



NORTH CAROLINA  
**Turnpike Authority**

A Division of NCDOT



Volume 1  
Text and Figures,  
Appendices B, C, D, and E

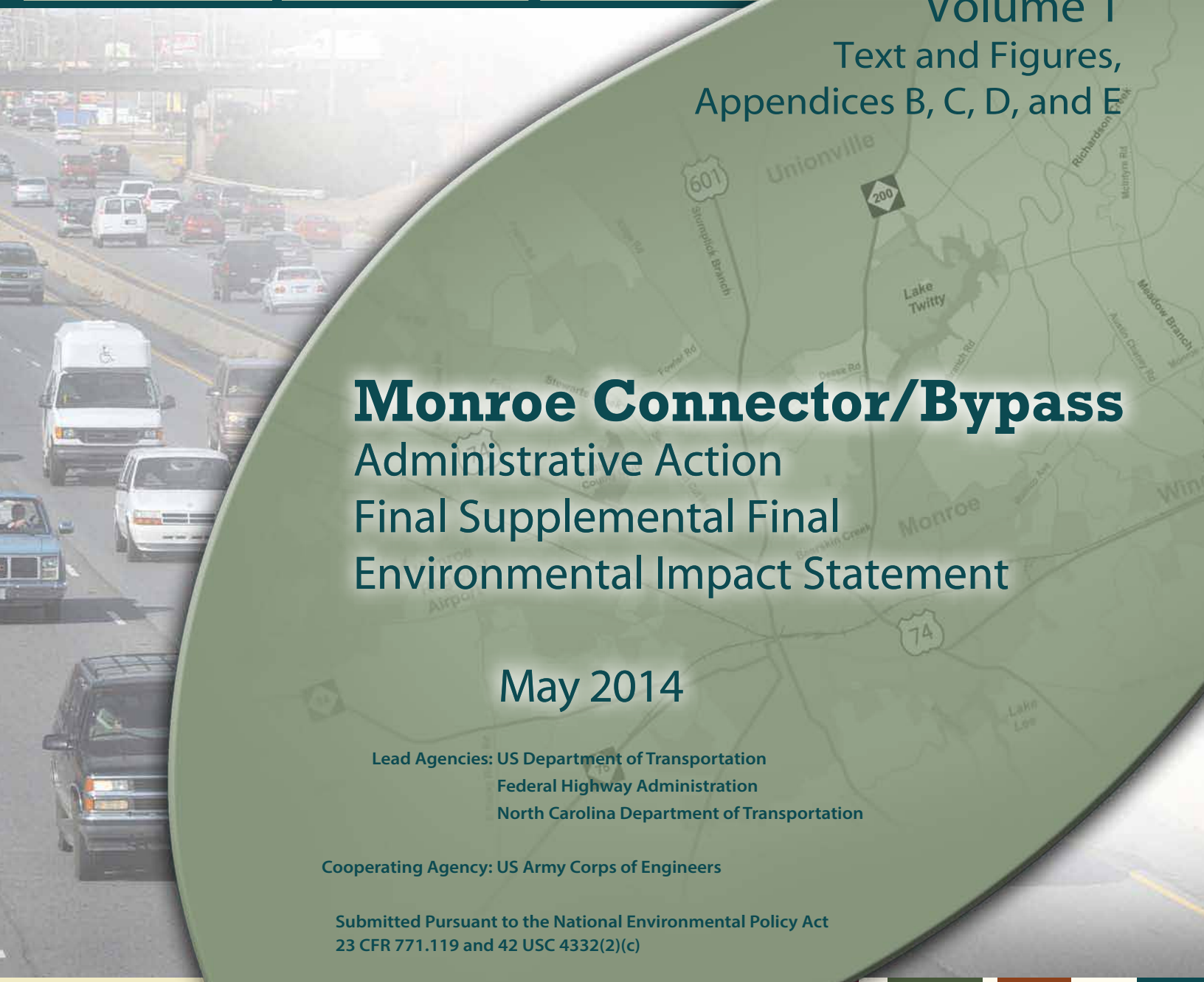
**Monroe Connector/Bypass**  
Administrative Action  
Final Supplemental Final  
Environmental Impact Statement

May 2014

Lead Agencies: US Department of Transportation  
Federal Highway Administration  
North Carolina Department of Transportation

Cooperating Agency: US Army Corps of Engineers

Submitted Pursuant to the National Environmental Policy Act  
23 CFR 771.119 and 42 USC 4332(2)(c)



## **ABSTRACT**

The proposed action is the construction of a controlled-access toll facility extending from US 74 near I-485 in Mecklenburg County to US 74 between the towns of Wingate and Marshville in Union County, a distance of approximately 20 miles. This *Final Supplemental Final Environmental Impact Statement* (EIS) and the *Draft Supplemental Final EIS* signed on November 8, 2013 were developed to supplement the May 25, 2010 *Final EIS* for the Monroe Connector/Bypass.

On May 3, 2012 the United States Court of Appeals for the Fourth Circuit in *North Carolina Wildlife Federation, Clean Air Carolina; Yadkin Riverkeeper v. North Carolina Department of Transportation and Federal Highway Administration*, No. 11-2210, held that the Federal Highway Administration (FHWA) and the North Carolina Department of Transportation (NCDOT) had not complied with the provisions of the National Environmental Policy Act (NEPA) by failing to disclose critical assumptions underlying their decision to build the proposed project and by providing the public with incorrect information. Specifically, in addressing public comments on the project as to whether the data set used as the project's no-build scenario for the indirect and cumulative analysis contained the project, the agencies responded "TAZ [Traffic Analysis Zone] socioeconomic forecasts for the No Build Scenario did not include the Monroe Connector. MUMPO [Mecklenburg-Union Metropolitan Planning Organization] confirmed our assumption regarding the reasonableness of the 2030 TAZ forecasts for use as a No Build basis." The second sentence accurately reflects the agencies' final conclusion, but the first sentence is not correct. Travel time to employment, one of eight land development factors for Union County used to project no-build growth estimates for the year 2030, presumed the presence of the proposed Monroe Connector/Bypass. As a result, the data relied upon to reflect the no build scenario included a build assumption.

In response to the court's decision, FHWA rescinded the Record of Decision (ROD) for this project on July 3, 2012. NCDOT and FHWA then re-initiated the NEPA process and developed the *Draft Supplemental Final EIS*, which addresses current environmental conditions and focuses on any changes that have occurred with regards to the project (note: there have been no changes in the proposed action), the alternatives analysis, the affected environment and impacts, and any new issues or information identified since the *Final EIS* was published. It also documents the assumptions and methods underlying the modeling for the quantitative indirect and cumulative effects analysis at issue in the prior litigation, documents the actions taken to test the propriety of using the data set provided by MUMPO, and explains how and why the agencies determined the no-build and build models for the indirect and cumulative effects analysis are reasonable and enable a meaningful comparison of the environmental impacts associated with the Build and No-Build Scenarios.

This *Final Supplemental Final EIS* summarizes information presented in the *Draft Supplemental Final EIS*; reviews information that has been made available since the *Draft Supplemental Final EIS* and analyzes the potential effect of this information on the conclusions made in the *Draft Supplemental Final EIS*; and responds to public and agency comments received since the publication of the *Draft Supplemental Final EIS*.

Requests for project documentation may be directed to the NCDOT at the contact below.

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**Monroe Connector /Bypass  
From Near I-485 at US 74 to  
US 74 Between the Towns of Wingate and Marshville  
Mecklenburg and Union Counties**

Federal Aid Project No. STP-NHF-74(90)  
WBS No. 34533.1.1TA1  
STIP Project No. R-3329/R-2559

**ADMINISTRATIVE ACTION  
Final Supplemental Final Environmental Impact Statement**

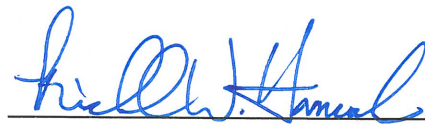
**May 2014**

Submitted Pursuant to 42 USC 4332(2)(c)  
UNITED STATES DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
&  
NC DEPARTMENT OF TRANSPORTATION

Cooperating Agency: US Army Corps of Engineers

**Approved**

5/15/2014  
Date



Richard W. Hancock, PE, Manager  
Project Development and Environmental Analysis Unit  
North Carolina Department of Transportation

5/15/14  
Date



John F. Sullivan, III, PE, Division Administrator  
Federal Highway Administration

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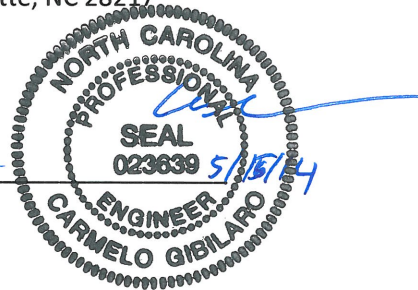
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For the North Carolina Department of Transportation

5.15.2014

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- A. Comments Received on the Draft Supplemental Final EIS
- B. USFWS Coordination
- C. Jurisdictional Resource Information
- D. Errata
- E. Technical Memoranda

- \* 1) Appendix A is located in Volume 2 of this document.
- 2) Appendix B included on CD behind tab **APP B** in Volume 1.
- 3) CD containing the November 2013 *Draft Supplemental Final EIS* included inside back cover of Volume 1



# APPENDICES



- A. Comments Received on the Draft Supplemental Final EIS**
  - A-1. Environmental Resource and Regulatory Agency Comments**
  - A-2. Public Hearing Comments**
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- B. USFWS Coordination**
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- C. Jurisdictional Resource Information**
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  - E-5. Appold Letter (May 29, 2013)**
  - E-6. MUMPO letter to Kym Hunter (April 16, 2013)**
  - E-7. FHWA Conformity Determination for CRTPO 2040 MTP (May 2, 2014)**
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## P. PREFACE



*This Preface lists the lead agencies and their contact information, discusses the decision to prepare a combined Final Supplemental Final Environmental Impact Statement/Record of Decision, and describes the organization of this document. A brief history of the project is included, along with an update on activities since the Final EIS.*

### P.1 LEAD AGENCIES, COOPERATING AGENCIES, AND PARTICIPATING AGENCIES

The lead agencies for this project are the Federal Highway Administration (FHWA) and the North Carolina Department of Transportation (NCDOT). In the *Draft Environmental Impact Statement (EIS)* (March 2009), the North Carolina Turnpike Authority (NCTA) also was listed as a lead agency. On July 27, 2009, Session Law 2009-343 was signed, transferring the functions and funds of the NCTA to the NCDOT, and the NCTA became a division of NCDOT. Historical references to NCTA in previous documents now refer to NCDOT.

The following individuals may be contacted for additional information concerning this *Final Supplemental Final EIS*. Comments and questions may also be sent to the project's email address: [monroe@ncdot.gov](mailto:monroe@ncdot.gov).

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The US Army Corps of Engineers (USACE) is a cooperating agency. The following agencies are participating agencies:

- US Environmental Protection Agency (USEPA)
- US Fish and Wildlife Service (USFWS)
- NC Department of Environment and Natural Resources Division of Water Resources (NCDENR-DWR)(formerly the Division of Water Quality [DWQ])
- NC Wildlife Resources Commission (NCWRC)

- NC Department of Cultural Resources State Historic Preservation Office (SHPO)
- Charlotte Regional Transportation Planning Organization (CRTPO) (formerly Mecklenburg-Union Metropolitan Planning Organization (MUMPO)<sup>1</sup>)

The cooperating and participating agencies are identified in the *Monroe Connector/Bypass Section 6002 Coordination Plan* (NCTA, October 2007), prepared in accordance with Section 6002 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU). The *Section 6002 Coordination Plan*, included in Appendix A-5 of the *Draft EIS*, describes agency roles and public and agency participation in the planning process.

On July 6, 2012, President Obama signed into law the Moving Ahead for Progress in the 21<sup>st</sup> Century Act (MAP-21), which creates a streamlined, performance-based, and multimodal program to address the many challenges facing the US transportation system (FHWA Web site: <http://www.fhwa.dot.gov/map21/summaryinfo.cfm>). Several MAP-21 provisions target the environmental review process, including providing for earlier coordination, creating greater linkage between the planning and environmental review processes, using a programmatic approach where possible, and consolidating environmental documents. Section 139(g)(1)(A) of MAP-21 retains provisions for preparing coordination plans.

## **P.2 COMBINED FINAL SUPPLEMENTAL FINAL EIS AND RECORD OF DECISION**

The FHWA is using the *Draft Supplemental Final EIS*, together with public and agency input and comments received on that document, as the basis for a combined Final Supplemental Final EIS/Record of Decision (ROD), which will be the final document prepared under the National Environmental Policy Act (NEPA) process. The intention to prepare a combined Final Supplemental Final EIS/ROD was stated on the signature page of the *Draft Supplemental Final EIS*, as well as in Section P.2 of that document. Section 1319(b) of MAP-21 directs the lead agency, to the maximum extent practicable, to expeditiously develop a single document that consists of a Final EIS and ROD, unless the following conditions exist:

1. The Final EIS makes substantial changes to the proposed action that are relevant to environmental or safety concerns; or
2. There are significant new circumstances or information relevant to environmental concerns and that bear on the proposed action or the impacts of the proposed action.

The proposed project does not meet either of the exceptions listed above. This *Final Supplemental Final EIS/ROD* does not make any changes to the proposed action as presented in the *Draft Supplemental Final EIS* and there are no significant new circumstances or information that would change the proposed action or its impacts as presented in the *Draft Supplemental Final EIS*.

According to FHWA’s *Interim Guidance on MAP-21 Section 1319 Accelerated Decisionmaking in Environmental Reviews* (January 2013), the following questions should be considered in deciding whether the use of a combined Final EIS/ROD is practicable for a particular project. Notes are

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<sup>1</sup> MUMPO’s governing body approved a new planning area boundary on July 17, 2013. The expansion of the planning area was made necessary by the growth of the Charlotte urbanized area. MUMPO has changed its name to Charlotte Regional Transportation Planning Organization (CRTPO) to better reflect its expanded planning area.

included after each question to show how each was considered for the current project. The guidance uses the term “FEIS”, which also applies to a Final Supplemental Final EIS.

1. Are there any coordination activities that are more effectively completed after the FEIS is available? For example, if there is a need to develop a more detailed mitigation plan, or if a joint lead or cooperating agency requests separate FEIS and ROD documents in order to accommodate its decisionmaking requirements, then FHWA may determine that a separate FEIS and ROD provides a more effective and efficient decisionmaking process.
  - Agency and public coordination has been ongoing throughout the project development process. There are no outstanding coordination concerns and no agencies have requested separate Final Supplemental Final EIS and ROD documents to accommodate their decisionmaking requirements.
2. Are there any unresolved interagency disagreements over issues that need identification in the Final EIS under 23 CFR 771.125(a)(2)?
  - There are no unresolved interagency disagreements with regard to the project. **Appendix A-1** includes all comment letters received from environmental resource and regulatory agencies on the *Draft Supplemental Final EIS*. In addition, **Appendix B-1** includes a December 16, 2013, letter from the USFWS concurring with the Biological Conclusions for protected species under Section 7 of the Endangered Species Act.
3. Is there a substantial degree of controversy? FHWA may decide not to combine a FEIS and ROD in these situations if the agencies believe that issuing the FEIS as a separate document could help to resolve the controversy. For example, the opportunity to review additional comments submitted after the FEIS may assist FHWA to develop additional mitigation commitments that could be included in the ROD to address the controversy.
  - All interested agencies have reviewed and provided comments on the *Draft Supplemental Final EIS*. Based on these comments, there are no interagency issues or disagreements. The USFWS issued their concurrence under Section 7 of the Endangered Species Act on December 16, 2013. There is a certain level of controversy as evidenced by comments received from the Southern Environmental Law Center (SELC) and some others. However, per the terms of the interim guidance on MAP-21, it does not appear that issuing a separate *Final Supplemental Final EIS* and ROD would help resolve this controversy in the eyes of these commenters.
  - The substantive issues raised by these commenters have been examined in consultation with agency subject matter specialists. The analysis of these issues appears in the responses provided in the *Final Supplemental Final EIS* and in related supporting documentation contained in the *Final Supplemental Final EIS* appendices. The comments and criticisms regarding the worthiness of the project as a whole are a matter beyond the purview of any review conducted under the National Environmental Policy Act (NEPA). Local MPOs are empowered under applicable federal laws and regulations with the authority to prioritize project development. The Federal Highway Administration’s role is to ensure that that any projects submitted for Federal-aid funding comply with NEPA. Throughout the life of this project a number of alternatives have been studied, including a no-build alternative whose validity was re-assessed in the course of the *Supplemental Final EIS*. The preferred alternative was selected over the no-build alternative, because the

preferred alternative meets the project need and purpose while the no-build alternative does not. The comments and criticisms of the project's traffic forecasting and modeling amount to differences of opinion. For the reasons discussed in the technical memorandum addressing Dr. Hartgen's report, and elsewhere, show the project modeling and forecasting are reasonable and appropriate. Submitted comments are discussed in responses to comments and in the memoranda prepared for issues warranting more detailed responses, such as the memorandum titled *Review of the report titled, Review of Traffic Forecasting: Monroe Connector/Bypass Draft Supplemental Final EIS, November 2013, prepared by The Hartgen Group for the SELC* (HNTB May 2014) found in **Appendix E-4** and the May 2014 memorandum titled *Review of New CRTPO Socioeconomic Projections* (Michael Baker Engineering, Inc.) (see **Appendix E-3**).

- Even though a separate *Final Supplemental Final EIS* is not being circulated, NCDOT received two sets of additional comments from the SELC in April, well after the close of the comment period, and those comments were considered and addressed (See **Appendix A-2**). For example, this included requests for additional commitments regarding the northern long-eared bat (*Myotis septentrionalis*). NCDOT and FHWA had previously committed to coordinate with USFWS to monitor the status of the potential listing of the Georgia aster (*Symphytotrichum georgianum*) and Savannah Lilliput (*Toxolasma pullus*). Responses to these issues and the others raised in these comments are located in **Appendix A-2, Table A-2.4**.
  - Since publication of the *Draft Supplemental Final EIS* and public comments, CRTPO has adopted new socioeconomic projections developed for the *2040 Metropolitan Transportation Plan* (MTP). NCDOT analyzed the draft projections that became available in January 2014 to ascertain whether it appeared the new data differed significantly enough from the most recently approved 2009 data to warrant revisiting traffic forecasting for the project. For the reasons discussed in the *Review of New CRTPO Socioeconomic Projections* Memorandum (Michael Baker Engineering, Inc., May 2014) and the *Monroe Connector/Bypass Traffic Forecast Summary* (HNTB, May 2014), NCDOT concluded new traffic forecasting was not warranted (see **Appendix E-4**). FHWA independently reviewed this analysis and concurred (see **Appendix E-8**). FHWA issued a conformity determination for the CRTPO *2040 MTP* on May 2, 2014 (see **Appendix E-7**). There were no changes to the 2014 socioeconomic data between January 2014 and the date CRTPO adopted the *2040 MTP* (April 16, 2014).
4. Does the Draft EIS identify the preferred alternative from among the comparatively evaluated reasonable alternatives? If the Draft EIS does not identify the preferred alternative, then FHWA should provide agencies and the public with an opportunity after issuance of the FEIS for an informed assessment related to impacted resources and environmental concerns of the preferred alternative. Whenever possible, FHWA should work with project applicants and appropriate participating agencies to identify the preferred alternative prior to issuing the Draft EIS.
- The *Draft Supplemental Final EIS* identifies the Preferred Alternative, which is the same as the Preferred Alternative presented in the *Final EIS* (May 2010). Agencies and the public have had ample opportunity to make an informed assessment related to impacted resources and environmental concerns of the Preferred Alternative.



5. Are there compliance issues with substantive requirements that must be resolved before issuance of the ROD, or that FHWA wants to resolve before signing the ROD, but that do not merit deferring issuance of the FEIS? Section 1319 does not alter the compliance timing requirements under substantive environmental laws. If FHWA determines there are reasonable assurances of compliance so that FHWA can issue the FEIS pursuant to 23 CFR 771.125(a)(1) and 771.133, and the agency believes there are important benefits to the overall decisionmaking process if the FEIS is issued before such compliance matters are fully resolved, then FHWA may decide that it should not combine the FEIS and ROD. In such cases, FHWA can publish the FEIS using the reasonable assurances provisions in sections 771.125(a) and 771.133, and can update compliance status in the ROD. For example, if FHWA cannot sign the ROD until conforming amendments are made to planning documents due to the need for a new Clean Air Act conformity determination, it may be beneficial for purposes of both transparency and the overall project timeline to issue the FEIS separately. This provides the agencies and the public access to the FEIS information while the amendments are being made to the planning documents.
  - Agency comments have not identified, nor are NCDOT and FHWA aware of, any compliance issues with substantive requirements that must be resolved prior to issuance of the ROD.

Based on the information presented in the discussion above, FHWA has determined that the use of a combined Final Supplemental Final EIS/ROD for this project is appropriate.

This *Final Supplemental Final EIS* identifies the Preferred Alternative corridor and presents the basis for the decision. The *ROD* identifies the Preferred Alternative as the Selected Alternative. It should be noted that the *ROD* identifies a corridor, not a specific design. The functional design for the Selected Alternative presented in the *ROD* may change during final design activities occurring after approval of the *ROD*, provided the modifications are within the Selected Alternative corridor.

The FHWA NEPA process for transportation projects fosters project decisions that balance engineering and transportation needs with social, economic, and natural environmental factors. During the process, a wide range of partners (including the public, businesses, interest groups, and agencies at all levels of government) provides input into project and environmental decisions (FHWA Web site: <http://environment.fhwa.dot.gov/projdev/pd3tdm.asp>). FHWA plans to file a Notice of Limitation on Claims for Judicial Review for this *Final Supplemental Final EIS/ROD* in the Federal Register. The date that the notice appears in the Federal Register will begin the 150-day statute of limitations.

### **P.3 ORGANIZATION OF THIS DOCUMENT**

This combined *Final Supplemental Final EIS/ROD* package consists of three documents: the *Draft Supplemental Final EIS* (provided on CD), this *Final Supplemental Final EIS*, and the *ROD*.

This *Final Supplemental Final EIS* follows the guidelines for format and content of a condensed Final EIS described in FHWA's Technical Advisory T6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents* (FHWA Web site: <http://environment.fhwa.dot.gov/projdev/impTA6640.asp>). This approach avoids repetition of

material from the *Draft EIS*, *Final EIS*, and *Draft Supplemental Final EIS* by incorporating these documents by reference, and instead allows the focus of the *Final Supplemental Final EIS* to be on any changes that have occurred since the *Draft Supplemental Final EIS*, comments received on the *Draft Supplemental Final EIS* and responses to those comments, and any required findings or determinations. The *Draft EIS* (March 2009), *Final EIS* (May 2010), and *Draft Supplemental Final EIS* (November 2013), incorporated by reference, are available for download on the NCDOT Web site ([www.ncdot.gov/projects/monroeconnector/](http://www.ncdot.gov/projects/monroeconnector/)). Copies of these documents also can be requested from the contacts listed in **Section P.1**.

This *Final Supplemental Final EIS* is divided into eight sections, as described briefly below:

- **Section P** is this Preface.
- **Section PC** lists the special project commitments that NCDOT has agreed to implement for the Preferred Alternative.
- **Section 1** summarizes the proposed action, the purpose of the project, the need for the project, and the project setting. The purpose and need for the project remains unchanged.
- **Section 2** summarizes the alternatives considered for the project, describes the Preferred Alternative and the reasons it was selected, and summarizes impacts associated with the Preferred Alternative. The Preferred Alternative identified in the *Final EIS* and the *Draft Supplemental Final EIS* is still the Preferred Alternative.
- **Section 3** details continued coordination efforts with the public, as well as federal, state, and local agencies, since the *Draft Supplemental Final EIS* was issued for public review, including a summary of the public hearings. Comments received and responses to those comments are included in **Appendix A**.
- **Sections 4, 5, and 6** provide lists of the following: the preparers of the *Final Supplemental Final EIS*; agencies, organizations, and persons sent a copy of the *Final Supplemental Final EIS*; and the references and supporting documentation used in the preparation of the *Final Supplemental Final EIS*. **Section 6** also includes a list of acronyms used in the *Final Supplemental Final EIS*.
- **Appendix D** contains corrections and clarifications (errata) to information presented in the *Draft Supplemental Final EIS*, including removal of the Intrastate System designation from the corridor, corrected travel speed information, corrected stream impacts requiring mitigation, corrected mitigation cost estimates, and correction of a typographical error in the summary of indirect land use effects.

The *Final Supplemental Final EIS* also includes other appendices that are referenced throughout the document. The *Final Supplemental Final EIS*, including figures and appendices, is available for download on the NCDOT Web site ([www.ncdot.gov/projects/monroeconnector/](http://www.ncdot.gov/projects/monroeconnector/)). The supporting documentation listed in **Section 6** is comprised of technical memoranda and reports incorporated by reference into this *Final Supplemental Final EIS*. This reference material is available for review upon request and is also available on the NCDOT Web site.

Note that throughout the *Final Supplemental Final EIS*, references to sections, tables, figures, and appendices included in this document are in **bold** text, while references to these elements from the *Draft EIS*, *Final EIS*, *Draft Supplemental Final EIS*, and other documents are not in bold text.

## P.4 HISTORY OF PROJECT

NCDOT previously studied two projects in this area – the Monroe Bypass (North Carolina State Transportation Improvement Program [STIP] Project R-2559) and the Monroe Connector (STIP Project R-3329). They are now being advanced by NCDOT as a single project, which was the subject of the *Draft EIS* (March 2009), *Final EIS* (May 2010), *Draft Supplemental Final EIS* (November 2013), and now this *Final Supplemental Final EIS*. Previous studies are summarized below.

### P.4.1 PREVIOUS STUDIES OF MONROE BYPASS

The Monroe Bypass project was the first of the two projects studied by NCDOT. The western terminus of this project was US 74 near Rocky River Road (Secondary Road [SR] 1514). From there, the project extended east around the north side of Monroe, and connected to US 74 between the towns of Wingate and Marshville.

NCDOT completed the original planning and environmental process for the Monroe Bypass in 1997. The process included an *Environmental Assessment* (EA) issued on March 14, 1996, and a *Finding of No Significant Impact* (FONSI) issued on June 20, 1997. The process resulted in the selection of a Preferred Alternative. Figure P-1 in the *Final EIS* shows the previous Monroe Bypass Detailed Study Alternatives (DSAs) and the Preferred Alternative that was identified in the 1997 FONSI.

For right-of-way acquisition and construction purposes, the Monroe Bypass project was divided into three sections (Figure P-1 in the *Final EIS*):

- Section A from US 74 near Rocky River Road (SR 1514) east to US 601
- Section B from US 601 to just east of Walkup Avenue (SR 1751)
- Section C from just east of Walkup Avenue and connecting with US 74 west of Marshville

In May 1997, a Public Hearing was held to present final designs for Sections B and C. It was determined that Section A would be replaced by NCDOT's Monroe Connector project; therefore, Section A was temporarily suspended at that time while feasibility studies for the Monroe Connector were initiated by NCDOT. In 2000 and 2001, right of way was purchased for Sections B and C. However, during the environmental permitting process (prior to construction), issues arose regarding the federally-endangered Carolina heelsplitter mussel, and construction was postponed.

### P.4.2 PREVIOUS STUDIES OF MONROE CONNECTOR

NCDOT began the planning process for the Monroe Connector in 1999. As the name suggests, the Monroe Connector was intended to “connect” the Monroe Bypass (Sections B and C) from US 601 west to I-485. Figure P-2 in the *Final EIS* shows the Preliminary Study Corridors and DSAs for NCDOT's Monroe Connector project. A *Draft EIS* for the Monroe Connector was issued on October 17, 2003, and released for review and comment by the public and environmental resource and regulatory agencies in November 2003. However, a Public Hearing was not held following completion of the *Draft EIS*. FHWA elected to suspend the process in order to consider the project in relation to issues associated with the Monroe Bypass.

The 2003 *Draft EIS* for the Monroe Connector was rescinded on January 30, 2006, by notice in the Federal Register (Vol. 71, No. 19, page 4958). The notice stated: “Based on the comments received from various Federal and state agencies and the public and a recent decision to change

*the eastern terminus of the project from US 601 to the proposed Monroe Bypass, the FHWA and NCDOT have agreed not to prepare a Final EIS for the proposed US 74 improvements from I-485 to US 601. FHWA, NCDOT, and the North Carolina Turnpike Authority (NCTA) plan to prepare a new Draft EIS for the proposed project. A notice of intent to prepare the EIS will be issued subsequent to this rescinding notice. The new Draft EIS will include a toll alternative among the full range of alternatives that will be analyzed as well as a change in the location of the eastern terminus.”*

**P.4.3 MONROE BYPASS AND MONROE CONNECTOR COMBINED**

In February 2005, at the request of the MUMPO, NCTA adopted the Monroe Connector as a candidate toll facility. At that time, the *2005–2011 STIP* included funding for construction of Sections B and C of the Monroe Bypass and NCDOT was moving forward with the Monroe Bypass as a separate project. However, due to the age of the original EA/FONSI for the Monroe Bypass (approximately 10 years), FHWA required a reevaluation of the document prior to the start of any construction. All sections of the Monroe Bypass (A, B, and C) needed to be considered in the reevaluation because they provide the logical endpoints for the project, enabling it to function as a stand-alone bypass.

During the course of the reevaluation, it was discovered that the MUMPO *2030 Long Range Transportation Plan (LRTP)* did not include Section A of the Monroe Bypass; it included the Monroe Connector instead. A project must be in the LRTP in order for it to receive FHWA approval and funding. As originally envisioned, the Monroe Connector was meant to function as a replacement for Section A of the Monroe Bypass. Without the Monroe Bypass Sections B and C, the Monroe Connector did not have a logical eastern terminus. Likewise, without Section A (or the Monroe Connector serving as a replacement for Section A), Sections B and C of the Monroe Bypass did not have a logical western terminus and could not serve as a stand-alone bypass. FHWA and NCDOT elected to discontinue the reevaluation process to consider combining the Monroe Bypass and Monroe Connector projects into a single viable project with logical termini.

On September 20, 2006, MUMPO adopted a resolution recommending that the Monroe Bypass and Monroe Connector be combined into a single environmental study under the administration of NCTA. On January 19, 2007, FHWA issued a Notice of Intent (NOI) in the Federal Register announcing its intention to prepare a draft EIS for the combined Monroe Connector/Bypass project (Federal Register, Vol. 72, No. 12, pages 2582 to 2583).

**P.4.4 ACTIVITIES BETWEEN THE DRAFT EIS AND FINAL EIS**

The *Monroe Connector/Bypass Administrative Action Draft Environmental Impact Statement* was signed on March 31, 2009 and made available for public and agency review on April 2, 2009 on NCTA’s Web site. Copies of the document were distributed to public review locations and agencies on April 17, 2009. The public comment period for the *Draft EIS* ended on June 15, 2009.

**Public and Agency Coordination.** Four Pre-Hearing Open Houses, two of which were followed by Combined Corridor Design Public Hearings, were held in May 2009. Comment sheets were made available at all Pre-Hearing Open Houses and Public Hearings and on the project Web site.

The NCTA/NCDOT conducted regularly scheduled agency coordination meetings throughout the project development process. These Turnpike Environmental Agency Coordination (TEAC)

meetings were held to review the status of current NCTA projects, to discuss and agree upon study methodologies, and to discuss and resolve environmental concerns and adherence to permitting requirements. TEAC meetings held since the *Draft EIS* included discussions on the selection of the Preferred Alternative for the Monroe Connector/Bypass project.

Additional information on coordination efforts with the public, as well as federal, state, and local agencies, between the *Draft EIS* and *Final EIS* is included in Section 3 of the *Final EIS*.

**Updates and Refinements to the Preferred Alternative.** Refinements were made to the functional design of the Preferred Alternative prior to the *Final EIS* based on input received from state and federal agencies and the public. Refinements included changes to interchange configurations and further consideration of potential service road locations (*Monroe Connector/Bypass Service Road Study*, PBS&J, April 2010). These are summarized in Sections 3.3.1 and 3.3.2 of the *Draft Supplemental Final EIS* and described in detail in Section 2.3 of the *Final EIS*. Cost estimates also were updated for the Preferred Alternative in the *Final EIS* Section 2.3.4.

**Additional Studies of the Preferred Alternative in the Final EIS.** Additional studies prepared for the Preferred Alternative and presented in the *Final EIS* included updated traffic forecasts, an updated traffic noise study, an updated hazardous materials evaluation, an additional archaeological assessment, an assessment of critical habitat and preparation of a Biological Assessment for federally protected species, a review of potential on-site mitigation for jurisdictional resources impacts, and a quantitative indirect and cumulative effects analysis, which includes a water quality analysis. These additional studies are summarized in Section P.4.4 of the *Draft Supplemental Final EIS*.

**P.4.5 ACTIVITIES BETWEEN THE FINAL EIS AND THE DRAFT SUPPLEMENTAL FINAL EIS**

Following publication of the *Final EIS* in May 2010, the Preferred Alternative (Alternative D) was selected for implementation, as documented in the *Record of Decision* (ROD) (August 2010) for the project. The Selected Alternative in the August 2010 *ROD* was a controlled-access toll facility, approximately 20 miles in length, on new location.

After the August 2010 *ROD* was published, the Southern Environmental Law Center (SELC), on behalf of Clean Air Carolina, NC Wildlife Federation, and Yadkin Riverkeeper, brought suit against the FHWA and NCDOT regarding the project’s environmental documentation, alleging that the study did not comply with the requirements of NEPA. FHWA and NCDOT prevailed in a federal District Court decision issued on October 24, 2011.

On May 3, 2012 the United State Court of Appeals for the Fourth Circuit in *North Carolina Wildlife Federation, Clean Air Carolina; Yadkin Riverkeeper v. North Carolina Department of Transportation and Federal Highway Administration*, No. 11-2210, held that FHWA and NCDOT had not complied with the provisions of NEPA by failing to disclose critical assumptions underlying their decision to build the proposed project and by providing the public with incorrect information. Specifically, in addressing public comments on the project as to whether the data set used as the project’s no-build scenario for the indirect and cumulative analysis contained the project, the agencies responded “TAZ socioeconomic forecasts for the No Build Scenario did not include the Monroe Connector. MUMPO confirmed our assumption regarding the reasonableness of the 2030 TAZ forecasts for use as a No Build basis.” The second sentence accurately reflects the agencies’ final conclusion, but the first sentence is not correct. Travel



time to employment, one of eight land development factors for Union County used to project no-build growth estimates for the year 2030, presumed the presence of the proposed Monroe Connector/Bypass. As a result, the data relied upon to reflect the No-Build Scenario included a build assumption. In response to the court’s decision, FHWA rescinded the *ROD* for this project on July 3, 2012. NCDOT then re-initiated the NEPA process which led to the development of the *Draft Supplemental Final EIS*.

Numerous updated studies were prepared between publication of the *Final EIS* in May 2010 and the *Draft Supplemental Final EIS* in November 2013. These studies are summarized in the *Draft Supplemental Final EIS* and include updated traffic studies, noise analysis, indirect and cumulative effects analyses, endangered species surveys, and a biological assessment.

Additional public involvement and agency coordination between the *Final EIS* and the *Draft Supplemental Final EIS* included:

- Two community workshops held in June 2012
- Ten small group meetings with regional and local agencies and elected officials
- Seven coordination meetings with environmental resource and regulatory agencies
- Re-initiation of Section 7 informal consultation with USFWS

Table P-1 in the *Draft Supplemental Final EIS* presents a summary of changes in the affected environment or impacts since the *Final EIS* was published.

**P.4.6 ACTIVITIES SINCE THE DRAFT SUPPLEMENTAL FINAL EIS**

The *Draft Supplemental Final EIS* was signed by FHWA on November 8, 2013 and a Notice of Availability was published in the Federal Register on November 22, 2013. Public hearings were held at three different locations along the project corridor on December 9, 10, and 11, 2013, as described in **Section 3.2** of this document. There has also been additional coordination with environmental resource and regulatory agencies, as described in **Section 3.3**.

Draft data released since the *Draft Supplemental Final EIS* was published has been reviewed and evaluated, including INRIX travel speed data for 2013 (see **Section 1.1.1**), output from a new version of the regional travel demand model (see **Section 2.1**), and new socioeconomic projections from CRTPO (see **Section 2.4**). FHWA issued a conformity determination on the CRTPO *2040 MTP* on May 2, 2014. Updated cost estimates were prepared for the Preferred Alternative, as presented in **Section 2.4**.

**Transportation Conformity Update.** The Draft *Metrolina Area Transportation Conformity Determination Report for the Cabarrus-Rowan (CR)MPO, Charlotte Regional Transportation Planning Organization (CRTPO), and the Gaston Cleveland Lincoln (GCL) MPO 2040 Metropolitan Transportation Plans (MTPs)* was made available for public review on February 18, 2014. Four public meetings were held to solicit comments on these documents as well as the Draft *2040 MTP* and the *2012-2018 TIP*. In addition, eight information displays and three Environmental Justice (EJ) opportunities were made available to receive comments. A complete listing of these public involvement opportunities can be found on the CRTPO website: [http://www.crtpo.org/PDFs/Agenda\\_Minutes/2014/Presentations/TCC\\_2014\\_02\\_February\\_Presentation\\_02.pdf](http://www.crtpo.org/PDFs/Agenda_Minutes/2014/Presentations/TCC_2014_02_February_Presentation_02.pdf). All of the above referenced documents were made available for review until the close of the public review and comment period on March 19, 2014. All documents were endorsed by the GCLMPO on March 27, 2014; CRTPO on April 16, 2014 and CRMPO on April 23, 2014. NCDOT approval of these referenced documents was received on April 1, 2014 for the

county donut area of Union County. FHWA made a conformity determination on the MTP and TIP on May 2, 2014. A copy of this letter, along with USEPA's April 28, 2014 review, can be found in **Appendix E-7** of this *Final Supplemental Final EIS*.

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# PC. SPECIAL PROJECT COMMITMENTS



This "GREEN SHEET" identifies the special project commitments made to avoid, minimize, or mitigate project impacts beyond those required to comply with applicable federal and state requirements and regulations.

During the National Environmental Policy Act (NEPA) process, commitments are made to avoid, minimize, or mitigate project impacts. Commitments result from consideration of public comment or through the requirements of, or agreements with, environmental resource and regulatory agencies.

In addition to compliance with applicable federal and state requirements and regulations, such as Section 404 Individual Permit Conditions and State Consistency Conditions; North Carolina Department of Transportation (NCDOT) *Guidelines for Best Management Practices for the Protection of Surface Waters*; General Certification Conditions and Section 401 Conditions of Certification, and the Endangered Species Act, **Table PC-1** lists special project commitments that have been agreed to by the NCDOT.

**TABLE PC-1: Special Project Commitments**

Item	Resource	EIS Section*	Project Commitment	Project Stage
1	Community Resources	FEIS 2.5.1.2	NCDOT will coordinate with Mecklenburg County and Union County schools to share information to minimize impacts to school bus routes.	Final Design through Construction Management
2	Noise	FEIS 2.5.2.1	A Design Noise Study will be prepared to update the noise analysis based upon the most recent traffic forecasts and the final design.	Final Design
3	Utilities and Infrastructure	FEIS 2.5.2.4	NCDOT will coordinate with CSX during final design for the project's eastern terminus at US 74, which would affect the east-west rail mainline through Union County.	Final Design
4	Visual Resources	FEIS 2.5.2.5	NCDOT is committed to incorporating community input into the aesthetic design process.	Final Design
5	Hazardous Materials	FEIS 2.5.2.6	When the final proposed alignment is established and right-of-way limits are determined, a hazardous materials site assessment will be performed to determine levels of contamination at any potential hazardous materials sites. The assessment will be made prior to right-of-way acquisition.	Final Design and ROW Acquisition
6	Archaeological Resources	FEIS 2.5.3.2	The cemetery delineation plan for the Hasty-Fowler-Secret Cemetery (Site 31UN351) as well as any plan detailing removal of the burials will be submitted and approved by the State Historic Preservation Office prior to any ground-disturbing activities in areas suspected to contain marked or unmarked graves. All possible burials identified in the survey will be treated as potential human graves and treated appropriately under North Carolina burial removal laws.	Final Design

**TABLE PC-1: Special Project Commitments**

Item	Resource	EIS Section*	Project Commitment	Project Stage
7	Water Resources	FEIS 2.5.4.2	For any construction staging, storage, refueling, borrow pit or spoil area that is considered within the Goose Creek or Sixmile Creek watersheds, the NCDOT will coordinate with the USFWS, NCDOT Division Environmental Officer, and the contractor to determine if BMPs can be implemented for each site that avoid/minimize the potential for adverse effects to listed species and critical habitat.	Construction Management
8	Water Resources	FEIS 2.5.4.2	NCDOT's <i>Design Standards in Sensitive Watersheds</i> will be followed for implementing erosion and sediment control BMPs along the entire project.	Construction Management
9	Water Resources	FEIS 2.5.4.2	Seeding will be required within 14 calendar days of completing construction activities in an area.	Construction Management
10	Water Resources	FEIS 2.5.4.2	Final designs will incorporate hazardous spill basins along the project corridor within the designated hazardous spill basin area associated with Lake Twitty. These basins will be designed in accordance with NCDOT's <i>Best Management Practices for Protection of Surface Waters, Guidelines for the Location and Design of Hazardous Spill Basins</i> , and <i>Guidelines for Drainage Studies and Hydraulic Design</i> .	Final Design
11	Water Resources	FEIS 2.5.4.2	A turbidity water quality testing program for the main stem of Stewarts Creek will be implemented to evaluate the performance of BMPs. Testing will be completed upstream and downstream of the construction area, as well as before, during, and after storm events.	Construction Management
12	Protected Species	FSFEIS App. B-1	<p>NCDOT will take the following actions to protect and preserve two known populations of Schweinitz's sunflower (EO#77 and EO#230):</p> <ul style="list-style-type: none"> <li>• "No Mow" signs have been posted by the NCDOT at both sites</li> <li>• The populations are being managed by the NCDOT in accordance with the <i>NCDOT Roadside Vegetation Management Guidelines in Marked Areas</i> plan</li> <li>• The populations have been incorporated into the Union Power Schweinitz's Sunflower Restricted Sites plan as Site R and will be managed accordingly</li> <li>• The Design-Build Team will clearly demark the two Schweinitz's sunflower populations with tree-protection fencing</li> <li>• Prior to commencing construction, the Design-Build Team and the NCDOT will meet with USFWS to discuss the protection and preservation of EO #77 and #230.</li> </ul>	Construction Management

**TABLE PC-1: Special Project Commitments**

Item	Resource	EIS Section*	Project Commitment	Project Stage
13	Protected Species	DSFEIS 4.4.5	NCDOT and FHWA will coordinate with USFWS to monitor the status of the potential listing of Georgia Aster ( <i>Symphytotrichum georgianum</i> ) and Savannah Lilliput ( <i>Toxolasma pullus</i> ) throughout construction. In addition, NCDOT and FHWA will coordinate with USFWS when the management plan and guidance become available for the northern long-eared bat ( <i>Myotis septentrionalis</i> ), which was proposed for listing as Endangered in October 2013.	Construction Management
14	Air Quality	FEIS 3.3.3	Dust suppression measures will be implemented to reduce dust generated by construction when the control of dust is necessary for the protection of motorists and residents.	Construction Management

\*FEIS – Final Environmental Impact Statement  
 DSFEIS – Draft Supplemental Final Environmental Impact Statement  
 FSFEIS – Final Supplemental Final Environmental Impact Statement

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# 1. PURPOSE AND NEED FOR ACTION



*This section describes the proposed action, the purpose of the project, and the need for the project. The reader is referred to the Draft Supplemental Final EIS for additional data and information about the project setting and existing roadway conditions and operations.*

*The purpose and need statement for the project was originally developed in 2007 and documented in the “Final Statement of Purpose and Need for the Monroe Connector/Bypass” (PBS&J, February 2008), the Draft EIS (March 2009), the Final EIS (May 2010) and the Draft Supplemental Final EIS (November 2013). Although supporting information has been updated, the purpose and need for the project remains unchanged.*

## 1.1 PROPOSED ACTION

As stated in the *Final EIS* Section 1.1.1, the NCDOT<sup>1</sup>, in cooperation with the FHWA, proposes to construct a project known as the Monroe Connector/Bypass, which would be a controlled-access toll road extending from US 74 near I-485 in Mecklenburg County to US 74 between the towns of Wingate and Marshville in Union County, a distance of approximately 20 miles.

**Figure 1-1** shows the project study area.

The proposed project begins and ends on existing US 74 in order to provide continuity for the US 74 corridor. On the western end, the project would begin at I-485, another controlled-access facility. On the eastern end, the proposed project would terminate on US 74 between the towns of Wingate and Marshville. This is where existing and projected traffic volumes decrease and the study area transitions to a more rural character.

The project was included in the Charlotte Regional Transportation Planning Organization’s (CRTPO) *2035 Long-Range Transportation Plan* (LRTP) and its Transportation Improvement Program (TIP). The project is recognized as an existing and committed project for the 2025 horizon year in the current CRTPO *2040 Metropolitan Transportation Plan* (MTP). FHWA issued a conformity determination on the CRTPO *2040 MTP* on May 2, 2014 (**Appendix E-7**). The project is included in the NCDOT 2012-2020 State TIP (STIP) as Project R-3329 (Monroe Connector) and Project R-2559 (Monroe Bypass) as a toll facility. Previously, the *Final EIS* reported that the project was in the NCDOT 2009-2015 STIP. Similar to previous state and local TIPs and the conclusion in the *Final EIS*, current fiscally constrained planning documents do not have sufficient funds available from traditional sources in the foreseeable future to construct all priority projects in the state.

### 1.1.1 EVALUATION OF NEED FOR PROPOSED ACTION

In the *Draft Supplemental Final EIS*, NCDOT re-evaluated the primary needs for the proposed action and determined that those needs have not changed since the *Draft EIS* and *Final EIS*.

US 74 is the major east-west route connecting the Charlotte region, a major population center and freight distribution point, to the North Carolina coast and the port at Wilmington (North Carolina’s largest port). In addition, US 74 is a primary transportation connection between

<sup>1</sup> On July 27, 2009, NCTA became a division of NCDOT (NC Session Law 2009-343). Where applicable, references to NCDOT as a separate agency have been removed.



Union County, which was the fastest growing county in North Carolina between 2000 and 2010, and Mecklenburg County/City of Charlotte, the economic hub of the region. Although Union County is one of the fast growing counties in the state, it is the only county having a major border with Mecklenburg County that does not have a high-speed interstate-type facility connecting it to Mecklenburg County.

US 74 also serves as an important commercial corridor for Union County residents and businesses, with many retail, commercial, and employment centers having direct access to/from US 74. In Union County, most employment is concentrated in the City of Monroe or along existing US 74.

Because of its statewide and regional importance, NCDOT designated the US 74 corridor as a Strategic Highway Corridor (SHC)<sup>2</sup>. Consistent with local planning documents, the SHC designation specifically calls for a freeway to serve high-speed regional travel.

Finally, the US 74 corridor is designated as part of the National Highway System Strategic Highway Network (STRAHNET), which includes roads that provide defense access, continuity, and emergency capabilities for movements of military personnel and equipment.

In the *Draft Supplemental Final EIS*, the existing roadway corridor was reevaluated and the factors supporting the needs for the proposed action were updated. These are summarized below, with more details provided in Section 1.2.4 of the *Draft Supplemental Final EIS* and associated technical memorandum.

**Existing and Projected Roadway Capacity Deficiencies.** Currently, US 74 in the project study area is a four- to six-lane arterial roadway with speed limits that range from 35 miles per hour (mph) to 55 mph along the corridor. As shown in **Table 1-1**, the weighted average posted speed limit is 49 mph. There is limited control of access along the facility; meaning there are numerous driveway access points, turning points, and intersections, including 27 at-grade signalized intersections. Thus, traffic signals and the lack of access control cause slower speeds and congestion during typical weekday peak travel times.

In the *Final EIS*, traffic simulation software was used to estimate, based on traffic volumes, that average speeds on existing US 74 through the project area ranged from 20 to 30 mph during peak hours in 2007, and were expected to decline to less than 20 mph by 2030 (*Final EIS* Section 1.1.2).

Since 2007, NCDOT implemented several measures (listed in Table 2-2 of the *Draft Supplemental Final EIS*) to improve traffic flow along existing US 74 and partially mitigate congestion, as recommended in the July 2007 *US 74 Corridor Study* (Stantec). However, there is still congestion along the corridor during a typical day. As described in greater detail in Section 1.2.4 of the *Draft Supplemental Final EIS*, real time travel information available from INRIX, Inc., which was validated through travel time field surveys, showed that average travel speeds along existing US 74 did not reach 50 mph for the periods evaluated (2011, 2012, and August 2013). As presented in the errata in **Appendix D**, there were errors in the numbers in Table 1-2 and Table 1-3 of the *Draft Supplemental Final EIS*. Some of the travel speeds

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<sup>2</sup> As reported in the *Draft EIS* and *Final EIS*, the US 74 corridor was also designated as part of the North Carolina Intrastate System until the Intrastate System (defined in NC General Statutes 136-179) was repealed in July 2013 by NC Session Law 2013-183 as part of the Strategic Prioritization Funding Plan for Transportation Investments. As described in **Appendix D** of the *Final Supplemental Final EIS*, the essential elements of the need and purpose statement remain the same, therefore no additional screening of alternatives was required.

presented in these tables were incorrect due to an error in the spreadsheet calculation used to determine weighted average speeds. However, the conclusions presented in Section 1.2.4 of the *Draft Supplemental Final EIS* did not change.

**TABLE 1-1: Speed Limits on Existing US 74**

Speed Limit (mph)	US 74 Segment from West to East	Approximate Segment Length (miles)
55	I-485 to Fowler Secrest Road (SR 1754)	8.2
45	Fowler Secrest Road to US 601 (Pageland Highway)	5.5
55	US 601 (Pageland Highway) to east of Presson Road	3.0
45	East of Presson Road to Wingate City Limit	0.2
35	Wingate City Limit to Old Highway 74 (SR 1740)	1.4
45	Old Highway 74 (SR 1740) to Olde Country Lane	0.7
55	Olde Country Lane to 0.3 mile west of Marshville Town Limit	1.5
45	0.3 miles west of Marshville Town Limit to Marshville Town Limit	0.3
35	Within Marshville Town Limit	2.5
<b>49</b>	<b>Weighted average speed limit*</b>	<b>23.3</b>

Source: *Statement of Purpose and Need* (PBS&J, February 2008).

\*Weighted average speed limit = sum of individual segment lengths x speed limits divided by total length

The travel time information presented in Section 1.2.4 of the *Draft Supplemental Final EIS* was updated for this *Final Supplemental Final EIS* to include a review of INRIX data for all of 2013. For this analysis, INRIX data was collected for US 74 eastbound and westbound for all of 2011, 2012, and 2013 for each Tuesday, Wednesday, and Thursday for 24-hour periods separated into one-hour intervals. Each of the three years of INRIX data was compiled to determine average travel speeds for weekday conditions during morning (AM), lunch, and evening (PM) peak periods.

**Table 1-2** compares the eastbound average operating speed during the AM, lunch, and PM peak hours for 2011, 2012, and 2013 to the posted speed limit. **Table 1-3** compares the westbound peak hour average operating speeds. In order for the speed limit segments to match up with data segments provided by INRIX, a weighted average speed limit had to be calculated for the posted speed limits between US 601 (Pageland Highway, east of Monroe) and the easternmost segment within the Marshville town limits.

**Table 1-2** and **Table 1-3** show that the US 74 corridor from I-485 to US 601 (Pageland Highway), which makes up 60 percent of the studied corridor, operates substantially below the posted speed limits, both eastbound and westbound, during all peak periods. For the portion of the corridor east of US 601 (Pageland Highway), average peak hour speeds are at or slightly above the weighted average posted speed limit, both eastbound and westbound. All speeds are still below the desired 50 mph for a high-speed corridor.

**TABLE 1-2: Peak Hour Speeds Along US 74 Eastbound (2011, 2012, and 2013)**

Approx. Length (miles)	Eastbound US 74 Segments (from west to east)	Speed Limit (mph)	Weighted Avg Speed Limit to Match INRIX Segments (mph)	2011 Peak Hour Avg Speed (mph)			2012 Peak Hour Avg Speed (mph)			2013 Peak Hour Avg Speed (mph)		
				AM	Lunch	PM	AM	Lunch	PM	AM	Lunch	PM
8.2	I-485 to Fowler Secrest Road (SR 1754)	55	55	45	45	42	48	46	42	47	46	41
5.5	Fowler Secrest Road to US 601 (Pageland Hwy) (easternmost intersection of US 74 and US 601 east of Monroe)	45	45	39	35	38	41	36	38	40	37	35
3.0	US 601 (Pageland Hwy) to east of Presson Road	55	46	48	48	47	48	48	47	49	48	47
0.2	East of Presson Road to Wingate City Limit	45										
1.4	Wingate City Limit to Old Highway 74 (SR 1740)	35										
0.7	Old Highway 74 (SR 1740) to Olde Country Lane	45										
1.5	Olde Country Lane to 0.3 mile west of Marshville Town Limit	55										
0.3	0.3 miles west of Marshville Town Limit to Marshville Town Limit	45										
2.5	Within Marshville Town Limit	35										
23.3	<b>Corridor Weighted Average Speed (mph)</b>		<b>49</b>	<b>45</b>	<b>44</b>	<b>43</b>	<b>47</b>	<b>45</b>	<b>43</b>	<b>46</b>	<b>45</b>	<b>42</b>
<b>Comparison - Average Travel Speeds to Speed Limits</b>												
I-485 to Fowler Secrest Road (SR 1754)		-7 to -14 mph below speed limit										
Fowler Secrest Road to US 601 Pageland Hwy)		-4 to -10 mph below speed limit										
US 601 (Pageland Hwy) to within Marshville		+3 to +1 mph slightly above speed limit										
<b>OVERALL CORRIDOR</b>		<b>-2 to -7 mph below speed limit</b>										

Source: INRIX, Inc.

**TABLE 1-3: Peak Hour Speeds Along US 74 Westbound (2011, 2012, and 2013)**

Approx. Length (miles)	Eastbound US 74 Segments (from east to west)	Speed Limit (mph)	Weighted Avg Speed Limit to Match INRIX Segments (mph)	2011 Peak Hour Avg Speed (mph)			2012 Peak Hour Avg Speed (mph)			2013 Peak Hour Avg Speed (mph)			
				AM	Lunch	PM	AM	Lunch	PM	AM	Lunch	PM	
2.5	Within Marshville Town Limit	35	46										
0.3	0.3 miles west of Marshville Town Limit to Marshville Town Limit	45											
1.5	Olde Country Lane to 0.3 mile west of Marshville Town Limit	55											
0.7	Old Highway 74 (SR 1740) to Olde Country Lane	45		46	46	46	47	47	47	47	47	47	47
1.4	Wingate City Limit to Old Highway 74 (SR 1740)	35											
0.2	East of Presson Road to Wingate City Limit	45											
3.0	US 601 (Pageland Highway) to east of Presson Road	55											
5.5	Fowler Secrest Road to US 601 (Pageland Highway)	45	45	38	35	35	38	35	38	39	36	35	
8.2	I-485 to Fowler Secrest Road (SR 1754)	55	55	41	43	40	43	45	40	41	44	39	
23.3	<b>Corridor Weighted Average Speed (mph)</b>		<b>49</b>	<b>42</b>	<b>43</b>	<b>41</b>	<b>44</b>	<b>44</b>	<b>42</b>	<b>43</b>	<b>44</b>	<b>41</b>	
<b>Comparison - Average Travel Speeds to Speed Limits</b>													
Within Marshville to US 601 (Pageland Hwy)		+1 to 0 mph at/slightly above speed limit											
US 601 (Pageland Hwy) to Fowler Secrest Road		-6 to -10 mph below speed limit											
Fowler Secrest Road to I-485		-10 to -16 mph below speed limit											
<b>OVERALL CORRIDOR</b>		<b>-5 to -8 mph below speed limit</b>											

Source: INRIX, Inc.

INRIX data can be graphically illustrated using a software tool called RITIS (Regional Integrated Transportation Information System) from the University of Maryland's Center for Advanced Transportation Technology Lab (RITIS website: <http://vpp.ritis.org>). Exhibits 1-1 and 1-2 are screenshots from the RITIS software tool that graphically illustrate the 2013 average operating speeds for the PM peak period summarized in Table 1-2 and Table 1-3. Green lines on the exhibit indicate average travel speeds of 50 mph or greater. Yellow, red, and orange lines indicate slower operating speeds. Exhibit 1-3 and Exhibit 1-4 graphically depict travel speeds along US 74 for mid-week periods (Tuesday thru Thursday) for 2013. Exhibit 1-5 depicts this same information in a table format.

Exhibit 1-1: Average Operating Speeds for US 74 Eastbound (2013 PM Peak)

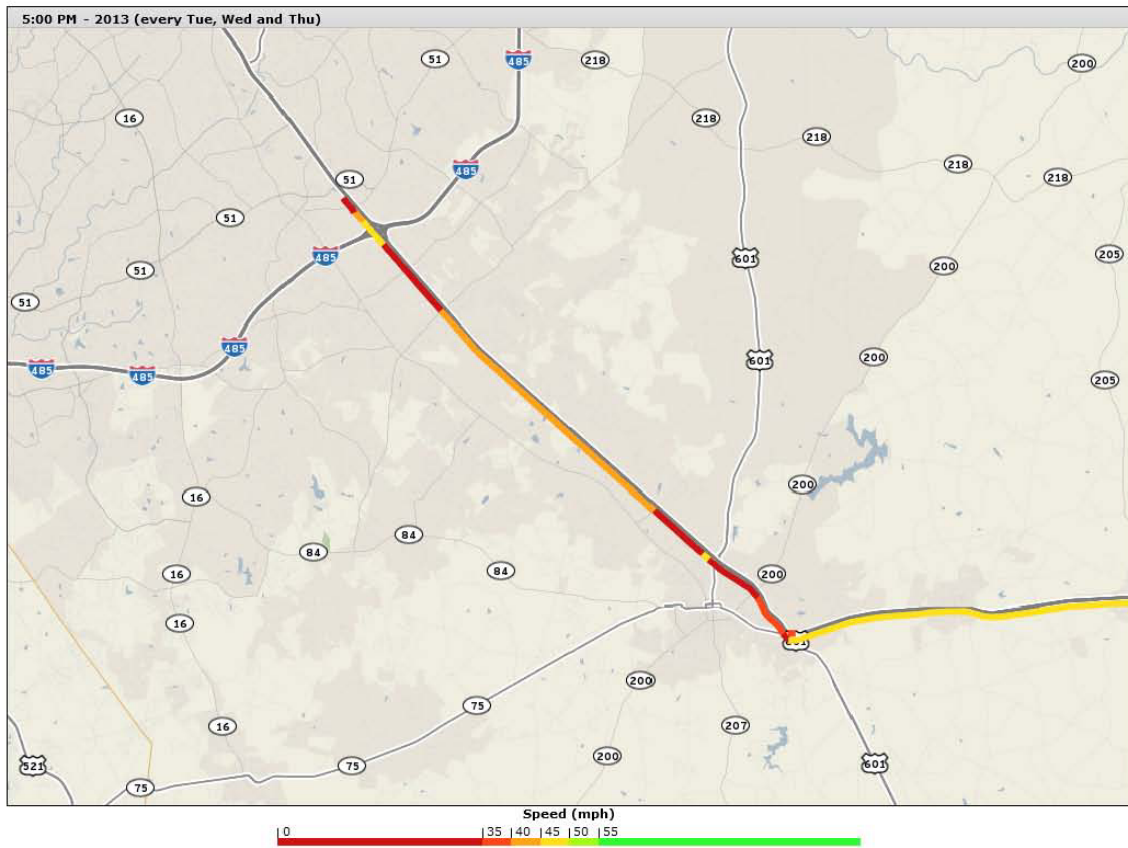


Exhibit 1-2: Average Operating Speeds for US 74 Westbound (2013 PM Peak)

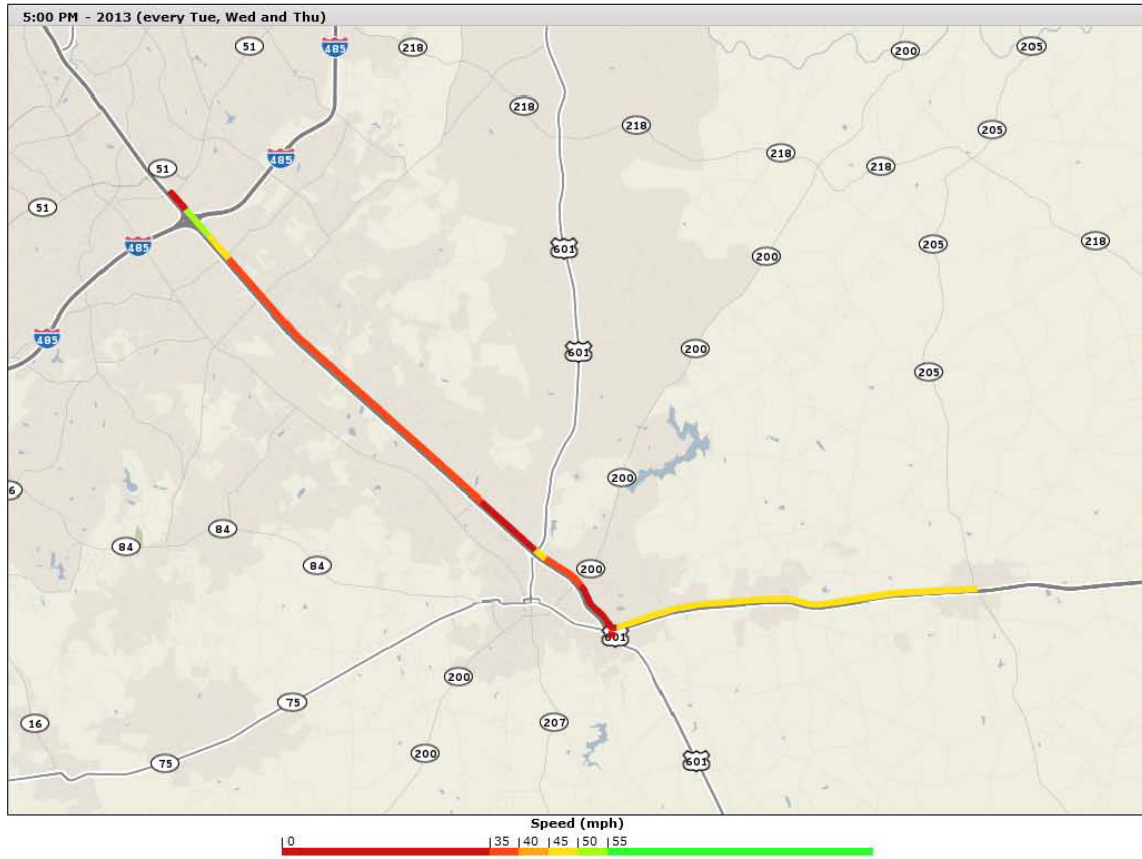
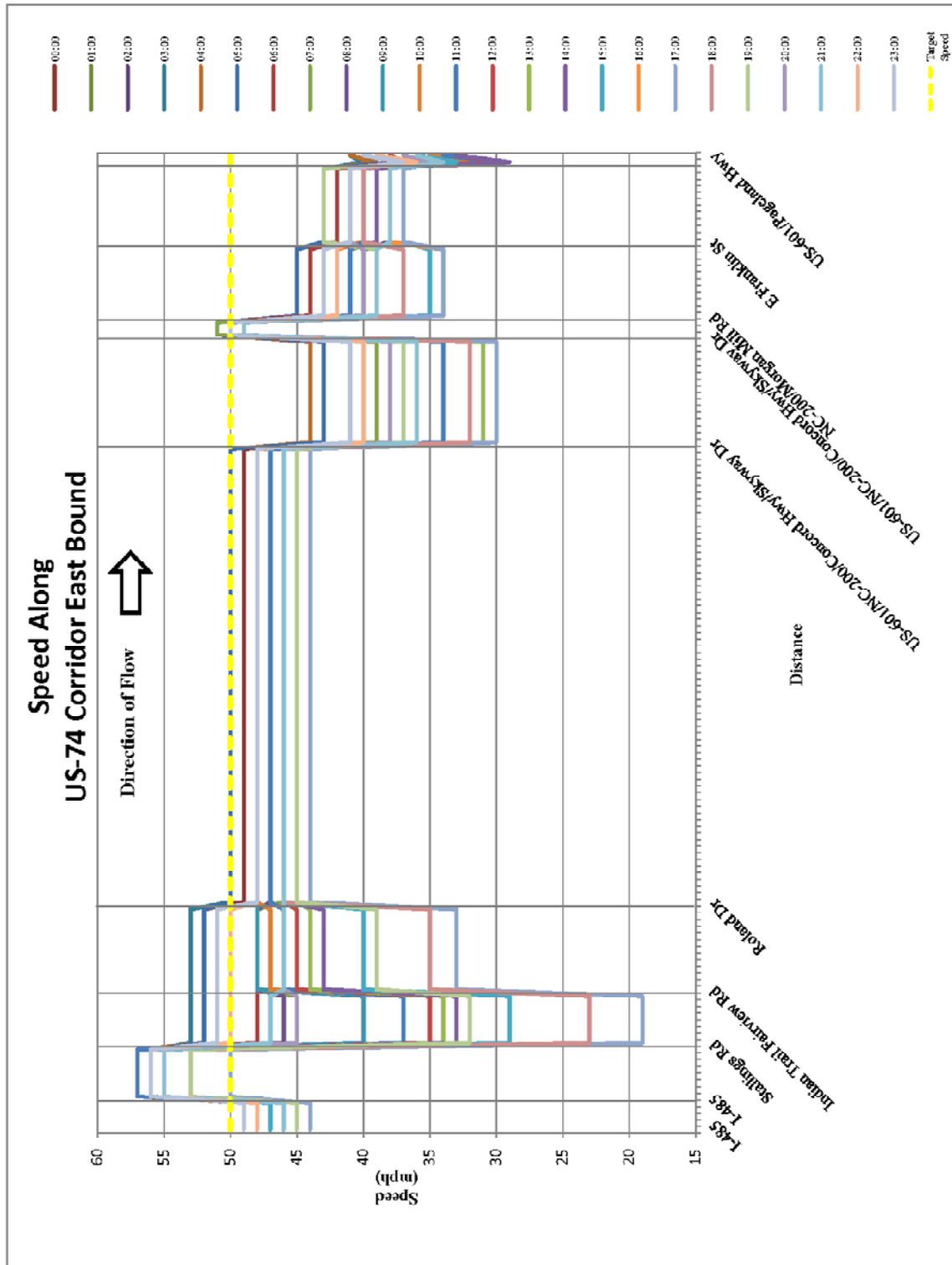
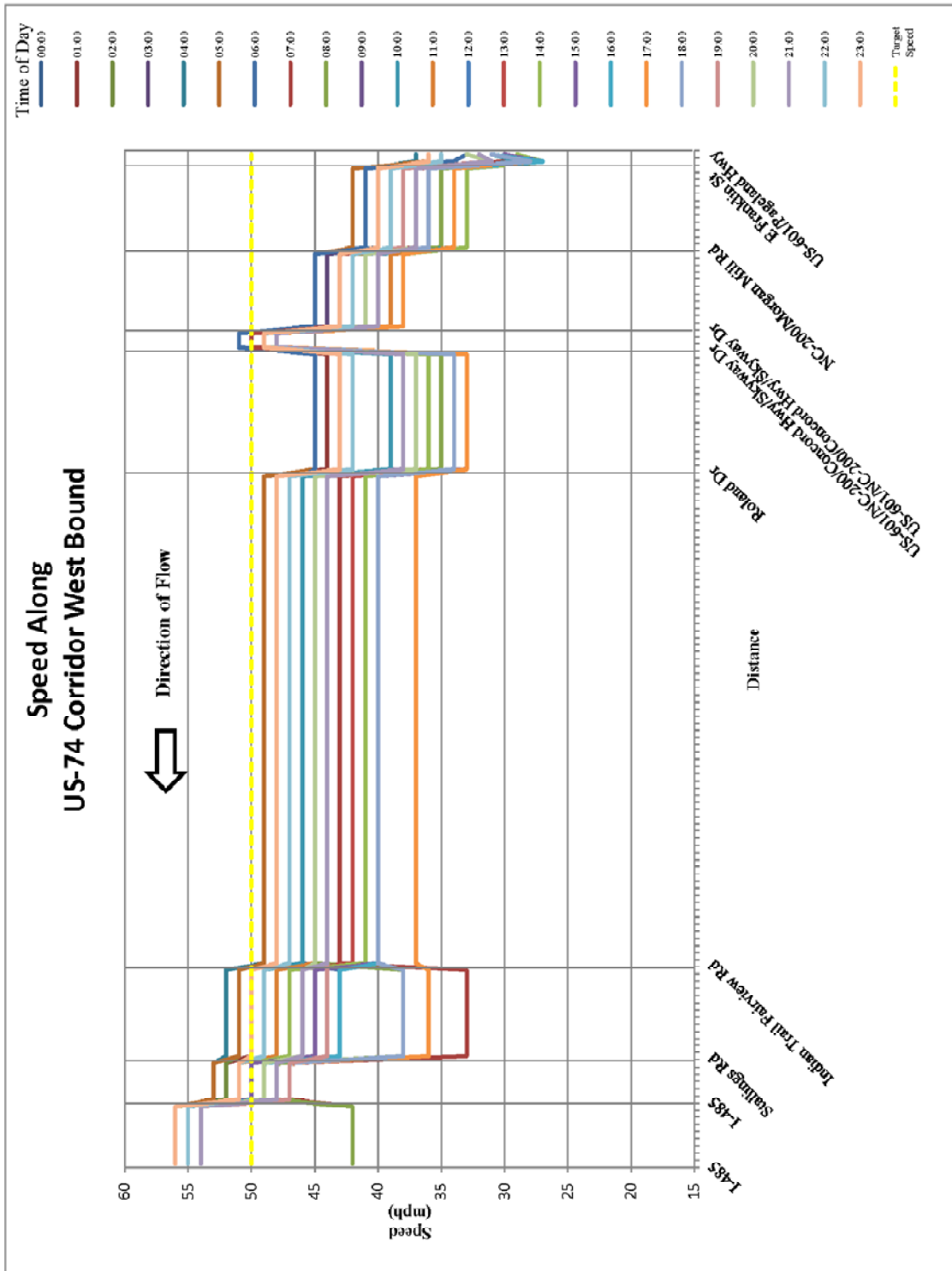


Exhibit 1-3: Average Speeds by Period for US 74 Eastbound (2013)



Source: INRIX, Inc.

Exhibit 1-4: Average Speeds by Period for US 74 Westbound (2013)



Source: INRIX, Inc.



Exhibit 1-5: Average Speeds by Period for US 74 (2013)

US 74 Corridor INRIX Average Speed Data  
2013, Tuesday - Thursday

Average Speed for US 74 from I-485 to US 601 Pageland Hwy  
Eastbound US 74 Corridor Average Speed

TMC CODE	LENGTH (MILES)	SEGMENT NAME	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	
125PO5822	0.02	US-601/Pageland Hwy	41	41	41	41	41	38	38	38	36	34	35	34	33	33	33	36	36	37	37	37	37	37	36	39	40
125+05322	0.12	US-601/Pageland Hwy	39	39	39	40	39	38	37	35	35	33	31	30	29	29	29	33	34	34	35	35	35	35	34	36	37
125+07487	1.21	E Franklin St	42	43	42	43	43	43	42	35	38	40	40	40	39	39	37	38	37	40	43	41	41	41	36	41	41
125+07486	1.11	NC-200/Morgan Mill Rd	43	44	44	44	44	45	45	44	41	40	42	42	41	39	40	40	35	34	34	37	39	40	39	42	43
125PO5821	0.35	US-601/NC-200/Concord Hwy/Skyway Dr	51	50	50	51	51	51	51	51	50	50	50	50	49	48	50	50	49	49	50	49	50	49	50	50	50
125+05321	1.58	US-601/NC-200/Concord Hwy/Skyway Dr	43	43	44	44	44	44	43	41	38	37	36	36	36	36	36	36	36	36	36	36	36	36	36	36	40
125+05320	6.85	Rolland Dr	49	50	50	50	50	50	48	46	47	48	49	47	46	45	46	46	45	44	46	45	46	45	46	46	48
125+05319	1.27	Indian Trail Fairview Rd	52	52	52	53	52	52	48	48	48	48	48	47	46	45	44	43	40	35	33	35	39	48	48	50	51
125+05318	0.75	Stallings Rd	52	52	52	53	52	52	48	45	46	40	37	37	35	34	33	29	29	19	23	32	45	47	50	51	
125PO5817	0.76	I-485	56	56	56	56	57	56	57	56	57	57	57	57	56	56	56	56	56	53	53	53	53	53	53	56	56
125+05317	0.44	I-485	49	49	49	49	49	48	48	48	48	48	48	48	47	46	46	46	47	46	44	46	45	46	46	48	49
	14.47		48	48	48	48	48	48	47	45	45	45	45	44	43	42	42	42	40	39	41	43	45	45	44	47	

Average Speed for US 74 from US 601 Pageland Hwy to I-485  
Westbound US 74 Corridor Average Speed

TMC CODE	LENGTH (MILES)	SEGMENT NAME	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	
125NO5817	0.91	I-485	56	55	55	56	56	56	54	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	47
125+05817	0.61	I-485	52	52	52	53	53	53	49	47	48	50	51	51	50	50	50	50	50	49	47	47	47	49	48	51	51
125+05818	1.25	Stallings Rd	50	50	51	52	52	51	43	33	38	47	49	48	47	47	47	45	43	36	38	44	46	46	46	49	50
125+05819	6.85	Indian Trail Fairview Rd	48	49	49	49	49	49	46	43	45	46	46	46	45	42	42	41	40	40	37	40	44	45	44	47	48
125+05820	1.65	Rolland Dr	44	44	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45
125NO5821	0.30	US-601/NC-200/Concord Hwy/Skyway Dr	49	49	49	49	49	50	50	51	50	49	49	49	48	48	48	48	48	48	48	49	49	49	49	49	49
125+05821	1.07	US-601/NC-200/Concord Hwy/Skyway Dr	44	44	44	44	44	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45
125+07486	4.01	I-485	40	41	41	41	41	42	41	37	35	34	34	33	33	33	33	33	33	34	34	36	38	37	37	39	40
125+07487	0.11	E Franklin St	36	36	37	36	37	36	34	30	28	28	28	27	27	27	27	27	27	26	28	31	31	31	31	31	36
125NO5822	0.01	US-601/Pageland Hwy	47	48	48	48	48	48	46	41	42	44	45	44	42	42	42	41	40	40	38	40	43	44	43	46	47
	14.02		47	48	48	48	48	48	46	41	42	44	45	44	42	42	41	40	40	38	40	43	44	43	46	47	

The INRIX data demonstrate that localized spot improvements along the US 74 corridor over the last few years (described in Section 2.4 of the *Draft Supplemental Final EIS*) have not improved overall corridor travel speeds. The average corridor travel speeds have remained relatively constant from 2011 to 2012 to 2013 (within +/- 1 to 2 mph). At no time during the day are US 74 average corridor travel speeds equal to or exceeding 50 mph. This data shows that congestion exists along US 74 today, and it will only get worse in the future as traffic volumes are expected to increase due to projected growth in Union County. Additional information is provided in the *INRIX US 74 Corridor Travel Speeds* memorandum (HNTB, April 2014) included in **Appendix E**.

### 1.1.2 PURPOSE OF PROPOSED ACTION

In light of NCDOT's review of changes and updates to project information as presented in the *Draft Supplemental Final EIS*, there are no significant new circumstances or information that would have changed the purpose of the proposed action since the *Draft Supplemental Final EIS*.

The purpose of the project is to improve mobility and capacity within the project study area by providing a facility for the US 74 corridor from near I-485 in Mecklenburg County to between the towns of Wingate and Marshville in Union County that allows for high-speed regional travel consistent with the designations of the North Carolina SHC program and the North Carolina Intrastate System, while maintaining access to properties along existing US 74 (see Footnote #2 on page 1-2).

### 1.1.3 PUBLIC AND AGENCY INVOLVEMENT IN DEVELOPMENT OF THE PURPOSE AND NEED

There are no updates to the history of public and agency involvement in the development of the purpose and need presented in the *Draft EIS*, although comments on all aspects of the project, including the purpose and need, have been accepted throughout the process. A formal scoping letter was distributed on January 5, 2007 to solicit early coordination and input (Appendix A-3 of the *Draft EIS*). Purpose and need also was discussed at five coordination meetings with environmental resource and regulatory agencies in 2007. Public comment on the project's purpose and need was solicited at the first series of Citizens Informational Workshops, held in June 2007. A majority of the citizens providing written comments supported the use of tolls and the purpose of the project. Since that time, no significant new circumstances or information has led to changes in the purpose and need.

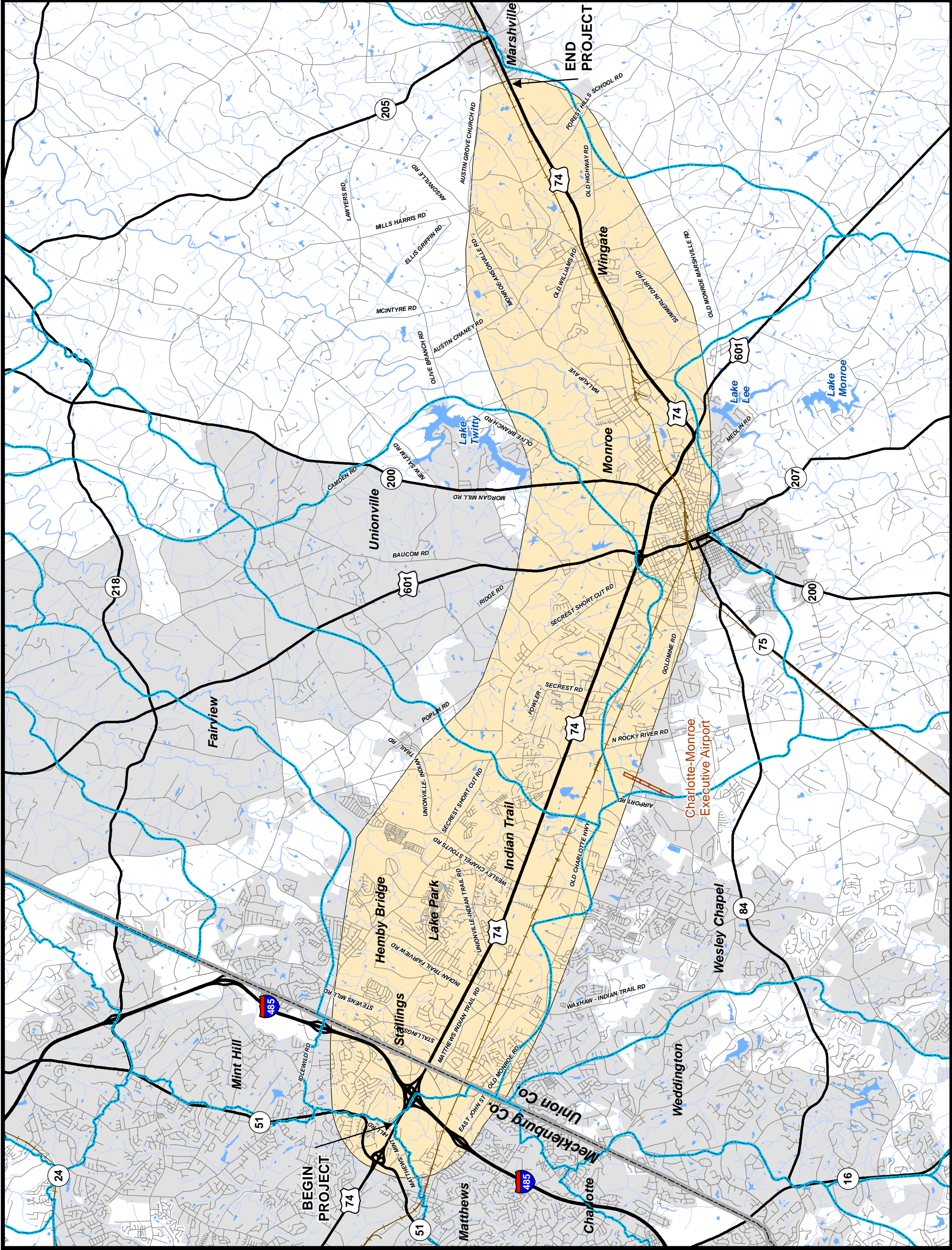
## 1.2 PROJECT SETTING

There are no changes to the project setting and the existing road network described in Section 1.4 of the *Draft EIS* and referenced in the *Final EIS* and *Draft Supplemental Final EIS*. The majority of the project study area is within Union County, with a portion adjacent to (and northwest of) I-485 within Mecklenburg County. Portions of the project study area are within the jurisdictions of the Towns of Mint Hill, Matthews, Stallings, Hemby Bridge, Indian Trail, Wingate, and Marshville; the Village of Lake Park; and the City of Monroe.

The project's designation in various national and statewide networks and its relationship to other transportation modes are discussed in more detail in Section 1.5 of the *Draft EIS*. There are no changes or updates to this information in the *Final EIS* or *Draft Supplemental Final EIS*.

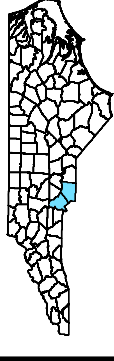
Section 1.2 of the *Draft Supplemental Final EIS* presents updated information on social and economic conditions (Section 1.2.2), transportation and land use plans (Section 1.2.3), and roadway conditions and operations (Section 1.2.4). There are no updates to this information as presented in the *Draft Supplemental Final EIS*.





**Legend**

- Project Study Area
- Municipal Limits
- Watershed Basin
- Lakes
- Streams
- Railroad



Mecklenburg and Union Counties  
North Carolina Counties

Source: Mecklenburg County and Union County GIS.  
Map Printed February 2014.



0 0.875 1.75  
Miles



STIP PROJECT  
NO. R-3329/R-2559

Mecklenburg County and Union County

**MONROE CONNECTOR/  
BYPASS**

**PROJECT STUDY  
AREA**

**Figure 1-1**

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## 2. ALTERNATIVES



Section 2 summarizes the alternatives development process carried out during the preparation of the Draft EIS, additional analyses conducted and documented in the Final EIS as a result of public and agency comment, and updates and analyses conducted after the Final EIS. This section also describes the Preferred Alternative and the reasons for its selection, and summarizes the impacts of the Preferred Alternative. DSA D remains the Preferred Alternative.

### 2.1 ALTERNATIVES CONSIDERED

The NCDOT followed an objective, multi-step alternatives screening process for the Monroe Connector/Bypass, and incorporated additional comparative and detailed analyses as part of the *Final EIS* (May 2010) and after the *Final EIS*, including those following comments received from the public and resource agencies. A typical alternatives screening process for a transportation project starts with an initial qualitative screening of a large number of alternatives, including a no-build alternative, transportation demand management (TDM) alternatives, transportation system management (TSM) alternatives, mass transit and multi-modal alternatives, upgrade existing roadways alternatives, and new location alternatives. Further screenings refine the remaining alternatives and implement progressively more detailed qualitative and quantitative evaluation criteria.

As defined in the American Association of State Highway and Transportation Officials' (AASHTO) *Defining the Purpose and Need and Determining the Range of Alternatives for Transportation Projects – Practitioner's Handbook* (August 2007), the term "alternatives screening" is commonly used to refer to the process for reviewing a range of preliminary alternatives or concepts and deciding which ones to carry forward for detailed study. The primary function of an alternatives screening process is to determine reasonableness as a means of separating the unreasonable alternatives (which can be eliminated without detailed study) from reasonable alternatives that must be carried forward for detailed study. As was the circumstances of the Monroe Connector/Bypass, if there are many reasonable alternatives, the screening process also can be used as the basis for defining a range that represents the full spectrum of reasonable alternatives.

The development and evaluation of alternatives for determination of the Detailed Study Alternatives (DSA) included in the *Draft EIS* is documented in detail in the *Alternatives Development and Analysis Report* (PBS&J, April 2008), and further studies of existing US 74 are documented in the *Upgrade Existing US 74 Alternatives Study* (HNTB, April 2009). Additional studies of improving existing US 74 conducted after the Final EIS are documented in the *US 74 Corridor Analysis Scenarios* (HNTB, December 2010).

The *Draft Supplemental Final EIS* summarizes the alternatives development process, including the process used to identify the Detailed Study Alternatives in the *Draft EIS* (Section 2.2 of the *Draft Supplemental Final EIS*); additional analyses conducted and included in the *Final EIS* as a result of public and agency comment (Section 2.3 of the *Draft Supplemental Final EIS*); and updates and analyses conducted after the *Final EIS* (Section 2.4 of the *Draft Supplemental Final EIS*). Additional analyses conducted after the *Final EIS* included a 2035 comparative planning level analysis of four Upgrade Existing US 74 corridor scenarios to determine if upgrading US 74 would provide acceptable corridor levels of service in the design year 2035 (*US 74 Corridor Analysis Scenarios*, HNTB, December 2010). The four scenarios analyzed included: 1) No-Build,

2) Superstreet Existing, 3) Widen to 6-Lane (No Superstreet), and 4) Superstreet 6-Lane. The results of the comparative analysis showed that in the design year 2035, US 74 under all four scenarios is expected to exceed LOS D (heavy congestion, queuing, and unstable traffic flow) in the majority of the corridor. Therefore, these alternatives were not considered to be reasonable and feasible. In addition, an NCDOT analysis of superstreet improvements along the corridor, *US 74 Corridor Superstreet and Traditional Intersection Capacity Analysis* (NCDOT, November 2012) (Attachment 23, SELC letter dated January 6, 2014) shows such improvements would not improve traffic speeds to meet the purpose and need.

The majority of the public comments received on alternatives are related to the alternative analysis, and many of these comments are related to the alternatives for upgrading existing US 74. The history of the evaluation of the Improve Existing US 74 Alternative also is summarized in a table in Appendix B of the *Draft Supplemental Final EIS*. Finally, Section 2.5 of the *Draft Supplemental Final EIS* summarizes a review of traffic forecasts and operations analyses for the Build Alternatives.

**Updated Information Regarding Traffic Forecasts.** Section 2.5.2 of the *Draft Supplemental Final EIS* is a summary of the in-depth hard look at the various traffic forecasts prepared for the project considering new data and updated regional travel demand models developed after the project's traffic forecasts were prepared, as documented in detail in the *Monroe Connector/Bypass Traffic Forecast Summary* (HNTB, November 2013, superseded May 2014).

Following publication of the *Draft Supplemental Final EIS*, output from a new version of the regional travel demand model, Metrolina Regional Model (MRM) 14v1.0, was provided by the Charlotte Regional Transportation Planning Organization (CRTPO, formerly MUMPO). MRM 14v1.0 has since been adopted by CRTPO and a conformity determination on the CRTPO 2040 MTP was issued by FHWA on May 2, 2014. This new MRM incorporates updated socioeconomic projections (2014 SE Data). The MRM 14v1.0 data is considered in the *Monroe Connector/Bypass Traffic Forecast Summary* (HNTB, November 2013, superseded May 2014), included in **Appendix E**. The new data was considered in relation to the information contained in Section 2.5.2 of the *Draft Supplemental Final EIS*, subheading "Question 5 – Are the current Build traffic forecasts still valid for the purposes they were used?"

As discussed in Section 2.5.2 of the *Draft Supplemental Final EIS*, the current Build Scenario traffic forecasts (both 2030 and 2035) use the MRM06v1.1 (with 2005 SE Data) 2030 output. To consider the new MRM, the adopted MRM14v1.0 (with 2014 SE Data) output for the 2030 Build Scenario and the 2040 Build Scenario were compared to the MRM06v1.1 (with 2005 SE Data) output for the 2030 Build Scenario in the *Monroe Connector/Bypass Traffic Forecast Summary* (HNTB, November 2013, superseded May 2014).

Based on the overall corridor, cumulative vehicle miles traveled (VMT) changes equate to a 12 percent decrease along the Monroe Connector/Bypass and a four percent increase along the US 74 corridor. Overall corridor vehicle miles traveled (VMT) results indicate that, even with an updated model network (adopted MRM14v1.0), SE data (2014), and methodology, the Monroe Connector/Bypass is still generally attracting similar levels of demand as MRM06v1.1 (with 2005 SE data) used in the 2030 Build forecast. In addition, the adopted MRM14v1.0 is predicting more demand for the existing US 74 corridor. Thus, it is reasonable to conclude that the adopted MRM14v1.0 assigns similar magnitudes of raw travel demand model daily volume assignment to the Monroe Connector/Bypass and US 74 compared to MRM06v1.1. It is also reasonable to conclude that a traffic forecast for the 2040 Build Scenario that utilizes the adopted MRM14v1.0 network and 2014 SE data in a similar manner to which they were used for the 2008 and 2035

Build Scenario forecast would produce results that are to the same magnitude, if not greater, than the original 2008 and 2035 Build Scenario forecast. After consideration of the adopted MRM14v1.0 (with 2014 SE Data) output, as detailed in the *Monroe Connector/Bypass Traffic Forecast Summary* (HNTB, November 2013, superseded May 2014), the conclusions summarized in *Draft Supplemental Final EIS* Section 2.5.2 remain unchanged; namely, the Build Scenario forecasts remain valid and an updated forecast is not warranted.

**Conclusions Regarding the Alternatives Analysis Process.** As noted in the American Association of State Highway and Transportation Officials' (AASHTO) *Practitioner Handbook for Defining the Purpose and Need and Determining the Range of Alternatives for Transportation Projects*, a key principle in NEPA is that agencies should apply a "rule of reason" when determining the appropriate range of alternatives considered in a NEPA document and the degree to which each alternative is considered. The NCDOT applied practical judgment and documented determinations at each stage of alternatives analysis. These decisions were reasonable and supported by extensive factual information in the record, as summarized in Section 2 of the *Draft EIS*, Section 1.2 of the *Final EIS*, and Section 2 of the *Draft Supplemental Final EIS*.

The public and local, state, and federal environmental resource and regulatory agencies were involved throughout the entire project development process. Agencies were involved via monthly agency coordination meetings, as discussed in Section 3.2 of the *Final EIS*. The public was involved via newsletters, workshops, the project website, and through as-requested small group meetings. The decisions relative to alternatives development and analysis were informed, open, and valid.

The NCDOT followed an objective, multi-step alternatives screening process for the Monroe Connector/Bypass. The *Draft Supplemental Final EIS* summarizes this alternatives development process, including the process used to identify the Detailed Study Alternatives in the *Draft EIS* (Section 2.2 of the *Draft Supplemental Final EIS*); additional analyses conducted and included in the *Final EIS* as a result of public and agency comment (Section 2.3 of the *Draft Supplemental Final EIS*); and updates and analyses conducted after the *Final EIS* (Section 2.4 of the *Draft Supplemental Final EIS*).

The screening-level process and decisions in the *Monroe Connector/Bypass EIS* remain valid. Based on a review of new information and analyses in the *Draft Supplemental Final EIS* and this *Final Supplemental Final EIS*, and consideration of public and agency comments, including all comments received as a result of the December 2013 Public Hearings (see **Section 3.3**), there are no conditions that warrant considering new alternatives or updating previous screening decisions. As discussed in **Section 2.2**, DSA D still remains the best option due to its ability to meet all elements of the purpose and need and based on results of comparative analyses.

## 2.2 DESCRIPTION OF THE PREFERRED ALTERNATIVE

As presented in Section 2 of the *Final EIS*, the FHWA and NCTA (a division of NCDOT as of July 27, 2009) identified DSA D as the Preferred Alternative, based on the information in the *Draft EIS* and input received during the public comment period. DSA D was identified as the Recommended Alternative in the *Draft EIS*. After consideration of comments received on the *Final EIS* and additional studies completed since the *Final EIS*, NCDOT reaffirmed DSA D as the Preferred Alternative in the *Draft Supplemental Final EIS*. There are no updates to information presented in the *Draft Supplemental Final EIS* and no comments have been received that affect the selection of DSA D as the Preferred Alternative. **Figure 2-1** shows the Preferred Alternative.



### 2.2.1 GENERAL DESCRIPTION

The Preferred Alternative is proposed as a four to six-lane controlled-access toll facility. The Preferred Alternative follows existing US 74 for approximately one mile from just east of I-485 to east of Stallings Road (SR 1365) and then proceeds eastward on a new location alignment from east of Stallings Road (SR 1365) to the project terminus at existing US 74 between the towns of Wingate and Marshville. The total length of the Preferred Alternative is approximately 19.7 miles.

From west to east, interchanges are located at US 74, Indian Trail-Fairview Road (SR 1520), Unionville-Indian Trail Road (SR 1367), Rocky River Road (SR 1514), US 601, NC 200, and Austin Chaney Road (SR 1758). Partial interchanges are located at Forest Hills School Road (SR 1754) and US 74 at the eastern end of the project.

The Preferred Alternative includes upgrading an approximately one-mile segment of existing US 74 at the western end of the project to a controlled-access highway facility with frontage roads. For this segment, the toll road is six lanes wide and elevated on retained fill, with one-way frontage roads of two to three lanes on either side, for a total of ten to twelve lanes. For the remainder of the new location portion, the Preferred Alternative has four lanes and a 70-foot median. The median width will likely be reduced during final design, which would reduce the footprint of the project. However, the wider median width was used to conservatively evaluate impacts of the Preferred Alternative.

Design refinements to the Preferred Alternative incorporated since the *Draft EIS* are discussed in Section 2.3.1 of the *Final EIS* and summarized in Section 3.3.1 of the *Draft Supplemental Final EIS*, and generally include modifications to improve access to neighborhoods, reduce visual impacts and relocations, and maintain local connectivity.

### 2.2.2 DESIGN CRITERIA

The design speed for the tolled highway segments is 70 miles per hour (mph), which would accommodate a posted speed limit of 65 mph. The design speed for the frontage roads on reconstructed US 74 is 40 mph, which would allow for a posted speed limit of 35 mph. The general design criteria for the project are presented in Appendix B of the *Draft EIS*.

Two typical sections were developed for the Preferred Alternative – one for the segment on new location and one for the segment that includes upgrading an approximately one-mile portion of existing US 74. These typical sections are depicted in **Figure 2-2**. The typical section for the new location roadway has four 12-foot travel lanes with a 70-foot median and 12-foot inside and outside paved shoulders. The right of way needed for this typical section is approximately 300 feet, with additional right of way required for interchanges, frontage roads, and improvements to intersecting roads.

The typical section for the upgraded portion of existing US 74 includes a six-lane tolled highway elevated on fill with retaining walls. One-way frontage roads of two to three lanes would be built immediately at the base of the retaining walls to carry local traffic on either side of the elevated toll road. The number of lanes on the frontage roads would vary depending on the proximity to u-turn locations, along with on and off ramps. In areas where ramps are present, three lanes are necessary to provide adequate distance to allow vehicles to merge into traffic. The right of way required for this section is approximately 260 feet.

### 2.2.3 TOLLING INFORMATION

**Planning for Tolls.** In the MUMPO *2030 Long Range Transportation Plan* (LRTP), tolls were indicated as a funding source for the Monroe Connector (I-485 to US 601) portion of this project, but not for the Monroe Bypass portion of the project (US 601 to US 74). On March 24, 2010, MUMPO endorsed its *2035 LRTP*, which includes tolls as a funding source for the entire project. The project is also recognized in the current CRTPO *2040 MTP* as an Existing and Committed Roadway Project and a Horizon Year 2025 Fiscally Constrained Roadway Project.

**Toll Collection System.** Tolls would be collected by an electronic toll collection (ETC) system utilizing NC Quick Pass ([www.myncquickpass.com](http://www.myncquickpass.com)) and there would be no cash toll booths. The primary means of ETC involves setting up an account with NCDOT and using a transponder/receiver system. The transponder is a small device usually mounted on the windshield of a vehicle. The receiver is typically mounted over the roadway, and it electronically collects tolls from a driver's account as the vehicle travels under it at highway speed.

The NCDOT has agreed to interoperability agreements with states utilizing the EZ-Pass and SunPass toll collection systems. EZ-Pass and SunPass customers will be able to use toll roads within NC, including the Monroe Connector/Bypass. Toll road users also will have the option of acquiring transponders with prepaid tolls. For travelers who do not have a transponder, a video system will capture license plate information and NCDOT will bill the vehicle's registrant.

In addition, in accordance with NC General Statutes §136-89.213(b), NCDOT will operate a facility in the immediate vicinity of the project that accepts cash payments for prepaid tolls, so establishing an account is not required. It is anticipated that this storefront-type facility would operate from an existing commercial building or strip shopping center within the project area. The facility is not expected to generate a high volume of traffic that would impact local streets.

**Incorporating Tolls into Functional Engineering Designs.** There are minimal differences between a roadway design with and without an ETC system. The ETC equipment, which is primarily mounted on an overhead structure, takes up little space, and does not require additional right of way. While the right-of-way requirements may not differ between a non-toll facility and a toll facility, the alignment of loop ramps that have ETC equipment may slightly differ. At these locations, the loop ramp is modified slightly to provide a tangent section that facilitates accurate video capture of license plates.

**Financial Feasibility of Tolling and Toll Rates.** The financial feasibility of tolling the proposed project was evaluated in progressively more detail in the following documents. The first two documents were incorporated by reference into the *Final EIS* while the third was released following the *Final EIS* for use in the development of the finance plan and sale of bonds. Each of these documents is available for review and download on the project website: [www.ncdot.gov/projects/monroconnector](http://www.ncdot.gov/projects/monroconnector). Please note that the traffic and revenue analysis was used in planning for the funding of the project and was not used in the traffic analysis or evaluation of alternatives as part of the NEPA process.

- *Proposed Monroe Connector Preliminary Traffic and Revenue Study* (Wilbur Smith Associates, October 2006). This document was included by reference into the *Draft EIS*. This preliminary study concluded that tolling the entire Monroe Connector/Bypass project would generate significantly more revenue than the Monroe Connector alone. In addition, the study found that the Monroe Connector in combination with the Monroe Bypass would reduce congestion by providing an alternative route to US 74.

- *2009 Update for Monroe Connector/Bypass Preliminary Traffic and Revenue Study* (Wilbur Smith Associates, April 2009). The update was conducted at a preliminary level of study. Updates from the 2006 study included toll collection methods and alignment and interchange configurations.
- *Final Report Proposed Monroe Connector/Bypass Comprehensive Traffic and Revenue Study* (Wilbur Smith Associates, October 2010). This report documented certified anticipated revenue for use by bond rating agencies and investors to evaluate financial return on the project.

The *Comprehensive Traffic and Revenue Study* (Wilbur Smith Associates, October 2010) was used in the development of the finance plan for the project and as information for use in the sale of bonds. Toll revenue bonds for the project were issued on November 9, 2011. The initial price of the toll was determined as part of the *Comprehensive Traffic and Revenue Study* (Wilbur Smith Associates, October 2010). The price of the toll likely will vary over time, based upon variables such as managing demand, financing the initial construction of the project, and paying for roadway operations and maintenance. The toll rate will differ for cars and trucks, and will also be dependent on the collection method, i.e., transponder, registered license plate, or bill via US Mail. Initial toll rates for those utilizing a transponder are expected to be approximately \$0.13 per mile for cars and \$0.51 per mile for trucks.

## 2.3 REASONS FOR SELECTING DSA D AS THE PREFERRED ALTERNATIVE

According to FHWA regulations (23 CFR 771.125) and CEQ regulations (40 CFR 1502.14), the lead agency(ies) should identify a Preferred Alternative in a Final EIS. This is the alternative the lead agency(ies) believes would fulfill its statutory mission and responsibilities, giving consideration to social, economic, environmental, technical and other factors.

The NCDOT identified DSA D as the Preferred Alternative in the *Final EIS*, for the reasons listed below. DSA D was also identified by the NCTA, and NCDOT as the Recommended Alternative in the *Draft EIS* (Section 2.8). After consideration of comments received on the *Final EIS* and additional studies completed since the *Final EIS*, as well as comments received on the *Draft Supplemental Final EIS*, the reasons cited in Section 2.2 of the *Final EIS* for selecting DSA D as the Preferred Alternative still apply. The comparisons listed below were made prior to the design refinements discussed in Section 2.3.1 of the *Final EIS* and summarized in Section 3.3.1 of the *Draft Supplemental Final EIS*. However, the relative comparisons listed below still apply, since it is expected that if designs were refined for each DSA, the relative values would remain similar.

Additional information regarding input received during the *Draft EIS*, *Final EIS*, and *Draft Supplemental Final EIS* public review periods is included at the end of this section under “Public Involvement.” Please note this list is not in order of importance and does not represent all benefits or impacts of DSA D, just those elements that differentiated DSA D when compared to the other DSAs.

### **Cost and Design Considerations**

- DSA D is one of the shortest alternatives at 19.7 miles (all alternatives range from 19.6 to 20.6 miles).
- DSA D is one of the eight alternatives that would not require the relocation of Rocky River Road and the associated wetland impacts. The relocation of Rocky River Road is required for the eight alternatives that include DSA Segment 22A.
- DSA D is higher in the range of median total project costs when compared to the other DSAs. The higher cost of DSA D is offset by lower impacts in several other areas as described below. Updated cost estimates for the Preferred Alternative are presented in **Section 2.4**. It is expected that relative costs amongst the DSAs would remain similar if updated costs were provided for all DSAs, and therefore the conclusions listed in this bullet would not change.

### **Human Environment Considerations**

- DSA D is one of the four DSAs with the fewest residential relocations at 107 (the range being 94 to 149 residential relocations). Through design refinements for the Preferred Alternative, this number has been reduced by 12 residential relocations for a total of 95 residential relocations.
- Although DSA D is higher in the range of business relocations at 48 (the range being 14 to 49 business relocations), this number has been reduced from preliminary estimates by one business relocation through design refinements for a total of 47 business relocations. Most of the impacted businesses are located along existing US 74 at the western end of the project. The relocation of these businesses is in exchange for the other positive factors associated with DSA D, including having the roadway located farther away from densely developed residential subdivisions and farther from Stallings Elementary School.
- DSA D would have no direct impacts to schools and would avoid any indirect impacts to Stallings Elementary School. DSA D is one of eight alternatives that would have no direct impacts to schools. The other eight alternatives would have a direct impact to Central Piedmont Community College and would be adjacent to Stallings Elementary School.
- DSA D is one of the four alternatives that would impact only three church properties (other DSAs impact four or five church properties). None of the DSAs would impact church buildings.
- DSA D is one of the eight alternatives that would avoid impacts to the proposed Matthews Sportsplex property, a public park to be developed by the Mecklenburg County Park and Recreation Department. Also see Cultural Resource Considerations below.

### **Physical Environment Considerations**

- DSA D is one of the alternatives that has the least impacts to active agricultural lands at 499 acres. Impacts range from 494 acres for DSA C to 627 acres for DSA B3.
- DSA D is one of eight DSAs (DSAs C, D, C1, D1, C2, D2, C3, and D3) that would potentially impact the most hazardous materials sites (11-12 sites impacted, with the lowest impacts being 6-7 sites). However, the anticipated impact severity is “low” for all potentially impacted sites. An updated survey of potentially contaminated sites conducted for the Preferred Alternative revealed only five potentially contaminated sites.

### **Cultural Resources Considerations**

- DSA D is one of eight alternatives that would not have impacts on the proposed Matthews Sportsplex property, a future public park and Section 4(f) resource. The other eight alternatives would affect this proposed park.

### **Natural Resources Considerations**

- DSA D is in the middle range of impacts to upland forest at 450 acres (all alternatives range from 358 to 514 acres). As discussed in Section 4.4.3 of the *Draft Supplemental Final EIS*, impacts to terrestrial communities from all the DSAs were updated to account for an area near the western end of the project where 3.9 acres of upland forest were cleared within DSA Segment 2. Based on this update, DSA D would still be in the middle of the range of upland forest impacts at 446 acres (all alternatives range from 354 to 514 acres).
- DSA D is lower in the range of impacts to ponds at 2.6 acres (all alternatives range from 2.5 to 3.8 acres).
- DSA D is in the middle range of impacts to wetlands at 8.1 acres (all alternatives range from 6.2 to 11.0 acres).
- DSA D would have the least impacts to perennial streams with 9,794 linear feet of impact (all alternatives range from 9,794 to 12,383 linear feet).
- DSA D is lower in the range of impacts to intermittent streams at 11,915 linear feet (all alternatives range from 10,767 to 13,020 linear feet).
- DSA D would have the least linear feet of streams requiring mitigation at 12,550 linear feet (all alternatives range from 12,550 to 16,387 linear feet). While final decisions with respect to mitigation requirements had not been made by the regulatory agencies at the time of this comparison, for estimation purposes, streams were considered to require mitigation if they were perennial or if they were intermittent and had a stream rating issued by the NCDENR-DWQ (now part of the Division of Water Resources [DWR]) of greater than or equal to 26. This implies that streams impacted by DSA D are of lower quality than those impacted by other DSAs. (Note: stream impacts from the refined design of the Preferred Alternative are discussed in **Section 2.4**.)
- DSA D is one of eight alternatives that would cross only two 303(d)-listed streams, while the other eight alternatives would cross four. Both 303(d)-listed streams are proposed to be bridged.

### **Public Involvement Prior to Publication of the Draft EIS**

- Substantial public input regarding the DSAs, particularly at the western end of the project (DSA Segment 2 versus DSA Segment 18A), was received throughout the alternatives screening process. Much of this public input was generated by C.A.R.E., a community-based group focused on informing and mobilizing residents against DSA Segment 18A of the Monroe Connector/Bypass (included in DSAs A, B, A1, B1, A2, B2, A3, and B3). C.A.R.E. submitted more than 2,000 signatures in opposition to DSA Segment 18A. Specifically, the group was concerned about noise, visual, and air quality impacts to the new Stallings Elementary School and adjacent neighborhoods, as well as impacts to North Fork Crooked Creek, which is a 303(d)-listed stream. While this input was a factor in the decision to recommend DSA D, the recommendation was based on a wide range of factors included in the comprehensive review and analysis of the potential impacts of all DSAs, as described above.

**Public Involvement between the Draft EIS and Final EIS**

- The formal public review period for the *Draft EIS* was from May 1, 2009 (the day the Notice of Availability of the *Draft EIS* was published in the Federal Register [Vol. 74, No. 83, Page 20297]) to June 15, 2009. However, the *Draft EIS* was available on the project website beginning April 2, 2009, and a press release was issued that day announcing the document's availability for public review.
- A series of Public Hearings and Open Houses was held the week of May 18, 2009. The purpose of the public review period and the Pre-Hearing Open Houses/Public Hearings was to receive input on the *Draft EIS* and project corridors and design, as well as the selection of DSA D as the Recommended Alternative. Section 3.1.2 of the *Final EIS* has additional information on this topic. Of the comments received during the public review period that expressed an opinion on the selection of DSA D as the Recommended Alternative, 382 were in favor of DSA D and 50 were opposed to it. An additional 150 names were submitted on an electronic petition opposing DSA D; however, NCDOT cannot verify the validity of the signatures on this petition.
- None of the public comments received resulted in changes to any of the reasons listed above for selecting DSA D as the Preferred Alternative. Detailed information regarding comments received from the public, as well as local, state, and federal agencies, is presented in Section 3 of the *Final EIS*. Substantive comments on the *Draft EIS* and responses to those comments are included in Section 3.3 of the *Final EIS*. All comments received on the *Draft EIS* and responses to the comments are included in Appendix B of the *Final EIS*.

**Public Involvement between the Final EIS and the Draft Supplemental Final EIS**

- The formal public review period for the *Final EIS* was from June 11, 2010 (the day the Notice of Availability of the *Final EIS* was published in the Federal Register [Vol. 75, No. 112, Page 33300]) to July 12, 2010. Chapter 5 of the *Final EIS* includes a full list of agencies and organizations that received copies of the document, as well as a list of local libraries and government offices where the *Final EIS* was made available for public review. The *Final EIS* in its entirety was also made available for download on the project website.
- Detailed information regarding comments received from the public on the *Final EIS*, as well as local, state, and federal agencies, is presented in Section 5 of the *Draft Supplemental Final EIS*. All comments received on the *Final EIS* and responses to the comments are included in Appendix A of the *Draft Supplemental Final EIS*. None of the comments received resulted in a change in the Preferred Alternative.
- Two Citizens Update Workshops were held on June 18 and 19, 2012. Both meetings included a formal presentation that described the project's legal proceedings, status of the right-of-way process, and the next steps. The presentation was followed by a question and answer session and project team members were available to answer one-on-one questions before and after the presentation. A total of 207 citizens signed in at the workshops (102 in Stallings and 105 in Monroe). At the meeting in Stallings, one comment form was submitted to state support for the project. At the meeting in Monroe, four comment forms were submitted – three in support of the project and voicing frustration with the delay, and one with a suggestion to widen NC 218. Additional information is provided in Section 5.2.1 of the *Draft Supplemental Final EIS*.
- Since the *Final EIS*, the project study team met with several organizations and agencies to provide updates on the project or make a presentation about the project at the request of

community groups. These meetings are described in Sections 5.2 and 5.3 of the *Draft Supplemental Final EIS*.

### **Public Involvement after the Draft Supplemental Final EIS**

- The formal public review period for the *Draft Supplemental Final EIS* was from November 22, 2013 (the day the Notice of Availability of the *Final EIS* was published in the Federal Register [Vol. 78, No. 226, Page 70041]) to January 6, 2014. Chapter 7 of the *Draft Supplemental Final EIS* includes a full list of agencies and organizations that received copies of the document, as well as a list of local libraries and government offices where the *Draft Supplemental Final EIS* was made available for public review. The *Draft Supplemental Final EIS* in its entirety was also made available for download on the project website.
- A series of public hearings was held December 9-11, 2013. The purpose of the public review period and Public Hearings was to receive input on the *Draft Supplemental Final EIS*. A total of 524 people signed in at the Public Hearings and a total of 124 comment forms, verbal comments, emails and letters were received during the comment period. Additional information is provided in **Section 3.1** of this document. A summary of comments received can be found in **Section 3.3**, with detailed comments and responses included in **Appendix A**.

## **2.4 SUMMARY OF IMPACTS FROM THE PREFERRED ALTERNATIVE**

Impacts from the Preferred Alternative are discussed in detail in Section 2 of the *Final EIS* and any updates to those impacts are presented in Section 4 of the *Draft Supplemental Final EIS*. There have been no updates since the *Draft Supplemental Final EIS*. A summary of the impacts from the Preferred Alternative, including updates presented in the *Draft Supplemental Final EIS*, is presented in the following sections. The impacts presented below include the design refinements and service roads summarized in Section 3.3.1 and Section 3.3.2, respectively, of the *Draft Supplemental Final EIS*.

### **HUMAN ENVIRONMENT**

Impacts to the human environment are documented in the *Community Impact Assessment* (PBS&J, 2009), Section 3 of the *Draft EIS*, Section 2.5.1 of the *Final EIS*, and Section 4.1 of the *Draft Supplemental Final EIS*.

- The Preferred Alternative impacts seven neighborhoods:
  - Forest Park (relocation of homes on end of road or at edge of neighborhood and change in access)
  - Acorn Woods (relocation of homes in neighborhood and change in access)
  - Bonterra (change in access)
  - Poplin Farms (relocation of homes in neighborhood)
  - Avondale Park (right-of-way encroachment only)
  - Silverthorn (right-of-way encroachment only)
  - Glencroft (right-of-way encroachment only)

- The Preferred Alternative does not directly impact any schools in the project study area. However, implementation of the Preferred Alternative will alter access to Central Piedmont Community College (CPCC). CPCC Lane, which provides access to the campus from existing US 74, will be closed to allow for control of access in the vicinity of the I-485 interchange. New access would be provided from existing US 74 via the proposed McKee Road. The Preferred Alternative also may alter traffic patterns on existing US 74 and Forest Hills School Road in the vicinity of Forest Hills High School. None of these changes would preclude operations of the schools.
- The Preferred Alternative may impact three church properties (no church buildings would be taken):
  - Benton Heights Presbyterian Church – right of way required along US 601 to accommodate improvements associated with the proposed US 601 interchange; control of access requirements may necessitate altering existing entrances.
  - Trinity Baptist Church – right of way required along US 601 to accommodate improvements associated with proposed US 601 interchange.
  - Lee Park Baptist Church (formerly Morgan Mill Road Baptist Church) – right of way required along NC 200 to accommodate improvements associated with the proposed NC 200 interchange.
- The Preferred Alternative requires relocation of approximately 95 residences, 47 businesses, and 3 farms. Business relocations are concentrated along existing US 74. These total numbers have not changed since the *Final EIS*. However, since the approval of the original *ROD* in August 2010 (rescinded July 2012), NCDOT has acquired three commercial properties, 26 residential properties, and one vacant parcel. Fifteen of these properties (one commercial, one vacant, and 13 residential) were acquired under hardship situations. Requests for right-of-way acquisition for hardship situations are being considered on a case by case basis. The purchase of this right of way did not influence NCDOT's or FHWA's decision to move forward with the Preferred Alternative as presented in the *Final EIS*. If there was a change in the Preferred Alternative, the purchased right of way would be sold and new right of way acquired for a different alternative.
- As evaluated in accordance with Executive Order 12898, the construction of the Preferred Alternative does not have a disproportionately high and adverse impact on minority and low-income populations.

## PHYSICAL ENVIRONMENT

Impacts to the physical environment are documented in a variety of technical memorandums as noted below, as well as in Section 4 of the *Draft EIS*, Section 2.5.2 of the *Final EIS*, and Section 4.2 of the *Draft Supplemental Final EIS*.

- Noise impacts are documented in *Final Traffic Noise Technical Memorandum* (PBS&J, March 2009), *Addendum Traffic Noise Technical Memorandum* (PBS&J, January 2010), and *Traffic Noise Analysis Update for the Monroe Connector/Bypass* (Atkins, November 2013). The number of impacted receptors is estimated to be 153. Five preliminary feasible and reasonable noise barriers have been identified for the Preferred Alternative:
  - Noise wall NW2C – Along the shoulder of westbound Monroe Connector/Bypass near White Oak Lane and Strand Drive.



- Noise wall NW4 (Previously N4-1) – Along the shoulder of eastbound Monroe Connector/Bypass near Beverly Drive.
- Noise wall NW7B (Previously N7-1) – Along the shoulder of eastbound Monroe Connector/Bypass near Avondale neighborhood (Dusty Hollow Road).
- Noise wall NW11 (Previously N9-1) – Along the shoulder of westbound Monroe Connector/Bypass near Glencroft Drive.
- Noise wall NW12 - Along the cut slope of eastbound Monroe Connector/Bypass near Phifer Circle.

A Design Noise Study will be prepared during the final design process to update the noise analysis based upon the most recent traffic forecasts and the final design of the Selected Alternative.

- An assessment of air quality is documented in the *Final Air Quality Technical Memorandum* (PBS&J, February 2009). The project will not cause or contribute to any new localized carbon monoxide violations or increase the frequency or severity of any existing carbon monoxide violations, and a quantitative carbon monoxide hot-spot analysis is not required. The Monroe Connector/Bypass was included in the approved MUMPO 2035 LRTP, which conformed to the intent of the State Implementation Plan (SIP). The USDOT made a conformity determination on the 2035 LRTP on May 3, 2010, with subsequent approvals by FHWA and the Federal Transit Administration (FTA) on May 3, 2011 (*LRTP/TIP amendment*); December 16, 2011 (*FY 12-18 TIP*); July 6, 2012 (*LRTP/TIP amendment*); October 25, 2012 (*LRTP/TIP amendment*); May 29, 2013 (*2008 8-hour ozone standard*); and May 31, 2013 (*LRTP/TIP amendment*). The Monroe Connector/Bypass is included in the CRTPO 2040 MTP and FY 12-18 TIP. USDOT issued a conformity determination for the CRTPO 2040 MTP and the FY 12-18 TIP on May 2, 2014 (**Appendix E-7**). This conformity determination meets all of the applicable Clean Air Act (CAA) Section 176(c) requirements for federally funded or approved transportation projects. Specifically, the requirements for carbon monoxide hot-spot analysis are codified at 40 CFR 93.116 and 40 CFR 93.123. By meeting these regulatory requirements as well as other requirements in the conformity regulations, this conformity determination demonstrates compliance with the requirements of CAA Section 176(c)(1).
- The Preferred Alternative impacts approximately 184 acres of prime farmland soils and 751 acres of statewide important farmland soils. There are no farmland soils classified as unique or locally important within the right of way for the Preferred Alternative.
- Utility coordination will be conducted during final design. All utility providers will be contacted and coordinated with to ensure that the proposed design and construction of the project does not substantially disrupt service.
- On the eastern end of the project, the Preferred Alternative crosses the CSX Railroad line that parallels existing US 74. NCDOT will coordinate with CSX Railroad during final design for the project's eastern terminus at US 74, which would affect the east-west rail mainline through Union County.
- Five potentially contaminated parcels are within the project corridor. When the final design is complete and right-of-way limits are determined, a hazardous materials site assessment will be performed to determine levels of contamination at any potential hazardous materials sites. The assessment will be made prior to right-of-way acquisition.

- The Preferred Alternative includes six bridge crossings and 35 major culverts or pipes. There would be five crossings of floodways and 11 crossings of floodplains. During final design, a detailed hydrologic and hydraulic analysis will be performed for each crossing location to determine the actual size and configuration of each structure. Also, for all crossings on FEMA-regulated streams, NCDOT will coordinate with the NC Floodplain Mapping Program to determine whether NCDOT's memorandum of Agreement (MOA) is applicable, or whether a Conditional Letter of Map Revision (CLOMR) and subsequent final Letter of Map Revision (LOMR) will be required. In National Flood Insurance Program flood hazard areas, the final hydraulic designs for the Selected Alternative would be such that the crossing would convey the 100-year flood without a substantial increase in flood elevation.

**Floodplain Finding.** Executive Order 11988 directs federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. The FHWA requirements for compliance with this Executive Order are included in 23 CFR 650 Subpart A. In accordance with 23 CFR 650.113, "A proposed action which includes a significant encroachment shall not be approved unless the FHWA finds that the proposed significant encroachment is the only practicable alternative."

The Preferred Alternative will impact 100-year floodplains associated with major drainages within the study area, including North Fork Crooked Creek, South Fork Crooked Creek, East Fork Stewarts Creek, Stewarts Creek, Richardson Creek, Rays Fork Creek, Stumplick Branch, Meadow Branch, and Salem Creek. All of the stream crossings would be perpendicular or near to perpendicular, which would minimize impacts to the associated floodplains. All bridges or culverts designed for the project will be sized to ensure that no increases to the extent and level of flood hazard risk will result from such encroachments. The Preferred Alternative was selected based on a consideration of impacts to natural resources, and the human and physical environments, and on the ability to minimize impacts. As such, there is no other practicable alternative to reduce impacts to floodplains.

## CULTURAL RESOURCES

Impacts to cultural resources are documented in Section 5.2 of the *Draft EIS*, Section 2.5.3 of the *Final EIS*, and Section 4.3 of the *Draft Supplemental Final EIS*.

- The Preferred Alternative would not result in an Adverse Effect to any historic property on or eligible for listing on the National Register of Historic Places (NRHP). No property would be acquired from any of the historic resources identified within the project corridor. The effects determinations are No Adverse Effect for Secret Farm, Hiram Secret House, and Perry-McIntyre House. The effects determination for William Bivens House is No Effect. These determinations were confirmed with the Historic Preservation Office (HPO) on September 29, 2009. The NCDOT Historic Architecture Group confirmed on August 17, 2012 that there are no changes to the findings presented in the *Final EIS*.
- The proposed action would have no effects on any archaeological resource on, or eligible for listing on, the NRHP. An intensive ground penetrating radar survey was conducted at the Hasty-Fowler-Secret Cemetery (Site 31UN351\*\*) in May 2012, where human remains are suspected to be present. According to the survey, there is no indication of possible burials outside the area with extant markers. As included in the **Special Project Commitments** section, all possible burials identified in the survey will be treated as potential human graves and treated appropriately under North Carolina burial removal laws. The NCDOT

Archaeology Group confirmed on August 8, 2012 that there are no changes to the findings presented in the *Final EIS*.

- The Preferred Alternative would not impact any Section 4(f) or Section 6(f) resources.

## NATURAL ENVIRONMENT

Impacts to the natural environment are documented in Section 6 of the *Draft EIS*, Section 2.5.4 of the *Final EIS*, and Section 4.4 of the *Draft Supplemental Final EIS*.

- Section 3.4 of the *Draft Supplemental Final EIS* presents impacts to terrestrial communities for the Preferred Alternative right of way based on the refined functional design. Terrestrial communities will be impacted permanently by project construction from clearing and paving, as follows:
  - Agriculturally maintained – 489 acres
  - Basic mesic forest (Piedmont subtype) – 22 acres
  - Mesic mixed hardwood forest (Piedmont subtype) – 390 acres
  - Piedmont/Low mountain alluvial forest – 21 acres
  - Pine forest – 13 acres
  - Successional – 97 acres
  - Urban/disturbed – 216 acres
  - Open water – 6 acres
  - Impervious surface – 58 acres
- The Preferred Alternative will impact 8.1 acres of wetlands and 23,082 linear feet of streams, including 10,353 linear feet of perennial stream and 12,729 linear feet of intermittent stream. Impacts were calculated using the refined functional design estimated construction limits, plus 40 feet, in accordance with NCDOT procedures for functional level designs. It is expected that the stream and wetland impact estimates likely will decrease as the level of design detail increases, since smaller buffers are used in estimating impacts from preliminary design (construction limits plus 25 feet) and from final design (construction limits plus 5-10 feet).

Mitigation would be required for the anticipated impacts to Waters of the US, and will be provided through the in-lieu fee program of the NCDENR Ecosystem Enhancement Program (EEP). A conceptual mitigation plan for the Preferred Alternative that includes the EEP has been prepared, and is described in Section 2.5.4.4 of the *Final EIS*. The plan considered both on-site mitigation and mitigation via the in-lieu fee program. On-site mitigation was determined to not be practicable. In investigating the availability of on-site mitigation locations, the *Review for Potential On-Site Mitigation* technical memorandum (ESI, January 2010) was prepared and is discussed in Section 2.5.4.4 of the *Final EIS*. Four potential on-site mitigation sites were identified in this memorandum which could offer stream mitigation opportunities within and nearby to the Alternative D Study corridor.

Subsequent analysis by Atkins documented in the *On-Site Mitigation Feasibility Assessment* technical memorandum (Atkins, November 16, 2011) determined that three of the four sites were not feasible primarily because of lack of homeowner interest. It was determined that the fourth site could provide stream mitigation but it was determined to be not practicable and was eliminated from further consideration for the following reasons:

- 1) Relatively small size of the project (1,000 linear feet)
- 2) Stream s161b will be culverted at both ends of the project
- 3) Potential impacts associated with stormwater discharges.

The above referenced memos along with the identified EEP mitigation credits for this project are included in **Appendix C**. Prior to revocation on April 17, 2013, the Section 404 permit (SAW-2009-00876) issued to the NCTA for construction of the Monroe Connector/Bypass did agree to the use of off-site mitigation for the project.

Following issuance of the original *ROD* in August 2010 (since rescinded), the USACE issued a Section 404 permit for the project on April 15, 2011. Due to the appellate court decision (see **Section P.4.5**), the USACE suspended the Section 404 permit on May 21, 2012, and NCDENR-DWQ (now part of the Division of Water Resources [DWR]) withdrew the Section 401 permit on June 8, 2012. As a result of the extended preparation time for the *Draft Supplemental Final EIS*, USACE decided on April 17, 2013 to revoke the Section 404 permit until a new *ROD* is issued and updated information is submitted in a new application.

**Wetland Finding.** Executive Order 11990, Protection of Wetlands, and DOT Order 5660.1A, Preservation of the Nation's Wetlands, emphasize the important functions and values inherent in the Nation's wetlands. Federal agencies are directed to avoid new construction in wetlands unless there is no practicable alternative to such construction, and the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use.

As discussed in **Section 2.3**, DSA D was selected as the Preferred Alternative because it represents a balanced minimization of all impacts analyzed. From a natural environment standpoint, DSA D was in the lower range of impacts to ponds and intermittent streams, had the least impacts to perennial streams, and had the least linear feet of streams requiring mitigation.

Based on available data, the Preferred Alternative includes all practicable measures to minimize harm to wetlands. As discussed in Section 2.5.4.4 of the *Draft EIS*, the refined design for the Preferred Alternative results in no net gain in wetland impacts compared to the functional design for DSA D documented in the *Draft EIS*, even though service roads have been added to the design. There have been no changes to the refined functional design for the Preferred Alternative since the *Final EIS*; therefore, the estimated impacts to jurisdictional resources presented in Table 2-11 of the *Final EIS* are still valid.

- Protected species information is summarized in Section 4.4.5 in the *Draft Supplemental Final EIS*. Since the publication of the *Draft Supplemental Final EIS*, NCDOT submitted a revised Biological Assessment (The Catena Group, November 2013) and technical report in response to comments received from USFWS. The USFWS concurred with the findings of the Biological Assessment in a letter dated December 16, 2013 (**Appendix B**). The biological conclusions for federally protected species are listed below:
  - Michaux's sumac – No Effect
  - Smooth coneflower – No Effect
  - Schweinitz's sunflower – May Affect/Not Likely to Adversely Affect
  - Carolina heelsplitter – May Affect/Not Likely to Adversely Affect

- Carolina heelsplitter Designated Critical Habitat – May Affect/Not Likely to Adversely Affect

Additional information regarding coordination with USFWS is provided in **Section 3.2.2** of this *Final Supplemental Final EIS*.

#### LAND USE AND TRANSPORTATION PLANNING

- The project is consistent with local land use plans and the CRTPO *2040 Metropolitan Transportation Plan*, for which FHWA issued a conformity determination on May 2, 2014.

#### COST

Cost estimates for the Preferred Alternative were originally presented in Section 2.3.4 of the *Final EIS* and assumed a construction contract award date of December 2010 and a project opening in December 2014. The estimated project cost presented in the *Final EIS* was \$802.0 million with a 70 percent confidence level (70 percent probability the cost will be less than or equal to this cost). Updated cost estimates for the Preferred Alternative were provided in Section 3.3.4 of the *Draft Supplemental Final EIS* based on a notice to proceed date of October 2014 and a project opening in October 2018. The estimated project cost presented in the *Draft Supplemental Final EIS* was \$898.0 million with a 70 percent confidence level. No other assumptions or data were changed; the resulting \$96 million increase in project costs was based on simply inflating the cost estimates presented in Section 2.3.4 of the *Final EIS* to reflect a delay in the project opening date from December 2014 to October 2018.

Updated cost estimates for the Preferred Alternative since the *Draft Supplemental Final EIS* are presented in **Table 2-1**. As described in the table notes, these estimates still assume a notice to proceed date of October 2014 and a project opening in October 2018. However, adjustments were made to reflect the October 2010 design-build price proposal, the work completed by the design-build team to date, the right-of-way acquisition completed to date, and actual environmental mitigation costs paid for the project. The updated total project cost is \$838.6 million with a 70 percent confidence level.

It should also be noted that costs were expended prior to the award of the design-build contract in November 2011, including costs expended on the Monroe Bypass project (STIP Project R-2559) prior to 2007 when studies began for the current combined Monroe Connector/Bypass project. Costs expended prior to 2007 included \$11.2 million in engineering costs and \$20.5 million for right-of-way acquisition for the Monroe Bypass project. As noted in Section 2.7 of the *Draft EIS* (March 2009), the cost of previously purchased right of way was not included in the right-of-way costs for the current project since all of the DSAs included a portion of this right of way and adding these costs would not make a significant difference in comparing the costs of the DSAs. Preliminary engineering costs associated with the current Monroe Connector/Bypass project between 2007 and November 2011 were \$15.6 million, while costs related to right-of-way activities were \$0.8 million during this period.

TABLE 2-1: Cost Estimates for Preferred Alternative (\$ millions)\*

	Probable Range of Costs Through Year of Expenditure			Est. Cost to Complete (70% chance costs will be less)	Expenditures prior to Design-Build NTP in Nov. 2011	Expenditures from Design-Build NTP in Nov. 2011 through Jan. 2014	Environmental Mitigation Cost	Estimated Total Cost (70% chance costs will be less)
	Construction Cost	ROW & Utility Cost	Total Cost to Complete					
Preferred Alternative	466.9 to 527.6	172.5 to 199.0	639.4 to 726.6	698.8	48.1	74.8	16.9	838.6

Source: HNTB, February 21, 2014.

Notes: \* Assumptions and notes regarding costs:

1. Construction cost estimate includes design-build highway construction, landscaping, toll equipment and integration, design fees, construction engineering and inspection, construction management costs, stipends, early completion incentive payments, fuel/AC adjustment reserve fund, agency reserve fund, public education and outreach efforts, contingency fund for scope changes, toll operations testing prior to opening, initial transponder purchases, and administrative costs.
2. Year of expenditure costs were modeled using a range of possible inflation rates.
3. Future construction costs were modeled to mid-point of construction using inflation rates ranging from 2.5% to 4%, with 3% being most likely.
4. Future right-of-way costs were modeled to anticipated year of acquisition using inflation rates ranging from 0% to 4%, with 2% being most likely.
5. Future administrative costs were modeled to anticipated year of expenditure using inflation rates ranging from 2.5% to 4.5%, with 4% being most likely.
6. Ranges of costs are based on cost projections in which the lowest 10% and highest 10% were discarded. There is an 80% probability associated with these cost ranges.
7. Prior calculations (April 9, 2010) for year of expenditure costs assumed an award date of December 2010 and an opening in December 2014.
8. Revised calculations (April 26, 2013) included in the *Draft Supplemental Final EIS* for year of expenditure costs assume an award date of October 2014 and an opening in October 2018.
9. Calculations (March 21, 2014) included in the *Final Supplemental Final EIS* for year of expenditure costs assume the same schedule as the *Draft Supplemental Final EIS*. Adjustments made to the estimate include:
  - A factor was applied to the design-build portion of the estimate in order to reflect the October 2010 price proposal.
  - The design-build portion of the estimate was further reduced to reflect the work done by the design-build team to date.
 The right-of-way portion of the estimate was reduced to reflect the right-of-way acquisitions and relocations performed following the design-build notice to proceed.
10. Expenditures (\$48.1 million) from project inception up to design-build Notice to Proceed (NTP) in November 2011 include preliminary engineering and right-of-way acquisition for Monroe Bypass prior to 2007, as well as preliminary engineering costs associated with the combined project.
11. Expenditures (\$74.8 million) following design-build Notice to Proceed (NTP) in November 2011 through January 2014 include \$46.1 million to the design-build contractor, \$17.4 million in right-of-way acquisition costs, \$2.7 million for additional preliminary engineering studies, and \$8.6 million for construction administration, legal costs, and staff time.
12. Environmental mitigation costs are based on actual environmental mitigation costs paid for the project.
13. Costs do not include financing (capitalized interest, reserve funds, cost of issuance, etc.) or long-term operations and maintenance costs.

## INDIRECT AND CUMULATIVE EFFECTS

Potential indirect and cumulative effects of the project are documented in *Indirect and Cumulative Effects Assessment* (HNTB, January 2009), *Monroe Connector/Bypass (R-3329/R-2559) Indirect and Cumulative Effects Quantitative Analysis* (Michael Baker Engineering, Inc., April 2010), and *Monroe Connector/Bypass (R-3329/R-2559) Indirect and Cumulative Effects Water Quality Analysis* (PBS&J, April 2010).

Since the *Final EIS* was published, an updated quantitative analysis of indirect and cumulative effects was prepared for the project. The *Indirect and Cumulative Effects Quantitative Analysis Update* (Michael Baker Engineering, Inc., November 2013) (ICE Update) addresses questions raised about the assumptions used in the previous quantitative ICE and incorporates new information gathered since the previous report. The ICE Update is summarized in Section 4.5 of the *Draft Supplemental Final EIS* and the full report is included in Appendix E of the *Draft Supplemental Final EIS*. Conclusions from the updated quantitative analysis are summarized as follows:

- All changes in land use within the entire study area from the Baseline to the 2030 Preferred Alternative are within approximately two percent (i.e., between negative one percent and one percent) of the change that is predicted from the Baseline to the 2030 No-Build Scenario.
- The indirect land use effects are modest, totaling about 2,100 acres of additional development, an increase of less than 2 percent over the No-Build Scenario and an increase in development of about 1 percent of the total land area within the study area. (NOTE: As reported in the errata in **Appendix D**, an incorrect acreage of 2,300 acres of additional development was reported on page 3-18 of the *Draft Supplemental Final EIS*. This was the result of a typographic error in the executive summary and conclusions of the ICE Update and does not affect the conclusions regarding indirect impacts of the project as reported in the *Draft Supplemental Final EIS*. The correct acreage was reported in the main body of the ICE Update.)
- The incremental effect of the 2030 Preferred Alternative will be an approximately one percent increase in impervious surface throughout the study area as compared to the change predicted for the 2030 No-Build Scenario. These increases in percent impervious surface as compared to the change predicted for the 2030 No-Build Scenario are found in 7 of the 18 watersheds in the study area.
- No measurable differences in impervious surface were found between the 2030 No-Build and the 2030 Build Scenario within the Goose Creek or Sixmile Creek watersheds (habitat for the endangered Carolina heelsplitter). Therefore, no indirect effects are anticipated to the Carolina heelsplitter. As there are no indirect effects anticipated, the project does not contribute an incremental effect that would yield potential cumulative effects. Potential direct effects are not anticipated, and are addressed in the *Biological Assessment* (The Catena Group, November 2013) discussed in greater detail in **Section 3.3.2**.

The November 2013 ICE Update used socioeconomic projections developed by MUMPO (now CRTPO) for its *2035 LRTP* (MUMPO 2009 socioeconomic projections). Following publication of the *Draft Supplemental Final EIS*, draft socioeconomic projections were provided by CRTPO in January 2014. The CRTPO adopted the *2040 MTP* on April 16, 2014. FHWA issued a conformity determination for the CRTPO *2040 MTP* on May 2, 2014. There were no changes to the 2014 socioeconomic data between January 2014 and the adoption of the *2040 MTP* by CRTPO on April 16, 2014. These new socioeconomic projections (CRTPO 2014 socioeconomic projections) serve as a critical input to the new MRM model version 2014 (MRM14v1.0).

As discussed in a memorandum entitled *Review of New CRTPO Socioeconomic Projections* (Michael Baker Engineering, Inc., May 2014), included in **Appendix E**, the MUMPO 2009 socioeconomic projections used in the November 2013 ICE Update were compared to the CRTPO 2014 socioeconomic projections to estimate the effect of differences between the projections on the conclusions of the ICE Update as presented in the *Draft Supplemental Final EIS*. The results of the comparison show that despite the lower growth forecasted in the CRTPO 2014 socioeconomic projections and the differences in the distribution of that growth, a reanalysis of the indirect and cumulative effects using the new 2014 socioeconomic projections would likely lead to similar conclusions regarding the indirect and cumulative effects of the Monroe Connector/Bypass. The one exception to this conclusion is for the Crooked Creek watershed, where slightly higher indirect effects and cumulative effects are likely due to the increase in expected development in the watershed relative to the MUMPO 2009 socioeconomic projections. However, for five of the six watersheds where induced growth is expected to occur, the 2014 projections show lower household growth than the 2009 projections. Therefore, the November 2013 ICE Update reflects a higher

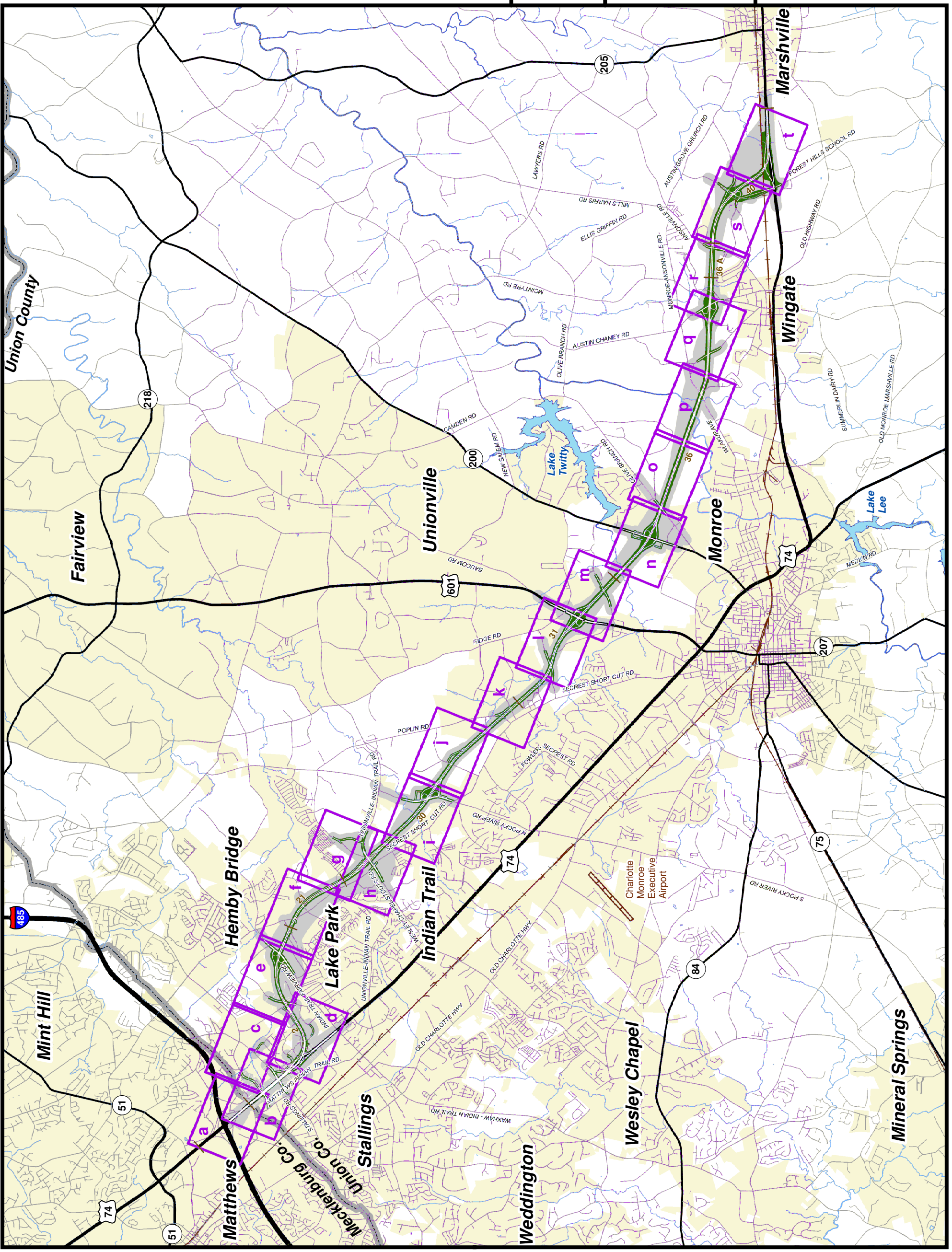
estimate of cumulative effects than would likely occur using the CRTPO 2014 socioeconomic projections. In conclusion, based on a thorough review of the CRTPO 2014 socioeconomic projections compared to the MUMPO 2009 socioeconomic projections used in the November 2013 ICE Update, the conclusions regarding impacts to sensitive resources would be highly unlikely to change and the overall assessment of impacts would likely show lower impacts. Therefore, incorporation of the CRTPO 2014 socioeconomic projections would not result in significant environmental impacts not previously evaluated in the *Draft Supplemental Final EIS*, and an updated analysis of indirect and cumulative effects is not necessary.

As presented in Section 2.5.5.2 of the *Final EIS*, a water quality modeling analysis was conducted to determine if induced land use change resulting from the Preferred Alternative would affect water quality within the project study area. Specifically, the modeling effort attempted to quantify the differences between the stream flow and pollutant loadings (total sediment, nitrogen, and phosphorous) of the Build and No-Build future land use scenarios.

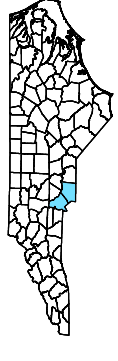
The results of the analysis generally suggest that the water quality effects of the project are relatively minor compared to those expected from growth under the No-Build Scenario. Based upon the findings of the updated ICE analysis summarized above, which were very similar to the results of the original quantitative ICE, as well as review of CRTPO 2014 socioeconomic projections, NCDOT determined that additional water quality modeling is not necessary as the differences are not large enough to see substantial differences compared to the prior water quality analysis. Therefore, the conclusions of the water quality modeling analysis presented in the *Final EIS* are still valid.



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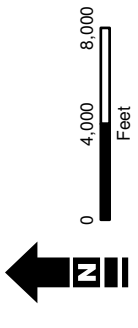


- Legend**
- Functional Design
  - Right of Way
  - Segment Breakline
  - Segment Name
  - Map Grid
  - City Limits
  - Corridor Study Area
  - Interstate Highway
  - US Highway
  - NC State Highway
  - Major Road
  - Railroad
  - River / Stream
  - Lake
  - County Boundary



Mecklenburg and Union Counties  
North Carolina Counties

Source: Mecklenburg County and Union County GIS.  
Map Printed February 2014.



STIP PROJECT  
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Mecklenburg County and Union County

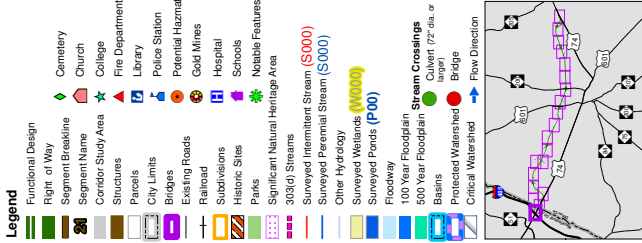
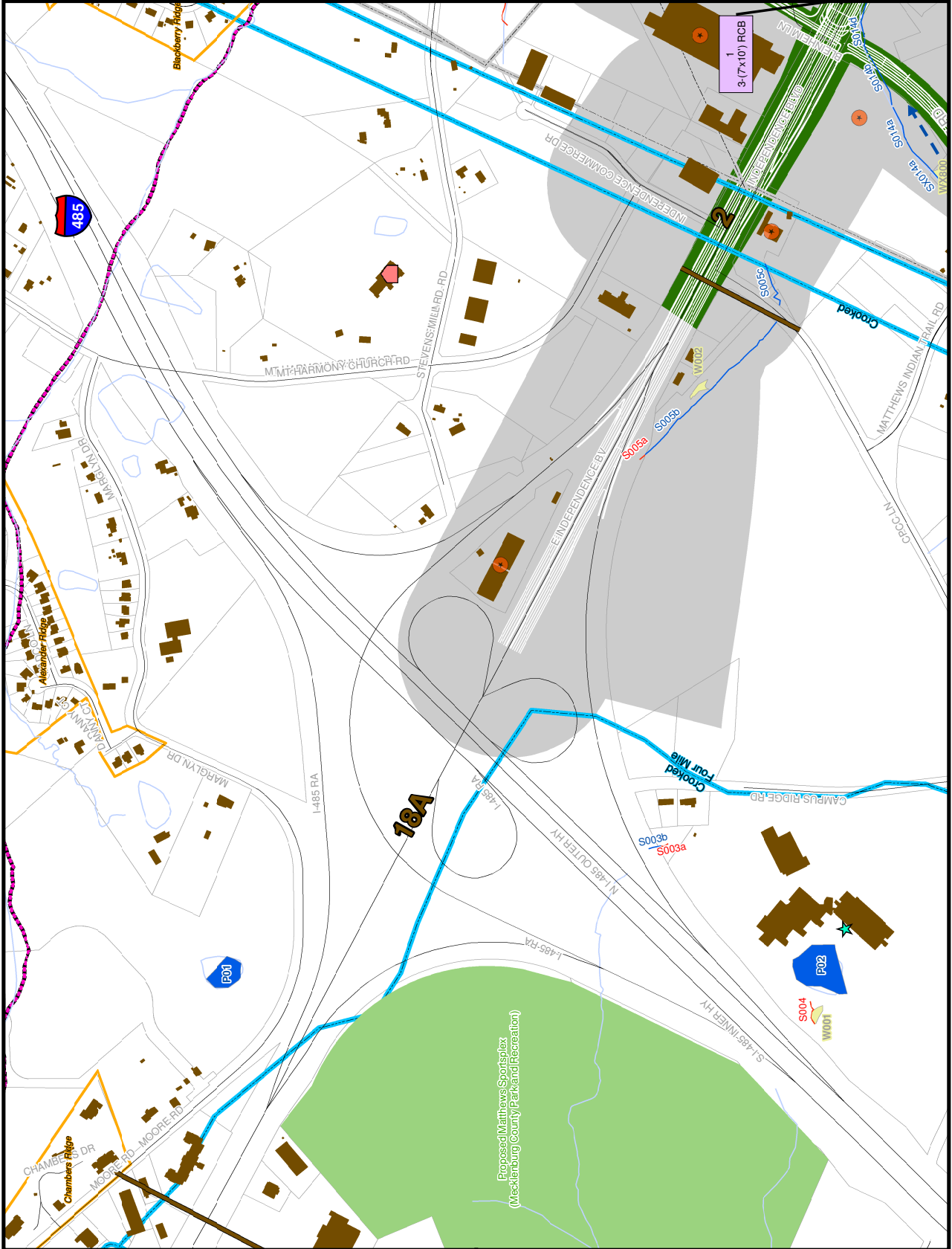
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BYPASS**

**PREFERRED  
ALTERNATIVE  
FUNCTIONAL  
DESIGNS**

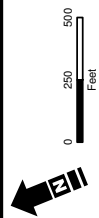
Figure 2-1 INDEX

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Source: Mecklenburg County and Union County GIS.  
Map Printed February 2014.

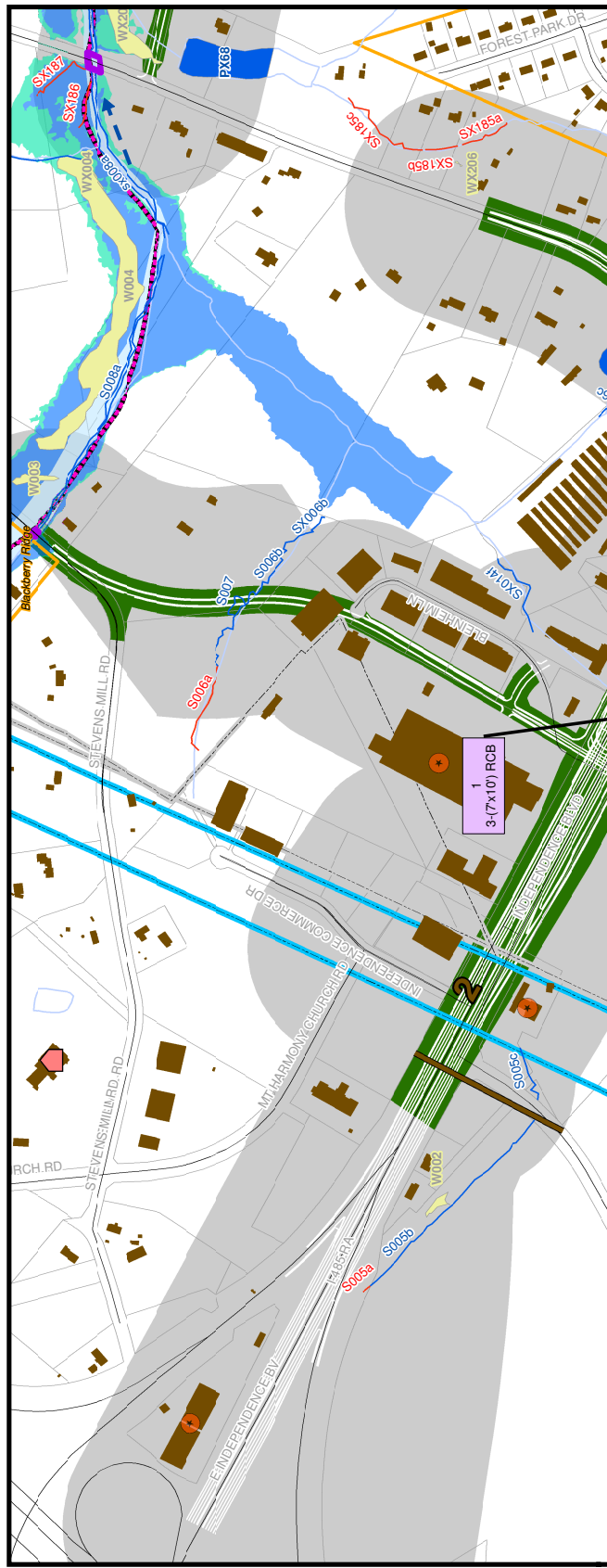


**TURNPIKE AUTHORITY**  
EAST CAROLINA  
STIP PROJECT  
NO. R-3329/R-2559  
Mecklenburg County and Union County

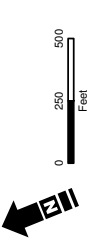
**MONROE CONNECTOR/  
BYPASS  
PREFERRED  
ALTERNATIVE  
FUNCTIONAL  
DESIGNS**

Figure 2-1a

- Legend**
- Functional Design
  - Right of Way
  - Segment Breakline
  - Segment Name
  - Corridor Study Area
  - Structures
  - Parcels
  - City Limits
  - Existing Roads
  - Railroad
  - Subdivisions
  - Historic Sites
  - Parks
  - Significant Natural Heritage Area
  - 300(F) Streams
  - Surveyed Intermittent Stream (S000)
  - Surveyed Perennial Stream (S000)
  - Other Hydrology
  - Surveyed Wetlands (W000)
  - Surveyed Ponds (P00)
  - Floodway
  - 100 Year Floodplain
  - 500 Year Floodplain
  - Basins
  - Protected Watershed
  - Critical Watershed
  - Flow Direction
  - Stream Crossings
  - Culvert (2'-6" or larger)
  - Bridge



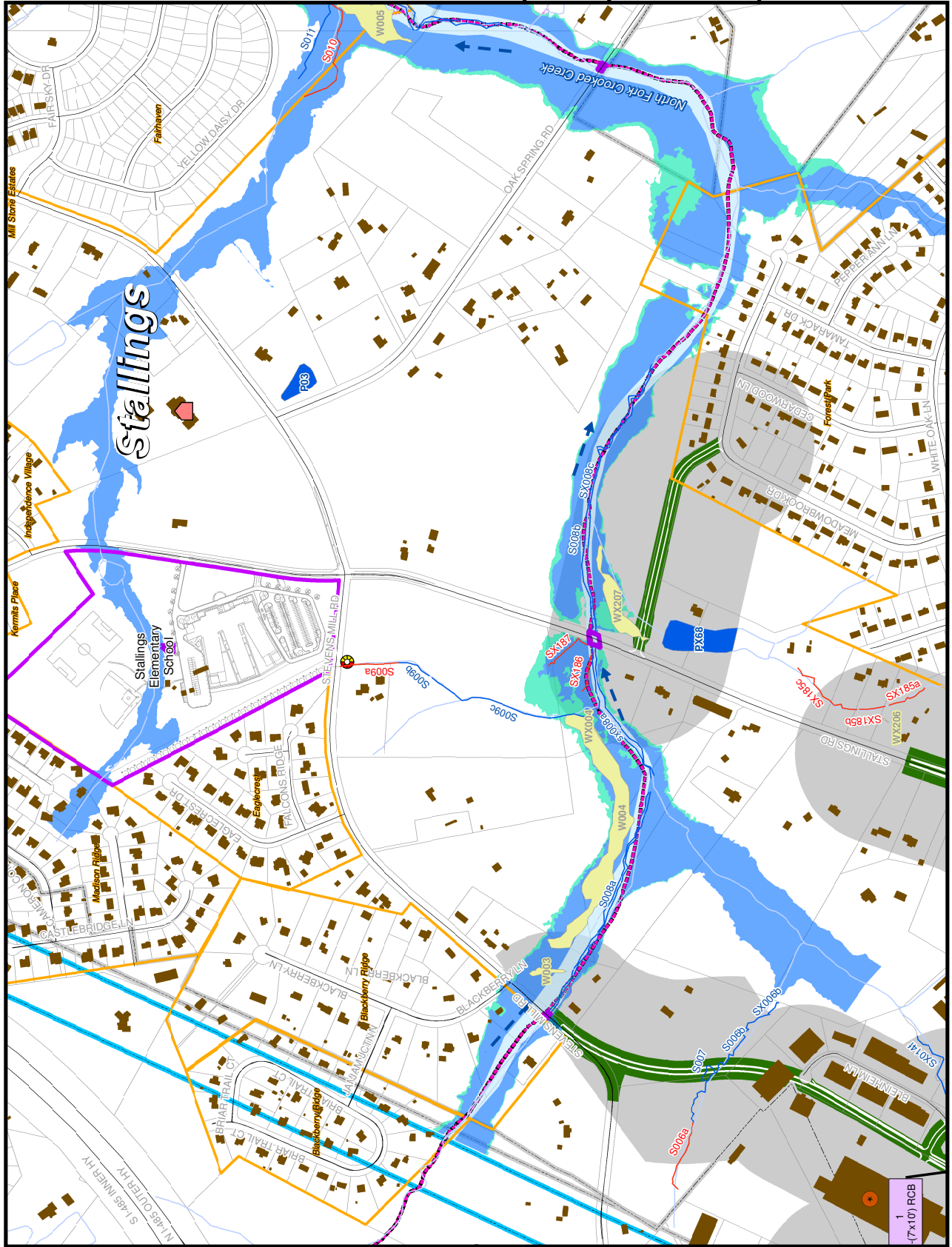
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**TURNPIKE AUTHORITY**  
 STIP PROJECT  
 NO. R-3329/R-2559  
 Mecklenburg County and Union County

**MONROE CONNECTOR/  
 BYPASS  
 PREFERRED  
 ALTERNATIVE  
 FUNCTIONAL  
 DESIGNS**

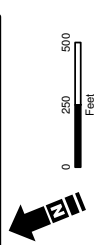
Figure 2-1b



**Legend**

- Functional Design**
  - Right of Way
  - Segment Breakline
  - Segment Name
  - Corridor Study Area
  - Structures
  - Parcels
  - City Limits
  - Bridges
  - Existing Roads
  - Railroad
  - Subdivisions
  - Historic Sites
  - Parks
  - Significant Natural Heritage Area
- Other Features**
  - Cemetery
  - Church
  - College
  - Fire Department
  - Library
  - Police Station
  - Potential Hazard
  - Cold Mines
  - Hospital
  - Schools
  - Notable Features
- Stream Crossings**
  - 100 Year Floodplain
  - 500 Year Floodplain
  - Culvert (2' dia. or larger)
  - Bridge
  - Protected Watershed
  - Critical Watershed
  - Flow Direction
- Other Hydrology**
  - Surveyed Intermittent Stream (S000)
  - Surveyed Perennial Stream (S000)
  - Other Hydrology
  - Surveyed Wetlands (W000)
  - Surveyed Ponds (P00)
  - Floodway

Source: Mecklenburg County and Union County GIS.  
Map Printed February 2014.



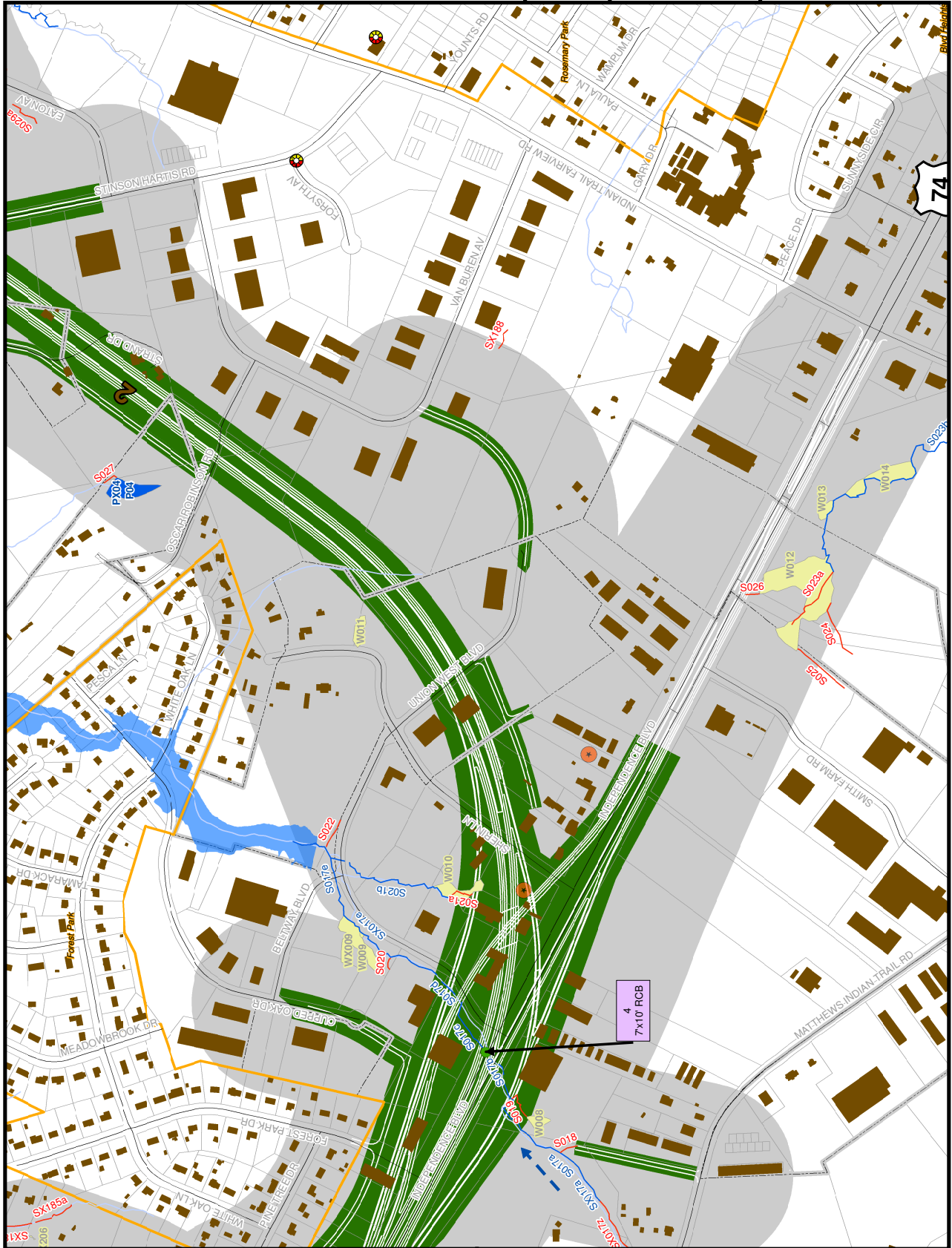
**FORTE CAROLINA**  
**Turnpike Authority**

STIP PROJECT  
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Mecklenburg County and Union County

**MONROE CONNECTOR/  
BYPASS  
PREFERRED  
ALTERNATIVE  
FUNCTIONAL  
DESIGNS**

Figure 2-1c

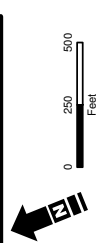




**Legend**

Functional Design	Cemetery
Right of Way	Church
Segment Breakline	College
Segment Name	Fire Department
Corridor Study Area	Library
Structures	City Limits
Parcels	Police Station
City Limits	Potential Hazard
Existing Roads	Cold Mines
Railroad	Hospital
Subdivisions	Schools
Historic Sites	Notable Features
Parks	Significant Natural Heritage Area
Significant Natural Heritage Area	Stream Crossings
300(d) Streams	100 Year Floodplain
Surveyed Intermittent Stream (S000)	500 Year Floodplain
Surveyed Perennial Stream (S000)	Culvert (72' dia. or larger)
Other Hydrology	Bridge
Surveyed Wetlands (W000)	Protected Watershed
Surveyed Ponds (P00)	Critical Watershed
Floodway	Flow Direction
Stream Crossings	Flow Direction

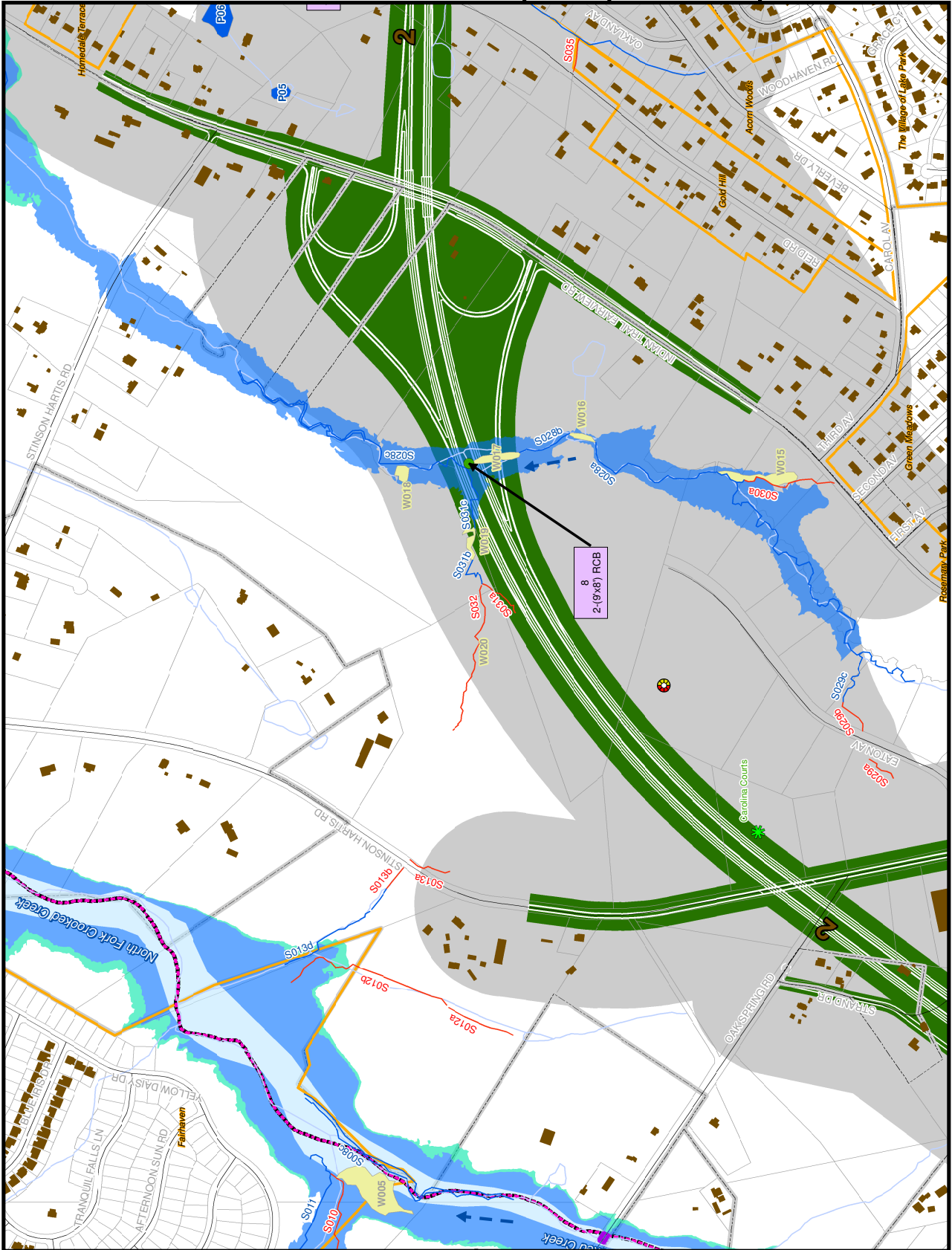
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 Mecklenburg County and Union County

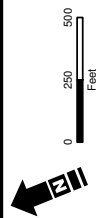
**MONROE CONNECTOR/BYPASS  
 PREFERRED ALTERNATIVE FUNCTIONAL DESIGNS**

Figure 2-1d



- Legend**
- Functional Design
  - Right of Way
  - Segment Breakline
  - Segment Name
  - Corridor Study Area
  - Structures
  - Parcels
  - City Limits
  - Existing Roads
  - Railroad
  - Subdivisions
  - Historic Sites
  - Parks
  - Significant Natural Heritage Area
  - 200(d) Streams
  - Surveyed Intermittent Stream (S000)
  - Surveyed Perennial Stream (S000)
  - Other Hydrology
  - Surveyed Wetlands (W000)
  - Surveyed Ponds (P00)
  - Floodway
  - 100 Year Floodplain
  - 500 Year Floodplain
  - Basins
  - Protected Watershed
  - Critical Watershed
  - Stream Crossings
  - Culvert (72" dia. or larger)
  - Bridge
  - Flow Direction
  - Cemetery
  - Church
  - College
  - Fire Department
  - Library
  - Police Station
  - Potential Hazmat
  - Cold Mines
  - Hospital
  - Schools
  - Notable Features

Source: Mecklenburg County and Union County GIS.  
Map Printed February 2014.

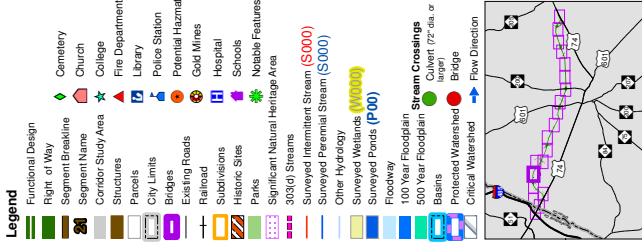


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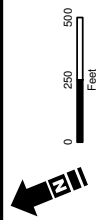
**MONROE CONNECTOR/  
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 FUNCTIONAL  
 DESIGNS**

**Figure 2-1e**





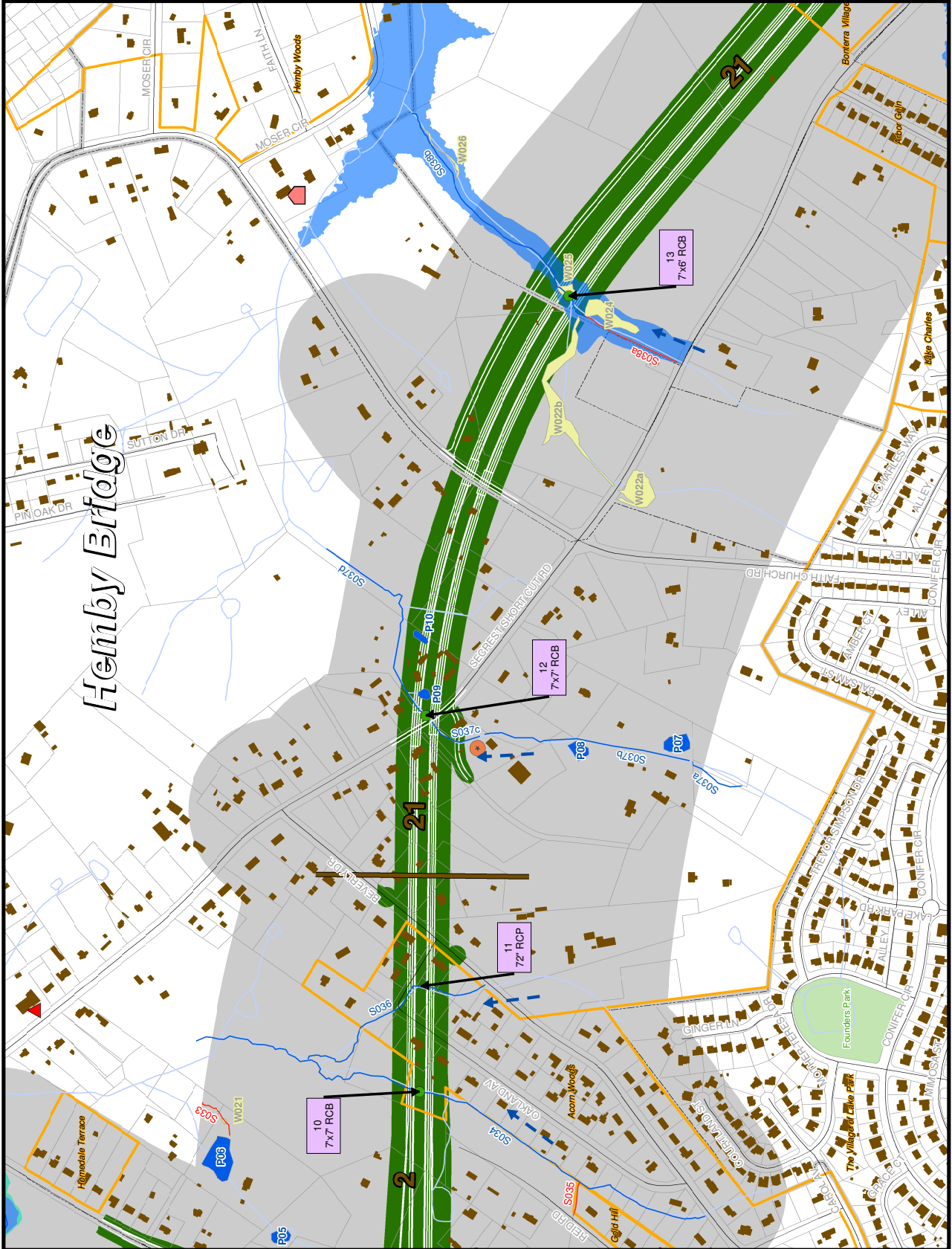
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**MONROE CONNECTOR/  
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ALTERNATIVE  
FUNCTIONAL  
DESIGNS**

Figure 2-1f



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**Legend**

- Functional Design
- Right of Way
- Segment Breakline
- Segment Name
- Corridor Study Area
- Structures
- Parcels
- City Limits
- Existing Roads
- Railroad
- Subdivisions
- Historic Sites
- Parks
- Significant Natural Heritage Area
- 300(d) Streams
- Surveyed Intermittent Stream (S000)
- Surveyed Perennial Stream (S000)
- Other Hydrology
- Surveyed Wetlands (W000)
- Surveyed Ponds (P00)
- Floodway
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- Library
- Police Station
- Potential Hazard
- Cold Mines
- Hospital
- Schools
- Notable Features
- Culvert (72" dia. or larger)
- Bridge

Source: Mecklenburg County and Union County GIS.  
Map Printed February 2014.

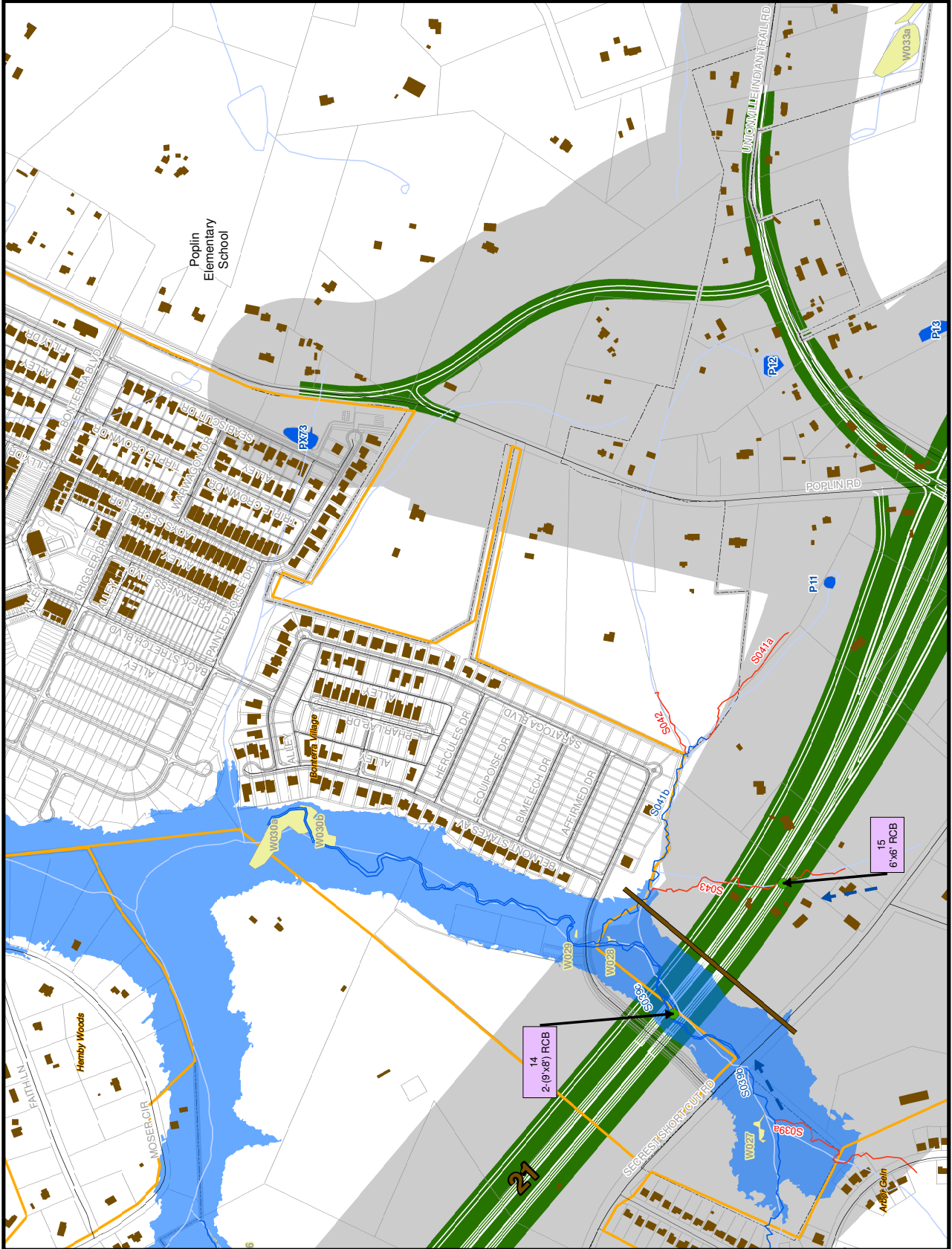
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TURNPIKE AUTHORITY  
EAST CAROLINA

STIP PROJECT  
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Mecklenburg County and Union County

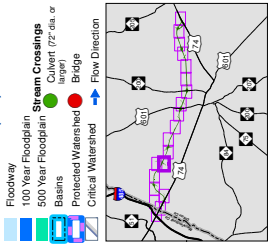
**MONROE CONNECTOR/  
BYPASS  
PREFERRED  
ALTERNATIVE  
FUNCTIONAL  
DESIGNS**

Figure 2-1g

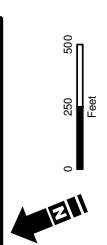




- Legend**
- Functional Design
  - Right of Way
  - Segment Breakline
  - Segment Name
  - Corridor Study Area
  - Structures
  - Parcels
  - City Limits
  - Existing Roads
  - Railroad
  - Subdivisions
  - Historic Sites
  - Parks
  - Significant Natural Heritage Area
  - 300(d) Streams
  - Surveyed Intermittent Stream (S000)
  - Surveyed Perennial Stream (S000)
  - Other Hydrology
  - Surveyed Wetlands (W000)
  - Surveyed Ponds (P00)
  - Floodway
  - 100 Year Floodplain
  - 500 Year Floodplain
  - Stream Crossings
  - Culvert (2' dia. or larger)
  - Bridge
  - Protected Watershed
  - Critical Watershed
  - Flow Direction
- Cemetery
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  - Fire Department
  - Library
  - Police Station
  - Potential Hazard
  - Cold Mines
  - Hospital
  - Schools
  - Notable Features



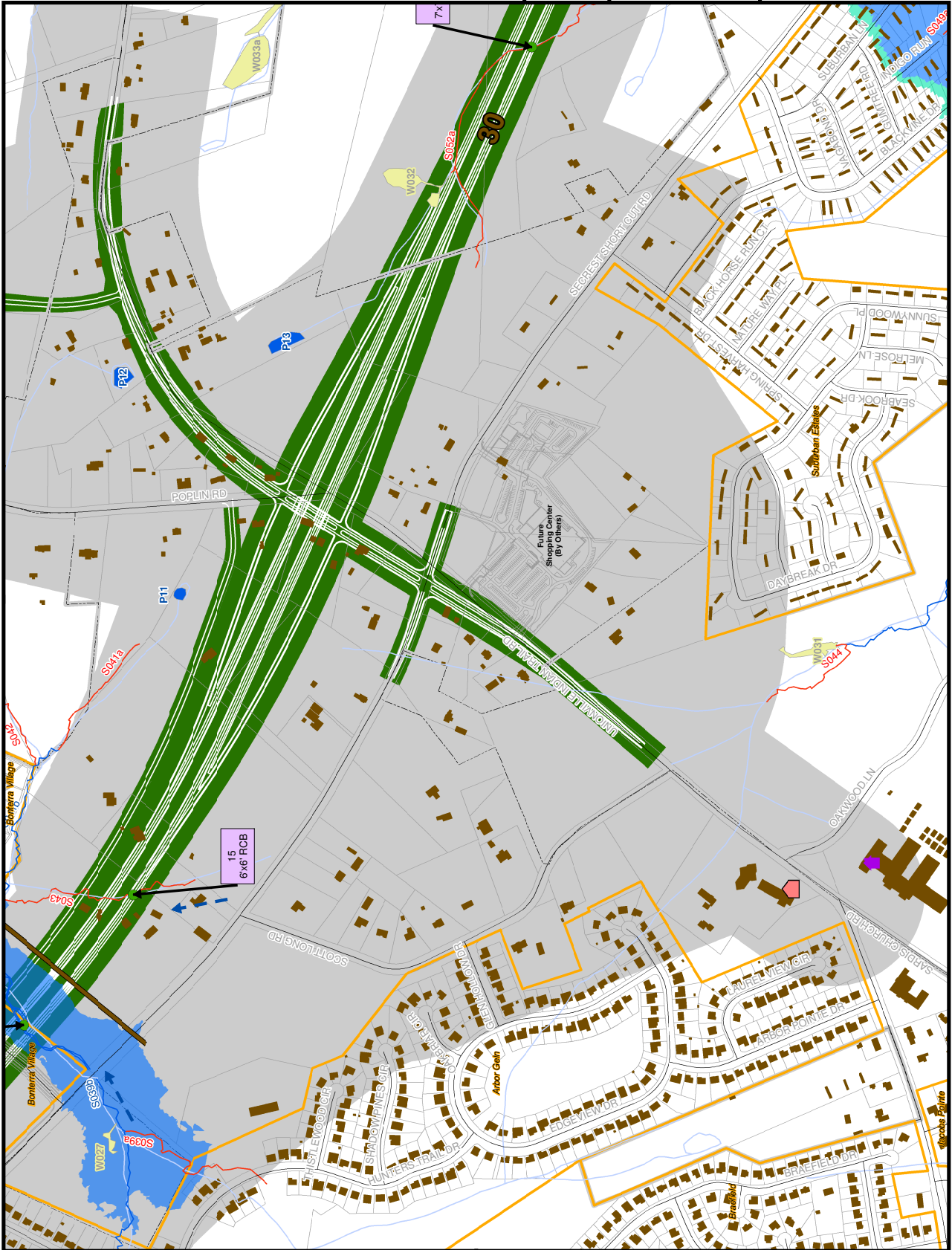
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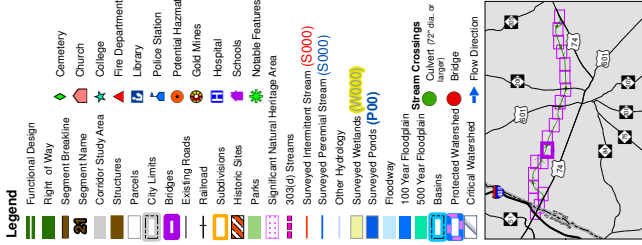
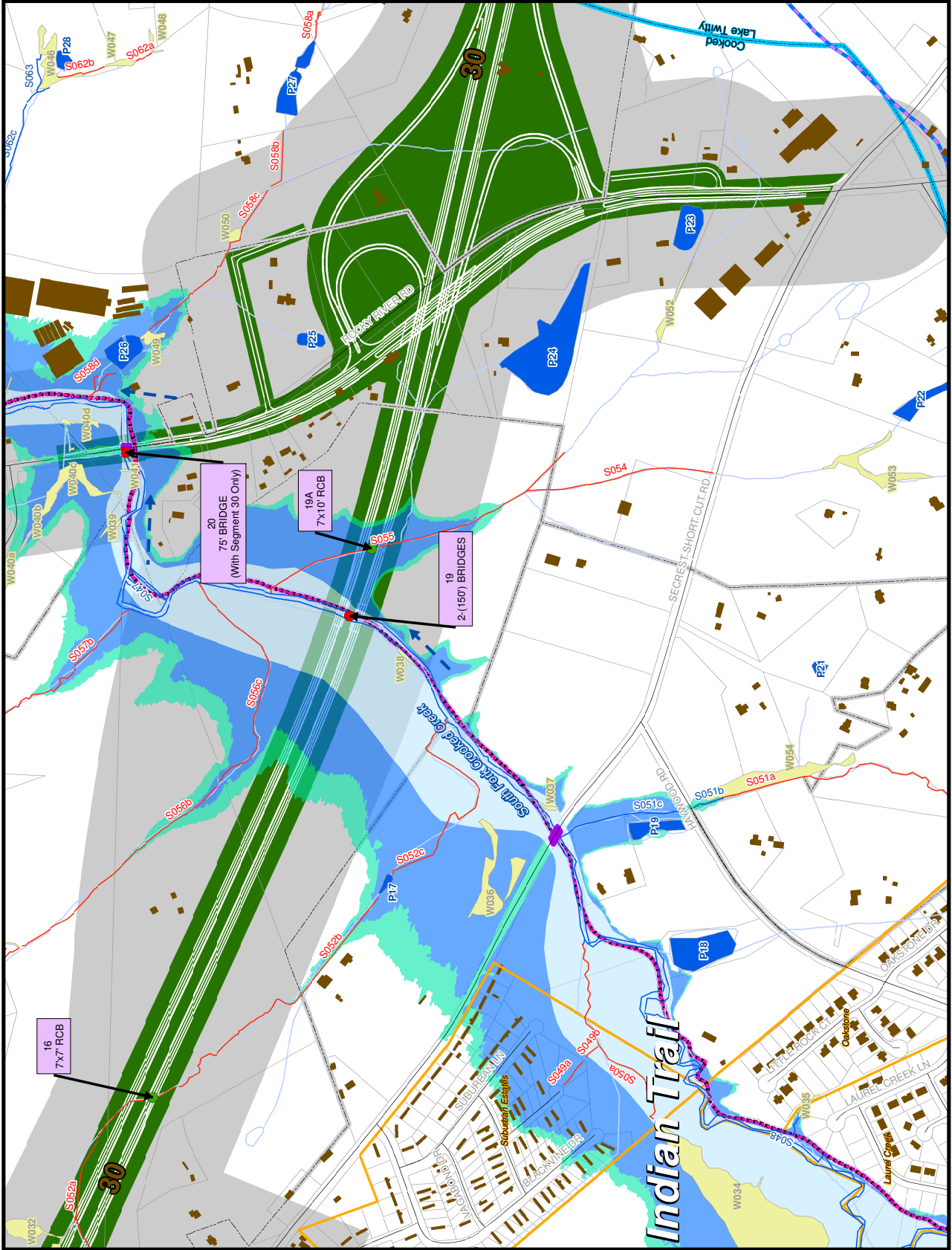


**TURNPIKE AUTHORITY**  
 STIP PROJECT  
 NO. R-3329/R-2559  
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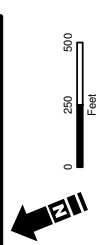
**MONROE CONNECTOR/  
 BYPASS  
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 DESIGNS**

Figure 2-1h





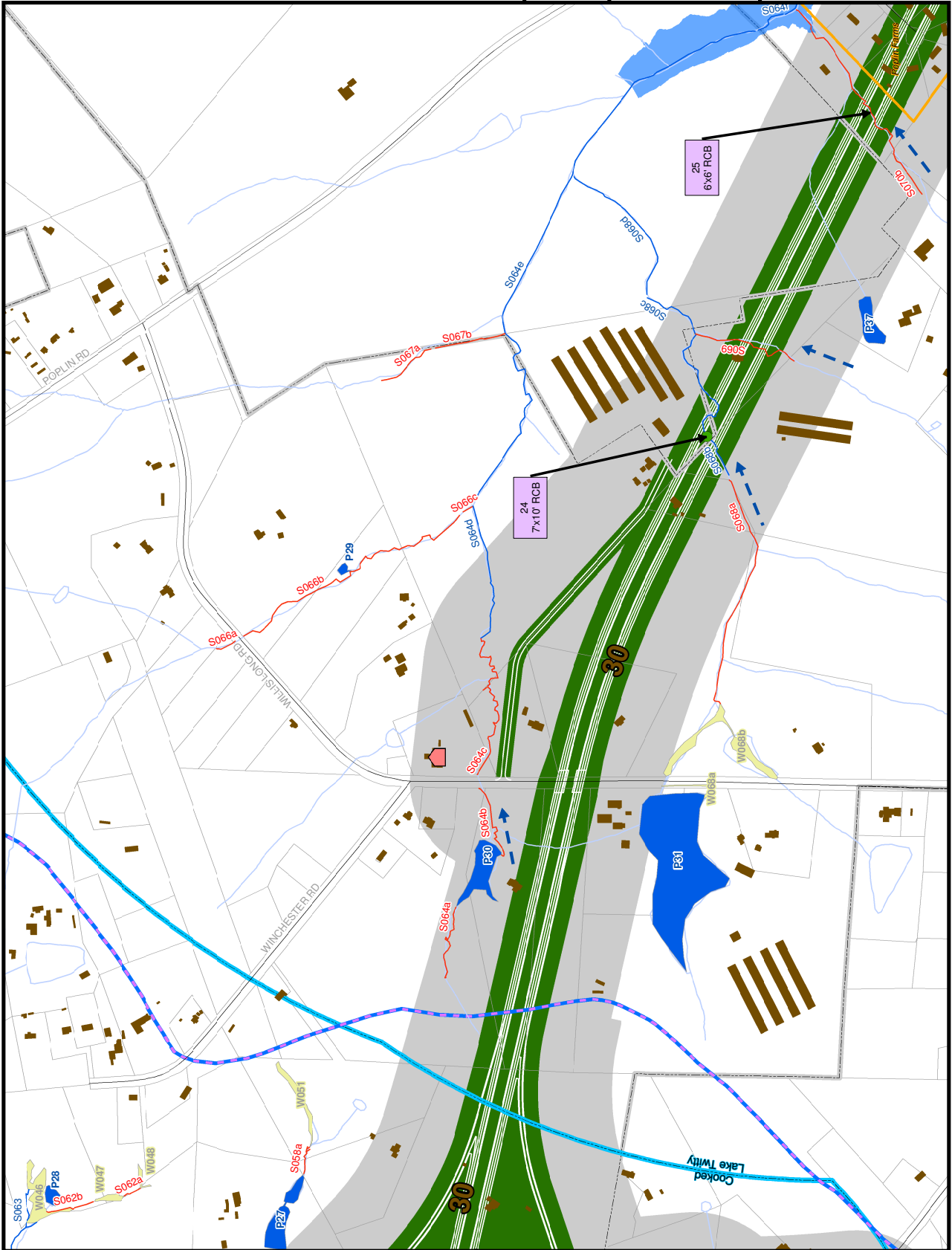
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**MONROE CONNECTOR/BYPASS  
 PREFERRED ALTERNATIVE FUNCTIONAL DESIGNS**

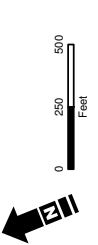
**Figure 2-1i**



**Legend**

- Functional Design
- Right of Way
- Segment Breakline
- Segment Name
- Corridor Study Area
- Structures
- Parcels
- City Limits
- Existing Roads
- Railroad
- Subdivisions
- Historic Sites
- Parks
- Significant Natural Heritage Area
- Cemeteries
- Church
- College
- Fire Department
- Library
- Police Station
- Potential Hazard
- Cold Mines
- Hospital
- Schools
- Notable Features
- Stream Crossings
- 100 Year Floodplain
- 500 Year Floodplain
- Basins
- Protected Watershed
- Critical Watershed
- Flow Direction
- Surveyed Intermittent Stream (S000)
- Surveyed Perennial Stream (S000)
- Other Hydrology
- Surveyed Wetlands
- Surveyed Ponds (P00)
- Floodway
- Stream Crossings
- Culvert (PZ.as.or)
- Bridge

Source: Mecklenburg County and Union County GIS.  
Map Printed February 2014.



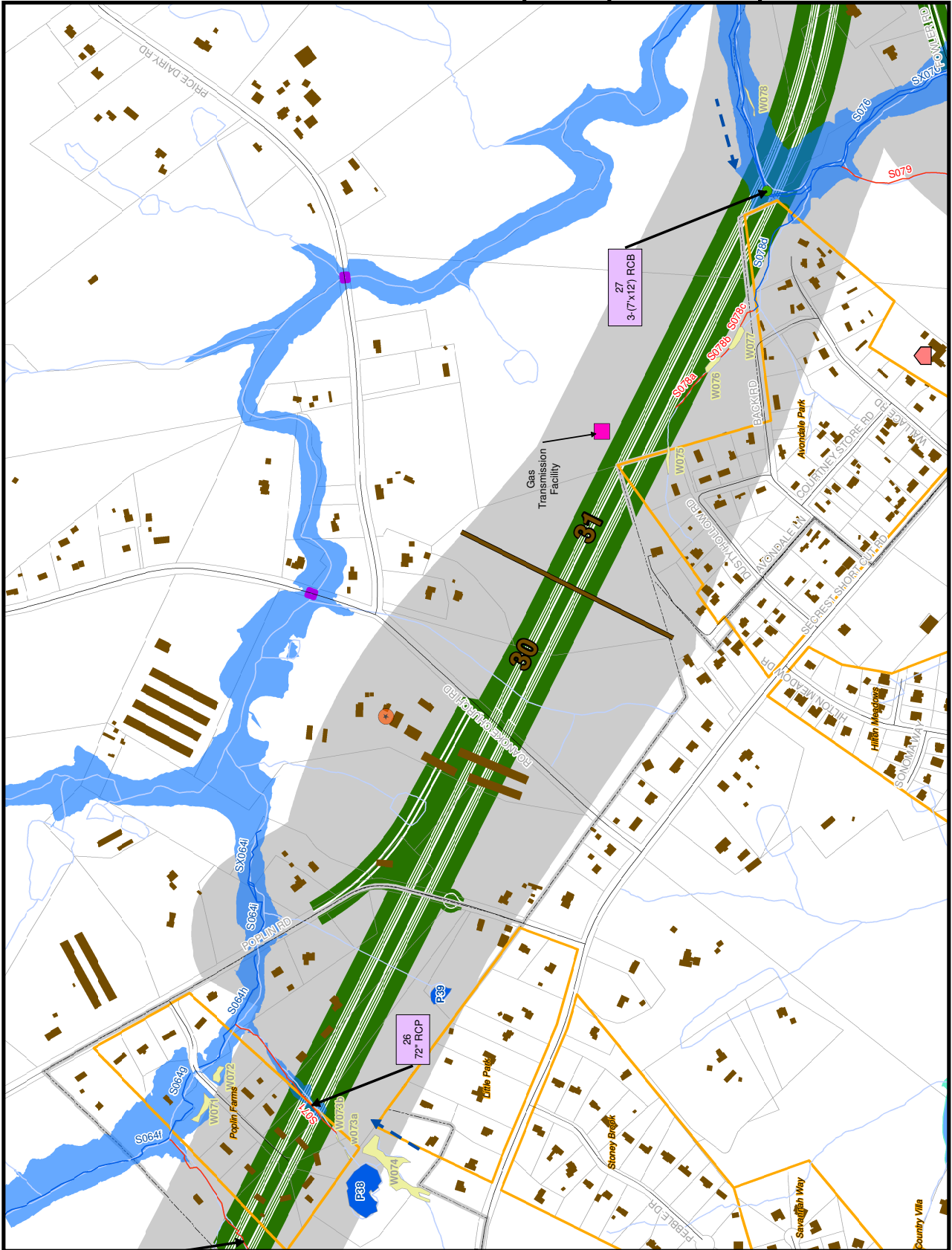
**FORTE CAROLINA**  
**Turnpike Authority**

STIP PROJECT  
NO. R-3329/R-2559  
Mecklenburg County and Union County

**MONROE CONNECTOR/  
BYPASS  
PREFERRED  
ALTERNATIVE  
FUNCTIONAL  
DESIGNS**

**Figure 2-1j**

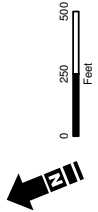




**Legend**

- Functional Design**
  - Right of Way
  - Segment Breakline
  - Segment Name
  - Corridor Study Area
  - Structures
  - Parcels
  - City Limits
  - Existing Roads
  - Railroad
  - Subdivisions
  - Historic Sites
  - Parks
  - Significant Natural Heritage Area
- Other Features**
  - Cemetery
  - Church
  - College
  - Fire Department
  - Library
  - Police Station
  - Potential Hazard
  - Gold Mines
  - Hospital
  - Schools
  - Notable Features
- Stream Crossings**
  - 100 Year Floodplain
  - 500 Year Floodplain
  - Culvert (72" dia. or larger)
  - Bridge
  - Protected Watershed
  - Critical Watershed
  - Flow Direction
- Hydrology**
  - Stream
  - Surveyed Intermittent Stream (S000)
  - Surveyed Perennial Stream (S000)
  - Other Hydrology
  - Surveyed Wetlands (W070)
  - Surveyed Ponds (P00)
  - Floodway

Source: Mecklenburg County and Union County GIS.  
Map Printed February 2014.



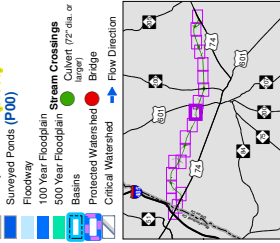
**FORTE CAROLINA**  
**Turnpike Authority**

STIP PROJECT  
NO. R-3329/R-2559  
Mecklenburg County and Union County

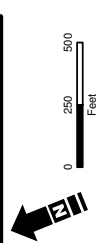
**MONROE CONNECTOR/  
BYPASS  
PREFERRED  
ALTERNATIVE  
FUNCTIONAL  
DESIGNS**

Figure 2-1k

- Legend**
- Functional Design
  - Right of Way
  - Segment Breakline
  - Segment Name
  - Corridor Study Area
  - Structures
  - Parcels
  - City Limits
  - Existing Roads
  - Railroad
  - Subdivisions
  - Historic Sites
  - Parks
  - Significant Natural Heritage Area
  - 200(d) Streams
  - Surveyed Intermittent Stream (S000)
  - Surveyed Perennial Stream (S000)
  - Other Hydrology
  - Surveyed Wetlands (W000)
  - Surveyed Ponds (P00)
  - Floodway
  - 100 Year Floodplain
  - 500 Year Floodplain
  - Basins
  - Protected Watershed
  - Critical Watershed
  - Flow Direction
  - Stream Crossings
  - Culvert (Z2.as.or)
  - Bridge



Source: Mecklenburg County and Union County GIS.  
Map Printed February 2014.

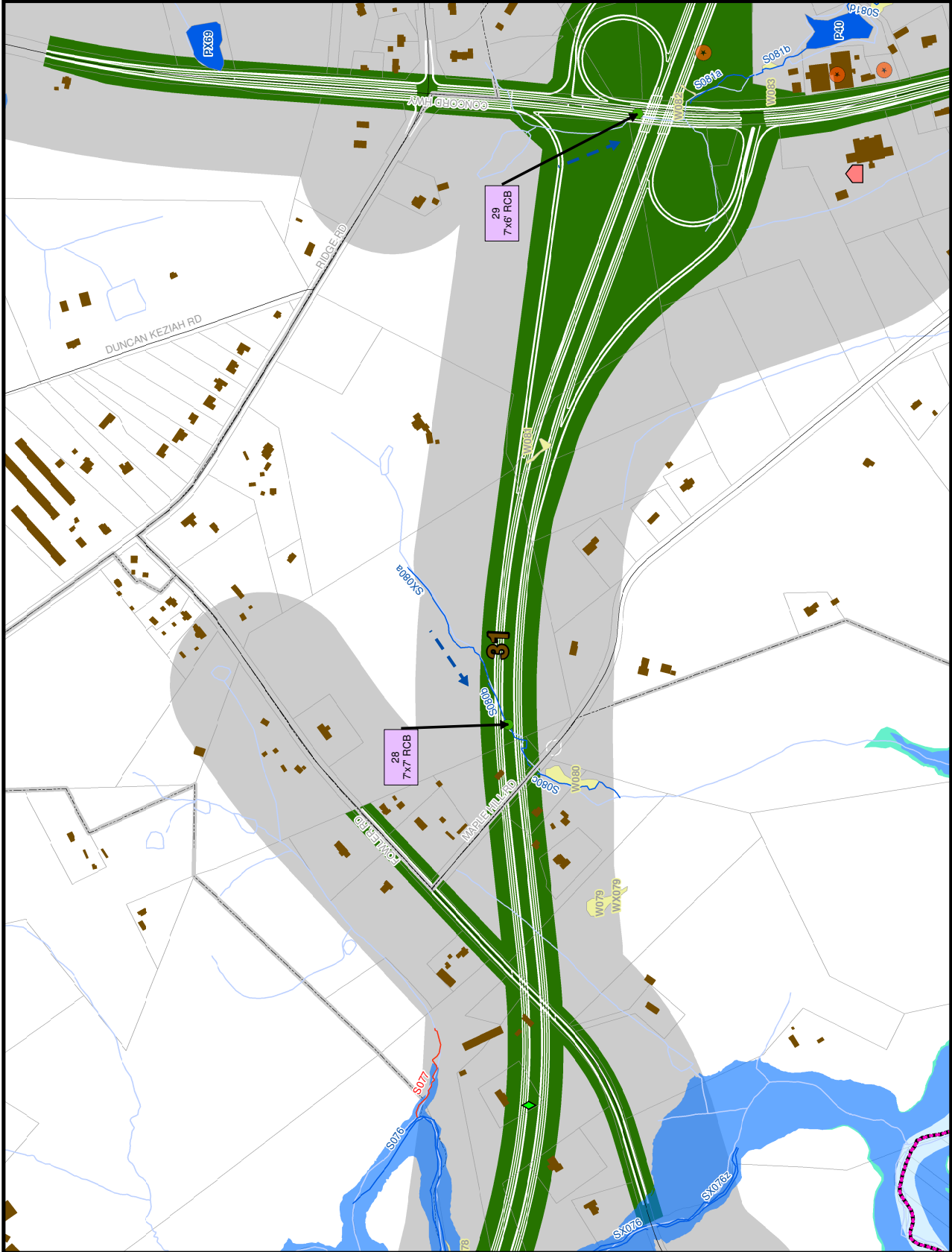


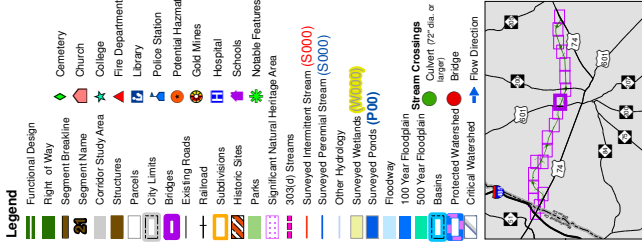
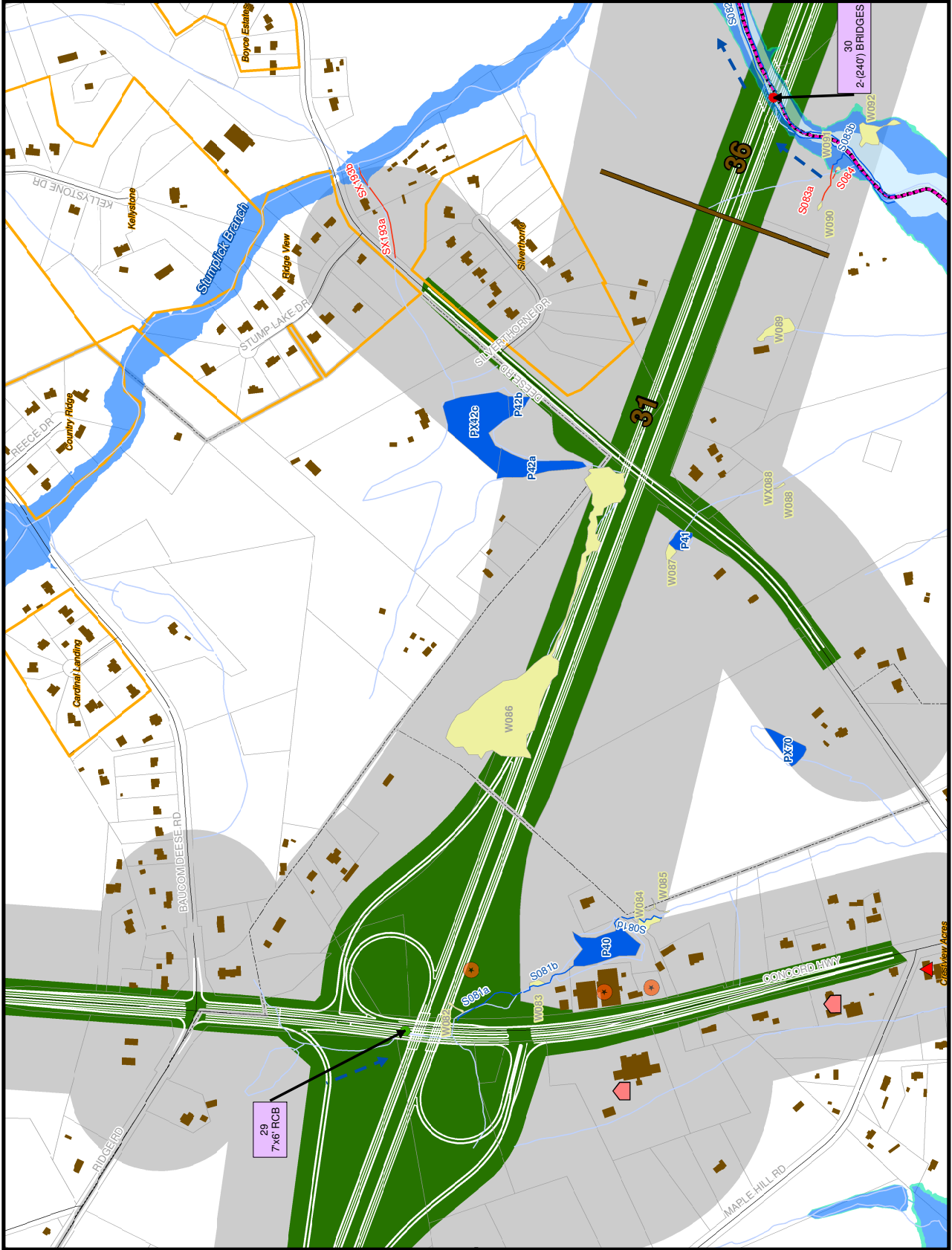
**FORTE CAROLINA**  
**Turnpike Authority**

STIP PROJECT  
NO. R-3329/R-2559  
Mecklenburg County and Union County

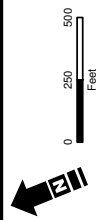
**MONROE CONNECTOR/  
BYPASS  
PREFERRED  
ALTERNATIVE  
FUNCTIONAL  
DESIGNS**

**Figure 2-11**





Source: Mecklenburg County and Union County GIS.  
Map Printed February 2014.

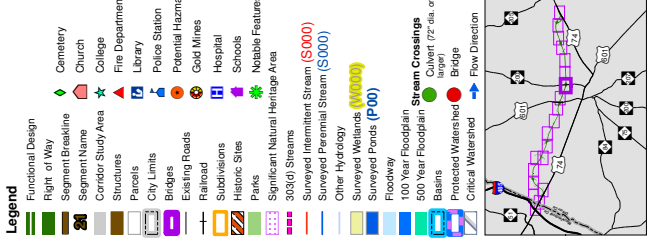
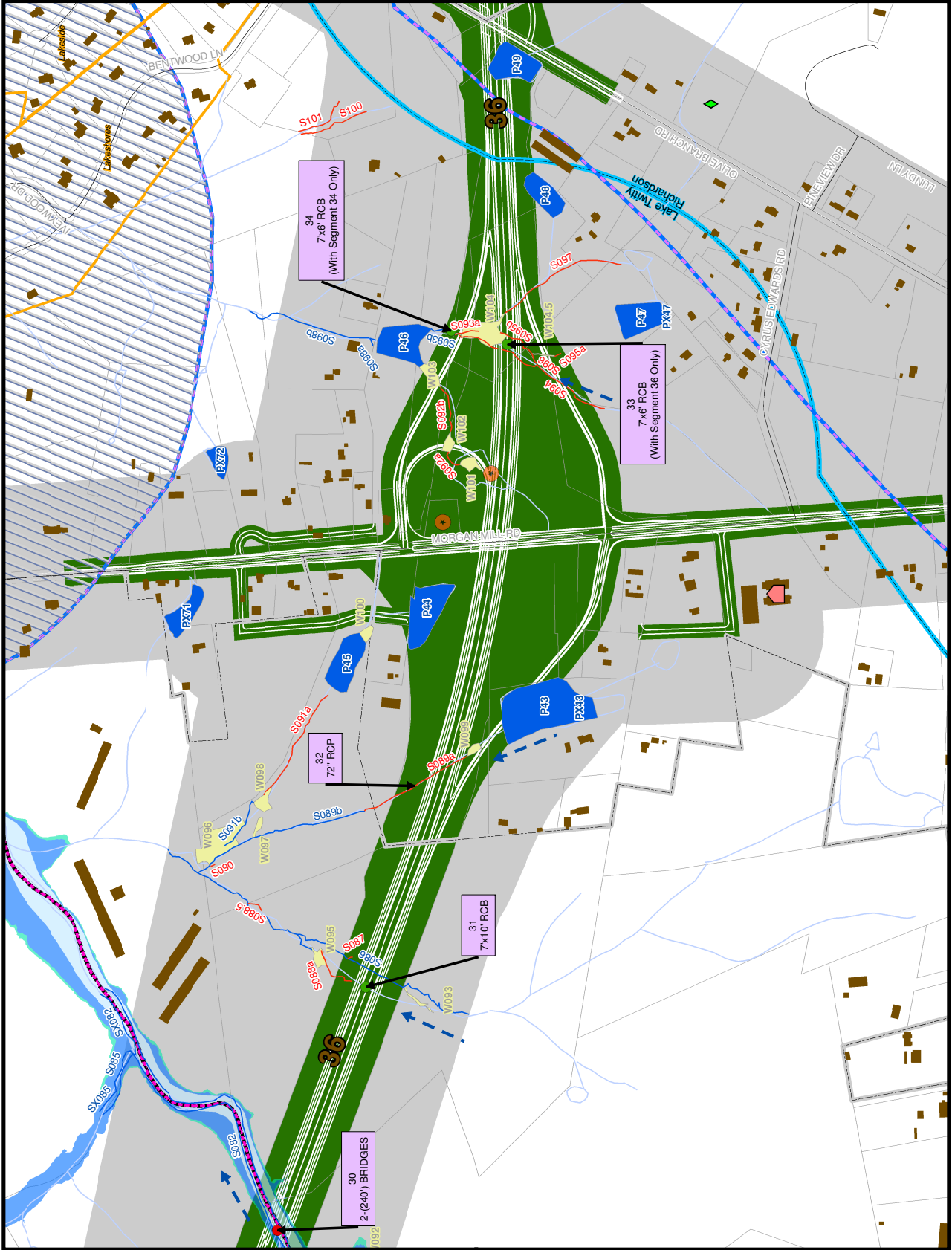


**TURNPIKE AUTHORITY**  
 STIP PROJECT  
 NO. R-3329/R-2559  
 Mecklenburg County and Union County

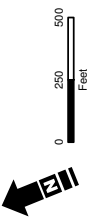
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 BYPASS  
 PREFERRED  
 ALTERNATIVE  
 FUNCTIONAL  
 DESIGNS**

Figure 2-1m





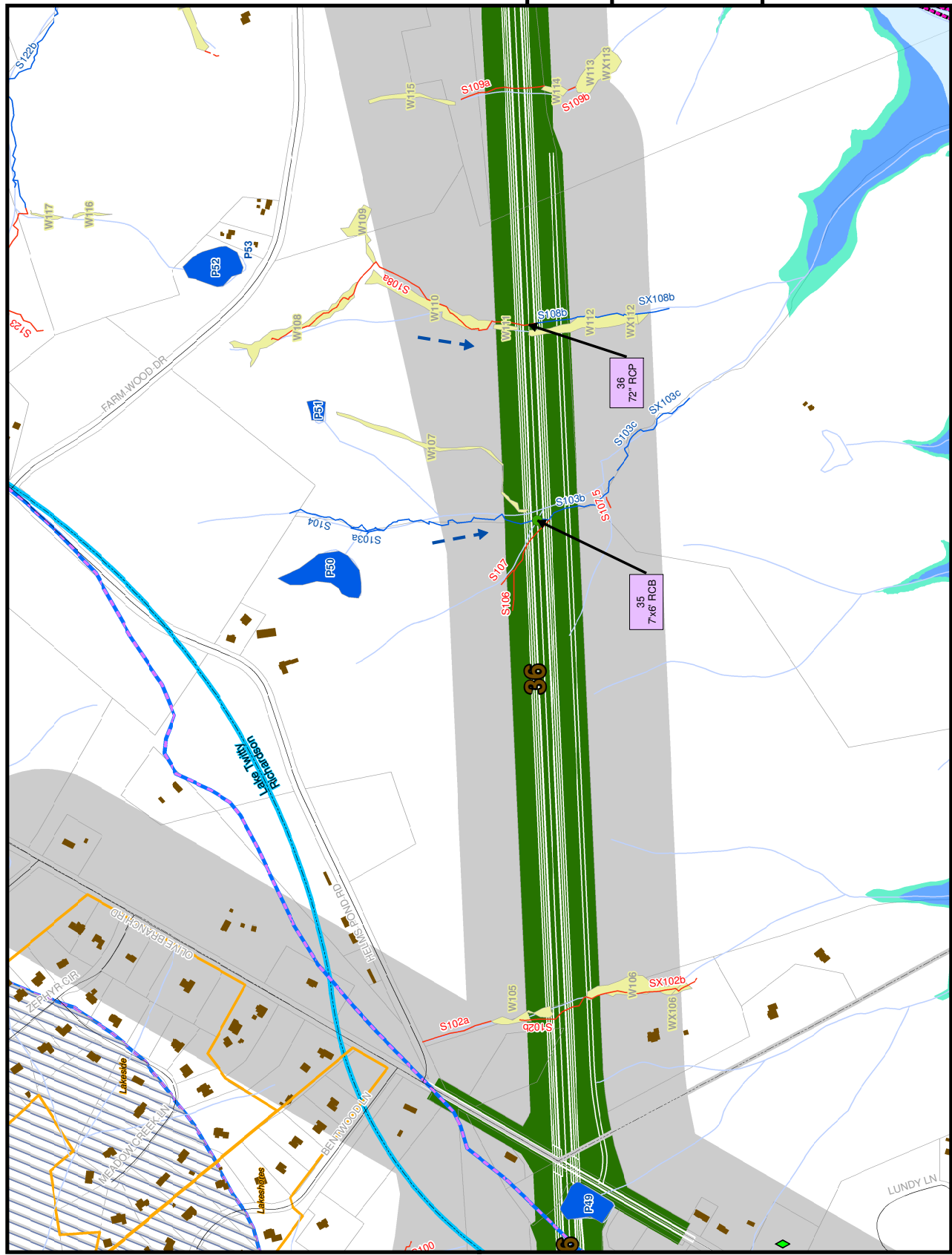
Source: Mecklenburg County and Union County GIS.  
Map Printed February 2014.



**TURNPIKE AUTHORITY**  
 STIP PROJECT  
 NO. R-3329/R-2559  
 Mecklenburg County and Union County

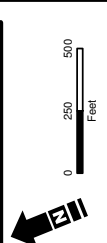
**MONROE CONNECTOR/  
 BYPASS  
 PREFERRED  
 ALTERNATIVE  
 FUNCTIONAL  
 DESIGNS**

**Figure 2-1n**



- Legend**
- Functional Design
  - Right of Way
  - Segment Breakline
  - Segment Name
  - Corridor Study Area
  - Structures
  - City Limits
  - Existing Roads
  - Railroad
  - Subdivisions
  - Historic Sites
  - Parks
  - Significant Natural Heritage Area
  - 200(d) Streams
  - Surveyed Intermittent Stream (S000)
  - Surveyed Perennial Stream (S000)
  - Other Hydrology
  - Surveyed Wetlands (W000)
  - Surveyed Ponds (P00)
  - Floodway
  - 100 Year Floodplain
  - 500 Year Floodplain
  - Basins
  - Protected Watershed
  - Critical Watershed
  - Flow Direction
  - Stream Crossings
  - Culvert 72" dia. or larger
  - Bridge

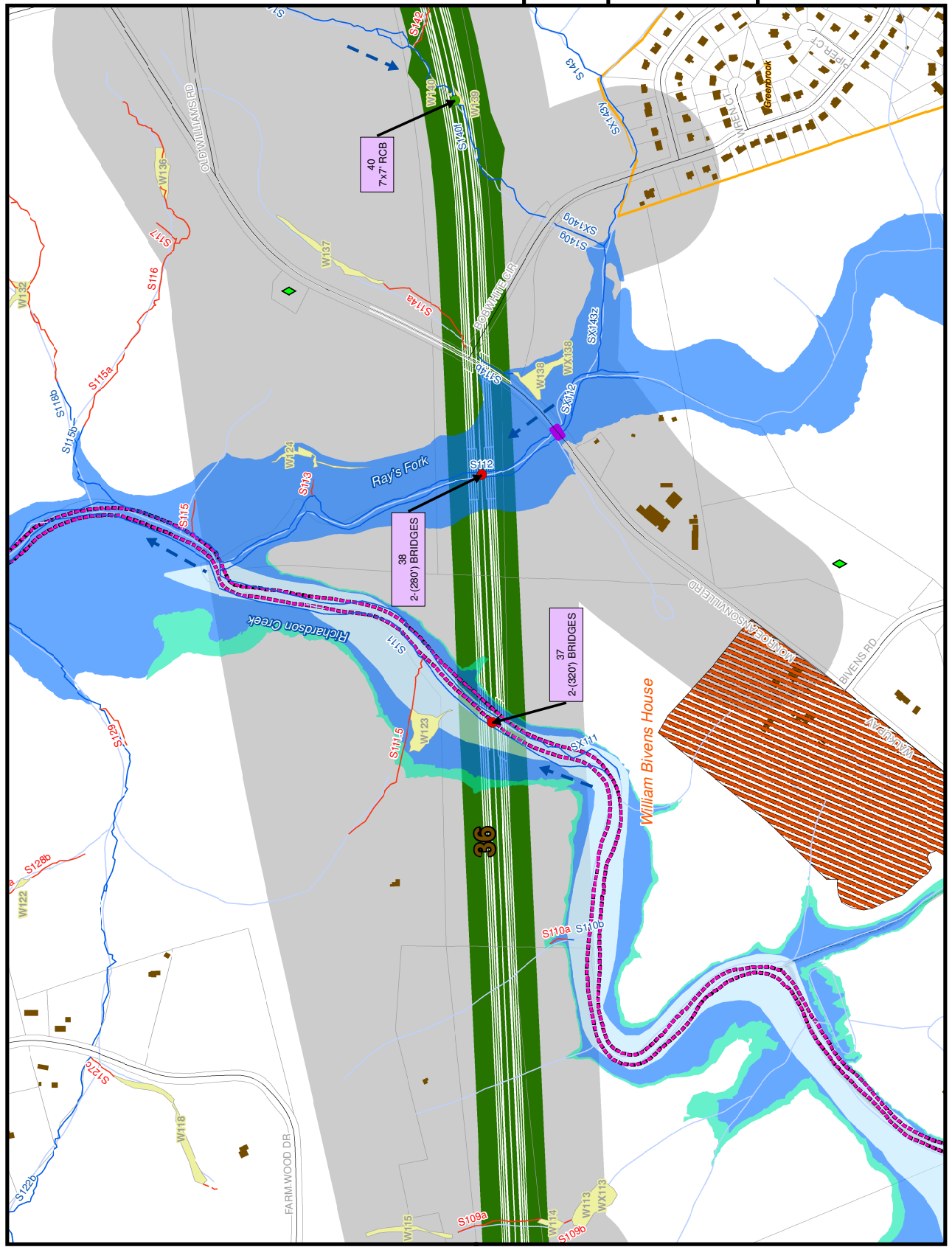
Source: Mecklenburg County and Union County GIS.  
Map Printed February 2014.



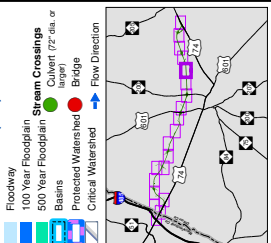
**turnpike Authority**  
 STIP PROJECT  
 NO. R-3329/R-2559  
 Mecklenburg County and Union County

**MONROE CONNECTOR/  
 BYPASS  
 PREFERRED  
 ALTERNATIVE  
 FUNCTIONAL  
 DESIGNS**

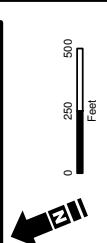
Figure 2-10



- Legend**
- Functional Design
  - Right of Way
  - Segment Breakline
  - Segment Name
  - Corridor Study Area
  - Structures
  - Parcels
  - City Limits
  - Existing Roads
  - Railroad
  - Subdivisions
  - Historic Sites
  - Parks
  - Significant Natural Heritage Area
  - 200(d) Streams
  - Surveyed Intermittent Stream (S000)
  - Surveyed Perennial Stream (S000)
  - Other Hydrology
  - Surveyed Wetlands (W000)
  - Surveyed Ponds (P00)
  - Floodway
  - 100 Year Floodplain
  - 500 Year Floodplain
  - Basins
  - Protected Watershed
  - Critical Watershed
  - Flow Direction
  - Cemetery
  - Church
  - College
  - Fire Department
  - Library
  - Police Station
  - Potential Hazard
  - Gold Mines
  - Hospital
  - Schools
  - Notable Features
  - Stream Crossings
  - Colvert (2' dia. or larger)
  - Bridge



Source: Mecklenburg County and Union County GIS.  
Map Printed February 2014.

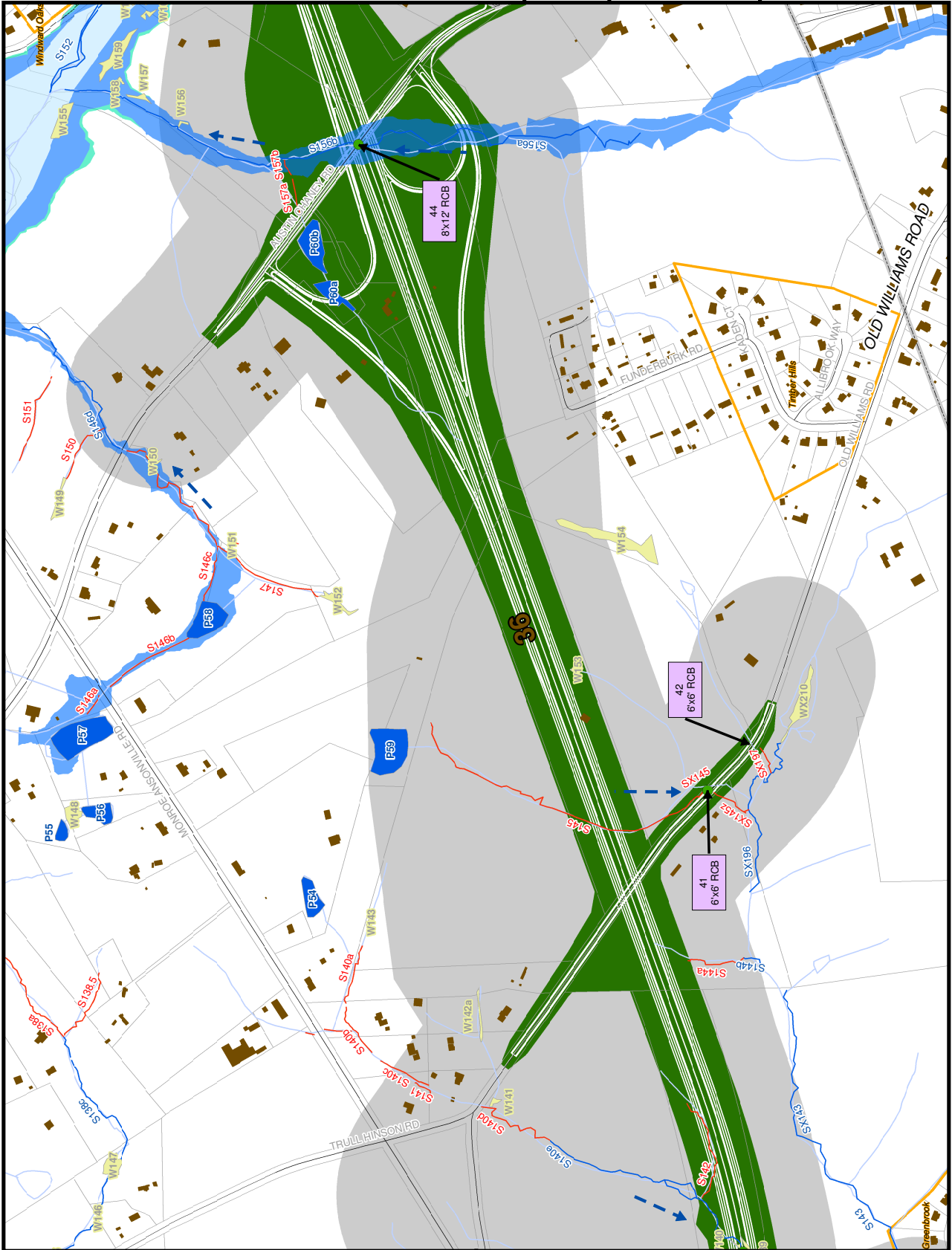


**TURNPIKE AUTHORITY**  
 STIP PROJECT  
 NO. R-3329/R-2559  
 Mecklenburg County and Union County

**MONROE CONNECTOR/  
 BYPASS  
 PREFERRED  
 ALTERNATIVE  
 FUNCTIONAL  
 DESIGNS**

**Figure 2-1p**

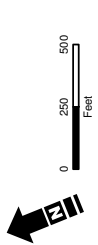




**Legend**

Functional Design	Cemetery
Right of Way	Church
Segment Breakline	College
Segment Name	Fire Department
Corridor Study Area	Library
Structures	Police Station
City Limits	Potential Hazard
Existing Roads	Cold Mines
Railroad	Hospital
Subdivisions	Schools
Historic Sites	Notable Features
Parks	Significant Natural Heritage Area
Significant Natural Heritage Area	
300(d) Streams	
Surveyed Intermittent Stream (S000)	
Surveyed Perennial Stream (S000)	
Other Hydrology	
Surveyed Wetlands (W000)	
Surveyed Ponds (P00)	
Floodway	
Stream Crossings	
100 Year Floodplain	Culvert (72' dia. or larger)
500 Year Floodplain	Bridge
Basins	Protected Watershed
Critical Watershed	Flow Direction

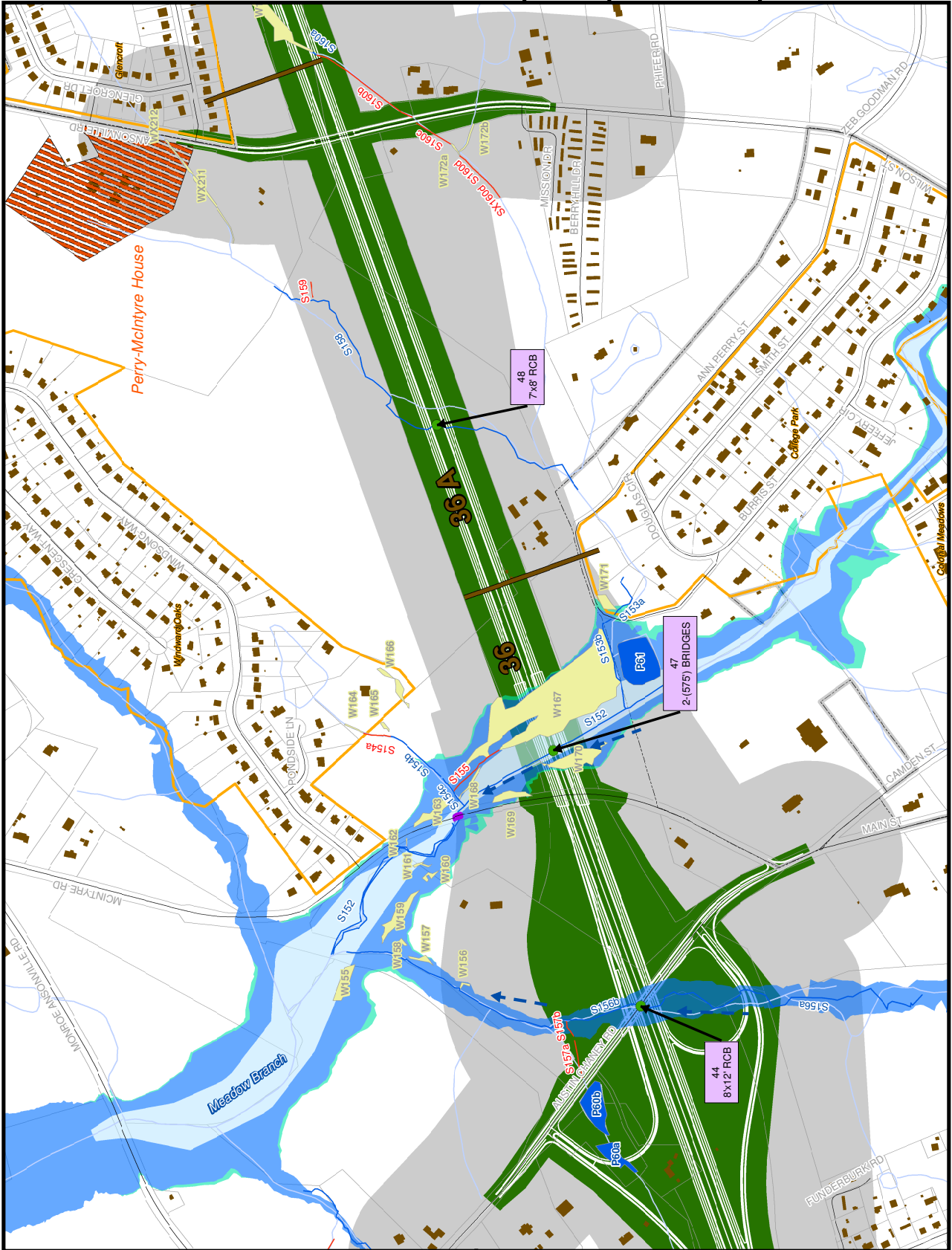
Source: Mecklenburg County and Union County GIS.  
Map Printed February 2014.



**TURNPIKE AUTHORITY**  
 STIP PROJECT  
 NO. R-3329/R-2559  
 Mecklenburg County and Union County

**MONROE CONNECTOR/BYPASS  
 PREFERRED ALTERNATIVE FUNCTIONAL DESIGNS**

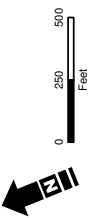
Figure 2-1q



**Legend**

- Functional Design
- Right of Way
- Cemetery
- Segment Breakline
- Segment Name
- Corridor Study Area
- Structures
- Parcels
- City Limits
- Existing Roads
- Railroad
- Subdivisions
- Historic Sites
- Parks
- Significant Natural Heritage Area
- 200(d) Streams
- Surveyed Intermittent Stream (S000)
- Surveyed Perennial Stream (S000)
- Other Hydrology
- Surveyed Wetlands (W000)
- Surveyed Ponds (P00)
- Floodway
- 100 Year Floodplain
- 500 Year Floodplain
- Basins
- Protected Watershed
- Critical Watershed
- Flow Direction
- Stream Crossings
- Culvert (2' dia. or larger)
- Bridge

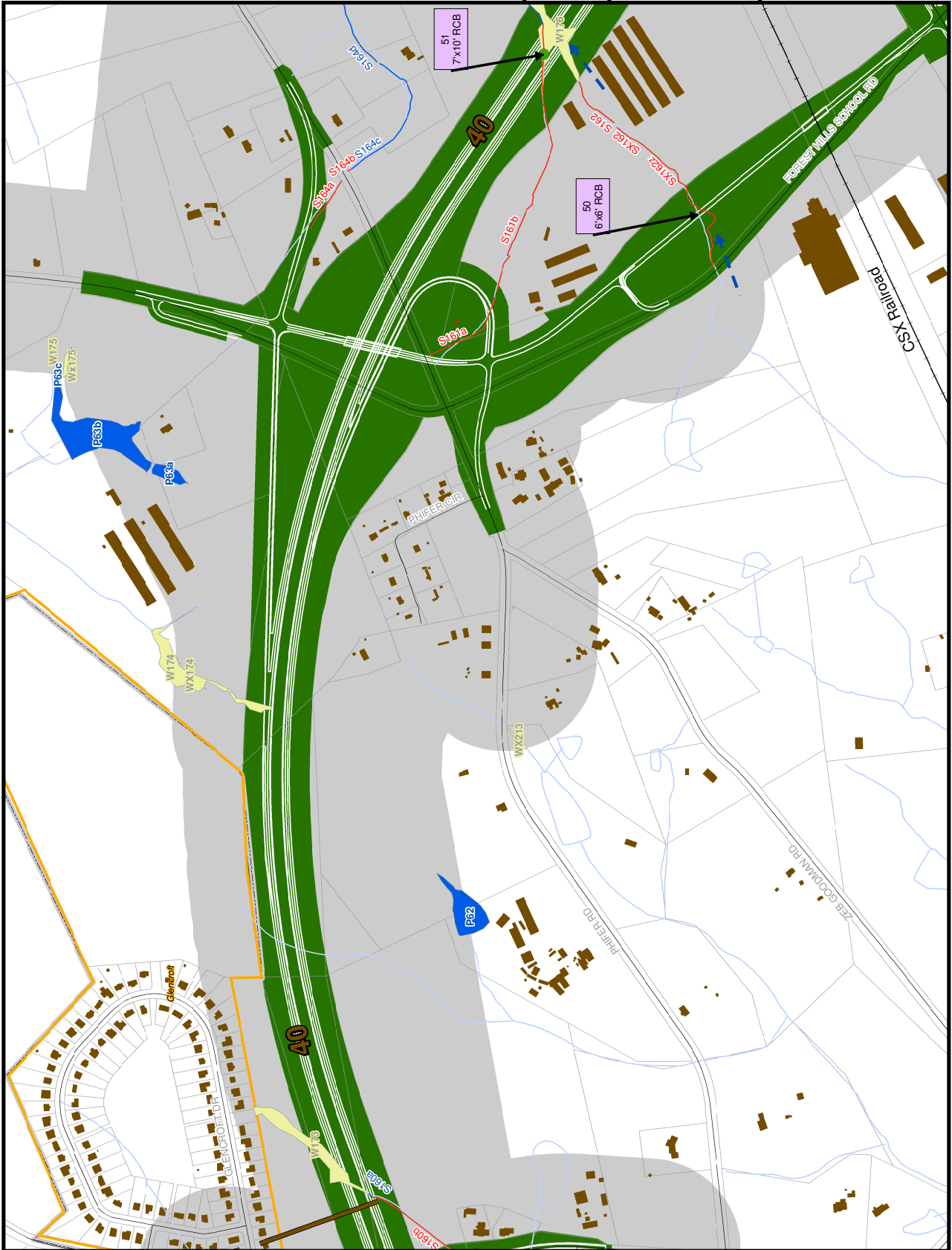
Source: Mecklenburg County and Union County GIS.  
Map Printed February 2014.



**TURNPIKE AUTHORITY**  
 STIP PROJECT  
 NO. R-3329/R-2559  
 Mecklenburg County and Union County

**MONROE CONNECTOR/  
 BYPASS  
 PREFERRED  
 ALTERNATIVE  
 FUNCTIONAL  
 DESIGNS**

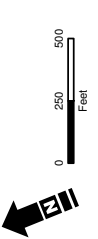
**Figure 2-1r**



**Legend**

- Functional Design
- Right of Way
- Segment Breakline
- Segment Name
- Corridor Study Area
- Structures
- Parcels
- City Limits
- Existing Roads
- Railroad
- Subdivisions
- Historic Sites
- Parks
- Significant Natural Heritage Area
- 300(d) Streams
- Surveyed Intermittent Stream (S000)
- Surveyed Perennial Stream (S000)
- Other Hydrology
- Surveyed Wetlands (W000)
- Surveyed Ponds (P00)
- Floodway
- 100 Year Floodplain
- 500 Year Floodplain
- Basins
- Protected Watershed
- Critical Watershed
- Stream Crossings
- Culvert (2' dia. or larger)
- Bridge
- Flow Direction
- Cemetery
- Church
- College
- Fire Department
- Library
- Police Station
- Potential Hazard
- Gold Mines
- Hospital
- Schools
- Notable Features

Source: Mecklenburg County and Union County GIS.  
Map Printed February 2014.

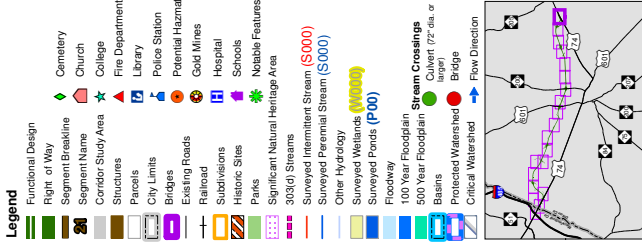


**TURNPIKE AUTHORITY**  
 STIP PROJECT  
 NO. R-3329/R-2559  
 Mecklenburg County and Union County

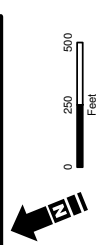
**MONROE CONNECTOR/  
 BYPASS  
 PREFERRED  
 ALTERNATIVE  
 FUNCTIONAL  
 DESIGNS**

**Figure 2-1s**





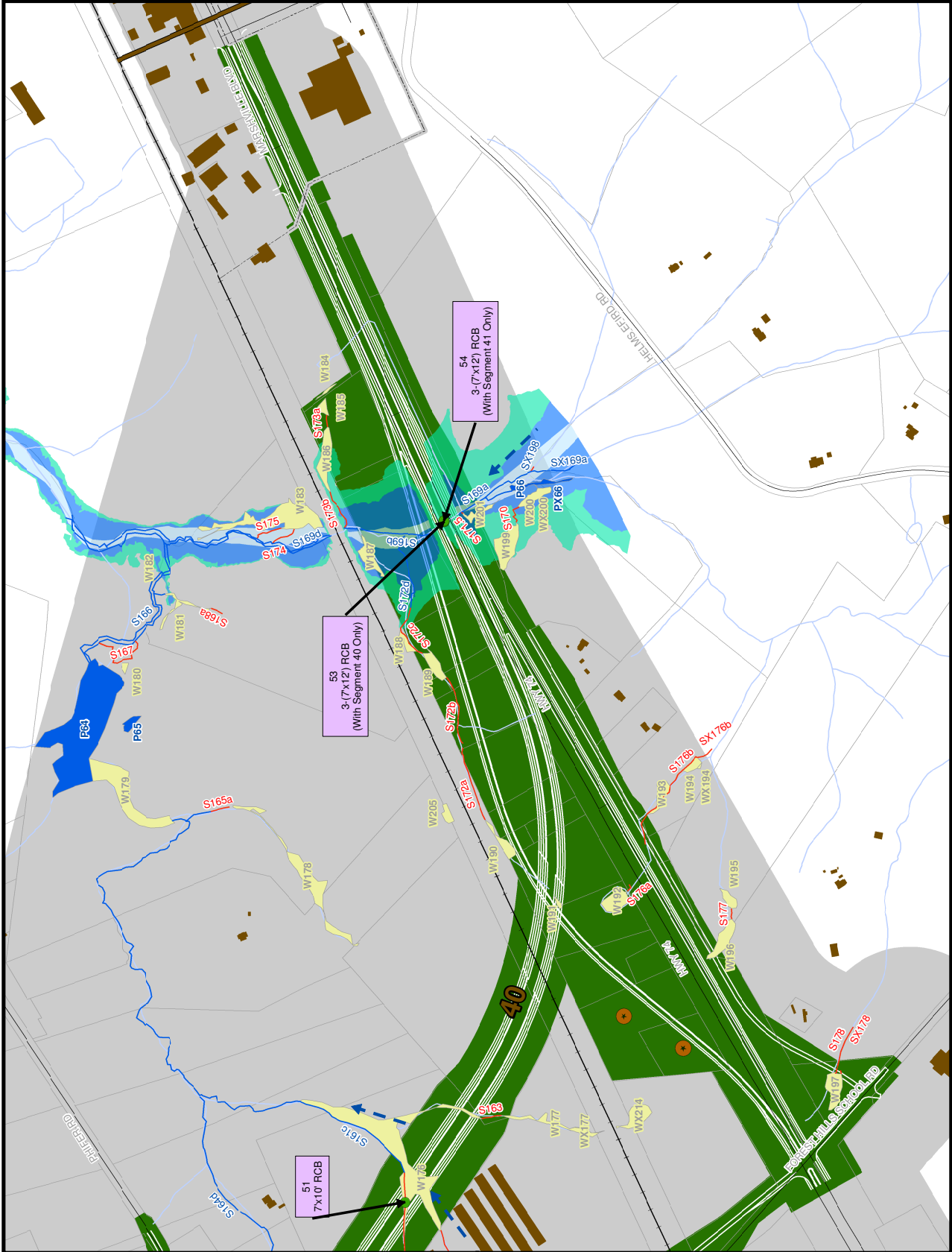
Source: Mecklenburg County and Union County GIS.  
Map Printed February 2014.



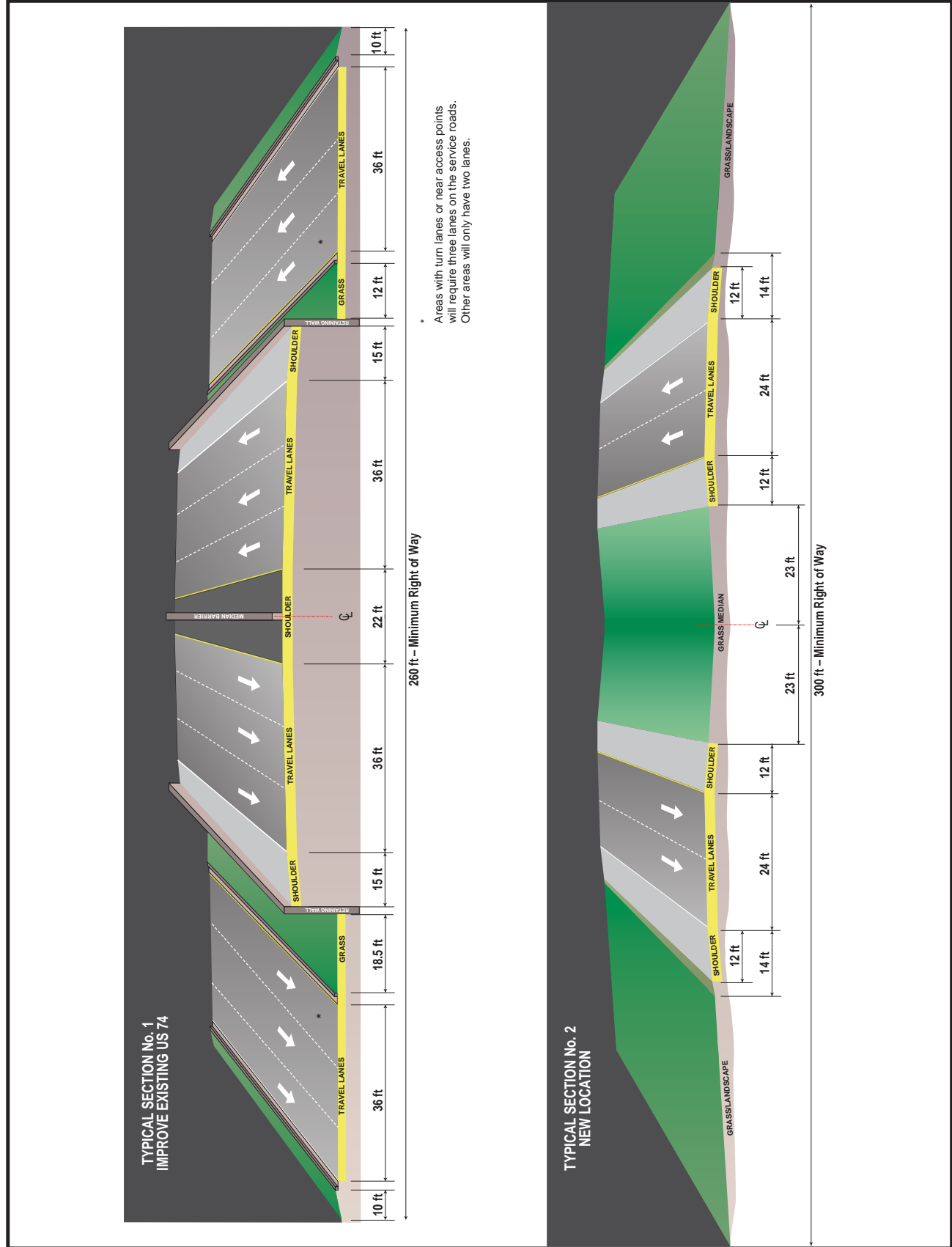
**TURNPIKE AUTHORITY**  
 STIP PROJECT  
 NO. R-3329/R-2559  
 Mecklenburg County and Union County

**MONROE CONNECTOR/  
 BYPASS  
 PREFERRED  
 ALTERNATIVE  
 FUNCTIONAL  
 DESIGNS**

Figure 2-1t



Elkplate\_FIS\_AND\_Designs.mxd 01.30.14 JML



TYPICAL SECTION No. 1  
IMPROVE EXISTING US 74

TYPICAL SECTION No. 2  
NEW LOCATION

260 ft – Minimum Right of Way

300 ft – Minimum Right of Way

\* Areas with turn lanes or near access points will require three lanes on the service roads. Other areas will only have two lanes.

Map Printed February 2014.



STIP PROJECT  
NO. R-3329/R-2559  
Union County and  
Mecklenburg County

MONROE CONNECTOR /  
BYPASS

TYPICAL SECTION

Figure 2-2



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## 3. COMMENTS AND COORDINATION



*This section describes coordination efforts with the public, as well as federal, state, and local agencies, that have taken place since the Draft Supplemental Final EIS was published in November 2013.*

### 3.1 DISTRIBUTION OF THE DRAFT SUPPLEMENTAL FINAL EIS

The *Draft Supplemental Final EIS* for the project was approved on November 8, 2013, and circulated to environmental resource and regulatory agencies. A Notice of Availability of the Draft Supplemental Final EIS for the Monroe Connector/Bypass project was published in the Federal Register on November 22, 2013 (Federal Register Volume 78, No. 226, page 70041).

The *Draft Supplemental Final EIS* was made available for public review at local libraries and government offices as listed in Section 7.5 of the *Draft Supplemental Final EIS*. Section 7 of the *Draft Supplemental Final EIS* includes a full list of agencies and organizations that received copies of the document. The *Draft Supplemental Final EIS* in its entirety was also made available for download on the project website ([www.ncdot.gov/projects/monroeconnector](http://www.ncdot.gov/projects/monroeconnector)). The review period ended on January 6, 2014.

### 3.2 PUBLIC INVOLVEMENT AFTER THE DRAFT SUPPLEMENTAL FINAL EIS

Public involvement activities conducted prior to the circulation of the *Draft EIS* are detailed in Section 9 of the *Draft EIS*. Public involvement activities that took place after the *Draft EIS*, but prior to the *Final EIS* are detailed in Section 3 of the *Final EIS*. Public involvement activities that took place after the *Final EIS*, but prior to the *Draft Supplemental Final EIS* are detailed in Section 5 of the *Draft Supplemental Final EIS*. The continued involvement of the public is an integral part of the planning process for the Monroe Connector/Bypass project. The public involvement activities occurring since the *Draft Supplemental Final EIS* was published in November 2013 included a series of Pre-Hearing Open Houses and Public Hearings, as described below.

#### 3.2.1 PRE-HEARING OPEN HOUSES AND PUBLIC HEARINGS

In December 2013, three public hearings were held along the corridor to present the *Draft Supplemental Final EIS*, answer questions, and accept comments. The public hearings were announced by a postcard mailed to area property owners and residents (19,800 postcards), press release (December 2), and website postings (NCDOT, CRTPO, and local municipalities). Public notices of the meeting were published in the following local newspapers:

- Charlotte Observer – November 17, November 24, and December 1
- Charlotte Post – November 20, November 27, and December 4
- La Noticia – November 20, November 27, and December 4
- Hola News – November 19, November 26, and December 3

Due to an error in the locations printed on the first postcard announcement (the locations for the December 9 and 10 public hearings were switched), a second set of postcards was mailed to everyone that received the first postcard to alert them of the correct locations for the hearings. Revised postcards were delivered within Mecklenburg and Union Counties on December 6 and 7. An updated press release also was issued on December 3, 2013. The Towns of Matthews and Stallings had placed announcements of the hearings on their websites as a result of the initial notice. NCDOT verified that these websites were updated to include the corrected information. Updated public notices were published in the following local newspapers:

- Charlotte Observer – December 8, December 11
- Hola News – December 10

Revised notices were not able to be placed in the Charlotte Post or La Noticia because of publishing deadlines for these weekly newspapers. On the day of the hearings, a variable message sign was placed at the location printed on the first postcard to display the correct location to anyone that was not aware of the change. A printed sign was also posted at those locations along with a weatherproof box containing maps to the correct location.



The hearings on December 9 (South Piedmont Community College [SPCC] in Monroe) and December 10 (Union County Agricultural Center in Monroe) included a Pre-Hearing Open House from 4:00pm to 6:30pm, followed by a formal presentation and Public Hearing at 7:00pm. The presentation summarized the history of the project, described the Preferred Alternative, and summarized the updated information presented in the *Draft Supplemental Final EIS*, including information on indirect and cumulative effects. The presentation lasted about 40 minutes and was followed by a public comment session. Project team members were available to answer one-on-one questions during the Pre-Hearing Open House and after the presentation.

The hearing on December 11 (Next Level Church in Stallings) was an informal Public Hearing from 4:00pm to 7:00pm that did not include a formal presentation. Project team members were available to review project maps and displays with the public and answer questions.

A total of 524 citizens signed in at the hearings (168 at SPCC, 230 at Union County Agricultural Center, and 126 at Next Level Church). A total of 41 written comment forms were submitted at the hearings (16 at SPCC, 12 at Union County Agricultural Center, and 13 at Next Level Church), and 22 individual speakers provided verbal comments (7 at SPCC and 17 at Union County Agricultural Center, two speakers spoke on both days). The numbers of comments received is summarized in **Table 3-1**.

**TABLE 3-1: Comments Received on Draft Supplemental Final EIS**

Type	# Received	Total Comments
Comment Forms	64	175
Verbal Comments from Hearing	22 (individual speakers)	54
Letter (Agency)	9	31
Letter (Public)	8	63
SELC	2	114
Dr. Hartgen	1	72
Email	24	51

A total of 560 individual comments were received. Comments received from state and federal agencies, local governments, and the public were reviewed to identify common questions and comments on the *Draft Supplemental Final EIS*. The Public Hearing transcripts and copies of all written comments received are included in **Appendix A**, along with responses, where applicable. Due to the similarity of some comments a summary of substantive comments and questions, as well as responses, are provided below. For the complete responses to specific comments, please refer to **Appendix A**.

- 1) NCDOT is not clearing the misconception that this project will relieve congestion along the existing US 74.

**Response:** The project’s purpose and need, stated in **Section 1.1.2**, has remained consistent throughout the EIS process and has been clearly stated in the NEPA documents and public meeting materials. Project representatives were available to clarify information and answer questions at public meetings held throughout the entire EIS process, via email, via a project toll-free telephone line and project website, and via responses to comments in subsequent NEPA documents.

- 2) No consideration is being given to lower cost alternatives, including those identified in the Stantec Report, to improve the existing US 74.

**Response:** The NCDOT gave consideration to and has implemented many low cost improvements to existing US 74 as described in Section 2.4 of the *Draft Supplemental Final EIS*. This section also provides a listing of improvements made along the US 74 corridor. In addition to the US 74 improvements discussed in Section 2.4 of the *Draft Supplemental Final EIS*, NCDOT is recommending superstreet improvements to the US 74 corridor between Indian Trail-Fairview Road and Wesley Chapel-Stouts Road and at the intersection with Rocky River Road (STIP Projects W-5520 and W-5210L).

- 3) NC 218 should be the bypass / it should connect directly to I-485.

**Response:** Improvements within the NC 218 corridor would encroach on the Goose Creek watershed, which is known habitat of the federally-endangered Carolina heelsplitter mussel. The Preferred Alternative has no direct construction impacts or indirect impact to the Goose Creek watershed.

- 4) Amount of predicted growth as a result of the project is under estimated.

**Response:** The *Draft Supplemental Final EIS* uses the most current data available at the time. As noted in Appendix B of the *Indirect and Cumulative Effects Quantitative Analysis Update* (Michael Baker Engineering, Inc., November 2013) (ICE Update), the population growth rates from the MPO data used in the *Draft Supplemental Final EIS* show that projected growth from 2010 to 2030 in Union County would average less than 3 percent per year. During the period from 1990 to 2010, Union County experienced average annual growth rates of nearly 4 percent to over 5.5 percent. While growth from 2010 to 2012 is not occurring at the previous rate, Union County has continued to grow. Growth rates used in the project analysis are consistent with growth rates developed by local governments and the metropolitan planning organization for the region. These officials reviewed NCDOT's work and concurred in the use of these assumptions. As noted in Section 4.2 of the ICE Update, many factors other than transportation infrastructure play a major role in the potential for growth and development. The conditions and circumstances of Union County (as documented in Appendix B of the ICE Update) suggest that higher than average growth will occur with or without the construction of the proposed project.

- 5) Flawed traffic forecasts were not updated.

**Response:** For the *Draft Supplemental Final EIS*, NCDOT systematically re-visited all of the traffic forecasts to determine whether they are still valid and reliable for the purposes for which they were used. Based on additional review, analysis and comparison, it was determined that the existing traffic forecasts remain valid and reliable, and it was unnecessary to perform new traffic forecasts, as explained in Section 2.5.2 and Appendix G of the *Draft Supplemental Final EIS* and in **Section 2.1** of the *Final Supplemental Final EIS*.

- 6) Tolls will never pay for the project.

**Response:** Tolls are expected to only provide a portion of the project financing as well as operations and maintenance costs. The remaining funds for construction of the project will be financed through other mechanisms. An Initial Financial Plan was developed after the issuance of the previous Record of Decision (ROD) and the procurement and opening of design-build contract price proposals to construct the project. Based on a review of information available at this point in the project development process, the project remains financially feasible. The Initial Finance Plan will be updated at such time as the project is in a position to move forward.

- 7) An origin/destination study was never performed to determine where traffic is headed.

**Response:** Project-level traffic forecasts for the Build and No Build scenarios were based upon the regional model output. In order to determine whether various alternatives would be effective in meeting the project's purpose and need, the traffic volumes are needed. It is not necessary to know each vehicle's ultimate origin or destination; rather traffic volumes

predict the number of vehicles on a particular roadway segment regardless of the final origin and destination of each vehicle. Traffic forecasts show that traffic along existing US 74 would be less with the Monroe Connector/Bypass in place.

Origin-destination information is useful for the purpose of conducting traffic and revenue studies for financing the project. The use and appropriateness of the origin-destination surveys/information used in the traffic and revenue studies conducted for the project are included in the *Draft Supplemental Final EIS Appendix A* (pages A1-25 through A1-28).

- 8) Trucks will not use this toll road and therefore will not leave the existing US 74.

**Response:** It is anticipated that in 2035, truck traffic will comprise approximately 23 percent of the total traffic on the Monroe Connector/Bypass (*Traffic Forecast for TIP Projects R-3329 & R-2559 Monroe Connector/Bypass*, Wilbur Smith Associates, September 2008). Total volumes on the Monroe Connector/Bypass in the 2035 design year are anticipated to range from approximately 95,000 vehicles per day on the western end of the project to approximately 16,000 vehicles per day on the eastern end. Many of these vehicles would likely be using existing US 74 if the Monroe Connector/Bypass is not built.

Along existing US 74, the percentage of trucks is expected to be less with the project in place compared to a No-Build scenario (approximately 10 percent trucks compared to 13 percent trucks) (*NCDOT STIP Project R-3329 & R-2559 Revised Monroe Connector Bypass No-Build Traffic Forecast Memorandum*, HNTB, March 2010).

In addition, Table 6-8 of the *Final Report Proposed Monroe Connector/Bypass Comprehensive Traffic and Revenue Study* (Wilbur Smith Associates, October 2010) estimates that approximately 17 percent of the 2030 weekday gross toll revenue on the Monroe Connector/Bypass will be from Class 2 and Class 3 vehicles (i.e., medium and heavy trucks).

- 9) The purpose and need statement for the project is too narrow, resulting in a predetermined solution.

**Response:** The NCDOT and FHWA disagree with this comment. This comment was thoroughly answered in the *Final EIS* Section 3.3.1 (Responses to Generalized Comments on Purpose and Need) and responses to comments 1 and 2 from the SELC letter dated June 15, 2009 in *Final EIS* Appendix B (pages B3-25 through B3-26).

Section 1.1.1 of the *Draft Supplemental Final EIS* explains how the US 74 corridor is designated as a Strategic Highway Corridor and is consistent with local planning documents. This designation calls for the corridor to serve high-speed regional travel. The Strategic Highway designation specifically calls for a freeway type facility. For the purposes of this study, high-speed is considered to be average speeds of 50 mph or greater.

The environmental resource and regulatory agencies and the public had ample opportunities to review and provide input on the purpose and need for the project throughout the entire NEPA process, including through the Public Hearings on the *Draft Supplemental Final EIS*, as described in the EIS.

- 10) NCDOT is being deceptive again. NCDOT is paying the design build team to lobby support for project. In addition, a BBQ was scheduled the same night and same place as one of the hearings.

**Response:** After the appellate court ruling, NCDOT suspended all work on the project. Since that suspension, NCDOT has paid Monroe Bypass Constructors for demobilization of project personnel, idle labor and limited administrative work as monthly claims submitted by Monroe Bypass Constructors, as allowed by NCDOT specifications. Payments were incorrectly made to MBC for time spent outside that allowed by the specifications; specifically time spent working with local support groups. Once aware of the oversight in its review of the cost records, NCDOT has directed Monroe Bypass Constructors to revise and resubmit its cost records to remove those times and provide a corresponding credit back to NCDOT for the overpayment.

The referenced BBQ event that occurred concurrent to the December 9, 2013, Public Hearing was not sponsored, funded, or endorsed by the NCDOT.

- 11) Boggs Paving is corrupt and yet allowed to stay on project.

**Response:** Publicized indictments of Boggs Paving and public opinion of Boggs Paving's business practice are noted. NCDOT has taken the required action in order to meet both federal and state requirements for dealing with a company that is under indictment. The FHWA has suspended Boggs Paving from participation in future federal-aid contracts. The indictment and resulting suspension were after the Monroe Connector / Bypass contract was awarded to the Monroe Bypass Constructors; therefore, the suspension does not apply to this contract.

- 12) The project is being done for the financial benefit of politicians and developers.

**Response:** This project has been the number one priority of the region for many years. It was in the Charlotte Region Transportation Planning Organization's (CRTPO's) *2035 Long Range Transportation Plan*, and is also included in the Charlotte Region Transportation Planning Organization's (CRTPO) *2040 Metropolitan Transportation Plan* which was developed and approved with input from municipalities within the CRTPO's jurisdiction. The project will provide benefits to motorists desiring an option to avoid the slower speeds and traffic signals along existing US 74.

- 13) The project will only save drivers about 8 to 12 minutes driving time over just staying on US 74.

**Response:** The Monroe Connector/Bypass would improve travel times in Union County. Map 14 of the ICE Update illustrates the results of a simplified travel time savings analysis conducted to evaluate accessibility changes between the Build and No-Build scenarios. The map shows overall changes in driving time to the US 74/I-485 interchange from all intersections with the project area with the project in place compared to a no-build scenario. In this accessibility comparison shown in Map 14, travel speeds on all roadways were assumed to be at the posted speed limit; therefore, the delays associated with congestion were not incorporated into this analysis. Even under these over-simplified assumptions, the map shows average travel time savings up to 8-10 minutes, in the opening year, for areas around the east end of the project.

Another way to look at travel time savings is to consider a specific trip along the length of the Monroe Connector/Bypass compared to an equivalent trip along existing US 74 from east of Marshville to the US 74/I-485 interchange. Along the 20-mile length of the Monroe Connector/Bypass, a trip at the speed limit of 65 mph would take 18 minutes.

For a trip along existing US 74, the speed limit varies; with the average weighted speed limit being 49 mph. At this speed, a trip from east of Marshville to the US 74/I-485 interchange would take 24 minutes. So, hypothetically, even under uncongested conditions and no delays at traffic signals along existing US 74, there would be a time savings of 6 minutes (or 25 percent) for travelers choosing the Monroe Connector/Bypass.

However, existing US 74 is congested during peak periods, and existing average speeds are lower than the weighted average speed limit. As discussed in **Section 1.1.1** of the *Final Supplemental Final EIS*, existing average travel speeds during peak hours range from 42-45 mph for eastbound US 74 and 41-44 mph for westbound US 74. Therefore, eastbound US 74 travel times during peak periods currently take 26-28 minutes and westbound US 74 travel times during peak periods currently take 27-29 minutes.

Based on the values above for current conditions, travel time savings for using the Monroe Connector/Bypass during peak periods would range from 8-14 minutes (30-40 percent) for vehicles traveling the length of the corridor.

In the future, overall traffic volumes and vehicle miles traveled are projected to increase in Union County. Vehicles along the Monroe Connector/Bypass would still be predicted to operate at the 65 mph speed limit, even as traffic volumes increase, since the roadway was designed to handle projected future traffic volumes. However, on existing US 74, it is likely the average speeds would decrease from the averages noted above as traffic volumes increase. Therefore, travel time savings for vehicles using the Monroe Connector/Bypass also would be expected to increase over time.

- 14) Project estimates are higher than what is allocated for in the State Transportation Improvement Program (STIP).

**Response:** The project costs reported in Section 3.3.4 of the *Draft Supplemental Final EIS*, which were determined by simply inflating the costs presented in the *Final EIS* to account for a delay in the opening year, have been updated. Factors considered in this updated cost estimate are discussed in **Section 2.4**. At such time as the project is in a position to move forward with a more defined schedule, the Initial Financial Plan (developed after the issuance of the previous ROD, since rescinded) will be updated and the State Transportation Improvement Plan (STIP) will be amended if needed. Based on the available information and review of the *STIP Amendment and Modification Guidelines* (April 5, 2012) for NCDOT projects, an Administrative Modification to the STIP would be required. Funds will be identified in the STIP to cover the estimated increase in the contract cost.

### 3.2.2 SMALL GROUP MEETINGS

Since the *Draft Supplemental Final EIS*, NCDOT made a presentation to the joint Unionville-Fairview Town Council meeting on December 16, 2013. At this meeting, NCDOT provided an update on the Monroe Connector/Bypass and the recently approved *Draft Supplemental Final EIS*. An overview of the updated indirect and cumulative effects analysis also was provided, along with an overview of items that were re-examined as part of the *Draft Supplemental Final EIS*.



### 3.3 AGENCY COORDINATION SINCE THE DRAFT SUPPLEMENTAL FINAL EIS

#### 3.3.1 COORDINATION WITH CRTPO

Since the *Draft Supplemental Final EIS*, NCDOT presented project updates to the CRTPO Technical Coordinating Committee (TCC) on December 5, 2013. An update of current project activities, including upcoming public hearings, was provided. The TCC also was provided with an overview of the updated indirect and cumulative effects analysis, along with an overview of items which were re-examined as part of the *Draft Supplemental Final EIS*.

#### 3.3.2 COORDINATION WITH USFWS

Coordination with USFWS is summarized in Section 4.4.5 of the *Draft Supplemental Final EIS*. Following publication of the *Draft Supplemental Final EIS*, NCDOT submitted a revised *Biological Assessment* (The Catena Group, November 2013) and final *Technical Report on Direct, Indirect, and Cumulative Impacts to Federally Listed Species* (Michael Baker Engineering, Inc., November 2013) to USFWS on November 19, 2013, along with a request for concurrence (**Appendix B**). The USFWS concurred with the findings of the Biological Assessment in a letter dated December 16, 2013 (**Appendix B**).

#### 3.3.3 AGENCY COMMENTS ON THE DRAFT SUPPLEMENTAL FINAL EIS

**Environmental Resource and Regulatory Agencies.** Comments on the *Draft Supplemental Final EIS* were received from the following federal and state environmental resource and regulatory agencies:

- NC Department of Environment and Natural Resources (NCDENR) – December 19, 2013
- NC Department of Cultural Resources, State Historic Preservation Office – December 12, 2013
- NC Department of Agriculture – December 6, 2013
- NC Department of Crime Control and Public Safety, Division of Emergency Management – December 5, 2013
- NCDENR Division of Water Resources (formerly Division of Water Quality) – December 20, 2013
- City of Charlotte Department of Transportation – January 6, 2014
- US Department of Interior, Office of Environmental Policy and Compliance – January 6, 2014
- US Army Corps of Engineers – January 7, 2014
- US Environmental Protection Agency – January 8, 2014

Copies of these letters are included in **Appendix A-1**. Summaries of the comments and responses to those comments are included in **Table A1.1**.

No substantive comments on the *Draft Supplemental Final EIS* were received from the agencies.

**Local Resolutions.** A total of 13 local governments and boards in Union County (both within and outside the project area) have passed resolutions regarding the Monroe Connector/Bypass project. Copies of these resolutions are included in **Appendix A-3**. Twelve of these resolutions

were passed prior to publication of the Notice of Availability of the *Draft Supplemental Final EIS*, but no additional comments or changes were provided during the public review period. One additional resolution was passed by the Town of Stallings following the public review period. The following eight entities, all located within the project area, passed resolutions in support of the project and encouraging expedited construction:

- City of Monroe (March 5, 2013)
- Town of Stallings (March 11, 2013)
- Town of Indian Trail (April 9, 2013)
- Town of Marshville (March 4, 2013)
- Monroe-Union County Economic Development Board of Advisors (March 21, 2013)
- Executive Committee of the Board of Trustees of Wingate University (March 14, 2013)
- Union County Board of Education (March 5, 2013)
- Union County Board of Commissioners (March 18, 2013)

The following five municipalities, three of which are located outside the project area, have passed resolutions encouraging NCDOT to consider alternatives to the project.

- Town of Mineral Springs (September 12, 2013)
- Village of Marvin (November 12, 2013)
- Town of Weddington (July 8, 2013)
- Town of Hemby Bridge (June 27, 2013)
- Town of Stallings (March 24, 2014)

Based on 2012 populations, governments passing resolutions supporting the project represent a much greater percentage of the population of Union County.

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## 4. LIST OF PREPARERS



*Section 4 includes a list of the principal participants in the preparation of this Final Supplemental Final EIS and associated supporting documentation.*

### 4.1 FEDERAL HIGHWAY ADMINISTRATION

George Hoops, PE  
Major Projects Engineer

MS in Transportation Engineering, BS in Civil Engineering with 22 years of experience in NEPA documentation, design, and construction.

### 4.2 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

#### PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

Jennifer Harris, PE  
Project Development /  
Turnpike Section Head

BS in Civil Engineering with 13 years of experience in transportation, project development, impact analysis, public involvement, and NEPA analysis.

Tristram Ford  
Community Planner

BS in Political Science (City and County Mgmt.) and minors in City and Regional Planning and Geography. 12 years of experience within NCDOT Division of Bicycle and Pedestrian Transportation and PDEA including community impact assessment and indirect and cumulative effects analysis.

Colin Mellor, LG  
Environmental Supervisor

MS in Geology. Fourteen years of experience with NCDOT, seven as an Engineering Geologist, and seven analyzing Indirect and Cumulative Impacts.

Gregory Smith  
Noise and Air Quality  
Supervisor

BA in Geology and Business Management with 28 years of experience in transportation, engineering geology, geotechnical and environmental engineering, hazardous waste management, air quality, and traffic noise

Michael Turchy  
Environmental Supervisor

BA in Geology with 11 years of experience in natural resource documentation including wetland delineations, stream determinations, protected species evaluation and consultation, environmental permitting and coordination with State and Federal agencies.

**TRANSPORTATION PLANNING BRANCH**

Jamal Alavi, PE, CPM  
Metrolina Planning Group  
Supervisor

BS in Civil Engineering with 21 years of experience within NCDOT in transportation engineering and planning, systems analysis, MPO/RPO coordination, public involvement, traffic forecasting, travel demand modeling and air quality conformity analysis.

**NORTH CAROLINA TURNPIKE AUTHORITY**

Donna Keener, PE  
Engineer Director

BS in Civil Engineering with 25 years of experience in transportation engineering, including roadway and drainage design, highway capacity analysis, and traffic control design. (Note: Ms. Keener was an employee of HNTB while working on this project.)

**4.3 PRIVATE CONSULTING FIRMS****HNTB (NCTA GENERAL ENGINEERING CONSULTANT)**

Spencer Franklin, PE  
Traffic Engineering Project  
Manager

BS in Civil Engineering with 17 years of experience in signal design, ITS design, traffic analysis, access management and traffic control design.

Bradley Reynolds, PE  
Transportation Project  
Engineer

Master of Business Administration and BS in Civil Engineering with 10 years of experience in transportation engineering, including traffic forecasting and traffic analysis.

Tracy Roberts, AICP  
Senior Transportation  
Planner

MS in Public Administration and BS in Urban and Regional Planning with 18 years of experience in NEPA studies and municipal planning, and air quality and noise analysis.

**ATKINS (NEPA TECHNICAL ANALYSIS, AND SEIS PREPARATION)**

Thomas Brad Allen  
Senior Scientist

BS in Environmental Science and MS in Environmental Resource Engineering with 10 years of experience in ecological assessment, wetland science, GIS analysis, and computer modeling. Participated in water quality monitoring.

Kimberly Bereis, AICP  
Senior Planner

BS in Environmental Studies (minor in Biology) and MSP in Urban and Regional Planning with 15 years of experience in transportation planning and NEPA studies/documentation. Responsible for preparation of various EIS sections.

Amanda Boyd  
Technician I

BA in Literature with 13 years of experience in graphics preparation. Responsible for graphics preparation and GIS impact assessment.

Carl Gibilaro, PE Project Manager	BS in Civil Engineering with 24 years of experience in NEPA documentation. Overall manager for preparation of the EIS.
Jill Gurak, PE, AICP NEPA Task Leader	BS in Mechanical Engineering with 24 years of experience in NEPA studies. Responsible for quality control for the EIS and air quality and noise impact assessments.
Thomas Kelly, PE Senior Engineer	BS Civil Engineering with 10 years of experience. Responsible for quality control of the Traffic Operations Technical Memorandum.
James Lawson Technical Coordinator II	BA in Psychology, AA in Civil Engineering with 25 years of experience. Responsible for graphics coordination, preparation of graphics and exhibits, and impact calculations.
Jennifer Noonkester, AICP Senior Planner	MS in Urban and Regional Planning, and BS in Natural Resource Management, with 9 years of experience. Responsible for research and preparation of various EIS sections.
David O'Loughlin Senior Scientist	BS in Computer Science and MS in Forestry with over seven years of experience in natural resource research, assessment, and wetland science, along with 18 years of experience in computer programming. Participated in water quality modeling.

### **MICHAEL BAKER ENGINEERING (INDIRECT AND CUMULATIVE EFFECTS)**

Ken Gilland, PG Senior Environmental Scientist	BA in Geology with 21 years of experience in environmental sciences. Responsible for the overall management of the Indirect and Cumulative Effects Quantitative Analysis, led background information and interview tasks.
Lorna Parkins, AICP Planner, Project Manger	MS in Applied Economics and BA in Urban Affairs in Planning with 25 years of experience in transportation planning focused on the interactions between transportation and land use. 18 years of experience conducting quantitative Indirect and Cumulative Effects analyses. Responsible for methodology and quality control of the quantitative ICE analysis.
Scudder Wagg, AICP Planner, Project Manager	BA, MUPP, with 8 years of experience as a planner. Responsible for land use assessment and led methodology tasks, assisted with interview tasks and coordination with localities. Managed GIS data collection and use tasks.

**THE CATENA GROUP (BIOLOGICAL REVIEW)**

Michael Wood, LSS  
Principal

MS in Soil Science and BS in Recreation Management with 19 years of experience coordinating environmental permitting projects with regulatory agencies. Provided overall management of development of the Biological Assessment.

Tim Savidge, MS  
Environmental Supervisor

MS in Marine Biology/Biological Oceanography and BS in Biology with 25 years of experience conducting ecological and environmental impact studies, with eighteen years experience preparing Biological Assessments and coordinating with regulatory agencies. Gathered and reviewed environmental baseline data, evaluated potential impacts to Carolina heelsplitter and Critical Habitat.

Nancy Scott, MS  
Environmental Permitting/  
Policy Specialist

MEM in Water Resources with an emphasis on water quality and stormwater management and BS in Environmental Science. Experience conducting environmental studies, preparing environmental documents and coordinating with regulatory agencies. Researched project history and environmental baseline, drafted BA document.

## **5. LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS TO WHOM COPIES OF THE STATEMENT ARE SENT**



### **5.1 FEDERAL AGENCIES**

- US Environmental Protection Agency
- US Department of Transportation
- US Department of the Interior
- US Department of Commerce
- US Department of Agriculture
- US Department of Energy
- Federal Rail Administration
- Federal Emergency Management Agency
- Office of Management and Budget

### **5.2 REGIONAL OFFICES OF FEDERAL AGENCIES**

- Regional Representative of the Secretary of Transportation (USDOT)
- US Environmental Protection Agency
- US Department of Housing and Urban Development
- US Army Corps of Engineers
- US Fish and Wildlife Service
- Federal Emergency Management Agency
- General Services Administration

### **5.3 STATE AGENCIES**

- North Carolina Department of Human Resources
- North Carolina Department of Environment and Natural Resources
- North Carolina Wildlife Resources Commission
- North Carolina Department of Cultural Resources
- North Carolina Department of Public Instruction
- North Carolina Department of Commerce – Travel and Tourism Division
- North Carolina Department of Economic and Community Development
- State Clearinghouse
- Attorney General



## **5.4 LOCAL GOVERNMENTS AND AGENCIES**

- Charlotte Regional Transportation Planning Organization
- Charlotte Department of Transportation
- Charlotte-Mecklenburg Schools
- Union County Public Schools
- Union County – Board of County Commissioners
- Mecklenburg County – Board of County Commissioners
- Charlotte-Mecklenburg Planning Department
- Union County Planning Department
- Town of Hemby Bridge – Town Council
- City of Monroe – City Council
- Town of Cornelius – Town Council
- Town of Davidson – Town Council
- Town of Huntersville – Town Council
- Town of Indian Trail – Town Council
- Town of Matthews – Town Council
- Town of Marshville – Town Council
- Town of Mint Hill – Town Council
- Town of Pineville – Town Council
- Town of Stallings – Town Council
- Town of Unionville – Town Council
- Town of Waxhaw – Town Council
- Town of Weddington – Town Council
- Town of Wingate – Town Council
- Village of Lake Park – Village Council
- Village of Wesley Chapel – Village Council
- Charlotte Monroe Executive Airport
- Rocky River Rural Planning Organization
- Charlotte Chamber of Commerce
- Matthews Chamber of Commerce
- Union County Chamber of Commerce

The *Final Supplemental Final EIS* in its entirety is available for download from the project Web site: [www.ncdot.gov/projects/monroconnector/project\\_Resources.html](http://www.ncdot.gov/projects/monroconnector/project_Resources.html)

## 6. REFERENCES



*Section 6 lists the various references and supporting documentation cited throughout the Final Supplemental Final EIS. In addition, Section 6.3 includes a list of acronyms found throughout the Final Supplemental Final EIS.*

### 6.1 REFERENCES

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#### Charlotte Area Transit System

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#### Charlotte – Mecklenburg County

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#### Charlotte Regional Transportation Planning Organization (formerly Mecklenburg-Union Metropolitan Planning Organization)

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#### **Council on Environmental Quality**

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#### **Federal Emergency Management Agency**

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#### **Geographic Information Databases**

North Carolina Department of Transportation

Union County

Mecklenburg County  
United States Geological Survey  
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**INRIX, Inc. Data**

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#### **NC Department of Environment and Natural Resources – Division of Land Resources**

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#### **NC Department of Transportation**

2012-2023 Draft State Transportation Improvement Program

2012-2020 State Transportation Improvement Program

2009-2015 State Transportation Improvement Program

2030 Metrolina Regional Travel Demand Model, December 2005

2035 Metrolina Regional Travel Demand Model, October 2008

2035 Metrolina Regional Travel Demand Model, October 2009

2040 Metrolina Regional Travel Demand Model, April 2014

Answers to the Questions Most Often Asked About Right of Way Acquisitions and Relocation Assistance

Archaeological Background Report – US 74 Monroe Bypass (R-2559) Study Area, December 1995

Assessing Indirect and Cumulative Effects of Transportation Projects in North Carolina, November 2001

Conformity Analysis and Determination Report for the Metrolina Area, December 2011

Design Standards in Sensitive Watersheds

Guidelines for Best Management Practices for Protection of Surface Waters

Invasive Exotic Plants of North Carolina, 2008:

<https://connect.ncdot.gov/resources/Environmental/Documents/Invasive%20Exotic%20Plants%20of%20North%20Carolina.pdf>

Personal communication via email dated January 20, 2010 from Gerold Glover, PhD, Archaeologist II, Human Environment Unit

National Highway System Map, Division 10

NCDOT Traffic Noise Abatement Policy, 2004

NCDOT Traffic Noise Abatement Policy, 2011

Monroe Connector/Bypass Project Web site: [www.ncdot.gov/projects/monroeconnector/](http://www.ncdot.gov/projects/monroeconnector/)

State Implementation Plan

Strategic Highway Corridors Vision Plan Division 10, July 2008

US 74 Corridor Study. Prepared for NCDOT Div. 10 by Stantec, July 2007

US 74 Corridor Superstreet and Traditional Intersection Capacity Analysis. Prepared by Congestion Management Section, November 2012.

#### **North Carolina Turnpike Authority**

Financial Feasibility of Tolling and Toll Rates:

[www.ncdot.gov/projects/monroeconnector/download/monroe\\_FEIS\\_ComprehensiveTrafficRevenueStudy.pdf](http://www.ncdot.gov/projects/monroeconnector/download/monroe_FEIS_ComprehensiveTrafficRevenueStudy.pdf)

#### **North Carolina Wildlife Resources Commission**

Green Growth Toolbox, 2012:

<http://www.ncwildlife.org/Conserving/Programs/GreenGrowthToolbox.aspx>.

#### **NC Floodplain Mapping Program**

[www.ncfloodmaps.com/firm\\_indexes.htm](http://www.ncfloodmaps.com/firm_indexes.htm)

#### **Regional Integrated Transportation Information System Software Tool**

<http://vpp.ritis.org>

#### **Town of Marshville**

[www.marshville.org/](http://www.marshville.org/)

Comprehensive Transportation Plan Study, 2009

Town of Marshville Land Use Plan, August 2004

#### **Union County**

[www.co.union.nc.us](http://www.co.union.nc.us)

Union County Comprehensive Plan Update, Transportation Analysis and Strategies, September 2008: [www.co.union.nc.us/Portals/0/Planning/Presentations/Union\\_County\\_Transportation\\_Analysis.pdf](http://www.co.union.nc.us/Portals/0/Planning/Presentations/Union_County_Transportation_Analysis.pdf)

Union County Short-Term Water Allocation Plan, September 2009

US 74 Corridor Revitalization Study, 2013:

<http://www.us74corridor.com/>

#### **Union County Public Works**

Comprehensive Water and Wastewater Master Plan, Black & Vetch, December 2011

#### **US Census Bureau**

2010 Census Data [www.census.gov](http://www.census.gov)

2006-2010 Commuting Information



[www.census.gov/newsroom/releases/archives/news\\_conferences/commuting.html](http://www.census.gov/newsroom/releases/archives/news_conferences/commuting.html)

2007-2011 American Community Survey

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2006-2011 Building Permits

<http://censtats.census.gov/bldg/bldgprmt.shtml>

[www.census.gov](http://www.census.gov)

Housing data: [www.census.gov/popest/data/historical/2000s/vintage\\_2007/housing.html](http://www.census.gov/popest/data/historical/2000s/vintage_2007/housing.html)

Commuting Information: [www.census.gov/population/www/cen2000/commuting/index.html](http://www.census.gov/population/www/cen2000/commuting/index.html)

#### **US Department of Agriculture**

2002 Census of Agriculture – North Carolina State and County Data. Volume 1, Geographic Area Series, Part 33. Report No. AC-02-A-33, June 2004

2007 Census of Agriculture – North Carolina State and County Data. Volume 1. Geographic Area Series Part 33, Report No. AC-07-A-33), September 2009

[www.agcensus.usda.gov/index.php](http://www.agcensus.usda.gov/index.php)

#### **US Department of Agriculture- Natural Resource Conservation Service**

List of North Carolina Important Farmlands, December, 2005

<ftp://ftp-fc.sc.egov.usda.gov/NC/NCweb/Programs/soilsurvey>

Soil Survey of Union County, North Carolina, January 1996

Soil Survey of Mecklenburg County, North Carolina, June 1980

Soil Survey of Union County, North Carolina, June 2009

Soil Survey of Mecklenburg County, North Carolina, April 2009

Soil Survey of Union County, North Carolina, July 2012

Soil Survey of Mecklenburg County, North Carolina, July 2012

<http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>

#### **US Department of Transportation**

Policy Guidance Concerning Recipients Responsibilities to Limited English Proficient Persons, 2005

#### **US Environmental Protection Agency**

1999 National Air Toxics Assessment (NATA)

<http://www.epa.gov/ttn/atw/nata1999/>

Clean Air Act Section 176(c), 40 CFR 93.116 and 40 CFR 93.123

Cleaner Diesels: Low Cost Ways to Reduce Emissions from Construction Equipment, March 2007

Control of Emissions of Hazardous Air Pollutants from Mobile Sources, Volume 66, Number 61, pages 17230-17273, Published in the Federal Register on March 29, 2001

Control of Hazardous Air Pollutants from Mobile Sources, Volume 72, Number 37, pages 8427-8570, Published in the Federal Register on February 26, 2007

Controlling Emissions of Hazardous Air Pollutants from Mobile Sources (66 CFR 17229), March 29, 2001

Draft Plan for Review of the Primary National Ambient Air Quality Standard for Carbon Monoxide, March 2008

Green Book Nonattainment Areas for Criteria Pollutants:

[www.epa.gov/oar/oaqps/greenbk/](http://www.epa.gov/oar/oaqps/greenbk/)

Integrated Plan for Review of the Primary NAAQS for Sulfur Oxides, October 2007

Integrated Risk Information Systems (IRIS): [www.epa.gov/iris/](http://www.epa.gov/iris/)

Latest Findings on National Air Quality – Status and Trends through 2006, January 2008

National Ambient Air Quality Standards: [www.epa.gov/air/criteria.html](http://www.epa.gov/air/criteria.html)

Ozone Attainment Federal Register, Vol. 77, No. 45, March 7, 2012

Federal Register, Vol. 77, No. 98, May 21, 2012

[www.epa.gov/air/oaqps/greenbk/hindex.html](http://www.epa.gov/air/oaqps/greenbk/hindex.html)

### US Fish and Wildlife Service

Lists of Federally Protected Species for Union and Mecklenburg Counties, 2012:

[www.fws.gov/raleigh/species/cntylist/nc\\_counties.html](http://www.fws.gov/raleigh/species/cntylist/nc_counties.html)

## 6.2 SUPPORTING PROJECT DOCUMENTATION

The supporting project documentation listed below is technical memoranda and reports incorporated by reference into the *Draft EIS*, *Final EIS*, *Draft Supplemental Final EIS*, and *Final Supplemental Final EIS*. These are available for review upon request by contacting NCDOT via email at [monroe@ncdot.gov](mailto:monroe@ncdot.gov) or via telephone at (800) 475-6402. Documents also available on the NCDOT Web site

(<http://www.ncdot.gov/projects/monroconnector/projectResources.html>) are marked with an asterisk \*.

### 6.2.1 SUPPORTING PROJECT DOCUMENTATION PRIOR TO PUBLICATION OF THE DRAFT EIS

The supporting project documentation listed below is technical memoranda and reports created prior to publication of the *Draft EIS* in March 2009, and incorporated by reference into the *Draft EIS*.

1995, October	Phase II Architectural Survey and Evaluations of Eligibility for US 74 Bypass, Senator Jesse Helms Freeway (Monroe Bypass). Prepared by Mattson, Alexander & Associates.
1995, December	Archaeological Background Report – US 74 Monroe Bypass (R-2559) Study Area. Prepared by NCDOT.
1996, March	US 74 Monroe Bypass Environmental Assessment. Prepared by JBM Engineers & Planners.
2000, September	Phase II Survey of Historic Architectural Resources for the Monroe Connector. Prepared by Mattson, Alexander & Associates.

- 2003, October Draft Environmental Impact Statement for US 74 Improvements I-485 to US 601. Prepared by PBS&J. (Rescinded by [Federal Register Notice, January 2006, Federal Register, Vol. 71, No 19, page 4958])
- \*2006, October Proposed Monroe Connector Preliminary Traffic and Revenue Study. Prepared by Wilbur Smith Associates.
- \*2007, January Monroe Connector/Bypass Notice of Intent.
- \*2007, October Historic Architectural Resources Reconnaissance Report – Monroe Connector/Bypass. Prepared by NCDOT Historic Architecture Group.
- 2007, October Section 6002 Project Coordination Plan.
- \*2008, February Final Statement of Purpose and Need for the Monroe Connector/Bypass. Prepared by PBS&J.
- \*2008, March Existing and Year 2030 No-Build Traffic Operations Technical Memorandum. Prepared by PBS&J.
- \*2008, April Alternatives Development and Analysis Report. Prepared by PBS&J.
- \*2008, April GeoEnvironmental Impact Evaluation. Prepared by NCDOT Geotechnical Engineering Unit.
- \*2008, June Technical Memorandum for TIP Projects R-2559 & R-3329 US 74 Upgrade Scenario. Prepared by Wilbur Smith Associates.
- \*2008, June Traffic Forecasts for the No-Build Alternatives for the NCDOT State TIP Project No. R-3329 and NCDOT State TIP Project No. R-2559, Monroe Connector/Bypass Study. Prepared by Martin/Alexiou/Bryson.
- \*2008, September Traffic Forecast for TIP Projects R-3329 & R-2559 Monroe Connector/Bypass. Prepared by Wilbur Smith Associates.
- \*2008, December Preliminary Hydraulic Technical Memorandum. Prepared by PBS&J.
- \*2008, December Natural Resources State Technical Report for the Monroe Connector/Bypass. Prepared by ESI.
- \*2009, January Monroe Connector/Bypass Relocation Reports. Prepared by Carolina Land Acquisition.
- 2009, January Monroe Connector/Bypass Alternative 3A-2013 AADT Build Toll Scenario. Prepared by HNTB.
- \*2009, January Indirect and Cumulative Effects Assessment. Prepared by HNTB
- \*2009, January Jurisdictional and Community Impacts for the Monroe Connector/Bypass. Prepared by ESI.
- \*2009, February Community Impact Assessment. Prepared by PBS&J.
- \*2009, February Year 2035 Build Traffic Operations Technical Memorandum. Prepared by PBS&J.
- \*2009, February Final Air Quality Technical Memorandum. Prepared by PBS&J.
- 2009, March Upgrade Existing US 74 Technical Memorandum. Prepared by HNTB and PBS&J.

## 6.2.2 SUPPORTING PROJECT DOCUMENTATION AFTER PUBLICATION OF THE DRAFT EIS

The supporting project documentation listed below are technical memoranda and reports created after publication of the *Draft EIS* in March 2009 for the *Final EIS*, and incorporated by reference into the *Final EIS*.

2009, March	Monroe DEIS Cost Estimation Support Memo. Prepared by HNTB.
*2009, March	Final Traffic Noise Technical Memorandum. Prepared by PBS&J.
*2009, April	Final Year 2035 Build Traffic Operations Technical Memorandum. Prepared by PBS&J.
*2009, April	Update for Monroe Connector/Bypass Preliminary Traffic and Revenue Study. Prepared by Wilbur Smith Associates.
2009, April	Upgrade Existing US 74 Alternatives Study. Prepared by HNTB.
*2009, June	Freshwater Mussel Survey Report. Prepared by The Catena Group.
2009, July	2035 Build Toll Forecast, Segment 2 (Alternative 3A). Prepared by HNTB.
2009, August	Preferred Alternative Report. Prepared by PBS&J.
*2010, January	Traffic Noise Technical Memorandum Addendum. Prepared by PBS&J.
*2010, February	Review for Potential On-Site Mitigation. Prepared by ESI.
*2010, February	Final Addendum to Year 2035 Build Traffic Operations Technical Memorandum. Prepared by PBS&J.
2010, March	Final Archaeological Inventory and Evaluation for the US 74 Monroe Connector. Prepared by New South Associates.
2010, March	Revised Monroe Connector/Bypass No-Build Traffic Forecast Memo. Prepared by HNTB.
*2010, April	Monroe Connector/Bypass Service Road Study. Prepared by PBS&J.
*2010, April	Indirect and Cumulative Effects Quantitative Analysis. Prepared by Michael Baker Engineering, Inc.
*2010, April	Indirect and Cumulative Effects Water Quality Analysis, Prepared by PBS&J.
*2010, May	Biological Assessment for the Monroe Connector-Bypass Project (R-3329/R-2559). Prepared by The Catena Group.

### 6.2.3 SUPPORTING PROJECT DOCUMENTATION AFTER THE FINAL EIS

The supporting project documentation listed below are technical memoranda and reports created after publication of the *Final EIS* in May 2010 for the *Draft Supplemental Final EIS*, and incorporated by reference into the *Draft Supplemental Final EIS*.

2010, August	Monroe Connector/Bypass Year 2035 Build Toll Alternative 3A Traffic Volume Projections. Prepared by HNTB.
2010, October	Final Report Proposed Monroe Connector/Bypass Comprehensive Traffic and Revenue Study. Prepared by Wilbur Smith and Associates.
2010, December	2008 and 2035 No-Build Traffic Forecasts. Prepared by HNTB.
2010, December	US 74 Corridor Analysis Scenarios. Prepared by HNTB. (Note: This document was finalized in October 2013 with no substantive changes.)
2012, October	Memo - Monroe/Connector/Bypass Updated Census Tables. Prepared by Atkins.
2013, May	Freshwater Mussel Survey Report Update. Prepared by The Catena Group.
2012, October	Updated T&E Plant Species Field Review. Prepared by Atkins.
2012, October	US 74 Corridor Study Overview. Prepared by HNTB.
2013, April	Cost Estimates for Preferred Alternative. Prepared by HNTB.
2013, April	Ground Penetrating Radar Survey at the Hasty-Fowler-Secret Cemetery. Prepared by New South Associates.
2013, June	Crash Data for US 74 from I-485 to Forest Hills School Road for April 1, 2020 through March 31, 2013. Prepared by NCDOT Traffic Safety Unit.
2013, October	Draft Technical Report on Direct, Indirect, and Cumulative Impacts to Federally Listed Species. Prepared by Michael Baker Engineering, Inc.
2013, October	Biological Assessment (draft). Prepared by The Catena Group.
2013, October	US 74 Corridor Travel Time Comparison. Prepared by HNTB.
2013, November	Union County Growth Factors Technical Report. Prepared by Michael Baker Engineering, Inc.
2013, November	Traffic Noise Analysis Update for the Monroe Connector/Bypass. Prepared by Atkins.
2013, November	Monroe Connector/Bypass Traffic Forecast Summary. Prepared by HNTB.
2013, November	Monroe Connector/Bypass (R-3329/R-2559) Indirect and Cumulative Effects Quantitative Analysis Update. Prepared by Michael Baker Engineering, Inc.
2013, November	Biological Assessment (final). Prepared by The Catena Group.
2013, November	Technical Report on Direct, Indirect, and Cumulative Impacts to Federally Listed Species. Prepared by Michael Baker Engineering, Inc.
2014, April	INRIX US 74 Corridor Travel Speeds. Prepared by HNTB.

2014, April            Review of the Monroe Connector/Bypass Project Initial Financial Plan. Prepared by NCDOT.

2014, May            Review of New CRTPO Socioeconomic Projections. Prepared by Michael Baker Engineering, Inc.

2014, May            Monroe Connector/Bypass Traffic Forecast Summary. Prepared by HNTB.

2014, May            Review of the report titled, *Review of Traffic Forecasting: Monroe Connector/Bypass Draft Supplemental Final EIS, November 2013*, prepared by The Hartgen Group for the Southern Environmental Law Center. Prepared by HNTB.

### 6.3 LIST OF ACRONYMS

The following is a list of commonly-used acronyms found throughout this *Final Supplemental Final EIS* and associated appendices.

**TABLE 6-1: List of Acronyms**

Acronym	Definition	Acronym	Definition
<b>AADT</b>	Annual Average Daily Traffic	<b>AASHTO</b>	American Association of State Highway and Transportation Officials
<b>ABT</b>	Averaging, Banking, and Trading program	<b>AERMOD</b>	American Meteorological Society/Environmental Protection Agency Regulatory Model
<b>APE</b>	Area of Potential Effects	<b>AQ</b>	Air Quality
<b>AST</b>	Above Ground Storage Tank	<b>BA</b>	Biological Assessment
<b>BEA</b>	Barrier Evaluation Area	<b>BLVD</b>	Boulevard
<b>BMP</b>	Best Management Practices	<b>BRT</b>	Bus Rapid Transit
<b>CAA</b>	Clean Air Act	<b>CARE</b>	Citizens Against Route Eighteen
<b>CASAC</b>	Clean Air Scientific Advisory Committee	<b>CATS</b>	Charlotte Area Transit System
<b>CDBG</b>	Community Development Block Grant	<b>CEQ</b>	Council on Environmental Quality
<b>CEQA</b>	California Environmental Quality Act	<b>CFR</b>	Code of Federal Regulations
<b>CIW</b>	Citizens Informational Workshops	<b>CLGP</b>	Conformity Lapse Grace Period
<b>CLOMR</b>	Conditional Letter of Map Revision	<b>CO</b>	Carbon Monoxide
<b>COG</b>	Council of Governments	<b>CPCC</b>	Central Piedmont Community College
<b>CRTPO</b>	Charlotte Regional Transportation Planning Organization	<b>CWA</b>	Clean Water Act
<b>DSA</b>	Detailed Study Alternative	<b>E</b>	Endangered
<b>EA</b>	Environmental Assessment	<b>EEP</b>	Ecosystem Enhancement Program
<b>EIS</b>	Environmental Impact Statement	<b>ENR</b>	Environment and Natural Resources
<b>ESA</b>	Endangered Species Act	<b>ETC</b>	Electronic Toll Collection
<b>FBFM</b>	Flood Boundary and Floodway Map	<b>FEMA</b>	Federal Emergency Management Agency
<b>FHWA</b>	Federal Highway Administration	<b>FIRM</b>	Flood Insurance Rate Maps
<b>FLUSA</b>	Future Land Use Study Area	<b>FONSI</b>	Finding of No Significant Impact
<b>FPPA</b>	Farmland Protection Policy Act	<b>FSC</b>	Federal Species of Concern
<b>FTA</b>	Federal Transit Administration	<b>GAP</b>	Gap Analysis Program
<b>GHG</b>	Greenhouse Gas	<b>GIS</b>	Geographic Information Systems
<b>HAP</b>	Hazardous Air Pollutants	<b>HAPEM</b>	Hazardous Air Pollutant Exposure Model
<b>HC</b>	Hydrocarbons	<b>HOT</b>	High Occupancy Toll



TABLE 6-1: List of Acronyms

Acronym	Definition	Acronym	Definition
HOV	High Occupancy Vehicles	HPO	Historic Preservation Office
HUC	Hydrologic Unit Code	HUD	United States Department of Housing and Urban Development
ICC	Inter-County Connector	ICE	Indirect and Cumulative Effects
IP	Individual Permit	IRIS	Integrated Risk Information System
LEDPA	Least Environmentally Damaging Practicable Alternative	LFA	Lead Federal Agency
LID	Low Impact Development	LOMR	Letter of Map Revision
LOS	Level of Service	L RTP	Long Range Transportation Plan
MAP-21	Moving Ahead for Progress in the 21 <sup>st</sup> Century	MCAPCO	Mecklenburg County Air Pollution Control Ordinance
MOA	Memorandum of Agreement	MOU	Memorandum of Understanding
MOVES	Motor Vehicle Emission Simulator	MPH	Mile Per Hour
MPO	Metropolitan Planning Organization	M R M	Metrolina Travel Demand Model
MSAT	Mobile Source Air Toxics	MUMPO	Mecklenburg-Union Metropolitan Planning Organization
MVEB	Motor Vehicle Emissions Budget	NAAQS	National Ambient Air Quality Standards
NATA	National Air Toxics Assessment	NC-CREWS	North Carolina Coastal Region Evaluation of Wetland Significance
NCDENR	North Carolina Department of Environment and Natural Resources	NCDENR-DAQ	North Carolina Department of Environment and Natural Resources – Division of Air Quality
NC-DEH	North Carolina Department of Environment and Natural Resources – Division of Environmental Health	NCDENR-DEH, PWSS	North Carolina Department of Environment and Natural Resources – Division of Environmental Health, Public Water Supply Section
NCDENR-DWQ	North Carolina Department of Environment and Natural Resources – Division of Water Quality	NCDOT	North Carolina Department of Transportation
NCGS	North Carolina General Statutes	NCHRP	National Cooperative Highway Research Program
NCTA	North Carolina Turnpike Authority	NCWAM	North Carolina Wetland Assessment Method
NCWRC	North Carolina Wildlife Resources Commission	NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program	NHP	Natural Heritage Program
NOI	Notice of Intent	NO <sub>x</sub>	Nitrogen Oxide
NPDES	National Pollutant Discharge Elimination System	NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places	NTP	National Toxicology Program
NWI	National Wetland Inventory	OSA	Office of State Archaeology
PM	Particulate Matter	PSA	Preliminary Study Alternatives
ROD	Record of Decision	ROW	Right of Way
RPO	Rural Planning Organization	SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users
SC	Species of Concern	SCH	State Clearinghouse

TABLE 6-1: List of Acronyms

Acronym	Definition	Acronym	Definition
SCS	Soil Conservation Service	SE	Socio-Economic
SELC	Southern Environmental Law Center	SEPA	State Environmental Policy Act
SHC	Strategic Highway Corridor	SIP	State Implementation Plan
SR	State Road	STIP	State Transportation Improvement Program
STRAHNET	Strategic Highway Network	TAC	Technical Advisory Committee
TAZ	Traffic Analysis Zone	TCC	Technical Coordinating Committee
TDM	Transportation Demand Management	TEAC	Turnpike Environmental Agency Coordination
TIP	Transportation Improvement Program	TNM	Traffic Noise Model
TOG	Total Organic Gas	TSM	Transportation System Management
USACE	United States Army Corps of Engineers	USDA	United States Department of Agriculture
USDOT	United States Department of Transportation	USEPA	United States Environmental Protection Agency
USFWS	United States Department of the Interior Fish and Wildlife Service	UST	Underground Storage Tank
VAD	Voluntary Agricultural Districts	VHT	Vehicle-Hours Traveled
VMT	Vehicle Miles Traveled	VOC	Volatile Organic Compounds
WRC	Wildlife Resources Commission		

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