PURPOSE AND NEED AND STUDY AREA DEFINED

I-77 South Express Lanes from the South Carolina State Line to I-277/NC 16 (Brookshire Freeway)

Mecklenburg County

STIP Project I-5718

North Carolina Department of Transportation

Division 10

MERGER CONCURRENCE POINT NUMBER 1

October 2024

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1.0 INTRODUCTION

The Federal Highway Administration (FHWA) is the lead federal agency for this project. Primary points of contact are as follows:

Table 1. I-5718 Primary Points of Contact

Agency	Name
Federal Highway Administration (FHWA)	Clarence Coleman
U.S. Army Corps of Engineers (USACE)	Steve Brumagin
North Carolina Department of Water Resources (NCDWR)	Beth Plummer
North Carolina Department of Transportation (NCDOT)	Sean Epperson
North Carolina Turnpike Authority (NCTA)	Patrick Norman
NCTA (embedded consultant)	Jennifer Harris
RS&H	Jenny Noonkester

The purpose of this meeting is to discuss the purpose and need for the proposed project and to establish the proposed project study area. In accordance with the National Environmental Policy Act (NEPA) and North Carolina Department of Transportation's (NCDOT) Section 404/NEPA Merger Process, NCDOT is seeking concurrence from the Section 404/NEPA Merger Team (Merger Team) on the following:

- Concurrence Point (CP) 1 – Purpose and Need and Study Area Defined

This report provides a brief description of the existing conditions, defines the project study area, explains the project's need, and defines the project's purpose.

1.1 Project Description

NCDOT proposes to widen 11 miles of I-77 in Charlotte from the North Carolina/South Carolina State Line to I-277/NC 16 (Brookshire Freeway) (**Attachment 1 –** Project Vicinity Map). The project is included in NCDOT's current *State Transportation Improvement Program* (STIP) as Project I-5718 (Segments A and B). The proposed improvements include the addition of express lanes, or general purpose and express lanes, reconstruction of interchanges and non-interchange bridges, and addition of access points and direct connectors to the express lanes.

1.2 Project History and Merger Plan

In 2007, Charlotte Regional Transportation Planning Organization (CRTPO) partnered with NCDOT, the South Carolina Department of Transportation (SCDOT), Charlotte DOT (CDOT), and other regional agencies to develop the *Charlotte Region Fast Lanes Study*. The *Fast Lanes Study* analyzed existing and planned highways in ten counties to identify locations where High Occupancy Toll (HOT) lanes/High Occupancy Vehicle (HOV) lanes/truck-only facilities could help manage congestion. The initial findings (Phase I) identified I-77 from north of Gold Hill Road (in South Carolina) to I-277 (Belk Freeway) as one of several corridors for further study for managed

lanes. In the study's second phase, CRTPO evaluated physical designs, operational requirements, revenues, and costs for the corridors that remained after the Phase I screening.

The proposed project is included in the CRTPO *2050 Metropolitan Transportation Plan* (MTP) (adopted March 2022) and is divided into two segments in NCDOT's current 2024-2033 STIP, as follows:

- Segment A – North Carolina/South Carolina State Line to I-277/US 74 (Belk Freeway)
- Segment B – I-277/US 74 (Belk Freeway) to I-277/NC 16 (Brookshire Freeway)

The I-5718A segment is currently funded for preliminary engineering only and the I-5718B segment is currently unfunded. NCDOT and CRTPO are in the process of evaluating funding and project delivery options for this project. The total costs for the project, as estimated in the current STIP, are shown in **Table 2**. Based on the latest Conceptual Phase Cost Estimate Summary (June 2024), the total cost of the project is $3.8 billion. These costs will be updated as the design progresses. The proposed project schedule is shown in **Table 3** and is based on the *I-5718 Merger Plan*. The schedule is preliminary and subject to change.

Table 2. 2024-2033 STIP I-5718 Cost Estimate

Phase	Estimated Cost	
	I-5718A*	I-5718B
Right of Way	$660,000,000	Not Funded
Utilities	$30,900,000	Not Funded
Construction Total	$700,000,000	Not Funded
Total	$1,390,900,000	--

**Funded for Preliminary Engineering Only in Current STIP*

Table 3. Draft I-5718 Project Schedule

Milestone	Format	Anticipated Date*
Combined CP 2/CP 2A meeting	In-Person Meeting	Spring 2025
Environmental Assessment	Electronic Distribution	Summer 2025
Public Meeting	In-Person Meeting	Summer 2025
CP 3 (LEDPA Determination)	In-Person Meeting	Summer/Fall 2025
FONSI	Electronic Distribution	Summer 2026
CP 4A	TBD	TBD
CP 4B	TBD	TBD
CP 4C	TBD	TBD
Begin ROW Acquisition	TBD	TBD
Begin Construction	TBD	TBD

**Draft schedule – subject to change.*
Note: Dates for CP 4A and beyond are dependent upon the final design funding and delivery schedule.

1.3 Nearby STIP Projects

Multiple STIP projects are located in the vicinity of the I-5718 project including road widenings, interchange improvements, bridge replacements, and rail projects. **Attachment 2** (Area Projects Map) shows the location of nearby STIP projects in relation to I-5718, based on the NCDOT's current 2024-2033 STIP (as of May 2024).

2.0 EXISTING CONDITIONS

The project is located within the City of Charlotte, which is the county seat of Mecklenburg County and the largest city in North Carolina. Charlotte was the 7th fastest growing city in the United States by population between 2010 and 2020[1]. I-77 is the primary north-south route in the Charlotte region, serving as the main gateway to Uptown Charlotte. It is also the third most utilized freight corridor in the state based on truck volumes. Based on 2018 traffic volume estimates, segments of I-77 already operate at or above capacity and traffic volumes are projected to continue to increase through the design year (2050)[2].

2.1 Transportation Features

I-77 from the North Carolina/South Carolina State Line to US 29/NC 27 (W. Morehead Street) is a six-lane divided interstate with a posted speed limit of 55 miles per hour (mph). I-77 from US 29/NC 27 (W. Morehead Street) to I-277/NC 16 (Brookshire Freeway) is an eight-lane divided roadway with a posted speed limit of 55 mph. Based on NCDOT's 2018 traffic counts, daily traffic volumes along I-77 range from 116,000 vehicles per day (vpd) for the segment north of I-277 (Belk Freeway)/US 74 to 179,500 vpd for the segment north of Westinghouse Boulevard. There are 13 interchanges, four grade separations (including one greenway crossing), and four railroad bridges on I-77 within the project limits. **Table 4** describes the interchanges within the project limits.

[1] Consumer Affairs, July 2024. *https://www.consumeraffairs.com/homeowners/fastest-growing-cities.html*

[2] Initial traffic estimates for the I-77 project study area were completed using 2018 and 2050 data and are detailed in the *I-5718 – I-77 Widening from SC State Line to I-277/NC 16 (Brookshire Freeway) Mainline Traffic Screening Memo* (July 18, 2022). **These projections were preliminary estimates and intended to guide initial discussions and early concept development only**. The I-5718 Traffic Forecast is underway and will project traffic volumes for a 2022 Base Year and 2050 Future Year No-Build.

Table 4. Project Study Area Interchanges

Interchange	Type	2018 AADT (Vehicles per Day)*
1. Westinghouse Boulevard	Service	29,000-42,000
2. I-485	System	126,000-153,000
3. Arrowood Road	Service	27,500-30,000
4. Nations Ford Road	Service	15,500-18,500
5. Tyvola Road	Service	27,500-52,000
6. NC 49 (S. Tryon Street)/Woodlawn Road	Service	19,000-45,000
7. Clanton Road	Service	19,500
8. Remount Road	Partial Service	12,500-17,000
9. NC 160 (West Boulevard)	Partial Service	15,000-19,000
10. I-277/US 74 (Belk Freeway)	System	99,500 (east of I-77)
11. US 29/NC 27 (W. Morehead Street)	Partial Service	16,000-24,500
12. W. 5th Street/W. Trade Street	Service	5,000-18,500
13. I-277/NC 16 (Brookshire Freeway)	System	133,000 (east of I-77)

**Source: NCDOT Annual Average Daily Traffic (AADT) segment shapefile (volume shown is for cross-street at interchange)*

Additional information about previous studies, as well as local and regional transportation plans is provided in the *I-5718 Purpose and Need Memo* (July 2024).

2.2 Cultural Resources

An archaeological reconnaissance investigation and intensive archaeological survey of the project's area of potential effects (APE) was conducted in January-February 2024. The investigation concluded there are no National Register listed archaeological sites within the project's APE. The investigation recommended that Ground Penetrating Radar (GPR) be used in areas of potential unmarked graves if disturbance to these areas is anticipated, and any impacted graves should be relocated. All identified archaeological sites located within the APE have been considered and all compliance for archaeological resources with Section 106 of the National Historic Preservation Act has been completed for this project. Additional information is provided in the *No National Register of Historic Places Eligible or Listed Archaeological Sites Present Form* dated April 24, 2024.

Based on review of online mapping available from the NC Historic Preservation Office, numerous historic properties and districts are located in the project study area, as listed in **Table 5** and shown on **Attachment 3** (Environmental Features Map). Surveys for any additional historic architectural resources and evaluation of potential impacts to these resources as well as additional coordination with the State Historic Preservation Office (SHPO) will occur during the project development process.

Table 5. Historic Properties/Districts within the Project Study Area

Status	Property/District	HPO Site ID
Potentially eligible for listing on the National Register of Historic Places	The Great Atlantic & Pacific Tea Company Warehouse	MK2256
	McCrorey Heights Historic District	MK3221
	Elmwood/Pinewood Cemetery	MK0072
	Seaboard Street Historic District	MK2658
	South Cedar-West First Street Industrial Historic District	MK2659
Determined eligible for listing on the National Register of Historic Places	Wilmore Local Historic District	MK3252
	Bryant Park	MK2920
	West Morehead Street Industrial Historic District	MK3209
	American Commercial Bank	MK2153
	Piedmont and Northern Railway Linear Historic District	MK3289
	Oaklawn Park Local Historic District	MK3220
	Johnson C. Smith Univ. Historic District	MK2499
	C.W. Kirkland Company	-
	Camp Greene Memorial	MK3179
	Dinkins Cemetery	31MK273
	Charlotte Water Works / Vest Water Treatment Station	MK1815
Listed on the National Register of Historic Places	Wesley Heights Local Historic District	MK1793
	Carolina School Supply Company Building	MK2655
	Carolina Transfer and Store Company Building	MK1852
	Charlotte Coca Cola Bottling Company Plant	MK1819
	Crane Company Building	MK2247
	Grinnell Company – General Fire Extinguisher Co. Complex	MK2643
	Union Storage and Warehouse Company Building	MK2657
	Southern Asbestos Company Mills	MK2715

2.3 Natural Environment

A *Natural Resources Screening Report* (NRSR) was prepared for the project study area in March 2022 to assist in determining natural environmental constraints that may affect the project design. The following is a summary of the findings of the 2022 report.

A review of North Carolina Natural Heritage Program (NCNHRP) database identified 25 managed areas within the project study area, including parks, greenways, open space, and hazard mitigation buyout properties. Water resources in the project study area are part of the Catawba River Basin (United States Geological Survey [USGS] Hydrologic Unit Code [HUC] 03050103). Based on National Hydrography Dataset (NHD) data, updated based on both in-field and additional remote sensing review, the following streams are present within the project study area (from south to north):

- McCullough Branch and its tributaries
- Coffey Creek and its tributaries
- Sugar Creek and its tributaries
- Tributaries to Greenwood Lake
- Kings Branch and its tributaries
- Stewart Creek
- Irwin Creek and its tributaries

Based on USFWS National Wetland Inventory (NWI) data, updated based on both in-field and additional remote sensing review, potential wetlands are present within the Irwin Creek, Kings Branch, Greenwood Lake, Sugar Creek, and Coffey Creek watersheds

There are no designated Outstanding Resource Waters (ORW), High-Quality Waters (HQW), Water Supply I or II Watersheds (WS-I or WS-II), or Section 10 waters within the study area or within 1.0 mile downstream of the project study area. There are also no National Pollutant Discharge Elimination System (NPDES) sites within the project study area. The North Carolina 2020 Final 303(d) list of impaired waters identifies no impaired waters within the project study area or within one mile downstream of the project study area.

This project is within the Catawba River Basin (HUC 03050103), which has riparian buffer rules enforced by the North Carolina Department of Environmental Quality (NCDEQ). However, these buffer rules only apply to the main stem of the Catawba River, which is not located within or in proximity to the project study area.

Based on Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) data, flood hazards areas occur within the project study area along (from south to north) Coffey Creek and tributaries; Sugar Creek and tributaries; Kings Branch; Stewart Creek; and Irwin Creek and tributaries.

The US Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) was reviewed to determine protected species that may occur in the project study area, as shown in **Table 6**, along with the potential for habitat to be present in the project study area.

Table 6. Federally Protected Species Listed Within the Project Study Area

Scientific Name	Common Name	Federal Status	Habitat Potential
Haliaeetus leucocephalus	Bald eagle	Bald and Golden Eagle Protection Act	Unlikely
Myotis septentrionalis	Northern long-eared bat	Threatened	Unknown
Myotis lucifugus	Little brown bat	Under Review	Unknown
Perimyotis subflavus	Tricolored bat	Under Review	Unknown
Lasmigona decorata	Carolina heelsplitter	Endangered	Unlikely
Hexastylis naniflora*	Dwarf-flowered heartleaf	Threatened	Unknown
Amphianthus pusillus*	Little amphianthus	Threatened	Unlikely
Rhus Michauxii	Michaux's sumac	Endangered	Yes
Helianthus Schweinitzii	Schweinitz's sunflower	Endangered	Yes
Echinacea laevigata	Smooth coneflower	Endangered	Yes

Source: IPaC data checked on February 21, 2022.

**These species are not listed for Mecklenburg County, North Carolina. However, a portion of the study area extends into York County, South Carolina, where these species are listed.*

3.0 PROJECT PURPOSE AND NEED

3.1 Identified Needs

I-77 is a critical controlled-access interstate that traverses the City of Charlotte in the north-south direction. I-77 is a major travel corridor for central and western North Carolina and the southeastern United States for the movement of both people and goods. Locally, it serves as the main facility providing direct access to Uptown Charlotte for residents and businesses. With its current traffic demand, I-77 is at or approaching capacity and is anticipated to operate over capacity through design year 2050. The primary needs for the proposed project are described in the following sections.

Existing and Future Traffic Volume Estimates

Year 2018 AADT estimates along I-77 (including C-D roadways) in the project study area range from 116,000 vpd for the segment north of I-277/US 74 (Belk Freeway) to 179,500 vpd for the segment north of Westinghouse Boulevard. I-77 within the project study area is expected to experience substantial growth through 2050 with future No-Build volume estimates exceeding 200,000 vpd without any improvements to the corridor. **Table 7** presents the 2018 and 2050 No-Build traffic volume estimates along I-77 within the study area as well as the percent growth anticipated.

Table 7. Existing and Future Traffic Volumes, Growth Rates

Location	2018 AADT Estimate	2050 No-Build AADT Estimate	Overall Growth (2018-2050)
North of North Carolina/South Carolina State Line	161,000	195,000	21%
North of Westinghouse Boulevard	179,500	212,000	18%
North of I-485	156,000	185,000	19%
North of Arrowood Road	154,000	178,000	16%
North of Nations Ford Road	156,000	178,000	14%
North of Tyvola Road	157,000	181,000	15%
North of NC 49 (S. Tryon Street)/Woodlawn Road	156,000	183,000	17%
North of Clanton Road	165,000	191,000	16%
North of NC 160 (West Boulevard)	174,000	202,000	16%
North of I-277/US 74 (Belk Freeway)	116,000	142,000	22%
North of US 29/NC 27 (W. Morehead Street)	134,000	170,000	27%
North of W. 5th Street/W. Trade Street	138,000	177,000	28%
North of I-277/NC 16 (Brookshire Freeway)	171,000	260,000	52%

Existing and Future Traffic Conditions

Congestion along I-77 within the study area is projected to worsen with future growth and development. No-Build AADT volumes are expected to increase between 14 percent and 52 percent for I-77 segments in the study area between 2018 and 2050. These increases in traffic volumes are expected to degrade traffic operations along I-77 in the future and further diminish Level of Service (LOS), as described in the following sections.

Poor Existing and Projected Traffic Operations

Heavy traffic conditions occur daily along I-77 within the project area, resulting in frequent congestion and delays that hinder north-south mobility within the City of Charlotte and the larger Charlotte region.

An initial review of existing traffic conditions indicates that seven of 13 segments along I-77 through the study area operate at or above capacity (LOS E or F) at least one hour of the day, with the I-77 segment north of Clanton Road operating at or above capacity for 11 hours of the day (which at nearly half the day is the most of any I-77 segment). Segments over capacity create additional congestion along adjacent segments of I-77 that is not reflected in these analysis results. **Table 8** presents the hourly LOS results for 2018 traffic volume estimates for each I-77 mainline segment.

Table 8. Level-of-Service (LOS) Results for 2018 Traffic Volume Estimates

Segment*	Number of Hours at Each LOS			
	LOS C or Better (below capacity)	LOS D (approaching capacity)	LOS E (at capacity)	LOS F (above capacity)
North of North Carolina/South Carolina State Line	17	7	0	0
North of Westinghouse Boulevard	24	0	0	0
North of I-485	24	0	0	0
North of Arrowood Road	14	8	2	0
North of Nations Ford Road	10	7	2	5
North of Tyvola Road	10	7	2	5
North of NC 49 (S. Tryon Street)/ Woodlawn Road	10	7	2	5
North of Clanton Road	10	3	2	9
North of NC 160 (West Boulevard)	10	10	3	1
North of I-277/US 74 (Belk Freeway)	24	0	0	0
North of US 29/NC 27 (W. Morehead Street)	24	0	0	0
North of W. 5th Street/W. Trade Street	23	1	0	0
North of I-277/NC 16 (Brookshire Freeway)	13	10	1	0

**The length of each segment is approximately one mile.*
Note: Bold indicates segments operating at or above capacity for at least one hour of the day.

With 2050 traffic volume estimates, nine of the 13 segments would operate at or above capacity (LOS E or F), with five of those segments operating over capacity at least 10 hours of the day. The segment north of Clanton Road would continue to have the highest number of hours operating at or above capacity, with 17 hours (increased from 11 hours in 2018). Segments over capacity create additional congestion along adjacent segments of I-77 that is not reflected in these analysis results. **Table 9** presents the hourly LOS results for 2050 traffic volume estimates for each I-77 mainline segment.

Table 9. Level-of-Service (LOS) Results for 2050 No-Build Traffic Volume Estimates

Segment*	Number of Hours at Each LOS			
	LOS C or Better (below capacity)	LOS D (approaching capacity)	LOS E (at capacity)	LOS F (above capacity)
North of North Carolina/South Carolina State Line	10	9	3	2
North of Westinghouse Boulevard	22	2	0	0
North of I-485	24	0	0	0
North of Arrowood Road	10	8	2	4
North of Nations Ford Road	9	0	0	15
North of Tyvola Road	9	0	0	15
North of NC 49 (S. Tryon Street)/ Woodlawn Road	8	0	0	16
North of Clanton Road	7	0	0	17
North of NC 160 (West Boulevard)	10	2	2	10
North of I-277/US 74 (Belk Freeway)	22	2	0	0
North of US 29/NC 27 (W. Morehead Street)	21	3	0	0
North of W. 5th Street/W. Trade Street	14	9	1	0
North of I-277/NC 16 (Brookshire Freeway)	10	11	3	0

**The length of each segment is approximately one mile.*
Note: Bold indicates segments operating at or above capacity for at least one hour of the day.

Lack of Travel Time Reliability

Existing travel speeds along the project corridor are well below the posted speed limit during at least one peak period of the day and often during additional hours as well. Trips take more than twice as long as they would under free flow conditions for multiple hours each day for both directions or travel, and trips take up to five and half times as long during peak hours.

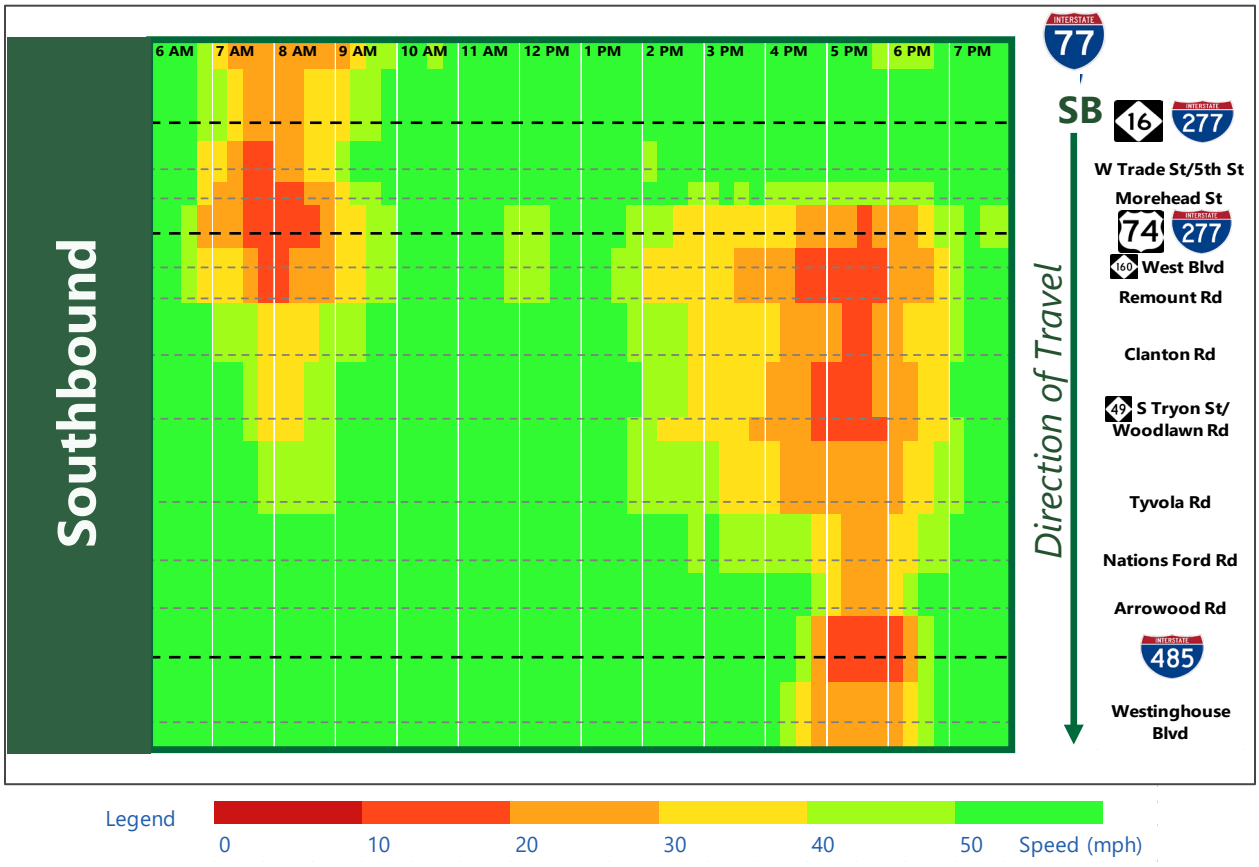
Travel Speeds[3]

The majority of the I-77 network in the analysis area experiences travel speeds of less than 30 miles per hour (mph) during at least one of the peak periods, while the posted speed limit along I-77 is 55 mph. In addition, both directions of I-77 have sections of the corridor with average

[3] *Traffic speeds were obtained from HERE data gathered from January 1 to December 31, 2019. Data consists of all time periods from 6:00 AM to 8:00 PM on Tuesdays, Wednesdays, and Thursdays. Travel speed data was collected in 15-minute increments.*

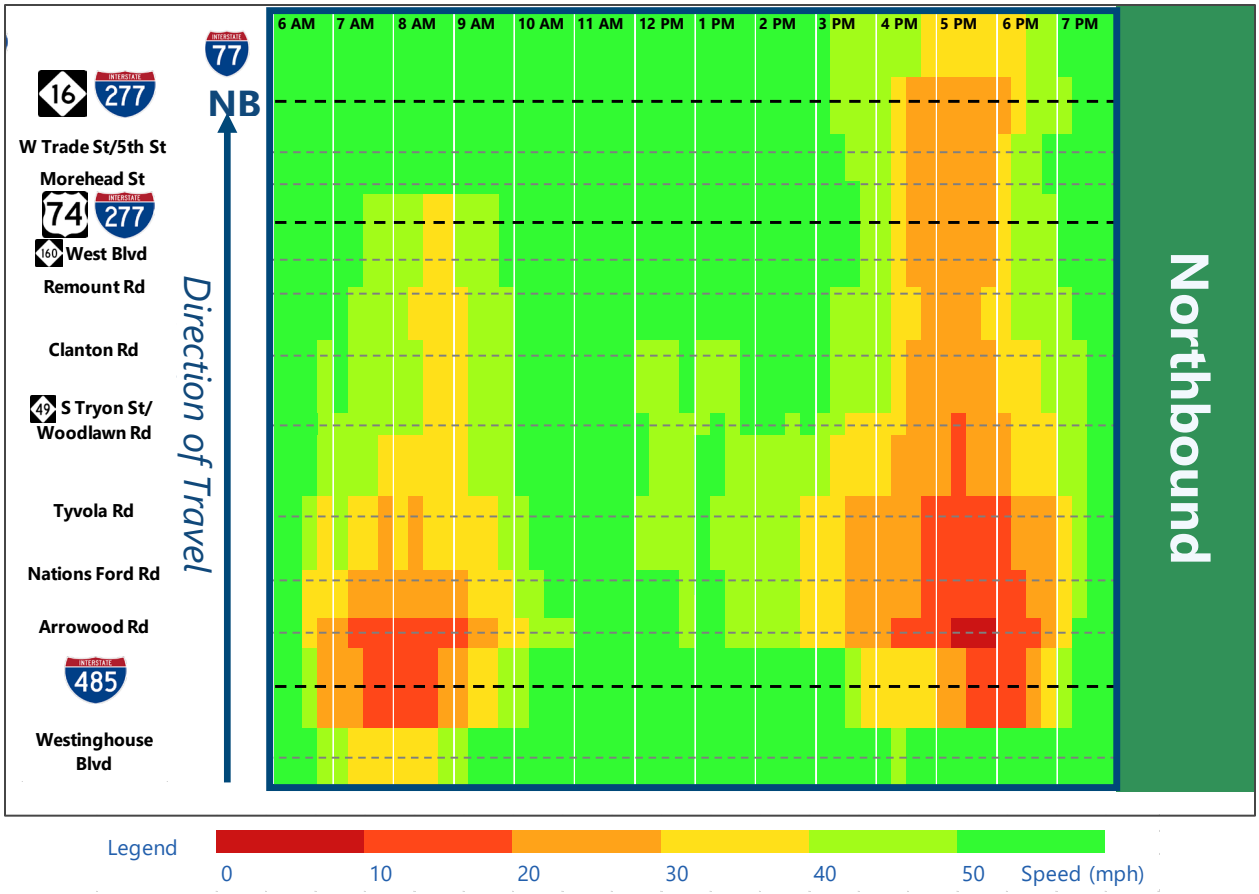
speeds below 30 mph for over five hours on the average weekday. Average weekday speeds in 2019 by segment for I-77 southbound and I-77 northbound are shown in **Figure 1** and **Figure 2**, respectively.

Figure 1. 2019 Average Weekday Speed Along I-77 (Southbound)



Source: Ritis.org Probe Data Analytics Suite. HERE Data for January 1 through December 31, 2019, for Tuesday, Wednesday, and Thursday. Accessed October 14, 2021. [Regional Integrated Transportation Information System (Ritis) website](#).

Figure 2. 2019 Average Weekday Speed Along I-77 (Northbound)



Source: Ritis.org Probe Data Analytics Suite. HERE Data for January 1 through December 31, 2019, for Tuesday, Wednesday, and Thursday. Accessed October 14, 2021. Regional Integrated Transportation Information System (Ritis) website.

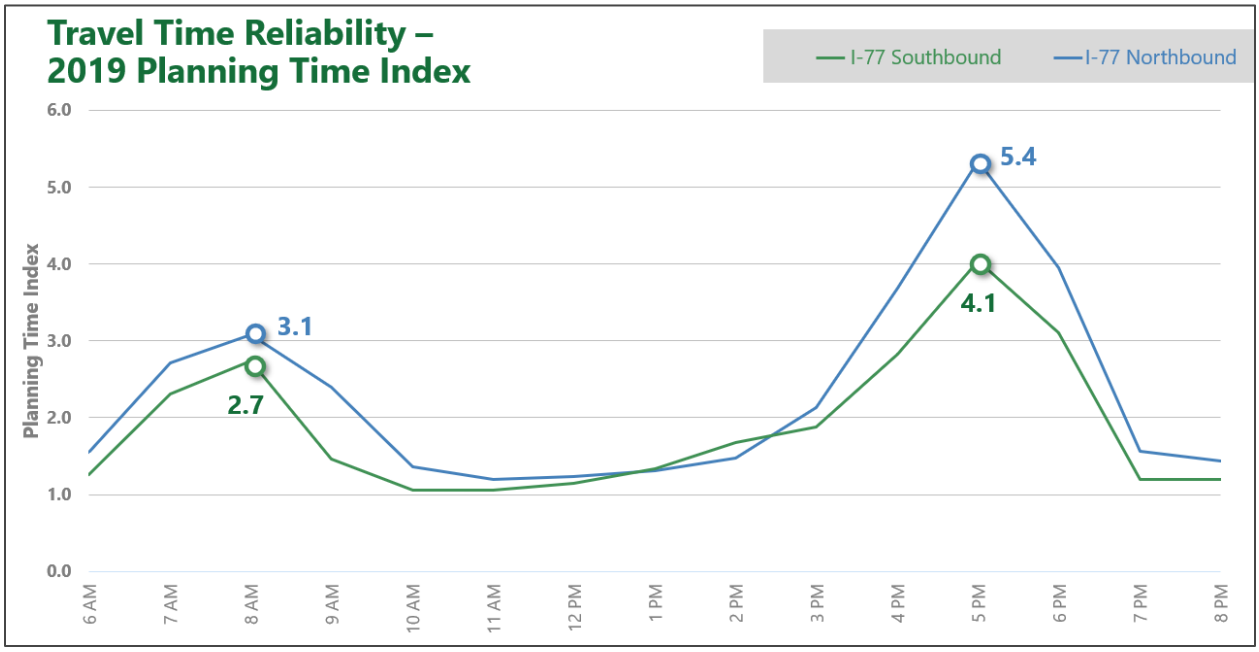
Planning Time Index[4]

The Planning Time Index (PTI) is the total time needed to plan for an on-time arrival 95 percent of the time and is therefore an indication of travel time reliability. As shown on **Figure 3**, the overall corridor PTI in 2019 for both I-77 southbound and I-77 northbound is approximately 3.0 in the AM peak hour, meaning the total time that should be planned for the trip is three times longer than it would be under free flow conditions. Heavy congestion in the PM peak hour results in an overall corridor PTI of 4.1 for I-77 southbound and 5.4 for I-77 northbound.

When looking at all hours of the day, PTI for I-77 northbound exceeds 2.0 for seven hours of the day and PTI for I-77 southbound exceeds 2.0 for five hours of the day.

[4] *PTI data was collected in 1-hour increments.*

Figure 3. 2019 Planning Time Index for I-77 Northbound and Southbound



Inability to Serve High-Speed Regional Travel Consistent with the Designations and Goals of Federal, State, and Local Transportation Plans

Congestion on I-77 inhibits regional travel and diminishes the ability of I-77 to function as part of a larger system of designated routes. Due to its national importance, I-77 has been identified by US Department of Transportation (USDOT) as a critical highway portion of the US freight system on the National Highway Freight Network (NHFN). The FHWA, in partnership with the Department of Defense, also designated I-77 as part of a system of roads necessary to support US military operations called the Strategic Highway Network (STRAHNET). Due to its statewide and regional importance, I-77 has been designated as a Strategic Transportation Corridor by NCDOT and is part of the North Carolina Intrastate System. Both designations call for this corridor to serve high-speed regional travel. Existing and projected poor LOS along the I-77 project study corridor diminish the roadway's ability to function as part of these networks.

Existing Crash Data

The following information is summarized from the *I-5718 Crash Data Analysis Memorandum* (April 2023). Based on five-year crash data provided by the NCDOT Traffic Safety Unit for November 2017 through October 2022, the crash rate for I-77 within the study area was approximately 340 crashes per 100 million vehicle miles traveled (MVMT). This is over two and a half times the statewide crash rate for urban interstates of 129 crashes per 100 MVMT. Over the same time period, the fatal crash rate within the study area was 0.47 fatal crashes per 100 MVMT, which is similar to the statewide fatal crash rate for urban interstates of 0.44 per 100 MVMT. Crash rates for the I-77 corridor for northbound and southbound directions can be seen in **Figure 4** and **Figure 5**, respectively.

Figure 4. I-77 Northbound Crash Rates (November 2017 thru October 2022)

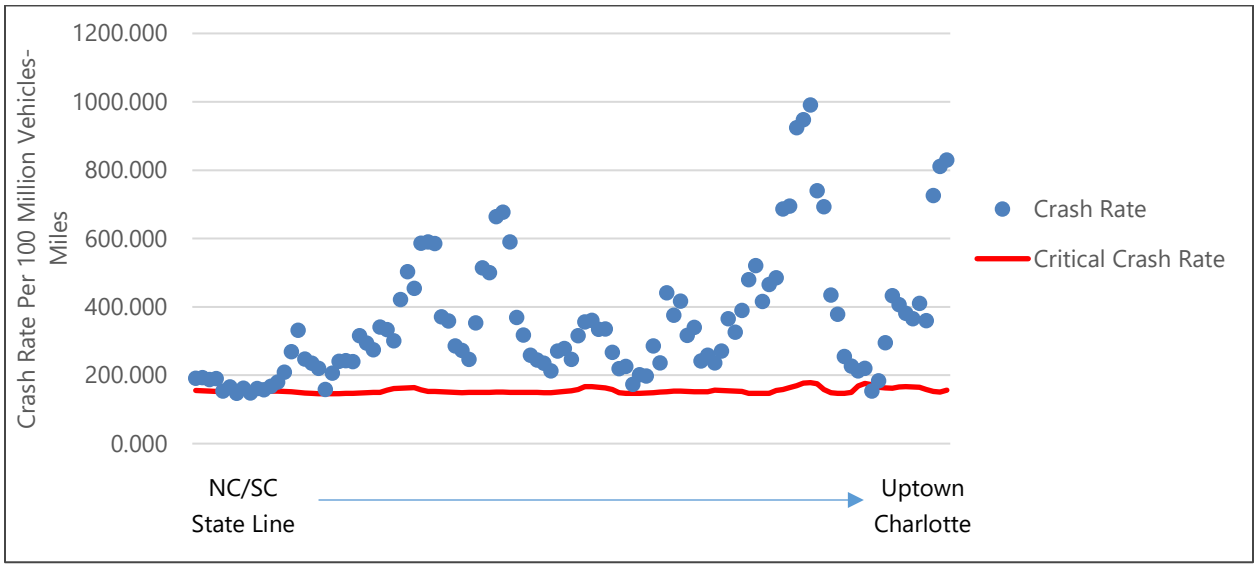
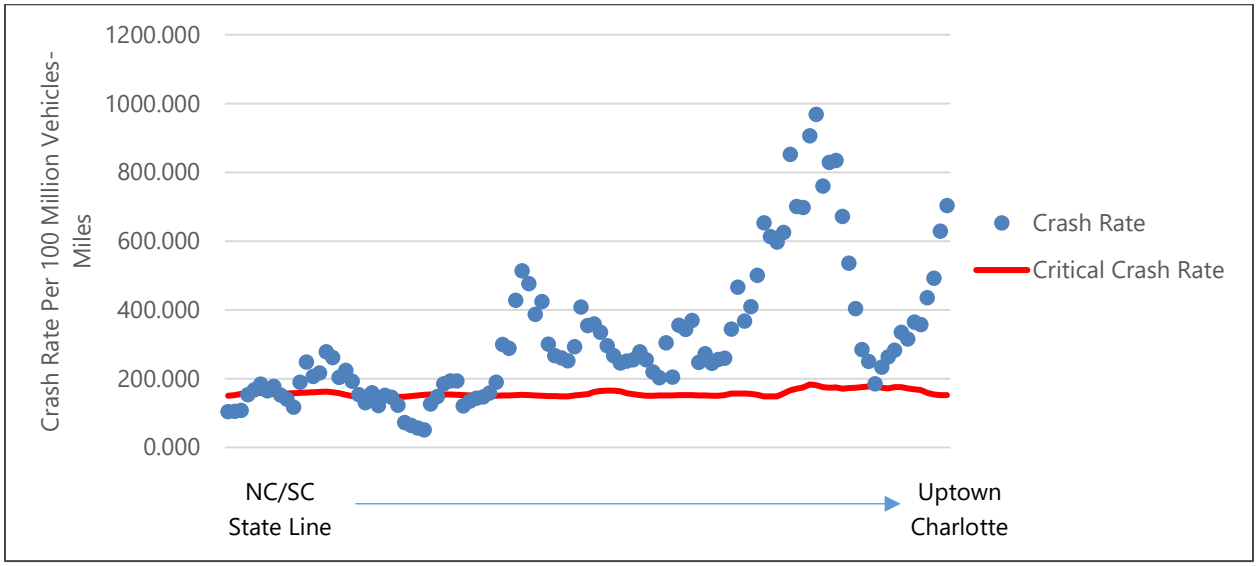


Figure 5. I-77 Southbound Crash Rates (November 2017 thru October 2022)



There were 9,765 reported crashes over the five-year period. As shown in **Table 10**, the majority of these crashes were rear end collisions. The most significant peak in crashes in the northbound direction was between the NC 160 (West Boulevard) and US 29/NC 27 (W. Morehead Street) interchanges, including the I-277/US 74 (Belk Freeway) interchange. The most significant peak in crashes in the southbound direction was around the W. 5th Street, W. Trade Street, and I-277/NC 16 (Brookshire Freeway) interchanges. It was noted that both of these peak areas correspond to the location of a work zone from approximately 2017 to 2019 that widened I-77 and added express lanes north of I-277/NC 16 (Brookshire Freeway).

Table 10. Directional Crash Type Summary

Direction	Ran Off Road[1]	Rear-End	Sideswipe	Frontal Impact[2]	Pedestrian	Other[3]	Total Crashes
I-77 Northbound	450	3,124	1,350	39	6	261	5,230
I-77 Southbound	414	2,556	1,295	27	5	238	4,535

Source: NCDOT Traffic Safety Unit, Five-year crash data, November 2017 thru October 2022

[1]Ran-off Road crashes include Ran-off Road (right, left, or straight), Fixed Object, Overturn/Rollover, Sideswipe-Opposite Direction, Parked Vehicle, and Head-On

[2]Frontal Impact crashes include Angle, Left Turn (same or different roadways), and Right Turn (same or different roadways)

[3]Other types of crashes include Unknown, Jackknife, Other Non-Crashes, Animal, Movable Objects, Backing Up, and Other Crashes with Vehicle

3.2 Proposed Purpose

The purpose of the proposed project is to:

- Manage congestion by providing an option for reliable travel time along I-77 from the North Carolina/South Carolina State Line to I-277/NC 16 (Brookshire Freeway)
- Implement managed lanes consistent with recommendations from the *Fast Lanes Study* and *CRTPO 2050 MTP*
- Improve traffic operations by increasing travel speed and increasing throughput along I-77 from the North Carolina/South Carolina State Line to I-277/NC 16 (Brookshire Freeway)

Additional benefits of the proposed project include:

- Reduce congestion-related crashes
- Support planned economic growth
- Encourage transit usage to promote mode shift and improve air quality

4.0 PROJECT STUDY AREA DEFINED

The I-5718 project limits extend from the North Carolina/South Carolina State Line to I-277/NC 16 (Brookshire Freeway). The project study area (**Attachment 4**) includes the I-77 corridor with a 500-foot buffer on either side of the centerline (1,000 feet total width) and generally extends one-quarter mile from ramp termini intersections with a minimum width of 400 feet along the cross streets. The project study area was further expanded as needed at complex interchanges to ensure design options under consideration could be accommodated. The project study area is intentionally broad to allow for evaluation of a range of design alternatives and does not represent the actual impact area of the project. Evaluation of impacts of the design alternatives will be presented in the environmental document.

5.0 AVOIDANCE AND MINIMIZATION

Planning Phase and CP 1

The I-77 corridor is heavily developed and surrounded by a number of important community and natural resources. Commercial and residential development are widespread along the interstate and at interchanges. New and established neighborhoods have homes located less than 100' from the existing edge of travel along I-77 and some commercial buildings are as close as 30' from interchange ramps. Parks and recreational resources as well as a cemetery are situated just a few feet off the existing right-of-way with minimal to no buffer between the resources and interstate.

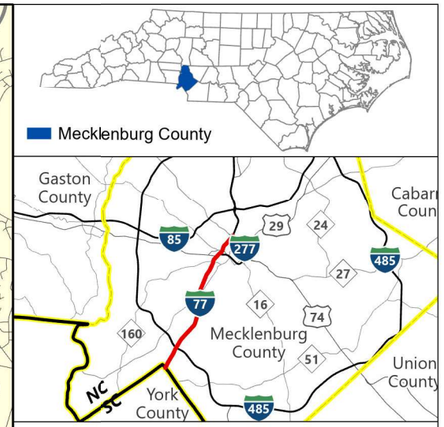
Given the substantial constraints present along the corridor, extensive minimization efforts are expected throughout the project development process. The following minimization efforts were incorporated into the development of early design concepts:

- In selecting alignments for the mainline concepts, project designers used a best-fit alignment to minimize impacts to identified stream, wetlands, and recreational resources.
- In selecting interchange concepts to carry forward for functional design, the project team considered impacts to streams, wetlands, community resources, cultural resources, and Environmental Justice communities.

6.0 MERGER PLAN REVIEW/NEXT STEPS

Based on the Merger Plan for the project, NCDOT proposes that the next Merger Meeting will be a combined CP 2 (Alternatives Considered) and CP 2A (Major Hydraulic Crossing Structures and Alignment Defined) meeting.

Prior to the next Merger Meeting, NCDOT will complete the traffic forecast, Hydraulic Planning Report, Natural Resources Technical Report, Concept Screening Report, and functional roadway designs. It is anticipated that the combined CP 2/CP 2A meeting will be held in six to nine months; Merger Team members will be notified of any changes that require a revision of this timetable.



LEGEND

- Project Interchange
- I-5718 Project Limits
- Railroad
- Municipal Boundary
- County Boundary
- State Boundary

#	Interchange Name
1	Westinghouse Boulevard
2	I-485
3	Arrowood Road
4	Nations Ford Road
5	Tyvola Road
6	NC 49 (S Tryon Street)/Woodlawn Road
7	Clanton Road
8	Remount Road
9	NC 160 (West Boulevard)
10	I-277/US 74 (Belk Freeway)
11	US 29/NC 27 (W. Morehead Street)
12	W. 5th Street/W. Trade Street
13	I-277/NC 16 (Brookshire Freeway)

0 1.25 2.5 Miles

I-77 South Express Lanes

Widen I-77 to include express lanes from the SC State Line to I-277/NC 16 (Brookshire Freeway)

STIP No. I-5718

WBS: 49020.1.1 | **Division** 10

NORTH CAROLINA Turnpike Authority

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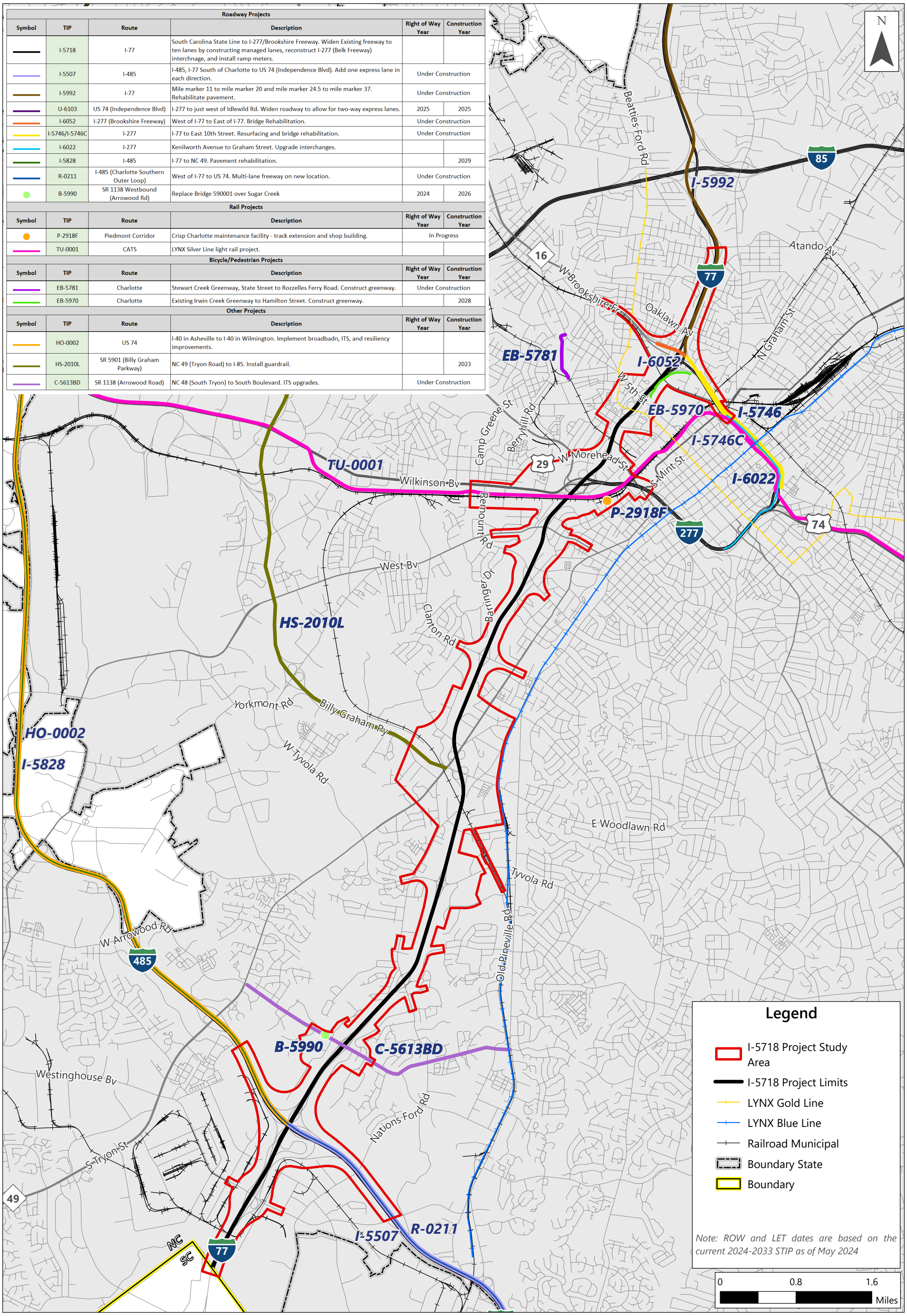
Attachment 1

Project Vicinity Map

July 2024

Roadway Projects					
Symbol	TIP	Route	Description	Right of Way Year	Construction Year
	I-5718	I-77	South Carolina State Line to I-277/Brookshire Freeway. Widen Existing freeway to ten lanes by constructing managed lanes, reconstruct I-277 (Belk Freeway) interchnage, and install ramp meters.		
	I-5507	I-485	I-485, I-77 South of Charlotte to US 74 (Independence Blvd). Add one express lane in each direction.	Under Construction	
	I-5992	I-77	Mile marker 11 to mile marker 20 and mile marker 24.5 to mile marker 37. Rehabilitate pavement.	Under Construction	
	U-6103	US 74 (Independence Blvd)	I-277 to just west of Idlewild Rd. Widen roadway to allow for two-way express lanes.	2025	2025
	I-6052	I-277 (Brookshire Freeway)	West of I-77 to East of I-77. Bridge Rehabilitation.	Under Construction	
	I-5746/I-5746C	I-277	I-77 to East 10th Street. Resurfacing and bridge rehabilitation.	Under Construction	
	I-6022	I-277	Kenilworth Avenue to Graham Street. Upgrade interchanges.		
	I-5828	I-485	I-77 to NC 49. Pavement rehabilitation.		2029
	R-0211	I-485 (Charlotte Southern Outer Loop)	West of I-77 to US 74. Multi-lane freeway on new location.	Under Construction	
	B-5990	SR 1138 Westbound (Arrowood Rd)	Replace Bridge 590001 over Sugar Creek	2024	2026
Rail Projects					
Symbol	TIP	Route	Description	Right of Way Year	Construction Year
	P-2918F	Piedmont Corridor	Crisp Charlotte maintenance facility - track extension and shop building.	In Progress	
	TU-0001	CATS	LYNX Silver Line light rail project.		
Bicycle/Pedestrian Projects					
Symbol	TIP	Route	Description	Right of Way Year	Construction Year
	EB-5781	Charlotte	Stewart Creek Greenway, State Street to Rozzelles Ferry Road. Construct greenway.	Under Construction	
	EB-5970	Charlotte	Existing Irwin Creek Greenway to Hamilton Street. Construct greenway.		2028
Other Projects					
Symbol	TIP	Route	Description	Right of Way Year	Construction Year
	HO-0002	US 74	I-40 in Asheville to I-40 in Wilmington. Implement broadbadn, ITS, and resiliency improvements.		
	HS-2010L	SR 5901 (Billy Graham Parkway)	NC 49 (Tryon Road) to I-85. Install guardrail.		2023
	C-5613BD	SR 1138 (Arrowood Road)	NC 48 (South Tryon) to South Boulevard. ITS upgrades.	Under Construction	



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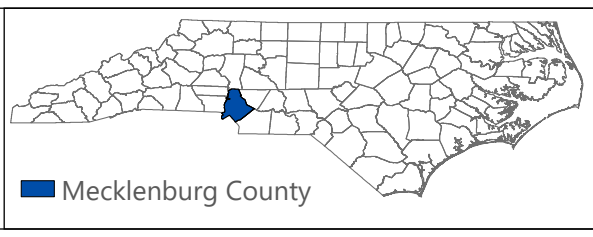


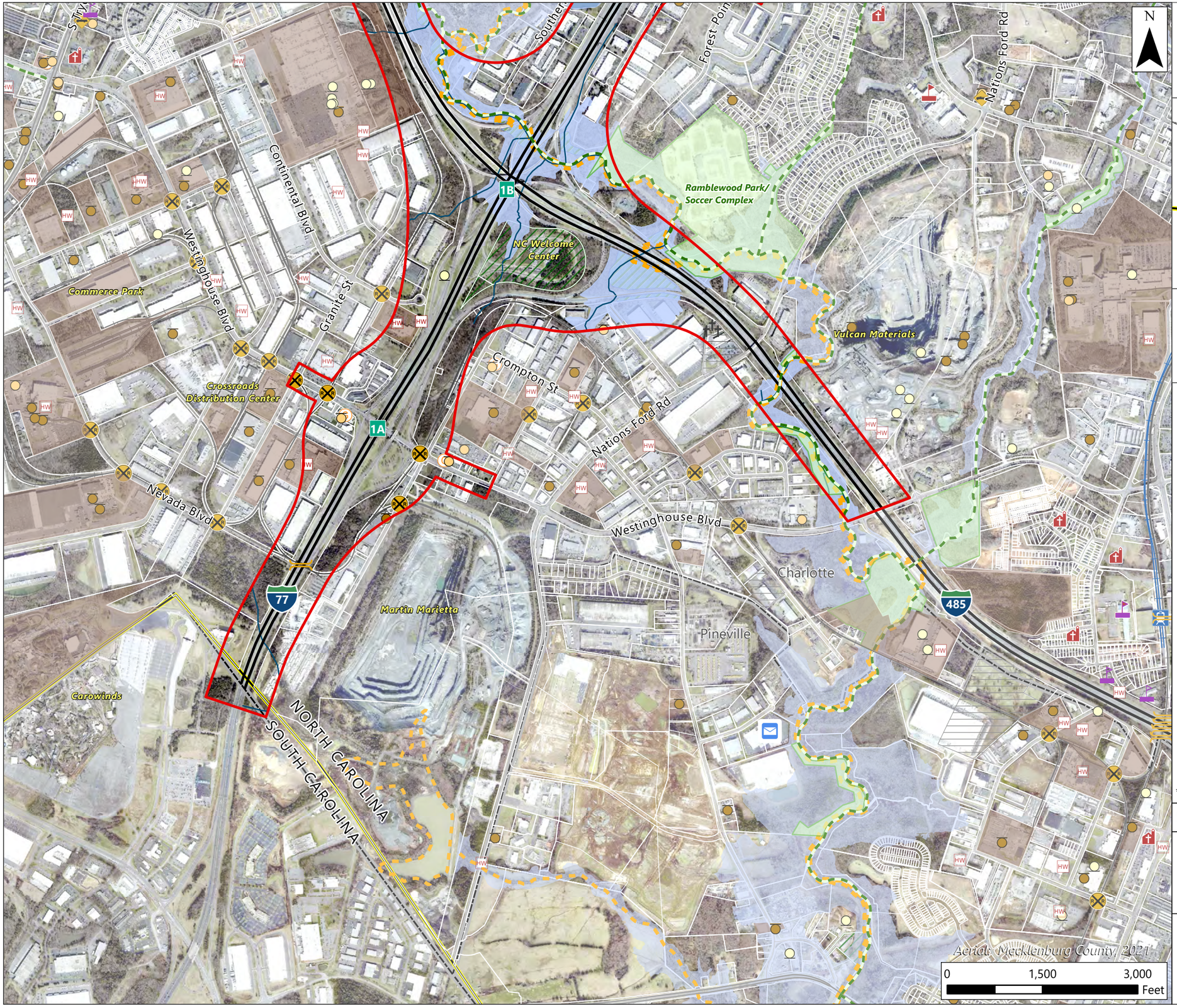
I-77 South Express Lanes

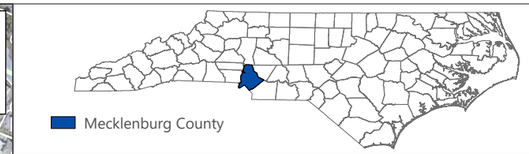
Widen I-77 to include express lanes from the SC State Line to I-277/NC 16 (Brookshire Freeway)

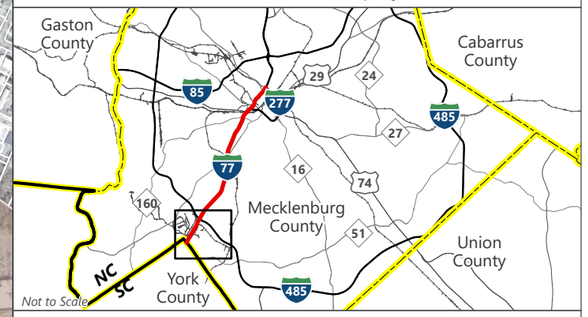
STIP: I-5718 **WBS:** 49020.1.1 **Division:** 10

Attachment 2 Area Projects Map

August 2024







I-77 South Express Lanes

Widen I-77 to include express lanes from the SC State Line to I-277/NC 16 (Brookshire Freeway)

Legend

- Project Study Area
- I-77 Exit No.
- Railroad Bridge
- At-Grade Rail Crossing
- Railroad
- Educational Institution
- Child Care Facility
- Place of Worship
- Library
- Post Office
- Hospital
- Fire Station/EMS
- Recreation Center
- Historic Property
- Historic Property/District
- Cemetery
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- State Owned Land
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- Future/Proposed Greenway
- Signed Bike Route
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- LYNX Blue Line
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- Gas Station
- Geoenvironmental Site of Concern
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- Active Underground Storage Tank
- Underground Storage Tank Incident
- 303(d)Impaired Stream
- Contamination Site
- Creek/Stream/Waterbody*
- Wetland*
- 100 Year Floodplain
- Parcel Boundary
- County Boundary
- State Boundary

** based on preliminary field visit verification*

STIP: I-5718 **WBS:** 49020.1.1 **Division:** 10

NORTH CAROLINA Turnpike Authority

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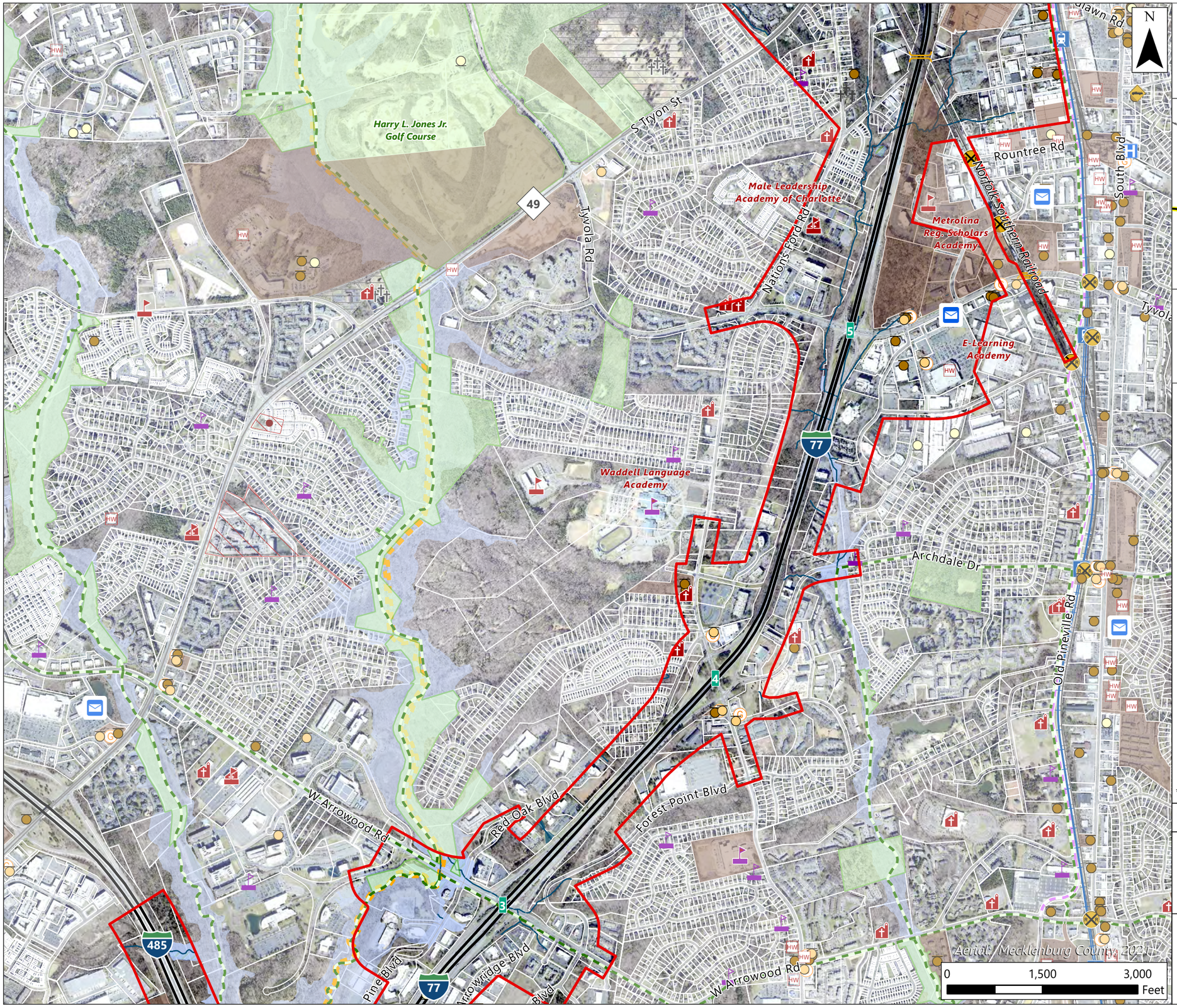
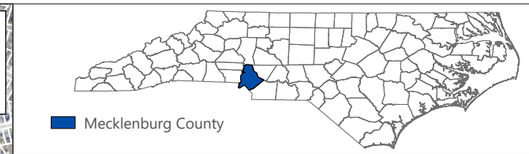
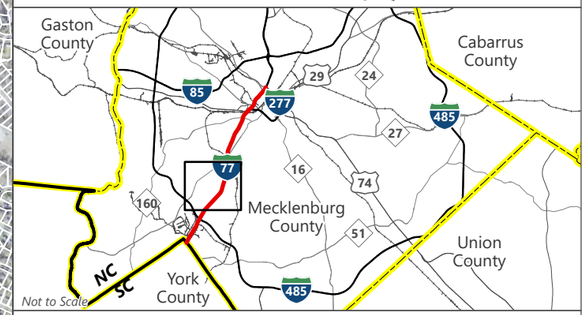
Attachment 3
Environmental Features Map

Sheet 1 of 4







I-77 South Express Lanes

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** based on preliminary field visit verification*

STIP: I-5718 **WBS:** 49020.1.1 **Division:** 10

NORTH CAROLINA Turnpike Authority

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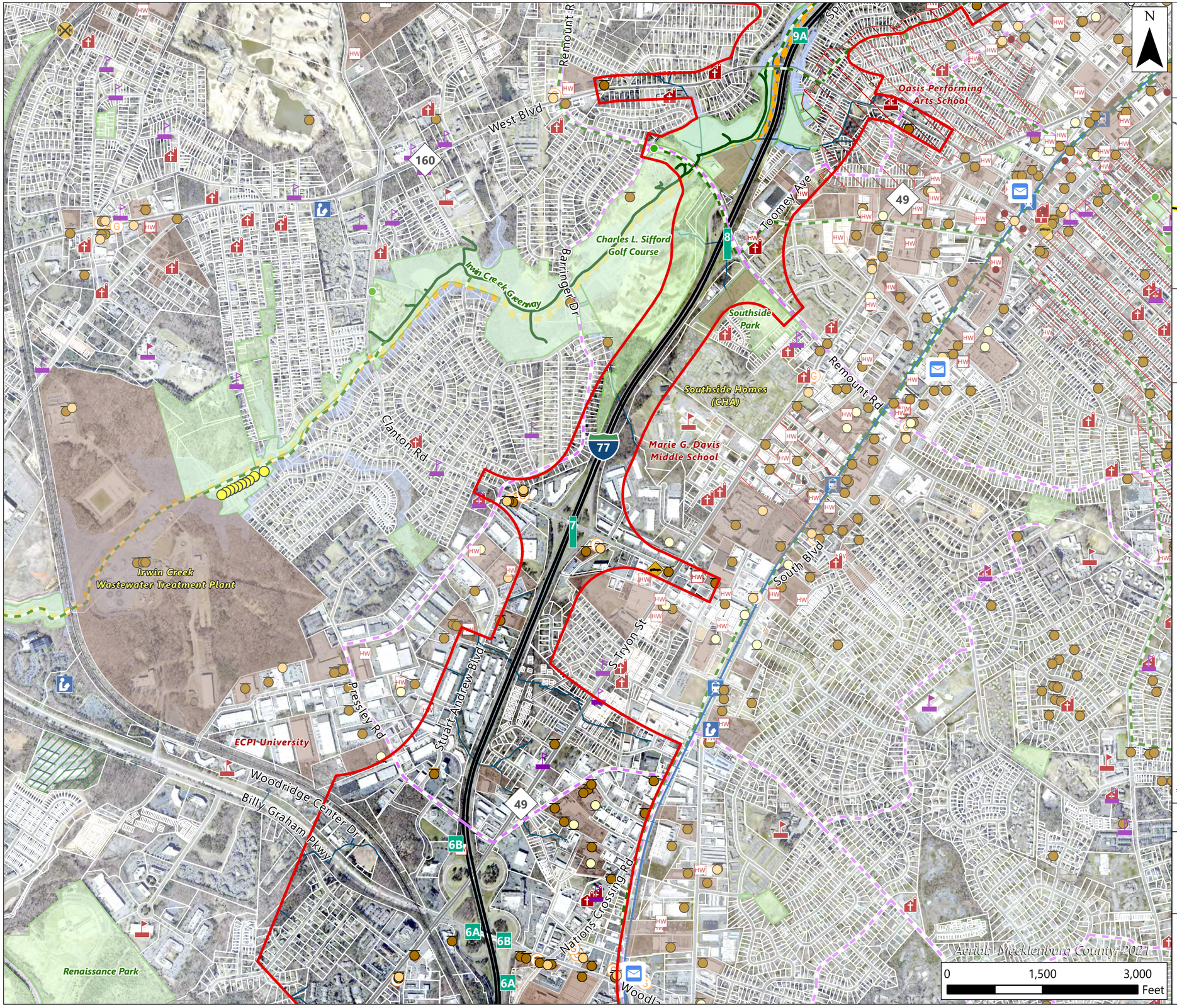
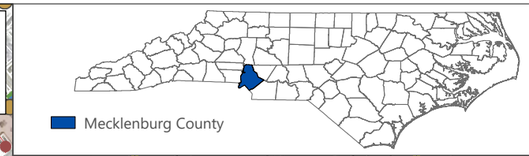
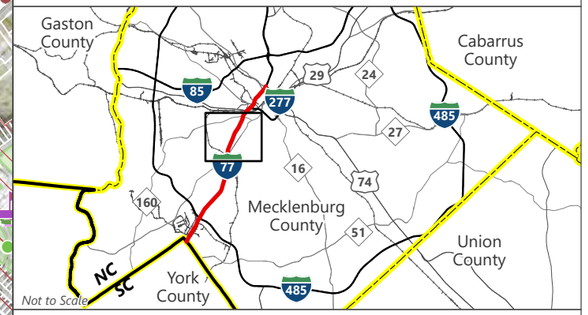
Attachment 3
Environmental Features Map

Sheet 2 of 4







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** based on preliminary field visit verification*

STIP: I-5718 **WBS:** 49020.1.1 **Division:** 10

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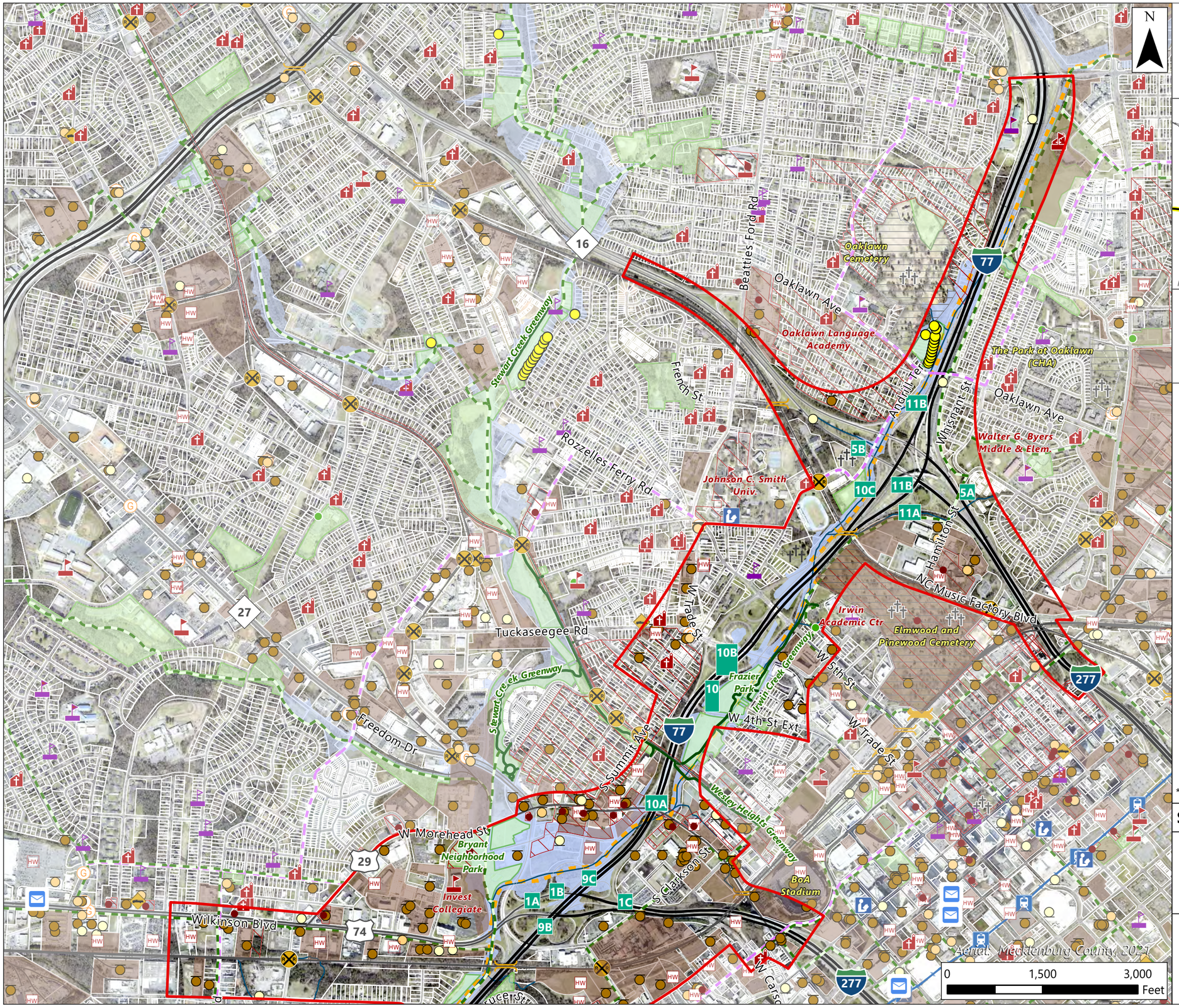
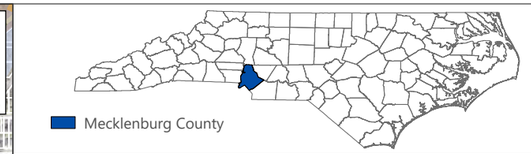
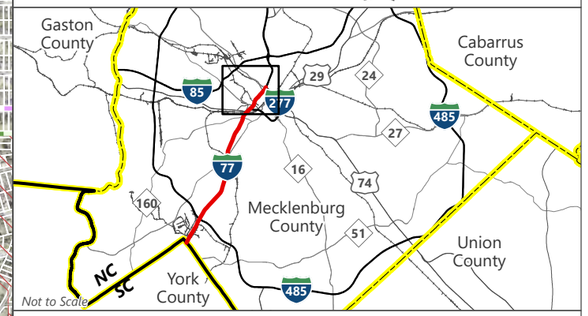
Attachment 3
Environmental Features Map

Sheet 3 of 4







I-77 South Express Lanes

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** based on preliminary field visit verification*

STIP: I-5718 **WBS:** 49020.1.1 **Division:** 10

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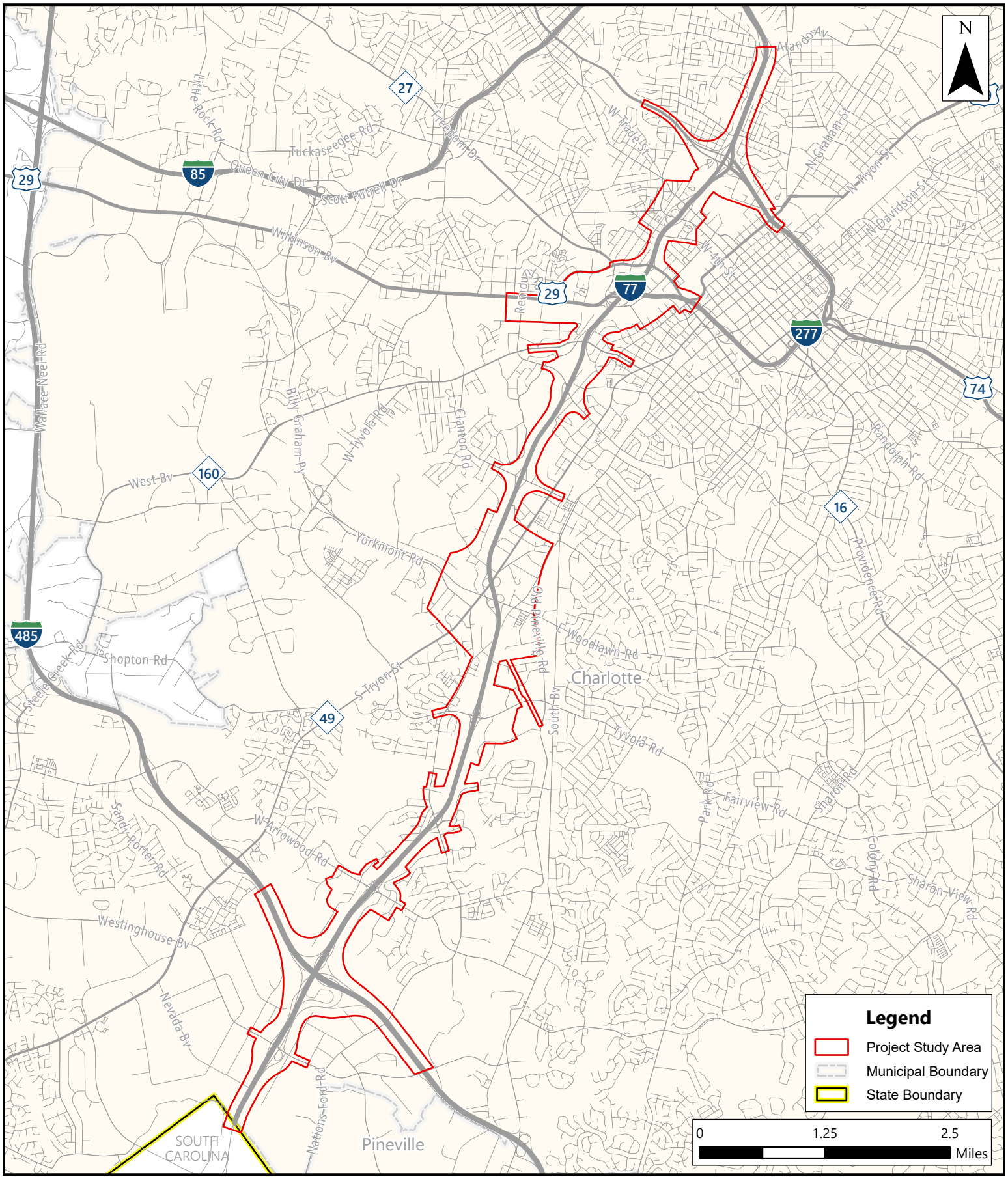
Attachment 3
Environmental Features Map

Sheet 4 of 4



NORTH CAROLINA Turnpike Authority

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Mecklenburg

I-77 South Express Lanes

Widen I-77 to include express lanes from the SC State Line to I-277/NC 16 (Brookshire Freeway).

STIP: I-5718 **WBS:** 49020.1.1 **Division:** 10

Attachment 4

Project Study Area Map

July 2024