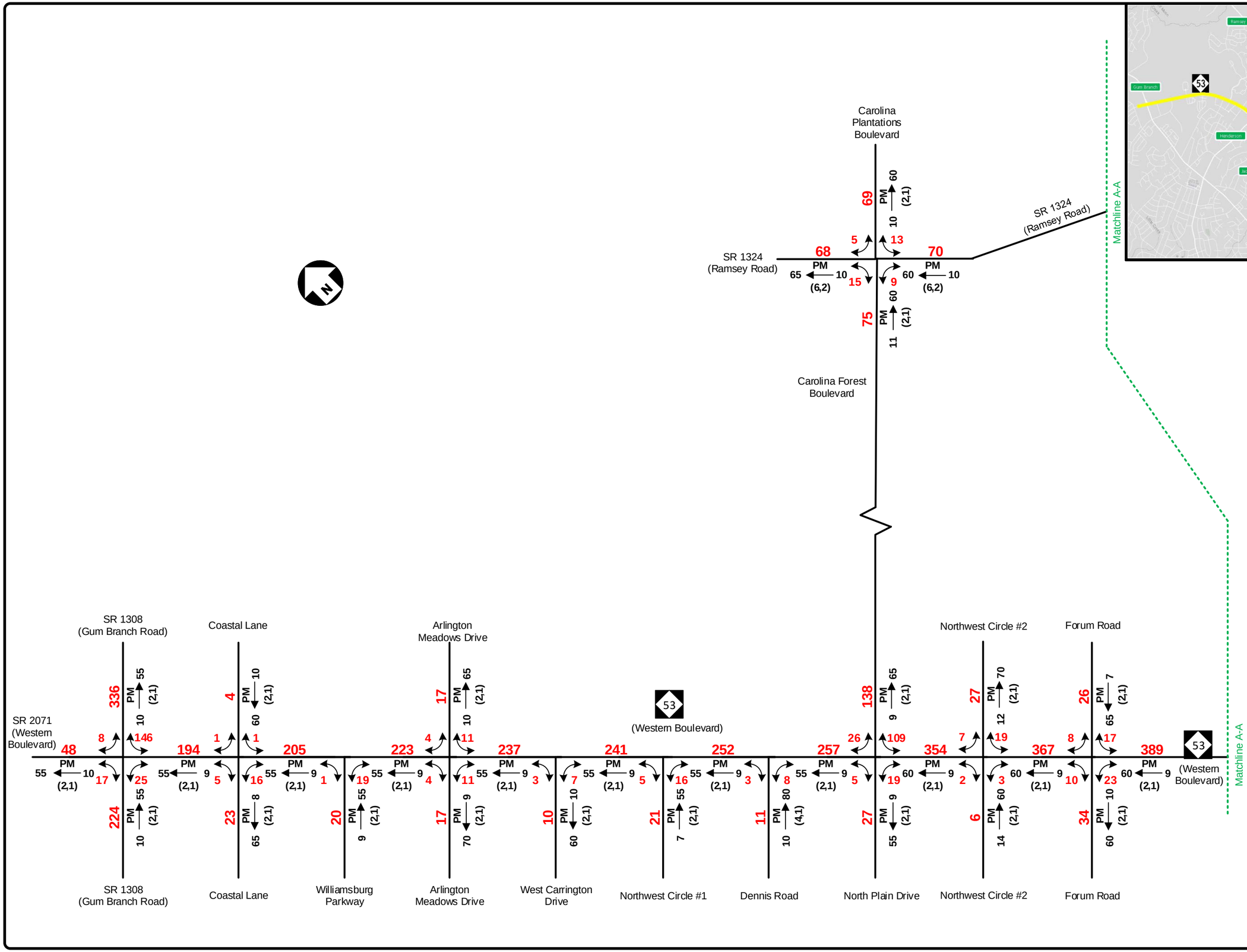

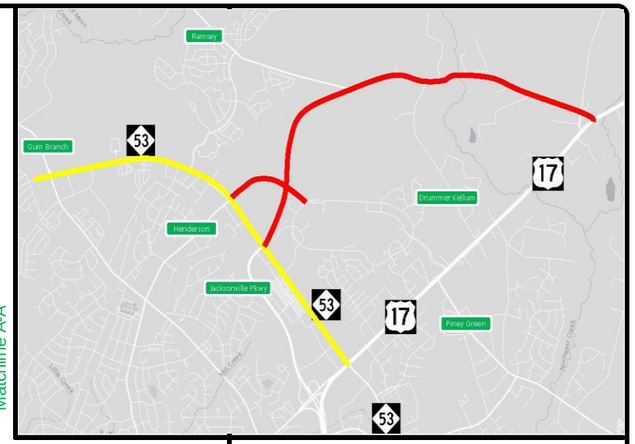

2018

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BASE YEAR BUILD

SHEET 1 OF 2

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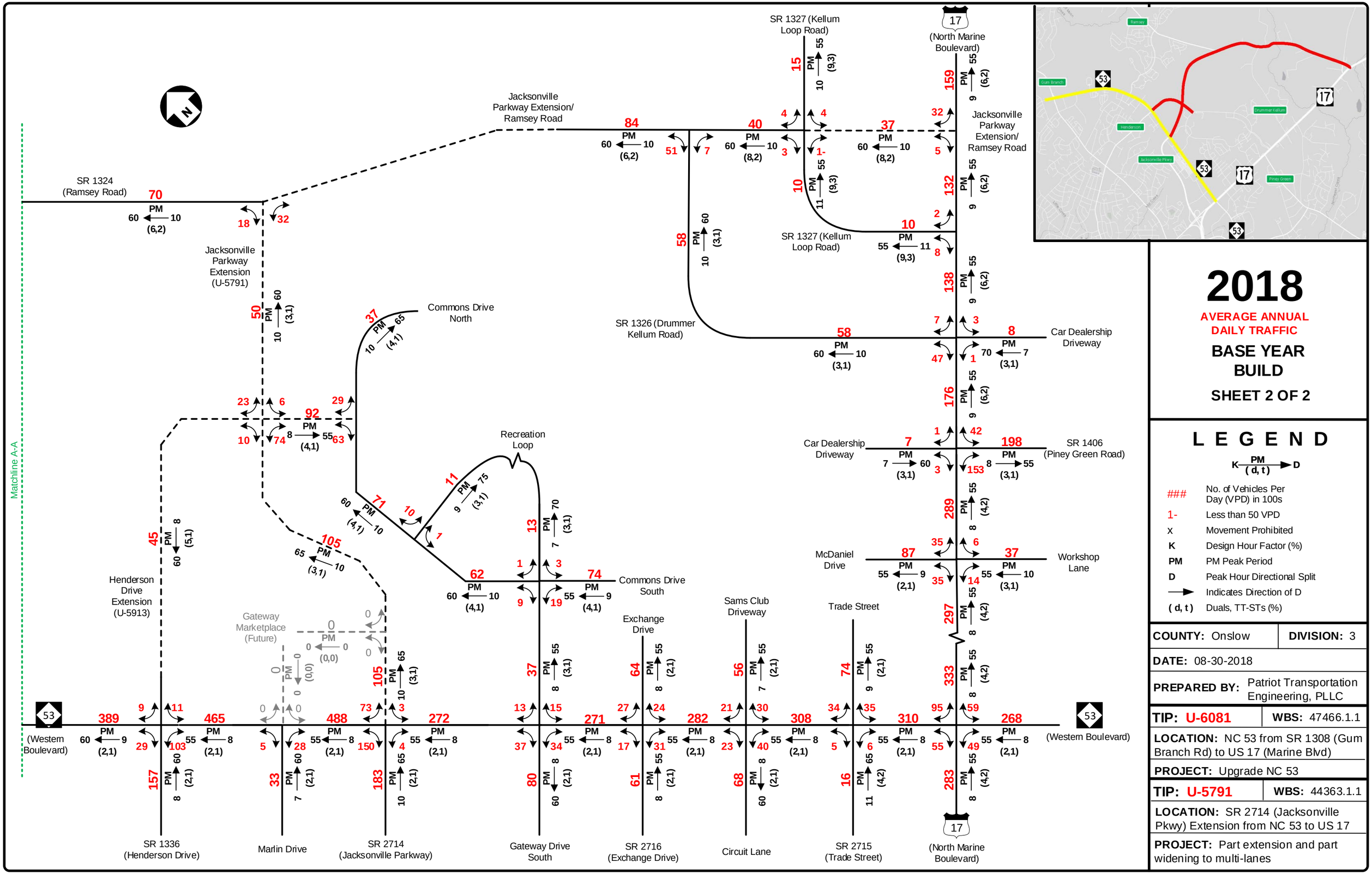

2018

AVERAGE ANNUAL DAILY TRAFFIC

BASE YEAR BUILD

SHEET 2 OF 2

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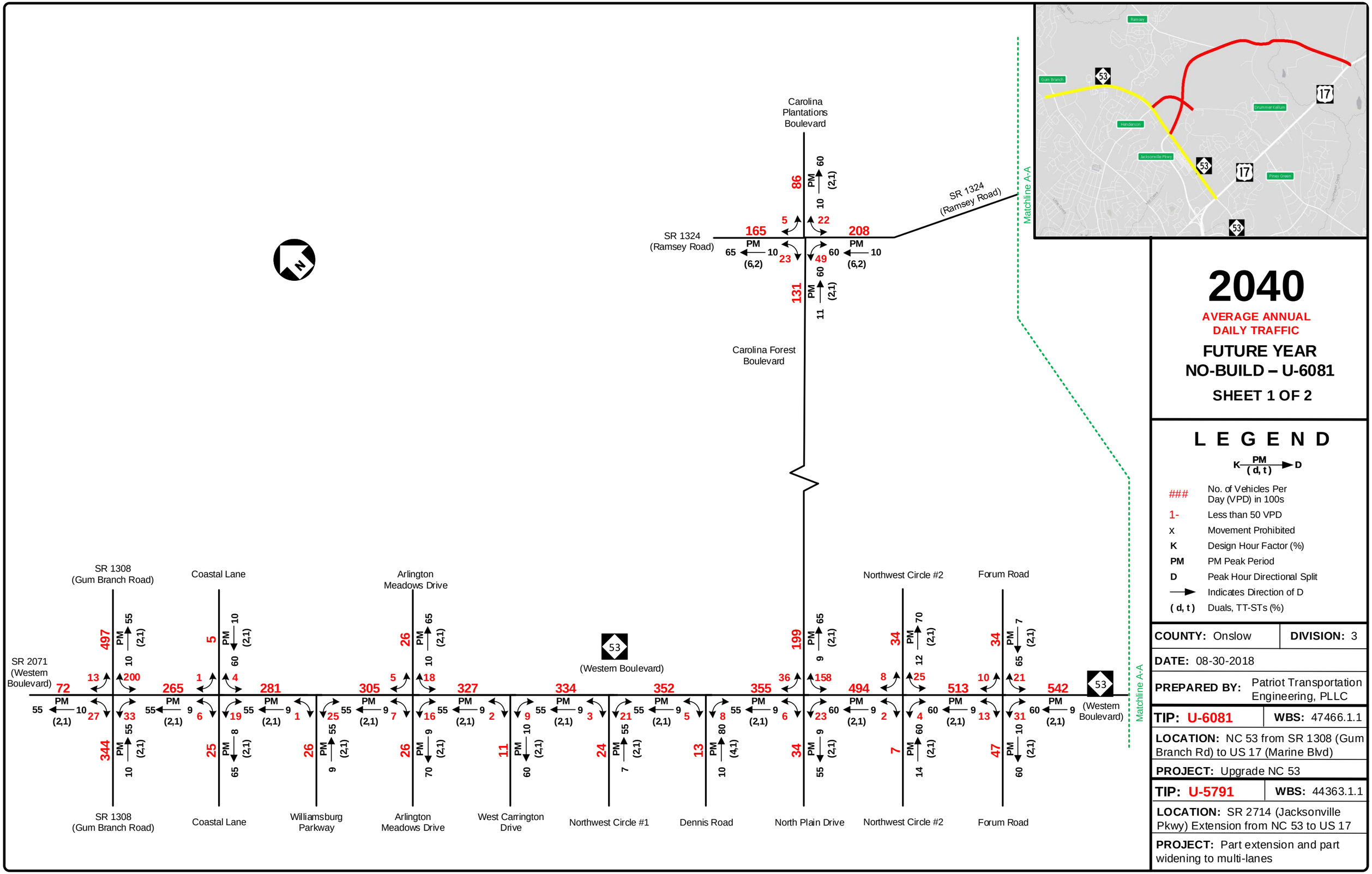

2040

AVERAGE ANNUAL DAILY TRAFFIC

FUTURE YEAR NO-BUILD – U-6081

SHEET 1 OF 2

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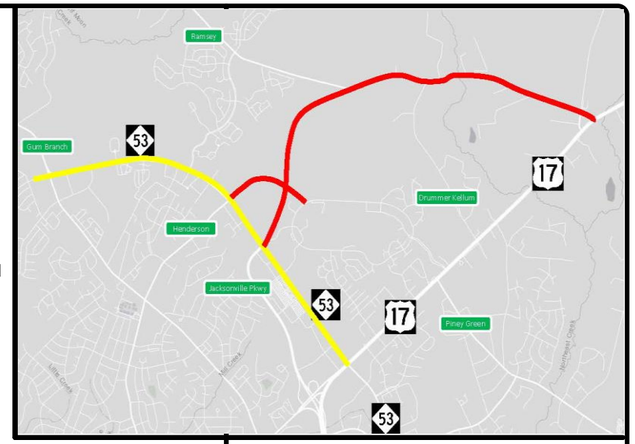

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Matchline A-A

SR 1324 (Ramsey Road)

Jacksonville Parkway Extension/ Ramsey Road

SR 1327 (Kellum Loop Road)

17 (North Marine Boulevard)

Jacksonville Parkway Extension (U-5791)

SR 1326 (Drummer Kellum Road)

Commons Drive North

Car Dealership Driveway

Recreation Loop

Henderson Drive Extension (U-5913)

Commons Drive South

Gateway Marketplace

Exchange Drive

Sams Club Driveway

Trade Street

McDaniel Drive

Workshop Lane

SR 1406 (Piney Green Road)

53 (Western Boulevard)

SR 1336 (Henderson Drive)

Marlin Drive

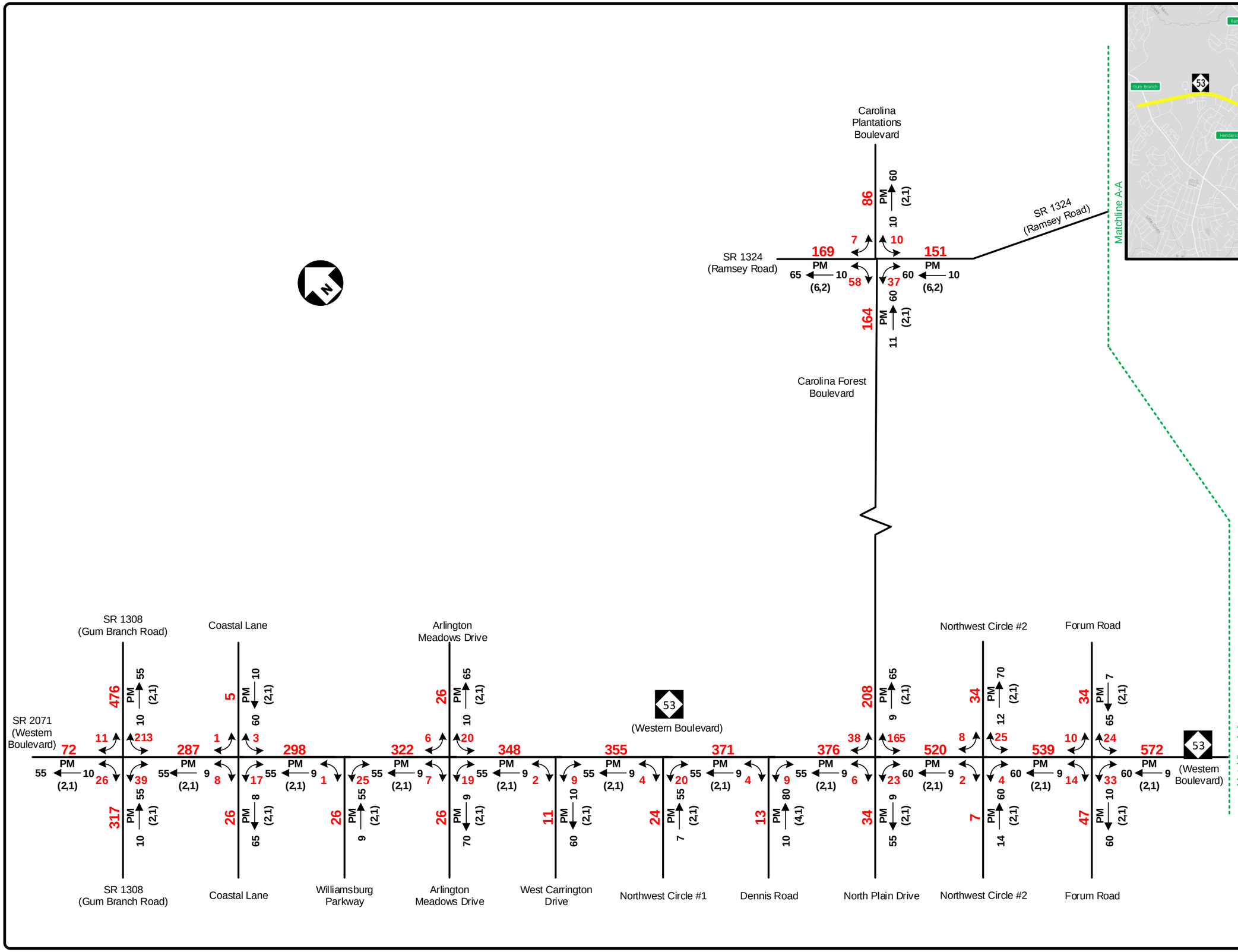
SR 2714 (Jacksonville Parkway)

Gateway Drive South

SR 2716 (Exchange Drive)

Circuit Lane

SR 2715 (Trade Street)



2040

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FUTURE YEAR NO-BUILD – U-5791

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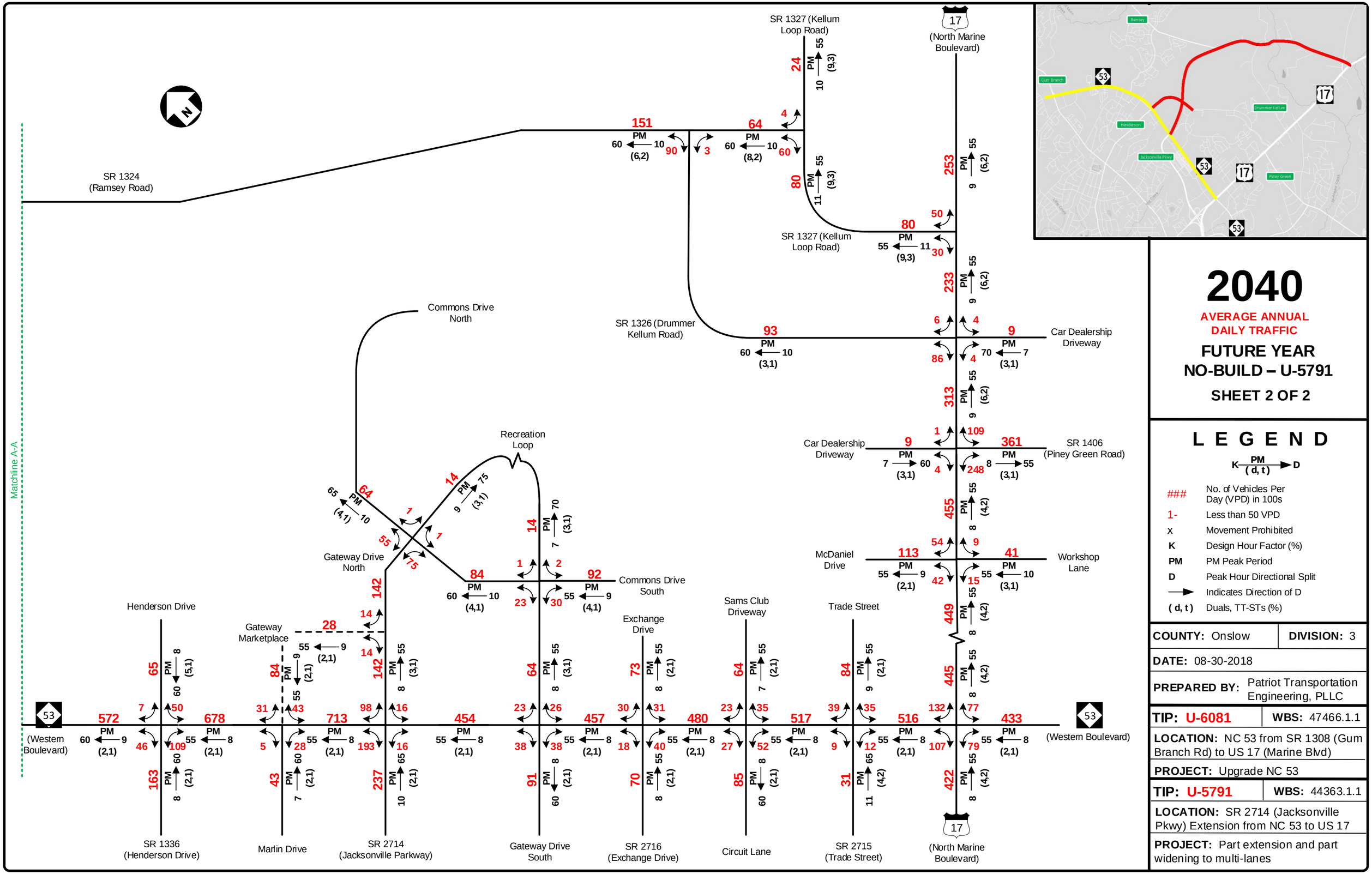

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FUTURE YEAR NO-BUILD – U-5791

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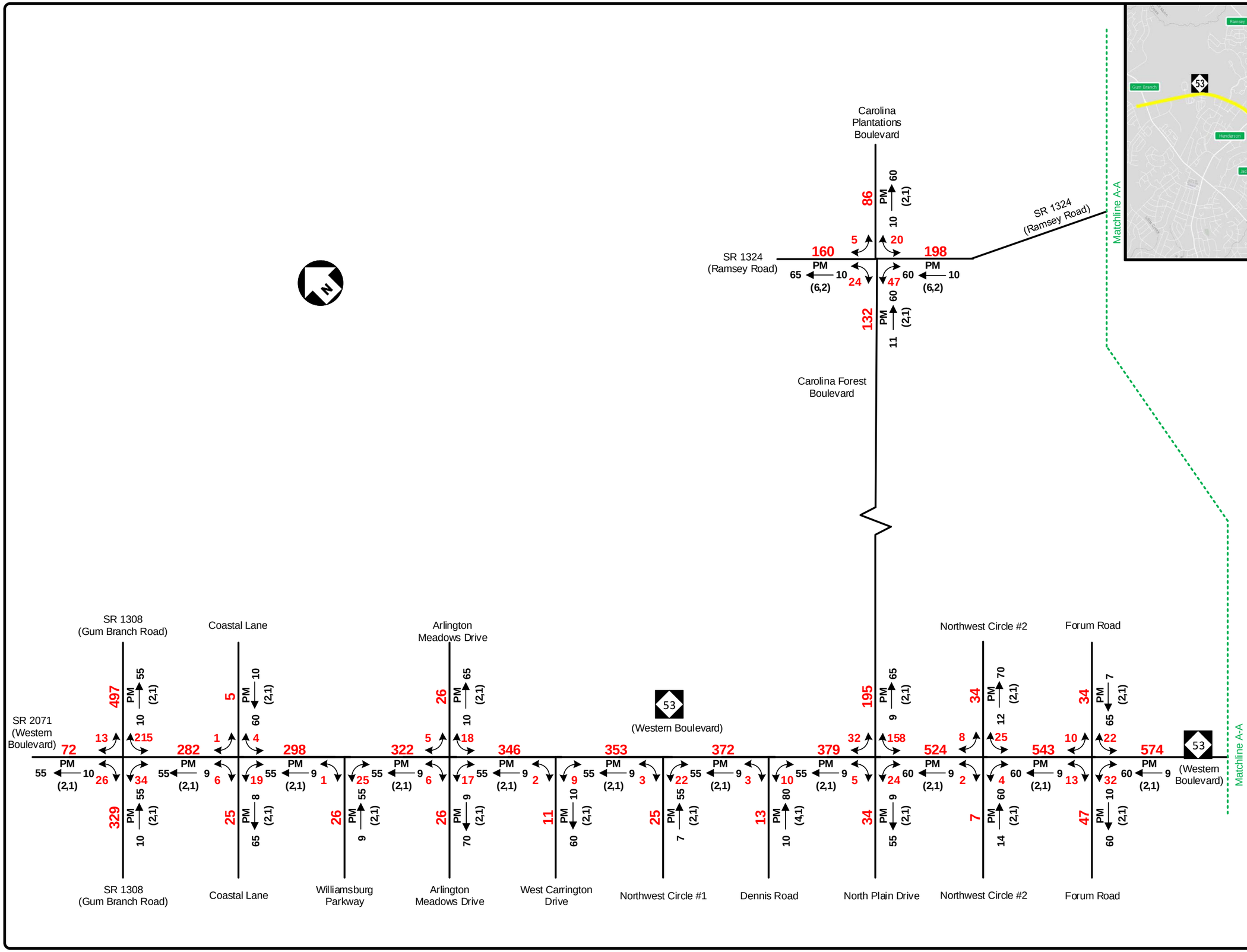

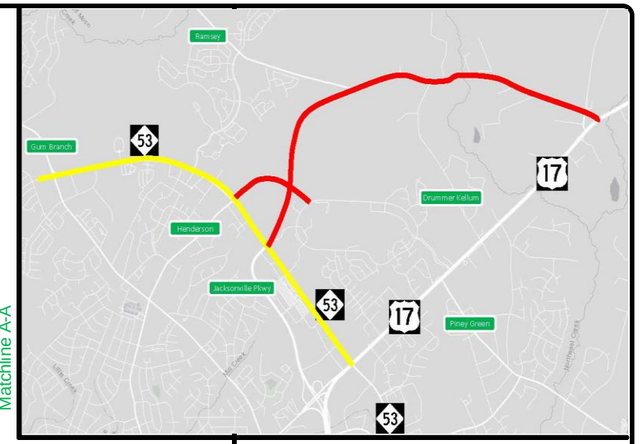

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FUTURE YEAR BUILD

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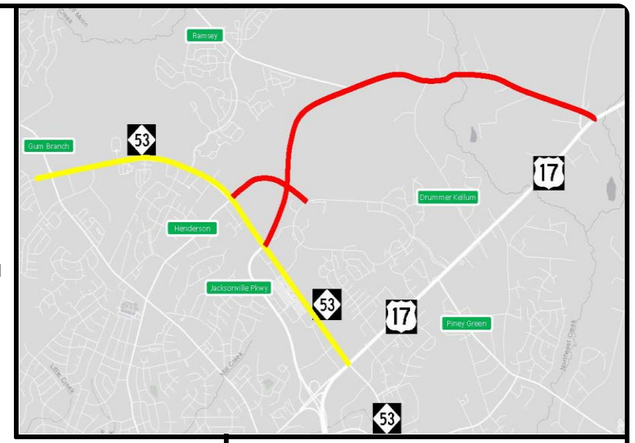

2040

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FUTURE YEAR BUILD

SHEET 2 OF 2

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Matchline A-A

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Marlin Drive

SR 2714 (Jacksonville Parkway)

Gateway Drive South

SR 2716 (Exchange Drive)

Circuit Lane

SR 2715 (Trade Street)

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1. PROJECT BACKGROUND

Patriot Transportation Engineering, PLLC (Patriot) has been contracted by the North Carolina Department of Transportation (NCDOT) to develop base and future year traffic forecasts for NCDOT State Transportation Improvement Program (STIP) Projects U-5791 (SR 2714 (Jacksonville Parkway Extension) from NC 24 to US 17) and U-6081 (NC 53 (Western Boulevard)) widening and superstreet conversion in Onslow County.

1.1 PROJECT REQUEST INFORMATION

The traffic forecast for this project was requested by NCDOT Division 3 in support of project development activities, including environmental documentation and Preliminary Design for the project. The scope of work for the traffic forecast was finalized in February 2018 and Supplemented in June 2018.

For the purposes of the environmental document, it was decided through project scoping with NCDOT that Base Year scenarios would use 2018 and Future Year scenarios would use 2040. The 2018 Base Year traffic forecast includes No-Build and Build scenarios for one alternative. The 2040 Future Year traffic forecast includes separate No-Build scenarios for both U-5791 and U-6081 and a Build scenario for one alternative.

1.2 FORECAST HISTORY

This is the first forecast for the U-6081 project and an update to the previous traffic forecast (completed in May 2017) for the U-5791 project. The forecast study area also overlaps the study area for the STIP Project U-5736 (NC 53 Upgrade from Jacksonville parkway to NC 24).

1.3 PROJECT DESCRIPTION

NCDOT proposes, under STIP Project U-5791 to extend SR 2714 (Jacksonville Parkway) from NC 53 (Western Boulevard) to US 17 (New Bern Highway) including widening a portion of Ramsey Road, a distance of approximately 3.8 miles. The extension of Jacksonville Parkway would involve a new four-lane divided roadway from Western Boulevard to Ramsey Road (SR 1324) and widening of Ramsey Road to multi-lanes to connect to US 17.

NCDOT proposes, under STIP Project U-6081 to widen NC 53 (Western Boulevard) to a six-lane roadway with a modified superstreet configuration, from Gum Branch Road to US 17, a distance of approximately 3.4 miles.

Both projects are located in Onslow County.

1.4 AREA INFORMATION

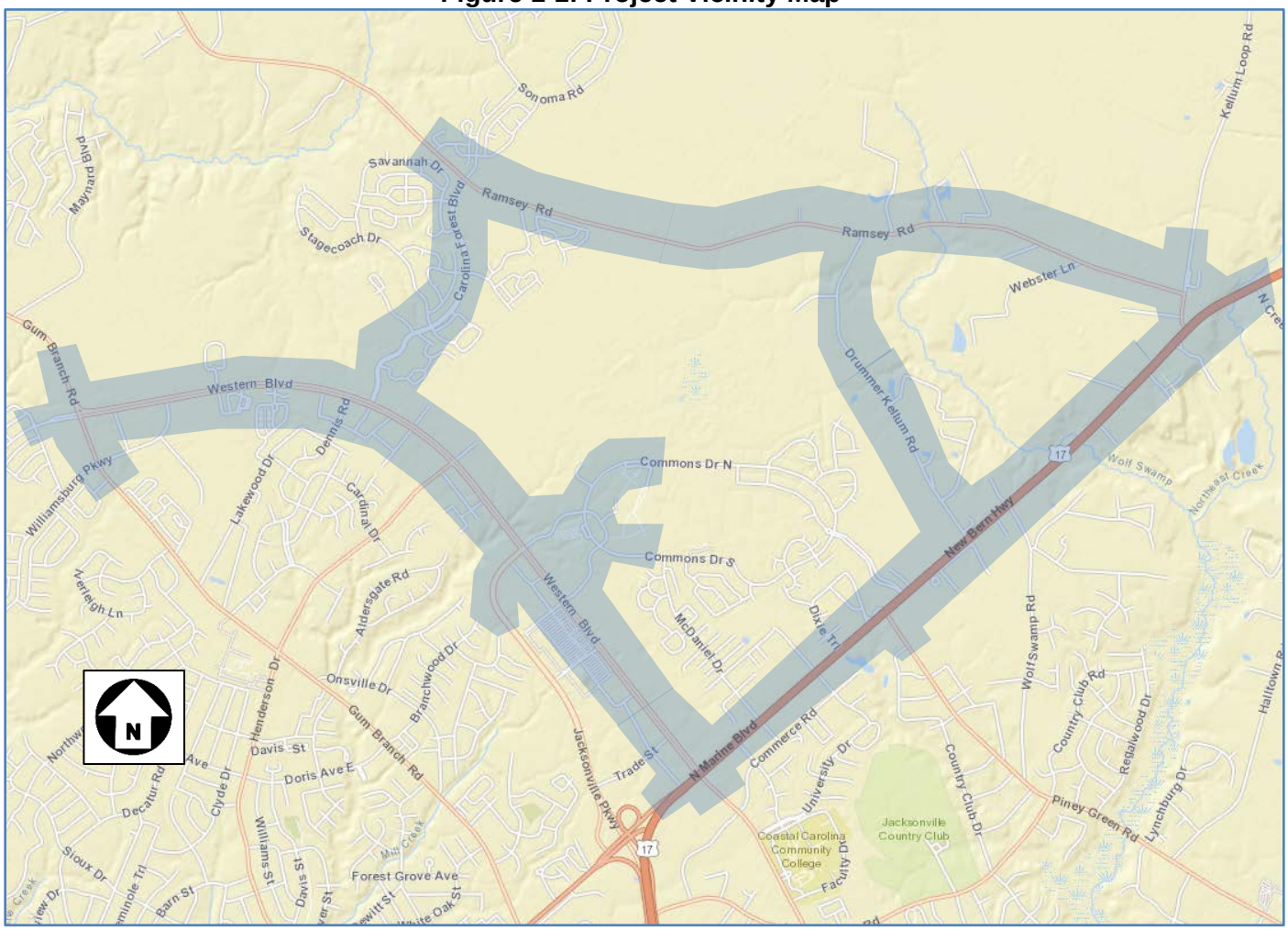
Onslow County has an estimated population of 177,800 citizens based on 2010 census data and a projected 2018 population of 163,000 according to the North Carolina Office of State Budget and Management (NCOSBM). The county covers approximately 906 square miles and consists of several cities and towns including; Jacksonville, Holly Ridge, North Topsail Beach, Richlands, Surf City and Swansboro. Jacksonville is the county seat of Onslow County, which is also the home to both Marine Corp Air Station (MCAS) New River and Marine Corp Base (MCB) Camp Lejeune.

The project location map for the U-6081 forecast is shown on Figure 1-1: Project Vicinity Map.

1.5 ROUTE INFORMATION

The following roadways within the study area are classified by the Federal Highway Administration (FHWA):

Figure 1-1: Project Vicinity Map



The **NC 53 (Western Boulevard)** corridor is classified as a *Minor Arterial* and runs from Gum Branch Rd in the west to US 17 in the east. NC 53 (Western Boulevard) is four-lane, divided roadway along the length of the study area. Access to the corridor is provided by intersecting local streets and some direct-access driveways from businesses. The land use along NC 53 (Western Boulevard) is primarily commercial with some residential uses. The speed limit along the corridor varies from 45 mph to 55 mph.

US 17 is designated as an *Other Principal Arterial*. US 17 is a four-lane roadway. US 17 provides access to NC 53 on the south side of the study area. US 17 is a bypass facility around Jacksonville with interchanges with NC 24 on the west side of Jacksonville. The speed limit in the study area is 45 mph.

Jacksonville Parkway is designated as an *Other Freeway* in the study area. The speed limit along Jacksonville Parkway is 55 mph.

SR 1336 (Henderson Drive) is designated as a *Minor Arterial*. The speed limit along Henderson Drive is 35 mph.

Carolina Forest Boulevard is designated as a *Major Collector* in the study area. The speed limit along Carolina Forest Boulevard is 25 mph.

SR 1308 (Gum Branch Road) is designated as a *Minor Arterial*. The speed limit along Gum Branch Road is 45 mph.

SR 1324 (Ramsey Road) is designated as a Major Collector. It is a two-lane undivided roadway with a posted speed limit of 55 mph east of Drummer Kellum Road and 45 mph west of Drummer Kellum Road.

All other roadways included in the project forecast are classified as *Minor Collectors* or *Local Roads*.

1.6 FUTURE AREA ROADWAY IMPROVEMENTS – FISCAL CONSTRAINT

The project is located within the boundaries of the Jacksonville Urban Area Metropolitan Planning Organization; therefore, the travel demand model and traffic forecast is fiscally constrained to match the assumptions of the corresponding Long Range Transportation Plan (LRTP).

The *Jacksonville Urban Area Metropolitan Planning Organization 2040 Long Range Transportation Plan (Amendment)* includes the proposed project in the 2026-2030 Long-term and Unfunded Opportunity Band and describes it as follows:

- U-6081 – NC 53 (Western Boulevard) from US 17 to Gum Branch Road – Upgrade to 6-lane superstreet
- U-5791 – SR 2714 (Jacksonville Parkway Extension) – NC 53 (Western Boulevard) to US 17 (New Bern Highway) – Widen to multi-lanes, part on new location

Additionally, the following projects that directly affect the proposed project are included in the 2040 LRTP and are assumed to be constructed prior to 2040:

- LRTP H111194 – Henderson Drive extension, from NC 53 (Western Boulevard) to Jacksonville Parkway Extension
- LRTP H111197 – Henderson Drive widening, from Gum Branch Road to NC 53 (Western Boulevard)
- LRTP H111207 – Ramsey Road widening, from Gum Branch Road to Jacksonville Parkway Extension
- LRTP H090479 – Country Club Road widening, from Bell Fork Road to Piney Green Road
- LRTP H090913 – Gum Branch Road access management and widening, from NC 53 (Western Boulevard) to NC 24
- TIP U-5951 – US 17 – Upgrade US 17/US 17 Business intersection to interchange
- TIP U-5736 – NC 53 (Western Boulevard) – US 17 (Marine Boulevard) to NC 24 (Lejeune Boulevard) – Construct access management improvements
- TIP U-5878 – Commerce Drive – Commerce Drive to SR 1406 (Piney Green Road) – Construct roadway on new location
- TIP U-5787 – SR 2715 (Trade Street) – NC 53 (Western Boulevard) to McDaniel Drive – Construct roadway on new location
- TIP U-5789 – NC 53 (Western Boulevard) – Improve intersection at SR 2714 (Jacksonville Parkway)
- TIP U-4906 – SR 1308 (Gum Branch Road) – SR 1313 (Mills Fields Road) to SR 1324 (Ramsey Road) – Roadway widening
- TIP U-5793 – SR 1308 (Gum Branch Road) – Summersill School Road to Country Club Boulevard – Roadway widening

2. SOURCES OF INFORMATION AND DATA

The following sections describe the various information and data sources used in the development of the traffic forecast.

2.1 RELATED FORECASTS

Past traffic forecasts in the vicinity of the proposed project can potentially be utilized as a tool when preparing the traffic forecast. Both the previous traffic forecast for the U-5791 project (May 2017) and the forecast for U-5736 project (November 2016) were considered in the development of this forecast.

2.2 HISTORIC AADT

Existing traffic count data for study area roadways from 1997 to 2016 was provided by the NCDOT Traffic Survey Group (TSG). Data sources included:

- NCDOT TSG Average Annual Daily Traffic (AADT) history from 1997 to 2016

The locations of the historic traffic data counts are shown in Figure 2-1 . The complete 20-year AADT history for each location is found in Appendix A.

2.3 FIELD DATA COLLECTION

Two sets of count data were utilized to develop the traffic forecast for the subject projects. Traffic counts taken in May 2016 for the development of the original U-5791 forecast were utilized for a portion of the study area. Additionally, new project-specific counts for U-6081 were taken in March 2018 through the NCDOT TSG on-call contract and included eighteen 13-hour turning movement counts and two 48-hour classification counts. The traffic count locations are listed in Table 2-1 and are displayed in Figure 2-1.

The traffic count locations fall under the following TSG ATR classifications:

- ATR Group 1 (The most dominant group in the State. Mostly rural in nature and is predominantly used for count locations on nonurban primary routes and all rural and most urban secondary roads).
- ATR Group 4 (predominantly found in areas where land use is characterized as urban, with dense, mixed development. Factors from this group are predominantly applied to urban primary routes and higher volume secondary and local routes in large urban areas).

The classification counts were converted to 24-Hour volumes by dividing the 48-Hour counts by two and then applying the correct seasonal adjustment factors. The turning movement counts (TMCs) were converted to 24-Hour volumes by utilizing the NCDOT Traffic Survey Partial Weekday Count Expansion Factors (November 2015). The count expansion factors were also compared to the count data from the 48-hour volume, speed, classification count and determined to be adequate.

Figure 2-1: Traffic Volume Data Locations

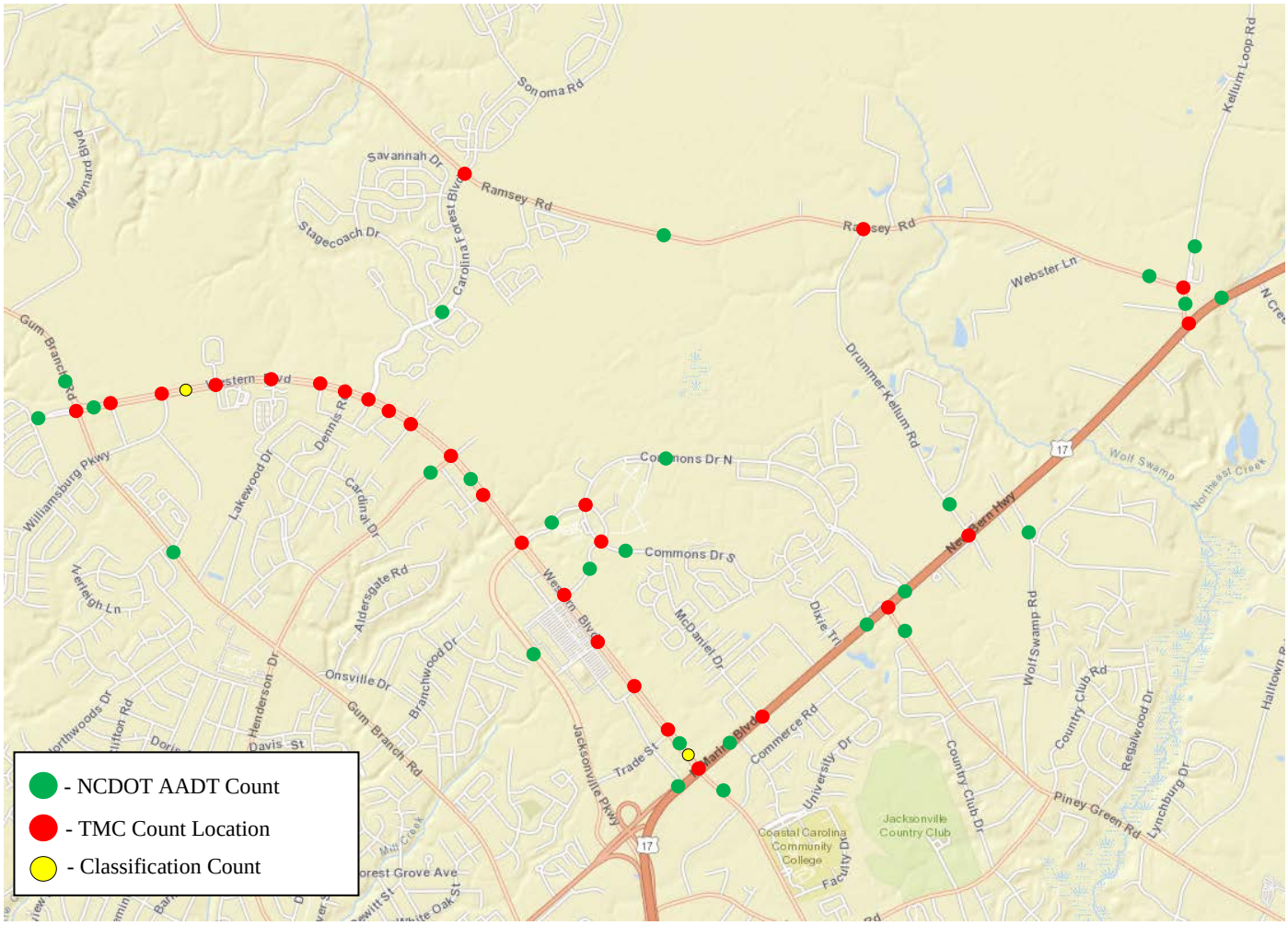


Table 2-1: Collected Traffic Count Locations

Location	Count Type	Date(s)	County	ATR Group	Seasonal Adjustment Factor
NC 53 (Western Blvd) at SR 1308 (Gum Branch Rd)	13-hour TMC	3/20/18	Onslow	1	1.05
NC 53 (Western Blvd) at Coastal Ln	13-hour TMC	3/20/18	Onslow	1	1.05
NC 53 (Western Blvd) at Williamsburg Pkwy	13-hour TMC	3/15/18	Onslow	1	0.99
NC 53 (Western Blvd) at Arlington Meadows Dr	13-hour TMC	3/20/18	Onslow	1	1.05
NC 53 (Western Blvd) at West Carrington Dr	13-hour TMC	3/20/18	Onslow	1	1.05
NC 53 (Western Blvd) at Northwest Circle (West)	13-hour TMC	3/20/18	Onslow	1	1.05
NC 53 (Western Blvd) at Dennis Rd	13-hour TMC	3/20/18	Onslow	1	1.05
NC 53 (Western Blvd) at North Plains Dr/Carolina Forest Blvd	13-hour TMC	3/20/18	Onslow	1	1.05
NC 53 (Western Blvd) at Northwest Circle (East)	13-hour TMC	3/20/18	Onslow	1	1.05
NC 53 (Western Blvd) at Forum Rd	13-hour TMC	3/28/18	Onslow	1	1.05
NC 53 (Western Blvd) at SR 1336 (Henderson Dr)	13-hour TMC	3/21/18	Onslow	1	1.05
NC 53 (Western Blvd) at Marlin Dr	13-hour TMC	3/21/18	Onslow	1	1.05
NC 53 (Western Blvd) at Jacksonville Pkwy	13-hour TMC	3/21/18	Onslow	1	1.05

Location	Count Type	Date(s)	County	ATR Group	Seasonal Adjustment Factor
NC 53 (Western Blvd) at Gateway Drive South	13-hour TMC	3/21/18	Onslow	1	1.05
NC 53 (Western Blvd) at Exchange Dr	13-hour TMC	3/21/18	Onslow	1	1.05
NC 53 (Western Blvd) at Circuit Ln/Sam's Club Dr	13-hour TMC	5/24/16	Onslow	1	0.97
NC 53 (Western Blvd) at SR 2715 (Trade St)	13-hour TMC	3/21/18	Onslow	1	1.05
NC 53 (Western Blvd) at US 17 (N. Marine Blvd)	13-hour TMC	3/21/18	Onslow	1	1.05
Ramsey Road (SR 1324) at Carolina Forest Road/Carolina Plantations Boulevard (SR 2730)	13-hour TMC	5/11/16	Onslow	1	0.95
Ramsey Road (SR 1324) at Drummer Kellum Road (SR 1326)	13-hour TMC	5/11/16	Onslow	1	0.95
Ramsey Road (SR 1324) at Kellum Loop Road (SR 1327)	13-hour TMC	5/11/16	Onslow	1	0.95
US 17 (N. Marine Boulevard) at McDaniel Drive/Workshop Lane	13-hour TMC	5/11/16	Onslow	1	0.95
US 17 (N. Marine Boulevard) at Piney Green Road (SR 1406)	13-hour TMC	5/11/16	Onslow	1	0.95
US 17 (New Bern Highway) at Drummer Kellum Road (SR 1326)	13-hour TMC	5/11/16	Onslow	1	0.95
US 17 (New Bern Highway) at Kellum Loop Road (SR 1327)	13-hour TMC	5/11/16	Onslow	1	0.95
Commons Drive at Gateway Drive North/Recreation Loop	13-hour TMC	5/11/16	Onslow	1	0.95
Commons Drive at Gateway Drive South/Recreation Loop	13-hour TMC	5/11/16	Onslow	1	0.95
NC 53 (Western Blvd) east of Williamsburg Pkwy	48-hour VSC	3/21/18-3/23/18	Onslow	1	1.05/0.99
NC 53 (Western Blvd) northwest of US 17 (N. Marine Blvd)	48-hour VSC	3/27/18-3/29/18	Onslow	1	1.05/1.02

Note: TMC = turning movement count; VSC = volumes, speed, classification count

* Denotes complex interchange count that includes individual TMC counts at the ramp terminals and a manual classification count on the freeway combined into a single count that is displayed in the same manner as a TMC.

2.4 FIELD INVESTIGATION

An orientation field trip was taken as part of the traffic forecast initiation process. The field trip was taken on August 9-10, 2018. The following observations were noted:

- The land use along NC 53 (Western Boulevard) is predominantly commercial with extensive retail shopping centers including big box anchors and outparcel developments. There are numerous restaurants, hotels and car dealerships along the corridor. The residential development along the corridor is primarily on the western end of the corridor and is made up of medium density apartment complexes and condos. There are several large vacant parcels (especially at the western end of the corridor) that were for sale or lease.

- The AM peak direction of travel on NC 53 (Western Boulevard) is eastbound and the AM peak direction on US 17 is southbound.

- The PM peak direction of travel on NC 53 (Western Boulevard) is westbound and the PM peak direction on US 17 is northbound.

- The AM traffic peaked at around 7:30 to 7:45. There was not substantial congestion along the corridor during the AM peak, likely due to the large amount of commercial land uses that were not open at the time.

- The PM traffic peaked at around 4:30 to 5:30. There was substantial levels of congestion along the corridor with the Western Boulevard/Jacksonville Parkway intersection and the Western Boulevard/US 17 intersection having the highest levels of congestion. It was common during the PM peak that drivers would require multiple cycles to pass through the congested intersections.

- There was ongoing development on the north side of Western Boulevard between Henderson Drive and Jacksonville Parkway where the Publix anchored Gateway Marketplace was under construction.

2.5 INFORMATION FROM LOCAL PLANNERS

Questionnaires were sent to, completed by or discussed with the following individuals to assist in understanding the project and traffic forecast study area:

- Katie Hite, NCDOT Division 3 – Division Project Development Engineer
- Caitlin Marks, NCDOT Division 3 – Division Project Manager
- Jessi Leonard, NCDOT Division 3 – Division Traffic Engineer
- *Kirsten Spirakis, NCDOT Division 3 - Senior Assistant Traffic Engineer
- Patrick Riddle, NCDOT Division 3 – District 1 District Engineer
- *Stephen Gurganus, NCDOT Division 3 Assistant District 1 Engineer
- *Alan Pytcher, NCDOT Division 3 - Division Corridor Development Engineer
- *Zack O'Keefe, PE - NCDOT Transportation Planning Division - Jacksonville Urban Area MPO Coordinator
- *Stephanie Kutz, Jacksonville Urban Area MPO – Transportation Planner
- *Deanna Trebil, Jacksonville Urban Area MPO – MPO Administrator
- *Jeremy Smith, City of Jacksonville – Senior Planner

Individuals who provided a response are denoted with an *. Detailed information from the questionnaires is included in Appendix B.

2.6 OTHER SOURCES

Data sources used that are not listed in Sections 2.1 through 2.5 include:

North Carolina Department of Transportation. *State Transportation Improvement Program.* March 2018. Available: https://connect.ncdot.gov/projects/planning/STIPDocuments1/NCDOT%20Current%20STIP.pdf
Jacksonville Urban Area Metropolitan Planning Organization. *Long Range Transportation Plan 2040.* Adopted April, 2015. Available:
http://jumpo-nc.org/wp-content/uploads/2017/01/JUMPO2040LRTP_Final_Report.pdf

NCDOT Functional Classification Maps. Available:
http://ncdot.maps.arcgis.com/home/webmap/viewer.html?layers=029a9a9fe26e43d687d30cd3c08b1792

NCDOT AADT Web Map. Available:
https://ncdot.maps.arcgis.com/home/webmap/viewer.html?webmap=b7a26d6d8abd419f8c27f58a607b25a1

3. BASE YEAR 2018 NO-BUILD TRAFFIC FORECAST

3.1 METHODOLOGY

A review of previous traffic forecasts, field-collected traffic counts, area AADT history, and engineering judgment serve as the basis for the 2018 Base Year No-Build traffic forecast. After careful review for reasonableness checks, the 48-Hour classification counts and 13-Hour TMCs were first converted to AADT volumes by using the appropriate NCDOT TSG seasonal adjustment factors based on the month and day of the week the counts were collected.

Because the traffic count data was collected in May 2016 for a portion of the study area and in March 2018 for a portion of the study area an additional conversion factor was required. There were eight intersections that were counted in both May 2016 and March 2018. The volumes for both sets of count data were converted to AADT and then compared to one another. Based on the comparison it was found that the average growth rate for the two years between counts was 5.0 percent per year; therefore, the 2016 counts were factored up by 10 percent (2 years at 5 percent per year) to determine the 2018 AADT.

A variation of the NCDOT Traffic Forecast Utility (TFU) spreadsheet was also a major tool used in the determination of the traffic forecast volumes. The NCDOT TFU spreadsheet includes the calculation of a validation score that considers the approach volumes and design factors for each intersection. The score is utilized as a tool in selecting the appropriate volumes and factors with a score that is less than 2.0 being valid. All scores for the 2018 Base Year forecast were less than 2.0. Ultimately, the approach volumes and factors were selected based on engineering judgment such that the AADTs and turning movements can be converted to peak hour volumes.

The data from the field-collected traffic counts were incorporated into the spreadsheet to replicate volumes as closely as possible for each intersection in the traffic forecast. The traffic forecast volumes in the 2018 Base-Year traffic forecast mimic the observed patterns as closely as possible. Once the traffic forecast volumes were determined, they were compared to historic AADT trends and interpolated model volumes for reasonableness. Table C1 found in Appendix C provides a comparison of historic AADT trends, field collected data, interpolated model volumes, and the selected traffic forecast volumes for all locations within the study area.

3.2 DESIGN FACTORS

Design factors are a very important aspect of traffic forecasting. The truck percentages, peak hour factor (or K-Factor), and directional distribution are all used along with forecasted traffic volumes when designing a roadway. The methodology and chosen values for each of the factors are described below.

3.2.1 TRUCK PERCENTAGES

Truck Percentages were determined using the 48-Hour mainline classification count data and the 13-Hour TMC data. Overall truck percentages were then separated into the two NCDOT standard classifications: Duals (single-unit trucks with at least one dual-tire axle) and TTSTs (multi-unit trucks with single or twin trailers). Attempts were made to maintain consistent truck percentages along a roadway facility unless circumstances warranted a change. Data used to determine the truck percentages and the chosen values are found in Table C2 in Appendix C. A discussion of the truck percentages for the project is also included as follows:

- Truck percentages from the turning movement counts were mostly consistent along NC 53 (Western Boulevard), with one to two percent duals and one to percent TTSTs. The forecast utilizes two percent duals and one percent TTSTs on NC 53.

- Truck percentages from the turning movement counts were consistent along US 17, with three to six percent duals and one to three percent TTSTs. The forecast utilizes four percent duals and two percent TTSTs on US 17 south of SR 1406 (Piney Green Road) and six percent duals and two percent TTSTs to the north.

- Y-lines – Most of the truck percentages collected for the Y-lines showed truck percentages that were similar to their intersection roadways at NC 53 or US 17. The overall percentages ranged from 1 to 10 percent. The forecast utilizes truck percentages that are consistent with the count percentages as much as possible.

3.2.2 DIRECTIONAL DISTRIBUTION

The directional distribution (D) provides information on the direction of traffic flow in the peak period and is a percentage (rounded to the nearest 5 percent) based on the percent of traffic traveling in each direction along the roadway. In addition to the directional distribution percentage, the direction of the peak travel during the PM peak period is selected and included on the forecast figures. Table C3 in Appendix C provides the D value information used for this traffic forecast. A discussion of the D values for the project is also included as follows:

- NC 53 (Western Boulevard) – the directional distribution along NC 53 ranged from 50 to 64 percent in the westbound direction. It was determined that the directional distribution would vary throughout the length of the project. The selected values included 55 percent from Gum Branch Road to Carolina Forest Boulevard, 60 percent from Carolina Forest Boulevard to Henderson Drive and then 55 percent from Henderson Drive to US 17 with the PM peak direction in the westbound direction.

- US 17 – the directional distribution along US 17 ranged from 49 to 56 percent with a PM peak period direction in the northbound direction on most of the corridor. The directional distribution was determined to be 55 percent with a PM peak in the northbound direction.

- Y-lines along study area – the directional distributions for Y-lines along the study area ranged from 51 to 78 percent. Wherever possible the selected directional distributions were in line with the turning movement count percentages.

3.2.3 PEAK HOUR FACTOR

The peak hour factor (K) is the percentage of AADT that occurs during the peak time period of the day. The K-factor is meant to approximate what percentage of daily traffic would be present during the 30th highest peak hour of a given year, which is commonly referred to as K30. To determine the K-value for the classification counts the highest hourly volume was divided by the daily average of the 48-Hour counts. For turning movement counts the K-factor was developed by dividing the peak hour of the count by the daily volume. The K-factors in this traffic forecast range from 7% to 14%. The K-factor information used for this forecast is found in Table C4 in Appendix C. A discussion of the K values for the project is also included as follows:

- NC 53 (Western Boulevard) – the peak hour factors for NC 53 ranged from seven to ten percent and fluctuated along the corridor. A peak hour factor of nine percent was selected for the western section (west of Henderson Drive) of the corridor and eight percent was selected for the eastern section (east of Henderson Drive) of the corridor.

- US 17 – the peak hour factor along US 17 was eight to nine percent. The peak hour factor was determined to be eight percent on US 17 south of SR 1406 (Piney Green Road) and nine percent to the north.

- Y-lines along the corridor – the peak hour factors for Y-lines along the corridor ranged from seven to fourteen percent and the selected peak hour factors were largely in line with the turning movement count percentages.

3.3 TRAFFIC FORECAST VOLUMES

Based on the methodology described in Section 3.1, traffic forecasts for the 2018 Base Year No-Build Scenario were calculated. Adjusted counts were compared to trend line analyses and the extrapolation of data to 2018 during the process. Utilizing a variation of the NCDOT Traffic Forecast Utility spreadsheet, bidirectional turning movements were also forecasted at intersections to replicate observed daily turning movement volumes as closely as possible.

Comparisons of trend line analyses, volume extrapolation, observed counts, and selected forecast volumes are shown in Table C1 in Appendix C. A discussion of the traffic forecast volumes is included as follows:

- The traffic forecast includes a break line at two locations, one along Carolina Forest Boulevard and one along US 17. The forecast break line on Carolina Forest Boulevard between Ramsey Road and Western Boulevard is due to several large subdivisions having access between the two intersection such that the volume changes substantially enough to require a break. Along US 17 there are several commercial driveways between Western Boulevard and McDaniel Drive/Workshop Lane that create a volume imbalance that is too great to handle through each intersection; therefore, a forecast break was added to maintain the best possible data at these locations.

- The traffic forecast also includes two roadways that are right-in/right-out. In order to maintain balanced two-way link volumes along the corridors, the u-turns at the adjacent intersections were reviewed and re-allocated as left turns in order to estimate the demand for each turning volume and maintain the dual quadrant volumes for turns. The intersections of Western Boulevard at Dennis Road and the western intersection with Northwest Circle therefore show the actual demand for each movement regardless of the configuration.

4. MODEL DATA

The study area for the forecast is included the Jacksonville Travel Demand Model. The study area is located in the northern and central area of the model and has moderate connectivity, with the model including the major roadways (US 17, NC 53, Gum Branch Road, Carolina Forest Boulevard, Henderson Drive, Jacksonville Parkway and Ramsey Road), but not all of the minor y-line roadways. The Jacksonville Urban Area MPO Travel Demand Model (provided by NCDOT on 03/29/2018) was utilized as a tool in the development of the forecast.

The Jacksonville Model was developed in TransCAD (version 5.0 Build 2110) and was calibrated based on a base year of 2010 and has models for a future year of 2040.

Table C5 can be found in Appendix C and displays the model performance for the 2010 model against 2010 AADTs, the 2040 model volumes, and an interpolated volume for 2018 based on the 2010 and 2040 model output. A discussion of the model performance for the project study area corridors is included as follows:

- NC 53 – the 2010 model volumes for NC 53 were lower than the corresponding AADT by 800 to 2,800 vehicles per day (vpd); however, the volumes were only for each end of the corridor with no available AADT data for the central portion of the corridor. The 2018 interpolated model volumes varied from the extrapolated AADT counts in a similar way on each end; however, the model volumes were 1,200 to 1,900 vpd higher. In 2018 the central portion of the corridor had much larger differences with the model being as much as 21,000 vpd lower than the forecast volumes for the segment between Henderson Drive and Jacksonville Parkway.
- SR 1308 (Gum Branch Rd) – the 2010 model volumes on Gum Branch Road were much lower than the corresponding AADT (by 4,200 to 6,500 vpd). The 2018 interpolated model volumes were a closer fit with the differences between the model and forecast volumes ranging from 1,500 vpd higher to 4,000 vpd lower.
- US 17 (N. Marine Highway/New Bern Highway) – The 2010 model volumes were higher than the corresponding AADT by 2,300 to 2,900 vpd; however, the voumes were only for the northern portions of US 17. The 2018 interpolated model volumes varied from the extrapolated AADT counts in a similar way on the northern portion of the corridor where the model volumes were 500 to 3,500 vpd higher. In 2018 the southern portion of the corridor had much larger differences with the model being as much as 14,300 vpd higher than the forecast volumes for the segment between NC 53 and Workshop Lane/McDaniel Drive.

5. BASE YEAR 2018 BUILD TRAFFIC FORECAST

5.1 ASSUMPTIONS

The 2018 Build traffic forecast contains all the assumptions found in the 2018 No-build traffic volume network discussed in Section 3.1. There were also several assumptions made for the Build scenarios. The U-5791 (Jacksonville Parkway Extension) and U-5913 (Henderson Drive Extension) are separate STIP Projects but cannot operate independently as they connect to one another; therefore, it was decided that both U-5791 and U-5913 would be included in the 2018 Build scenario.

Additionally, the traffic counts for the US 17/Piney Green Road intersection were collected in May 2016 while the Piney Green Road widening was under construction. The construction is now complete; therefore, the improvement was included in the 2010 model run in order to better capture the travel pattern changes due to the widening of the facility.

5.2 METHODOLOGY

The Jacksonville Urban Area Travel Demand Model and engineering judgment were heavily relied upon in the calculation of the 2018 Base Year Build traffic volumes. A description of the changes to the model are included in Appendix D. Once the travel demand model was run to include the proposed projects, model volumes from the 2010 No-Build and Build Model runs were compared in order to calculate a diversion percentage between the two scenarios. These diversion percentages were then applied to the 2018 No-Build traffic volumes in order to develop 2018 Build traffic volumes for each alternative.

The diversion rates from the travel demand model are a valuable tool in determining the volumes for the Build scenario; however, there are some limitations to their use. The travel demand model includes very large Traffic Analysis Zones (TAZs) that have centroid connectors directly connecting to the main roadways in the model. The limited roadway coverage from the larger TAZs do not reliably account for the actual transportation network and how traffic loads onto the main roadways. For example, the traffic loading on the north side of NC 24 between Gum Branch Road and Carolina Forest Boulevard includes six intersections; however, the model loads all of the volume at a single point along the corridor. Similarly, the portion of the corridor from Jacksonville Parkway to US 17 is loaded at a single point while the forecast includes four intersections. Additionally, the distribution of trips from each TAZ along the multiple centroid connectors is very flexible in the travel demand model; however, in reality the distribution of trips to the roadway network is much less flexible. Therefore, changes in capacity along a route can result in a substantial redistribution of trips to the improved when in reality this diversion may be much lower depending on the actual connectivity in the non-modeled areas. Due to these limitations, the development of diversion rates were considered along the length of the corridor and the selected rates reflect the limitations of the model based on engineering judgment.

The proposed Build scenario for U-5791 (and U-5913 due to their interdependency) include new location roadways. The development of traffic volumes for roadways that do not currently exist add additional complexity as the model becomes the primary tool in determining the projected volumes on the new route. Utilizing raw model volumes is not a preferred method for determining the traffic volumes especially if the model does not replicate the existing volumes very closely in the vicinity of the new location roadways. As noted in Section 4, the 2018 volume comparison showed that the 2018 interpolated model volumes were 21,000 vpd lower than the forecast volumes for the segment between Henderson Drive and Jacksonville Parkway. Due to this it was determined that the methodology for determining the new location volumes would be to determine the volumes based on proportions. The proportion of volume on existing roadways (where the volumes were much more reliable) was compared to the model volumes to determine the adjustment factor. Next, the new location segments were developed by multiplying the adjustment factor and the model volume to determine the proportional volumes for the forecast.

5.3 DESIGN FACTORS

The design factors for the 2018 Build forecast were developed by reviewing the 2010 model network to see if any of the corridors experienced changes in the percent of traffic occurring in the peak hour, direction of peak travel, or directional split. The selection of design factors for the 2018 Build resulted in the values being the same as those selected for the 2018 No-Build scenario discussed in Section 3.2 for all of the existing roadways in the forecast.

However, the 2018 Build forecast includes several new location roadways that do not have existing design factors. The selection of the design factors for Jacksonville Parkway Extension included utilizing the design factors for existing Jacksonville Parkway south of NC 53 for the portion from NC 53 to the Henderson Drive Extension. The proposed Jacksonville Parkway Extension design factors between Henderson Drive and Ramsey Road were selected based on the factors along Ramsey Road as it was serving traffic to and from the roadway. The portion of the project that overlaps the existing Ramsey Road corridor and the short extension to US 17 utilized the design factors for the existing Ramsey Road corridor. The design factors for the new Connector road between the Jacksonville Parkway Extension and Commons Drive were selected to match the design factors for Gateway Drive North as that would be replaced by the extension and would primarily serve the volume to and from Commons Drive. A summary of the design factors for the new roadways is included as follows:

Location	Truck Percentages	Directional Distribution	Peak Hour Factor
Connector Road - East of Jacksonville Parkway Extension	4,1	55 WB	8
Henderson Drive (SR 1336) - Jacksonville Parkway Extension to Western Boulevard (NC 53)	5,1	60 SB	8
Jacksonville Parkway Extension - Western Boulevard (NC 53) to Henderson Drive (SR 1336)	3,1	65 NB	10
Jacksonville Parkway Extension - Henderson Drive (SR 1336) to Ramsey Road (SR 1324)	3,1	65 NB	10
Jacksonville Parkway Extension/Ramsey Road (SR 1324) - Ramsey Road (SR 1324) to Drummer Kellum Road (SR 1326)	6,2	60 NB	10
Jacksonville Parkway/Ramsey Road (SR 1324) - Drummer Kellum Road (SR 1326) to Kellum Loop Road (SR 1327)	6,2	60 WB	10
Jacksonville Parkway/Ramsey Road (SR 1324) - Kellum Loop Road (SR 1327) to US 17 (New Bern Highway)	8,2	60 WB	10

5.4 TRAFFIC FORECAST VOLUMES

Based on the methodology described in Section 5.2, traffic volumes for the 2018 Future Year Build Forecast Scenario were calculated. Table C6 in Appendix C show the comparisons of model output, diversion percentages, volume deltas, and selected volumes.

A brief summary of the key observations and considerations from the development of the 2018 Build volumes are as follows:

- The 2018 Build volumes along Western Boulevard show diversion rates of seven to ten percent from Gum Branch Road to Jacksonville Parkway, negative twelve to fifteen percent from Jacksonville Parkway to US 17 and negative thirty-six percent east of US 17. The selected rates from Gum Branch Road to US 17 generally follow the pattern included in the model but were smoothed to account for the large TAZs and the direct loading of the centroid connectors in the model. The diversion rate east of US 17 was reduced downward to match the sum of the increases on the other competing roadways as the primary changes in volume were due to trips moving between centroid connectors in large TAZs which is not highly reliable.

- The 2018 Build volumes along US 17 show diversion rates of negative eight to eleven percent with the selected rates being in line with the model rates.

- The 2018 Build volumes for the proposed Jacksonville Parkway Extension range from 3,700 at US 17 to 10,500 at NC 53 with the majority of the traffic being from the Gateway Drive North roadway that is being connected to the new roadway and the existing demand along Ramsey Road.

6. FUTURE YEAR 2040 NO-BUILD TRAFFIC FORECAST

6.1 ASSUMPTIONS

A Future Year of 2040 was chosen for the traffic volume examination as it is the latest year available in the Jacksonville Travel Demand Model and to correspond with the horizon year of the LRTP. Because the traffic forecast is being developed for two separate STIP Projects there are two 2040 Future Year No-Build scenarios, with each scenario including one of the two projects. All 2040 fiscally-constrained projects, with the exception of U-5791 or U-6081, listed in the *Jacksonville Urban Area Metropolitan Planning Organization 2040 Long Range Transportation Plan Amendment* (March 2018) were included in the 2040 No-Build alternative model runs.

The modeling aspects for the 2040 No-Build scenario include utilizing the Jacksonville Travel Demand Model fiscally constrained model. The first step was to review the model and determine if the changes included in the fiscally constrained LRTP have been properly included in the model. Based on this review, several revisions were made to the model network to better represent the future connectivity. The primary changes were to provide additional centroid connectors to the proposed roadways to better represent the future development and connectivity in the study area. A summary of the model revisions is included in Appendix D.

6.2 METHODOLOGY

The Jacksonville Travel Demand Model was utilized as a tool in the development of the 2040 Future Year No-Build traffic volumes.

2040 Future Year No-Build model runs were completed without the proposed project in place. The Compound Annual Growth Rate (CAGR) for each traffic volume location was calculated using the following equation:

((2040 Model Value/2010 Model Value) ^1/30) -1

Additionally, the raw model volumes were compared to determine the total change in model volume between 2010 and 2040. The CAGR rates and total volume changes were reviewed and adjusted during this phase using engineering judgment where needed. The selected CAGR rates were then determined and applied to the 2018 No-Build traffic volumes and extrapolated to determine the 2040 traffic volumes.

6.3 DESIGN FACTORS

The 2040 model network was reviewed to see if any of the corridors experienced changes in the percent of traffic occurring in the peak hour, direction of peak travel, or directional split. Based on a review of the model data it was determined that all of the 2018 Base Year factors were still adequate and that none of the design factors would change from those included in the 2018 Base Year forecast.

6.4 TRAFFIC FORECAST VOLUMES

Based on the methodology described in Section 6.2, traffic volumes for the 2040 Future Year No-Build Scenario for both the U-6081 No-Build and U-5791 No-Build were calculated. Table C7 and C8 in Appendix C show the comparisons of historic growth rates, model output, CAGRs, and selected volumes. Some of the volumes were modified slightly to allow for the development of a balanced network.

A brief summary of the key observations and considerations from the development of the 2040 No-Build volumes are as follows:

<u>U-6081 No-Build Scenario</u>

- The 2040 No-Build volumes along Western Boulevard show growth rates of 1.8 to 1.9 percent from Gum Branch Road to Jacksonville Parkway, 0 to 1 percent from Jacksonville Parkway to US 17 and 0.9 percent east

of US 17. The selected rates from Gum Branch Road to US 17 generally follow the pattern included in the model but were smoothed to account for the large TAZs and the direct loading of the centroid connectors in the model.

- The 2040 No-Build volumes along US 17 show growth rates of 1.3 to 2.0 percent with the selected rates being in line with the model rates.

- The 2040 No-Build volumes for the proposed Jacksonville Parkway Extension range from 10,500 at US 17 to 17,700 north of the intersection with Henderson Drive Extension.

- The residential Y-lines generally had growth rates between 0% to 2% selected based on overall growth in the area.

U-5791 No-Build Scenario

- The 2040 No-Build volumes along Western Boulevard show growth rates of 2.1 to 2.9 percent from Gum Branch Road to Jacksonville Parkway, 1.5 to 1.6 percent from Jacksonville Parkway to US 17 and 0.9 percent east of US 17. The selected rates from Gum Branch Road to US 17 generally follow the pattern included in the model but were smoothed to account for the large TAZs and the direct loading of the centroid connectors in the model.

- The 2040 No-Build volumes along US 17 show growth rates of 1.3 to 2.4 percent with the selected rates being in line with the model rates.

- The residential Y-lines generally had growth rates between 0% to 2% selected based on overall growth in the area.

7. FUTURE YEAR 2040 BUILD TRAFFIC FORECAST

7.1 ASSUMPTIONS

The 2040 Build traffic forecast contains all the assumptions found in the 2040 No-Build traffic volume network discussed in Section 6.1 except includes the proposed projects being constructed. The U-5791 and U-6081 projects were coded into the model by modifying the model to include the extension of Jacksonville Parkway from NC 53 to US 17 and the widening of NC 53 to six lanes with a modified superstreet configuration.

7.2 METHODOLOGY

The Jacksonville Travel Demand Model and engineering judgment were heavily relied upon in the calculation of the 2040 Future Year Build traffic volumes. Once the travel demand model was run to include the proposed projects, model volumes were extracted for each location included in the evaluation. Model volumes from the 2040 No-Build – U-6081 scenario and the Build Model runs were compared in order to calculate a diversion percentage between the two scenarios. These diversion percentages were then applied to the 2040 No-Build traffic volumes in order to develop 2040 Build Traffic volumes.

The same methodology, as was described in Section 5.3, was used for the 2018 Build forecast as was utilized for the 2040 Build forecast. Similar to the 2040 No-Build scenario the model included several revisions to better replicate the likely development and travel patterns for the study area. A summary of the model revisions is included in Appendix D.

7.3 DESIGN FACTORS

The 2040 model network was reviewed to see if any of the corridors experienced changes in the percent of traffic occurring in the peak hour, direction of peak travel, or directional split. The selection of design factors for the 2040 Build scenario was similar to the evaluations discussed in the previous scenarios, with the selected values being the same as those selected for the 2018 Build scenario discussed in Section 5.3 with the following exception:

- The proposed Jacksonville Parkway extension north of the Henderson Drive Extension was increased from 60 to 65 percent to account for the planned residential developments to the north. The forecast includes a forecast break between Henderson Drive and Ramsey Road and it was felt that with the proposed development being mostly residential that the factors used to the south would extend to the proposed

7.4 TRAFFIC FORECAST VOLUMES

Based on the methodology described in Section 7.2, traffic volumes for the 2040 Future Year Build Forecast Scenario were calculated. Table C7 in Appendix C show the comparisons of model output, diversion percentages, volume deltas, and selected volumes.

A brief summary of the key observations and considerations from the development of the 2040 Build volumes are as follows:

- The 2040 Build volumes along Western Boulevard show diversion rates of six to eleven percent from Gum Branch Road to Henderson Drive, seven to eighteen percent from Henderson Drive to US 17 and negative one percent east of US 17. The selected rates from Gum Branch Road to US 17 generally follow the pattern included in the model but were smoothed to account for the large TAZs and the direct loading of the centroid connectors in the model.
- The 2040 Build volumes along US 17 show diversion rates of negative four to six percent with the selected rates being slightly lower percentage wise but in line with the raw volume change from the model.
- The 2040 Build volumes for the proposed Jacksonville Parkway Extension range from 10,100 at US 17 to 22,900 for the segment between Ramsey Road and Drummer Kellum Road.

APPENDIX A:

HISTORIC AADT COUNT DATA

Table A1: NCDOT Historic AADT

Location	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
SR 1308 N OF SR 1470	28,000		30,000		28,000		31,000		27,000	
SR 2071 W OF SR 1308	1,500	2,000								
SR 1470 E OF SR 1308	18,000		18,000		18,000		18,000		15,000	
SR 1336 (HENDERSON DR) W OF SR 1470	14,000		15,000		14,000		13,000		13,000	
NC 53 E OF SR 1336	40,000		41,000							
GATEWAY DR N E OF NC 53	*6,300*									
GATEWAY DR S E OF NC 53	*2,300*									
SR 2714 (JACKSONVILLE PKWY) N OF SR 2716	12,000		8,500							
SR 1470 W OF US 17			34,000				37,000		32,000	
US 17 N OF SR 1470	30,000		*42,000*		30,000				26,000	
SR 1470 E OF US 17	39,000		45,000		40,000		41,000		35,000	
US 17 BUS S OF NC 53			*29,000*							
SR 1324 W OF SR 1326	5,800		5,400							
SR 1324 W OF SR 1327	2,400		2,200		2,300		1,700		1,700	
SR 1327 N OF SR 1324	1,200		1,200		950		930		1,000	
SR 1327 W OF US 17	3,000		3,000		2,900		2,400		2,600	
SR 1326 W OF US 17	4,300		4,300		4,000		*2,500*		2,900	
US 17 N OF SR 1327	14,000		13,000		13,000		13,000		12,000	
US 17 N OF SR 1406					16,000		17,000		15,000	
US 17 BUS W OF SR 1406	*32,000*									
SR 1406 E OF US 17					15,000		17,000		16,000	
COMMONS DR S E OF GATEWAY DR S	*6,100*									
COMMONS DR N E OF GATEWAY DR N	*2,300*									

Table A1: NCDOT Historic AADT

Location	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997
SR 1308 N OF SR 1470	31,000		30,000		28,000		27,000		22,000	
SR 2071 W OF SR 1308										
SR 1470 E OF SR 1308	15,000		16,000		13,000		12,000		11,000	
SR 1336 (HENDERSON DR) W OF SR 1470	13,000		12,000		12,000		*8,400*		9,500	
NC 53 E OF SR 1336										
GATEWAY DR N E OF NC 53										
GATEWAY DR S E OF NC 53										
SR 2714 (JACKSONVILLE PKWY) N OF SR 2716										
SR 1470 W OF US 17	32,000		35,000		29,000		31,000		28,000	
US 17 N OF SR 1470	26,000		27,000		23,000		22,000		25,000	
SR 1470 E OF US 17	36,000		39,000		35,000		35,000		35,000	
US 17 BUS S OF NC 53										
SR 1324 W OF SR 1326										
SR 1324 W OF SR 1327	1,600		1,400		1,300		1,300		1,500	
SR 1327 N OF SR 1324	1,000		1,200		960		820		1,000	
SR 1327 W OF US 17	2,200		2,100		2,100		1,900		2,000	
SR 1326 W OF US 17	2,800		3,000		2,900		2,800		2,800	
US 17 N OF SR 1327	12,000		9,900		10,000		8,100		9,500	
US 17 N OF SR 1406	15,000		14,000		14,000		15,000		14,000	
US 17 BUS W OF SR 1406										
SR 1406 E OF US 17	16,000		15,000		15,000		14,000		12,000	
COMMONS DR S E OF GATEWAY DR S										
COMMONS DR N E OF GATEWAY DR N										

Note: *Red Italics* denote numbers removed from data set due to being greater than two standard deviations away from the trend line data.

APPENDIX B:

PROJECT CORRESPONDENCE

Lee Klieman

From: contact us admin <noreply@ncdot.gov>
Sent: Tuesday, April 03, 2018 4:26 PM
To: Lee Klieman
Subject: A response to your comment has been posted.

A Subject Matter Expert associated with the 'Traffic Analysis' Unit has responded to the comment you posted.
Please do not respond to this email directly.
Instead, click on the following link to view the response.
https://apps.ncdot.gov/ContactUS/Home/CommentDetails?TrackingNum=8WME8K7EW2&Email=lee@pt-engineering.net

Comment History

Tracking Number: 8WME8K7EW2

Unit Name: Traffic Analysis

Name/Phone: Lee Klieman / (919)336-9342

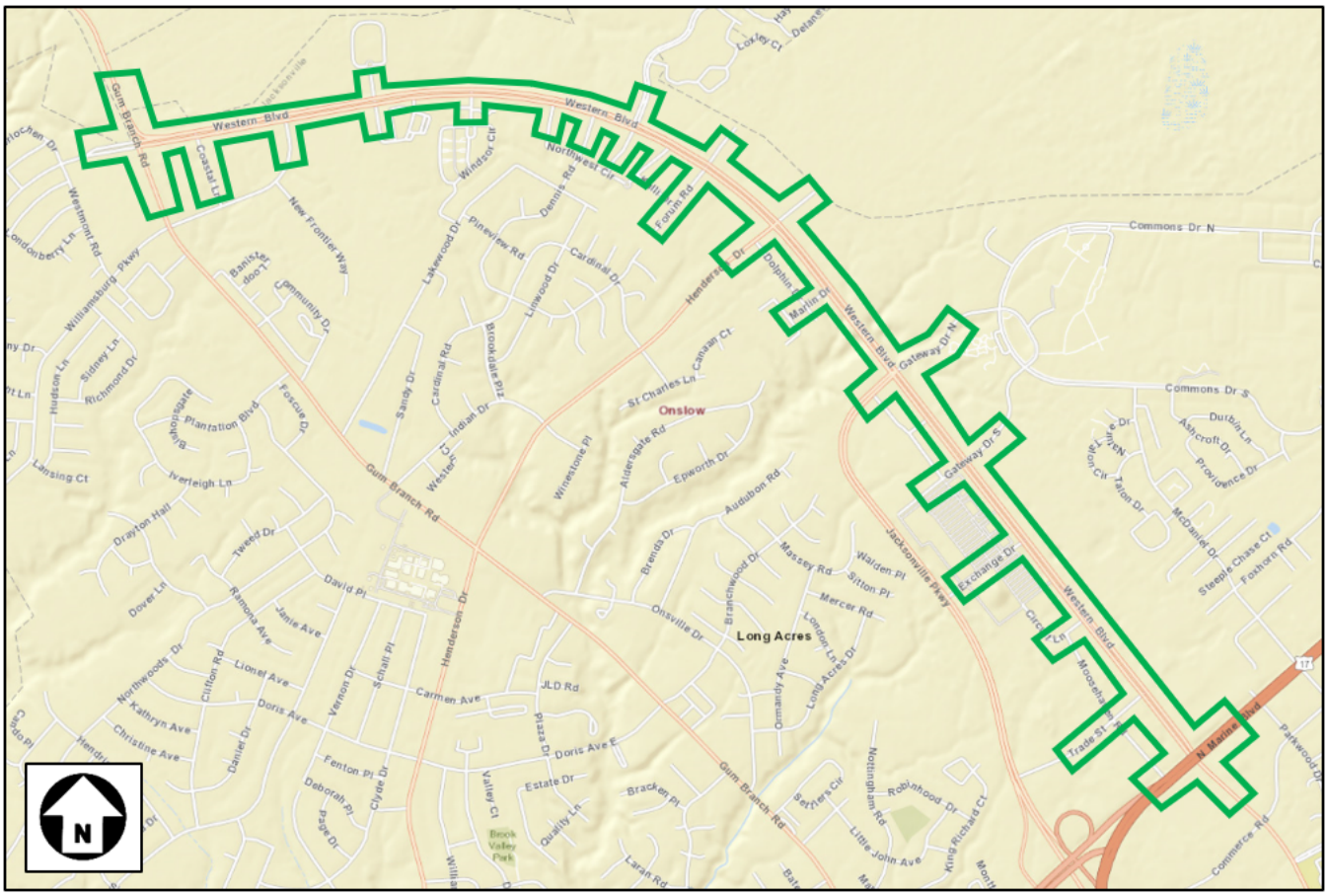
Sent By: Lee Klieman
Date/Time: 4/3/2018 3:04:24 PM
Comment:
Hello, I am requesting information on what ATR groups to use at several locations for the purpose of factoring counts. Attached is a file listing the 14 AADT stations and their locations that I am requesting ATR groups for. Thank you, Lee Klieman

Sent By: jlviera
Date/Time: 4/3/2018 4:25:19 PM
Comment:
Good afternoon, Your request has been assigned #0768 as a tracking number. If you have any further questions regarding this particular request, please reference this number in your message. I have reviewed the list of coverage stations that you requested ATR Group numbers for and have attached a spreadsheet with the ATR Group numbers shown. If you have any additional questions, please don't hesitate to ask. Sincerely, Jamie Viera

CVRG_VLM_ID	County	Route	Location	ATR Group
6600041	Onslow	US 17	N OF NC 53	4
6600042	Onslow	NC 53	E OF US 17	4
6600046	Onslow	SR 1308	W OF LAKEWOOD DR	1
6600114	Onslow	NC 53	W OF US 17	1
6600115	Onslow	SR 1336 (HENDERSON DR)	W OF SR 1470	1
6600116	Onslow	SR 1470	E OF SR 1308	1
6600117	Onslow	SR 1308	N OF SR 1470	1
6603424	Onslow	JACKSONVILLE PKWY	N OF SR 2716	4
6603430	Onslow	CAROLINA FOREST BLVD	S OF SR 1324	1
6603433	Onslow	SR 2071	W OF SR 1308	1
6603436	Onslow	GATEWAY DR N	E OF NC 53	1
6603437	Onslow	GATEWAY DR S	E OF NC 53	1
6609007	Onslow	US 17	S OF NC 53	4
6609008	Onslow	NC 53	E OF SR 1336	1

Study Area Questionnaire Sent to Local Planners

Patriot Transportation Engineering is currently in the process of developing a traffic forecast for NCDOT STIP project U-6081, which includes improvements to NC 53 (Western Boulevard) from SR 1308 (Gum Branch Road) to US 17 (Marine Boulevard) in Onslow County. The forecast includes base year (2018) and design year (2040) forecasts. The forecast study area is shown in the following figure:



We have reviewed the Jacksonville Urban Area MPO 2040 Long Range Transportation Plan (adopted in 2015; amendment March 2018) and are seeking input from local planners and engineers who are familiar with the area. We have identified you as a local representative. We have listed a few questions below that will help us in the development of the traffic forecast. We would greatly appreciate your time in answering these questions. Your answers will be used in conjunction with quantitative data sources in order to make fully-informed judgments regarding the forecast. You may answer the questions in text format below and return them to me at: lee@pt-engineering.net.

If you would rather discuss the questions over the phone, we will be following up with a phone call later next week. Thank you in advance for your time and please let me know if you have any questions.

1) Current and historical traffic trends indicate that the traffic growth along Western Boulevard has increased steadily over the last 20 years with growth rates ranging from 1.3% to 2.8% per year within the study area. The 10-year growth rates show a similar trend, with growth rates ranging from 0.5% to 2.8% per year. Among the roads connecting to Western Boulevard, US 17 (Marine Blvd) has seen steady traffic growth at 1.6% (20-year rate) and 1.8% (10-year rate), while Gum Branch Road has seen lower traffic growth rates of 0.8% (20-year rate) and 0.2% (10-year rate). Jacksonville Parkway has also seen a high amount of traffic growth since its construction (although there aren't enough data points yet for useful conclusions).

Study Area Questionnaire Sent to Local Planners

a. Do you agree with the growth rates, as described?

b. What growth patterns have you noticed?

c. Would you expect the growth rate to change substantially in the next 20 years?

d. Do you expect the growth rate to increase in the future? If so, by what percent per year?

2) The traffic forecast will include developing volumes for the average traffic. Aside from school being in session, are there any noticeable seasonal differences in traffic that you are aware of?

3) According to the North Carolina Office of State Budget and Management (OSBM) the population of Onslow County was approximately 193,900 in 2016 and is projected to grow by 0.96% per year to around 238,900 in 2037. The population projections for Onslow County that are contained within the MTP are slightly higher, showing a projected population of 285,400 in the year 2040 with a growth rate of around 1.4% per year.
   a. Do you think that the 0.96% to 1.4% population growth rate is reasonable for the project study area or do you think it will be higher or lower?

   b. Do you know of any other population projections for this area that may be helpful as we review the growth in the area?

4) The Jacksonville Travel Demand Model data shows that between 2010 and 2040 Western Boulevard has a growth rate of roughly 1.7% per year on its western end and 0.7% on the eastern end. The model shows approximate growth rates of 2% on Gum Branch Road and 1.5% on US 17 (Marine Blvd).
   a. Do you think that these traffic growth rates are reasonable for the project study area or do you think they will be higher or lower?

5) The Jacksonville Urban Area MPO 2040 Long Range Transportation Plan (as amended in March 2018) includes the following projects in the vicinity of the forecast. These projects are anticipated to affect travel patterns for the forecast study area.
   - Gum Branch Road Widening (Summersill School Road to Country Club Blvd)
   - Country Club Blvd Widening (Western Blvd to Piney Green Rd)
   - Ramsey Road Widening (Gum Branch Rd to US 17)
   - US 17 at US 17 Business Interchange Improvement
   - NC 53 (US 17 to NC 24) access management (U-5736)
   - NC 53 at Jacksonville Parkway intersection improvement (U-5789)
   - Jacksonville Parkway (Western Blvd to US 17 – New Location) (U-5791)

   a. What affect, if any, do you believe these projects will have on the traffic volumes in the study area?

   b. Do you know of any reasonably foreseeable transportation projects that are not identified above that may affect traffic volumes in the traffic forecast study area?

6) Are you aware of any previous traffic forecasts that were performed in or near the study area?

7) A preliminary review of data on municipal and county websites did not find any current development information. Do you know of any ongoing or planned developments in the vicinity

Study Area Questionnaire Sent to Local Planners

of the traffic forecast area that may affect our traffic forecast and if so, could you provide information on those developments (type, accessibility, size, timeframe, etc)?

8) Do you have any additional comments that would be helpful in our development of the traffic forecast?

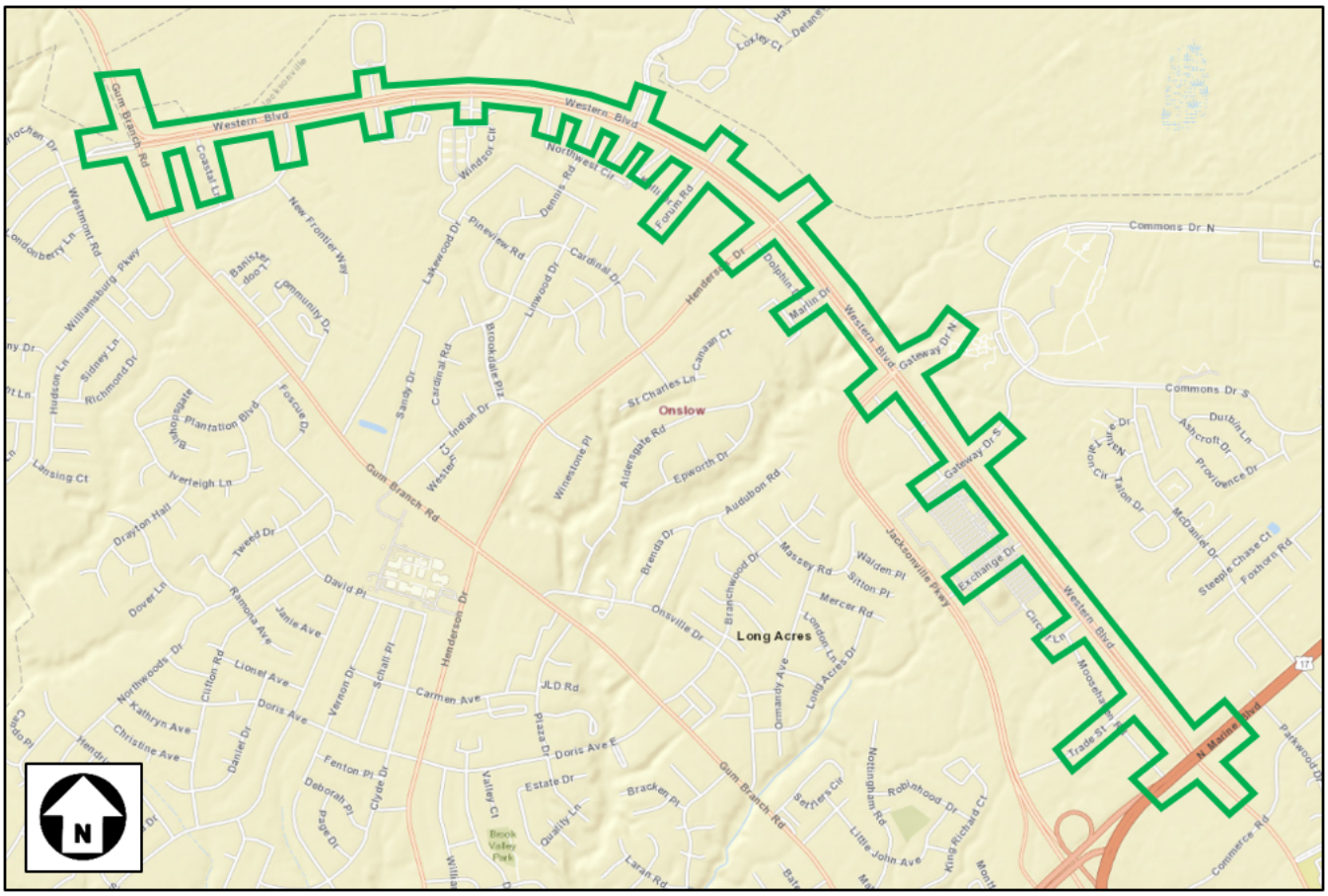
9) This questionnaire is being sent to the following individuals:

   i. Katie Hite, Division 3, Division Project Development Engineer (kehite@ncdot.gov)
   ii. Caitlin Marks, Division 3, Division Project Manager (cmmarks@ncdot.gov)
   iii. Jessi Leonard, Division 3, Division Traffic Engineer (jleonard6@ncdot.gov)
   iv. Patrick Riddle, Division 3, District 1 District Engineer (priddle@ncdot.gov)
   v. Nazia Sarder, NCDOT Transportation Planning Branch (nsarder@ncdot.gov)
   vi. Stephanie Kutz, Jacksonville Urban Area MPO, Transportation Planner (skutz@jacksonvillenc.gov)
   vii. Jeremy Smith, City of Jacksonville, Senior Planner (jsmith@jacksonvillenc.gov)
   viii. Anthony Prinz, City of Jacksonville, Transportation Services Administrator (aprinz@jacksonvillenc.gov)
   ix. Alan Pytcher, Division 3, Division Planning Engineer (apytcher@ncdot.gov)

   a. Are there any other individuals whom you think we should contact to discuss this forecast?

Comments completed by Deanna Trebil via email – 06/26/2018

Patriot Transportation Engineering is currently in the process of developing a traffic forecast for NCDOT STIP project U-6081, which includes improvements to NC 53 (Western Boulevard) from SR 1308 (Gum Branch Road) to US 17 (Marine Boulevard) in Onslow County. The forecast includes base year (2018) and design year (2040) forecasts. The forecast study area is shown in the following figure:



We have reviewed the Jacksonville Urban Area MPO 2040 Long Range Transportation Plan (adopted in 2015; amendment March 2018) and are seeking input from local planners and engineers who are familiar with the area. We have identified you as a local representative. We have listed a few questions below that will help us in the development of the traffic forecast. We would greatly appreciate your time in answering these questions. Your answers will be used in conjunction with quantitative data sources in order to make fully-informed judgments regarding the forecast. You may answer the questions in text format below and return them to me at: lee@pt-engineering.net.

If you would rather discuss the questions over the phone, we will be following up with a phone call later next week. Thank you in advance for your time and please let me know if you have any questions.

1) Current and historical traffic trends indicate that the traffic growth along Western Boulevard has increased steadily over the last 20 years with growth rates ranging from 1.3% to 2.8% per year within the study area. The 10-year growth rates show a similar trend, with growth rates ranging from 0.5% to 2.8% per year. Among the roads connecting to Western Boulevard, US 17 (Marine Blvd) has seen steady traffic growth at 1.6% (20-year rate) and 1.8% (10-year rate), while Gum Branch Road has seen lower traffic growth rates of 0.8% (20-year rate) and 0.2% (10-year rate). Jacksonville Parkway has also seen a high amount of traffic growth since its construction (although there aren't enough data points yet for useful conclusions).

Comments completed by Deanna Trebil via email – 06/26/2018

a. Do you agree with the growth rates, as described? **Yes**

b. What growth patterns have you noticed? **We have seen steady growth in the Gum Branch/Western area in both residential and commercial development.**

c. Would you expect the growth rate to change substantially in the next 20 years? **We expect this area to continue growing with vacant land for residential development in existing subdivisions and beyond as well as a large vacant parcel of land that could accommodate both commercial development and 1000 residential homes.**

d. Do you expect the growth rate to increase in the future? If so, by what percent per year? **We historically use a 3% growth factor when performing TIAs.**

2) The traffic forecast will include developing volumes for the average traffic. Aside from school being in session, are there any noticeable seasonal differences in traffic that you are aware of? **Jacksonville is unique in that we are home to the Marine Corps Base Camp Lejeune. They have unique traffic patterns which directly impact traffic on our major corridors such as Western Blvd. One factor is payday weekends which typically happen around the 1st and 15th of each month. Another factor is holidays. Holidays for the bases are typically 72 – 96 hours. The bases shutdown during these times and traffic ramps up on Western Blvd. Likewise, when they are gearing up for a deployment, there is an influx of traffic to see family members off as well as when they return.**

Western Boulevard is our main commercial corridor that serves the Jacksonville area. As such, it is heavily congested from Thanksgiving to New Years.

3) According to the North Carolina Office of State Budget and Management (OSBM) the population of Onslow County was approximately 193,900 in 2016 and is projected to grow by 0.96% per year to around 238,900 in 2037. The population projections for Onslow County that are contained within the MTP are slightly higher, showing a projected population of 285,400 in the year 2040 with a growth rate of around 1.4% per year.

a. Do you think that the 0.96% to 1.4% population growth rate is reasonable for the project study area or do you think it will be higher or lower? **As stated earlier, we historically use 3% as a growth factor.**

b. Do you know of any other population projections for this area that may be helpful as we review the growth in the area? **No**

4) The Jacksonville Travel Demand Model data shows that between 2010 and 2040 Western Boulevard has a growth rate of roughly 1.7% per year on its western end and 0.7% on the eastern end. The model shows approximate growth rates of 2% on Gum Branch Road and 1.5% on US 17 (Marine Blvd).

a. Do you think that these traffic growth rates are reasonable for the project study area or do you think they will be higher or lower? **We think that this growth factor is reasonable.**

5) The Jacksonville Urban Area MPO 2040 Long Range Transportation Plan (as amended in March 2018) includes the following projects in the vicinity of the forecast. These projects are anticipated to affect travel patterns for the forecast study area.

- Gum Branch Road Widening (Summersill School Road to Country Club Blvd)
- Country Club Blvd Widening (Western Blvd to Piney Green Rd)
- Ramsey Road Widening (Gum Branch Rd to US 17)
- US 17 at US 17 Business Interchange Improvement

Comments completed by Deanna Trebil via email – 06/26/2018

- NC 53 (US 17 to NC 24) access management (U-5736)
- NC 53 at Jacksonville Parkway intersection improvement (U-5789)
- Jacksonville Parkway (Western Blvd to US 17 – New Location) (U-5791)

a. What affect, if any, do you believe these projects will have on the traffic volumes in the study area? **These projects will provide better connectivity and movement around Jacksonville which will in turn lessen the amount of traffic along Western Blvd.**

b. Do you know of any reasonably foreseeable transportation projects that are not identified above that may affect traffic volumes in the traffic forecast study area? **No**

6) Are you aware of any previous traffic forecasts that were performed in or near the study area? **Besides the ones mentioned above, There are several NCDOT projects that traffic forecasts have been completed to include the NC111 Extension (U-5733), Gum Branch Road Widening (U-4906), Gum Branch at Western Blvd (U-5319), NC 53 at Henderson Dr (W-5203U), NC 53 (Western Blvd) (U-5736), and Trade Street Extension (U-5787). Some of these projects are still preliminary and the traffic forecasts might not have been completed as of yet; however, they should be taken into consideration.**

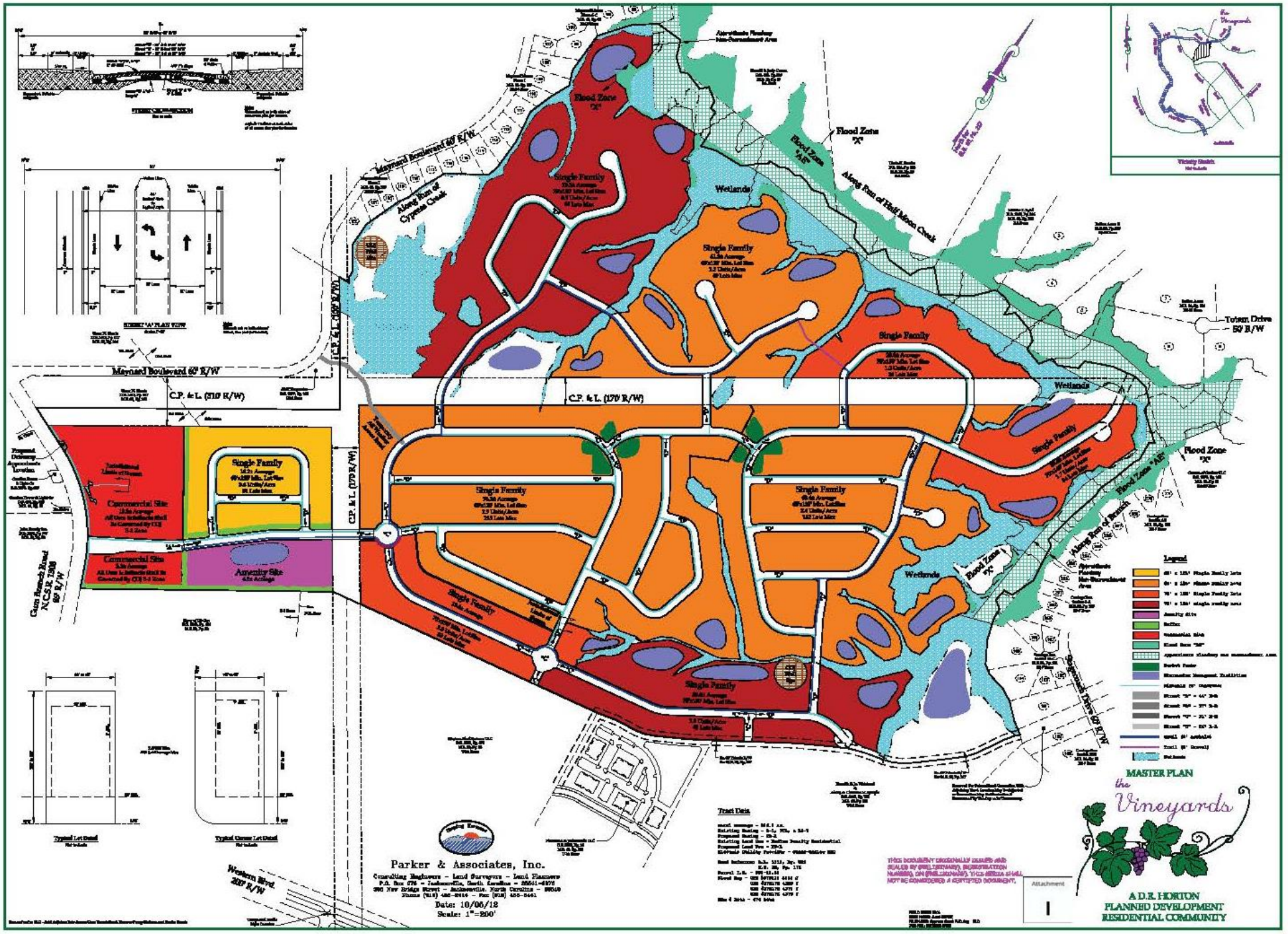
7) A preliminary review of data on municipal and county websites did not find any current development information. Do you know of any ongoing or planned developments in the vicinity of the traffic forecast area that may affect our traffic forecast and if so, could you provide information on those developments (type, accessibility, size, timeframe, etc)?
Several developers have approached the MPO regarding potential development to include commercial and residential districts. Their master plan identified the potential of 1,000 single family homes (see attached pdf titled "Vineyards Site Plan" which was a draft master plan). However, at this time, we have not received an approved site plan for this land. Additionally, land behind Henderson Drive Ext is being developed now which will provide connection to Gateway South. This new connectivity will allow development of this area as well.

8) Do you have any additional comments that would be helpful in our development of the traffic forecast? **No**

9) This questionnaire is being sent to the following individuals:

i. Katie Hite, Division 3, Division Project Development Engineer (kehite@ncdot.gov)
ii. Caitlin Marks, Division 3, Division Project Manager (cmmarks@ncdot.gov)
iii. Jessi Leonard, Division 3, Division Traffic Engineer (jleonard6@ncdot.gov)
iv. Patrick Riddle, Division 3, District 1 District Engineer (priddle@ncdot.gov)
v. Nazia Sarder, NCDOT Transportation Planning Branch (nsarder@ncdot.gov)
vi. Stephanie Kutz, Jacksonville Urban Area MPO, Transportation Planner (skutz@jacksonvillenc.gov)
vii. Jeremy Smith, City of Jacksonville, Senior Planner (jsmith@jacksonvillenc.gov)
viii. Anthony Prinz, City of Jacksonville, Transportation Services Administrator (aprinz@jacksonvillenc.gov)

a. Are there any other individuals whom you think we should contact to discuss this forecast? **No**


Maynard Boulevard 60' R/W
C.P. & L. (210' R/W)
C.P. & L. (179' R/W)
Gum Branch Road NCSR 1308 60' R/W
Western Blvd. 207' R/W
Totem Drive 50' R/W
Flood Zone "X"
Flood Zone "AE"
Wetlands
Along Run of Cypress Creek
Along Run of Half Moon Creek
Single Family
Commercial Site
Amenity Site
Legend
MASTER PLAN
the Vineyards
A D.R. HORTON
PLANNED DEVELOPMENT
RESIDENTIAL COMMUNITY
Parker & Associates, Inc.
Consulting Engineers – Land Surveyors – Land Planners
Date: 10/06/12
Scale: 1"=200'
Tract Data
Typical Lot Detail
Typical Corner Lot Detail
Attachment
1

Comments completed by Jeremy Smith via email – 07/25/2018

1) Current and historical traffic trends indicate that the traffic growth along Western Boulevard has increased steadily over the last 20 years with growth rates ranging from 1.3% to 2.8% per year within the study area. The 10-year growth rates show a similar trend, with growth rates ranging from 0.5% to 2.8% per year. Among the roads connecting to Western Boulevard, US 17 (Marine Blvd) has seen steady traffic growth at 1.6% (20-year rate) and 1.8% (10-year rate), while Gum Branch Road has seen lower traffic growth rates of 0.8% (20-year rate) and 0.2% (10-year rate). Jacksonville Parkway has also seen a high amount of traffic growth since its construction (although there aren't enough data points yet for useful conclusions).
    a. Do you agree with the growth rates, as described? YES

    b. What growth patterns have you noticed? Western Blvd continues to be a source of high commercial growth

    c. Would you expect the growth rate to change substantially in the next 20 years? As available property declines so will development, so yes

    d. Do you expect the growth rate to increase in the future? If so, by what percent per year? It will remain the same as long as there is available proeprty

2) The traffic forecast will include developing volumes for the average traffic. Aside from school being in session, are there any noticeable seasonal differences in traffic that you are aware of? No

3) According to the North Carolina Office of State Budget and Management (OSBM) the population of Onslow County was approximately 193,900 in 2016 and is projected to grow by 0.96% per year to around 238,900 in 2037. The population projections for Onslow County that are contained within the MTP are slightly higher, showing a projected population of 285,400 in the year 2040 with a growth rate of around 1.4% per year.
    a. Do you think that the 0.96% to 1.4% population growth rate is reasonable for the project study area or do you think it will be higher or lower? Yes, possible higher as more city utility capacity comes on line and traffic movement improves

    b. Do you know of any other population projections for this area that may be helpful as we review the growth in the area? No

4) The Jacksonville Travel Demand Model data shows that between 2010 and 2040 Western Boulevard has a growth rate of roughly 1.7% per year on its western end and 0.7% on the eastern end. The model shows approximate growth rates of 2% on Gum Branch Road and 1.5% on US 17 (Marine Blvd).
    a. Do you think that these traffic growth rates are reasonable for the project study area or do you think they will be higher or lower? Defer for answer from Anthony Prinz, Transportation Services Director

5) The Jacksonville Urban Area MPO 2040 Long Range Transportation Plan (as amended in March 2018) includes the following projects in the vicinity of the forecast. These projects are anticipated to affect travel patterns for the forecast study area.
    - Gum Branch Road Widening (Summersill School Road to Country Club Blvd)
    - Country Club Blvd Widening (Western Blvd to Piney Green Rd)
    - Ramsey Road Widening (Gum Branch Rd to US 17)
    - US 17 at US 17 Business Interchange Improvement
    - NC 53 (US 17 to NC 24) access management (U-5736)

Comments completed by Jeremy Smith via email – 07/25/2018

- NC 53 at Jacksonville Parkway intersection improvement (U-5789)
- Jacksonville Parkway (Western Blvd to US 17 – New Location) (U-5791)

a. What affect, if any, do you believe these projects will have on the traffic volumes in the study area? Increased volumes on Gum Branch and Ramsey Road

b. Do you know of any reasonably foreseeable transportation projects that are not identified above that may affect traffic volumes in the traffic forecast study area? No

6) Are you aware of any previous traffic forecasts that were performed in or near the study area? TIA's were completed for projects north of Jacksonville Commons, Henderson Drive/Western Boulevard, and Gum Branch Road intersections with Western Blvd and Williamsburg Parkway and can be obtained from our Transportation Services Department

7) A preliminary review of data on municipal and county websites did not find any current development information. Do you know of any ongoing or planned developments in the vicinity of the traffic forecast area that may affect our traffic forecast and if so, could you provide information on those developments (type, accessibility, size, timeframe, etc)? Large 300,000 square foot shopping center proposed just north of Jacksonville Commons, possible large Single family development north of the Western/Gum Branch Intersection.

8) Do you have any additional comments that would be helpful in our development of the traffic forecast? No

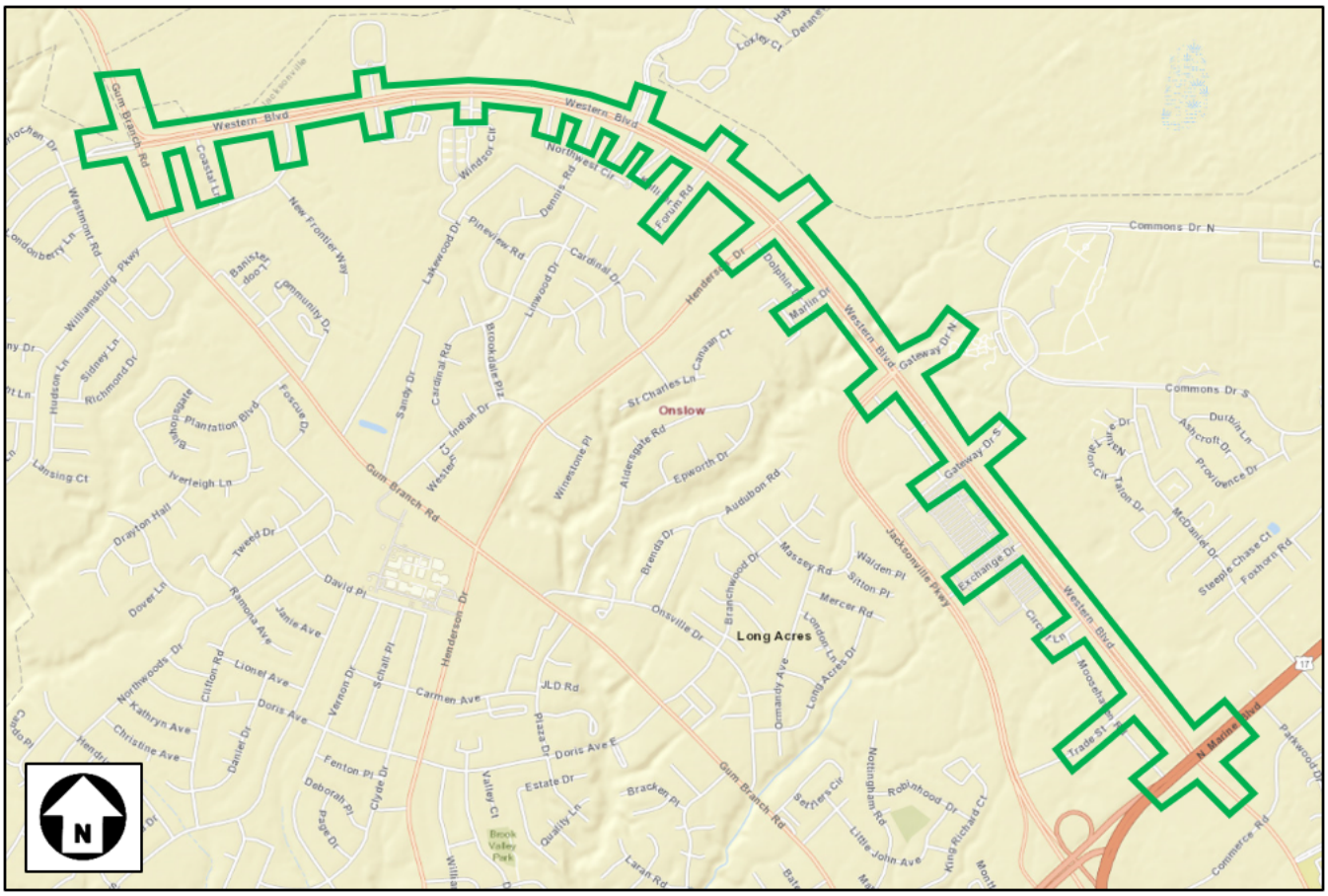
9) This questionnaire is being sent to the following individuals:

i. Katie Hite, Division 3, Division Project Development Engineer (kehite@ncdot.gov)
ii. Caitlin Marks, Division 3, Division Project Manager (cmmarks@ncdot.gov)
iii. Jessi Leonard, Division 3, Division Traffic Engineer (jleonard6@ncdot.gov)
iv. Patrick Riddle, Division 3, District 1 District Engineer (priddle@ncdot.gov)
v. Nazia Sarder, NCDOT Transportation Planning Branch (nsarder@ncdot.gov)
vi. Stephanie Kutz, Jacksonville Urban Area MPO, Transportation Planner (skutz@jacksonvillenc.gov)
vii. Jeremy Smith, City of Jacksonville, Senior Planner (jsmith@jacksonvillenc.gov)
viii. Anthony Prinz, City of Jacksonville, Transportation Services Administrator (aprinz@jacksonvillenc.gov)
ix. Alan Pytcher, Division 3, Division Planning Engineer (apytcher@ncdot.gov)

a. Are there any other individuals whom you think we should contact to discuss this forecast?

Comments completed by Nazia Sarder via email – 07/27/2018

Patriot Transportation Engineering is currently in the process of developing a traffic forecast for NCDOT STIP project U-6081, which includes improvements to NC 53 (Western Boulevard) from SR 1308 (Gum Branch Road) to US 17 (Marine Boulevard) in Onslow County. The forecast includes base year (2018) and design year (2040) forecasts. The forecast study area is shown in the following figure:



We have reviewed the Jacksonville Urban Area MPO 2040 Long Range Transportation Plan (adopted in 2015; amendment March 2018) and are seeking input from local planners and engineers who are familiar with the area. We have identified you as a local representative. We have listed a few questions below that will help us in the development of the traffic forecast. We would greatly appreciate your time in answering these questions. Your answers will be used in conjunction with quantitative data sources in order to make fully-informed judgments regarding the forecast. You may answer the questions in text format below and return them to me at: lee@pt-engineering.net.

If you would rather discuss the questions over the phone, we will be following up with a phone call later next week. Thank you in advance for your time and please let me know if you have any questions.

1) Current and historical traffic trends indicate that the traffic growth along Western Boulevard has increased steadily over the last 20 years with growth rates ranging from 1.3% to 2.8% per year within the study area. The 10-year growth rates show a similar trend, with growth rates ranging from 0.5% to 2.8% per year. Among the roads connecting to Western Boulevard, US 17 (Marine Blvd) has seen steady traffic growth at 1.6% (20-year rate) and 1.8% (10-year rate), while Gum Branch Road has seen lower traffic growth rates of 0.8% (20-year rate) and 0.2% (10-year rate). Jacksonville Parkway has also seen a high amount of traffic growth since its construction (although there aren't enough data points yet for useful conclusions).

Comments completed by Nazia Sarder via email – 07/27/2018

a. Do you agree with the growth rates, as described?

b. What growth patterns have you noticed?

c. Would you expect the growth rate to change substantially in the next 20 years?

d. Do you expect the growth rate to increase in the future? If so, by what percent per year? – I am not a local but it seems that this part of Western Blvd has been continuously increasing, so I do expect it to go up but I am not sure by how much.

2) The traffic forecast will include developing volumes for the average traffic. Aside from school being in session, are there any noticeable seasonal differences in traffic that you are aware of?

3) According to the North Carolina Office of State Budget and Management (OSBM) the population of Onslow County was approximately 193,900 in 2016 and is projected to grow by 0.96% per year to around 238,900 in 2037. The population projections for Onslow County that are contained within the MTP are slightly higher, showing a projected population of 285,400 in the year 2040 with a growth rate of around 1.4% per year.
   a. Do you think that the 0.96% to 1.4% population growth rate is reasonable for the project study area or do you think it will be higher or lower? – If I had to guess, I would say higher based on traffic trends now. This is where all the main shopping/commercial areas are.

   b. Do you know of any other population projections for this area that may be helpful as we review the growth in the area?

4) The Jacksonville Travel Demand Model data shows that between 2010 and 2040 Western Boulevard has a growth rate of roughly 1.7% per year on its western end and 0.7% on the eastern end. The model shows approximate growth rates of 2% on Gum Branch Road and 1.5% on US 17 (Marine Blvd).
   a. Do you think that these traffic growth rates are reasonable for the project study area or do you think they will be higher or lower?

5) The Jacksonville Urban Area MPO 2040 Long Range Transportation Plan (as amended in March 2018) includes the following projects in the vicinity of the forecast. These projects are anticipated to affect travel patterns for the forecast study area.
   - Gum Branch Road Widening (Summersill School Road to Country Club Blvd)
   - Country Club Blvd Widening (Western Blvd to Piney Green Rd)
   - Ramsey Road Widening (Gum Branch Rd to US 17)
   - US 17 at US 17 Business Interchange Improvement
   - NC 53 (US 17 to NC 24) access management (U-5736)
   - NC 53 at Jacksonville Parkway intersection improvement (U-5789)
   - Jacksonville Parkway (Western Blvd to US 17 – New Location) (U-5791)

   a. What affect, if any, do you believe these projects will have on the traffic volumes in the study area?

   b. Do you know of any reasonably foreseeable transportation projects that are not identified above that may affect traffic volumes in the traffic forecast study area?

6) Are you aware of any previous traffic forecasts that were performed in or near the study area?
   - The JUMPO TPD coordinator can better answer this question.

Comments completed by Nazia Sarder via email – 07/27/2018

7) A preliminary review of data on municipal and county websites did not find any current development information. Do you know of any ongoing or planned developments in the vicinity of the traffic forecast area that may affect our traffic forecast and if so, could you provide information on those developments (type, accessibility, size, timeframe, etc)?

8) Do you have any additional comments that would be helpful in our development of the traffic forecast?

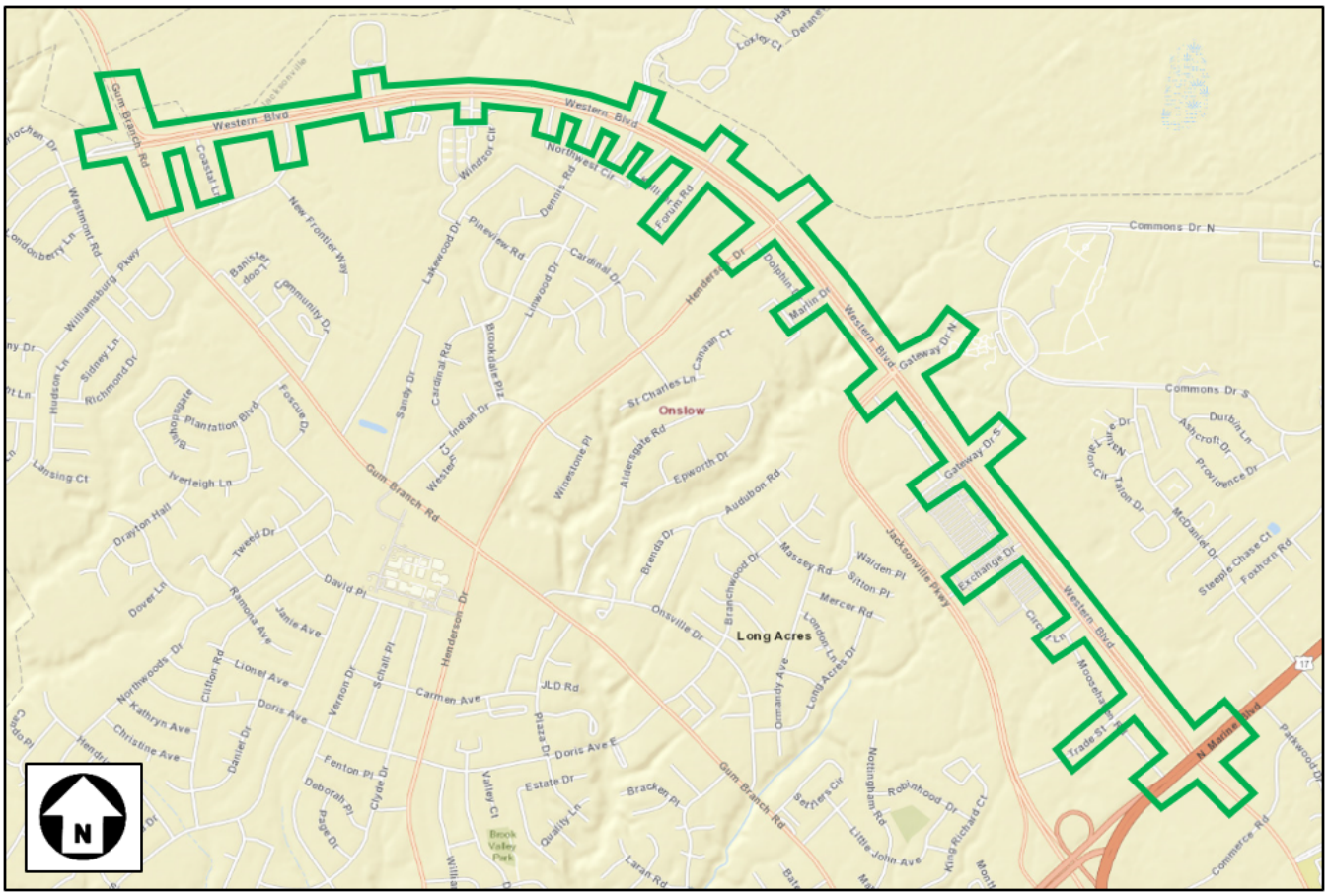
9) This questionnaire is being sent to the following individuals:

   i. Katie Hite, Division 3, Division Project Development Engineer (kehite@ncdot.gov)
   ii. Caitlin Marks, Division 3, Division Project Manager (cmmarks@ncdot.gov)
   iii. Jessi Leonard, Division 3, Division Traffic Engineer (jleonard6@ncdot.gov)
   iv. Patrick Riddle, Division 3, District 1 District Engineer (priddle@ncdot.gov)
   v. Nazia Sarder, NCDOT Transportation Planning Branch (nsarder@ncdot.gov)
   vi. Stephanie Kutz, Jacksonville Urban Area MPO, Transportation Planner (skutz@jacksonvillenc.gov)
   vii. Jeremy Smith, City of Jacksonville, Senior Planner (jsmith@jacksonvillenc.gov)
   viii. Anthony Prinz, City of Jacksonville, Transportation Services Administrator (aprinz@jacksonvillenc.gov)
   ix. Alan Pytcher, Division 3, Division Planning Engineer (apytcher@ncdot.gov)

   a. Are there any other individuals whom you think we should contact to discuss this forecast?

Comments completed by Zackary O'Keefe via email – 07/31/2018

Patriot Transportation Engineering is currently in the process of developing a traffic forecast for NCDOT STIP project U-6081, which includes improvements to NC 53 (Western Boulevard) from SR 1308 (Gum Branch Road) to US 17 (Marine Boulevard) in Onslow County. The forecast includes base year (2018) and design year (2040) forecasts. The forecast study area is shown in the following figure:



We have reviewed the Jacksonville Urban Area MPO 2040 Long Range Transportation Plan (adopted in 2015; amendment March 2018) and are seeking input from local planners and engineers who are familiar with the area. We have identified you as a local representative. We have listed a few questions below that will help us in the development of the traffic forecast. We would greatly appreciate your time in answering these questions. Your answers will be used in conjunction with quantitative data sources in order to make fully-informed judgments regarding the forecast. You may answer the questions in text format below and return them to me at: lee@pt-engineering.net.

If you would rather discuss the questions over the phone, we will be following up with a phone call later next week. Thank you in advance for your time and please let me know if you have any questions.

1) Current and historical traffic trends indicate that the traffic growth along Western Boulevard has increased steadily over the last 20 years with growth rates ranging from 1.3% to 2.8% per year within the study area. The 10-year growth rates show a similar trend, with growth rates ranging from 0.5% to 2.8% per year. Among the roads connecting to Western Boulevard, US 17 (Marine Blvd) has seen steady traffic growth at 1.6% (20-year rate) and 1.8% (10-year rate), while Gum Branch Road has seen lower traffic growth rates of 0.8% (20-year rate) and 0.2% (10-year rate). Jacksonville Parkway has also seen a high amount of traffic growth since its construction (although there aren't enough data points yet for useful conclusions).

Comments completed by Zackary O'Keefe via email – 07/31/2018

a. Do you agree with the growth rates, as described?
Yes

b. What growth patterns have you noticed?
N/A

c. Would you expect the growth rate to change substantially in the next 20 years?
N/A

d. Do you expect the growth rate to increase in the future? If so, by what percent per year?
I am not a local, but it seems the development on this part of Western Blvd has been continuously increasing.

2) The traffic forecast will include developing volumes for the average traffic. Aside from school being in session, are there any noticeable seasonal differences in traffic that you are aware of?
Not a local, but please see ATR group for NCDOT Seasonal Factors.

3) According to the North Carolina Office of State Budget and Management (OSBM) the population of Onslow County was approximately 193,900 in 2016 and is projected to grow by 0.96% per year to around 238,900 in 2037. The population projections for Onslow County that are contained within the MTP are slightly higher, showing a projected population of 285,400 in the year 2040 with a growth rate of around 1.4% per year.
   a. Do you think that the 0.96% to 1.4% population growth rate is reasonable for the project study area or do you think it will be higher or lower?
   I think this rate is reasonable based off of historical data and the Jacksonville Travel Demand Model.

   b. Do you know of any other population projections for this area that may be helpful as we review the growth in the area?
   N/A

4) The Jacksonville Travel Demand Model data shows that between 2010 and 2040 Western Boulevard has a growth rate of roughly 1.7% per year on its western end and 0.7% on the eastern end. The model shows approximate growth rates of 2% on Gum Branch Road and 1.5% on US 17 (Marine Blvd).
   a. Do you think that these traffic growth rates are reasonable for the project study area or do you think they will be higher or lower?
   I think these rates are reasonable when compared to historical data in the study area.

5) The Jacksonville Urban Area MPO 2040 Long Range Transportation Plan (as amended in March 2018) includes the following projects in the vicinity of the forecast. These projects are anticipated to affect travel patterns for the forecast study area.
   - Gum Branch Road Widening (Summersill School Road to Country Club Blvd)
   - Country Club Blvd Widening (Western Blvd to Piney Green Rd)
   - Ramsey Road Widening (Gum Branch Rd to US 17)
   - US 17 at US 17 Business Interchange Improvement
   - NC 53 (US 17 to NC 24) access management (U-5736)
   - NC 53 at Jacksonville Parkway intersection improvement (U-5789)
   - Jacksonville Parkway (Western Blvd to US 17 – New Location) (U-5791)

Comments completed by Zackary O'Keefe via email – 07/31/2018

a. What affect, if any, do you believe these projects will have on the traffic volumes in the study area?
Completion of some of these projects, especially the Gum Branch Road widening, could increase traffic volumes on Western Blvd because it would provide a better alternate entrance into Jacksonville.

b. Do you know of any reasonably foreseeable transportation projects that are not identified above that may affect traffic volumes in the traffic forecast study area?
U-5733 (NC 111 – Catherine Lake Road Extension)

6) Are you aware of any previous traffic forecasts that were performed in or near the study area?
U-5791 (SR 2714 - Jacksonville Parkway Extension), U-5733 (NC 111 - Catherine Lake Road Extension), and U-5878 (Commerce Road Extension) were done in the vicinity of the study area.

7) A preliminary review of data on municipal and county websites did not find any current development information. Do you know of any ongoing or planned developments in the vicinity of the traffic forecast area that may affect our traffic forecast and if so, could you provide information on those developments (type, accessibility, size, timeframe, etc)?
Please see responses from locals

8) Do you have any additional comments that would be helpful in our development of the traffic forecast?
N/A

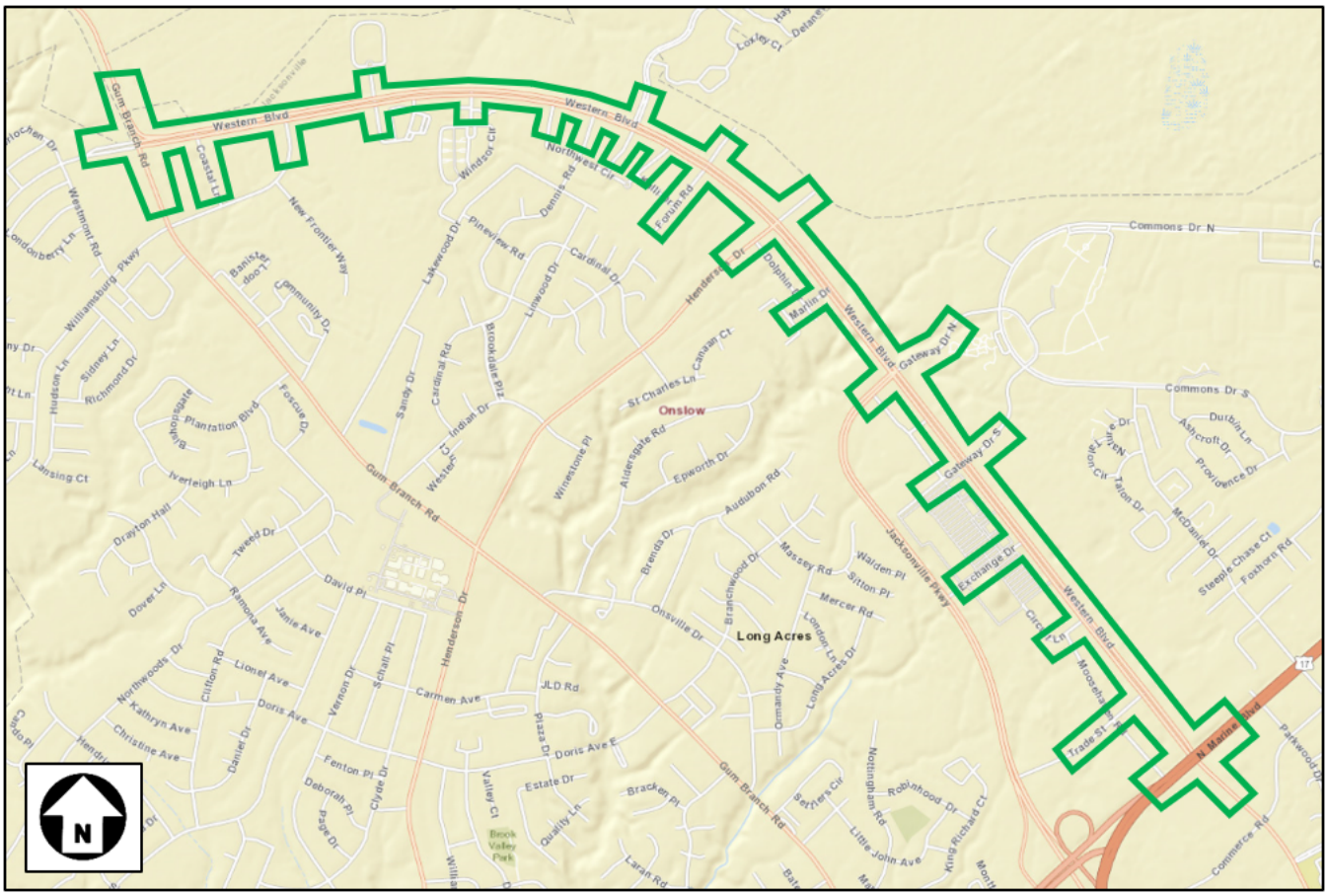
9) This questionnaire is being sent to the following individuals:

i. Katie Hite, Division 3, Division Project Development Engineer (kehite@ncdot.gov)
ii. Caitlin Marks, Division 3, Division Project Manager (cmmarks@ncdot.gov)
iii. Jessi Leonard, Division 3, Division Traffic Engineer (jleonard6@ncdot.gov)
iv. Patrick Riddle, Division 3, District 1 District Engineer (priddle@ncdot.gov)
v. Nazia Sarder, NCDOT Transportation Planning Branch (nsarder@ncdot.gov)
vi. Stephanie Kutz, Jacksonville Urban Area MPO, Transportation Planner (skutz@jacksonvillenc.gov)
vii. Jeremy Smith, City of Jacksonville, Senior Planner (jsmith@jacksonvillenc.gov)
viii. Anthony Prinz, City of Jacksonville, Transportation Services Administrator (aprinz@jacksonvillenc.gov)
ix. Alan Pytcher, Division 3, Division Planning Engineer (apytcher@ncdot.gov)

a. Are there any other individuals whom you think we should contact to discuss this forecast?
N/A

Comments completed by Steven Gurganus (for NCDOT Division 3, District 1) via email – 07/31/2018

Patriot Transportation Engineering is currently in the process of developing a traffic forecast for NCDOT STIP project U-6081, which includes improvements to NC 53 (Western Boulevard) from SR 1308 (Gum Branch Road) to US 17 (Marine Boulevard) in Onslow County. The forecast includes base year (2018) and design year (2040) forecasts. The forecast study area is shown in the following figure:



We have reviewed the Jacksonville Urban Area MPO 2040 Long Range Transportation Plan (adopted in 2015; amendment March 2018) and are seeking input from local planners and engineers who are familiar with the area. We have identified you as a local representative. We have listed a few questions below that will help us in the development of the traffic forecast. We would greatly appreciate your time in answering these questions. Your answers will be used in conjunction with quantitative data sources in order to make fully-informed judgments regarding the forecast. You may answer the questions in text format below and return them to me at: lee@pt-engineering.net.

If you would rather discuss the questions over the phone, we will be following up with a phone call later next week. Thank you in advance for your time and please let me know if you have any questions.

1) Current and historical traffic trends indicate that the traffic growth along Western Boulevard has increased steadily over the last 20 years with growth rates ranging from 1.3% to 2.8% per year within the study area. The 10-year growth rates show a similar trend, with growth rates ranging from 0.5% to 2.8% per year. Among the roads connecting to Western Boulevard, US 17 (Marine Blvd) has seen steady traffic growth at 1.6% (20-year rate) and 1.8% (10-year rate), while Gum Branch Road has seen lower traffic growth rates of 0.8% (20-year rate) and 0.2% (10-year rate). Jacksonville Parkway has also seen a high amount of traffic growth since its construction (although there aren't enough data points yet for useful conclusions).

Comments completed by Steven Gurganus (for NCDOT Division 3, District 1) via email – 07/31/2018

a. Do you agree with the growth rates, as described? Yes

b. What growth patterns have you noticed? Continued commercial development

c. Would you expect the growth rate to change substantially in the next 20 years? No

d. Do you expect the growth rate to increase in the future? If so, by what percent per year? No

2) The traffic forecast will include developing volumes for the average traffic. Aside from school being in session, are there any noticeable seasonal differences in traffic that you are aware of? Military deployments

3) According to the North Carolina Office of State Budget and Management (OSBM) the population of Onslow County was approximately 193,900 in 2016 and is projected to grow by 0.96% per year to around 238,900 in 2037. The population projections for Onslow County that are contained within the MTP are slightly higher, showing a projected population of 285,400 in the year 2040 with a growth rate of around 1.4% per year.
   a. Do you think that the 0.96% to 1.4% population growth rate is reasonable for the project study area or do you think it will be higher or lower? It is reasonable.

   b. Do you know of any other population projections for this area that may be helpful as we review the growth in the area? Military staffing

4) The Jacksonville Travel Demand Model data shows that between 2010 and 2040 Western Boulevard has a growth rate of roughly 1.7% per year on its western end and 0.7% on the eastern end. The model shows approximate growth rates of 2% on Gum Branch Road and 1.5% on US 17 (Marine Blvd).
   a. Do you think that these traffic growth rates are reasonable for the project study area or do you think they will be higher or lower? They are reasonable.

5) The Jacksonville Urban Area MPO 2040 Long Range Transportation Plan (as amended in March 2018) includes the following projects in the vicinity of the forecast. These projects are anticipated to affect travel patterns for the forecast study area.
   - Gum Branch Road Widening (Summersill School Road to Country Club Blvd)
   - Country Club Blvd Widening (Western Blvd to Piney Green Rd)
   - Ramsey Road Widening (Gum Branch Rd to US 17)
   - US 17 at US 17 Business Interchange Improvement
   - NC 53 (US 17 to NC 24) access management (U-5736)
   - NC 53 at Jacksonville Parkway intersection improvement (U-5789)
   - Jacksonville Parkway (Western Blvd to US 17 – New Location) (U-5791)

   a. What affect, if any, do you believe these projects will have on the traffic volumes in the study area? These projects may slightly increase volumes

   b. Do you know of any reasonably foreseeable transportation projects that are not identified above that may affect traffic volumes in the traffic forecast study area? No

6) Are you aware of any previous traffic forecasts that were performed in or near the study area? Commercial development Traffic Impact Studies

Comments completed by Steven Gurganus (for NCDOT Division 3, District 1) via email – 07/31/2018

7) A preliminary review of data on municipal and county websites did not find any current development information. Do you know of any ongoing or planned developments in the vicinity of the traffic forecast area that may affect our traffic forecast and if so, could you provide information on those developments (type, accessibility, size, timeframe, etc)? Yes

8) Do you have any additional comments that would be helpful in our development of the traffic forecast?

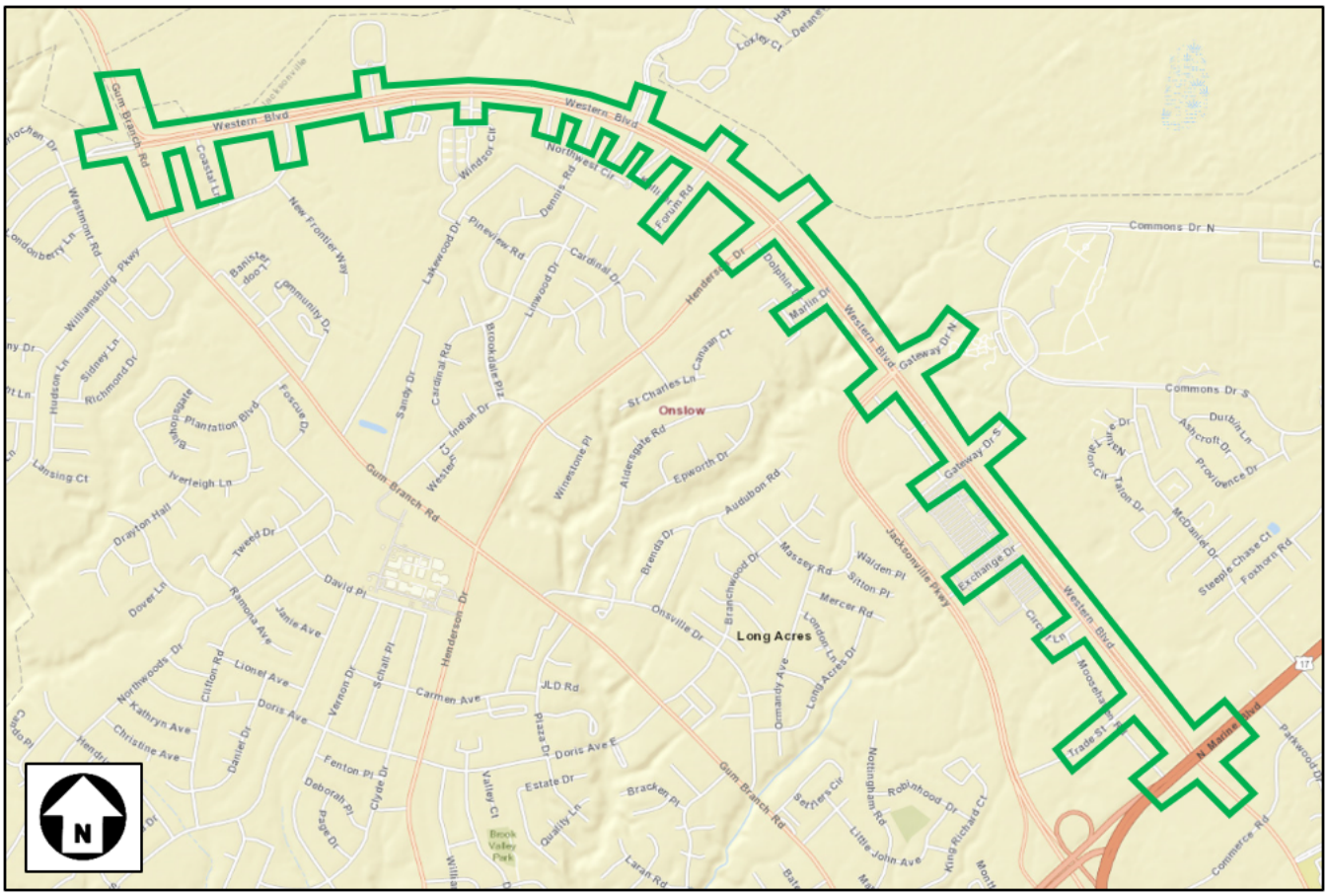
9) This questionnaire is being sent to the following individuals:

   i. Katie Hite, Division 3, Division Project Development Engineer (kehite@ncdot.gov)
   ii. Caitlin Marks, Division 3, Division Project Manager (cmmarks@ncdot.gov)
   iii. Jessi Leonard, Division 3, Division Traffic Engineer (jleonard6@ncdot.gov)
   iv. Patrick Riddle, Division 3, District 1 District Engineer (priddle@ncdot.gov)
   v. Nazia Sarder, NCDOT Transportation Planning Branch (nsarder@ncdot.gov)
   vi. Stephanie Kutz, Jacksonville Urban Area MPO, Transportation Planner (skutz@jacksonvillenc.gov)
   vii. Jeremy Smith, City of Jacksonville, Senior Planner (jsmith@jacksonvillenc.gov)
   viii. Anthony Prinz, City of Jacksonville, Transportation Services Administrator (aprinz@jacksonvillenc.gov)
   ix. Alan Pytcher, Division 3, Division Planning Engineer (apytcher@ncdot.gov)

   a. Are there any other individuals whom you think we should contact to discuss this forecast?

Comments completed by Alan Pytcher via email – 08/02/2018

Patriot Transportation Engineering is currently in the process of developing a traffic forecast for NCDOT STIP project U-6081, which includes improvements to NC 53 (Western Boulevard) from SR 1308 (Gum Branch Road) to US 17 (Marine Boulevard) in Onslow County. The forecast includes base year (2018) and design year (2040) forecasts. The forecast study area is shown in the following figure:



We have reviewed the Jacksonville Urban Area MPO 2040 Long Range Transportation Plan (adopted in 2015; amendment March 2018) and are seeking input from local planners and engineers who are familiar with the area. We have identified you as a local representative. We have listed a few questions below that will help us in the development of the traffic forecast. We would greatly appreciate your time in answering these questions. Your answers will be used in conjunction with quantitative data sources in order to make fully-informed judgments regarding the forecast. You may answer the questions in text format below and return them to me at: lee@pt-engineering.net.

If you would rather discuss the questions over the phone, we will be following up with a phone call later next week. Thank you in advance for your time and please let me know if you have any questions.

1) Current and historical traffic trends indicate that the traffic growth along Western Boulevard has increased steadily over the last 20 years with growth rates ranging from 1.3% to 2.8% per year within the study area. The 10-year growth rates show a similar trend, with growth rates ranging from 0.5% to 2.8% per year. Among the roads connecting to Western Boulevard, US 17 (Marine Blvd) has seen steady traffic growth at 1.6% (20-year rate) and 1.8% (10-year rate), while Gum Branch Road has seen lower traffic growth rates of 0.8% (20-year rate) and 0.2% (10-year rate). Jacksonville Parkway has also seen a high amount of traffic growth since its construction (although there aren't enough data points yet for useful conclusions).

Comments completed by Alan Pytcher via email – 08/02/2018

a. Do you agree with the growth rates, as described?

b. What growth patterns have you noticed?

c. Would you expect the growth rate to change substantially in the next 20 years?

d. Do you expect the growth rate to increase in the future? If so, by what percent per year?

2) The traffic forecast will include developing volumes for the average traffic. Aside from school being in session, are there any noticeable seasonal differences in traffic that you are aware of?

3) According to the North Carolina Office of State Budget and Management (OSBM) the population of Onslow County was approximately 193,900 in 2016 and is projected to grow by 0.96% per year to around 238,900 in 2037. The population projections for Onslow County that are contained within the MTP are slightly higher, showing a projected population of 285,400 in the year 2040 with a growth rate of around 1.4% per year.
   a. Do you think that the 0.96% to 1.4% population growth rate is reasonable for the project study area or do you think it will be higher or lower?

   b. Do you know of any other population projections for this area that may be helpful as we review the growth in the area?

4) The Jacksonville Travel Demand Model data shows that between 2010 and 2040 Western Boulevard has a growth rate of roughly 1.7% per year on its western end and 0.7% on the eastern end. The model shows approximate growth rates of 2% on Gum Branch Road and 1.5% on US 17 (Marine Blvd).
   a. Do you think that these traffic growth rates are reasonable for the project study area or do you think they will be higher or lower?

5) The Jacksonville Urban Area MPO 2040 Long Range Transportation Plan (as amended in March 2018) includes the following projects in the vicinity of the forecast. These projects are anticipated to affect travel patterns for the forecast study area.
   - Gum Branch Road Widening (Summersill School Road to Country Club Blvd)
   - Country Club Blvd Widening (Western Blvd to Piney Green Rd)
   - Ramsey Road Widening (Gum Branch Rd to US 17)
   - US 17 at US 17 Business Interchange Improvement
   - NC 53 (US 17 to NC 24) access management (U-5736)
   - NC 53 at Jacksonville Parkway intersection improvement (U-5789)
   - Jacksonville Parkway (Western Blvd to US 17 – New Location) (U-5791)

   a. What affect, if any, do you believe these projects will have on the traffic volumes in the study area?

   b. Do you know of any reasonably foreseeable transportation projects that are not identified above that may affect traffic volumes in the traffic forecast study area?

6) Are you aware of any previous traffic forecasts that were performed in or near the study area?

7) A preliminary review of data on municipal and county websites did not find any current development information. Do you know of any ongoing or planned developments in the vicinity

Comments completed by Alan Pytcher via email – 08/02/2018

of the traffic forecast area that may affect our traffic forecast and if so, could you provide information on those developments (type, accessibility, size, timeframe, etc)?

8) Do you have any additional comments that would be helpful in our development of the traffic forecast?

9) This questionnaire is being sent to the following individuals:

   i. Katie Hite, Division 3, Division Project Development Engineer (kehite@ncdot.gov)
   ii. Caitlin Marks, Division 3, Division Project Manager (cmmarks@ncdot.gov)
   iii. Jessi Leonard, Division 3, Division Traffic Engineer (jleonard6@ncdot.gov)
   iv. Patrick Riddle, Division 3, District 1 District Engineer (priddle@ncdot.gov)
   v. Nazia Sarder, NCDOT Transportation Planning Branch (nsarder@ncdot.gov)
   vi. Stephanie Kutz, Jacksonville Urban Area MPO, Transportation Planner (skutz@jacksonvillenc.gov)
   vii. Jeremy Smith, City of Jacksonville, Senior Planner (jsmith@jacksonvillenc.gov)
   viii. Anthony Prinz, City of Jacksonville, Transportation Services Administrator (aprinz@jacksonvillenc.gov)
   ix. Alan Pytcher, Division 3, Division Planning Engineer (apytcher@ncdot.gov)

   a. Are there any other individuals whom you think we should contact to discuss this forecast?

Lee Klieman

From: Spirakis, Kirsten L <klspirakis@ncdot.gov>
Sent: Tuesday, July 03, 2018 12:18 PM
To: Lee Klieman
Cc: Leonard, Jessi L
Subject: NCDOT STIP U-6081 Traffic Forecast Questionnaire
Attachments: NCDOT STIP U-6081 Traffic Forecast Questionnaire.docx

Response to questionnaire:
1) a. Defer to District/City
   b. There are two Traffic Impact Analysis that should be considered:
      Gateway Marketplace, by Ramey Kemp & Associates (2/16/18) – across from Marlin Dr.
      The Plantation at Jacksonville, by HNTB (9/2010) – north of Western Blvd. at Arlington Meadows Dr., partially built
   c. Defer to District/City
   d. refer to 1) b.
2) Defer to District/City
3) a. Defer to City
   b. Defer to City
4) a. refer to 1) b.
5) a. Defer to District/City
   b. U-4007E and U-5508 are planned to be constructed in conjunction with U-5736; W-5203U – NC 53 at Henderson Dr.
6) Defer to District/City
7) There are two Traffic Impact Analysis that should be considered:
   Gateway Marketplace, by Ramey Kemp & Associates (2/16/18) – across from Marlin Dr.: 114,600 sf of various retail
   The Plantation at Jacksonville, by HNTB (9/2010) – north of Western Blvd. at Arlington Meadows Dr., partially built: 360 units apartments, 15,000 sf retail
8) Defer to District/City
9) Alan Pytcher, Division 3, Division Planning Engineer

Kirsten L. Spirakis, PE
Senior Assistant Traffic Engineer
Division 3 Traffic
NCDOT

(910) 341-2200
klspirakis@ncdot.gov

5504 Barbados Boulevard
Castle Hayne, NC 28429-5646

APPENDIX C:

TRAFFIC FORECAST TABLES

Table C1: 2018 Base Year No-Build Traffic Volumes

Forecast Location	NCDOT Historic Count Data							AADT Exptrapolated to 2018 (1)	Project Specific Count Data[2]		2018 No-Build Traffic Forecast
	2010	2011	2012	2013	2014	2015	2016		TMC	Mainline	
Western Boulevard (NC 53) - West of Gum Branch Road (SR 1308)						2,000	1,500	500	4,800 (3)		**4,800**
Western Boulevard (NC 53) - Gum Branch Road (SR 1308) to Coastal Lane	18,000		18,000		18,000		18,000	19,200	18,100 (3) 16,000 (3)		**18,000**
Western Boulevard (NC 53) - Coastal Lane to Williamsburg Parkway									17,300 (3) 18,400 (3)		**19,000**
Western Boulevard (NC 53) - Williamsburg Parkway to Arlington Meadows Drive									20,200 (3) 21,200 (3)	20,900 (5)	**20,800**
Western Boulevard (NC 53) - Arlington Meadows Drive to West Carrington Drive									22,100 (3) 22,500 (3)		**22,000**
Western Boulevard (NC 53) - West Carrington Drive to Northwest Circle (W)									22,900 (3) 21,500 (3)		**22,400**
Western Boulevard (NC 53) - Northwest Circle (W) to Dennis Road									22,400 (3) 22,500 (3)		**23,400**
Western Boulevard (NC 53) - Dennis Road to Carolina Forest Boulevard/North Plain Drive									22,900 (3) 25,200 (3)		**23,900**
Western Boulevard (NC 53) - Carolina Forest Boulevard/North Plain Drive to Northwest Circle (E)									34,400 (3) 34,800 (3)		**33,700**
Western Boulevard (NC 53) - Northwest Circle (E) to Forum Road									35,900 (3) 35,200 (3)		**35,000**
Western Boulevard (NC 53) - Forum Road to Henderson Drive (SR 1336)									36,900 (3) 38,000 (3)		**37,000**
Western Boulevard (NC 53) - Henderson Drive (SR 1336) to Marlin Drive					41,000		40,000	39,000	43,700 (3) 44,200 (3)		**43,800**
Western Boulevard (NC 53) - Marlin Drive to Gateway Drive North/Jacksonville Parkway (SR 2714)									46,300 (3) 46,500 (3)		**46,100**
Western Boulevard (NC 53) - Gateway Drive North/ Jacksonville Parkway (SR 2714) to Gateway Drive South									29,800 (3) 29,500 (3)		**30,100**

Table C1: 2018 Base Year No-Build Traffic Volumes

Forecast Location	NCDOT Historic Count Data							AADT Exptrapolated to 2018 (1)	Project Specific Count Data[2]		2018 No-Build Traffic Forecast
	2010	2011	2012	2013	2014	2015	2016		TMC	Mainline	
Western Boulevard (NC 53) - Gateway Drive South to Exchange Drive (SR 2716)									29,800 (3) 30,200 (3)		**30,400**
Western Boulevard (NC 53) - Exchange Drive (SR 2716) to Sams Club Drive/Circuit Lane									31,700 (3) 32,800 (4)		**32,100**
Western Boulevard (NC 53) - Sams Club Drive/Circuit Lane to Trade Street (SR 2715)									35,300 (4) 35,500 (3)		**34,900**
Western Boulevard (NC 53) - Trade Street (SR 2715) to US 17 (N. Marine Boulevard)/N. Marine Boulevard (US 17)	37,000				34,000			35,600	35,500 (3) 36,000 (3)	38,700 (5)	**35,300**
Western Boulevard (NC 53) - East of US 17 (N. Marine Boulevard)	41,000		40,000		45,000		39,000	43,600	35,500 (3)		**34,800**
Gum Branch Road (SR 1308) - North of Western Boulevard (NC 53)	31,000		28,000		30,000		28,000	29,100	30,900 (3)		**30,800**
Gum Branch Road (SR 1308) - South of Western Boulevard (NC 53)									21,100 (3)		**21,400**
Coastal Lane - North of Western Boulevard (NC 53)									400 (3)		**400**
Coastal Lane - South of Western Boulevard (NC 53)									2,000 (3)		**2,200**
Williamsburg Parkway - South of Western Boulevard (NC 53)									2,000 (3)		**2,000**
Arlington Meadows Drive - North of Western Boulevard (NC 53)									1,700 (3)		**1,700**
Arlington Meadows Drive - South of Western Boulevard (NC 53)									1,600 (3)		**1,700**
West Carrington Drive - South of Western Boulevard (NC 53)									1,000 (3)		**1,000**
Northwest Circle (W) - South of Western Boulevard (NC 53)									1,800 (3)		**2,000**
Dennis Road - South of Western Boulevard (NC 53)									1,100 (3)		**1,100**
Carolina Forest Boulevard - North of Western Boulevard (NC 53)									15,300 (3)		**15,300**
North Plain Drive - South of Western Boulevard (NC 53)									2,700 (3)		**2,700**
Northwest Circle (E) - North of Western Boulevard (NC 53)									2,500 (3)		**2,700**
Northwest Circle (E) - South of Western Boulevard (NC 53)									400 (3)		**600**

Table C1: 2018 Base Year No-Build Traffic Volumes

Forecast Location	NCDOT Historic Count Data							AADT Exptrapolated to 2018 (1)	Project Specific Count Data[2]		2018 No-Build Traffic Forecast
	2010	2011	2012	2013	2014	2015	2016		TMC	Mainline	
Forum Road - North of Western Boulevard (NC 53)									2,600 (3)		**2,600**
Forum Road - South of Western Boulevard (NC 53)									3,300 (3)		**3,400**
Henderson Drive (SR 1336) - North of Western Boulevard (NC 53)									3,400 (3)		**3,400**
Henderson Drive (SR 1336) - South of Western Boulevard (NC 53)	13,000		14,000		15,000		14,000	15,000	15,300 (3)		**15,400**
Marlin Drive - South of Western Boulevard (NC 53)									3,100 (3)		**3,300**
Recreation Loop - North of Commons Drive									1,100 (4)		**1,100**
Gateway Drive North - Commons Drive to Western Boulevard (NC 53)							6,300		7,700 (4) 9,200 (3)		**9,200**
Jacksonville Parkway (SR 2714) - South of Western Boulevard (NC 53)					8,500		12,000	15,500	16,000 (3)		**16,000**
Recreation Loop - North of Commons Drive									1,100 (4)		**1,300**
Gateway Drive South - Commons Drive to Western Boulevard (NC 53)							2,300		3,200 (4) 3,700 (3)		**3,700**
Gateway Drive South - South of Western Boulevard (NC 53)									7,900 (3)		**8,000**
Exchange Drive (SR 2716) - North of Western Boulevard (NC 53)									6,400 (3)		**6,400**
Exchange Drive (SR 2716) - South of Western Boulevard (NC 53)									5,900 (3)		**6,100**
Sams Club Drive - North of Western Boulevard (NC 53)									5,400 (4)		**5,600**
Circuit Lane - South of Western Boulevard (NC 53)									6,400 (4)		**6,800**
Trade Street (SR 2715) - North of Western Boulevard (NC 53)									7,100 (3)		**7,400**
Trade Street (SR 2715) - South of Western Boulevard (NC 53)									1,700 (3)		**1,600**
Ramsey Road (SR 1324) - West of Carolina Plantations Boulevard/Carolina Forest Boulevard									5,000 (4)		**5,200**
Ramsey Road (SR 1324) - Carolina Plantations Blvd/ Carolina Forest Blvd to Drummer Kellum Road (SR 1326)					5,400		5,800	6,200	6,100 (4) 6,200 (4)		**6,400**
Ramsey Road (SR 1324) - Drummer Kellum Road (SR 1326) to Kellum Loop Road (SR 1327)	1,700		2,300		2,200		2,400	2,600	3,000 (4) 3,000 (4)		**3,200**

Table C1: 2018 Base Year No-Build Traffic Volumes

Forecast Location	NCDOT Historic Count Data							AADT Exptrapolated to 2018 (1)	Project Specific Count Data[2]		2018 No-Build Traffic Forecast
	2010	2011	2012	2013	2014	2015	2016		TMC	Mainline	
Carolina Plantations Boulevard - North of Ramsey Road (SR 1324)									6,900 (4)		**6,900**
Carolina Forest Boulevard - South of Ramsey Road (SR 1324)									8,400 (4)		**8,500**
Drummer Kellum Road (SR 1326) - Ramsey Road (SR 1324) to US 17 (New Bern Highway)	2,500		4,000		4,300		4,300	4,900	3,900 (4) 5,000 (4)		**4,200**
Kellum Loop Road (SR 1327) - North of Ramsey Road (SR 1324)	930		950		1,200		1,200	1,300	1,500 (4)		**1,500**
Kellum Loop Road (SR 1327) - Ramsey Road (SR 1324) to US 17 (New Bern Highway)	2,400		2,900		3,000		3,000	3,200	3,600 (4) 3,800 (4)		**3,900**
US 17 (New Bern Highway) - North of Kellum Loop Road (SR 1327)	13,000		13,000		13,000		14,000	14,200	14,300 (4)		**15,900**
US 17 (New Bern Highway) - Kellum Loop Road (SR 1327) to Toyota Dealership/Drummer Kellum Road (SR 1326)									13,500 (4) 15,400 (4)		**15,400**
US 17 (New Bern Hwy) - Toyota Dealership/Drummer Kellum Rd (SR 1326) to Piney Green Rd (SR 1406)/Buick Dealership	17,000		16,000					18,000	19,000 (4) 19,900 (4)		**19,000**
US 17 (New Bern Highway) - Piney Green Road (SR 1406)/Buick Dealership to Workshop Lane/McDaniel Drive							32,000		27,500 (4) 27,400 (4)		**27,000**
US 17 (N. Marine Boulevard) - South of Workshop Lane/McDaniel Drive									27,800 (4)		**27,800**
US 17 (N. Marine Boulevard) - North of Western Boulevard (NC 53)			30,000		42,000		30,000	31,700	31,400 (3)		**31,400**
N. Marine Boulevard (US 17) - South of Western Boulevard (NC 53)					29,000				30,500 (3)		**30,700**
Stevenson Toyota Dealership - East of US 17 (New Bern Highway)									700 (4)		**800**
Moore Buick Dealership - West of US 17 (N. Marine Boulevard)/US 17 (New Bern Highway)									800 (4)		**700**
Piney Green Road (SR 1406) - East of US 17 (N. Marine Boulevard)/US 17 (New Bern Highway)	17,000		15,000					14,000	15,500 (4)		**15,500**

Table C1: 2018 Base Year No-Build Traffic Volumes

Forecast Location	NCDOT Historic Count Data							AADT Exptrapolated to 2018 (1)	Project Specific Count Data[2]		2018 No-Build Traffic Forecast
	2010	2011	2012	2013	2014	2015	2016		TMC	Mainline	
McDaniel Drive - West of US 17 (N. Marine Boulevard)									8,800 (4)		**8,700**
Workshop Lane - East of US 17 (N. Marine Boulevard)									3,700 (4)		**3,700**
Commons Drive - West of Recreation Loop/Gateway Drive North							2,300		3,400 (4)		**3,700**
Commons Drive - Recreation Loop/Gateway Drive North to Recreation Loop/Gateway Drive South									5,900 (4) 5,800 (4)		**6,200**
Commons Drive - East of Recreation Loop/Gateway Drive South							6,100		7,100 (4)		**7,400**

Notes:

(1) Data extrapolated to 2018 based on linear regression of 2006-2016 data

(2) All Project Specific Counts were converted to AADT based on the NCDOT Traffic Survey Unit ATR Seasonal Factors as described in Section 2.3

(3) 2018 13-hour Turning Movement Count - factored to 24-hour volumes and adjusted to AADT.

(4) 2016 13-hour Turning Movement Count - factored to 24-hour volumes, factored to 2018 and adjusted to AADT.

(5) 2018 Project Specific Mainline Count - Adjusted to AADT.

Table C2: 2018 Base Year No-Build Design Data – Truck Percentages

Forecast Location	Previous Forecast		Project Specific Count Data		Selected 2018 BY NB Value
	Truck Percentage	STIP Project	TMC	Mainline	
Western Boulevard (NC 53) - West of Gum Branch Road (SR 1308)			1 , 1 (1)		**2 , 1**
Western Boulevard (NC 53) - Gum Branch Road (SR 1308) to Coastal Lane			1 , 1 (1) 1 , 1 (1)		**2 , 1**
Western Boulevard (NC 53) - Coastal Lane to Williamsburg Parkway			1 , 1 (1) 1 , 1 (1)		**2 , 1**
Western Boulevard (NC 53) - Williamsburg Parkway to Arlington Meadows Drive			1 , 1 (1) 1 , 1 (1)	(2 , 1) (3)	**2 , 1**
Western Boulevard (NC 53) - Arlington Meadows Drive to West Carrington Drive			1 , 1 (1) 1 , 1 (1)		**2 , 1**
Western Boulevard (NC 53) - West Carrington Drive to Northwest Circle (W)			1 , 1 (1) 1 , 1 (1)		**2 , 1**
Western Boulevard (NC 53) - Northwest Circle (W) to Dennis Road			1 , 1 (1) 1 , 1 (1)		**2 , 1**
Western Boulevard (NC 53) - Dennis Road to Carolina Forest Boulevard/North Plain Drive			1 , 1 (1) 1 , 1 (1)		**2 , 1**
Western Boulevard (NC 53) - Carolina Forest Boulevard/North Plain Drive to Northwest Circle (E)			1 , 1 (1) 1 , 1 (1)		**2 , 1**
Western Boulevard (NC 53) - Northwest Circle (E) to Forum Road			1 , 1 (1) 1 , 1 (1)		**2 , 1**
Western Boulevard (NC 53) - Forum Road to Henderson Drive (SR 1336)			1 , 1 (1) 1 , 1 (1)		**2 , 1**
Western Boulevard (NC 53) - Henderson Drive (SR 1336) to Marlin Drive	2 , 1	U-5791	1 , 1 (1) 1 , 1 (1)		**2 , 1**
Western Boulevard (NC 53) - Marlin Drive to Gateway Drive North/Jacksonville Parkway (SR 2714)	2 , 1 2 , 1	U-5736 U-5791	1 , 1 (1) 1 , 1 (1)		**2 , 1**
Western Boulevard (NC 53) - Gateway Drive North/ Jacksonville Parkway (SR 2714) to Gateway Drive South	2 , 1 3 , 1	U-5736 U-5791	2 , 1 (1) 1 , 1 (1)		**2 , 1**
Western Boulevard (NC 53) - Gateway Drive South to Exchange Drive (SR 2716)	2 , 1 2 , 1	U-5736 U-5791	1 , 1 (1) 1 , 1 (1)		**2 , 1**

Table C2: 2018 Base Year No-Build Design Data – Truck Percentages

Forecast Location	Previous Forecast		Project Specific Count Data		Selected 2018 BY NB Value
	Truck Percentage	STIP Project	TMC	Mainline	
Western Boulevard (NC 53) - Exchange Drive (SR 2716) to Sams Club Drive/Circuit Lane	2 , 1 2 , 1	U-5736 U-5791	1 , 1 (1) 1 , 1 (2)		**2 , 1**
Western Boulevard (NC 53) - Sams Club Drive/Circuit Lane to Trade Street (SR 2715)	2 , 1 2 , 1	U-5736 U-5791	1 , 1 (2) 1 , 1 (1)		**2 , 1**
Western Boulevard (NC 53) - Trade Street (SR 2715) to US 17 (N. Marine Boulevard)/N. Marine Boulevard (US 17)	2 , 1 2 , 1	U-5736 U-5791	1 , 1 (1) 1 , 1 (1)	(2 , 1) (3)	**2 , 1**
Western Boulevard (NC 53) - East of US 17 (N. Marine Boulevard)	3 , 1 / 4 , 2	U-5739/U-5791	1 , 1 (1)		**2 , 1**
Gum Branch Road (SR 1308) - North of Western Boulevard (NC 53)			1 , 1 (1)		**2 , 1**
Gum Branch Road (SR 1308) - South of Western Boulevard (NC 53)			1 , 1 (1)		**2 , 1**
Coastal Lane - North of Western Boulevard (NC 53)			1 , 1 (1)		**2 , 1**
Coastal Lane - South of Western Boulevard (NC 53)			1 , 1 (1)		**2 , 1**
Williamsburg Parkway - South of Western Boulevard (NC 53)			1 , 1 (1)		**2 , 1**
Arlington Meadows Drive - North of Western Boulevard (NC 53)			1 , 0 (1)		**2 , 1**
Arlington Meadows Drive - South of Western Boulevard (NC 53)			1 , 1 (1)		**2 , 1**
West Carrington Drive - South of Western Boulevard (NC 53)			1 , 1 (1)		**2 , 1**
Northwest Circle (W) - South of Western Boulevard (NC 53)			1 , 0 (1)		**2 , 1**
Dennis Road - South of Western Boulevard (NC 53)			4 , 1 (1)		**4 , 1**
Carolina Forest Boulevard - North of Western Boulevard (NC 53)			1 , 1 (1)		**2 , 1**
North Plain Drive - South of Western Boulevard (NC 53)			2 , 0 (1)		**2 , 1**
Northwest Circle (E) - North of Western Boulevard (NC 53)			1 , 1 (1)		**2 , 1**
Northwest Circle (E) - South of Western Boulevard (NC 53)			1 , 1 (1)		**2 , 1**
Forum Road - North of Western Boulevard (NC 53)			1 , 1 (1)		**2 , 1**
Forum Road - South of Western Boulevard (NC 53)			1 , 1 (1)		**2 , 1**
Henderson Drive (SR 1336) - North of Western Boulevard (NC 53)	2 , 1	U-5791	5 , 1 (1)		**5 , 1**
Henderson Drive (SR 1336) - South of Western Boulevard (NC 53)	2 , 1	U-5791	1 , 1 (1)		**2 , 1**
Marlin Drive - South of Western Boulevard (NC 53)	2 , 1	U-5791	2 , 1 (1)		**2 , 1**

Table C2: 2018 Base Year No-Build Design Data – Truck Percentages

Forecast Location	Previous Forecast		Project Specific Count Data		Selected 2018 BY NB Value
	Truck Percentage	STIP Project	TMC	Mainline	
Recreation Loop - North of Commons Drive	3 , 1	U-5791	4 , 0 (2)		**3 , 1**
Gateway Drive North - Commons Drive to Western Boulevard (NC 53)	2 , 1 2 , 1	U-5736 U-5791	4 , 1 (2) 2 , 1 (1)		**3 , 1**
Jacksonville Parkway (SR 2714) - South of Western Boulevard (NC 53)	2,1 / 2,1	U-5739/U-5791	2 , 1 (1)		**2 , 1**
Recreation Loop - North of Commons Drive	3 , 1	U-5791	3 , 0 (2)		**3 , 1**
Gateway Drive South - Commons Drive to Western Boulevard (NC 53)	2 , 1 2 , 1	U-5736 U-5791	3 , 0 (2) 3 , 1 (1)		**3 , 1**
Gateway Drive South - South of Western Boulevard (NC 53)	2,1 / 2,1	U-5739/U-5791	1 , 1 (1)		**2 , 1**
Exchange Drive (SR 2716) - North of Western Boulevard (NC 53)	2,1 / 2,1	U-5739/U-5791	1 , 1 (1)		**2 , 1**
Exchange Drive (SR 2716) - South of Western Boulevard (NC 53)	2,1 / 2,1	U-5739/U-5791	1 , 1 (1)		**2 , 1**
Sams Club Drive - North of Western Boulevard (NC 53)	2 , 1	U-5736	1 , 1 (2)		**2 , 1**
Circuit Lane - South of Western Boulevard (NC 53)	2 , 1	U-5791	1 , 1 (2)		**2 , 1**
Trade Street (SR 2715) - North of Western Boulevard (NC 53)	2 , 1	U-5736	1 , 1 (1)		**2 , 1**
Trade Street (SR 2715) - South of Western Boulevard (NC 53)	2 , 1	U-5791	4 , 2 (1)		**4 , 2**
Ramsey Road (SR 1324) - West of Carolina Plantations Boulevard/Carolina Forest Boulevard	6 , 2	U-5791	6 , 1 (2)		**6 , 2**
Ramsey Road (SR 1324) - Carolina Plantations Blvd/ Carolina Forest Blvd to Drummer Kellum Road (SR 1326)	6 , 2	U-5791	5 , 1 (2) 6 , 1 (2)		**6 , 2**
Ramsey Road (SR 1324) - Drummer Kellum Road (SR 1326) to Kellum Loop Road (SR 1327)	9 , 2	U-5791	10 , 2 (2) 9 , 1 (2)		**8 , 2**
Carolina Plantations Boulevard - North of Ramsey Road (SR 1324)	2 , 1	U-5791	2 , 0 (2)		**2 , 1**
Carolina Forest Boulevard - South of Ramsey Road (SR 1324)	2 , 1	U-5791	2 , 0 (2)		**2 , 1**
Drummer Kellum Road (SR 1326) - Ramsey Road (SR 1324) to US 17 (New Bern Highway)	3 , 1	U-5791	3 , 1 (2) 3 , 1 (2)		**3 , 1**
Kellum Loop Road (SR 1327) - North of Ramsey Road (SR 1324)	9 , 3	U-5791	8 , 3 (2)		**9 , 3**
Kellum Loop Road (SR 1327) - Ramsey Road (SR 1324) to US 17 (New Bern Highway)	9 , 3	U-5791	9 , 2 (2) 9 , 3 (2)		**9 , 3**

Table C2: 2018 Base Year No-Build Design Data – Truck Percentages

Forecast Location	Previous Forecast		Project Specific Count Data		Selected 2018 BY NB Value
	Truck Percentage	STIP Project	TMC	Mainline	
US 17 (New Bern Highway) - North of Kellum Loop Road (SR 1327)	6 , 3	U-5791	5 , 3 (2)		**6 , 2**
US 17 (New Bern Highway) - Kellum Loop Road (SR 1327) to Toyota Dealership/Drummer Kellum Road (SR 1326)	6 , 3	U-5791	5 , 3 (2) 6 , 3 (2)		**6 , 2**
US 17 (New Bern Hwy) - Toyota Dealership/Drummer Kellum Rd (SR 1326) to Piney Green Rd (SR 1406)/Buick Dealership	4 , 1 6 , 3	U-5878 U-5791	5 , 2 (2) 6 , 2 (2)		**6 , 2**
US 17 (New Bern Highway) - Piney Green Road (SR 1406)/Buick Dealership to Workshop Lane/McDaniel Drive	4 , 1 4 , 2	U-5878 U-5791	4 , 2 (2) 4 , 1 (2)		**4 , 2**
US 17 (N. Marine Boulevard) - South of Workshop Lane/McDaniel Drive	4 , 1 /4 , 2	U-5878 / U-5791	4 , 2 (2)		**4 , 2**
US 17 (N. Marine Boulevard) - North of Western Boulevard (NC 53)	4 , 1 /4 , 2	U-5878 / U-5791	3 , 1 (1)		**4 , 2**
N. Marine Boulevard (US 17) - South of Western Boulevard (NC 53)	4 , 2	U-5791	3 , 1 (1)		**4 , 2**
Stevenson Toyota Dealership - East of US 17 (New Bern Highway)	3 , 1	U-5791	3 , 1 (2)		**3 , 1**
Moore Buick Dealership - West of US 17 (N. Marine Boulevard)/US 17 (New Bern Highway)	3 , 1 / 2 , 1	U-5878 / U-5791	3 , 0 (2)		**3 , 1**
Piney Green Road (SR 1406) - East of US 17 (N. Marine Boulevard)/US 17 (New Bern Highway)	4 , 1 / 3 , 1	U-5878 / U-5791	3 , 1 (2)		**3 , 1**
McDaniel Drive - West of US 17 (N. Marine Boulevard)	2 , 1	U-5878 / U-5791	2 , 1 (2)		**2 , 1**
Workshop Lane - East of US 17 (N. Marine Boulevard)	3 , 1 / 2 , 1	U-5878 / U-5791	3 , 1 (2)		**3 , 1**
Commons Drive - West of Recreation Loop/Gateway Drive North	4 , 1	U-5791	4 , 1 (2)		**4 , 1**
Commons Drive - Recreation Loop/Gateway Drive North to Recreation Loop/Gateway Drive South	4 , 1	U-5791	5 , 1 (2) 4 , 1 (2)		**4 , 1**
Commons Drive - East of Recreation Loop/Gateway Drive South	4 , 1	U-5791	4 , 1 (2)		**4 , 1**

Notes:

(1) 2018 13-hour Turning Movement Count

(2) 2016 Volume, Speed, Class Mainline Count

(3) 2018 Volume, Speed, Class Mainline Count

Table C3: 2018 Base Year No-Build Design Data – Directional Distribution

Forecast Location	Previous Forecast		Project Specific Count Data		Selected 20187 BY NB Value
	Directional Distribution	STIP Project	TMC	Mainline	
Western Boulevard (NC 53) - West of Gum Branch Road (SR 1308)			57 WB (1)		**55 WB**
Western Boulevard (NC 53) - Gum Branch Road (SR 1308) to Coastal Lane			55 WB (1) 55 WB (1)		**55 WB**
Western Boulevard (NC 53) - Coastal Lane to Williamsburg Parkway			56 WB (1) 58 WB (1)		**55 WB**
Western Boulevard (NC 53) - Williamsburg Parkway to Arlington Meadows Drive			57 WB (1) 55 WB (1)	56 WB (3)	**55 WB**
Western Boulevard (NC 53) - Arlington Meadows Drive to West Carrington Drive			57 WB (1) 60 WB (1)		**55 WB**
Western Boulevard (NC 53) - West Carrington Drive to Northwest Circle (W)			60 WB (1) 61 WB (1)		**55 WB**
Western Boulevard (NC 53) - Northwest Circle (W) to Dennis Road			61 WB (1) 58 WB (1)		**55 WB**
Western Boulevard (NC 53) - Dennis Road to Carolina Forest Boulevard/North Plain Drive			56 WB (1) 55 WB (1)		**55 WB**
Western Boulevard (NC 53) - Carolina Forest Boulevard/North Plain Drive to Northwest Circle (E)			60 WB (1) 61 WB (1)		**60 WB**
Western Boulevard (NC 53) - Northwest Circle (E) to Forum Road			62 WB (1) 64 WB (1)		**60 WB**
Western Boulevard (NC 53) - Forum Road to Henderson Drive (SR 1336)			63 WB (1) 62 WB (1)		**60 WB**
Western Boulevard (NC 53) - Henderson Drive (SR 1336) to Marlin Drive	60 WB	U-5791	57 WB (1) 56 WB (1)		**55 WB**
Western Boulevard (NC 53) - Marlin Drive to Gateway Drive North/Jacksonville Parkway (SR 2714)	55 WB 60 WB	U-5736 U-5791	55 WB (1) 56 WB (1)		**55 WB**
Western Boulevard (NC 53) - Gateway Drive North/ Jacksonville Parkway (SR 2714) to Gateway Drive South	55 WB 60 WB	U-5736 U-5791	51 EB (1) 50 EB (1)		**55 WB**
Western Boulevard (NC 53) - Gateway Drive South to Exchange Drive (SR 2716)	55 WB 60 WB	U-5736 U-5791	51 WB (1) 53 WB (1)		**55 WB**

Table C3: 2018 Base Year No-Build Design Data – Directional Distribution

Forecast Location	Previous Forecast		Project Specific Count Data		Selected 20187 BY NB Value
	Directional Distribution	STIP Project	TMC	Mainline	
Western Boulevard (NC 53) - Exchange Drive (SR 2716) to Sams Club Drive/Circuit Lane	55 WB 60 WB	U-5736 U-5791	53 WB (1) 55 WB (2)		**55 WB**
Western Boulevard (NC 53) - Sams Club Drive/Circuit Lane to Trade Street (SR 2715)	55 WB 60 WB	U-5736 U-5791	57 WB (2) 55 WB (1)		**55 WB**
Western Boulevard (NC 53) - Trade Street (SR 2715) to US 17 (N. Marine Boulevard)/N. Marine Boulevard (US 17)	55 WB 60 WB	U-5736 U-5791	55 WB (1) 56 WB (1)	55 WB (3)	**55 WB**
Western Boulevard (NC 53) - East of US 17 (N. Marine Boulevard)	55 WB / 60 WB	U-5736 / U-5791	56 WB (1)		**55 WB**
Gum Branch Road (SR 1308) - North of Western Boulevard (NC 53)			56 NB (1)		**55 NB**
Gum Branch Road (SR 1308) - South of Western Boulevard (NC 53)			56 NB (1)		**55 NB**
Coastal Lane - North of Western Boulevard (NC 53)			62 SB (1)		**60 SB**
Coastal Lane - South of Western Boulevard (NC 53)			64 SB (1)		**65 SB**
Williamsburg Parkway - South of Western Boulevard (NC 53)			55 NB (1)		**55 NB**
Arlington Meadows Drive - North of Western Boulevard (NC 53)			65 NB (1)		**65 NB**
Arlington Meadows Drive - South of Western Boulevard (NC 53)			70 SB (1)		**70 SB**
West Carrington Drive - South of Western Boulevard (NC 53)			62 SB (1)		**60 SB**
Northwest Circle (W) - South of Western Boulevard (NC 53)			52 NB (1)		**55 NB**
Dennis Road - South of Western Boulevard (NC 53)			78 NB (1)		**80 NB**
Carolina Forest Boulevard - North of Western Boulevard (NC 53)			63 NB (1)		**65 NB**
North Plain Drive - South of Western Boulevard (NC 53)			53 SB (1)		**55 SB**
Northwest Circle (E) - North of Western Boulevard (NC 53)			72 NB (1)		**70 NB**
Northwest Circle (E) - South of Western Boulevard (NC 53)			58 NB (1)		**60 NB**
Forum Road - North of Western Boulevard (NC 53)			65 SB (1)		**65 SB**
Forum Road - South of Western Boulevard (NC 53)			59 SB (1)		**60 SB**
Henderson Drive (SR 1336) - North of Western Boulevard (NC 53)	60 SB	U-5791	60 SB (1)		**60 SB**
Henderson Drive (SR 1336) - South of Western Boulevard (NC 53)	55 NB	U-5791	59 NB (1)		**60 NB**
Marlin Drive - South of Western Boulevard (NC 53)	60 NB	U-5791	62 NB (1)		**60 NB**
Recreation Loop - North of Commons Drive	70 NB	U-5791	74 NB (2)		**75 NB**
Gateway Drive North - Commons Drive to Western Boulevard (NC 53)	55 NB 55 NB	U-5736 U-5791	56 NB (2) 53 SB (1)		**55 NB**
Jacksonville Parkway (SR 2714) - South of Western Boulevard (NC 53)	60 NB / 65 NB	U-5736 / U-5791	67 NB (1)		**65 NB**
Recreation Loop - North of Commons Drive	70 NB	U-5791	69 NB (2)		**70 NB**

Table C3: 2018 Base Year No-Build Design Data – Directional Distribution

Forecast Location	Previous Forecast		Project Specific Count Data		Selected 20187 BY NB Value
	Directional Distribution	STIP Project	TMC	Mainline	
Gateway Drive South - Commons Drive to Western Boulevard (NC 53)	55 SB 60 NB	U-5736 U-5791	67 NB (2) 57 SB (1)		**55 NB**
Gateway Drive South - South of Western Boulevard (NC 53)	55 SB	U-5736 / U-5791	58 SB (1)		**60 SB**
Exchange Drive (SR 2716) - North of Western Boulevard (NC 53)	60 SB / 60 NB	U-5736 / U-5791	52 NB (1)		**55 NB**
Exchange Drive (SR 2716) - South of Western Boulevard (NC 53)	55 SB	U-5736 / U-5791	51 NB (1)		**55 NB**
Sams Club Drive - North of Western Boulevard (NC 53)	55 NB	U-5736 / U-5791	53 NB (2)		**55 NB**
Circuit Lane - South of Western Boulevard (NC 53)	60 SB	U-5736 / U-5791	58 SB (2)		**60 SB**
Trade Street (SR 2715) - North of Western Boulevard (NC 53)	60 NB / 55 NB	U-5736 / U-5791	57 NB (1)		**55 NB**
Trade Street (SR 2715) - South of Western Boulevard (NC 53)	55 NB	U-5736 / U-5791	64 NB (1)		**65 NB**
Ramsey Road (SR 1324) - West of Carolina Plantations Boulevard/Carolina Forest Boulevard	65 WB	U-5791	66 WB (2)		**65 WB**
Ramsey Road (SR 1324) - Carolina Plantations Blvd/ Carolina Forest Blvd to Drummer Kellum Road (SR 1326)	60 WB	U-5791	61 WB (2) 60 WB (2)		**60 WB**
Ramsey Road (SR 1324) - Drummer Kellum Road (SR 1326) to Kellum Loop Road (SR 1327)	55 WB	U-5791	56 WB (2) 58 WB (2)		**60 WB**
Carolina Plantations Boulevard - North of Ramsey Road (SR 1324)	60 NB	U-5791	61 NB (2)		**60 NB**
Carolina Forest Boulevard - South of Ramsey Road (SR 1324)	60 NB	U-5791	60 NB (2)		**60 NB**
Drummer Kellum Road (SR 1326) - Ramsey Road (SR 1324) to US 17 (New Bern Highway)	60 NB	U-5791	62 NB (2) 63 WB (2)		**60 NB**
Kellum Loop Road (SR 1327) - North of Ramsey Road (SR 1324)	55 NB	U-5791	51 NB (2)		**55 NB**
Kellum Loop Road (SR 1327) - Ramsey Road (SR 1324) to US 17 (New Bern Highway)	55 NB	U-5791	57 NB (2) 56 WB (2)		**55 NB**
US 17 (New Bern Highway) - North of Kellum Loop Road (SR 1327)	55 NB	U-5791	53 NB (2)		**55 NB**
US 17 (New Bern Highway) - Kellum Loop Road (SR 1327) to Toyota Dealership/Drummer Kellum Road (SR 1326)	55 NB	U-5791	56 NB (2) 51 NB (2)		**55 NB**
US 17 (New Bern Hwy) - Toyota Dealership/Drummer Kellum Rd (SR 1326) to Piney Green Rd (SR 1406)/Buick Dealership	55 NB 55 NB	U-5878 U-5791	53 NB (2) 53 NB (2)		**55 NB**
US 17 (New Bern Highway) - Piney Green Road (SR 1406)/Buick Dealership to Workshop Lane/McDaniel Drive	55 NB 55 NB	U-5878 U-5791	53 NB (2) 51 SB (2)		**55 NB**
US 17 (N. Marine Boulevard) - South of Workshop Lane/McDaniel Drive	55 NB	U-5878 / U-5791	51 SB (2)		**55 NB**
US 17 (N. Marine Boulevard) - North of Western Boulevard (NC 53)	55 NB	U-5878 / U-5791	52 NB (1)		**55 NB**
N. Marine Boulevard (US 17) - South of Western Boulevard (NC 53)	55 NB	U-5791	51 NB (1)		**55 NB**

Table C3: 2018 Base Year No-Build Design Data – Directional Distribution

Forecast Location	Previous Forecast		Project Specific Count Data		Selected 20187 BY NB Value
	Directional Distribution	STIP Project	TMC	Mainline	
Stevenson Toyota Dealership - East of US 17 (New Bern Highway)	70 WB	U-5791	70 WB (2)		**70 WB**
Moore Buick Dealership - West of US 17 (N. Marine Boulevard)/US 17 (New Bern Highway)	59 EB / 60 EB	U-5878 / U-5791	58 EB (2)		**60 EB**
Piney Green Road (SR 1406) - East of US 17 (N. Marine Boulevard)/US 17 (New Bern Highway)	55 EB	U-5878 / U-5791	51 EB (2)		**55 EB**
McDaniel Drive - West of US 17 (N. Marine Boulevard)	55 WB	U-5878 / U-5791	53 WB (2)		**55 WB**
Workshop Lane - East of US 17 (N. Marine Boulevard)	60 WB / 55 WB	U-5878 / U-5791	56 WB (2)		**55 WB**
Commons Drive - West of Recreation Loop/Gateway Drive North	65 WB	U-5791	67 WB (2)		**65 WB**
Commons Drive - Recreation Loop/Gateway Drive North to Recreation Loop/Gateway Drive South	55 WB	U-5791	58 WB (2) 52 WB (2)		**60 WB**
Commons Drive - East of Recreation Loop/Gateway Drive South	55 WB	U-5791	53 EB (2)		**55 WB**

Notes:

(1) 2018 13-hour Turning Movement Count

(2) 2016 Volume, Speed, Class Mainline Count

(3) 2018 Volume, Speed, Class Mainline Count

Table C4: 2018 Base Year No-Build Design Data – Peak Hour Factor

Forecast Location	Previous Forecast		Project Specific Count Data		Selected 2018 BY NB Value
	Peak Hour Factor	STIP Project	TMC	Mainline	
Western Boulevard (NC 53) - West of Gum Branch Road (SR 1308)			10 (1)		**10**
Western Boulevard (NC 53) - Gum Branch Road (SR 1308) to Coastal Lane			9 (1) 8 (1)		**9**
Western Boulevard (NC 53) - Coastal Lane to Williamsburg Parkway			8 (1) 8 (1)		**9**
Western Boulevard (NC 53) - Williamsburg Parkway to Arlington Meadows Drive			8 (1) 9 (1)	9 (3)	**9**
Western Boulevard (NC 53) - Arlington Meadows Drive to West Carrington Drive			9 (1) 9 (1)		**9**
Western Boulevard (NC 53) - West Carrington Drive to Northwest Circle (W)			9 (1) 8 (1)		**9**
Western Boulevard (NC 53) - Northwest Circle (W) to Dennis Road			8 (1) 10 (1)		**9**
Western Boulevard (NC 53) - Dennis Road to Carolina Forest Boulevard/North Plain Drive			10 (1) 8 (1)		**9**
Western Boulevard (NC 53) - Carolina Forest Boulevard/North Plain Drive to Northwest Circle (E)			9 (1) 9 (1)		**9**
Western Boulevard (NC 53) - Northwest Circle (E) to Forum Road			9 (1) 9 (1)		**9**
Western Boulevard (NC 53) - Forum Road to Henderson Drive (SR 1336)			9 (1) 9 (1)		**9**
Western Boulevard (NC 53) - Henderson Drive (SR 1336) to Marlin Drive	8	U-5791	8 (1) 8 (1)		**8**
Western Boulevard (NC 53) - Marlin Drive to Gateway Drive North/Jacksonville Parkway (SR 2714)	8 8	U-5736 U-5791	8 (1) 8 (1)		**8**
Western Boulevard (NC 53) - Gateway Drive North/ Jacksonville Parkway (SR 2714) to Gateway Drive South	8 8	U-5736 U-5791	8 (1) 8 (1)		**8**
Western Boulevard (NC 53) - Gateway Drive South to Exchange Drive (SR 2716)	7 8	U-5736 U-5791	7 (1) 7 (1)		**8**

Table C4: 2018 Base Year No-Build Design Data – Peak Hour Factor

Forecast Location	Previous Forecast		Project Specific Count Data		Selected 2018 BY NB Value
	Peak Hour Factor	STIP Project	TMC	Mainline	
Western Boulevard (NC 53) - Exchange Drive (SR 2716) to Sams Club Drive/Circuit Lane	7 8	U-5736 U-5791	8 (1) 8 (2)		**8**
Western Boulevard (NC 53) - Sams Club Drive/Circuit Lane to Trade Street (SR 2715)	7 8	U-5736 U-5791	8 (2) 8 (1)		**8**
Western Boulevard (NC 53) - Trade Street (SR 2715) to US 17 (N. Marine Boulevard)/N. Marine Boulevard (US 17)	8 8	U-5736 U-5791	8 (1) 8 (1)	8 (3)	**8**
Western Boulevard (NC 53) - East of US 17 (N. Marine Boulevard)	8	U-5736 / U-5791	8 (1)		**8**
Gum Branch Road (SR 1308) - North of Western Boulevard (NC 53)			10 (1)		**10**
Gum Branch Road (SR 1308) - South of Western Boulevard (NC 53)			10 (1)		**10**
Coastal Lane - North of Western Boulevard (NC 53)			10 (1)		**10**
Coastal Lane - South of Western Boulevard (NC 53)			8 (1)		**8**
Williamsburg Parkway - South of Western Boulevard (NC 53)			9 (1)		**9**
Arlington Meadows Drive - North of Western Boulevard (NC 53)			10 (1)		**10**
Arlington Meadows Drive - South of Western Boulevard (NC 53)			9 (1)		**9**
West Carrington Drive - South of Western Boulevard (NC 53)			10 (1)		**10**
Northwest Circle (W) - South of Western Boulevard (NC 53)			7 (1)		**7**
Dennis Road - South of Western Boulevard (NC 53)			10 (1)		**10**
Carolina Forest Boulevard - North of Western Boulevard (NC 53)			9 (1)		**9**
North Plain Drive - South of Western Boulevard (NC 53)			9 (1)		**9**
Northwest Circle (E) - North of Western Boulevard (NC 53)			12 (1)		**12**
Northwest Circle (E) - South of Western Boulevard (NC 53)			14 (1)		**14**
Forum Road - North of Western Boulevard (NC 53)			7 (1)		**7**
Forum Road - South of Western Boulevard (NC 53)			10 (1)		**10**
Henderson Drive (SR 1336) - North of Western Boulevard (NC 53)	10	U-5791	8 (1)		**8**
Henderson Drive (SR 1336) - South of Western Boulevard (NC 53)	8	U-5791	8 (1)		**8**
Marlin Drive - South of Western Boulevard (NC 53)	7	U-5791	7 (1)		**7**
Recreation Loop - North of Commons Drive	9	U-5791	9 (2)		**9**
Gateway Drive North - Commons Drive to Western Boulevard (NC 53)	9 9	U-5736 U-5791	9 (2) 8 (1)		**8**
Jacksonville Parkway (SR 2714) - South of Western Boulevard (NC 53)	9 / 10	U-5736 / U-5791	10 (1)		**10**
Recreation Loop - North of Commons Drive	9	U-5791	6 (2)		**7**

Table C4: 2018 Base Year No-Build Design Data – Peak Hour Factor

Forecast Location	Previous Forecast		Project Specific Count Data		Selected 2018 BY NB Value
	Peak Hour Factor	STIP Project	TMC	Mainline	
Gateway Drive South - Commons Drive to Western Boulevard (NC 53)	9 8	U-5736 U-5791	8 (2) 8 (1)		**8**
Gateway Drive South - South of Western Boulevard (NC 53)	9 / 10	U-5736 / U-5791	8 (1)		**8**
Exchange Drive (SR 2716) - North of Western Boulevard (NC 53)	8	U-5736 / U-5791	8 (1)		**8**
Exchange Drive (SR 2716) - South of Western Boulevard (NC 53)	8	U-5736 / U-5791	8 (1)		**8**
Sams Club Drive - North of Western Boulevard (NC 53)	8 / 7	U-5736 / U-5791	7 (2)		**7**
Circuit Lane - South of Western Boulevard (NC 53)	7 / 8	U-5736 / U-5791	8 (2)		**8**
Trade Street (SR 2715) - North of Western Boulevard (NC 53)	8	U-5736 / U-5791	9 (1)		**9**
Trade Street (SR 2715) - South of Western Boulevard (NC 53)	11 / 10	U-5736 / U-5791	11 (1)		**11**
Ramsey Road (SR 1324) - West of Carolina Plantations Boulevard/Carolina Forest Boulevard	10	U-5791	10 (2)		**10**
Ramsey Road (SR 1324) - Carolina Plantations Blvd/ Carolina Forest Blvd to Drummer Kellum Road (SR 1326)	10	U-5791	10 (2) 10 (2)		**10**
Ramsey Road (SR 1324) - Drummer Kellum Road (SR 1326) to Kellum Loop Road (SR 1327)	11	U-5791	11 (2) 12 (2)		**11**
Carolina Plantations Boulevard - North of Ramsey Road (SR 1324)	10	U-5791	10 (2)		**10**
Carolina Forest Boulevard - South of Ramsey Road (SR 1324)	10	U-5791	11 (2)		**11**
Drummer Kellum Road (SR 1326) - Ramsey Road (SR 1324) to US 17 (New Bern Highway)	9	U-5791	10 (2) 9 (2)		**10**
Kellum Loop Road (SR 1327) - North of Ramsey Road (SR 1324)	10	U-5791	10 (2)		**10**
Kellum Loop Road (SR 1327) - Ramsey Road (SR 1324) to US 17 (New Bern Highway)	11	U-5791	11 (2) 11 (2)		**11**
US 17 (New Bern Highway) - North of Kellum Loop Road (SR 1327)	9	U-5791	9 (2)		**9**
US 17 (New Bern Highway) - Kellum Loop Road (SR 1327) to Toyota Dealership/Drummer Kellum Road (SR 1326)	9	U-5791	9 (2) 9 (2)		**9**
US 17 (New Bern Hwy) - Toyota Dealership/Drummer Kellum Rd (SR 1326) to Piney Green Rd (SR 1406)/Buick Dealership	9 9	U-5878 U-5791	9 (2) 9 (2)		**9**
US 17 (New Bern Highway) - Piney Green Road (SR 1406)/Buick Dealership to Workshop Lane/McDaniel Drive	9 9	U-5878 U-5791	8 (2) 8 (2)		**8**
US 17 (N. Marine Boulevard) - South of Workshop Lane/McDaniel Drive	9	U-5878 / U-5791	8 (2)		**8**
US 17 (N. Marine Boulevard) - North of Western Boulevard (NC 53)	9	U-5878 / U-5791	8 (1)		**8**
N. Marine Boulevard (US 17) - South of Western Boulevard (NC 53)	9	U-5791	8 (1)		**8**

Table C4: 2018 Base Year No-Build Design Data – Peak Hour Factor

Forecast Location	Previous Forecast		Project Specific Count Data		Selected 2018 BY NB Value
	Peak Hour Factor	STIP Project	TMC	Mainline	
Stevenson Toyota Dealership - East of US 17 (New Bern Highway)	7	U-5791	7 (2)		**7**
Moore Buick Dealership - West of US 17 (N. Marine Boulevard)/US 17 (New Bern Highway)	7	U-5878 / U-5791	5 (2)		**7**
Piney Green Road (SR 1406) - East of US 17 (N. Marine Boulevard)/US 17 (New Bern Highway)	8	U-5878 / U-5791	8 (2)		**8**
McDaniel Drive - West of US 17 (N. Marine Boulevard)	10 / 9	U-5878 / U-5791	9 (2)		**9**
Workshop Lane - East of US 17 (N. Marine Boulevard)	7 / 10	U-5878 / U-5791	10 (2)		**10**
Commons Drive - West of Recreation Loop/Gateway Drive North	11	U-5791	10 (2)		**10**
Commons Drive - Recreation Loop/Gateway Drive North to Recreation Loop/Gateway Drive South	9	U-5791	8 (2) 9 (2)		**10**
Commons Drive - East of Recreation Loop/Gateway Drive South	9	U-5791	9 (2)		**9**

Notes:

(1) 2018 13-hour Turning Movement Count

(2) 2016 Volume, Speed, Class Mainline Count

(3) 2018 Volume, Speed, Class Mainline Count

Table C5: Model Validation

Forecast Location	Model 2010		2018 No-Build		FY No-Build Volumes	
	Model Volume	AADT	Interpolated Model [1]	Forecast Volume	2040 Model	2040 Forecast
Western Boulevard (NC 53) - Gum Branch Road (SR 1308) to Coastal Lane	16,315	18,000	19,200	18,000	27,186	26,500
Western Boulevard (NC 53) - Coastal Lane to Williamsburg Parkway	16,315		19,200	19,000	27,186	28,100
Western Boulevard (NC 53) - Williamsburg Parkway to Arlington Meadows Drive	16,315		19,200	20,800	27,186	30,500
Western Boulevard (NC 53) - Arlington Meadows Drive to West Carrington Drive	16,315		19,200	22,000	27,186	32,700
Western Boulevard (NC 53) - West Carrington Drive to Northwest Circle (W)	14,864		17,900	22,400	26,269	33,400
Western Boulevard (NC 53) - Northwest Circle (W) to Dennis Road	14,864		17,900	23,400	26,269	35,200
Western Boulevard (NC 53) - Dennis Road to Carolina Forest Boulevard/North Plain Drive	14,864		17,900	23,900	26,269	35,500
Western Boulevard (NC 53) - Carolina Forest Boulevard/North Plain Drive to Northwest Circle (E)	19,284		22,800	33,700	32,563	49,400
Western Boulevard (NC 53) - Northwest Circle (E) to Forum Road	19,284		22,800	35,000	32,563	51,300
Western Boulevard (NC 53) - Forum Road to Henderson Drive (SR 1336)	19,284		23,200	37,000	33,848	54,200
Western Boulevard (NC 53) - Henderson Drive (SR 1336) to Marlin Drive	23,053		25,100	43,800	30,840	55,100
Western Boulevard (NC 53) - Marlin Drive to Gateway Drive North/Jacksonville Parkway (SR 2714)	23,053		25,100	46,100	30,840	58,000
Western Boulevard (NC 53) - Gateway Drive North/ Jacksonville Parkway (SR 2714) to Gateway Drive South	23,053		23,000	30,100	22,891	38,300
Western Boulevard (NC 53) - Gateway Drive South to Exchange Drive (SR 2716)	23,053		23,000	30,400	22,891	38,600
Western Boulevard (NC 53) - Exchange Drive (SR 2716) to Sams Club Drive/Circuit Lane	34,224		37,200	32,100	45,288	40,700
Western Boulevard (NC 53) - Sams Club Drive/Circuit Lane to Trade Street (SR 2715)	34,224		37,200	34,900	45,288	44,400
Western Boulevard (NC 53) - Trade Street (SR 2715) to US 17 (N. Marine Boulevard)/N. Marine Boulevard (US 17)	34,224	37,000	37,200	35,300	45,288	44,900
Western Boulevard (NC 53) - East of US 17 (N. Marine Boulevard)	40,210	41,000	43,400	34,800	52,235	43,300
Gum Branch Road (SR 1308) - North of Western Boulevard (NC 53)	26,813	31,000	32,300	30,800	47,231	49,700
Gum Branch Road (SR 1308) - South of Western Boulevard (NC 53)	13,451	20,000	17,400	21,400	28,284	34,400
Carolina Forest Boulevard - North of Western Boulevard (NC 53)	8,852		9,100	15,300	9,701	19,900
Henderson Drive (SR 1336) - South of Western Boulevard (NC 53)	9,497	13,000	9,800	15,400	10,451	17,400
Jacksonville Parkway (SR 2714) - South of Western Boulevard (NC 53)	0		4,500	16,000	16,702	32,400
Ramsey Road (SR 1324) - West of Carolina Plantations Boulevard/Carolina Forest Boulevard	4,615		10,000	5,200	24,826	16,500

Table C5: Model Validation

Forecast Location	Model 2010		2018 No-Build		FY No-Build Volumes	
	Model Volume	AADT	Interpolated Model [1]	Forecast Volume	2040 Model	2040 Forecast
Ramsey Road (SR 1324) - Carolina Plantations Blvd/ Carolina Forest Blvd to Drummer Kellum Road (SR 1326)	3,481		8,000	6,400	20,404	20,800
Ramsey Road (SR 1324) - Drummer Kellum Road (SR 1326) to Kellum Loop Road (SR 1327)	2,444	1,700	4,300	3,200	9,270	11,400
Carolina Forest Boulevard - South of Ramsey Road (SR 1324)	3,422		4,200	8,500	6,359	13,100
Drummer Kellum Road (SR 1326) - Ramsey Road (SR 1324) to US 17 (New Bern Highway)	2,694	2,500	6,400	4,200	16,437	13,900
Kellum Loop Road (SR 1327) - Ramsey Road (SR 1324) to US 17 (New Bern Highway)	2,177	2,400	1,600	3,900	0	2,000
US 17 (New Bern Highway) - North of Kellum Loop Road (SR 1327)	15,875	13,000	19,400	15,900	28,963	16,000
US 17 (New Bern Highway) - Kellum Loop Road (SR 1327) to Toyota Dealership/Drummer Kellum Road (SR 1326)	13,890		15,900	15,400	21,388	17,600
US 17 (New Bern Hwy) - Toyota Dealership/Drummer Kellum Rd (SR 1326) to Piney Green Rd (SR 1406)/Buick Dealership	19,283	17,000	23,100	19,000	33,602	30,600
US 17 (New Bern Highway) - Piney Green Road (SR 1406)/Buick Dealership to Workshop Lane/McDaniel Drive	28,186		34,600	27,000	52,064	43,100
US 17 (N. Marine Boulevard) - South of Workshop Lane/McDaniel Drive	35,296		42,100	27,800	60,932	43,100
US 17 (N. Marine Boulevard) - North of Western Boulevard (NC 53)	34,871		39,800	31,400	53,501	45,000
N. Marine Boulevard (US 17) - South of Western Boulevard (NC 53)	33,475		37,500	30,700	48,624	41,800
Piney Green Road (SR 1406) - East of US 17 (N. Marine Boulevard)/US 17 (New Bern Highway)	14,388	17,000	22,200	15,500	43,575	35,200

Notes: (1) Interpolated volume between 2010 and 2040 model data

Table C6: 2018 Build Traffic Volumes

Forecast Location	2018 Model Volumes, Daily		Model Diversion Percent	Chosen Diversion Percent	Model Volume Delta	Chosen Volume Delta	2018 Forecast Volumes	
	No-Build	Build					No-Build	Build
Western Boulevard (NC 53) - West of Gum Branch Road (SR 1308)				0.00%		0	4,800	**4,800**
Western Boulevard (NC 53) - Gum Branch Road (SR 1308) to Coastal Lane	16,315	17,991	10.27%	7.78%	1,676	1,400	18,000	**19,400**
Western Boulevard (NC 53) - Coastal Lane to Williamsburg Parkway	16,315	17,991	10.27%	7.89%	1,676	1,500	19,000	**20,500**
Western Boulevard (NC 53) - Williamsburg Parkway to Arlington Meadows Drive	16,315	17,991	10.27%	7.21%	1,676	1,500	20,800	**22,300**
Western Boulevard (NC 53) - Arlington Meadows Drive to West Carrington Drive	16,315	17,991	10.27%	7.73%	1,676	1,700	22,000	**23,700**
Western Boulevard (NC 53) - West Carrington Drive to Northwest Circle (W)	14,864	15,891	6.91%	7.59%	1,027	1,700	22,400	**24,100**
Western Boulevard (NC 53) - Northwest Circle (W) to Dennis Road	14,864	15,891	6.91%	7.69%	1,027	1,800	23,400	**25,200**
Western Boulevard (NC 53) - Dennis Road to Carolina Forest Boulevard/North Plain Drive	14,864	15,891	6.91%	7.53%	1,027	1,800	23,900	**25,700**
Western Boulevard (NC 53) - Carolina Forest Boulevard/North Plain Drive to Northwest Circle (E)	19,284	20,987	8.83%	5.04%	1,703	1,700	33,700	**35,400**
Western Boulevard (NC 53) - Northwest Circle (E) to Forum Road	19,284	20,987	8.83%	4.86%	1,703	1,700	35,000	**36,700**
Western Boulevard (NC 53) - Forum Road to Henderson Drive (SR 1336)	19,284	20,987	8.83%	5.14%	1,703	1,900	37,000	**38,900**
Western Boulevard (NC 53) - Henderson Drive (SR 1336) to Marlin Drive	23,053	25,471	10.49%	6.16%	2,418	2,700	43,800	**46,500**
Western Boulevard (NC 53) - Marlin Drive to Gateway Drive North/Jacksonville Parkway (SR 2714)	23,053	25,471	10.49%	5.86%	2,418	2,700	46,100	**48,800**
Western Boulevard (NC 53) - Gateway Drive North/ Jacksonville Parkway (SR 2714) to Gateway Drive South	23,053	19,596	-15.00%	-9.63%	-3,457	-2,900	30,100	**27,200**
Western Boulevard (NC 53) - Gateway Drive South to Exchange Drive (SR 2716)	23,053	19,596	-15.00%	-10.86%	-3,457	-3,300	30,400	**27,100**
Western Boulevard (NC 53) - Exchange Drive (SR 2716) to Sams Club Drive/Circuit Lane	34,224	29,951	-12.49%	-12.15%	-4,273	-3,900	32,100	**28,200**
Western Boulevard (NC 53) - Sams Club Drive/Circuit Lane to Trade Street (SR 2715)	34,224	29,951	-12.49%	-11.75%	-4,273	-4,100	34,900	**30,800**
Western Boulevard (NC 53) - Trade Street (SR 2715) to US 17 (N. Marine Boulevard)/N. Marine Boulevard (US 17)	34,224	29,951	-12.49%	-12.18%	-4,273	-4,300	35,300	**31,000**
Western Boulevard (NC 53) - East of US 17 (N. Marine Boulevard)	40,210	25,750	-35.96%	-22.99%	-14,460	-8,000	34,800	**26,800**
Gum Branch Road (SR 1308) - North of Western Boulevard (NC 53)	26,813	29,426	9.75%	9.09%	2,613	2,800	30,800	**33,600**
Gum Branch Road (SR 1308) - South of Western Boulevard (NC 53)	13,451	14,153	5.22%	4.67%	702	1,000	21,400	**22,400**
Coastal Lane - North of Western Boulevard (NC 53)				0.00%		0	400	**400**
Coastal Lane - South of Western Boulevard (NC 53)				4.55%		100	2,200	**2,300**
Williamsburg Parkway - South of Western Boulevard (NC 53)				0.00%		0	2,000	**2,000**
Arlington Meadows Drive - North of Western Boulevard (NC 53)				0.00%		0	1,700	**1,700**

Table C6: 2018 Build Traffic Volumes

Forecast Location	2018 Model Volumes, Daily		Model Diversion Percent	Chosen Diversion Percent	Model Volume Delta	Chosen Volume Delta	2018 Forecast Volumes	
	No-Build	Build					No-Build	Build
Arlington Meadows Drive - South of Western Boulevard (NC 53)				0.00%		0	1,700	**1,700**
West Carrington Drive - South of Western Boulevard (NC 53)				0.00%		0	1,000	**1,000**
Northwest Circle (W) - South of Western Boulevard (NC 53)				5.00%		100	2,000	**2,100**
Dennis Road - South of Western Boulevard (NC 53)				0.00%		0	1,100	**1,100**
Carolina Forest Boulevard - North of Western Boulevard (NC 53)	8,852	7,631	-13.79%	-9.80%	-1,221	-1,500	15,300	**13,800**
North Plain Drive - South of Western Boulevard (NC 53)				0.00%		0	2,700	**2,700**
Northwest Circle (E) - North of Western Boulevard (NC 53)				0.00%		0	2,700	**2,700**
Northwest Circle (E) - South of Western Boulevard (NC 53)				0.00%		0	600	**600**
Forum Road - North of Western Boulevard (NC 53)				0.00%		0	2,600	**2,600**
Forum Road - South of Western Boulevard (NC 53)				0.00%		0	3,400	**3,400**
Connector Road - East of Jacksonville Parkway Extension						9,200		**9,200**
Henderson Drive (SR 1336) - Jacksonville Parkway Extension to Western Boulevard (NC 53)	0	1,284		32.35%	1,284	1,100	3,400	**4,500**
Henderson Drive (SR 1336) - South of Western Boulevard (NC 53)	9,497	8,115	-14.55%	1.95%	-1,382	300	15,400	**15,700**
Gateway Marketplace - North of Western Boulevard (NC 53)								**0**
Marlin Drive - South of Western Boulevard (NC 53)				0.00%		0	3,300	**3,300**
Recreation Loop - North of Commons Drive				0.00%		0	1,100	**1,100**
Jacksonville Parkway (SR 2714) - South of Western Boulevard (NC 53)	0	5,875		14.38%	5,875	2,300	16,000	**18,300**
Jacksonville Parkway Extension - Western Boulevard (NC 53) to Gateway Marketplace	0	0		14.13%	0	1,300	9,200	**10,500**
Jacksonville Parkway Extension - Gateway Marketplace to Henderson Drive (SR 1336)		0				10,500		**10,500**
Jacksonville Parkway Extension - North of Henderson Drive (SR 1336)		1,284				5,000		**5,000**
Jacksonville Parkway Extension - South of Ramsey Road (SR 1324)		1,284				5,000		**5,000**
Jacksonville Parkway Extension/Ramsey Road (SR 1324) - Ramsey Road (SR 1324) to Drummer Kellum Road (SR 1326)	4,013	5,965	48.64%	31.25%	1,952	2,000	6,400	**8,400**
Jacksonville Parkway/Ramsey Road (SR 1324) - Drummer Kellum Road (SR 1326) to Kellum Loop Road (SR 1327)	2,444	2,709	10.84%	25.00%	265	800	3,200	**4,000**
Jacksonville Parkway/Ramsey Road (SR 1324) - Kellum Loop Road (SR 1327) to US 17 (New Bern Highway)		2,346				3,700		**3,700**

Table C6: 2018 Build Traffic Volumes

Forecast Location	2018 Model Volumes, Daily		Model Diversion Percent	Chosen Diversion Percent	Model Volume Delta	Chosen Volume Delta	2018 Forecast Volumes	
	No-Build	Build					No-Build	Build
Recreation Loop - North of Commons Drive				0.00%		0	1,300	**1,300**
Gateway Drive South - Commons Drive to Western Boulevard (NC 53)				0.00%		0	3,700	**3,700**
Gateway Drive South - South of Western Boulevard (NC 53)				0.00%		0	8,000	**8,000**
Exchange Drive (SR 2716) - North of Western Boulevard (NC 53)				0.00%		0	6,400	**6,400**
Exchange Drive (SR 2716) - South of Western Boulevard (NC 53)				0.00%		0	6,100	**6,100**
Sams Club Drive - North of Western Boulevard (NC 53)				0.00%		0	5,600	**5,600**
Circuit Lane - South of Western Boulevard (NC 53)				0.00%		0	6,800	**6,800**
Trade Street (SR 2715) - North of Western Boulevard (NC 53)				0.00%		0	7,400	**7,400**
Trade Street (SR 2715) - South of Western Boulevard (NC 53)				0.00%		0	1,600	**1,600**
Ramsey Road (SR 1324) - West of Carolina Plantations Boulevard/Carolina Forest Boulevard	4,615	6,072	31.57%	30.77%	1,457	1,600	5,200	**6,800**
Ramsey Road (SR 1324) - Carolina Plantations Boulevard/Carolina Forest Boulevard to Jacksonville Parkway Extension	3,481	4,022	15.54%	9.38%	541	600	6,400	**7,000**
Carolina Plantations Boulevard - North of Ramsey Road (SR 1324)				0.00%		0	6,900	**6,900**
Carolina Forest Boulevard - South of Ramsey Road (SR 1324)	3,422	2,468	-27.88%	-11.76%	-954	-1,000	8,500	**7,500**
Drummer Kellum Road (SR 1326) - South of Ramsey Road (SR 1324)	1,569	3,256	107.52%	38.10%	1,687	1,600	4,200	**5,800**
Drummer Kellum Road (SR 1326) - West of US 17 (New Bern Highway)	2,694	4,272	58.57%	38.10%	1,578	1,600	4,200	**5,800**
Kellum Loop Road (SR 1327) - North of Ramsey Road (SR 1324)				0.00%		0	1,500	**1,500**
Kellum Loop Road (SR 1327) - Ramsey Road (SR 1324) to West of US 17 (New Bern Highway)	2,177	0	-100.00%	-74.36%	-2,177	-2,900	3,900	**1,000**
US 17 (New Bern Highway) - North of Jacksonville Parkway (SR 2714)	15,875	14,457	-8.93%	0.00%	-1,418	0	15,900	**15,900**
US 17 (New Bern Highway) - Jacksonville Parkway (SR 2714) to Kellum Loop Road (SR 1327)	15,875	14,457	-8.93%	-16.98%	-1,418	-2,700	15,900	**13,200**
US 17 (New Bern Highway) - Kellum Loop Road (SR 1327) to Toyota Dealership/Drummer Kellum Road (SR 1326)	13,890	12,367	-10.96%	-10.39%	-1,523	-1,600	15,400	**13,800**
US 17 (New Bern Highway) - Toyota Dealership/Drummer Kellum Road (SR 1326) to Piney Green Road (SR 1406)/Buick Dealership	19,283	17,692	-8.25%	-7.37%	-1,591	-1,400	19,000	**17,600**
US 17 (New Bern Highway) - South of Piney Green Road (SR 1406)/Buick Dealership to Workshop Lane/McDaniel Drive	28,186	29,842	5.88%	7.04%	1,656	1,900	27,000	**28,900**

Table C6: 2018 Build Traffic Volumes

Forecast Location	2018 Model Volumes, Daily		Model Diversion Percent	Chosen Diversion Percent	Model Volume Delta	Chosen Volume Delta	2018 Forecast Volumes	
	No-Build	Build					No-Build	Build
US 17 (N. Marine Boulevard) - South of Workshop Lane/McDaniel Drive	35,296	32,131	-8.97%	6.83%	-3,165	1,900	27,800	**29,700**
US 17 (N. Marine Boulevard) - North of Western Boulevard (NC 53)	34,871	32,126	-7.87%	6.05%	-2,745	1,900	31,400	**33,300**
US 17 (N. Marine Boulevard) - South of Western Boulevard (NC 53)	33,475	27,214	-18.70%	-7.82%	-6,261	-2,400	30,700	**28,300**
Toyota Dealership - East of US 17 (New Bern Highway)				0.00%		0	800	**800**
Buick Dealership - West of US 17 (N. Marine Boulevard)/US 17 (New Bern Highway)				0.00%		0	700	**700**
Piney Green Road (SR 1406) - East of US 17 (N. Marine Boulevard)/US 17 (New Bern Highway)	14,388	21,338	48.30%	27.74%	6,950	4,300	15,500	**19,800**
McDaniel Drive - West of US 17 (N. Marine Boulevard)				0.00%		0	8,700	**8,700**
Workshop Lane - East of US 17 (N. Marine Boulevard)				0.00%		0	3,700	**3,700**
Commons Drive - North of Connector Road				0.00%		0	3,700	**3,700**
Commons Drive - Connector Road to Recreation Loop				91.89%		3,400	3,700	**7,100**
Commons Drive - Recreation Loop to Recreation Loop/Gateway Drive South				0.00%		0	6,200	**6,200**
Commons Drive - East of Recreation Loop/Gateway Drive South				0.00%		0	7,400	**7,400**
Gateway Marketplace - West of Jacksonville Parkway Extension								**0**

Table C7: 2040 No-Build - U-6081 Traffic Volumes

Forecast Location	Forecast 2018 Base Year NB	Historic Growth Rate		Model Growth Rate [1]	Chosen Growth Rate [1]	Model Volume Delta [2]	Chosen Volume Delta [2]	Future Year No-Build Volumes	
	AADT	2007-2016	1997-2016	2010-2040	2018-2040	2018-2040 [3]	2018-2040	2040 Model	2040 Forecast
Western Boulevard (NC 53) - West of Gum Branch Road (SR 1308)	4,800	-25.00%			1.86%		2,400		**7,200**
Western Boulevard (NC 53) - Gum Branch Road (SR 1308) to Coastal Lane	18,000	1.74%	2.77%	1.72%	1.77%	7,972	8,500	27,186	**26,500**
Western Boulevard (NC 53) - Coastal Lane to Williamsburg Parkway	19,000			1.72%	1.79%	7,972	9,100	27,186	**28,100**
Western Boulevard (NC 53) - Williamsburg Parkway to Arlington Meadows Drive	20,800			1.72%	1.76%	7,972	9,700	27,186	**30,500**
Western Boulevard (NC 53) - Arlington Meadows Drive to West Carrington Drive	22,000			1.72%	1.82%	7,972	10,700	27,186	**32,700**
Western Boulevard (NC 53) - West Carrington Drive to Northwest Circle (W)	22,400			1.92%	1.83%	8,364	11,000	26,269	**33,400**
Western Boulevard (NC 53) - Northwest Circle (W) to Dennis Road	23,400			1.92%	1.87%	8,364	11,800	26,269	**35,200**
Western Boulevard (NC 53) - Dennis Road to Carolina Forest Boulevard/North Plain Drive	23,900			1.92%	1.81%	8,364	11,600	26,269	**35,500**
Western Boulevard (NC 53) - Carolina Forest Boulevard/North Plain Drive to Northwest Circle (E)	33,700			1.76%	1.75%	9,738	15,700	32,563	**49,400**
Western Boulevard (NC 53) - Northwest Circle (E) to Forum Road	35,000			1.76%	1.75%	9,738	16,300	32,563	**51,300**
Western Boulevard (NC 53) - Forum Road to Henderson Drive (SR 1336)	37,000			1.89%	1.75%	10,680	17,200	33,848	**54,200**
Western Boulevard (NC 53) - Henderson Drive (SR 1336) to Marlin Drive	43,800	-1.23%		0.97%	1.05%	5,710	11,300	30,840	**55,100**
Western Boulevard (NC 53) - Marlin Drive to Gateway Drive North/Jacksonville Parkway (SR 2714)	46,100			0.97%	1.05%	5,710	11,900	30,840	**58,000**
Western Boulevard (NC 53) - Gateway Drive North/ Jacksonville Parkway (SR 2714) to Gateway Drive South	30,100			-0.02%	1.10%	-119	8,200	22,891	**38,300**
Western Boulevard (NC 53) - Gateway Drive South to Exchange Drive (SR 2716)	30,400			-0.02%	1.09%	-119	8,200	22,891	**38,600**
Western Boulevard (NC 53) - Exchange Drive (SR 2716) to Sams Club Drive/Circuit Lane	32,100			0.94%	1.08%	8,114	8,600	45,288	**40,700**
Western Boulevard (NC 53) - Sams Club Drive/Circuit Lane to Trade Street (SR 2715)	34,900			0.94%	1.10%	8,114	9,500	45,288	**44,400**
Western Boulevard (NC 53) - Trade Street (SR 2715) to US 17 (N. Marine Boulevard)/N. Marine Boulevard (US 17)	35,300	0.52%	1.27%	0.94%	1.10%	8,114	9,600	45,288	**44,900**
Western Boulevard (NC 53) - East of US 17 (N. Marine Boulevard)	34,800	1.51%	1.09%	0.88%	1.00%	8,818	8,500	52,235	**43,300**
Gum Branch Road (SR 1308) - North of Western Boulevard (NC 53)	30,800	0.17%	0.80%	1.91%	2.20%	14,973	18,900	47,231	**49,700**
Gum Branch Road (SR 1308) - South of Western Boulevard (NC 53)	21,400			2.51%	2.18%	10,878	13,000	28,284	**34,400**

Table C7: 2040 No-Build - U-6081 Traffic Volumes

Forecast Location	Forecast 2018 Base Year NB	Historic Growth Rate		Model Growth Rate [1]	Chosen Growth Rate [1]	Model Volume Delta [2]	Chosen Volume Delta [2]	Future Year No-Build Volumes	
	AADT	2007-2016	1997-2016	2010-2040	2018-2040	2018-2040 [3]	2018-2040	2040 Model	2040 Forecast
Coastal Lane - North of Western Boulevard (NC 53)	400				1.02%		100		**500**
Coastal Lane - South of Western Boulevard (NC 53)	2,200				0.58%		300		**2,500**
Williamsburg Parkway - South of Western Boulevard (NC 53)	2,000				1.20%		600		**2,600**
Arlington Meadows Drive - North of Western Boulevard (NC 53)	1,700				1.95%		900		**2,600**
Arlington Meadows Drive - South of Western Boulevard (NC 53)	1,700				1.95%		900		**2,600**
West Carrington Drive - South of Western Boulevard (NC 53)	1,000				0.43%		100		**1,100**
Northwest Circle (W) - South of Western Boulevard (NC 53)	2,000				0.83%		400		**2,400**
Dennis Road - South of Western Boulevard (NC 53)	1,100				0.76%		200		**1,300**
Carolina Forest Boulevard - North of Western Boulevard (NC 53)	15,300			0.31%	1.20%	623	4,600	9,701	**19,900**
North Plain Drive - South of Western Boulevard (NC 53)	2,700				1.05%		700		**3,400**
Northwest Circle (E) - North of Western Boulevard (NC 53)	2,700				1.05%		700		**3,400**
Northwest Circle (E) - South of Western Boulevard (NC 53)	600				0.70%		100		**700**
Forum Road - North of Western Boulevard (NC 53)	2,600				1.23%		800		**3,400**
Forum Road - South of Western Boulevard (NC 53)	3,400				1.48%		1,300		**4,700**
Connector Road - East of Jacksonville Parkway Extension	0						8,900		**8,900**
Henderson Drive (SR 1336) - Jacksonville Parkway Extension to Western Boulevard (NC 53)	3,400				4.88%		6,300	8,693	**9,700**
Henderson Drive (SR 1336) - South of Western Boulevard (NC 53)	15,400	1.46%	2.01%	0.32%	0.56%	700	2,000	10,451	**17,400**
Gateway Marketplace - North of Western Boulevard (NC 53)	0						8,400		**8,400**
Marlin Drive - South of Western Boulevard (NC 53)	3,300				1.21%		1,000		**4,300**
Recreation Loop - North of Commons Drive	1,100				0.76%		200		**1,300**
Jacksonville Parkway (SR 2714) - South of Western Boulevard (NC 53)	16,000	18.82%		n/a	3.26%	12,248	16,400	16,702	**32,400**
Jacksonville Parkway Extension - Western Boulevard (NC 53) to Gateway Marketplace	9,200			n/a	2.80%	4,869	7,700	6,639	**16,900**
Jacksonville Parkway Extension - Gateway Marketplace to Henderson Drive (SR 1336)	0						16,900	6,639	**16,900**
Jacksonville Parkway Extension - North of Henderson Drive (SR 1336)	0						17,700	15,332	**17,700**
Jacksonville Parkway Extension - South of Ramsey Road (SR 1324)	0						14,500	8,675	**14,500**
Jacksonville Parkway Extension/Ramsey Road (SR 1324) - Ramsey Road (SR 1324) to Drummer Kellum Road (SR 1326)	6,400	3.64%		5.40%	6.13%	11,331	17,300	19,464	**23,700**

Table C7: 2040 No-Build - U-6081 Traffic Volumes

Forecast Location	Forecast 2018 Base Year NB	Historic Growth Rate		Model Growth Rate [1]	Chosen Growth Rate [1]	Model Volume Delta [2]	Chosen Volume Delta [2]	Future Year No-Build Volumes	
	AADT	2007-2016	1997-2016	2010-2040	2018-2040	2018-2040 [3]	2018-2040	2040 Model	2040 Forecast
Jacksonville Parkway/Ramsey Road (SR 1324) - Drummer Kellum Road (SR 1326) to Kellum Loop Road (SR 1327)	3,200	4.78%	3.75%	4.54%	5.94%	5,006	8,200	9,270	**11,400**
Jacksonville Parkway/Ramsey Road (SR 1324) - Kellum Loop Road (SR 1327) to US 17 (New Bern Highway)	0						10,500	8,138	**10,500**
Recreation Loop - North of Commons Drive	1,300				0.95%		300		**1,600**
Gateway Drive South - Commons Drive to Western Boulevard (NC 53)	3,700				2.67%		2,900		**6,600**
Gateway Drive South - South of Western Boulevard (NC 53)	8,000				0.59%		1,100		**9,100**
Exchange Drive (SR 2716) - North of Western Boulevard (NC 53)	6,400				0.60%		900		**7,300**
Exchange Drive (SR 2716) - South of Western Boulevard (NC 53)	6,100				0.63%		900		**7,000**
Sams Club Drive - North of Western Boulevard (NC 53)	5,600				0.61%		800		**6,400**
Circuit Lane - South of Western Boulevard (NC 53)	6,800				1.02%		1,700		**8,500**
Trade Street (SR 2715) - North of Western Boulevard (NC 53)	7,400				0.58%		1,000		**8,400**
Trade Street (SR 2715) - South of Western Boulevard (NC 53)	1,600				3.05%		1,500		**3,100**
Ramsey Road (SR 1324) - West of Carolina Plantations Boulevard/Carolina Forest Boulevard	5,200			5.77%	5.39%	14,821	11,300	24,826	**16,500**
Ramsey Road (SR 1324) - Carolina Plantations Boulevard/Carolina Forest Boulevard to Jacksonville Parkway Extension	6,400			6.07%	5.50%	12,410	14,400	20,404	**20,800**
Carolina Plantations Boulevard - North of Ramsey Road (SR 1324)	6,900				1.01%		1,700		**8,600**
Carolina Forest Boulevard - South of Ramsey Road (SR 1324)	8,500			2.09%	1.99%	2,154	4,600	6,359	**13,100**
Drummer Kellum Road (SR 1326) - South of Ramsey Road (SR 1324)	4,200			6.50%	5.99%	6,469	10,900	10,390	**15,100**
Drummer Kellum Road (SR 1326) - West of US 17 (New Bern Highway)	4,200	5.06%	2.96%	6.21%	5.59%	10,078	9,700	16,437	**13,900**
Kellum Loop Road (SR 1327) - North of Ramsey Road (SR 1324)	1,500	3.24%	1.07%		1.96%		800		**2,300**
Kellum Loop Road (SR 1327) - Ramsey Road (SR 1324) to West of US 17 (New Bern Highway)	3,900	2.56%	2.85%		-2.99%		-1,900		**2,000**
US 17 (New Bern Highway) - North of Jacksonville Parkway (SR 2714)	15,900			2.02%	2.13%	9,598	9,400	28,963	**25,300**
US 17 (New Bern Highway) - Jacksonville Parkway (SR 2714) to Kellum Loop Road (SR 1327)	15,900	1.55%	2.71%	2.02%	0.03%	9,598	100	28,963	**16,000**
US 17 (New Bern Highway) - Kellum Loop Road (SR 1327) to Toyota Dealership/Drummer Kellum Road (SR 1326)	15,400			1.45%	0.61%	5,499	2,200	21,388	**17,600**
US 17 (New Bern Highway) - Toyota Dealership/Drummer Kellum Road (SR 1326) to Piney Green Road (SR 1406)/Buick Dealership	19,000	1.58%	1.12%	1.87%	2.19%	10,501	11,600	33,602	**30,600**

Table C7: 2040 No-Build - U-6081 Traffic Volumes

Forecast Location	Forecast 2018 Base Year NB	Historic Growth Rate		Model Growth Rate [1]	Chosen Growth Rate [1]	Model Volume Delta [2]	Chosen Volume Delta [2]	Future Year No-Build Volumes	
	AADT	2007-2016	1997-2016	2010-2040	2018-2040	2018-2040 [3]	2018-2040	2040 Model	2040 Forecast
US 17 (New Bern Highway) - South of Piney Green Road (SR 1406)/Buick Dealership to Workshop Lane/McDaniel Drive	27,000			2.07%	2.15%	17,511	16,100	52,064	**43,100**
US 17 (N. Marine Boulevard) - South of Workshop Lane/McDaniel Drive	27,800			1.84%	2.01%	18,800	15,300	60,932	**43,100**
US 17 (N. Marine Boulevard) - North of Western Boulevard (NC 53)	31,400	1.76%	1.56%	1.44%	1.65%	13,662	13,600	53,501	**45,000**
US 17 (N. Marine Boulevard) - South of Western Boulevard (NC 53)	30,700			1.25%	1.41%	11,109	11,100	48,624	**41,800**
Toyota Dealership - East of US 17 (New Bern Highway)	800				0.54%		100		**900**
Buick Dealership - West of US 17 (N. Marine Boulevard)/US 17 (New Bern Highway)	700				1.15%		200		**900**
Piney Green Road (SR 1406) - East of US 17 (N. Marine Boulevard)/US 17 (New Bern Highway)	15,500	-1.55%	1.61%	3.76%	3.80%	21,404	19,700	43,575	**35,200**
McDaniel Drive - West of US 17 (N. Marine Boulevard)	8,700				1.20% (3)		2,600 (3)		**11,300**
Workshop Lane - East of US 17 (N. Marine Boulevard)	3,700				0.47%		400		**4,100**
Commons Drive - North of Connector Road	3,700				2.52%		2,700		**6,400**
Commons Drive - Connector Road to Recreation Loop	3,700				1.29%		1,200		**4,900**
Commons Drive - Recreation Loop to Recreation Loop/Gateway Drive South	6,200				-1.35%		-1,600		**4,600**
Commons Drive - East of Recreation Loop/Gateway Drive South	7,400				0.89%		1,600		**9,000**
Gateway Marketplace - West of Jacksonville Parkway Extension	0						2,800		**2,800**

Notes:

(1) Growth rate shown is the Compound Annual Growth Rate (CAGR).

(2) Volume Delta is the raw change in volume between either the model volumes or the forecast volumes.

(3) Volume Delta is based on the interpolated 2018 volume and the 2040 Volume to allow for a more appropriate comparsion to the forecast volume delta.

Table C8: 2040 No-Build - U-5791 Traffic Volumes

Forecast Location	Forecast Base Year NB	Model Growth Rate (1)	Chosen Growth Rate (1)	Model Volume Delta (2)	Chosen Volume Delta (2)	Future Year No-Build - U-5791 Volumes	
	AADT	2010-2040	2018-2040	2018-2040 (3)	2018-2040	Model	Forecast
Western Boulevard (NC 53) - West of Gum Branch Road (SR 1308)	4,800		1.86%		2,400		**7,200**
Western Boulevard (NC 53) - Gum Branch Road (SR 1308) to Coastal Lane	18,000	2.08%	2.14%	10,196	10,700	30,218	**28,700**
Western Boulevard (NC 53) - Coastal Lane to Williamsburg Parkway	19,000	2.08%	2.07%	10,196	10,800	30,218	**29,800**
Western Boulevard (NC 53) - Williamsburg Parkway to Arlington Meadows Drive	20,800	2.08%	2.01%	10,196	11,400	30,218	**32,200**
Western Boulevard (NC 53) - Arlington Meadows Drive to West Carrington Drive	22,000	2.08%	2.11%	10,196	12,800	30,218	**34,800**
Western Boulevard (NC 53) - West Carrington Drive to Northwest Circle (W)	22,400	2.54%	2.12%	12,249	13,100	31,567	**35,500**
Western Boulevard (NC 53) - Northwest Circle (W) to Dennis Road	23,400	2.54%	2.12%	12,249	13,700	31,567	**37,100**
Western Boulevard (NC 53) - Dennis Road to Carolina Forest Boulevard/North Plain Drive	23,900	2.54%	2.08%	12,249	13,700	31,567	**37,600**
Western Boulevard (NC 53) - Carolina Forest Boulevard/North Plain Drive to Northwest Circle (E)	33,700	2.30%	1.99%	13,795	18,300	38,096	**52,000**
Western Boulevard (NC 53) - Northwest Circle (E) to Forum Road	35,000	2.30%	1.98%	13,795	18,900	38,096	**53,900**
Western Boulevard (NC 53) - Forum Road to Henderson Drive (SR 1336)	37,000	2.93%	2.00%	19,469	20,200	45,832	**57,200**
Western Boulevard (NC 53) - Henderson Drive (SR 1336) to Marlin Drive	43,800	2.60%	2.01%	19,608	24,000	49,791	**67,800**
Western Boulevard (NC 53) - Marlin Drive to Gateway Drive North/Jacksonville Parkway (SR 2714)	46,100	2.60%	2.00%	19,608	25,200	49,791	**71,300**
Western Boulevard (NC 53) - Gateway Drive North/ Jacksonville Parkway (SR 2714) to Gateway Drive South	30,100	1.47%	1.89%	9,263	15,300	35,684	**45,400**
Western Boulevard (NC 53) - Gateway Drive South to Exchange Drive (SR 2716)	30,400	1.47%	1.87%	9,263	15,300	35,684	**45,700**
Western Boulevard (NC 53) - Exchange Drive (SR 2716) to Sams Club Drive/Circuit Lane	32,100	1.62%	1.85%	15,558	15,900	55,440	**48,000**
Western Boulevard (NC 53) - Sams Club Drive/Circuit Lane to Trade Street (SR 2715)	34,900	1.62%	1.80%	15,558	16,800	55,440	**51,700**
Western Boulevard (NC 53) - Trade Street (SR 2715) to US 17 (N. Marine Boulevard)/N. Marine Boulevard (US 17)	35,300	1.62%	1.74%	15,558	16,300	55,440	**51,600**
Western Boulevard (NC 53) - East of US 17 (N. Marine Boulevard)	34,800	0.87%	1.00%	8,767	8,500	52,165	**43,300**
Gum Branch Road (SR 1308) - North of Western Boulevard (NC 53)	30,800	2.03%	2.00%	16,260	16,800	48,986	**47,600**
Gum Branch Road (SR 1308) - South of Western Boulevard (NC 53)	21,400	2.40%	1.80%	10,229	10,300	27,399	**31,700**
Coastal Lane - North of Western Boulevard (NC 53)	400		1.02%		100		**500**
Coastal Lane - South of Western Boulevard (NC 53)	2,200		0.76%		400		**2,600**

Table C8: 2040 No-Build - U-5791 Traffic Volumes

Forecast Location	Forecast Base Year NB	Model Growth Rate (1)	Chosen Growth Rate (1)	Model Volume Delta (2)	Chosen Volume Delta (2)	Future Year No-Build - U-5791 Volumes	
	AADT	2010-2040	2018-2040	2018-2040 (3)	2018-2040	Model	Forecast
Williamsburg Parkway - South of Western Boulevard (NC 53)	2,000		1.20%		600		**2,600**
Arlington Meadows Drive - North of Western Boulevard (NC 53)	1,700		1.95%		900		**2,600**
Arlington Meadows Drive - South of Western Boulevard (NC 53)	1,700		1.95%		900		**2,600**
West Carrington Drive - South of Western Boulevard (NC 53)	1,000		0.43%		100		**1,100**
Northwest Circle (W) - South of Western Boulevard (NC 53)	2,000		0.83%		400		**2,400**
Dennis Road - South of Western Boulevard (NC 53)	1,100		0.76%		200		**1,300**
Carolina Forest Boulevard - North of Western Boulevard (NC 53)	15,300	0.58%	1.41%	1,219	5,500	10,514	**20,800**
North Plain Drive - South of Western Boulevard (NC 53)	2,700		1.05%		700		**3,400**
Northwest Circle (E) - North of Western Boulevard (NC 53)	2,700		1.05%		700		**3,400**
Northwest Circle (E) - South of Western Boulevard (NC 53)	600		0.70%		100		**700**
Forum Road - North of Western Boulevard (NC 53)	2,600		1.23%		800		**3,400**
Forum Road - South of Western Boulevard (NC 53)	3,400		1.48%		1,300		**4,700**
Henderson Drive (SR 1336) - North of Western Boulevard (NC 53)	3,400	n/a	2.99%	0	3,100	0	**6,500**
Henderson Drive (SR 1336) - South of Western Boulevard (NC 53)	15,400	-0.01%	0.26%	-20	900	9,470	**16,300**
Gateway Marketplace - North of Western Boulevard (NC 53)	0				8,400		**8,400**
Marlin Drive - South of Western Boulevard (NC 53)	3,300		1.21%		1,000		**4,300**
Recreation Loop - North of Commons Drive	1,100		1.10%		300		**1,400**
Gateway Drive North - Commons Drive to Western Boulevard (NC 53)	9,200		1.99%		5,000		**14,200**
Jacksonville Parkway (SR 2714) - South of Western Boulevard (NC 53)	16,000	n/a	1.80%	10,348	7,700	14,111	**23,700**
Recreation Loop - North of Commons Drive	1,300		0.34%		100		**1,400**
Gateway Drive South - Commons Drive to Western Boulevard (NC 53)	3,700		2.52%		2,700		**6,400**
Gateway Drive South - South of Western Boulevard (NC 53)	8,000		0.59%		1,100		**9,100**
Exchange Drive (SR 2716) - North of Western Boulevard (NC 53)	6,400		0.60%		900		**7,300**
Exchange Drive (SR 2716) - South of Western Boulevard (NC 53)	6,100		0.63%		900		**7,000**
Sams Club Drive - North of Western Boulevard (NC 53)	5,600		0.61%		800		**6,400**
Circuit Lane - South of Western Boulevard (NC 53)	6,800		1.02%		1,700		**8,500**

Table C8: 2040 No-Build - U-5791 Traffic Volumes

Forecast Location	Forecast Base Year NB	Model Growth Rate (1)	Chosen Growth Rate (1)	Model Volume Delta (2)	Chosen Volume Delta (2)	Future Year No-Build - U-5791 Volumes	
	AADT	2010-2040	2018-2040	2018-2040 (3)	2018-2040	Model	Forecast
Trade Street (SR 2715) - North of Western Boulevard (NC 53)	7,400		0.58%		1,000		**8,400**
Trade Street (SR 2715) - South of Western Boulevard (NC 53)	1,600		3.05%		1,500		**3,100**
Ramsey Road (SR 1324) - West of Carolina Plantations Boulevard/Carolina Forest Boulevard	5,200	5.23%	5.50%	12,253	11,700	21,323	**16,900**
Ramsey Road (SR 1324) - Carolina Plantations Blvd/ Carolina Forest Blvd to Drummer Kellum Road (SR 1326)	6,400	5.26%	3.98%	9,320	8,700	16,190	**15,100**
Ramsey Road (SR 1324) - Drummer Kellum Road (SR 1326) to Kellum Loop Road (SR 1327)	3,200	3.37%	3.20%	3,050	3,200	6,603	**6,400**
Carolina Plantations Boulevard - North of Ramsey Road (SR 1324)	6,900		1.01%		1,700		**8,600**
Carolina Forest Boulevard - South of Ramsey Road (SR 1324)	8,500	2.92%	3.03%	3,439	7,900	8,112	**16,400**
Drummer Kellum Road (SR 1326) - Ramsey Road (SR 1324) to US 17 (New Bern Highway)	4,200	6.33%	3.68%	6,095	5,100	9,880	**9,300**
Kellum Loop Road (SR 1327) - North of Ramsey Road (SR 1324)	1,500		2.16%		900		**2,400**
Kellum Loop Road (SR 1327) - Ramsey Road (SR 1324) to US 17 (New Bern Highway)	3,900	3.29%	3.32%	2,623	4,100	5,754	**8,000**
US 17 (New Bern Highway) - North of Kellum Loop Road (SR 1327)	15,900	1.98%	2.13%	9,325	9,400	28,591	**25,300**
US 17 (New Bern Highway) - Kellum Loop Road (SR 1327) to Toyota Dealership/Drummer Kellum Road (SR 1326)	15,400	1.75%	1.90%	6,940	7,900	23,354	**23,300**
US 17 (New Bern Hwy) - Toyota Dealership/Drummer Kellum Rd (SR 1326) to Piney Green Rd (SR 1406)/Buick Dealership	19,000	2.43%	2.29%	14,926	12,300	39,602	**31,300**
US 17 (New Bern Highway) - Piney Green Road (SR 1406)/Buick Dealership to Workshop Lane/McDaniel Drive	27,000	2.19%	2.40%	18,925	18,500	53,993	**45,500**
US 17 (N. Marine Boulevard) - South of Workshop Lane/McDaniel Drive	27,800	1.74%	2.20%	17,535	17,100	59,207	**44,900**
US 17 (N. Marine Boulevard) - North of Western Boulevard (NC 53)	31,400	1.39%	1.60%	13,077	13,100	52,703	**44,500**
N. Marine Boulevard (US 17) - South of Western Boulevard (NC 53)	30,700	1.31%	1.46%	11,764	11,500	49,517	**42,200**
Stevenson Toyota Dealership - East of US 17 (New Bern Highway)	800		0.54%		100		**900**
Moore Buick Dealership - West of US 17 (N. Marine Boulevard)/US 17 (New Bern Highway)	700		1.15%		200		**900**
Piney Green Road (SR 1406) - East of US 17 (N. Marine Boulevard)/US 17 (New Bern Highway)	15,500	3.82%	3.92%	21,914	20,600	44,271	**36,100**
McDaniel Drive - West of US 17 (N. Marine Boulevard)	8,700		1.20%		2,600		**11,300**
Workshop Lane - East of US 17 (N. Marine Boulevard)	3,700		0.47%		400		**4,100**

Table C8: 2040 No-Build - U-5791 Traffic Volumes

Forecast Location	Forecast Base Year NB	Model Growth Rate (1)	Chosen Growth Rate (1)	Model Volume Delta (2)	Chosen Volume Delta (2)	Future Year No-Build - U-5791 Volumes	
	AADT	2010-2040	2018-2040	2018-2040 (3)	2018-2040	Model	Forecast
Commons Drive - West of Recreation Loop/Gateway Drive North	3,700		2.52%		2,700		**6,400**
Commons Drive - Recreation Loop/Gateway Drive North to Recreation Loop/Gateway Drive South	6,200		1.39%		2,200		**8,400**
Commons Drive - East of Recreation Loop/Gateway Drive South	7,400		0.99%		1,800		**9,200**

Notes:

(1) Growth rate shown is the Compound Annual Growth Rate (CAGR).

(2) Volume Delta is the raw change in volume between either the model volumes or the forecast volumes

(3) Volume Delta is based on the interpolated 2018 volume and the 2040 Volume to allow for a more appropriate comparsion to the forecast volume delta.

Table C9: 2040 Build Traffic Volumes

Forecast Location	2040 Model Volumes, Daily		Model Diversion Percent	Chosen Diversion Percent	Model Volume Delta	Chosen Volume Delta	2040 Forecast Volumes	
	No-Build	Build					No-Build	Build
Western Boulevard (NC 53) - West of Gum Branch Road (SR 1308)				0.00%		0	7,200	**7,200**
Western Boulevard (NC 53) - Gum Branch Road (SR 1308) to Coastal Lane	27,186	28,947	6.48%	6.42%	1,761	1,700	26,500	**28,200**
Western Boulevard (NC 53) - Coastal Lane to Williamsburg Parkway	27,186	28,947	6.48%	6.05%	1,761	1,700	28,100	**29,800**
Western Boulevard (NC 53) - Williamsburg Parkway to Arlington Meadows Drive	27,186	28,947	6.48%	5.57%	1,761	1,700	30,500	**32,200**
Western Boulevard (NC 53) - Arlington Meadows Drive to West Carrington Drive	27,186	28,947	6.48%	5.81%	1,761	1,900	32,700	**34,600**
Western Boulevard (NC 53) - West Carrington Drive to Northwest Circle (W)	26,269	28,870	9.90%	5.69%	2,601	1,900	33,400	**35,300**
Western Boulevard (NC 53) - Northwest Circle (W) to Dennis Road	26,269	28,870	9.90%	5.68%	2,601	2,000	35,200	**37,200**
Western Boulevard (NC 53) - Dennis Road to Carolina Forest Boulevard/North Plain Drive	26,269	28,870	9.90%	6.76%	2,601	2,400	35,500	**37,900**
Western Boulevard (NC 53) - Carolina Forest Boulevard/North Plain Drive to Northwest Circle (E)	32,563	34,938	7.29%	6.07%	2,375	3,000	49,400	**52,400**
Western Boulevard (NC 53) - Northwest Circle (E) to Forum Road	32,563	34,938	7.29%	5.85%	2,375	3,000	51,300	**54,300**
Western Boulevard (NC 53) - Forum Road to Henderson Drive (SR 1336)	33,848	36,389	7.51%	5.90%	2,541	3,200	54,200	**57,400**
Western Boulevard (NC 53) - Henderson Drive (SR 1336) to Marlin Drive	30,840	34,213	10.94%	6.17%	3,373	3,400	55,100	**58,500**
Western Boulevard (NC 53) - Marlin Drive to Gateway Drive North/Jacksonville Parkway (SR 2714)	30,840	34,213	10.94%	6.21%	3,373	3,600	58,000	**61,600**
Western Boulevard (NC 53) - Gateway Drive North/ Jacksonville Parkway (SR 2714) to Gateway Drive South	22,891	24,654	7.70%	8.09%	1,763	3,100	38,300	**41,400**
Western Boulevard (NC 53) - Gateway Drive South to Exchange Drive (SR 2716)	22,891	24,654	7.70%	8.03%	1,763	3,100	38,600	**41,700**
Western Boulevard (NC 53) - Exchange Drive (SR 2716) to Sams Club Drive/Circuit Lane	45,288	53,602	18.36%	8.11%	8,314	3,300	40,700	**44,000**
Western Boulevard (NC 53) - Sams Club Drive/Circuit Lane to Trade Street (SR 2715)	45,288	53,602	18.36%	8.11%	8,314	3,600	44,400	**48,000**
Western Boulevard (NC 53) - Trade Street (SR 2715) to US 17 (N. Marine Boulevard)/N. Marine Boulevard (US 17)	45,288	53,602	18.36%	7.80%	8,314	3,500	44,900	**48,400**
Western Boulevard (NC 53) - East of US 17 (N. Marine Boulevard)	52,235	51,805	-0.82%	-0.92%	-430	-400	43,300	**42,900**
Gum Branch Road (SR 1308) - North of Western Boulevard (NC 53)	47,231	47,543	0.66%	0.00%	312	0	49,700	**49,700**
Gum Branch Road (SR 1308) - South of Western Boulevard (NC 53)	28,284	27,391	-3.16%	-4.36%	-893	-1,500	34,400	**32,900**
Coastal Lane - North of Western Boulevard (NC 53)				0.00%		0	500	**500**
Coastal Lane - South of Western Boulevard (NC 53)				0.00%		0	2,500	**2,500**
Williamsburg Parkway - South of Western Boulevard (NC 53)				0.00%		0	2,600	**2,600**
Arlington Meadows Drive - North of Western Boulevard (NC 53)				0.00%		0	2,600	**2,600**

Table C9: 2040 Build Traffic Volumes

Forecast Location	2040 Model Volumes, Daily		Model Diversion Percent	Chosen Diversion Percent	Model Volume Delta	Chosen Volume Delta	2040 Forecast Volumes	
	No-Build	Build					No-Build	Build
Arlington Meadows Drive - South of Western Boulevard (NC 53)				0.00%		0	2,600	**2,600**
West Carrington Drive - South of Western Boulevard (NC 53)				0.00%		0	1,100	**1,100**
Northwest Circle (W) - South of Western Boulevard (NC 53)				4.17%		100	2,400	**2,500**
Dennis Road - South of Western Boulevard (NC 53)				0.00%		0	1,300	**1,300**
Carolina Forest Boulevard - North of Western Boulevard (NC 53)	9,701	9,296	-4.17%	-2.01%	-405	-400	19,900	**19,500**
North Plain Drive - South of Western Boulevard (NC 53)				0.00%		0	3,400	**3,400**
Northwest Circle (E) - North of Western Boulevard (NC 53)				0.00%		0	3,400	**3,400**
Northwest Circle (E) - South of Western Boulevard (NC 53)				0.00%		0	700	**700**
Forum Road - North of Western Boulevard (NC 53)				0.00%		0	3,400	**3,400**
Forum Road - South of Western Boulevard (NC 53)				0.00%		0	4,700	**4,700**
Connector Road - East of Jacksonville Parkway Extension				0.00%		0	8,900	**8,900**
Henderson Drive (SR 1336) - Jacksonville Parkway Extension to Western Boulevard (NC 53)	8,693	8,543	-1.73%	-1.03%	-150	-100	9,700	**9,600**
Henderson Drive (SR 1336) - South of Western Boulevard (NC 53)	10,451	10,898	4.28%	2.87%	447	500	17,400	**17,900**
Gateway Marketplace - North of Western Boulevard (NC 53)				0.00%		0	8,400	**8,400**
Marlin Drive - South of Western Boulevard (NC 53)				0.00%		0	4,300	**4,300**
Recreation Loop - North of Commons Drive				0.00%		0	1,300	**1,300**
Jacksonville Parkway (SR 2714) - South of Western Boulevard (NC 53)	16,702	15,791	-5.45%	-2.47%	-911	-800	32,400	**31,600**
Jacksonville Parkway Extension - Western Boulevard (NC 53) to Gateway Marketplace	6,639	6,232	-6.13%	-1.78%	-407	-300	16,900	**16,600**
Jacksonville Parkway Extension - Gateway Marketplace to Henderson Drive (SR 1336)	6,639	6,232	-6.13%	-1.78%	-407	-300	16,900	**16,600**
Jacksonville Parkway Extension - North of Henderson Drive (SR 1336)	15,332	14,775	-3.63%	-2.26%	-557	-400	17,700	**17,300**
Jacksonville Parkway Extension - South of Ramsey Road (SR 1324)	8,675	8,241	-5.00%	-2.76%	-434	-400	14,500	**14,100**
Jacksonville Parkway Extension/Ramsey Road (SR 1324) - Ramsey Road (SR 1324) to Drummer Kellum Road (SR 1326)	19,464	18,500	-4.95%	-3.38%	-964	-800	23,700	**22,900**
Jacksonville Parkway/Ramsey Road (SR 1324) - Drummer Kellum Road (SR 1326) to Kellum Loop Road (SR 1327)	9,270	8,965	-3.29%	-3.51%	-305	-400	11,400	**11,000**
Jacksonville Parkway/Ramsey Road (SR 1324) - Kellum Loop Road (SR 1327) to US 17 (New Bern Highway)	8,138	7,759	-4.66%	-3.81%	-379	-400	10,500	**10,100**
Recreation Loop - North of Commons Drive				0.00%		0	1,600	**1,600**

Table C9: 2040 Build Traffic Volumes

Forecast Location	2040 Model Volumes, Daily		Model Diversion Percent	Chosen Diversion Percent	Model Volume Delta	Chosen Volume Delta	2040 Forecast Volumes	
	No-Build	Build					No-Build	Build
Gateway Drive South - Commons Drive to Western Boulevard (NC 53)				0.00%		0	6,600	**6,600**
Gateway Drive South - South of Western Boulevard (NC 53)				0.00%		0	9,100	**9,100**
Exchange Drive (SR 2716) - North of Western Boulevard (NC 53)				0.00%		0	7,300	**7,300**
Exchange Drive (SR 2716) - South of Western Boulevard (NC 53)				0.00%		0	7,000	**7,000**
Sams Club Drive - North of Western Boulevard (NC 53)				0.00%		0	6,400	**6,400**
Circuit Lane - South of Western Boulevard (NC 53)				-1.18%		-100	8,500	**8,400**
Trade Street (SR 2715) - North of Western Boulevard (NC 53)				1.19%		100	8,400	**8,500**
Trade Street (SR 2715) - South of Western Boulevard (NC 53)				0.00%		0	3,100	**3,100**
Ramsey Road (SR 1324) - West of Carolina Plantations Boulevard/Carolina Forest Boulevard	24,826	24,214	-2.47%	-3.03%	-612	-500	16,500	**16,000**
Ramsey Road (SR 1324) - Carolina Plantations Boulevard/Carolina Forest Boulevard to Jacksonville Parkway Extension	20,404	19,480	-4.53%	-4.81%	-924	-1,000	20,800	**19,800**
Carolina Plantations Boulevard - North of Ramsey Road (SR 1324)				0.00%		0	8,600	**8,600**
Carolina Forest Boulevard - South of Ramsey Road (SR 1324)	6,359	6,438	1.24%	0.76%	79	100	13,100	**13,200**
Drummer Kellum Road (SR 1326) - South of Ramsey Road (SR 1324)	10,390	9,884	-4.87%	-2.65%	-506	-400	15,100	**14,700**
Drummer Kellum Road (SR 1326) - West of US 17 (New Bern Highway)	16,437	16,156	-1.71%	-4.32%	-281	-600	13,900	**13,300**
Kellum Loop Road (SR 1327) - North of Ramsey Road (SR 1324)				0.00%		0	2,300	**2,300**
Kellum Loop Road (SR 1327) - Ramsey Road (SR 1324) to West of US 17 (New Bern Highway)	0	0		0.00%	0	0	2,000	**2,000**
US 17 (New Bern Highway) - North of Jacksonville Parkway (SR 2714)	28,963	28,817	-0.50%	-0.40%	-146	-100	25,300	**25,200**
US 17 (New Bern Highway) - Jacksonville Parkway (SR 2714) to Kellum Loop Road (SR 1327)	28,963	28,817	-0.50%	3.13%	-146	500	16,000	**16,500**
US 17 (New Bern Highway) - Kellum Loop Road (SR 1327) to Toyota Dealership/Drummer Kellum Road (SR 1326)	21,388	21,618	1.08%	2.84%	230	500	17,600	**18,100**
US 17 (New Bern Highway) - Toyota Dealership/Drummer Kellum Road (SR 1326) to Piney Green Road (SR 1406)/Buick Dealership	33,602	33,542	-0.18%	1.63%	-60	500	30,600	**31,100**
US 17 (New Bern Highway) - South of Piney Green Road (SR 1406)/Buick Dealership to Workshop Lane/McDaniel Drive	52,064	53,198	2.18%	2.32%	1,134	1,000	43,100	**44,100**
US 17 (N. Marine Boulevard) - South of Workshop Lane/McDaniel Drive	60,932	58,710	-3.65%	1.39%	-2,222	600	43,100	**43,700**
US 17 (N. Marine Boulevard) - North of Western Boulevard (NC 53)	53,501	52,339	-2.17%	1.11%	-1,162	500	45,000	**45,500**
US 17 (N. Marine Boulevard) - South of Western Boulevard (NC 53)	48,624	49,061	0.90%	0.96%	437	400	41,800	**42,200**

Table C9: 2040 Build Traffic Volumes

Forecast Location	2040 Model Volumes, Daily		Model Diversion Percent	Chosen Diversion Percent	Model Volume Delta	Chosen Volume Delta	2040 Forecast Volumes	
	No-Build	Build					No-Build	Build
Toyota Dealership - East of US 17 (New Bern Highway)				0.00%		0	900	**900**
Buick Dealership - West of US 17 (N. Marine Boulevard)/US 17 (New Bern Highway)				0.00%		0	900	**900**
Piney Green Road (SR 1406) - East of US 17 (N. Marine Boulevard)/US 17 (New Bern Highway)	43,575	44,357	1.79%	1.99%	782	700	35,200	**35,900**
McDaniel Drive - West of US 17 (N. Marine Boulevard)				0.00%		0	11,300	**11,300**
Workshop Lane - East of US 17 (N. Marine Boulevard)				0.00%		0	4,100	**4,100**
Commons Drive - North of Connector Road				0.00%		0	6,400	**6,400**
Commons Drive - Connector Road to Recreation Loop				0.00%		0	4,900	**4,900**
Commons Drive - Recreation Loop to Recreation Loop/Gateway Drive South				0.00%		0	4,600	**4,600**
Commons Drive - East of Recreation Loop/Gateway Drive South				0.00%		0	9,000	**9,000**
Gateway Marketplace - West of Jacksonville Parkway Extension				0.00%		0	2,800	**2,800**

APPENDIX D:

JACKSONVILLE TRAVEL DEMAND MODEL REVISIONS

The study area for the forecast is included the Jacksonville Travel Demand Model. The study area is located in the central area of the model, but on the northern boundary of the network. Compared to the study roadways, the model has limited connectivity, with mostly only the major roadways included. The Jacksonville Travel Model (provided by NCDOT on 03/29/2018) was utilized as a tool in the development of the forecast to determine the Future year scenarios traffic volumes.

The Jacksonville Model was developed in TransCAD (version 5 Build 2110) and was calibrated based on a base year of 2010 and a future year of 2040.

A review was made of the 2010 Base Year Model network and the 2040 Future Year Model network. The review revealed the need to modify the Base Year Model network and the Future Year Model network in the study area. The modifications are described below (all described modifications are in reference to the model networks as delivered). All described Base Year network modifications were applied to the 2010 No-Build and 2010 Build scenarios. Similarly, all described Future Year network modifications were applied to the 2040 Build and 2040 No-Build scenarios, unless otherwise noted.

- 2010 Base Year
    - Centroid connector from TAZ 185, western end of Western Blvd –
        - Re-located to connect to Western Blvd at a location that has an existing crossover link between the two directional links of Western Blvd to facilitate bi-directional loading onto the centroid connector (eliminating the RIRO nature of the existing coding).
        - The original base year network is shown in Figure D-1.
        - The updated base year network is shown in Figure D-2.
    - Centroid connector from TAZ 186, western end of Western Blvd –
        - Re-located to connect to Western Blvd at a location that has an existing crossover link between the two directional links of Western Blvd to facilitate bi-directional loading onto the centroid connector (eliminating the RIRO nature of the existing coding).
        - The centroid connector was also moved from the future location of the Jacksonville Pkwy intersection and to a more appropriate location to emulate existing land use loading.
        - The original base year network is shown in Figure D-3.
        - The updated base year network is shown in Figure D-4.
- 2040 Future Year
    - Centroid connector from TAZ 185 – same modification as above
    - Centroid connector from TAZ 186 – same modification as above
    - Western Blvd, from Gum Tree Rd to Marine Blvd –
        - Widened from 4 lanes to 6 lanes to match project description.
        - The model network area that includes the revisions is shown in Figure D-5.
        - **DOES NOT APPLY TO 2040 FUTURE YEAR U-6081 NO-BUILD SCENARIO**
    - Jacksonville Pkwy, from Marine Blvd to Western Blvd –
        - Split link to allow for direct loading from TAZ 186. Added new centroid connector from TAZ 186 to Jacksonville Pkwy.
        - The original future year network is shown in Figure D-6.
        - The updated future year network is shown in Figure D-7.
    - TAZ 182 –
        - Split Jacksonville Pkwy (Western Blvd to Ramsey Rd) to allow for new loading from TAZ 182.
        - Added new centroid connector from TAZ 182 to Jacksonville Pkwy.
        - Added new centroid connector from TAZ 182 to Drummer Kellum Rd.
        - Relocated TAZ 182 centroid to allow for more balanced loading.

        - The original future year network is shown in Figure D-8.
        - The updated future year network is shown in Figure D-9.
    - TAZ 184 –
        - Added new centroid connector from TAZ 184 to Jacksonville Pkwy (newly split link).
        - Added new centroid connector from TAZ 184 to Western Blvd at existing node. Added cross-connector link at new centroid connection location, connecting both directions of Western Blvd coding, to allow for loading from both directions.
        - Relocated TAZ 182 centroid to allow for more balanced loading.
        - The original future year network is shown in Figure D-10.
        - The updated future year network is shown in Figure D-11.
    - TAZ 183 –
        - Added new centroid connector from TAZ 183 to Ramsey Rd.
        - Added new centroid connector from TAZ 184 to Western Blvd.
        - Relocated TAZ 182 centroid to allow for more balanced loading.
        - The original future year network is shown in Figure D-12.
        - The updated future year network is shown in Figure D-13.
    - Ramsey Rd, from Gum Branch Rd to Drummer Kellum Rd –
        - Widened from 2 lanes to 4 lanes to match the LRTP project H111207.
        - The model network area that includes the revisions is shown in Figure D-14.
    - New roadway, from Western Blvd (at Gum Branch Rd) to NC 24 (at Pony Farm Rd) –
        - Roadway removed from network because project is not fiscally constrained
        - The model network area that includes the revisions is shown in Figure D-15.
- 2040 Future Year U-5791 No-Build
    - Remove Jacksonville Pkwy extension (from Western Blvd to Ramsey Rd)
    - Remove Henderson Dr extension (from Western Blvd to Jacksonville Pkwy extension)
    - Remove widening on Ramsey Rd (from Jacksonville Pkwy extension location to Kellum Loop Rd)
    - Remove Ramsey Rd extension (from Kellum Loop Rd to New Bern Hwy)
    - The model network area that includes the revisions is shown in Figure D-16.

Figure D-1: Jacksonville TDM 2010 Network, TAZ 185 Centroid Loading, Original

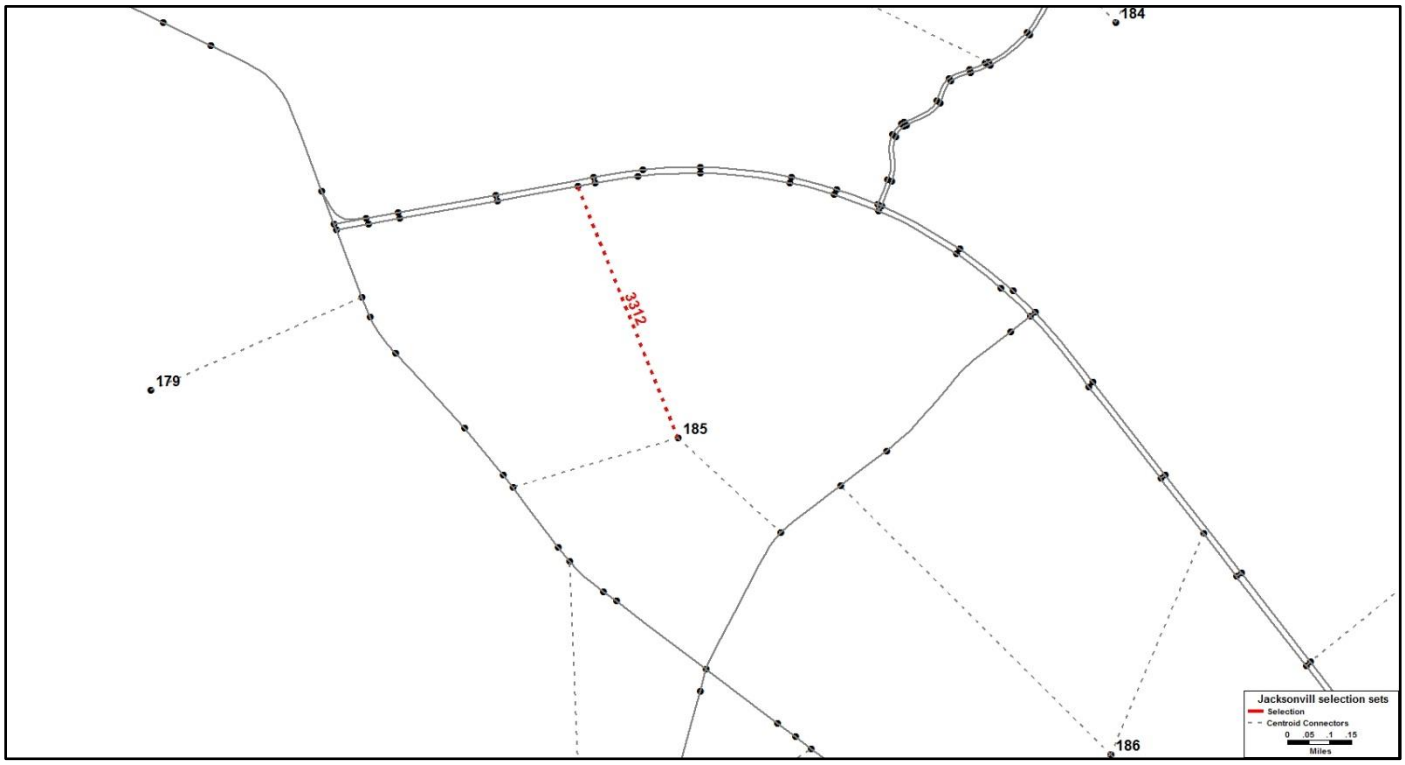


Figure D-2: Jacksonville TDM 2010 Network, TAZ 185 Centroid Loading, Revised

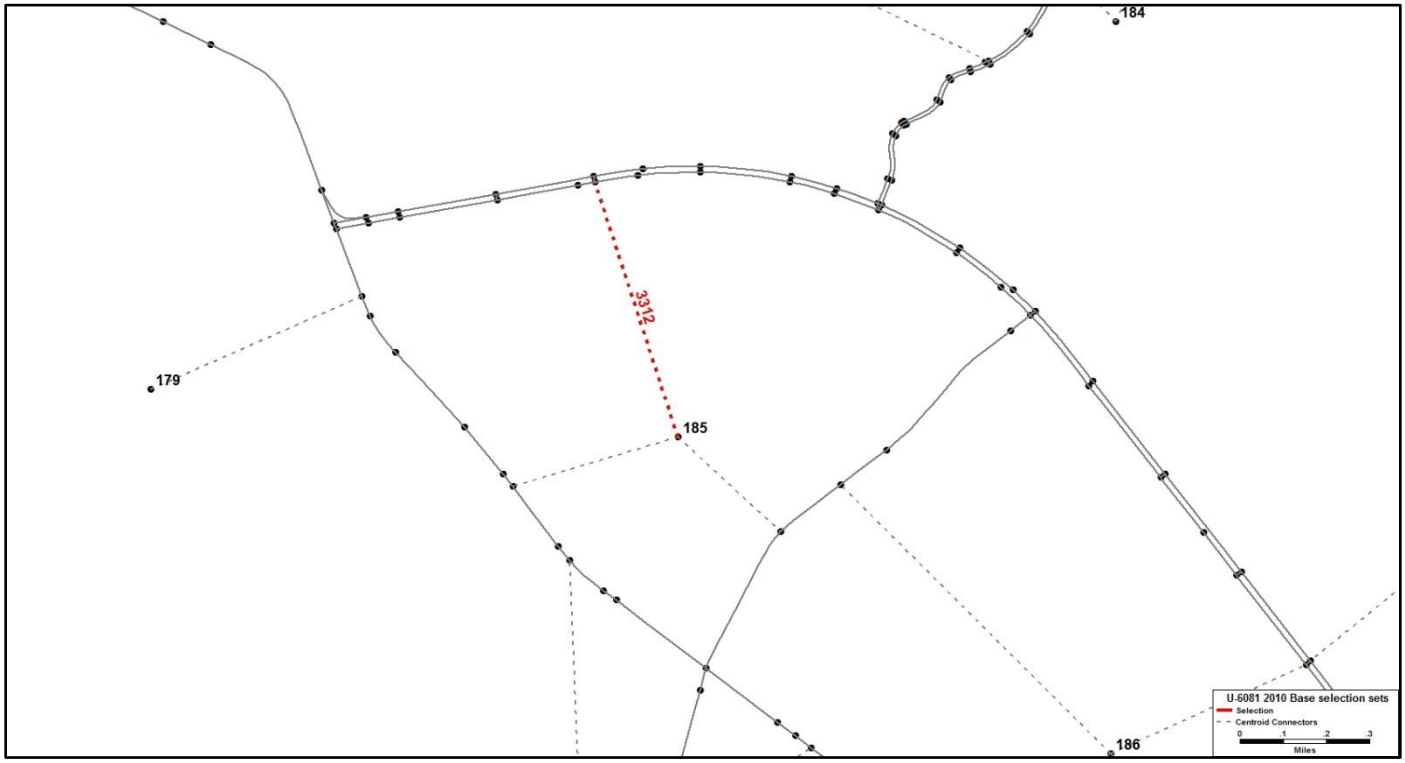


Figure D-3: Jacksonville TDM 2010 Network, TAZ 186 Centroid Loading, Original

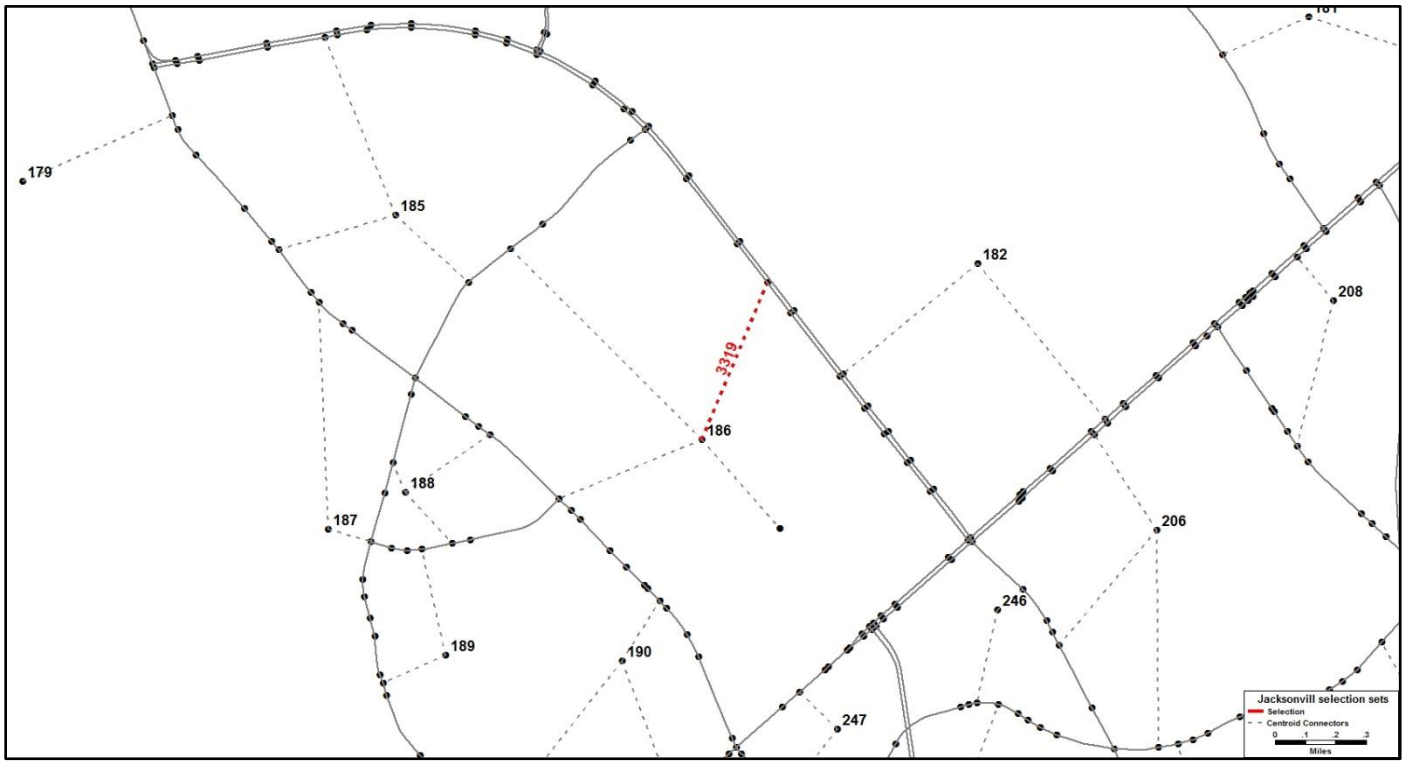


Figure D-4: Jacksonville TDM 2010 Network, TAZ 186 Centroid Loading, Revised

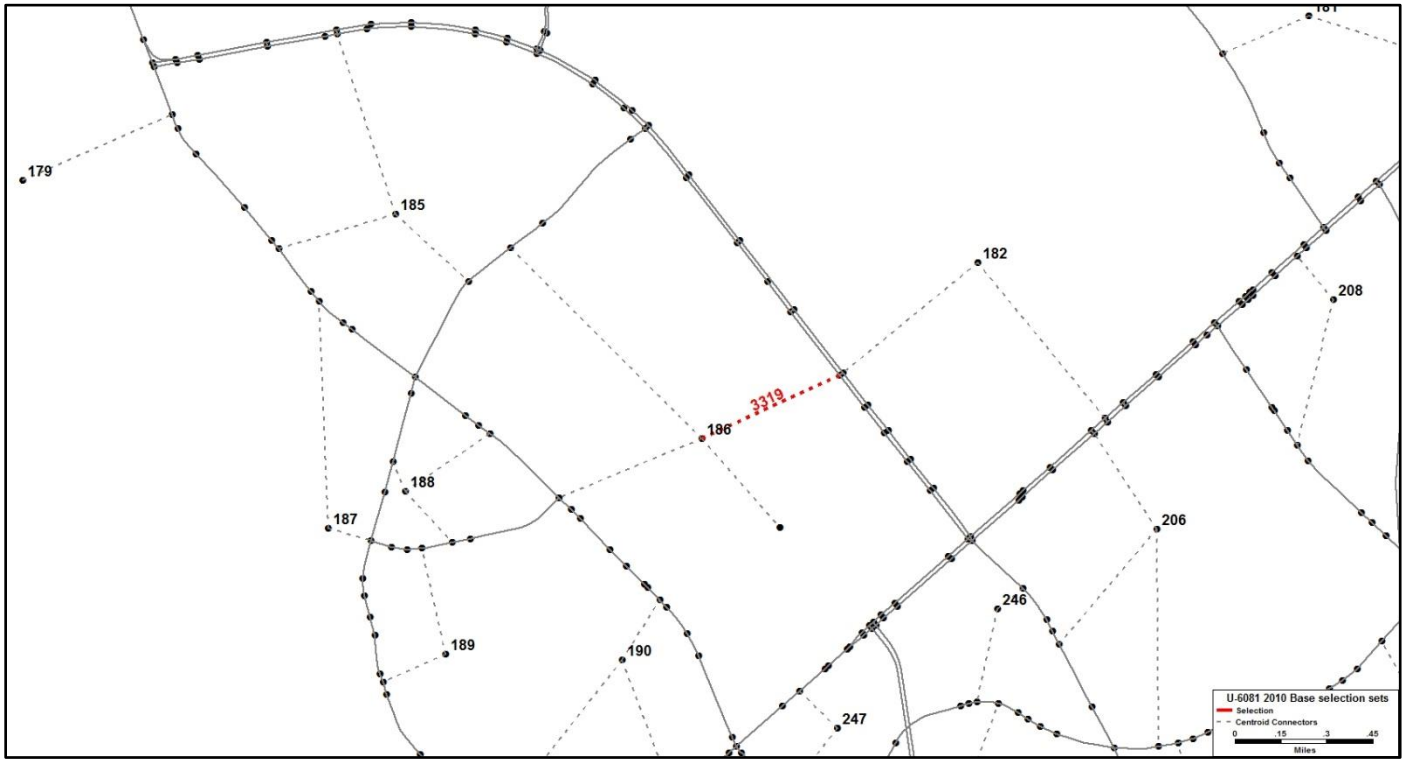


Figure D-5: Jacksonville TDM 2040 Network, Western Blvd Widening

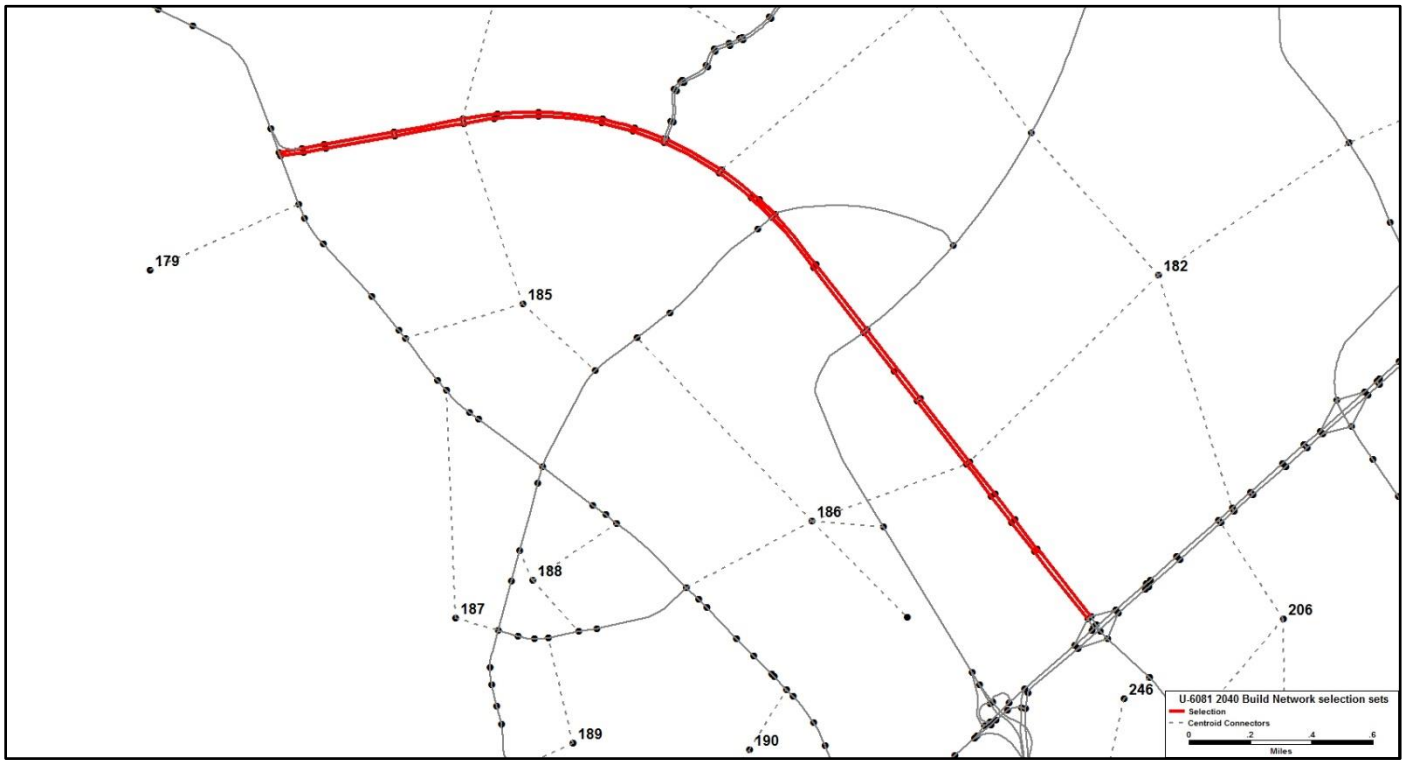


Figure D-6: Jacksonville TDM 2040 Network, Jacksonville Pkwy, Original

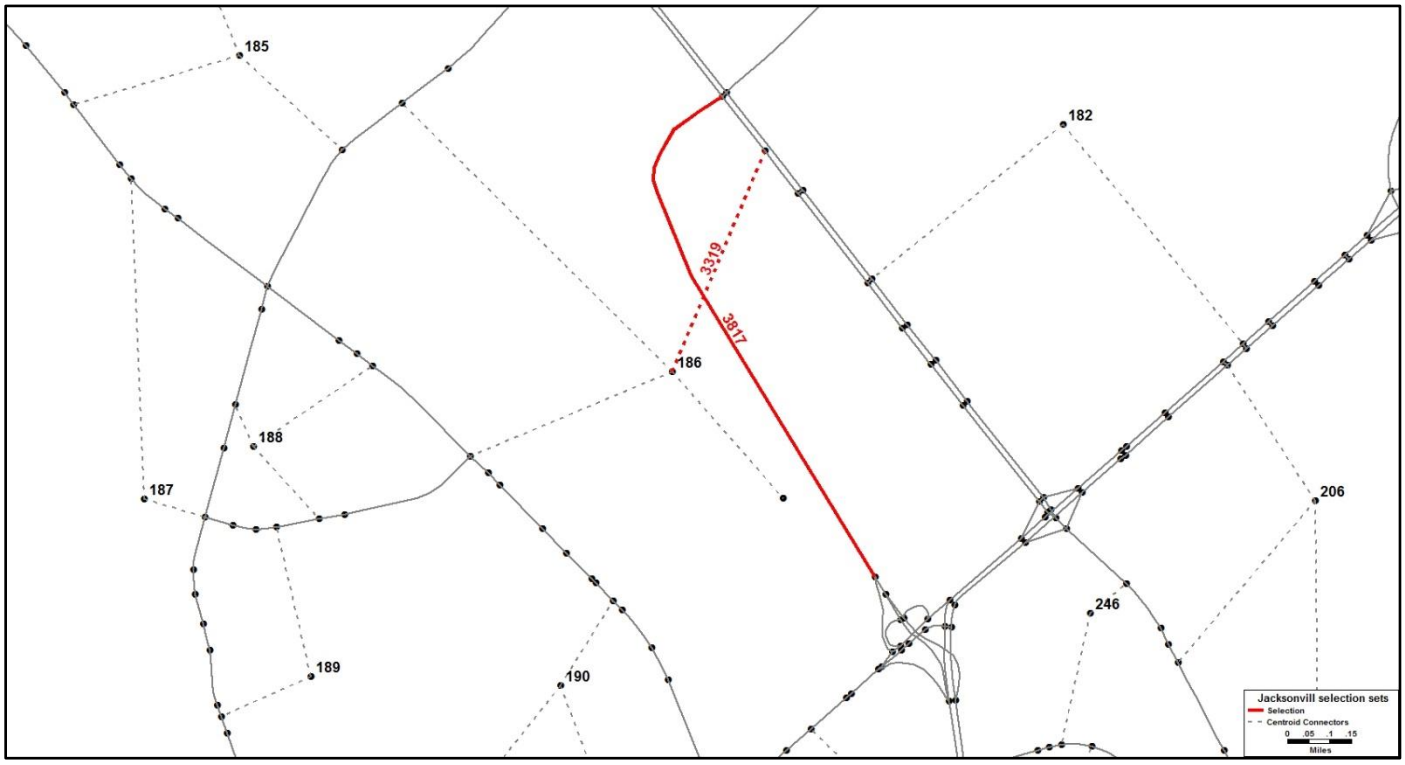


Figure D-7: Jacksonville TDM 2040 Network, Jacksonville Pkwy, Revised

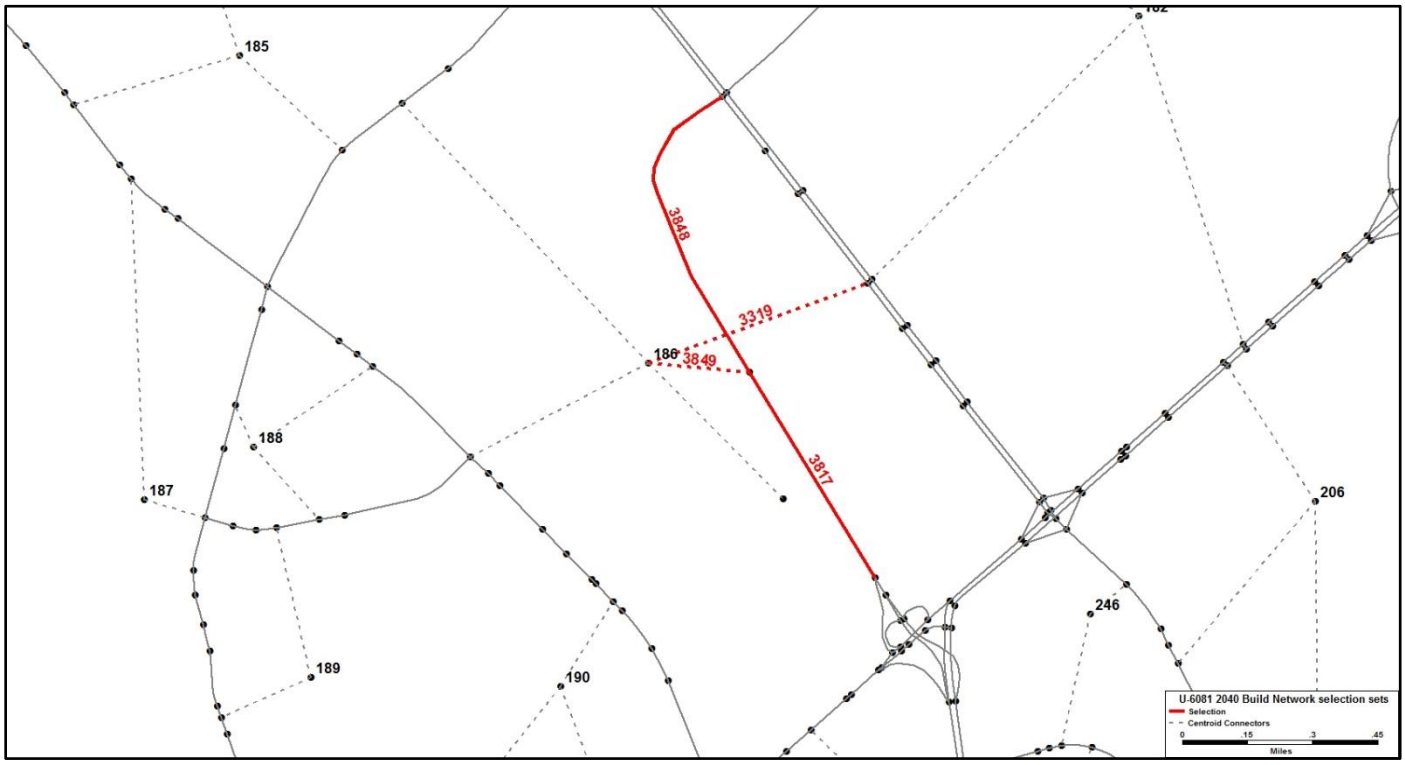


Figure D-8: Jacksonville TDM 2040 Network, TAZ 182 Centroid Loading, Original

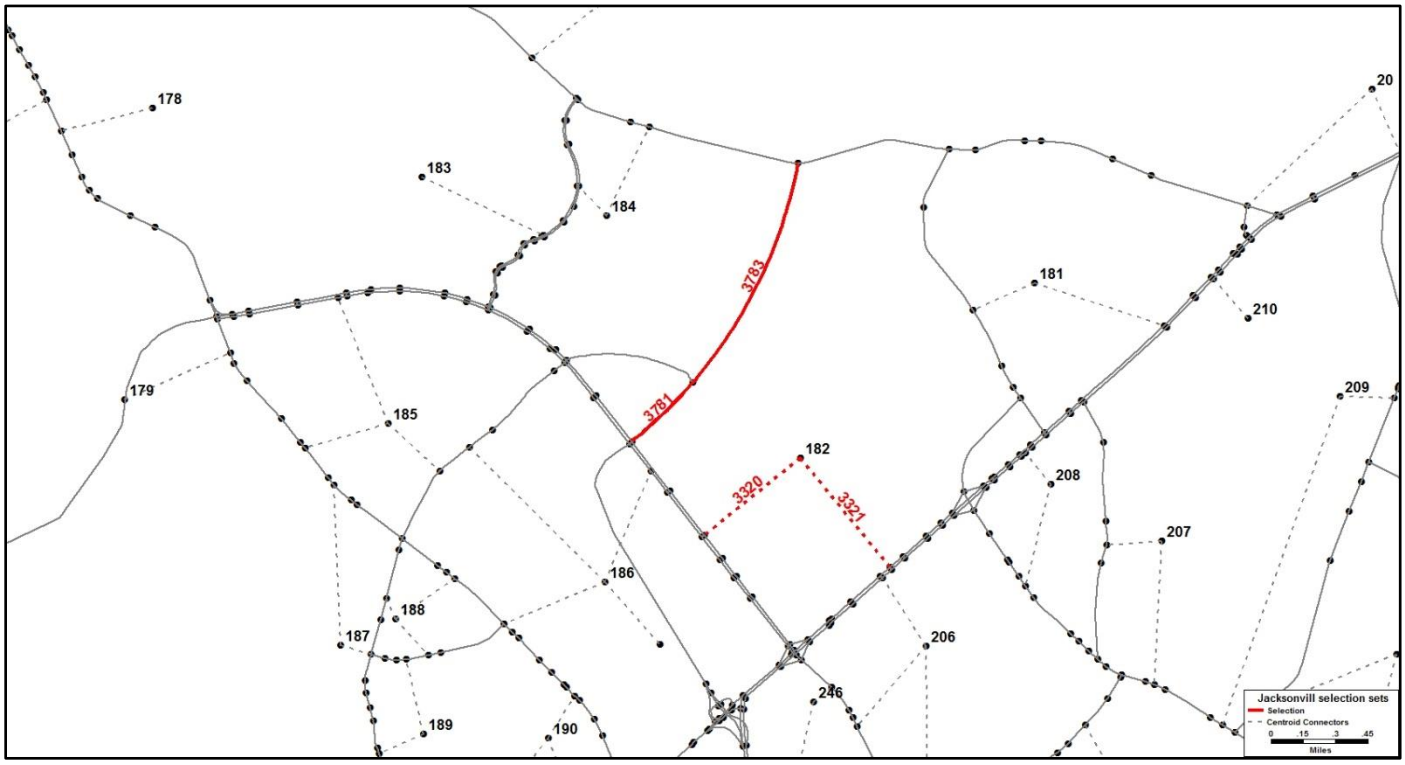


Figure D-9: Jacksonville TDM 2040 Network, TAZ 182 Centroid Loading, Revised

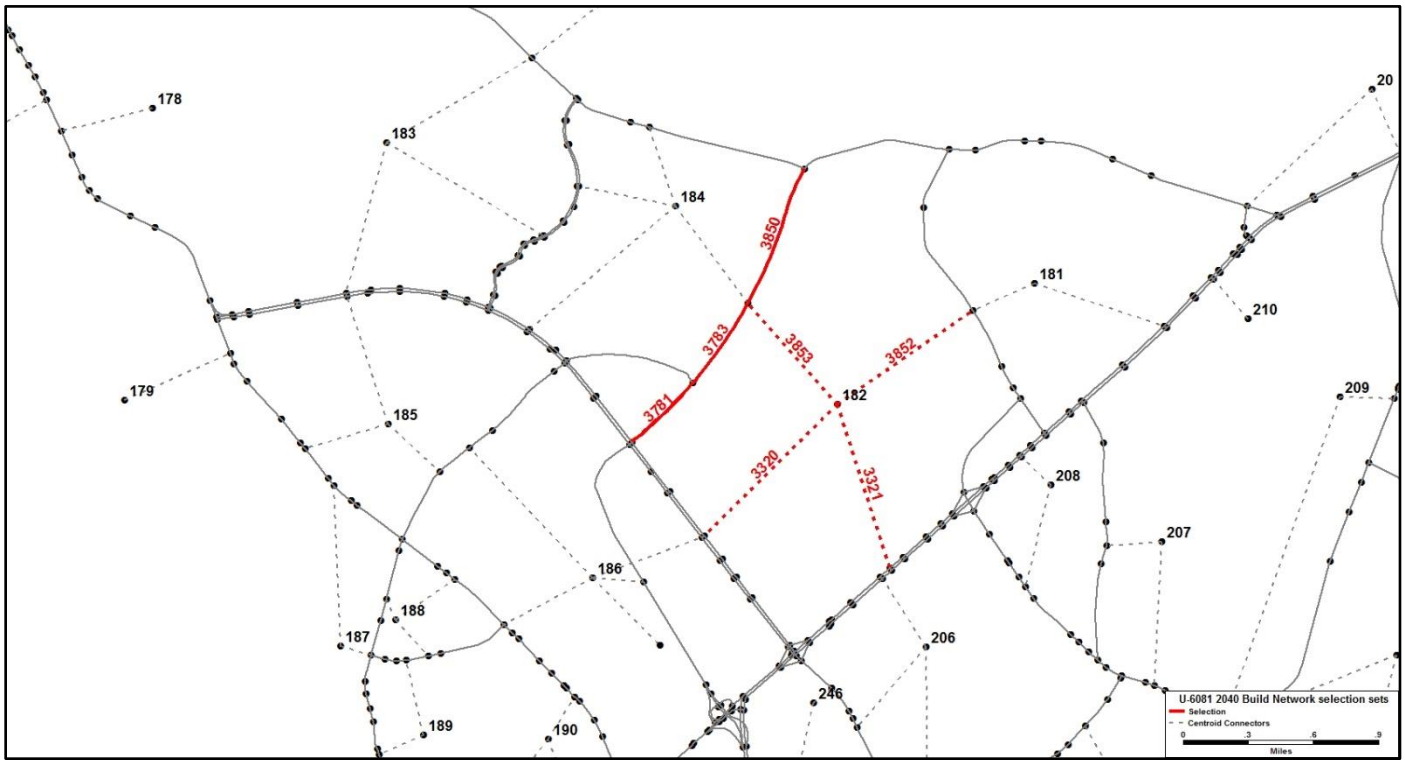


Figure D-10: Jacksonville TDM 2040 Network, TAZ 184 Centroid Loading, Original

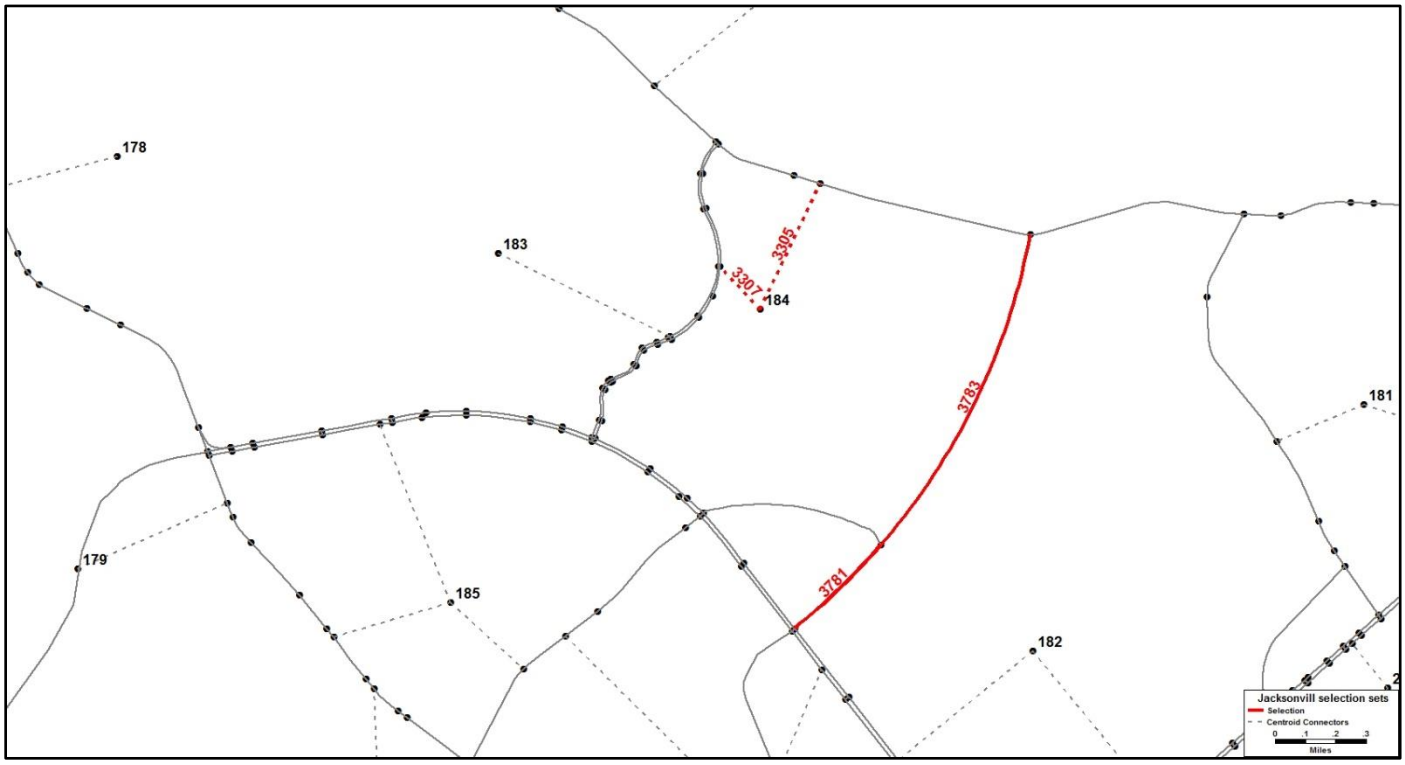


Figure D-11: Jacksonville TDM 2040 Network, TAZ 184 Centroid Loading, Revised

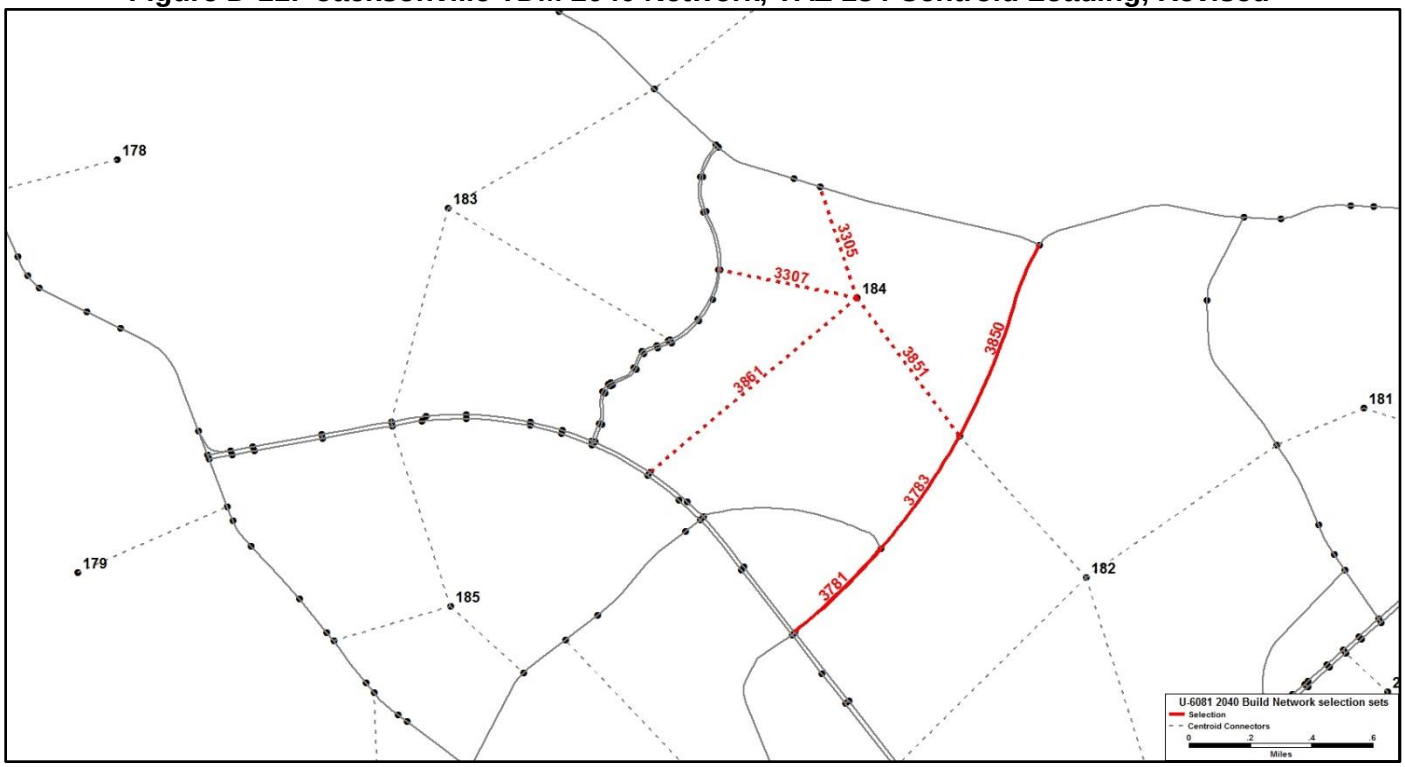


Figure D-12: Jacksonville TDM 2040 Network, TAZ 183 Centroid Loading, Original

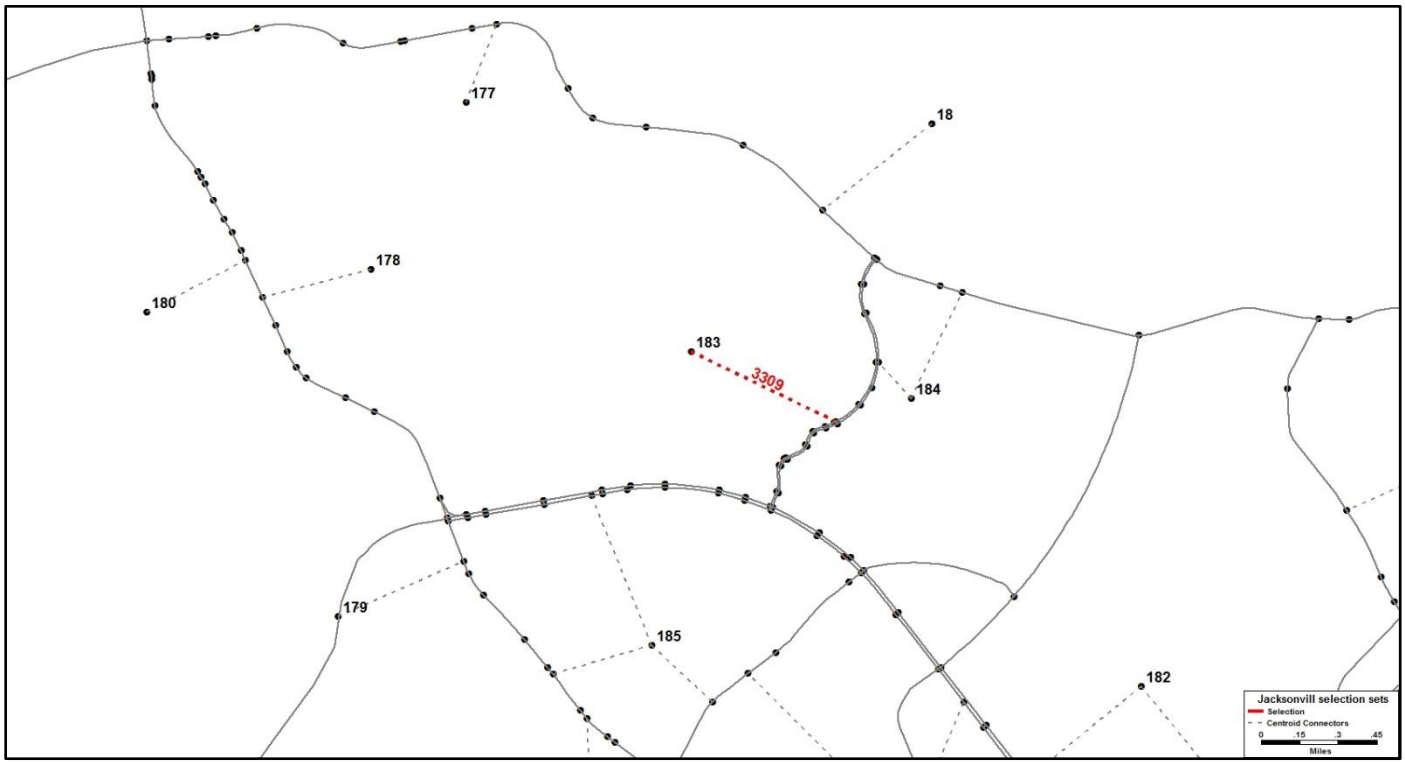


Figure D-13: Jacksonville TDM 2040 Network, TAZ 183 Centroid Loading, Revised

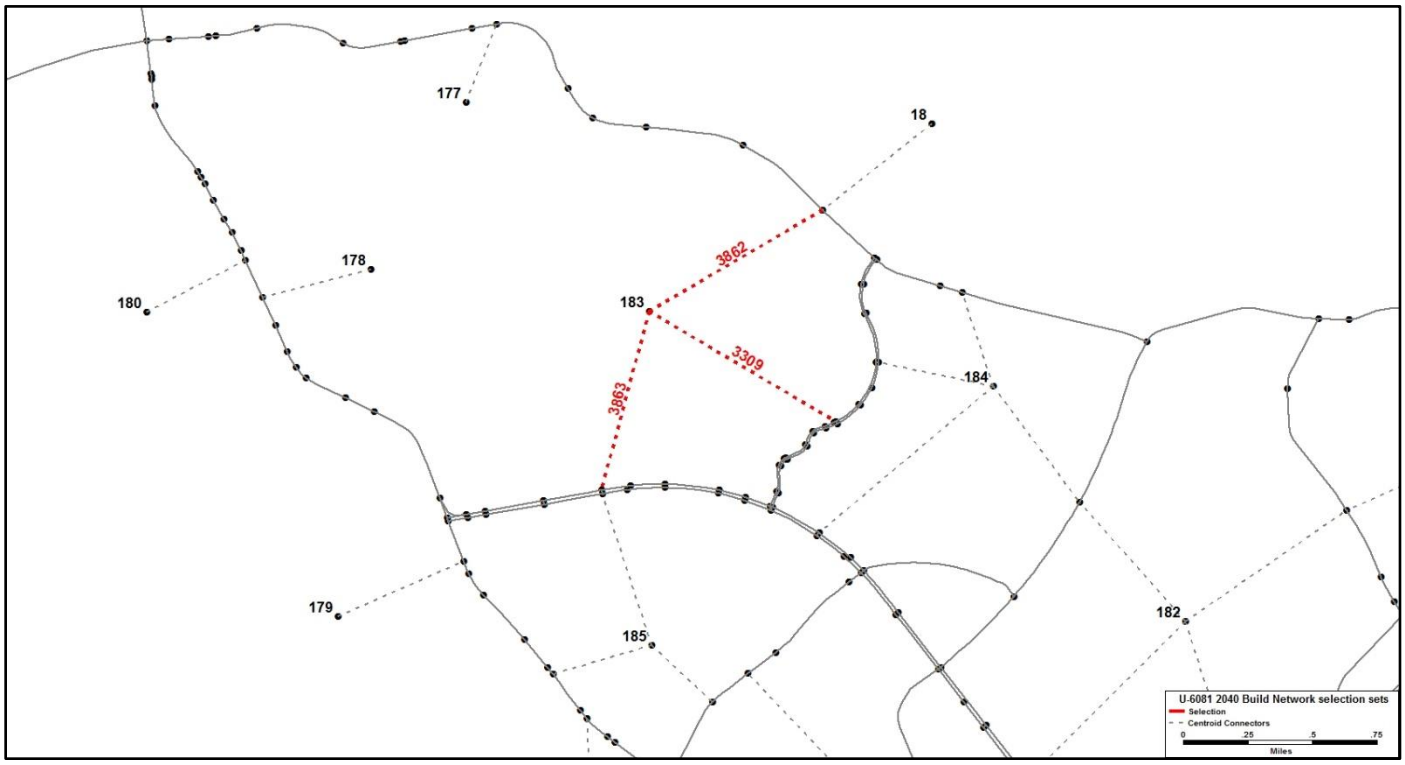


Figure D-14: Jacksonville TDM 2040 Network, Ramsey Rd Re-coding

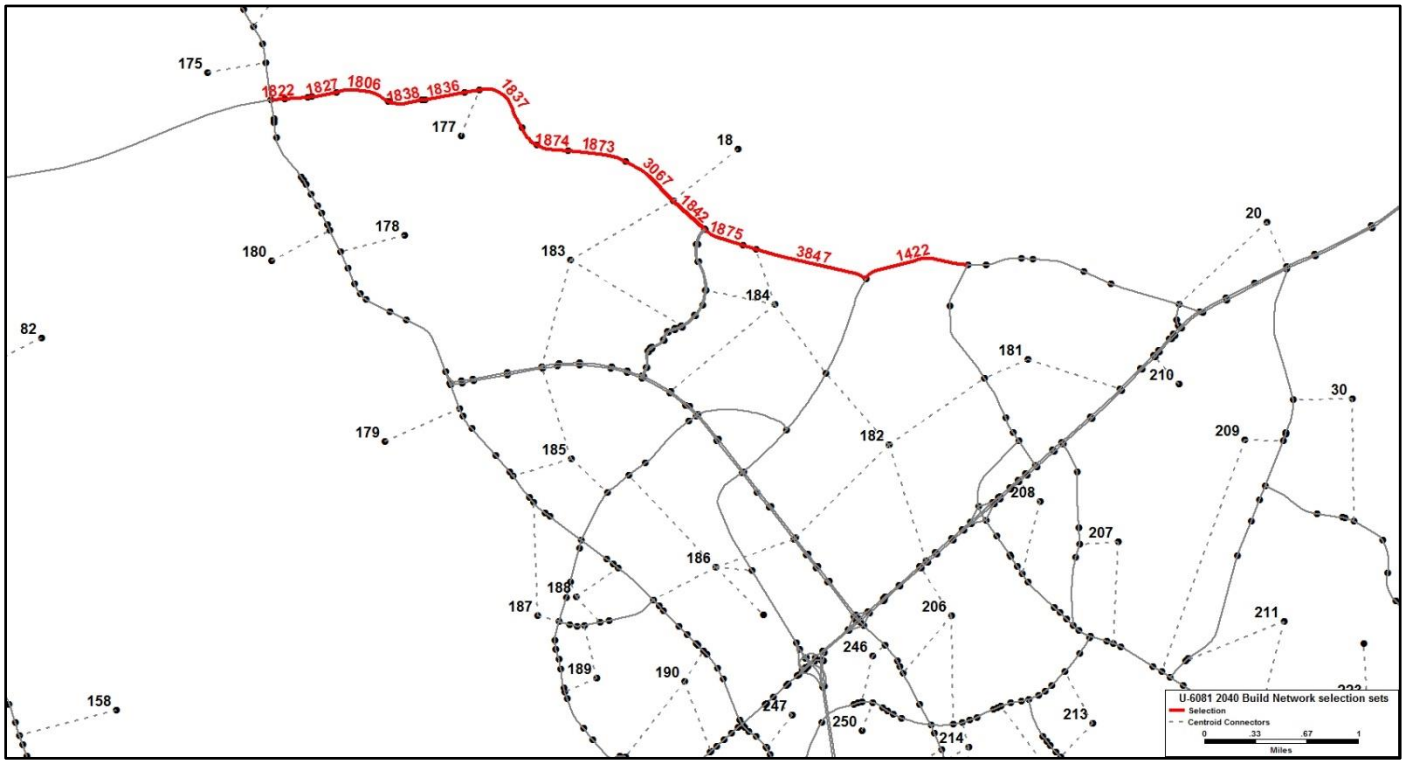


Figure D-15: Jacksonville TDM 2040 Network, New Roadway Removed

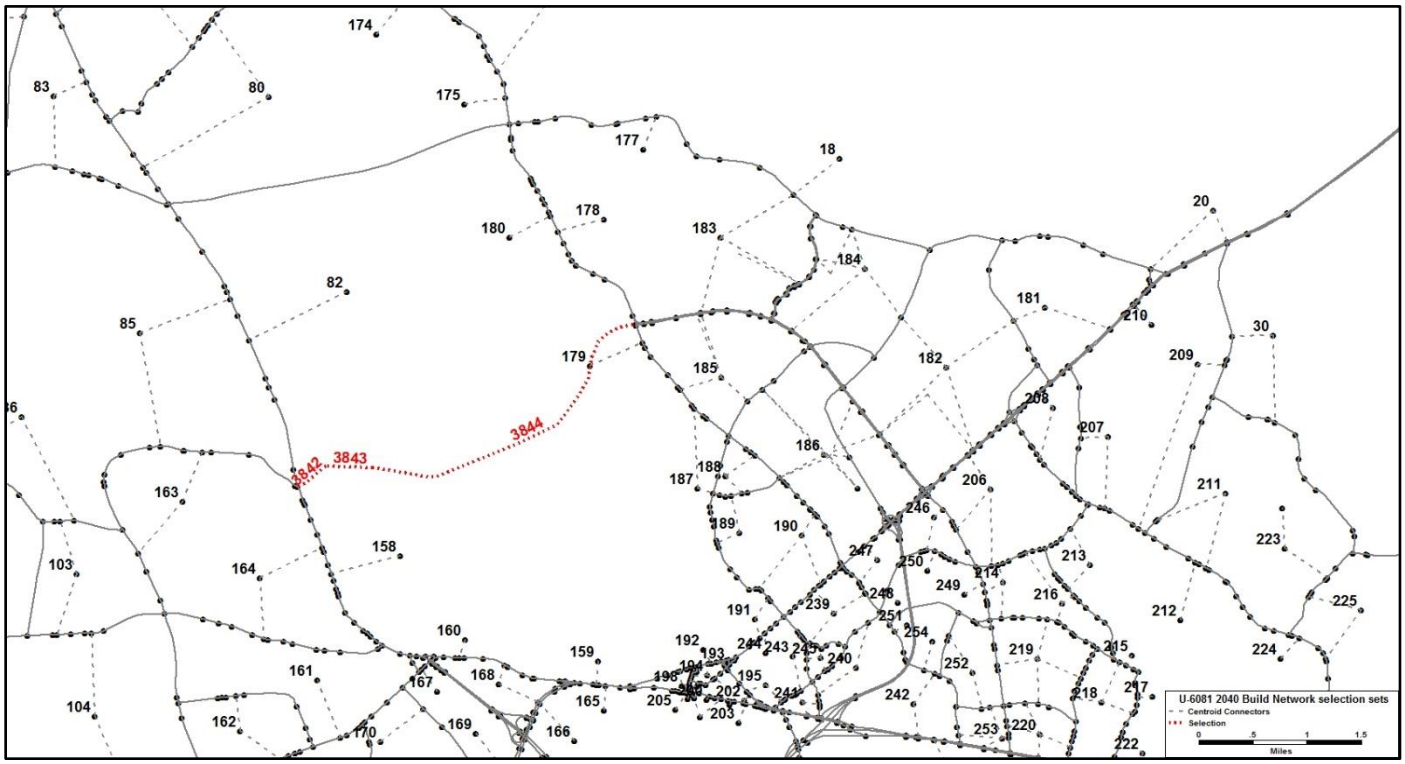
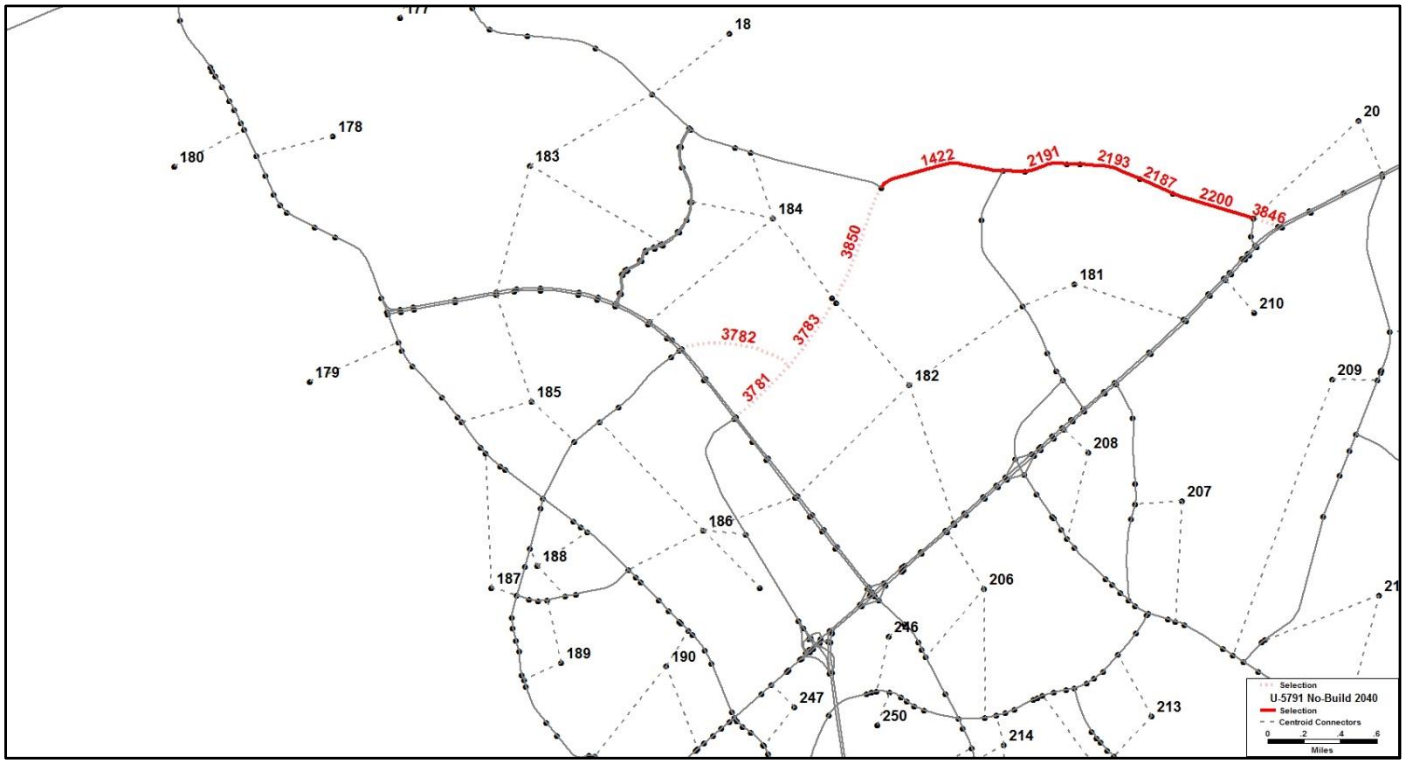


Figure D-16: Jacksonville TDM 2040 Network, U-5791 No-Build Revisions



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