

Mooresville-Charlotte Trail

A 30-mile Active Transportation Corridor

Technical Report



Prepared For:



Prepared By:



August 2013

Acknowledgements

The Jurisdictions of Mooresville, Davidson, Cornelius, Huntersville, Charlotte; and Iredell and Mecklenburg Counties; greatly appreciate the efforts of the numerous stakeholders and citizens who participated in the development of this study. Their creativity, energy, and commitment to the future of the Mooresville to Charlotte Trail were the driving force behind this effort. The following stakeholders, staff, and other agency and organization members contributed significantly to the development of the Mooresville to Charlotte Trail Feasibility Study.

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1. Introduction

The Mooresville to Charlotte Trail (MCT) is a proposed thirty-mile, multi-use trail that will extend from downtown Mooresville, North Carolina to Uptown Charlotte, North Carolina traveling through Davidson, Cornelius and Huntersville. The MCT will be located within Iredell and Mecklenburg Counties. The trail generally parallels the Norfolk Southern rail corridor and NC Highway 115, while generally staying outside of the Norfolk Southern right of way. The trail is envisioned as a paved trail, with a minimum 12 feet in width. The MCT is a standalone project, and can be planned and constructed whether or not any conceptual commuter rail exists within the corridor. The MCT is intended to connect to greenway trails identified in the master plans of the jurisdictions that the trail passes through, and will provide a non-motorized transportation and recreation option for trail users along the corridor. The trail is expected to be completed in segments, with priority sections that connect to proposed transit stations, key points of interests, and other large trip generation areas to be constructed first.

The MCT planning process was first initiated in 2010 by a group of staff from seven jurisdictions: the Towns of Cornelius, Davidson, Huntersville and Mooresville; the City of Charlotte; and Iredell and Mecklenburg Counties. Staff members were joined by citizens interested in furthering the effort. Together, the initiative group created a conceptual trail alignment (depicted in Figure 1) for the corridor and prepared a memo that estimated that between 1.2 and 1.8 million user trips would be made annually on the trail (this model assumes a functioning commuter rail within the corridor). (At the time the initiative group prepared the memo, the group referred to the trail as the “North Corridor Trail”; see reference memo in Appendix I). Presently the trail is known as the “Mooresville to Charlotte Trail”. To advance the planning process, in 2013 the group contracted with Alta Planning + Design, a bicycle, pedestrian, and trail planning and design consultant, and Parsons Brinckerhoff. A Mecklenburg-Union Metropolitan Planning Organization (MUMPO) grant funded the effort. This technical report highlights visuals that were created for key sections of the trail and summarizes the public input process that identified the preferred alignment of the MCT. The report also identifies near term priority projects and estimates the order of magnitude cost for the complete trail system.



Attendees view the trail corridor at a public workshop in Charlotte.

The MCT corridor serves as the study area. Greenway and other bicycle and pedestrian facilities that connect to the MCT within individual municipalities will be implemented through separate efforts. The initiative group intends for this study to reflect the best thinking and vision of government agencies and local stakeholders, including community and institutional representatives, and potential facility users. Gathering and condensing the thoughts and ideas of each of these entities into a single vision is critical to the success of this study. The consensus vision expressed in this document shall serve as a tool to guide the future development of the Mooresville to Charlotte Trail.

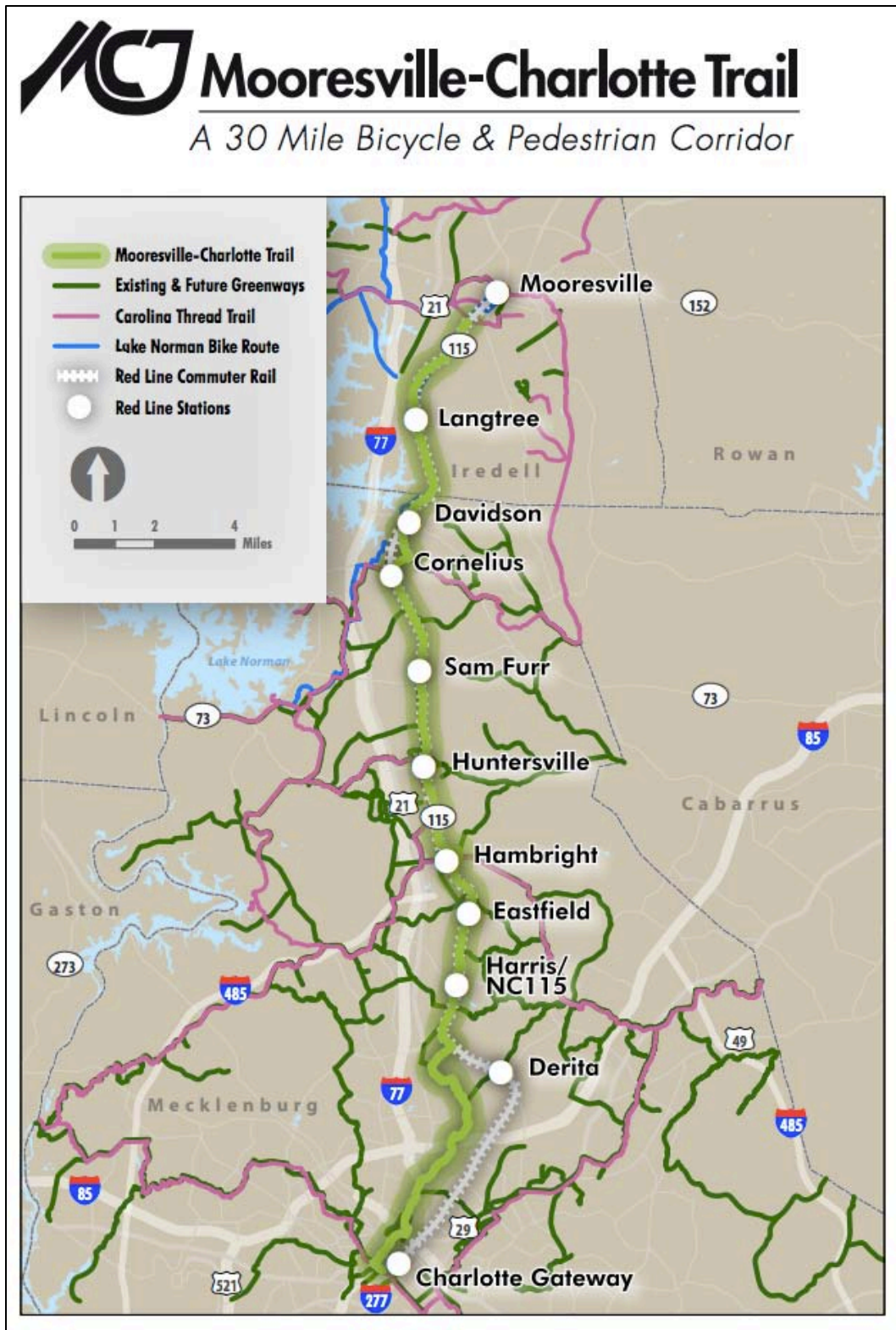


Figure 1: The Mooresville to Charlotte Trail Conceptual Alignment

Existing and proposed bike-ped facilities already adopted by local jurisdictions complement the MCT, providing potential for a significant, active transportation system.

2. Visualizing the Mooresville to Charlotte Trail

The Mooresville to Charlotte Trail (MCT) represents a number of opportunities for the communities within which the trail corridor is located. When complete, the trail will become an amenity for the communities along the trail, stimulating economic development, promoting active modes of transportation and recreation, and improving the environmental quality of the region. As seen with similar trails in other cities, active transportation reduces harmful emissions while resulting in health and fitness benefits. Regional trail projects that travel through multiple communities can be difficult to communicate, thus the project team utilized a robust public outreach process (fully described in chapter 3 of this document) to enhance public understanding of the Mooresville to Charlotte Trail. The project team used state-of-the-art visuals and graphic simulations, including a video flyover of the trail system, to depict the potential trail corridor and its appearance.

The video flyover displayed the proposed route of the Mooresville to Charlotte Trail, beginning in downtown Mooresville and then ‘flying over’ the trail corridor, highlighting municipalities and key destinations along the way, terminating in Uptown Charlotte. The video was a helpful tool to depict the trail’s alignment through varied land uses and development patterns. An image of the MCT video flyover is displayed below, and the complete video is available on the project website hosted by Mecklenburg County:

<http://charmeck.org/mecklenburg/county/ParkandRec/Greenways/Pages/RedLineTrail.aspx>.



The video flyover of the Mooresville to Charlotte Trail provides a unique perspective on the proposed trail route

Photo Renderings of Potential Mooresville to Charlotte Trail

The project team also used before-and-after renderings (“photosimulations”) to depict trail alignment and appearance at key locations, as depicted in Figures 2 and 3.



Figure 2: The MCT will facilitate access to schools, shops, restaurants, and employment along the corridor. Existing conditions (above) and photo rendering (below) of MCT along Jackson Street in Davidson.



Figure 3: Gateways will provide a sense of identity along the Mooresville to Charlotte Trail system. Existing conditions (above) and photo rendering (below) near Norman Drive and the rail line in Mooresville.

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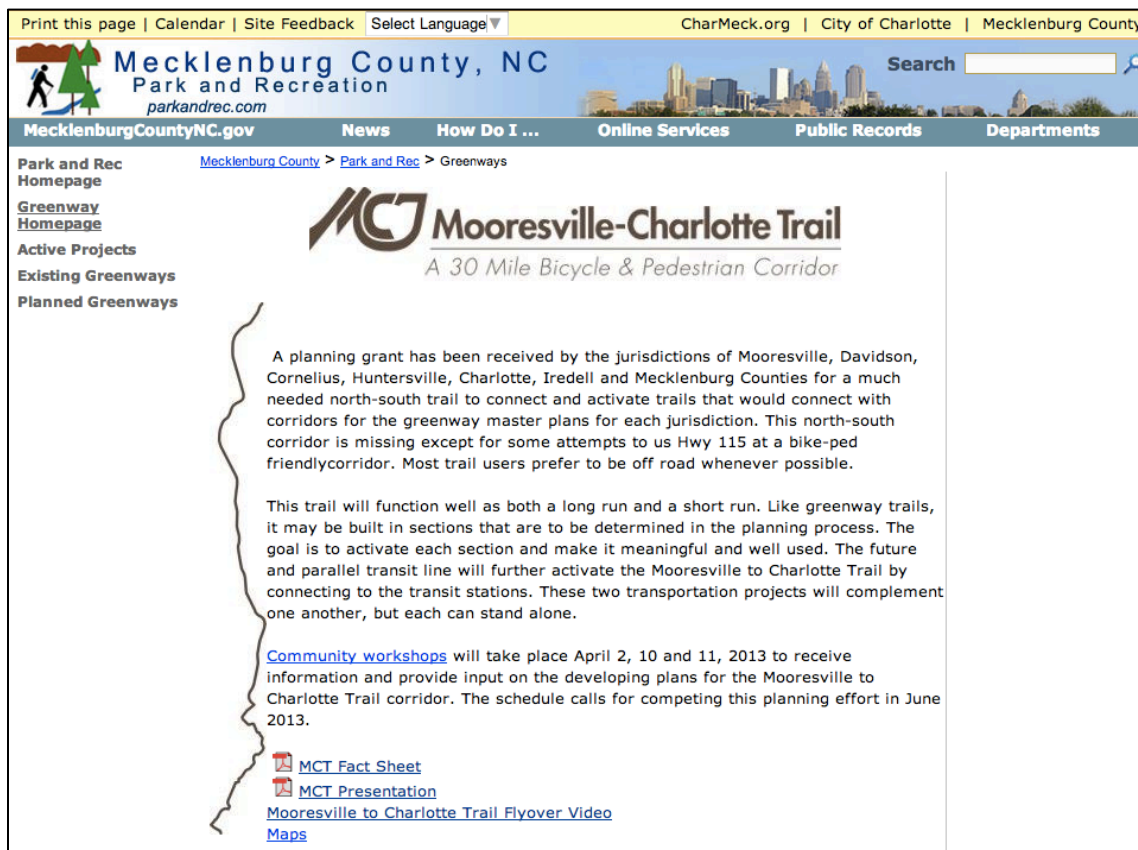
3. Public Involvement Process

The Mooresville to Charlotte Trail is an ambitious project that travels through multiple communities. Without broad support from elected officials and the public along the corridor, the project’s bold vision will likely not be fully realized. The Mooresville to Charlotte Trail planning process involved a robust public outreach process that provided invaluable information from agency representatives, residents, businesses and other key stakeholders for the entire length of the trail system. This chapter describes the process for obtaining public input.

The planning team used various methods to solicit and receive feedback and direction during the planning process. Feedback from the public and stakeholders was then synthesized and ordered into logical categories. This chapter includes graphs and charts produced to help visualize the type of public comments provided. The public comments directly informed the planning team’s identification of priority projects (see chapter 4).

Website

To keep the public up-to-date on the progress of the study, Mecklenburg County maintained a project website. The website provided information regarding the goals of the project, maps of potential routes and facilities, an MCT fact sheet, a link to the a flyover video of the trail system, meeting dates and times, presentations, and project contact information. Local municipalities provided convenient links from their respective websites to the Mecklenburg County site.



The Mecklenburg County website served as the hub of information for the MCT during the planning process.

Public Meetings

In order to gather broad public input, the planning process included three public meetings. Prior to the meetings, the jurisdictions informed property owners near the Norfolk-Southern rail line by mailing approximately 1,300 postcards, issuing press releases to local media outlets and sending information through their email contact lists. The three meetings were hosted at the following jurisdictions: Town of Mooresville (April 2nd, 2013), City of Charlotte (April 10th, 2013), and Town of Cornelius (April 11th, 2013).

1 Tues. Apr. 2nd 2013
5-7 PM
Charles Mack Citizens Cntr.,
Merchant Rm.
215 N. Main St.
Mooresville, NC 28115

2 Wed. Apr. 10th 2013
5-7 PM
Meck. Co. Park & Rec.,
Admin. Bldg.,
Cardinal Conf. Rm.
5841 Brookshire Blvd.
Charlotte, NC 28216

3 Thurs. Apr. 11th 2013
5-7 PM
Cornelius Town Hall
21445 Catawba Ave.
Cornelius, NC 28031

COMMUNITY WORKSHOP

Mooresville, Iredell County,
Davidson, Cornelius, Huntersville,
Charlotte & Mecklenburg County will
host a community workshop to inform
the public about planning for the
Mooresville-Charlotte Trail, a 30-mile
trail that will provide a corridor for
non-motorized transportation (bicycle
and pedestrian) in the region. Citizen
input will be sought. There will be 3
opportunities to attend the drop-in
workshop (see panel, left).

Mooreville-Charlotte Trail

For additional information, please visit:
www.parkandrec.com
► Greenways ► Active Projects

The meeting sites were selected to take place mostly at convenient locations along the trail corridor in order to provide multiple opportunities for the public to attend and participate. Each of the public meetings followed a similar format.

Staff first welcomed attendees to the meeting, and asked each person to sign in. Each attendee received an agenda for the meeting, which included the project website, and contact information.

Postcards informed the public about the Mooresville to Charlotte Trail public meetings.



Meeting attendees discussing the proposed trail alignment at the Charlotte workshop.



Mooresville-Charlotte Trail



Drop-in Workshop from 5:00 pm to 7:00 pm

- Sign-in / watch introductory video
- Study trail maps / fly-over video / Project discussion with staff members
- 5:45 pm - Project PowerPoint Presentation /Q and A Session

More questions? Please visit our website at www.parkandrec.com/greenways/active_projects
 You may also contact Gwen Cook at Gwen.Cook@MecklenburgCountyNC.gov or 704-432-1570.

Agenda slips gave public meeting attendees an overview of each workshop.

Staff and consultants encouraged attendees to ask questions and to visit stations set up around the room displaying the full, proposed MCT corridor. The public was encouraged to comment on the proposed corridor using markers and Post-It notes. Staff projected the MCT video flyover on the wall during the meetings. Mecklenburg County and local jurisdiction staff provided a brief presentation highlighting key aspects of the MCT. The presentation included examples of similar projects of the same scale that have been built in other American cities, and they have proven to be very popular and successful. The presentation displayed the proposed MCT alignment, and identified the many benefits of trails. Benefits include: connectivity, increased transportation opportunities, and linkages to proposed transit stations. Staff identified key next steps, including possible funding opportunities as well as the need for coordination between municipalities to incorporate the MCT into local bicycle and pedestrian master plans. The presentations ended with an open question and answer session.



Town of Cornelius staff provided an overview presentation at the Cornelius workshop, held on April 11th. Attendees provided many positive comments and helpful insights regarding the proposed trail alignment.

The project team recorded questions and comments made during the presentation, and invited meeting attendees to revisit the maps and continue discussions. The project team prepared and made available hard-copy comment sheets for use by any participant. Staff also received some comments via email. The project team

collected all comments, and synthesized them into charts grouped by meeting location and comment types.

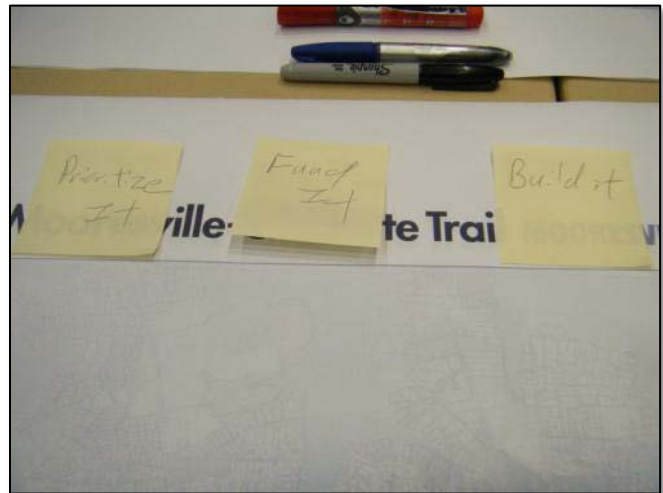
Analysis of Public Comments

The public workshops generated the majority of the public comments - these were primarily in the form of written comments by meeting attendees directly on the maps.

Cornelius was the most well attended meeting, where 23 comments were collected, followed by 11 comments at the Charlotte workshop and 9 in Mooresville (see Figure 4). The project team organized comments into categories for analysis purposes. Although many of the comments fell squarely within an assigned category, some comments were broad and relevant to more than one category. The project team assigned comments to the category that most completely represented the central tenet or focus of the comment. Comments that were relevant to two or more categories were included in both categories.

The planning team determined that comments could be grouped in one of four categories: Enthusiasm for the project (*Enthusiasm*), Suggestions to enhance the project (*Suggestions*), Safety Consideration (*Safety*), and Important Connections to consider (*Connections*), as well as one Miscellaneous category. Of the 43 comments collected, 20 percent indicated direct support for the trail project as proposed, nine percent of the comments provided suggestions to enhance the scope and goals of the MCT. Multiple respondents considered safety a priority, representing about 20 percent of the total comments. The largest category of comments was related to important trail connections, which represented about 35 percent of all the public input collected.

The project team compiled comments from each of the three public meetings, and organized them by both meeting location and topic. Two summary graphs compare the input of the different meeting locations and display the type of comments collected (See Figures 4 and 5). All of the comments are provided in Appendix II.



The enthusiasm of the Mooresville workshop can be summed up in the guiding principles posted by a meeting attendee, "Prioritize it, Fund it, Build it". Public input was generally supportive of the goals and objectives of the Mooresville to Charlotte Trail and its proposed alignment.



Attendees review maps at the Mooresville public meeting.

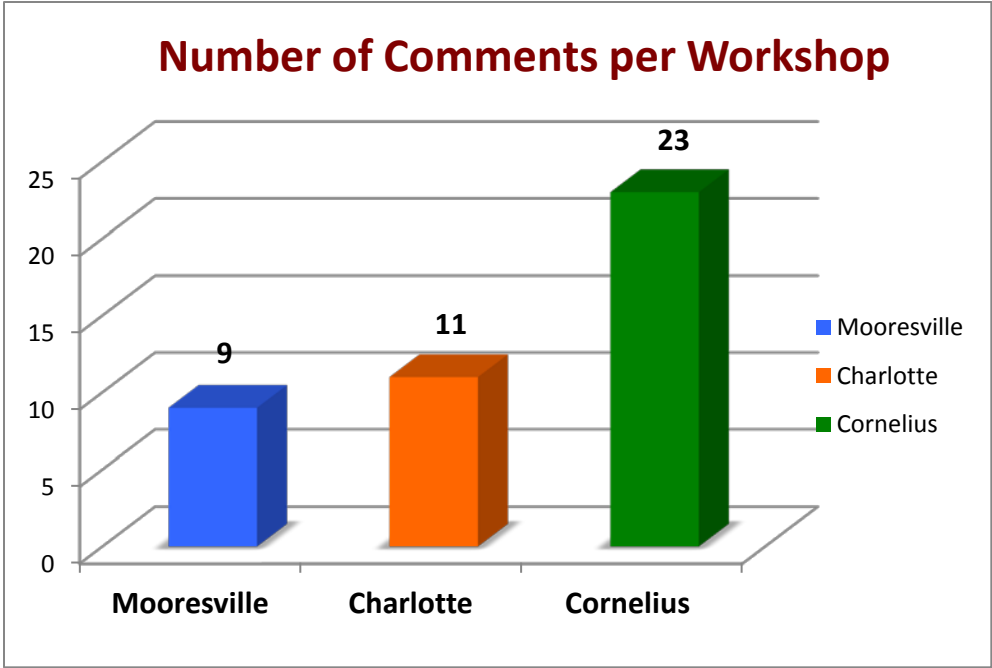


Figure 4: Number of Comments per Workshop

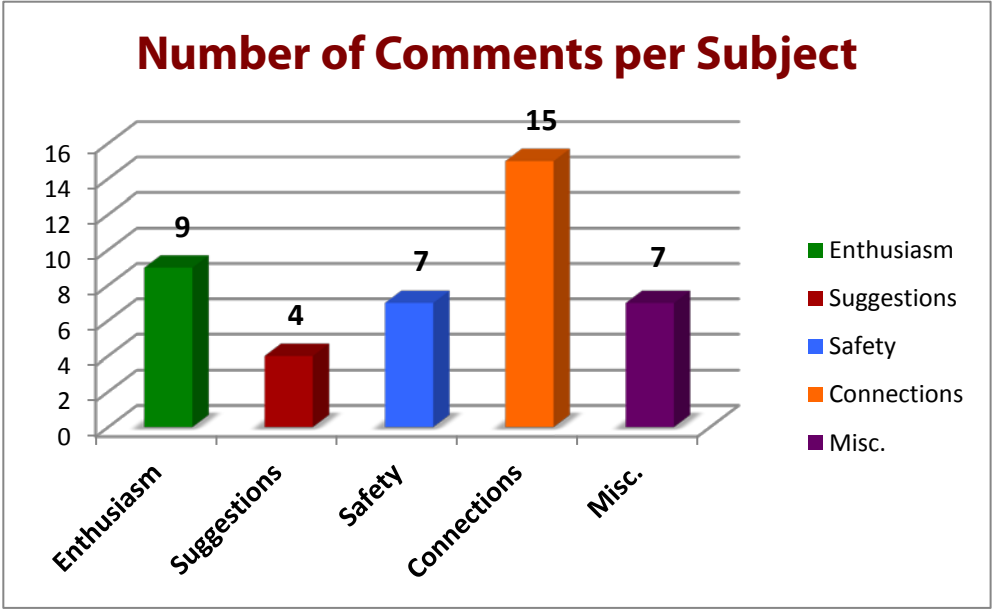


Figure 5 : Number of Comments per Subject

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4. Main Trail Alignment and Priority Trail Segments

Main Trail Alignment

Based on the vision of the MCT project, feedback received from the public process, and jurisdiction preference, the project team developed a recommended a primary (“main”) alignment for the Mooresville to Charlotte Trail. The project team paid close attention to public, stakeholder, and jurisdiction stated preferences for a separated, off-road, paved, multiuse trail (either a greenway or a sidepath). The team also identified alternate alignments for some sections, with the understanding that a master plan is a living document, and as opportunities present themselves in the future, alignments other than the main alignment may be utilized. An overview of MCT lengths is provided below:

MCT Trail Sections	Length (miles)
Iredell County	5.0
Mecklenburg County	17.3
Subtotal	22.3
Existing Greenways	
Irwin Creek Greenway	0.8
Subtotal	0.8
Planned Greenways	
Nevin Park to Irwin Creek Greenway	6.3
Irwin Creek Greenway to Cedar St	0.3
Subtotal	6.7*
Total MCT Length	29.8

** Due to rounding*

Note: Includes only main trail sections.

Table 4-1: MCT Overview Lengths

Near Term Priority and Long Term Projects

Within the MCT preferred alignment, the team divided the Mooresville to Charlotte Trail corridor into logical trail segments, based on consensus of the jurisdiction representatives. Because the MCT is a long-term vision and a large project, the MCT will be constructed in phases. To begin to determine phasing of the MCT, the team set about determining which of those logical trail segments should be considered “near term priority” or “long term” projects. To determine which trail segments would be considered near term priority segments, the project team used a prioritization matrix as an evaluation tool. This technique allows network planners to consider a number of factors when assessing project prioritization, including political feasibility, logistics, environmental impact and transportation outcomes. The team worked with each of the jurisdictions to develop the criteria that would identify which trail segments should be considered near term priority trail segments.

In each jurisdiction, the project team considers higher-scoring projects near-term priority projects, and lower-scoring projects long term projects.

Prioritization criteria include:

- Public Support
- Active Travel Demand
- Connectivity
- Development Costs
- Environmental Impact/Permitting Requirements
- Agency Coordination/Acquisition
- Equity
- Scenic Quality and Experience

A summary of priority projects is given in Table 4-2. The detailed project matrix and prioritization methodology are provided in Appendix III.

Mooresville to Charlotte Main Trail Alignment and Priority Segment Maps

Overall and detail maps of the main and alternate alignments of the MCT corridor, with near term priority and long term projects identified, are provided in Figures 6 through 9. Additional facilities throughout the corridor, such as schools, parks, residential developments, major commercial centers, and existing greenways can be viewed on the MCT project website maps at:

<http://charmeck.org/mecklenburg/county/parkandrec/greenways/pages/redlinetrail.aspx>

“Multiuse Trail (Greenway)” refers to a paved trail that is separate from a roadway, outside of the road right-of-way. “Multiuse Trail (Sidepath)” refers to a paved trail that is separate from a roadway, but within or just outside of (and generally paralleling) the road right-of-way. “Neighborhood Greenways” refers to routes within a roadway that are designated and designed to give bicycle and pedestrian travel priority. Treatments may include signs, pavement markings, and speed and volume management measures to create safe, convenient bicycle and pedestrian access and crossings. The clear preference throughout the corridor is for the MCT to be a multiuse trail, but neighborhood greenways may occur in conjunction with constrained

conditions or other factors. Numbers on the maps correspond to trail segments. Any project that may be chosen for implementation will depend upon public input, availability of funding, detailed design and engineering study, and negotiations with affected property owners. Some example images of different types of potential facilities in different conditions are depicted on the next page.

Priority Level	Description of Factor	TOTAL (Max 100)
	Proposed Segment	
	Mooresville	
Near term	Downtown Mooresville to Pine Lake Preparatory School	68
Long term	Langtree Station to Mooresville town limits	67
	Davidson	
Long term	Mooresville town limits to Davidson Station	57
Near term	Davidson Station to Davidson town limits	70
	Cornelius	
Near term	Davidson town limits to Cornelius Station	73
Long term	Cornelius Station to Cornelius town limits	57
	Huntersville and Charlotte	
Long term	Cornelius Town limits to Huntersville Station	68
Near term	Huntersville Station to Eastfield Road	72
Long term	Eastfield Road to Hucks Road	64
	Charlotte	
Long term	Hucks Road to north end of Nevin Park (near intersection of Garvin Dr. and Oak Dr.)	62
Near term	Irwin Creek Gwy- Nevin Park to Allen Hills Neighborhood Park (immediately south of Nevin Rd.)	90
Near term	Irwin Creek Gwy- Allen Hills Park to Statesville Ave	81
Near term	Irwin Creek Gwy- Statesville Ave to Hamilton St	81
Near term	Irwin Creek Gwy- Hamilton St to Rays Splash Planet	67

Note: Sections are identified by proposed rail transit stations, jurisdiction border, or particular facilities. Actual projects will be planned to functional limits, such as roadways.

Table 4-2: Project Prioritization

Primary Trail Types



A multiuse trail (sidepath) is located within or near a road right-of-way and provides separation from traffic

A multiuse trail (greenway) is often located in natural environments and provides separation from traffic



"Neighborhood greenways" along low volume, low-speed roadways can accommodate both cyclists and pedestrians in more constrained conditions

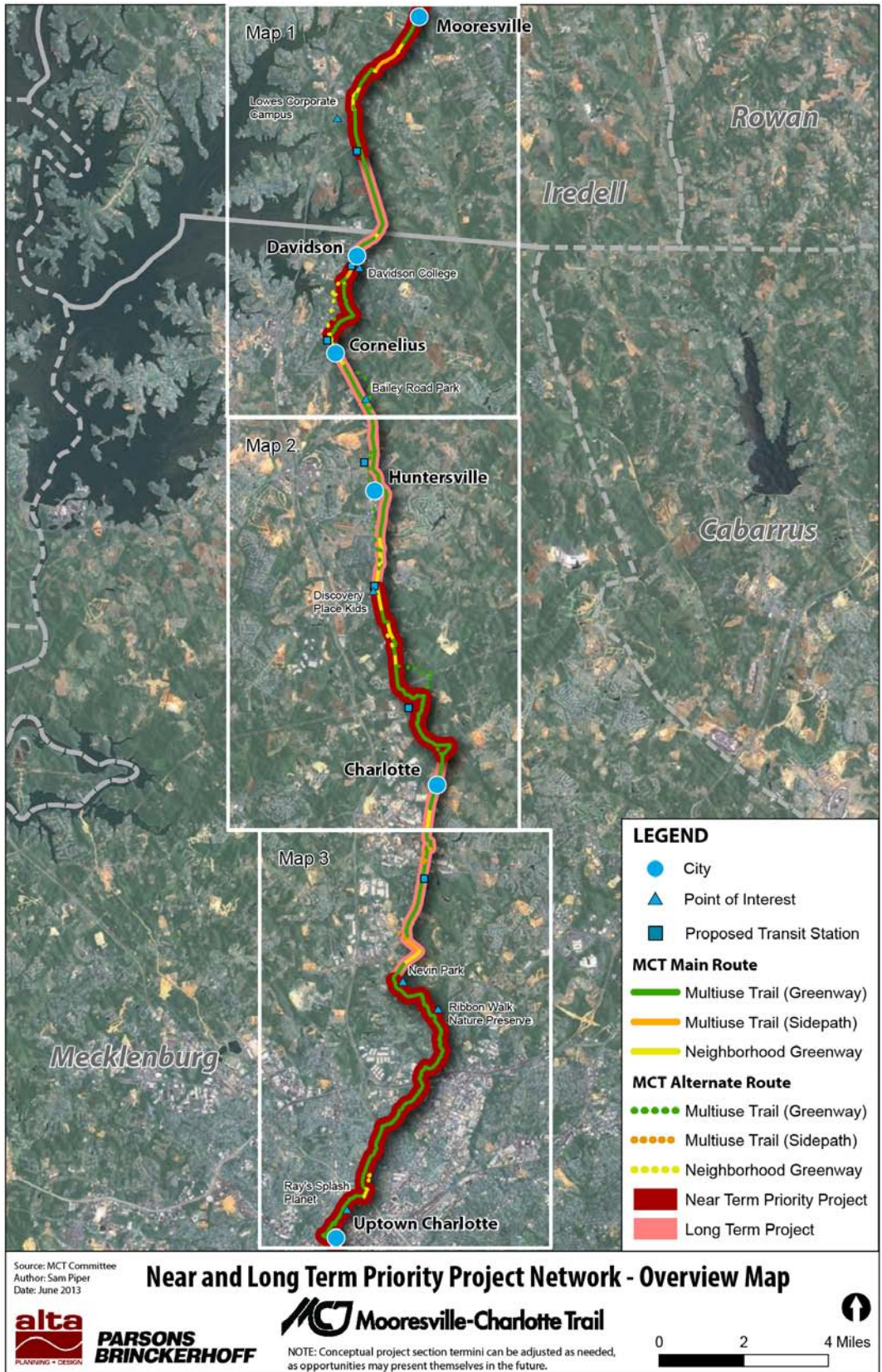


Figure 6 : MCT Trail Alignment Overview

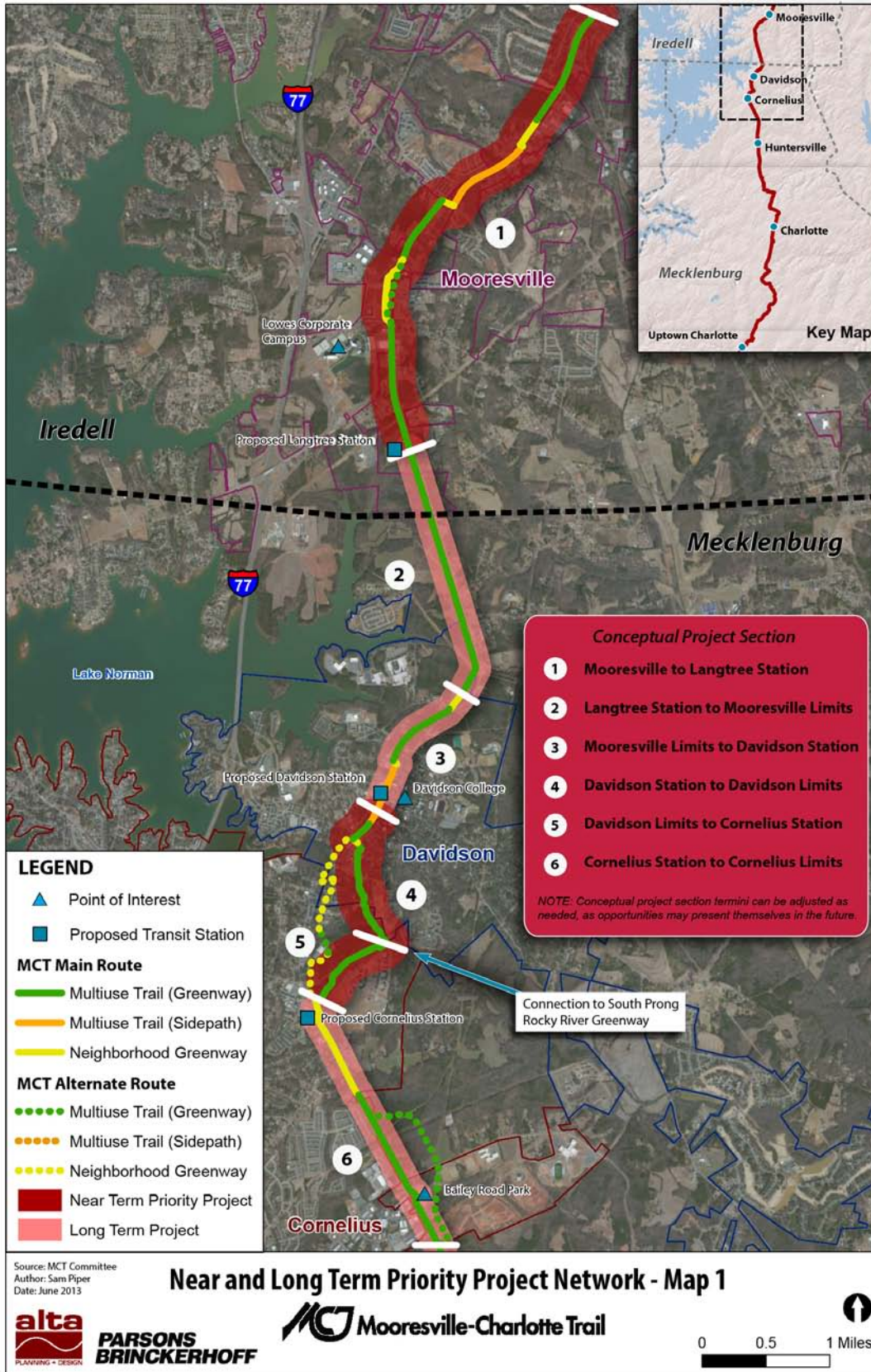


Figure 7 : MCT Priority Trail Segments: Northern Section

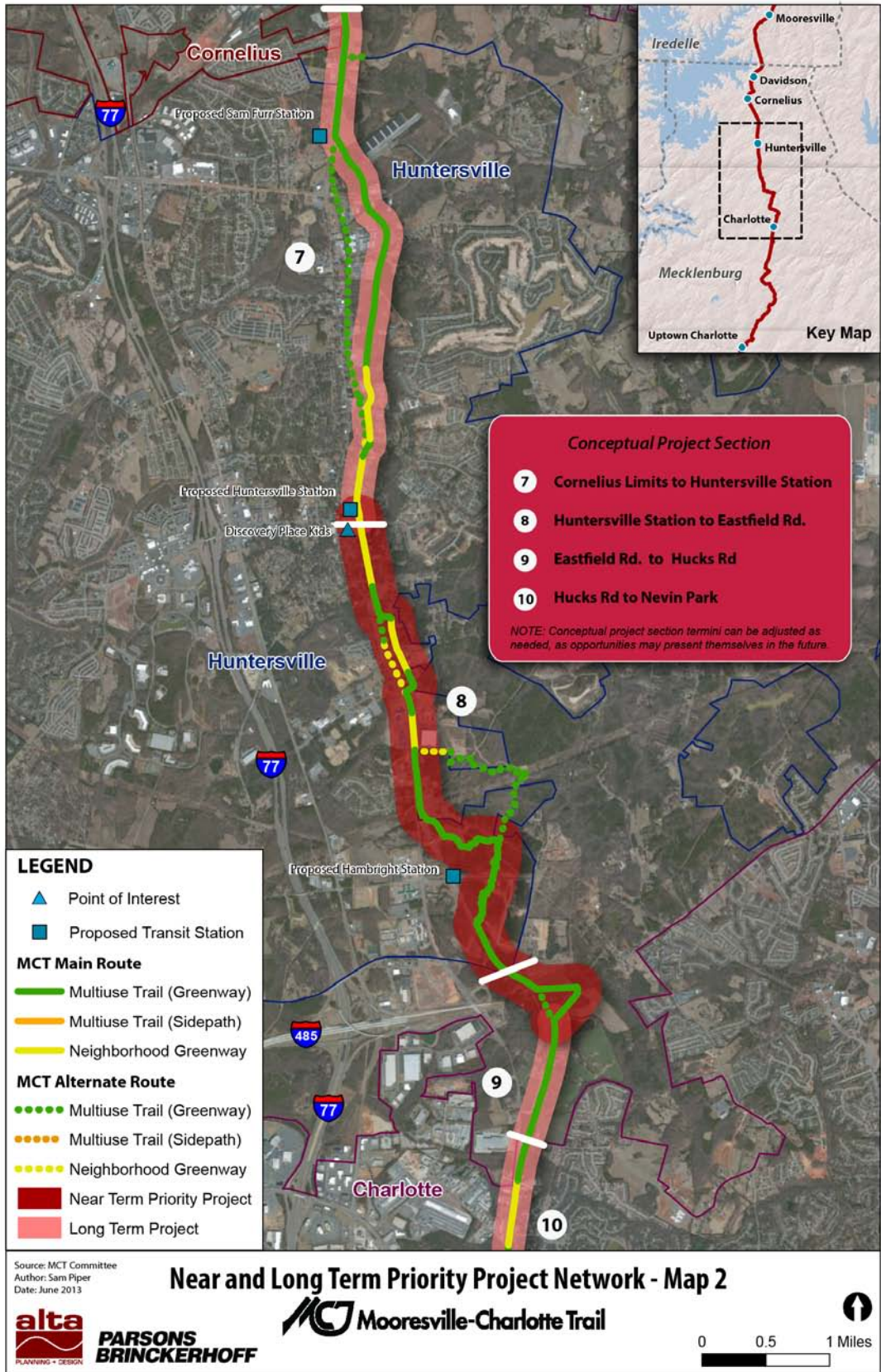


Figure 8 : MCT Priority Trail Segments: Middle Section

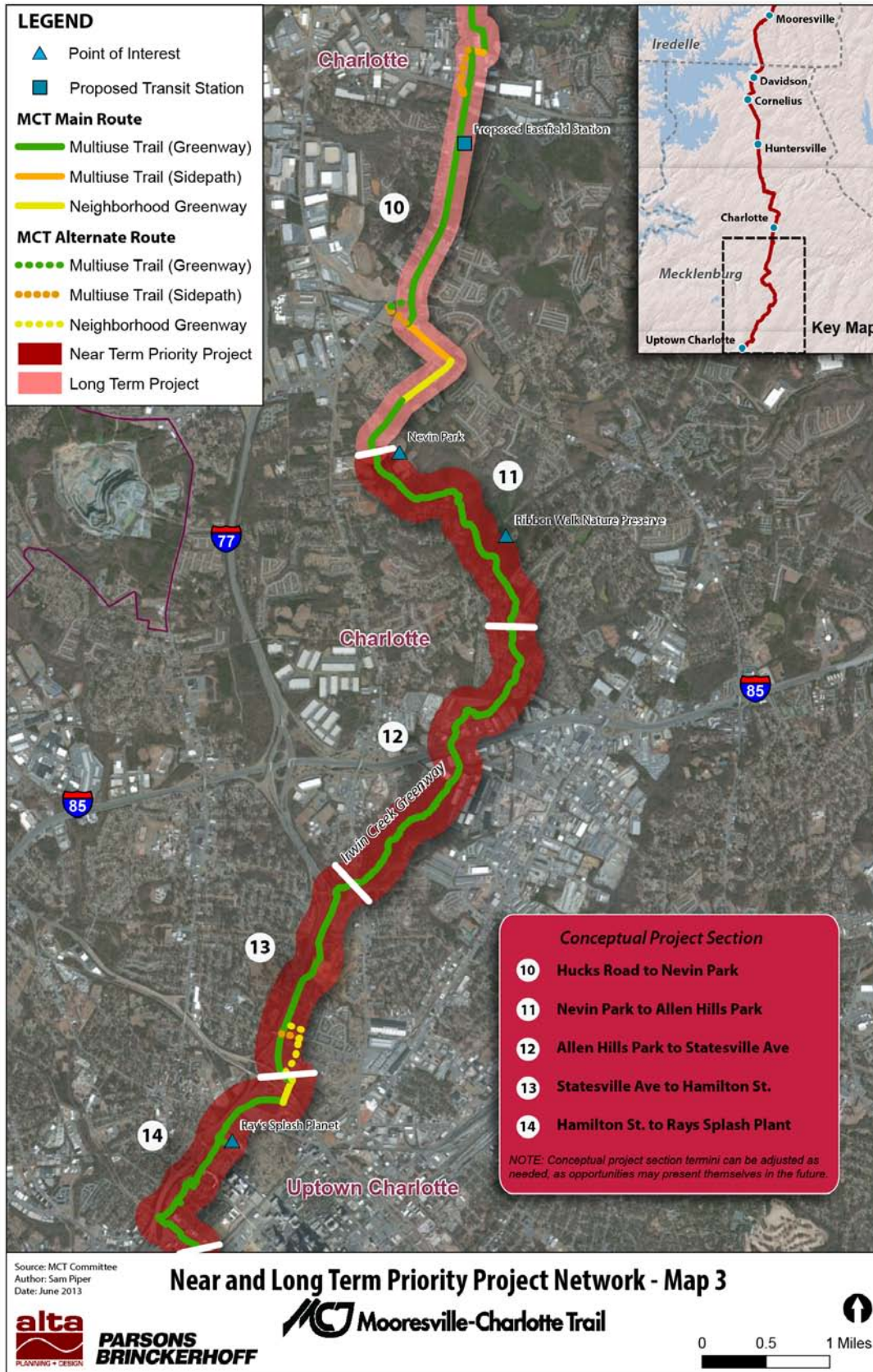


Figure 9 : MCT Priority Trail Segments: Southern Section

5. Preliminary Planning-Level Cost Opinions

The project team prepared preliminary planning-level construction costs opinions based upon the proposed Mooresville to Charlotte Trail corridor. Important assumptions used to arrive at these preliminary cost opinions include the following:

- All costs are in 2013 dollars (no adjustments for inflation)
- Cost opinions include both construction costs and land acquisition
- Cost opinions include both near term priority and long term projects
- Right-of-way (ROW) costs represent land only (no structures)
- No cost for publically owned land
- Trail will be 12 feet wide and paved
- 30 to 50 foot wide easement or portion of a parcel required for trail
- Cost could be reduced with granted easements
- Cost could increase if additional ROW is needed or an entire parcel must be purchased
- Construction methods and materials typical for the region are used
- Overcrossing of WT Harris Boulevard

In developing the preliminary cost opinions, the project team relied upon its experience with similar greenway projects to select the construction materials with the best life-cycle cost/performance characteristics. The consultant team also used Mecklenburg County’s recent greenway costs for some cost estimating numbers.

The project team developed a cost estimate for both a 30-foot ROW and a 50-foot ROW, which provide a cost range between approximately \$33.1 million, using near-term improvements and low end site-specific costs (areas with anticipated design challenges such as the need for bridges or road crossings) within a 30-foot of ROW, and a maximum of \$36.8 million with long-term improvements and high end site-specific costs within a 50-foot ROW. A summary of preliminary cost opinions are provided in the following table, and detailed preliminary cost opinions are provided in Appendix IV.

Assumed ROW Width	ROW Costs		Opinion of Total MCT Project Cost
	Near Term	Long Term	
30 foot ROW	\$1,369,000	\$2,250,000	\$33,142,000
50 foot ROW	\$2,264,000	\$3,793,000	\$36,840,000

*ROW Costs = Construction + Site Specific Costs

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6. Next Steps

Adopt the Mooresville to Charlotte Trail Master Plan

Before any other action takes place, the jurisdictions should adopt the MCT master plan corridor as identified in this master plan. This formal adoption should be considered the first step in implementation. Through adoption of this master plan and its accompanying maps, the jurisdictions will be better able to shape transportation and development decisions so that they fit with the goals of the MCT. Most importantly, having an adopted master plan is extremely helpful in securing funding from state, federal, and private agencies. Adopting this master plan does not commit the jurisdictions to dedicate or allocate funds, but rather indicates the intent of the jurisdictions to implement the MCT over time, starting with these action steps.

Seek Multiple Funding Sources and Facility Development Options

The jurisdictions are planning some sections of the MCT for implementation, and some sections may be built by developers. It is important to secure the funding necessary to undertake priority projects but also to develop a long-term funding strategy to allow continued development of the overall project. A priority action is to immediately evaluate the recommendations against transportation projects that are currently programmed in the Transportation Improvement Program (TIP) to see where projects overlap, complement, or conflict with each other. The jurisdictions should also evaluate which of the proposed projects could be added to future TIP updates. Capital and local funds for MCT trail construction should be set aside every year, even if only for a small amount. Small amounts of local funding can be matched to outside funding sources or could be used to enhance NCDOT projects with bicycle or pedestrian features that may otherwise not be budgeted for by the state. A variety of local, state, and federal options and sources exist and should be pursued, including the option for implementing the entire MCT corridor as a single project. This could be done through a federal or state funding source such as TIGER grants. Packaging the project as a single project for NCDOT funding should be considered as an option. NCDOT has funded other active transportation projects of similar scope.

Seek Key Project Partners

Coordination between key project partners will establish a system of checks and balances, provide a level of accountability, and ensure that the MCT's vision is implemented. The jurisdictions should seek project partners (such as the Carolina Thread Trail, hospitals, and schools) and sponsors (including private corporations or foundations). The purpose of this collaboration with key project partners is to ensure that the MCT's recommendations are integrated with other transportation planning efforts in the region, as well as long-range and current land use planning, economic development planning, and environmental planning efforts. Partners should work together to identify and secure funding necessary to immediately begin the near term priority projects, and start working on a funding strategy that will allow the jurisdictions to incrementally complete the MCT.

Establish a Compelling Project Name

Project partners should develop a compelling project name and branding strategy for the MCT. The branding strategy will be instrumental in seeking recognition, funding, and support throughout the community.

Branding should also be used to develop a comprehensive graphic and wayfinding system that can be used throughout the corridor (including alternate alignment sections along existing corridors until the final, main corridor is built).

Develop Detailed Cost Estimates and Preliminary Designs and Impact Studies

The planning level design concepts and cost opinions contained in this report are intended to provide a rough estimate of potential project costs. As the MCT project progresses, the jurisdictions should develop more detailed designs and cost estimates for specific sections of the trail. In addition, studies which detail the beneficial economic and health impacts of the MC Trail may be helpful in developing grant applications and seeking public and private support and partnerships for the trail.

Appendix I.
Demand Model (2011)

North Corridor Rail-with-Trail Demand Model

As conceived, the North Corridor Rail-with-Trail will be approximately 30 miles in length. Serving both transportation and recreation needs and appealing to residents and visitors alike, it is estimated that **between 1.2 and 1.8 million user trips** will be made annually on the trail.

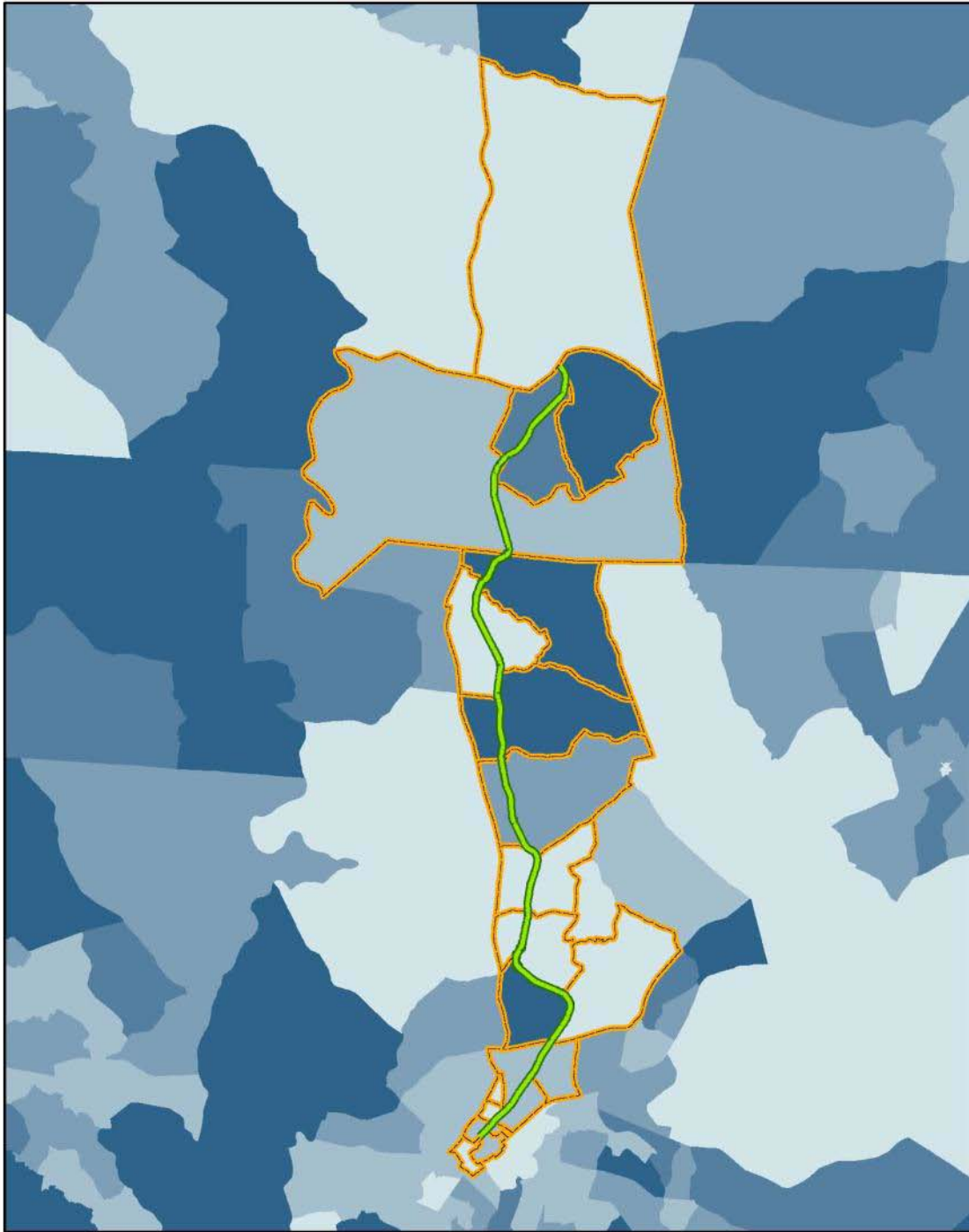
Methodology

Alta Planning + Design's National Bicycle and Pedestrian Documentation (NBPD) Project trail usage model was modified with regionally specific information provided the 2009 American Community Survey (ACS) population by Census tract. Data from the ACS were used to determine the population adjacent to the proposed trail and the regional population surrounding it. Residents who live within a half-mile of the trail are likely to use the facility more frequently than the surrounding community. Residents will also travel to visit the trail; this model uses a 20 mile radius for further use.

The model incorporates information about the quality of the future trail and the area climate to estimate the number of trips per year.

Next Steps



This analysis could be expanded to integrate any available count data from nearby or similar trail facilities. It could include information about mode split (approximate number of bicyclists and pedestrians), as well as gender. Additional analysis could also consider the trail benefits to the community. While health benefits are difficult to quantify, several studies have developed methodologies for estimating economic benefits based on expectations about user behavior. Other benefits consider the reduction in vehicle miles traveled (VMT) as residents and visitors replace driving trips with a trip along the trail.



North Corridor Rail-with-Trail Demand Model


Source: Data obtained from ACS 2009
 Author: HK
 Date: April 2011



-  North Corridor Rail Trail
-  Adjacent Tracts

Tract Population (ACS 2009)

-  0 - 2,000
-  2,001 - 4,000

-  4,001 - 6,000
-  6,001 - 8,000
-  8,001 - 10,000



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Appendix II

Public Comment Data

Moorestville to Charlotte Trail Community Workshop Comments by Subject Matter

Enthusiasm for Project

Number	City	Map Inset/Source	Comment	Question	Placement (if relevant)
1	Cornelius	Huntersville	We need this sooner than soon!	--	--
2	Cornelius	Huntersville	I love this idea	--	--
3	Cornelius	Davidson and Cornelius	Multi-use trails can work! (placed next to a negative comment)	--	--
4	Charlotte	Davidson and Cornelius	Get it done! This would be good. Hard surface is fine initially	--	--
5	Cornelius	Moorestville	HUGE positive impact [of Greenway] for Moorestville	--	--
6	Moorestville	Moorestville	Prioritize it. Fund it. Build it.	--	--
7	Moorestville	Anecdotal	Generally positive comments and feedback about the alignment of the trail	--	--
8	Charlotte	Anecdotal	Employee of NCDOT encouraging team to build the entire trail as one project	--	--
9	Cornelius	Comment Sheet	This trail is so long overdue in our progressive area. It is very dangerous to ride bikes in and around our neighborhoods and on any major road. The sporadic bike lanes are not connected to provide any distance biking at all. Bikers have to squeeze in on roads often to the peril of the bikers and motorists. Please make this happen.	--	--

Suggestions/Enhancements for Trail Route, or Project in General

Number	City	Map Inset/Source	Comment	Question	Placement (if relevant)
1	Cornelius	Davidson and Cornelius	Going through Railroad St. and Zion St. (and making a connection to the trail) would be difficult for residents of those neighborhoods	--	East of Antiquity
2	Cornelius	Davidson and Cornelius	Multi-use trails do not work. We need separated facilities for bicyclists and pedestrians.	--	--
3	Cornelius	Anecdotal	Need a better name than "Moorestville to Charlotte Trail". Need a name that is more evocative.	--	--
4	Moorestville	Moorestville	As a walker, the alignment of the MCT following Highway 115 is not appealing to me	--	Northwest of Town of Moorestville Golf course

Safety Considerations

Number	City	Map Inset/Source	Comment	Question	Placement (if relevant)
1	Cornelius	Davidson and Cornelius	Multi-use trails do not work. We need separated facilities for bicyclists and pedestrians.	--	Northwest of Town of Moorestville Golf course
2	Moorestville	Moorestville	As a walker, the alignment of the MCT following Highway 115 is not appealing to me	--	South of Davidson Square Station
3	Moorestville	Davidson & Cornelius	Where the MCT and the alternative MTC route join, south of Davidson Station, an arrow was drawn pointing to the location of a railroad bridge. The bridge is 30' wide and has no sidewalks, which is a safety concern	--	--
4	Charlotte	Moorestville	Safe connections need to be made to all three local schools, Pine Lake, Mount Moore, and Woodlawn (not shown on map)	--	--
5	Charlotte	Moorestville	Safe short cut from Davidson Point to Davidson	--	--
6	Charlotte	Davidson and Cornelius	Need to make sure that the trail is safe for children	--	--
7	Charlotte	Davidson and Cornelius	Need to ensure that children on the trail are protected from passing trains	--	--

NOTE: The planning team was directed to organize comments into categories for analysis purposes. Although many of the comments fell squarely within an assigned category, some comments were broad and relevant to more than one category. The comments were assigned to the category that most completely represented the central tenant or focus of the comment. Comments that were relevant to two or more categories were included in both categories.

Important Connections to Consider

Number	City	Map Inset/Source	Comment	Question	Placement (if relevant)
1	Cornelius	Uptown Charlotte	--	Can I bike to the center of Charlotte for work or just to the edge of Uptown?	
2	Cornelius	Huntersville	--	Can you make it safe/easy to bike to Lake Norman Charter High School?	Near Lake Norman High School
3	Cornelius	Huntersville	--	Can you make it safe/easy to bike to North Mecklenburg High School?	
4	Cornelius	Huntersville	--	Can you connect to Birkdale and McDowell Creek from East to West?	Near Sam Furr Station
5	Cornelius	Huntersville	--	Can you create a Greenway along creek that runs east/west near Sam Furr Station?	West of Sam Furr Station Near Huntersville Station
6	Cornelius	Huntersville	Make a connection to the Huntersville Business Park	--	
7	Mooreville	Mooreville	Neighborhood Connections (should be) included in Development Plans. Langtree at Lake to Lowes Corporate Campus to Greenway	--	--
8	Mooreville	Davidson & Cornelius	The proposed MCT route is preferential to the alternative MTC running north of the Downtown Cornelius station	--	North of the Downtown Cornelius Station
9	Cornelius	Davidson and Cornelius	Saturdays at Bailey Road Park are activity intense, and would be great place to bike to	--	Just east of Bailey Rd Park
10	Cornelius	Mooreville	Important connections are: Lowes Corporate Campus, Lake Norman Regional Medical Center, Pine Lake Preparatory, Mount Morne School and LKN	--	East of Mount Mourne School
11	Charlotte	Mooreville	Safe connections need to be made to all three local schools, Pine Lake, Mount Moore, and Woodlawn (not shown on map)	--	--
12	Charlotte	Mooreville	Safe short cut from Davidson Point to Davidson	--	--
13	Charlotte	Mooreville	Use Gas Easement or lake from to access Davidson Point Neighborhood	--	--
14	Charlotte	Comment Sheet	Need developers along trail to help incorporate connections and help guide trail	--	--
15	Charlotte	Anecdotal		What is the possibility of having the MCT alignment routed closer to the three schools in the proximity of Hambright Station (N Meck. HS, Blythe Etern, and Alexander Middle School)? Team should consider using the old rail alignment which is closer to the schools (parallel to NC 115). There is a possibility of using Hambright Rd (also part of the Carolina Tread Trail) to provide a connection to the schools.	--

Miscellaneous Topics

Number	City	Map Inset/Source	Comment	Question	Placement (if relevant)
1	Cornelius	Anecdotal		Is there any funding in place for any parts of the trail?	--
2	Cornelius	Anecdotal		What is timeline for trail construction?	--
3	Cornelius	Anecdotal		What is trail surface type?	--
4	Cornelius	Anecdotal	necessary easement/acquisition width required to route the trail	--	--
5	Mooreville	Anecdotal		How did the estimated 1 million trips figure come about?	--
6	Mooreville	Anecdotal		What are the potential funding sources?	--
7	Charlotte	Anecdotal		What are the potential funding sources?	--

NOTE: The planning team was directed to organize comments into categories for analysis purposes. Although many of the comments fell squarely within an assigned category, some comments were broad and relevant to more than one category. The comments were assigned to the category that most completely represented the central tenant or focus of the comment. Comments that were relevant to two or more categories were included in both categories.

Mooreville to Charlotte Trail Community Workshop Comments

Mooreville (4/2/2013)

Number	City	Map Inset/Source	Comment	Question	Placement (if relevant)
1	Mooreville	Huntersville	Citizen objected to route of trail, indicating that the route puts the trail 10-15' from the front door of his house. Citizen also drew 'X' marks over the proposed route near the house.	--	South of Commerce Station
2	Mooreville	Mooreville	Prioritize it. Fund it. Build it. Neighborhood Connections (should be) included in Development Plans. Important connections to make are Langtree at Lake, to Lowes Corporate Campus, to Greenway	--	
3	Mooreville	Mooreville	As a walker, the alignment of the MCT following Highway 115 is not appealing to me	--	Northwest of Town of Mooreville Golf course
4	Mooreville	Mooreville	The proposed MCT route is preferential to the alternative MTC running north of the Downtown Cornelius station	--	North of the Downtown Cornelius Station
5	Mooreville	Davidson & Cornelius	Where the MCT and the alternative MTC route join, south of Davidson Station, an arrow is drawn pointing to the location of a railroad bridge. The bridge is 30' wide and has no sidewalks.	--	South of Davidson Square Station
6	Mooreville	Davidson & Cornelius	Generally positive comments and feedback about the alignment of the trail	--	
8	Mooreville	Anecdotal	--	How did the estimated 1 million trips figure come about?	
7	Mooreville	Anecdotal	--	What are the potential funding sources?	
9	Mooreville	Anecdotal	--		

Charlotte (4/10/2013)

Number	City	Map Inset/Source	Comment	Question	Placement (if relevant)
1	Charlotte	Mooreville	Safe connections need to be made to all three local schools, Pine Lake, Mount Moorne, and Woodlawn (not shown on map)	--	
2	Charlotte	Mooreville	Safe short cut from Davidson Point to Davidson	--	
3	Charlotte	Mooreville	Use Gas Easement or lake front to access Davidson Point Neighborhood	--	
4	Charlotte	Davidson and Cornelius	Need to make sure that the trail is safe for children	--	
5	Charlotte	Davidson and Cornelius	Need to ensure that children on the trail are protected from passing trains	--	
6	Charlotte	Davidson and Cornelius	Get it done! This would be good. Hard surface is fine initially.	--	
7	Charlotte	Uptown Charlotte	Tie in with Tuckaseage (?) and Glendale across 86 Brookshire and N 6 Wtn Isl Lake (hard to read)	--	West of Frazier Park
8	Charlotte	Comment Sheet	Need developers along trail to help incorporate connections and help guide trail	--	
9	Charlotte	Anecdotal	Need a better name than "Mooreville to Charlotte Trail". Need a name that is more evocative.	--	
12	Charlotte	Anecdotal	Employee of NCDOT encouraging team to build the entire trail as one project	--	
10	Charlotte	Anecdotal	--	What is the possibility of having the MCT alignment routed closer to the three schools in the proximity of Hambright Station (N Meck HS, Blythe Elem., and Alexander Middle School)? Team should consider using the old rail alignment which is closer to the schools (parallel to NC 115). There is a possibility of using Hambright Rd (also part of the Carolina Tread Trail) to provide a connection to the schools.	
11	Charlotte	Anecdotal	--	What are the potential funding sources?	

Cornelius (4/11/2013)

Number	City	Map Inset/Source	Comment	Question	Placement (if relevant)
1	Cornelius	Uptown Charlotte		Can I bike to the center of Charlotte for work or just to the edge of Uptown?	
2	Cornelius	Huntersville	We need this sooner than soon!	--	
5	Cornelius	Huntersville	Make a connection to the Huntersville Business Park	--	Near Huntersville Station
8	Cornelius	Huntersville	I love this idea	--	
9	Cornelius	Huntersville	Pedestrians with dogs are fine on short leashes	--	
3	Cornelius	Huntersville		Can you make it safe/easy to bike to Lake Norman Charter High school?	Near Lake Norman High School
4	Cornelius	Huntersville		Can you make it safe/easy to bike to North Mecklenburg High School?	
6	Cornelius	Huntersville		Can you connect to Birkdale and McDonnell Creek from East to West?	Near Sam Furr Station
7	Cornelius	Huntersville		Can you create a Greenway along creek that runs east/west near Sam Furr Station?*	West of Sam Furr Station
10	Cornelius	Davidson and Cornelius	Note placed with arrows drawn indicating the location of where spur trails should be developed to the southwest of I-77 (see inset)	--	
11	Cornelius	Davidson and Cornelius	Saturdays at Bailey Road Park are activity intense, and would be great place to bike to	--	Just east of Bailey Rd Park
12	Cornelius	Davidson and Cornelius	Going through Railroad St and Zion St (and making a connection to the trail) would be difficult for residents of those neighborhoods	--	East of Antiquity
13	Cornelius	Davidson and Cornelius	Running the Greenway along the creek would be great	--	South of Downtown Davidson
14	Cornelius	Davidson and Cornelius	Multi-use trails do not work. We need separated facilities for bicyclists and pedestrians.	--	
15	Cornelius	Davidson and Cornelius	Multi-use trails can work (located right next to above comment)	--	
16	Cornelius	Mooreville	HUGE positive impact [of Greenway] for Mooreville	--	
17	Cornelius	Mooreville	Important connections are: Lowes Corporate Campus, Lake Norman Regional Medical Center, Pine Lake Preparatory, Mount Mome School and LKN	--	East of Mount Mournne School
18	Cornelius	Comment Sheet	This trail is so long overdue in our progressive area. It is very dangerous to ride bikes in and around our neighborhoods and on any major road. The sporadic bike lanes are not connected to provide any distance biking at all. Bikers have to squeeze in on roads often to the peril of the bikers and motorists. Please make this happen.	--	
19	Cornelius	Anecdotal		Is there any funding in place for any parts of the trail?	
20	Cornelius	Anecdotal		What is timeline for trail construction?	
21	Cornelius	Anecdotal		What is trail surface type?	
22	Cornelius	Anecdotal	Need a better name than "Mooreville to Charlotte Trail". Need a name that is more evocative.	--	
23	Cornelius	Anecdotal	Maps should show accurate alignment of easements, and plan should consider necessary easement/acquisition width to route the trail	--	

Mooreville to Charlotte Trail Community Workshop Public Comments by Map Inset

Number	City	Map Inset/Source	Comment	Question	Placement (if relevant)
1	Charlotte	Uptown Charlotte	Tie in with Tuckasee (?) and Glendale across 86, Brookshire and N 6 Mtn Isl		
2	Cornelius	Uptown Charlotte	Lake (difficult to read)	Can I bike to the center of Charlotte for work or just to the edge of Uptown?	West of Frazier Park
3	Cornelius	Huntersville	We need this sooner than soon!	--	
4	Cornelius	Huntersville	Make a connection to the Huntersville Business Park	--	Near Huntersville Station
5	Cornelius	Huntersville	I love this idea	--	
6	Cornelius	Huntersville	Pedestrians with dogs are fine on short leashes	--	
7	Mooreville	Huntersville	Citizen objected to route of trail, indicating that the route puts the trail 10-15' from the front door of house. Citizen also drew 'x' marks over the proposed route near their house and an arrow pointing to the location	--	South of Commerce Station Near Lake Norman High School
8	Cornelius	Huntersville	--	Can you make it safe/easy to bike to Lake Norman Charter High School?	
9	Cornelius	Huntersville	--	Can you make it safe/easy to bike to North Mecklenburg High School?	
10	Cornelius	Huntersville	--	Can you connect to Birkdale and McDonnell Creek from East to West?	Near Sam Furr Station
11	Cornelius	Huntersville	--	Can you create a Greenway along creek that runs east/west near Sam Furr Station?	West of Sam Furr Station
12	Cornelius	Davidson and Cornelius	Note placed with arrows drawn indicating the location of where spur trails should be developed to the southwest of I-77 (see inset)	--	
13	Cornelius	Davidson and Cornelius	Saturdays at Bailey Road Park are activity intense, and would be great place to bike to	--	Just east of Bailey Rd Park
14	Cornelius	Davidson and Cornelius	Going through Railroad St and Zion St (and making a connection to the trail) would be difficult for residents of those neighborhoods	--	East of Antiquity
15	Cornelius	Davidson and Cornelius	Running the Greenway along the creek would be great	--	South of Downtown Davidson
16	Cornelius	Davidson and Cornelius	Multi-use trails do not work. We need separated facilities for bicyclists and pedestrians.	--	
17	Cornelius	Davidson and Cornelius	Multi-use trails can work! (located right next to above comment)	--	
18	Mooreville	Davidson and Cornelius	The proposed MCT route is preferential to the alternative MTC running north of the Downtown Cornelius station	--	North of the Downtown Cornelius Station
19	Mooreville	Davidson and Cornelius	Where the MCT and the alternative MTC route join, south of Davidson Station, an arrow is drawn pointing to the location of a railroad bridge. The bridge is 30' wide and has no sidewalks	--	South of Davidson Square Station
20	Charlotte	Davidson and Cornelius	Need to make sure that the trail is safe for children	--	
21	Charlotte	Davidson and Cornelius	Need to ensure that children on the trail are protected from passing trains	--	
22	Charlotte	Davidson and Cornelius	Get it done! This would be good. Hard surface is fine initially.	--	
23	Cornelius	Mooreville	HUGE positive impact [of Greenway] for Mooreville	--	
24	Cornelius	Mooreville	Important connections are: Lowes Corporate Campus, Lake Norman Regional Medical Center, Pine Lake Preparatory, Mount Morne School and LKN	--	East of Mount Moume School
25	Mooreville	Mooreville	Prioritize it. Fund it. Build it.	--	
26	Mooreville	Mooreville	Neighborhood Connections (should be) included in Development Plans. Langtree at Lake to Lowes Corporate Campus to Greenway	--	
27	Mooreville	Mooreville	As a walker, the alignment of the MCT following Highway 115 is not appealing to me	--	Northwest of Town of Mooreville Golf course
28	Charlotte	Mooreville	Safe connections need to be made to all three local schools, Pine Lake, Mount Moore, and Woodlawn (not shown on map)	--	
29	Charlotte	Mooreville	Safe short cut from Davidson Point to Davidson	--	
30	Charlotte	Mooreville	Use Gas Easement of lake from to access Davidson Point Neighborhood	--	

Appendix III

Prioritization Matrix and Method

Priority Project Evaluation - Methodology

Criteria Selection

Several principles govern the selection of criteria for the Mooresville to Charlotte Trail project priority evaluation. These include: breadth of topics, measurability and data access, and applicability to MCT context.

Breadth of Topics

The project team sought variables which reflected conditions and outcomes across a wide range of areas, including cost, feasibility, system performance, social outcomes and environmental impacts. The eight themes selected are included below. For each theme, the evaluation assesses several sub-variables.

Factor Category	Points Available
Public Support	20
Agency Coordination/Acquisition	15
Connectivity	15
Development Costs	15
Active Travel Demand	10
Equity	10
Scenic Quality and Experience	8
Environmental Impact/Permitting Requirements	7
All factors	100

Measurability (and Data Access)

A key consideration for criteria selection is the accuracy with which the factor can be measured—not necessarily in quantitative terms, but in terms of how readily it can be compared across all trail segments. For instance, the category “Scenic Quality and Experience” is challenging to measure quantitatively, yet is relatively straightforward to assess using an “eyeball” approach that considers proximity to roadways and degree of forest canopy. “Visibility of Trail”, for example, is given a weight of 3, and trail segments receive a 3 if they are near roadways and developed land, and have relatively low tree coverage, and a weight of 1 if they are removed from roadways and routed through forested areas.

In some cases, low scores in one category are associated with high scores in another. For example, trail segments scoring highly in “Visibility of Trail” tend to score lower in “Not located near motor vehicle traffic” and “Provides a typical woodland greenway experience,” since the latter two categories reward trail segments in natural settings that generally have low visibility to those not using the trail. This is a reflection of natural spillover between themes, and is actually an advantage of the project prioritization matrix technique. Competing or complementary variables are assessed individually and, when weighted appropriately, result in a synthesized index of overall priority level.

Applicability to MCT Context

Variables selected for the prioritization matrix must be relevant to route geography and local context. For instance, because the proposed MCT trail runs through a relatively flat part of the region and is adjacent to a railroad, the evaluation assumes that topographic challenges were limited. As a result, the evaluation weights topography lightly, accounting for three points out of 100. Other variables, such as the number of road and driveway crossings and the number of on-road segments, are considered more relevant to the proposed trail corridor (due to greater variability between trail segments) and are weighted accordingly (five points for both crossings and on-road segments).

Factors also need to reflect local context in terms of agency coordination and support. For this reason, variables such as “Priority Segment” are included which reflect the priorities of each jurisdiction. The evaluation includes variables such as “lies within existing public property or easement” because they reflect jurisdictional preferences and realities, and effectively differentiate trail segments.

Assessment Approach

Weighting and scoring system

Rather than rating each category using the same rubric (e.g. out of 10) and then scaling the results through multiplication factors, this analysis begins by assigning a maximum score to each category. The range of maximum scores varies from 2 to 15. The maximum score for each category (i.e. weight) was determined through a review of prioritization matrices for previous projects, and in consultation with stakeholders and jurisdiction representatives.

Assigning maximum scores for each variable effectively serves as a weight. “Priority segments” (max. 15 points) and “lies within existing public property or easement” (max. 10 points) have a greater bearing on a trail segment’s overall score than “Few topographic challenges” (max. 3 points) and “not located near other sources of air and noise pollution” (max. 2 points).

One reason to assign weights in this way is for simplicity. The matrix was developed so that a perfect score would equal 100. Category scores were adjusted in such a way that each category was 1) suitably weighted relative to other categories and 2) summed to 100.

Rating of alternatives

The prioritization analysis uses several techniques to evaluate each theme. Some topics are “eyeballed” – i.e. the score represents a qualitative assessment, expressed as a number. For variables evaluated in this way, a consistent framework is applied across trail segments. For instance, on “links community origins and destinations,” which is scored out of five, segments receive either a 5, 3 or 1 depending on the level of connectivity with community origins and destinations. In other cases, such as “not located near motor vehicle traffic” (scored out of 2), links receive a 2, 1 or 0. The evaluation applies a consistent rubric for all qualitative variables to all trail segments.

Mooresville to Charlotte Trail Technical Report

Some categories are based on quantitative comparisons, and in these cases surrogate variables are established:

Initial Usage = Municipal population

- Potential Usage = County population growth, 2010-2020
- Serves lower income areas = Poverty rate relative to NC average
- Serves the widest range of users = Combined % of seniors and youth

Each of these surrogate variables intends to accurately represent a broader theme. Since these variables produce continuous data (e.g. poverty rates expressed as a percentage), the results need to be translated into the pseudo-numerical format of the prioritization matrix. In the example of “serves lower income areas,” which is scored out of 5, poverty rates are derived for each municipality and compared with state averages. Three of the five municipalities—Davidson, Cornelius and Huntersville—have poverty rates relatively close to the North Carolina average, and are thus assigned mid-point scores of 3. Charlotte, with a higher-than-average poverty rate, receives a 5, while Mooresville, with a lower-than-average poverty rate, scores a 1. This workflow is representative of the analysis for the other three variables listed above, and describes, in general terms, the process for scoring all matrix variables.

MCT Project Prioritization

Factor Category	Description of Factor	PDF PG	SCORE	Public Support		Active Travel Demand		Connectivity			Development Costs				Environmental Impact/Permitting Requirements			Agency Coordination/Acquisition		Equity		Scenic Quality and Experience		TOTAL (Max 100)
				Priority Segment	Local Public Support	Initial Usage*	Potential (Future) Usage*	Links Major (Regional) Origins and Destinations	Links Community (Local) Origins and Destinations (e.g. parks, schools, shopping)	Connects to Existing or Funded Active Travel Network	Low number of stream crossings	Low number of road and driveway crossings	Low number of on-road segments	Few topographic challenges	Not located near sensitive natural resource areas	Not located near motor vehicle traffic	Not located near other sources of air and noise pollution	Will not require encroachment with NCDOT or NCRRT	Lies within existing public property or easement	Serves lower income areas*	Serves the widest range of users*	Visibility of Trail	Provides typical "woodland greenway" experience	
Mooreville																								
	Downtown Mooreville to Langtree Station	1-5	68	15	5	5	2	3	5	0	2	1	2	3	3	1	2	1	5	3	5	2	3	68
	Langtree Station to Mooreville town limits	5-7	67	5	5	5	2	3	1	0	2	5	5	3	3	2	2	5	5	3	5	3	3	67
Davidson																								
	Mooreville town limits to Davidson Station	7-9	57	5	5	2	3	3	5	0	2	1	2	3	3	2	2	3	5	1	3	2	5	57
	Davidson Station to Davidson town limits	9-10	70	15	5	2	3	3	5	0	2	1	3	3	3	2	2	5	5	1	3	2	5	70
Cornelius																								
	Davidson town limits to Cornelius Station	10-11	73	15	5	4	3	3	4	1	2	3	4	2	3	2	2	5	6	1	1	2	5	73
	Cornelius Station to Cornelius town limits	11-14	57	5	5	4	3	3	4	1	2	1	2	3	3	1	2	5	5	1	1	3	3	57
Huntersville																								
	Cornelius Town limits to Huntersville Station	14-18	68	5	5	4	3	3	3	5	2	3	5	3	3	2	2	5	5	1	3	3	3	68
	Huntersville Station to Eastfield Road	18-24	72	15	5	4	3	3	3	5	2	3	3	1	3	2	2	3	5	1	3	1	5	72
	Eastfield Road to Hucks Road	24-25	64	5	5	4	3	3	3	0	2	5	5	3	3	2	2	5	5	1	3	2	3	64
Charlotte																								
	Hucks Road to north end of Nevin Park (near intersection of Garvin Dr. and Oak Dr.)	25-30	62	5	5	7	3	5	3	0	2	1	3	3	3	0	2	3	5	5	1	3	3	62
	Irwin Creek Gwy- Nevin Park to Allen Hills Neighborhood Park (immediately south of Nevin Rd.)	30-32	90	15	5	7	3	3	5	3	2	5	5	3	3	2	2	5	10	5	1	1	5	90
	Irwin Creek Gwy- Allen Hills Park to Statesville Ave	33-36	81	15	5	7	3	5	3	3	2	1	5	3	3	2	2	5	5	5	1	1	5	81
	Irwin Creek Gwy- Statesville Ave to Hamilton St	36-38	81	15	5	7	3	3	3	3	2	3	5	2	3	1	2	5	7	5	1	3	3	81
	Irwin Creek Gwy- Hamilton St to Rays Splash Planet	38-39	67	15	3	7	3	5	3	3	2	1	5	3	3	0	2	0	3	5	1	3	0	67

*POPn; Charlotte = 7
 *PCPn growth 2010-2020; Mecklenburg = 3

*does not cross railway

*Poverty Rate (relative to state avg. 16.1%)

*% Seniors (>65) and % Youth (<18)

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Appendix IV
Preliminary Planning-Level Cost Opinions Detail:
30' and 50' ROW

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Preliminary Planning-Level Cost Opinions Detail: 30' ROW

	Links (Includes Cost Type Alternates)	Phase	City/Town	Name	NT Main Route Cost	Phase Cost as %	LT Main Route	Phase Cost as %	
					(30' ROW)	of Total Cost	Cost (30' ROW)	of Total Cost	
MOORESVILLE	Construction 1-11	Near Term	Mooreville	Downtown Mooreville to Lowes Corporate Campus	\$ 2,313,000		\$ 1,203,000		
	ROW 1-11	Near Term	Mooreville	Downtown Mooreville to Lowes Corporate Campus	\$ 173,000		\$ 1,000		
	PHASE I TOTAL					\$ 2,486,000	44%	\$ 1,204,000	100%
	Construction 12-13	Long Term	Mooreville	Lowes Corporate Campus to Mecklenburg County Line	\$ 2,661,000		\$ -		
	ROW 12-13	Long Term	Mooreville	Lowes Corporate Campus to Mecklenburg County Line	\$ 406,000		\$ -		
	Site Specific Cost 13	Long Term	Mooreville	Large Ravine Overcrossing	\$ 100,000		\$ -		
	PHASE II TOTAL					\$ 3,167,000	56%	\$ -	0%
	GRAND TOTAL					\$ 5,653,000	100%	\$ 1,204,000	100%
	DAVIDSON	Construction 14-17	Long Term	Davidson	Iredell County Limit to Downtown Davidson	\$ 1,225,000		\$ 282,000	
		ROW 14-17	Long Term	Davidson	Iredell County Limit to Downtown Davidson	\$ 581,000		\$ -	
PHASE II TOTAL					\$ 1,806,000	56%	\$ 282,000	83%	
Construction 18-24		Near Term	Davidson	Downtown Davidson to Cornelius Town Limits	\$ 978,000		\$ 59,000		
ROW 18-24		Near Term	Davidson	Downtown Davidson to Cornelius Town Limits	\$ 409,000		\$ -		
Site Specific Cost 21		Near Term	Davidson	Minor At-grade Crossing	\$ 50,000		\$ -		
PHASE I TOTAL					\$ 1,437,000	44%	\$ 59,000	17%	
GRAND TOTAL					\$ 3,243,000	100%	\$ 341,000	100%	
CORNELIUS		Construction 25-27	Near Term	Cornelius	Davidson Town Limits to Downtown Cornelius	\$ 678,000		\$ -	
		ROW 25-27	Near Term	Cornelius	Davidson Town Limits to Downtown Cornelius	\$ 143,000		\$ -	
	PHASE I TOTAL					\$ 821,000	38%	\$ -	0%
	Construction 28-31	Long Term	Cornelius	Downtown Cornelius to Huntersville Town Limits	\$ 1,214,000		\$ 929,000		
	ROW 28-31	Long Term	Cornelius	Downtown Cornelius to Huntersville Town Limits	\$ 107,000		\$ 302,000		
	PHASE II TOTAL					\$ 1,321,000	62%	\$ 1,231,000	100%
	GRAND TOTAL					\$ 2,142,000	100%	\$ 1,231,000	100%
	HUNTERSVILLE	Construction 32-39	Long Term	Huntersville	Cornelius Town Limits to Downtown Huntersville	\$ 2,779,000		\$ 2,354,000	
		ROW 32-39	Long Term	Huntersville	Cornelius Town Limits to Downtown Huntersville	\$ 455,000		\$ 4,000	
		Site Specific Cost 34	Long Term	Huntersville	Major Road Crossing (at-grade)	\$ 280,000		\$ -	
PHASE II TOTAL					\$ 3,514,000	49%	\$ 2,358,000	49%	
Construction 40-56		Near Term	Huntersville	Downtown Huntersville to Bryton Development	\$ 3,388,000		\$ 2,284,000		
ROW 40-56		Near Term	Huntersville	Downtown Huntersville to Bryton Development	\$ 276,000		\$ 165,000		
PHASE I TOTAL					\$ 3,664,000	51%	\$ 2,449,000	51%	
GRAND TOTAL					\$ 7,178,000	100%	\$ 4,807,000	100%	

Preliminary Planning-Level Cost Opinions Detail: 30' ROW

	Links (Includes Alternates)		City/Town	Name	NT Main Route Cost (30' ROW)	Phase Cost as % of Total Cost	LT Main Route Cost (30' ROW)	Phase Cost as % of Total Cost	
	Cost Type	Phase							
CHARLOTTE	Construction	57-72	Long Term	Charlotte	Bryton Development to Irwin Creek	\$ 4,746,000	\$ 1,299,000		
	ROW		Long Term	Charlotte	Bryton Development to Irwin Creek	\$ 701,000	\$ 48,000		
	Site Specific Cost	64	Long Term	Charlotte	Major Road Overcrossing	\$ 1,000,000	\$ -		
	Site Specific Cost	67	Long Term	Charlotte	Minor At-grade Crossing	\$ 50,000	\$ -		
	PHASE II TOTAL					\$ 6,497,000	44%	\$ 1,347,000	84%
	Construction	73-80	Near Term	Charlotte	Irwin Creek to Downtown Charlotte	\$ 6,786,000	\$ 248,000		
	ROW		Near Term	Charlotte	Irwin Creek to Downtown Charlotte	\$ 368,000	\$ -		
	Site Specific Cost	73	Near Term	Charlotte	Minor At-grade Crossing	\$ 50,000	\$ -		
	Site Specific Cost	73a	Near Term	Charlotte	Culvert Modification	\$ 110,000	\$ -		
	Site Specific Cost	73b	Near Term	Charlotte	Culvert Modification	\$ 75,000	\$ -		
	Site Specific Cost	73c	Near Term	Charlotte	Culvert Modification	\$ 450,000	\$ -		
	Site Specific Cost	73d	Near Term	Charlotte	Culvert Modification	\$ 185,000	\$ -		
	Site Specific Cost	73e	Near Term	Charlotte	Culvert Modification	\$ 185,000	\$ -		
	Site Specific Cost	74	Near Term	Charlotte	Road Underpass	\$ 70,000	\$ -		
	Site Specific Cost	80a	Near Term	Charlotte	Rail Underpass	\$ 50,000	\$ -		
	Site Specific Cost	80b	Near Term	Charlotte	Between Cemetery and I-77	\$ 100,000	\$ -		
	PHASE I TOTAL					\$ 8,429,000	56%	\$ 248,000	16%
	GRAND TOTAL					\$ 14,926,000	100%	\$ 1,595,000	100%
ENTIRE PROJECT	Construction	All	Near Term	All	\$ 14,143,000	\$ 3,794,000			
	ROW	All	Near Term	All	\$ 1,369,000	\$ 166,000			
	Site Specific Cost	All	Near Term	All	\$ 1,325,000	\$ -			
	PHASE I TOTAL					\$ 16,837,000	51%	\$ 3,960,000	43%
	Construction	All	Long Term	All	\$ 12,625,000	\$ 4,864,000			
	ROW	All	Long Term	All	\$ 2,250,000	\$ 354,000			
	Site Specific Cost	All	Long Term	All	\$ 1,430,000	\$ -			
	PHASE II TOTAL					\$ 16,305,000	49%	\$ 5,218,000	57%
	GRAND TOTAL					\$ 33,142,000	100%	\$ 9,178,000	100%

Preliminary Planning-Level Cost Opinions Detail: 50' ROW

	Links (Includes Cost Type Alternates)	Phase	City/Town	Name	NT Main Route Cost	Phase Cost as %	LT Main Route Cost	Phase Cost as %	
					(50' ROW)	of Total Cost	(50' ROW)	of Total Cost	
MOORESVILLE	Construction 1-11	Near Term	Mooreville	Downtown Mooreville to Lowes Corporate Campus	\$ 2,313,000		\$ 1,203,000		
	ROW 1-11	Near Term	Mooreville	Downtown Mooreville to Lowes Corporate Campus	\$ 318,000		\$ 14,000		
	PHASE I TOTAL					\$ 2,631,000	43%	\$ 1,217,000	100%
	Construction 12-13	Long Term	Mooreville	Lowes Corporate Campus to Mecklenburg County Line	\$ 2,661,000		\$ -		
	ROW 12-13	Long Term	Mooreville	Lowes Corporate Campus to Mecklenburg County Line	\$ 675,000		\$ -		
	Site Specific Cost 13	Long Term	Mooreville	Large Ravine Overcrossing	\$ 100,000		\$ -		
	PHASE II TOTAL					\$ 3,436,000	57%	\$ -	0%
	GRAND TOTAL					\$ 6,067,000	100%	\$ 1,217,000	100%
	DAVIDSON	Construction 14-17	Long Term	Davidson	Iredell County Limit to Downtown Davidson	\$ 1,225,000		\$ 282,000	
		ROW 14-17	Long Term	Davidson	Iredell County Limit to Downtown Davidson	\$ 987,000		\$ 3,000	
PHASE II TOTAL					\$ 2,212,000	56%	\$ 285,000	80%	
Construction 18-24		Near Term	Davidson	Downtown Davidson to Cornelius Town Limits	\$ 978,000		\$ 59,000		
ROW 18-24		Near Term	Davidson	Downtown Davidson to Cornelius Town Limits	\$ 666,000		\$ 13,000		
Site Specific Cost 21		Near Term	Davidson	Minor At-grade Crossing	\$ 60,000		\$ -		
PHASE I TOTAL					\$ 1,704,000	44%	\$ 72,000	20%	
GRAND TOTAL					\$ 3,916,000	100%	\$ 357,000	100%	
CORNELIUS		Construction 25-27	Near Term	Cornelius	Davidson Town Limits to Downtown Cornelius	\$ 678,000		\$ -	
		ROW 25-27	Near Term	Cornelius	Davidson Town Limits to Downtown Cornelius	\$ 237,000		\$ -	
	PHASE I TOTAL					\$ 915,000	40%	\$ -	0%
	Construction 28-31	Long Term	Cornelius	Downtown Cornelius to Huntersville Town Limits	\$ 1,214,000		\$ 929,000		
	ROW 28-31	Long Term	Cornelius	Downtown Cornelius to Huntersville Town Limits	\$ 177,000		\$ 547,000		
	PHASE II TOTAL					\$ 1,391,000	60%	\$ 1,476,000	100%
	GRAND TOTAL					\$ 2,306,000	100%	\$ 1,476,000	100%
	HUNTERSVILLE	Construction 32-39	Long Term	Huntersville	Cornelius Town Limits to Downtown Huntersville	\$ 2,779,000		\$ 2,354,000	
		ROW 32-39	Long Term	Huntersville	Cornelius Town Limits to Downtown Huntersville	\$ 756,000		\$ 7,000	
		Site Specific Cost 34	Long Term	Huntersville	Major Road Crossing (at-grade)	\$ 280,000		\$ -	
PHASE II TOTAL					\$ 3,815,000	50%	\$ 2,361,000	48%	
Construction 40-56		Near Term	Huntersville	Downtown Huntersville to Bryton Development	\$ 3,388,000		\$ 2,284,000		
ROW 40-56		Near Term	Huntersville	Downtown Huntersville to Bryton Development	\$ 461,000		\$ 323,000		
PHASE I TOTAL					\$ 3,849,000	50%	\$ 2,607,000	52%	
GRAND TOTAL					\$ 7,664,000	100%	\$ 4,968,000	100%	

Preliminary Planning-Level Cost Opinions Detail: 50' ROW

	Links (Includes Cost Type Alternates)	Phase	City/Town	Name	NT Main Route Cost	Phase Cost as %	LT Main Route Cost	Phase Cost as %	
					(50' ROW)	of Total Cost	(50' ROW)	of Total Cost	
CHARLOTTE	Construction 57-72	Long Term	Charlotte	Bryton Development to Irwin Creek	\$ 4,746,000		\$ 1,299,000		
	ROW	Long Term	Charlotte	Bryton Development to Irwin Creek	\$ 1,198,000		\$ 91,000		
	Site Specific Cost 64	Long Term	Charlotte	Major Road Overcrossing	\$ 2,000,000		\$ -		
	Site Specific Cost 67	Long Term	Charlotte	Minor At-grade Crossing	\$ 60,000		\$ -		
	PHASE II TOTAL					\$ 8,004,000	47%	\$ 1,390,000	85%
	Construction 73-80	Near Term	Charlotte	Irwin Creek to Downtown Charlotte	\$ 6,786,000		\$ 248,000		
	ROW	Near Term	Charlotte	Irwin Creek to Downtown Charlotte	\$ 582,000		\$ -		
	Site Specific Cost 73	Near Term	Charlotte	Minor At-grade Crossing	\$ 60,000		\$ -		
	Site Specific Cost 73a	Near Term	Charlotte	Culvert Modification	\$ 110,000		\$ -		
	Site Specific Cost 73b	Near Term	Charlotte	Culvert Modification	\$ 75,000		\$ -		
	Site Specific Cost 73c	Near Term	Charlotte	Culvert Modification	\$ 550,000		\$ -		
	Site Specific Cost 73d	Near Term	Charlotte	Culvert Modification	\$ 185,000		\$ -		
	Site Specific Cost 73e	Near Term	Charlotte	Culvert Modification	\$ 185,000		\$ -		
	Site Specific Cost 74	Near Term	Charlotte	Road Underpass	\$ 90,000		\$ -		
	Site Specific Cost 80a	Near Term	Charlotte	Rail Underpass	\$ 60,000		\$ -		
	Site Specific Cost 80b	Near Term	Charlotte	Between Cemetery and I-77	\$ 200,000		\$ -		
	PHASE I TOTAL					\$ 8,883,000	53%	\$ 248,000	15%
	GRAND TOTAL					\$ 16,887,000	100%	\$ 1,638,000	100%
	ENTIRE PROJECT	Construction All	Near Term	All		\$ 14,143,000		\$ 3,794,000	
		ROW All	Near Term	All		\$ 2,264,000		\$ 350,000	
Site Specific Cost All		Near Term	All		\$ 1,575,000		\$ -		
PHASE I TOTAL					\$ 17,982,000	49%	\$ 4,144,000	43%	
Construction All		Long Term	All		\$ 12,625,000		\$ 4,864,000		
ROW All		Long Term	All		\$ 3,793,000		\$ 648,000		
Site Specific Cost All		Long Term	All		\$ 2,440,000		\$ -		
PHASE II TOTAL					\$ 18,858,000	51%	\$ 5,512,000	57%	
GRAND TOTAL					\$ 36,840,000	100%	\$ 9,656,000	100%	