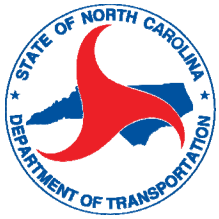
Concurrence Point 1
Purpose and Need
and Study Area Defined

STIP Project No. U-3125
WBS No. 38991.1.1

US 117 Corridor Improvements

From I-40 to North of NC 581 (West Ash Street) [I-795]
Upgrade to Interstate Standards, Part on New Location
Sampson, Duplin, and Wayne Counties, North Carolina – Divisions 3 and 4



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December 5, 2018

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1. Introduction and Project Overview

1.1 Meeting Purpose

The purpose of today's meeting is to discuss the Purpose and Need and Study Area for STIP Project No. U-3125 (Concurrence Point 1). Concurrence will be requested.

1.2 Proposed Action

The NCDOT proposes to upgrade approximately 24 miles of the US 117 corridor[1] to interstate standards, part on new location, from I-40 in Sampson County to north of NC 581 (West Ash Street) [I-795] in Wayne County. The four-lane median divided facility would have a variable width median within an approximate 300-foot right of way. A 70 to 75 mph design speed is anticipated with a posted speed limit of 65 to 70 mph. As a freeway, the improved roadway would have full access control with interchanges or grade separations at major road crossings and the railroad crossings. New location alignments may be considered for sections of the roadway.

The 2018-2027 State Transportation Improvement Program (STIP) currently includes an 11.6-mile portion of the project from north of Country Club Road (SR 1135) to north of West Ash Street (NC 581) as project number U-3125, which are listed below. The other 12.4 miles of the project (from I-40 to north of Country Club Road (SR 1135)) will be added in an upcoming STIP amendment.

- Section A – north of Country Club Road (SR 1135) to south of South Landfill Road (SR 1129)
- Section B – south of South Landfill Road (SR 1129) to south of Genoa Road (SR 1927)
- Section C – south of Genoa Road (SR 1927) to south of NC 581 (Arrington Bridge Road)
- Section D – south of NC 581 (Arrington Bridge Road) to north of West Ash Street (NC 581)

Sections A and B are funded and the remainder of the project is unfunded. The current STIP has allocated $27,200,000 for right-of-way acquisition, $2,900,000 for utilities, and $195,900,000 for construction. Right of way acquisition is planned to begin in fiscal year (FY) 2025 and construction is scheduled to start in FY 2027 for Sections A and B. The project is state funded and an environmental document will be completed in compliance with North Carolina's State Environmental Policy Act (SEPA). Public input, fieldwork and upcoming impact assessments will help determine the required level of environmental documentation for this project.

1.3 Project Setting

The project is located in Sampson, Duplin, and Wayne counties in the coastal plain of North Carolina. (See Figures 1 and 2.) The project traverses rural areas, unincorporated communities, and several municipalities. Agriculture, which is a key component of the local and regional economies, is especially prevalent in the southern portion of the project area in unincorporated Sampson and Duplin counties. In contrast, the northern project area is developed with a mix of residential, commercial, industrial, and institutional uses as US 117 skirts the western Goldsboro corporate limits. Seymour Johnson Air Force Base, a major Air Combat Command base and the home of the 4th Fighter Wing, is located in Goldsboro approximately 2 miles east of the US 117 corridor.

[1] This report refers to the project corridor as US 117; however, the southern portion of the corridor is a connector roadway from I-40 to US 117 in Calypso, the US 117 Connector. Several other US or NC routes run concurrently with portions of US 117: US 13, NC 403, and NC 581. These routes comprise the project corridor. (In Calypso, US 117 heads east and runs generally parallel to I-40 to Wilmington at the coast.) In the northernmost portion of the corridor, NC 581 intersects with I-795 and US 117 runs parallel to I-795 immediately north of West Ash Street.

1.4 Project History

Several feasibility studies, dating from 1994, have been completed for the US 117 corridor, or a portion of the corridor. The initial feasibility study evaluated upgrading US 117 to freeway standards from NC 55 in Mount Olive to NC 581 in Goldsboro. In 2004, the *US 117 South Corridor Feasibility Study* proposed a freeway on new location to connect the freeway north of NC 581 (I-795) with US 117 south of Goldsboro. And most recently, a 2015 feasibility study (FS-1304A) evaluated freeway upgrades for US 117 from I-40 (Sampson County) to US 70 in Goldsboro (Wayne County). The feasibility study notes that the US 117 corridor is planned as a future freeway and the project would complete a missing link in the I-795 corridor. US 117 freeway improvements are recommended in comprehensive transportation plans for the area, as well as the *Goldsboro Urban Area 2040 Metropolitan Transportation Plan Update.* (See Section 6.2.) A portion of the corridor was subsequently added to the STIP as Project No. U-3125.

1.5 Study Area Description

The study area is generally centered along US 117 Connector /US 117 but expands at the I-40 interchange, other major intersections, and in the Goldsboro area to encompass potential interchange locations, grade-separations and/or new alignment alternatives (Figure 2).

2. Purpose and Need

2.1 Need for Project

From I-95 in Wilson to I-40 in Sampson County, I-795/US 117 is a major north-south corridor in eastern North Carolina and is identified as a **Strategic Transportation Corridor (Corridor S)** in the North Carolina Transportation Network. The goals for Strategic Transportation Corridors are:

- System Connectivity – Provide essential connections to national transportation networks critical to interstate commerce and national defense;
- Mobility – Facilitate significant high-volume, inter-regional movements of people and goods across the state; and
- Economic Prosperity – Support economic development and efficiency of transport logistics for economic regions and clusters of activity centers.

The 50-mile Strategic Transportation Corridor is also an important **part of the Strategic Highway Network (STRAHNET) system** as it connects Seymour-Johnson Air Force Base to I-95 and I-40, which terminates near the Port of Wilmington and Military Ocean Terminal Sunny Point (MOTSU). Locally, the US 117 corridor serves as a link between employment centers, as well as residential areas and commercial development.

The proposed project would address the following needs of the Strategic Transportation Corridor:

- I-795 provides a freeway connection from Goldsboro to I-95; however, the freeway transitions to an arterial with no control of access just south of its interchange with US 70. There is no freeway connection to I-40 to the south. Mobility provided by US 117 is not consistent with service provided by I-795.
- From its interchange with I-40 to south of Goldsboro, US 117 has limited control of access. US 117 has no control of access through Goldsboro. There are 35 at-grade intersections with US 117 in the project limits, 10 of which are signalized. Where there is no access control, there are approximately 100 driveways connecting to US 117.

- Similar to I-795, which carries high truck volumes from Goldsboro to I-95, US 117 carries high truck volumes between I-40 and Goldsboro. Truck volumes on US 117 from I-40 to I-795 are estimated to range from 9 to 20 percent.
- Two at-grade railroad crossings near W. Elm Street expose vehicles to potential conflicts with trains just south of the US 117/US 13 split with NC 581.
- US 117 serves both local and regional traffic, including commuters. US 117, especially in Wayne County, provides access to many businesses along the roadway, as well as adjacent residential communities and other uses.
- Along the US 117 Connector (I-40 to US 117), the crash rate exceeded the statewide and critical crash rates for the five-year period analyzed (May 1, 2013 to April 30, 2018). Angle crashes were the most common crash type for this segment of the corridor.
- The US 117 intersection with US 117 Alt (unsignalized) operates at LOS F in the base year (2017). At US 117 intersections with US 13/Genoa Road and Arrington Bridge Road, one or more movements are operating at a failing LOS (LOS F) in the base year.
- The US 117 intersection with W. Trade Road (unsignalized) is expected to degrade to LOS F in the design year (2045). Two other unsignalized US 117 intersections are expected to degrade to LOS E in the design year: at I-40 Eastbound Ramp terminal and Old Smith Chapel Road.

Note: Two at-grade intersections with US 117, Country Club Road and O'Berry Road, are being converted to interchanges, currently under construction.

2.2 Project Purpose

The primary purpose of the proposed project is to enhance north-south mobility in the region by completing the I-795 freeway connection between I-40 and I-95. The freeway connection would provide a high-speed facility with full control of access within the US 117 corridor.

Mobility refers to the ability to efficiently move people and goods safely along single or linked transportation facilities.

The project is supported in transportation plans for the area (Duplin County Comprehensive Transportation Plan [CTP], Mount Olive CTP, Goldsboro MPO/Wayne County CTP, and the Goldsboro Urban Area 2040 Metropolitan Transportation Plan Update). However, the current Sampson County CTP Highway Map does not reflect this project. *Envision 35*, the comprehensive plan for Goldsboro's urbanized area, also notes the importance of completing the I-795 corridor south of Goldsboro to I-40.

The measures of effectiveness when comparing alternatives include:

- achieving interstate design standards;
- achieving an average travel speed of 60 mph during peak hour for though traffic along the freeway in the design year (2045); and
- achieving level of service D or better during peak hour at signalized interchange ramp terminals in the design year (2045).

Other desirable outcomes of the project are a reduced potential for crashes due to the elimination of driveways, intersections and at-grade railroad crossings by reducing/eliminating exposure to conflicting movements; and fulfilling the Strategic Transportation Corridor vision.

3. Existing Transportation System

3.1 Regional Roadway Network

Eastern North Carolina is accessed by several interstates: I-40, I-95, and I-795. Freeway facilities and their role in the regional network are described below:

- **I-40** is a major east-west interstate stretching from North Carolina to California. It connects the cities of Asheville, Winston-Salem, Greensboro, Durham, and Raleigh before ending in Wilmington, providing access to the Port of Wilmington. Regionally, I-40 traverses Duplin County and northern Sampson County. It is the longest interstate highway in North Carolina.
- **I-95** is the main north-south interstate on the east coast, stretching from Florida to Maine. In North Carolina, I-95 generally runs along the boundary between the Piedmont and Coastal Plain regions. I-95 interchanges with I-40 approximately 27 miles west of the US 117 Connector interchange with I-40.
- **I-795** is an approximately 24-mile auxiliary interstate highway spur in North Carolina. The freeway route currently connects Goldsboro to I-95, overlapping with an approximately 5-mile segment of US 264 south of Wilson. The segment from Goldsboro to US 264 was originally a freeway portion of US 117 and was renumbered to I-795 in 2007.

US routes serving the study area are:

- **US 70** is a major east-west highway of the Southern and Southwestern United States. In North Carolina, the route runs from the Atlantic Ocean to the Tennessee border. US 70 is a Strategic Transportation Corridor which connects Raleigh to the port at Morehead City and the North Carolina coast.
- **US 13** is a major north-south highway that runs from North Carolina to Pennsylvania, traversing five states. In North Carolina, US 13 runs southwest to northeast and connects Fayetteville, Goldsboro, and Greenville. It intersects US 117 and US 70 in the Goldsboro area.

NC routes intersecting and or running concurrently with US 117 Connector/US 117 are NC 403, NC 50, NC 55, and NC 581. The relationship of the US 117 corridor to the existing roadway network is shown on Figures 1 and 2.

3.2 Existing US 117

The US 117 corridor is a major north-south corridor in eastern North Carolina. From I-95 in Wilson to I-40, I-795/US 117 is a Strategic Transportation Corridor (Corridor S), in the North Carolina Transportation Network. The Strategic Transportation Corridors form a network of 25 multimodal transportation corridors which move large volumes of people and freight, while connecting cities and industrial centers that are important to national defense, economic growth, and job creation.

In addition, the I-795/US 117 corridor is an unrestricted truck route in the North Carolina Truck Network and experiences high truck volumes. The 50-mile Strategic Transportation Corridor is also an important part of the Strategic Highway Network (STRAHNET)[2] system as it connects Seymour-Johnson Air Force Base to I-95.

Most of US 117 is functionally classified as a principal arterial with the sections between Calypso and Mount Olive and north of the railroad in Goldsboro classified as freeway. Throughout the project limits,

[2] The Strategic Highway Network (STRAHNET) is a network of highways which are important to the United States' strategic defense policy and which provide defense access, continuity and emergency capabilities for defense purposes.

existing US 117 is a four-lane divided facility. Right of way width varies, but is generally between 200 to 300 feet.

From its interchange with I-40 to US 117/West Trade Road in Calypso, the roadway has limited control of access. The posted speed limit is 55 miles per hour (mph). Traffic volumes (2017) range from 8,900 to 11,400 vehicles per day (vpd). Just northeast of I-40, NC 403 (Faison Highway) intersects US 117 Connector from the east. A median opening in this location provides full directional access. NC 403 provides direct access to Faison, where it is signed as Main Street. Continuing along US 117, NC 50 crosses the roadway approximately 1.8 miles to the northeast.

Approximately 3 miles to the northeast, US 117 Connector intersects US 117/West Trade Street, which travels through Calypso. North of Calypso, US 117 is a limited access facility through the US 117Alt/ Lafayette Street intersection in Wayne County, approximately 12 miles to the north. This section of US 117 interchanges with NC 55 in Mount Olive. Interchanges with US 117 are under construction at Country Club Road and at O'Berry Road, both state-maintained roadways. Traffic volumes (2017) along this section of US 117 range from 11,600 to 15,700 vpd.

North of the intersection with US 117Alt/Lafayette Street, US 117 is posted at 50 mph with no control of access and variable median. Just north of US 117Alt, US 117 intersects US 13/Genoa Road and the traffic volume increases to 24,300 vpd. US 13 provides a regional connection from I-95 near Fayetteville to Goldsboro and is signed along US 117 north of the intersection of these routes. Approximately 1.25 miles to the north, US 117/US 13 has dual bridges crossing the Neuse River, then northbound and southbound lanes diverge with commercial development in the widened median for approximately 0.3 miles. In this area, US 117/US 13 intersects with Arrington Bridge Road, which is signed as NC 581. US 117/US 13/NC 581 then traverses the western corporate limits of Goldsboro where there are two at-grade railroad crossings. US 117/US 13 split from NC 581 north of the railroad. At the northern end of the project, NC 581 ties to I-795, and I-795 and US 117 interchange with US 70. (NC 581 turns west to run concurrently with West Ash Street.)

A majority of the cross streets and driveways occur in the Goldsboro area in the northern portion of the study area. From the US 117 intersection with US 117Alt to the northern project terminus, there are approximately 100 driveways, which provide access to the numerous commercial and industrial businesses along the roadway.

3.3 Modal Relationships

Pedestrian and Bicycle Facilities – According to Goldsboro's comprehensive plan (*Envision 35*), the area is deficient in multi-modal transportation, bicycle, and pedestrian facilities.

Public Transportation – Goldsboro-Wayne Transportation Authority (GWTA) provides fixed route bus service and demand-response service (Dial-A-Ride), and ADA transportation service throughout the Goldsboro and Wayne County area. A fixed route from Goldsboro to Mount Olive was recently added in July 2018. The GWTA Bus Transfer Center, which began service in September 2015, acts as a hub for transit services throughout the county. Greyhound provides intercity bus service, with service to the GWTA Bus Transfer Center.

Motor Freight Service – The movement of freight plays an important role in the economic vitality of the region. US 117 Connector/US 117 through the project limits is included in the NC Priority Highway Freight Network. These facilities have been identified as most important for the movement of freight throughout the state. According to the NCDOT's Truck Network Map, there are no truck restrictions

along US 117 through the study area. The existing truck percentage in the project study area ranges from 20 percent along US 117 Connector to 9 percent along US 117 north of US 117 Business (S. George Street) in Goldsboro.

Rail Service – While Amtrak does not provide rail passenger service to Goldsboro, the Amtrak bus service stops at the GWTA Bus Transfer Center in downtown. Regional rail service is available at Amtrak stops in Rocky Mount, Selma, Cary, and Raleigh. An objective stated in the Goldsboro Urban Area 2040 MTP Update is to "leverage the existing rail infrastructure to create long-term passenger and commuter rail service to Wilmington, Raleigh, and points beyond." The restoration of Goldsboro Union Station is planned.

There are two at-grade rail crossings on US 117 in Goldsboro[3]. Both tracks are owned by the North Carolina Railroad Company (NCRR) and are operated by Norfolk Southern (NS). The northern-most track is the NCRR/NS mainline from Raleigh to Goldsboro, that continues on to New Bern and Morehead City. Eight to ten freight trains per day travel over this line at speeds limited to 10 mph due to track curvature. The other NCRR/NS track ("old main line") serves mostly as an interchange track for freight rail traffic with CSX, with several freight trains per day operating over the line. A CSX rail line is located to the east of US 117. Several freight trains per day operate over this section of CSX track.

Air Service – There are two general aviation airports serving Goldsboro. The Wayne Executive Jetport airport, owned by Wayne County government, has one runway and air activity is coordinated with Seymour Johnson Air Force Base. The Mount Olive Municipal Airport hosts private planes, with no commercial flights operating out of the airport.

4. Performance of the Existing Roadway System

4.1 Existing and Future Traffic Volumes

Traffic forecasts prepared for the proposed project are described in a separate technical memorandum (Project Level Traffic Forecast for NCDOT STIP Project U-3125, RK&K, October 2017). Traffic volumes are shown in the table below.

Table 1. Existing and Projected No-Build Traffic Volumes

US 117 Section	Current Year (2017)	Future Year (2045)
I-40 to SR 1006 (Trade St) *[US 117 Connector]*	8,900 – 11,400 vpd	12,800 – 15,900 vpd
SR 1006 (Trade St) to SR 1135 (Country Club Rd)	11,600 – 14,600 vpd	16,400 – 19,200 vpd
SR 1135 (Country Club Rd) to SR 1927 (Genoa Rd)	15,100 – 18,700 vpd	18,300 – 22,800 vpd
SR 1927 (Genoa Rd) to NC 581 (Arrington Bridge Rd)	24,300 – 32,400 vpd	29,100 – 38,300 vpd
NC 581 (Arrington Bridge Rd) to I-795	13,900 – 30,500 vpd	17,000 – 36,000 vpd

Source: Project Level Traffic Forecast, US 117 from I-40 to I-795, Upgrade to Freeway, STIP Project No. U-3125, October 2017 (RK&K).

4.2 Traffic Operational Analysis

A traffic operational analysis for the proposed project is described in a technical memorandum dated July 2018 (draft). The measures of effectiveness (MOEs) used to evaluate the operational performance of the intersections within the study area included average intersection delay per vehicle, level of service (LOS), 95th percentile queue length, and maximum queue length, which were collected from

[3] Grade-separated railroad crossings are required to meet interstate design standards. In addition, the NCDOT Rail Division exposure index of 30,000 for urban areas is exceeded at both crossings. The 2045 Design Year AADT is 32,300 vpd along US 117 (North of W. Elm Street), producing an exposure index of 258,400 to 323,000. The 2045 Design Year AADT is 30,000 vpd along US 117 (South of W. Elm St), producing an exposure index of approximately 90,000.

Synchro/SimTraffic. Density and LOS recorded from the *Highway Capacity Software* (HCS) were used to evaluate the performance of the arterial segments along US 117.

The scenarios analyzed as part of the study included Base Year (2017) No-Build and Future Year (2045) No-Build conditions.

4.2.1 Base Year (2017) No Build Scenario

The Base Year No-Build condition analysis results indicated that the unsignalized intersections along US 117 at Country Club Road and US 117 Alt are currently operating at LOS F during both peak hours, with all the other unsignalized intersections currently operating at LOS D or better. The signalized intersections within the study area (as identified in the July 2018 Draft Technical Memorandum) are currently operating at an overall intersection LOS C or better during both AM and PM peak hours. At US 117 intersections with US 13/Genoa Road and Arrington Bridge Road, one or more movements are operating at LOS F. Segment analysis results indicate that all the segments operate at LOS B or better in both directions during both peak hours.

4.2.2 Future Year (2045) No Build Scenario

The Future Year No-Build scenario was analyzed to identify potential deficiencies within the transportation network in the design year (2045). The current planned projects within the Goldsboro MPO's MTP, and the 2018-2027 NCDOT STIP were utilized to identify the background improvement projects in the study area. Projects expected to be constructed by the design year (2045) were incorporated into the Future Year No-Build analyses.

The Future Year No-Build condition analysis results indicated that apart from the two unsignalized intersections operating at LOS F in the Base Year, the US 117 intersections with I-40 Eastbound Ramp, W. Trade Road, and Old Smith Chapel Road are expected to degrade to LOS E or F. Delay at the US 117 signalized intersections with US 13 and Old Grantham Road is expected to degrade from LOS C to LOS D in at least one peak hour. Additionally, at the intersection of US 117 at US 13/ Genoa Road, one or more movements are expected to operate at a failing LOS (LOS F). The operations at the other signalized intersections are expected to be LOS C or better during both peak hours. Segment analyses results indicate that all the segments along US 117 and I-795 are expected to operate at LOS C or better in both directions during both peak hours.

4.3 Crash Data

The NCDOT Traffic Safety Unit provided crash data for a five-year period (from May 1, 2013 to April 30, 2018). Crash analysis was performed for five segments and is shown in Table 2.

The crash analysis results indicate that the US 117 Connector (Segments 1 and 2) has total and non-fatal injury crash rates exceeding the corresponding statewide and critical crash rates for similar facilities. With one fatal crash reported for Segment 2, the fatal crash rate exceeded the statewide crash rate. Angle crashes were the most common crash type for these segments.

For other segments, crash rates do not exceed critical crash rates. However, in Segments 4 and 5, the fatal crash rates are similar to or exceed the statewide crash rates. Five of the six fatalities reported along the corridor during the five-year period occurred in Wayne County. Rear-end crashes were the predominant crash type in Segments 4 and 5, accounting for 36 percent of all crashes. Rear end crashes are typically associated with congested conditions.

Table 2. Crash Data

Category	Crashes	Crash Rate	Statewide Average Crash Rate	Critical Crash Rate
Segment 1 - I-40 Overpass to Sampson/Duplin County Line; *1.30 miles*				
Total	32	121.80	70.45	99.30
Fatal	0	0.00	0.64	5.11
Non-Fatal Injury	13	49.48	20.22	36.56
Segment 2 - Sampson/Duplin County Line to US 117/SR 1006 (W. Trade Rd) [Calypso]; *4.00 miles*				
Total	52	91.27	70.45	89.63
Fatal	1	1.76	0.64	3.26
Non-Fatal Injury	26	45.64	20.22	30.90
Segment 3 - US 117/SR 1006 (W. Trade Rd) [Calypso] to the Duplin/Wayne County Line; *1.64 miles*				
Total	12	36.43	70.45	96.03
Fatal	0	0.00	0.64	4.45
Non-Fatal Injury	5	15.18	20.22	34.63
Segment 4 - Duplin/Wayne County Line to US 13/SR 1927 (Genoa Rd); *11.28 miles*				
Total	269	89.43	158.87	170.99
Fatal	2	0.66	0.7	1.66
Non-Fatal Injury	76	25.27	47.08	53.76
Segment 5 - North of US 13/SR 1927 (Genoa Rd) to the US 70 (Grantham St) overpass; *5.48 miles*				
Total	554	221.34	321.99	340.85
Fatal	3	1.20	0.92	2.12
Non-Fatal Injury	174	69.52	90.41	100.50

Note: Crash rates in red exceed the critical crash rate.

5. Social and Economic Conditions

5.1 Population Trends

According to the US Census, the population of Duplin County increased 19.2 percent from 2000 to 2010, a rate similar to the state overall. The populations of Sampson and Wayne Counties increased at slower rates of 5.4 percent and 8.2 percent, respectively, during the same period. In proximity to the US 117 corridor, the unincorporated Mar-Mac area southwest of Goldsboro experienced notable population growth of 24.8 percent. According to the *Goldsboro Urban Area 2040 Metropolitan Transportation Plan,* more people are choosing to live in the suburban extents of the county located outside of the Goldsboro Urban Area.

However, some areas in the project vicinity experienced a decrease in population rather than an increase, especially the northern-most area of the project corridor from the Neuse River to West Ash Street. This decline may be attributed to property buy-out due to flooding, with no new construction nearby to compensate for this loss.

The NC Office of State Budget and Management projects the population of Sampson County will decrease (4.3 percent) and the population of Duplin County will increase slightly (0.8 percent) between 2010 and 2030. During the same time period, Wayne County's population is projected to increase (10.3 percent), but at a slower rate than the state overall (23.3 percent).

5.2 Economics and Commuting

In Sampson and Duplin Counties, the agriculture industry is a leading employer, ranking second to the manufacturing industry in number of private sector employees. Overall, Wayne County has a diverse mix of industry with predominate employment sectors in health care, education, manufacturing, and

retail trade. Several of Wayne County's top manufacturing employers are linked to agriculture and/or forestry. Goldsboro and Seymour Johnson Air Force Base are the primary employment centers in Wayne County. Within Goldsboro, employment centers also include the central business district and Wayne Memorial Hospital.

According to the NC Department of Commerce, a majority of Sampson, Duplin, and Wayne County residents travel outside the county for work. Of these workers, many in Sampson travel to Duplin County and many in Duplin County travel to Sampson and Wayne Counties. In Wayne County, over 22 percent of workers travel to Wake County for jobs, with many also traveling to Duplin County. The *Goldsboro Urban Area 2040 Metropolitan Transportation Plan* notes that nearly 95 and 99 percent of the total population commute by car, truck, or van in the Goldsboro Urban Area and Wayne County, respectively.

5.3 Planned Development Along the Corridor

Sampson County is promoting the development potential of the I-40 interchange (Exit 355) area. The County purchased 296 acres in the northeast quadrant of this interchange for the purpose of recruiting industries and assisting commercial businesses that develop at this interchange (Sampson County 2018). Sampson County also funded public infrastructure at the interchange to support the Enviva plant, as well as future development. However, no specific plans for additional development are known at this time. No planned development was identified along the corridor. A Goldsboro official noted that development in the city is not occurring or projected along the US 117 corridor.

6. Transportation Plans

6.1 NCDOT State Transportation Improvement Program

Other STIP projects in the U-3125 project vicinity are:

- **I-5780**: I-40, from east of Sampson County Line (Mile Marker 340) to west of NC 403 (Mile Marker 355) in Sampson County. Pavement rehabilitation. Construction in 2019.
- **I-5940**: I-40, from SR 1725 (Mile Marker 352) in Sampson County to SR 1501 (Mile Marker 388) in Duplin, Pender, and Sampson Counties. Pavement rehabilitation. Construction in 2019.
- **R-5818**: US 117, from SR 1144 (Lee's Country Club Rd) to SR 1147 (Old Smith Chapel Rd) in Wayne County. Construct new route and interchange. Planning/design in progress. Right of way acquisition in 2024 and construction in 2026.
- **R-5719**: US 117 at SR 1135 (Country Club Rd) in Wayne County. Construct interchange with US 117. Under construction.
- **U-5796**: US 117 at SR 1120 (O'Berry Rd) in Goldsboro in Wayne County. Construct interchange. Under construction.
- **U-5997**: SR 2075 (West Ash Street), from US 117/I-795 to Virginia Street in Goldsboro in Wayne County. Widen to multi-lanes. Right of way acquisition in 2026 and construction in 2027.
- **I-5935**: I-795, from US 70 to Wilson County line in Wayne County. Pavement rehabilitation. Under construction.

6.2 Local and Regional Transportation Plans

***Sampson County Comprehensive Transportation Plan* (2016)** – The CTP Highway Map, which was adopted prior to the I-795/US 117 Feasibility Study (FS-1304A, 2015), indicates the US 117 Connector as an existing expressway. The CTP notes the next revision of the CTP should be revised to reflect the US 117 project. The feasibility study considered a new location alignment of US 117 and new

interchange with I-40 in response to concerns expressed by Sampson County officials. However, the new location alternative is not yet reflected in the county's CTP.

Duplin County Draft Comprehensive Transportation Plan (2017 Draft) – This plan recommends freeway improvements to US 117 Connector/US 117 through Duplin County, including interchanges with NC 50 and with US 117/Trade Street (Calypso).

Mount Olive Comprehensive Transportation Plan (2014) – Similar to the Duplin County CTP, the Mount Olive CTP classified US 117 as a freeway that needs improvement, to include: an interchange with Country Club Road (SR 1135); grade separations at West Main Street (SR 1141) and at Baker Chapel Church Road (SR 1138) / McKee Oil Company Road (SR 1170); and closures at US 117 intersections with Lee's Country Club Road (SR 1144) and with Old Smith Chapel Road. The CTP also proposes a new road crossing and interchanging with US 117 south of Mount Olive.

Goldsboro Metropolitan Planning Organization/Wayne County Comprehensive Transportation Plan (2017) – This plan classifies US 117 as a freeway that needs improvement (existing location) and recommended freeway (new location). The Highway Map notes that the exact alignment of Future I-795 will be determined by future project study.

Goldsboro Urban Area 2040 Metropolitan Transportation Plan Update (2014) – Plans to sign US 117 as I-795 are noted in the Goldsboro Urban Area 2040 Metropolitan Transportation Plan Update (MTP). A portion of the U-3125 project is included as a Tier 2 (Short-Term) project for engineering study. Only the section from US 13 to West Ash Street is included in this fiscally constrained plan. The MTP Recommended Improvement Plan shows a new location alignment west of US 117.

7. Sources

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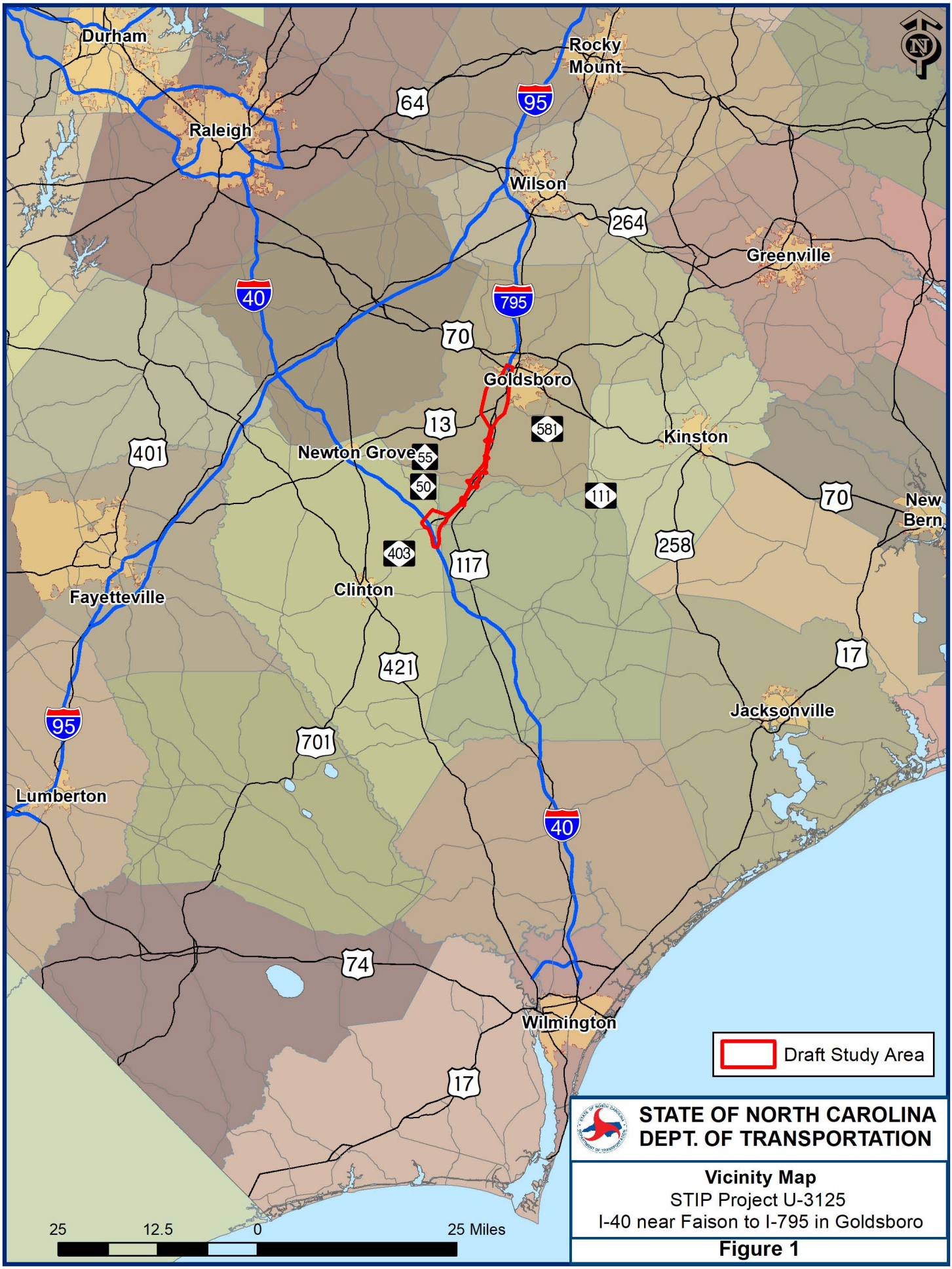
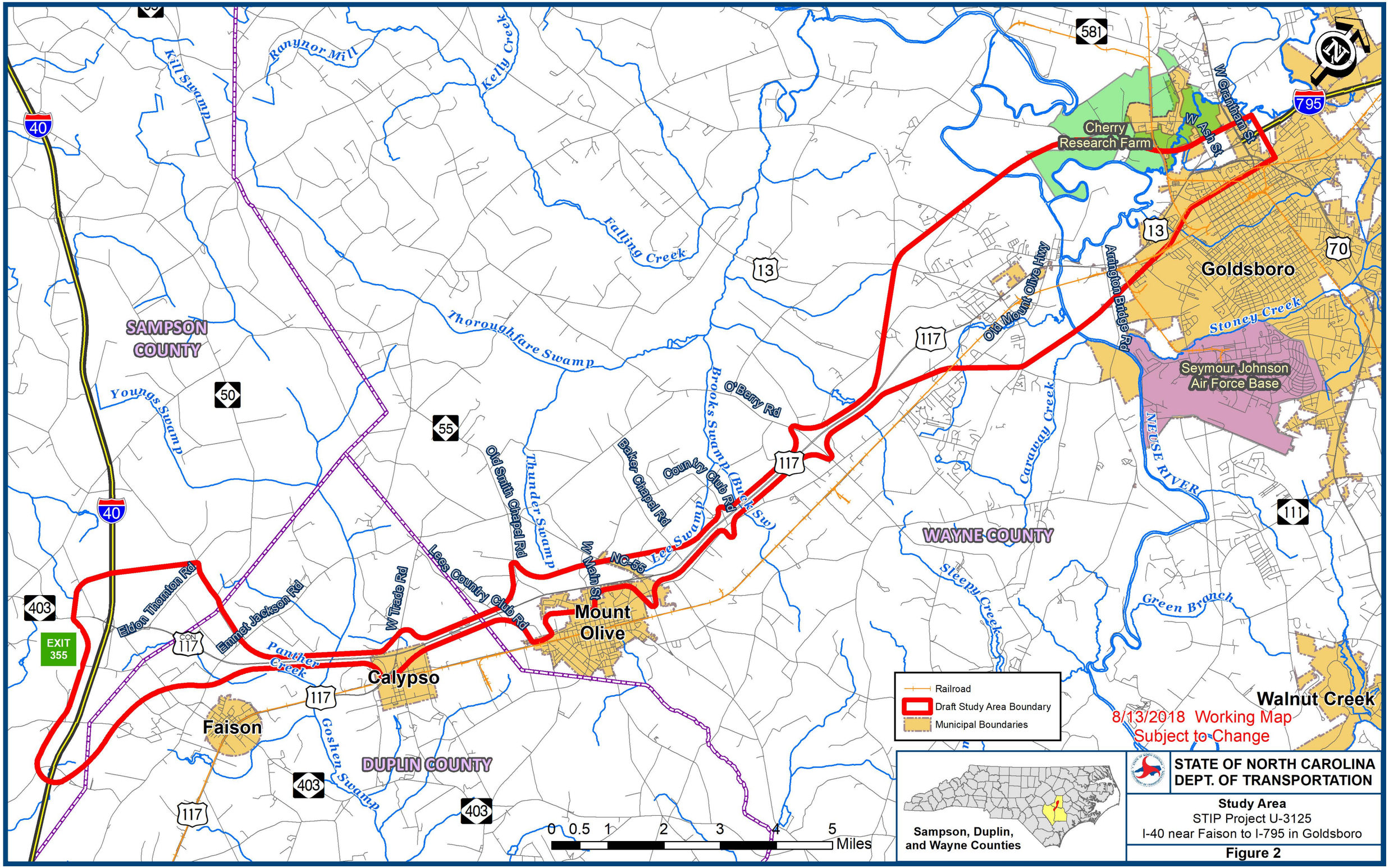
Figures

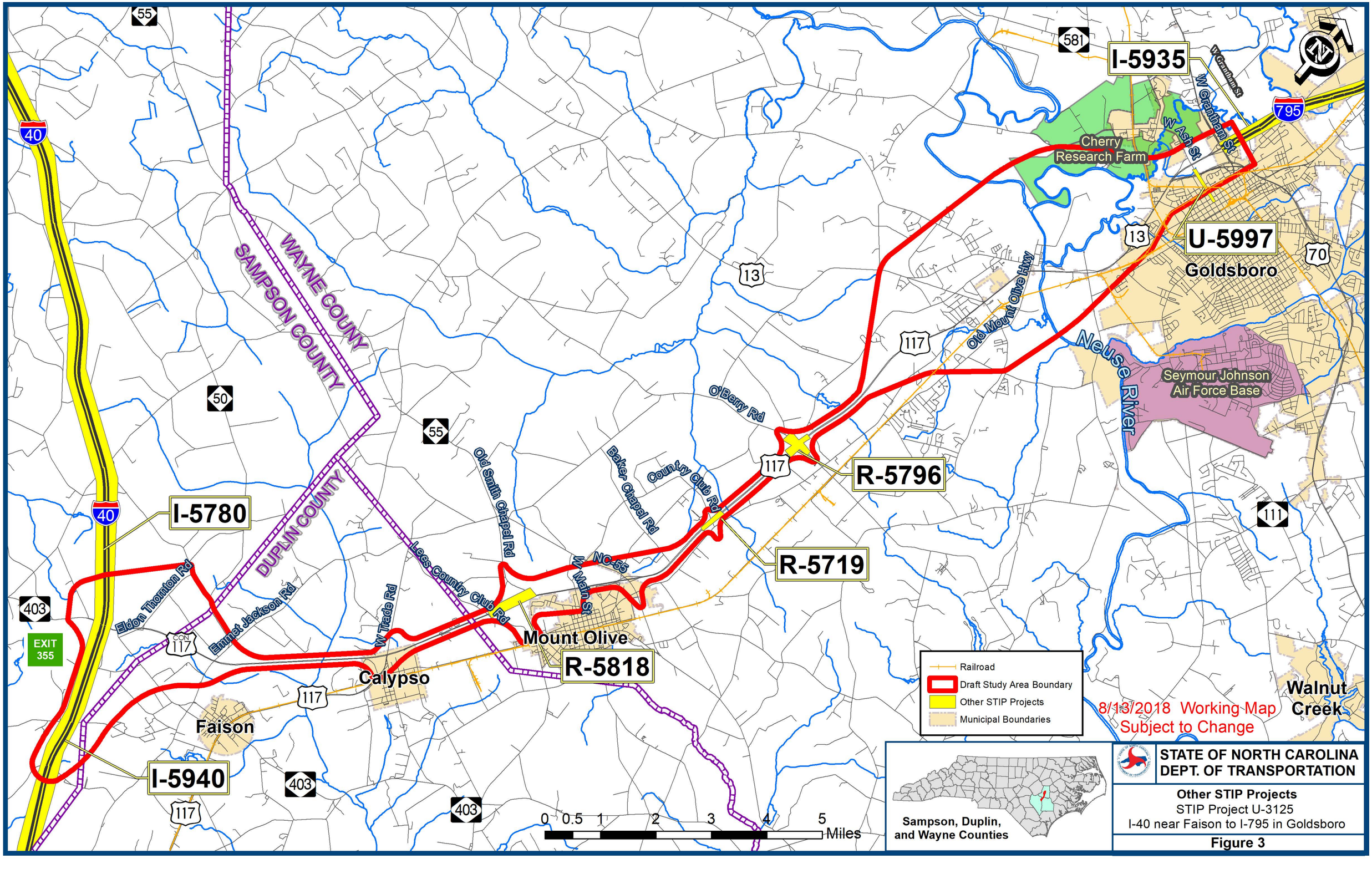


STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION

Vicinity Map
STIP Project U-3125
I-40 near Faison to I-795 in Goldsboro

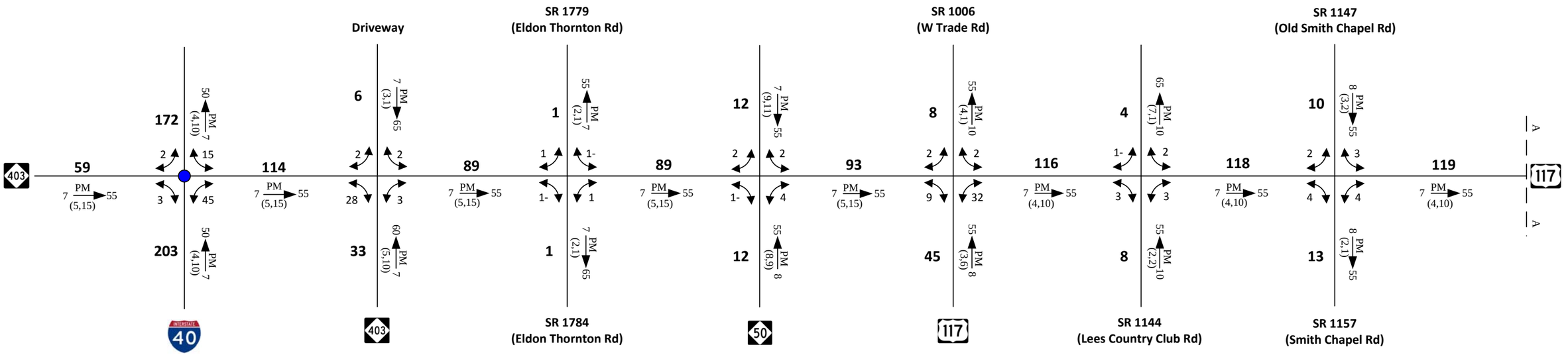
Figure 1

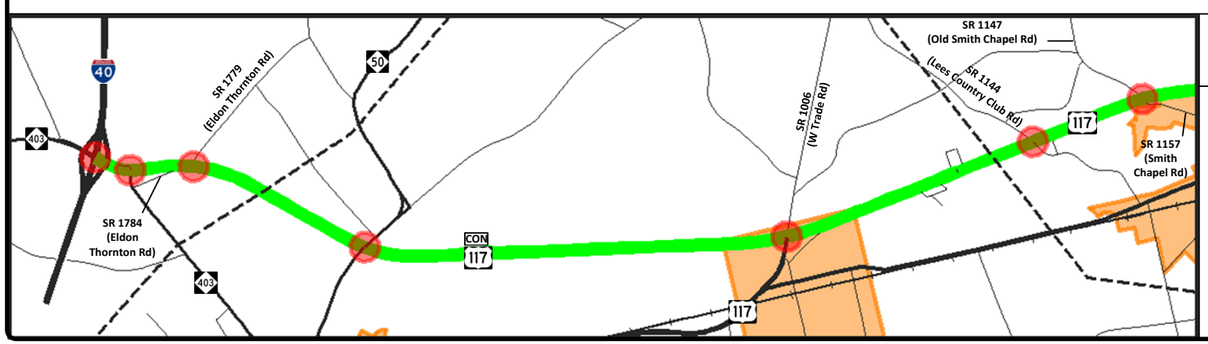

Kill Swamp
Runnor Mill
Kelly Creek
Falling Creek
Thoroughfare Swamp
Youngs Swamp
SAMPSON COUNTY
40
50
55
13
117
581
795
Cherry Research Farm
W Ash St
W Grantham St
Goldsboro
70
Old Mount Olive Hwy
Arrington Bridge Rd
Stoney Creek
Seymour Johnson Air Force Base
Caraway Creek
NEUSE RIVER
111
WAYNE COUNTY
Sleepy Creek
Green Branch
Walnut Creek
O'Berry Rd
Brooks Swamp (Buck Sw)
Old Smith Chapel Rd
Thunder Swamp
Baker Chapel Rd
Country Club Rd
Lee Swamp
NC-55
W Main St
W Trade Rd
Lees Country Club Rd
Mount Olive
Calypso
Faison
403
EXIT 355
Eldon Thornton Rd
Emmet Jackson Rd
CON 117
Panther Creek
Goshen Swamp
DUPLIN COUNTY
0 0.5 1 2 3 4 5 Miles
Railroad
Draft Study Area Boundary
Municipal Boundaries
8/13/2018 Working Map
Subject to Change
Sampson, Duplin, and Wayne Counties
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
Study Area
STIP Project U-3125
I-40 near Faison to I-795 in Goldsboro
Figure 2


I-5935
U-5997
R-5796
R-5719
R-5818
I-5780
I-5940
Goldsboro
Mount Olive
Calypso
Faison
Walnut Creek
Cherry Research Farm
Seymour Johnson Air Force Base
Neuse River
WAYNE COUNTY
SAMPSON COUNTY
DUPLIN COUNTY
W Grantham St
W Ash St
Old Mount Olive Hwy
O'Berry Rd
Old Smith Chapel Rd
Baker Chapel Rd
Country Club Rd
Lees Country Club Rd
W Main St
NC 55
W Trade Rd
Emmet Jackson Rd
Eldon Thornton Rd
EXIT 355
Railroad
Draft Study Area Boundary
Other STIP Projects
Municipal Boundaries
8/13/2018 Working Map
Subject to Change
0 0.5 1 2 3 4 5 Miles
Sampson, Duplin, and Wayne Counties
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
Other STIP Projects
STIP Project U-3125
I-40 near Faison to I-795 in Goldsboro
Figure 3

Appendix A

Traffic Volume Diagrams





2017

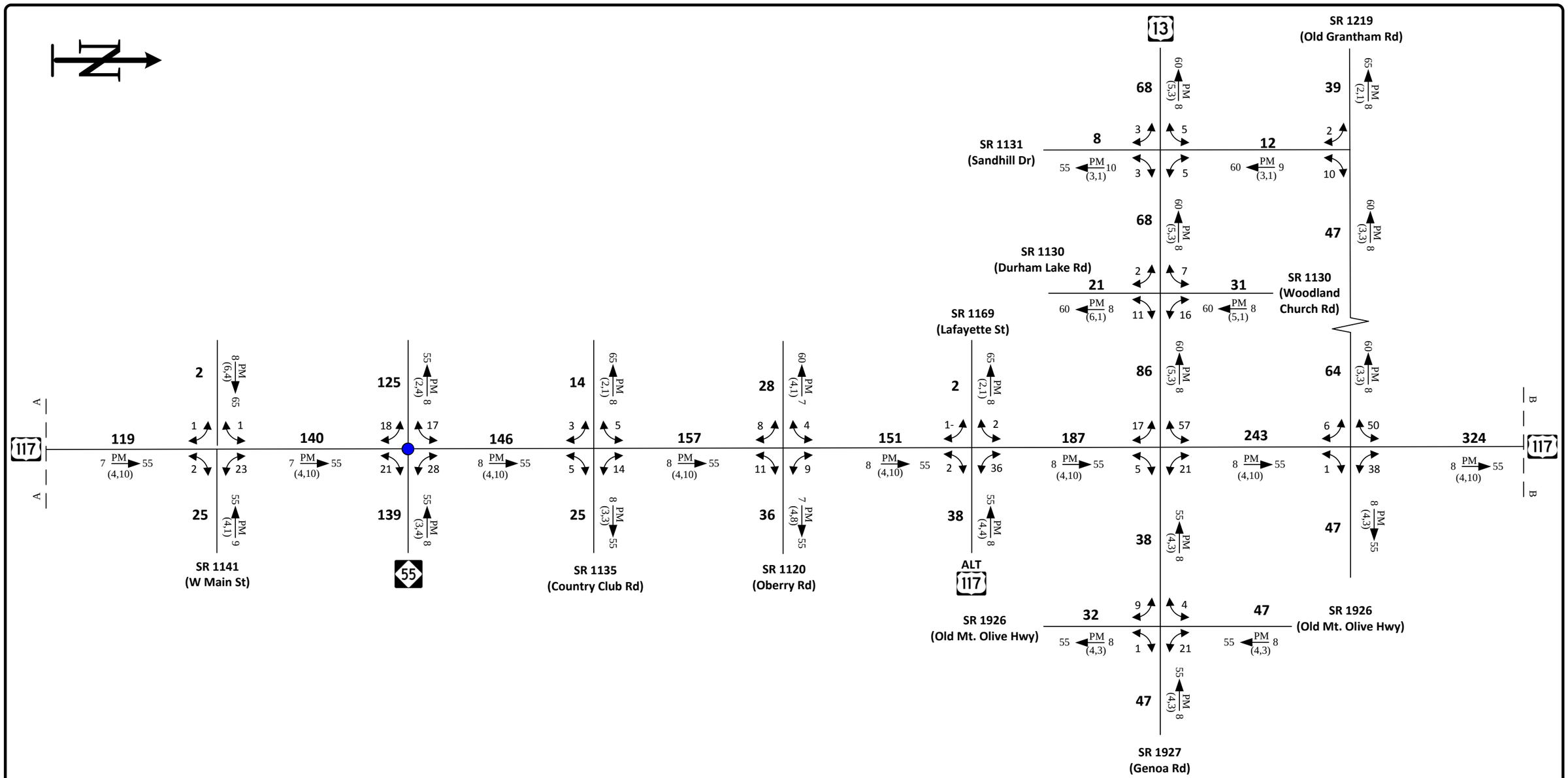
AVERAGE ANNUAL DAILY TRAFFIC

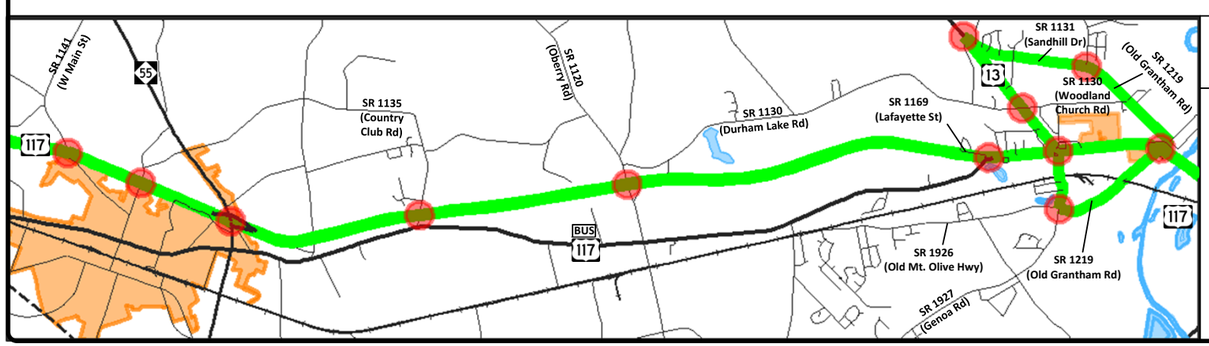
No-Build **Sheet 1 of 3**

LEGEND

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

TIP: U-3125	**WBS:** 38991.1.1
COUNTY: Wayne, Duplin, Sampson	**DIVISION: 3,4**
DATE: October 2017	
PREPARED BY: RK&K	
LOCATION: Wayne, Duplin and Sampson Counties	
PROJECT: US 117 from I-40 to I-795. Upgrade to Freeway, with part on New Location	





2017

AVERAGE ANNUAL DAILY TRAFFIC

No-Build

Sheet 2 of 3

LEGEND

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

TIP: U-3125	**WBS:** 38991.1.1
COUNTY: Wayne, Duplin, Sampson	**DIVISION: 3,4**
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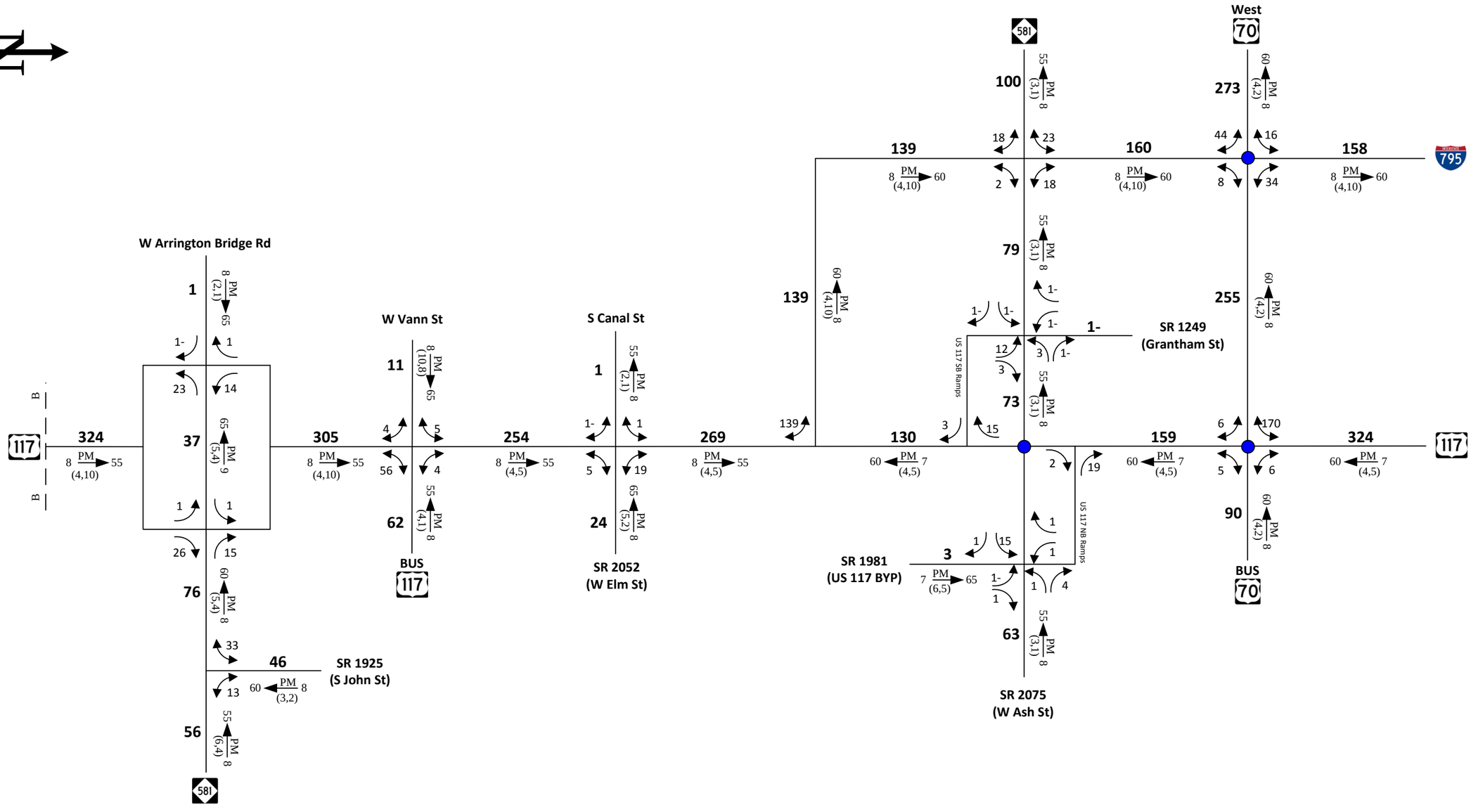
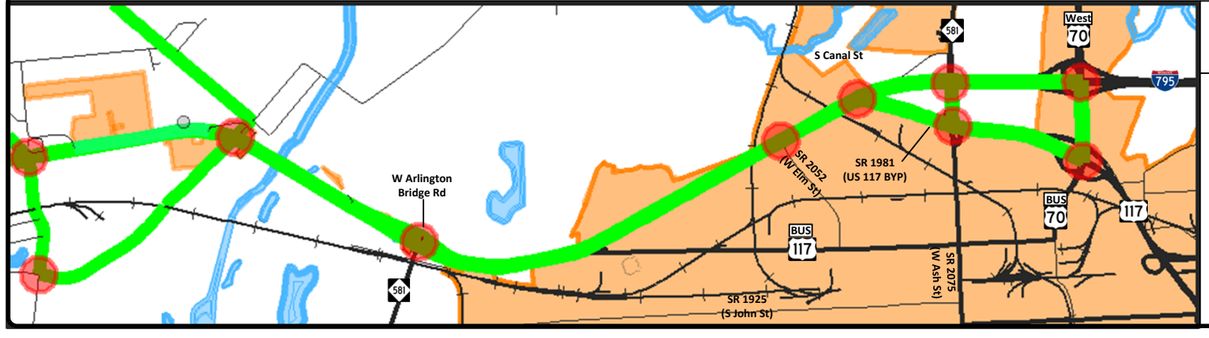




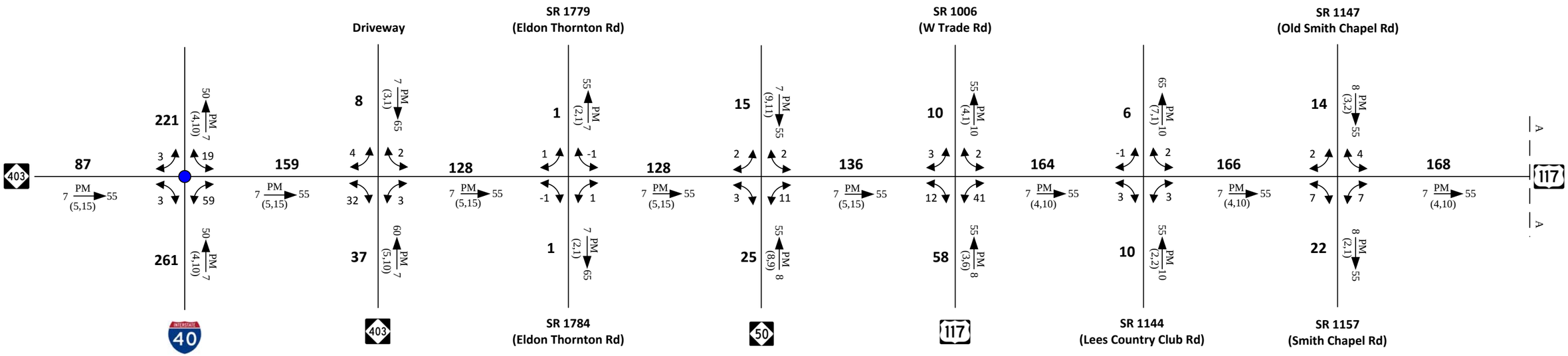
2017 AVERAGE ANNUAL DAILY TRAFFIC

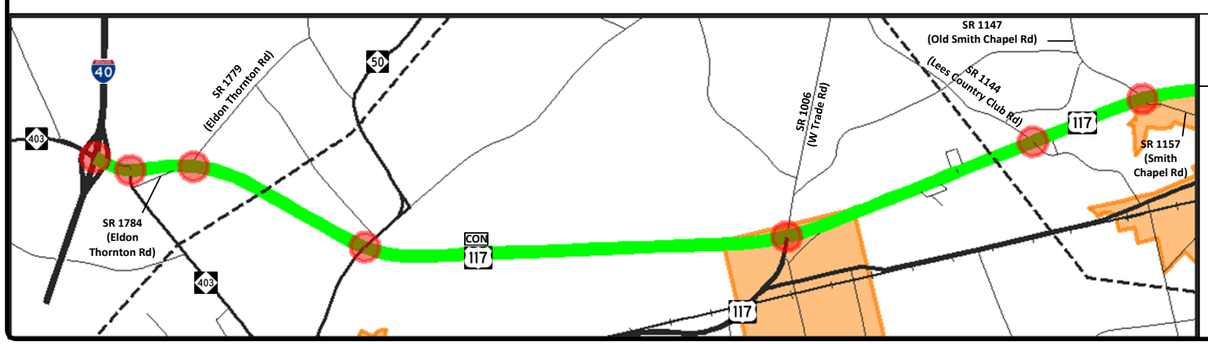
No-Build **Sheet 3 of 3**

LEGEND

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

TIP: U-3125	**WBS:** 38991.1.1
COUNTY: Wayne, Duplin, Sampson	**DIVISION: 3,4**
DATE: October 2017	
PREPARED BY: RK&K	
LOCATION: Wayne, Duplin and Sampson Counties	
PROJECT: US 117 from I-40 to I-795. Upgrade to Freeway, with part on New Location	





2045

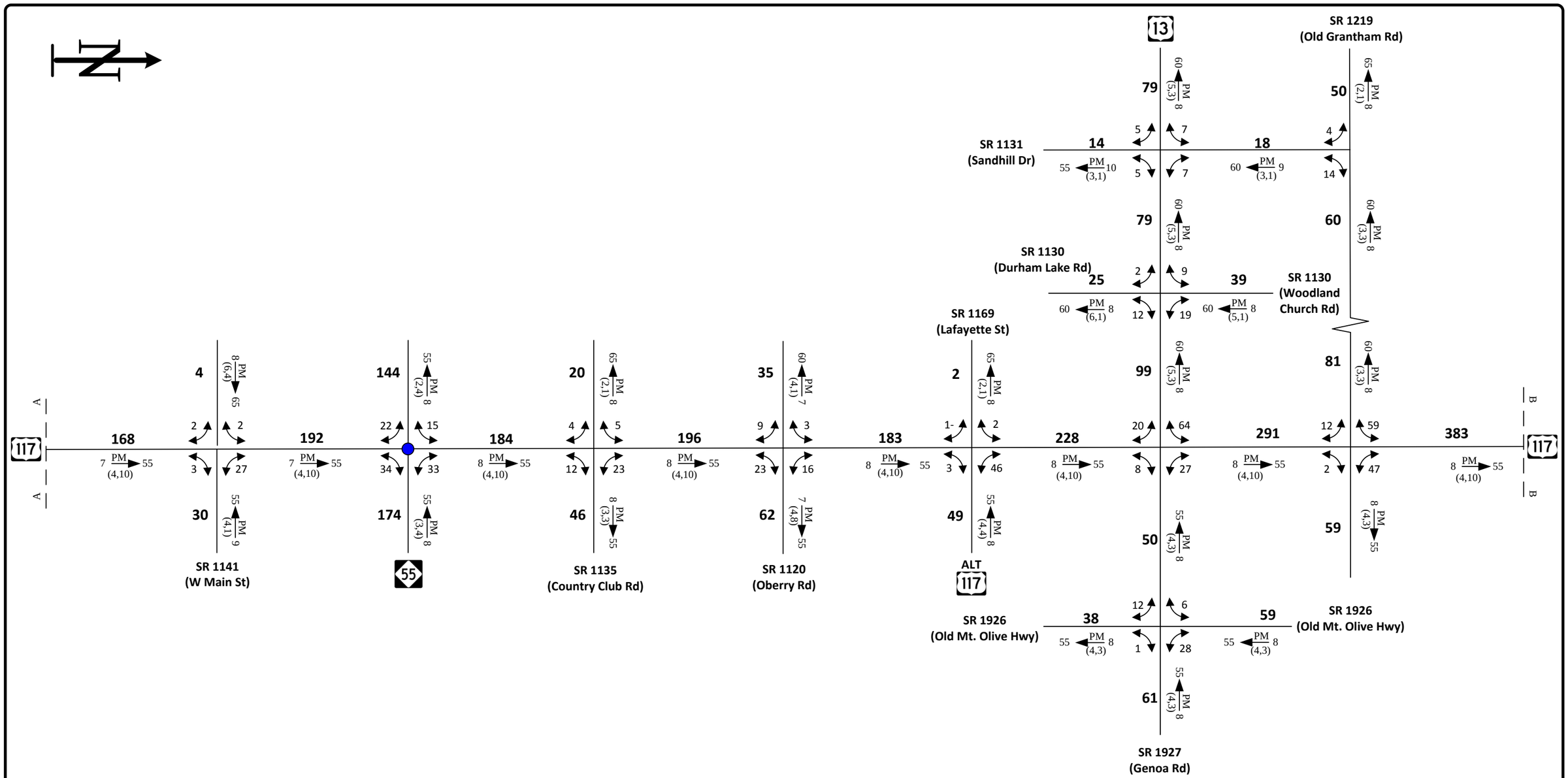
AVERAGE ANNUAL DAILY TRAFFIC

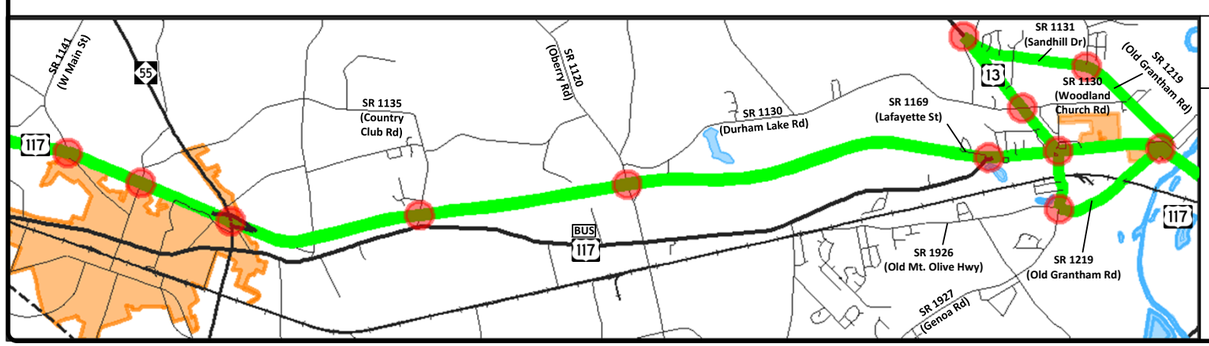
No-Build **Sheet 1 of 3**

LEGEND

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

TIP: U-3125	**WBS:** 38991.1.1
COUNTY: Wayne, Duplin, Sampson	**DIVISION: 3,4**
DATE: October 2017	
PREPARED BY: RK&K	
LOCATION: Wayne, Duplin and Sampson Counties	
PROJECT: US 117 from I-40 to I-795. Upgrade to Freeway, with part on New Location	





2045

AVERAGE ANNUAL DAILY TRAFFIC

No-Build

Sheet 2 of 3

LEGEND

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

TIP: U-3125	**WBS:** 38991.1.1
COUNTY: Wayne, Duplin, Sampson	**DIVISION: 3,4**
DATE: October 2017	
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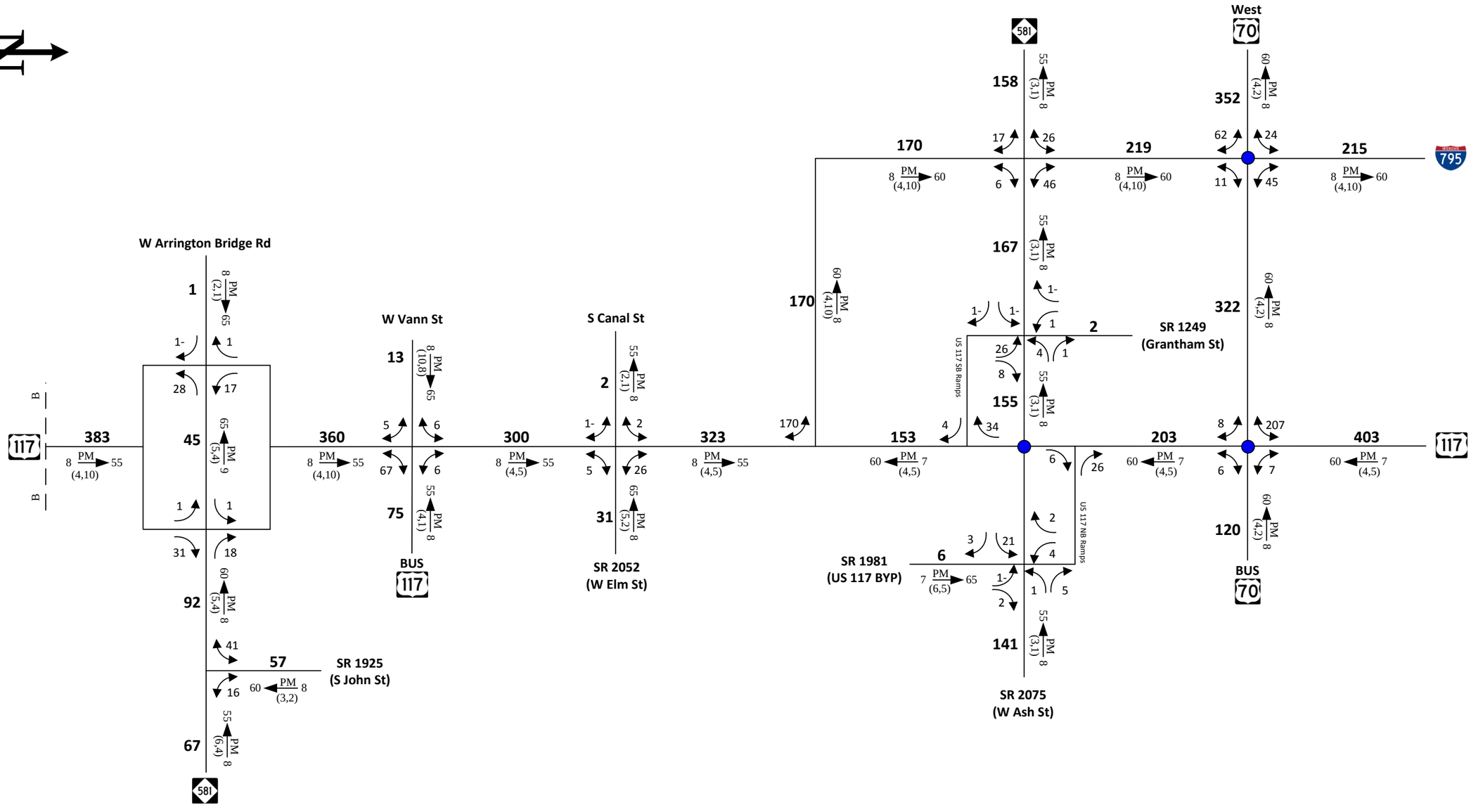
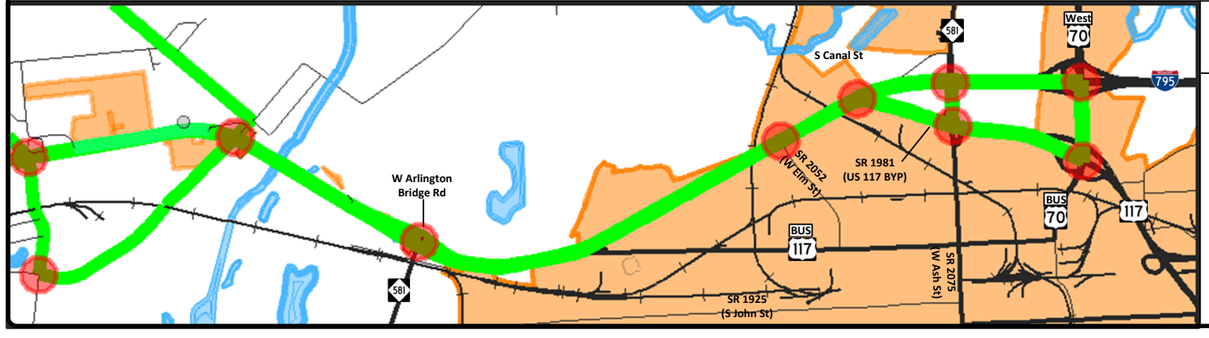




2045

AVERAGE ANNUAL DAILY TRAFFIC

No-Build

Sheet 3 of 3

LEGEND

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

TIP: U-3125	**WBS:** 38991.1.1
COUNTY: Wayne, Duplin, Sampson	**DIVISION:** 3,4
DATE: October 2017	
PREPARED BY: RK&K	
LOCATION: Wayne, Duplin and Sampson Counties	
PROJECT: US 117 from I-40 to I-795. Upgrade to Freeway, with part on New Location	

Appendix B

Traffic Operations Figures and Tables

Table B-1. Base Year No-Build *Synchro/SimTraffic* Intersection Analysis Results

No.	Intersection	Approach	Lane Group	Delay (s/veh)		LOS		Synchro 95th % Queue (ft.)		SimTraffic Max. Queue (ft.)		Available Storage (ft.)
				AM	PM	AM	PM	AM	PM	AM	PM	
1	I-40 Eastbound Ramps at US 117 Connector / NC 403	Faison Hwy, NB	T	–	–	–	–	–	–	–	–	–
			TR	–	–	–	–	–	–	–	–	–
		Faison Hwy, SB	L	10.3	10.3	B	B	–	–	40	85	–
			T	–	–	–	–	–	–	–	–	–
		I-40 Eastbound Ramp	LT	19.0	19.6	C	C	–	–	50	80	–
			R	9.0	9.1	A	A	–	–	–	–	55
2	I-40 Westbound Ramps at US 117 Connector / NC 403	Faison Hwy, NB	L	10.3	10.4	B	B	–	–	5	15	–
			T	–	–	–	–	–	–	–	–	–
		Faison Hwy, SB	T	–	–	–	–	–	–	–	5	–
			LT	–	–	–	–	–	–	–	–	420
		I-40 Westbound Ramp	LT	11.8	12.0	B	B	–	–	20	40	–
			R	–	–	–	–	–	–	–	–	55
3	US 117 Connector at NC 403 (Signalized)	NC 403, NB	L	3.8	4.9	A	A	10	5	5	30	315
			T	4.2	5.5	A	A	145	45	35	70	–
			R	4.1	5.2	A	A	60	30	45	55	–
		US 117, SB	L	3.8	4.9	A	A	10	10	10	40	340
			T	4.2	5.4	A	A	35	40	35	90	–
			R	3.7	4.9	A	A	10	5	5	25	350
		Faison Hwy, WB	LTR	12.9	11.1	B	B	30	40	60	95	–
		Driveway, EB	LTR	10.9	9.3	B	A	10	15	20	40	–
		Overall		**5.2**	**6.4**	**A**	**A**	–	–	–	–	–
4	US 117 Connector at Eldon Thornton Road	US 117, NB	L	8.2	8.1	A	A	–	–	5	5	345
			T	–	–	–	–	–	–	–	–	–
			R	–	–	–	–	–	–	–	–	285
		US 117, SB	L	8.1	8.3	A	A	–	–	–	15	365
			T	–	–	–	–	–	–	–	–	–
			R	–	–	–	–	–	–	–	–	320
		Eldon Thornton Road, WB	LTR	13.3	13.6	B	B	5	5	25	35	–
		Eldon Thornton Road, EB	LTR	13.4	13.4	B	B	5	5	30	35	–
5	US 117 Connector at NC 50	US 117, NB	L	8.3	8.1	A	A	5	–	5	15	380
			T	–	–	–	–	–	–	–	–	–
			R	–	–	–	–	–	–	–	–	330
		US 117, SB	L	8.2	8.3	A	A	5	5	5	15	340
			T	–	–	–	–	–	–	–	5	–
			R	–	–	–	–	–	–	–	5	325
		NC 50 WB	LTR	17.1	15.2	C	C	15	15	35	65	–
		NC 50 EB	LTR	18.1	16.5	C	C	15	15	40	70	–
6	US 117 at W Trade Road	US 117, NB	L	8.2	8.0	A	A	5	5	5	20	365
			T	–	–	–	–	–	–	–	–	–
			R	–	–	–	–	–	–	–	5	310
		US 117, SB	L	8.6	8.6	A	A	15	10	10	50	345
			T	–	–	–	–	–	–	–	–	–
			R	–	–	–	–	–	–	–	10	335
		W Trade Rd, WB	LT	33.4	27.5	D	D	40	35	30	75	–
			R	9.8	10.6	A	B	15	20	35	85	–
		W Trade Rd, EB	LTR	26.2	21.5	D	C	25	20	20	40	–
7	US 117 at Lees Country Club Road	US 117, NB	L	8.6	8.3	A	A	–	–	–	5	285
			T	–	–	–	–	–	–	–	–	–
			R	–	–	–	–	–	–	–	–	260
		US 117, SB	L	8.3	8.7	A	A	5	5	5	15	275
			T	–	–	–	–	–	–	–	–	–
			R	–	–	–	–	–	–	–	–	230
		Lees Country Club Rd, WB	LTR	16.3	18.2	C	C	15	15	35	55	–
		Lees Country Club Rd, EB	LTR	19.5	17.9	C	C	10	10	35	45	–
8	US 117 at Old Smith Chapel Road/Smith Chapel Road	US 117, NB	L	8.6	8.3	A	A	5	5	5	15	255
			T	–	–	–	–	–	–	–	–	–
			R	–	–	–	–	–	–	–	–	265
		US 117, SB	L	8.3	8.7	A	A	5	5	–	10	235
			T	–	–	–	–	–	–	–	–	–
			R	–	–	–	–	–	–	–	–	210
		Smith Chapel Rd, WB	LTR	19.6	19.6	C	C	20	20	35	60	–
		Old Smith Chapel Rd, EB	LTR	19.5	20.5	C	C	15	20	40	70	–
9	US 117 at W. Main Street	US 117, NB	T	–	–	–	–	–	–	–	–	–
			R	–	–	–	–	–	–	–	5	235
		US 117, SB	L	–	–	–	–	–	–	25	70	985
			T	–	–	–	–	–	–	–	–	–
			R	–	–	–	–	–	–	–	–	1,000
		W Main St, WB	R	–	–	–	–	–	–	–	–	–
		W Main St, WB	R	–	–	–	–	–	–	–	–	–
10	US 117 Southbound Ramp Terminals at NC 55 (Signalized)	US 117 SB Ramp	LT	15.2	17.6	B	B	70	60	40	125	–
			R	13.8	17.1	B	B	40	45	30	105	235
		NC 55, WB	L	5.8	5.8	A	A	40	40	35	60	120
			T	5.3	5.8		A	70	90	25	95	–
		NC 55, EB	TR	5.4	4.0	A	A	75	55	50	80	–
		Overall		**7.4**	**7.0**	**A**	**A**	–	–	–	–	–
11	US 117 Northbound Ramp Terminals at NC 55 (Signalized)	US 117 NB Ramp	LT	15.9	18.5	B	B	30	40	30	90	–
			R	16.3	18.8	B	B	40	45	40	90	245
		NC 55, WB	TR	3.8	3.6	A	A	55	70	55	95	–
		NC 55, EB	L	3.7	4.0	A	A	30	35	40	70	120
			T	3.7	3.6	A	A	70	70	50	75	–
		Overall		**4.8**	**5.2**	**A**	**A**	–	–	–	–	–

Table B-1. Base Year No-Build *Synchro/SimTraffic* Intersection Analysis Results (continued)

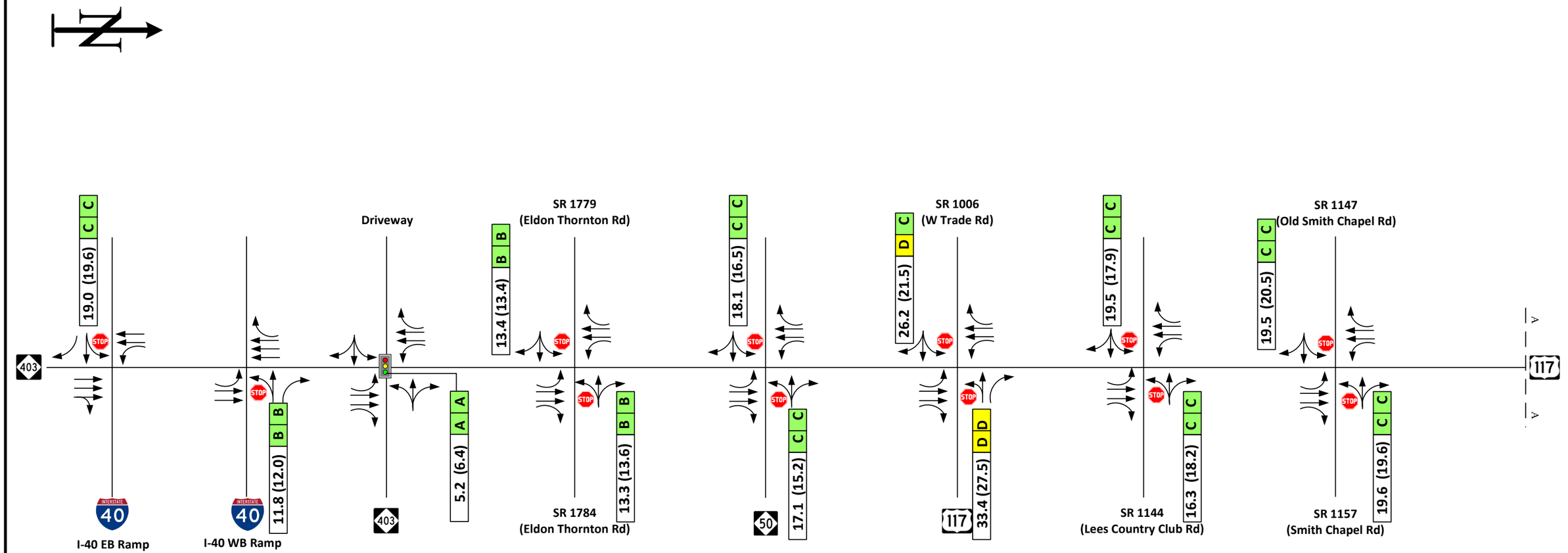
No.	Intersection	Approach	Lane Group	Delay (s/veh)		LOS		Synchro 95th % Queue (ft.)		SimTraffic Max. Queue (ft.)		Available Storage (ft.)
				AM	PM	AM	PM	AM	PM	AM	PM	
12	US 117 at Country Club Road	US 117, NB	L	9.5	8.8	A	A	5	5	15	40	335
			T	–	–	–	–	–	–	–	–	–
			R	–	–	–	–	–	–	–	–	365
		US 117, SB	L	8.9	9.6	A	A	5	10	15	80	590
			T	–	–	–	–	–	–	–	–	–
			R	–	–	–	–	–	–	–	15	400
		Country Club Dr, WB	LT	55.6	59.2	F	F	55	55	35	60	–
			R	–	–	–	–	55	55	–	–	270
		Country Club Road, EB	LTR	54.8	44.9	F	E	75	45	35	55	–
13	US 117 at O'Berry Road (Signalized)	US 117, NB	L	41.0	36.5	D	D	40	55	20	80	315
			T	28.7	30.7	C	C	240	285	80	230	–
			R	9.9	9.6	A	A	25	35	15	110	200
		US 117, SB	L	39.8	38.8	D	D	55	60	10	75	410
			T	29.6	30.2	C	C	295	240	70	220	–
			R	11.4	13.8	B	B	15	20	5	35	430
		Oberry Rd, WB	LTR	68.8	36.4	E	D	100	200	105	150	–
		Oberry Rd, EB	LTR	34.7	34.1	C	C	100	115	105	115	–
		Overall		**32.9**	**30.7**	**C**	**C**	–	–	–	–	–
14	US 117 at Alt US 117	US 117, NB	L	9.5	9.0	A	A	5	–	–	20	395
			T	–	–	–	–	–	–	–	5	–
			R	–	–	–	–	–	–	5	10	315
		US 117, SB	L	10.3	10.3	B	B	25	20	35	110	455
			T	–	–	–	–	–	–	–	5	–
			R	–	–	–	–	–	–	–	–	290
		S U.S. 117 Alt Hwy, WB	LT	84.9	59.8	F	F	30	45	25	45	–
			R	–	–	–	–	–	–	–	–	105
		Lafayette St, EB	LTR	70.9	44.1	F	E	35	25	30	50	–
15	Genoa Road at Old Mt. Olive Highway (Signalized)	Old Mt. Olive Hwy, NB	L	11.1	9.5	B	A	20	20	30	60	175
			TR	11.6	9.7	B	A	45	35	55	70	–
		Old Mt. Olive Hwy, SB	L	11.8	10.1	B	B	65	40	55	80	230
			TR	11.3	10.1	B	B	65	50	45	95	–
		Genoa Rd, WB	LT	4.5	5.8	A	A	25	35	30	80	–
			R	4.6	5.5	A	A	25	25	45	75	375
		Genoa Rd, EB	LTR	5.1	5.9	A	A	105	80	60	100	–
		Overall		**7.9**	**7.7**	**A**	**A**	–	–	–	–	–
16	US 13 at Sandhill Drive	Sandhill Dr, NB	LTR	14.5	14.7	B	B	10	10	40	45	–
		Sandhill Dr, SB	LTR	14.4	14.3	B	B	10	15	20	55	–
		US Hwy 13 S, WB	LTR	8.0	7.8	A	A	5	5	10	60	–
		US Hwy 13 S, EB	LTR	7.8	8.1	A	A	5	5	25	75	–
17	US 13 at Woodland Church Road/Durham Lake Road	Durham Lake Rd, NB	LTR	16.3	15.7	C	C	30	20	35	50	–
		Woodland Church Rd, SB	LTR	24.4	26.1	C	D	50	65	40	105	–
		US Hwy 13 S, WB	L	8.1	7.9	A	A	5	5	15	40	260
			TR	–	–	–	–	–	–	–	15	–
		US Hwy 13 S, EB	L	7.9	8.2	A	A	5	5	10	25	125
			TR	–	–	–	–	–	–	5	10	–
18	US 117 at US 13 / Genoa Road (Signalized)	US 117, NB	L	30.7	27.1	C	C	65	80	35	180	185
			T	33.7	35.1	C	D	330	360	60	270	–
			R	11.7	9.7	B	A	25	20	5	30	330
		US 117, SB	L	35.7	19.1	D	B	100	50	40	135	270
			T	26.7	15.8	C	B	240	35	65	200	–
			R	24.0	16.4	C	B	130	40	35	195	500
		Genoa Rd, WB	LT	64.6	87.5	E	F	150	215	70	145	–
			R	40.7	39.0	D	D	115	150	100	175	270
		US Hwy 13, EB	L	59.2	63.6	E	E	205	175	165	185	170
			LT	53.8	62.7	D	E	210	185	195	235	–
			R	42.7	45.3	D	D	105	80	60	65	190
		Overall		**34.9**	**32.1**	**C**	**C**	–	–	–	–	–
19	Old Grantham Road at Sandhill Drive	Sandhill Dr, NB	LT	7.5	7.8	A	A	5	5	10	30	–
		Old Grantham Rd, SB	TR	–	–	–	–	–	–	–	–	–
		Old Grantham Rd, EB	LR	11.1	10.6	B	B	30	15	60	70	–
20	US 117 at Old Grantham Road / Old Mt. Olive Highway (Signalized)	US 117, NB	L	5.7	9.6	A	A	10	20	15	65	360
			T	10.6	13.0	B	B	180	600	140	345	–
			R	8.3	10.1	A	B	5	5	–	–	255
		US 117, SB	L	55.9	42.9	E	D	155	195	110	280	455
			T	15.9	17.1	B	B	415	490	150	315	–
			R	11.3	12.0	B	B	110	155	–	35	570
		Old Mt.Olive Hwy, WB	LT	55.3	55.3	E	E	75	75	60	90	–
			R	52.5	40.2	D	D	190	140	30	90	125
		Old Mt. Olive Hwy, EB	L	63.1	58.7	E	E	210	155	135	170	375
			LTR	63.4	58.7	E	E	210	155	165	175	–
		Overall		**23.3**	**21.5**	**C**	**C**	–	–	–	–	–
21	Arrington Bridge Road at S. John Street	John St, SB	L	19.3	15.6	**C**	**C**	15.0	15.0	25	45	–
			R	–	–	–	–	15.0	25.0	50	55	–
		Arrington Bridge Rd, WB	TR	–	–	–	–	–	–	5	30	–
		Arrington Bridge Rd, EB	L	8.2	8.0	A	A	15.0	10.0	55	70	–
			T	–	–	–	–	–	–	–	–	–
22	US 117 Southbound at Arrington Bridge Road (Signalized)	US 117, SB	L	4.5	3.9	A	A	90	45	125	95	450
			TR	6.6	10.8	A	B	275	595	100	200	–
		Arrington Bridge Rd, WB	L	38.1	85.6	D	F	100	110	85	140	–
			LT	37.9	86.1	D	F	100	110	85	160	–
		Arrington Bridge Rd, EB	TR	44.3	60.5	D	E	25	15	30	40	–
		Overall		**9.9**	**21.4**	**A**	**C**	–	–	–	–	–

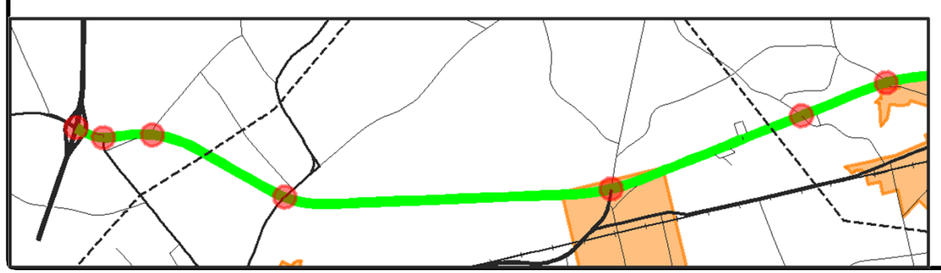
Table B-1. Base Year No-Build *Synchro/SimTraffic* Intersection Analysis Results (continued)

No.	Intersection	Approach	Lane Group	Delay (s/veh)		LOS		Synchro 95th % Queue (ft.)		SimTraffic Max. Queue (ft.)		Available Storage (ft.)
				AM	PM	AM	PM	AM	PM	AM	PM	
23	US 117 Northbound at Arrington Bridge Road (Signalized)	US 117, NB	L	3.8	5.7	A	A	5	5	–	20	245
			T	7.1	8.7	A	A	565	175	90	250	–
			R	4.6	6.3	A	A	60	45	50	105	345
		Arrington Bridge Rd, WB	TR	30.1	52.7	C	D	240	200	130	215	195
		Arrington Bridge Rd, EB	L	22.7	51.6	C	D	10	20	15	40	–
			T	29.9	41.2	C	D	85	150	145	170	–
		Overall		**12.9**	**19.2**	**B**	**B**	–	–	–	–	–
24	US 117 at S.George St. (Signalized)	US 117, NB	L	13.2	9.0	B	A	25	5	20	75	270
			T	16.3	12.1	B	B	460	385	145	410	-
		US 117, SB	L	41.2	50.6	D	D	50	40	35	50	265
			TR	10.7	9.1	B	A	630	555	170	215	–
		S George St, WB	L	53.8	54.2	D	D	155	175	115	180	315
			LT	53.8	54.5	D	D	160	175	140	200	–
			R	47.2	46.3	D	D	35	40	–	–	270
		W Vann St, EB	LTR	56.9	56.2	E	E	60	95	55	130	–
		Overall		**17.8**	**16.5**	**B**	**B**	–	–	–	–	–
25	US 117 W Elm Street (Signalized)	US 117, NB	L	2.4	19.3	A	B	–	5	5	35	315
			TR	3.8	23.1	A	C	30	340	110	475	–
		US 117, SB	L	42.1	12.3	D	B	165	50	85	80	360
			TR	6.7	4.3	A	A	155	255	160	120	–
		W Elm St WB	LT	53.3	53.4	D	D	45	60	45	85	–
			R	50.0	48.1	D	D	85	170	85	210	–
		S Canal St, EB	LTR	55.3	55.3	E	E	40	40	40	60	–
		Overall		**9.6**	**16.7**	**A**	**B**	–	–	–	–	–
26	I-795 at US 117 (Signalized)	I-795, NB	TR	2.4	6.9	A	A	25	120	50	185	–
			R	2.7	7.5	A	A	25	115	50	200	455
		I-795, SB	T	9.7	0.5	A	A	170	5	100	115	–
		US 117 Ramp, WB	L	48.4	46.2	D	D	190	220	160	240	–
		Overall		**15.2**	**16.5**	**B**	**B**	–	–	–	–	–
27	US 117 Northbound Ramp Terminals at W.Ash Street (Signalized)	US 117 Bypass, NB	L	24.3	26.1	C	C	15	15	20	55	–
			TR	24.4	26.7	C	C	20	30	20	50	20
		US 117 Northbound Ramp, SB	LT	25.1	19.7	C	B	40	25	20	65	–
			R	26.2	20.3	C	C	60	45	45	70	100
		W Ash St, WB	L	6.0	5.7	A	A	10	5	5	30	120
			T	7.2	7.9	A	A	90	80	60	140	–
			R	6.6	6.4	A	A	10	5	15	40	20
		W Ash St, EB	L	0.6	0.3	A	A	5	–	25	70	200
			TR	1.3	0.4	A	A	10	–	5	30	–
		Overall		**7.1**	**6.5**	**A**	**A**	–	–	–	–	–
28	US 117 Southbound Ramp Terminals at W.Ash Street (Signalized)	US 117 Southbound Ramp, NB	L	27.2	27.0	C	C	55	45	65	80	100
			TR	24.8	25.4	C	C	15	20	30	35	–
		W Grantham St, SB	L	24.6	25.2	C	C	10	10	15	25	125
			TR	24.8	25.5	C	C	10	20	10	40	–
		W Ash St, WB	L	4.9	3.4	A	A	25	15	30	80	160
			TR	4.9	4.6	A	A	90	120	50	135	–
		W Ash St, EB	L	5.8	3.6	A	A	5	5	40	25	290
			T	16.0	9.4	B	A	320	215	280	230	–
			R	5.7	3.7	A	A	5	10	10	35	25
		Overall		**12.9**	**8.4**	**B**	**A**	–	–	–	–	–
29	I-795 at NC 581/ W.Ash Street (Signalized)	I-795, NB	L	2.9	21.6	A	C	–	50	25	70	490
			T	4.6	27.5	A	C	20	240	35	225	–
			R	38.4	52.0	D	D	15	20	5	60	320
		I-795, SB	L	12.9	19.6	B	B	60	70	55	105	360
			T	20.4	19.2	C	B	180	105	160	160	–
			R	51.9	51.2	D	D	135	120	105	150	375
		W Ash St, WB	L	46.7	33.5	D	C	25	15	30	35	305
			T	51.2	40.4	D	D	140	135	165	265	–
			R	31.1	23.2	C	C	65	60	65	165	280
		W Ash St, EB	L	28.9	39.2	C	D	45	65	90	110	425
			T	38.2	40.8	D	D	145	135	215	225	–
			R	12.3	20.2	B	C	60	65	60	105	355
		Overall		**24.4**	**29.9**	**C**	**C**	–	–	–	–	–
30	US 117 Southbound Ramp Terminals at US 70	US 117 Northbound Ramp, NB	L	–	–	–	–	–	–	–	–	–
			R	–	–	–	–	–	–	–	–	–
		W Grantham St, WB	T	–	–	–	–	–	–	20	45	175
			R	–	–	–	–	–	–	–	–	–
		W Grantham St, EB	T	–	–	–	–	–	–	–	–	–
			R	–	–	–	–	–	–	–	–	
31	US 117 Northbound Ramp Terminals at US 70 (Signalized)	US 117 Northbound Ramp, NB	L	51.8	55.5	D	E	45	40	10	35	–
			R	1.6	1.6	A	A	10	10	5	5	55
		W Grantham St, WB	T	1.6	1.7	A	A	30	45	25	80	–
			R	1.4	1.4	A	A	5	5	5	25	280
		W Grantham St, EB	T	0.8	1.6	A	A	15	30	30	70	–
			R	7.4	4.3	A	A	290	140	–	–	–
		Overall		**5.9**	**4.7**	**A**	**A**	–	–	–	–	–
32	I-795 Southbound Ramp Terminals at US 70 (Signalized)	I-795 Southbound Ramp, SB	R	34.6	45.4	C	D	50	50	80	85	–
		US 70, WB	L	55.7	51.9	E	D	65	60	50	70	270
			T	7.6	3.5	A	A	95	130	80	115	–
		US 70, EB	T	17.8	8.3	B	A	405	215	130	150	–
			R	41.6	57.1	D	E	260	185	–	–	–
		Overall		**17.3**	**10.3**	**B**	**B**	–	–	–	–	–
33	I-795 Northbound Ramp Terminals at US 70 (Signalized)	I-795 Northbound Ramp, NB	L	51.7	51.5	D	D	95	130	140	250	525
			R	50.2	47.4	D	D	60	55	40	70	–
		US 70 WB	TR	6.4	8.8	A	A	125	220	130	230	–
		US 70, EB	L	66.2	76.5	E	E	105	110	95	135	365
			T	1.0	1.2	A	A	40	20	175	200	–
		Overall		**8.5**	**12.3**	**A**	**B**	–	–	–	–	–

Table B-2. Base Year No-Build HCS 2010 Two-Lane Highway Analysis Results

Direction	Corridor	Location Description	AM Peak		PM Peak	
			Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Northbound	US 117	Between Faison Hwy and I-40	2.2	A	2.3	A
		Between I-40 and Route 403	4.3	A	4.3	A
		Between Route 403 and Eldon Thornton Rd	3.0	A	3.4	A
		Between Eldon Thornton Rd and Route 50	3.0	A	3.4	A
		Between Route 50 and US 117, W Trade Rd	3.0	A	3.6	A
		Between W Trade Rd and Lees Country Club Rd	3.8	A	5.7	A
		Between Lees Country Club Rd and Smith Chapel Rd	3.8	A	5.0	A
		Between Smith Chapel Rd and W Main St	3.8	A	5.0	A
		Between W Main St and Route 55	4.4	A	6.0	A
		Between Route 55 and Country Club Rd	5.2	A	6.7	A
		Between Country Club Rd and Oberry Rd	5.8	A	7.1	A
		Between Oberry Rd and Alt US 117, Lafayette St	5.9	A	6.8	A
		Between Alt US 117 and Genoa Rd/Route 13	7.5	A	9.2	A
		Between Genoa Road and Old Grantham Rd, Old Mt. Olive Hwy	10.9	A	12.3	B
		Between Old Grantham Rd and W Arrington Bridge Rd	15.0	B	15.2	B
		Between W Arrington Bridge Rd and US 117 BUS, W Vann St	15.4	B	15.9	B
		Between W Vann St and S Canal St, W Elm St	12.5	B	13.9	B
		Between W Elm St and I-795 at US 117	11.8	B	13.6	B
		Between I-795 and W Ash St	7.5	A	5.9	A
		Between W Ash St and US BUS 70	6.7	A	6.0	A
		North of US 70 BUS	13.0	B	9.9	A
	I-795	Between US 117 and W Ash St/ US 70 BUS	4.8	A	8.2	A
		Between W Ash St/ US 70 BUS and US 70	5.6	A	9.1	A
Southbound	US 117	Between Faison Hwy and I-40	2.0	A	2.2	A
		Between I-40 and Route 403	4.2	A	4.3	A
		Between Route 403 and Eldon Thornton Rd	3.3	A	3.0	A
		Between Eldon Thornton Rd and Route 50	3.3	A	3.0	A
		Between Route 50 and US 117, W Trade Rd	3.5	A	3.0	A
		Between W Trade Rd and Lees Country Club Rd	4.8	A	3.8	A
		Between Lees Country Club Rd and Smith Chapel Rd	4.8	A	3.8	A
		Between Smith Chapel Rd and W Main St	4.8	A	3.8	A
		Between W Main St and Route 55	5.9	A	4.4	A
		Between Route 55 and Country Club Rd	7.2	A	5.1	A
		Between Country Club Rd and Oberry Rd	7.4	A	5.7	A
		Between Oberry Rd and Alt US 117, Lafayette St	6.9	A	5.7	A
		Between Alt US 117 and Genoa Rd/Route 13	9.3	A	7.4	A
		Between Genoa Road and Old Grantham Rd, Old Mt. Olive Hwy	11.9	B	11.1	B
		Between Old Grantham Rd and W Arrington Bridge Rd	14.1	B	15.1	B
		Between W Arrington Bridge Rd and US 117 BUS, W Vann St	15.2	B	14.6	B
		Between W Vann St and S Canal St, W Elm St	13.5	B	12.2	B
		Between W Elm St and I-795 at US 117	14.2	B	11.6	B
		Between I-795 and W Ash St/ US 70 BUS	6.0	A	6.9	A
		Between W Ash St/ US 70 BUS and US 70	6.1	A	6.5	A
		North of US 70	10.0	A	12.8	B
	I-795	Between US 117 Alt and W Ash St/ US 70 BUS	8.2	A	4.8	A
		Between W Ash St/ US 70 BUS and US 70	9.1	A	5.6	A





LEGEND

- Yield Sign
- Stop Sign
- Signal
- Existing Interchange
- Proposed Interchange

U-3125: US 117 from I-40 to I-795. Upgrade to Freeway, with part on New Location

2017 No-Build Delay (seconds/vehicle) and Level of Service

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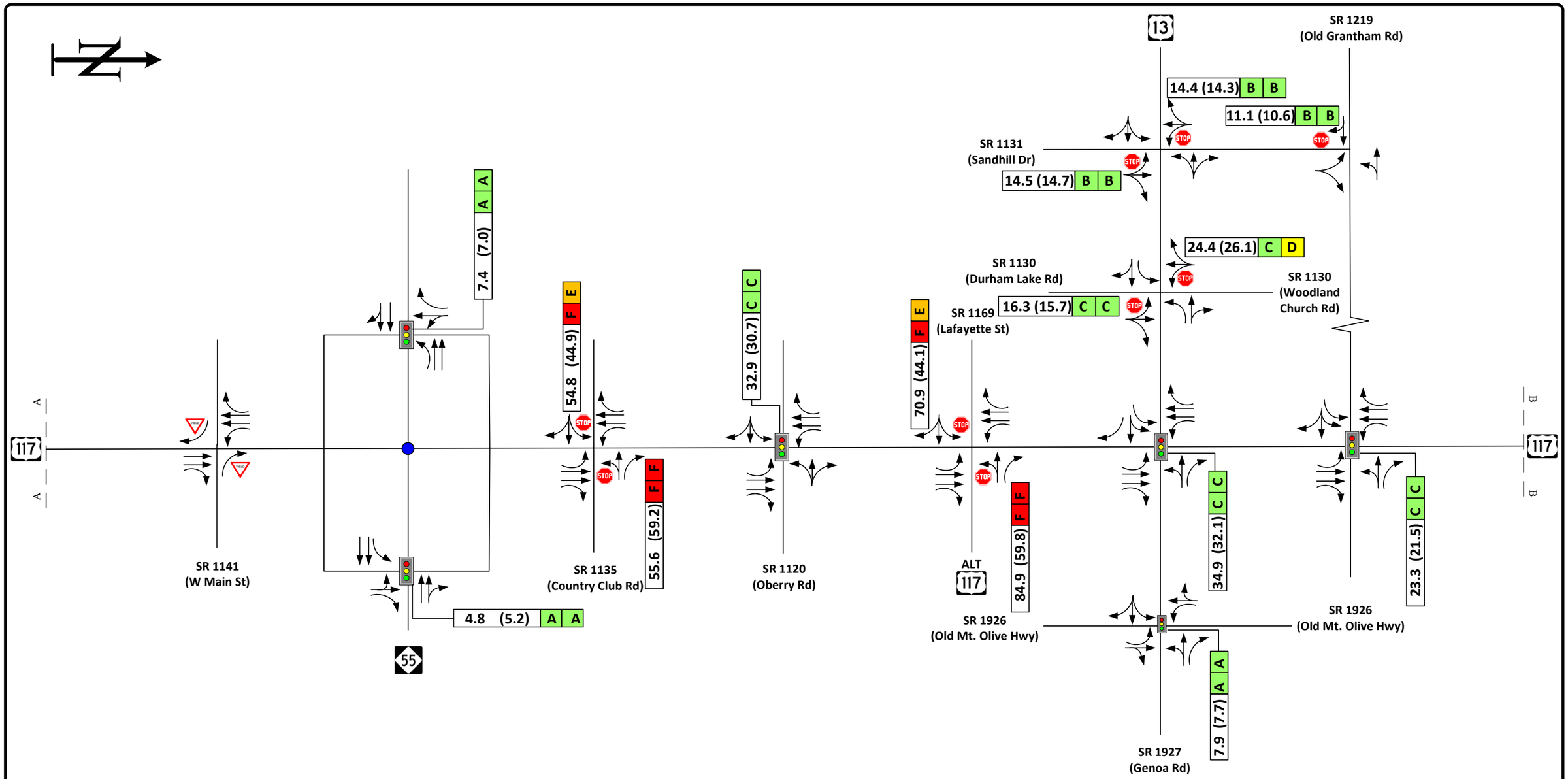
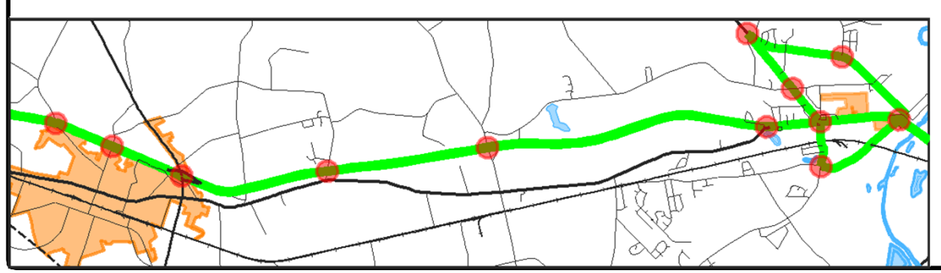
Date : July 2018

Figure No. B-1





LEGEND

- Yield Sign
- Stop Sign
- Signal
- Existing Interchange
- Proposed Interchange

U-3125: US 117 from I-40 to I-795. Upgrade to Freeway, with part on New Location

2017 No-Build Delay (seconds/vehicle) and Level of Service

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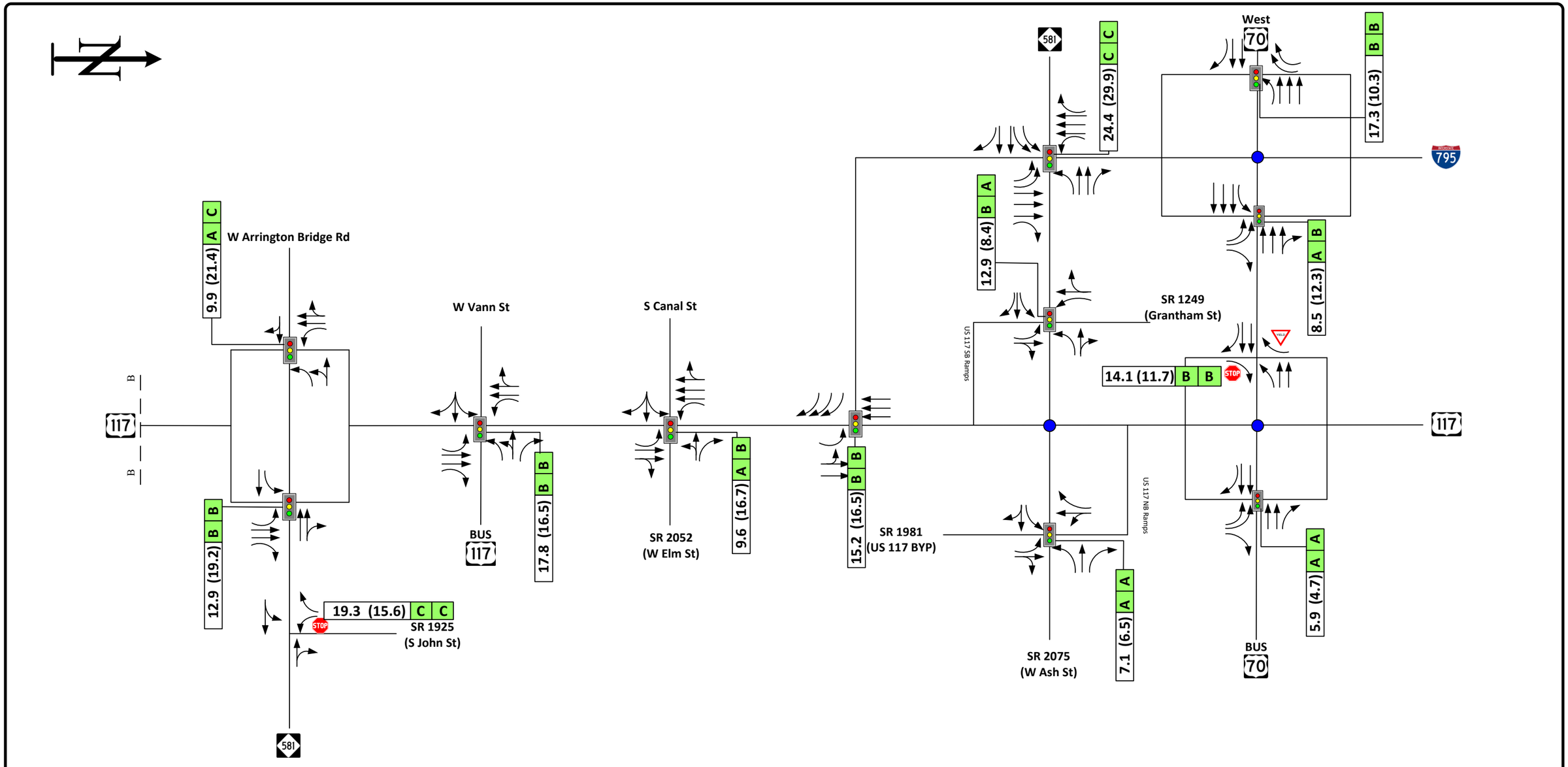
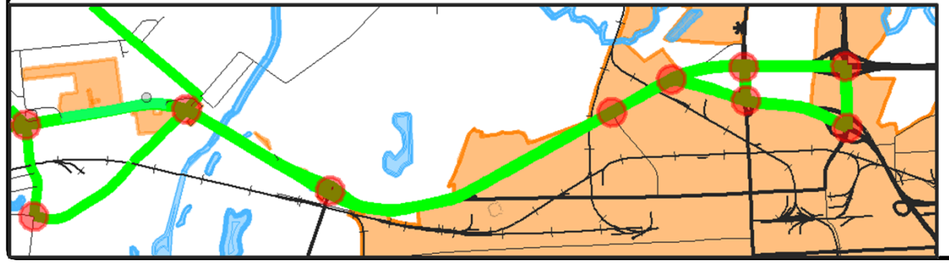
Figure No. B-1





LEGEND

- Yield Sign
- Stop Sign
- Signal
- Existing Interchange
- Proposed Interchange

U-3125: US 117 from I-40 to I-795. Upgrade to Freeway, with part on New Location

2017 No-Build Delay (seconds/vehicle) and Level of Service

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Figure
No. B-1

Table B-3. Future Year No-Build Synchro/SimTraffic Intersection Analysis Results

No.	Intersection	Approach	Lane Group	Delay (s/veh)		LOS		Synchro 95th % Queue (ft.)		SimTraffic Max. Queue (ft.)		Available Storage (ft.)
				AM	PM	AM	PM	AM	PM	AM	PM	
1	I-40 Eastbound Ramps at US 117 Connector / NC 403	Faison Hwy, NB	T	–	–	–	–	–	–	–	5	–
			TR	–	–	–	–	–	–	5	–	–
		Faison Hwy, SB	L	11.1	12.2	B	B	–	–	95	120	–
			T	–	–	–	–	–	–	–	–	–
		I-40 Eastbound Ramp	LT	28.8	38.2	D	E	–	–	90	130	–
			R	9.4	9.3	A	A	–	–	30	65	55
2	I-40 Westbound Ramps at US 117 Connector / NC 403	Faison Hwy, NB	L	11.6	11.5	B	B	–	–	15	20	–
			T	–	–	–	–	–	–	–	–	–
		Faison Hwy, SB	T	–	–	–	–	–	–	–	–	–
			R	–	–	–	–	–	–	–	–	420
		I-40 Westbound Ramp	LT	13.3	14.3	B	B	–	–	40	65	–
			R	–	–	–	–	–	–	–	20	55
3	US 117 Connector at NC 403 (Signalized)	NC 403, NB	L	4.6	5.2	A	A	10	10	35	35	315
			T	5.2	6.2	A	A	50	75	70	85	–
			R	5.1	5.5	A	A	40	35	75	65	–
		US 117, SB	L	4.6	5.2	A	A	10	10	45	40	340
			T	5.4	6.0	A	A	60	65	100	95	–
			R	4.6	5.1	A	A	10	5	40	35	350
		Faison Hwy, WB	LTR	11.9	11.8	B	B	40	60	95	115	–
		Driveway, EB	LTR	10.3	9.5	B	A	15	20	45	50	–
		Overall		**6.1**	**6.9**	**A**	**A**	–	–	–	–	–
4	US 117 Connector at Eldon Thornton Road	US 117, NB	L	8.7	8.5	A	A	–	–	10	10	345
			T	–	–	–	–	–	–	–	–	–
			R	–	–	–	–	–	–	–	–	285
		US 117, SB	L	8.4	8.9	A	A	–	–	15	15	365
			T	–	–	–	–	–	–	–	–	–
			R	–	–	–	–	–	–	–	–	320
		Eldon Thornton Road, WB	LTR	15.9	17.8	C	C	5	5	35	35	–
		Eldon Thornton Road, EB	LTR	16.4	17.2	C	C	5	5	35	35	–
5	US 117 Connector at NC 50	US 117, NB	L	8.9	8.7	A	A	5	–	20	15	380
			T	–	–	–	–	–	–	–	–	–
			R	–	–	–	–	–	–	10	10	330
		US 117, SB	L	8.7	9.2	A	A	5	5	50	50	340
			T	–	–	–	–	–	–	–	–	–
			R	–	–	–	–	–	–	5	–	325
		NC 50 WB	LTR	10.4	11.3	B	B	15	20	75	85	–
		NC 50 EB	LTR	10.6	10.3	B	B	15	10	55	60	–
6	US 117 at W Trade Road	US 117, NB	L	8.6	8.4	A	A	5	5	20	35	365
			T	–	–	–	–	–	–	–	5	–
			R	–	–	–	–	–	–	20	–	310
		US 117, SB	L	9.1	9.6	A	A	20	15	85	90	345
			T	–	–	–	–	–	–	5	10	–
			R	–	–	–	–	–	–	5	10	335
		W Trade Rd, WB	LT	103.4	101.4	F	F	115	115	115	115	–
			R	10.6	12.2	B	B	20	35	80	130	–
		W Trade Rd, EB	LTR	45.1	45.3	E	E	55	50	75	70	–
7.1	US 117 Southbound Ramp at Lees Country Club Road	US 117 Southbound Ramp, SB	LTR	12.3	9.0	B	A	5	5	45	55	–
		Lees Country Club Rd, WB	L	7.6	7.3	A	A	5	5	15	5	300
			T	–	–	–	–	–	–	–	–	–
		Lees Country Club Rd, EB	TR	–	–	–	–	–	–	–	–	–
7.2	US 117 Northbound Ramp at Lees Country Club Road	US 117 Northbound Ramp, NB	LTR	8.8	8.8	A	A	5	5	40	55	–
		Lees Country Club Rd, WB	TR	–	–	–	–	–	–			–
		Lees Country Club Road, EB	L	7.3	7.4	A	A	5	–	16	10	250
			T	–	–	–	–	–	–			–
8	US 117 at Old Smith Chapel Road/Smith Chapel Road	US 117, NB	L	9.1	8.9	A	A	5	5	20	10	255
			T	–	–	–	–	–	–	5	–	–
			R	–	–	–	–	–	–	–	5	265
		US 117, SB	L	8.8	9.6	A	A	5	5	35	25	235
			T	–	–	–	–	–	–	–	–	–
			R	–	–	–	–	–	–	–	–	210
		Smith Chapel Rd, WB	LTR	39.6	47.3	E	E	70	70	110	95	–
		Old Smith Chapel Rd, EB	LTR	37.3	47.0	E	E	40	55	80	90	–
9	US 117 at W.Main Street	US 117, NB	T	–	–	–	–	–	–	–	10	–
			R	–	–	–	–	–	–	10	–	235
		US 117, SB	L	–	–	–	–	–	–	90	70	985
			T	–	–	–	–	–	–	–	–	–
			R	–	–	–	–	–	–	–	–	1000
		W Main St, WB	R	–	–	–	–	–	–	–	–	–
		W Main St, WB	R	–	–	–	–	–	–	–	–	–
10	US 117 Southbound Ramp Terminals at NC 55 (Signalized)	US 117 SB Ramp	LT	17.0	17.7	B	B	90	115	170	135	–
			R	13.5	16.6	B	B	40	60	95	85	235
		NC 55, WB	L	5.2	3.3	A	A	30	20	105	85	120
			T	3.9	2.7	A	A	40	40	105	90	–
		NC 55, EB	TR	5.9	4.5	A	A	85	70	105	90	55
		Overall		**7.3**	**5.7**	**A**	**A**	–	–	–	–	–
11	US 117 Northbound Ramp Terminals at NC 55 (Signalized)	US 117 NB Ramp	LT	14.3	17.2	B	B	35	70	85	95	–
			R	15.0	17.9	B	B	50	90	100	110	245
		NC 55, WB	TR	5.1	5.0	A	A	75	90	110	120	–
		NC 55, EB	L	3.7	4.4	A	A	15	20	80	95	120
			T	3.6	2.9	A	A	50	35	100	90	–
		Overall		**5.4**	**5.7**	**A**	**A**	–	–	–	–	–

Table B-3. Future Year No-Build Synchro/SimTraffic Intersection Analysis Results (continued)

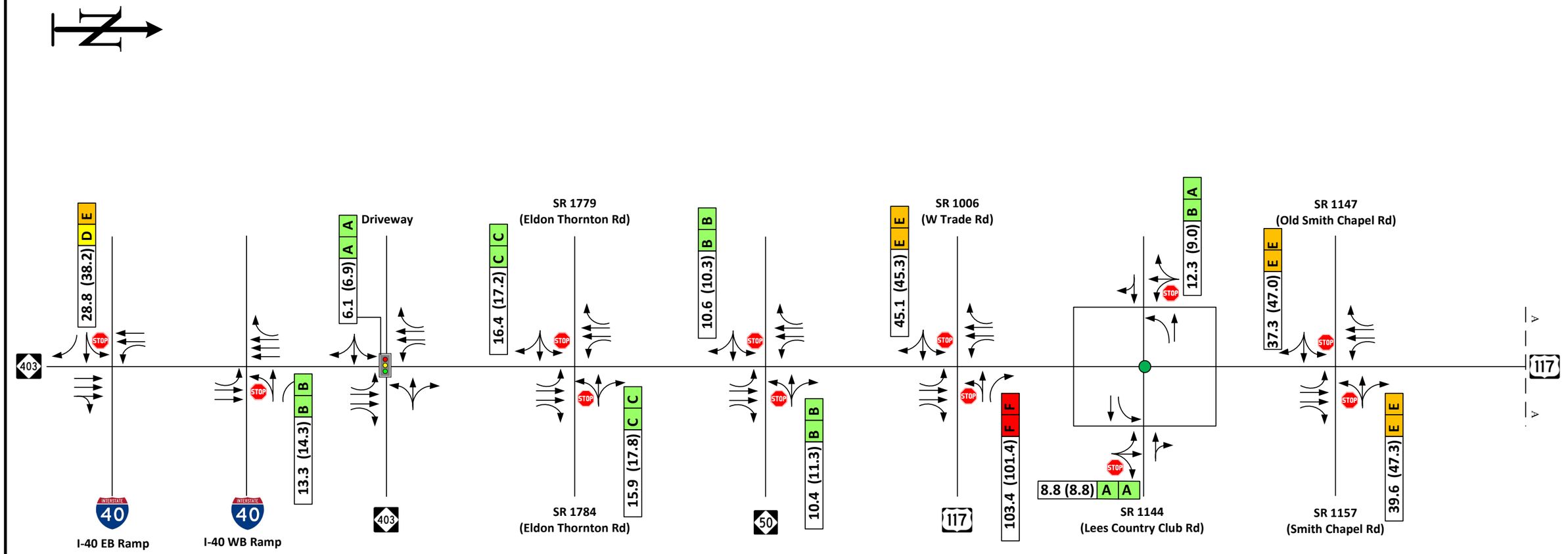
No.	Intersection	Approach	Lane Group	Delay (s/veh)		LOS		Synchro 95th % Queue (ft.)		SimTraffic Max. Queue (ft.)		Available Storage (ft.)
				AM	PM	AM	PM	AM	PM	AM	PM	
12	US 117 at Country Club Road	US 117, NB	L	10.1	9.3	B	A	5	5	30	45	335
			T	–	–	–	–	–	–	15	10	–
			R	–	–	–	–	–	–	–	–	365
		US 117, SB	L	9.5	10.8	A	B	10	15	75	95	590
			T	–	–	–	–	–	–	10	5	–
			R	–	–	–	–	–	–	10	15	400
		Country Club Dr, WB	LT	754.5	683.9	F	F	470	415	130	165	–
			R	–	–	–	–	470	–	–	30	270
		Country Club Road, EB	LTR	318.6	416.1	F	F	235	175	115	85	–
13.1	US 117 Southbound Ramp at O'Berry Road	US 117, SB	LTR	12.3	11.9	B	B	15	15	75	90	–
		O'Berry Rd, WB	L	7.6	7.5	A	A	10	5	40	40	300
			T	–	–	–	–	–	–	–	–	–
		O'Berry Rd, EB	T	–	–	–	–	–	–	–	–	–
			R	–	–	–	–	–	–	5	5	350
13.2	US 117 Northbound Ramp at O'Berry Road	US 117, NB	LTR	10.3	10.7	B	B	15	20	75	95	–
		O'Berry Rd, WB	T	–	–	–	–	–	–	–	–	–
			R	–	–	–	–	–	–	–	–	250
		O'Berry Rd, EB	L	7.7	7.7	A	A	5	5	20	30	225
			T	–	–	–	–	–	–	–	–	–
14	US 117 at Alt US 117	US 117, NB	L	10.0	9.3	B	A	5	5	25	20	395
			T	–	–	–	–	–	–	10	–	–
			R	–	–	–	–	–	–	15	5	315
		US 117, SB	L	11.5	11.7	B	B	35	25	185	145	455
			T	–	–	–	–	–	–	–	5	–
			R	–	–	–	–	–	–	–	5	290
		S U.S. 117 Alt Hwy, WB	LT	195.6	165.0	F	F	75	105	50	65	–
			R	–	–	–	–	–	105	–	–	105
		Lafayette St, EB	LTR	168.7	47.9	F	E	60	35	55	55	–
15	Genoa Road at Old Mt. Olive Highway (Signalized)	Old Mt. Olive Hwy, NB	L	10.8	9.1	B	A	30	25	75	60	175
			TR	11.6	9.2	B	A	70	40	115	80	–
		Old Mt. Olive Hwy, SB	L	11.9	9.8	B	A	55	45	110	100	230
			TR	11.1	9.6	B	A	50	55	75	100	–
		Genoa Rd, WB	LT	4.9	6.4	A	A	40	50	70	95	–
			R	5.0	6.1	A	A	40	35	90	85	375
		Genoa Rd, EB	LTR	5.9	6.6	A	A	75	50	135	115	–
		Overall		**8.3**	**7.8**	**A**	**A**	–	–	–	–	–
16	US 13 at Sandhill Drive	Sandhill Dr, NB	LTR	17.8	18.1	C	C	25	25	85	75	–
		Sandhill Dr, SB	LTR	17.7	17.7	C	C	20	30	55	75	–
		US Hwy 13 S, WB	LTR	8.2	7.9	A	A	5	5	60	80	–
		US Hwy 13 S, EB	LTR	7.9	8.2	A	A	5	5	90	65	–
17	US 13 at Woodland Church Road/Durham Lake Road	Durham Lake Rd, NB	LTR	21.3	19.3	C	C	45	30	95	80	–
		Woodland Church Rd, SB	LTR	42.7	46.9	E	E	100	135	100	145	–
		US Hwy 13 S, WB	L	8.2	8.0	A	A	5	5	45	45	260
			TR	–	–	–	–	–	–	25	25	–
		US Hwy 13 S, EB	L	8.1	8.3	A	A	5	5	45	35	125
			TR	–	–	–	–	–	–	10	5	–
18	US 117 at US 13 / Genoa Road (Signalized)	US 117, NB	L	46.4	37.5	D	D	95	100	165	210	185
			T	43.1	49.5	D	D	380	530	275	350	–
			R	10.4	8.5	B	A	30	20	45	60	330
		US 117, SB	L	30.1	35.1	C	D	80	80	180	195	270
			T	30.5	26.1	C	C	510	150	325	280	–
			R	14.7	27.0	B	C	135	130	180	300	500
		Genoa Rd, WB	LT	122.5	114.5	F	F	190	220	125	175	–
			R	33.7	33.7	C	C	110	150	145	230	270
		US Hwy 13, EB	L	96.9	101.0	F	F	310	265	195	195	170
			LT	82.0	93.9	F	F	310	275	375	245	–
			R	45.4	46.6	D	F	140	95	195	65	190
		Overall		**43.8**	**46.5**	**D**	**D**	–	–	–	–	–
19	Old Grantham Road at Sandhill Drive	Sandhill Dr, NB	LT	7.7	8.0	A	A	5	5	25	55	–
		Old Grantham Rd, SB	TR	–	–	–	–	–	–	–	5	–
		Old Grantham Rd, EB	LR	12.7	11.9	B	B	45	25	115	90	–
20	US 117 at Old Grantham Road / Old Mt. Olive Highway (Signalized)	US 117, NB	L	35.5	7.1	D	A	55	20	130	135	360
			T	59.8	11.2	E	B	670	190	375	415	–
			R	37.5	6.9	D	A	20	5	220	85	255
		US 117, SB	L	44.5	71.0	D	E	200	290	255	355	455
			T	25.2	25.4	C	C	690	450	370	500	–
			R	16.5	21.2	B	C	170	255	–	160	570
		Old Mt.Olive Hwy, WB	LT	55.7	59.7	E	E	90	90	125	125	–
			R	43.6	44.6	D	D	260	195	135	125	125
		Old Mt. Olive Hwy, EB	L	55.5	74.1	E	E	265	250	220	180	375
			LTR	55.1	73.5	E	E	255	230	255	225	–
		Overall		**42.1**	**27.7**	**D**	**C**	–	–	–	–	–
21	Arrington Bridge Road at S. John Street	John St, SB	L	29.1	20.5	**D**	**C**	35.0	30.0	40	50	–
			R	–	–	–	–	–	30.0	55	65	–
		Arrington Bridge Rd, WB	TR	–	–	–	–	–	–	5	5	–
		Arrington Bridge Rd, EB	L	8.5	8.3	A	A	20.0	10.0	65	50	–
			T	–	–	–	–	–	–	–	–	–
22	US 117 Southbound at Arrington Bridge Road (Signalized)	US 117, SB	L	6.0	3.7	A	A	100	35	130	85	450
			TR	9.7	6.8	A	A	340	430	215	195	–
		Arrington Bridge Rd, WB	L	18.6	19.1	B	B	120	200	125	140	–
			LT	18.7	18.6	B	B	120	200	130	155	–
		Arrington Bridge Rd, EB	TR	39.8	60.5	D	E	35	30	70	50	–
		Overall		**10.5**	**8.7**	**B**	**A**	–	–	–	–	–

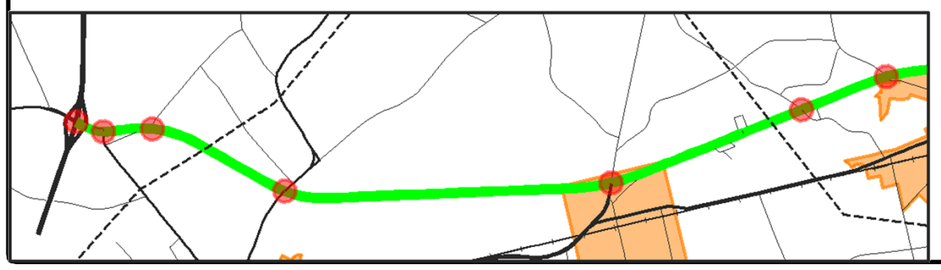
Table B-3. Future Year No-Build Synchro/SimTraffic Intersection Analysis Results (continued)

No.	Intersection	Approach	Lane Group	Delay (s/veh)		LOS		Synchro 95th % Queue (ft.)		SimTraffic Max. Queue (ft.)		Available Storage (ft.)
				AM	PM	AM	PM	AM	PM	AM	PM	
23	US 117 Northbound at Arrington Bridge Road (Signalized)	US 117, NB	L	4.3	2.7	A	A	5	5	15	55	245
			T	9.1	4.6	A	A	320	565	215	290	–
			R	5.8	3.2	A	A	95	15	120	135	345
		Arrington Bridge Rd, WB	TR	29.1	52.7	C	D	120	235	180	455	195
		Arrington Bridge Rd, EB	L	19.0	46.4	B	D	20	–	50	40	–
			T	33.6	44.8	C	D	195	185	260	215	–
		Overall		**14.5**	**16.8**	**B**	**B**	–	–	–	–	–
24	US 117 at S.George St. (Signalized)	US 117, NB	L	17.4	16.4	B	B	35	10	105	80	270
			T	19.0	21.6	B	C	470	210	385	420	–
		US 117, SB	L	37.7	38.0	D	D	65	60	150	175	265
			TR	10.1	11.3	B	B	700	90	410	430	–
		S George St, WB	L	56.3	59.5	E	E	210	215	210	210	315
			LT	55.0	58.8	D	E	210	210	240	225	–
			R	44.7	45.5	D	D	50	55	–	–	270
		W Vann St, EB	LTR	56.1	70.4	E	E	75	75	110	160	–
		Overall		**19.8**	**23.2**	**B**	**C**	–	–	–	–	–
25	US 117 W Elm Street (Signalized)	US 117, NB	L	1.2	5.6	A	A	5	–	35	35	315
			TR	3.0	8.5	A	A	25	35	305	475	–
		US 117, SB	L	40.7	24.0	D	C	120	80	170	150	360
			TR	5.0	1.0	A	A	115	65	240	170	–
		W Elm St WB	LT	53.5	54.2	D	D	45	60	60	85	–
			R	57.1	48.0	E	D	140	200	195	245	–
		S Canal St, EB	LTR	54.3	55.4	D	E	55	40	85	60	–
		Overall		**8.4**	**8.6**	**A**	**A**	–	–	–	–	–
26	I-795 at US 117 (Signalized)	I-795, NB	TR	2.3	4.6	A	A	40	60	115	235	–
			R	2.7	5.3	A	A	40	55	120	265	455
		I-795, SB	T	5.8	3.1	A	A	75	160	215	140	–
		US 117 Ramp, WB	L	46.8	44.5	D	D	200	270	250	325	–
		Overall		**12.7**	**16.0**	**B**	**B**	–	–	–	–	–
27	US 117 Northbound Ramp Terminals at W.Ash Street (Signalized)	US 117 Bypass, NB	L	24.3	25.9	C	C	10	15	55	80	–
			TR	24.5	26.9	C	C	20	35	50	60	–
		US 117 Northbound Ramp, SB	LT	25.4	28.3	C	C	70	40	100	100	–
			R	26.7	28.9	C	C	100	50	105	95	100
		W Ash St, WB	L	6.9	6.0	A	A	10	10	35	35	120
			T	8.4	8.2	A	A	105	140	130	140	–
			R	7.8	6.7	A	A	35	15	45	45	20
		W Ash St, EB	L	0.2	2.0	A	A	–	15	95	125	200
			TR	0.4	0.4	A	A	–	–	60	60	–
		Overall		**5.9**	**6.6**	**A**	**A**	–	–	–	–	–
28	US 117 Southbound Ramp Terminals at W.Ash Street (Signalized)	US 117 Southbound Ramp, NB	L	27.5	25.8	C	C	105	90	125	120	100
			TR	21.7	22.6	C	C	20	30	150	65	–
		W Grantham St, SB	L	21.5	22.0	C	C	10	10	35	30	125
			TR	21.8	22.2	C	C	15	15	40	35	–
		W Ash St, WB	L	2.5	1.9	A	A	5	5	95	105	160
			TR	2.5	2.4	A	A	5	5	125	150	–
		W Ash St, EB	L	4.6	5.3	A	A	5	5	20	50	290
			T	7.9	11.0	A	B	125	305	245	270	–
			R	4.6	5.4	A	A	10	35	50	50	25
		Overall		**8.0**	**8.2**	**A**	A	–	–	–	–	–
29	I-795 at NC 581/ W.Ash Street (Signalized)	I-795, NB	L	16.0	10.8	B	B	15	–	65	85	490
			T	17.2	16.5	B	B	115	220	135	260	–
			R	32.3	62.4	C	E	40	30	60	80	320
		I-795, SB	L	15.6	32.5	B	C	170	170	220	220	360
			T	25.6	23.6	C	C	245	115	245	165	–
			R	51.9	53.1	D	D	145	140	195	180	375
		W Ash St, WB	L	29.5	30.1	C	C	30	30	140	85	305
			T	42.8	38.5	D	D	255	270	340	370	–
			R	30.3	19.5	C	B	110	120	290	300	280
		W Ash St, EB	L	25.5	35.9	C	D	40	65	110	125	425
			T	40.1	40.3	D	D	250	235	355	320	–
			R	19.0	26.1	B	C	70	55	130	85	355
		Overall		**29.6**	**28.3**	**C**	C	–	–	–	–	–
30	US 117 Southbound Ramp Termicals at US 70	US 117 Northbound Ramp, NB	R	–	–	–	–	–	–	–	–	–
		W Grantham St, WB	L	–	–	–	–	–	–	40	40	175
			T	–	–	–	–	–	–	–	–	–
		W Grantham St, EB	T	–	–	–	–	–	–	90	–	–
			R	–	–	–	–	–	–	100	–	–
31	US 117 Northbound Ramp Terminals at US 70 (Signalized)	US 117 Northbound Ramp, NB	L	53.5	52.8	D	D	50	50	45	40	–
			R	1.4	2.1	A	A	5	10	50	15	55
		W Grantham St, WB	T	1.6	1.9	A	A	30	60	85	105	–
			R	1.4	1.5	A	A	5	5	25	25	280
		W Grantham St, EB	T	0.5	0.4	A	A	10	5	85	65	–
			R	13.9	4.8	B	A	285	165	–	70	–
		Overall		**9.3**	**4.5**	**A**	**A**	–	–	–	–	–
32	I-795 Southbound Ramp Terminals at US 70 (Signalized)	I-795 Southbound Ramp, SB	R	38.1	43.5	D	D	130	90	220	180	–
		US 70, WB	L	48.6	38.3	D	D	75	50	125	115	270
			T	6.8	4.7	A	A	150	195	200	250	–
		US 70, EB	T	21.7	15.1	C	B	480	420	360	340	–
			R	63.9	60.3	E	E	250	235	–	–	–
		Overall		**22.3**	**14.2**	**C**	B	–	–	–	–	–
33	I-795 Northbound Ramp Terminals at US 70 (Signalized)	I-795 Northbound Ramp, NB	L	51.5	51.0	D	D	120	170	210	280	525
			R	48.9	44.9	D	D	75	70	120	110	–
		US 70 WB	TR	9.1	13.5	A	B	190	370	220	325	–
		US 70, EB	L	69.3	72.1	E	E	90	150	150	165	365
			T	1.4	1.1	A	A	10	10	360	250	–
		Overall		**10.8**	**15.6**	**B**	B	–	–	–	–	–

TableB-4. Future Year No-Build HCS 2010 Two-Lane Highway Analysis Results

Direction	Corridor	Location Description	AM Peak		PM Peak	
			Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Northbound	US 117	Between Faison Hwy and I-40	2.8	A	3.4	A
		Between I-40 and Route 403	5.4	A	6.2	A
		Between Route 403 and Eldon Thornton Rd	3.7	A	5.0	A
		Between Eldon Thornton Rd and Route 50	3.7	A	5.0	A
		Between Route 50 and US 117, W Trade Rd	3.9	A	5.4	A
		Between W Trade Rd and Lees Country Club Rd	5.1	A	6.9	A
		Between Lees Country Club Rd and Smith Chapel Rd	5.1	A	6.8	A
		Between Smith Chapel Rd and W Main St	5.2	A	6.8	A
		Between W Main St and Route 55	5.8	A	7.8	A
		Between Route 55 and Country Club Rd	6.3	A	8.9	A
		Between Country Club Rd and Oberry Rd	7.0	A	9.0	A
		Between Oberry Rd and Alt US 117, Lafayette St	6.8	A	8.1	A
		Between Alt US 117 and Genoa Rd/Route 13	8.9	A	10.9	A
		Between Genoa Road and Old Grantham Rd, Old Mt. Olive Hwy	12.2	B	14.5	B
		Between Old Grantham Rd and W Arrington Bridge Rd	17.5	B	17.7	B
		Between W Arrington Bridge Rd and US 117 BUS, W Vann St	17.3	B	18.4	C
		Between W Vann St and S Canal St, W Elm St	13.6	B	15.8	B
		Between W Elm St and I-795 at US 117	13.4	B	15.8	B
		Between I-795 and W Ash St	8.1	A	6.1	A
		Between W Ash St and US BUS 70	8.1	A	6.4	A
		North of US 70 BUS	15.8	B	11.3	B
	I-795	Between US 117 and W Ash St/ US 70 BUS	5.8	A	10.3	A
		Between W Ash St/ US 70 BUS and US 70	7.6	A	12.4	B
Southbound	US 117	Between Faison Hwy and I-40	3.3	A	3.1	A
		Between I-40 and Route 403	5.8	A	5.7	A
		Between Route 403 and Eldon Thornton Rd	4.6	A	4.0	A
		Between Eldon Thornton Rd and Route 50	4.6	A	4.0	A
		Between Route 50 and US 117, W Trade Rd	4.9	A	4.2	A
		Between W Trade Rd and Lees Country Club Rd	6.3	A	5.2	A
		Between Lees Country Club Rd and Smith Chapel Rd	6.2	A	5.2	A
		Between Smith Chapel Rd and W Main St	6.2	A	5.4	A
		Between W Main St and Route 55	7.5	A	5.8	A
		Between Route 55 and Country Club Rd	8.7	A	6.4	A
		Between Country Club Rd and Oberry Rd	8.9	A	7.0	A
		Between Oberry Rd and Alt US 117, Lafayette St	8.1	A	6.6	A
		Between Alt US 117 and Genoa Rd/Route 13	11.0	A	8.5	A
		Between Genoa Road and Old Grantham Rd, Old Mt. Olive Hwy	14.1	B	12.3	B
		Between Old Grantham Rd and W Arrington Bridge Rd	16.7	B	16.8	B
		Between W Arrington Bridge Rd and US 117 BUS, W Vann St	17.8	B	16.3	B
		Between W Vann St and S Canal St, W Elm St	15.4	B	13.5	B
		Between W Elm St and I-795 at US 117	15.4	B	13.4	B
		Between I-795 and W Ash St/ US 70 BUS	5.9	A	8.4	A
		Between W Ash St/ US 70 BUS and US 70	6.2	A	8.0	A
		North of US 70	11.0	A	15.8	B
	I-795	Between US 117 Alt and W Ash St/ US 70 BUS	9.4	A	4.9	A
		Between W Ash St/ US 70 BUS and US 70	11.7	A	7.5	A





LEGEND

- Yield Sign
- Stop Sign
- Signal
- Existing Interchange
- Proposed Interchange

U-3125: US 117 from I-40 to I-795. Upgrade to Freeway, with part on New Location

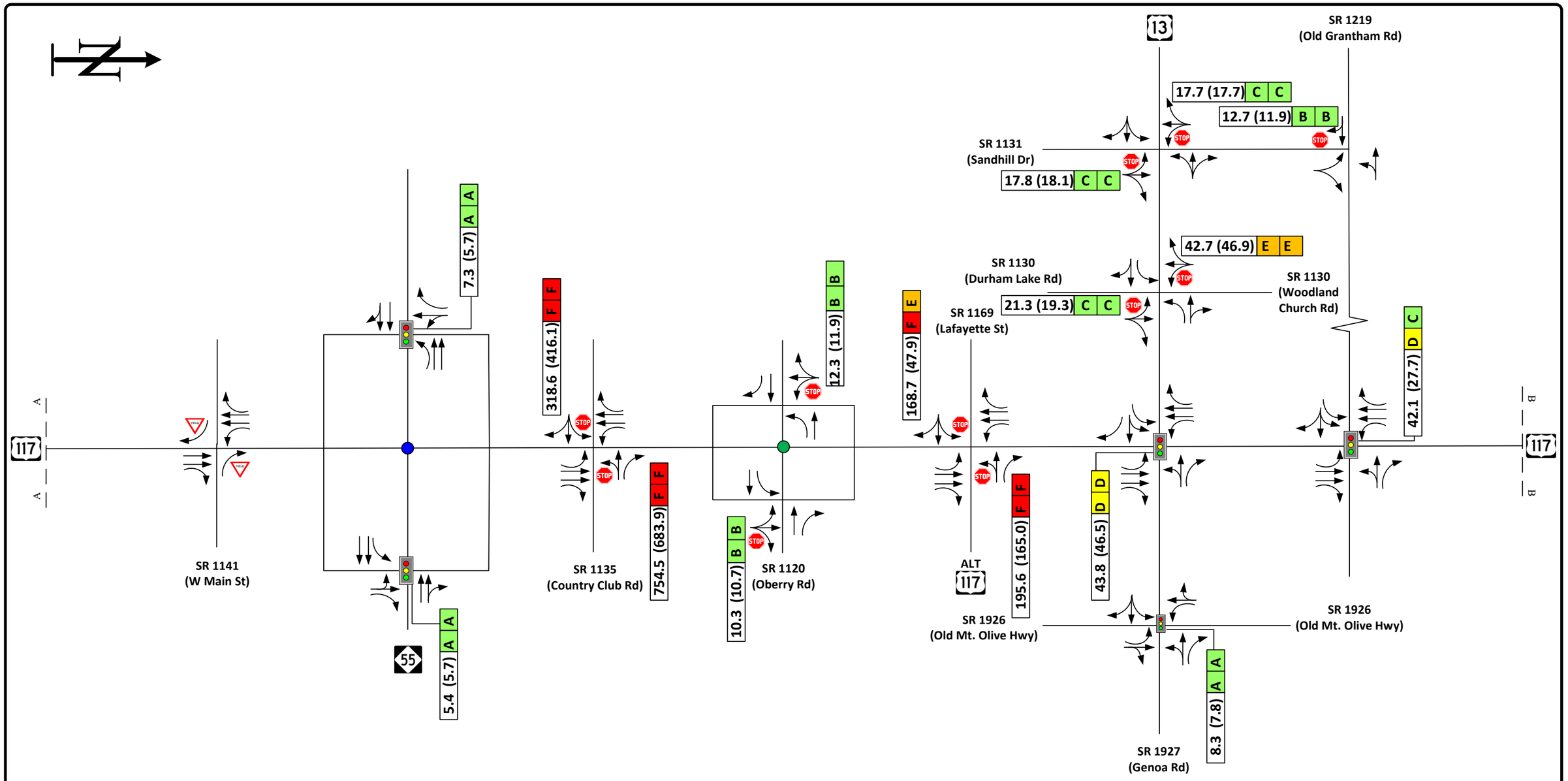
2045 No-Build Delay (seconds/vehicle) and Level of Service

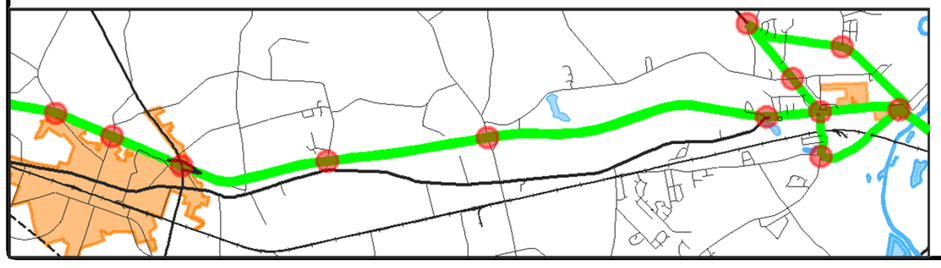
Sheet 1 of 3

RK&K

Date : July 2018

Figure No. B-2





LEGEND

- Yield Sign
- Stop Sign
- Signal
- Existing Interchange
- Proposed Interchange

U-3125: US 117 from I-40 to I-795. Upgrade to Freeway, with part on New Location

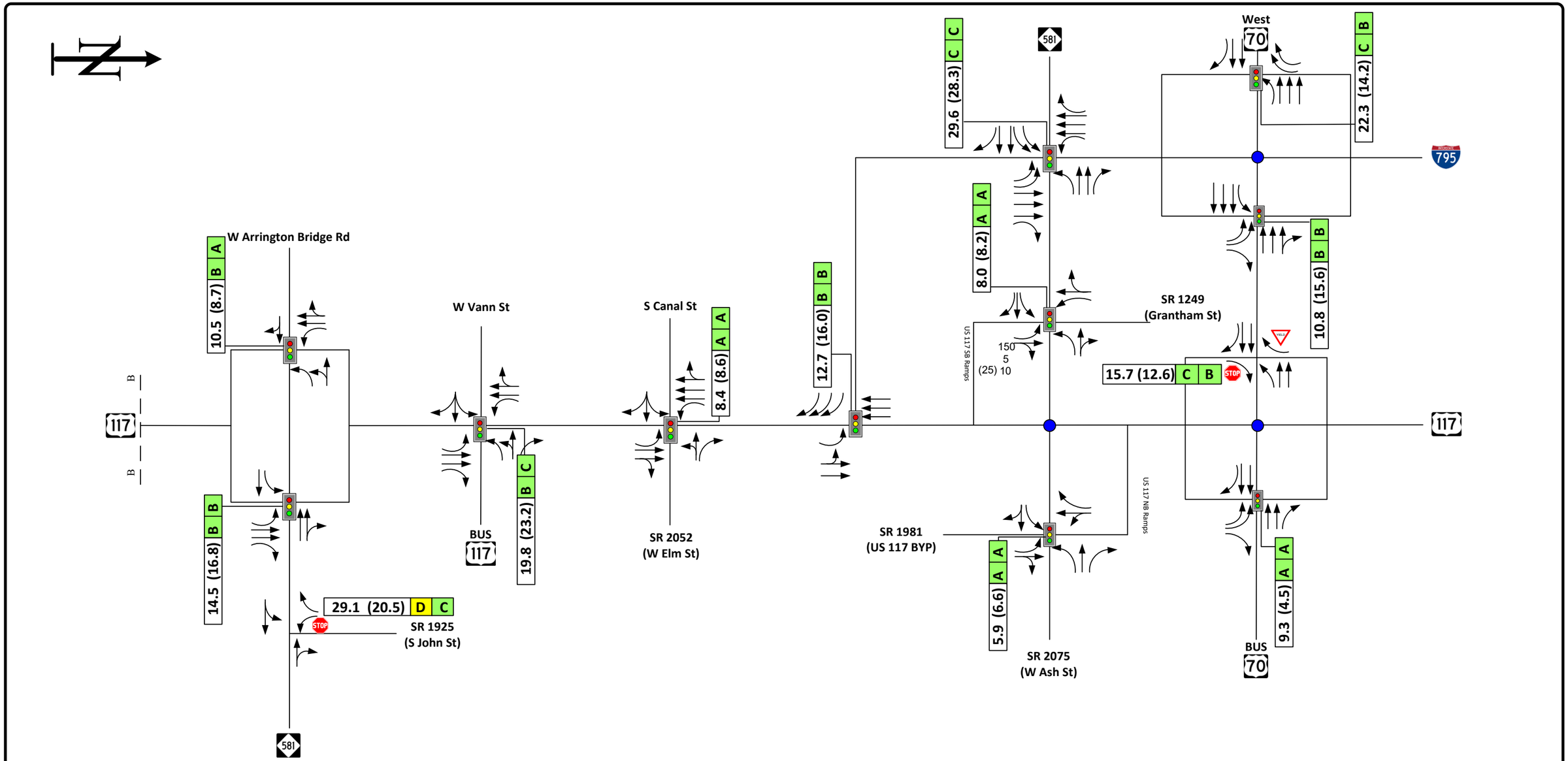
2045 No-Build Delay (seconds/vehicle) and Level of Service

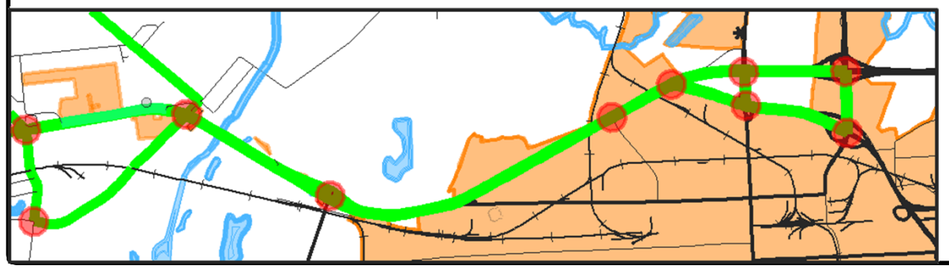
Sheet 2 of 3

RK&K

Date : July 2018

Figure No. B-2





LEGEND

- Yield Sign
- Stop Sign
- Signal
- Existing Interchange
- Proposed Interchange

U-3125: US 117 from I-40 to I-795. Upgrade to Freeway, with part on New Location

2045 No-Build Delay (seconds/vehicle) and Level of Service

Sheet 3 of 3

RK&K

Date
July 2018

Figure
No. B-2

Appendix C

Concurrence Point No. 1 Form

Section 404/NEPA Merger Project Team Meeting Agreement
Concurrence Point No. 1 (December 19, 2018)
Project Purpose and Need and Study Area Defined

STIP Project: U-3125

Project Name/Description: Upgrade approximately 24 miles of the US 117 corridor[1] to interstate standards, part on new location, from I-40 in Sampson County to north of NC 581 (West Ash Street) [I-795] in Wayne County.

Project Purpose: The primary purpose of the proposed project is to enhance north-south mobility in the region by completing the I-795 freeway connection between I-40 and I-95. The freeway connection would provide a high-speed facility with full control of access within the US 117 corridor.

Mobility refers to the ability to efficiently move people and goods safely along single or linked transportation facilities.

Measures of Effectiveness: The measures of effectiveness when comparing alternatives include:

- achieving interstate design standards;
- achieving an average travel speed of 60 mph during peak hour for though traffic along the freeway in the design year (2045); and
- achieving level of service D or better during peak hour at signalized interchange ramp terminals in the design year (2045).

Secondary Benefits: Other desirable outcomes of the project are a reduced potential for crashes due to the elimination of driveways, intersections and at-grade railroad crossings by reducing/eliminating exposure to conflicting movements; and fulfilling the Strategic Transportation Corridor vision.

Study Area: The study area is generally centered along US 117 Connector /US 117 but expands at the I-40 interchange, other major intersections, and in the Goldsboro area to encompass potential interchange locations, grade-separations and/or new alignment alternatives.

The Project Team has concurred on this date of December 19, 2018, on the above-mentioned project purpose and need and the study area as defined for STIP Project U-3125.

USACE	HPO
USEPA	NCDOT
USFWS	Upper Coastal Plain RPO
NCWRC	Eastern Carolina RPO
NCDWR	Goldsboro MPO

[1] In addition to US 117, the "US 117 corridor" refers to the US 117 Connector (from I-40 to US 117 in Calypso), as well as US or NC routes that run concurrently with portions of US 117: US 13, NC 403, and NC 581.