

**LEAST ENVIRONMENTALLY DAMAGING  
PRACTICABLE ALTERNATIVE (LEDPA) AND  
AVOIDANCE AND MINIMIZATION  
FOR NC 49 IMPROVEMENTS**

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 U-5768**

North Carolina Department of Transportation  
And  
Charlotte Department of Transportation



**MERGER CONCURRENCE POINTS 3 AND 4A**

**August 16, 2019**

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Mecklenburg County Park Information

Signed CP1, CP2, and CP2A Concurrence Forms

## 1. PURPOSE OF THE MEETING

The purpose of this meeting is to reach concurrence on an extension of the project study area (CP1), Least Environmentally Damaging Practicable Alternative (CP3), and Avoidance and Minimization Measures (CP4A) for the subject project.

## 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 SR 2827 (Back Creek Church Road) (BCCR) to intersect with NC 49 at SR 2833 (Mallard Creek Church Road). The current at-grade intersection of BCCR and North Carolina Railroad/Norfolk Southern Railroad just south of NC 49 will be closed in conjunction with these improvements. The project location is shown in **Figure 1** and the Environmental Features are shown in **Figures 2 and 3**.

## 3. PROJECT STATUS, BACKGROUND, SCHEDULE, AND COST

The project is included in the 2018-2027 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 N.C. 49 and the proposed realignment of BCCR are included in the 2017 Charlotte Regional Transportation Planning Organization (CRTPO) Comprehensive Thoroughfare Plan and the 2045 CRTPO Metropolitan Transportation Plan.

The following STIP projects are located in the vicinity of U-5768:

- 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).

In addition to these projects, a developer is installing a pedestrian improvements west of the project study area at the intersection of University City Boulevard and Suther Road.

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 Back Creek Church Road. 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.

### *Merger History*

The first Merger Meeting for the project was held on November 16, 2017, with the goal of obtaining reaching agreement on Concurrence Points 1 and 2 (Purpose and Need and Study Area Defined, and Design Options for Detailed Study). 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. The second Merger Meeting was held on July 19, 2018. At this meeting, concurrence was achieved for Concurrence Points 1 and 2. Alternatives carried forward were:

- No-Build Alternative.
- Alternative 1 (Yellow Option) Best-fit widening along NC 49; relocation of BCCR 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 2930) and Thomas Combs Drive.
- Alternative 2 (Purple Option) includes the same improvements as above to NC 49, Old Concord Road, and Thomas Combs Drive, with the relocation of BCCR north of the existing Back Creek crossing to NC 49 at Mallard Creek Road using the railroad bridge constructed as part of STIP Project P-5208.

The third Merger Meeting was held on June 13, 2019 with the goal of reaching agreement on Concurrence Point 2A (major crossing structures and alignment review). During the meeting, there was a request for additional information on the bridging and culvert options of one crossing. The information was provided to the team on June 20<sup>th</sup>, and subsequent meeting was held on June 24<sup>th</sup>. Formal concurrence and the concurrence form signatures were obtained on July 10, 2019. Agreed upon major crossing structures are:

- Site 1 (Alternative 1) construct a new three-span bridge approximately 220 feet long.
- Site 2 (Alternative 1) construct a new reinforced concrete box culvert extending approximately 150 feet.
- Site 3 (Alternative 2) replace the existing bridge with a single-span bridge approximately 70 feet long (based on the hydraulics report). NCDOT will coordinate with Mecklenburg County and CDOT and will revise the length to 90 feet to accommodate the proposed Back Creek Greenway, contingent on a municipal agreement.
- Site 4 (Alternatives 1 and 2), if the project construction limits are expanded and extension or replacement of the culvert at Site 4 is required, the Merger Team will be informed and will have an opportunity to agree upon an appropriate crossing structure.

### *Project Schedule*

The tentative project schedule is shown below (these dates are preliminary and subject to change).

- |                             |                |
|-----------------------------|----------------|
| • Project Technical Reports | 2017 – 2019    |
| • Public Meeting            | April 2019     |
| • Combined SEA/FONSI        | September 2019 |
| • Design Public Meeting     | October 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 \$52,590,000 to 59,191,000
- **Total Cost \$58,115,000 to \$64,716,000**

## **Public Involvement**

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. Meetings were held on November 29, 2016, May 30, 2017, April 9, 2019, and July 2, 2019. In addition to these meetings, UNCC and UCP participated in a meeting with CDOT on the typical section for the proposed NC 49 improvements on April 11, 2018. One issue of particular concern to UNCC and UCP are bicycle and pedestrian accommodations through the project corridor.

On April 23, 2019, a public meeting was held to inform the public about the proposed project and obtain input. A project website has been developed, which includes a survey seeking input on how users interact with the corridor. Comment forms included a question on their preferred alternative for the realignment of BCCR. To date, of those commenters expressing a preference, 16 preferred Alternative 1 (Yellow Option) and one preferred Alternative 2 (Purple Option).

In addition to these meetings, additional small group meetings are being scheduled with representatives from local homeowners associations, and additional coordination will be held with UNCC and UCP. A second public meeting will be held after determination of LEDPA.

USACE is in the process of posting a public notice for the project, which includes a 30-day comment period which expires on August 20, 2019. Concurrence and signatures for CP3 and 4A will need to be formally documented after the USACE comment period has ended.

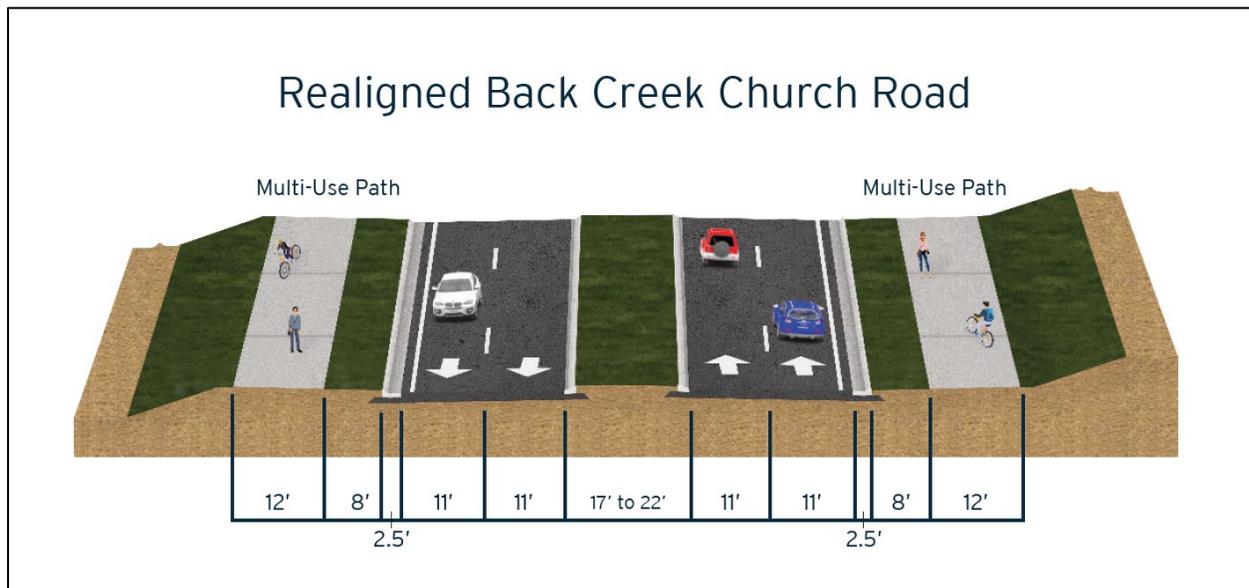
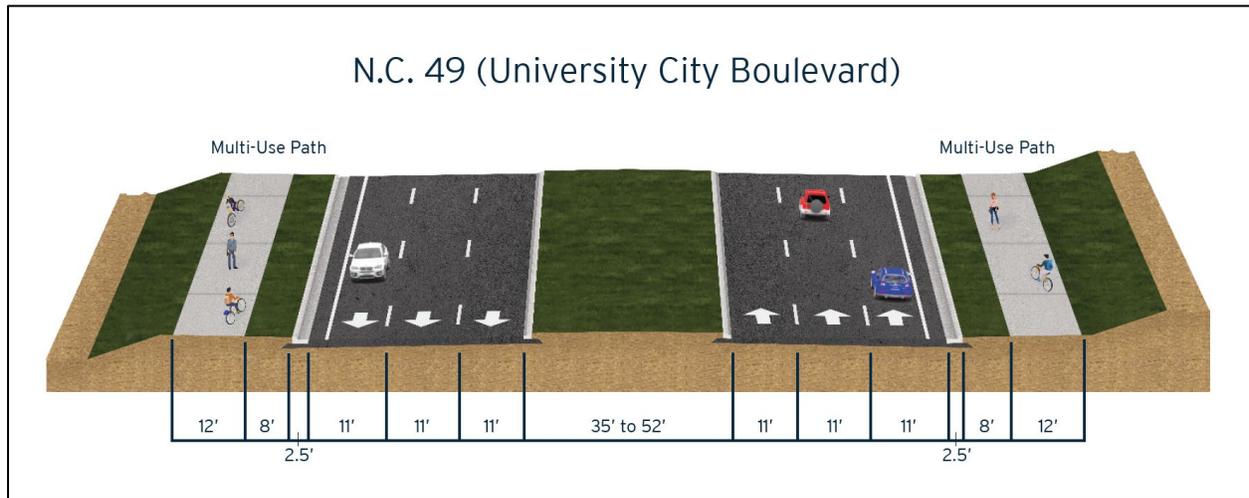
## **4. CONCEPTS RECOMMENDED FOR DETAILED STUDY**

Based on the July 19, 2018 concurrence, the following alternatives were carried forward for detailed study:

- 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 of comparison.
- Alternative 1 (Yellow Option): Best-fit widening of NC 49; relocation of BCCR to the intersection of NC 49 and 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 and Thomas Combs Drive.
- Alternative 2 (Purple Option): Best-fit widening of NC 49; relocation of BCCR to the intersection of NC 49 and Mallard Creek Church Road north of the existing crossing of BCCR using the railroad bridge constructed as part of STIP Project P-5208; and traffic flow and connectivity improvements to Old Concord Road and Thomas Combs Drive.

## Typical Sections

Typical Sections for the proposed project are shown below:



## 5. CONCURRENCE POINT 1 REVISION – PROJECT STUDY AREA DEFINED

Based on the traffic analysis update, there was a need to increase storage lengths for left turns from eastbound NC 49 to John Kirk Drive and for drivers who wish to travel eastbound on NC 49 from John Kirk Drive using the proposed U-turn bulb at the western terminus of the project. In addition, the taper from the westbound NC 49 U-turn bulb was lengthened. These revisions, shown in **Figure 4**, are accommodated largely within existing NCDOT right of way, with the exception of the U-turn bulb out and areas of the multi-use path and add approximately 4 acres to the study area. This additional right of way does not increase overall stream or wetland impacts for the study area and does not result in additional residential or business relocations. The revisions to the study area were based off of slope stakes and easement.

## **6. CONCURRENCE POINT 3 – LEAST ENVIRONMENTALLY DAMAGING PRACTICABLE ALTERNATIVE**

The detailed study alternatives were evaluated as described below. Table 2 presents detailed comparisons of project impacts. The impacts from streams and wetlands are defined as the slope stake limits plus a 40-foot buffer.

### ***Parks, Recreation Facilities, and Conservation Easements***

Mecklenburg County has identified a proposed public park in the study area (see enclosed Initial Biodiversity Assessment developed by Mecklenburg County). The park would include minimal facilities, but would serve as a trail head for the proposed Back Creek Greenway. According to this Assessment, the future park property “falls within the Back Creek Corridor Natural Heritage Site” and is “recommended for protection as a county nature preserve”. In the biological assessment for the park (enclosed), the report notes several mature forest stands; “also observed was a woodland pool, which may be providing important breeding habitat for several amphibian species, p. 2).

It is anticipated that the park would provide restroom, picnic, and parking facilities but would remain largely wooded, with some trails. The park property is anticipated to include few developed 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 parcel area for the park was acquired more than 5 years ago with the intent of becoming a natural area or park. The proposed park was envisioned to be accessible via the relocated BCCR in Alternative 1 (Yellow Option) with parallel impacts based on slope stakes of 1.7 acres. Alternative 1 (Yellow Option) would also accommodate the proposed Back Creek Greenway.

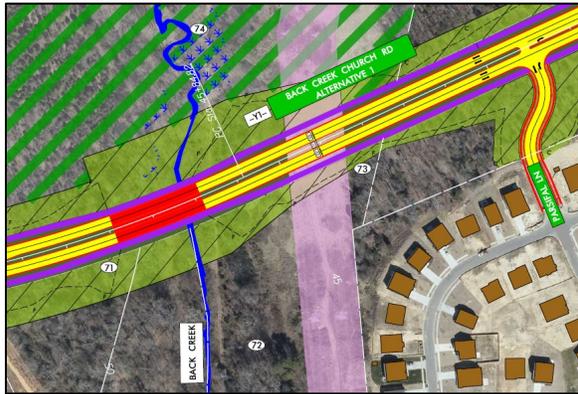
Alternative 2 (Purple Option) would divide the proposed park. Of the 33.4 acres proposed for the park, Alternative 2 would impact 4.4 acres based on slope stake limits plus 40 feet. This would create two distinct smaller park areas, a northern parcel of 7.7 acres and a southern parcel of 21.2 acres. These Alternative 2 impacts include the most heavily forested portions of the proposed park.

There is a conservation easement for a stream restoration project on existing BCCR extending from the bridge over Back Creek. Alternative 2 (Purple Option) would tie in to existing BCCR north and to the west of that bridge to avoid impacts to the easement.

### ***Major Utility Crossings***

There are major utilities in the corridor along NC 49. There is a Duke Energy power line easement south of Back Creek running east to west that would impact both BCCR build alternatives. As shown in the inset, construction of the Back Creek bridge for Alternative 1 would take place outside the utility easement (in purple). Construction of a replacement bridge crossing Back Creek for Alternative 2 would require encroachment into the utility easement. NCDOT and Duke Energy would need to coordinate for on the potential use of cranes for the bridge replacement for Alternative 2. NCDOT policy is to avoid to the extent practicable the use of cranes near existing transmission easements.

Inset



Alternative 1 Bridge and Power Easement



Alternative 2 Bridge and Power Easement

### ***Geoenvironmental***

NCDOT conducted a review of potential hazardous waste sites in the study area in September 2015. The investigation found nine sites that may contain petroleum underground storage tanks (USTs) within the project limits. Note, this is a correction from the CP2A merger packet. 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. 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. At that time, it was determined that no intensive archaeological surveys were required.

### ***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 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.

**Table 1. Federally Listed Species in Mecklenburg County**

Scientific Name	Common Name	Federal Status	Habitat Present	Biological Conclusion
<i>Myotis septentrionalis</i>	Northern long-eared bat	Threatened	Unresolved	May Affect Not Likely to Adversely Affect; NLEB exempt from Section 7 Consultation under the 4(d) rule
<i>Lasmigona decorata</i>	Carolina heelsplitter	Endangered	Yes	No Effect
<i>Rhus michauxii</i>	Michaux's sumac	Endangered	Yes	No Effect
<i>Helianthus schweinitzii</i>	Schweinitz's sunflower	Endangered	Yes	No Effect
<i>Echinacea laevigata</i>	Smooth coneflower	Endangered	Yes	No Effect

Source: NCDOT 2015, 2018

Potential stream resources in the expanded study area have been identified through surveys. Jurisdictional determinations have not been made for these streams. These potential stream impacts are included Table 2. The total stream impacts for Alternatives 1 and 2 were reduced based on bridging decisions concurred upon at CP2A. Subsequent to the CP2A meeting, design modifications were made to minimize impacts to a parallel stream impact for Crossing 2, as per our conversation with the Merger Team. Using slope stake limits plus 40 feet, design modifications reduced impacts to the unnamed tributary (UT) by 60 feet for Alternative 1.

**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.

**Impact Tables**

Potential impacts for the project alternatives for streams and wetlands were calculated using an impact area of slope stake limits plus 40 feet (see Table 2).

**Table 2. Potential Environmental Impacts**

Resource	NC 49 widening	BCCR Alternative 1 (Yellow Option)	BCCR Alternative 2 (Purple Option)
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))
Proposed Back Creek Park Accommodation	0	Yes	No
Proposed Back Creek Park Impacts* (Acres)	0	1.7	4.4
Existing and Proposed Greenway Crossings	0	Back Creek Greenway (Planned Mecklenburg County)	Back Creek Greenway (Planned Mecklenburg County)
Places of Worship	0	1 (Back Creek ARP Church)	1 (Back Creek ARP Church)
Major Utility Crossings	0	1	1
100-year Floodplain and Floodway Crossings	0	1	1
Stream Impacts* (Linear Feet)	0**	2,640**	2,390**
Stream Crossings (Number)	1	9	8
Wetland Impacts* (Acres)	0.2***	0.6***	1.7***
Wetland Crossings (Number)	0	4	7
Stream Mitigation Sites	0	0	1
Estimated Residential Structures Impacted	2	1	0
Estimated Business Structures Impacted	11	0	0
Noise Impacts	TBD	TBD	TDB
Hazardous Materials Sites	12	0	0
Potential Low Income Population Impacts	Yes	Yes	Yes
Potential Minority Population Impacts	Yes	Yes	Yes
Conservation Easements	0	0	1

**Table 2. Potential Environmental Impacts**

Resource	NC 49 widening	BCCR Alternative 1 (Yellow Option)	BCCR Alternative 2 (Purple Option)
Estimated Construction Costs <sup>#</sup>	\$35,942,000	\$23,239,000	\$16,648,000

\* Impacts calculated based on slope stake limits plus an additional 40 feet.

\*\* Stream impacts reported to the nearest 10 feet, includes agreed upon bridges at Back Creek for both alternatives

\*\*\* Wetland impacts reported to the nearest 0.1 acre

<sup>#</sup> Costs estimated by HNTB in June 2019

**Recommended Preferred Alternative**

Based on NCDOT’s evaluation, Alternative 1 (Yellow Option) has the following:

- Provides Operational alignment advantages (better horizontal alignment)
- Avoids stream mitigation site easement
- Accommodates the proposed Back Creek Park while avoiding impacts
- Allows connections several subdivisions including Villages at Back Creek, University Commons, and Wyndham Place
- Accommodates proposed Back Creek Greenway trailhead in the proposed park
- Require fewer residential property impacts

For these reasons, NCDOT is recommending Alternative 1 (Yellow Option) as its Preferred Alternative.

**7. CONCURRENCE POINT 4A – AVOIDANCE AND MINIMIZATION**

Measures to avoid and minimize impacts to potential jurisdictional waters of the US were incorporated into the best fit design of NC 49 and to the realignment of BCCR. The presence of proposed parks, university properties, and residential and commercial buildings were also taken into consideration when developing the best fit alignment. NCDOT has agreed to include bridges at Sites 1 and 3 for Alternatives 1 and 2, respectively.

As previously discussed, the horizontal alignment for Alternative 1 at the crossing of Site 2 was modified to minimize impacts to a UT to Back Creek. Buffered impacts for Site 2 were reduced by 60 feet. As designs are refined, additional reductions to stream and wetland impacts for the Preferred Alternative are anticipated.

Based on current design, 3:1 slopes are currently recommended. Based on geotechnical input later in the design process, 2:1 slopes will be considered as appropriate. At this time, no retaining walls have been explored. Currently, the project area offers no substantive on-site mitigation options within proposed right of way. Initial evaluations of culvert and bridge designs were provided in the supplemental information for CP2A, and this information will be further refined during the design process.

## **APPENDIX**

- Figure 1 Project Vicinity
- Figure 2 Environmental Features with Alternative 1 (Yellow Alternative)
- Figure 3 Environmental Features with Alternative 2 (Purple Alternative)
- Figure 4 Revised Study Area
- Mecklenburg County Park Information
- Signed CP1, CP2, and CP2A Concurrence Letters