

NC 3 (Mooresville Road)
Kannapolis Parkway to Dale Earnhardt Boulevard/Loop Road (SR 1691)
Kannapolis, Cabarrus County
WBS Element 39010
Federal Aid Project No. STP-0003(6)
S.T.I.P. PROJECT U-3440

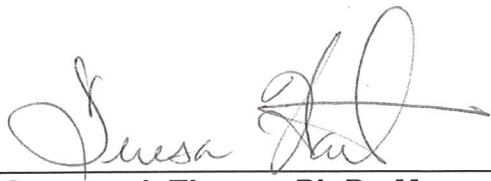
**ADMINISTRATIVE ACTION
ENVIRONMENTAL ASSESSMENT
AND
DRAFT SECTION 4(F) EVALUATION**


U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
AND
N. C. DEPARTMENT OF TRANSPORTATION

submitted pursuant to 42 U.S.C. 4332(2) (c)



APPROVED:

6/30/11
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Date *for* 
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Federal Highway Administration

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AND
DRAFT SECTION 4(F) EVALUATION**

June 2011

Documentation prepared in the Project Development and Environmental Analysis
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6/30/11
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30 June 2011
Date

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Project Development Unit Head





PROJECT COMMITMENTS

NC 3 (Mooresville Road)

Kannapolis Parkway to SR 1691 (Dale Earnhardt Boulevard)
Kannapolis, Cabarrus County
WBS ELEMENT 39010
S.T.I.P. PROJECT U-3440

Project Development & Environmental Analysis Branch

A Memorandum Of Agreement (MOA) will be completed and included in the anticipated Finding Of No Significant Impact document. The MOA will be between NCDOT, the FHWA, and the SHPO covering terms for the proposed project construction, impacts and mitigation for the historic resource.

Project Development & Environmental Analysis Branch, FHWA, USACE

The Project will enter into the NEPA 404 Merger Process at the Combined Concurrence Point 2A/4A Meeting. The meeting will be held after the public hearing, but prior to the anticipated final environmental document (FONSI).

City Of Kannapolis / NCDOT

A Municipal Agreement between NCDOT and the City of Kannapolis will be made to cover the terms of cost sharing for the construction cost and maintenance of sidewalks on both sides of NC 3.

City Of Kannapolis / Hydraulics / Roadway Design

The construction of the new bridge over Irish Buffalo Creek will have a vertical clearance tolerance that will accommodate passage for the proposed Greenway along the creek.

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SUMMARY

1. **Type of Action**

This is a Federal Environmental Assessment.

2. **Description of Action**

The North Carolina Department of Transportation (NCDOT) proposes to improve NC 3 (Mooresville Road) from the Kannapolis Parkway to Dale Earnhardt Boulevard/Loop Road (SR 1691). See Figure 1, Appendix A for the project vicinity map. The proposed improvement will widen Mooresville Road to a four lane facility. The typical section will consist of a 12 foot inside travel lane and a 14 foot outside travel lane in each direction, and a variable width median up to 23 feet wide. Sidewalks are proposed on both sides within the city limits. The project is approximately 2.5 miles in length (see Figures 2A through 2E, Appendix A).

This project is included in the 2009-2015 State Transportation Improvement Program (STIP). Right of way acquisition is scheduled for fiscal year 2012 and construction is scheduled for fiscal year 2013. The STIP includes a total funding of \$21,745,000 for the project, including \$1,800,000 for right of way acquisition, \$17,800,000 for construction, 1,602,000 for mitigation and \$543,000 in prior years cost.

3. **Summary of Purpose and Need**

NC 3 is currently experiencing congestion which is expected to deteriorate the facility to level of service F by 2015. The proposed improvements will improve traffic flow and reduce delays in this area of the County. These improvements will benefit the region by increasing ease of travel along NC 3 between the Kannapolis Parkway and downtown Kannapolis.

4. **Alternatives Considered**

New location alternatives to the north and the south of the proposed project were considered for avoidance of the combined Juniper-Pines-Mooresville-Chesnut Mill Village/Frog Hollow Historic District. These alternatives do not appear to be prudent because of impacts to the large number of businesses and residences. In addition to

the new location alternatives a north and south side alternative (Alternative A and Alternative B) was considered. The Do Nothing Alternative was also considered, but rejected because of the current and anticipated future congestion along this section of NC 3 (see Section III, Alternatives).

5. Summary of Environmental Effects

No impacts to archaeological resources will occur. No federally-protected species will be affected by the project. Traffic noise impacts will be minimal to the point where no noise abatement measures are recommended. The estimated number of residential and business relocations range from 34 to 41. No wetland impacts are anticipated. Each alternative will have an adverse effect on the Juniper-Pine-Mooresville-Chesnutt Mill Village Historic District.

Table 1. Summary of Estimated Environmental Effects

	Alternative A	Alternative B
Project Length (miles)	2.5	2.5
Right of Way	\$8,996,000	\$10,781,200
Railroad Crossing	0	0
Section 4(f) Resources	1	1
Adverse Effects to Historic Structures	Yes	Yes
Archaeological Sites	0	0
Federally-Protected Species	2	2
Residential Relocations	27	36
Business Relocations	7	5
Stream Impacts	2300	1300
Wetlands Impacts	0	0
Environmental Justice Potential	No	No
Noise Receptors Impacted	41	37

Notes: Biological Conclusions – No Effect for Carolina Heelsplitter and Schweinitz's sunflower

The effects of the anticipated impacts of the proposed widening and improvements of NC 3 from the Kannapolis Parkway to Loop Road are summarized in Table 1. On the basis of planning and environmental studies, it is anticipated that this project will not have a significant detrimental effect on the quality of the human and natural environment. The proposed project will cause no significant changes in route classification and land use and is not controversial in nature. It is concluded that an Environmental Assessment is applicable to this project.

6. Permits Required

A 401 Water Quality Certification, administered through the Department of Environment and Natural Resources (DENR), will be required for the project.

It is anticipated that the proposed improvements will require a Department of the Army Individual Section 404 Permit. Final permit decisions will be determined by the U.S. Army Corps of Engineers.

7. Coordination

The following federal, state, and local agencies were consulted during the preparation of this environmental assessment:

US Army Corps of Engineers (Asheville, NC Regulatory Field Office)
US Environmental Protection Agency (Raleigh)
US Fish and Wildlife Service (Asheville)
NC Dept. of Administration (State Clearinghouse)
NC Dept. of Cultural Resources (Historic Preservation)
NC Dept. of Environment & Natural Resources*
NC Wildlife Resources Commission*
City of Kannapolis

8. Contact Information

Additional information concerning the proposal and assessment can be obtained by contacting the following individuals:

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NC 3 (Mooresville Road)
Kannapolis Parkway to Dale Earnhardt Boulevard/Loop Road (SR 1691)
Kannapolis, Cabarrus County
WBS Element 39010
T.I.P. PROJECT U-3440

I. DESCRIPTION OF PROPOSED ACTION

A. GENERAL DESCRIPTION

The State Transportation Improvement Program (STIP) project U-3440 is located predominantly within the city of Kannapolis in Cabarrus County (see Figure 1, Appendix A). Cabarrus County is bordered by Mecklenburg County to the west, Union County to the south, Rowan and Iredell Counties to the north and Stanly County to the east.

The North Carolina Department of Transportation (NCDOT) proposes to improve NC 3 (Mooresville Road) from Kannapolis Parkway (STIP U-2009) to Dale Earnhardt Boulevard/Loop Road (SR 1691), (see Figure 1, Appendix A). The proposed improvement will widen Mooresville Road to a four lane median divided facility. The proposed typical section will consist of two 12 foot inside lanes, two 14 foot outside lanes to accommodate bicycles, and a variable width median up to 23 feet wide. Sidewalks are proposed on both sides and curb and gutter is anticipated within the city limits. The project is approximately 2.5 miles in length (see Figures 2A through 2E, Appendix A).

B. HISTORICAL RESUME AND PROJECT DESCRIPTION

The North Carolina Department of Transportation began the start of study for STIP Project U-3440 in August of 2007. This project is included in the 2009-2015 STIP. Right of way acquisition is scheduled to begin in federal fiscal year 2012 and construction is scheduled to begin in FFY 2013.

A citizens' Informational Workshop was held in Kannapolis by NCDOT representatives to present the proposed project to the public and to obtain comments and/or suggestions about the anticipated improvement on July 22, 2008. Approximately 80 people attended this meeting to express their interest in the improvement. Additionally a small group meeting was held in the Fishertown community at on October 18, 2008. Approximately 20 people attended this meeting.

C. COST ESTIMATES

The NCDOT 2009-2015 STIP calls for right of way acquisition to begin in FFY 2012 and construction to begin in FFY 2013. The STIP includes a total funding of \$21,745,000 for the project, including \$1,800,000 for right of way

acquisition, \$17,800,000 for construction, 1,602,000 for mitigation and \$543,000 in prior years cost.

II. PURPOSE AND NEED FOR PROJECT

A. PURPOSE OF PROJECT

The primary purpose of this project is to relieve anticipated congestion along the NC 3 corridor between Kannapolis Parkway and Dale Earnhardt Boulevard/Loop Road.

B. NEED FOR PROJECT

1. Existing Conditions

a. Project Termini

NC 3 is predominantly a two lane facility, within the project limits, 2.5 miles in length. The western terminus of the project is at the intersection of NC 3 and Kannapolis Parkway. The eastern terminus of the project is at the intersection of NC 3 and Dale Earnhardt Boulevard/Loop Road. Both the western and eastern termini are signalized.

b. Roadway Cross Section

NC 3 is predominantly a two lane undivided roadway with varied pavement width from 20 to 32 feet, and an approximate usable grass shoulder width of 6 feet. At the western terminus (Kannapolis Parkway), NC 3 has six lanes, two westbound through lanes, two left turn lanes, and two eastbound through lanes. From Kannapolis Parkway to approximately 1500 feet east, NC 3 transitions into a two lane roadway. At the eastern terminus (Dale Earnhardt Boulevard/Loop Road), NC 3 has one exclusive left turn lane and one right-through lane in the eastbound direction. There is one lane in the westbound direction. Currently, sidewalk with a four foot setback exists on both sides of NC 3 from Pine Street to Dale Earnhardt Boulevard/Loop Road.

c. Route Classification

NC 3 is considered to be an urban minor collector within the project limits.

d. Horizontal and Vertical Alignment

The typical section of NC 3 within the project limits is undivided, has two lanes and varied pavement width from 20 to 32 feet. There is one bridge (no. 120036) located over Irish Buffalo Creek.

e. Right Of Way and Access

The existing right of way is 60 feet wide along the majority of NC 3 within the project limits. There is no current control of access along NC 3.

f. Speed Limit

NC 3 has a posted speed limit ranging from 55 miles per hour near Kannapolis Parkway, transitioning to 45 miles per hour and then to 35 miles per hour (mph) approaching downtown Kannapolis.

g. Intersection and Type of Control

The western and eastern termini are signalized intersections. Between Kannapolis Parkway and Dale Earnhardt Boulevard, NC 3 has multiple at-grade intersections with streets providing access to adjacent neighborhoods and commercial sites. Access is stop sign controlled at each of these intersections with the exception of Rainbow Drive (SR 1643) which is signalized.

h. Structures

There is one bridge (Bridge No. 120036) over Irish Buffalo Creek. It is located 0.7 miles east of SR 1627. It is 120 feet in length, carries two lanes of traffic (one in each direction) and has a total horizontal clearance of 26 feet. The approach roadway width is 20 feet; it has no load restrictions, no vertical clearance restrictions, and has a bituminous concrete wearing surface. The structure has bridge railing and approach railing.

i. Utilities

Utilities located along the project include telephone lines, water and sewer, and power on both sides of Mooresville Road, and gas on the south side of NC 3.

j. Railroads

There are no rail crossings within the project limits.

k. Bicycle and Pedestrian Accommodations

Currently sidewalk with four foot setbacks exists on both sides of NC 3 from Pine Street to Dale Earnhardt Boulevard. No provisions exist to accommodate cyclists.

l. Greenways

Irish Buffalo Creek Greenway has been identified in the Comprehensive Pedestrian Plan and in a previously adopted Greenway Plan as a significant pedestrian and bicycle transportation facility, connecting North Cabarrus Community Park to the south, Safrit Park and Fred Wilson Elementary School near NC 3, and Lake Kannapolis to the north. It is also a key part of a 15 county, regional trail system called the "Carolina Thread Trail". Improvements to NC 3 should include some provision for the greenway crossing under the roadway, either using a pedestrian accessible culvert, or a bridge designed with adequate vertical and horizontal clearance for pedestrians and cyclists.

2. Traffic Volumes

Traffic volumes for the years 2008 and 2035 were determined and analyzed to quantify existing and future traffic demands on NC 3. Traffic projections for 2008 range from 7,100 vehicles per day (vpd) between Franklin Avenue and Pine Street to 11,200 vpd just west of the Kannapolis Parkway intersection. The projected design year (2035) traffic volume is estimated to range from 19,400 vpd between Franklin Avenue and Pine Street to 23,900 vpd between Tucker Avenue and Bethpage Road. Figures 3A through 3C, (Appendix A), display current and projected average daily volumes along the corridor. Two lane urban minor collectors begin to experience congestion and the need for widening to when capacity ranges reach 10,000 to 15,000 vpd. The current traffic volumes along NC 3 corridor are within this range. The projected traffic volumes exceed the typical volume range for two lane urban minor collectors prior to the design year 2035. The widening of NC 3 to a multilane facility is anticipated to improve traffic flow by accommodating current and future traffic volumes.

3. Transportation Land Use Plans

The CRMPO draft 2035 Long-Range Transportation Plan Goals and Objectives aims to develop a transportation system that preserves and enhances the natural and built environments. There is a mixture of residential and commercial land use along the project corridor (Go to http://www.cityofkannapolis.com/dept_pz_land_use.asp). The following objectives are also echoed in the Transportation Land Use Plan for the City of Kannapolis:

- Promoting better integration of land use and transportation planning;
- Supporting multi-modal transportation projects, which preserve and complement the Urban Area's natural features; and
- Promoting and planning for a transportation system that increases the vehicle occupancy rates, improves mode split, and reduces traffic congestion.

Another goal of the CRMPO's 2035 Long-Range Transportation Plan Goals and Objectives is to promote the development of an integrated bicycle and pedestrian network, which requires improving the transportation system with accommodations for bicycle and pedestrian access, and pursuing funding for a coordinated and comprehensive network of sidewalks and bicycle routes throughout the Urban Area.

4. System Linkage

Kannapolis has identified NC 3 (Mooresville Road) as an important development corridor. As a major linkage from the Kannapolis Parkway to the North Carolina Research Campus, the proposed project portion of Mooresville Road will function as a gateway to the Research Campus. The Research Campus is located at the eastern project terminus of Dale Earnhardt Boulevard/Loop Road (SR 1691).

The NC 3 corridor serves as an east-west connector for traffic moving to and from downtown Kannapolis to Kannapolis Parkway which connects to I-85.

The 2000 Kannapolis Transportation Plan proposed increasing accessibility and mobility options for people, as well as for the transportation of freight. The movement of freight could become more of an issue on Mooresville Road if suppliers ship products to the Research Campus and other Mooresville Road proposed campus developments.

5. Safety

During a three year period between April 1, 2008 and March 31, 2011, 80 vehicular crashes occurred on Mooresville Road. These crashes were primarily due to drivers' inability to reduce speed for stopped traffic and turning vehicles to private driveways and streets. There were 17 crashes that occurred during the nighttime and 17 crashes were on wet roadways, which equates to approximately 46% of the total crashes. There were no fatalities within the project limits during the study period. The total crash rate for NC 3 within the project limits exceeds the statewide critical rate for similar two lane undivided secondary route facilities. This suggests that there may be safety and operational issues within the project limits. A summary of the accident rates for NC 3 and the critical rates for urban two-lane secondary roads is shown in Table 2.

Table 2. Crash Rates (per 100 million vehicle miles)

Rate	Crashes	Crashes per 100 MVM	Statewide Rate ¹	Critical Rate ²
Total	80	320.84	224.99	276.41
Fatal	0	0	0.68	5.40
Non-Fatal	30	120.31	76.03	176.76
Night	17	68.18	46.90	71.47
Wet	17	68.18	36.53	58.45

¹ – 2007-2009 statewide crash rate for 2 Lanes Undivided, Urban North Carolina (NC) Route in North Carolina

² – Based on the statewide crash rate (95% level of confidence). The critical crash rate is a statistically derived value against which a calculated rate can be compared to see if the rate is above an average far enough so that something besides chance must be the cause.

6. Economic Development / Land Use Changes

Identifying existing and future transportation needs and prioritizing those needs to support the economic vitality of the metropolitan area is essential. NC 3 has been identified as an important corridor for economic development. The parcels directly adjacent to U-3440 are lightly developed with single-family homes as the prevailing use along NC 3. Several areas of concentration along the proposed project include existing and proposed neighborhood and highway commercial uses. The land use changes such as the NC Research Campus would likely further promote development of businesses and industry along the NC 3 corridor.

C. BENEFITS OF THE PROJECT

The benefit of the proposed project to the state, region and community will be primarily by way of improved traffic flow. Several intersections will be improved by signalization and reconfiguration allowing a more efficient flow of the existing traffic patterns. The widening of NC 3 will also provide additional capacity for the anticipated growth of the area. These improvements will ease the congestion along the project corridor.

III. ALTERNATIVES

A. ALTERNATIVE MODES OF TRANSPORTATION

The Blue Route of the Concord Kannapolis Area Transit Rider System travels on this section of NC 3 in Kannapolis. The proposed improvements are compatible with this existing bus service. In addition, the recommended sidewalk improvements along NC 3 will encourage the movement of pedestrians and other non-SOV (single occupancy vehicle) traffic in areas along the corridor. While the bus, pedestrian facility and bicycle provisions are encouraged along NC 3, these alternative modes of transportation alone will not suffice as alternative options to the proposed project. These alternative modes in conjunction with the proposed project improvements will provide an effective transportation system.

B. TRANSPORTATION SYSTEMS MANAGEMENT

Transportation Systems Management (TSM) improvements include limited construction activities designed to maximize the traffic flow and efficiency of the present transportation system. Possible TSM improvement options within the project area include adding signalization and/or optimizing existing traffic signal timing, or improving timing sequencing, widening intersections to add turn lanes, combining and eliminating driveway accesses, and other similar capacity improvements. The proposed improvements will include many of the above noted measures. However, while TSM measures will reduce congestion along the NC 3 corridor, it is anticipated the benefits of these improvements alone will be much less than the benefit of the proposed widening of NC 3. Thus, relying entirely upon TSM measures in lieu of the proposed NC 3 improvements is not recommended.

C. "NO-BUILD" ALTERNATIVE

If improvements are not made to NC 3 (Mooresville Road) the two-lane facility will be operating at an unacceptable level of service F by 2035. The increase in traffic without additional capacity will hamper traffic flow and may result in an increase in the already high accident rate along NC 3. Mobility and safety on NC 3 will deteriorate to a point where through traffic will begin to utilize alternate routes not designed for high traffic volumes. Therefore, the NCDOT does not recommend implementation of the no-build alternative.

D. IMPROVE EXISTING FACILITY

Two alternatives were considered for widening along NC 3. Alternative A widens NC 3 to the north of the existing facility while Alternative B (recommended) widens to the south side of the existing facility. Both alternatives

would consist of widening NC 3 to a four lane divided facility with a variable width median up to 23 feet wide from Kannapolis Parkway to Loop Road in Cabarrus County. The proposed cross section will provide for one 12 foot inside lane and one 14 foot outside lane in each direction. The 14 foot wide outside lanes are proposed in order to accommodate bicycle traffic. Sidewalks are proposed on both sides and curb and gutter is anticipated within the city limits.

Additionally, at the intersection of Franklin Avenue, Miller and Mason Streets two intersection alternatives are being considered. The first alternative includes removing the connector of Mason Street to NC 3 with a cul de sac on Mason Street. This will result in a four legged intersection with NC 3, Franklin Avenue and Miller Street. The second intersection alternative will provide a roundabout at this location.

E. NEW LOCATION ALTERNATIVES

Both widening alternatives (A and B) will impact the combined Juniper-Pine-Mooresville-Chestnut/Frog Hollow Mill Village Historic District, which is listed on the National Register of Historic Places. Under Section 4(f) of the 1966 DOT Act the combined Juniper-Pine-Mooresville-Chestnut/Frog Hollow Mill Village Historic District qualifies for protection under the law. Section 4(f) protects the use and function of publicly owned parks, recreation areas, wildlife/waterfowl refuges, and historic properties. A transportation plan can only use land from a Section 4(f) resource when there are no other feasible or prudent alternatives and when planning minimizes all possible harm to the resource. Utilizing existing NC 3, with a minimum median width, the section 4(f) resource is unavoidable because the historic district is located on both sides. Therefore, to avoid this historic resource, both a north and a south alignment partially on new location were considered (see Figure 7 and 8, Appendix A). However, widening this facility without utilizing the Section 4(f) resource would create substantial environmental impacts since it would involve relocating NC 3. Many homes and businesses would likely be impacted by this relocation. This scenario would be environmentally disrupting.

IV. PROPOSED IMPROVEMENTS

A. ROADWAY CROSS-SECTION AND ALIGNMENT

The proposed improvement will widen NC 3 to a four lane median divided facility. The proposed typical section will consist of two 12 foot inside lanes, two 14 foot outside lanes to accommodate bicycles, and a 23 foot wide grass median with curb and gutter. Sidewalks are proposed on both sides of the facility. The preferred alignment primarily widens NC 3 to the south minimizing impacts to human and natural environment.

B. RIGHT OF WAY AND ACCESS CONTROL

Approximately 110 feet right of way is proposed for the new facility. Temporary construction easement may be required. Additional right of way will be required along the project in order to accommodate realignment with some intersections.

No control of access is proposed along NC 3 (Mooresville Road). The proposed improvements include a median with median breaks at the appropriate locations.

C. SPEED LIMIT

The proposed speed limit along NC 3 will range from 35 mph to 45 mph within city limits. The western end of the project will maintain the 55 mph limit.

D. DESIGN SPEED

The proposed facility will have a 50 mph design speed.

E. INTERSECTIONS / INTERCHANGES

Proposed intersection improvements along the NC 3 corridor include the following:

- Realignment of Charlie Walker Road to create a more perpendicular intersection with NC 3.
- Realignment of Beth Page Road to create a more perpendicular intersection with NC 3.
- Replacing the connector of Mason Street to NC 3 with a cul de sac on Mason Street. Local traffic will utilize Franklin Avenue for access to NC 3.
- A dual lane four legged roundabout is proposed at the intersection of NC 3 and the Franklin Avenue /Miller Street/Mason Street.
- Signals are proposed at Miller Road, Charlie Walker Road and Bethpage Road.
- Adding a right turn lane is proposed for NC 3 at Bethpage Road
- Replacing the connector of Pine Street to NC 3 with a cul de sac on Pine Street is proposed.

F. RAILROAD CROSSINGS

There are no railroad crossings along this project.

G. STRUCTURES

The widening of NC 3 will require the replacement of Bridge No. 120036 over Irish Buffalo Creek. The proposed replacement will be two structures, each providing a total bridge length of approximately 120 feet. The final bridge lengths will be determined at the Merger / 404 Concurrence Point 2A / 4A meeting to be held prior to completion of the final environmental document. A 37 foot clear structure width is recommended for each proposed bridge. This will provide one 14 foot outside lane and one 12 foot inside lane for each structure which will match the proposed cross section. Sidewalks are also proposed along the outside of each proposed structure. The roadway grade for the proposed bridges will be required to accommodate vertical clearance for the proposed future greenway planned by the City of Kannapolis. Additionally, it is recommended that 4 existing culverts located within the project limits be relaid and extended.

H. BICYCLE AND PEDESTRIAN FACILITIES / GREENWAYS

Fourteen foot outside lanes are proposed for the project to accommodate bicycle traffic. In addition, sidewalks are proposed on both sides of the facility within the city limits. In accordance with the NCDOT Pedestrian Policy Guidelines, the NCDOT will fund 70% of the construction cost of the sidewalk, up to 5% of the total project cost. The City of Kannapolis will be responsible for the remaining cost of the sidewalk within the city limits. The total estimated cost for the sidewalks is \$497,142 and is included in the construction cost of the project.

I. UTILITIES

Utilities located along the project include telephone, water, sewer, and power on both sides of NC 3. Gas lines are located on the south side of NC 3.

J. LANDSCAPING

In accordance with the NCDOT Highway Landscape Planting Policy, funding for landscaping is included in the construction cost estimate for this project; no special landscaping is proposed as part of this project.

K. NOISE BARRIERS

Noise barriers are not recommended for this project.

L. WORK ZONE / TRAFFIC CONTROL / CONSTRUCTION PHASING

During the construction phase of the proposed project, the work zone will be managed by standard NCDOT Transportation System Management for

construction phasing and traffic control. Standard signing and construction barriers will be used with appropriate control measures for existing traffic.

V. ENVIRONMENTAL EFFECTS OF PROPOSED ACTION

A. NATURAL RESOURCES

[The following is an abridged version of the Natural Resources Technical Report. A copy of the unabridged version can be reviewed in the NCDOT-PDEA Library, Century Center Building A, Raleigh, N.C.]

1. Jurisdictional Issues

a. Clean Water Act Waters of the United States

Nine jurisdictional streams were identified in the study area (Table 3). The location of these streams is shown on Figures 2A-2E, See Appendix A. USACE and NCDWQ stream delineation forms are included in Appendix B. All jurisdictional streams in the study area have been designated as warm water streams for the purposes of stream mitigation.

Table 3. Jurisdictional characteristics of water resources in the study area.

Map ID	Length(ft)	Classification	Compensary Mitigation Required	River Basin Buffer
IBC	856	Perennial	Yes	No
MB	1,205	Perennial	Yes	No
S1	1,689	Perennial	Yes	No
S2	743	Intermittent	Yes	No
S3	543	Intermittent/Perennial	Yes	No
S4	1,166	Perennial	Yes	No
S5	890	Perennial	Yes	No
S6	1,341	Perennial	Yes	No
S7	1,721	Perennial	Yes	No

One jurisdictional wetland was identified within the study area. Wetland classification and quality rating data are presented in Table 4. All wetlands in the study area are within the Yadkin/Pee Dee River basin (USGS Hydrologic Unit 03040105). USACE wetland delineation forms and NCDWQ wetland rating forms for each site are included in Appendix B. Wetland WA is included with the maintained/disturbed community, adjacent to the roadside shoulder.

Table 4. Jurisdictional characteristics of wetlands in the study area.

Map ID	NCWAM Classification	Hydrologic Classification	DWQ Wetland Rating	Area (ac.)
WA	Headwater Forest	Riparian	40	0.05

b. Clean Water Act Permits

The proposed project is being processed as an Environmental Assessment (EA) document. Depending on the extent of impacts to jurisdictional waters a Section 404 Individual Permit (IP) or a Nationwide Permit (NW) 14 will likely be applicable for this project. Although an individual site may qualify under NW permit authorizations, overall cumulative impacts from a single and complete project may require authorization under an Individual Permit (IP). There is the potential for a cumulative loss or degradation of more than 300 linear feet of a single jurisdictional stream with this project. The USACE holds the final discretion as to what permit will be required to authorize project construction.

In addition to the 404 permit, other required authorizations include the corresponding Section 401 Water Quality Certification (WQC) from the NCDWQ. A Section 401 Water Quality Certification (WQC) will be required prior to the issuance of a Section 404 permit.

c. Construction Moratoria

Irish Buffalo creek, Miller Branch and their associated UT's are not considered trout waters or anadromous fish habitat. No moratoria are expected with this project.

d. N.C. River Basin Buffer Rules

Irish Buffalo creek, Miller Branch and their associated UT's do not lay within any of the NCDWQ buffered river systems.

e. Rivers and Harbors Act Section 10 Navigable Waters

Irish Buffalo creek, Miller Branch and their associated UT's are not considered navigable waters under Section 10 of the Rivers and Harbors Act, per communication with the USACE Asheville Regional Office.

f. Mitigation

1) Avoidance and Minimization

The NCDOT will attempt to avoid and minimize impacts to streams and wetlands to the greatest extent practicable in choosing a preferred alternative and during project design. At this time, no final decisions have been made with regard to the location or design of the preferred alternative.

2) Compensatory Mitigation of Impacts

The NCDOT will investigate potential on-site stream and wetland mitigation opportunities once a final decision has been rendered on the location of the preferred alternative. If on-site mitigation is not prudent, mitigation will be provided by North Carolina Department of Environmental and Natural Resources Ecosystem Enhancement Program (EEP). In accordance with the Memorandum of Agreement among the North Carolina Department of Transportation, and the US Army Corps of Engineers, Wilmington District (MOA), July 30, 2008 the EEP, will be requested to provide off-site mitigation to satisfy the federal Clean Water Act compensatory mitigation requirements for this project.

g. Endangered Species Act Protected Species

As of January 31, 2008 the USFWS lists two federally protected species for Cabarrus County (Table 5). Habitat requirements for each species are based on the current best available information as per referenced literature and USFWS correspondence. A biological conclusion of No Effect was determined for both species (Carolina heelsplitter and Schweinitz's sunflower.

Table 5. Federally protected species listed for Cabarrus County.

Scientific Name	Common Name	Federal Status	Habitat Present	Biological Conclusion
Lasmigona decorata	Carolina heelsplitter	E	No	No Effect
Helianthus schweinitzii	Schweinitz's sunflower	E	Yes	No Effect

E-Endangered

h. Bald Eagle and Golden Eagle Protection Act

The bald eagle has been delisted from the Endangered Species Act as of August 8, 2007. It is still protected under the Bald and Golden Eagle Protection Act. There are no large water bodies within 1 mile and 660 feet of the project study area, therefore no survey is needed.

i. Endangered Species Act Candidate Species

As of January 31, 2008 the USFWS lists no candidate species for Cabarrus County

B. CULTURAL RESOURCES

1. Compliance Guidelines

This project is subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, and implemented by the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106, codified at 36 CFR part 800. Section 106 requires federal agencies to take into account the effect of their undertakings (federally-funded, licensed, or permitted) on properties included in or eligible for inclusion in the National Register of Historic Places and to afford the Advisory Council a reasonable opportunity to comment on such undertakings.

2. Historic Architectural Resources

The North Carolina State Historic Preservation Office (NC-HPO) recommended a survey of the project area by qualified architectural historians in their memo dated November 8, 2007. A field survey of the area of potential effects (APE) was conducted by NCDOT architectural historians in October 2008. One hundred and fifty-nine structures over fifty years of age within the APE were photographed and mapped. On December 8, 2008, the survey findings were presented to the NC-HPO and it was decided that a report would be needed to evaluate the potential of a historic district. A report was prepared by NCDOT architectural historians in April 2009 which stated that the Juniper-Pine-Mooresville-Chestnut Mill Village Historic District was eligible for the National Register of Historic Places under Criterion A (Social/Industrial History & Community Development). The report was forwarded to NC-HPO for their concurrence and they responded by memo dated June 8, 2009. NC-HPO agreed with the eligibility of the district under Criterion A, but stated that by incorporating a portion of the adjacent Frog Hollow Mill Village, the combined areas would make the larger district eligible under Criterion C (Design) as well. They attached a map with the eligible boundaries and also marked areas outside the APE that may warrant further study if the scope of the project changed. These letters and the district map are included in Appendix B.

In a meeting between NCDOT, FHWA, and NC-HPO on October 12, 2010 it was determined that Alternatives A and B would have an adverse effect upon the combined Juniper-Pine-Mooresville-Chestnut/Frog Hollow Mill Village Historic District. Each alternative requires the removal of several contributing structures

within the district. A copy of the concurrence form signed during the meeting is included in Appendix B.

3. Archaeological Resources

In correspondence dated November 8, 2007 the NC-HPO recommended no archaeological survey for this project. A copy of this correspondence is included in Appendix B.

C. FARMLAND

State highway construction projects that receive funding from federal sources are typically subject to the Farmland Protection Policy Act (FPPA), which stipulates that federal programs (including highway construction projects) be compatible with state, local, and private efforts to protect farmland. Prime farmland soils surround the portion of U-3440 between the Kannapolis Parkway and Irish Buffalo Creek. Soils of Statewide Importance are located within the Direct Community Impact Area (DCIA) from Charlie Walker Road to areas west of Miller Road along NC 3, and a small area west of Irish Buffalo Creek and Tucker Avenue. For the most part, the parcels bordering the project are residential, and one undeveloped field (north of NC 3 between SR 1639 Marion Avenue and Irish Buffalo Creek) was for sale for non-agricultural uses.

In accordance with the Federal Highway Administration's Guidelines for Implementing the Final Rule of the Farmland Protection Policy Act for Highway Projects, NCDOT has completed an assessment of farmland in the project area and calculated the total number of points for the site per Part VI of the NRCS AD-1006 Farmland Conversion Impact Rating Form. The threshold of 160 points has not been reached, therefore the project does not require further analysis under Part VI of the NRCS Farmland Conversion Rating System.

D. LAND USE & COMMUNITY IMPACT ASSESSMENT

1. Community Characteristics

NC 3 is an important corridor that provides a major linkage from the Kannapolis Parkway to the North Carolina Research Campus. Several large vacant parcels are located along NC 3 that are designated for future campus and commercial development. There are two small commercial nodes along NC 3 while the remaining corridor contains mostly residential development, a church, and a few businesses.

The community is composed of housing of low to high density with clusters of small businesses around the intersections of NC 3 with Rainbow Drive and Pine Street. A group of mill houses between Pine Street and Loop Road are

a portion of a historic mill village. The mill village includes roughly 1,500 homes. The houses are privately-owned, and the mill village is still intact. Fishertown is described by local planners as a cohesive Black community of 250 homes, located along Charlie Walker Road near the start of the project. Newer subdivisions are currently under development near the western termini, and along the Kannapolis Parkway. New development is also occurring at the North Carolina Research Campus, located at SR 1691 (Dale Earnhardt Boulevard/Loop Road) and along the Kannapolis Parkway. The campus should serve as a major generator of future jobs for the region.

According to the 2000 census, the population in the demographic study area is 8,602 people, an increase of 11% from 1990. The demographic area grew slower from 1990-2000 than did Cabarrus County and the City of Kannapolis. Most growth in the demographic study area took place west of SR 1628 (Charlie Walker Road) and Irish Buffalo Creek, but the overall area has generally been a low-growth area.

2. Economics

The North Carolina Research Campus is anticipated to bring additional employment to the area. The land where the campus resides has been designated as an Urban Progress Zone (UPZ). The NC Department of Commerce provides economic incentives to stimulate new investment and job creation in economic distressed areas. Nearly 70% of the identified UPZ is zoned for non-residential uses. Local analyses suggest more than 5,500 jobs could be created at the Research Campus by the year 2013 alone, and more than 37,000 jobs could come to the region as a whole by 2032.

The Demographic Study Area's \$38,494 median income reflects its proximity to Kannapolis (\$35,532), whereas Cabarrus County has a median income of \$46,140. According to the 2000 Census, median household incomes are lower (\$22,007) at the eastern end of the project (see Appendix A, Figure 4, Geography and Demographics Map).

The unemployment rate in the Demographic Study Area is 3.5%, compared to 4.2% for Cabarrus County and 4.8% for Kannapolis, according to the 2000 Census. The poverty rate in the Demographic Study Area is 6.3%, compared to 6.9% for Cabarrus County and 10.3% for Kannapolis. Unemployment (6.7%) and poverty (16%) are highest at the easternmost end of the project.

The proposed improvements to Mooresville Road play a vital role in the anticipated development along the project corridor and surrounding areas. The economic growth for the area is directly related to the project corridor. The effect of an improved facility will impact the economic development by allowing more efficient and safe travel to and from employment centers in downtown Kannapolis.

and particularly along Mooresville Road.

3. Relocation of Residences and Businesses

Additional right of way will be needed to construct the project. Temporary construction easements will also be required. It is estimated that Alternative A will result in the relocation/displacement of 27 residences and 7 businesses. It is estimated that alternative B will result in the relocation/displacement of 36 residences and 5 businesses. A relocation report is included in Appendix C of this report.

When relocation is necessary, it is the policy of NCDOT to ensure that comparable replacement housing will be available prior to construction of state and federally assisted projects. Furthermore, the North Carolina Board of Transportation has the following three programs to minimize the inconvenience of relocation.

- Relocation Assistance
- Relocation Moving Payments
- Relocation Replacement Housing Payments or Rent Supplement

The noted regulations and programs help ensure that property owners are compensated fairly for the loss of value to their property.

4. Environmental Justice

Fishertown is an historically black community of roughly 250 homes off NC 3 and Charlie Walker Road and Marion Avenue. The Fishertown Community has environmental justice characteristics, according to demographic analysis. Under Title VI of the Civil Rights Act of 1964, there are requirements that protect individuals from any type of discrimination on the grounds of race, age, color, religion, disability, sex, and national origin. Along with Title VI of the Civil Rights Act of 1964, Executive Order 12898 states that federal programs must identify and address disproportionate and adverse effects on minority or low-income populations. Environmental Justice requires the equitable treatment of people of all races, cultures, ages, and incomes during development, implementation and enforcement of environmental laws, regulations and policies. Other special populations may include the elderly, children, or the disabled.

There are no relocations, physical intrusion, or apparent effects on property values from the project on Fishertown. Alternative A would relocate the Bethpage Grocery. Alternative B is the preferred alternative and it is anticipated that there will be no Environmental Justice issue for this project.

E. INDIRECT AND CUMULATIVE EFFECTS

The future land use study area encompasses a buffer that includes the NC Research Campus, a roughly one-half mile buffer around the proposed project and areas along the Kannapolis Parkway designated for future campus, mixed use, and residential development. Indirect and cumulative effects are based on growth trends and potential development between now and the design year of the project. There are approximately 3,481 total acres in the future land use study area. There are approximately 2,280 acres (59%) of developed acreage including 285 acres of NCDOT right of way. The remaining undeveloped acreage contains approximately 251 acres (6.5%) of NWI wetlands, FEMA floodways, ponds, and greenways that are not available for development. The 50-foot buffers are included within the mapped floodways, with the exception of areas where no floodways are present along streams. There are no protected or conservation lands within the area. There are 1,310 acres (34%) of remaining land available for development. The City of Kannapolis has a Unified Development Ordinance and Land Use Plan that targets new development in both the NC Research Campus and the Coddle Creek area (located at the eastern and western termini of the project, respectively).

Irish Buffalo Creek is on the North Carolina Division of Water Quality (DWQ) 303(d) list of impaired waters. According to DWQ's Basinwide Planning Program, the NC Wetlands Restoration Program (NCWRP) has identified Irish Buffalo Creek as a Targeted Local Watershed, which is an area with the greatest need and opportunity for stream and wetland restoration efforts.

Analysis of potential indirect and cumulative effects of this project suggests that development activities in the area will likely occur with or without the project construction. Analysis of the State and local development regulations suggests that the policies currently in place will mitigate any potential impacts of the minor project related effects. It is not anticipated that STIP U-3440 will have an effect on future stormwater runoff or water quality within the study area.

The cumulative effects of this project, when considered in the context of other past, present and future actions, and the resulting impact on notable human and natural features are anticipated to be minimal.

F. FLOOD HAZARD EVALUATION

The proposed greenway along the Irish Buffalo Creek is in a floodway and in the 100 year flood zone. Bridge 36 over Irish Buffalo Creek was built in 1946 and has a sufficiency rating of 69%.

There are no FEMA buyout properties (buildings with floor elevations below the 100 year flood plain) along the project.

G. TRAFFIC NOISE ANALYSIS

Traffic noise impacts are an unavoidable consequence of transportation projects especially in areas where there are no traffic noise sources. All traffic noise impacts were considered for noise mitigation. Based on these preliminary studies, traffic noise abatement is not recommended, and no noise abatement measures are proposed. This evaluation completes the highway traffic noise requirements of Title 23 CFR Part 772, and unless a major project change develops, no additional noise reports will be submitted for this project.

The major construction elements of this project are expected to be earth removal, hauling, grading, and paving. General construction noise impacts, such as temporary speech interference for passers-by and those individuals living or working near the project, can be expected particularly from paving operations and from the earth moving equipment during grading operations. However, considering the relatively short-term nature of construction noise and the limitation of construction to daytime hours, these impacts are not expected to be substantial. The transmission loss characteristics of nearby natural elements and man-made structures are believed to be sufficient to moderate the effects of intrusive construction noise.

H. AIR QUALITY ANALYSIS

[The following is an abridged version of the Air Quality Report. A copy of the unabridged version can be reviewed in the NCDOT-PDEA Library, Century Center Building A, Raleigh, N.C.]

The project is located in Cabarrus County, which is within the Charlotte-Gastonia-Rock Hill nonattainment area for ozone (O₃), as defined by the EPA. The areas were designated moderate nonattainment for O₃, under the eight-hour ozone standard effective June 15, 2004. Section 176(c) of the CAAA requires that transportation plans, programs, and projects conform to the intent of the state air quality implementation plan (SIP). The current SIP does not contain any transportation control measures for Cabarrus County. The Mecklenburg Union Metropolitan Planning Organization 2030 Long Range Transportation Plan (LRTP) and the 2006-2012 Metropolitan Transportation Improvement Program (MTIP) conform to the intent of the STIP.

Mobile Source Air Toxics

For each alternative in this EA, the amount of MSATs emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. The VMT estimated for each of the Build Alternatives is slightly higher than that for the No Build Alternative, because the additional capacity increases the efficiency of the roadway and

attracts rerouted trips from elsewhere in the transportation network. This increase in VMT would lead to higher MSAT emissions for the action Alternative along the highway corridor, along with a corresponding decrease in MSAT emissions along the parallel routes. The emissions increase is offset somewhat by lower MSAT emission rates due to increased speeds; according to EPA's MOBILE6 emissions model, emissions of all of the priority MSATs except for diesel particulate matter decrease as speed increases. The extent to which these speed-related emissions decreases will offset VMT-related emissions increases cannot be reliably projected due to the inherent deficiencies of technical models.

Because the estimated VMT under each of the Alternatives are nearly the same, it is expected there would be no appreciable difference in overall MSAT emissions among the various alternatives. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce MSAT emissions by 57 to 87 percent between 2000 and 2020. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

The USDOT made a conformity determination on the LRTP, the STIP and Union County projects from the State Transportation Improvement Plan (STIP) on June 29, 2007. For the donut-area¹ of Union County, the projects from the 2007 STIP conform to the intent of the SIP (or base year emissions, in areas where no SIP is or found adequate). The current conformity determination is consistent with the final conformity rule in 40 CFR Parts 51 and 93. There are no significant changes in the design concept or scope, as used in the conformity analysis.

Summary

The project is located in Cabarrus County, which complies with the National Ambient Air Quality Standards. This project will not add substantial new capacity or creating a facility that is likely to meaningfully increase emissions. Therefore, it is not anticipated to create any adverse effects on the air quality of this attainment area.

¹ Donut areas are geographic areas outside a metropolitan planning area boundary, but inside the boundary of a nonattainment or maintenance area that contains any part of a metropolitan area(s). These areas are not isolated rural nonattainment and maintenance areas. <http://www.fhwa.dot.gov/environment/conformity/complex/group3.htm>

I. HAZARDOUS MATERIAL

[The following is an abridged version of the Hazardous Materials Evaluation Report. A copy of the unabridged version can be reviewed in the NCDOT-PDEA Library, Century Center Building A, Raleigh, N.C.]

Nine (9) possible UST facilities and one (1) landfill site were identified within the proposed project corridor. Low to non-existent monetary and scheduling impacts are expected to result from these sites. No additional contaminated properties were observed during the field reconnaissance and regulatory agencies' records search. The Geotechnical Engineering Unit may provide soil and groundwater assessments on each of the above properties for the selected alternative and before right of way acquisition. Discovery of additional sites not recorded by regulatory agencies and not reasonably discernable during the project reconnaissance may occur.

If any additional USTs or any potential source of contamination is discovered by Right of Way personnel during their initial contacts with impacted property owners, NCDOT Geotechnical Engineering Unit will be notified of their presence prior to acquisition. This is so that an assessment can be conducted to determine the extent of any contamination. This assessment will also serve to estimate the associated clean up costs and allow Geo-environmental to make right of way recommendations. It is anticipated that impacts to hazardous materials site as a result of this project will be low or negligible to low.

J. DRAFT SECTION 4(F) EVALUATION

The proposed project involves a Section 4(f) Evaluation to demonstrate that there are no prudent and/or feasible alternatives to the use of land from the National Historic Register Eligible Juniper-Pine-Mooresville-Chestnut Mill Village Historic District and the Frog Hollow Mill Village Historic District. This evaluation also outlines coordination that has occurred and the measures proposed to minimize harm to these Section 4(f) resources.

Project Description

The proposed project is included in the NCDOT 2009-2015 State Transportation Improvement Program (STIP) as Project Number U-3440. The project limits of STIP Project No. U-3440 are along NC 3 (Mooresville Road) from the Kannapolis Parkway to Dale Earnhardt Boulevard/Loop Road (SR 1691) for a total project length of approximately 2.5 miles.

The need and purpose of the proposed project, including existing and future traffic volumes and LOS are described in detail in Chapter 1 of the Environmental Assessment (EA). Alternatives A and B have been evaluated and are described in the EA in Section III, Alternatives. Separate avoidance

alternatives (northern and southern) are also discussed in this Draft Section 4(f) Evaluation.

The preferred alternative (B) is predominantly a south side widening of NC 3 to a four-lane, raised grass median-divided facility from Kannapolis Parkway to Dale Earnhardt Boulevard/Loop Road. The typical section will consist of a 12 foot inside travel lane and a 14 foot outside travel lane in each direction, and a variable median width up to 23 feet wide. Sidewalks are proposed on both sides of the project within the city limits.

Proposed intersection improvements along the Mooresville Road corridor include the following:

- Realignment of Charlie Walker Road to create a more perpendicular intersection with NC 3.
- Realignment of Beth Page Road to create a more perpendicular intersection with NC 3.
- Replacing the connector of Mason Street to NC 3 with a cul de sac on Mason Street. Local traffic will utilize Franklin Avenue for access to NC 3.
- A dual lane four legged roundabout is proposed at the intersection of NC 3 and the Franklin Avenue/Miller Street/Mason Street.
- Signals are proposed at Miller Road, Charlie Walker Road and Bethpage Road.
- Adding a right turn lane is proposed for NC 3 at Bethpage Road
- Replacing the connector of Pine Street to NC 3 with a cul de sac on Pine Street is proposed.

Section 4(f) Resources

One Section 4(f) resource occurs within the study area. The Juniper-Pine-Mooresville-Chestnut Mill Village Historic District and the Frog Hollow Mill Village Historic District are combined resources which are eligible under Criteria A (Social/Industrial History and Community Development) and Criteria C (Design), (see Figure 6, Appendix A). None of the buildings within the districts are individually eligible for the National Register.

Impacts on 4(f) Resources

The Juniper-Pine-Mooresville-Chestnut Mill Village and Frog Hollow Mill Village combined Historic District is located within the project limits on the north and south side of Mooresville Road from Pine Street to Dale Earnhardt Boulevard/Loop Road (see Figure 2E, Appendix A). Each widening alternative discussed in the EA, (Alternative A and B) will essentially impact the combined historic district.

Alternative A was considered within the combined Historic District. The widening to the north side of NC 3 would approximately displace 8 contributing historic structures within the historic district.

Alternative B was considered within the combined Historic District. The widening to the south side of NC 3 would displace 8 contributing historic structures within the historic district.

After analyzing each alternative, the best attributes were combined to develop a best-fit alignment within the historic district. Approximately 5 contributing historic structures from the combined Historic District would be displaced by the best-fit alignment of both alternatives A and B. Alternative B, combined with the best-fit alignment within the historic district is the preferred alternative for the proposed project. The best-fit alignment minimizes anticipated impacts within the historic district.

Alternatives that Avoid Impact to the Section 4(f) Resource

Section 4(f) of the Department of Transportation Act of 1966 (23 CFR 771.135) stipulates that the FHWA will not approve any program or project which requires the use of any publicly owned public park recreation area, wildlife or waterfowl refuge, or any land from an historic site of national, state, or local significance unless:

- There is no feasible and prudent alternative to the use; and
- All possible planning to minimize harm resulting from such use is included.

Alternatives to the proposed widening were developed in order to evaluate whether the use of Section 4(f) historic resources could be avoided. Alternatives that successfully avoided or minimized the use of Section 4(f) properties were then evaluated on their ability to satisfy the project purpose and need. NC 3 is the only east-west major or minor thoroughfare that connects Kannapolis Parkway to downtown Kannapolis on the west side of the city. From Irish Buffalo Creek to downtown Kannapolis, alternatives to the north and the south of NC 3 were evaluated (Northern Avoidance and Southern Avoidance Alternatives, see Figure 7 and 8, Appendix A).

The City of Kannapolis was built around the former Cannon Mills site, and therefore is surrounded by mill homes and villages. Cannon Mills has been replaced by the North Carolina Research Campus. The developers of the North Carolina Research campus have acquired properties within the historic districts along the project corridor to include mill homes and businesses. The research campus is projected to bring at least 40,000 jobs into the area. This in turn will generate higher traffic volumes along NC 3 from Kannapolis Parkway to downtown Kannapolis.

Two new location alternate routes were considered as avoidance alternatives for the Juniper-Pine-Mooresville-Chestnut Mill Village and Frog Hollow Mill Village combined Historic District (see Figures 7 and 8, Appendix A). Portions of these alternatives were developed on new location. There are existing residential streets to the north and south of NC 3. Tying a major thoroughfare into these residential streets would create extensive impacts to residences and neighborhoods. Currently, these residential streets are not suited to carry the amount of traffic projected for NC 3 in 2035.

Due to the impacts associated with the relocation of NC 3, these alternatives did not proceed beyond the conceptual design phase. The northern avoidance alternative was estimated to have over twice the impact in relocations in comparison to the best-fit alignment within the historic district boundary (see Table 6). The southern avoidance alternative was estimated to have double the impacts in relocations in comparison to the best-fit alignment within the historic district boundary (see Table 6). Also, the topography to the south side of NC 3 provides design challenges making the widening to the south less desirable. Although the best-fit alignment is anticipated to impact contributing structures to the historic district, each of those structures are owned by the developers of the North Carolina Research Campus. Based on anticipated impacts to the human and natural environment and estimated costs, an avoidance alternative on new location to the north or the south of the proposed project does not appear to be prudent.

Table 6. Anticipated Impacts From Red Street to Dale Earnhardt Boulevard

Alternative	Residential Relocation	Business Relocation	Contributing Property Relocation	Cost	Contributing Property Impacts in Developer Ownership
Northern Avoidance	26	2	None	13,000,000	None
Southern Avoidance	12	1	None	9,600,000	None
Best-Fit	5	None	5	4,900,000	5

Least Overall Harm Analysis

The preferred project alignment, Alternative B, incorporates the Best-Fit alignment within the historic districts. Table 6 shows estimated impacts for the avoidance alternatives and the best-fit alignment from Red Street to Dale Earnhardt Boulevard/Loop Road. The best-fit alignment is estimated to be less disruptive of the overall area as opposed to the northern or southern avoidance alternative. The best-fit alignment proposes minimal impact to the integrity of location, setting, association and feeling of the historic district as opposed to

widening to the north (Alternative A) or south (Alternative B) of NC 3 within the historic districts. The best-fit alignment anticipates less of an overall impact to the historic district in relocations of homes, businesses, and land. The alignment also ties in well to the intersection at Dale Earnhardt Boulevard/Loop Road. There will be no anticipated offsets to the intersection such as anticipated in the design of Alternative A and B. The anticipated offsets are not ideal for intersection configuration and traffic flow. Thus the best-fit alignment is a better alignment for the intersection.

All Possible Planning To Minimize Harm

Coordination was established and input received from the HPO, City of Kannapolis officials, stakeholders, and concerned citizens to discuss alternatives and measures to minimize harm to the Section 4(f) resources along the project corridor. The measures that were considered reasonable were evaluated and incorporated into the design of the project.

Coordination with the HPO has been ongoing since the beginning of the project. An early coordination memorandum regarding the proposed improvements and NRHP listed properties along the project corridor was received from the HPO on November 8, 2007 (see Appendix B). NCDOT and FHWA also held meetings with representatives of the HPO to discuss alternatives and measures to minimize harm to the Section 4(f) resources during project development. These meetings were held on the following dates:

- September 27, 2010
- October 12, 2010

In addition to these meetings, NCDOT will hold a future public hearing for the proposed project and receive input from citizens as well as town officials. A final environmental document (Finding of No Significant Impact) will be produced detailing interagency and public coordination as well as any revisions to this document or design changes as a result of the coordination.

Minimization planning for the typical section of the proposed facility within the historic district proposes to reduce the width of the inside and outside travel lanes to 11 feet and 13 feet respectively. The median width is tapered within the historic district and 4 foot islands are anticipated to be incorporated where feasible. The existing pavement will be replaced, but the existing grade and placement for curb and gutter will be maintained with the proposed construction where feasible. All of these proposed features are anticipated to minimize harm to the historic resources within the district. Alternative B, with the incorporation of the best-fit alignment within the historic district, minimizes impact to the section 4(f) properties of the historic district to the greatest extent possible.

VI. COMMENTS AND COORDINATION

A. PUBLIC INVOLVEMENT

A Citizens Information Workshop for TIP U-3440 was held on Tuesday, July 22, 2008 at the Kannapolis Train Station located at 201 South Main Street. NCDOT representatives provided project information at the Citizens Information Workshop in an informal setting and answered questions and received comments regarding the widening project. NCDOT officials explained that the purpose of the project is to increase capacity and enhance safety. Additional right of way and possible residential and business relocations would be required for construction.

NCDOT received eighteen comment sheets from citizens attending the workshop. Six comments expressed concerns about impacts to Fishertown, noting that many residents were elderly and sidewalks would be beneficial. All six comments specifically requested a traffic signal at Charlie Walker Road and NC 3. Six comments requested that NCDOT staff speak at a community meeting in Fishertown, while three additional comments requested another workshop for area residents. One comment concerned a warehouse at 1000 Mooresville Road that will lose its parking and expressed a preference for the southern alternative alignments. The project does not appear to be generating controversy, but citizens did express their desire for more information and meetings.

A small group meeting was held with the Fishertown Community on October 18, 2008. Approximately 20 people were in attendance. The primary area of concern was the control of the intersection of NC 3 and Charlie Walker Road.

B. PUBLIC HEARING

A public hearing will be scheduled following the distribution of this Environmental Assessment. During the hearing citizens will have the opportunity to review the preliminary design for the project and to ask questions and state their comments regarding the proposed improvements.

C. NEPA / 404 MERGER PROCESS

Representatives from DWQ, FHWA, Corp of Engineers, and NCDOT met April 22, 2008 to screen TIP project U-3440 for inclusion in the NEPA / 404 merger process. It was the concurrence of the group that this project would enter the merger process at CP2A / 4A. The CP2A / 4A meeting will be held prior to completion of the final environmental document.

D. OTHER AGENCY COORDINATION

During the planning phase of this project, NCDOT coordinated with several local, state and federal agencies. Correspondence requesting environmental input was sent to the following agencies and replies were received from those marked with an asterisk (*).

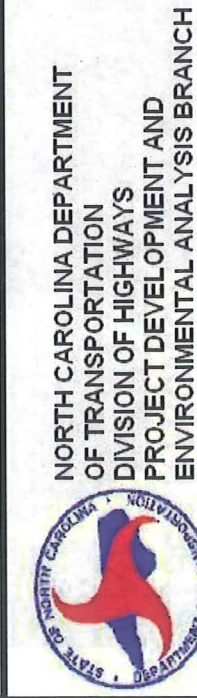
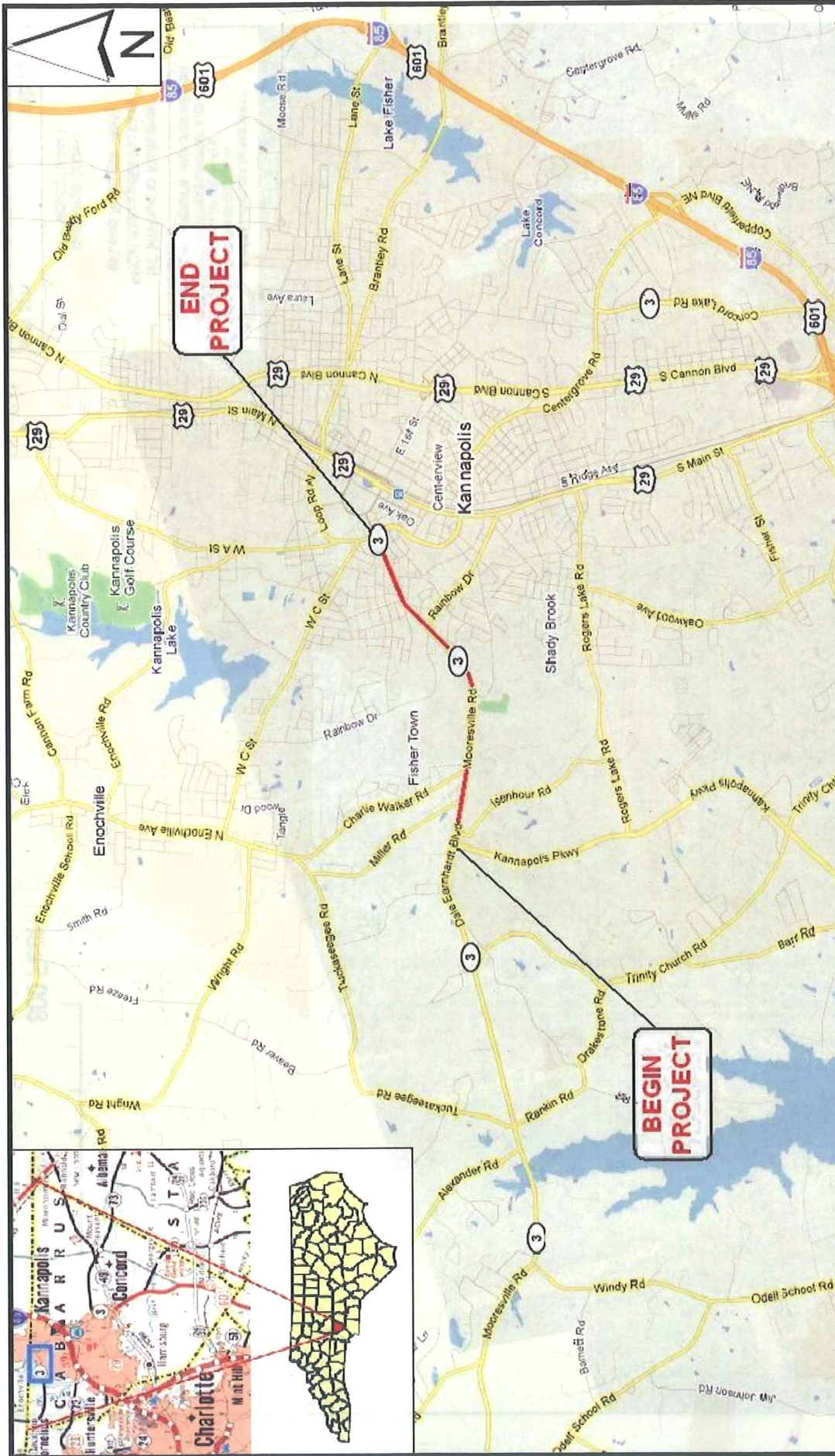
- US Army Corps of Engineers (Asheville, NC Regulatory Field Office)
- US Environmental Protection Agency (Raleigh)
- US Fish and Wildlife Service (Asheville)
- NC Dept. of Administration (State Clearinghouse)*
- NC Dept. of Cultural Resources (Historic Preservation)*
- NC Dept. of Environment & Natural Resources*
- NC Wildlife Resources Commission*
- City of Kannapolis

APPENDIX A

FIGURES

APPENDIX A

FIGURES

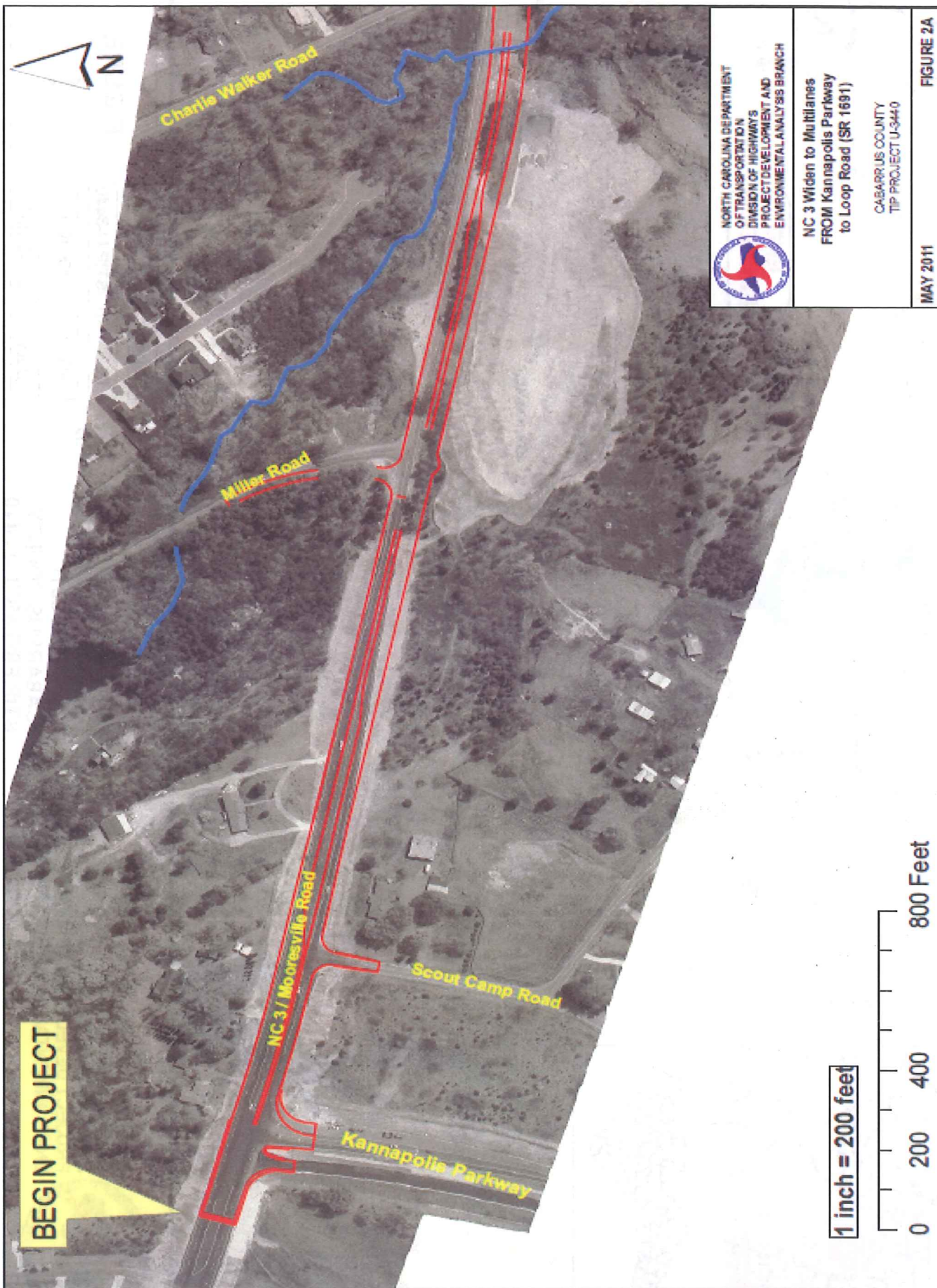


NORTH CAROLINA DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND
ENVIRONMENTAL ANALYSIS BRANCH

VICINITY MAP
NC 3 WIDEN TO MULTILANES
FROM KANNAPOLIS PARKWAY TO
DALE EARNHARDT BLVD / LOOP RD
(SR1691)
CABARRUS COUNTY
STIP PROJECT U-3440

County:	CABARRUS
Div:	10 STIP U-3440
WBS:	39010.1.1
Date:	JUNE 2011

FIGURE 1



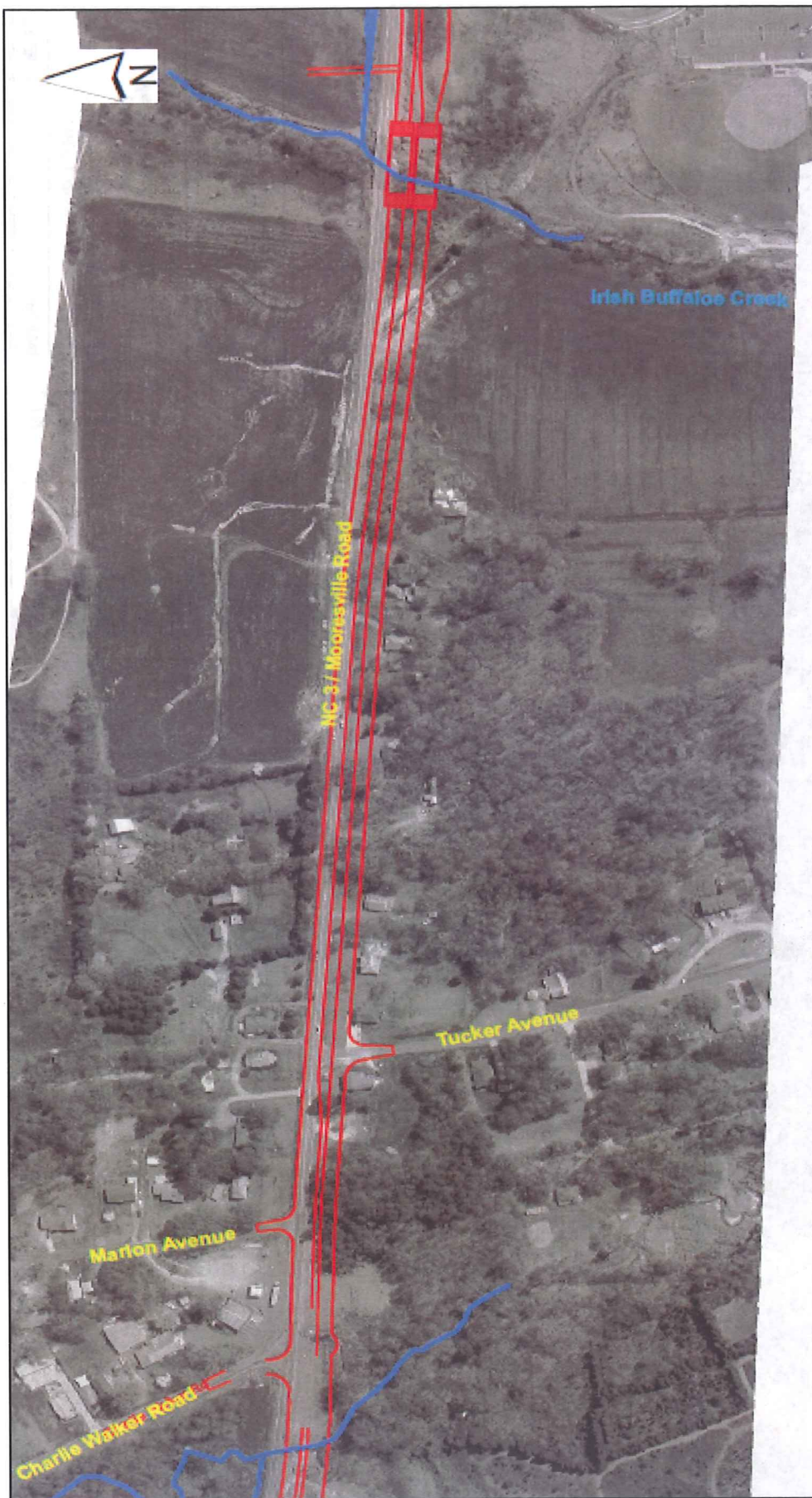
NORTH CAROLINA DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND
ENVIRONMENTAL ANALYSIS BRANCH

NC 3 Widen to Multilanes
FROM Kannapolis Parkway
to Loop Road (SR 1691)

CABARRUS COUNTY
TIP PROJECT U-3440

MAY 2011

FIGURE 2A



NORTH CAROLINA DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND
ENVIRONMENTAL ANALYSIS BRANCH

NC 3 Widen to Multilanes
FROM Kannapolis Parkway
to Loop Road (SR 1591)

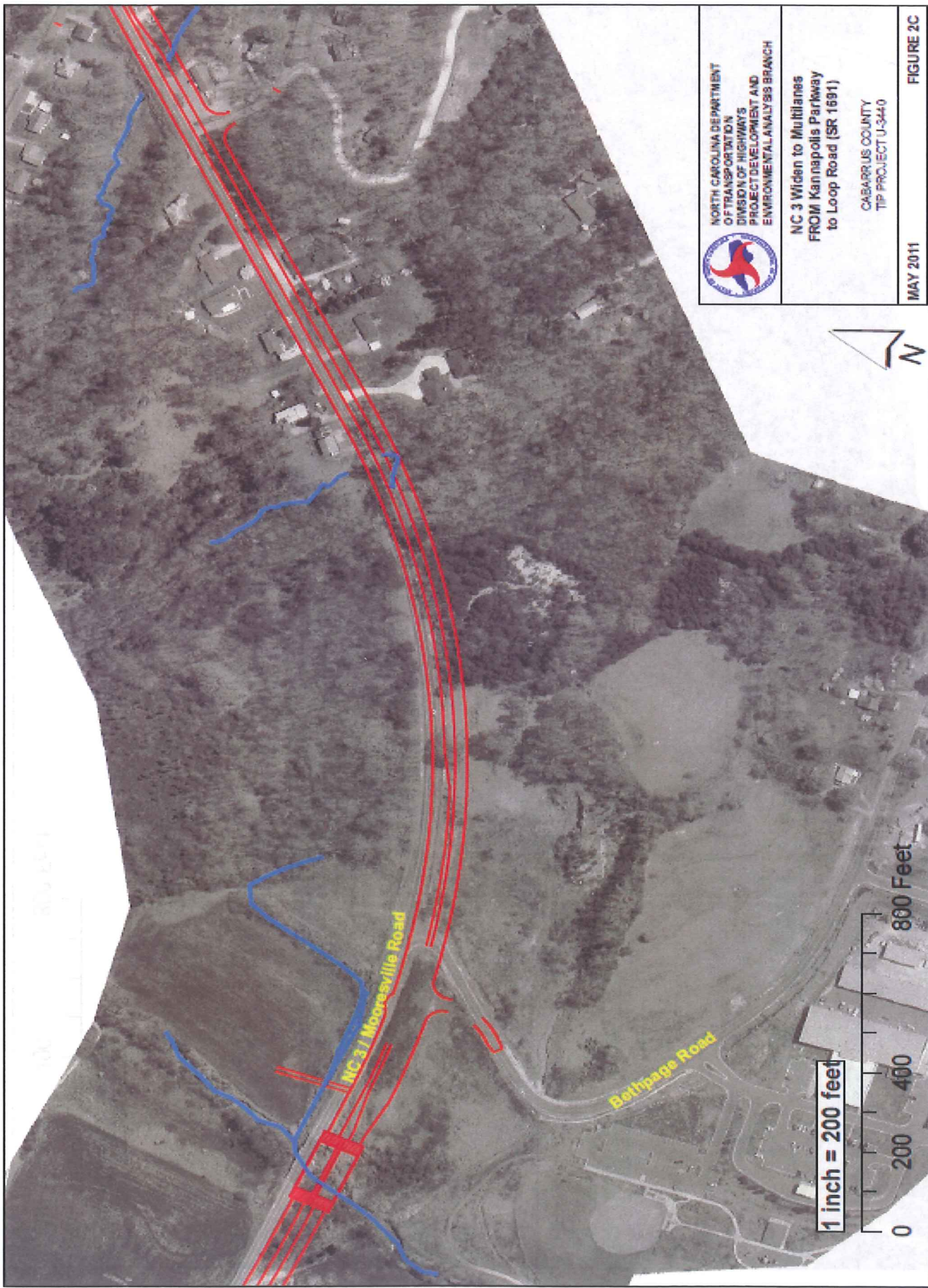
CABARRUS COUNTY
TIP PROJECT U-3440

1 inch = 200 feet



MAY 2011

FIGURE 2B



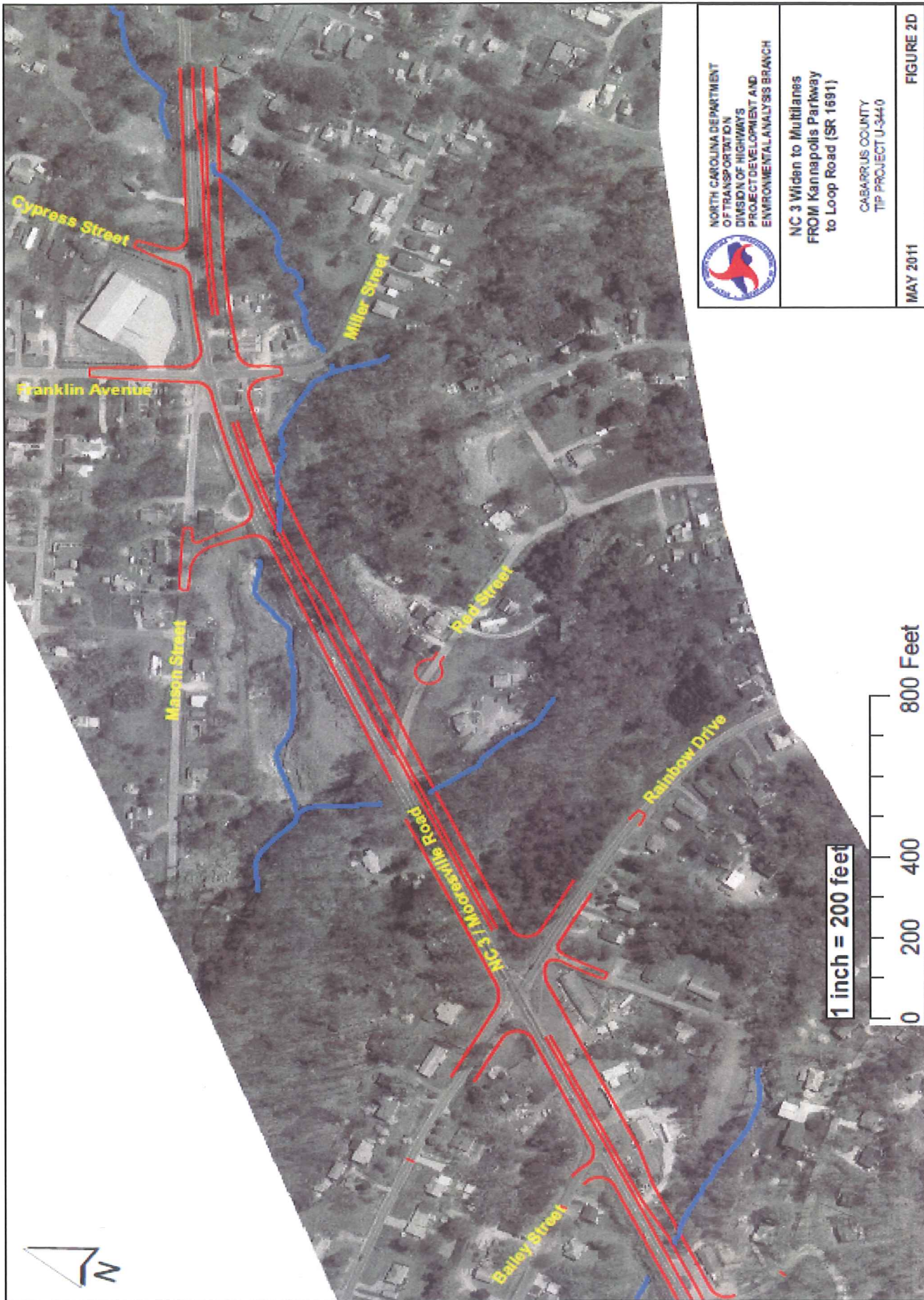
NORTH CAROLINA DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND
ENVIRONMENTAL ANALYSIS BRANCH

NC 3 Widen to Multilanes
FROM Kannapolis Parkway
to Loop Road (SR 1691)

CABARRUS COUNTY
TIP PROJECT U-344-0

MAY 2011

FIGURE 2C



NORTH CAROLINA DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND
ENVIRONMENTAL ANALYSIS BRANCH

NC 3 Widen to Multilanes
FROM Kannapolis Parkway
to Loop Road (SR 1691)

CABARRUS COUNTY
TIP PROJECT U-3440

MAY 2011

FIGURE 2D



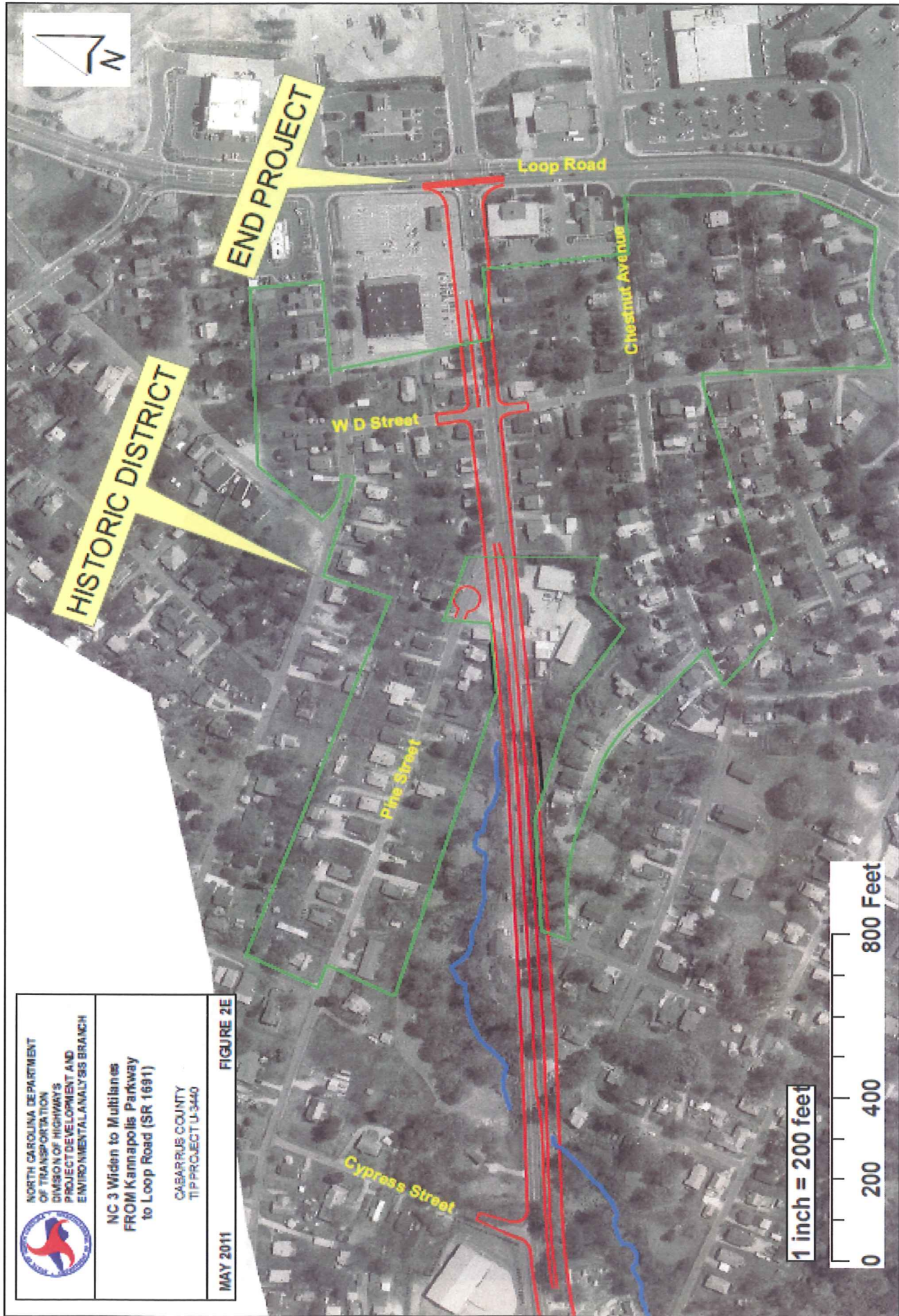
NORTH CAROLINA DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND
ENVIRONMENTAL ANALYSIS BRANCH

NC 3 Widen to Multilanes
FROM Kannapolis Parkway
to Loop Road (SR 1691)

CABARRUS COUNTY
TIP PROJECT U-3440

MAY 2011

FIGURE 2E



Widening of NC 3-Mooresville Rd to Multi-Lanes



Diagram Not to Scale

Number of Vehicles Per Day in 100s

1- Less Than 50 VPD

Turning Volume VPD

PM

$$\text{DHW} \xrightarrow{\quad} \text{D} \quad (d+)$$

DHW Design Hour Vol (a.t.)

PM	PM Peak Period
Design Year 10	

Peak Hour Direc

Direction of D %

Duals %, Π -STs

X Movement Prohib

Bridge

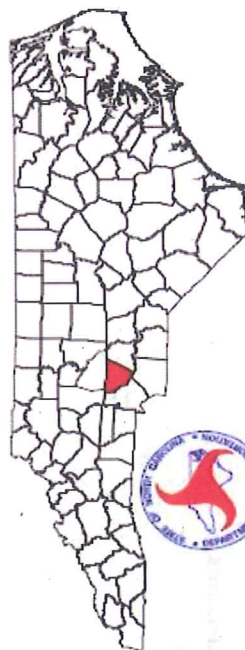


FIGURE 3A

2008 ANNUAL AVERAGE DAILY TRAFFIC WITH TRUCK, CHV AND DIRECTIONAL PERCENTAGES

ANNUAL AVERAGE DAILY TRAFFIC
WITH TRUCK, DHV AND DIRECTIONAL PERCENTAGES

COUNTY: Cabarrus	WBS: 39010.1.1
------------------	----------------

TIP: U-3440	DIV: 10	DATE: Feb 22, 2008
-------------	---------	--------------------

LOCATION: NC 3-Mooresville Rd
from Kannapolis Pkwy to Loop Rd

PROJECT: Widening of NC 3-Mooresville Rd
to Multi-Lanes

PREPARED BY: Keith G. Dixon

Widening of NC 3-Mooresville Rd to Multi-Lanes



Diagram Not to Scale

LEGEND

Number of Vehicles Per Day in 100s

1- Less Than 50 VPD

Turning Volume VPD

PM

DHV Design Hour Volume % = K30

DHV	Design Hour Value
PM	PM Peak Period

D Peak Hour Directional Split %

Direction of D %

(d, t)	Duals %	TT-STs %
(0, 0)	0.0	0.0
(0, 1)	0.0	0.0
(0, 2)	0.0	0.0
(0, 3)	0.0	0.0
(0, 4)	0.0	0.0
(0, 5)	0.0	0.0
(0, 6)	0.0	0.0
(0, 7)	0.0	0.0
(0, 8)	0.0	0.0
(0, 9)	0.0	0.0
(0, 10)	0.0	0.0
(0, 11)	0.0	0.0
(0, 12)	0.0	0.0
(0, 13)	0.0	0.0
(0, 14)	0.0	0.0
(0, 15)	0.0	0.0
(0, 16)	0.0	0.0
(0, 17)	0.0	0.0
(0, 18)	0.0	0.0
(0, 19)	0.0	0.0
(0, 20)	0.0	0.0
(0, 21)	0.0	0.0
(0, 22)	0.0	0.0
(0, 23)	0.0	0.0
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(0, 25)	0.0	0.0
(0, 26)	0.0	0.0
(0, 27)	0.0	0.0
(0, 28)	0.0	0.0
(0, 29)	0.0	0.0
(0, 30)	0.0	0.0
(0, 31)	0.0	0.0
(0, 32)	0.0	0.0
(0, 33)	0.0	0.0
(0, 34)	0.0	0.0
(0, 35)	0.0	0.0
(0, 36)	0.0	0.0
(0, 37)	0.0	0.0
(0, 38)	0.0	0.0
(0, 39)	0.0	0.0
(0, 40)	0.0	0.0
(0, 41)	0.0	0.0
(0, 42)	0.0	0.0
(0, 43)	0.0	0.0
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(0, 74)	0.0	0.0
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(0, 78)	0.0	0.0
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(0, 80)	0.0	0.0
(0, 81)	0.0	0.0
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(0, 98)	0.0	0.0
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(1, 0)	0.0	0.0
(1, 1)	0.0	0.0
(1, 2)	0.0	0.0
(1, 3)	0.0	0.0
(1, 4)	0.0	0.0
(1, 5)	0.0	0.0
(1, 6)	0.0	0.0
(1, 7)	0.0	0.0
(1, 8)	0.0	0.0
(1, 9)	0.0	0.0
(1, 10)	0.0	0.0
(1, 11)	0.0	0.0
(1, 12)	0.0	0.0

X Movement Prohibited

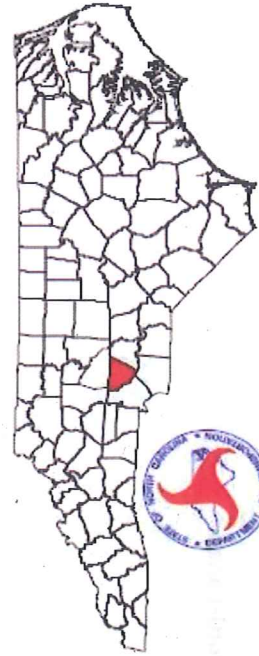


FIGURE 3B

2015 ANNUAL AVERAGE DAILY TRAFFIC WITH TRUCK, DMV AND DIRECTIONAL PERCENTAGES

WITH TRUCK, DIHV AND DIRECTIONAL PERCENTAGES

COUNTY: Cabarrus	WBS: 39010.1.1
TIP: U-3440	DW: 10
DATE: Feb 22, 2008	
LOCATION: NC 3-Mooresville Rd from Kannapolis Pkwy to Loop Rd	
PROJECT: Widening of NC 3-Mooresville Rd to Multi-Lanes	

PREPARED BY: Keith G. Dixon

Widening of NC 3-Mooresville Rd to Multi-Lanes



Diagram Not to Scale

Number of Vehicles Per Day in 100s
1- Less Than 50 VPD
Turning Volume VPD

Number of Vehicles Per Day in 100s

1- Less Than 50 VPD

Turning Volume VPD

PM $\xrightarrow{\text{DHV}}$ D

Div $\xrightarrow{0}$ (d.t)

BHV	Design Hour Volume % = K30
PM	PM Peak Period

Peak Hour Directional Split %

Direction of D %

(d, e) Duals %, TT-STs %

X Movement Prohibited
Bridges

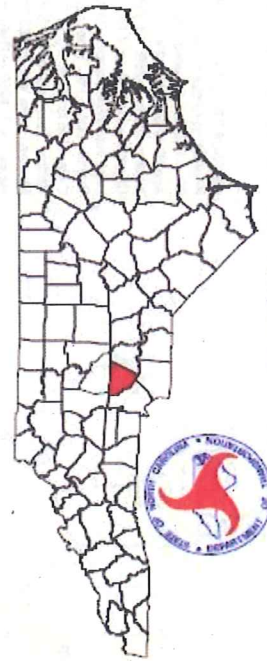


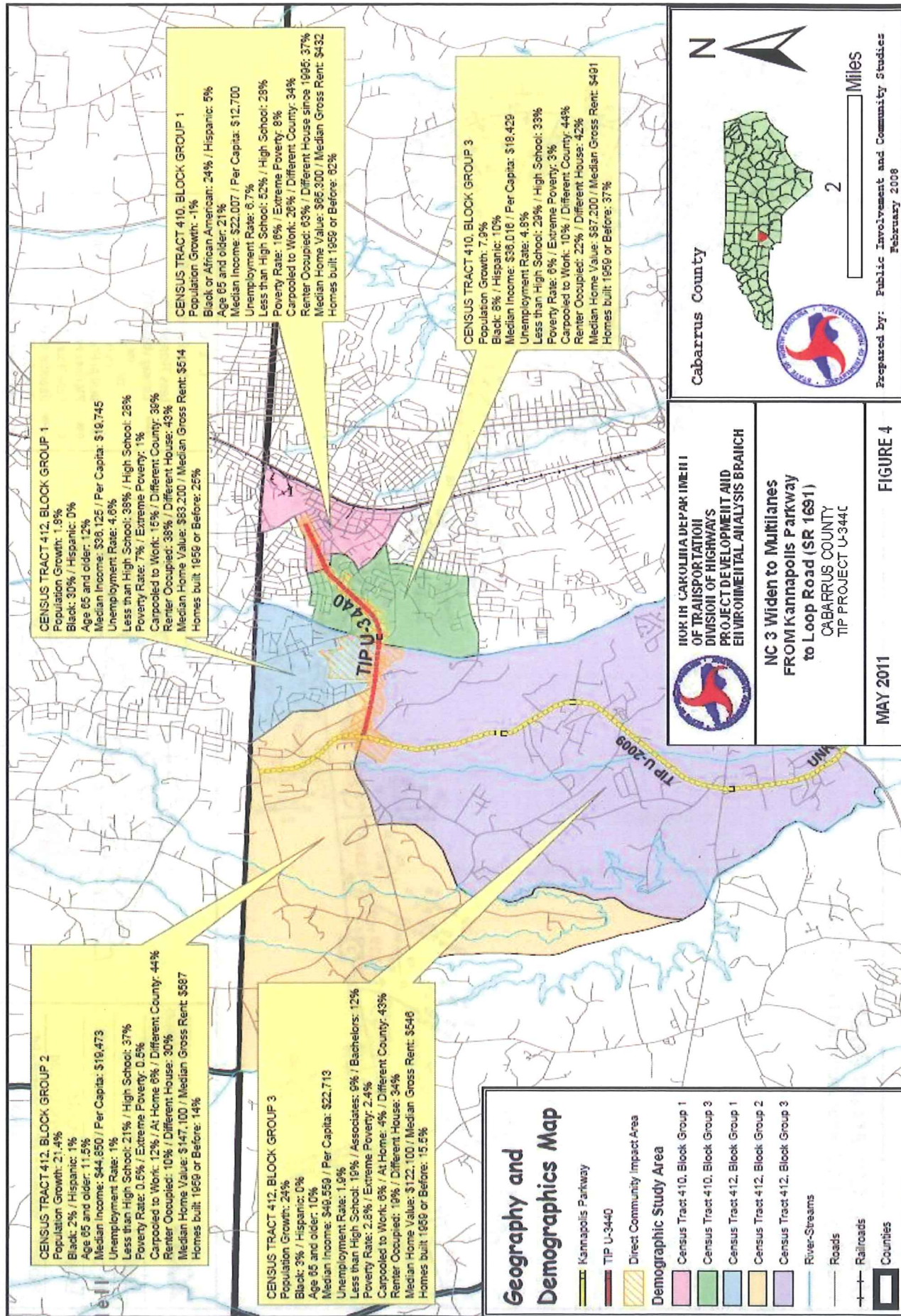
FIGURE 3C

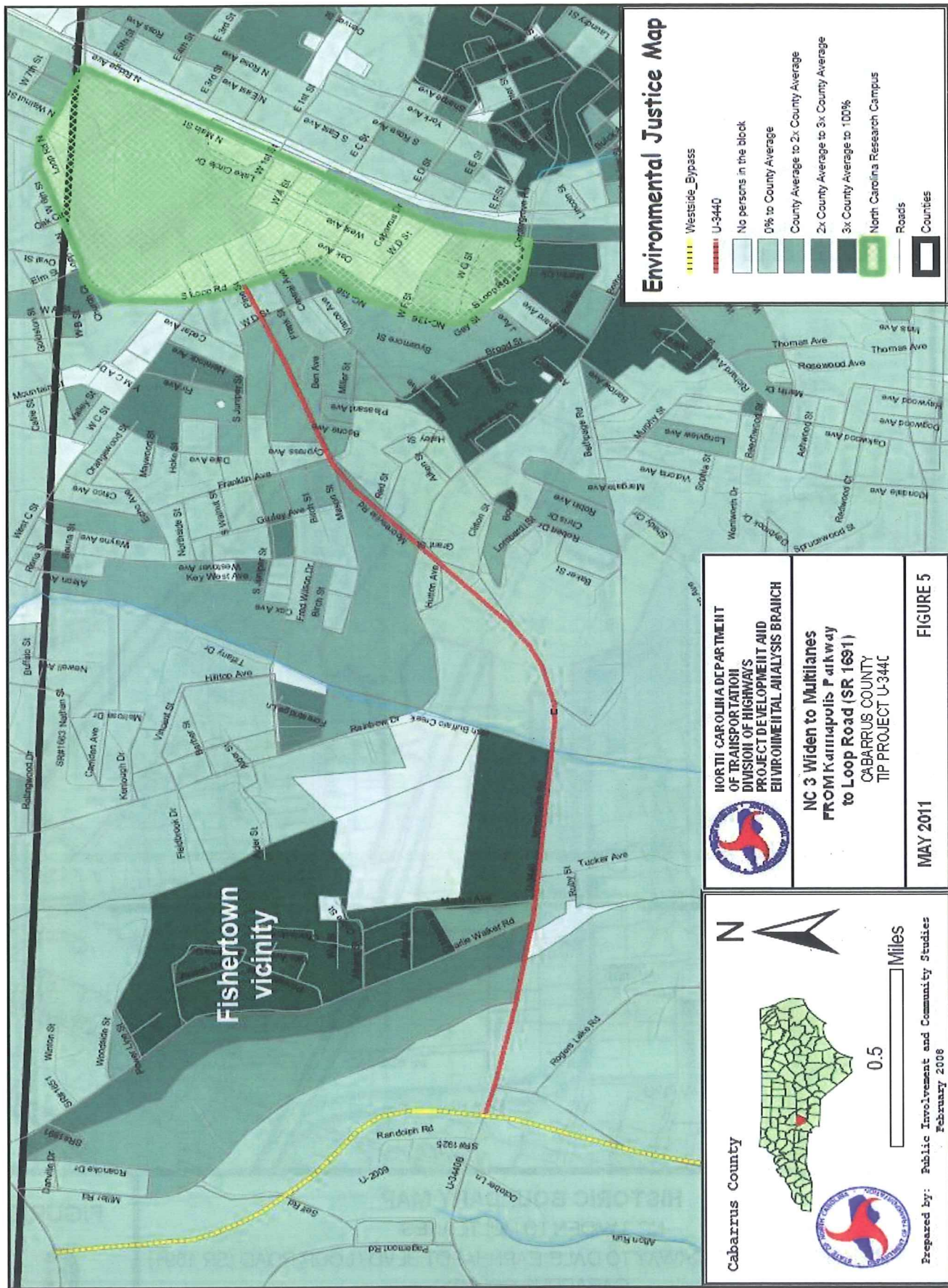
2035 ANNUAL AVERAGE DAILY TRAFFIC WITH TRUCK, DMV AND DIRECTIONAL PERCENTAGES

ANALYTICAL AND DIRECTIONAL PERCENTAGES WITH TRUCK, DRY AND DIRECTIONAL PERCENTAGES

COUNTY: Cabarrus	WBS: 39010.1.1
TIP: U-3440	DW: 10
LOCATION: NC 3-Mooreville Rd from Kannapolis Pkwy to Loop Rd	DATE: Feb 22, 2008
PROJECT: Widening of NC 3-Mooreville Rd to Multi-Lanes	

PREPARED BY: Keith G. Dixon





Environmental Justice Map

- Westside_Bypass
- U-3440
- No persons in the block
- 0% to County Average
- County Average to 2x County Average
- 2x County Average to 3x County Average
- 3x County Average to 100%
- North Carolina Research Campus
- Roads
- Counties

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

NC 3 Widen to Multilanes FROM Kariapolis Parkway to Loop Road (SR 1691) CABARRUS COUNTY TIP PROJECT U-344C

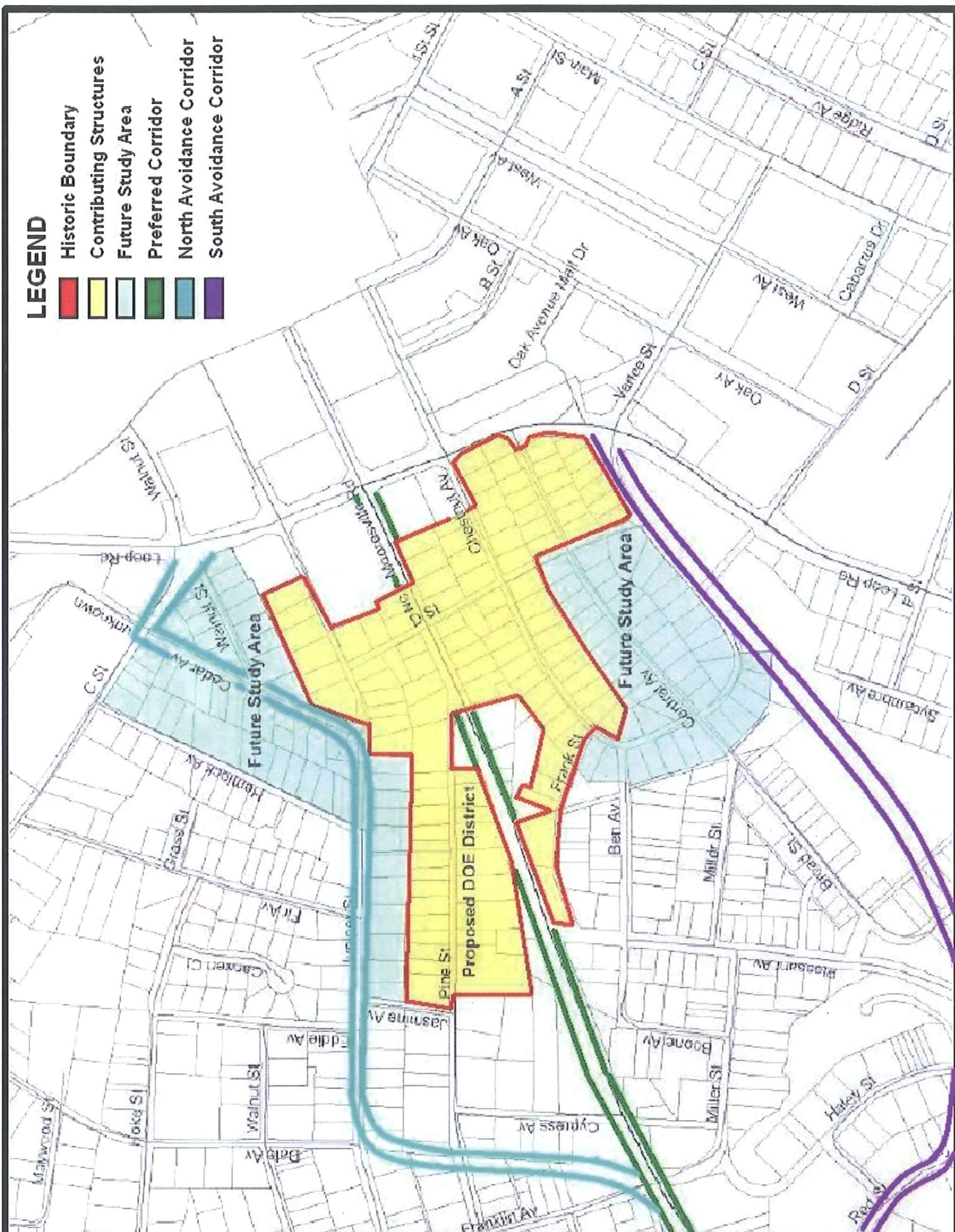
FIGURE 5

MAY 2011

Cabarrus County

0.5 Miles

Prepared by: Public Involvement and Community Studies February 2008



HISTORIC BOUNDARY MAP

NC 3 WIDEN TO MULTILANES

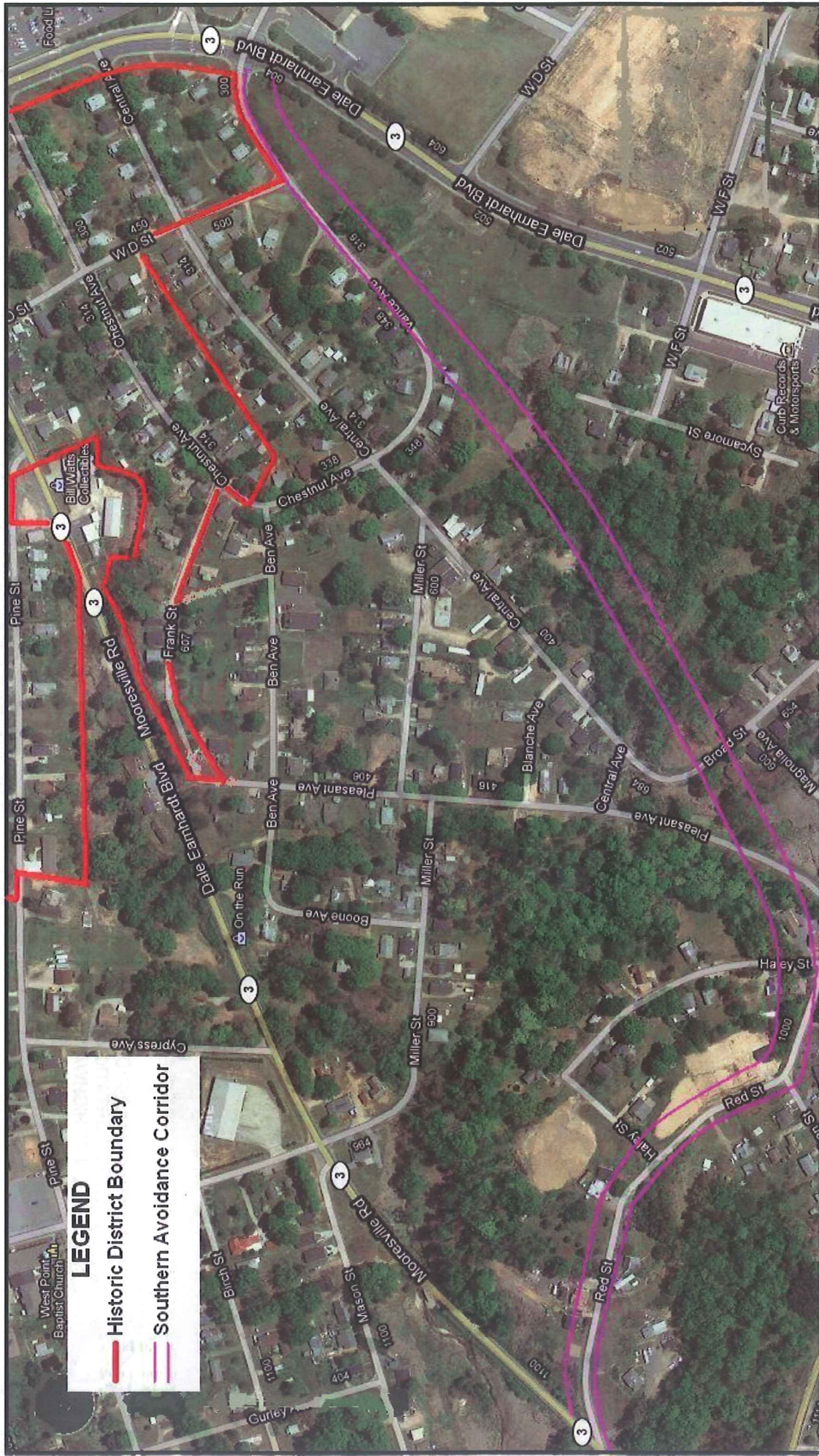
FROM KANNAPOLIS PARKWAY TO DALE EARNHARDT BLVD / LOOP ROAD (SR 1691)

CABARRUS COUNTY

STIP PROJECT U-3440

FIGURE

6



LEGEND

- Historic District Boundary
- Southern Avoidance Corridor



NORTH CAROLINA DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND
ENVIRONMENTAL ANALYSIS BRANCH

SOUTHERN AVOIDANCE ALTERNATIVE
NC 3 WIDEN TO MULTILANES
FROM KANNAPOLIS PARKWAY TO
DALE EARNHARDT BLVD / LOOP RD
(SR1691)
CABARRUS COUNTY
STIP PROJECT U-3440

County:	CABARRUS
Div:	10
STIP U-3440	
WBS:	39010.1.1
Date:	JUNE 2011

FIGURE
8

APPENDIX B
AGENCY CORRESPONDENCE



North Carolina
Department of Administration

RECEIVED
Division of Highways

OCT 24 2007

Preconstruction
Project Development and
Environmental Analysis Branch

Michael F. Easley, Governor

October 22, 2007

Britt Cobb, Secretary

Mr. Gregory Thorpe
N.C. Dept. of Transportation
Project Dev. & Env. Analysis Branch
1548 Mail Service Center
Raleigh, NC 27699-1548

Dear Mr. Thorpe:

Re: SCH File # 08-E-4220-0087; EA; Widening of NC 3 to a multi-lane facility from Kannapolis Parkway (U-2009) to SR 1691 (Loop Road) in Cabarrus County. TIP No. U-3440

The above referenced environmental impact information has been submitted to the State Clearinghouse under the provisions of the National Environmental Policy Act. According to G.S. 113A-10, when a state agency is required to prepare an environmental document under the provisions of federal law, the environmental document meets the provisions of the State Environmental Policy Act. Attached to this letter for your consideration are the comments made by agencies in the course of this review.

If any further environmental review documents are prepared for this project, they should be forwarded to this office for intergovernmental review.

Should you have any questions, please do not hesitate to call.

Sincerely,

Ms. Chrys Baggett
Environmental Policy Act Coordinator

Attachments

cc: Region F

Mailing Address:
1301 Mail Service Center
Raleigh, NC 27699-1301

Telephone: (919) 807-2425
Fax (919) 733-9571
State Courier #51-01-00
e-mail Chrys.Baggett@ncmail.net

Location Address:
116 West Jones Street
Raleigh, North Carolina

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North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor

William G. Ross Jr., Secretary

MEMORANDUM

TO: Chrys Baggett
State Clearinghouse

FROM: Melba McGee *✓*
Environmental Review Coordinator

SUBJECT: 08 0087 Scoping, Proposed Improvements to NC 3 from Kannapolis
Parkway to Loop Road in Cabarrus County

DATE: October 12, 2007

The Department of Environment and Natural Resources has reviewed the proposed information. The attached comments are for the applicant's information.

Thank you for the opportunity to review.

Attachments

1601 Mail Service Center, Raleigh, North Carolina 27699-1601
Phone: 919-733-4984 \ FAX: 919-715-3060 \ Internet: www.enr.state.nc.us/ENR/

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Michael F. Easley, Governor

William G. Ross Jr., Secretary
North Carolina Department of Environment and Natural Resources

Coleen H. Sullins, Director
Division of Water Quality

October 2, 2007

MEMORANDUM

To: Melba McGee

From: Polly Lespinasse, NC Division of Water Quality, Mooresville Regional Office

Subject: **Scoping Comments on Proposed Improvements to NC 3 from the Kannapolis Parkway to State Road 1691 (Loop Road) Cabarrus County, WBS 39010.1.1, STP -0003(6), TIP U-3440, DENR Project Number 08-0087, Due Date 10/11/07**

Reference your correspondence dated August 28, 2007 in which you requested comments for the referenced project. Preliminary analysis of the project reveals the potential for multiple impacts to perennial streams and jurisdictional wetlands in the project area. More specifically, impacts to:

Stream Name	River Basin	Stream Classification(s)	Stream Index Number
Irish Buffalo Creek	Yadkin	C	13-17-9-(2)

Further investigations at a higher resolution should be undertaken to verify the presence of other streams and/or jurisdictional wetlands in the area. In the event that any jurisdictional areas are identified, the Division of Water Quality requests that NCDOT consider the following environmental issues for the proposed project:

Project Specific Comments:

Irish Buffalo Creek is a class C: 303(d) waters of the State. Irish Buffalo Creek is on the 303(d) list for impaired use for aquatic life due to turbidity. DWQ is very concerned with sediment and erosion impacts that could result from this project. DWQ recommends that the most protective sediment and erosion control BMPs be implemented to reduce the risk of nutrient runoff to Irish Buffalo Creek. DWQ requests that road design plans provide treatment of the storm water runoff through best management practices as detailed in the most recent version of NC DWQ *Stormwater Best Management Practices*.

General Project Comments:

1. The environmental document shall provide a detailed and itemized presentation of the proposed impacts to wetlands and streams with corresponding mapping. If mitigation is necessary as required by 15A NCAC 2H.0506(h), it is preferable to present a conceptual (if not finalized) mitigation plan with the environmental documentation. Appropriate mitigation plans will be required prior to issuance of a 401 Water Quality Certification.
2. Environmental assessment alternatives shall consider design criteria that reduce the impacts to streams and wetlands from storm water runoff. These alternatives shall include road designs that allow for treatment of the storm water runoff through best management practices as detailed in the most recent version of NC DWQ *Stormwater Best Management Practices*, such as grassed swales, buffer areas, preformed scour holes, retention basins, etc.

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North Carolina Division of Water Quality
Internet: h2o@nr.state.nc.us

610 East Center Avenue, Suite 301
Mooresville, NC 28115

Phone (704) 663-1699
Fax (704) 663-6040

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3. After the selection of the preferred alternative and prior to an issuance of the 401 Water Quality Certification, the NCDOT is respectfully reminded that they will need to demonstrate the avoidance and minimization of impacts to wetlands (and streams) to the maximum extent practical. In accordance with the Environmental Management Commission's Rules {15A NCAC 2H.0506(h)}, mitigation will be required for impacts of greater than 1 acre to wetlands. In the event that mitigation is required, the mitigation plan shall be designed to replace appropriate lost functions and values. The NC Ecosystem Enhancement Program may be available for use as wetland mitigation.
4. In accordance with the Environmental Management Commission's Rules {15A NCAC 2H.0506(h)}, mitigation will be required for impacts of greater than 150 linear feet to any single perennial stream. In the event that mitigation is required, the mitigation plan shall be designed to replace appropriate lost functions and values. The NC Ecosystem Enhancement Program may be available for use as stream mitigation.
5. DWQ is very concerned with sediment and erosion impacts that could result from this project. NC DOT shall address these concerns by describing the potential impacts that may occur to the aquatic environments and any mitigating factors that would reduce the impacts.
6. If a bridge is being replaced with a hydraulic conveyance other than another bridge, DWQ believes the use of a Nationwide Permit may be required. Please contact the US Army Corp of Engineers to determine the required permit(s).
7. If the old bridge is removed, no discharge of bridge material into surface waters is allowed unless otherwise authorized by the US ACOE. Strict adherence to the Corps of Engineers guidelines for bridge demolition will be a condition of the 401 Water Quality Certification.
8. Bridge supports (bents) shall not be placed in the stream when possible.
9. Whenever possible, the DWQ prefers spanning structures. Spanning structures usually do not require work within the stream or grubbing of the streambanks and do not require stream channel realignment. The horizontal and vertical clearances provided by bridges allow for human and wildlife passage beneath the structure, do not block fish passage and do not block navigation by canoeists and boaters.
10. Bridge deck drains shall not discharge directly into the stream. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means (grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. Please refer to the most current version of NC DWQ *Stormwater Best Management Practices*.
11. If concrete is used during construction, a dry work area shall be maintained to prevent direct contact between curing concrete and stream water. Water that inadvertently contacts uncured concrete shall not be discharged to surface waters due to the potential for elevated pH and possible aquatic life and fish kills.
12. If temporary access roads or detours are constructed, the site shall be graded to its preconstruction contours and elevations. Disturbed areas shall be seeded or mulched to stabilize the soil and appropriate native woody species should be planted. When using temporary structures the area shall be cleared but not grubbed. Clearing the area with chain saws, mowers, bush-hogs, or other mechanized equipment and leaving the stumps and root mat intact allows the area to re-vegetate naturally and minimizes soil disturbance.

13. Placement of culverts and other structures in waters, streams, and wetlands shall be below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in disequilibrium of wetlands or streambeds or banks, adjacent to or upstream and downstream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by DWQ. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact the NC DWQ for guidance on how to proceed and to determine whether or not a permit modification will be required.
14. If multiple pipes or barrels are required, they shall be designed to mimic natural stream cross section as closely as possible including pipes or barrels at flood plain elevation and/or sills where appropriate. Widening the stream channel shall be avoided. Stream channel widening at the inlet or outlet end of structures typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage.
15. If foundation test borings are necessary, it should be noted in the document. Geotechnical work is approved under General 401 Certification Number 3494/Nationwide Permit No. 6 for Survey Activities.
16. Sediment and erosion control measures sufficient to protect water resources must be implemented and maintained in accordance with the most recent version of North Carolina Sediment and Erosion Control Planning and Design Manual and the most recent version of NCS000250.
17. All work in or adjacent to stream waters shall be conducted in a dry work area unless otherwise approved by NC DWQ. Approved BMP measures from the most current version of NCDOT Construction and Maintenance Activities manual such as sandbags, rock berms, cofferdams and other diversion structures should be used to prevent excavation in flowing water.
18. Sediment and erosion control measures shall not be placed in wetlands and streams.
19. Borrow/waste areas shall avoid wetlands to the maximum extent practical. Impacts to wetlands in borrow/waste areas could precipitate compensatory mitigation.
20. While the use of National Wetland Inventory (NWI) maps, NC Coastal Region Evaluation of Wetland Significance (NC-CREWS) maps and soil survey maps are useful tools, their inherent inaccuracies require that qualified personnel perform onsite wetland delineations prior to permit approval.
21. Heavy equipment shall be operated from the bank rather than in stream channels in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into streams. This equipment shall be inspected daily and maintained to prevent contamination of surface waters from leaking fuels, lubricants, hydraulic fluids, or other toxic materials.
22. In most cases, the DWQ prefers the replacement of the existing structure at the same location with road closure. If road closure is not feasible, a temporary detour should be designed and located to avoid wetland impacts, minimize the need for clearing and to avoid destabilizing stream banks. If the structure will be on a new alignment, the old structure shall be removed and the approach fills removed from the 100-year floodplain. Approach fills should be removed and restored to the natural ground elevation. The area shall be stabilized with grass and planted with native tree species. Tall fescue shall not be used in riparian areas.
23. Riprap shall not be placed in the active thalweg channel or placed in the streambed in a manner that precludes aquatic life passage. Bioengineering boulders or structures should be properly designed, sized and installed.

Page Four

Thank you for requesting our input at this time. The DOT is reminded that issuance of a 401 Water Quality Certification requires that appropriate measures be instituted to ensure that water quality standards are met and designated uses are not degraded or lost. If you have any questions or require additional information, please contact Polly Lespinasse at (704) 663-1699.



North Carolina Wildlife Resources Commission

TO: Melba McGee, Environmental Coordinator
Office of Legislative and Intergovernmental Affairs, DENR

FROM: Marla Chambers, Western NCDOT Permit Coordinator *Marla Chambers*
Habitat Conservation Program, NCWRC

DATE: October 11, 2007

SUBJECT: Scoping review of NCDOT's proposed project to widen NC 3 to multilanes from Kannapolis Parkway (U-2009) to SR 1691 (Loop Road), Cabarrus County. TIP No. U-3440. OLIA Project No. 08-0087, due 10/11/2007.

North Carolina Department of Transportation (NCDOT) is requesting comments from the North Carolina Wildlife Resources Commission (NCWRC) regarding impacts to fish and wildlife resources resulting from the subject project. Staff biologists have reviewed the information provided on the scoping sheets and have the following preliminary comments. These comments are provided in accordance with the provisions of the National Environmental Policy Act (42 U.S.C. 4332(2)(c)) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

The NCDOT proposes to widen NC 3 to multilanes from Kannapolis Parkway (U-2009) to SR 1691 (Loop Road). Although indicated in the cover letter, no scoping information sheets were attached or provided. The project crosses Irish Buffalo Creek and several of its tributaries and may affect the drainage of Afton Run Creek. Both named streams are classified as "C" waters by the NC Division of Water Quality. There appears to be a superfund site near the western terminus of the project. Secondary and cumulative impacts should be analyzed.

In addition, to help facilitate document preparation and the review process, our general information needs are outlined below:

1. Description of fishery and wildlife resources within the project area, including a listing of federally or state designated threatened, endangered, or special concern species. Potential borrow areas to be used for project construction should be included in the inventories. A listing of designated plant species can be developed through consultation with the following programs:

Mailing Address: Division of Inland Fisheries • 1721 Mail Service Center • Raleigh, NC 27699-1721
Telephone: (919) 707-0220 • **Fax:** (919) 707-0028

The Natural Heritage Program
<http://www.ncnhp.org>
1601 Mail Service Center
Raleigh, N. C. 27699-1601

and,

NCDA Plant Conservation Program
P. O. Box 27647
Raleigh, N. C. 27611
(919) 733-3610

2. Description of any streams or wetlands affected by the project. If applicable, include the linear feet of stream that will be channelized or relocated.
3. Cover type maps showing wetland acreage impacted by the project. Wetland acreage should include all project-related areas that may undergo hydrologic change as a result of ditching, other drainage, or filling for project construction. Wetland identification may be accomplished through coordination with the U. S. Army Corps of Engineers (USACE). If the USACE is not consulted, the person delineating wetlands should be identified and criteria listed.
4. Cover type maps showing acreage of upland wildlife habitat impacted by the proposed project. Potential borrow sites and waste areas should be included.
5. Show the extent to which the project will result in loss, degradation, or fragmentation of wildlife habitat (wetlands or uplands).
6. Include the mitigation plan for avoiding, minimizing or compensating for direct and indirect degradation in habitat quality as well as quantitative losses.
7. Address the overall environmental effects of the project construction and quantify the contribution of this individual project to environmental degradation.
8. Provide a discussion of the probable impacts on natural resources, which will result from secondary development, facilitated by the improved road access.
9. If construction of this facility is to be coordinated with other state, municipal, or private development projects, a description of these projects should be included in the environmental document, and all project sponsors should be identified.

Thank you for the opportunity to provide input in the early planning stages of this project. If you have any questions regarding these comments, please contact me at (704) 984-1070.

cc: Marella Buncick, USFWS
Polly Lospinasse, NCDWQ

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH

Project Number 08-0087
County Cabarrus

Inter-Agency Project Review Response

Project Name NC DOT Type of Project Proposal to widen NC 3 to a multi-lane facility from Kannapolis Parkway (U-2009) to SR 1691 (Loop Road).

Comments provided by:

- ☐ Regional Program Person
☒ Regional Supervisor for Public Water Supply Section
☐ Central Office program person

Name Britt Setzer-Mooresville RO Date 09/25/07

Telephone number: 704 663-1699

Program within Division of Environmental Health:

- ☐ Public Water Supply
☐ Other Name of Program: _____

Response (check all applicable):

- ☐ No objection to project as proposed
☒ No comment
☐ Insufficient information to complete review
☐ Comments attached
☐ See comments below

<p>Moore</p> <p>SEP 26</p>

Return to:
Public Water Supply Section
Environmental Review Coordinator
for the
Division of Environmental Health

DEPARTMENT OF ENVIRONMENT AND
NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH

Project Number
08-0087
County
Cabarrus

Inter-Agency Project Review Response

Project Name NC DOT

Type of Project

Proposal to widen NC 3 to a
multi-lane facility from
Kannapolis Parkway (I-2009)
to SR 1491 (Loop Road).

- ☐ The applicant should be advised that plans and specifications for all water system improvements must be approved by the Division of Environmental Health prior to the award of a contract or the initiation of construction (as required by 15A NCAC 18C .0300et. seq.). For information, contact the Public Water Supply Section. (919) 733-2321.
- ☐ This project will be classified as a non-community public water supply and must comply with state and federal drinking water monitoring requirements. For more information the applicant should contact the Public Water Supply Section. (919) 733-2321.
- ☐ If this project is constructed as proposed, we will recommend closure of _____ feet of adjacent waters to the harvest of shellfish. For information regarding the shellfish sanitation program, the applicant should contact the Shellfish Sanitation Section at (252) 726-6827.
- ☐ The soil disposal area(s) proposed for this project may produce a mosquito breeding problem. For information concerning appropriate mosquito control measures, the applicant should contact the Public Health Pest Management Section at (919) 733-6407.
- ☐ The applicant should be advised that prior to the removal or demolition of dilapidated structures, an extensive rodent control program may be necessary in order to prevent the migration of the rodents to adjacent areas. For information concerning rodent control, contact the local health department or the Public Health Pest Management Section at (919) 733-6407.
- ☐ The applicant should be advised to contact the local health department regarding their requirements for septic tank installations (as required under 15A NCAC 18A. 1900 et. seq.). For information concerning septic tank and other on-site waste disposal methods, contact the On-Site Wastewater Section at (919) 733-2895.
- ☐ The applicant should be advised to contact the local health department regarding the sanitary facilities required for this project.
- ☒ If existing water lines will be relocated during the construction, plans for the water line relocation must be submitted to the Division of Environmental Health, Public Water Supply Section, Technical Services Branch, 1634 Mail Service Center, Raleigh, North Carolina 27699-1634. (919) 733-2321
- ☒ For Regional and Central Office comments, see the reverse side of this form.

Jim McRight

Reviewer

PWSS

Section/Branch

09/25/07

Date

**State of North Carolina
Department of Environment and Natural Resources**

GOVERNMENTAL REVIEW - PROJECT COMMENTS

Reviewing Office: **MOORESVILLE REGIONAL OFFICE**

Project Number: **08-0087** Due Date: **10/14/07**

After review of this project it has been determined that the ENR permit(s) and/or approvals indicated may need to be obtained in order for this project to comply with North Carolina Law. Questions regarding these permits should be addressed to the Regional Office indicated on the reverse of the form. All applications, information and guidelines relative to these plans and permits are available from the same Regional Office.

PERMITS	SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
Permit to construct & operate wastewater treatment facilities, sewer system extensions & sewer systems not discharging into state surface waters	Application 90 days before begin construction or award of construction contracts. On-site inspection. Post-application technical conference usual.	30 days (90 days)
NPDES - permit to discharge into surface water and/or permit to operate and construct wastewater facilities discharging into state surface waters.	Application 180 days before begin activity. On-site inspection. Pre-application conference usual. Additionally, obtain permit to construct wastewater treatment facility, granted after NPDES. Reply time, 30 days after receipt of plans or issue of NPDES permit-whichever is later.	90-120 days (N/A)
<input type="checkbox"/> Water Use Permit	Pre-application technical conference usually necessary.	30 days (N/A)
<input type="checkbox"/> Well Construction Permit	Complete application must be received and permit issued prior to the installation of a well.	7 days (15 days)
<input type="checkbox"/> Dredge and Fill Permit	Application copy must be served on each adjacent riparian property owner. On-site inspection. Pre-application conference usual. Filing may require Easement to Fill from N.C. Department of Administration and Federal Dredge and Fill Permit.	55 days (90 days)
<input type="checkbox"/> Permit to construct & operate Air Pollution Abatement facilities and/or Emission Sources as per 15 A NCAC (2Q 0100 thru 2Q 0300)	Application must be submitted and permit received prior to construction and operation of the source. If a permit is required in an area without local zoning, then there are additional requirements and timelines (2Q 0113).	90 days
<input type="checkbox"/> Permit to construct & operate Transportation Facility as per 15 A NCAC (2D 0800, 2Q 0601)	Application must be submitted at least 90 days prior to construction or modification of the source.	90 days
<input type="checkbox"/> Any open burning associated with subject proposal must be in compliance with 15 A NCAC 2D 1900		
<input type="checkbox"/> Demolition or renovations of structures containing asbestos material must be in compliance with 15 A NCAC 2D 1110 (a) (1) which requires notification and removal prior to demolition. Contact Asbestos Control Group 919-707-5950	N/A	60 days (90 days)
<input type="checkbox"/> Complex Source Permit required under 15 A NCAC 2D 0800		
<input type="checkbox"/> The Sedimentation Pollution Control Act of 1973 must be properly addressed for any land disturbing activity. An erosion & sedimentation control plan will be required if one or more acres to be disturbed. Plan filed with proper Regional Office (Land Quality Section) At least 30 days before beginning activity. A fee of \$65 for the first acre or any part of an acre. An express review option is available with additional fees.		20 days (30 days)
<input checked="" type="checkbox"/> Sedimentation and erosion control must be addressed in accordance with NCDOT's approved program. Particular attention should be given to design and installation of appropriate perimeter sediment trapping devices as well as stable stormwater conveyances and outlets.		(30 days)
<input type="checkbox"/> Mining Permit	On-site inspection usual. Surety bond filed with ENR. Bond amount varies with type mine and number of acres of affected land. Any acre mined greater than one acre must be permitted. The appropriate bond must be received before the permit can be issued.	30 days (60 days)
<input type="checkbox"/> North Carolina Burning permit	On-site inspection by N.C. Division Forest Resources if permit exceeds 4 days.	1 day (N/A)
<input type="checkbox"/> Special Ground Clearance Burning Permit - 22 counties in coastal N.C. with organic soils	On-site inspection by N.C. Division Forest Resources required "if more than five acres of ground clearing activities are involved. Inspections should be requested at least ten days before actual burn is planned."	1 day (N/A)
<input type="checkbox"/> Oil Refining Facilities	N/A	90-120 days (N/A)
<input type="checkbox"/> Dam Safety Permit	If permit required, application 60 days before begin construction. Applicant must hire N.C. qualified engineer to prepare plans, inspect construction, certify construction is according to ENR approved plans. May also require permit under mosquito control program. And a 404 permit from Corps of Engineers. An inspection of site is necessary to verify Hazard Classification. A minimum fee of \$200.00 must accompany the application. An additional processing fee based on a percentage of the total project cost will be required upon completion.	30 days (60 days)

PERMITS	SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
Permit to drill exploratory oil or gas well	File surety bond of \$5,000 with ENR running to State of NC conditional that any well opened by drill operator shall, upon abandonment, be plugged according to ENR rules and regulations	10 days N/A
Geophysical Exploration Permit	Application filed with ENR at least 10 days prior to issue of permit Application by letter. No standard application form.	10 days N/A
State Lakes Construction Permit	Application fees based on structure size is charged. Must include descriptions & drawings of structure & proof of ownership of riparian property	15-20 days N/A
401 Water Quality Certification	N/A	60 days (30 days)
CAMA Permit for MAJOR development	\$250.00 fee must accompany application	55 days (30 days)
CAMA Permit for MINOR development	\$50.00 fee must accompany application	22 days (25 days)
Several geodetic monuments are located in or near the project area. If any monument needs to be moved or destroyed, please notify: N.C. Geodetic Survey, Box 27687 Raleigh, NC 27611		
Abandonment of any wells, if required must be in accordance with Title 15A Subchapter 2C 0100		
Notification of the proper regional office is requested if "orphan" underground storage tanks (USTS) are discovered during any excavation operation		
Compliance with 15A NCAC 2H 1000 (Coastal Stormwater Rules) is required		45 days (N/A)
Far Pamlico or Neuse Riparian Buffer Rules required		
<p>Other comments (attach additional pages as necessary, being certain to cite comment authority):</p> <p><i>L2 - No Comments Zsle 9/24/07</i></p> <p><i>SWP - Scoping Letter Submitted to DOT under separate cover</i></p> <p><i>APS - no comments AHP 9/25/07</i></p> <p><i>AQ - open burning of land clearing debris must be done in accordance with 20.1509</i></p> <p style="text-align: right;"><i>9-26-07</i></p>		

REGIONAL OFFICES

Questions regarding these permits should be addressed to the Regional Office marked below.

- | | | |
|--|--|--|
| <input type="checkbox"/> Asheville Regional Office
2090 US Highway 70
Swannanoa, NC 28778
(828) 296-4500 | <input checked="" type="checkbox"/> Mooreville Regional Office
610 East Center Avenue, Suite 301
Mooreville, NC 28115
(704) 663-1699 | <input type="checkbox"/> Wilmington Regional Office
127 Cardinal Drive Extension
Wilmington, NC 28405
(910) 796-7215 |
| <input type="checkbox"/> Fayetteville Regional Office
225 North Green Street, Suite 714
Fayetteville, NC 28301-5043
(910) 433-3300 | <input type="checkbox"/> Raleigh Regional Office
3800 Barrett Drive, Suite 101
Raleigh, NC 27609
(919) 791-4200 | <input type="checkbox"/> Winston-Salem Regional Office
585 Woughtown Street
Winston-Salem, NC 27107
(336) 771-5000 |
| | <input type="checkbox"/> Washington Regional Office
943 Washington Square Mall
Washington, NC 27889
(252) 946-6481 | |

create



North Carolina Department of Cultural Resources

State Historic Preservation Office

Peter B. Sandbeck, Administrator

Michael F. Easley, Governor
Lisbeth C. Evans, Secretary
Jeffrey J. Crow, Deputy Secretary

Office of Archives and History
Division of Historical Resources
David Brook, Director

November 8, 2007

MEMORANDUM

TO: Gregory Thorpe, Ph.D., Director
Project Development and Environmental Analysis Branch
NCDOT Division of Highways

FROM: Peter Sandbeck *RSZ for Peter Sandbeck*

RE: Widening of NC 3 to a multi-lane facility from Kannapolis Parkway (U-2009) to SR 1691 (Loop Road),
U-3440, Cabarrus County, CH 07-2063

We have received notification from the State Clearinghouse of the Start of Study for the above-referenced undertaking.

We have conducted a search of our maps and files and note that the last historic, architectural resources survey of the county was completed in 1981. Given the passage of time since that survey, we recommend that a Department of Transportation architectural historian identify and evaluate any structures over fifty years of age within the project area, and report the findings to us.

There are no known archaeological sites within the proposed project area. Based on our knowledge of the area, it is unlikely that any archaeological resources that may be eligible for inclusion in the National Register of Historic Places will be affected by the project. We, therefore, recommend that no archaeological investigation be conducted in connection with this project.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919/807-6579. In all future communication concerning this project, please cite the above referenced tracking number.

cc: SCH
Mary Pope Furr, NCDOT
Matt Wilkerson, NCDOT

**CONCURRENCE FORM FOR PROPERTIES NOT ELIGIBLE FOR
THE NATIONAL REGISTER OF HISTORIC PLACES**

Project Description: Widen NC 3 (Mooresville Road) to multilanes from Kannapolis Parkway to SR 1691 (Dale Earnhardt Boulevard), Kannapolis

On December 8, 2008, representatives of the

- ☒ North Carolina Department of Transportation (NCDOT)
☐ Federal Highway Administration (FHWA)
☒ North Carolina State Historic Preservation Office (SHPO)
☐ Other

Reviewed the subject project at

- ☐ Scoping meeting
☒ Historic architectural resources photograph review session/consultation
☐ Other

All parties present agreed

- ☐ There are no properties over fifty years old within the project's area of potential effects.
☒ There are no properties less than fifty years old which are considered to meet Criteria Consideration G within the project's area of potential effects.
☒ There are properties over fifty years old within the project's Area of Potential Effects (APE), but based on the historical information available and the photographs of each property, the property identified as ~~64-68~~ ^{Prop} ~~64-68~~ ¹¹²⁻¹⁵⁴ is considered not eligible for the National Register and no further evaluation of it is necessary.
☒ There are no National Register-listed properties within the project's area of potential effects.
☐ All properties greater than 50 years of age located in the APE have been considered at this consultation, and based upon the above concurrence, all compliance for historic architecture with Section 106 of the National Historic Preservation Act and GS 121-12(a) has been completed for this project.

Signed:

Penne Sandbeck
Representative, NCDOT

12-8-2008
Date

FHWA, for the Division Administrator, or other Federal Agency

Date

Representative, SHPO

Date

Penne Hedrick-Early
State Historic Preservation Officer

12-8-08
Date

If a survey report is prepared, a final copy of this form and the attached list will be included.



North Carolina Department of Cultural Resources
State Historic Preservation Office

Peter B. Sandbeck, Administrator

Michael F. Easley, Governor
Lisbeth C. Evans, Secretary
Jeffrey J. Crow, Deputy Secretary

Office of Archives and History
Division of Historical Resources
David Brook, Director

November 8, 2007

MEMORANDUM

TO: Gregory Thorpe, Ph.D., Director
Project Development and Environmental Analysis Branch
NCDOT Division of Highways

FROM: Peter Sandbeck *for Peter Sandbeck*

RE: Widening of NC 3 to a multi-lane facility from Kannapolis Parkway (U-2009) to SR 1691 (Loop Road),
U-3440, Cabarrus County, CH 07-2063

We have received notification from the State Clearinghouse of the Start of Study for the above-referenced undertaking.

We have conducted a search of our maps and files and note that the last historic, architectural resources survey of the county was completed in 1981. Given the passage of time since that survey, we recommend that a Department of Transportation architectural historian identify and evaluate any structures over fifty years of age within the project area, and report the findings to us.

There are no known archaeological sites within the proposed project area. Based on our knowledge of the area, it is unlikely that any archaeological resources that may be eligible for inclusion in the National Register of Historic Places will be affected by the project. We, therefore, recommend that no archaeological investigation be conducted in connection with this project.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919/807-6579. In all future communication concerning this project, please cite the above referenced tracking number.

cc: SCH
Mary Pope Furr, NCDOT
Matt Wilkerson, NCDOT

Federal Aid #

WBS# 39010

County: Cabarrus

CONCURRENCE FORM FOR PROPERTIES NOT ELIGIBLE FOR
THE NATIONAL REGISTER OF HISTORIC PLACES

Project Description: Widen NC 3 (Mooresville Road) to multilanes from Kannapolis Parkway to SR 1691 (Dale Earnhardt Boulevard), Kannapolis

On December 8, 2008, representatives of the

- ☒ North Carolina Department of Transportation (NCDOT)
☐ Federal Highway Administration (FHWA)
☒ North Carolina State Historic Preservation Office (SHPO)
☐ Other

Reviewed the subject project at

- ☐ Scoping meeting
☒ Historic architectural resources photograph review session/consultation
☐ Other

All parties present agreed

- ☐ There are no properties over fifty years old within the project's area of potential effects.
☒ There are no properties less than fifty years old which are considered to meet Criteria Consideration G within the project's area of potential effects.
☒ There are properties over fifty years old within the project's Area of Potential Effects (APE), but based on the historical information available and the photographs of each property, the property identified as ~~this~~ ^{Prop 64-68} ~~64-68~~, ~~64-68~~ ^{Prop 64-68} ~~64-68~~ is considered not eligible for the National Register and no further evaluation of it is necessary. ~~64-68~~ ^{Prop 64-68} ~~64-68~~ ^{Prop 64-68}
☒ There are no National Register-listed properties within the project's area of potential effects.
☐ All properties greater than 50 years of age located in the APE have been considered at this consultation, and based upon the above concurrence, all compliance for historic architecture with Section 106 of the National Historic Preservation Act and GS 121-12(a) has been completed for this project.

Signed:

Penne Sandbeck
Representative, NCDOT

12-8-2008
Date

FHWA, for the Division Administrator, or other Federal Agency

Date

Representative, SHPO

Date

Penne Medall-Early
State Historic Preservation Officer

12-8-08
Date

If a survey report is prepared, a final copy of this form and the attached list will be included



North Carolina Department of Cultural Resources
State Historic Preservation Office

Peter B. Sandbeck, Administrator

Beverly Eaves Perdue, Governor
Linda A. Carlisle, Secretary
Jeffrey J. Crow, Deputy Secretary

Office of Archives and History
Division of Historical Resources
David Brook, Director

June 8, 2009

MEMORANDUM

To: Mary Pope Furr, Architectural Historian
PDEA, Human Environment Unit

From: Peter Sandbeck *PSB for Peter Sandbeck*

Re: Historic Structures Survey Report for Widening of NC 3 from Kannapolis Parkway to SR 1691,
Kannapolis, U-3440, Cabarrus County, ER 07-2063

We have reviewed the above reference report, which was delivered to us on April 30, 2009, and offer the following comments.

For purposes of Section 106 of the National Historic Preservation Act we concur that the Juniper-Pine-Mooresville-Chestnut Mill Village Historic District is eligible for listing in the National Register of Historic Places under Criteria A. Further, with a portion of the Frog Hollow Mill Village along Pine Street, we believe the combined areas are also eligible under Criterion C in that the setback, size, massing, and repetition of house types clearly represent the recognizable vestiges of a mill village that was not built at one time, but expanded as conditions required. A revised boundary map is attached showing the areas we believe should be included in the current eligibility determination as well as areas that warrant further study, but appear to lie outside of the Area of Potential Effect.

We concur that Bridge # 36 over Irish Buffalo Creek is not eligible for listing in the National Register. The remaining properties covered in the report (64-68 and 112-159) did not appear to warrant additional study and are not considered eligible for listing, barring information to the contrary.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919-807-6579. In all future communication concerning this project, please cite the above referenced tracking number.

Attachment

cc: Penne Sandbeck

Federal Aid #: STP-0003 (6)

TIP#: U-3440

County: Cabarrus

CONCURRENCE FORM FOR ASSESSMENT OF EFFECTS

Project Description: Widen NC 3 to multi-lanes from Kannapolis Parkway (U-2009) to SR 1691 (Dale Earnhardt Blvd./Loop Road), Kannapolis

On October 12, 2010, representatives of the

- ☒ North Carolina Department of Transportation (NCDOT)
- ☒ Federal Highway Administration (FHWA)
- ☒ North Carolina State Historic Preservation Office (HPO)
- ☐ Other

Reviewed the subject project and agreed on the effects findings listed within the table on the reverse of this signature page.

Signed:

Renee Sandbeck

10-17-2010

Representative, NCDOT

Date

Dale W. Brown

10-26-10

FHWA, for the Division Administrator, or other Federal Agency

Date

Representative, HPO

Date

Renee Hedhill-Early

10-12-10

State Historic Preservation Officer

Date

County: Cabarrus

TIP #: U-3440

Federal Aid #: STP-0003(6)

Property and Status	Alternative	Effect Finding	Reasons
Juniper-Pine-Mooresville- Chestnut Mill Village HD		<i>Adverse Effect</i>	
Frog Hollow Mill Village HD		<i>Adverse Effect</i>	

Initialed: NCDOT 8755 FHWA DB HPO DBE

KANNAPOLIS



March 3, 2010

Ms. Kristina L. Solberg, P.E., Project Planning Engineer
NC Department of Transportation
Project Development and Environmental Analysis (PDEA)
1548 Mail Service Center
Raleigh, NC 27699-1548

Re: Project U-3440- NC 3 (Mooresville Road) Widen to Multi-Lanes from Kannapolis
Parkway to SR 1691 (Loop Road), Cabarrus County

Dear Ms. Solberg:

This letter is in reference to the proposed TIP Project U-3440, the proposed Cabarrus Health Alliance (CHA) building in the northwest quadrant of the intersection of NC Hwy 3 (Mooresville Road) and SR 1691 (Loop Road), and the potential historic district along Mooresville Road near Loop Road in Kannapolis, NC. City Staff has been in recent discussions with NCDOT Division 10 Personnel, Roadway Design, and PDEA Staff in regards to design constraints for Project U-3440 along Mooresville Road between Pine Street and Loop Road. The City understands the need for the expansion of the roadway and certainly supports the addition of lanes to accommodate increasing traffic forecast for NC Hwy 3. Expanding the roadway will facilitate easier access to the downtown area of Kannapolis and access to the North Carolina Research Campus (NCRC). It is understood that the constraints along this section of NC Hwy 3 complicate the design process. In an effort to assist you in the functional design of this roadway, we have provided the following information for you to consider in this process:

The Cabarrus Health Alliance

The Cabarrus Health Alliance (formerly Cabarrus County Health Department) is a public health authority created by the Cabarrus County Board of Commissioners. The Cabarrus Health Alliance (CHA) was made effective in 1997 and is governed by a seven-member board, composed of representatives of the Cabarrus County Board of Commissioners, the Cabarrus County Medical Society, the Cabarrus Physicians' Organization, the Cabarrus County Board of Health, the Northeast Medical Center Board of Trustees, and two citizens at-large. The CHA continues with its long standing tradition of providing the highest quality health care services while evolving as the leader of public health care in the region it serves. From environmental health to primary care, the CHA works with others to create healthy lives for our community.

The CHA is currently in antiquated, inadequate rented space (part of a former K-Mart-anchored shopping center) located about 3 miles from the proposed site in downtown Kannapolis at the

Ms. Kristina L. Solberg
March 3, 2010
Page 2 of 4

North Carolina Research Campus (NCRC). As designed, this new three-story building will include 61,000 square feet of space.

Clearly a pressing need is for the CHA to find more permanent functional space for its daily operations. More importantly, the CHA needs to be located at the NCRC to be in a position to work closely with the eight public and private universities on the Campus. The CHA and NCRC universities will work extensively on clinical trials related to chronic diseases which are disproportionate among the indigent clients the CHA serves. The vicious cycle of poverty and poor health has gone on too long without appropriate research and study, and this opportunity will allow this health disparity issue to be addressed in an applied research environment. In this case, proximity to the Research Campus is critical. This unique connection between the NCRC and the CHA will also create synergies in the treatment of CHA patients with the research that is being performed by other organizations on the Campus. In summary; proximity to the NCRC is important for both research and patient care purposes.

The relocation of the CHA to the proposed site in downtown Kannapolis will also create jobs and will have other positive economic impacts. The CHA has annual salary expenditures of about \$14.5 million for its 214 employees. Those jobs bring desperately needed disposable income to downtown Kannapolis to help support retail and service sectors of the local economy. Upon completion of the new building, the CHA will immediately add 10 additional employees to its dental program. Furthermore, for the next several years, the CHA is planning to add an average of 10 jobs per year as a direct result of the additional space the new building will create. Those jobs are not possible without the new facility.

Unfortunately, there are few sites in downtown Kannapolis where this new CHA building can be constructed. The NCRC has been designed in a very deliberate way with each structure planned at key locations for very specific purposes. It is very difficult, at this stage in the process to abruptly change locations. The City of Kannapolis and the CHA have invested too much public money on site designs to simply abandon the proposed building site. Additionally, Rowan Cabarrus Community College's career retraining center recently vacated space in an existing building on the proposed CHA site. They have relocated in response to the pending CHA construction project.

There are other pressures as well. There are construction contracts on the CHA building that will expire in April 2010. The City (with financial participation from Cabarrus County) plans to issue Tax Increment Financing (TIF) Bonds within the next 60-90 days to fund the new CHA building, at a cost of \$15 million. Radical changes in the roadway design of NC Highway 3 could severely impact the project, its budget and its critical timeline.

Potential Historic District

City Staff has studied various areas of the City that have potential historical significance. The idea of having those areas included on the National Register was proposed on several different occasions. The idea was met with strong resistance from property owners, elected officials, and various citizen groups each time it was discussed. As a result, the City decided to look at an alternate approach of establishing "Mill Village Overlay Districts" and "Heritage Districts" to identify the areas of the City that have historical significance and to preserve those areas from future development pressures.

Currently there are over 1,000 mill homes in and around Kannapolis' downtown area. The majority of the residences are located on the east side of the downtown with smaller "pockets" of houses on the north, south, and west sides. Upon reviewing each of these areas, it was determined that the mill homes on the east side and north side of the downtown provided significant historical value to the City and needed to be preserved. The decision was primarily based upon the existing condition of the homes, the integrity and continuity of the neighborhoods, and other historical factors associated with their location. The homes on the west and south sides of the downtown were excluded primarily due to the condition of the homes (many in dilapidated state), the number of renter occupied homes and potential for demolition / redevelopment, and the lack of historical significance of their location. A copy of the proposed "Heritage" district map is attached for your reference.

The Alignment of the Intersection

Our staff has been in contact with NCDOT District Staff over the last few years working on a solution for the widening of Mooresville Road and minimizing the impacts to surrounding properties. In collaboration with the City of Kannapolis, Castle and Cooke North Carolina LLC has developed plans for widening Dale Earnhardt Boulevard/Loop Road and Mooresville Road (plans are included with this letter for your use). These plans have been submitted and reviewed by local and Raleigh NCDOT Staff. In addition, City Staff has worked with the local NCDOT District Office through the design process all along Dale Earnhardt Boulevard/Loop Road as the North Carolina Research Campus has been developed. The intersection of NC Highway 3 (Mooresville Road) and Dale Earnhardt Boulevard/Loop Road serves as the main entrance (Watson-Crick Drive) to the North Carolina Research Campus. The internal infrastructure at this intersection has been built with the exception of the final tie-in at Dale Earnhardt Boulevard/Loop Road. The alignment of NC Hwy 3 (Mooresville Road) at Dale Earnhardt Boulevard/Loop Road with the internal road network is crucial to provide a safe intersection at this location. The realignment of Watson-Crick is not practical at this point in the development of the NCRC. To the north of Watson-Crick Drive is the existing Southern Select Credit Union Building and to the south is the proposed NCRC Medical Office Building which has been

Ms. Kristina L. Solberg
March 3, 2010
Page 4 of 4

permitted and is scheduled to be built in the near future. Castle and Cooke, the City of Kannapolis, and NCDOT District Staff worked cooperatively to develop plans for the Medical Office Building so that the design would work with the proposed widening of Dale Earnhardt Boulevard/Loop Road. The alignment of Watson-Crick Drive was established to accommodate the improvements at this intersection. Altering this alignment at this point would be very costly as existing infrastructure would have to be rebuilt, property would have to be taken on the Credit Union site (most likely a full taking due to significant loss of parking), and the Medical Office Building redesigned if possible.

In closing, the City welcomes the U-3440 project so that NC Highway 3 has the adequate capacity needed for future traffic. While the City is certainly interested in preserving the rich history of Kannapolis, we also understand the magnitude and importance of the development of the NCRC. The City understands the intricate design of the widening of NC Highway 3 in Kannapolis and our staff will continue to work with NCDOT in any way possible to devise a plan to meet the needs of the traveling public, the citizens of Kannapolis, and the development of the North Carolina Research Campus.

Please do not hesitate to contact me or any member of our team should you have questions or need additional information. I can be reached at 704-920-4333 or mlegg@cityofkannapolis.com.

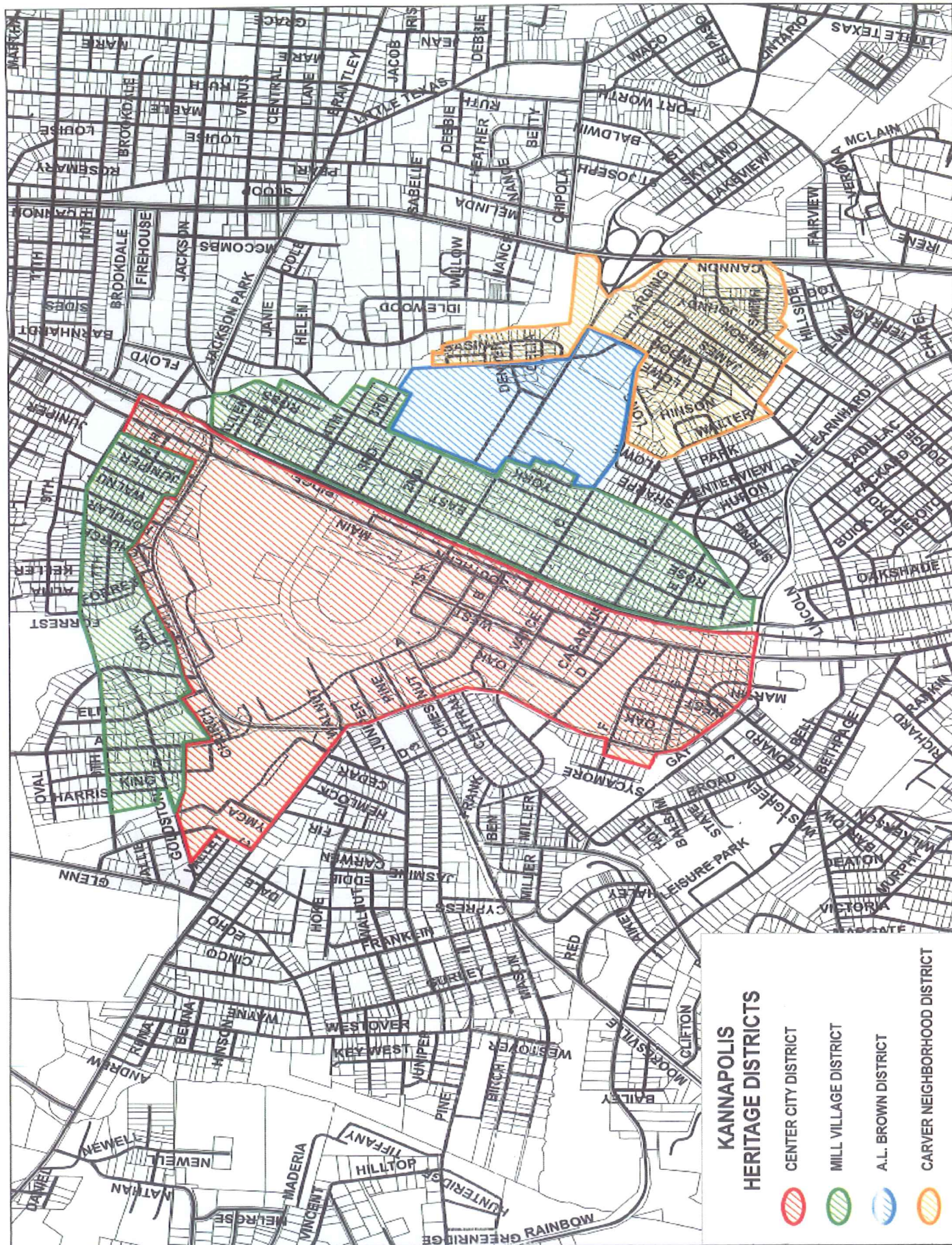
Sincerely,


Mike Legg
City Manager

Copies: Wilmer Melton, Public Works Director
Ben Warren, Planning Director
Jim Atkinson, Castle and Cooke NC LLC
Scott Lanigan, Castle and Cooke NC LLC

Attachments:

- Historic and Heritage District Map, Kannapolis Planning Department
- Preliminary Layout of improvements along NC Hwy 3 (Mooresville Road)



APPENDIX C
RELOCATION REPORT

APPENDIX I

RELATIONSHIP BETWEEN

EIS RELOCATION REPORT

North Carolina Department of Transportation
RELOCATION ASSISTANCE PROGRAM

XE.I.S. ☐ CORRIDOR ☐ DESIGN

WBS ELEMENT:	39010.1.1	COUNTY	Cabarrus	Alternate	1	of	2	Alternates
T.I.P. No.:	U-3440	SEGMENT A						
DESCRIPTION OF PROJECT:		NC-3 (Mooresville Rd.) from Kannapolis Parkway to Loop Rd. (SR-1691)						

ESTIMATED DISPLACED					INCOME LEVEL								
Type of Displacees	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP				
Residential	5	0	5	1	0	1	2	1	1				
Businesses	0	0	0	0	VALUE OF DWELLING				DSS DWELLING AVAILABLE				
Farms	0	0	0	0	Owners		Tenants		For Sale		For Rent		
Non-Profit	0	0	0	0	0-20M	0	\$ 0-150	0	0-20M	40	\$ 0-150	0	
					20-40M	0	150-250	0	20-40M	50	150-250	6	
					40-70M	2	250-400	0	40-70M	90	250-400	10	
					70-100M	1	400-600	0	70-100M	120	400-600	12	
					100 UP	2	600 UP	0	100 UP	240	600 UP	70	
					TOTAL	5		0		540		98	

ANSWER ALL QUESTIONS		
Yes	No	Explain all "YES" answers.
	X	1. Will special relocation services be necessary?
	X	2. Will schools or churches be affected by displacement?
X		3. Will business services still be available after project?
	X	4. Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.
	X	5. Will relocation cause a housing shortage?
	X	6. Source for available housing (list).
	X	7. Will additional housing programs be needed?
X		8. Should Last Resort Housing be considered?
	X	9. Are there large, disabled, elderly, etc. families?
	X	10. Will public housing be needed for project?
X		11. Is public housing available?
X		12. Is it felt there will be adequate DSS housing housing available during relocation period?
	X	13. Will there be a problem of housing within financial means?
X		14. Are suitable business sites available (list source).
		15. Number months estimated to complete RELOCATION? 12-24 months

REMARKS (Respond by Number)	
3. No businesses are involved in this section	
6. Realtors, MLS service, news papers and private market	
8. As required by law	
11. Section 8 housing within the county	
12. There is an ample real estate market in the area.	
14. Same as Number 6 above.	

 Robert B. Chadwick Right of Way Agent	6/6/11 Date		 Relocation Coordinator	6/6/11 Date
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North Carolina Department of Transportation
RELOCATION ASSISTANCE PROGRAM



XE.I.S. ☐ CORRIDOR ☐ DESIGN

WBS ELEMENT:	39010.1.1	COUNTY	Cabarrus	Alternate	1	of	2	Alternates
T.I.P. No.:	U-3440	SEGMENT B						
DESCRIPTION OF PROJECT:		NC-3 (Mooresville Rd.) from Kannapolis Parkway to Loop Rd. (SR-1691)						

ESTIMATED DISPLACED					INCOME LEVEL							
Type of Displacees	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP			
Residential	2	0	2	0	0	0	0	2	0			
Businesses	3	0	3	0	VALUE OF DWELLING				DSS DWELLING AVAILABLE			
Farms	0	0	0	0	Owners		Tenants		For Sale		For Rent	
Non-Profit	0	0	0	0	0-20M	0	\$ 0-150	0	0-20M	40	\$ 0-150	0
					20-40M	0	150-250	0	20-40M	50	150-250	6
					40-70M	0	250-400	0	40-70M	90	250-400	10
					70-100M	2	400-600	0	70-100M	120	400-600	12
					100 UP	0	600 UP	0	100 UP	240	600 UP	70
					TOTAL	2		0		540		98

ANSWER ALL QUESTIONS		
Yes	No	Explain all "YES" answers.
	X	1. Will special relocation services be necessary?
	X	2. Will schools or churches be affected by displacement?
X		3. Will business services still be available after project?
X		4. Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.
	X	5. Will relocation cause a housing shortage?
	X	6. Source for available housing (list).
	X	7. Will additional housing programs be needed?
X		8. Should Last Resort Housing be considered?
	X	9. Are there large, disabled, elderly, etc. families?
	X	10. Will public housing be needed for project?
X		11. Is public housing available?
X		12. Is it felt there will be adequate DSS housing housing available during relocation period?
	X	13. Will there be a problem of housing within financial means?
X		14. Are suitable business sites available (list source).
		15. Number months estimated to complete RELOCATION? 12-24 months

REMARKS (Respond by Number)	
3. There is a large number of similar type businesses in the area 4. US Lawns Commercial Landscaping- Small-4-6 employees Appliance Service Company-Small-2-4 employees STI Turf Care Equipment-Small-6-8 employees 6. Realtors, MLS service, news papers and private market 8. As required by law 11. Section 8 housing within the county 12. There is an ample real estate market in the area. 14. Same as Number 6 above.	

 Robert B. Chadwick Right of Way Agent	6/6/11 Date	 Relocation Coordinator	6/6/11 Date
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**North Carolina Department of Transportation
RELOCATION ASSISTANCE PROGRAM**



XE.I.S. ☐ CORRIDOR ☐ DESIGN

WBS ELEMENT:		39010.1.1		COUNTY	Cabarrus		Alternate		1	of	2	Alternates	
T.I.P. No.:		U-3440		SEGMENT C									
DESCRIPTION OF PROJECT:		NC-3 (Mooresville Rd.) from Kannapolis Parkway to Loop Rd. (SR-1691)											

ESTIMATED DISPLACED					INCOME LEVEL							
Type of Displacees	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP			
Residential	8	12	20	5	1	2	5	5	7			
Businesses	2	2	4	1	VALUE OF DWELLING			DSS DWELLING AVAILABLE				
Farms	0	0	0	0	Owners		Tenants		For Sale	For Rent		
Non-Profit	0	0	0	0	0-20M	0	\$ 0-150	0	0-20M	40	\$ 0-150	0
					20-40M	0	150-250	0	20-40M	50	150-250	6
					40-70M	4	250-400	1	40-70M	90	250-400	10
					70-100M	3	400-600	3	70-100M	120	400-600	12
					100 UP	1	600 UP	8	100 UP	240	600 UP	70
					TOTAL	8		12		540		98

ANSWER ALL QUESTIONS		
Yes	No	Explain all "YES" answers.
	X	1. Will special relocation services be necessary?
	X	2. Will schools or churches be affected by displacement?
X		3. Will business services still be available after project?
X		4. Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.
	X	5. Will relocation cause a housing shortage?
	X	6. Source for available housing (list).
	X	7. Will additional housing programs be needed?
X		8. Should Last Resort Housing be considered?
	X	9. Are there large, disabled, elderly, etc. families?
	X	10. Will public housing be needed for project?
X		11. Is public housing available?
X		12. Is it felt there will be adequate DSS housing housing available during relocation period?
	X	13. Will there be a problem of housing within financial means?
X		14. Are suitable business sites available (list source).
		15. Number months estimated to complete RELOCATION? 12-24 months

REMARKS (Respond by Number)	
3. There is an ample supply of similar type businesses in the area 4. Strickman Customs-Small-2-4 employees Carey's Clips-Small-1-3 employees A-1 Tax Service-Small-4-6 employees Master Roofing-Small-3-6 employees 6. Realtors, MLS service, news papers and private market 8. As required by law 11. Section 8 housing within the county 12. There is an ample real estate market in the area. 14. Same as Number 6 above.	



 Robert B. Chadwick Right of Way Agent	<div align="right">6/6/11</div> <div align="center">Date</div>
 Relocation Coordinator	<div align="right">6/6/11</div> <div align="center">Date</div>

**North Carolina Department of Transportation
RELOCATION ASSISTANCE PROGRAM**

XE.I.S. ☐ CORRIDOR ☐ DESIGN

WBS ELEMENT:	39010.1.1	COUNTY	Cabarrus	Alternate	2	of	2	Alternates
T.I.P. No.:	U-3440	SEGMENT A						
DESCRIPTION OF PROJECT:	NC-3 (Mooresville Rd.) from Kannapolis Parkway to Loop Rd. (SR-1691)							

ESTIMATED DISPLACEES					INCOME LEVEL								
Type of Displacees	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP				
Residential	5	0	5	1	0	1	2	1	1				
Businesses	1	0	1	0	VALUE OF DWELLING				DSS DWELLING AVAILABLE				
Farms	0	0	0	0	Owners		Tenants		For Sale		For Rent		
Non-Profit	0	0	0	0	0-20M	0	\$ 0-150	0	0-20M	40	\$ 0-150	0	
					20-40M	0	150-250	0	20-40M	50	150-250	6	
					40-70M	2	250-400	0	40-70M	90	250-400	10	
					70-100M	1	400-600	0	70-100M	120	400-600	12	
					100 UP	2	600 UP	0	100 UP	240	600 UP	70	
					TOTAL	5		0		540		98	
ANSWER ALL QUESTIONS													
Yes	No	Explain all "YES" answers.											
	X	1. Will special relocation services be necessary?											
	X	2. Will schools or churches be affected by displacement?											
X		3. Will business services still be available after project?											
X		4. Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.											
	X	5. Will relocation cause a housing shortage?											
	X	6. Source for available housing (list).											
	X	7. Will additional housing programs be needed?											
X		8. Should Last Resort Housing be considered?											
	X	9. Are there large, disabled, elderly, etc. families?											
	X	10. Will public housing be needed for project?											
X		11. Is public housing available?											
X		12. Is it felt there will be adequate DSS housing housing available during relocation period?											
	X	13. Will there be a problem of housing within financial means?											
X		14. Are suitable business sites available (list source).											
		15. Number months estimated to complete RELOCATION? 12-24 months											
REMARKS (Respond by Number)													
3. There is an ample supply of similar type businesses in the area													
4. Convenience Store -Small-3-6 employees													
6. Realtors, MLS service, news papers and private market													
8. As required by law													
11. Section 8 housing within the county													
12. There is an ample real estate market in the area.													
14. Same as Number 6 above.													

	6/6/11		6/6/11
Robert B. Chadwick Right of Way Agent	Date	Relocation Coordinator	Date



North Carolina Department of Transportation
RELOCATION ASSISTANCE PROGRAMXE.I.S. ☐ CORRIDOR ☐ DESIGN

WBS ELEMENT:	39010.1.1	COUNTY	Cabarrus	Alternate	2	of	2	Alternates
T.I.P. No.:	U-3440	SEGMENT B						
DESCRIPTION OF PROJECT:		NC-3 (Mooresville Rd.) from Kannapolis Parkway to Loop Rd. (SR-1691)						

ESTIMATED DISPLACEES					INCOME LEVEL							
Type of Displacees	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP			
Residential	5	2	7	1	0	1	2	2	2			
Businesses	1	0	1	0	VALUE OF DWELLING				DSS DWELLING AVAILABLE			
Farms	0	0	0	0	Owners		Tenants		For Sale		For Rent	
Non-Profit	1	0	1	0	0-20M	0	\$ 0-150	0	0-20M	40	\$ 0-150	0
					20-40M	0	150-250	0	20-40M	50	150-250	6
					40-70M	0	250-400	0	40-70M	90	250-400	10
					70-100M	2	400-600	0	70-100M	120	400-600	12
					100 UP	3	600 UP	2	100 UP	240	600 UP	70
					TOTAL	5		2		540		98

ANSWER ALL QUESTIONS		
Yes	No	Explain all "YES" answers.
	X	1. Will special relocation services be necessary?
X		2. Will schools or churches be affected by displacement?
X		3. Will business services still be available after project?
X		4. Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.
	X	5. Will relocation cause a housing shortage?
	X	6. Source for available housing (list).
	X	7. Will additional housing programs be needed?
X		8. Should Last Resort Housing be considered?
	X	9. Are there large, disabled, elderly, etc. families?
	X	10. Will public housing be needed for project?
X		11. Is public housing available?
X		12. Is it felt there will be adequate DSS housing housing available during relocation period?
	X	13. Will there be a problem of housing within financial means?
X		14. Are suitable business sites available (list source).
		15. Number months estimated to complete RELOCATION? 12-24 months

REMARKS (Respond by Number)	
2. Tree of Life Ministries-Small-25-50 members	
3. There is an ample supply of similar type businesses in the area	
4. STI Turf Care Equipment -Small-6-8 employees	
6. Realtors, MLS service, news papers and private market	
8. As required by law	
11. Section 8 housing within the county	
12. There is an ample real estate market in the area.	
14. Same as Number 6 above.	

 Robert B. Chadwick Right of Way Agent	6/6/11 Date	 Relocation Coordinator	6/6/11 Date
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North Carolina Department of Transportation
RELOCATION ASSISTANCE PROGRAMXE.I.S. ☐ CORRIDOR ☐ DESIGN

WBS ELEMENT:		39010.1.1		COUNTY	Cabarrus		Alternate 2 of 2 Alternates	
T.I.P. No.:		U-3440		SEGMENT C				
DESCRIPTION OF PROJECT:		NC-3 (Mooresville Rd.) from Kannapolis Parkway to Loop Rd. (SR-1691)						

ESTIMATED DISPLACEES					INCOME LEVEL				
Type of Displacees	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP
Residential	10	14	24	4	0	1	5	10	8
Businesses	1	1	2	1					
Farms	0	0	0	0					
Non-Profit	0	0	0	0					

ANSWER ALL QUESTIONS									
Yes	No	Explain all "YES" answers.							
	X	1. Will special relocation services be necessary?							
	X	2. Will schools or churches be affected by displacement?							
X		3. Will business services still be available after project?							
X		4. Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.							
	X	5. Will relocation cause a housing shortage?							
	X	6. Source for available housing (list).							
	X	7. Will additional housing programs be needed?							
X		8. Should Last Resort Housing be considered?							
	X	9. Are there large, disabled, elderly, etc. families?							
	X	10. Will public housing be needed for project?							
X		11. Is public housing available?							
X		12. Is it felt there will be adequate DSS housing housing available during relocation period?							
	X	13. Will there be a problem of housing within financial means?							
X		14. Are suitable business sites available (list source).							
		15. Number months estimated to complete RELOCATION? 12-24 months							

REMARKS (Respond by number)			
3. There is an ample supply of similar type businesses in the area			
4. Strickman Customs-Small-2-3 employees Carey's Clips-Small-1-3 employees			
6. Realtors, MLS service, news papers and private market			
8. As required by law			
11. Section 8 housing within the county			
12. There is an ample real estate market in the area.			
14. Same as Number 6 above.			

 Robert B. Chadwick Right of Way Agent	6/6/11 Date	 Relocation Coordinator	6/6/11 Date
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APPENDIX D
CAPACITY ANALYSIS REPORT

APPENDIX D

APPENDIX D.1



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

November 3, 2008

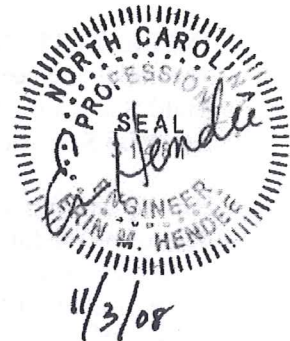
TIP Project: U-3440
Division: 10
County: Cabarrus
Description: Kannapolis - NC 3, Proposed West Side Bypass (U-2009) to SR1691 (Loop Road)

MEMORANDUM

TO: Gregory J. Thorpe, Ph.D., Environmental Management Director
Project Development and Environmental Analysis Branch
Kristina L. Solberg, P.E., Project Development Engineer

FROM: Erin M. Hendee, P.E., Project Design Engineer
Congestion Management Section

SUBJECT: Preliminary Review of TIP U-3440



The Congestion Management Section has completed a review of this project. As requested, we performed a mainline and intersection analysis using the 2008, 2015 and 2035 design year traffic projections provided by the Transportation Planning Branch, dated February 22, 2008, to determine the levels of service (LOS). Our recommendations and/or comments mentioned below include mainline and intersection analyses for the 2008 No-Build, 2015 No-Build and 2035 No-Build Scenarios.

A forthcoming memorandum for the 2015 Build and 2035 Build Scenarios for this project will be submitted at a later date.

An electronic copy of this memorandum (in *.pdf format) can be found under the following directory:

\\Dot\dfsroot01\Proj\TIPProjects-U\U3440\Traffic\CongestionMgmt\Doc\Recommendations

MAINLINE ANALYSIS
NC 3 (Mooresville Road)

Projected mainline volumes along NC 3 (Mooresville Road) in the project area range from 7,400 vehicles per day west of SR 1925 (Randolph Road) to 11,200 vehicles per day east of Boy Scout Camp Road in 2008. Capacity analysis results indicate that the existing two-lane undivided facility is expected to operate at a LOS B in 2008 No-Build Scenario.

MAILING ADDRESS:
TRANSPORTATION MOBILITY AND SAFETY DIVISION
1561 MAIL SERVICE CENTER
RALEIGH NC 27699-1561

TELEPHONE: 919-773-2800
FAX: 919-771-2745

WEBSITE: WWW.NCDOT.ORG

LOCATION:
750 NORTH GREENFIELD PARKWAY
GARNER NC 27529

Projected mainline volumes along NC 3 (Mooresville Road) in the project area range from 11,800 vehicles per day east of Franklin Avenue to 16,800 vehicles per day east of Boy Scout Camp Road in 2015. Capacity analysis results indicate that the existing two-lane undivided facility is expected to operate at a LOS C in 2015 No-Build Scenario. With the potential addition of signals in the 2015 No-Build Scenario, the existing two-lane undivided facility is expected to operate at a LOS F.

Projected mainline volumes along NC 3 (Mooresville Road) in the project area range from 19,400 vehicles per day east of Franklin Avenue to 23,900 vehicles per day east of Tucker Avenue in 2035. Capacity analysis results indicate that the existing two-lane undivided facility is expected to operate at a LOS F in 2035 No-Build Scenario. With the potential addition of signals in the 2035 No-Build Scenario, the existing two-lane undivided facility is expected to operate at a LOS F.

INTERSECTION ANALYSIS (No-Build Conditions)

The following section provides a discussion of each individual intersection analysis in the No-Build Scenario. *Table 1*, attached, displays the levels-of-service for the 2008, 2015 and 2035 No-Build Scenarios.

For this analysis an acceptable LOS E and F, as determined by the professional engineer, will be defined by the following parameters:

- v/c ratio < 0.85 ,
- Delay < 120 seconds, and
- 95th percentile Queue Length < 250 feet.

NC 3 (Mooresville Road) at SR 1925 (Randolph Road) - Unsignalized

Given the existing geometry in the 2008 No-Build Scenario, the eastbound left-turn movement is expected to operate at a LOS A. The southbound shared left-turn, right-turn movement is expected to operate at a LOS B.

Given the existing geometry in the 2015 No-Build Scenario, the eastbound left-turn movement is expected to operate at a LOS B. The southbound shared left-turn, right-turn movement is expected to operate at an acceptable LOS E.

Given the existing geometry in the 2035 No-Build Scenario, the eastbound left-turn movement is expected to operate at a LOS C. The southbound shared left-turn, right-turn movement is expected to operate at an unacceptable LOS F with a delay greater than 120 seconds. This intersection may require signalization by 2035. If this intersection becomes signalized it is expected to operate at an overall LOS A.

NC 3 (Mooresville Road) at SR 1624 (Kannapolis Parkway) - Signalized

Given the existing geometry in the 2008 No-Build Scenario, this intersection is expected to operate at an overall LOS C.

Given the existing geometry in the 2015 No-Build Scenario, this intersection is expected to operate at an overall LOS C.

Given the existing geometry in the 2035 No-Build Scenario, this intersection is expected to operate at an overall **LOS F**.

NC 3 (Mooresville Road) at Boy Scout Camp Road - Unsignalized

Given the existing geometry in the 2008 No-Build Scenario, the westbound left-turn movement is expected to operate at a **LOS B**. The northbound shared left-turn, right-turn movement is expected to operate at an acceptable **LOS E**.

Given the existing geometry in the 2015 No-Build Scenario, the westbound left-turn movement is expected to operate at a **LOS C**. The northbound shared left-turn, right-turn movement is expected to operate at an unacceptable **LOS F** due to all three of the above parameters not being met. This intersection may require signalization by 2015. If this intersection becomes signalized, it is expected to operate at an overall **LOS E** with some movements operating at capacity.

Given the existing geometry in the 2035 No-Build Scenario, the westbound left-turn movement is expected to operate at an unacceptable **LOS F** due to all three of the above parameters not being met. The northbound shared left-turn, right-turn movement is expected to operate at an unacceptable **LOS F** due to all three of the above parameters not being met. This intersection may require signalization by 2035. If this intersection becomes signalized, it is expected to operate at an overall **LOS F** with some movements operating over capacity.

NC 3 (Mooresville Road) at SR 1627 (Miller Road) - Unsignalized

Given the existing geometry in the 2008 No-Build Scenario, the eastbound shared left-turn, through movement is expected to operate at a **LOS A**. The southbound shared left-turn, right-turn movement is expected to operate at an acceptable **LOS E**.

Given the existing geometry in the 2015 No-Build Scenario, the eastbound shared left-turn, through movement is expected to operate at a **LOS B**. The southbound shared left-turn, right-turn movement is expected to operate at an unacceptable **LOS F** due to all three of the above parameters not being met. This intersection may require signalization by 2015. If this intersection becomes signalized, it is expected to operate at an overall **LOS F** with some movements operating over capacity.

Given the existing geometry in the 2035 No-Build Scenario, the eastbound shared left-turn, through movement is expected to operate at a **LOS A**. The southbound shared left-turn, right-turn movement is expected to operate at an unacceptable **LOS F** due to all three of the above parameters not being met. This intersection may require signalization by 2035. If this intersection becomes signalized, it is expected to operate at an overall **LOS F** with some movements operating over capacity.

NC 3 (Mooresville Road) at SR 1628 (Charlie Walker Road) - Unsignalized

Given the existing geometry in the 2008 No-Build Scenario, the eastbound shared left-turn, through movement is expected to operate at a **LOS A**. The southbound shared left-turn, right-turn movement is expected to operate at an acceptable **LOS E**.

Given the existing geometry in the 2015-No Build Scenario, the eastbound shared left-turn, through movement is expected to operate at a **LOS A**. The southbound shared left-turn, right-

turn movement is expected to operate at an unacceptable **LOS F** due to all three of the above parameters not being met. This intersection may require signalization by 2015. If this intersection becomes signalized, it is expected to operate at an overall **LOS E** with some movements operating over capacity.

Given the existing geometry in the 2035 No-Build Scenario, the eastbound shared left-turn, through movement is expected to operate at a **LOS C**. The southbound shared left-turn, right-turn movement is expected to operate at an unacceptable **LOS F** due to all three of the above parameters not being met. This intersection may require signalization by 2035. If this intersection becomes signalized, it is expected to operate at an overall **LOS F** with some movements operating over capacity.

NC 3 (Mooresville Road) at SR 1639 (Marion Avenue) - Unsignalized

Given the existing geometry in the 2008 No-Build Scenario, the eastbound shared left-turn, through movement is expected to operate at a **LOS A**. The southbound shared left-turn, right-turn movement is expected to operate at a **LOS C**.

Given the existing geometry in the 2015 No-Build Scenario, the eastbound shared left-turn, through movement is expected to operate at a **LOS A**. The southbound shared left-turn, right-turn movement is expected to operate at an acceptable **LOS F**.

Given the existing geometry in the 2035 No-Build Scenario, the eastbound shared left-turn, through movement is expected to operate at a **LOS A**. The southbound shared left-turn, right-turn movement is expected to operate at an unacceptable **LOS F** with a v/c ratio greater than 0.85 and a delay greater than 120 seconds. This intersection may require signalization by 2035. If this intersection becomes signalized, it is expected to operate at an overall **LOS F** with some movements operating over capacity.

NC 3 (Mooresville Road) at Tucker Avenue - Unsignalized

Given the existing geometry in the 2008 No-Build Scenario, the westbound shared left-turn, through movement is expected to operate at a **LOS A**. The northbound shared left-turn, right-turn movement is expected to operate at a **LOS C**.

Given the existing geometry in the 2015 No-Build Scenario, the westbound shared left-turn, through movement is expected to operate at a **LOS A**. The northbound shared left-turn, right-turn movement is expected to operate at an acceptable **LOS F**.

Given the existing geometry in the 2035 No-Build Scenario, the westbound shared left-turn, through movement is expected to operate at a **LOS A**. The northbound shared left-turn, right-turn movement is expected to operate at an unacceptable **LOS F** with a v/c ratio greater than 0.85 and a delay greater than 120 seconds. This intersection may require signalization by 2035. If this intersection becomes signalized, it is expected to operate at an overall **LOS F** with some movements operating over capacity.

NC 3 (Mooresville Road) at Bethpage Road - Unsignalized

Given the existing geometry in the 2008 No-Build Scenario, the westbound shared left-turn, through movement is expected to operate at a **LOS A**. The northbound shared left-turn, right-turn movement is expected to operate at an acceptable **LOS E**.

Given the existing geometry in the 2015 No-Build Scenario, the westbound shared left-turn, through movement is expected to operate at a LOS A. The northbound shared left-turn, right-turn movement is expected to operate at an unacceptable LOS F due to all three of the above parameters not being met. This intersection may require signalization by 2015. If this intersection becomes signalized, it is expected to operate at an overall LOS B.

Given the existing geometry in the 2035 No-Build Scenario, the westbound shared left-turn, through movement is expected to operate at a LOS B. The northbound shared left-turn, right-turn movement is expected to operate at an unacceptable LOS F due to all three of the above parameters not being met. This intersection may require signalization by 2035. If this intersection becomes signalized, it is expected to operate at an overall LOS F with some movements operating over capacity.

NC 3 (Mooresville Road) at Clifton Street - Unsignalized

Given the existing geometry in the 2008 No-Build Scenario, the westbound shared left-turn, through movement is expected to operate at a LOS A. The northbound shared left-turn, right-turn movement is expected to operate at a LOS C.

Given the existing geometry in the 2015 No-Build Scenario, the westbound shared left-turn, through movement is expected to operate at a LOS A. The northbound shared left-turn, right-turn movement is expected to operate at an acceptable LOS F.

Given the existing geometry in the 2035 No-Build Scenario, the westbound shared left-turn, through movement is expected to operate at a LOS A. The northbound shared left-turn, right-turn movement is expected to operate at an unacceptable LOS F due to all three of the above parameters not being met. This intersection may require signalization by 2035. If this intersection becomes signalized, it is expected to operate at an overall LOS E with some movements operating over capacity.

NC 3 (Mooresville Road) at Bailey Street - Unsignalized

Given the existing geometry in the 2008 No-Build Scenario, the eastbound shared left-turn, through movement is expected to operate at a LOS A. The southbound shared left-turn, right-turn movement is expected to operate at a LOS C.

Given the existing geometry in the 2015 No-Build Scenario, the eastbound shared left-turn, through movement is expected to operate at a LOS A. The southbound shared left-turn, right-turn movement is expected to operate at an acceptable LOS F.

Given the existing geometry in the 2035 No-Build Scenario, the eastbound shared left-turn, through movement is expected to operate at an acceptable LOS E. The southbound shared left-turn, right-turn movement is expected to operate at an unacceptable LOS F due to all three of the above parameters not being met. This intersection may require signalization by 2035. If this intersection becomes signalized, it is expected to operate at an overall LOS F with some movements operating over capacity.

NC 3 (Mooresville Road) at SR 1643 (Rainbow Drive) - Signalized

Given the existing geometry in the 2008 No-Build Scenario, this intersection is expected to operate at an overall LOS B.

Given the existing geometry in the 2015 No-Build Scenario, this intersection is expected to operate at an overall LOS C.

Given the existing geometry in the 2035 No-Build Scenario, this intersection is expected to operate at an overall LOS F.

NC 3 (Mooresville Road) at Red Street - Unsignalized

Given the existing geometry in the 2008 No-Build Scenario, the westbound shared left-turn, through movement is expected to operate at a LOS A. The northbound shared left-turn, right-turn movement is expected to operate at a LOS C.

Given the existing geometry in the 2015 No-Build Scenario, the westbound shared left-turn, through movement is expected to operate at a LOS A. The northbound shared left-turn, right-turn movement is expected to operate at an acceptable LOS F.

Given the existing geometry in the 2035 No-Build Scenario, the westbound shared left-turn, through movement is expected to operate at a LOS C. The northbound shared left-turn, right-turn movement is expected to operate at an unacceptable LOS F due to all three of the above parameters not being met. This intersection may require signalization by 2035. If this intersection becomes signalized, it is expected to operate at an overall LOS F with some movements operating over capacity.

NC 3 (Mooresville Road) at Franklin Avenue - Unsignalized

The following existing intersection includes three (3) side streets (Mason Street, Franklin Avenue, and Miller Street). The analysis did not include the volumes from Mason Street as they did not significantly influence the LOS of the intersection.

Given the existing geometry in the 2008 No-Build Scenario, the eastbound and westbound shared left-turn, through, right-turn movements are expected to operate at a LOS A. The northbound shared left-turn, through, right-turn movement is expected to operate at a LOS D. The southbound shared left-turn, through, right-turn movement is expected to operate at a LOS C.

Given the existing geometry in the 2015 No-Build Scenario, the eastbound and westbound shared left-turn, through, right-turn movements are expected to operate at a LOS A. The northbound shared left-turn, through, right-turn movement is expected to operate at an acceptable LOS F. The southbound shared left-turn, through, right-turn movement is expected to operate at an unacceptable LOS F with a v/c ratio greater than 0.85 and a delay greater than 120 seconds. This intersection may require signalization by 2015. If this intersection becomes signalized, it is expected to operate at an overall LOS B in 2015.

Given the existing geometry in the 2035 No-Build Scenario, the eastbound shared left-turn, through, right-turn movement is expected to operate at a LOS B. The westbound shared left-turn, through, right-turn movement is expected to operate at a LOS A. The northbound and

southbound shared left-turn, through, right-turn movements are expected to operate at an unacceptable LOS F due to all three of the above parameters not being met. This intersection may require signalization by 2035. If this intersection becomes signalized, it is expected to operate at an overall LOS F with some movements operating over capacity.

NC 3 (Mooresville Road) at Cypress Avenue - Unsignalized

Given the existing geometry in the 2008 No-Build Scenario, the eastbound shared left-turn, through movement is expected to operate at a LOS A. The southbound shared left-turn, right-turn movement is expected to operate at a LOS C.

Given the existing geometry in the 2015 No-Build Scenario, the eastbound shared left-turn, through movement is expected to operate at a LOS A. The southbound shared left-turn, right-turn movement is expected to operate at a LOS D.

Given the existing geometry in the 2035 No-Build Scenario, the eastbound shared left-turn, through movement is expected to operate at a LOS A. The southbound shared left-turn, right-turn movement is expected to operate at an unacceptable LOS F with a delay greater than 120 seconds. This intersection may require signalization by 2035. If this intersection becomes signalized, it is expected to operate at an overall LOS E with some movements operating at capacity.

NC 3 (Mooresville Road) at Pine Street - Unsignalized

Given the existing geometry in the 2008 No-Build Scenario, the eastbound shared left-turn, through movement is expected to operate at a LOS A. The southbound shared left-turn, right-turn movement is expected to operate at a LOS C.

Given the existing geometry in the 2015 No-Build Scenario, the eastbound shared left-turn, through movement is expected to operate at a LOS A. The southbound shared left-turn, right-turn movement is expected to operate at an unacceptable LOS F with a v/c ratio greater than 0.85 and a delay greater than 120 seconds. This intersection may require signalization by 2015. If this intersection becomes signalized, it is expected to operate at an overall LOS A.

Given the existing geometry in the 2035 No-Build Scenario, the eastbound shared left-turn, through movement is expected to operate at a LOS A. The southbound shared left-turn, right-turn movement is expected to operate at an unacceptable LOS F due to all three of the above parameters not being met. This intersection may require signalization by 2035. If this intersection becomes signalized, it is expected to operate at an overall LOS F with some movements operating over capacity.

NC 3 (Mooresville Road) at D Street - Unsignalized

Given the existing geometry in the 2008 No-Build Scenario, the eastbound and westbound shared left-turn, through, right-turn movements are expected to operate at a LOS A. The northbound shared left-turn, through, right-turn movement is expected to operate at a LOS C. The southbound shared left-turn, through, right-turn movement is expected to operate at a LOS D.

Given the existing geometry in the 2015 No-Build Scenario, the eastbound and westbound shared left-turn, through, right-turn movements are expected to operate at a LOS A. The

northbound and southbound shared left-turn, through, right-turn movements are expected to operate at an acceptable **LOS F**.

Given the existing geometry in the 2035 No-Build Scenario, the eastbound shared left-turn, through, right-turn movement is expected to operate at a **LOS A**. The westbound shared left-turn, through, right-turn movement is expected to operate at a **LOS B**. The northbound and southbound shared left-turn, through, right-turn movements are expected to operate at an unacceptable **LOS F** due to all three of the above parameters not being met. This intersection may require signalization by 2035. If this intersection becomes signalized, it is expected to operate at an overall **LOS F** with some movements operating over capacity.

NC 3 (Mooresville Road) at SR 1691 (N. Loop Road) - Signalized

Given the existing geometry in the 2008 No-Build Scenario, this intersection is expected to operate at an overall **LOS D**.

Given the existing geometry in the 2015 No-Build Scenario, this intersection is expected to operate at an overall **LOS F**.

Given the existing geometry in the 2035 No-Build Scenario, this intersection is expected to operate at an overall **LOS F**.

If you have any questions, please contact Elise Groundwater, Project Design Engineer, or me at (919) 773-2800.

EMH/ekg

cc: B. S. Moose, P.E. (Attention: J. S. Cole, P.E.)
J. A. Bennett, P.E. (Attention: R. D. Allen, P.E., CPM, G. E. Brew, P.E.)
T. Hart, P.E. (Attention: J. F. Bridges, P.E.)
J. K. Lacy, P.E., CPM
T. M. Hopkins, P.E. (Attention: A. D. Wyatt, P.E., PTOE, B. K. Mayhew, P.E.)
R. A. Mason
P. L. Alexander, P.E. (Attention: T. J. Williams, P.E.)
C. L. Evans (Attention: L. E. Neal, E. E. Honeycutt)
J. S. Bourne, P.E. (Attention: J. H. Dunlop, P.E.)
R. W. King, P.E.
E. W. Thomas, P.E.

Table 1: Levels-of-Service							
Intersection	No Build						
	Movement	2008	2015	2035			
NC 3 (Mooresville Road) at SR 1925 (Randolph Road)	EB L	A	B		C	A ¹	
	SB LR	B	E		F		
NC 3 (Mooresville Road) at SR 1624 (Kannapolis Parkway)	Signalized	C	C		F	F ¹	
NC 3 (Mooresville Road) at Boy Scout Camp Road	WB L	B	C	E ¹	F	F ¹	
	NB LR	E	F		F		
NC 3 (Mooresville Road) at SR 1627 (Miller Road)	EB LT	A	B	F ¹	A	F ¹	
	SB LR	E	F		F		
NC 3 (Mooresville Road) at SR 1628 (Charlie Walker Road)	EB LT	A	A	E ¹	C	F ¹	
	SB LR	E	F		F		
NC 3 (Mooresville Road) at SR 1639 (Marion Avenue)	EB LT	A	A		A	F ¹	
	SB LR	C	F		F		
NC 3 (Mooresville Road) at Tucker Avenue	WB LT	A	A		A	F ¹	
	NB LR	C	F		F		
NC 3 (Mooresville Road) at Bethpage Road	WB LT	A	A	B ¹	B	F ¹	
	NB LR	E	F		F		
NC 3 (Mooresville Road) at Clifton Street	WB LT	A	A		A	E ¹	
	NB LR	C	F		F		
NC 3 (Mooresville Road) at Bailey Street	EB LT	A	A		E	F ¹	
	SB LR	C	F		F		
NC 3 (Mooresville Road) at SR 1643 (Rainbow Drive)	Signalized	B	C		F	F ¹	
NC 3 (Mooresville Road) at Red Street	WB LT	A	A		C	F ¹	
	NB LR	C	F		F		
NC 3 (Mooresville Road) at Franklin Avenue	EB LTR	A	A	B ¹	B	F ¹	
	WB LT	A	A		A		
	NB TR	D	F		F		
	SB LTR	C	F		F		
NC 3 (Mooresville Road) at Cypress Avenue	EB LT	A	A		A	E ¹	
	SB LR	C	D		F		
NC 3 (Mooresville Road) at Pine Street	EB LT	A	A	A ¹	A	F ¹	
	SB LR	C	F		F		
NC 3 (Mooresville Road) at D Street	EB LTR	A	A		A	F ¹	
	WB LTR	A	A		B		
	NB LTR	C	F		F		
	SB LTR	D	F		F		
NC 3 (Mooresville Road) at SR 1691 (N. LOOP Road)	Signalized	D	F		F	F ¹	

Level-of-service of signalized intersection



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

January 15, 2009

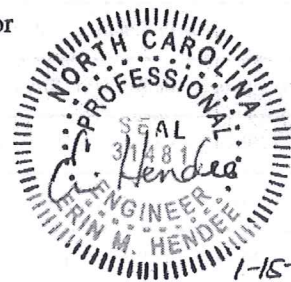
TIP Project: U-3440
Division: 10
County: Cabarrus
Description: Kannapolis - NC 3 (Mooresville Road) from Proposed West Side Bypass (U-2009) to SR1691 (Loop Road)

MEMORANDUM

TO: Gregory J. Thorpe, Ph.D., Environmental Management Director
Project Development and Environmental Analysis Branch
Kristina L. Solberg, P.E., Project Development Engineer

FROM: Erin M. Hendee, P.E., Project Design Engineer
Congestion Management Section

SUBJECT: 2015 and 2035 Build Capacity Analysis for TIP U-3440



The Congestion Management Section has completed a review of this project. As requested, we performed mainline and intersection analyses using the following forms of information to determine the levels-of-service (LOS).

- U-3440: 2015 and 2035 design year traffic projections provided by the Transportation Planning Branch, dated February 22, 2008, and
The North Carolina Research Campus: Traffic Impact Study prepared for Castle & Cooke by Kimley-Horn and Associates, Inc., dated November 2007.

Our recommendations and/or comments mentioned below include mainline and intersection analyses for the 2015 Build and 2035 Build Scenarios. Information regarding the 2008 No-Build, 2015 No-Build and 2035 No-Build was issued in our previous memorandum, dated November 3, 2008.

An electronic copy of this memorandum (in *.pdf format) can be found under the following directory:

\\Dot\dfsroot01\Proj\TIPProjects-U\U3440\Traffic\CongestionMgmt\Doc\Recommendations

MAINLINE ANALYSIS
NC 3 (Mooresville Road)

Projected mainline volumes along NC 3 (Mooresville Road) in the project area range from 11,800 vehicles per day east of Franklin Avenue to 16,800 vehicles per day east of Boy Scout Camp Road in 2015. Capacity analysis results indicate that the proposed four-lane median divided facility is expected to operate at a LOS D in 2015.

MAILING ADDRESS:
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RALEIGH NC 27699-1561

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WEBSITE: WWW.NCDOT.ORG

LOCATION:
750 NORTH GREENFIELD PARKWAY
GARNER NC 27529

Projected mainline volumes along NC 3 (Mooresville Road) in the project area range from 19,400 vehicles per day east of Franklin Avenue to 23,900 vehicles per day east of Tucker Avenue in 2035. Capacity analysis results indicate that the proposed four-lane median divided facility is expected to operate at a LOS F in 2035.

INTERSECTION ANALYSIS (2035 Build Conditions)

The Congestion Management Section analyzed two different scenarios throughout this project. These configurations include (1) a median divided facility with conventional intersections throughout NC 3 (Mooresville Road), and (2) a roundabout (single or dual lane) at NC 3 (Mooresville Road) and Franklin Avenue/Miller Street/Mason Street plus a median divided facility with conventional intersections. *Table 1*, attached, indicates the 2015 and 2035 levels-of-service for each analyzed intersection.

Congestion Management has included some intersections along NC 3 (Dale Earnhardt Boulevard) that are not part of the U-3440 project. We have included these intersections due to the proximity to NC 3 (Mooresville Road) and the additional traffic from The North Carolina Research Campus. *Table 1*, attached, indicates the 2015 and 2035 levels-of-service for each analyzed intersection.

Recommendations

Based on our analysis, we offer the following:

- We recommend that Mason Street be cul-de-sac'd before NC 3. Local traffic should be re-routed to Franklin Avenue for access to NC 3.
- We recommend a dual lane roundabout (four legged) at NC 3 and Franklin Avenue/Miller Street/Mason Street intersection.
- We recommend lane configurations and storages included in *Figure 1, Sheets 1 through 3*.

If you have any questions, please contact Elise Groundwater, Project Design Engineer, or me at (919) 773-2800.

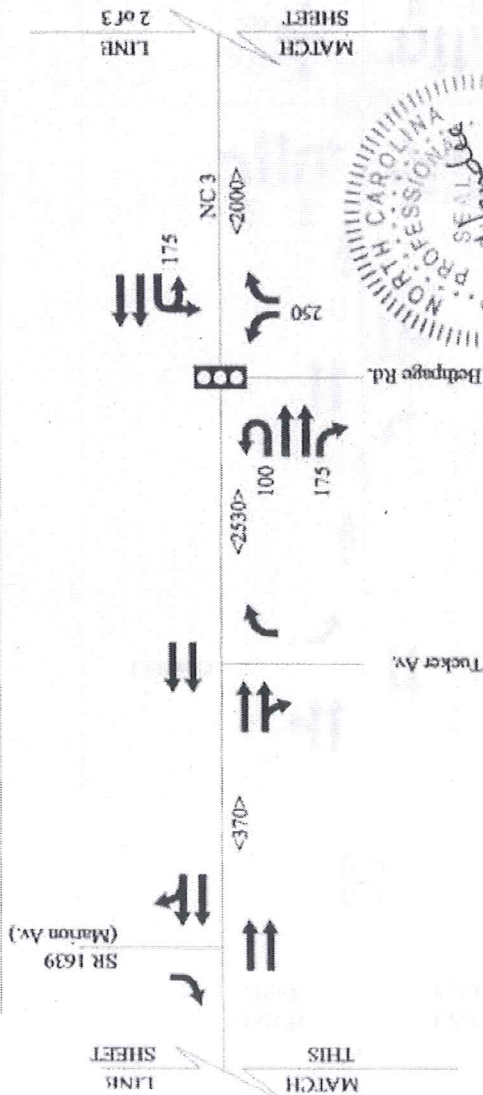
EMH/ekg

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R. W. King, P.E.
E. W. Thomas, P.E.

Table 1: Levels-of-Service						
Intersection	Build Scenarios					
	Movement		2015		2035	
NC 3 (Mooresville Road) at SR 1925 (Randolph Road)	SB	R	B		B	
NC 3 (Mooresville Road) at SR 1624 (Kannapolis Parkway)	Signalized		D ¹		E ¹	
NC 3 (Mooresville Road) at Boy Scout Camp Road	NB	R	B		D	
NC 3 (Mooresville Road) at SR 1627 (Miller Road)	EB	UL	B		D	B ¹
	SB	LR	F		F	
NC 3 (Mooresville Road) at SR 1628 (Charlie Walker Road)	Signalized		C ¹		B ¹	
NC 3 (Mooresville Road) at SR 1639 (Marion Avenue)	SB	R	B		C	
NC 3 (Mooresville Road) at Tucker Avenue	NB	R	B		B	
NC 3 (Mooresville Road) at Bethpage Road	EB	U	A	B ¹	C	B ¹
	WB	UL	B		C	
	NB	L	F		F	
	NB	R	B		C	
NC 3 (Mooresville Road) at Clifton Street	NB	R	B		C	
NC 3 (Mooresville Road) at Bailey Street	SB	R	B		B	
NC 3 (Mooresville Road) at SR 1643 (Rainbow Drive)	Signalized		C ¹		C ¹	
NC 3 (Mooresville Road) at Red Street	NB	R	B		B	
NC 3 (Mooresville Road) at Franklin Avenue	EB	LT	B	D ¹ A ²	C	D ¹ A ²
	WB	LT	B		D	
	NB	LTR	F		F	
	SB	LTR	F		F	
NC 3 (Mooresville Road) at Cypress Avenue	SB	R	B		C	
NC 3 (Mooresville Road) at Pine Street	SB	R	B		E	
NC 3 (Mooresville Road) at D Street	NB	R	C		C	
	SB	R	B		C	
NC 3 (Mooresville Road) at SR 1691 (N. LOOP Road)	Signalized		E ¹		F ¹	

Outside U-3440 Project Scope						
Intersection	Build Scenarios					
	Movement		2015		2035	
NC 3 (Dale Earnhardt Blvd.) at Juniper Street	EB	LTR	F	C ¹	F	D ¹
	WB	LTR	F		F	
	NB	L	B		D	
	SB	L	B		C	
NC 3 (Dale Earnhardt Blvd.) at Chestnut Street	EB	LTR	D		F	
	WB	LTR	C		F	
	NB	L	B		B	
	SB	L	B		C	
NC 3 (Dale Earnhardt Blvd.) at Central Avenue	EB	LR	C		C	
	NB	LT	A		A	
NC 3 (Dale Earnhardt Blvd.) at Vance Street	Signalized		B ¹		B ¹	

¹ Level-of-service of signalized intersection² Level-of-service of Dual Lane Roundabout



NC 3 from SR 1624 (Kannapolis Pkwy.)
to SR 1691 (Loop Rd.)

TIP: U-3440

FIGURE 1

Roundabout

Recommended Language

Recommended Laneage

Outside U-3440 Scope

Proposed Signal - 2035 Design Year

Exist. or

Storage

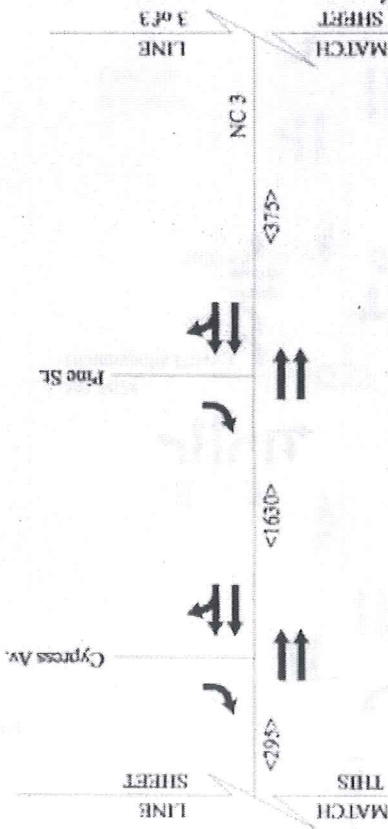
Distance Between Interactions

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Drawing Not to Scale

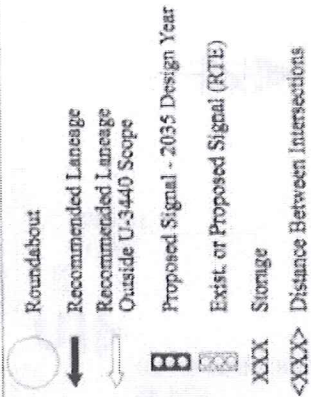
All Distances in Feet

1/15/08 ekg



NC 3 from SR 1624 (Kannapolis Pkwy.)
to SR 1691 (Loop Rd.)
TIP: U-3440

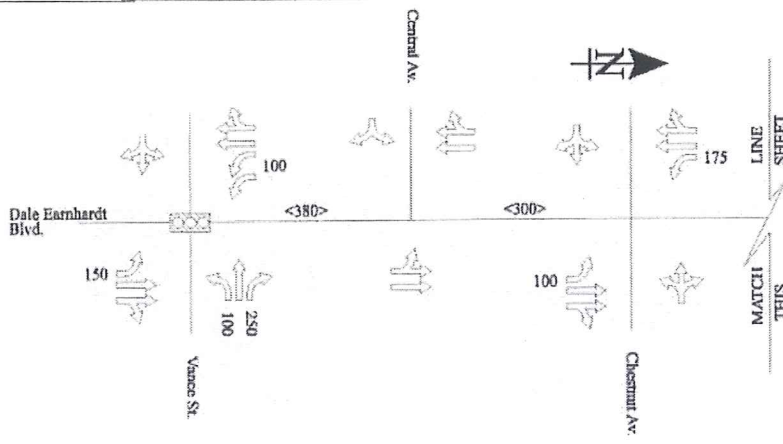
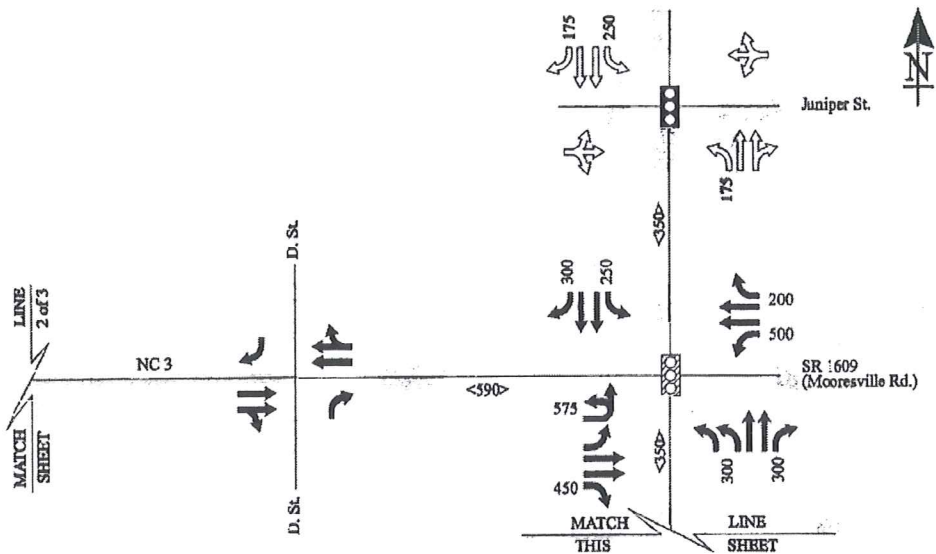
FIGURE 1



Sheet 2 of 3

11/5/08 ekj

60-51-1



2035 Design Year

NC 3 from SR 1624 (Kannapolis Pkwy.) to SR 1691 (Loop Rd.)

TIP: U-3440

FIGURE 1

- Roundabout
- Recommended Laneage
- Recommended Laneage Outside U-3440 Scope
- Proposed Signal - 2035 Design Year
- Exist. or Proposed Signal (RTB)
- Storage
- Distance Between Intersections

