

# Transportation Staff Meeting

February 6, 2012  
2:00 PM  
601

## AGENDA

**1. MOU Revisions (Cook)**

Description:

Discussion of key issues being discussed by the MOU Subcommittee.

**2. Comprehensive Transportation Plan (Gibbs/Newsome)**

Description:

TCC staff has previously discussed the CTP Public Transportation and Rail Map's definitions and assumptions. This discussion is intended to finalize the rail-related items/questions that were raised in the previous discussion.

**3. Charlotte Region Managed Lanes Study—Phase 3 (Gibbs/Purnell)**

Description:

The consultant working on Phase 3 of the Managed Lanes Study will share information on their general and public opinion findings. Specific corridor recommendations will also be presented.

**4. Environmental Assessment Comments: I-3311C, I-5405 & I-4750 HOT (Coxe)**

Description:

Comments on the EA for the I-77 projects are due February 11. It was decided at the January 30 Transportation Staff meeting that there was no need to prepare new comments since comments made in the past cover all pertinent issues.

Attachments:

- draft cover letter
- comments to be sent to PDEA

The TCC will be asked to endorse the comments at its February 7 meeting.

**Access number: 704-432-5486**



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Charlotte, NC 28202  
704-336-2205  
www.mumpo.org

February 7, 2013

Eric Midkiff, PE  
NCDOT PD&EA Branch  
1548 Mail Service Center  
Raleigh, NC, 27699-1548

Subject: TCC Comments on Environmental Assessment for Consolidated TIP Projects  
I-3311C, I-5405, and I-4750(HOT)

Dear Eric:

The Mecklenburg-Union Technical Coordinating Committee (TCC) is pleased to offer its comments for consideration in the development of a consolidated environmental assessment for TIP projects I-3311C, I-5405, and I-4750 (HOT.) We offer these comments mindful of the fact that beginning in late March, the Metropolitan Planning Organization (MPO) that we advise will be responsible for transportation planning within the entire urban area which stretches north of Statesville in Iredell County.

We truly appreciate the significant and ongoing communications among our team and yours and offer these comments in that spirit. Furthermore, we commend NCDOT for pursuing a unified environmental document for these three projects. Rather than repeating verbatim the comments that have already been submitted, we have chosen to append them to this document and highlight certain issues in this cover letter.

- 1) The proposed three projects represent a partial investment in the overall transportation needs in the corridor between Charlotte and Statesville. At the risk of flogging this horse into dog food, without a strategic vision for addressing the transportation needs in a holistic fashion, it is not possible to judge this proposal on its value in meeting the needs.
- 2) The only strategic vision in the corridor, the 2001 I-77 Sub-Area Study, discussed in our October 4, 2012 memo, covers the corridor between Charlotte and Mooresville but does not extend to Statesville. This study calls for substantially more improvements in the corridor than proposed in the current project. How does the proposed project and procurement process help to achieve this vision?

- 3) The 2017 analysis year for the environmental document does not offer the ability to judge the performance, impacts, and transportation value return on investment over the potential 50 year concession period of the current procurement proposal. The need for additional investments in the corridor and the impact of the proposed project on the ability to deliver these investments should be evaluated.
- 4) This evaluation should not be limited to the physical ability to construct additional improvements parallel or crossing this project. The innovative P3 process and the private sector control for a potential 50 year period with the inherent focus on fiscal return on investment should be thoroughly compared to public control of the investment with the potential return on investment having a greater focus on public purpose.
- 5) The current P3 procurement calls for submittal on the basis of one project type, identified in your scoping letter as Alternative 2. The transportation benefits compared to the funding potential for all alternatives need to be fairly evaluated.
- 6) At the most basic level, under the current proposed TIP and P3 procurement projects, motorists will experience a variety of through lane offerings. Traffic northbound from Charlotte to Statesville will experience 3 general purpose lanes plus 2 HOT lanes to I-485 (Exit 19,) then 2 GP lanes plus 2 HOT lanes to Catawba Ave. (Exit 28,) then 2 GP lanes plus 1 HOT lane across Lake Norman to Langtree Rd. (Exit 31,) then 3 GP lanes plus 1 HOT lane to north of Williamson Rd (Exit 32,) then back to 2 GP plus 1 HOT to just south of the new Brawley School Rd interchange (Exit 35,) then back to 3 GP plus 1 HOT to the NC 150 interchange (Exit 36,) then 4 GP lanes to I-40. If all of this length is truly one urban area, the discontinuity of lanes and lane management should be fully evaluated. How should the current project be integrated with I-4750 north of Mooresville?
- 7) Between Charlotte and Statesville, the citizens of our area and users of our transportation system do not understand or care about funding regions and Equity formulas. Regardless of the level of truth in the matter, there is substantial citizen belief that needs of this metropolitan region are not being met while funds flow to areas of the State that have lesser transportation needs. Alterations in number of lanes and how those lanes are managed including user fees must be based on clearly communicated analysis and strategies.
- 8) The TCC firmly believes that managed lanes are an integral tool in the implementation and management of the capacity and reliability needs of the freeways and highest order expressways in our system. The manner in which this specific project is governed must be integrated into an overall strategy for managing similar projects within the MPO's purview.
- 9) In the midst of these strategic issues, we still need to address the more specific issues raised in the attached communications. These include but are not limited to:
  - a. evaluation of the impacts of additional traffic on the existing interchanges,
  - b. accommodation of non-motorized modes of travel in crossings or parallel facilities within the corridor,
  - c. impacts on the communities along I-77 north of the Brookshire Freeway,
  - d. how the direct access to the Brookshire Freeway interfaces with the travel needs of the users of the HOT lanes,
  - e. integration with future projects crossing the corridor, and



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- f. interaction with potential future interchanges in the corridor, both general use and potential HOT lane use only.
- g. new comments have been received from the Charlotte-Mecklenburg Police Department and are appended.

We again wish to express our appreciation of the interaction we have had with DOT and your consultants over the past year's discussion of this project. We look forward to continuing this collaboration. Finally, although our comments are officially endorsed by the currently constituted TCC, they have been coordinated with our peers in Iredell County.

Sincerely,

William S. Coxe  
Chair, Mecklenburg-Union TCC

attachments

1st Draft, Feb. 5, 2013



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March 2, 2012

Eric Midkiff, PE  
Project Development Section Head, Central Region  
North Carolina Department of Transportation  
1548 Mail Service Center  
Raleigh, North Carolina 27699-1548

SUBJECT: Response to Request for Comments, TIP Project I-5405

Dear Mr. Midkiff:

Attached please find comments on TIP project I-5405 from the Technical Coordinating Committee (TCC) of the Mecklenburg-Union Metropolitan Planning Organization (MUMPO). These comments were endorsed by the TCC at a meeting held on Thursday, March 1, 2012.

Sincerely:

A handwritten signature in blue ink that reads "William S. Coxe". To the right of the signature, the initials "wsc" are written in a smaller, cursive script.

William S. Coxe  
TCC Chairman



## MECKLENBURG-UNION TCC I-5405 Comments

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### **PURPOSE & NEED**

1. The purpose and need statement for the project should be:
  - a. developed in partnership with local entities;
  - b. developed in the overall context of a (currently non-existent) strategic national, state, and regional vision for the I-77/NC 115/Norfolk-Southern "O" line corridor between Charlotte and Statesville. This strategic vision should be developed to guide the incremental investment decisions to be made in the corridor; and
  - c. the only existing guidance for a strategic vision of the corridor may be found in the 2001 I-77 Sub-Area Study which can be downloaded from the MUMPO website at <http://www.mumpo.org/PDFs/I-77/I-77Sub-AreaStudyFinalReport.pdf>
  - d. What are the assumptions regarding corridor air quality benefit/dis-benefit of Alternative 1 and Alternative 2? Is it anticipated that this improvement will increase, decrease, or have a negligible impact on the corridor's air quality?

### **GENERAL**

1. The project's study area boundary is insufficient. While it is recognized that the project's intent is to construct any new lanes in the median, a study area that takes in only the construction project limits and existing ROW is still far too narrowly defined.
2. Stopping the northern project limits at Exit 28 (Catawba Ave.) is very likely to create significant congestion on the I-77 between Exit 28 and Exit 30 (Griffith St. / Davidson). Traffic flow, safety, and air quality could worsen north of the described project limits.
3. Please confirm that there will not be any right of way acquisition and all construction will be within the existing median.
4. Substantial local support exists to extend this project north from Exit 28 to the currently widened section just south of the Langtree Rd. interchange (Exit 31) in Iredell County. There appears to be more than sufficient room on the causeways to add at least one lane without impacting the footprint of the causeways. This lane could be a reversible

HOT lane or permanently one direction based on appropriate analysis. Why is the extension not included?

5. The MUMPO 2035 Long Range Transportation Plan calls for additional bridges across I-77 north and south of the Exit 25 (NC 73) interchange (not including those in the I-77/NC 73 interchange study). Will the ability to construct these bridges at a later date be precluded or made more expensive by the current project?
6. The operational goals of the HOT lane investment are crucial to their cumulative and secondary impacts, as well as the analysis of the project from an air-quality conformity standpoint. They cannot be separated from the discussion of the alternatives or from the project financing method. Profit maximization goals could be a requirement for private participation in the project and could result in a different outcome than goals that maximize person through-put (multi-modality), high level of service, and high quality of maintenance. How can the decision about financing be separated from the project selection decision?

### **NATURAL ENVIRONMENT**

1. How will construction affect our streams and watershed?
2. How will drainage be handled due to increased impervious surfaces?
3. Will all trees within the median be removed? If so, will any vegetation be replaced along remaining median or along edge of right of way?
4. What type and size of vegetation will be planted?
5. What size of vegetation will be planted?
6. Stormwater and mitigation effects of increased lane width/number should be undertaken (with adequate measures identified).
7. What are the assumptions regarding corridor air quality benefit/dis-benefit of Alternative 1 and Alternative 2? Is it anticipated that this improvement will increase, decrease, or have a negligible impact on the corridor's air quality?

### **HISTORIC PROPERTIES**

1. Impact upon the following historic properties should be assessed:
  - Williams Memorial Presbyterian Church – 4700 Beatties Ford Rd.
  - Elmwood/Pinewood Cemetery – 700 W. 6<sup>th</sup> Street
  - Oaklawn Cemetery – 1600 Oaklawn Ave.

## **TRAFFIC & TRANSIT OPERATIONS**

1. The existing interchanges at exits 16 (Sunset Rd.), 23 (Gilead) and 25 are significant contributors to travel time delays in the corridor due to situations such as outdated designs, or proximity to Y-line intersections with US 21, etc. To not include the interchanges in the corridor's analysis is a major flaw and should be reconsidered.
2. The feasibility of bus-only interchanges should be analyzed.
3. If HOV 3+ is determined to be the most feasible alternative, what, if any, impacts will be felt at existing park and ride lots along the corridor? For example, will extra capacity be needed to accommodate commuters (transit and carpoolers) if the "slugging" phenomenon emerges?
4. Take into consideration the existing and potential future express bus routing and scheduling during both construction and build out of the project.
5. Project should study how Charlotte Area Transit System (CATS) express buses can seamlessly access the HOT/HOV lane(s).
6. Preserve the ability, wherever possible, to design potential median slip ramps to non-exit cross street bridges.
7. Should the 3 lane plus 1 HOV/HOT lane configuration in the prior project still be studied as an option moving forward? At least one option should include an additional general purpose lane.
8. How will proposed improvements interact with existing and proposed diverging diamond?
9. Will the project's design allow for future construction of the Jim Cooke Road Bridge?
10. Several local governments have proposed additional general purpose interchanges on I-77 between Charlotte and Statesville. These could have operational impacts on the project proposed under I-5405 or subsequent projects.
11. How will the corridor traffic operations handle Alternative 2 with two HOT lanes in each direction? How will the engineering design of the facility minimize the impact of weaving vehicles in advance of interchanges?
13. Alternative 2 appears to involve substantive issues including:



- a. Impediments to construct an additional HOT lane in each direction beginning south of the Harris Boulevard interchange where the current median width seems to be approximately 22 feet with a vertical difference between north and south bound lanes.
- b. Apparent inability to add additional lanes south of I-85 and provide proper lane width and breakdown shoulders without substantive human and natural environmental impact
- c. Potential preclusion of additional access to the HOT lanes from current non-interchange bridges due to consumption of the available median width.
- d. Delivery of significantly greater traffic volumes to a constrained cross-section in Cornelius resulting in operational issues and lessened utility of the investment since the volumes cannot be processed in the northbound direction or the southbound direction in Charlotte.

### **NOISE**

- 1. Noise studies should be undertaken; one or two additional lanes in each direction could result in significant increase in noise levels.
- 2. How will noise barrier locations be determined? If a jurisdiction wants an upgraded design for the barriers, how are they paid for?
- 3. Construction noise impacts on surrounding neighborhoods should be should be assessed.

### **ENVIRONMENTAL JUSTICE**

- 1. There are significant environmental justice populations along the corridor, particularly south of exit 16. MUMPO's Degree of Impact (DOI) analysis of EJ populations indicates that the corridor passes through areas with a "moderate" DOI impact, which translates into 3-4 of the six EJ populations being represented at levels exceeding regional thresholds for those populations.
- 2. Due to the increased capacity what are the proposed noise barriers? None are noted.
- 3. What will be the material of the proposed noise barriers?

### **BIKE, PED & GREENWAYS**

- 1. Is there an opportunity for a culvert crossing for greenway at Westmoreland Road?
- 2. Is there an opportunity for a greenway crossing under Exit 28?

3. Is there an opportunity for a greenway trail at Caldwell Station Creek just north of Exit 25?
4. Is there a proposed crossing opportunity at Willow Pond/Blakely property (along both sides of I-77 between Westmoreland Rd. and Catawba Ave.)?
5. Is there an opportunity for a pedestrian overpass within Cornelius?
6. Impacts (both design and construction) upon adjoining parks and greenways – notably the Irwin Creek (existing and proposed) greenway need to be evaluated.
7. Bicycle and pedestrian accommodations using Complete Street standards should be considered on local street networks and adhered to on all grade separations that are proposed to be removed and replaced.

## **INTERCHANGES**

1. In the discussion of any alternate, the operations of the current interchanges should be addressed. We are personally aware of substantial congestion at the Sunset Road interchange and the Gilead Road interchange spilling back onto the mainline at times during the peak periods. It is likely that similar congestion exists at other interchanges. Any discussion of the alternatives should clearly forecast the ability to move across the general purpose lanes from the HOT lanes to the on and off ramps and factor the use of the managed lanes accordingly.
2. The ability to upgrade existing interchanges should not be precluded or made less likely in either the project design or the financial construct being created for project delivery.
3. The Town of Huntersville, in conjunction with federal, state, and regional partners, has produced an interchange modification report for the I-77/NC 73 interchange. Suggestions for additional bridges across the interstate included in this study should be incorporated in the design of the widening under I-5405.
4. Both the 2025 Transit/Land Use Plan (1998) and the I-77 Sub-Area Study (2001) discuss the potential for specialty interchanges on I-77 (in addition to the general purpose interchanges) to handle bus access into and out of the HOV lanes. HOT lanes were not in general discussion when these studies were produced. The build analyses explored in the environmental document should include analysis of the functionality of this concept in the long-term vision for the corridor. The build analyses SHOULD NOT PRECLUDE nor should it significantly impact the cost of the latter implementation of this concept if the concept has value in the long term future of the corridor.

5. What is the role and potential for ramp metering or other management techniques to preserve the long-term capacity of the investment?

*The following comments were submitted by local entities, and should be considered as the project moves beyond planning and into design and pre-construction.*

#### **OTHER**

- How will notification be handled for all phases of construction?
- How will jurisdictions be notified of construction schedule/delays?
- When will the public hearings occur? How many?
- What public outreach efforts will be conducted during this process?
- Will the public have a comment period after final design?
- Who will be responsible for policing during construction?
- What will be the time period of construction for Cornelius' portion of improvements?
- Will there be potential interstate delays? If so, is there a detour plan?
- How will the northbound lanes taper to the existing cross-section approaching Exit 28?
- Will proposed design for Westmoreland Road include setup for future interchange?
- Will the I-77 Service Road (one the west side of I-77 between Westmoreland Rd. and Catawba Ave.) be impacted?
- How will US 21 be impacted?
- How will businesses and churches be impacted?
- What type of physical barrier will be used to divide northbound and southbound lanes?
- Will underground utilities be installed?
- Will mainline interstate lighting be included? If so what wattage/style?
- Where will overhead signage be located?
- Will there be opportunities for local community to be incorporated into the project design?
- How will cross-slope drainage be addressed given the number of lanes proposed for either direction?

Project	Jurisdiction	TIP	L RTP	CTP
Install sidewalks on Sunset Rd overpass of I-77, construct sidewalks on Sunset Rd from I-77 to Statesville Rd	Charlotte	C-5543 (FY 14)		X
Statesville Rd widening from Starita Rd to Keith Dr	Charlotte		HY 2015	X
Statesville Rd (US 21) widening from Sunset Rd to Harris Bl	Charlotte			X
Hucks Rd extension from US 21 to NC 115	Charlotte			X
Hucks Rd extension from Statesville Rd to Northlake Center Pkwy	Charlotte			X
Statesville Rd (US 21) widening from Harris Bl to Gilead Rd	Charlotte/Huntersville	SPOT ID 1177	HY 2035	X
Alexanderana Rd widening from Mt Holly-Huntersville to NC 115	Charlotte/Huntersville			X
Hambright Rd widening from Mt Holly-Huntersville Rd to NC 115	Huntersville			X
Old Statesville Rd widening from Hambright Rd to Mt Holly-Huntersville Rd	Huntersville	SPOT ID 1132		X
Church St extension from Hambright Rd to Verhoeff Dr Ext	Huntersville			X
Verhoeff Dr West from US 21 to Mt Holly-Huntersville Rd	Huntersville			
US 21 and Gilead Rd intersection improvements including bike/ped accomodations	Huntersville	U-5114 (FY 15)		X
Gilead Rd widening from US 21 to NC 115	Huntersville	SPOT ID 592	HY 2025	X
Statesville Rd (US 21) widening from Gilead Rd to Holly Point Dr	Huntersville	SPOT ID 1186		X
Stumptown Rd widening from Hugh Torance Pkwy to NC 115	Huntersville			X
Bridgeford/Northdowns Connector	Huntersville	SPOT ID 1179	HY 2035	X
I-77/NC 73 interchange	Huntersville			X
NC 73 West widening from W Catawba Av to Northcross Dr	Huntersville			X
Statesville Rd (US 21) widening from Northcross Center Ct to Boat House Ct	Huntersville		HY 2025	X
Widen W Catawba Av from NC 73 to Jetton Rd	Cornelius	R-2555B (FY 18)	HY 2025	X
Northcross Dr extension to Westmoreland Rd	Cornelius	U-5108 (FY 14)	HY 2025	X
Jim Cooke Rd Extension from Bailey Rd to Northcross Dr Ext	Cornelius		HY 2025	X
I-77/Westmoreland interchange	Cornelius		HY 2025	X
Westmoreland Rd widening from US 21 to Catawba Av	Cornelius		HY 2025	X
Westmoreland Rd widening from US 21 to Washam Potts Rd	Cornelius		HY 2025	X
Washam Potts Rd widening from Westmoreland Rd to NC 115	Cornelius			X
Statesville Rd (US 21) widening from Boat House Ct to Catawba Av	Cornelius		HY 2025	X
W Catawba Av Interchange Modification	Cornelius	I-4733 (FY 15)	HY 2015	X

Project	Jurisdiction	TIP	L RTP	CTP
US 21/Catawba Av intersection improvements	Cornelius	R-4059		X
Widen Old Statesville Rd (NC 115) from Bailey Rd to Potts St	Davidson	SPOT ID 1169	HY 2025	X
NC 115 widening from Potts St to County Line	Davidson	SPOT ID 1171	HY 2025	X
I-77/Cornelius Road Interchange	Iredell County	SPOT ID 552		X
Fairview Flyover/Exit 33 NCDOT Feasibility Study from Alcove Rd to Fairview Rd	Mooreville	R-4757		X
Brawley School Rd Widening & I-77 Interchange from Chuckwood Rd to Talbert Rd	Mooreville	R-3833AB		X
I-77/NC 150 DDI Conversion	Mooreville	SPOT ID 1182		
NC 150 widening from I-77 to NC 16	Mooreville	R-2307B (FY 17)		X
Midnight Lane-Oates Road Overpass over I-77 from Bluefield Rd to US 21	Mooreville			X

# I-77 Improvements and Non-Motorized Transportation Facilities

Town of Mooresville and Mecklenburg County, North Carolina

July 17, 2012

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## Introduction

*The purpose of this document is to jumpstart a much-needed conversation concerning greenways and bicycle/ pedestrian transportation in relationship to Interstate 77 in Iredell and Mecklenburg County. Iredell and Mecklenburg County appreciate the importance of determining strategies for bicycle/ pedestrian use as the plans for the I-77 HOT Lanes project are being developed. Attempting to address bicycle/ pedestrian connectivity after the fact will negatively impact both Counties and the quality of life for their residents for years to come. Conversely the implementation of these recommendations will spur localized development resulting in a positive economic impact. The following recommendations for greenway or bicycle/ pedestrian connectivity are a starting point for this critical discussion.*

*The greenways shown on the maps are part of a planned comprehensive system that extends beyond the areas illustrated.*

## **Town of Mooresville Crossings**

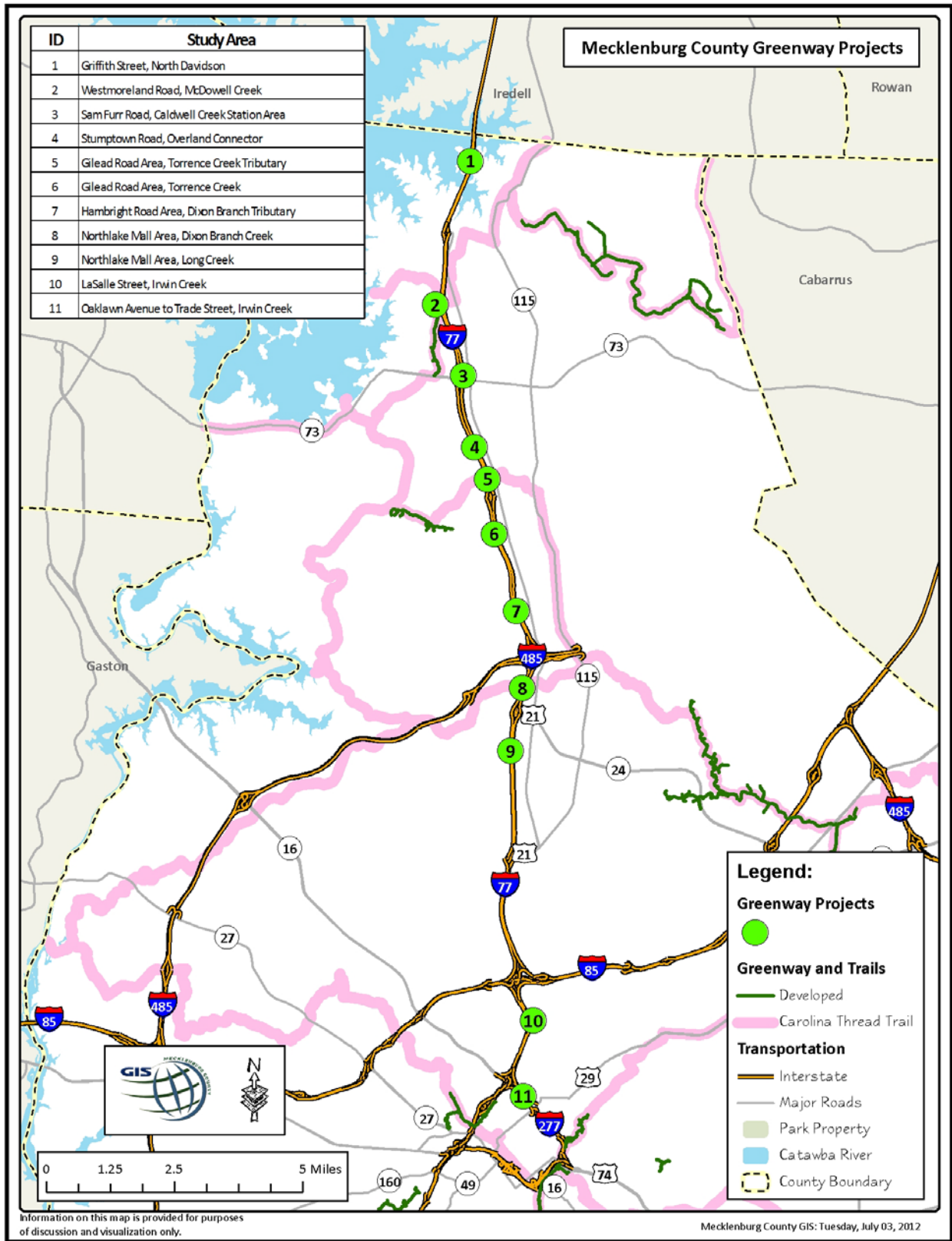
### Existing Conditions and Plans

- In general, the I-77 corridor is constrained by several fingers of Lake Norman in the Mooresville area, and east-west connectivity is currently only possible at the existing and under construction interchanges.
- The Town has an adopted Comprehensive Bicycle Plan, Comprehensive Pedestrian Plan, and regional plans such as the Carolina Thread Trail Plan for Iredell County, and the Lake Norman Bicycle Route plan as guiding documents.
- As part of the CTT process, Blueways were considered for Lake Norman, but ultimately not recommended for the sections of the lake that intersect I-77.
- The Lake Norman Bicycle Route and the Carolina Thread Trail parallels the I-77 corridor in the Mooresville area on NC 115, Fairview/Williamson Road, Rolling Hills Road and Bluefield Road.

### Recommendations

- The conversion of an existing culvert under I-77 between NC 150 and Troutman is recommended in the Mooresville Bicycle Plan. This has not been thoroughly investigated to determine if a bicycle and pedestrian connection is feasible in this location.
- The Town of Mooresville has a proposed interchange overpass over I-77 linking Midnight Lane and Oates Road just north of NC 150 in the Mooresville CTP. An alignment study was completed and the cross section for this overpass would include bicycle and pedestrian accommodations.
- The conversion of the I-77/NC 150 interchange to a diverging diamond interchange (DDI) is in the state TIP (SPOT ID 1182). Bicycle and pedestrian enhancements should be incorporated into the design of the DDI.
- The new interchange at I-77/Brawley School Road and is currently scheduled to open by the summer of 2013. As part of the R-3833 project, Brawley School Road is being upgraded to a median divided boulevard alignment with sidewalks and bicycle lanes along both sides of the roadway through the interchange.
- The Town of Mooresville and NCDOT are currently working on a feasibility study for constructing an overpass linking Fairview Road and Alcove Road and possible interchange modifications to US 21/Williamson Road (Exit 33). Bicycle and pedestrian accommodations should be part of this overpass.
- The I-77/Langtree Road interchange was open to traffic in 2009. Currently there are no bicycle or pedestrian treatments along Langtree Road in the vicinity of the I-77 interchange. The Comprehensive Bicycle Plan identified Langtree Road corridor as “future bicycle facilities by policy” and recommended paved shoulders and wide outside lanes.

# Mecklenburg County Study Areas





## **Crossing Study Areas**

### **1. Griffith Street, Davidson NC**

Anticipated NCDOT Plans: bridge replacement

#### **Greenway system goals:**

- This connection is identified in Davidson's plans for bicycle-pedestrian connectivity. Although not specifically identified on the Mecklenburg County greenway master plan maps, the master plan supports the Town's plans and the goal of connectivity. The Carolina Thread Trail includes Hwy 115 as a north-south corridor. Bicycle-pedestrian accommodations are needed on the Griffith Street bridge because; it is a regional trail route, it links destinations in downtown Davidson to residential areas and it provides access to Lake Norman.
- Greenway trails in Davidson provide connectivity for trail users seeking the small Town experience and more alternative transportation options and thus Mecklenburg County Parks and Recreation supports Davidson's goals for Griffith Street.

#### **Existing Conditions:**

- Griffith Street has been improved in recent years, adding roundabouts that calm and accommodate the flow of traffic from I-77 east toward Davidson College and the downtown area. The road improvements did not include bicycle-pedestrian accommodations.
- A peninsula containing the residential developments of North Harbor and Davidson Landing at Griffith Street is immediately west of I-77 and completely separated from the Town by the interstate. This peninsula is the only jurisdictional area within Davidson with access to Lake Norman west of the I-77 causeway.

#### **Bicycle-Pedestrian Connectivity:**

Option 1. Replacement of the Griffith Street bridge:

- Provide bicycle-pedestrian accommodations on the new bridge which include a multi-use trail on the north side of the bridge.





#### **Recommendation:**

Provide bicycle-pedestrian accommodations on Griffith Street across I-77.

# 1. Griffith Street, Davidson, NC



**LEGEND**

-  Existing Greenway
-  Future Greenway
-  Proposed Grade Separated Crossing (under highway)
-  Proposed On Road Bicycle and Pedestrian Accommodations

## **Crossing Study Areas**

### **2. Westmoreland Road/McDowell Creek**

Anticipated NCDOT Plans: Westmoreland Road bridge replacement

#### **Greenway system goals:**

- Future greenway trail must cross I-77 and return to the creek alignment on both sides of I-77.
- McDowell Creek is identified as a north-south greenway corridor on the Cornelius Greenway Plan, the Mecklenburg County Greenway Master Plan and the Carolina Thread Trail.
- The Town of Cornelius Pedestrian Plan identified the need for multi-use path crossings of I-77 at both McDowell Creek and Westmoreland Road.

#### **Existing Conditions:**

- McDowell Creek passes under Westmoreland Road as well as I-77 through small culverts effectively blocking future connection for the greenway system.
- Westmoreland was constructed on an extensive amount of fill material to enable the road to cross over I-77; this created a significant grade difference between the creek elevation and Westmoreland Road.
- Some undeveloped land exists between McDowell Creek and I-77, at the elevation of Westmoreland Road
- McDowell Creek Greenway is complete from Westmoreland Road south to Sam Furr Road (Hwy 73).

#### **Greenway Connectivity:**

Option 1: North of Westmoreland Road- Off-road solution

- Provide grade separated passage under I-77 to the east side, exiting near the creek.
- Create grade-separated crossing at both ends of the bridge to provide connectivity to the sidewalks on Westmoreland Road. .
- The greenway trail continues north along the west side of the I-77 ROW.

Option 2: North of Westmoreland Road-Use on-road accommodations on Westmoreland Road to cross I-77.

- The Westmoreland Road bridge should include bicycle-pedestrian accommodations with grade-separated crossings at both ends of the bridge.
- The existing greenway trail would need to cross McDowell Creek toward the east, turn north and to under the west end of the new Westmoreland Road bridge.

Future Bridge

- A future bridge that connects Bailey Road and North Cross Drive, but does not directly access I-77, will include pedestrian/bicycle facilities with a planned 10' multi-use trail on one side and a 5' sidewalk on the other side.

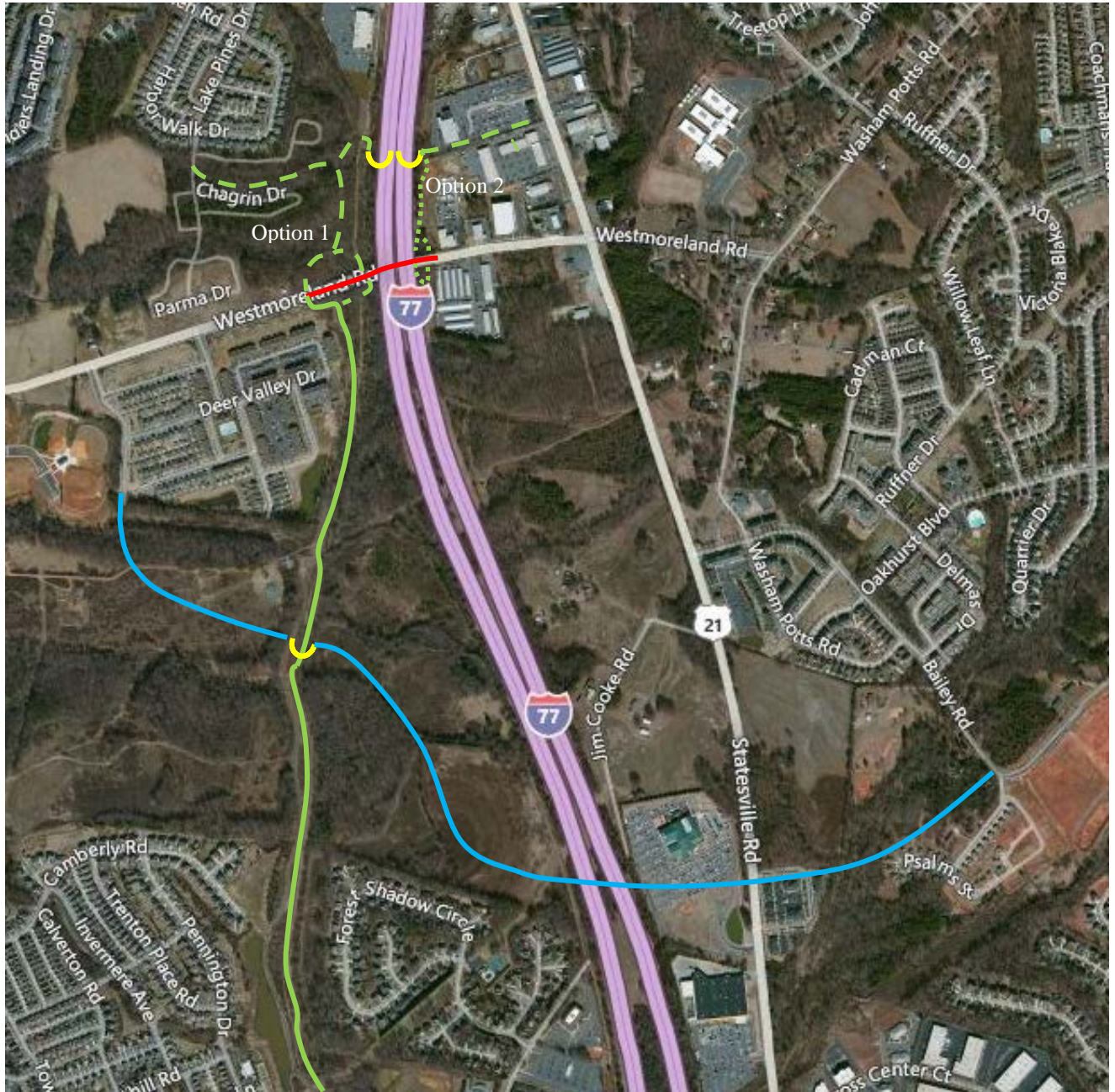
**Recommendation:**

All three connections are identified as important pedestrian connections in the adopted Cornelius Pedestrian Plan. While the bicycle-pedestrian accommodations on Westmoreland Road are an acceptable alternative, separated grade crossings are preferred. Option 1 and 2 will require grade separated crossings at each end of the bridge.

Continue to plan for the future bridge as an important connector for both bicycle and pedestrian systems.

*Note: The Town of Cornelius has passed a resolution supporting a future I-77 crossing located north of Westmoreland Road and south of Catawba Avenue.*

## 2. Westmoreland Road/McDowell Creek



LEGEND	
	Existing Greenway
	Future Greenway (Option 1)
	Future Greenway (Option 2)
	Proposed Grade Separated Crossing (under highway)
	Proposed On Road Bicycle and Pedestrian Accommodations
	Proposed connector/Bridge with Bicycle and Pedestrian Accommodations

## **Crossing Study Areas**

### **3. Sam Furr Road/Caldwell Station Creek Area**

Anticipated NCDOT Plans: Widening for HOT Lanes only

#### **Greenway system goals:**

- Future greenway trail must cross I-77 and return to the creek alignment on both sides of I-77. This safe-non-motorized crossing will link multiple destinations on both sides of the Interstate.
- Connect to McDowell Creek Greenway, a route on the Carolina Thread Trail on the west side of I-77.
- Caldwell Station Creek is identified as a greenway corridor on the Huntersville Greenway Plan and the Mecklenburg County Greenway Master Plan.

#### **Existing Conditions:**

- Sam Furr Road (NC73) bridge crossing of I-77 has no provision for bicyclists or pedestrians.
- NC 73 widening project (R-2632AA) east from the interstate to Hwy 115 is almost completed and contains minimal provision for bicyclists due to the inability to safely cross I-77.
- The existing culvert cannot be used for the greenway.
- Sam Furr Road crosses I-77 south of the creek crossing.

#### **Greenway Connectivity:**

Option 1. New grade-separated greenway crossing:

- Construct a new passage for the greenway north of the existing culvert to connect McDowell Creek Greenway and Caldwell Station Greenway areas.
- Widening/renovation of the Sam Furr bridge over I-77 for bicycle-pedestrian accommodations would not be necessary.
- Bicycle-pedestrian accommodations would have to be extended to Hwy 21.

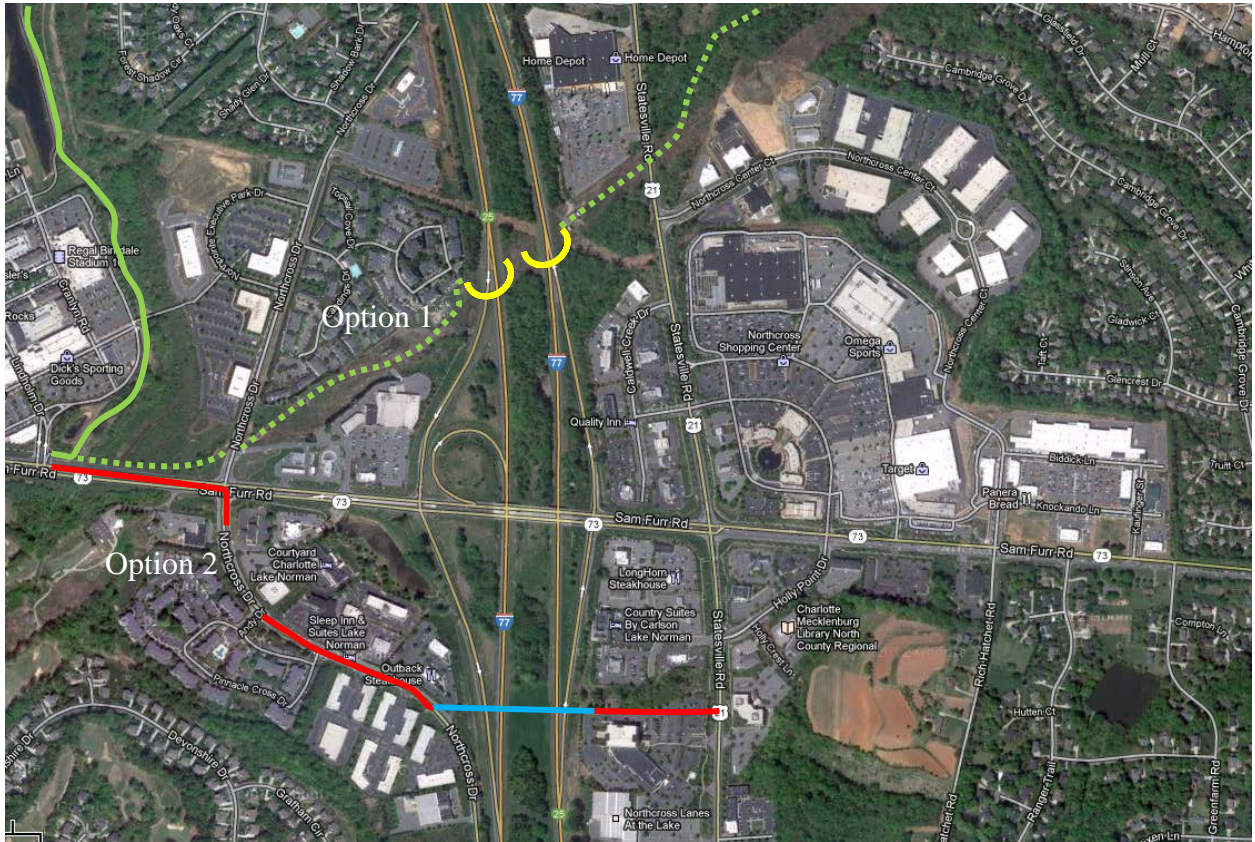
Option 2. Extension of Northcross Drive on new bridge over I- 77.

- New bridges must include bicycle-pedestrian accommodations.
- Proposed roundabouts must not conflict with bicycle-pedestrian accommodations.
- Additional bicycle-pedestrian accommodations must be added to Northcross Drive.

#### **Recommendation:**

Option 1 is preferred; however bicycle-pedestrian accommodations on proposed bridges/ and connecting roads is an acceptable alternative.

### 3. Sam Furr Road/Caldwell Station Creek Area



LEGEND	
	Existing Greenway
	Future Greenway
	Proposed Grade Separated Crossing (under highway)
	Proposed On Road Bicycle and Pedestrian Accommodations
	Proposed Bridge with Bicycle and Pedestrian Accommodations

## **Crossing Study Areas**

### **4. Stumptown Road/Overland Connector**

Anticipated NCDOT Plans: Stumptown Road bridge replacement

#### **Greenway system goals:**

- Future greenway trail must cross I-77 to connect Hwy 21 and Hwy 115 which are east of I-77 to Torrence Creek Tributary #1 on the west side of I-77.
- The Stumptown Road overland connector is identified as a greenway corridor on the Mecklenburg County Greenway Master Plan.
- The Stumptown Road overland connector should be studied as an alternative route for NC Bicycle Route #6 which currently follows Gilead Road.

#### **Existing Conditions:**

- There are no bicycle-pedestrian accommodations on Stumptown Road as it crosses I-77.

#### **Greenway Connectivity:**

Option 1. Replacement of the Stumptown Road bridge:

- Provide bicycle-pedestrian accommodations on the new bridge. Bike lanes to be a minimum of 6 feet in width excluding shy distance to accommodate NC Bike Route #6.

Option 2. If the bridge is not replaced

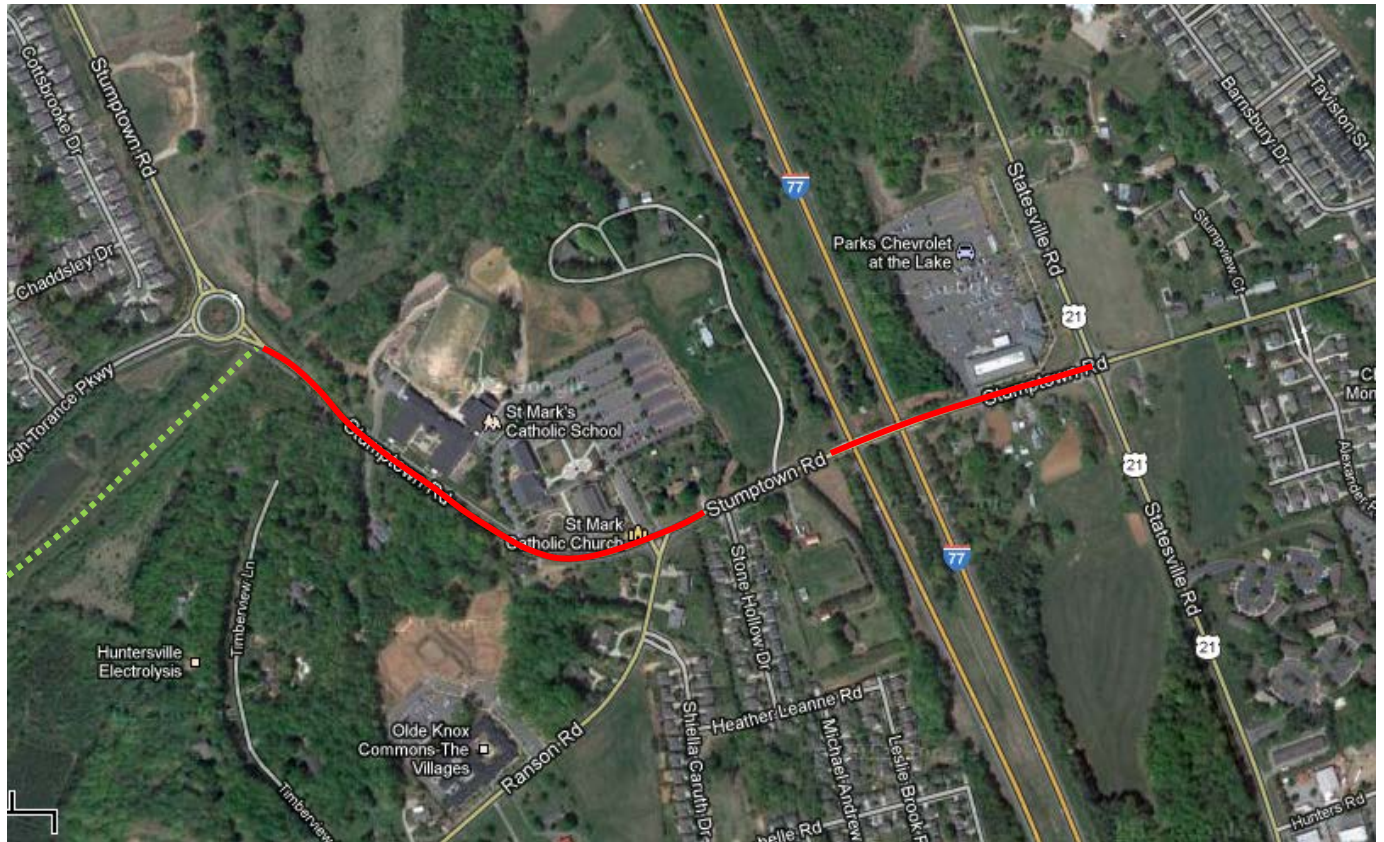
- Restriping existing bridge to provide bicycle-pedestrian accommodations if possible.

#### **Recommendation:**

Provide bicycle-pedestrian accommodations on both sides of Stumptown Road as it cross I-77



#### 4. Stumptown Road, Overland Connector



LEGEND	
	Existing Greenway
	Future Greenway
	Proposed Grade Separated Crossing (under highway)
	Proposed On Road Bicycle and Pedestrian Accommodations

## **Crossing Study Areas**

### **5. Gilead Road Area/ Torrence Creek Tributary #2**

Anticipated NCDOT Plans: Widening for HOT Lanes only

#### **Greenway system goals:**

- Future greenway trail must cross I-77 and return to the creek alignment on both sides of I-77.
- Torrence Creek Tributary #2 is identified as a greenway corridor on the Huntersville Greenway Plan, the Mecklenburg County Greenway Master Plan and the Carolina Thread Trail.

#### **Existing Conditions:**

- Torrence Creek Tributary #2 passes under as I-77 through a small culvert that cannot be used.
- Torrence Creek Tributary #2 Greenway will be constructed beginning in the fall of 2012 from Rosewood Meadow Lane to existing Torrence Creek Greenway.

#### **Greenway Connectivity:**

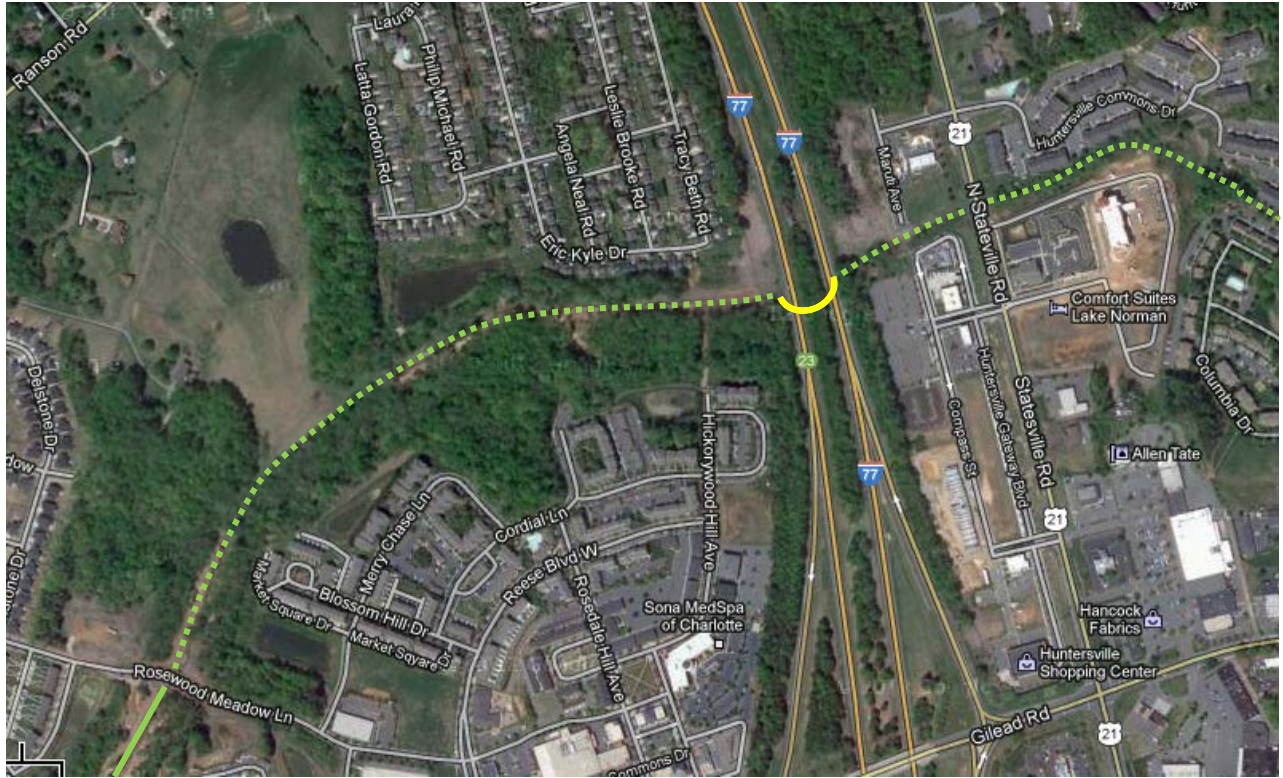
Option 1. New grade-separated crossing:

- Construct a grade-separated crossing north of the existing culvert.

#### **Recommendation:**

Construct a grade-separated crossing under I-77 north of the existing culvert.

## 5. Gilead Road Area/Torrence Creek Tributary #2



LEGEND	
	Existing Greenway
	Future Greenway
	Proposed Grade Separated Crossing (under highway)
	Proposed On Road Bicycle and Pedestrian Accommodations

## **Crossing Study Areas**

### **6. Gilead Road Area/Torrence Creek**

Anticipated NCDOT Plans: Widening for HOT Lanes only

#### **Greenway system goals:**

- Future greenway trail must cross I-77 and return to the creek alignment on both sides of I-77.
- Torrence Creek is identified as a greenway corridor on the Huntersville Greenway Plan, the Mecklenburg County Greenway Master Plan.

#### **Existing Conditions:**

- Torrence Creek passes under as I-77 through a small culvert that cannot be used.

#### **Greenway Connectivity:**

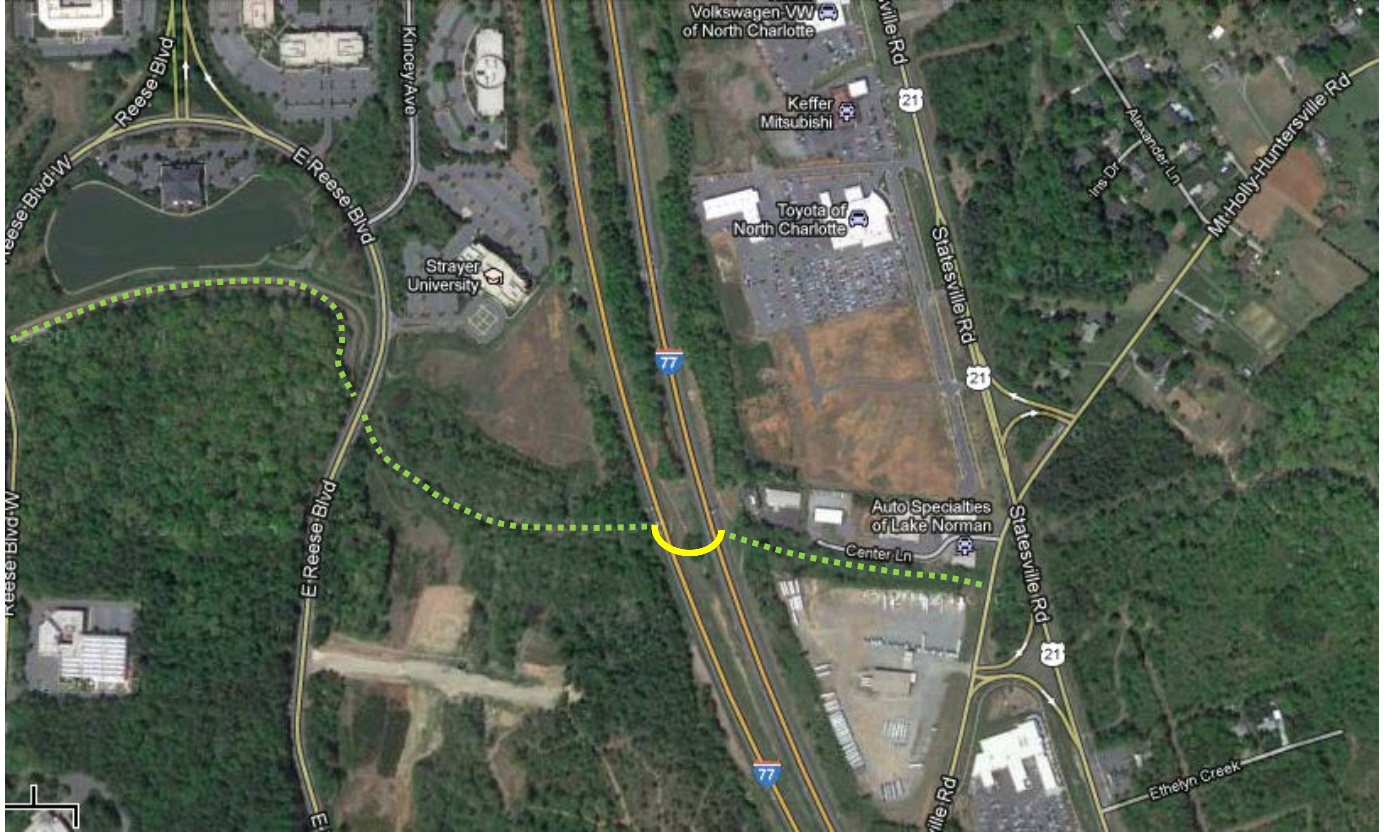
Option 1. Grade separated crossing

- Provide a shallow grade-separated crossing under I-77 following Torrence Creek or parallel to the creek but in a separate structure.

#### **Recommendation:**

Construct a grade-separated crossing under I-77 north of the existing culvert.

## 6. Gilead Road Area/Torrence Creek



LEGEND	
	Existing Greenway
	Future Greenway
	Proposed Grade Separated Crossing (under highway)
	Proposed On Road Bicycle and Pedestrian Accommodations

## **Crossing Study Areas**

### **7. Hambright Road Area/Dixon Branch Tributary**

Anticipated NCDOT Plans: Hambright Road bridge replacement

#### **Greenway system goals:**

- Future greenway trail must cross I-77 and return to the creek alignment on both sides of I-77.
- This Dixon Branch Tributary is identified as an east-west greenway corridor on the Huntersville Greenway Plan, the Mecklenburg County Greenway Master Plan and the Carolina Thread Trail

#### **Existing Conditions:**

- The creek passes under I-77 through a 48” culvert effectively blocking connection on the greenway system
- North of the creek crossing, the DOT transcontinental natural gas pipeline passes under I-77 via a dedicated bridge. This span of this bridge is approximately 130 LF and it accommodates two underground pipelines. Experience with gas rights-of-way has been that a greenway trail would not be allowed to run longitudinally within the gas ROW; but this issue requires further research.

#### **Greenway Connectivity:**

Option 1. Pipeline Option:

- There may be the potential to use the existing pipeline structure for a grade separated crossing for the greenway.

Option 2. Hambright Bridge: The future greenway trail could turn north along the west side of I-77.

- Bicycle and pedestrian accommodations on the bridge.
- Grade-separated crossings under Hambright Road would be needed at both ends of the new Hambright Road bridge, with connections to sidewalks.
- Any access ramps must allow safe bicycle and pedestrian accommodation.





#### **Recommendation:**

The piping route should be used if it is feasible and permitable.

## 7. Hambright Road Area/Dixon Branch Tributary



### LEGEND

-  Existing Greenway
-  Future Greenway
-  Proposed Grade Separated Crossing (under highway)
-  Proposed On Road Bicycle and Pedestrian Accommodations

## **Crossing Study Areas**

### **8. Northlake Mall Area/Dixon Branch**

Anticipated NCDOT Plans: Widening for HOT Lanes only

#### **Greenway system goals:**

- Future greenway trail must cross I-77 and return to the creek alignment on both sides of I-77.
- Dixon Branch is identified as a greenway corridor on the Mecklenburg County Greenway Master Plan.

#### **Existing Conditions:**

- Dixon Branch passes under as I-77 through a culvert that cannot be used.

#### **Greenway Connectivity:**

Option 1. Grade-separated Crossing:

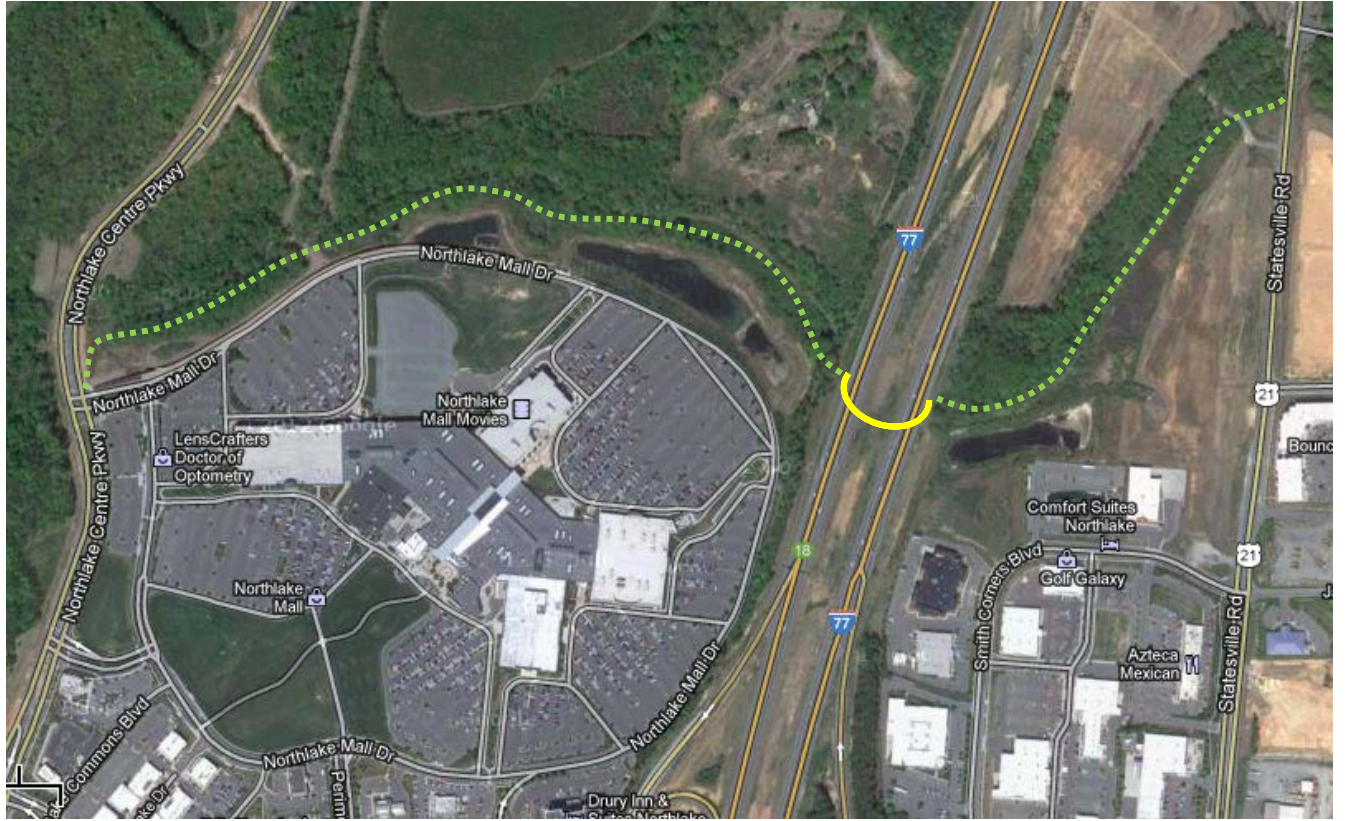
- A grade-separated crossing for the Dixon Branch Greenway under I-77, following or parallel to the creek alignment.

#### **Recommendation:**

A grade separated crossing



## 8. Northlake Mall/Dixon Branch Creek



LEGEND	
	Existing Greenway
	Future Greenway
	Proposed Grade Separated Crossing (under highway)
	Proposed On Road Bicycle and Pedestrian Accommodations

## **Crossing Study Areas**

### **9. Northlake Mall Area/Long Creek**

Anticipated NCDOT Plans: Widening for HOT Lanes only

#### **Greenway system goals:**

- Future greenway trail must cross I-77 and return to the creek alignment on both sides of I-77.
- Long Creek is identified as a greenway corridor on the Mecklenburg County Greenway Master Plan and the Carolina Thread Trail.

#### **Existing Conditions:**

- Long Creek passes under as I-77 through two large and significant box culverts.

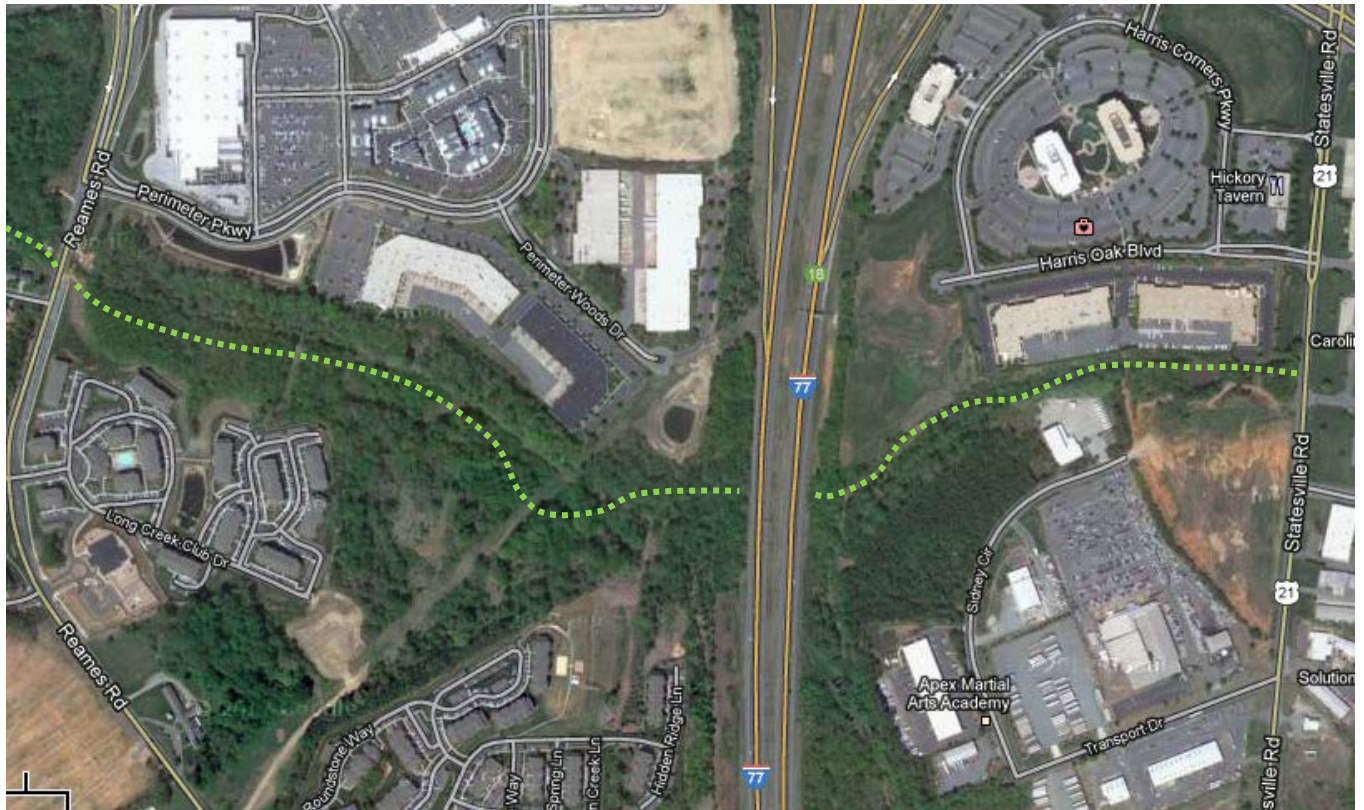
#### **Greenway Connectivity:**

The existing culverts are expected to be adequate for passage of a greenway trail. The constraint of grading and flood modeling will need to be addressed.





#### **Recommendation:**

Use the existing culvert for a grade separated crossing

## 9. Northlake Mall Area/Long Creek



### LEGEND

-  Existing Greenway
-  Future Greenway
-  Proposed Grade Separated Crossing (under highway)
-  Proposed On Road Bicycle and Pedestrian Accommodations

## **Crossing Study Areas**

### **10. LaSalle Street and Atando Avenue/Irwin Creek**

Anticipated NCDOT Plans: LaSalle Street bridge replacement

#### **Greenway system goals:**

- Future greenway trail must cross LaSalle Street on the east side of I-77 and turn with the creek toward Statesville Road.
- Irwin Creek is identified as a greenway corridor on the Mecklenburg County Greenway Master Plan.

#### **Existing Conditions:**

- Irwin Creek is located tight against the east side of I-77
- LaSalle was constructed on an extensive amount of fill material to enable the road to cross over I-77, leaving Irwin Creek with significant embankments against both roads.
- Irwin Creek Greenway will have a grade separated crossing under the existing Statesville Avenue bridge and under I-85.

#### **Greenway Connectivity:**

Option 1. Provide bicycle and pedestrian accommodations on both sides of the LaSalle Street bridge.

- Provide a grade-separated crossing for bicycle and pedestrians under the east end of LaSalle Street bridge.





#### **Recommendations:**

Provide bicycle and pedestrian accommodations on both sides of the LaSalle Street bridge.

## 10. LaSalle Street and Atando Avenue/Irwin Creek



### LEGEND

-  Existing Greenway
-  Future Greenway
-  Proposed Grade Separated Crossing (under highway)
-  Proposed On Road Bicycle and Pedestrian Accommodations

## **Crossing Study Areas**

### **11. Oaklawn Avenue to Trade Street/Irwin Creek**

Anticipated NCDOT Plans: Oaklawn Avenue bridge replacement

#### **Greenway system goals:**

- This future greenway will be developed as a loop in the urban area north of Trade Street. *Irwin West* and *Irwin East* will encircle the I-77 corridor.
- Irwin East*: Future greenway will connect BrightWalk, Anita Stroud Park, and the NC Music Factory to the existing greenway at Ray's Splash Planet. A grade-separated crossing of Oaklawn Avenue and the CSX rail bridge as well as use of the Hamilton Street bridge are necessary.
- Irwin West*: Future greenway trail will cross under I-77 as a grade-separated multi-use trail north of Oaklawn Avenue and connect to Johnson C Smith University. This loop will circle back under I-77 just north of West 5<sup>th</sup> Street.
- Irwin Creek is identified as a greenway corridor on the Mecklenburg County Greenway Master Plan and is being planned as part of a 30-mile Mooresville to Charlotte multi-use trail.

#### **Existing Conditions:**

- Irwin Creek is located on both the east and west side of the I-77 corridor.
- Irwin East* connects BrightWalk, Anita Stroud Park, the NC Music Factory, and Ray's Splash Planet and therefore this route has a higher priority than *Irwin West*. The CSX Railroad bridge and Elmwood Cemetery are connectivity challenges for this route.
- Irwin West* connects Johnson C Smith University area to the uptown. This route may utilize the existing culvert. Use of the culvert is dependent on flood modeling and NCDOT permission.

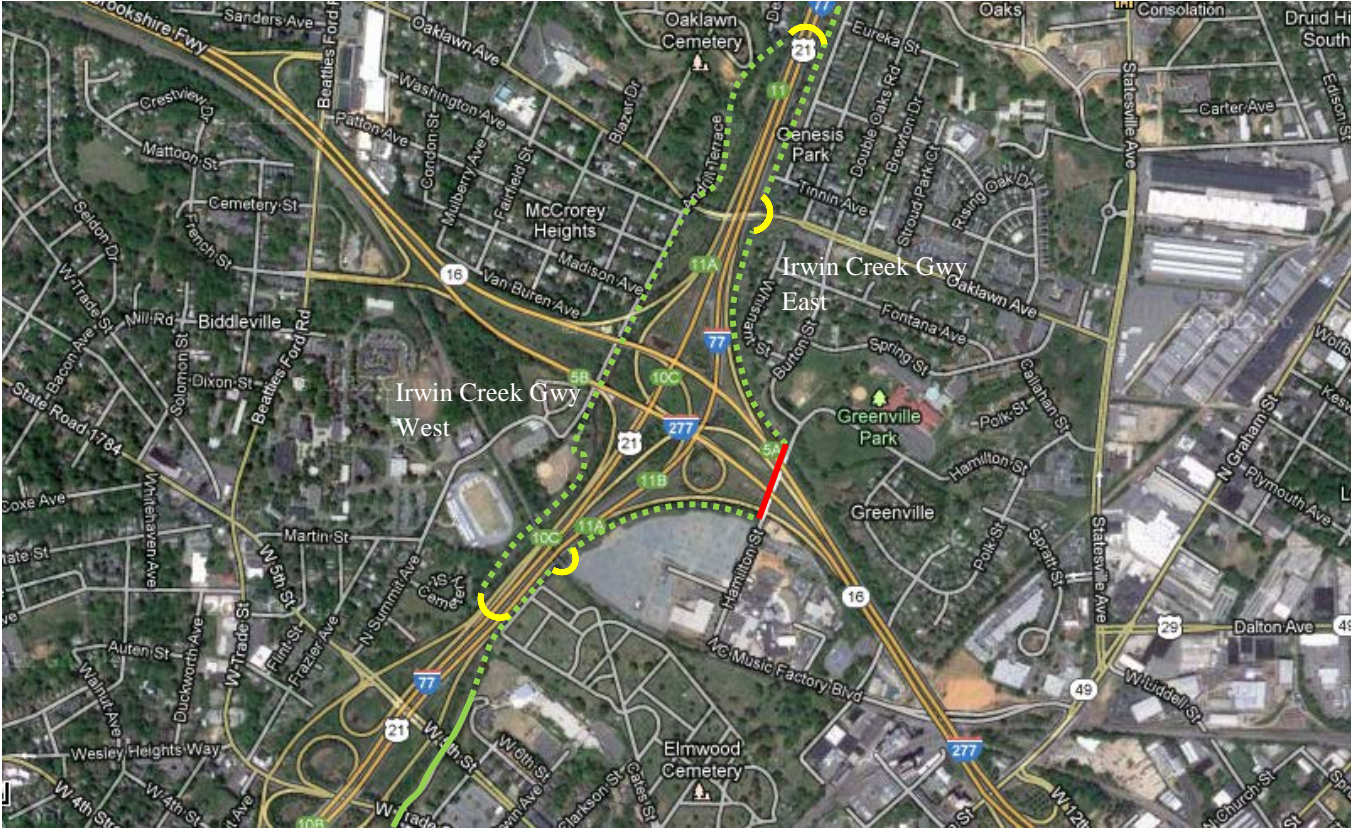
#### **Greenway Connectivity:**

- Irwin East* needs a grade-separated crossing under the east end of the Oaklawn Avenue bridge and bicycle and pedestrian accommodations the Oaklawn Avenue bridge. This trail will continue to Hamilton Road, the point access over I-277. After passing along the edge of the NC Music Factory parking, the trail must pass under the CSX rail and outboard of the Elmwood Cemetery. This route requires that the greenway trail be placed within the I-77 ROW. The trail will tie into existing Irwin Creek Greenway at Ray's Splash Planet, north of West 5<sup>th</sup> Street.

#### **Recommendation:**

Construction of Irwin East, through a combination of facility types is the highest priority.

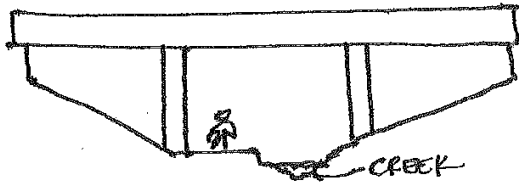
### 11. Oaklawn Avenue to Trade Street/Irwin Creek



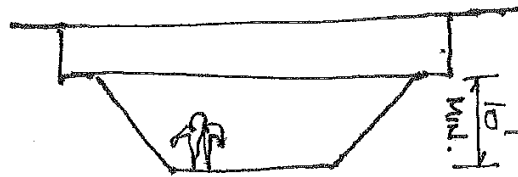
**LEGEND**

- Existing Greenway
- ⋯⋯⋯ Future Greenway
- ⤿ Proposed Grade Separated Crossing (under highway)
- Proposed On Road Bicycle and Pedestrian Accommodations

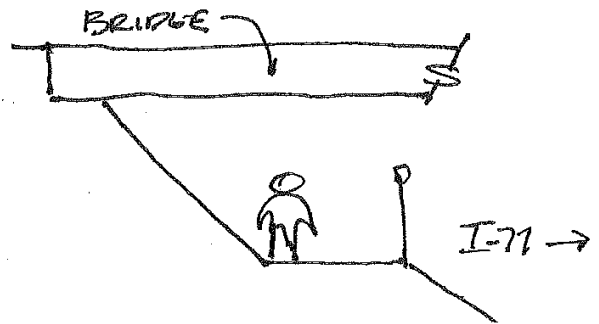
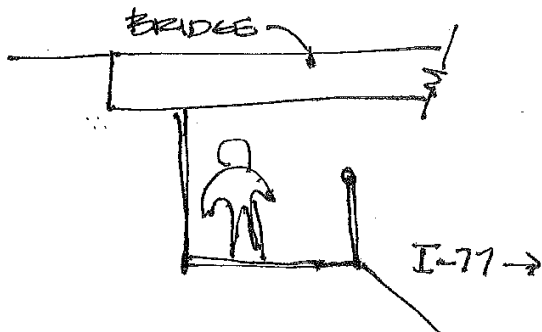
# Examples of Greenway Crossing Types



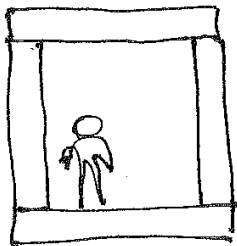
**Bridge**  
(Bike-Ped with Creek)



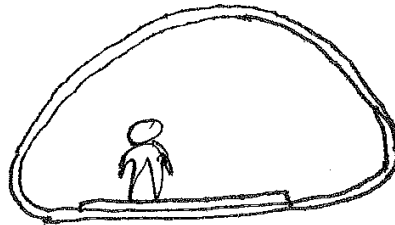
**Shallow bridge**  
(Bike-Ped Only)



**Bridges Adapted for Crossing**



**Culvert**



**Tunnel**



## **Priorities**

We recognize that priorities will be impacted by cost and feasibility. Bicycle-pedestrian accommodations on all new bridges should be an integral part of the I-77 HOT Lanes project. The following projects are identified as the highest priority for a variety of reasons.

1. Oaklawn Avenue to Trade Street/Irwin Creek (Irwin Creek east)  
Crossing under the CSX rail bridge and creating a by-pass around Elmwood Cemetery, is the highest priority. This is the most difficult greenway crossing to achieve in the entire Mecklenburg County greenway system and must be pursued in partnership with NCDOT. Crossing under the Oaklawn Avenue bridge is another critical part of this first priority project.
2. LaSalle Street/Irwin Creek.  
This crossing will be extremely difficult to build after the HOT Lanes project is complete. The ROW and access is very limited and constrained in this area. This trail will serve a large number of greenway users.
3. Gilead Road Area/Torrence Tributary #2  
The crossing at Torrence Tributary #2 north of Gilead Road would connect Huntersville and provide off-road bicycle-pedestrian connectivity to a large number of greenway users. Torrence Creek Greenway will soon be complete to within ½ mile of the proposed crossing.
4. Sam Furr Road/Caldwell Station Creek Area  
Cornelius has been actively planning this corridor because it is seen as a critical bicycle-pedestrian link for their town.
5. Northlake Mall/Dixon Branch Creek  
Land acquisition for greenways is presently being pursued in this area. It is a high priority due to the significant number of destinations and close proximity of housing that will be a significant user group for the greenway.

## **Recommendations**

- Any new bridges shall include sidewalks for pedestrians of a 7' minimum width on both sides of the bridge and bicycle lanes with a minimum width of 5' on both sides of the bridge (unless otherwise noted).
- Mecklenburg County Park and Recreation Department is requesting that NCDOT continue recognize all transportation needs identified by the local communities, by providing safe non-motorized crossing of I-77 to link multiple destinations and the Carolina Thread Trail.
- The Towns, the City and Mecklenburg County should continue to participate in discussions and solutions concerning bicycle and pedestrian accommodations.
- Grade separated crossings should be provided wherever possible. Alternatives to culverts or tunnels are preferred for grade separated crossings.
- If culverts or tunnels are used every effort should be made to daylight when possible, potentially in medians. Light portals should be provided when a median break is not available.
- The communities must be allowed time to develop strategies for cost and infrastructure implications for partnering with NCDOT for bicycle and pedestrian improvements.

- The Towns, the City and Mecklenburg County are aware that not all the recommendations contained in this report will be included in I-77 HOT Lane project. We do request the opportunity to discuss priorities in relationship to the scope of the I-77 HOT Lanes project and also discuss strategies for completing all these crossings.



600 East Fourth Street  
Charlotte, NC 28202  
704-336-2205  
www.mumpo.org

DATE: July 19, 2012

TO: Rodger Rochelle, PE  
Director, Transportation Program Management Unit  
NCDOT  
1595 Mail Service Center  
Raleigh, NC 27699-1595

**SUBJECT: I-77 P3 Request for Proposals  
MUMPO I-77 Technical Team Comments**

Dear Rodger:

The Mecklenburg-Union Metropolitan Planning Organization's Technical Coordinating Committee's I-77 Technical Team (hereafter called the Tech Team) has compiled a set of issues of concern related to the NCDOT's Request for Proposals under I-77's P3 procurement. Please direct us to where and how in the RFP these issues are addressed. If they are not discussed in the draft RFP, we wish to know how they can be appropriately included in the current procurement.

In the following discussion we do not wish to suggest that we have the correct answer to an issue, rather it is our goal to challenge the private concessionaires to think through these elements and offer alternative technical concepts or processes that address them. In these discussions, we believe it is appropriate for the concessionaires to discuss financial options for the delivery of their recommended solutions.

The broad categories of issues include:

- 1) Traffic operational issues at the termini of any project segment and at ingress/egress points.
- 2) Traffic operational issues at each current general purpose interchange, both at the connections to the general purpose lanes as well as at the connections to the surface street system.
- 3) Interaction of the project with future public investments in the corridor, both parallel and crossing locations.
- 4) Consideration for direct access to the HOT lanes from locations separate from current general purpose interchanges.
- 5) Coordination of the project with non-motorized transportation, especially with regard to future grade separated facilities exclusively designated for bicyclists and pedestrians.

- 6) Consideration of alternative technical concepts for the additional lanes between I-277 and I-85 to include elevated improvements as an alternative to horizontal widening.
- 7) Coordination of the project with future modifications to the I-77/I-85 interchange.
- 8) Coordination of the project with the study underway on I-277.
- 9) Coordination of the project with TIP project I-4750's widening of the causeways.
- 10) Project accommodation of community aesthetics.
- 11) MUMPO role in long term management of the investments in I-77

A brief discussion of each of the issue categories follows:

Issue 1: Traffic operations at project termini and access points

In any project with potential interim segment operations, the management of traffic at each end of the segment becomes problematic. In some cases, the interim period stretches into years due to funding limitations. We are also interested in the operations of access to the HOT lanes across the general purpose lanes especially as traffic grows. In the case of a HOT lane, in addition to traditional traffic engineering solutions, consideration might be given to altering tolling policies (including # of occupants required for free lane use) depending on the length and location of segments available for use.

Issue 2: Existing interchange operations

Many of the existing interchanges currently operate in a sub-standard condition during peak hours. In numerous locations, in the PM peak period, northbound off ramp congestion at the interface with the surface streets causes queue back-up down to the main line. In other locations, the short length of on ramps results in merging traffic forcing their way into main line traffic causing turbulence in main line operations. In particular, proximity to the causeways cause substantial problems and crashes at the Catawba Ave (Exit 28) and Griffith St (Exit 30) interchanges. If the P3 project is successful, additional traffic will be attracted to I-77, exacerbating these problems. What technical and policy recommendations can the concessionaires devise to mitigate this?

Issue 3: Integration of this project with other corridor investments (mostly motorized travel)

Numerous public plans propose future transportation projects in this corridor, mostly related to motorized traffic but including provisions for non-motorized users. To what extent does the concessionaire's proposal implement, facilitate, accommodate, or ignore these plans? At the very least, the P3 project should not make more expensive the future implementation of any publicly identified project nor should it consider their future implementation a "compensation event." The adopted Mooresville/South Iredell and draft Mecklenburg/Union Comprehensive Transportation Plans, the Mecklenburg/Union Long Range Transportation Plan, the projects officially submitted for Strategic Prioritization, and projects included in the TIP have been scanned for projects that should be considered in this procurement. A spread sheet of identified projects is attached as Exhibit A.

Issue 4: Direct access to HOT lanes

Current general purpose lane congestion will make access between the surface street network (potential customers) and the HOT lanes difficult and this will worsen as regional growth adds traffic. Direct access from the HOT lanes, possibly using "I" ramps, to both existing and future bridges would offer multi-occupant vehicles and paying customers premium service and could help relieve the current operational issues identified in Issue 2. Following discussion with Derrick Lewis of NCDOT, local staff has identified potential locations that could be considered for these direct connections. Other suggestions by the concessionaires may be appropriate and should be considered.

A list of these locally identified locations includes:

Cindy Lane  
Lakeview Road  
Metromont Parkway (Hucks Road Extension)\*  
Hambright Road  
Verhoeff Drive Extension \*  
Stumptown Road  
Northdowns Lane/Bridgeford Drive Connector (in LRTP, 2035 Horizon Year) \*  
Jim Cooke Road Extension (in LRTP, 2025 Horizon Year)  
Westmoreland Road  
Fairview Road-Alcove Road Connector ( Mooresville) \*

\* the crossings with asterisks do not currently exist but are included on a locally adopted plan (Thoroughfare Plan, CTP, etc.)

Issue 5: Integration of the project with non-motorized transportation

Our region believes that non-motorized transportation is a vital component of the mixture of transportation options offered to our citizens. Our community plans are based on providing land development patterns that can be accessed by bicyclists and pedestrians as well as transit users and automobile drivers. It is absolutely essential, and in keeping with NCDOT's Complete Streets policy, that any bridge crossing I-77 that is modified, constructed, or re-constructed under this or subsequent projects appropriately accommodate non-motorized users. In almost all cases this would be on both sides of the bridge. In addition, greenway planners in our communities have identified locations for off-road routes that would provide adequate linkages for less experienced or capable bicyclists. Manners for accommodating these locations within the project's scope should be discussed by the proposers. The attached Exhibit B identifies all crossings or in a couple of cases parallel accommodations for non-motorized travelers in the project limits.

Issue 6: Alternative technical concepts for widening between I-277 and I-85

The section of I-77 between the Brookshire Freeway (I-277) and I-85 is extremely constrained by natural and human considerations on both sides. Although the normal approach would be to widen horizontally and mitigate the takings, are there technical alternatives such as elevated structures that might substantially relieve this conflict? This discussion should occur in conjunction with explorations of the following two issues:

Issue 7: Coordination with future improvements to the I-77/I-85 interchange

Numerous problems, including congestion and roll-over crash issues, exist with the current configuration of the I-77/I-85 interchange. We understand (and support) that a feasibility study will be programmed in the upcoming TIP to examine options at this location. Proposers on the I-77 P3 project should address manners in which their proposals would help facilitate future renovations to this interchange.

Issue 8: Coordination with I-277 study

The City of Charlotte, MUMPO, and NCDOT are engaged in a study of the I-277 loop around central Charlotte. Ramp spacing and lengths cause major congestion and crash problems. The manner in which the direct access occurs from the I-77 HOT lanes to I-277 requires careful coordination with the efforts underway to improve the facility's operations. An analysis of the potential customer base for the HOT lanes related to their desired destinations along I-277 may assist in this discussion.

Issue 9: Coordination with TIP project I-4750 and the Lake Norman causeways

The 2001 I-77 Sub-area Study from I-85 to NC 150 is the only coordinated planning document for the majority of the length of the proposed P3 project. It calls for a long-term total width of eight (8) general purpose lanes, two HOV lanes in the median, and strengthened shoulders for buses during peak hours. The 2004 I-77 feasibility study from NC 73 to I-40 calls for eight general purpose lanes in the corridor. How do the concessionaires help to facilitate these long term goals? In particular, the current I-4750 TIP project and environmental study between Catawba Avenue and I-40 is exploring the appropriate widening of the three causeways crossing Lake Norman. How does the P3 project fit into this larger scope?

Issue 10: Community aesthetic coordination

There are numerous examples in the corridor of efforts undertaken to help mitigate the impact of an interstate freeway on the communities through which it passes. These considerations begin with brick privacy walls in the southern section of the project, include extensive protection of the tree cover in the median and along the outer boundaries of the right of way north of I-485, and include consideration of interchange aesthetics in the pending Cornelius diverging diamond interchange project at Exit 28. The vistas across Lake Norman have been identified as both a blessing (recruiting development) and curse (the “lake effect” on a beautiful summer afternoon as gawkers stare at the boats and their occupants.) How will the concessionaires incorporate community aesthetic considerations into their proposals?

Issue 11: MUMPO role in long term management of I-77 investments

We assume that there will be a long term management structure to manage the operation and further improvements on I-77. Especially since the paying customers will be primarily from the sub-region and supplemental funding may come from Equity funds, the MUMPO believes it should have a meaningful place on the management team. How does the RFP structure I-77's management?

Thank you for your ongoing consultation with us as we work through this incredibly complex process. Our team meets on an ongoing basis and looks forward to being an integral part of the project. Please do not hesitate to contact the team and me to explore any of these topics in detail.

On behalf of the Tech Team,

Sincerely,



William S. Coxé

Chair, MUMPO Technical Coordinating Committee

Attachments

Cc: TCC I-77 Tech Team  
Barry Moose  
Virginia Mabry  
Jim Ray  
Eric Midkiff  
Theresa Ellerby  
Loretta Barren



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October 4, 2012

Theresa Ellerby  
Eric Midkiff  
NCDOT PD&EA Branch  
1548 Mail Service Center  
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Subject: Comments on Environmental Documents for TIP Projects I-3311 C  
and I-4750 HOT

Dear Theresa and Eric:

The Mecklenburg-Union Metropolitan Planning Organization's Technical Coordinating Committee (hereafter TCC) would like to make formal comments for consideration in the environmental documentation for TIP projects I-3311 C (I-77 from Brookshire Freeway to North of I-85) and I-4750 HOT (I-77 from Catawba Ave. to NC 150.) We appreciate the cooperation that we have enjoyed between NCDOT and the TCC's I-77 Technical Team and submit these comments in that spirit.

Rather than reiterate all of the comments that have been submitted by the Technical Team, we are appending two letters submitted to Rodger Rochelle dated July 19, 2012 and August 13, 2012. Please consider the relevant sections of each of these memos as formal comments for the respective environmental documents. However, the following issues are of either sufficient import to be worthy of repetition or have not previously been raised. Unless otherwise noted, these issues are relevant to both environmental documents.

Project segmentation & strategic framework

NCDOT is currently soliciting public/private partnership (P3) proposals for a HOT lanes project on I-77 between downtown Charlotte and downtown Mooresville. Environmental documentation on the project is being conducted under three separate documents. *Perhaps the primary issue of concern to the TCC is the lack of a unifying strategic document to link together the three environmental documents as well as TIP project I-4750.* It is difficult to evaluate how the proposed investment fits within a long range strategy when one has not been developed.

The only document addressing I-77 between Charlotte and Mooresville is the 2001 I-77 Sub Area Study which calls for four general purpose lanes in each direction, strengthened shoulders for bus operation, median improvements for two HOV lanes (either one in each direction or concurrent flow,) recommendations that no additional general purpose interchanges be created, consideration of direct connection for buses and HOVs, improvements to parallel facilities, and other management/operational strategies. In 2001, HOT lanes were a strategy being considered nationally in several corridors but operational in only three and were not considered for I-77. *If no other strategic vision is created for the I-77 corridor, how does the project being evaluated under three documents lead to the implementation of this 2001 vision?*

Project I-3311 C includes significant construction issues and both natural environmental and environmental justice issues. The implementation cost of the construction is high and the costs of mitigations are potentially high. Since the toll revenues from the single occupant users of the system are being used to leverage the available public dollars, the financial structure must account for the use of these revenues in the difficult sections as well as in the easier central section. *As Project I-4750 (full widening of I-77 from Catawba Avenue to I-40 in Statesville) is explored, how does the I-4750 HOT lane project and its revenue stream interface with the full project?*

HOT lanes are a new concept in North Carolina and are different in intent from pure toll lanes. The benefits and drawbacks to the transportation system and to I-77 specifically should be clearly described. *In particular, the implications on the public's ability to provide additional improvements to the interstate should be clearly described so that the public has the opportunity to judge the worth of the investment and project delivery structure.*

#### Analysis years and scope

Furthermore, the analysis of operations under the documents apparently only extends to the year of proposed opening which is 2017 for I-3311 C and 2015 for I-4750 HOT. The analysis included in the signed Categorical Exclusion for TIP project I-5405 for the year 2015 indicated modest improvements to average travel speed (all vehicles) and person trips processed with minimal impact to the travel speed in the existing general purpose lanes. *It would be helpful to understand future conditions as a result of this investment which has a currently proposed 50 year concession period. As you are aware, due to the non attainment status of our area we must model the project's effect on our air quality for at least the next 20 years.*

The environmental documents should be clear as to which project they are modeling. *Is each document modeling the continuous Charlotte to Mooresville project or an isolated project just within its boundaries?*

#### Traffic analysis

The issue of traffic operations at interchanges and how transit users, multi-occupant vehicles, and paying customers gain access to the managed lanes across the general purpose lanes continues to be of great interest. *If there are more users of the freeway due to the HOT lanes'*



*capacity, do they not contribute to existent operational issues at the interchange connections to the surface system? If general purpose lanes are over capacity, how do the HOT lane users cross those lanes to access interchanges?*

*For project I-3311 C, how does the specific manner of the direct connection to the Brookshire Freeway align with the anticipated customer base and with anticipated upgrades to Brookshire? How do both I-5405 and I-3311C allow for future upgrade of the I-77/I-85 interchange and the potential for HOT lanes on I-85?*

Measures of success

*The proposed project delivery through a P3 process should be examined as to its impact on project operations. For example, we would assume that a publicly operated project could have as a policy objective to enhance and provide incentives for multi-occupant vehicles. Informal carpooling, including the acceptance of "slug lines", could be encouraged. Frequent usage by the same multi-occupant vehicle could be rewarded in some fashion. Incentives for transit usage such as free wi-fi on overhead gantries might help shift the corridor's success paradigm from vehicle trips to person trips.*

*A private vendor's vision for success would not necessarily fully align with the public sector's approach. Furthermore, changing the success parameters during a 50 year concession period is likely to be much more challenging under a privately developed project than a public one. What is the management structure for the project's long term operation, how are currently unenvisioned goals to be achieved, and what is the formal role of the MPO in that process?*

***Finally and perhaps most important of all, the TCC would like to state its endorsement of the use of HOT lanes as a valid long term management strategy for freeway expansion.*** This comes not just out of recognition of the fiscal constraints under which traditional funding streams place us but out of recognition of the long-term efficacy of HOT lanes to provide reliable travel service over many decades and encouragement for multi-occupant vehicle use with its attendant environmental, energy, and operational benefits. We are committed to continue our collaboration with NCDOT to find appropriate manners and circumstances for the implementation of managed lanes, especially on I-77.

Sincerely,



William S. Coxe  
Chair, Mecklenburg-Union Technical Coordinating Committee

Attachments

cc: MUMPO members  
TCC members  
Carl Gibilaro  
Frank Vick  
Rodger Rochelle



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DATE: July 19, 2012

TO: Rodger Rochelle, PE  
Director, Transportation Program Management Unit  
NCDOT  
1595 Mail Service Center  
Raleigh, NC 27699-1595

**SUBJECT: I-77 P3 Request for Proposals  
MUMPO I-77 Technical Team Comments**

Dear Rodger:

The Mecklenburg-Union Metropolitan Planning Organization's Technical Coordinating Committee's I-77 Technical Team (hereafter called the Tech Team) has compiled a set of issues of concern related to the NCDOT's Request for Proposals under I-77's P3 procurement. Please direct us to where and how in the RFP these issues are addressed. If they are not discussed in the draft RFP, we wish to know how they can be appropriately included in the current procurement.

In the following discussion we do not wish to suggest that we have the correct answer to an issue, rather it is our goal to challenge the private concessionaires to think through these elements and offer alternative technical concepts or processes that address them. In these discussions, we believe it is appropriate for the concessionaires to discuss financial options for the delivery of their recommended solutions.

The broad categories of issues include:

- 1) Traffic operational issues at the termini of any project segment and at ingress/egress points.
- 2) Traffic operational issues at each current general purpose interchange, both at the connections to the general purpose lanes as well as at the connections to the surface street system.
- 3) Interaction of the project with future public investments in the corridor, both parallel and crossing locations.
- 4) Consideration for direct access to the HOT lanes from locations separate from current general purpose interchanges.
- 5) Coordination of the project with non-motorized transportation, especially with regard to future grade separated facilities exclusively designated for bicyclists and pedestrians.

- 6) Consideration of alternative technical concepts for the additional lanes between I-277 and I-85 to include elevated improvements as an alternative to horizontal widening.
- 7) Coordination of the project with future modifications to the I-77/I-85 interchange.
- 8) Coordination of the project with the study underway on I-277.
- 9) Coordination of the project with TIP project I-4750's widening of the causeways.
- 10) Project accommodation of community aesthetics.
- 11) MUMPO role in long term management of the investments in I-77

A brief discussion of each of the issue categories follows:

Issue 1: Traffic operations at project termini and access points

In any project with potential interim segment operations, the management of traffic at each end of the segment becomes problematic. In some cases, the interim period stretches into years due to funding limitations. We are also interested in the operations of access to the HOT lanes across the general purpose lanes especially as traffic grows. In the case of a HOT lane, in addition to traditional traffic engineering solutions, consideration might be given to altering tolling policies (including # of occupants required for free lane use) depending on the length and location of segments available for use.

Issue 2: Existing interchange operations

Many of the existing interchanges currently operate in a sub-standard condition during peak hours. In numerous locations, in the PM peak period, northbound off ramp congestion at the interface with the surface streets causes queue back-up down to the main line. In other locations, the short length of on ramps results in merging traffic forcing their way into main line traffic causing turbulence in main line operations. In particular, proximity to the causeways cause substantial problems and crashes at the Catawba Ave (Exit 28) and Griffith St (Exit 30) interchanges. If the P3 project is successful, additional traffic will be attracted to I-77, exacerbating these problems. What technical and policy recommendations can the concessionaires devise to mitigate this?

Issue 3: Integration of this project with other corridor investments (mostly motorized travel)

Numerous public plans propose future transportation projects in this corridor, mostly related to motorized traffic but including provisions for non-motorized users. To what extent does the concessionaire's proposal implement, facilitate, accommodate, or ignore these plans? At the very least, the P3 project should not make more expensive the future implementation of any publicly identified project nor should it consider their future implementation a "compensation event." The adopted Mooresville/South Iredell and draft Mecklenburg/Union Comprehensive Transportation Plans, the Mecklenburg/Union Long Range Transportation Plan, the projects officially submitted for Strategic Prioritization, and projects included in the TIP have been scanned for projects that should be considered in this procurement. A spread sheet of identified projects is attached as Exhibit A.

Issue 4: Direct access to HOT lanes

Current general purpose lane congestion will make access between the surface street network (potential customers) and the HOT lanes difficult and this will worsen as regional growth adds traffic. Direct access from the HOT lanes, possibly using "I" ramps, to both existing and future bridges would offer multi-occupant vehicles and paying customers premium service and could help relieve the current operational issues identified in Issue 2. Following discussion with Derrick Lewis of NCDOT, local staff has identified potential locations that could be considered for these direct connections. Other suggestions by the concessionaires may be appropriate and should be considered.

A list of these locally identified locations includes:

Cindy Lane  
Lakeview Road  
Metromont Parkway (Hucks Road Extension)\*  
Hambright Road  
Verhoeff Drive Extension \*  
Stumptown Road  
Northdowns Lane/Bridgeford Drive Connector (in LRTP, 2035 Horizon Year) \*  
Jim Cooke Road Extension (in LRTP, 2025 Horizon Year)  
Westmoreland Road  
Fairview Road-Alcove Road Connector ( Mooresville) \*

\* the crossings with asterisks do not currently exist but are included on a locally adopted plan (Thoroughfare Plan, CTP, etc.)

Issue 5: Integration of the project with non-motorized transportation

Our region believes that non-motorized transportation is a vital component of the mixture of transportation options offered to our citizens. Our community plans are based on providing land development patterns that can be accessed by bicyclists and pedestrians as well as transit users and automobile drivers. It is absolutely essential, and in keeping with NCDOT's Complete Streets policy, that any bridge crossing I-77 that is modified, constructed, or re-constructed under this or subsequent projects appropriately accommodate non-motorized users. In almost all cases this would be on both sides of the bridge. In addition, greenway planners in our communities have identified locations for off-road routes that would provide adequate linkages for less experienced or capable bicyclists. Manners for accommodating these locations within the project's scope should be discussed by the proposers. The attached Exhibit B identifies all crossings or in a couple of cases parallel accommodations for non-motorized travelers in the project limits.

Issue 6: Alternative technical concepts for widening between I-277 and I-85

The section of I-77 between the Brookshire Freeway (I-277) and I-85 is extremely constrained by natural and human considerations on both sides. Although the normal approach would be to widen horizontally and mitigate the takings, are there technical alternatives such as elevated structures that might substantially relieve this conflict? This discussion should occur in conjunction with explorations of the following two issues:

Issue 7: Coordination with future improvements to the I-77/I-85 interchange

Numerous problems, including congestion and roll-over crash issues, exist with the current configuration of the I-77/I-85 interchange. We understand (and support) that a feasibility study will be programmed in the upcoming TIP to examine options at this location. Proposers on the I-77 P3 project should address manners in which their proposals would help facilitate future renovations to this interchange.

Issue 8: Coordination with I-277 study

The City of Charlotte, MUMPO, and NCDOT are engaged in a study of the I-277 loop around central Charlotte. Ramp spacing and lengths cause major congestion and crash problems. The manner in which the direct access occurs from the I-77 HOT lanes to I-277 requires careful coordination with the efforts underway to improve the facility's operations. An analysis of the potential customer base for the HOT lanes related to their desired destinations along I-277 may assist in this discussion.

Issue 9: Coordination with TIP project I-4750 and the Lake Norman causeways

The 2001 I-77 Sub-area Study from I-85 to NC 150 is the only coordinated planning document for the majority of the length of the proposed P3 project. It calls for a long-term total width of eight (8) general purpose lanes, two HOV lanes in the median, and strengthened shoulders for buses during peak hours. The 2004 I-77 feasibility study from NC 73 to I-40 calls for eight general purpose lanes in the corridor. How do the concessionaires help to facilitate these long term goals? In particular, the current I-4750 TIP project and environmental study between Catawba Avenue and I-40 is exploring the appropriate widening of the three causeways crossing Lake Norman. How does the P3 project fit into this larger scope?

Issue 10: Community aesthetic coordination

There are numerous examples in the corridor of efforts undertaken to help mitigate the impact of an interstate freeway on the communities through which it passes. These considerations begin with brick privacy walls in the southern section of the project, include extensive protection of the tree cover in the median and along the outer boundaries of the right of way north of I-485, and include consideration of interchange aesthetics in the pending Cornelius diverging diamond interchange project at Exit 28. The vistas across Lake Norman have been identified as both a blessing (recruiting development) and curse (the “lake effect” on a beautiful summer afternoon as gawkers stare at the boats and their occupants.) How will the concessionaires incorporate community aesthetic considerations into their proposals?

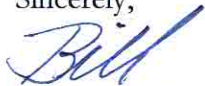
Issue 11: MUMPO role in long term management of I-77 investments

We assume that there will be a long term management structure to manage the operation and further improvements on I-77. Especially since the paying customers will be primarily from the sub-region and supplemental funding may come from Equity funds, the MUMPO believes it should have a meaningful place on the management team. How does the RFP structure I-77's management?

Thank you for your ongoing consultation with us as we work through this incredibly complex process. Our team meets on an ongoing basis and looks forward to being an integral part of the project. Please do not hesitate to contact the team and me to explore any of these topics in detail.

On behalf of the Tech Team,

Sincerely,



William S. Cox

Chair, MUMPO Technical Coordinating Committee

Attachments

Cc: TCC I-77 Tech Team  
Barry Moose  
Virginia Mabry  
Jim Ray  
Eric Midkiff  
Theresa Ellerby  
Loretta Barren



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August 13, 2012

Via E-Mail

Rodger Rochelle  
Director of Transportation Program Management  
NCDOT

Subject: MUMPO TCC I-77 Task Force Meeting August 8, 2012, RFP Issues

Dear Rodger:

The TCC's task force on I-77 met on August 8, 2012 to further discuss the Second Industry Draft Request for Proposals on the I-77 P3 project. We focused on the concerns we expressed in our memo of July 19<sup>th</sup> and your responses of July 26. Here are some additional thoughts and requests for clarification stemming from our discussion.

*General note: when an issue number below is cited, that refers to the item number in the July 19, 2012 memo to Rodger Rochelle*

- A. Thank you for a thoughtful and comprehensive response. The directions to pertinent locations in the RFP are very helpful although we really need to read much more of the document to comprehend how it works. Which leads to:
- B. What is the rationale for keeping the RFP under secrecy? If all 4 concession teams have access to the same document, where is the harm in allowing the public to view it? It makes it extremely difficult for anyone outside the Government Center to spend any quality time reviewing the RFP.
- C. On Issues # 1 & 2: an initial scan of the language in the RFP does not seem to require a weave analysis related to the entry and exit points of the HOT lanes although one is certainly logical from the concessionaire's point of view. However, it seems that introducing a weave where none exists will have an effect on the congested GP lanes and I'm simply not familiar enough with the analysis techniques to know if speed in the GP lane is related to the weaving issue. Also, it does not seem that any analysis is required at the signals at the tops of the ramps. Again, increased traffic at these points would seem to worsen already poor operations at several of the interchanges.
- D. On Issue # 3's answer, the definition of a "related transportation facility" is somewhat open to interpretation. Using lower case letters for the term "long range transportation plan" could be interpreted as mandating accommodation of projects in any long range transportation plan such as a thoroughfare plan or a comprehensive transportation plan or a greenway trails plan where there is a transportation function of the trails OR it could be interpreted as only the MPO's officially adopted and financially constrained 2035 Long Range Transportation Plan. Clearly we prefer the first, and broader, interpretation. We do

acknowledge the problem of a changing game for the concession team. Perhaps the comprehensive lists (Appendices A & B) submitted with our July 19<sup>th</sup> memo could define those projects that must be accommodated?

- E. Issue # 5: this will need further review relative to the inclusion of greenway underpasses.
- F. Issue # 11, MUMPO participation in the management team. Again, we assume that there is some formal oversight group once the project is completed and in operation. Will the MPO have an official role and vote in that group?
- G. Although not raised in our memo, on the 8<sup>th</sup> the issue of bridge replacement came up again. We have some confusion as to how bridge replacements will be determined and under what funding structure. We would like to confirm whether or not any of the bridges being replaced on the project are being replaced for independent reasons, i.e. structural or functional deficiencies not related to the project. Are any of the bridge replacements being proposed as separate TIP projects? The point here is the potential effect on the region's equity funding.
- H. With regard to Item G above, if the Griffith Street (Exit 30) bridge is replaced as part of the project, we believe it is crucial to deal with the safety issue of substandard ramp length. Unfortunately, we cannot see how that can occur without touching the causeways.
- I. Finally, what are the current proposed funding sources for the project? We have heard that the funding for TIP project I-5405 is now proposed to not contain any federal funds. Is that correct?

Thanks again for the ongoing collaboration and responsiveness. In particular we would like to applaud the inclusion of the concept of direct access. As we examine that issue, it is important that the local communities have a voice in any final determination of access to the lanes where no access currently occurs to the surface street network.

We are trying to schedule a TCC I-77 task force meeting for this Wednesday, August 15<sup>th</sup>. If we do so, it will need to be sandwiched in between a 2:00 staff meeting and a 4:00 MPO subcommittee meeting on the MPO expansion. I think many of the issues detailed above could be discussed through a telephone conversation with you and Barry and should not need a face to face visit.

On behalf of the Tech Team,  
Sincerely,



William S. Coxe

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Jim Ray  
Eric Midkiff  
Theresa Ellerby  
Loretta Barren