MERGER CONCURRENCE POINT 2A

BRIDGING DECISIONS AND ALIGNMENT REVIEW FOR N.C. 49 IMPROVEMENTS

N.C. 49 from John Kirk Drive to I-485 (widen existing roadway); realign Back Creek Church Road (S.R. 2827) on new location to the N.C. 49 and Mallard Creek Church Road (S.R. 2833) intersection; close existing at grade rail crossing at N.C. 49 and Back Creek Church Road
Charlotte, Mecklenburg County

STIP Project U-5768

North Carolina Department of Transportation
And
Charlotte Department of Transportation

June 13, 2019

Contents

1. PURPOSE OF THE MEETING

The purpose of this meeting is to reach concurrence on the major hydraulic structures and alignment associated with Alternative 1 (Yellow Alternative) and Alternative 2 (Purple Alternative) for the detailed study alternatives carried forward for the realignment of SR 2827 (Back Creek Church Road) (BCCR).

There are no major crossing structures associated with the proposed widening of NC 49. During previous meetings, the Merger Team agreed that theirprimary focus would be on the new location portion of the relocation of Back Creek Church Road, as it had the most potential impacts to the human and natural environment.

2. PROJECT DESCRIPTION

The North Carolina Department of Transportation (NCDOT), in coordination with the Charlotte Department of Transportation (CDOT), proposes to widen NC 49 (University City Boulevard) from John Kirk Drive to I-485. The project will also realign BCCR to intersect with NC 49 at SR 2833 (Mallard Creek Church Road). The current at-grade intersection of BCCR and North Carolina Railroad (NCRR)/Norfolk Southern Railroad (NS) just south of NC 49 will be closed in conjunction with these improvements. The project location is shown on **Figure 1** and the Environmental Features and Project Alternatives are shown on **Figures 2 and 3**.

3. PROJECT STATUS, BACKGROUND, SCHEDULE, AND COST

The project is included in the draft 2020-2029 NCDOT State Transportation Improvement Program (STIP) and will be funded using both State and local (City of Charlotte) funds. Right of way acquisition and construction are scheduled to begin in fiscal years 2021 and 2023, respectively. Both the proposed improvements to NC 49 and the proposed realignment of BCCR are included in the 2017 CRTPO Comprehensive Thoroughfare Plan and the 2045 CRTPO Metropolitan Transportation Plan.

The following STIP projects are located in the vicinity of U-5768 and are shown on Figure 4:

- I-5798, I-485, from I-85 to Rocky River Road: pavement rehabilitation (Cost, $8.3 million)
- U-5007, NC 51, Matthews Township Parkway to SR 3128 (Lawyers Road): widen to multi-lanes (Cost $43.25 million)
- I-5860, I-85, SR 2472 (W. Mallard Creek Church Road) to 0.8 mile north of SR 2467 (Mallard Creek Road): pavement rehabilitation (Cost $5.5 million)
- I-6017, I-85, Mallard Creek Road interchange, improve interchange (Cost not currently listed).

The project start of study letter was sent on August 4, 2014. NCDOT internal scoping took place on November 3, 2015, and the External Scoping Meeting/Merger Screening was held on December 9, 2015. NCDOT coordinated with the U.S. Army Corps of Engineers (USACE) with regards to the need and purpose of the project and segmentation for the proposed realignment of BCCR. A technical memorandum on the issue was provided for the Merger Team on June 24, 2016 to clarify this issue. Subsequent outreach to USACE indicated the memorandum was acceptable.

The first Merger Meeting for the project was held on November 16, 2017, with the goal of reaching agreement and concurrence on Concurrence Points 1 and 2 (Purpose and Need and Study Area Defined and Design Options for Detailed Study, respectively). The merger team was able to reach agreement on

Purpose and Need; however, additional alternatives were proposed and concurrence was not reached on the project study area.

Supplemental information was developed to address agency concerns with regards to potential alternatives and the proposed project study area. The second Merger Meeting was held on July 19, 2018. At this meeting, concurrence was achieved for Concurrence Points 1 and 2. The signed concurrence forms are included in the meeting packet.

Project Schedule/Cost

The project schedule and costs are shown below (and are preliminary and subject to change).

Schedule

- Project Technical Reports 2017 – 2019
- Public Meeting April 23, 2019
- Design Public Meeting August 2019
- Combined SEA/FONSI September 2019
- Right-of-Way Acquisition FY 2021
- Construction FY 2023

Cost

- Project Development & Design $ 2,000,000
- Utilities $ 1,300,000
- Mitigation $ 925,000
- Property Acquisition $ 1,300,000
- Construction Costs $36,300,000
- **Total Cost** **$41,825,000**

Stakeholder Coordination and Public Outreach

NCDOT and CDOT have conducted meetings with the University of North Carolina-Charlotte (UNCC) and University City Partners (UCP) about the proposed project, given its proximity to the UNCC campus. These meetings were held on November 29, 2016, May 30, 2017, and April 9, 2019. In addition, UNCC and UCP participated in a meeting with CDOT on the typical section for the proposed NC 49 improvements on April 11, 2018. UNCC and UCP have expressed particular concern regarding bicycle and pedestrian accommodations and safety along NC 49.

A project website has been developed and includes a survey seeking input on how users navigate through the NC 49 corridor.

On April 23, 2019 a Local Officials Informational Meeting (LOIM) and a public meeting were held to inform the public about the proposed project and obtain input. Three officials attended the LOIM; the meeting included a PowerPoint presentation and a brief summary of the project and work completed to date. The public meeting provided two visualizations, maps of current project alternatives, and NCDOT and CDOT staff were available to address stakeholder concerns. The information packet provided at the public meeting included a comment form that asked citizens to state their preferred alternative for the proposed realignment of BCCR.

A total of 98 people signed in to the public meeting. As of May 20, 23 comment sheets have been received by NCDOT. Of those commenters expressing a preference, 16 preferred Alternative 1 (Yellow

Alternative) and 1 preferred Alternative 2 (Purple Alternative). Six people did not express a preference. Comments were also made expressing concerns about access at the proposed closure of BCCR, right of way impacts, bicycle and pedestrian accommodations, impacts to the proposed park, and questions about Reduced Conflict Intersections (RCIs).

4. PURPOSE AND NEED AND PROJECT STUDY AREA – CP1

Purpose and Need for the project was reached in July 2018. The needs to be addressed by this project include:

- NC 49 is currently operating at or close to congested levels.
- From 2000 through March 2016, there were six highway vehicle/train crashes at the NCRR/NS at-grade rail crossing on BCCR just south of NC 49. Current typical train traffic as reported by NS is 38 trains per day, and train volumes are expected to double in the future, as this crossing is located within the proposed NCDOT Southeast High Speed Rail corridor.
- With the proposed closing of the BCCR railroad crossing at NCRR/NS, the existing network connectivity between the Rocky River area to the south and NC 49 would be lost.
- Traffic volumes and lack of accommodations along NC 49 limit bicycle and pedestrian activity along regionally important multi-modal transportation routes. CDOT, UNCC, and UCP have cited the need to accommodate pedestrians and bicycles in any proposed improvement.

The primary purposes of the proposed project are to reduce traffic congestion, improve traffic flow, and enhance traffic operations on NC 49. Other purposes are to improve safety and enhance train and vehicle operations. The screening criteria for this area:

- Achieve an overall Level of Service (LOS) D for intersections along the project corridor in the design year (2040).
- Maintain network connectivity from within the existing road network.
- Safely accommodate multi-modal uses of the corridor.

Project Study Area

The project study area boundaries are shown in Figure 2, dated May 2018. The study area varies along NC 49 to accommodate related traffic flow and connectivity improvements and includes the realignment BCCR, as well as existing Back Creek Church Road.

5. CONCEPTS RECOMMENDED FOR DETAILED STUDY – CP2

At the July 19, 2019 CP1/CP2 Meeting, the following alternatives were not included for detailed study:

- The Blue Option was dropped because it does not appear to improve traffic flow and thus does not meet the project's Purpose. Further, there are logistical issues with bridging NCRR and NC 49 that make the options not practical.
- The Orange Option was opposed by the City of Charlotte. The option was dropped because it does not appear to improve traffic flow and thus does not meet the project's Purpose. Further, the constructability issues and high number of relocations would substantially add to the cost of this option, and the option is not considered practical.
- The Red Option was opposed by the City of Charlotte. The option was dropped because it is not compatible with City policy and guidelines. The USACE acknowledged the City's opposition and the number of potential relocations, noting the very high cost associated with number of relocations.

Based on the July 19, 2019 CP2 concurrence, the following alternatives were carried forward for detailed study (Figures 2 and 3):

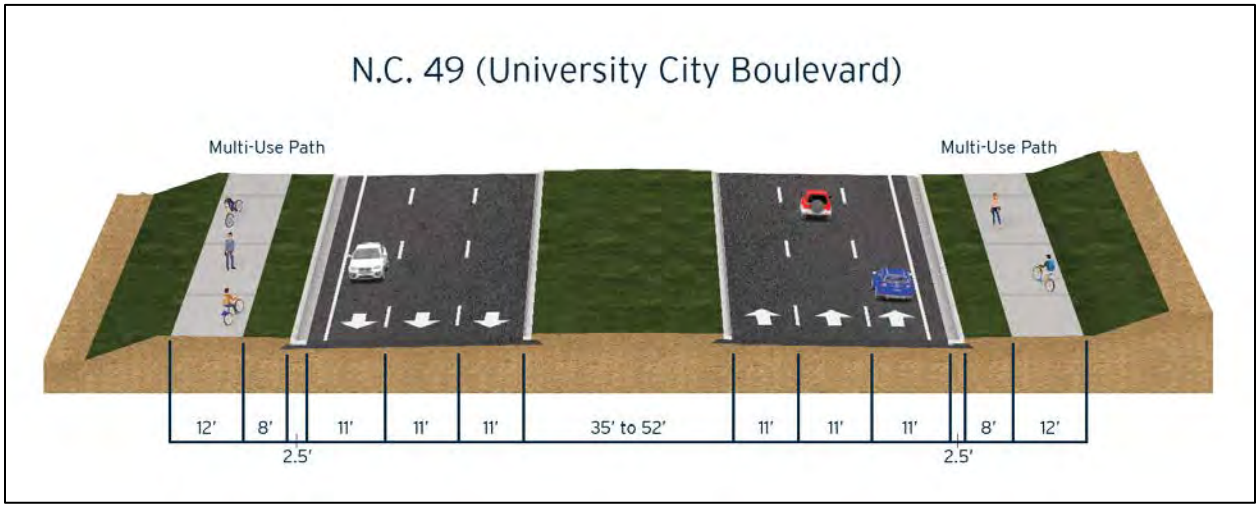
- No-Build Alternative: this alternative would maintain existing facilities, but would not address the purpose and need of the project. It is included as a basis for comparison.

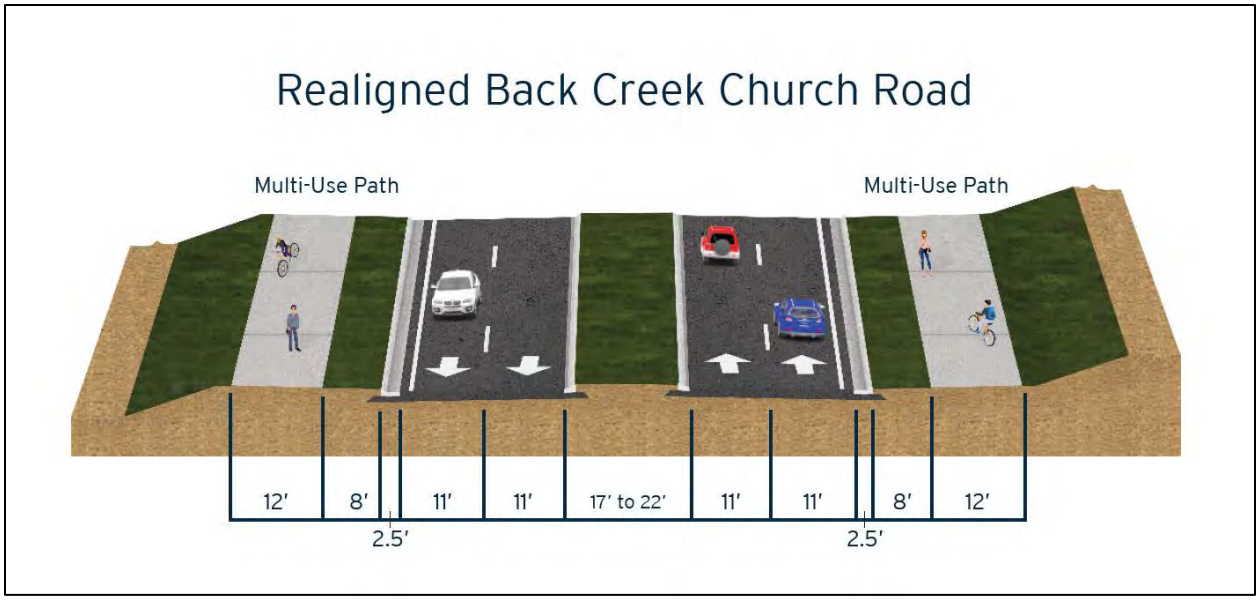
- Alternative 1 (Yellow Alternative): Best-fit widening on NC 49 and relocation of BCCR from south of Back Creek to the intersection of NC 49 and Mallard Creek Church Road using the railroad bridge constructed as part of STIP Project P-5208. The project also includes traffic flow and connectivity improvements to Old Concord Road (SR 2939) and Thomas Combs Drive (two quadrant roadways are proposed) and closure of the existing at-grade railroad crossing on existing BCCR.

- Alternative 2 (Purple Alternative): Best-fit widening on NC 49 and relocation of BCCR from just north of Back Creek to the intersection of NC 49 and Mallard Creek Church Road using the railroad bridge constructed as part of STIP Project P-5208. The project also includes traffic flow and connectivity improvements to Old Concord Road (SR 2939) and Thomas Combs Drive (two quadrant roadways are proposed) and closure of the existing at-grade railroad crossing on existing BCCR.

6. PROPOSED TYPICAL SECTIONS

Typical sections for the proposed project are shown below:





For the proposed bridges over Back Creek (to be discussed below) NCDOT recommends the following typical section: Bridge rail, 12-foot multi-use path, 1-foot curb, 2-foot shoulder, two 11-foot lanes, 17-foot concrete median, two 11-foot lanes, 2-foot shoulder, 1-foot curb, 12-foot multi-use path, bridge rail. For a deck width of approximately 91 feet.

7. ENVIRONMENTAL CONSIDERATIONS

Parks, Recreation Facilities, and Conservation Easements

Mecklenburg County has identified a proposed public park in the study area, to be called Back Creek Regional Park. The park would include minimal facilities, but would serve as a trail head for the proposed Back Creek Greenway. It is anticipated that the park would provide restroom, picnic, and parking facilities, but would remain largely wooded, with some trails. The park would be adjacent to Alternative 1 and would be divided by Alternative 2.

There is an existing conservation easement for a stream restoration project on existing BCCR extending eastward from the existing bridge over Back Creek. The Back Creek Mitigation Site was developed by NCDOT as mitigation for stream impacts. Alternative 2 would tie in to existing BCCR north of the existing bridge and would include improvements along the west side of existing BCCR in this area to avoid impacts to the easement.

Major Utility Crossings

There are major utilities in the corridor along NC 49. There is also a power line easement (owned by Duke Energy) south of Back Creek running east to west that would be impacted by both BCCR build alternatives. None of the project build alternatives would impact existing transmission towers. NCDOT will coordinate with the utility to minimize potential effects of the power line easement on the proposed project.

Geoenvironmental

NCDOT conducted a review of potential hazardous waste sites in the study area. The investigation found nine sites that may contain underground storage tanks (USTs) within the project limits. In

addition, two dry cleaners and one car wash site were identified. All identified sites were anticipated to present low geoenvironmental impacts to the project. These sites are shown in Figures 2 and 3.

Archaeological Resources

NCDOT evaluated the project Area of Potential Effects (APE) for potential archaeological resources in December 2015. It was determined that no intensive archaeological surveys were required. This satisfies Section 106 and GS 121-12(a) compliance requirements.

Historic Architecture Resources

NCDOT carried out surveys for historic architecture sites in April 2016. NCDOT determined that there were no National Register of Historic Places (NRHP) properties located in the APE and no resources of concern were located in the APE. This satisfies Section 106 and GS 121-12(a) compliance requirements.

Natural Resources

NCDOT completed a Natural Resources Technical Report (NRTR) for the project in October 2016. The NRTR includes an assessment of threatened and endangered species in the study area. Federally listed species listed in the study area are shown in Table 1.

NCDOT conducted mussel surveys in the project study area in April 2018. The federally endangered Carolina Heelsplitter (*Lasmigona decorata*) is listed for Mecklenburg County and is historically known from several locations within the Catawba and Pee Dee River systems in North Carolina. The results indicate that the evaluated portions of the study area streams do not appear to support freshwater mussel fauna. The Carolina Heelsplitter was not found during the surveys and is not expected to occur within the surveyed streams in the project study area.

Table 1. Federally Listed Species in Mecklenburg County

Scientific Name	Common Name	Federal Status	Habitat Present	Biological Conclusion
Myotis septentrionalis	Northern long-eared bat	Threatened	Unresolved	Unresolved#
Lasmigona decorata	Carolina heelsplitter	Endangered	Yes	No Effect
Rhus michauxii	Michaux's sumac	Endangered	Yes	No Effect
Helianthus schweinitzii	Schweinitz's sunflower	Endangered	Yes	No Effect
Echinacea laevigata	Smooth coneflower	Endangered	Yes	No Effect

Source: NCDOT 2015, 2018

#The USACE has developed a Standard Local Operating Procedure for Endangered Species (SLOPES) to address Northern Log-eared Bat (NLEB), Myotis septentrionalis, when they are the lead agency, which NCDOT will follow for this project. This procedure applies to projects in NCDOT Divisions 9-14. The requirements of the SLOPES for NLEB, in addition to the already completed structure assessment, will be completed prior to Let and will be submitted to USACE. The Biological Conclusion will remain as "Unresolved" until this additional information is available.

Potential stream resources in the expanded study area have been identified based on the project WET file and will be field verified by USACE prior to project permitting. These potential stream impacts are included in the impact tables for the alternatives.

Environmental Justice

NCDOT developed a Community Characteristics Report (CCR) in August 2015. At that time, data indicated a notable presence of minority and/or low income populations meeting the criteria for Environmental Justice within the Demographic Study Area (DSA). Census data did not indicate Limited English Proficiency (LEP) populations meeting the US Department of Justice LEP Safe Harbor threshold, but does indicate a Spanish language-speaking population and an Asian/Pacific language-speaking population exceeding 50 persons within the Demographic Study Area that may require language assistance. The opportunity for language assistance was provided at the public meeting.

Environmental Impacts

Potential impacts for the project alternatives were calculated using slope stake limits plus 40 feet (see Table 2).

Table 2. Potential Environmental Impacts

Resource	**Proposed NC 49 widening**	**Proposed BCCR Realignment**	
		Alternative 1 (Yellow)	**Alternative 2 (Purple)**
Schools	2 (UNCC, University Meadows Elementary (just north of study area on Pavilion Boulevard))	1 (University Meadows Elementary (just north of study area on Pavilion Boulevard))	1 (University Meadows Elementary (just north of study area on Pavilion Boulevard))
Recreation Areas and Parks	0	1 (Back Creek Regional Park (Planned by Mecklenburg County))	1 (Back Creek Regional Park (Planned by Mecklenburg County))
Existing and Proposed Greenway Crossings	0	1 (Back Creek Greenway (Planned by Mecklenburg County))	1 (Back Creek Greenway (Planned by Mecklenburg County))
Places of Worship	0	1 (Back Creek ARP Church)	1 (Back Creek ARP Church)
Major Utility Crossings	0	1 (Duke Energy transmission)	1 (Duke Energy transmission)
Historic Properties	0	0	0
Archaeological Sites	0	0	0
Federally Listed Species	5	5	5

100-year Floodplain and Floodway Crossings	0	1	1
Stream Impacts (Linear Feet)	40*	2,950*	2,580*
Stream Crossings (Number)	1	9	8
Wetland Impacts (Acres)	0.16**	0.6**	1.7**
Wetland Crossings (Number)	0	4	7
Estimated Residential Structures Impacted	2	1	0
Estimated Business Structures Impacted	11	0	0
Hazardous Materials Sites	8	0	0
Riparian Buffer Impacts	N/A	N/A	N/A
Wildlife Refuges/Gamelands	0	0	0
Estimated Noise Receptors	TBD	TBD	TBD
Federal Lands	0	0	0
Potential Low Income Population Impacts	Yes	Yes	Yes
Potential Minority Population Impacts	Yes	Yes	Yes
Potential National Heritage Areas (acres)	0	0	0
Conservation Easements	0	0	1

* Stream impacts reported to the nearest 10 feet, does not include bridges at Back Creek, slope stake limits buffered by 40 feet. Reduction of impacts with a bridge on Back Creek shown in Section 8.

** Wetland impacts reported to the nearest 0.1 acre, does not include bridges at Back Creek, slope stakes buffered by 40 feet. Reduction of impacts with a bridge on Back Creek shown in Section 8.

8. MERGER CONCURRENCE POINT 2A-BRIDGING DECISIONS AND ALIGNMENT REVIEW

Water Resources (from the NRTR)

Water resources in the study area are part of the Yadkin-Pee Dee River basin [US Geological Survey (USGS) Hydrologic Unit 03040105]. Fourteen streams were identified in the study area. The location of streams and major crossings are shown in Figures 2 and 3. Table 3 in the Appendix reviews information on stream and wetland impacts associated with the major crossings

Proposed Actions for Major Crossings

Existing conditions and preliminary recommendations for sites within the project corridor with an existing conveyance greater than that of a 72-inch pipe were evaluated for the Hydraulic Planning Report. Characteristics and proposed crossing structure data are shown in the appendix.

Site 1

Site 1 is a new location crossing that will convey Back Creek under the Alternative 1 (Yellow Alternative). The crossing on Back Creek is in the undeveloped area of the Newell Neighborhood. This site will convey 2,005 acres (3.13 mi^2) of Back Creek from west to east under the new alignment of BCCR. The proposed structure will need to accommodate a design year (25-year) discharge of 1,800 cubic feet per second

(cfs). For the base flood (100-year) event, the discharge is 2,200 cfs. Back Creek is a FEMA studied stream.

Based on the draft Hydraulic Planning Report, NCDOT recommends installing a three-span bridge with a minimum length of approximately 220 ft (50 feet, 75 feet, and 95 feet) using pre-stressed steel girders. The structure would be long enough to result in a no-rise for Back Creek, accommodate the proposed greenway, fit the proposed multi-use paths, and wide enough to accommodate the proposed roadway. The proposed bridge would reduce overall stream impacts of this alternative by approximately 251 feet, based on slope stake limits buffered by 40 feet (reduces impacts to Back Creek and a UT to Back Creek).

Site 2

Site 2 is also a new location structure that will convey a tributary of Back Creek under the Alternative 1 (Yellow Alternative), and is located approximately 1,250 ft south of Site 1. The new structure will convey 175 acres (0.27 mi^2) of a UT to Back Creek from south to north under the proposed BCCR alignment. The culvert has a design year (25-year) discharge of 240 cfs. For the base flood (100-year) event, the discharge is 300 cfs.

The preliminary analysis indicates that a 7 ft x 5 ft reinforced concrete box culvert (RCBC) has an adequate hydraulic conveyance for this site. Because this UT to Back Creek is a jurisdictional stream, the structure must be buried 1 foot for fish passage. Therefore, one 7 ft x 6 ft RCBC buried 1 ft at approximately 150 feet in length is the recommended structure for Site 2. NCDOT will explore potential alignment shifts in this location to minimize impacts. Shifts limited due to the desire to maintain a perpendicular crossing of the intersection of existing BCCR with the realigned facility.NCDOT also evaluated the possibility of a bridge at this location. Because a proposed intersection is located near the crossing, the first span of the bridge would need to be wider to accommodate turning movements. A retaining wall may be required at the intersection to tie in the bridge abutment. A secondary tributary would require relocation (and additional impacts), and the required structure would be a three-span bridge with a minimum length of 125 feet (35 feet, 50 feet, and 40 feet).

Site 3

Site 3 is an existing 45-foot I-beam bridge with wooden head walls/wing walls projecting from the embankment, which conveys 2,347 acres (3.67 mi^2) of Back Creek from west to east under BCCR and would be expanded under the Alternative 2 (Purple Alternative). Back Creek is a FEMA studied stream and has a base flood (100-year) discharge of 2,500 cfs at the site.

Between Site 3 and I-485, approximately 3525 ft of Back Creek is classified as an NCDOT Mitigation site. According to the Back Creek Mitigation Site Plan, the following was done: restoration of the 3,525 ft of Back Creek itself, restoration of 827 ft of secondary tributaries, restoration of 1.5 acres of jurisdictional wetlands, 1.8 acres of jurisdictional wetlands were enhanced, 0.5 acre of open water/freshwater marshes were created, and 17.5 acres of flood-prone areas were reforested. Any proposed bridge replacement would avoid impacts to the mitigation site. The proposed bridge would reduce overall reduce overall stream impacts for this alternative by approximately 193 feet, based on slope stake limits buffered by 40 feet. There would be a slight reduction in wetland impacts adjacent to the stream, which can be calculated once designs have been advanced.

Existing Bridge on Back Creek Church Road

The preliminary analysis indicates that widening the existing facility in this location would require a new structure and NCDOT recommends a bridge in this location. The recommended structure is a single span bridge 70 feet long with a 33-inch box beam.

Site 4

Site 4 is a 9 ft x 3 ft RCBC with a concrete headwall that conveys 41 acres (0.10 mi^2) of a UT to Back Creek from east to west under BCCR. The RCBC has a design year (25-year) discharge of 110 cfs. For the base flood (100-year) event, the discharge is 130 cfs. This site would be at the southern terminus of both proposed build alternatives.

This culvert is located at the southern end of the current limits of construction where the proposed improvements would tie-in to the existing facility. Current designs would not modify this culvert. If the design changes, the non-standard geometry of the current culvert would require additional evaluation, as NCDOT generally does not recommend culverts less than 5 feet deep. Regardless if the design was extended to include modifications of this culvert, the required new structure would be the same regardless of the alternative chosen, so would have no impact on the chosen Least Environmentally Damaging Practicable Alternative (LEDPA).

9. AVOIDANCE AND MINIMIZATION (ALIGNMENT REVIEW)

Measures to avoid and minimize impacts to jurisdictional waters of the U.S. were incorporated into the proposed best fit design of the project, particularly for the proposed realignment of BCCR. The presence of a proposed park, a proposed greenway, university properties, a conservation easement, and residential and commercial buildings were also taken into consideration when developing the proposed best fit concepts.

As was discussed above, NCDOT recommends that Alternative 1 include a bridge over Back Creek. The bridge is required to minimize impacts to the floodplain and floodway, to accommodate the grade at which the proposed facility would cross Back Creek, and to accommodate a proposed greenway along

Back Creek. Under Alternative 2, a new bridge is recommended to replace the existing BCCR bridge over Back Creek. NCDOT will examine options to reduce impacts at this location.

10. NEXT STEPS

Once concurrence is reached on CP 2A, NCDOT will prepare a Merger Application to trigger the USACE Public Notice. Based on the anticipated disadvantages of Alternative 2 (including the future park segmentation, conservation easement impacts, lesser operability) as well as the comparable stream/wetland impacts, NCDOT plans to recommend Alternative 1 (the Yellow Alignment) be considered the Least Environmentally Damaging Practicable Alternative (LEDPA) for this project. Coordination with the Corps and NCDWR will continue in between merger steps to prepare for our 404/401 permitting obligations. A combined CP3/CP4A meeting is tentatively scheduled in August for this project.

APPENDIX

- Figure 1 Project Vicinity
- Figure 2 Environmental Features with Alternative 1 (Yellow Alternative)
- Figure 3 Environmental Features with Alternative 2 (Purple Alternative)
- Signed CP1/CP2 Concurrence Forms
- Stream Crossing Information Table

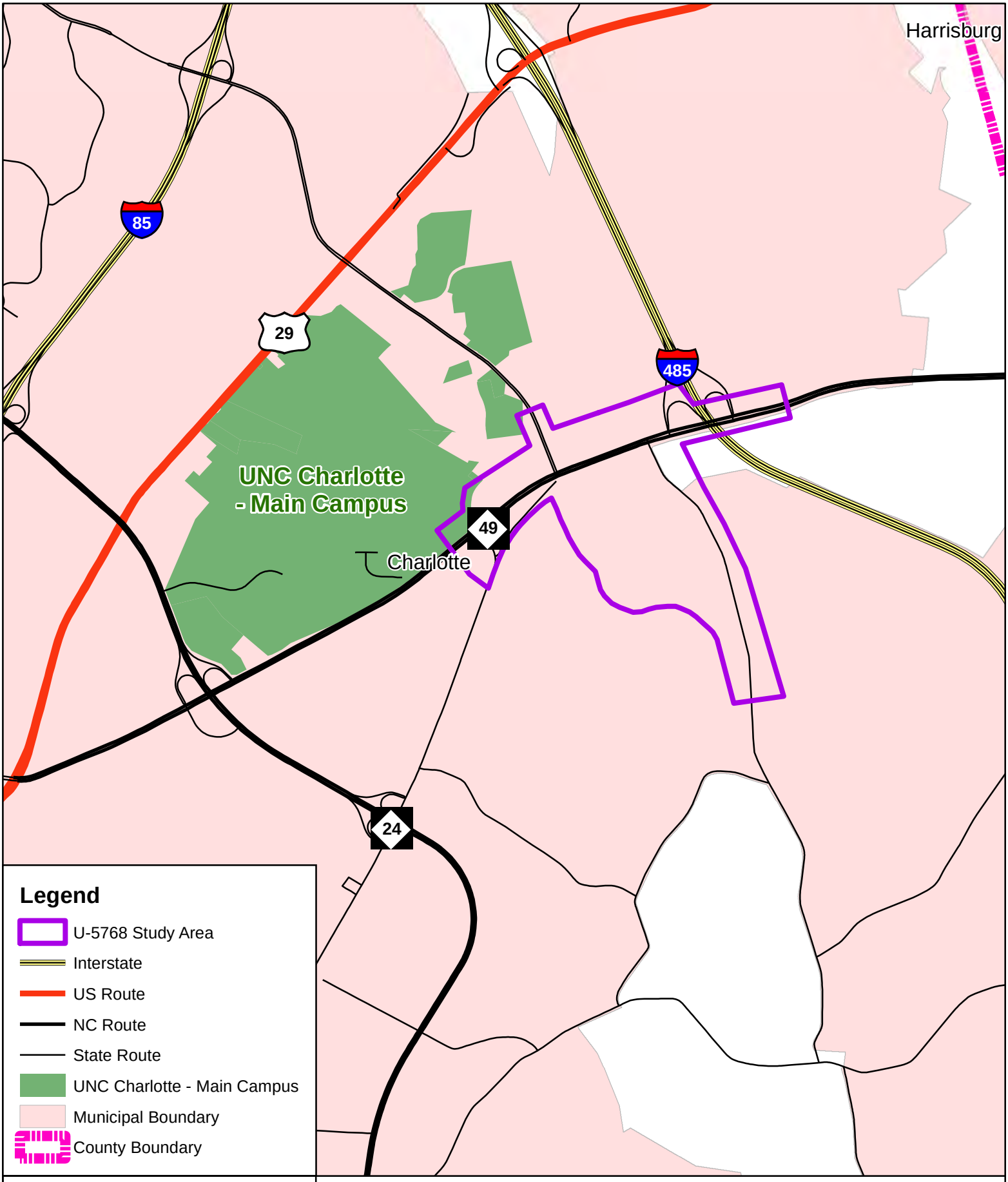


Figure 1:
Project Location Map
NC 49 Widening and Back Creek Church Road Realignment
STIP Project U-5768
Charlotte, Mecklenburg County

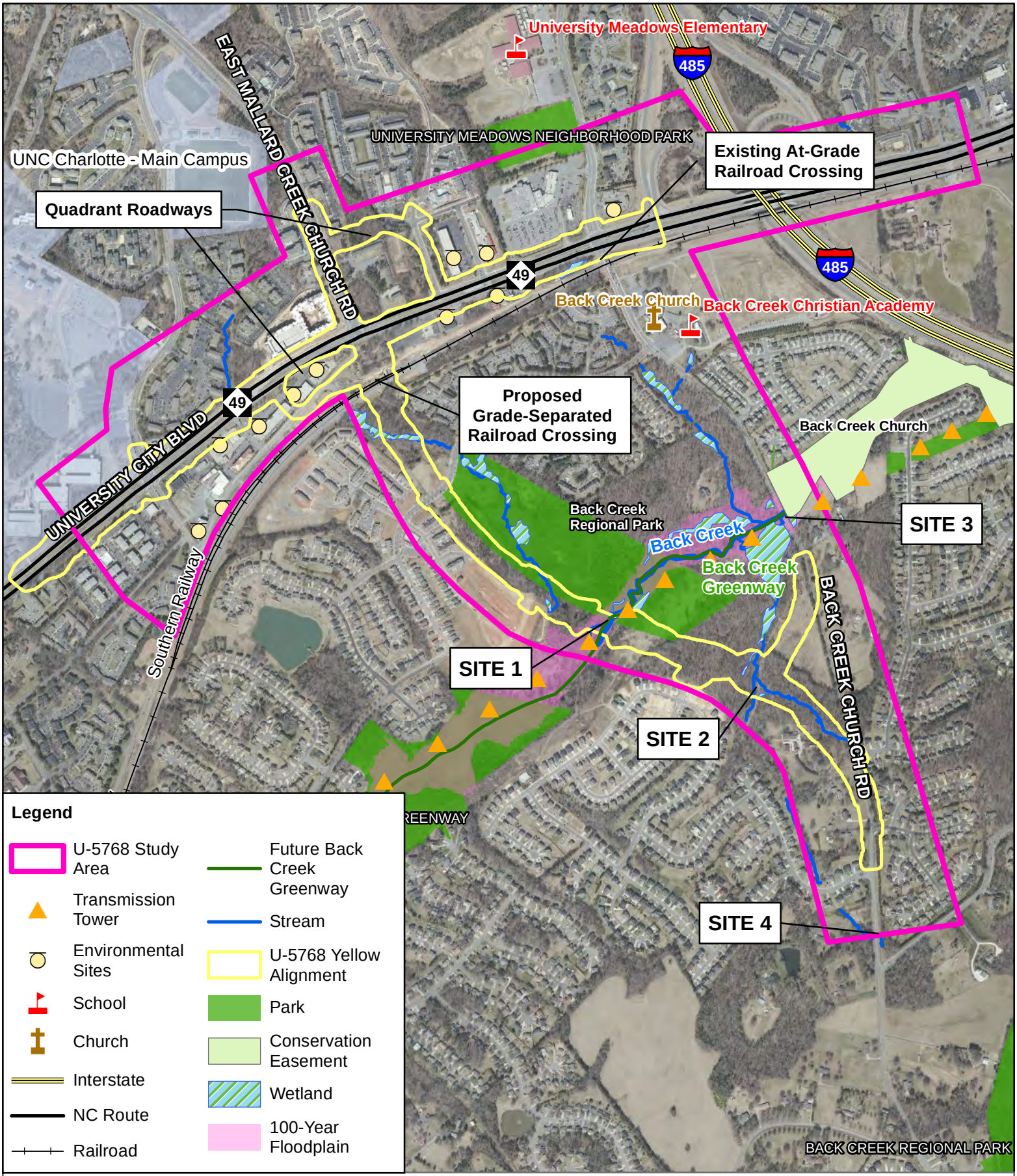


FIGURE 2
STIP U-5768
NC 49 Widening and Back Creek Church Road Realignment
Charlotte, Mecklenburg County

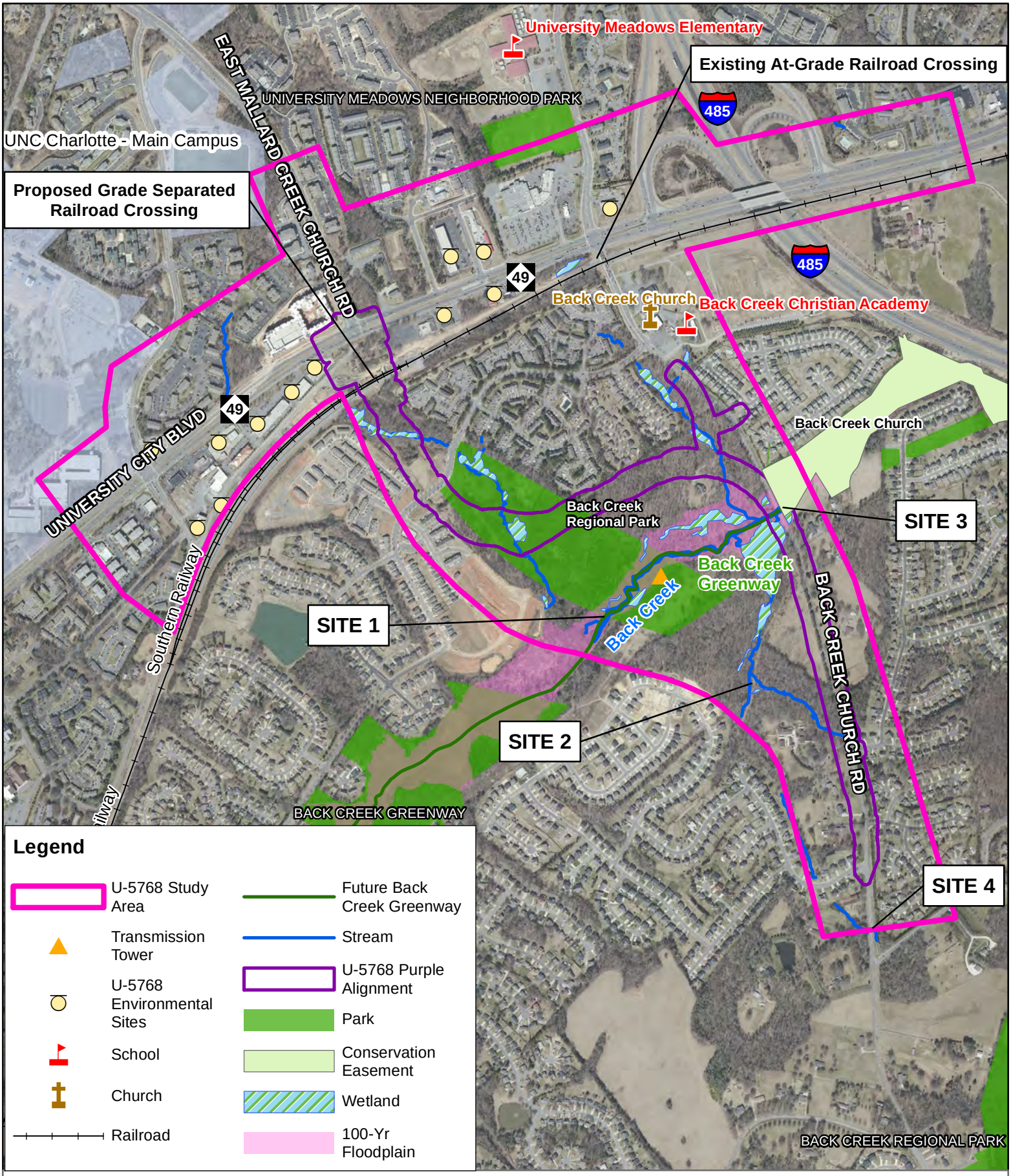


FIGURE 3
STIP U-5768
NC 49 Widening and Back Creek Church Road Realignment
Charlotte, Mecklenburg County
May, 2019

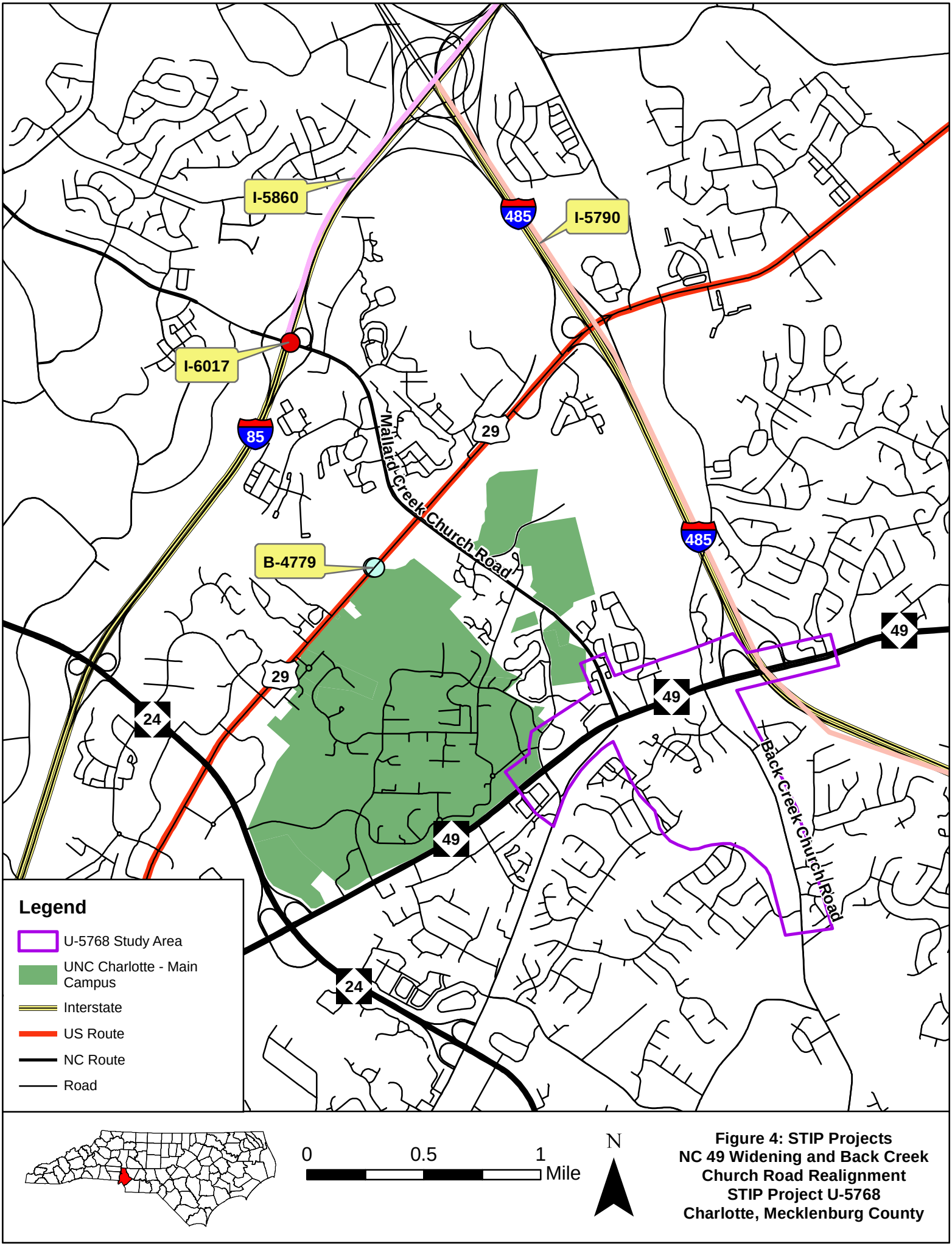


Figure 4: STIP Projects
NC 49 Widening and Back Creek Church Road Realignment
STIP Project U-5768
Charlotte, Mecklenburg County

NEPA/404 Merger Team Meeting Agreement

Concurrence Point Number 1: *Project Purpose and Need & Study Area Defined*

Project Description: N.C. 49 from John Kirk Drive to I-485 (widen existing roadway); realign Back Creek Church Road (S.R. 2827) on new location to the N.C. 49 and Mallard Creek Church Road (S.R. 2833) intersection; close existing at grade rail crossing at N.C. 49 and Back Creek Church Road, Charlotte, Mecklenburg County. **STIP Project: No. U-5768.**

Purpose and Need of Proposed Project

The needs to be addressed by this project include:

- N.C. 49 is currently operating at or close to congested levels.
- From 2000 through March 2016, there were six highway vehicle/train crashes at the NCRR/NS at-grade rail crossing on Back Creek Church Road just south of NC 49. Current typical train traffic as reported by Norfolk Southern is 38 trains per day, and train volumes are expected to double in the future, as this crossing is located within the proposed NCDOT Southeast High Speed Rail corridor.
- With the proposed closing of the S.R. 2827 (Back Creek Church Road) railroad crossing at NCRR/NS, the existing network connectivity between the Rocky River area to the south and N.C. 49 would be lost.
- Traffic volumes and lack of accommodations along N.C. 49 limit bicycle and pedestrian activity along regionally important multi-modal transportation routes. CDOT, UNCC, and University City Partners have cited the need to accommodate pedestrians and bicycles in any proposed improvement.

The primary purposes of the proposed project are to reduce traffic congestion, improve traffic flow, and enhance traffic operations on N.C. 49. Another purpose is to improve safety and enhance train and vehicle operations. The screening criteria for this are:

- Achieve an overall Level of Service (LOS) D for intersections along the project corridor in the design year (2040).
- Maintain connectivity from within the existing road network.
- Safely accommodate multi-modal uses of the corridor.

Project Study Area

The project study area boundaries are shown in Figure 1, dated May 2018. The study area varies along N.C. 49 to accommodate related traffic flow and connectivity improvements and includes the realignment Back Creek Church Road (SR 2827), as well as existing Back Creek Church Road.

The Project Team has concurred on the project purpose and need as stated above and the project study area as shown in Figure 1.

	Signature	Date
U.S. Army Corps of Engineers	Monte Matthews	19 July 2018
U.S. Environmental Protection Agency	DocuSigned by: Amanetta Somerville 4A37089ED457408...	7/19/2018
U.S. Fish and Wildlife Service	Marella Buncick	19 July '18
North Carolina Wildlife Resources Commission	Marla Chamblee	
North Carolina Division of Water Resources	DocuSigned by: Renee Gledhill-Earley	7/19/2018
North Carolina State Historic Preservation Office	DocuSigned by: Candice Rorie 52FB645743AB496...	7/30/2018
Charlotte Regional TPO		
North Carolina Department of Transportation	D. W. Allen	7-19-18

NEPA/404 Merger Team Meeting Agreement

Concurrence Point Number 2: *Preliminary Alternatives to be Studied in Detail*

Project Description: NC 49 from John Kirk Drive to I-485 (widen existing roadway); realign Back Creek Church Road (SR 2827) on new location to the NC 49 and Mallard Creek Church Road (SR 2833) intersection; close existing at grade rail crossing at NC 49 and Back Creek Church Road, Charlotte, Mecklenburg County. **STIP Project: No. U-5768**.

Alternatives for Detailed Study

- **No-Build Alternative**
- **Yellow Option**: Best-fit widening along NC 49, relocation of Back Creek Church Road to NC 49 at Mallard Creek Church Road using the railroad bridge constructed as part of STIP Project P-5208, and traffic flow and connectivity improvements to Old Concord Road (SR 2939) and Thomas Combs Drive
- **Purple Option**: Relocation of Back Creek Church Road north of the existing Back Creek crossing to NC 49 at Mallard Creek Church Road using the railroad bridge constructed as part of STIP Project P-5208.

The following BCCR alignment options were discussed and removed from detailed consideration (note that all options include best-fit widening along NC 49):

- **Blue Option**: Improve existing Back Creek Church Road (best-fit widening) to span NCRR and NC 49, construction of a loop/ramp to connect Back Creek Church Road (SR 2827) and Pavilion Boulevard to NC 49, best fit widening along Pavilion Boulevard, and a new location connector to Mallard Creek Church Road from Pavilion Boulevard.
- **Orange Option**: Relocation of Back Creek Church Road at a more westerly location to connect with NC 49 at John Kirk Drive (SR 2833), construction of a grade-separated crossing at NCRR south of NC 49, and improvements to John Kirk Drive north of NC 49.
- **Red Option**: Relocation of Back Creek Church Road at a more westerly location, using the railroad bridge constructed as part of STIP Project P-5208 and intersecting NC 49 at Mallard Creek Church Road.

The Project Team has concurred with the detailed study alternatives listed above.

	Signature	Date
U.S. Army Corps of Engineers		19 July 2018
U.S. Environmental Protection Agency	DocuSigned by: Amanetta Somerville 4A37089ED457408...	7/19/2018
U.S. Fish and Wildlife Service		19 July '18
North Carolina Wildlife Resources Commission	Marla Chambers	
North Carolina Division of Water Resources		
North Carolina State Historic Preservation Office	DocuSigned by: Renee Gledhill-Earley	7/19/2018
Charlotte Regional TPO	DocuSigned by: Candice Rorie 52FB645743AB496...	7/30/2018
North Carolina Department of Transportation		7-19-18

Table 3. Stream and Wetland Impacts Table

Site	Name/ Map ID	Alternative	Existing Structure	Proposed Structure	Estimated Cost	Intermittent or Perennial	Classification	Drainage Area	Channel Dimensions	Impacts to Streams/ Wetlands
1	Back Creek/ SC	Yellow	None	3-Span, 220 ft. bridge	Bridge $4,232,000	Perennial	C	2,005 acres (3.13 mi^2)	11 feet wide	Reduces stream impacts 251 feet 0 acres wetland reduction
2	UT to Back Creek/ SL	Yellow	None	7 foot-by 6-foot RCBC 150 feet in length	Culvert $232,000 Bridge $3,439,000	Perennial	C	175 acres (0.27 mi^2)	8.5 feet wide 24 inches deep	150 feet 0 acres wetlands
3	Back Creek/ SC	Purple	One 45-foot Steel I-Beam Bridge	Single-span 70 ft bridge.	Bridge $1,255,000	Perennial	C	2,347 acres (3.67 mi^2)	15 feet wide 72 inches deep	Reduces stream impacts 193 feet' minor wetland reduction
4	UT to Back Creek/ SL	Yellow and Purple	One 9-foot by 3-foot RCBC	Currently, no changes anticipated		Perennial	C	41 acres (0.10 mi^2)	3.5 feet wide	None 0 acres wetlands