

Rogers Lake Road Grade Separation over NCRR Railroad

City of Kannapolis, Cabarrus County, NC
Federal Aid Project No. TCSP-1034(18)
State WBS Project No. 40325.1.4
STIP Project No. Y-4810K

ENVIRONMENTAL ASSESSMENT

Submitted Pursuant to the National Environmental Policy Act
42 USC 4332(2)(c)

US Department of Transportation
Federal Highway Administration

and

North Carolina Department of Transportation
Rail Division



10/22/2014
Date

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PROJECT COMMITMENTS

During the National Environmental Policy Act (NEPA) process, commitments are made to avoid, minimize, or mitigate Project impacts. Commitments result from public comment or through the requirements of, or agreements with, environmental resource and regulatory agencies.

NCDOT will comply with applicable Federal and state requirements and regulations, such as: Nationwide Permit Conditions, Regional Conditions, and State Consistency Conditions; North Carolina Department of Transportation (NCDOT) *Guidelines for Best Management Practices for the Protection of Surface Waters* and General Certification Conditions; and the Endangered Species Act. Other special project commitments have been agreed to by the NCDOT, as follows.

- During construction activities, NCDOT will coordinate with Kannapolis City Schools regarding bus routes

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EXECUTIVE SUMMARY

BACKGROUND

The Piedmont Improvement Program (PIP) is an initiative by the North Carolina Department of Transportation (NCDOT), the Norfolk Southern Railway (NS) and the North Carolina Railroad (NCR) to improve passenger and freight railroad operations along the NCR Piedmont Corridor from Raleigh to Charlotte. The NCR Piedmont Corridor consists of the Greensboro to Charlotte portion of the NS Mainline from Washington, DC and Atlanta, and the Greensboro to Raleigh portion of the NCR H-line.

The PIP primarily consists of railroad capacity projects and crossing safety projects that will facilitate the introduction of up to six daily round trip (12 daily) passenger trains along the Raleigh to Charlotte Piedmont Corridor. The proposed Rogers Lake Road Grade Separation Project (Project) is not a component of the PIP, however it supports the goals of the PIP.

NCR is a 317-mile, state-owned corridor linking Charlotte, Greensboro and Raleigh and extending to Morehead City. NS operates trains along the entire corridor under a lease agreement with the NCR. Amtrak operates two passenger train services, the Carolinian and the Piedmont, along the NCR with a total of three round trips per day (six passenger trains per day) passing through the project area.

The NCR Piedmont Corridor is part of the federally designated Southeast High Speed Rail (SEHSR) corridor connecting Washington, DC and Atlanta thru Richmond, Raleigh, Greensboro, and Charlotte.

A proposed grade separation at Rogers Lake Road is included in the Cabarrus-Rowan Metropolitan Planning Organization (CRMPO) Comprehensive Transportation Plan dated August 24, 2011 and listed as a priority in the CRMPO 2040 Metropolitan Transportation Plan (MTP). The 2040 MTP includes the Rogers Lake Road Grade Separation Study as TIP Project U-4702 on the Project List for the 2012 to 2015 horizon years. There are no design or construction dollars allocated for the project.

The Project is not included in the current NCDOT 2012-2018 State Transportation Improvement Program (STIP); however, NCDOT, in coordination with local officials, is currently reprioritizing all transportation projects. Projects are evaluated based on their merit through an analysis of the existing and future conditions, the benefits the project is expected to provide, the project's multi-modal characteristics, and how the project fits in with local priorities. The outcome of the Strategic Prioritization Process serves as input to the Draft STIP. TIP Project U-4702 is included in the reprioritization process as a Division Needs project.

PROJECT PURPOSE

The purpose of the Project is to improve vehicular mobility and safety and the efficiency of train traffic in the area around the Rogers Lake Road at-grade crossing of the NCR/NS track in the Town of Kannapolis in Cabarrus County, North Carolina.

This Project will also facilitate and support future increased passenger rail service for the NCR Piedmont Corridor. NCDOT proposes to add two daily round trips between Raleigh and Charlotte, making a total of five daily round trips.

PROPOSED ACTION

The NCDOT Rail Division proposes to improve vehicular mobility, vehicular and train safety, and the efficiency of train traffic in the area around the Rogers Lake Road crossing of the NCRR/NS track in Cabarrus County, North Carolina through the following actions:

- Replace the at-grade rail crossing at Rogers Lake Road with a grade-separated crossing, increasing safety by eliminating train-vehicle conflicts and reducing train horn noise. This also will improve mobility for vehicles by removing the need to stop for passing trains.
- As a consequence of constructing a grade separation at Rogers Lake Road, other anticipated improvements include closure/realignment of intersecting side streets due to grade considerations and potential widening for turn lanes to accommodate diverted traffic.

NEED FOR PROJECT

As discussed in more detail in **Section 1.5**, the primary needs for the proposed Project are summarized below.

The existing Rogers Lake Road crossing of the NCRR/NS main line track is an at-grade crossing. Typically, six passenger trains per day and 49 freight trains per day cross Rogers Lake Road. At present, vehicle traffic along Rogers Lake Road traveling through the at-grade railroad crossing must stop for passing trains, creating frequent delays. The crossing at Rogers Lake Road also has the potential for accidents between automobiles and freight and passenger trains. Providing a grade separation for the at-grade Rogers Lake Road crossing will eliminate the potential for motor vehicle/train collisions, which will improve safety for both road and rail traffic.

ALTERNATIVES CONSIDERED

Chapter 2 discusses all alternatives considered for the proposed action. Detailed study alternatives include the No-Build Alternative and three Preliminary Build Alternatives (Preliminary Build Alternative 1 – Southern Alignment, Preliminary Build Alternative 2 – Central Alignment, and Preliminary Build Alternative 3 – Northern Alignment). Preliminary Build Alternative 2 is NCDOT's Preferred Alternative. Each alternative is described below and shown in **Figure 2-1** thru **2-3**.

Alternatives Eliminated from Consideration. A range of alternatives was considered for this Project, with some eliminated from further consideration when NCDOT determined they would not meet the purpose and need for the Project and/or were not reasonable due to cost, impacts, or community disruption. These alternatives included building a grade-separated crossing farther south at Dakota Street and building an underpass within the corridor of the Rogers Lake Road existing at-grade crossing.

No-Build Alternative. The analysis of the No-Build Alternative is required under the National Environmental Policy Act (NEPA) and serves as a benchmark against which the impacts of other alternatives can be compared. The No-Build Alternative would not make any improvements to the existing at-grade crossing, except for regular maintenance. The No-Build Alternative would not meet the Project's purpose and need to reduce the potential for vehicle/train collisions, or improve efficiency for trains or motor vehicles.

Preliminary Build Alternatives. The Preliminary Build Alternatives (Preliminary Build Alternative 1, Preliminary Build Alternative 2, and Preliminary Build Alternative 3) would provide a

grade-separated bridge over the railroad tracks at Rogers Lake Road. Preliminary Build Alternative 1 would construct the grade separation to the south of the existing Rogers Lake Road at-grade crossing. Preliminary Build Alternative 2 would construct the grade separation slightly to the north of the existing Rogers Lake Road at-grade crossing. Preliminary Build Alternative 3 would construct the grade separation farther to the north of the existing Rogers Lake Road at-grade crossing.

Preferred Alternative. Each Preliminary Build Alternative was compared to identify the Preferred Alternative, as discussed in detail in **Section 2.5**.

Based on the information available to date, including this EA, NCDOT's Preferred Alternative is Preliminary Build Alternative 2. Preliminary Build Alternative 2 is preferred over Preliminary Build Alternatives 1 and 3 because Preliminary Build Alternative 2 is the least expensive to construct and has less residential relocations than Alternative 1 and more closely follows the existing alignment than Alternative 3 resulting in lesser impacts to existing travel patterns.

SUMMARY OF IMPACTS

This section summarizes the estimated direct and indirect impacts to the human, physical, cultural, and natural environments from the No-Build and Preferred Alternative, and identifies proposed mitigation for the Preferred Alternative. In accordance with the National Environmental Policy Act (NEPA) (40 CFR 1502.14(d)) and FHWA guidance (Technical Advisory T 6640.8A; p. 16), the No-Build Alternative is given full consideration in this EA to provide a baseline for comparison with the Build Alternatives.

NO-BUILD ALTERNATIVE

The No-Build Alternative would incur neither right-of-way acquisition nor construction costs. There would be no short-term disruptions along the existing roadway and railroad during construction. There would be no impacts to streams, wetlands, or other natural and cultural resources, nor any residential or business relocations.

However, the No-Build Alternative would not meet the Project's purpose and need. The No-Build Alternative would not improve safety, efficiency, or mobility for train and vehicular traffic at the Rogers Lake Road crossing.

PREFERRED ALTERNATIVE

Impacts for the Preferred Alternative are summarized in **Table ES-1** in the order they appear in this EA, along with a listing of the sections where they are described in more detail, including proposed mitigation, if applicable. The estimated cost for construction, and utilities relocation for the Preferred Alternative is approximately \$12.6 million, which is the least expensive of the Preliminary Build Alternatives studied in detail.

TABLE ES-1. Summary of Impacts from the Preferred Alternative

Impact Area	EA Sections Containing More Detail	Summary of Impact	Proposed Mitigation
Consistency with Land Use and Transportation Local Plans	4.1.1	No Impact. The Preferred Alternative is consistent with area land use and transportation plans, but not currently included in the STIP nor is design or construction included in the Cabarrus Rowan MPO Draft 2040 Metropolitan Transportation Plan..	Not applicable.
Relocations	4.1.2	Moderate Impact. The Preferred Alternative would require 51 residential relocations and 7 business relocations.	NCDOT will use three programs to minimize the inconvenience of relocation: Relocation Assistance, Relocation Moving Payments, and Relocation Replacement Housing Payments or Rent Supplement. These programs are in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970. Comparable replacement housing is available in the Project area for displaced homeowners and tenants.
Communities and Neighborhoods	4.1.3	Minor Positive Effect and Minor Impact. Existing communities and neighborhoods would not be divided internally or from one another by physical or psychological barriers as a result of the Preferred Alternative. The grade separation with bike lanes and sidewalks would provide improved access between the residences east and west of the railroad tracks and the businesses along South Main Street. The Preferred Alternative would result in minor access changes for some homes and businesses.	Not applicable.
Environmental Justice	4.1.4	No Disproportionately High and Adverse Impact. Minority and low-income populations meeting the criteria for Environmental Justice were identified in the Demographic Study Area. However, the Preferred Alternative would not result in disproportionately high and adverse effects to any low-income or minority populations as documented in the <i>Y-4810K Community Impact Assessment</i> , June 2014.	Not applicable.
Community Services	4.1.5	No Impact. The Preferred Alternative would not impact any community facilities or services.	Not applicable.
Public Health and Safety	4.1.5	Positive Effect. The Preferred Alternative would benefit public safety by providing a grade-separated crossing at Rogers Lake Road,	Not applicable.

TABLE ES-1. Summary of Impacts from the Preferred Alternative

Impact Area	EA Sections Containing More Detail	Summary of Impact	Proposed Mitigation
		eliminating the possibility of train/auto collisions at this location and eliminate possible emergency response delays due to train traffic.	
Section 4(f) and Section 6(f) Resources	3.1.4	No impact. There are no Section 4(f) or Section 6(f) resources in the Project study area.	Not applicable.
Economic Effects and Energy Use	4.1.6	Minor Impact and Minor Benefit. The project would not result in any major economic gains or losses in the area. However, the Preferred Alternative would displace 7 businesses, which may have a minor temporary negative economic impact in the area until the businesses are reestablished. The project also would have a minor positive impact by supporting construction jobs temporarily during construction. The Preferred Alternative would result in a temporary increase in energy use during the construction phase. However, the grade separation would improve operations for freight and passenger trains passing through the crossing and eliminate the need for vehicles to idle while waiting for trains to pass through the at-grade crossing.	Not applicable.
Noise	4.2.1	Minor Impact. Vehicle traffic noise from the Preferred Alternative is predicted to impact 12 noise receptors due to traffic noise levels that meet or exceed FHWA noise abatement criteria. Trains are required to sound a horn at all at-grade crossings. The Preferred Alternative will result in a decrease in train horn noise due to the removal of the at-grade crossing at Rogers Lake Road.	Not applicable. Noise abatement would not be feasible in the area where the noise impacts occur.
Air Quality	4.2.2	No Impact. No air quality impacts are anticipated due to the Preferred Alternative. Potential benefit from reduction in vehicle idling time at crossing.	Not applicable.
Farmland	3.2.3	No Impact. The Farmland Protection Policy Act (FPPA) does not apply to soils in the Project area because it is located in an area designated as urban by the US Census.	Not applicable.

TABLE ES-1. Summary of Impacts from the Preferred Alternative

Impact Area	EA Sections Containing More Detail	Summary of Impact	Proposed Mitigation
Utilities	4.2.3	Minor Impact. The Preferred Alternative is anticipated to require relocation of electrical power lines, sewer lines, and water lines.	NCDOT will coordinate with all utility providers during final design and construction to prevent damage to utility systems and to minimize disruption and degradation of utility service to local customers.
Visual and Aesthetic Resources	4.2.4	Minor Impact. Minor changes in the visual landscape would occur as a result of the project.	It is NCDOT policy to include aesthetic features and landscaping in its roadway designs when practicable and cost-effective. Inclusion of treatments such as coloring of structural elements, buffer areas, and landscaped screening can minimize aesthetic impacts of transportation features.
Hazardous Materials	4.2.5	Minor Impact. The Preferred Alternative has the potential to impact four known hazardous materials sites. All sites are anticipated to have a low potential for geoenvironmental impacts.	The NCDOT Geoenvironmental Unit will complete further assessments prior to right-of-way acquisition, as necessary.
Floodplains	4.2.6	No Impact. There are no floodplains or floodways in the Project study area.	Not applicable.
Cultural Resources	4.3	No Impact. There are no known significant historic architectural or archaeological resources within the Preferred Alternative study area, as confirmed by the State Historic Preservation Officer.	Not applicable.
Biotic Communities and Wildlife	4.4.1	Minor Impact. The Preferred Alternative would result in permanent impacts to 0.3 acres of upland forest and 14.6 acres of maintained/disturbed areas. No significant habitat fragmentation is expected.	Not applicable.
Water Quality	4.4.2	No Impact. No impacts to water quality are expected as a result of the Preferred Alternative, which would not directly impact any surface waters.	Prior to construction, an erosion and sedimentation control plan will be developed to control stormwater runoff in accordance with NCDENR regulations and NCDOT <i>Best Management Practices for the Protection of Surface Waters</i> .
Jurisdictional Resources (wetlands, streams, and ponds)	4.4.3	No Impact. The Preferred Alternative would not impact any jurisdictional resources.	Not applicable.

TABLE ES-1. Summary of Impacts from the Preferred Alternative

Impact Area	EA Sections Containing More Detail	Summary of Impact	Proposed Mitigation
Protected Species	4.4.4	No Impact. The Preferred Alternative would not impact any Federally-protected species.	Not applicable.
Indirect and Cumulative Effects	4.5	Minor Impact and Minor Benefit. The Preferred Alternative would result in minor changes to local travel patterns. The improved efficiency of train operations as a result of the grade-separated crossing would provide an overall benefit to the regional economy. There are no cumulative effects anticipated due to the Preferred Alternative.	Not applicable.
Construction Impacts	4.6	Minor Impact. Temporary impacts could occur to air quality, noise, waste generation, utilities, maintenance of traffic, and wildlife.	<p>The contractor will be responsible for controlling dust at the project site and at areas affected by the construction.</p> <p>Earth removal, grading, hauling, paving, and pile driving activities will generate noise. Where practicable, NCDOT will limit construction activities to weekday daytime hours in the vicinity of residences.</p> <p>Waste generated during construction will be properly disposed of in accordance with State and local regulations.</p> <p>Maintenance of traffic and sequencing of construction will be planned and scheduled so as to minimize traffic delays within the Project area.</p> <p>Impacts to wildlife will be minimized as much as possible by restricting land clearing and construction operations to within the project’s right of way. NCDOT will encourage the contractor to locate off-site staging and stockpiling to disrupt the least amount of natural habitat area.</p>

Modified Design for the Preferred Alternative

At the request of the City of Kannapolis, additional design was conducted for the Preferred Alternative to add a round-a-bout on the west side of the grade separation (**Figure 2-5**). A qualitative analysis was conducted on this design modification to identify any notable changes to resource impacts associated with Preliminary Build Alternative 2. It was determined that if similar design modifications were made to the other Preliminary Build Alternatives, any changes in resource impacts would be comparable to those identified for Preliminary Build Alternative 2.



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1.0 PURPOSE AND NEED

1.1 INTRODUCTION AND PROJECT HISTORY

Introduction. The North Carolina Department of Transportation (NCDOT) Rail Division, in conjunction with the Federal Highway Administration (FHWA), proposes to construct a grade separation carrying Rogers Lake Road (SR 1625) over the North Carolina Railroad (NCR). The Project is located in Kannapolis in Cabarrus County, as shown on **Figure 1-1**.

The proposed Project is along the Preferred Alternative for the Southeast High Speed Rail (SEHSR) corridor as determined by the Federal Railroad Administration (FRA) in the Record of Decision (ROD) for the Tier I SEHSR Environmental Impact Statement (EIS). This corridor connects the northeastern states and Washington, DC through Richmond, Virginia to Raleigh and Charlotte, NC to Atlanta, GA. In Atlanta, the SEHSR extends southeast to Savannah, GA and Jacksonville, FL; and southwest along the Gulf Coast High Speed Rail corridor. For the NC portion of the SEHSR, NCDOT is preparing individual project-level NEPA documents, including this EA. FRA and NCDOT have determined that the individual projects each have independent utility; that is, each project will provide tangible benefits to existing freight and passenger rail service even if no additional investments are made for high-speed service. Regardless of future high-speed rail development, the proposed Rogers Lake Road Grade Separation Project would provide benefits to schedule reliability, train speeds, and overall rail capacity and rail and vehicular safety. The respective NEPA documents provide more details on the independent utility of each project.

At the state level, the Piedmont Improvement Program (PIP) is an initiative by the NCDOT, NS and the NCR to improve passenger and freight railroad operations along the NCR Piedmont Corridor from Raleigh to Charlotte. The NCR Piedmont Corridor consists of the Greensboro to Charlotte portion of the NS Mainline from Washington, DC and Atlanta, and the Greensboro to Raleigh portion of the NCR H-line. The PIP primarily consists of railroad capacity projects and crossing safety projects that will facilitate the addition of two daily round trip passenger trains along the Raleigh to Charlotte Piedmont Corridor. The proposed Rogers Lake Road Grade Separation Project (Project) is not a component of the PIP, however, it supports the goals of both the PIP and the SEHSR.

A proposed grade separation at this location is included in the CRMPO Comprehensive Transportation Plan dated August 24, 2011. The CRMPO 2040 Metropolitan Transportation Plan includes the Rogers Lake Road Grade Separation Study as TIP Project U-4702 on the Project List for the 2012 to 2015 horizon years.

The Project is not included in the current NCDOT 2012-2018 State Transportation Improvement Program (STIP); however, NCDOT, in coordination with local officials, is currently reprioritizing all transportation projects. Projects are evaluated based on their merit through an analysis of the existing and future conditions, the benefits the project is expected to provide, the project's multi-modal characteristics and how the project fits in with local priorities. The outcome of the Strategic Prioritization Process serves as input to the Draft STIP. TIP Project U-4702 is included in the reprioritization process as a Division Needs project.

Project History. Construction of a grade separation at the Rogers Lake Road crossing of the NCR was previously included in the NCDOT State Transportation Improvement Program (STIP) as Y-4810K. NCDOT completed a feasibility study in 2001 which recommended providing a railroad

grade separation at the Rogers Lake Road crossing. The City of Kannapolis received grant funding in 2009 from the Federal Highway Administration (FHWA) for continued project development including National Environmental Policy Act (NEPA) documentation and design activities for the Rogers Lake Road grade separation project. The grant funding was issued for the project to include the closure of the existing Winecoff School Road at-grade crossing located approximately two miles south of the Rogers Lake Road Crossing. Local officials expressed concern with the closure of this crossing and requested an additional grade separated crossing be provided in the vicinity of Mt. Olivet Road. As a result, NCDOT removed the closure of the Winecoff School Road crossing from STIP Project Y-4810K. The removal of the Winecoff School Road at-grade crossing and construction of a new grade-separated crossing in the vicinity of Mt. Olivet Road are now included as part of the I-85 Widening Project (STIP Project I-3802).

1.2 PROJECT PURPOSE

The purpose of the Project is to improve vehicular mobility and safety and the efficiency of train traffic in the area around the Rogers Lake Road at-grade crossing of the NCR/NS track in Cabarrus County, North Carolina.

This Project also facilitates and supports future increased passenger rail service for the NCR/NS Piedmont Corridor. NCDOT proposes to add two daily round trips between Raleigh and Charlotte, making a total of five daily round trips (NCDOT website: www.ncdot.gov/projects/pip).

1.3 PROPOSED ACTION

The NCDOT Rail Division proposes to improve vehicular mobility, vehicular and train safety, and the efficiency of train traffic in the area around the Rogers Lake Road crossing of the NCR/NS track in Cabarrus County, North Carolina through the following actions:

- Replace the at-grade rail crossing at Rogers Lake Road with a grade-separated crossing.
- As a consequence of constructing a grade separation at Rogers Lake Road, other anticipated improvements include closure/realignment of intersecting side streets due to grade considerations and potential widening for turn lanes to accommodate rerouted traffic.

1.4 PROJECT SETTING

Figure 1-1 shows the general Project vicinity and **Figure 1-2** shows the Project study area. The proposed Project is located in the City of Kannapolis in northern Cabarrus County.

The Project study area extends just over one-half mile east to Dale Earnhardt Boulevard and just over one-half mile west to Oakwood Avenue from the existing Rogers Lake Road at-grade railroad crossing. To the north, the boundary extends along Cook Street. The southern boundary of the Project study area extends to Brook Street.

Elevations within the Rogers Lake Road portion of the Project study area range from approximately 750 feet National Geodetic Vertical Datum (NGVD) at the eastern and western ends to approximately 775 feet NGVD near the rail crossing.

Commercial land uses are located in the portions of the study area adjacent to the railroad tracks along South Main Street and South Ridge Avenue. Land use in the eastern and western portions of

the Project study area is generally residential, consisting largely of older single-family homes with a few multi-family structures.

1.5 NEED FOR PROJECT

1.5.1 IMPROVE EFFICIENCY FOR TRAIN TRAFFIC

The NCR/NS rail line through the project study area is the preferred corridor for the SEHSR, which would provide passenger rail service between Washington, DC and Charlotte at a maximum speed of 110 mph. Providing a grade separation for the Rogers Lake Road intersection would eliminate the potential for delay to train operations at this location and, in conjunction with other grade separation and double tracking projects across the state as part of the SEHSR and PIP would improve schedule reliability, train speeds, and overall rail capacity and safety.

According to FHWA's *Railroad-Highway Grade Crossing Handbook*, (August 2007), "it is desirable that all crossings located on high-speed rail corridors either be closed, grade-separated or equipped with automatic gates." Grade separating Rogers Lake Road from the railroad improves the efficiency of train traffic by eliminating the potential for collisions with motor vehicles on this preferred corridor of the SEHSR.



Rogers Lake Road Crossing

1.5.2 IMPROVE RAIL AND ROAD SAFETY

The crossing of Rogers Lake Road by the NCR/NS rail line is an at-grade intersection and has the potential for collisions between automobiles and freight and passenger trains. Between August 2008 and July 2011, there were two crashes at the Rogers Lake Road rail crossing. Both crashes involved rear-end collisions between automobiles. Providing a grade separation for the Rogers Lake Road intersection will eliminate the potential for vehicle/train collisions and collisions between vehicles waiting at the crossing, which will improve safety for both road and rail traffic.

1.5.3 IMPROVE TRAFFIC FLOW FOR ROAD TRAFFIC

At present, traffic along Rogers Lake Road passing through the at-grade crossing with the railroad tracks must stop for passing trains. According to staff with NCDOT Rail Operations and Facilities, approximately 34-36 freight trains cross Rogers Lake Road each day (personal communication, September 2014). In addition, there are six passenger trains per day that cross Rogers Lake Road (<http://www.amtrak.com/ccurl/391/440/Carolian-Piedmont-Schedule-060914.pdf>). These operations contribute to vehicular delays and have a negative effect on traffic flow. Grade separating the Rogers Lake Road intersection with the railroad eliminates the need for vehicles to stop and wait for passing trains.

1.6 RAIL AND ROADWAY CHARACTERISTICS

1.6.1 EXISTING RAIL NETWORK

The NCRR is a 317-mile-long rail corridor that extends from Charlotte through Greensboro and Raleigh to the State Port at Morehead City. NS is the leasing freight operator of the railroad and has exclusive rights to the track as freight operator. Although NS does not own the railroad tracks or the right of way, NS is responsible for maintaining the track and signal infrastructure in order to ensure a safe rail transportation system.

The rail corridor crosses the state and connects with corridors that serve interstate rail trips. The rail corridor through the Project study area contains dual tracks.

1.6.2 REGIONAL RAIL SERVICE

Existing Service. Typically, 40-42 trains pass through the Project study area during each 24-hour period. Six of the trains are passenger trains and 34-36 are freight trains.

Currently, six daily Amtrak-operated passenger trains pass through the Project study area. Four (two round-trip) Raleigh-to-Charlotte *Piedmont* trains and two (one round-trip) Charlotte-to-New York *Carolinian* trains pass through the Project area.

Freight trains consist of three types: through trains, local trains, and unit trains. Through trains carry freight long distances, and these are the types of freight trains that typically pass through the Project study area. Local trains serve industries located adjacent to the rail line while unit trains carry one material such as grain or coal. Local trains and unit trains may also pass through the Project study area.

Southeast High-Speed Rail. The NCRR rail line through the Project study area is part of the preferred study corridor for the SEHSR project (www.sehsr.org). The SEHSR project will provide passenger rail service between Washington, DC and Charlotte at speeds of 90-110 mph. Service eventually may extend to South Carolina, Georgia, and Florida. The SEHSR corridor connects to the Northeast Corridor via Washington, DC to Philadelphia, New York, and Boston.

The SEHSR corridor is one of eleven nationally designated high speed rail corridors in the United States. In October 2002, North Carolina, Virginia, the FHWA, and the FRA completed the required Tier I of a two-tiered environmental study for the Washington, DC to Charlotte portion of the SEHSR. The SEHSR Tier I EIS and Record of Decision can be viewed at <http://www.sehsr.org/reports.html>.

Virginia and North Carolina are now proceeding with the next phase (Tier II) of the corridor study, which provides a detailed analysis of the impacts, including track location, station arrangement and detailed design. For the portion of the SEHSR corridor from Charlotte to Raleigh, rather than a single large document, NCDOT is preparing smaller Tier II environmental studies for specific segments of the route where track work would be needed. The Washington, DC to Charlotte portion

of the SEHSR corridor could be implemented between 2018 and 2022, depending on funding availability¹.

1.6.3 EXISTING ROAD NETWORK

I-85 runs generally parallel to the rail corridor and is located approximately 2 miles south of the Project study area (**Figure 1-1**). I-85 is a major north-south link through North Carolina that passes through major cities such as Charlotte, Greensboro, and Durham.

Dale Earnhardt Boulevard is a two-lane connector that forms the eastern boundary of the Project study area. It runs generally northwest-southeast between Kannapolis to the north and I-85 to the south.

Rogers Lake Road is a two-lane, east-west collector in Kannapolis providing connections to multiple north-south streets throughout the city. Rogers Lake Road terminates at Dale Earnhardt Boulevard at the eastern end of the Project study area. Within the Project study area, Rogers Lake Road has signalized intersections with Main Street (just west of the rail crossing) and Oakwood Avenue (western boundary of the Project study area). Approximately two miles west of the Project study area, Rogers Lake Road terminates at Kannapolis Parkway and the Kellswater Commons master planned development.

South Ridge Avenue is a primary north-south route through the project study area. South Ridge Avenue is a two-lane arterial that runs north-south along the west side of the railroad tracks. South Ridge Avenue crosses I-85 just over two miles south of the Rogers Lake Road crossing and terminates at Concord Parkway (US 601). It also continues approximately two miles north of the Project study area and terminates at North Cannon Boulevard (US 29) on the north side of Kannapolis.

South Main Street is another primary north-south route through the Project study area. South Main Street (US 29 Alt) is a two-lane arterial that runs north-south along the east side of the railroad tracks. South Main Street crosses I-85 just over two miles south of the Rogers Lake Road crossing and terminates at Concord Parkway (US 601). South Main Street continues north of the Project study area through the towns of Landis and China Grove and then becomes US 29.

Oakwood Avenue forms the western boundary of the project study area and is a two-lane, north-south urban arterial that extends through residential areas and past Kannapolis Middle School approximately two miles south to North Cabarrus Park and extends approximately one-half mile north of Rogers Lake Road.

1.6.4 COMMUTING PATTERNS

The project study area is located south of downtown Kannapolis and approximately 20 miles northeast of Charlotte. The North Carolina Research Campus is a major employment center in Kannapolis and is located approximately two miles north of the project study area. The Project study area is generally suburban and includes mainly low and medium-density residential development. Due to the residential nature of the project study area, the general commuting pattern consists of people commuting out of the study area in the morning to travel to work, and commuting

¹ SEHSR website: www.sehsr.org/history.html

into the study area in the evening to return home. For commuters traveling to jobs in Kannapolis, Rogers Lake Road connects to South Main Street and Dale Earnhardt Boulevard, both of which run north into downtown Kannapolis. For commuters traveling to Concord and Charlotte, these roads also provide access to I-85 to the south.

Table 1-1 shows the commuting patterns by means of transportation to work from the American Community Survey (2007-2011, 5-Year Estimates). The Demographic Study Area (DSA) includes the 2010 Census Block Groups (BG) that contain the Project study area. As shown in **Table 1-1**, the DSA had a slightly higher percentage of people driving alone to work when compared to the State and close to the same percentage as Cabarrus County. The percentage of people in block groups in the DSA that carpool to work ranged from 1.8 percent to 14.6 percent, and the percentage using public transportation ranged from zero to 0.9 percent.

TABLE 1-1. Means of Transportation to Work

Geography	Total Employees	Drove Alone		Carpooled		Public Transportation (Excluding Taxicab)		Taxi, Motorcycle, Bicycle, Walked, or Other		Work at Home	
		#	%	#	%	#	%	#	%	#	%
CT 408, BG 3	800	633	79.1	117	14.6	0	0.0	32	4.0	18	2.3
CT 409, BG 1	988	825	83.5	131	13.3	9	0.9	7	0.7	16	1.6
CT 410, BG 4	589	446	75.7	65	11.0	0	0.0	36	6.1	42	7.1
CT 411, BG 3	1,311	1,204	91.8	24	1.8	0	0.0	36	2.7	47	3.6
DSA	3,688	3,108	84.3	337	9.1	9	0.2	111	3.0	123	3.3
Cabarrus County	79,740	66,852	83.8	7,609	9.5	405	0.5	1,399	1.8	3,475	4.4
North Carolina	4,221,511	3,405,376	80.7	462,747	11.0	44,920	1.1	131,323	3.1	177,145	4.2

Source: US Census Bureau, American Community Survey 5-Year Estimates (2007-2011), Table B08301

As shown in **Table 1-2**, according to American Community Survey 5-Year Estimates (2007-2011), nearly 40 percent of commuters in the Demographic Study Area traveled more than 30 minutes to work.

TABLE 1-2. Travel Time to Work

2010 Geography	Total Commuters	Less than 10 Minutes		10 to 29 Minutes		30 to 59 Minutes		60 or More Minutes	
		#	%	#	%	#	%	#	%
CT 408, BG 3	376	0	0.0%	263	69.9%	105	27.9%	8	2.1%
CT 409, BG 1	972	266	27.4%	379	39.0%	236	24.3%	91	9.4%
CT 410, BG 4	547	113	20.7%	232	42.4%	152	27.8%	50	9.1%
CT 411, BG 3	1,264	228	18.0%	670	53.0%	301	23.8%	65	5.1%
DSA	3,159	607	19.2%	1,544	48.9%	794	25.1%	214	6.8%
Cabarrus County	76,265	9,143	12.0%	37,682	49.4%	24,828	32.6%	4,612	6.0%
North Carolina	4,044,366	546,733	13.5%	2,256,766	55.8%	1,027,621	25.4%	213,246	5.3%

Source: US Census Bureau, American Community Survey 5-Year Estimates (2007-2011), Table B08303

1.7 MODAL INTERRELATIONSHIPS

1.7.1 LOCAL PUBLIC TRANSPORTATION SERVICE

Currently, there is no local rail transit service offered or planned in the area. Local bus service, known as Rider, is provided by Concord Kannapolis Area Transit. Rider service includes seven routes throughout the communities of Kannapolis and Concord. The Brown Route provides direct service to the project area and connects the Concord transit center to the Amtrak Station in downtown Kannapolis. The route operates Monday through Saturday with one-hour headways between 5:30 am and 8:30 pm, and includes several stops along Main Street and Rogers Lake Road within the Project study area (Concord Kannapolis Area Transit Web site: www.ckrider.com). Rider's Red Route connects to the Charlotte Area Transit System (CATS) routes 79X and 80X to provide a regional bus service connection.

Additional local bus service is provided by the Cabarrus County Transportation System (CCTS), which provides public transportation for elderly and low-income residents to human service agencies and organizations based in Cabarrus County.

1.7.2 AIRPORTS

The closest airport to the Project study area, the Concord Regional Airport, is located approximately 8 miles southwest of the Project. For the year ending June 2013, the airport had an average of 162 operations per day. In addition, the Charlotte Douglas International Airport is located approximately 30 miles south of the Project area.

1.8 TRANSPORTATION AND LAND USE PLANS

1.8.1 STATE TRANSPORTATION IMPROVEMENT PROGRAM

The current NCDOT *2012-2018 STIP* (June 2014) includes one statewide rail project (Y-4800) and two other TIP projects in the Project study area. These projects are listed in **Table 1-3**.

TABLE 1-3. Transportation Improvement Projects Near the Project Study Area

TIP Project Number	Description	Status
Rail Projects		
Y-4800	Traffic separation study implementation and closures statewide.	In progress.
P-5208	Piedmont Corridor, Restore Double Track, "Haydock to Junker" (from south of Concord to east of Uptown Charlotte)	Prelim Engineering 2012 Right of Way 2013 Construction 2014

Source: NCDOT's *2012-2018 Transportation Improvement Program*

1.8.2 LOCAL TRANSPORTATION PLANS AND LAND USE PLANS

Comprehensive Transportation Plan and Metropolitan Transportation Plan. The project study area is within the planning limits of the Cabarrus-Rowan Metropolitan Planning Organization (CRMPO). The agency is responsible for long-range transportation planning for the area, including preparation of a *Metropolitan Transportation Plan* (MTP) and a *Comprehensive Transportation Plan*

(CTP). Both of these plans are discussed below, along with their specific recommendations for the project area.

CRMPO released their 2040 MTP in March 2014. The goals of the plan include developing an efficient street and highway network, improving mobility for urban area residents, and promoting development of an integrated bicycle and pedestrian network.

The 2040 MTP notes that the City of Kannapolis has given priority to a grade separation at Rogers Lake Road. The Rogers Lake Road Railroad Grade Separation Study is included in the 2012-2015 horizon year.

North Carolina General Statute 136-66.2 requires each municipality or MPO, with the cooperation of the NCDOT, to develop a CTP serving present and anticipated travel demand in and around the municipality or MPO. According to the statute, the plan should be based on the best information available including, but not limited to, population growth, economic conditions and prospects, and patterns of land development in and around the municipality, and should provide for the safe and effective use of the transportation system. The CTP for the Cabarrus-Rowan MPO was approved by the NCDOT Board of Transportation on October 7, 2011. The CTP maps identify:

- The Highway element, includes:
 - Rogers Lake Road as a boulevard that needs improvement from Oakwood Avenue to Main Street, proposes a grade separation of Rogers Lake Road at the NCRS tracks, and identifies Rogers Lake Road from the NCRS tracks to Dale Earnhardt Boulevard as a minor thoroughfare that needs improvement.
 - Main Street (located on the west side and parallel to the NCRS corridor) is identified as major thoroughfare that needs improvement.
 - South Ridge Avenue (located on the east side and parallel to the NCRS corridor) is identified as a minor thoroughfare that needs improvement.
- The Public Transportation and Rail element includes the NCRS corridor as an existing rail corridor that is recommended for high speed rail. It also includes existing bus routes along Rogers Lake Road and Main Street.
- The Pedestrian element recommends sidewalks along Rogers Lake Road, Main Street, and South Ridge Avenue.

Walkable Community Plan for Kannapolis. The *Walkable Community Plan* for Kannapolis was adopted in February 2007. The plan recommends a series of pedestrian routes and connectors to remedy inconsistencies in pedestrian facilities and ensure a coherent and usable pedestrian system throughout the city. Rogers Lake Road is identified as one of ten on-street routes that comprise the major framework for the pedestrian system. The route provides east-west connectivity in an area with increasing development, particularly in the western portion of the city. Specific recommendations for Rogers Lake Road in the project study area include providing sidewalks with a planted buffer on at least one side.

Carolina Thread Trail Master Plan for Cabarrus County Communities. The *Carolina Thread Trail Master Plan for Cabarrus County Communities* was completed in August 2009. The Plan includes the proposed Irish Buffalo greenway trail, which runs north-south and crosses Rogers Lake Road to the west of the project study area, as part of the Carolina Thread Trail system. The Three Mile Branch greenway, which is proposed along Three Mile Branch and intersects Rogers

Lake Road just east of Meadow Avenue in the eastern portion of the project study area, is identified as a connection opportunity.

1.9 NO-BUILD TRAFFIC OPERATIONS

1.9.1 TRAFFIC VOLUMES

In March 2013, NCDOT provided traffic forecasts for Year 2011 and Year 2035 Average Annual Daily Traffic (AADT) volumes for the existing roadway network. Straight line interpolation was used to determine the year 2014 existing peak hour volumes based on the year 2011 and 2035 No-Build volumes. **Figures 1-3** and **1-4** show the forecast diagrams of the AADT for study area roadways. AADT volumes for some of the primary study area roadways are provided in **Table 1-4**.

The highest traffic volumes in 2014 and 2035 are on South Main Street between Rogers Lake Road and Lowrance Avenue. As shown in the table, existing AADT traffic volumes under the No-Build Alternative are expected to increase approximately 13-74 percent from 2014 to 2035, but in both years are relatively low. Volumes and impacts anticipated under the future Build Alternatives are presented in **Section 2.4**

TABLE 1-4. Comparison of Existing (Year 2014) and No-Build (Year 2035) Traffic Volumes

Segment	2014 Existing	2035 No-Build	Increase in AADT Volume (%)
Rogers Lake Road			
West of Cooper Avenue	7,100	8,600	21%
Cooper Avenue to Lowrance Avenue	7,300	8,800	21%
Lowrance Avenue to Triage Street	6,400	7,500	17%
Triage Street to South Main Street	5,300	6,300	19%
South Main Street to South Ridge Avenue	7,700	9,500	23%
South Ridge Avenue to Meadow Avenue	5,700	7,400	30%
East of Meadow Avenue	5,500	7,400	35%
South Main Street			
South of Triage Street	10,200	11,500	13%
Triage Street to Rogers Lake Road	10,200	11,500	13%
Rogers Lake Road to Lowrance Avenue	10,200	11,700	15%
North of Lowrance Avenue	9,800	11,200	14%
South Ridge Avenue			
South of Brook Street	4,800	6,500	35%
Brook Street to Rogers Lake Road	4,900	6,600	35%
Rogers Lake Road to Russell Street	4,200	7,300	74%
North of Russell Street	4,200	7,300	74%

Source: NCDOT, Traffic Forecast for Y-4810K Memo, March 1, 2013.

Note: Straight line interpolation was used to determine the year 2014 Existing peak hour volumes based on the year 2011 and 2035 No-Build volumes provided in NCDOT's March 2013 memo.

1.9.2 ROADWAY LEVEL OF SERVICE

A traffic operations analysis was performed to assess how the studied intersections are currently operating and how they would operate in the year 2035 if no improvements were made to the Project area intersections (*Traffic Operations Technical Memorandum for Grade Separation of Norfolk Southern/NC Railroad at Rogers Lake Road*, Atkins, May 2014). The traffic operations results are shown in **Table 1-5**.

TABLE 1-5. Existing and Future No-Build Year 2035 No-Build Traffic Conditions Analysis Results

Intersection Roadway	Year 2014 Existing		Year 2035 No Build Scenario	
	AM LOS and Delay (sec)	PM LOS and Delay (sec)	AM LOS and Delay (sec)	PM LOS and Delay (sec)
Lowrance Avenue & South Main Street (Stop-Controlled)	B (13.5)	B (12.8)	B (14.9)	B (13.9)
Rogers Lake Road & South Main Street (Signalized)	B (15.9)	B (15.6)	B (16)	B (16.3)
Triece Street & South Main Street (Stop-Controlled)	B (12.9)	B (12.5)	B (14)	B (13.4)
Russell Street & South Ridge Avenue (Stop-Controlled)	B (10.7)	B (10.6)	B (13.3)	B (13)
Rogers Lake Road & South Ridge Avenue (Signalized)	B (14.3)	B (14.8)	B (15.5)	B (15.6)
Brook Street & Ridge Avenue (Stop-Controlled)	B (10.3)	B (10.9)	B (11.2)	B (12.3)
Rogers Lake Road & Cooper Avenue (Stop-Controlled)	B (14.9)	B (14.7)	C (17.9)	C (17.5)
Rogers Lake Road & Lowrance Avenue (Stop-Controlled)	C (15.5)	C (15.4)	C (20.9)	C (19.2)
Rogers Lake Road & Triece Street (Stop-Controlled)	B (12.8)	B (12.9)	B (14.2)	B (14.4)
Russell Street & Meadow Avenue (Stop-Controlled)	A (8.6)	A (8.7)	A (8.7)	A (8.7)
Rogers Lake Road & Meadow Avenue (Stop-Controlled)	B (12.3)	B (12.2)	B (14)	B (13.8)
Brook Street & Meadow Avenue (Stop-Controlled)	A (8.7)	A (8.7)	A (8.7)	A (8.7)

Source: Traffic Operations Tech Memo, Rogers Lake Road Grade Separation (Y-4810K), Atkins, May 2014

Note: For stop-controlled intersections, LOS and corresponding delay represents the characteristics of the worst performing stop-controlled movement.

LOS – Level of Service. Level of service is measured from A to F, with A being the best operating conditions and F the worst.

The existing conditions operations analysis indicates that all intersections currently operate at an acceptable Level of Service (LOS D or better) during both the AM and PM peak hours as shown on **Figure 1-3**. Two of the twelve intersections (17 percent) operate at LOS A in both the AM and PM peak hours, while nine intersections (75 percent) operate at LOS B and one intersection (8 percent) operates at LOS C.

A No-Build traffic analysis was performed in order to assess the year 2035 anticipated conditions if no physical improvements were made to the project intersections and roadway network except for committed STIP projects. The No-Build analysis indicates that all of the intersections are projected to operate at an acceptable LOS as shown on **Figure 1-4**. Eleven of the twelve intersections are projected to continue operating at their current LOS, which is LOS A to LOS C, in both the AM and

PM peak hours. The intersection of Rogers Lake Road at Cooper Avenue is projected to degrade from the existing LOS B to a LOS C in both the AM and PM peak hours.

1.10 CRASH DATA AND SAFETY

The proposed Project will promote safer traffic operations by separating vehicular traffic from train traffic at the proposed grade-separated crossing at Rogers Lake Road.

Crash data for intersections within the Project study area for the period from September 2008 through August 2011 were provided by the NCDOT Traffic Safety Unit. The crash data are summarized in **Table 1-6**. As shown in the table, two crashes occurred at the Rogers Lake Road railroad crossing over the three-year period. Both of these crashes involved minor rear-end collisions between motor vehicles. Rogers Lake Road at South Main Street had 18 crashes during the 3-year analysis period and Rogers Lake Road at South Ridge Avenue had 13 crashes. At these locations, crashes involved a high number of angle collisions, followed by rear-end collisions and side swipes. There were no fatal crashes at any of these intersections during the three year period.

TABLE 1-6. Intersection Crash Data Summary (2008-2011)

Intersection	Total Crashes	Crash Type			
		Fatal	Non-Fatal Injury	Night	Wet
Rogers Lake Road Railroad Crossing	2	0	0	1	0
Rogers Lake Road at South Ridge Avenue (East of Railroad)	13	0	6	4	2
Rogers Lake Road at South Main Street (West of Railroad)	18	0	6	5	2

Source: NCDOT Traffic Safety Unit, Crash data from 2008-2011

At any location where streets intersect railroad tracks, there is the potential for motorists to be killed or injured. Trains cannot swerve to miss a vehicle and they require great distances to stop. Motorists involved in railroad crossing collisions often are killed due to the difference in size between road vehicles and locomotives. However, larger motor vehicles, such as tractor trailers, can also cause damage or derailment to trains. Derailment of a passenger train can cause serious injury or death, not only for the motorist, but for train passengers and operating crew members. The proposed grade separation will protect both rail passengers and motorists.

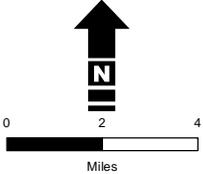
The proposed Project will have an additional safety benefit of preventing collisions that could cause hazardous materials spills. Freight trains and tractor-trailer trucks often pull rail cars or trailers carrying chemicals and other hazardous materials that can pose a health and safety hazard to the local community if released. A collision with a large motor vehicle could cause derailment of a freight train and spilling of hazardous materials. By eliminating the at-grade crossing, the potential for such incidents is eliminated.

NCDOT expects that grade separating the Rogers Lake Road intersection will reduce the potential for collisions within the Project study area. Also, this reduced collision potential will become more important as this area continues to develop and traffic volumes increase.

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Study Area

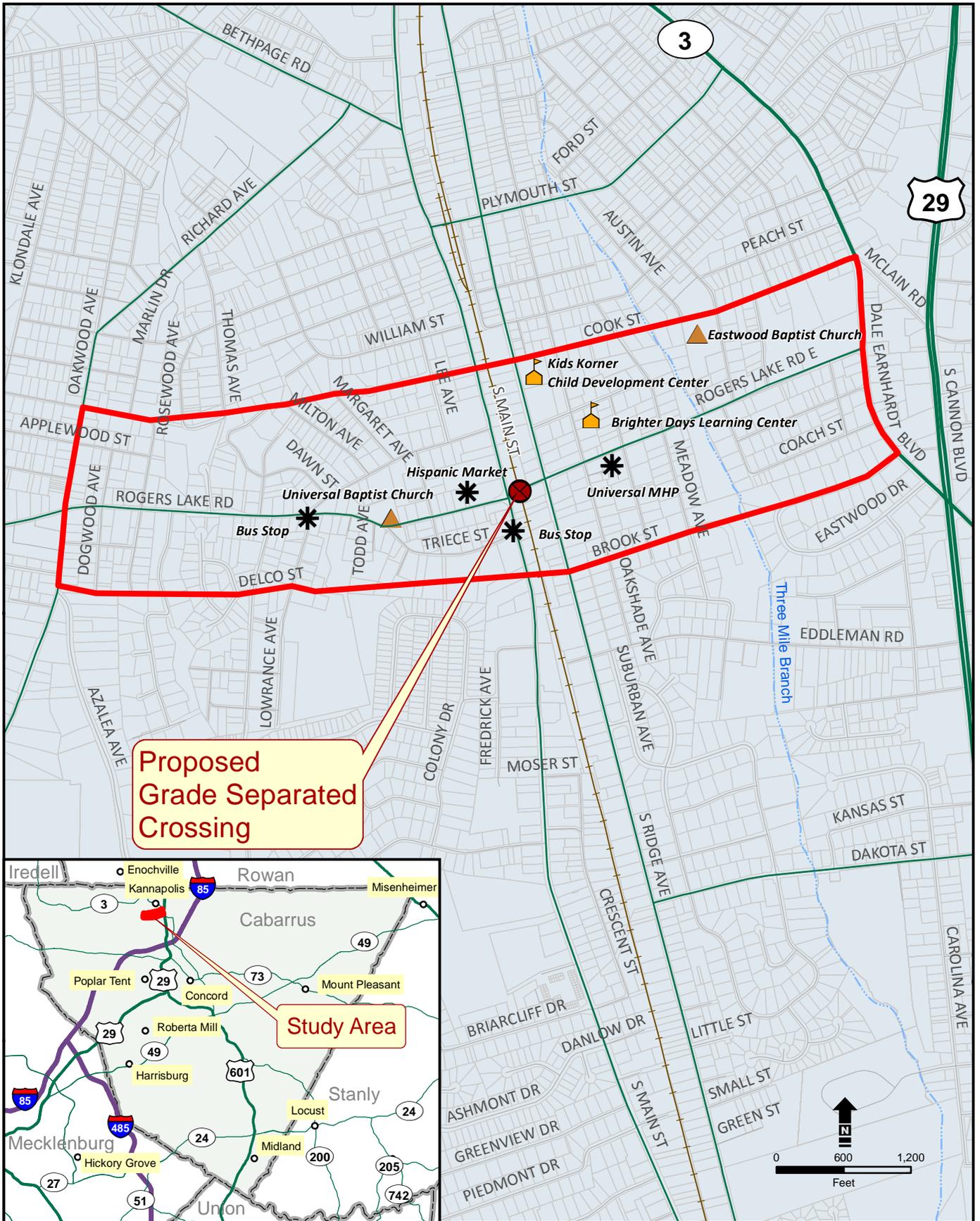



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
 ROGERS LAKE ROAD SR-1625
 GRADE SEPARATION
 STIP Project No. Y-4810K
 Cabarrus County, North Carolina

- Legend**
- Study Area
 - County Boundary
 - City Limits
 - Cities and Towns
 - Airport
 - Streams
 - Lakes
 - Interstate
 - US Highway
 - State Road
 - Railroad
- Source: NCOneMap FTP Site. Map Printed June, 2014.

PROJECT VICINITY MAP

FIGURE 1-1



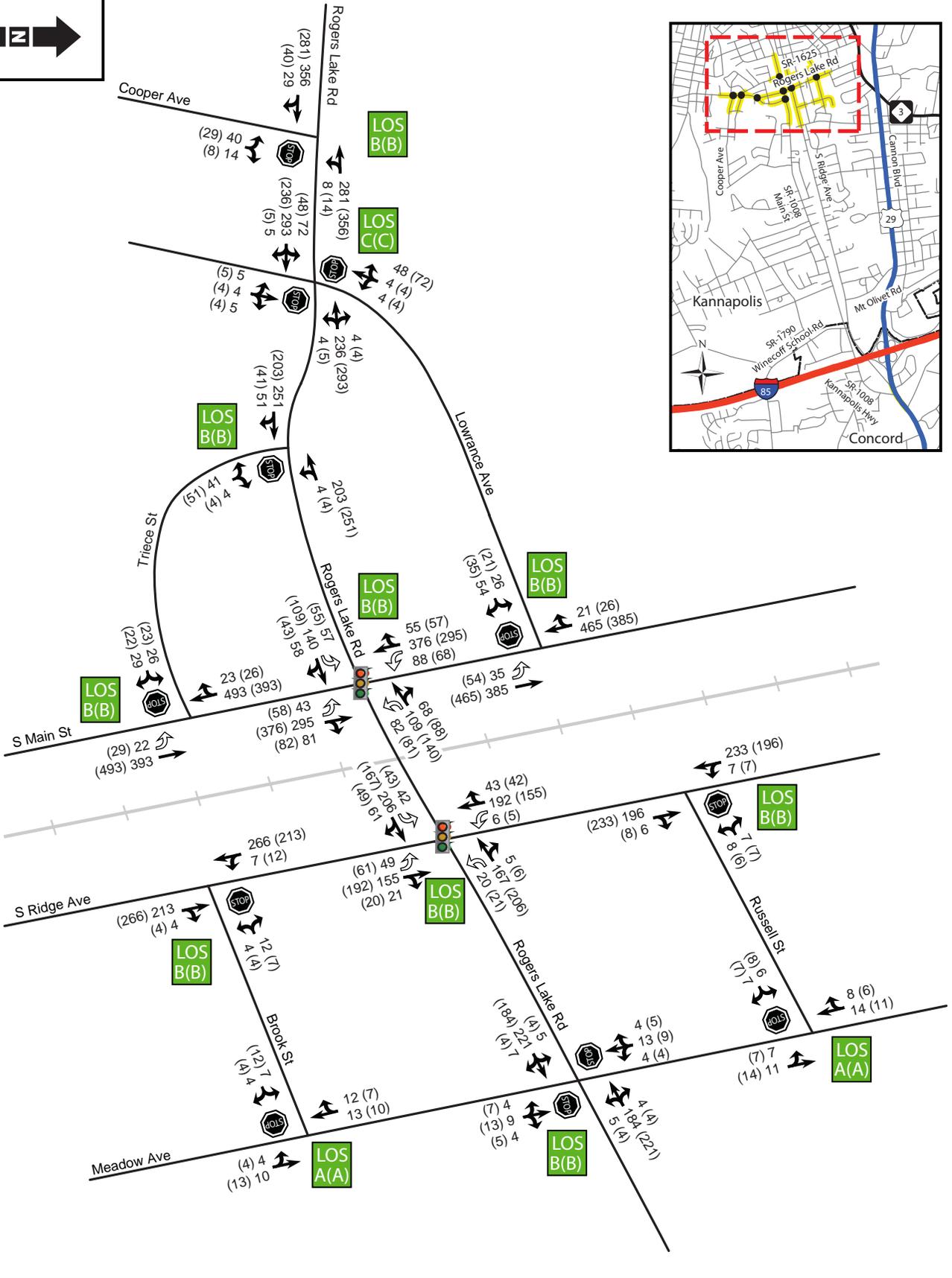
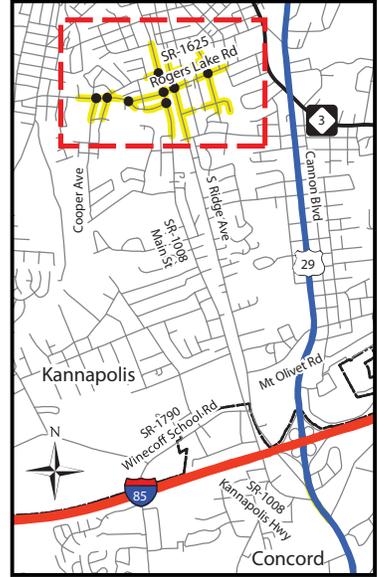
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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
ROGERS LAKE ROAD SR-1625
GRADE SEPARATION
 STIP Project No. Y-4810K
 Cabarrus County, North Carolina

- Study Area
 - Parcels
 - City of Concord
 - City of Kannapolis
 - ✱ Notable Features
 - ▲ School
 - ▲ Church
 - Railroad
 - Streams
- Source: NCOneMap FTP Site. Map Printed June, 2014.

PROJECT STUDY AREA MAP

FIGURE 1-2



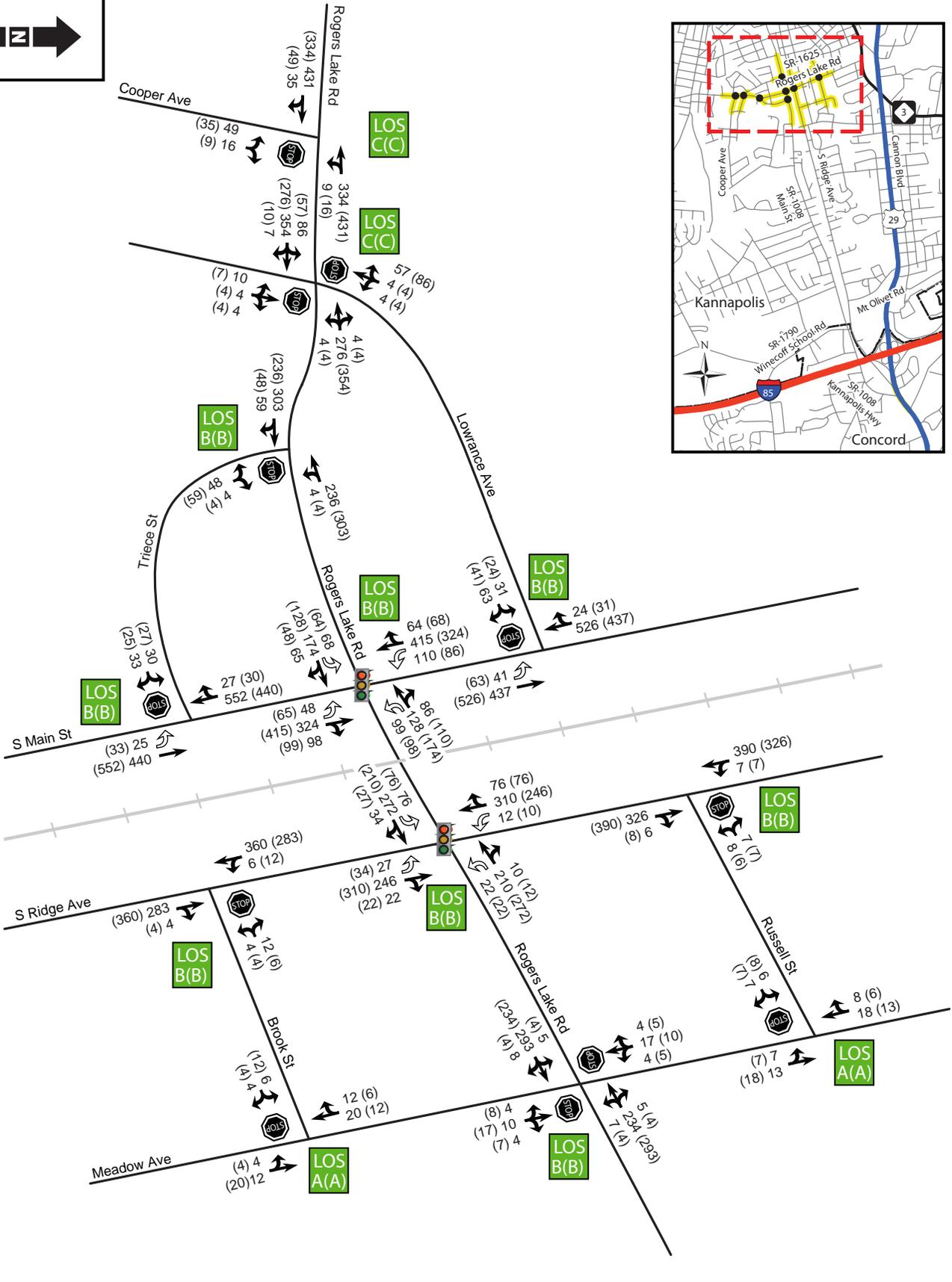
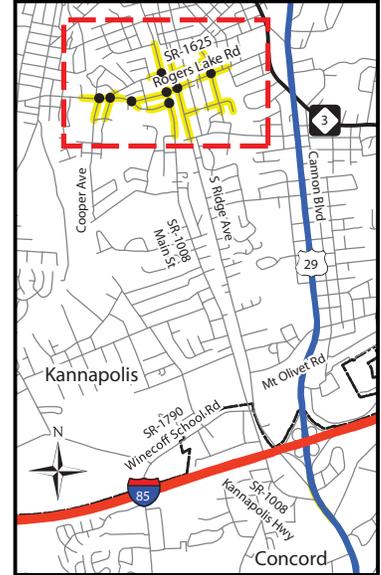
RLR_TrafficFigures_2014Existing.ai 6.16.2014 JNL

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
Rogers Lake Road Grade Separation (Y-4810K)
 Cabarrus County, North Carolina

YEAR 2014 EXISTING TRAFFIC CONDITIONS

FIGURE 1-3

Source: Traffic Operations Technical Memorandum, May 2014.



RLR_TrafficFigures_2035NoBuild.at 6.16.2014_JNL

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
Rogers Lake Road Grade Separation (Y-4810K)
 Cabarrus County, North Carolina

	Stop-Controlled Movement		Intersection AM (PM) Peak Hour Level of Service
	Proposed Signalized Intersection		Level of Service A-C
	Full Lane		Level of Service D
	Storage or Two-Way Left-Turn Lane		Level of Service E
XX (XX) AM (PM) Peak Hour Volumes			Level of Service F

Source: Traffic Operations Technical Memorandum, May 2014.

YEAR 2035 NO-BUILD TRAFFIC CONDITIONS

FIGURE 1-4



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2.0 ALTERNATIVES

This chapter discusses alternatives considered for the proposed Project. Alternatives considered but eliminated from further study are described in Section 2.1. Alternatives studied in detail include the No-Build Alternative and three Preliminary Build Alternatives (Preliminary Build Alternative 1, Preliminary Build Alternative 2, and Preliminary Build Alternative 3) as discussed in Sections 2.2 and 2.3. NCDOT assessed each alternative with respect to its ability to meet the Project's purpose and need.

2.1 ALTERNATIVES ELIMINATED FROM CONSIDERATION

A range of alternatives was considered for this Project, with some eliminated from further consideration when NCDOT determined they would not meet the purpose and need for the Project and/or were not reasonable due to cost, impacts, or community disruption. These alternatives are described below, along with explanations of why they were eliminated from further consideration.

2.1.1 GRADE SEPARATION FARTHER SOUTH OF EXISTING ROGERS LAKE ROAD AT DAKOTA STREET

The Feasibility Study (2001) prepared for this project under the STIP Project # U-4702 identified an alternative to provide a railroad grade separation at Dakota Street to extend westward to and beyond South Main Street. This alternative was determined not feasible as a result of the high cost and number of impacts compared to construction of a grade separation at Rogers Lake Road.

Alternative alignments for the grade separation farther south of existing Rogers Lake Road at Dakota Street would impact a veterinary hospital and dance studio on the west side of South Ridge Avenue and would relocate one residence and one business. A house on the west side of South Main Street in proximity to the proposed grade separation at Dakota Street is a potential Section 106 historic property. In addition, this alternative's longer length would result in greater construction and right-of-way costs. For these reasons, this alternative was eliminated from further consideration.

2.1.2 PARALLEL ALIGNMENTS

The Feasibility Study (2001) recommended a grade separation over the Norfolk Southern Railroad using Universal Street and Rogers Lake Road. In 2011, at the beginning of the Project alternative screening process, 10 alignments (C-1 through C-10) on or parallel to Rogers Lake Road were developed. These 10 alignments are shown in **Appendix A**. Six of these alternative alignments were not favored by the City of Kannapolis due to the disruption they would cause to the local street network. For this reason, alternatives C-1, C-2, C-3, C-8, C-9, and C-10 were eliminated from further consideration in November 2012. The four alternatives that remained were carried forward for further screening.

One of the four alternative alignments carried forward for further screening was a Rogers Lake Road underpass. This alternative has significant limitations due to terrain and construction cost. Construction requires the Project area to be entirely deep cut which would create drainage problems and require mechanical pumps. Additional costs would be required to maintain the track and structures during construction. This alternative was not considered feasible and was eliminated from further consideration.

The remaining three alternatives became the Preliminary Build Alternatives presented in **Section 2.3** and evaluated in detail in this EA.

2.2 NO-BUILD ALTERNATIVE

The No-Build Alternative would make no improvements to the existing at-grade crossings of Rogers Lake Road. Railroad maintenance could include safety inspections and maintenance of track ballast, railroad ties, and timber. Regular roadway maintenance could include patching, resurfacing, regrading shoulders, and maintaining ditches.

The No-Build Alternative will not meet the Project's purpose and need. The No-Build Alternative will not reduce the potential for vehicle/train collisions, nor will it improve efficiency for trains or vehicles. The existing NCRR at-grade intersection in the Project study area is a safety concern due to the potential for vehicle/train collisions, and it also affects vehicular and train operations. At-grade railroad crossings contribute to vehicular traffic delays as a result of vehicles waiting for crossing trains.

The analysis of the No-Build Alternative is required under NEPA and serves as a benchmark against which the impacts of other alternatives can be compared.

2.3 PRELIMINARY BUILD ALTERNATIVES

The Preliminary Build Alternatives described below would provide a grade-separated bridge over the railroad tracks at Rogers Lake Road, and would also span South Main Street and South Ridge Avenue. Based on the design criteria, all alternatives would provide 24 feet of vertical clearance at the railway and 17.5 feet of vertical clearance over South Main Street and South Ridge Avenue. Under all alternatives, the new section of Rogers Lake Road would match the existing grade just west of Power Street and just east of Browdis Avenue.

2.3.1 PRELIMINARY BUILD ALTERNATIVE 1 (SOUTHERN ALIGNMENT)

Figure 2-1 shows Preliminary Build Alternative 1 on an aerial photograph. Preliminary Build Alternative 1 provides a grade-separated bridge over the railroad tracks just south of the existing Rogers Lake Road crossing. The alignment shifts south to provide clearance from existing Rogers Lake Road while allowing Triage Street to remain open to service properties.

The new roadway segment would have two 12-foot travel lanes, two 4-foot bike lanes, and two 5.5-foot sidewalks. The bike lanes and sidewalks are consistent with the *Walkable Community Plan for Kannapolis*, *The Carolina Thread Trail Master Plan for Cabarrus County Communities*, and the 2040 MTP, which recommends sidewalks and bike paths on Rogers Lake Road to accommodate pedestrians and bicycles. The design speed is 50 miles per hour (mph), with a planned posted speed of 45 mph.

Under Preliminary Build Alternative 1, existing Rogers Lake Road would be closed with the exception of the section between Oakshade Avenue and South Ridge Avenue on the east side of the rail tracks and the section between South Main Street and Rogers Avenue on the west side of the rail tracks. Other street closures for Preliminary Build Alternative 1 would be on Rogers Avenue between existing Rogers Lake Road and Triage Street, Triage Street west of Sexton Street, Oakshade Avenue just south of existing Rogers Lake Road, and Browdis Avenue just south of existing Rogers Lake Road. A two lane road would need to be constructed from Todd Avenue to Sexton Street to

allow access from Tiece Street. Traffic signals are recommended at the intersection of Lowrance Avenue and South Main Street and at the intersection of Lowrance Avenue and Rogers Lake Road to maintain an acceptable level of service in the future (see discussion in **Section 2.4.2**).

2.3.2 PRELIMINARY BUILD ALTERNATIVE 2 (CENTRAL ALIGNMENT)

Figure 2-2 shows Preliminary Build Alternative 2 on an aerial photograph. This alternative realigns Rogers Lake Road to construct the grade separation just north of the existing at-grade crossing. The new roadway segment would have two 12-foot travel lanes, two 4-foot bike lanes, and two 5.5-foot sidewalks. The bike lanes and sidewalks are consistent with the *Walkable Community Plan for Kannapolis*, *The Carolina Thread Trail Master Plan for Cabarrus County Communities*, and the 2040 MTP, which recommends sidewalks and bicycle paths on Rogers Lake Road to accommodate pedestrians and bicycles. The design speed is 50 miles per hour (mph), with a planned posted speed of 45 mph.

Under Build Alternative 2, existing Rogers Lake Road would be closed at the Power Street intersection, but would remain open east of this closure to South Main Street. East of the rail tracks, existing Rogers Lake Road would only be open between South Ridge Avenue and Oakshade Avenue. Rogers Avenue would be closed between existing Rogers Lake Road and approximately 200 feet south of Lowrance Avenue. In addition, Oakshade Avenue and Browdis Avenue would both be closed just north of existing Rogers Lake Road. Traffic signals are recommended at the intersection of Lowrance Avenue and South Main Street and at the intersection of Lowrance Avenue and Rogers Lake Road to maintain an acceptable level of service in the future (see discussion in **Section 2.4.2**).

2.3.3 PRELIMINARY BUILD ALTERNATIVE 3 (NORTHERN ALIGNMENT)

Figure 2-3 shows Preliminary Build Alternative 3 on an aerial photograph.

This alternative creates a break in the existing Rogers Lake Road alignment and shifts north to construct the grade separation over the railroad approximately 400 feet north of the existing at-grade crossing. The new roadway segment would have two 12-foot travel lanes, two 4-foot bike lanes, and two 5.5-foot sidewalks. The bike lanes and sidewalks are consistent with the *Walkable Community Plan for Kannapolis*, *The Carolina Thread Trail Master Plan for Cabarrus County Communities*, and the 2040 MTP, which recommends sidewalks and bike paths on Rogers Lake Road to accommodate pedestrians and bicycles. The design speed is 50 miles per hour (mph), with a planned posted speed of 45 mph.

Under this alternative, existing Rogers Lake Road would be closed along a small section at Power Street, between South Main Street and South Ridge Avenue, and along a small section at Browdis Avenue. Lowrance Avenue east of Rogers Avenue would be realigned to the north of its existing alignment. Rogers Avenue would be closed between Lowrance Avenue and south side of the proposed right-of-way, Oakshade Avenue would be closed between existing Rogers Lake Road and Russell Street, Browdis Avenue would be closed just north of existing Rogers Lake Road (a cul de sac is proposed where Browdis Avenue terminates on the north side of the proposed right of way), and Russell Street would be closed west of Oakshade Avenue. Traffic signals are recommended at the intersection of Lowrance Avenue and South Main Street and at the intersection of Lowrance Avenue and Rogers Lake Road to maintain an acceptable level of service in the future (see discussion in **Section 2.4.2**).

2.3.4 PRELIMINARY BUILD ALTERNATIVE COST ESTIMATES

The estimated costs for construction and utilities for each build alternative are presented in **Table 2-1**. Cost estimates are based on the functional engineering designs included in **Appendix B** and are in current year (2014) dollars.

TABLE 2-1. Preliminary Build Alternative Cost Estimates

Alternative	Construction Cost	Utility Relocation Cost	TOTAL COST*
Build Alternative 1 (Southern Alignment)	\$14,800,000	\$497,022	\$15,297,022
Build Alternative 2 (Central Alignment)	\$12,300,000	\$331,466	\$12,631,466
Build Alternative 3 (Northern Alignment)	\$15,100,000	\$458,020	\$15,558,020

Note: Cost amounts are in 2014 dollars.

*Total cost does NOT include right-of-way acquisition.

2.4 TRAFFIC OPERATIONS ANALYSIS

2.4.1 TRAFFIC VOLUMES

Traffic forecasts were developed for the Year 2035 No-Build and Build condition roadway network. Traffic volumes for study area roadway segments are presented in **Table 2-2**. By the year 2035, with no changes to the roadway network, the year 2035 No-Build traffic volumes on Rogers Lake Road are projected to range from 6,300 to 9,500 vehicles per day. The year 2035 volumes for the Build Alternatives are projected to range from 8,200 to 10,300 vehicles per day on Rogers Lake Road. The traffic volumes for the three Preliminary Build Alternatives in year 2035 are similar to each other due to traffic being rerouted in a similar fashion. Volumes are projected to increase on Lowrance Avenue, Brook Street, and Russell Street (Cook Street for Preliminary Build Alternative 3) in 2035 under all Preliminary Build Alternatives as these roadways will be connections between the grade-separated Rogers Lake Road and South Main Street or South Ridge Avenue.

TABLE 2-2. Future Build Traffic Conditions (Year 2035) Traffic Volumes

Segment	2014 Existing	2035 No-Build	2035 Build Alt 1	2035 Build Alt 2	2035 Build Alt 3
Rogers Lake Road					
West of Cooper Avenue	7,100	8,600	9,400	9,400	9,400
Cooper Avenue to Lowrance Avenue	7,300	8,800	9,600	9,600	9,600
Lowrance Avenue to Triagee Street	6,400	7,500	10,300	10,300	10,300
Triagee Street to South Main Street	5,300	6,300	10,300	10,300	10,300
South Main Street to South Ridge Avenue	7,700	9,500	10,300	10,300	10,300
South Ridge Avenue to Meadow Avenue	5,700	7,400	10,300	10,300	10,300
East of Meadow Avenue	5,500	7,400	8,200	8,200	8,200
South Main Street					
South of Triagee Street	10,200	11,500	11,000	11,000	11,000
Triagee Street to Rogers Lake Road	10,200	11,500	11,000	11,000	11,000
Rogers Lake Road to Lowrance Avenue	10,200	11,700	11,000	11,000	11,000
North of Lowrance Avenue	9,800	11,200	10,700	10,700	10,700
South Ridge Avenue					
South of Brook Street	4,800	6,500	5,700	5,700	5,700
Brook Street to Rogers Lake Road	4,900	6,600	4,400	4,400	4,400
Rogers Lake Road to Russell Street	4,200	7,300	4,400	4,400	4,400
North of Russell Street	4,200	7,300	5,500	5,500	4,400
Cooper Avenue					
South of Rogers Lake Road	800	1,000	1,000	1,000	1,000
Lowrance Avenue					
South of Rogers Lake Road	100	200	200	200	200
Rogers Lake Road to South Main Street	1,200	1,500	10,700	10,700	10,700
Triagee Street					
Rogers Lake Road to South Main Street	1,000	1,200	100	100	100
Brook Street					
South Ridge Avenue to Meadow Avenue	100	100	1,500	1,500	1,500
Russell Street					
South Ridge Avenue To Meadow Avenue	200	200	1,300	1,300	100
Meadow Avenue					
South of Brook Street	200	300	300	300	300
Brook Street to Rogers Lake Road	300	400	1,800	1,800	1,800
Rogers Lake Road to Russell Street	300	400	2,500	2,500	2,500
North of Russell Street	300	400	1,400	1,400	2,500

Source: NCDOT, Traffic Forecast for Y-4810K Memo, March 1, 2013.

Note: Straight line interpolation was used to determine the year 2014 Existing peak hour volumes based on the year 2011 and 2035 No-Build volumes provided in NCDOT's March 2013 memo.

2.4.2 LEVEL OF SERVICE

A future year 2035 traffic operations analysis was performed for the Build Alternatives to estimate how Project area intersections will operate with the recommended improvements (*Traffic Operations Technical Memorandum for Grade Separation of Norfolk Southern/NC Railroad at Rogers Lake Road*, Atkins, May 2014).

For the Build Alternatives, intersection analysis results showing the level of service (LOS) based on year 2035 traffic are shown on **Figure 2-4a-c**. For all three of the Preliminary Build Alternatives, improvements are recommended at four intersections to maintain an acceptable level of service through the design year (2035), as follows:

- **Lowrance Avenue at South Main Street** is projected to operate with an unacceptable LOS in both the AM and PM peak hours without any improvements due to Lowrance Avenue serving as the connection between the grade-separated Rogers Lake Road and South Main Street. In order to provide acceptable operations in the design year (2035), proposed intersection improvements include signalization and exclusive right- and left-turn lanes for the eastbound Lowrance Avenue approach. A stop-controlled eastbound Lowrance Avenue approach with exclusive right- and left-turn lanes will provide acceptable LOS until year 2033. A comparison of the stop-controlled and signalized intersection operations is provided in Appendix D of the *Traffic Operations Technical Memorandum for Grade Separation of Norfolk Southern/NC Railroad at Rogers Lake Road* (Atkins, May 2014).
- **Rogers Lake Road at Cooper Avenue** is projected to operate with an acceptable LOS in both the AM and PM peak hours without any improvements. However, due to tight spacing with the proposed signal at the Rogers Lake Road/Lowrance Avenue intersection, it is recommended that this intersection become a right-in/ right-out intersection. Cooper Avenue is connected to Lowrance Avenue via Delco Street. Therefore, traffic from westbound Rogers Lake Road wanting to turn left onto Cooper Avenue, and vice-versa, could instead use the proposed signal at Lowrance Avenue.
- **Rogers Lake Road at Lowrance Avenue** is projected to operate with an unacceptable LOS in both the AM and PM peak hours without any improvements due to Lowrance Avenue serving as the connection between the grade-separated Rogers Lake Road and South Main Street. In order to provide acceptable operations in the design year (2035), proposed intersection improvements include signalization along with exclusive left-turn bays for the eastbound and westbound Rogers Lake Road approaches and a right-turn bay for the southbound Lowrance Avenue approach. A stop-controlled intersection with exclusive left-turn lanes on all approaches will not provide acceptable operations. A comparison of the stop-controlled and signalized intersection operations is provided in Appendix D of the *Traffic Operations Technical Memorandum for Grade Separation of Norfolk Southern/NC Railroad at Rogers Lake Road* (Atkins, May 2014).
- **Rogers Lake Road at Meadow Avenue** is projected to operate with an acceptable LOS in both the AM and PM peak hours with the addition of the two-way left turn lane on Rogers Lake Road. The intersection is projected to operate with an LOS C during both peak hours, which is one LOS letter grade worse than the 2035 No-Build scenario. The slight degradation in LOS is due to an increase in volume on Meadow Avenue because it provides the connection between the grade-separated Rogers Lake Road and Ridge Avenue via Russell Street and Brook Street.

2.5 PREFERRED ALTERNATIVE

Based on the information available to date, including this EA, Preliminary Build Alternative 2 (Central Alignment) is NCDOT's Preferred Alternative.

It should be noted this is not a final decision. After the EA comment period ends, FHWA and NCDOT will either decide to prepare an EIS or will identify a Selected Alternative and prepare a Finding of No Significant Impact (FONSI). FHWA and NCDOT will consider agency and public comments received on this EA and at the public hearing, as well as input from local transportation planning agencies and state and federal environmental resource and regulatory agencies.

NCDOT prefers Preliminary Build Alternative 2 over the other Preliminary Build Alternatives because it is the least expensive to construct and more closely follows the existing alignment than Alternative 3 resulting in lesser impacts to existing travel patterns.

A comparison of the impacts of Preliminary Build Alternative 1, Preliminary Build Alternative 2 and Preliminary Build Alternative 3 is presented in **Table 2-3**. The resources in the table are organized in the order they are presented in this EA, not in order of importance. For many resources, there are no adverse effects or the same effects for all the alternatives, as shown in **Table 2-3**. These were not differentiators in identifying the Preferred Alternative.

TABLE 2-3. Comparison of Preliminary Build Alternative Impacts

Resource	Preliminary Build Alternative 1 (Southern Alignment)	Preliminary Build Alternative 2 (Central Alignment)	Preliminary Build Alternative 3 (Northern Alignment)
Total Cost (2014 dollars; Does NOT include right-of-way)	\$15,297,022	\$12,631,466	\$15,558,020
Human Environment			
Transportation & Land Use Plans	Project is consistent with local and regional plans, but not currently included in the current STIP nor is design or construction identified in the Draft 2040 Metropolitan Transportation Plan.	Project is consistent with local and regional plans, but not currently included in the STIP nor is design or construction identified in the Draft 2040 Metropolitan Transportation Plan.	Project is consistent with local and regional plans, but not currently included in the STIP nor is design or construction identified in the Draft 2040 Metropolitan Transportation Plan.
Relocations - Residential	64	51	46
Relocations – Business	8	7	3
Relocations- Church	1	0	0
Communities and Neighborhoods	Minor access changes; improved access across railroad from grade separation and addition of bike lanes and sidewalks	Minor access changes; improved access across railroad from grade separation and addition of bike lanes and sidewalks	Minor access changes; improved access across railroad from grade separation and addition of bike lanes and sidewalks
Environmental Justice	No disproportionately high and adverse impact	No disproportionately high and adverse impact	No disproportionately high and adverse impact

TABLE 2-3. Comparison of Preliminary Build Alternative Impacts

Resource	Preliminary Build Alternative 1 (Southern Alignment)	Preliminary Build Alternative 2 (Central Alignment)	Preliminary Build Alternative 3 (Northern Alignment)
Community Services and Public Health and Safety	No adverse impact; improved safety at crossings	No adverse impact; improved safety at crossings	No adverse impact; improved safety at crossings
Section 4(f) and Section 6(f) Resources	No impact. There are no Section 4(f) or Section 6(f) resources in the Project study area.	No impact. There are no Section 4(f) or Section 6(f) resources in the Project study area.	No impact. There are no Section 4(f) or Section 6(f) resources in the Project study area.
Economic Effects and Energy Use	Minor impact to businesses; temporary construction jobs; improved rail operations from the elimination of potential collisions with vehicles.	Minor impact to businesses; temporary construction jobs; improved rail operations from the elimination of potential collisions with vehicles.	Minor impact to businesses; temporary construction jobs; improved rail operations from the elimination of potential collisions with vehicles.
Physical Environment			
Noise	Minor adverse impact from traffic noise (10 impacted receptors); reduced impact from train horn noise	Minor adverse impact from traffic noise (12 impacted receptors); reduced impact from train horn noise	Minor adverse impact from traffic noise (12 impacted receptors); reduced impact from train horn noise
Air Quality	No adverse impact; potential benefit from reduced vehicle idling at crossing	No adverse impact; potential benefit from reduced vehicle idling at crossing	No adverse impact; potential benefit from reduced vehicle idling at crossing
Farmland	The entire Project study area is recognized by the US Census Bureau as an urban area, and therefore is not subject to the Farmland Protection Policy Act (FPPA).	The entire Project study area is recognized by the US Census Bureau as an urban area, and therefore is not subject to the Farmland Protection Policy Act (FPPA).	The entire Project study area is recognized by the US Census Bureau as an urban area, and therefore is not subject to the Farmland Protection Policy Act (FPPA).
Utilities	No adverse impact	No adverse impact	No adverse impact
Visual and Aesthetic Resources	Minor adverse impact	Minor adverse impact	Minor adverse impact
Hazardous Materials	11 potential sites; low potential for geoenvironmental impacts	4 potential sites; low potential for geoenvironmental impacts	5 potential sites; low potential for geoenvironmental impacts
Floodplains	No impact. This resource is not located in the study area.	No impact. This resource is not located in the study area.	No impact. This resource is not located in the study area.
Cultural Resources	No known cultural resources in the project study area.	No known cultural resources in the project study area.	No known cultural resources in the project study area.
Natural Environment			
Biotic Communities and Wildlife	No adverse impact. Impact to 0.4 acre upland forest and 15.9 acres of maintained/disturbed land	No adverse impact. Impact to 0.3 acre upland forest and 14.6 acres of maintained/disturbed land	No adverse impact. Impact to 2.5 acre upland forest and 12.4 acres of maintained/disturbed land
Water Quality	No adverse impact.	No adverse impact.	No adverse impact.

TABLE 2-3. Comparison of Preliminary Build Alternative Impacts

Resource	Preliminary Build Alternative 1 (Southern Alignment)	Preliminary Build Alternative 2 (Central Alignment)	Preliminary Build Alternative 3 (Northern Alignment)
Jurisdictional Topics	Jurisdictional resources are located in the project study area, however, there would be no direct impact.	Jurisdictional resources are located in the project study area, however, there would be no direct impact.	Jurisdictional resources are located in the project study area, however, there would be no direct impact.
Protected Species	No impact. This resource is not located in the study area.	No impact. This resource is not located in the study area.	No impact. This resource is not located in the study area.
Construction Impacts	Temporary short-term impacts including noise, air quality, disruption of utilities, and disruptions to local traffic flow	Temporary short-term impacts including noise, air quality, disruption of utilities, and disruptions to local traffic flow	Temporary short-term impacts including noise, air quality, disruption of utilities, and disruptions to local traffic flow
Indirect and Cumulative Effects	Minimal increase in local vehicular travel times due to new travel patterns; cumulative benefits of improved regional operations for freight and passenger rail service	Minimal increase in local vehicular travel times due to new travel patterns; cumulative benefits of improved regional operations for freight and passenger rail service	Minimal increase in local vehicular travel times due to new travel patterns; cumulative benefits of improved regional operations for freight and passenger rail service

Impacts based on proposed preliminary build alternatives within the Project study area

2.5.1 PREFERRED ALTERNATIVE DESIGN MODIFICATION

At the request of the City of Kannapolis, additional design was conducted for the Preferred Alternative to add a round-a-bout on the west side of the grade separation as shown in **Figure 2-5**. The typical section for the new roadway east of the round-a-bout includes three 11-foot travel lanes, a five-foot bike lane on each side, and a five-foot sidewalk on the southern side. The typical section for the proposed bridge includes two 12-foot travel lanes and two five-foot bike lanes. A qualitative analysis was conducted on this design modification to identify any notable changes to resource impacts associated with Preliminary Build Alternative 2. It was determined that if similar design modifications were made to the other Preliminary Build Alternatives, any changes in resource impacts would be comparable to those identified for Preliminary Build Alternative 2. **Table 2-4** summarizes the results of the qualitative analysis and identifies technical reports that will be added prior to the final decision document.

TABLE 2-4. Qualitative Comparison of Impacts between the Preferred Alternative and the Design Modification

Resource	Preferred Alternative	Design Modification
Total Cost (2014 dollars)	\$12,631,466	The cost to construct the design modification will be more than the Preferred Alternative, however, according to FHWA*, “a round-a-bout typically has lower operating and maintenance costs than a traffic signal due to the lack of technical hardware, signal timing equipment, and electricity needs.” Therefore, the design modification would not result in a notable difference in cost.

TABLE 2-4. Qualitative Comparison of Impacts between the Preferred Alternative and the Design Modification

Resource	Preferred Alternative	Design Modification
Traffic Operations		
Traffic Volumes	Year 2035 volumes are projected to range from 8,200 to 10,300 vehicles per day on Rogers Lake Road.	No notable difference in projected traffic volumes is anticipated as a result of the design modification.
Level of Service	Improvements are recommended at four intersections to maintain acceptable level of service through the design year (2035).	The addition of a round-a-bout at a realigned intersection of Rogers Lake Road at Lowrance Avenue replaces the proposed signal recommended under the Preferred Alternative. This will result in changes to the traffic analysis conducted for this project. However, round-a-bouts have been shown to improve traffic safety, operational performance, and pedestrian safety*. Therefore, there are potential benefits from the design modification. An addendum to the <i>Traffic Operations Technical Memorandum</i> (Atkins, May 2014) to reflect the design modification will be completed prior to the final decision document for this project.
Human Environment		
Transportation & Land Use Plans	Project is consistent with local and regional plans, but not currently included in the STIP.	No difference as a result of the design modification.
Relocations - Residential	51	An addendum to the relocation report (NCDOT, July 2014) will be completed prior to the final decision document for this project. It is anticipated that the design modification may result in a net increase in the number of residential relocations.
Relocations – Business	7	An addendum to the relocation report (NCDOT, July 2014) will be completed prior to the final decision document for this project. No difference in the number of business relocations is anticipated as a result of the design modification.
Relocations-Church	0	0
Communities and Neighborhoods	Minor access changes; improved access across railroad from grade separation and addition of bike lanes and sidewalks.	No difference to impact on this resource as a result of the design modification.
Environmental Justice	No disproportionately high and adverse impact.	No difference to impact on this resource as a result of the design modification.
Community Services and Public Health and Safety	No adverse impact; improved safety at crossings.	No difference to impact on this resource as a result of the design modification.

TABLE 2-4. Qualitative Comparison of Impacts between the Preferred Alternative and the Design Modification

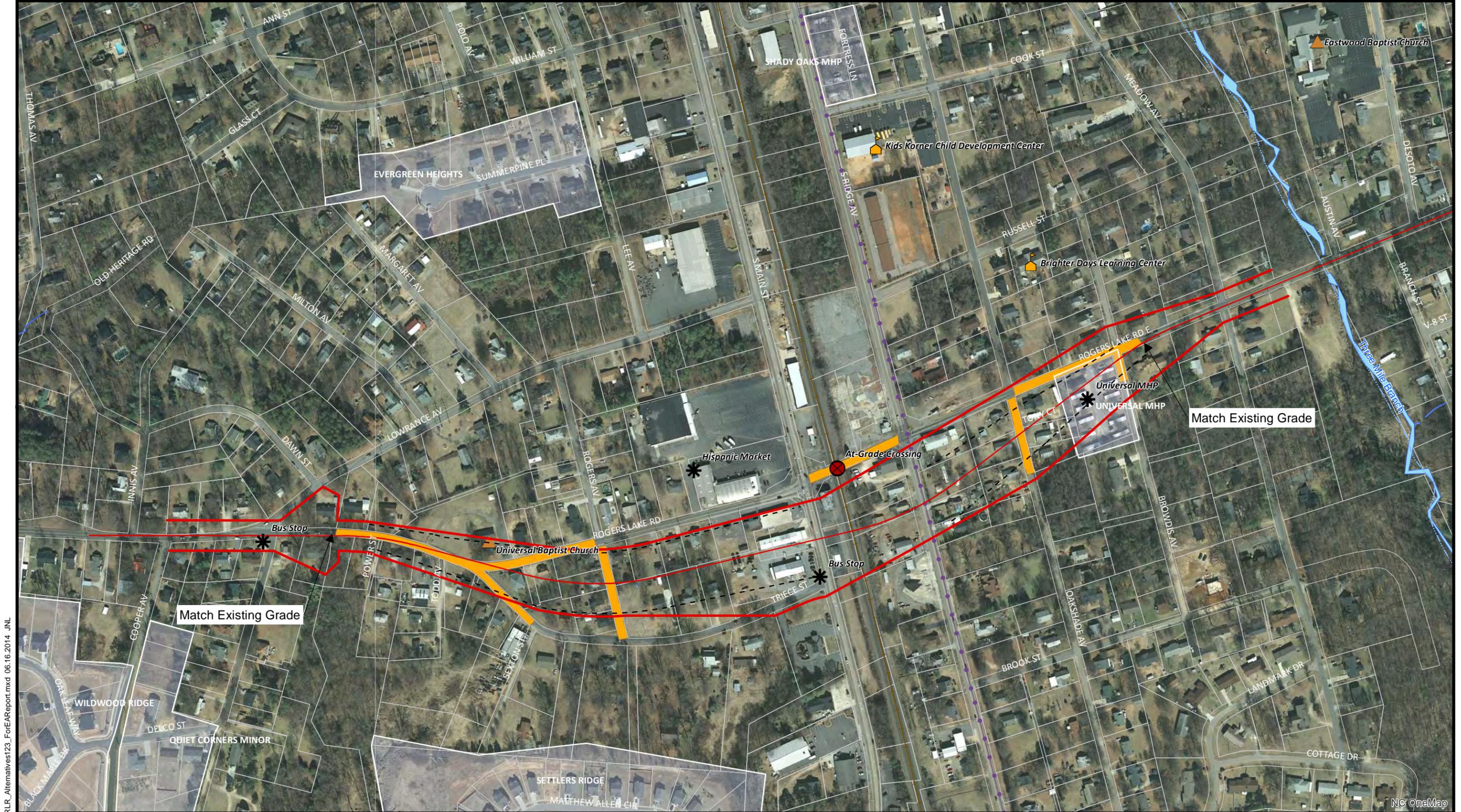
Resource	Preferred Alternative	Design Modification
Section 4(f) and Section 6(f) Resources	No impact. There are no Section 4(f) or Section 6(f) resources in the Project study area.	No difference to impact on this resource as a result of the design modification.
Economic Effects and Energy Use	Minor adverse impact to businesses; temporary benefit from construction jobs; improved rail operations from the elimination of potential collisions with vehicles.	No difference to impact on this resource as a result of the design modification.
Physical Environment		
Noise	Minor adverse impact from traffic noise (12 impacted receptors); reduced impact from train horn noise.	An addendum to the Traffic Noise Analysis will be completed prior to the final decision document for this project. The number of noise receptors analyzed in the Traffic Noise Analysis would not change as a result of the design modification. It is anticipated that noise abatement measures such as walls or berms would not be recommended as reasonable and feasible as previously determined in the Traffic Noise Analysis. According to FHWA*, a round-a-bout can reduce noise impacts as car idling at a signalized intersection would be reduced, which would be a benefit over the Preferred Alternative.
Air Quality	No adverse impact; potential benefit from reduced vehicle idling at crossing.	No difference to impact on this resource as a result of the design modification.
Farmland	The entire Project study area is recognized by the US Census Bureau as an urban area, and therefore is not subject to the Farmland Protection Policy Act (FPPA).	No difference to impact on this resource as a result of the design modification.
Utilities	No adverse impact.	No difference to impact on this resource as a result of the design modification.
Visual and Aesthetic Resources	Minor adverse impact.	According to FHWA*, a round-a-bout provides opportunity for landscaping or other type of attractive feature (monument or art), which would be a benefit over the Preferred Alternative.
Hazardous Materials	4 potential sites; low potential for geoenvironmental impacts.	Potential to impact 2 additional known sites, however, the low potential for geoenvironmental impacts does not change.
Floodplains	No impact. This resource is not located in the study area.	No difference to impact on this resource as a result of the design modification.
Cultural Resources	No known cultural resources in project study area.	No difference to impact on this resource as a result of the design modification.

TABLE 2-4. Qualitative Comparison of Impacts between the Preferred Alternative and the Design Modification

Resource	Preferred Alternative	Design Modification
Natural Environment		
Biotic Communities and Wildlife	No adverse impact. Impact to 0.3 acre upland forest and 14.6 acres of maintained/disturbed land.	No notable difference to impact on this resource as a result of the design modification.
Water Quality	No adverse impact.	No difference to impact on this resource as a result of the design modification.
Jurisdictional Topics	No impact. This resource is not located in the study area.	No difference to impact on this resource as a result of the design modification.
Protected Species	No impact. This resource is not located in the study area.	No difference to impact on this resource as a result of the design modification.
Construction Impacts	Temporary short-term impacts including noise, air quality, disruption of utilities, and disruptions to local traffic flow.	No difference to impact on this resource as a result of the design modification.
Indirect and Cumulative Effects	Minimal increase in local vehicular travel times due to new travel patterns; cumulative benefits of improved regional operations for freight and passenger rail service.	No difference to impact on this resource as a result of the design modification.

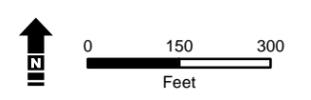
Impacts based on proposed preliminary build alternatives within the Project study area.

* FHWA Website: <http://safety.fhwa.dot.gov/intersection/roundabouts/fhwasa10006/#s2>, site accessed September 25, 2014.



RLR_Alternatives23_ForEAREport.mxd 06.16.2014 JNL


RAIL DIVISION
 ROGERS LAKE ROAD SR-1625
 GRADE SEPARATION
 STIP Project No. Y-4810K
 Cabarrus County, North Carolina



Legend	
	Proposed Horizontal Alignment
	Proposed Right of Way
	Proposed Toe of Slope
	Proposed Road Closure
	Notable Features
	Railroad Crossing
	Parcels
	Subdivisions
	Bike Routes
	Church
	Schools
	Railroad
	Jurisdictional Stream
	Streams

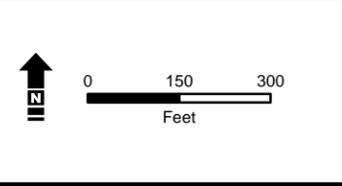
Source: Cabarrus County GIS Aerial: http://services.nconemap.com/arcgis/services/Imagery/Orthoimagery_2010/ImageServer

**PRELIMINARY
 BUILD ALTERNATIVE 1
 (Southern Alignment)**
FIGURE 2-1



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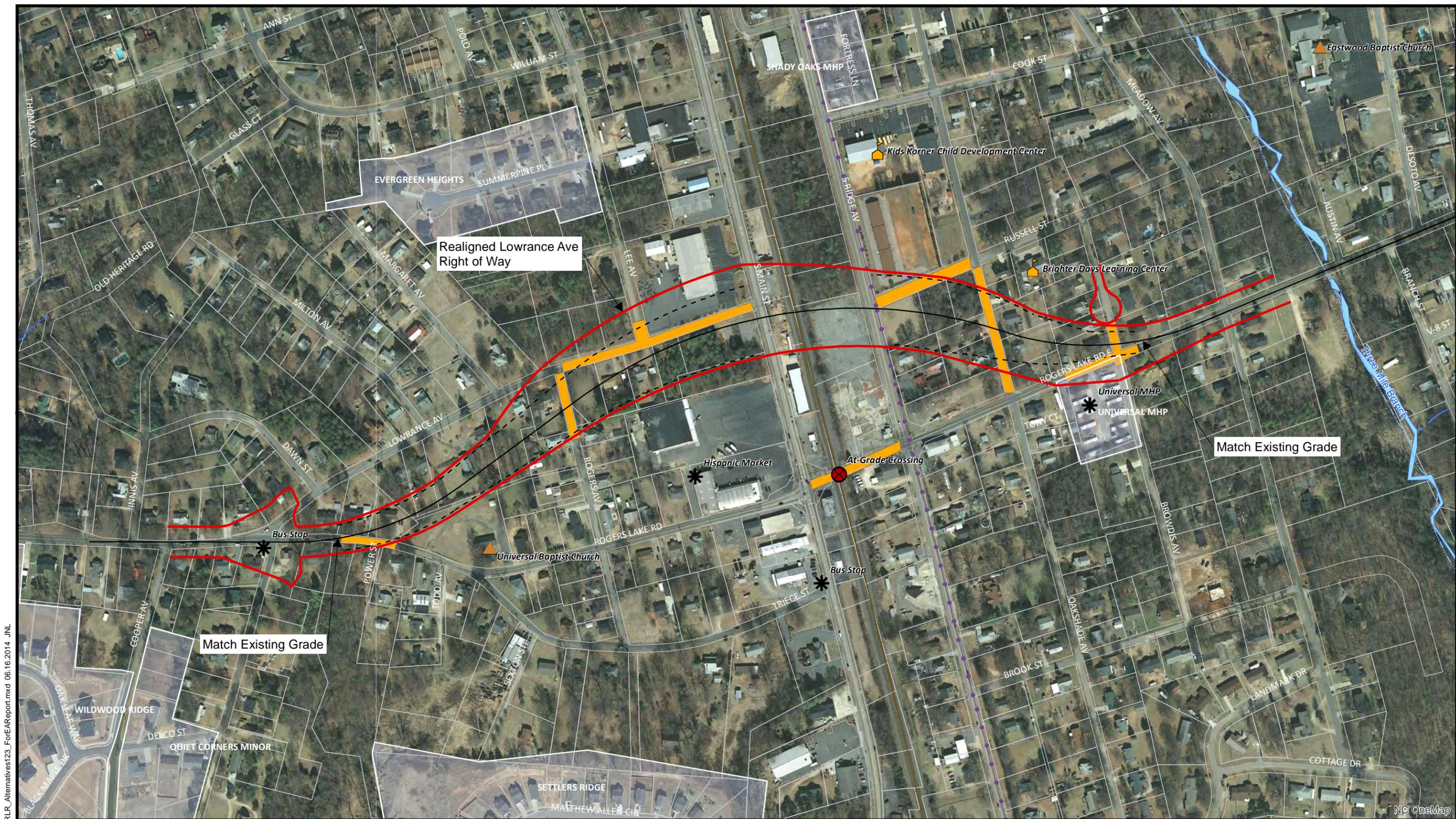
Rail Division
 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 ROGERS LAKE ROAD SR-1625
 GRADE SEPARATION
 STIP Project No. Y-4810K
 Cabarrus County, North Carolina



Legend	
— Proposed Horizontal Alignment	■ Proposed Road Closure
— Proposed Right of Way	* Notable Features
- - Proposed Toe of Slope	⊗ Railroad Crossing
□ Parcels	□ Subdivisions
— Bike Routes	▲ Church
— Schools	▲ Jurisdictional Stream
— Railroad	— Streams

Source: Cabarrus County GIS Aerial: http://services.nconemap.com/arcgis/services/Imagery/Orthoimagery_2010/ImageServer

**PRELIMINARY
 BUILD ALTERNATIVE 2
 (Central Alignment)
 FIGURE 2-2**



RLR_Alternatives23_ForEAREport.mxd 06.16.2014 JNL

RAIL DIVISION

 ROGERS LAKE ROAD SR-1625

 GRADE SEPARATION

 STIP Project No. Y-4810K

 Cabarrus County, North Carolina

0 150 300

 Feet

Legend

Proposed Horizontal Alignment	Proposed Road Closure	Parcels	Church	Jurisdictional Stream
Proposed Right of Way	Notable Features	Subdivisions	Schools	Streams
Proposed Toe of Slope	Railroad Crossing	Bike Routes	Railroad	

Source: Cabarrus County GIS Aerial: http://services.nconemap.com/arcgis/services/Imagery/Orthoimagery_2010/ImageServer

PRELIMINARY

BUILD ALTERNATIVE 3

(Northern Alignment)

FIGURE 2-3

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Legend

- Stop-Controlled Approach
- Signalized Intersection
- Proposed Signalized Intersection

No-Build Lane Geometry

- Full Lane
- Storage or Two-Way Left-Turn Lane

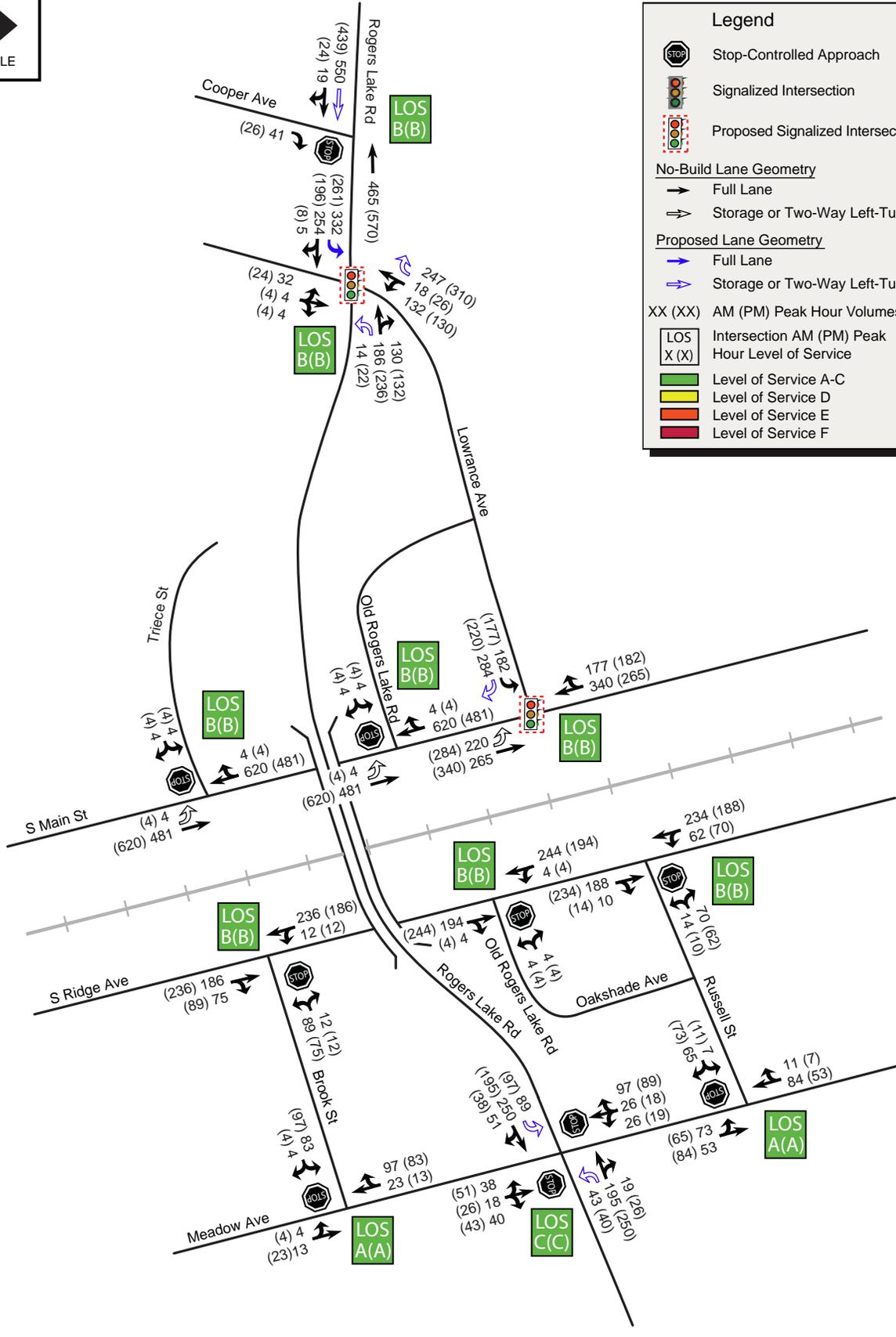
Proposed Lane Geometry

- Full Lane
- Storage or Two-Way Left-Turn Lane

XX (XX) AM (PM) Peak Hour Volumes

LOS X (X) Intersection AM (PM) Peak Hour Level of Service

- Level of Service A-C
- Level of Service D
- Level of Service E
- Level of Service F



RLR_TrafficFigures_ALT1_2035Build.ai 6.16.2014_JNL



NOT TO SCALE

Legend

- Stop-Controlled Approach
- Signalized Intersection
- Proposed Signalized Intersection

No-Build Lane Geometry

- Full Lane
- Storage or Two-Way Left-Turn Lane

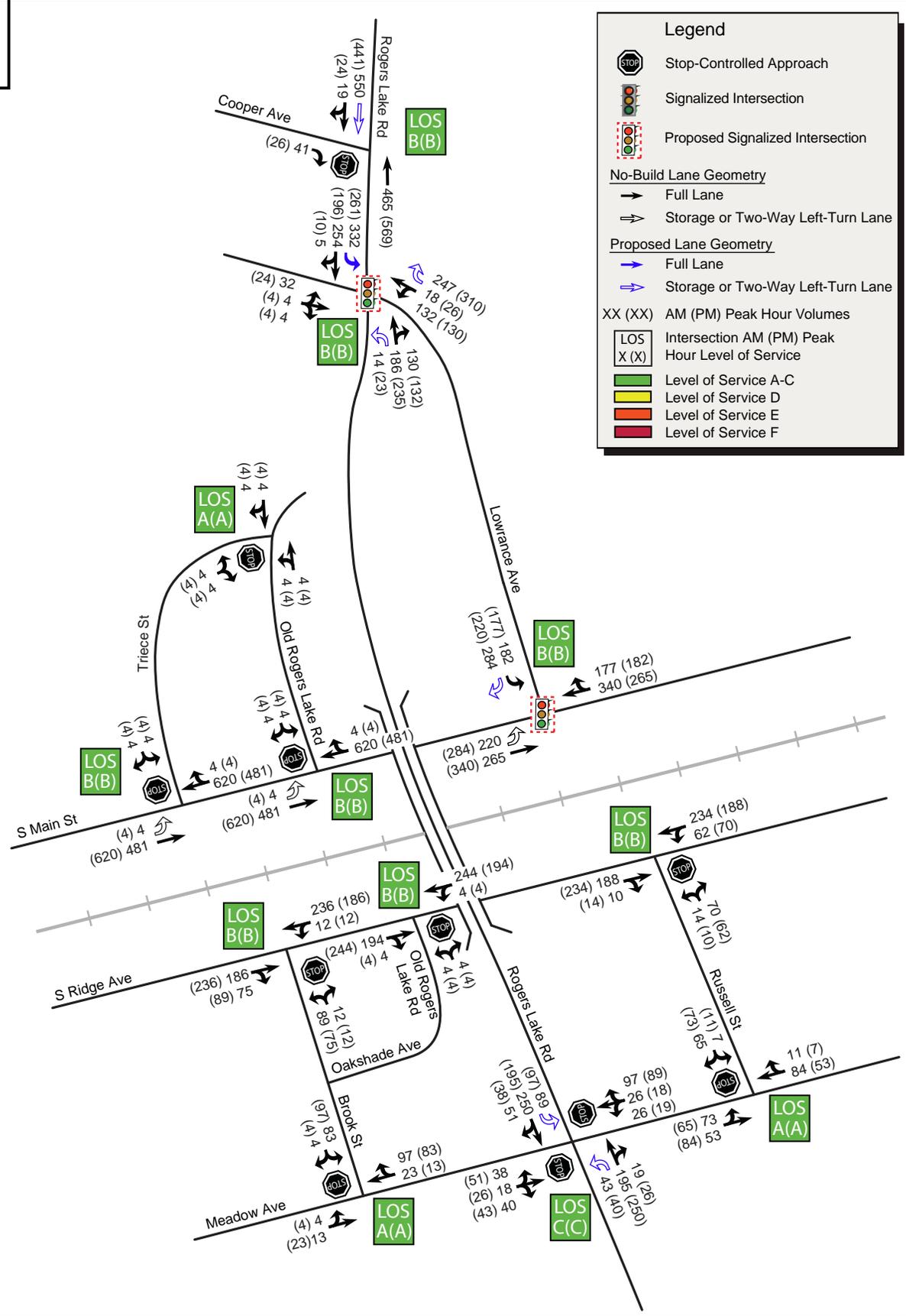
Proposed Lane Geometry

- Full Lane
- Storage or Two-Way Left-Turn Lane

XX (XX) AM (PM) Peak Hour Volumes

LOS X (X) Intersection AM (PM) Peak Hour Level of Service

- Level of Service A-C
- Level of Service D
- Level of Service E
- Level of Service F



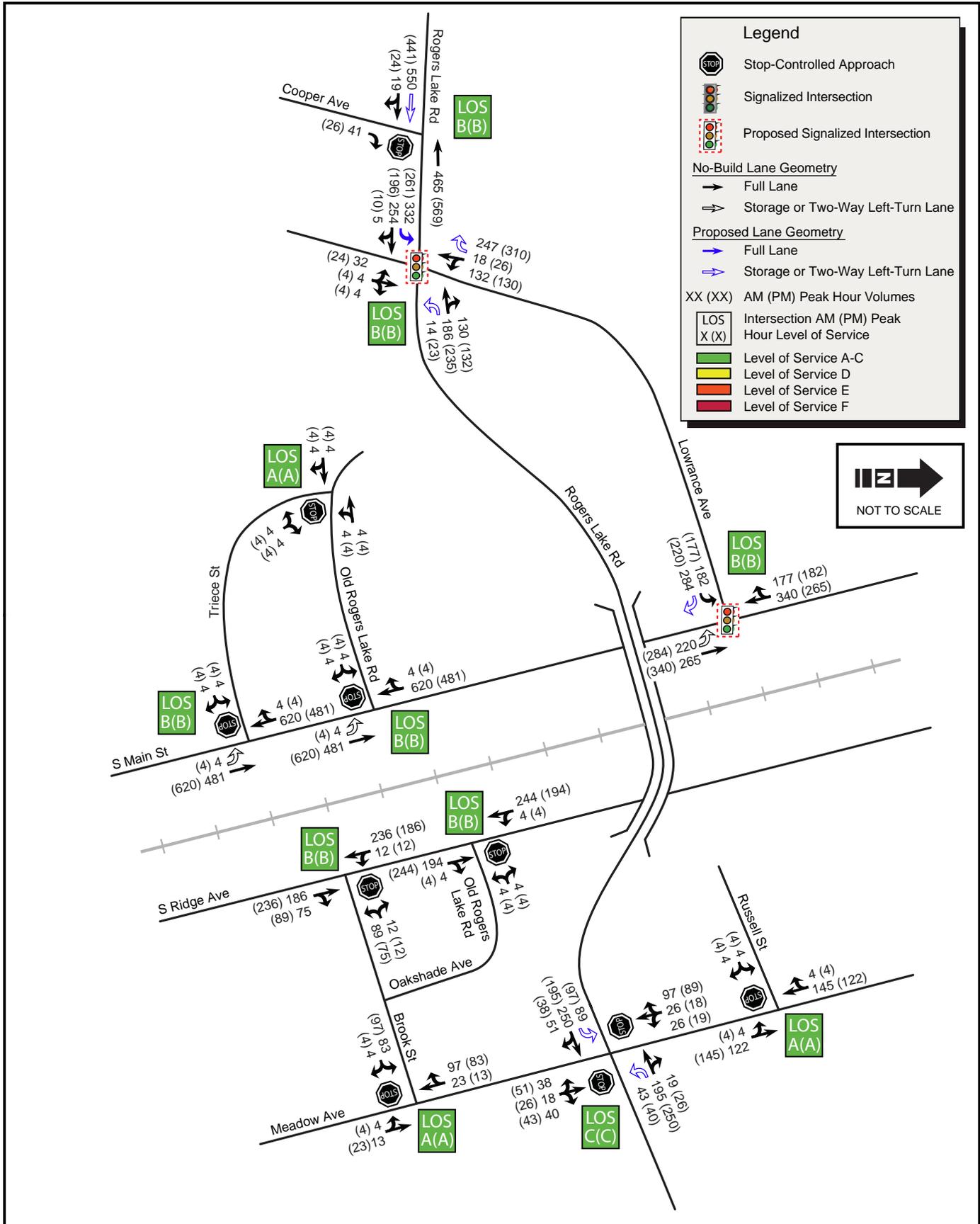
RLR_TrafficFigures_ALT2_2035Build.ai 6.16.2014 JNL

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
 Rogers Lake Road Grade Separation (Y-4810K)
 Cabarrus County, North Carolina

Source: Traffic Operations Technical Memorandum, May 2014.

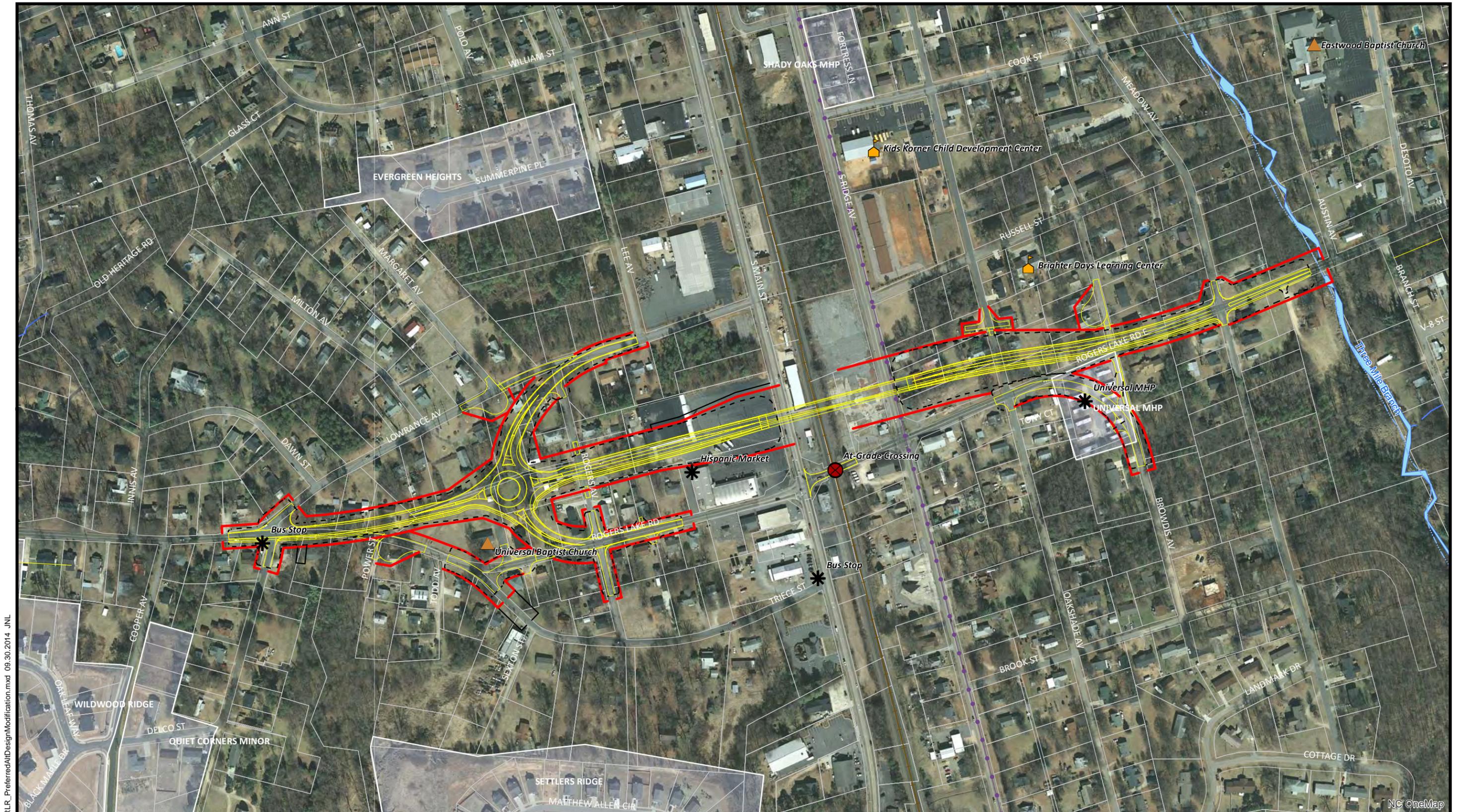
**YEAR 2035 BUILD
 ALTERNATIVE 2
 TRAFFIC CONDITIONS**
FIGURE 2-4b

RLR_TrafficFigures_ALT3_2035Build.ai 6.16.2014 JNL





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RLR_PreferredAltDesignModification.mxd 09.30.2014 JNL

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
 ROGERS LAKE ROAD SR-1625
 GRADE SEPARATION
 STIP Project No. Y-4810K
 Cabarrus County, North Carolina



- Legend**
- Preferred Alternative Design Modification
 - Proposed Right of Way
 - - - Proposed Toe of Slope
 - ✱ Notable Features
 - ⊗ Railroad Crossing
 - Parcels
 - Subdivisions
 - Bike Routes
 - ▲ Church
 - ▲ Schools
 - Railroad
 - Jurisdictional Stream
 - Streams
- Source: Cabarrus County GIS Aerial: http://services.nconemap.com/arcgis/services/Imagery/Orthoimagery_2010/ImageServer

**PREFERRED ALTERNATIVE
 DESIGN MODIFICATION**

FIGURE 2-5

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3.0 AFFECTED ENVIRONMENT

The existing conditions within the Project study area related to the human, physical, cultural, and natural environments are described in this chapter of the EA. The potential impacts of the Project to these resources are discussed in **Chapter 4 - Environmental Consequences**.

3.1 HUMAN ENVIRONMENT

This section provides information on the following existing aspects of the human environment: land use, demographics (population characteristics, housing, and economic characteristics), community facilities and services, parklands, and Section 4(f)/6(f) resources. The sections below are based on the *Community Impact Assessment* prepared for the project and incorporated by reference (Atkins, June 2014).

3.1.1 LAND USE

3.1.1.1 Existing Land Use and Zoning

The proposed Project is located in the City of Kannapolis, Cabarrus County. The Project study area falls within the planning jurisdiction of the City of Kannapolis. Land use surrounding the Project study area consists of commercial uses along the rail line and South Main Street surrounded by low to medium-density residential uses.

Zoning designations within the Project study area are consistent with the existing land uses. Most of the Project study area is zoned C-2, General Commercial District, followed by RM-2, Residential Medium Density (11,000 square foot minimum lot size, maximum of four dwelling units per acre) and RV, Village Residential District (6,000 square foot minimum lot size, maximum of seven units per acre).

3.1.1.2 Future Land Use Plans

The City of Kannapolis *2015 Land Use Plan* (July 26, 2004) is separated into eight planning areas. Rogers Lake Road forms the boundary between the Central and South Kannapolis planning areas. Within the Project Area, the *2015 Land Use Plan* recommends that commercial and residential land use and zoning patterns continue.

3.1.2 DEMOGRAPHICS

2010 Census data was used to characterize the existing human environment conditions in the Project study area. The Project study area includes portions of four Census Block Groups. Together, these four block groups form the Demographic Study Area. As shown on **Figure 3-1**, the Demographic Study Area is much larger than the Project study area and consists of Census Tract (CT) 408, Block Group (BG) 3; CT 409, BG 1; CT 410, BG 4; and CT 411, BG 3. All are located in Cabarrus County.

3.1.2.1 Population Characteristics

Population Growth. The population of Cabarrus County grew by 35.8 percent between 2000 and 2010 (from 131,063 people to 178,011 people), which is almost twice the statewide increase of 18.5 percent.

From 2010 to 2030, Cabarrus County is projected to grow approximately 33 percent; from 178,011 people to 237,929 people.

According to the US Census, the population of the Demographic Study Area was 6,766 in 2000. The population for the same area in 2010 was 7,437. This represents an overall growth rate of approximately 10 percent between 2000 and 2010, which is lower than growth rate of the county and state over the same period of time. This is most likely due to the higher amount of existing development in the project area compared to less developed or developing areas in other parts of the county.

Racial Composition. As shown in **Table 3-1**, the diversity of the Demographic Study Area in 2010 is comparable to that of the state and Cabarrus County, with the white population being the largest racial group. As shown in **Table 3-2**, the Demographic Study Area has a slightly higher percentage of Hispanics (11.4 percent) compared to the county (9.4 percent) and state (8.4 percent).

TABLE 3-1. Racial Characteristics -- 2010 Census

Geography	Total Population	White		Black or African American		American Indian & Alaska Native		Asian		Native Hawaiian / Pacific Islander		Some Other Race		Two or More Races		Total-Non-White	
		#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
CT 408, BG 3	1,676	1,065	63.5	301	18.0	12	0.7	40	2.4	0	0.0	202	12.1	56	3.3	611	36.5
CT 409, BG 1	1,845	1,435	77.8	267	14.5	4	0.2	13	0.7	0	0.0	102	5.5	24	1.3	410	22.2
CT 410, BG 4	1,579	1,005	63.6	320	20.3	7	0.4	9	0.6	4	0.3	181	11.5	53	3.4	574	36.4
CT 411, BG 3	2,337	1,944	83.2	257	11.0	1	0.0	39	1.7	0	0.0	60	2.6	36	1.5	393	16.8
DSA	7,437	5,449	73.3	1,145	15.4	24	0.3	101	1.4	4	0.1	545	7.3	169	2.3	1,988	26.7
Cabarrus County	178,011	134,149	75.4	27,219	15.3	659	0.4	3,513	2.0	65	0.0	8,664	4.9	3,742	2.1	43,862	24.6
North Carolina	9,535,483	6,528,950	68.5	2,048,628	21.5	122,110	1.3	208,962	2.2	6,604	0.1	414,030	4.3	206,199	2.2	3,006,533	31.5

Source: US Census Bureau, Census 2010, Summary File 1 100% Data, Table P3 "Race"

TABLE 3-2: Hispanic or Latino Origin

Geography	Total Population	Hispanic		Not Hispanic	
		#	%	#	%
CT 408, BG 3	1,676	305	18.2%	1,371	81.8%
CT 409, BG 1	1,845	139	7.5%	1,706	92.5%
CT 410, BG 4	1,579	268	17.0%	1,311	83.0%
CT 411, BG 3	2,337	134	5.7%	2,203	94.3%
DSA	7,437	846	11.4%	6,591	88.6%
Cabarrus County	178,011	16,767	9.4%	161,244	90.6%
North Carolina	9,535,483	800,120	8.4%	8,735,363	91.6%

Source: US Census Bureau, Census 2010, Summary File 1 100% Data, Table P4 "Hispanic or Latino Origin
 ** Hispanic or Latino is an ethnic category and can include persons of any race; therefore, the Hispanic or Latino numbers and percentages are presented exclusive of race.

3.1.2.2 Housing

Based on the 2010 US Census, home ownership in the Demographic Study Area (approximately 57 percent) is comparable to the state average of 58 percent, but lower than Cabarrus County (67 percent). The percentage of renter occupied housing in three out of the four census block groups is 10 percentage points or more than Cabarrus County as shown in **Table 3-3**.

TABLE 3-3. Housing Characteristics

Geography	Total Housing Units	Owner Occupied		Renter Occupied		Vacant	
		#	%	#	%	#	%
CT 408, BG 3	740	323	43.6%	310	41.9%	107	14.5%
CT 409, BG 1	935	502	53.7%	320	34.2%	113	12.1%
CT 410, BG 4	711	332	46.7%	289	40.6%	90	12.7%
CT 411, BG 3	928	722	77.8%	143	15.4%	63	6.8%
DSA	3,314	1,879	56.7%	1,062	32.0%	373	11.3%
Cabarrus County	71,937	48,381	67.3%	17,285	24.0%	6,271	8.7%
North Carolina	4,327,528	2,497,900	57.7%	1,247,255	28.8%	582,373	13.5%

Source: US Census Bureau, Census 2010, Tables H3, H4

3.1.2.3 Economic Characteristics

Unemployment and Income. According to the NC Department of Commerce, as of March 2014, the unemployment rate for Cabarrus County (5.8 percent) was slightly lower than that of the state as a whole (6.3) percent.

Data on income is presented in **Table 3-4** from the 2007-2011 American Community Survey 5-year estimates. Median family income and median household incomes were compared to Cabarrus County and the State. The median family and household incomes for CT 408, BG3 and CT 410, BG4 are lower than that of the county and state. The median family and household incomes for CT 409, BG 1 and CT 411, BG3 are comparable to those of the county and the state. The percentage of persons below poverty in the Demographic Study Area is higher than the county percentage, but

comparable to the state percentage. The percentage of persons living below poverty level in CT 410, BG 4 (37.8 percent), located northwest of the Project, is notably higher than the county and state percentages.

A discussion of Environmental Justice populations in the Project area is presented in **Section 4.1.4**.

Businesses in the Project Area. There are no large-scale employers in the Project study area or immediate vicinity. The intersection of Rogers Lake Road at the NCRR tracks includes a commercial shopping center on the northwest corner. Businesses located in the center include: a restaurant, Hispanic market, and carpeting business. A heating and air conditioning business is located directly across South Main Street along the rail tracks. An office building and martial arts business are located on the southeast corner of the intersection.

TABLE 3-4. Income Characteristics

Geography	Median Family Income	Median Household Income	Persons Below Poverty (%)
CT 408, BG 3	\$39,093	\$37,794	18.4%
CT 409, BG 1	\$64,479	\$53,510	11.5%
CT 410, BG 4	\$33,831	\$29,500	37.8%
CT 411, BG 3	\$61,250	\$49,954	6.2%
Demographic Study Area	--	--	16.3%
Cabarrus County	\$66,290	\$54,280	11.9%
North Carolina	\$57,171	\$46,291	16.1%

Source: US Census Bureau, American Community Survey 5-year Estimates (2007-2011), Tables B19113, B19013, C17002.

3.1.3 COMMUNITY FACILITIES AND SERVICES

Community facilities and services within the Project study area are discussed below and shown in **Figure 1-2**. There are no schools, libraries, community centers, or hospitals in the Project study area.

3.1.3.1 Schools and Churches

Schools. There are no schools located in the Project study area; however, the Project study area is served by Shady Brook Elementary School located at 903 Rogers Lake Road, Kannapolis Middle School located at 1445 Oakwood Avenue, and A L Brown High School located at 415 East First Street in Kannapolis. Buses serving these schools use roadways in the project study area, including the railroad crossing on Rogers Lake Road.

Churches. Universal Baptist Church, a small community church, is located on the north side of Rogers Lake Road at Triece Street in the western portion of the Project study area.

3.1.3.2 Emergency Services

No emergency services facilities are located in the Project study area. The Kannapolis Police Department serves the entire Project study area. The police department is located north of the Project study area at 314 South Main Street.

The Kannapolis Fire Department provides service to the entire Project study area. Kannapolis Fire Station Number 2 is located outside, and to the north of, the Project study area at 819 Richard Avenue and provides emergency response services to the Project study area west of South Main Street. Kannapolis Fire Station Number 3, located outside of the Project study area at 2209 Florida Avenue, provides emergency response service to the Project study area east of South Main Street.

While no services are located in the project study area, Rogers Lake Road is an important crossing to emergency services due to the next closest road crossings over the railroad being over a mile away in each direction.

3.1.4 PARKLANDS AND SECTION 4(F) AND SECTION 6(F) RESOURCES

No public parks or public recreational facilities are located within the Project study area. Review of the *Cabarrus County Existing Land Use Plan (April 2009)* and the *South Kannapolis 2015 Land Use Plan* revealed that the Project study area is not targeted for any future park development.

There are no Section 4(f) or Section 6(f) resources within or in the immediate vicinity of the Project study area.

Background on Section 4(f) and Section 6(f) Resources. Section 4(f) and Section 6(f) resources are afforded special protections from Federal actions. The names “Section 4(f) resources” and “Section 6(f) resources” are derived from the laws which establish these protections.

The Department of Transportation Act of 1966 (49 USC Section 303) regulates the use and taking of Section 4(f) resources for Federally-funded transportation projects. Section 4(f) resources include publicly-owned parks, recreation areas, and wildlife and waterfowl refuges as well as significant historic sites under public or private ownership.

The Land and Water Conservation Fund Act of 1965 established funding to states and local governments for the planning, acquisition, and development of outdoor public recreation sites and facilities. Section 6(f) of the Act prohibits the conversion of property acquired through this Act without the approval of the Department of the Interior’s National Park Service (NPS).

3.2 PHYSICAL ENVIRONMENT

This section discusses existing conditions related to noise, air quality, farmland, utilities, visual resources, hazardous materials, mineral and energy resources, and floodplains.

3.2.1 NOISE

This section summarizes the *Traffic Noise Analysis for the Rogers Lake Road Grade Separation* prepared for the Project (Atkins, draft April 2014). This report is incorporated by reference.

Background. Noise is defined as unwanted sound and can come from man-made sources or natural sources. Noise can interrupt human activities and can result in annoyance, especially in residential areas. Changes in noise levels occur in the context of the existing noise environment. This means that what may be noisy in a relatively quiet environment may go unnoticed in a louder environment.

The magnitude of noise is usually described by a common unit of reference called the “decibel” (dB). The A-weighted decibel scale is used almost exclusively when measuring vehicle noise because it places an emphasis on the frequency range to which the human ear is most sensitive (1,000–6,000 Hertz). Sound levels that are measured using the A-weighted decibel scale are written as dB(A).

3.2.1.1 Regulatory Overview

A Federal Railroad Administration (FRA) rail noise study was not performed for this project. It was determined that since no improvements are being made to the railroad track except for the removal of the at-grade crossing, that there would not be additional rail noise generated by the project. Also

as a result of the removal of the at-grade crossing with Rogers Lake Road, trains would no longer be required to sound their horns to alert pedestrians and motorists at the crossing. This will lead to a reduction, and likely an elimination, of train horns at this location, which is a significant contributor to rail noise at a crossing location.

The FHWA has established Noise Abatement Criteria (NAC) and procedures to be used in the planning and design of highways. The FHWA NAC are presented in **Table 3-5**. As shown in the table, the NAC are divided into Activity Categories depending upon different sensitivities to noise. Most land uses in the project area are in Activity Categories B and F.

TABLE 3-5. Noise Abatement Criteria

Activity Category	Activity Criteria ¹ L _{eq(h)} ²	Evaluation Location	Activity Description
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B ³	67	Exterior	Residential
C ³	67	Exterior	Active sport areas, amphitheatres, auditoriums, campgrounds, cemeteries, daycare centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section4(f) sites, schools, television studios, trails, and trail crossings
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios
E ³	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F
F	--	--	Agriculture, airports, bus yards, emergency services, industrial, logging maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing
G	--	--	Undeveloped lands that are not permitted

Source: 23 CFR 772, Table 1 to Part 772, Noise Abatement Criteria.

1. The L_{eq(h)} Activity Criteria values are for impact determination only, and are not design standards for noise abatement measures.
2. The equivalent steady-state sound level which in a stated period of time contains the same acoustic energy as the time-varying sound level during the same time period, with L_{eq(h)} being the hourly value of L_{eq}.
3. Includes undeveloped lands permitted for this activity category.

North Carolina Department of Transportation Traffic Noise Abatement Policy. The NCDOT *Traffic Noise Abatement Policy*, effective July 13, 2011, establishes official policy on highway noise. This policy describes the NCDOT process that is used in determining traffic noise impacts and abatement measures and the equitable and cost-effective expenditure of public funds for traffic noise abatement. Where the FHWA has given highway agencies flexibility in implementing the

23 CFR 772 standards, this policy describes the NCDOT approach to implementation. This policy is included as Appendix E of the *Traffic Noise Analysis for the Rogers Lake Road Grade Separation*.

3.2.1.2 Noise Abatement Criteria

The two categories of traffic noise impacts are defined as 1) those that “approach” or exceed the FHWA Noise Abatement Criteria (NAC), as shown in **Table 3-5**, and 2) those that represent a “substantial increase” over existing noise levels as defined by NCDOT. An impact that represents a “substantial increase” is based on a comparison of the existing noise level [$L_{eq(h)}$] with the predicted increase with respect to a change to noise levels in the design year of between 10 and 15 dB(A) or more, as shown in **Table 3-6**.

TABLE 3-6. NCDOT “Substantial Increase” Noise Impact Criteria

Existing Noise Level ¹ ($L_{eq(h)}$)	Predicted Design Year Noise Level Increase ² ($L_{eq(h)}$)
50 or less	15 or more
51	14 or more
52	13 or more
53	12 or more
54	11 or more
55 or more	10 or more

1. Loudest hourly equivalent noise level from the combination of natural and mechanical sources and human activity usually present in a particular area.
2. Predicted hourly equivalent Design Year traffic noise level minus existing noise level.

3.2.1.3 Existing Noise Environment

Existing noise sources within the Project study area include vehicular and train traffic. Existing rail and vehicular noise exposure varies by proximity to the railroad tracks and existing roadways. To characterize the existing noise environment, ambient noise measurements were collected during peak morning travel periods on February 10-11, 2014, at five representative locations in the Project study area. Generally, traffic noise from Rogers Lake Road and surrounding roadways was measured to be 56-59 dBA Leq 25-50 feet from Rogers Lake Road and 50-54 dBA Leq 75-110 feet from the road.

Noise impacts associated with the proposed Project are presented in **Section 4.2.1**.

3.2.2 AIR QUALITY

3.2.2.1 National Ambient Air Quality Standards

The Federal Clean Air Act of 1970 (CAA), as amended (42 USC 750(c)), was enacted for the purposes of protecting and enhancing the quality of the nation’s air resources to benefit public health, welfare, and productivity. The United States Environmental Protection Agency (USEPA) has established primary and secondary National Ambient Air Quality Standards (NAAQS) for six criteria air pollutants: carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), ozone (O₃), particulate matter, and lead.

Table 3-7 lists National Ambient Air Quality Standards (NAAQS). The primary standards are set at a limit intended to “protect the public health with an adequate margin of safety,” and the

secondary standards are set at a limit intended to “protect the public welfare from known or anticipated adverse effects (effects to aesthetics, crops, architecture, etc.)” (Federal Clean Air Act 1990: Section 109).

The Project is located in Cabarrus County, which is in the Metrolina nonattainment area for ozone. The Metrolina area was designated moderate nonattainment for ozone under the eight-hour ozone (1997 standard) effective June 15, 2004. The area was redesignated to maintenance on January 2, 2014. A revised eight-hour ozone standard was declared in 2008 and went into effect on July 20, 2012. The Project area is included in the Charlotte-Rock Hill marginal nonattainment area for eight-hour ozone (2008 standard). Cabarrus County is in attainment of all other criteria pollutants for which NAAQS are established.

TABLE 3-7. National Ambient Air Quality Standards

Pollutant	Primary Standards		Secondary Standards
	Level	Averaging Time	
Carbon Monoxide	9 ppm	8-hour	None
	35 ppm	1-hour	
Lead	0.15 µg/m ³ ⁽¹⁾	Rolling 3-month Average	Same as Primary
Nitrogen Dioxide	53 ppb ⁽²⁾	Annual Mean	Same as Primary
	100 ppb	1-hour	None
Particulate Matter (PM ₁₀)	150 µg/m ³	24-hour	Same as Primary
Particulate Matter (PM _{2.5})	12 µg/m ³	Annual Mean	15 µg/m ³ , annual mean
	35 µg/m ³	24-hour	Same as Primary
Ozone	0.075 ppm ⁽³⁾	8-hour	Same as Primary
Sulfur Dioxide	75 ppb ⁽⁴⁾	1-hour	0.5 ppm for 3-hour averaging time

Source: USEPA Web site: www.epa.gov/air/criteria.html, accessed June 18, 2014.

ppm = parts per million. ppb = parts per billion

Notes:

- (1) Final rule signed October 15, 2008. The 1978 lead standard (1.5 µg/m³ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
- (2) The official level of the annual NO₂ standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of clearer comparison to the 1-hour standard.
- (3) Final rule signed March 12, 2008. The 1997 ozone standard (0.08 ppm, annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years) and related implementation rules remain in place. In 1997, USEPA revoked the 1-hour ozone standard (0.12 ppm, not to be exceeded more than once per year) in all areas, although some areas have continued obligations under that standard (“anti-backsliding”). The 1-hour ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is less than or equal to 1.
- (4) Final rule signed June 2, 2010. The 1971 annual and 24-hour SO₂ standards were revoked in that same rulemaking. However, these standards remain in effect until one year after an area is designated for the 2010 standard, except in areas designated nonattainment for the 1971 standards, where the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standard are approved.

3.2.2.2 General Conformity

The Clean Air Act requires Federal agencies to ensure that their actions conform to the applicable State Implementation Plan (SIP), which is the document that describes how a State will maintain or achieve compliance with the NAAQS. In North Carolina, the North Carolina Department of Environment and Natural Resources, Division of Air Quality (DAQ) develops the SIP.

Projects funded or approved by the FHWA or FTA must meet transportation conformity criteria (40 CFR 51, Subpart T and 40 CFR 93). Other Federal actions, including FRA actions, must meet general conformity requirements (40 CFR 51, Subpart W). Since the proposed Project is anticipated to receive funding from FHWA and/or FRA, general conformity is described below.

A general conformity determination is required for each criteria pollutant or precursor where the total of direct and indirect emissions of the criteria pollutant or precursor in a nonattainment or maintenance area caused by a Federal action would equal or exceed any of the specified rates. For ozone maintenance areas outside ozone transport regions, the emissions limits are 100 tons per year of ozone and ozone precursors, including nitrogen oxides, sulfur dioxide, and volatile organic compounds (40 CFR 51.853).

A Federal agency must demonstrate that a proposed action would not cause or contribute to any new violations of the NAAQS, would not interfere with provisions in the SIP, would not increase the frequency or severity of existing violations, or would not delay timely attainment of any standard. The Federal agency must provide documentation that the total of direct and indirect emissions from such future actions would be below the emission rates for a conformity determination that are established in 40 CFR 51.853 (described above).

3.2.2.3 Diesel Locomotive Emissions Standards

Emissions from diesel locomotives are regulated by the USEPA. Below is an excerpt from their Web site describing anticipated reductions in emissions from diesel locomotives:

Although locomotive engines being produced today must meet relatively modest emission requirements set in 1997, they continue to emit large amounts of nitrogen oxides and particulate matter (PM), both of which contribute to serious public health problems.

In May 2004, as part of the Clean Air Nonroad Diesel Rule, EPA finalized new requirements for nonroad diesel fuel that will decrease the allowable levels of sulfur in fuel used in locomotives by 99 percent. These fuel improvements will create immediate and significant environmental and public health benefits by reducing PM from existing engines.

In March 2008, EPA finalized a three part program that will dramatically reduce emissions from diesel locomotives of all types -- line-haul, switch, and passenger rail. The rule will cut PM [particulate] emissions from these engines by as much as 90 percent and NOx [nitrogen oxide] emissions by as much as 80 percent when fully implemented.

This final rule sets new emission standards for existing locomotives when they are remanufactured--to take effect as soon as certified systems are available, as early as 2008. The rule also sets Tier 3 emission standards for newly-built locomotives, provisions for clean switch locomotives, and idle reduction requirements for new and remanufactured locomotives. Finally, the rule establishes long-term, Tier 4, standards for newly-built engines based on the application of high-efficiency catalytic after treatment technology, beginning in 2015.²

² USEPA Web site: www.epa.gov/otaq/locomotives.htm#il

3.2.3 FARMLAND

The Farmland Protection Policy Act (FPPA) of 1981 (CFR Part 658) requires all federal agencies to consider the impact of their activities on prime, unique, statewide, and locally important farmland soils, as defined by the US Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) (Public Law 97-98, Subtitle 1, Section 1540). Adherence to the FPPA is required unless certain conditions are met, one of which is that the project is within an urban area as defined by the US Census.

The entire Project study area is recognized by the US Census Bureau as an urban area, and therefore is not subject to the FPPA.

3.2.4 UTILITIES

Utilities and utility providers within the Project study area are listed in **Table 3-8**. Utilities include, gas, electric, cable, and water/sewer. The Project study area is in the City of Kannapolis Water and Sewer Service Area³.

TABLE 3-8. Utility Providers

Utility	Provider
Electricity	Duke Energy Corporation
Water / Sewer	City of Kannapolis
Natural Gas	PSNC Energy
Telephone	Time Warner Cable
	Verizon Wireless
	Windstream
	AT&T
Fiber Optics and Cable	Time Warner Cable

Source: www.cityofkannapolis.com/living-here/for-newcomers
 Cabarrus Economic Development Web site:
<http://www.cabarrusedc.com>

3.2.5 VISUAL RESOURCES

The landscape in the proposed grade separation area is suburban in nature and generally consists of commercial development at the Rogers Lake Road railroad crossing, surrounded by low to medium-density residential development.

No unique scenic vistas or visually sensitive resources have been identified in the study area. A representative view of the railroad crossing commercial area is provided in the photograph to the right.

³ City of Kannapolis Web site: www.cityofKannapolis.com



3.2.6 HAZARDOUS MATERIALS

Hazardous material sites may include, but are not limited to, active and abandoned underground storage tank (UST) sites, hazardous waste sites, regulated landfills, and unregulated dumpsites. The NCDOT Geoenvironmental Unit conducted a hazardous material evaluation (GeoEnvironmental Report for Planning for Y-4810K, NCDOT, December 3, 2013) to identify properties within the Project study area that are, or may be, contaminated with hazardous materials and therefore would result in increased project costs and future liability if acquired by the NCDOT.

The evaluation included a search of appropriate environmental agencies' databases for recorded hazardous materials sites and a field reconnaissance conducted on November 25, 2013.

Based on the evaluation, 14 possible UST facilities, two auto repair shops, and one facility used to store tree trimming equipment were identified within the Project study area. The anticipated impact severity to all 14 of these sites is low, as summarized in **Table 3-9**.

TABLE 3-9. Known and Potential Hazardous Material Sites in the Project Study Area

Site Number	Site Type and Facility ID Number	Location	UST Owner ¹	Other Information	Anticipated Impact Severity
1	Auto Repair Shop	1300 Todd Avenue Kannapolis, NC 28081	N/A	Morgan's Garage. No evidence of any UST system.	Low
2	Vacant Building	307 Triage Street Kannapolis, NC 28081	N/A	Facility appears to be an out of business used auto part store / repair shop. No evidence of any UST system.	Low
3	UST 0-001912	1404 S. Main Street Kannapolis, NC 28081	Harry L. Smith	Gio's Tire & Wheel Service, auto tire and repair shop. One AST ² . Two UST's removed 1993.	Low
4	Warehouse 0-001913	1402 S. Main Street Kannapolis, NC 28081	Harry L. Smith	Gio's Tire & Wheel Serv. Two AST's. Three UST's removed 1989.	Low
5	UST 0-007143	129 Rogers Lake Road, Kannapolis, NC 28081	Atomic Oil Co.	Two UST's removed 1989.	Low
6	Vacant shop/garage	1400 S. Main Street and 101 Rogers Lake Road Kannapolis, NC 28081	N/A	No evidence of any UST system.	Low
7	Real Estate Office 0-007932	1401 S. Main Street Kannapolis, NC 28081	C.J. Moss Real Estate Inc.	One UST removed 1991. One UST appears on site.	Low
8	Pet Grooming Salon	1403 S. Main Street Kannapolis, NC 28081	N/A	Paws & Claws. No evidence of any UST system.	Low
9	UST 0-004162, 0-027579	1416-1414 S. Ridge Avenue Kannapolis, NC 28083	Wilhelimenia J. Middleton	Full detail car wash. Former service station. Three UST's closed in 1983, one UST closed in 1984, and four UST's closed in 1989.	Low
10	UST 0-007666	1412 S. Ridge Avenue Kannapolis, NC 28083	Troy Day	Le Bleu's Towing storage lot. Three UST's closed in 1991. (Ground Water Incident #20355)	Low
11	Cell phone retail store	1400 S. Ridge Avenue Kannapolis, NC 28083	N/A	No evidence of any UST system.	Low
12	Equipment storage lot	1309 S. Ridge Avenue Kannapolis, NC 28083	N/A	Kleen Cut tree service.	Low
13	Pet salon	1311 S. Ridge Avenue Kannapolis, NC 28083	N/A	Mutt Hut pet grooming salon. One UST identified.	Low

TABLE 3-9. Known and Potential Hazardous Material Sites in the Project Study Area

Site Number	Site Type and Facility ID Number	Location	UST Owner ¹	Other Information	Anticipated Impact Severity
14	Vacant Lot	1310-1306 S. Ridge Avenue Kannapolis, NC 28083	N/A	Former site of Triage Block Company. Site used as construction staging for recent upgrade to S. Ridge Avenue and Rogers Lake Road intersection at rail crossing.	Low
15	UST 0-019485	1307 S. Main Street Kannapolis, NC 28081	Widenhouse Services Inc.	Moss and Moore Inc, heating and air conditioning business. One UST closed in 1992.	Low
16	Vacant Lot	S. Main Street (no address)	N/A	Former car wash. No evidence of any UST system.	Low
17	Gun Shop	1227 S. Main Street Kannapolis, NC 28081	N/A	Shooters Edge. No evidence of any UST system.	Low

Source: GeoEnvironmental Impact Evaluation (NCDOT Geotechnical Engineering Unit, December 2013).

1. N/A if no UST owner reported.
2. AST = Above ground Storage Tank.

3.2.7 MINERAL AND ENERGY RESOURCES

The Project study area does not contain mineral resources or quarries. There are no energy resource activities such as oil wells or mines in the Project study area.

3.2.8 FLOODPLAINS

A floodplain is a lowland area adjacent to lakes, streams, and rivers that is covered by water during a flood. The rapid rise in the water level inundates the flat, low-lying areas near the water body for extended periods of time.

Based on Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), there are no designated floodplains or floodways within the Project study area.

3.3 CULTURAL RESOURCES

Archaeological and historic architectural resources are protected by a variety of laws and their implementing regulations. The most notable of these are the National Historic Preservation Act (NHPA) of 1966, as amended in 2001; the Archaeological and Historic Preservation Act of 1974; and the Archaeological Resources Protection Act (ARPA) of 1979. Treatment of archaeological and architectural resources for Federal projects is also guided by Advisory Council on Historic Preservation regulations, Protection of Historic Properties (36 CFR 800).

Archaeological and architectural resources were identified according to the requirements of 36 CFR 800 and Section 106 of the NHPA, along with the environmental assessment process, to ensure full consideration of all possible impacts associated with the project.

The North Carolina Department of Cultural Resources State Historic Preservation Office (HPO) was consulted regarding archaeological and historic architectural resources in the Project study area. The HPO reviewed the Project and determined no historic resources (including archaeological resources) will be affected by the proposed Project. Written verification received from the HPO by letter dated September 23, 2011, is included in **Appendix C**.

3.4 NATURAL ENVIRONMENT

This section describes the existing conditions of the natural environment within the Project area, including biotic communities and wildlife, water resources, water quality, Waters of the United States (wetlands and streams), riparian buffer rules, and protected species. All field work was conducted in September and October 2011. The information in this section is summarized from the project's *Natural Resources Technical Report* (Atkins, June 2014), which is incorporated by reference.

3.4.1 BIOTIC COMMUNITIES AND WILDLIFE

3.4.1.1 Terrestrial Communities

Three terrestrial communities are in the study area: maintained/disturbed, Mesic Mixed Hardwood forest, and Upland Forest. These communities and the wildlife expected or observed are shown in **Figure 3-3** and described briefly below.

Maintained/Disturbed. The majority of the Project study area consists of maintained/disturbed land including residential and commercial lots, streets, and utility rights of way. Vegetation is either planted or opportunistic and is generally maintained on a frequent or sporadic schedule.

Mesic Mixed Hardwood Forest. Schafale and Weakley's classification (Classification of Natural Communities of North Carolina, 1990) describes this terrestrial community as occurring on lower slopes, ravines, and well-drained stream bottoms on acidic soils. In the Project study area, it primarily occurs along Three Mile Branch and the unnamed tributary to Dutch Buffalo Creek. Canopy trees are uneven-aged, as is typical for this community. Tree species are dominated by tulip poplar, American beech, red maple, American elm, northern red oak, loblolly pine, and sweetgum.

Upland Forest - Mixed Pine/Hardwood Forest. This terrestrial community occurs in scattered patches up to four acres in size throughout the Project study area. A few mature trees occur in these patches, but they mostly consist of second-growth specimens surrounded by development. Tree species include white pine, loblolly pine, sweetgum, white oak and other oaks, and hickories.

Wildlife. Habitat for small or disturbance-adapted species exists in the Project study area in grassy or wooded areas. Those species that were actually observed include white-tailed deer, eastern cottontail, coyote, and black rat snake. Birds were difficult to detect due to highway noise, but Carolina chickadee, brown thrasher, mourning dove, American crow, blue jay, American goldfinch, Carolina wren, northern mockingbird, American robin, and redshouldered hawk were seen.

Other mammals that can find food and cover along the study corridor include southeastern shrew, gray squirrel, hispid cotton rat, raccoon, and Virginia opossum. Other birds that might be found in the open lands and small wooded patches of the study area include northern cardinal, tufted titmouse, house finch, white-breasted nuthatch, downy woodpecker, and white-throated sparrow. Reptiles and amphibians that may inhabit the study area include northern cricket frog, Fowler's toad, eastern fence lizard, two-lined salamander, gray treefrog, and eastern musk turtle.

3.4.1.2 Aquatic Communities

Aquatic communities in the Project study area consist of both perennial and intermittent piedmont streams. These streams are often channelized and/or inundated with sediment from adjacent runoff, offering less than optimal habitat for many species. However, perennial streams in the study area could support various mussels, northern water snake, bluehead chub, spottail shiner, yellow bullhead, margined madtom, eastern mosquitofish, redbreast sunfish, and tessellated darter. Perennial and intermittent streams may provide habitat for crayfish and benthic macroinvertebrates.

3.4.1.3 Invasive Species

Sixteen species from the NCDOT *Invasive Exotic Plant List for North Carolina* were found to occur in the study area: tree of heaven, princess tree, Chinese privet, multiflora rose, sericea lespedeza, and kudzu (all listed as Severe Threat); mimosa, thorny olive, autumn olive, Johnson grass, porcelain berry, English ivy, Japanese honeysuckle, and Chinese wisteria (listed as Threat); and Chinaberry and Bradford pear (on the Watch List). NCDOT will manage invasive plant species as appropriate.

3.4.2 WATER RESOURCES

Water resources in the Project study area are part of the Yadkin River basin [US Geological Survey (USGS) Hydrologic Unit 03040105] and the Rocky River watershed.

Five streams and one pond are within the Project study area. The location of each of these water resources is shown in **Figure 3-3**. The physical characteristics of streams in the Project study area are provided in **Table 3-10**. The pond is located in the northwest portion of the Project study area and consists of artificially excavated pits that are sustained by stormwater runoff and high groundwater levels. The pond is approximately 0.05 acre and has no surface water connection to any jurisdictional stream features.

TABLE 3-10. Streams and Ponds

Stream Name	Map ID*	Best Usage Classification	Perennial/Intermittent	Bankful Width (ft)	Water Depth (in)	Channel Substrate	Velocity	Clarity
Threemile Branch	Threemile Branch	C	Perennial	15	12	Sand, Silt	Fast	Turbid
UT to Irish Buffalo Creek	SA	C	Perennial	3	12	Sand, Silt	Fast	Turbid
UT to Irish Buffalo Creek	SB	C	Perennial	3	6	Sand, Silt	Moderate	Turbid
UT to Irish Buffalo Creek	SC	C	Intermittent	1	4	Sand, Silt	Moderate	Turbid
UT to Threemile Branch	SD	C	Intermittent	3	6	Sand, Silt	Moderate	Slightly Turbid

Source: *Natural Resources Technical Report*, Atkins, June 2014

No Outstanding Resource Waters (ORW), designated anadromous fish waters, or Primary Nursery Areas (PNA) are present within one mile downstream of the Project study area. There are no designated High Quality Waters (HQW) or natural or undeveloped water supply watersheds (WS-I

or WS-II) within one mile downstream of the Project study area. There are no benthic or fish monitoring stations within one mile of the Project study area.

3.4.3 WATER QUALITY

The North Carolina Division of Water Resources (NCDWR) has assembled a list of impaired water bodies according to the Clean Water Act (CWA) Section 303(d) and 40 CFR 130.7. The list is a comprehensive public accounting of all impaired water bodies. An impaired water body is one that does not meet water quality standards including designated uses, numeric and narrative criteria, and anti-degradation requirements defined in 40 CFR 131. No listed impaired waters occur within the Project study area, although the North Carolina 2012 Final 303(d) list of impaired waters identifies Irish Buffalo Creek downstream of the study area as impaired due to turbidity and excessive copper.⁴ No waters within one mile downstream of the Project study area are listed on the 2014 Draft 303(d) list.

Classifications are assigned to waters of the State of North Carolina based on the existing or contemplated Best Usage of various streams or segments of streams in the basin. All waters within the Project study area have a Best Usage Classification of C, which includes waters protected for secondary recreation, fishing, wildlife, fish consumption, aquatic life including propagation, survival, and maintenance of biological integrity, agriculture and other uses suitable for Class C. Secondary recreation includes wading, boating, other uses not involving human body contact with water, and activities involving human body contact with water where such activities take place on an infrequent, unorganized, or incidental basis.⁵

3.4.4 JURISDICTIONAL ISSUES

This section discusses wetlands and streams, riparian buffer rules, and protected wildlife and plant species.

3.4.4.1 Wetlands and Streams

Background Information. Section 404 of the CWA prohibits discharges of dredged or fill material into “Waters of the United States,” except in accordance with a permit. The term Waters of the United States has broad meaning and incorporates both wetlands and surface waters. The US Army Corps of Engineers (USACE) is responsible for issuing permits and enforcing permitting requirements under Section 404 of the CWA. The USEPA issues the regulations, known as Section 404(b)(1) Guidelines, that the USACE must follow when issuing Section 404 permits. USEPA also participates in the permitting process.

The USACE regulatory program is defined in 33 CFR 321-330. In addition, Executive Order 11990 requires that new construction in wetlands be avoided to the extent possible, and that all practical measures be taken to minimize or mitigate impacts to wetlands.

Water bodies such as rivers, streams, lakes, and ponds are subject to jurisdictional consideration under the Section 404 Program. By regulation, wetlands also are considered Waters of the United States. Wetlands are described as:

⁴ NCDENR Web site: <http://portal.ncdenr.org/web/wq/ps/mtu/assessment>

⁵ NCDENR Web site: <http://portal.ncdenr.org/web/wq/ps/csu/classifications#classes>

“Those areas that are inundated or saturated by groundwater at a frequency and duration sufficient to support, and that under normal circumstances, do support a prevalence of vegetation typically adapted for life in saturated conditions. Wetlands generally include swamps, marshes, bogs, and similar areas” (33 CFR 328.3(b)).

The USACE requires the presence of three parameters (hydrophytic vegetation, hydric soils, and evidence of hydrology) in support of jurisdictional determinations.

Surveys. Jurisdictional areas within the Project study area were delineated and located using Global Positioning System (GPS) technology. Field work was conducted in September and October 2011. A preliminary jurisdictional determination was received from the USACE on December 10, 2013.

Five jurisdictional streams were identified in the study area, as described in **Table 3-6**. The locations of these streams are shown on **Figure 3-3**. All jurisdictional streams in the study area have been designated as warm water streams for the purposes of stream mitigation, if necessary.

No jurisdictional wetlands were identified within the study area.

3.4.4.2 Riparian Buffer Rules

A riparian buffer is a vegetated area bordering a body of water, such as a stream, lake, or pond. There are state riparian buffer protection programs in several river basins. Streams in the Project study area are within the Yadkin River Basin, which does not have a riparian buffer protection program. Therefore, streams identified in the Project study area are not subject to state riparian buffer rules.

3.4.4.3 Protected Species

Federal Regulations. Designated plants and animals are protected under the Federal Endangered Species Act (ESA). Bald and golden eagles are protected under the Federal Bald and Golden Eagle Protection Act. These acts are described below.

Endangered Species Act

The ESA requires Federal agencies to ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened species, including the destruction or adverse modification of critical habitat. Any activity permitted, funded, or conducted by a Federal agency determined to affect a listed species or designated critical habitat requires a consultation with the US Fish and Wildlife Service (USFWS) under the ESA.

Critical habitat is a term used in the ESA to describe a specific geographic area(s) that is essential for the conservation of a threatened or endangered species and that may require special management and protection. Endangered species are those species in danger of extinction throughout all or a significant portion of their range. Threatened species are those likely to become endangered in the foreseeable future.

The USFWS determines whether a species should be Federally-listed as Endangered or Threatened. Species in the process of being listed are designated as Proposed Endangered or Proposed Threatened, and these species also are protected. Species the USFWS is considering for listing, but which are not yet listed or proposed for listing, are Candidate species.

Bald and Golden Eagle Protection Act

The bald eagle was adopted as a national symbol in 1782. During the next century and a half, the bald eagle was heavily hunted. This led Congress to pass the Bald Eagle Protection Act in 1940 to prevent the species from becoming extinct. The Bald Eagle Protection Act prohibits the “take, possession, sale, or purchase” of the bald eagle as well as the “offer to sell, purchase, export, or import” the bald eagle “at any time or in any manner (16 USC 668-668d).” In 1962, Congress adopted the Bald and Golden Eagle Protection Act to protect golden eagles, which also strengthened protection of bald eagle since they were often killed by people mistaking them for golden eagles.⁶

Since the bald eagle was declared recovered and removed from the Federal List of Threatened and Endangered Species in July 2007, the Bald and Golden Eagle Protection Act becomes the primary law protecting bald eagles.

Protected Species in Cabarrus County. As of August 2014, the USFWS lists two Federally protected species for Cabarrus County, the Schweinitz’s sunflower (*Helianthus schweinitzii*) and the Carolina heelsplitter (*Lasmigona decorate*). Both species are listed as Endangered. In addition, a USFWS proposal for listing the northern long-eared bat (*Myotis septentrionalis*) as an Endangered species was published in the Federal Register in October 2013.

Carolina heelsplitter

In North Carolina, the species is now known only from a handful of streams in the Rocky and Catawba River systems. The general habitat requirements for the Carolina heelsplitter are shaded areas in large rivers to small streams, often burrowed into clay banks between the root systems of trees, or in runs along steep banks with moderate current. The more recent habitat where the Carolina heelsplitter has been found is in sections of streams containing bedrock with perpendicular crevices filled with sand and gravel, and with wide riparian buffers.

The study area contains five streams with various substrates, most of which are moderately to severely degraded. The presence of pollutants and sediment from overland runoff likely precludes the establishment of Carolina heelsplitter in these reaches. No populations of the mussel have been found within the stream drainages associated with the project corridor.

The closest existing occurrence known in the Catawba River system is approximately 12.5 miles south of the Project study area in Crozier’s Branch, identified in 1985. A mussel survey was conducted on December 17, 2007 by NCDOT biologists in Irish Buffalo Creek and Threemile Branch, approximately 2.25 miles downstream of the Project study area. No native freshwater mussels were found. A review of NCNHP records, updated July 2013, indicates no known Carolina heelsplitter occurrence within one mile of the study area. Given the results of the NCDOT survey, the lack of suitable habitat due to unstable substrate, and the distance to the closest known mussel populations, it is unlikely that the Carolina heelsplitter currently occurs in Irish Buffalo Creek, Threemile Branch, or any of their tributaries.

Schweinitz’s sunflower

Schweinitz’s sunflower is native to the Piedmont of North and South Carolina. The species is found along roadside rights of way, maintained power lines and other utility rights of way, edges of thickets and old pastures, clearings and edges of upland oak-pine-hickory woods and Piedmont

⁶USFWS Web site: www.fws.gov/migratorybirds/baldeagle.htm

longleaf pine forests, and other sunny or semi-sunny habitats where disturbances (e.g., mowing, clearing, grazing, blowdowns, storms, frequent fire) help create open or partially open areas for sunlight. It is generally found growing on shallow sandy soils with high gravel content; shallow, poor, clayey hardpans; or shallow rocky soils.

Detailed surveys for Schweinitz's sunflower were performed by Atkins biologists on September 27, 2011. All areas of suitable habitat were systematically walked and visually surveyed. In areas where large blocks of habitat occurred, overlapping transects were employed to ensure coverage of all habitat. No occurrences of Schweinitz's sunflower were found. The surveys have since expired (surveys are good for two years) and will be updated when the project is programmed for construction. A review of NCNHP records, updated January 2014, indicates no known Schweinitz's sunflower occurrence within one mile of the study area.

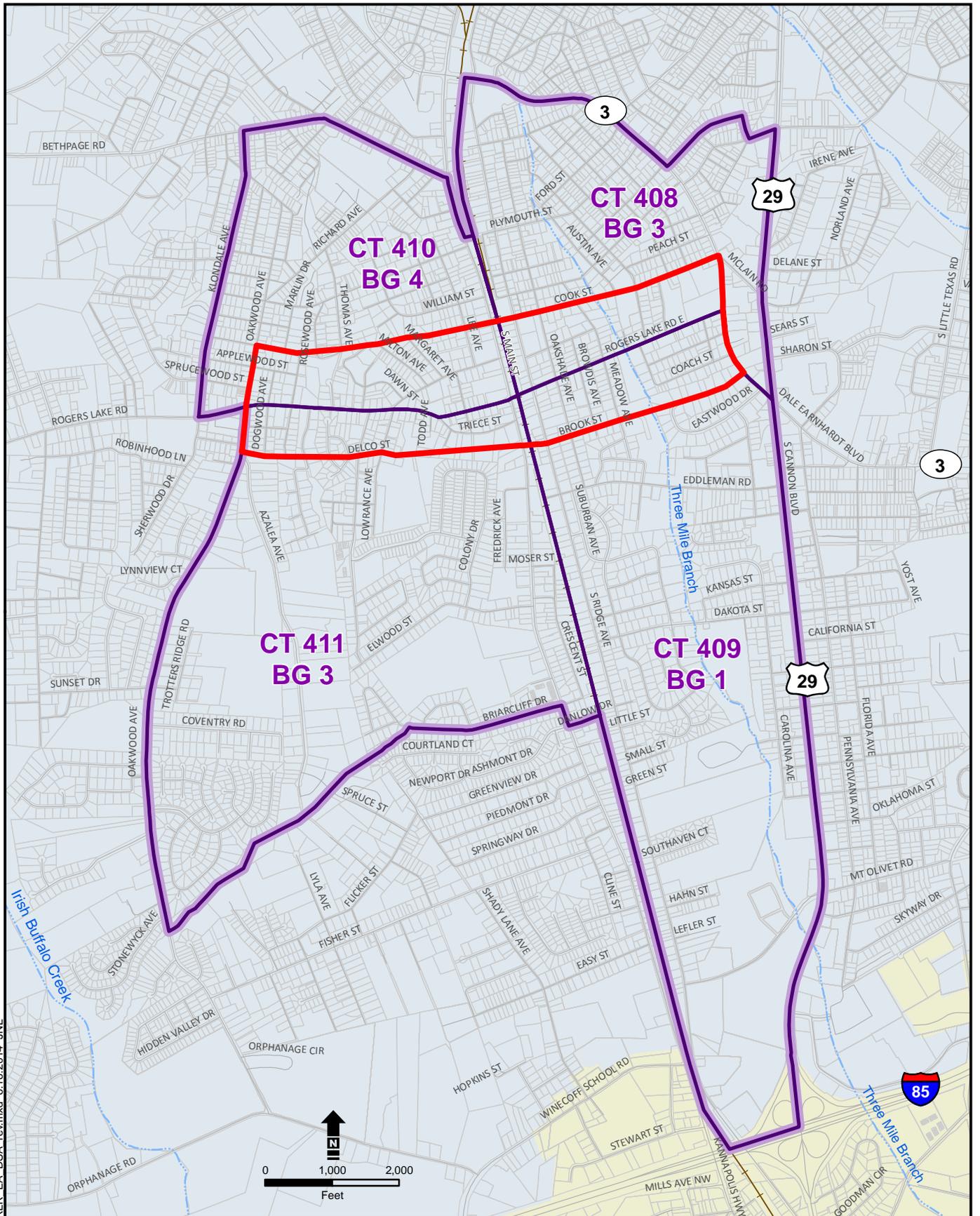
Northern long-eared bat

The northern long-eared bat is found across much of the eastern and north central United States with a range that includes 39 states. During summer, northern long-eared bats roost singly or in colonies underneath bark, in cavities, or in crevices of both live and dead trees. Northern long-eared bats spend winter hibernating in caves and mines. No survey has been conducted for this species in the study area; however, NCDOT is working closely with the USFWS to understand how this proposed listing may impact NCDOT projects.

Bald Eagles

Habitat for the bald eagle primarily consists of mature forest in proximity to large bodies of open water for foraging. Large dominant trees are utilized for nesting sites, typically within one mile of open water.

A desktop-GIS assessment of the project study area, as well as the area within a 1.13 mile radius (one mile plus 660 feet) of the Project limits, was performed on December 1, 2011 using 2010 color aerials. The western arm of Lake Concord lies within 1.13 miles of the Project study area and has been identified as a potential feeding source for bald eagles. However, an investigation of the bald eagle survey area revealed no potential bald eagle foraging habitat. Additionally, a review of the NCNHP database on December 1, 2011 revealed no known occurrences of this species within one mile of the Project study area; the closest known occurrence is approximately 18 miles to the east of the Project study area. No bald eagle nest or bald eagles were seen during field studies. A second review of NCNHP records, updated July 2013, again revealed no known occurrences of this species within one mile of the Project study area.



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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
 ROGERS LAKE ROAD SR-1625
 GRADE SEPARATION
 STIP Project No. Y-4810K
 Cabarrus County, North Carolina

Legend

-  Study Area
-  2010 Census Block Groups
-  City of Concord
-  Demographic Study Area
-  City of Kannapolis
-  Railroad
-  Parcels
-  Streams

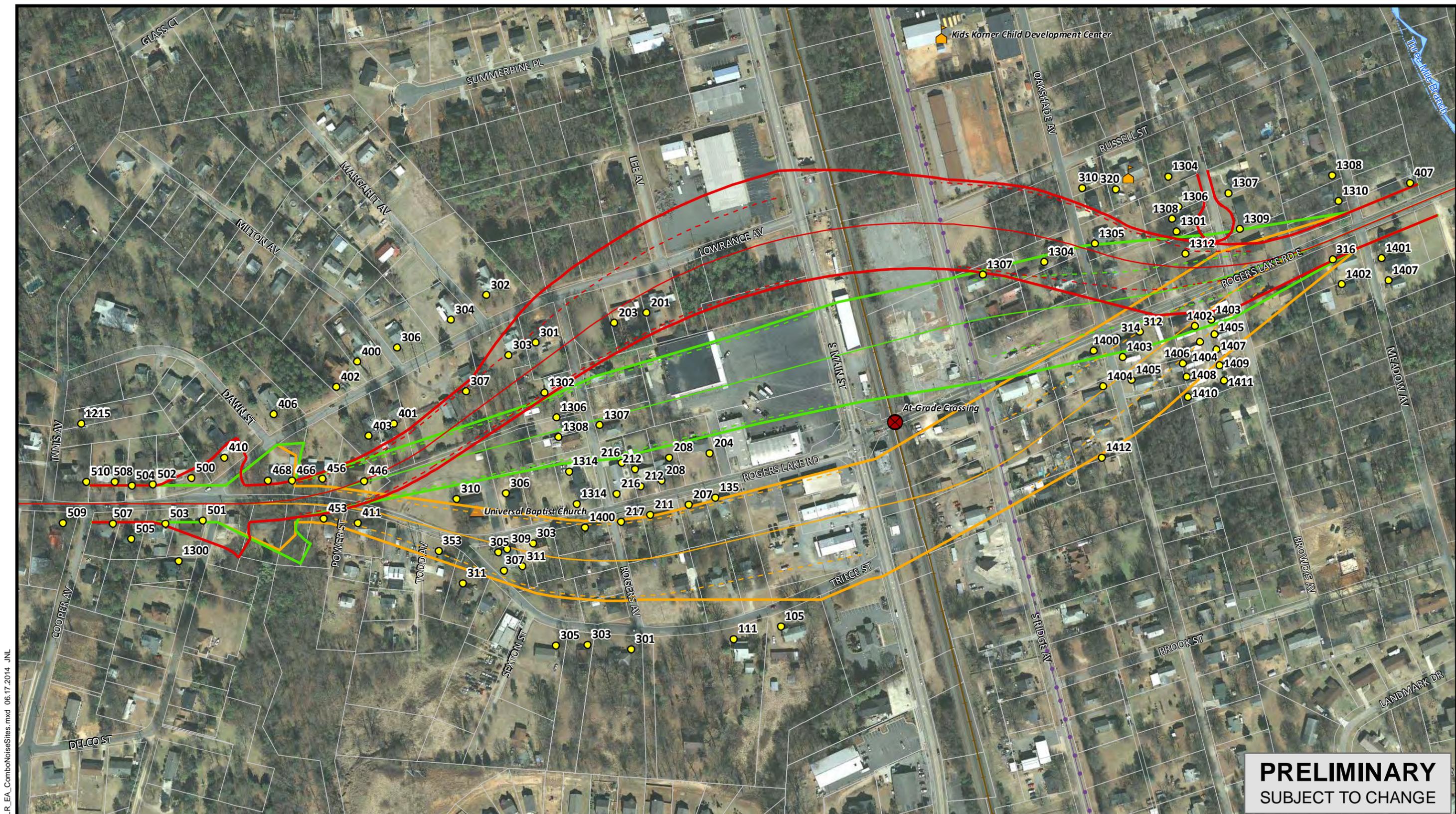
Source: U.S. Census Bureau, American Fact Finder Website.
Map Printed June, 2014.

DEMOGRAPHIC STUDY AREA

FIGURE 3-1



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PRELIMINARY
SUBJECT TO CHANGE

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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
 ROGERS LAKE ROAD SR-1625
 GRADE SEPARATION
 STIP Project No. Y-4810K
 Cabarrus County, North Carolina

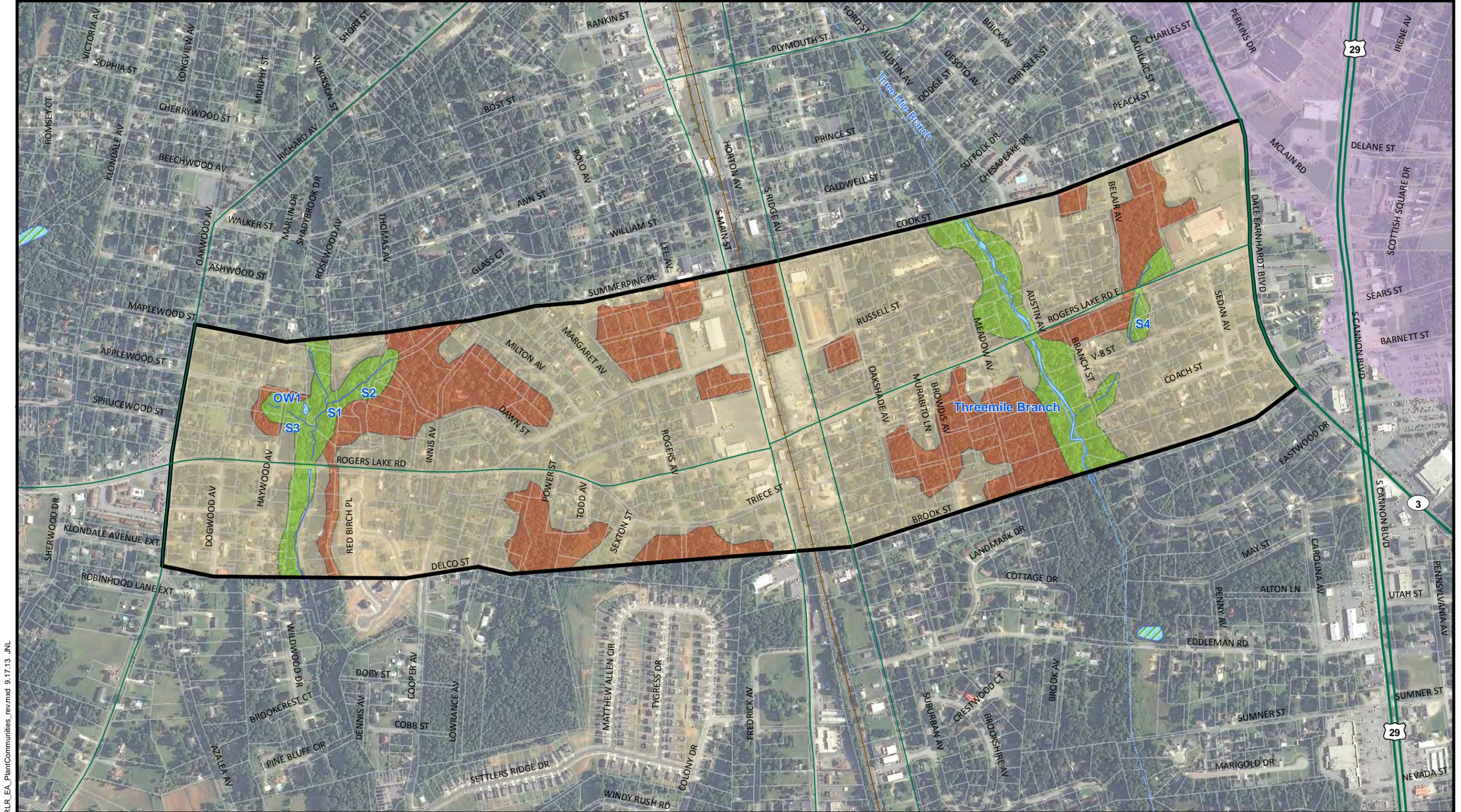



Legend

Proposed Horizontal Alignment	Proposed Horizontal Alignment	Proposed Horizontal Alignment	Railroad Crossing	Noise Sensitive Receptors	Parcels (02-11-14)
Proposed Right of Way	Proposed Right of Way	Proposed Right of Way	Railroad	Churches	Jurisdictional Stream
Proposed Toe of Slope	Proposed Toe of Slope	Proposed Toe of Slope	Bike Routes	Schools	Streams

Source: Cabarrus County GIS Aerial: http://services.nconemap.com/arcgis/services/Imagery/Orthoimagery_2010/ImageServer. Map Printed June 2014.

MODELED NOISE SENSITIVE RECEPTORS
FIGURE 3-2



RLR_EA_PlantCommunities_rev.mxd 9.17.13 JNL


 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
 ROGERS LAKE ROAD SR-1625
 GRADE SEPARATION
 STIP Project No. Y-4810K
 Cabarrus County, North Carolina



Maintained/Disturbed	Study Area	Streams	Wetlands
Mesic Mixed Forest	Parcels	Jurisdictional Stream	Critical Watershed
Upland Forest	Railroad	Jurisdictional Open Water	Protected Watershed

Source: Cabarrus County GIS. Aerial: NC Center for Geographic Information and Analysis (CGIA); NC Statewide Orthoimagery 2010 Project. Map printed June 2014.

PLANT COMMUNITIES and JURISDICTIONAL AREAS

FIGURE 3-3

4.0 ENVIRONMENTAL CONSEQUENCES

This section includes the estimated direct and indirect impacts to the human, physical, cultural, and natural environments for the No-Build and Build Alternatives. The Preferred Alternative is Build Alternative 2, as discussed in **Section 2.5**. All build alternatives are discussed in this chapter.

4.1 HUMAN ENVIRONMENT

4.1.1 LAND USE AND TRANSPORTATION PLANNING

No-Build Alternative. There would be no impact to land use or zoning due to the No-Build Alternative. Existing land use would not change due to the No-Build Alternative, and current patterns of development that are consistent with zoning regulations likely would continue under this alternative.

The No-Build Alternative is not consistent with the Cabarrus Rowan Metropolitan Planning Organization's (CRMPO) *2040 Metropolitan Transportation Plan (MTP)*.

Preliminary Build Alternatives. All of the build alternatives, including the Preferred Alternative, are consistent with local land use and transportation plans.

Implementation of any of the build alternatives would not conflict with the planning guidelines outlined in the City of Kannapolis *2015 Land Use Plan* and other plans described in **Section 1.8.2** and **Section 3.1.1.2**, and would be consistent with zoning designations for the Project study area.

The new section of Rogers Lake Road will have bike lanes and sidewalks. The sidewalks and bike lanes are consistent with the *Walkable Community Plan* for Kannapolis, *the Carolina Thread Trail Master Plan for Cabarrus County Communities*, and the 2040 MTP, which recommend bike lanes and sidewalks to accommodate pedestrians.

A proposed grade separation at Rogers Lake Road is included in the CRMPO *Comprehensive Transportation Plan* dated August 24, 2011. The CRMPO 2040 MTP includes the Rogers Lake Road Grade Separation Study as TIP Project U-4702 on the Project List for the 2012 to 2015 horizon years. Although the project is not included in the current NCDOT 2012-2018 STIP, TIP Project U-4702 is included in the reprioritization process as a Division Needs project.

4.1.2 RELOCATIONS AND ACQUISITIONS

No-Build Alternative. Since there would be no construction activities under the No-Build Alternative, there would be no property relocations or acquisition impacts.

Preliminary Build Alternatives

Relocation Impacts. Potential church, residential, and business relocation impacts for each Preliminary Build Alternative are presented in **Table 4-1**. The detailed *Relocation Report* prepared for the project is included in **Appendix C**.

None of the build alternatives would displace farms or non-profit organizations.

Preliminary Build Alternative 1 would relocate 64 residences, 8 businesses, and 1 church; Preliminary Build Alternative 2 would relocate 51 residences and 7 businesses; and Preliminary Build Alternative 3 would relocate 46 residences and 3 businesses.

TABLE 4-1. Residential and Business Relocations

Resource	Build Alternative 1	Build Alternative 2	Build Alternative 3
Residential Relocations	64	51	46
Business Relocations	8	7	3
Church Relocations	1	0	0
Total Relocations	73	58	49

Source: EIS Relocation Report, Professional Property Services, Inc., July 2014

The Preliminary Build Alternatives also would require right of way from parcels that will not involve relocations. Right-of-way requirements will be refined for the Preferred Alternative during final design and will be minimized to the extent practicable.

Relocation Assistance. According to the *Relocation Reports*, there is comparable replacement housing in the area for displaced homeowners and tenants (**Appendix D**).

The NCDOT Right of Way Branch is responsible for acquisition of land and right of way for the construction and improvement of all roads and highways that are part of the State Highway System. The NCDOT relocation and right-of-way acquisition policies ensure that comparable replacement housing is available for relocatees prior to construction of state and/or Federally-assisted projects. Furthermore, NCDOT will use three programs to minimize the inconvenience of relocation: Relocation Assistance, Relocation Moving Payments, and Relocation Replacement Housing Payments or Rent Supplement.

The relocation program for the proposed action will be conducted in accordance with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646) and the North Carolina Relocation Assistance Act (NCGS 133-5 through 133-18).

More information on right of way acquisition and relocation is available in the following two NCDOT brochures: *Relocation Assistance* and *Answers to the Questions Most Often Asked About Right of Way Acquisitions*, which can be found at

- www.ncdot.gov/download/construction/roadbuilt/RelocationBooklet_07.pdf
- www.ncdot.gov/download/construction/roadbuilt/rightofway_acquisition_brochure.pdf

4.1.3 COMMUNITIES AND NEIGHBORHOODS

Effects on communities and neighborhoods can include the physical taking of land, homes, and businesses (**Section 4.1.2**); the construction of physical or psychological barriers that can result from new transportation facilities that divide or isolate a section of the community; changes in access or travel patterns within a community; or physical intrusions such as noise, dust, or visual impacts that can negatively affect a community.

No-Build Alternative. Under the No-Build Alternative, residents and travelers through the area will continue to experience delays at the at-grade crossing of Rogers Lake Road when the crossing is blocked during train passage. Both vehicular and train traffic are expected to increase in the future, so the frequency of delays, and the numbers of vehicles delayed, at the at-grade crossing also will increase.

Preliminary Build Alternatives. Community benefits associated with all the Preliminary Build Alternatives, including the Preferred Alternative, include improved safety and operations for both vehicles and trains.

Potential impacts to neighborhoods and communities were considered in the identification of the Build Alternatives. Constructing a grade separation farther south at Dakota Street was originally considered as an alternative; however, this alternative was eliminated from further consideration due to community impacts, including impacts to a veterinary hospital, a dance studio, and a potentially historic residence.

Preliminary Build Alternatives 1, 2 and 3 would displace 49 to 73 homes and businesses in the area of the Rogers Lake Road grade separation improvements, as discussed in **Section 4.1.2**. However, existing communities and neighborhoods would not be divided internally or from one another by physical or psychological barriers as a result of any of the build alternatives. The grade separation of Rogers Lake Road, in addition to the bike lanes and sidewalks that would be constructed on Rogers Lake Road, would improve access between the neighborhoods east and west of the railroad tracks.

Access changes would occur for some homes and businesses in the Project area. The access changes are a result of street closures in the proposed right-of-way of the Project. Alternate access routes would be provided for property owners and the resulting travel pattern would not be substantially longer than existing travel patterns.

4.1.4 ENVIRONMENTAL JUSTICE

Executive Order 12898, issued in February 1994, requires Federal programs or programs receiving Federal funding to address issues of environmental justice. “Environmental Justice” refers to a range of issues related to human health and the environment relevant to minority and low-income populations.

In April 1997, the USDOT issued the *USDOT Order on Environmental Justice to Address Environmental Justice in Minority Populations and Low-Income Populations* (USDOT Order 5610.2), which was updated in May 2012 by USDOT Order 5610.2(a), to summarize and expand upon the requirements of Executive Order 12898 on environmental justice.⁷ According to the DOT Order, a disproportionately high and adverse effect on minority and low-income population is an adverse effect that “(1) is predominantly borne by a minority and/or a low-income population, or (2) will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low-income population.”

Minority and low-income groups are often located in areas already experiencing the effects of multiple development projects resulting in social and/or environmental degradation. These areas are likely to be adversely affected by existing industrial, commercial, or transportation facilities. Impacts that occur in these areas are likely to be considered more severe than the same impacts that occur in areas not already subject to these conditions.

Based upon a review of Census data, minority and low-income populations meeting the criteria for Environmental Justice were identified in the Demographic Study Area (DSA). As shown earlier in **Table 3-1**, the non-white percentage of residents in two of the DSA block groups exceeds the Cabarrus County percentage (24.6 percent) by more than ten percentage points. Both block groups are located north of Rogers Lake Road. Census Tract 408, Block Group 3 is located to the northeast of the proposed project and 36.5 percent of the population is non-white. Census Tract 410, Block

⁷ FHWA Web site: www.fhwa.dot.gov/environment/ejustice/dot_ord.htm

Group 4 is located to the northwest of the proposed project and 36.4 percent of the population is non-white. The non-white population in these block groups is largely comprised of people identifying themselves as “some other race,” which may correspond to the slightly higher percentages of Hispanics in these block groups (**Table 3-2**).

Data was used from the American Community Survey (ACS) 5-Year Estimates (2007-2011) to identify the population living below poverty level. As shown in **Table 3-3**, the percentage of residents living below the poverty level in two of the four block groups within the DSA exceeds the Cabarrus County percentage (11.9 percent) by more than five percentage points. The block groups with low-income populations are the same as the block groups identified above with notable minority populations. Census Tract 408, Block Group 3 includes 18.4 percent of the population living below the poverty level and Census Tract 410, Block Group 4 has 37.8 percent of the population living below the poverty level.

No-Build Alternative. The No-Build Alternative would not impact any populations, including Environmental Justice populations.

Preliminary Build Alternatives. Although the Preliminary Build Alternatives would result in residential and business relocations, and low-income and minority populations were identified in the Demographic Study Area, the impacts experienced by these populations would not be appreciably more severe than the impacts suffered by the non-minority and non-low-income population. Therefore, none of the project alternatives, including the Preferred Alternative, would result in disproportionately high and adverse effect to any Environmental Justice populations.

4.1.5 COMMUNITY SERVICES AND PUBLIC HEALTH AND SAFETY

No-Build Alternative. Under the No-Build Alternative, Kannapolis Fire and Rescue vehicles and Kannapolis City School buses will continue to experience delays at the Rogers Lake Road at-grade crossing when trains pass through the area. In addition, safety benefits associated (i.e. elimination of potential for train/vehicle collisions) with a grade-separated crossing at Rogers Lake Road will not be realized.

Preliminary Build Alternatives. The only community facility that would be directly impacted by any of the build alternatives is Universal Baptist Church, and it would only be impacted by Preliminary Build Alternative 1. As discussed in **Section 4.1.2**, NCDOT will provide assistance to relocatees, including assistance in finding another location to re-establish the business.

Overall, all of the build alternatives, including the Preferred Alternative, would benefit public safety by creating a grade-separated crossing at Rogers Lake Road, eliminating the possibility of train/auto collisions at these locations.

4.1.6 ECONOMIC EFFECTS AND ENERGY USE

No-Build Alternative. No construction activities would occur under the No-Build Alternative. No substantial economic effects would occur due to the No-Build Alternative. Some additional energy use could occur from greater fuel consumption for vehicles queued at the existing at-grade crossing waiting for passing trains.

Preliminary Build Alternatives. The Project would not result in any major economic gains or losses in the area. However, the Preliminary Build Alternatives would displace between three and eight businesses, which may have temporary economic impacts in the area until the businesses are reestablished. The Project also will support construction jobs temporarily during construction.

Construction activities also would temporarily increase energy use during construction. However, the Project would contribute to improved regional operations for freight and passenger trains, which would provide a benefit to the regional economy and may reduce energy use through reduced fuels costs.

4.2 PHYSICAL ENVIRONMENT

4.2.1 NOISE

This section is a summary of the technical report, *Traffic Noise Analysis for the Rogers Lake Road Grade Separation* prepared for the Project (Atkins, draft April 2014). This report is incorporated by reference.

Traffic noise impacts occur when the predicted traffic noise levels either approach or exceed the FHWA noise abatement criteria (with "approach" meaning within 1 dB(A) of the NAC values listed in **Table 3-4**, or substantially exceed the existing noise levels (refer to **Table 3-5**). FHWA and NCDOT require that feasible and reasonable measures be considered to abate traffic noise at all predicted traffic noise impacts. Measures considered include road alignment selection, traffic systems management, buffer zones, noise walls, and earth berms.

Procedure for Predicting Traffic Noise. In accordance with industry standards and accepted best-practices, detailed computer models were created using the Federal Highway Administration Traffic Noise Model® (FHWA TNMv.2.5). The computer models were validated to within acceptable tolerances of field monitored traffic noise data, and were used to predict traffic noise levels for receptor locations in the vicinity of the Rogers Lake Road Grade Separation project (Y-4810K).

No-Build Alternative. Under the No-Build Alternative, receptors in the Project area will experience a minor increase in noise levels from the general increase in vehicular traffic volumes on area roadways. Train horn noise will continue to occur at the at-grade crossing at Rogers Lake Road with similar frequency and duration as it does today. There would be no notable change to the noise environment resulting from the No-Build Alternative, and the No-Build Alternative will not create new noise impacts.

Preliminary Build Alternatives. As shown in **Table 4-2**, traffic noise is predicted to create 10 to 12 traffic noise impacts, depending on the Preliminary Build Alternative, due to predicted design year 2035 Build-Condition noise levels that will approach or exceed the FHWA noise abatement criteria. All of these impacts are located in the western portion of the Project along Rogers Lake Road and Lowrance Avenue, with the exception of one residence at the eastern end of the project on Rogers Lake Road that would be impacted by Preliminary Build Alternatives 2 and 3.

TABLE 4-2. Traffic Noise Impact Summary¹

Alternative	Approximate Number of Impacted Receptors Approaching or Exceeding the FHWA Noise Abatement Criteria ^{2,5}							Substantial Noise Level Increase ³	Impact Due to Both Criteria ⁴	Total Impacts Per 23 CFR 772
	A	B	C	D	E	F	G			
Prelim. Build Alternative 1 (Southern)	0	10	0	0	0	0	0	0	0	10
Prelim. Build Alternative 2 (Central)	0	12	0	0	0	0	0	0	0	12
Prelim. Build Alternative 3 (Northern)	0	12	0	0	0	0	0	0	0	12

1. This table presents the number of build-condition traffic noise impacts as predicted for the Build Condition Alternatives presently under consideration. Refer to Appendix C of the *Traffic Noise Analysis for the Rogers Lake Road Grade Separation* for a detailed analysis of traffic noise impacts at each noise sensitive receptor location.
2. Predicted traffic noise level impact due to approaching or exceeding NAC (refer to **Table 3-5**).
3. Predicted "substantial increase" traffic noise level impact (refer to **Table 3-6**).
4. Predicted traffic noise level impact due to exceeding NAC and "substantial increase" in build-condition noise levels.
5. The total number of predicted impacts is not duplicated if receptors are predicted to be impacted by more than one criterion

Traffic Noise Abatement Measures. FHWA and NCDOT require that feasible and reasonable noise abatement measures be considered and evaluated for the benefit of all predicted build-condition traffic noise impacts. Feasibility and reasonableness are distinct and separate considerations. Feasibility is the consideration as to whether noise abatement measures *can* be implemented. Reasonableness is the consideration as to whether noise abatement measures *should* be implemented. Per the NCDOT's *Traffic Noise Abatement Policy* (July 2011), the following traffic noise abatement measures may be considered: highway alignment selection, traffic systems management, buffer zones, noise barriers (earth berms and noise walls), and noise insulation of Activity Category D land use facilities.

The build alternative alignments have been developed considering the sensitive resources in the project study corridor. No changes to the horizontal or vertical alignment from what is proposed in the preliminary plans would be reasonable for noise abatement purposes, and since the surrounding area is developed, shifting alignments likely would simply shift noise impacts to other receptors.

Prohibition of truck traffic, reduction of the speed limit, or limiting time of use would diminish the functional capacity of the roadway facility and are not considered reasonable or practicable.

Buffer zones are typically not practical and/or cost effective for noise mitigation due to the substantial amount of right of way required, and would not be a feasible noise mitigation measure for this Project. Furthermore, if the acquisition of a suitable buffer zone had been feasible, the associated costs would exceed the NCDOT's *Traffic Noise Abatement Policy* (July 2011) reasonable abatement cost threshold per benefited receptor.

Noise barriers include two basic types: earthen berms and noise walls. These structures act to diffract, absorb, and reflect roadway traffic noise. For this project, earthen berms are not found to be a viable abatement measure because there is insufficient space to construct earth berms due to the area's topography and limited right of way.

Based upon the functional design for the build alternatives, no noise walls are preliminarily recommended as reasonable and feasible.

Noise abatement would not be feasible in the area where the noise impacts occur due to the fact that driveway access must be maintained for these impacted properties along Rogers Lake Road and Lowrance Avenue. Any wall design in this area would contain too many gaps for driveways and therefore would be too short in length to be an effective noise abatement measure.

4.2.2 AIR QUALITY

The project is located in the City of Kannapolis, which is designated as a maintenance area for eight-hour ozone (1997 standard) and marginal nonattainment for eight-hour ozone (2008 standard) (**Section 3.2.2.1**).

No-Build Alternative. The No-Build Alternative is not anticipated to create any adverse effects on the air quality of the area.

Preliminary Build Alternatives. No air quality impacts are anticipated from the three Preliminary Build Alternatives. Air quality effects associated with construction activities are discussed in **Section 4.6**.

Cabarrus County is designated as a nonattainment area for eight-hour ozone; therefore, a general conformity determination is required (**Section 3.2.2.2**). The USDOT made a conformity determination on the *Conformity Analysis and Determination Report for the Metrolina Area 2030 Metropolitan Transportation Plans and for the FY 2012-2018 Transportation Improvement Programs* in May 2014. The current conformity determination includes a grade separation study at Rogers Lake Road (included as TIP Project #U-4702 in the 2012-2015 horizon year project list for CRMPO) and is consistent with the final conformity rule found in 40 CFR Parts 51 and 93. No hot spot or MSAT analyses are required for this project.

The purpose of this project is to improve vehicular mobility and safety and the efficiency of train traffic in the area around the Rogers Lake Road at-grade crossing of the NCRR/NS track in the Town of Kannapolis, North Carolina by constructing a grade-separated crossing. This project has been determined to generate minimal air quality impacts for CAAA criteria pollutants and has not been linked with any special mobile source air toxics (MSAT) concerns. As such, this project will not result in changes in traffic volumes, vehicle mix, basic project location, or any other factor that would cause an increase in MSAT impacts of the project from that of the No-Build Alternative.

Moreover, EPA regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with EPA's MOVES model forecasts a combined reduction of over 80 percent in the total annual emission rate for the priority MSAT from 2010 to 2050 while vehicle-miles of travel are projected to increase by over 100 percent. This will both reduce the background level of MSAT as well as the possibility of even minor MSAT emissions from this project.

4.2.3 UTILITIES

No-Build Alternative. There would be no impact to existing utilities under the No-Build Alternative.

Preliminary Build Alternatives. Construction of any of the project alternative could impact utilities. As noted in **Section 3.2.4**, the Project area is served by Duke Energy, the City of Kannapolis water and sewer service, PSNC Energy, Time Warner Cable, AT&T, and Verizon

Wireless. NCDOT anticipates that the build alternatives would require relocation of electrical power lines, sewer lines, and water lines.

NCDOT will coordinate with all utility providers during final design and construction to prevent damage to utility systems and to minimize disruption and degradation of utility service to local customers.

4.2.4 VISUAL AND AESTHETIC RESOURCES

No-Build Alternative. Under the No-Build Alternative, there would be no change to, and therefore no impact to, the visual or aesthetic environment of the Project study area.

Preliminary Build Alternatives. The project would construct a grade-separated bridge over the NCCR railroad tracks at Rogers Lake Road, and changes in the visual landscape would occur. The visibility of the proposed improvements depends on the location of the viewer. However, the inclusion of treatments such as coloring of structural elements, buffer areas, and landscaped screening into a project design can obscure views and minimize impacts of transportation features.

Although there are no prominent scenic vistas or visual resources that be affected by the Build Alternatives, and no substantial adverse visual effects are anticipated to result from the project, it is the policy of the NCDOT to include aesthetic features and landscaping in its roadway designs when practicable and cost effective. Such features may include:

- Integrating landscaping into the project design to promote visual continuity of the highway and to blend it into the natural landscape as much as possible.
- Minimizing the loss of vegetation, especially during construction when equipment and material access, storage, and staging are required.
- Design project features, if reasonable and feasible, to be compatible with the surrounding natural environment features and development.

4.2.5 HAZARDOUS MATERIALS

No-Build Alternative. There will be no construction activities under the No-Build Alternative and therefore no impacts from hazardous material sites will occur.

Build Alternatives. Based on an evaluation of the Project area (*GeoEnvironmental Report for Planning for Y-4810K*, NCDOT, December 3, 2013), 14 possible UST facilities, two auto repair shops, and on facility used to store tree trimming equipment are within the Project study area. These are described in more detail in **Section 3.2.6**.

Each of the Build Alternatives will require right of way. **Table 4-3** shows the number of potentially impacted hazardous materials sites for each Build Alternative. However, any impact to known or potential hazardous materials is anticipated to have a low potential for geoenvironmental impacts. Therefore, significant impacts from hazardous materials are not anticipated for the Preferred Alternative (Build Alternative 2), nor the other Build Alternatives.

TABLE 4-3. Potential Impact to Known or Potential Hazardous Material Sites

Build Alternative 1	Build Alternative 2	Build Alternative 3
11	4	5

Source: *GeoEnvironmental Report for Planning for Y-4810K*, NCDOT December 3, 2013

The NCDOT Geotechnical Engineering Unit will provide additional assessments on each of these properties, as necessary, before right-of-way acquisition.

4.2.6 FLOODPLAINS

There are no floodplains or floodways in the Project study area, and therefore there will be no encroachments into the 100-year floodplain as a result of the Project.

4.3 CULTURAL RESOURCES

The HPO reviewed the project and determined no historic resources (including archaeological resources) on or eligible for listing on the National Register of Historic Places (NRHP) will be affected by the Project. As such, there will be no impacts to cultural resources. Written verification was received from the HPO by letter dated September 23, 2011, included **Appendix C**.

4.4 NATURAL ENVIRONMENT

4.4.1 BIOTIC COMMUNITIES AND WILDLIFE

No-Build Alternative. The No-Build Alternative will not involve any construction activities and will not impact terrestrial or aquatic natural communities or wildlife.

Build Alternatives. Project activities are expected to result in permanent impacts to natural communities. Permanent impacts to terrestrial communities are considered to be those impacts that occur within the proposed roadway’s right-of-way limits. **Table 4-4** lists the impacts to terrestrial biotic communities. The Build Alternatives will impact similar acreages of maintained/disturbed lands and upland forest, with most impacts being to maintained/disturbed land.

In total, the Preferred Alternative (Build Alternative 2) will impact 14.6 acres of maintained/disturbed land and 0.3 acres of upland forest. The range of impacts to maintained/disturbed land is 12.4 acres (Build Alternative 3) to 15.9 acres (Build Alternative 1). The range of impacts to upland forest is 0.3 acres (Build Alternative 2) to 2.5 acres (Build Alternative 3).

TABLE 4-4. Impacts to Terrestrial Biotic Communities

Resource	Build Alternative 1	Build Alternative 2	Build Alternative 3
Maintained/ Disturbed Land (acres)	15.9	14.6	12.4
Mesic Mixed Hardwood Forest (acres)	0	0	0
Upland Forest	0.4	0.3	2.5
Total Acres in Right of Way	16.3	14.9	14.9

No significant habitat fragmentation is expected as a result of project activities since potential improvements will be restricted to disturbed/maintained areas and adjacent forested areas.

Construction noise and associated disturbances are anticipated to have short-term impacts on birds and migratory wildlife movement patterns. Many local species are expected to move back in to the project vicinity once construction is complete.

There are no potential impacts to aquatic habitat in the Project area.

4.4.2 WATER QUALITY

No-Build Alternative. The No-Build Alternative would not involve any construction activities, and therefore would not impact water quality.

Preliminary Build Alternatives. No impacts to water resources in the Project study are expected to occur as a result of the three proposed alternative alignments, none of which encroach into surface water.

Implementation of stringent erosion and sedimentation control measures and Best Management Practices (BMPs) will minimize impacts to water quality from stormwater runoff. In accordance with the *North Carolina Sedimentation Pollution Control Act of 1973* (GS Chapter 113A, Art. 4), as amended, and NC Administrative Code Title 15A, Chapter 4 (Sedimentation Control), an erosion and sedimentation control plan must be prepared for land-disturbing activities that cover one or more acres to protect against runoff from a ten-year storm.

Prior to construction, an erosion and sedimentation plan will be developed in accordance with the NCDENR Division of Land Resources publication *Erosion and Sediment Control Planning and Design* (revised March 2009) (NC Division of Land Resources Web site:

<http://portal.ncdenr.org/web/lr/publications#espubs>) and the NCDOT's *Best Management Practices for the Protection of Surface Waters*.

The NCDOT also has *Standard Specifications for Roads and Structures* (January 2012)⁸ that require proper handling and use of construction materials. The contractor will be responsible for taking every reasonable precaution throughout construction of the project to prevent pollution of any body of water. The contractor also will be responsible for preventing soil erosion and stream siltation.

4.4.3 JURISDICTIONAL TOPICS

This section includes discussion of impacts to Waters of the United States (streams, wetland, and ponds).

No-Build Alternative. The No-Build Alternative would not impact any jurisdictional resources since there would be no construction activities associated with this alternative.

Preliminary Build Alternatives. The Project study area contains jurisdictional waters identified as perennial and intermittent streams. The streams identified in the study area would not be directly impacted by any of the Preliminary Build Alternatives.

4.4.4 PROTECTED SPECIES

Information in this section is summarized from the project's *Natural Resources Technical Report* (Atkins, September 2013), incorporated by reference.

⁸ NCDOT Web site: <https://connect.ncdot.gov/resources/Specifications/Pages/Specifications-and-Special-Provisions.aspx>

No-Build Alternative. The No-Build Alternative would not impact protected species.

Preliminary Build Alternatives. None of the build alternatives, including the Preferred Alternative, would impact Federally-protected species, as described below.

Schweinitz's sunflower. The Biological Conclusion for Schweinitz's sunflower (*Helianthus schweinitzii*) is No Effect for all three Preliminary Build Alternatives.

Detailed surveys for Schweinitz's sunflower in the Project study area were performed on September 27, 2011. No occurrences of Schweinitz's sunflower were found. A review of NCNHP records, updated January 2014, indicates no known Schweinitz's sunflower occurrence within one mile of the study area. Because surveys are only good for two years, the Project study area may need to be resurveyed prior to construction. NCDOT will coordinate with USFWS on the need for an updated survey.

Carolina heelsplitter. The Biological Conclusion for the Carolina heelsplitter (*Lasmigona decorate*) is No Effect for all three Preliminary Build Alternatives.

A mussel survey was conducted on December 17, 2007 by NCDOT biologists in Irish Buffalo Creek and Threemile Branch approximately 2.25 miles downstream of the project study area. No native freshwater mussels were found. Given the results of the NCDOT survey, the lack of suitable habitat due to unstable substrate, and the distance to the closest known mussel populations, it is unlikely that the Carolina heelsplitter currently occurs in Irish Buffalo Creek, Threemile Branch, or any of their tributaries. A review of NCNHP records, updated July 2013, indicates no known Carolina heelsplitter occurrence within one mile of the study area. Given the results of the NCDOT survey, the lack of suitable habitat due to unstable substrate, and the distance to the closest known mussel populations, it is unlikely that the Carolina heelsplitter currently occurs in Irish Buffalo Creek, Threemile Branch, or any of their tributaries.

Northern Long-eared Bat. A USFWS proposal for listing the Northern Long-eared Bat (*Myotis septentrionalis*) as an Endangered species was published in the Federal Register in October 2013. The listing will become effective on or before April 2015. NCDOT is working closely with the USFWS to understand how this proposed listing may impact NCDOT projects. NCDOT will continue to coordinate appropriately with USFWS to determine if this project will incur potential effects to the Northern long-eared bat, and how to address these potential effects, if necessary.

Bald Eagle. Due to the lack of habitat, known occurrences, and minimal impact anticipated for this Project, as discussed in **Section 3.4.4.3**, it has been determined that the Project build alternatives may affect, but are not likely to adversely affect, the bald eagle.

4.5 INDIRECT AND CUMULATIVE EFFECTS

The Council on Environmental Quality's (CEQ) regulations implementing NEPA divide environmental impacts into three categories: direct impacts, indirect (or secondary) impacts, and cumulative effects. CEQ regulations require that all three types of impacts be addressed in NEPA documents. Indirect and cumulative effects of the Build Alternatives have been considered along with the direct effects as required under the CEQ regulations (40 CFR 1508.25).

Indirect effects are effects that are caused by the proposed action but are later in time or farther removed by distance. Indirect effects may include growth-inducing changes in the pattern of land use, population density or growth rate, and related effects on air, water, natural systems, or the human environment.

Cumulative effects are the incremental effects of the proposed action when added to other past, present, and reasonably foreseeable future actions. Assessment of potential effects consists of a review of other actions that have affected, or that could affect, the same environmental resources that may be affected by the Project. For example, wetlands can often experience multiple individual impacts from many projects over time, that when summed, result in cumulative effects.

4.5.1 ANALYSIS METHODOLOGY

The general approach to evaluating indirect and cumulative effects is defined by the *ICI Guidance* (NCDOT, November 2001), the CEQ (*Considering Cumulative Effects Under NEPA*, 1997), National Cooperative Highway Research Program Reports 403 and 466 (2001 and 2002, respectively), state and Federal regulations, and past case law. This qualitative analysis was undertaken in five steps based on the NCDOT *ICI Guidance*, including:

- Definition of Indirect and Cumulative Effects (ICE) Study Areas (Step 1)
- Identification of the ICE Study Area's Direction and Goals (Step 2)
- Inventory of Notable Features (Step 3)
- Identification of Impact-Causing Activities (Step 4)
- Identification and Analysis of Potential Indirect and Cumulative Effects (Step 5)

4.5.2 ANALYSIS STUDY AREAS

Both a geographic study area and a timeframe for study were identified. The geographic boundary for the ICE analysis was determined by a series of overlay maps. NCDOT determined that overlays of the traffic area of influence, developed land, and US Census Block Groups were the primary factors in delineating a relevant geographic boundary for the ICE analysis. Because the proposed Project is primarily meant to address vehicular mobility and safety and the efficiency of train traffic in the area around the Rogers Lake Road rail crossing, surrounding roadways were determined to be the primary boundaries for analysis of ICE. Since the Project will not add capacity or new roadway connections in the Project area, the area of potential influence does not extend very far from the Project. Therefore, the ICE Study Area is the same as the Project study area presented in **Figure 1-2**. The ICE Study Area is bounded by Cook Street to the north, Brook Street to the south, Dale Earnhardt Boulevard to the east, and Oakwood Avenue to the west.

The timeframe for ICE analysis is from 1970 to 2040. This timeframe is based on the approximate median date of construction of structures within the ICE Study Area (1970) and the planning horizon for the long-range transportation plan (2040).

4.5.3 STUDY AREA DIRECTION AND GOALS

As discussed in **Section 3.1.1.2**, land use in this area is guided by the *City of Kannapolis Land Use Plan* (July 26, 2004). The majority of the ICE Study Area is designated for commercial and retail uses along South Main Street surrounded by residential uses. Existing land use and zoning patterns are expected to continue in this area through the ICE analysis timeframe.

4.5.4 INVENTORY OF NOTABLE FEATURES

Not all impacts "accumulate". That is, similar impacts from multiple projects do not always combine to create greater impacts. However, some resources may experience minimal change from independent impacts but when impacts are summed cumulatively from multiple projects, the resources may experience impacts over time. For example, visual impacts within the geographic

boundary could potentially accumulate due to several individual actions that reduce viewsheds or impact the aesthetic environment.

Examples of resources that do not accumulate impacts include hazardous materials or displacements; these resources experience only one direct impact. If the proposed Project will not result in a direct or indirect impact to a certain resource, then it will not contribute to cumulative effects to that resource.

Notable features were identified using environmental information prepared for the various sections of this Environmental Assessment, as well as scoping comments received for the project. Notable features include residences and businesses, streams, and the transportation system. Recent construction in the ICE Study Area has been very limited and the character of the area has not changed substantially since the 1970s. Streams in the Project study area are described in **Section 3.4.2** and **Section 3.4.4**.

4.5.5 IMPACT CAUSING ACTIVITIES

There are no other major roadway, railway, or land development projects currently planned or under construction within the Project study area.

4.5.6 ANALYSIS OF INDIRECT EFFECTS

The proposed Project is primarily designed to improve vehicular mobility and safety and the efficiency of train operations in the area around the Rogers Lake Road at-grade crossing of the NCRR. The proposed improvements would not cause indirect impacts to the following resources within the ICE study area: land use, housing, community resources, natural resources, parklands, archaeological or historic resources, air quality, noise, or hazardous materials. Potential indirect impacts to travel times and economics are discussed below.

Travel Times. Local traffic patterns would change under the Preliminary Build Alternatives. These changes in travel patterns have the potential to cause secondary impacts to travel times for local residents and business patrons. For example, vehicles traveling east on Rogers Lake Road that want to access a property on South Ridge Avenue would have to travel over the grade separation to Meadow Avenue and then travel north to Russell Street or south to Brook Street to travel back west to South Ridge Avenue. However, any increase in travel times is expected to be minimal and would likely be offset by the time saved by not waiting at the rail crossing for trains to pass.

Economics. Regionally, improvements to efficiency of vehicle and train operations would occur due to the grade separation of the Rogers Lake Road crossing. Motor vehicles would no longer be faced with delays from slowing and/or stopping at the Rogers Lake Road at-grade crossing. This reduction in delays would provide an overall benefit to the regional economy through improved efficiency.

4.5.7 ANALYSIS OF CUMULATIVE EFFECTS

Cumulative effects occur when there is an additive relationship between various projects in relation to the resources being analyzed. Previous projects in the ICE Study Area have been limited to commercial, retail, and residential development that are consistent with zoning and existing land use and minor roadway improvements that facilitate local transportation. Since there are no past or future reasonably foreseeable projects that will lead to cumulative effects within the ICE Study Area, no local cumulative effects are anticipated.

From a regional perspective, since 2001 when the NCDOT Rail Division began work on various track and signal improvements, travel time by rail between Raleigh and Charlotte has been reduced. The Rogers Lake Road grade separation, together with other planned and programmed projects along the corridor that are part of the PIP and the SEHSR, would result in regional cumulative benefits; including schedule reliability, increased train speeds, and overall rail capacity and safety. The PIP and SEHSR projects will improve operational efficiencies for freight and passenger rail service between the two largest economic centers in North Carolina – Charlotte and Raleigh. The PIP projects, which consist of railroad capacity projects and crossing safety projects, will facilitate up to five daily round trip passenger trains along the Raleigh to Charlotte Piedmont Corridor and the additional capacity will allow freight trains to operate more efficiently. These projects also will have cumulative safety benefits by lowering the possibility of vehicle/train collisions and cumulative noise benefits by reducing train horn noise along the rail corridor.

4.6 CONSTRUCTION IMPACTS

No-Build Alternative. No construction activities and therefore no construction-related impacts would occur under the No-Build Alternative.

Preliminary Build Alternatives. The construction activities associated with the proposed Project may cause temporary adverse impacts to the local environment. These impacts, generally short-term in nature, can be controlled, minimized, or mitigated through conformance with BMPs and standard NCDOT procedures. Impacts would be the same for all Preliminary Build Alternatives, including the Preferred Alternative.

Short-term impacts to adjacent land uses during construction would occur due to the movement of workers and material through the area and construction activities. Construction noise and dust, as well as temporary disruption of traffic flow on local roads, may also affect residences and businesses in the vicinity of the project. Coordination between NCDOT and area landowners and local businesses regarding construction scheduling and access to the construction site will minimize any such disruptions.

Potential construction-related impacts are briefly summarized below.

Air Quality. Temporary degradation of air quality in the Project area may result from the construction of the project. Initial clearing and grubbing will produce dust and exhaust emissions. The contractor will be responsible for controlling dust at the project site and at areas affected by the construction, including haul access roads, disposal site, borrowed material sources, and production sites. Dust control measures may include the following activities:

- Minimizing exposed earth surface
- Temporary and permanent seeding and mulching
- Watering working and haul areas during dry periods
- Covering, shielding, or stabilizing material stockpiles
- Using covered haul trucks

Emissions from construction equipment are regulated by Federal standards. During construction of the proposed Project, all materials resulting from clearing and grubbing, demolition or other operations will be removed from the project site, burned or otherwise disposed of by the contractor. Any burning will be accomplished in accordance with applicable laws, local ordinances and regulations of the North Carolina SIP for air quality in compliance with 15A NCAC 02D.1903.

Construction Noise. The predominant construction activities associated with this Project are expected to be earth removal, hauling, grading, and paving. Temporary and localized construction noise impacts would likely occur as a result of these activities. During daytime hours, the predicted effects of these impacts would be temporary speech interference for passers-by and those individuals living or working near the project. During evening and nighttime hours, steady-state construction noise emissions such as from paving operations would be audible, and may cause impacts to activities such as sleep. Sporadic evening and nighttime construction equipment noise emissions such as from backup alarms, lift gate closures (“slamming” of dump truck gates), etc., would be perceived as distinctly louder than the steady-state acoustic environment.

While discrete construction noise level prediction is difficult for a particular receiver or group of receivers, it can be assessed in a general capacity with respect to distance from known or likely project activities. For this Project, earth removal, grading, hauling, pile driving, and paving is anticipated to occur in the vicinity of noise-sensitive receptors, including residences along Rogers Lake Road.

Although construction noise impact mitigation should not place an undue burden upon the financial cost of the project or the project construction schedule, NCDOT recommends that:

- Earth removal, grading, hauling, paving, and pile driving activities in the vicinity of residences should be limited to weekday daytime hours whenever practicable.
- If meeting the project schedule requires that earth removal, grading, hauling and / or paving must occur during evening, nighttime and/or weekend hours in the vicinity of residential neighborhoods, the Contractor should notify NCDOT as soon as possible. In such instance(s), reasonable attempts should be made to notify affected property owners and/or residents and, where feasible, to make appropriate arrangements to minimize predicted construction noise impacts.

For additional information on construction noise, please refer to the FHWA Construction Noise Handbook (FHWA-HEP-06-015) and the Roadway Construction Noise Model (RCNM), available online at: http://www.fhwa.dot.gov/environment/noise/cnstr_ns.htm.

Water Quality. Temporary construction impacts due to erosion and sedimentation will be minimized through implementation of a stringent erosion-control schedule and the use of BMPs. The contractor will follow contract specifications pertaining to erosion control measures as outlined in 23 CFR 650 Subpart B and Article 107-13 entitled Control of Erosion, Siltation, and Pollution (NCDOT, Specifications for Roads and Structures). These measures include the use of dikes, berms, silt basins, and other containment measures to control runoff; elimination of construction staging areas in floodplains and adjacent to waterways; re-seeding of herbaceous cover on disturbed sites; management of chemicals (herbicides, pesticides, de-icing compounds) with potential negative impacts on water quality; and avoidance of direct discharges into streams by catch basins and roadside vegetation. With implementation of required BMPs, long-term impacts to adjacent reaches resulting from construction are expected to be negligible.

Wildlife. Construction, staging, and stockpiling operations may result in the temporary disruption of the resident wildlife population. The clearing of habitats, human activity, and noise from construction operations may result in the displacement of mobile wildlife. Non-mobile species will be lost as habitat is converted to construction areas.

Impacts to biotic communities will be minimized as much as possible by restricting land clearing and construction operations within the project’s right-of-way. NCDOT will encourage the contractor to locate off-site staging and stockpiling to disrupt the least amount of natural habitat area. These

areas will be revegetated once construction activities are complete, thus replacing habitat for some species.

Construction Waste. All construction waste material generated during clearing, grubbing, and other construction phases will be removed from the project site and burned or disposed of by the contractor in accordance with State and local regulations. Litter and other general trash will be collected and properly disposed of.

Utilities. The project may require some adjustments, relocations, or modifications to existing utilities. Any disruption to utility service during construction will be minimized by phased adjustment to the utility line. All modifications, adjustments, or relocations will be coordinated with the affected utility company.

Maintenance of Traffic. Maintenance of traffic and sequencing of construction will be planned and scheduled so as to minimize traffic delays within the Project area. NCDOT will coordinate with Kannapolis City Schools regarding bus routes. Maintenance and protection of traffic in conjunction with construction activities associated with the project will be prepared in accordance with the latest edition of the *Manual of Uniform Traffic Control Devices* and roadway standards of NCDOT. Signs will be used as appropriate to provide notice of road closures and other pertinent information to the traveling public. Advance notice through the local news media will be made to alert the public of traffic restrictions and construction related activities.

Truck traffic in the Project area will increase during construction. If access to construction staging areas and the construction site requires temporary access roadways, a traffic plan would be developed during the final engineering design phase that defines designated truck routes and parking areas for construction vehicles.

4.7 SUMMARY OF IMPACTS FROM THE PREFERRED ALTERNATIVE

Impacts and mitigation (if applicable) for the Preferred Alternative are summarized in **Table 4-5**. Impacts are listed in the same order as in this EA. The table also lists the EA sections where more detail is provided for each impact area. A comparison of impacts from all the Preliminary Build Alternatives is included in **Section 2.5 – Preferred Alternative**.

TABLE 4-5. Summary of Impacts from the Preferred Alternative

Impact Area	EA Sections Containing More Detail	Summary of Impact	Proposed Mitigation
Consistency with Land Use and Transportation Local Plans	4.1.1	No Impact. The Preferred Alternative is consistent with area land use and transportation plans, but not included in the current STIP nor is design or construction identified in the Draft 2040 Metropolitan Transportation Plan.	Not applicable.
Relocations	4.1.2	Moderate Impact. The Preferred Alternative would require 51 residential relocations and 7 business relocations.	NCDOT will use three programs to minimize the inconvenience of relocation: Relocation Assistance, Relocation Moving Payments, and Relocation Replacement Housing Payments or Rent Supplement. These programs are in accordance with the Uniform Relocation Assistance and

TABLE 4-5. Summary of Impacts from the Preferred Alternative

Impact Area	EA Sections Containing More Detail	Summary of Impact	Proposed Mitigation
			Real Property Acquisition Policies Act of 1970. Comparable replacement housing is available in the Project area for displaced homeowners and tenants.
Communities and Neighborhoods	4.1.3	Minor Positive Effect and Minor Impact. Existing communities and neighborhoods would not be divided internally or from one another by physical or psychological barriers as a result of the Preferred Alternative. The grade separation with bike lanes and sidewalks would provide improved access between the residences east and west of the railroad tracks and the businesses along South Main Street. The Preferred Alternative would result in minor access changes for some homes and businesses.	Not applicable.
Environmental Justice	4.1.4	No Disproportionately High and Adverse Impact. Minority and low-income populations meeting the criteria for Environmental Justice were identified in the Demographic Study Area. However, the Preferred Alternative would not result in disproportionately high and adverse effects to any low-income or minority populations as documented in the <i>Y-4810K Community Impact Assessment</i> , June 2014.	Not applicable.
Community Services	4.1.5	No Impact. The Preferred Alternative would not impact any community facilities or services.	Not applicable.
Public Health and Safety	4.1.5	Positive Effect. The Preferred Alternative would benefit public safety by providing a grade-separated crossing at Rogers Lake Road, eliminating the possibility of train/auto collisions at this location and eliminate possible emergency response delays due to train traffic.	Not applicable.
Section 4(f) and Section 6(f) Resources	3.1.4	No impact. There are no Section 4(f) or Section 6(f) resources in the Project study area.	Not applicable.
Economic Effects and Energy Use	4.1.6	Minor Impact and Minor Benefit. The project would not result in any major economic gains or losses in the area. However, the Preferred Alternative would displace approximately 7 businesses, which may have a minor temporary negative economic impact in the	Not applicable.

TABLE 4-5. Summary of Impacts from the Preferred Alternative

Impact Area	EA Sections Containing More Detail	Summary of Impact	Proposed Mitigation
		<p>area until the businesses are reestablished. The project also would have a minor positive impact by supporting construction jobs temporarily during construction.</p> <p>The Preferred Alternative would result in a temporary increase in energy use during the construction phase. However, the grade separation would improve operations for freight and passenger trains passing through the crossing and eliminate the need for vehicles to idle while waiting for trains to pass through the at-grade crossing.</p>	
Noise	4.2.1	<p>Minor Impact. Vehicle traffic noise from the Preferred Alternative is predicted to impact 12 noise receptors due to traffic noise levels that meet or exceed FHWA noise abatement criteria.</p> <p>Trains are required to sound a horn at all at-grade crossings. The Preferred Alternative would result in a decrease in train horn noise due to the removal of the at-grade crossing at Rogers Lake Road.</p>	Not applicable. Noise abatement would not be feasible in the area where the noise impacts occur.
Air Quality	4.2.2	<p>No Impact. No air quality impacts are anticipated due to the Preferred Alternative. Potential benefit from reduction in vehicle idling time at crossing.</p>	Not applicable.
Farmland	3.2.3	<p>No Impact. The Farmland Protection Policy Act (FPPA) does not apply to soils in the Project area because it is located in an area designated as urban by the US Census.</p>	Not applicable.
Utilities	4.2.3	<p>Minor Impact. The Preferred Alternative is anticipated to require relocation of electrical power lines, sewer lines, and water lines.</p>	NCDOT will coordinate with all utility providers during final design and construction to prevent damage to utility systems and to minimize disruption and degradation of utility service to local customers.
Visual and Aesthetic Resources	4.2.4	<p>Minor Impact. Minor changes in the visual landscape would occur as a result of the project.</p>	It is NCDOT policy to include aesthetic features and landscaping in its roadway designs when practicable and cost-effective. Inclusion of treatments such as coloring of structural elements, buffer areas, and landscaped screening can minimize aesthetic impacts of transportation features.

TABLE 4-5. Summary of Impacts from the Preferred Alternative

Impact Area	EA Sections Containing More Detail	Summary of Impact	Proposed Mitigation
Hazardous Materials	4.2.5	Minor Impact. The Preferred Alternative has the potential to impact four known hazardous materials sites. All sites are anticipated to have a low potential for geoenvironmental impacts.	The NCDOT Geoenvironmental Unit will complete further assessments prior to right-of-way acquisition, as necessary.
Floodplains	4.2.6	No Impact. There are no floodplains or floodways in the Project study area.	Not applicable.
Cultural Resources	4.3	No Impact. There are no known significant historic architectural or archaeological resources within the Preferred Alternative study area, as confirmed by the State Historic Preservation Officer.	Not applicable.
Biotic Communities and Wildlife	4.4.1	Minor Impact. The Preferred Alternative would result in permanent impacts to 0.3 acres of upland forest and 14.6 acres of maintained/disturbed areas. No significant habitat fragmentation is expected.	Not applicable.
Water Quality	4.4.2	No Impact. No impacts to water quality are expected as a result of the Preferred Alternative, which would not directly impact any surface waters.	Prior to construction, an erosion and sedimentation control plan will be developed to control stormwater runoff in accordance with NCDENR regulations and NCDOT <i>Best Management Practices for the Protection of Surface Waters</i> .
Jurisdictional Resources (wetlands, streams, and ponds)	4.4.3	No Impact. The Preferred Alternative would not impact any jurisdictional resources.	Not applicable.
Protected Species	4.4.4	No Impact. The Preferred Alternative would not impact any Federally-protected species.	Not applicable.
Indirect and Cumulative Effects	4.5	Minor Impact and Minor Benefit. The Preferred Alternative would result in minor changes to local travel patterns. The improved efficiency of train operations as a result of the grade-separated crossing would provide an overall benefit to the regional economy. There are no cumulative effects anticipated due to the Preferred Alternative.	Not applicable.
Construction Impacts	4.6	Minor Impact. Temporary impacts could occur to air quality, noise, waste generation, utilities, maintenance of traffic, and wildlife.	The contractor will be responsible for controlling dust at the project site and at areas affected by the construction. Earth removal, grading, hauling, paving, and pile driving activities will generate noise. Where practicable, NCDOT will limit construction

TABLE 4-5. Summary of Impacts from the Preferred Alternative

Impact Area	EA Sections Containing More Detail	Summary of Impact	Proposed Mitigation
			activities to weekday daytime hours in the vicinity of residences. Waste generated during construction will be properly disposed of in accordance with State and local regulations. Maintenance of traffic and sequencing of construction will be planned and scheduled so as to minimize traffic delays within the Project area. Impacts to wildlife will be minimized as much as possible by restricting land clearing and construction operations to within the project’s right of way. NCDOT will encourage the contractor to locate off-site staging and stockpiling to disrupt the least amount of natural habitat area.

Environmental Commitments. During the National Environmental Policy Act (NEPA) process, commitments are made to avoid, minimize, or mitigate project impacts. Commitments result from public comment or through the requirements of, or agreements with, environmental resource and regulatory agencies.

NCDOT will comply with applicable Federal and state requirements and regulations, such as; Section 404 Individual Permit Conditions, Nationwide Permit Conditions, Regional Conditions, and State Consistency Conditions; North Carolina Department of Transportation (NCDOT) *Guidelines for Best Management Practices for the Protection of Surface Waters*, General Certification Conditions, and Section 401 Conditions of Certification; and the Endangered Species Act. Other special project commitments have been agreed to by the NCDOT, as follows.

- During construction activities, NCDOT will coordinate with Kannapolis City Schools regarding bus routes.

5.0 AGENCY COORDINATION AND PUBLIC INVOLVEMENT

Public and agency involvement and input have been encouraged throughout the development of the project. Government agencies and officials and interested citizens were informed of the progress of the project through mailings and meetings. Coordination and input received related to the Rogers Lake Road grade separation project are summarized below.

5.1 AGENCY COORDINATION

In the process of preparing this Environmental Assessment, Federal, state, and local agencies were contacted to provide information about the proposed Project, to identify issues of concern, and obtain information about environmental resources within the Project study area.

In August 2011, the agencies listed in the box below received a scoping letter introducing the project, listing the specific project elements proposed to be included in the Build Alternatives, and requesting that they identify any concerns. A map of the study area was enclosed with each letter. Agencies responding to the scoping letter are marked with an asterisk below, and their letters are included in **Appendix B**. Agencies and organizations listed also will be provided the opportunity to review and comment on this Environmental Assessment.

<p>FEDERAL AGENCIES Federal Highway Administration US Army Corps of Engineers *US Fish and Wildlife Division US Environmental Protection Agency US Forest Service Federal Railroad Administration</p>	<p>NCDOT UNITS NCDOT Board of Transportation NCDOT Division 10 NCDOT Rail Division <ul style="list-style-type: none"> ▪ Operations and Facilities Branch ▪ Engineering and Safety Branch NCDOT Office of Civil Rights NCDOT Project Development and Environmental Analysis Branch <ul style="list-style-type: none"> ▪ Human Environment Section ▪ Natural Environment Section </p>
<p>STATE AGENCIES *NC Environmental Review Clearinghouse *NC Historic Preservation Office NC Wildlife Resources Commission *NCDENR – Dept of Agriculture NC DENR - Division of Air Quality NC DENR - Division of Forest Resources *NC DENR - Division of Water Quality NC DENR - Land Quality Section NC DENR - Natural Heritage Program</p>	<p>LOCAL AGENCIES City of Kannapolis, Planning Department City of Kannapolis Manager Kannapolis City Council Kannapolis City Schools Cabarrus County, Planning Department Cabarrus County, Board Commissioners *Cabarrus County Schools City of Concord, Planning Department</p>
<p>REGIONAL AGENCIES Cabarrus-Rowan Metropolitan Planning Association</p>	<p>OTHER INTERESTED PARTIES North Carolina Rail Road Company Norfolk Southern Corporation Amtrak City of Kannapolis Fire Department City of Concord Fire Department</p>

5.2 PUBLIC INVOLVEMENT

A Public Involvement Plan (PIP) summarizing the NCDOT public involvement program for the Rogers Lake Road Grade Separation project was prepared (*Public Involvement Plan*, Atkins, October 2011). The PIP is incorporated by reference into this EA.

The objectives for public involvement included soliciting input on the project from the public and government officials, considering this input in the alternatives development and analysis, and receiving comment on the various alternatives throughout the project development process.

5.2.1 PUBLIC MEETINGS

Public meetings were held October 11, 2011, and March 17, 2014 to present the public with information about the project. Both meetings were held from 5:00-7:00 pm at the Kannapolis Train Station located at 201 South Main Street. At the 2011 meeting, NCDOT presented the purpose and need for the project and maps showing alternative roadway alignments for new bridge construction. The purpose of the public meeting in 2014 was to obtain public comment on the alternatives being studied in this EA. Information about the meetings is provided below.

5.2.1.1 Meeting Advertisements

A public notice for the workshop was mailed via newsletter on September 27, 2011 to property owners and parcel addresses in the study area. The mailing list contained 463 addresses and was compiled from Cabarrus County tax parcel data.

An advertisement about the 2011 public meeting (called a Citizens Informations Workshop at the time) was published in the following local newspapers:

- Charlotte Observer - October 2 and 9, 2011
- Independent Tribune-October 2, 5, 7, and 9, 2011

A Public Notice for the 2014 public meeting was prepared by NCDOT. The notice was published in local newspapers as follows:

- Charlotte Observer – March 5, 9, and 16, 2014
- Charlotte Post – March 5 and 12, 2014
- Hola News – March 4 and 11, 2014
- Independent Tribune – March 5, 9, 12, and 16, 2014



5.2.1.2 Meeting Displays and Format

The 2011 public meeting was held as an open-house. Attendees were encouraged to view the project displays, and to discuss the project one-on-one with NCDOT representatives. Rogers Lake Road crossing project study area maps were displayed in the meeting room.

The 2014 public meeting was also held as an open house with alternative alignments shown on aerial maps. Attendees were encouraged to view the project displays, and to discuss the project one-on-one with NCDOT representatives.

5.2.1.3 Attendance and Comment Summary

A total of 43 citizens signed in at the 2011 public meeting. Most attendees were from Kannapolis (31 attendees). There were two citizens from Landis and one citizen each from Oakboro and Wilmington. Four comment forms were submitted at the public meeting. The comment period remained open until October 13, 2011, and three additional comments were received after the meeting.

A total of 29 citizen signed in at the 2014 public meeting. Three comments forms were submitted at the meeting. The comment period remained open until April 4, 2014. No additional comments were received after the meeting.

In summary, it appeared that the majority of the people attending the public meetings supported the Project.

Concerns noted via comment forms from the 2011 public meeting included emergency response time, neighborhood connectivity, and impacts to local businesses and residences from right-of-way acquisition.

From the 2014 public meeting, two of the comment form respondents supported Alternative 2 (central alignment) and one did not support any of the design alternatives. One respondent felt there is a need for the project but the other two respondents did not see a need as a result of the recent improvements made to the crossing gates. Concerns raised were related to business and residential impacts, safety, and neighborhood connectivity.

5.2.2 LOCAL OFFICIALS MEETING

A Local Officials Meeting for the project was held prior to the 2011 public meeting from 3:00-4:00 pm. A letter was sent to local public officials and staff on September 23, 2011. The meeting was held as an open house. Nine local officials from the City of Kannapolis signed in at the meeting.



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6.0 REFERENCES AND SUPPORTING DOCUMENTATION

6.1 REFERENCES

Airport IQ website: <http://www.gcr1.com/5010web/airport.cfm?Site=JQF&AptSecNum=2>, site accessed June 20, 2014.

Amtrak Website: <http://www.amtrak.com/ccurl/391/440/Carolian-Piedmont-Schedule-060914.pdf>, site accessed September 19, 2014

Cabarrus County On-Line GIS website: <http://gis.cabarruscounty.us/CabarrusGIS>

Cabarrus County Schools website: www.cabarrus.k12.nc.us/

Cabarrus Economic Development website: <http://www.cabarrusedc.com>

Cabarrus-Rowan MPO, *Comprehensive Transportation Plan*, August 24, 2011

Cabarrus-Rowan MPO, *2035 Long Range Transportation Plan*, April 2009

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NC DENR website: <http://portal.ncdenr.org/web/wq/ps/csu/classifications#classes>

NC DOT website: www.ncdot.gov/projects/pip.

- NCDOT website: www.ncdot.gov/projects/railhaydockjunker/
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- NCDOT, *Feasibility Study Railroad Grade Separation Dakota Street and SR 1766 (Universal Street)/SR 1625 (Rogers Lake Road)*, December 2001
- NCDOT GeoEnvironmental Unit, *GeoEnvironmental Report for Planning for Y-4810K*, December 3, 2013
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www.ncdot.gov/download/construction/roadbuilt/RelocationBooklet_07.pdf
- NCDOT Acquisition Process brochure:
www.ncdot.gov/download/construction/roadbuilt/rightofway_acquisition_brochure.pdf
- NCDOT, Standard and Specifications for Roads and Structures website:
<https://connect.ncdot.gov/resources/Specifications/Pages/Specifications-and-Special-Provisions.aspx>
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6.2 SUPPORTING DOCUMENTATION

The supporting project documentation listed below are technical memoranda and reports incorporated by reference into the EA. These are available for review from NCDOT upon request to Mr. James Bridges, NCDOT Rail Division at jfbridges@ncdot.gov, or 919-707-4716.

- | | |
|------------|--|
| 2014, July | A EIS Relocation Report For NCDOT Right of Way Branch. Prepared by Professional Property Services, Inc. |
| 2014, June | Utility Estimate Worksheet. Prepared by NCDOT. |
| 2014, June | STIP #Y-4810K, Cabarrus County Community Impact Assessment. Prepared by Atkins. |
| 2014, June | Natural Resources Technical Report, Rogers Lake Road (Universal Street) Grade Separation, TIP Y-4810K. Prepared by Atkins. |
| 2014, May | Construction Cost Estimates. Prepared by HDR. |

- 2014, May Traffic Operations Technical Memorandum for Grade Separation of Norfolk Southern/NC Railroad at Rogers Lake Road – STIP Number Y-4810K. Prepared by Atkins.
- 2014, April DRAFT Traffic Noise Analysis for Rogers Lake Road Grade Separation from Innis Avenue to Meadow Avenue in Kannapolis, Cabarrus County. STIP Number Y-4810K. Prepared by Atkins.
- 2014, March Public Meeting Summary, Rogers Lake Road Grade Separation, Cabarrus County, NC. STIP # Y-4810K. Prepared by Atkins.
- 2013, December GeoEnvironmental Report for Planning for Rogers Lake Road (SR-1625) Grade Separation. Prepared by NCDOT GeoEnvironmental Section Geotechnical Engineering Unit, December 3.
- 2013, March Traffic Forecast for Y-4810K. Prepared by NCDOT. Transportation Planning Branch
- 2011, October Summary of Local Officials Meeting and Citizens Informational Workshop #1 for Rogers Lake Road Grade Separation Over the NC Railroad/Norfolk Southern Track and Winecoff School Road Rail Closing, Cabarrus County, NC – TIP Project Number Y-4810. Prepared by Atkins.

APPENDIX A

CONCEPTUAL ALTERNATIVE ALIGNMENTS



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APPENDIX B

COST ESTIMATES



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UTILITY ESTIMATE WORKSHEET

TIP No: Y-4810K
 WBS Element No: 40325.1.46
 State Project No:
 Fed. Project No: TCSP-1034 (18)
 County: Cabarrus
 Description: Proposed Grade Separation of Rogers Lake Road (Universal St) in Kannapolis

Field Inspection - Evidence of Utilities

Gas: Yes Electric: Yes Telephone: Yes CATV: Yes
 Water: Yes Sewer: Yes Drainage: No Other: No

Anticipated Relocation

Gas: No Electric: No Telephone: No CATV: No
 Water: No Sewer: No Drainage: No Other: No

Summary:	Northern Design Alternate
Requesting Party:	James Bridges, P.E., Project Plannin
Estimate Date:	June 26, 2014

Relocation Totals		Construction Total		Alternate Totals	
Power Poles:	\$280,152.00	Power Poles:		Relocation Total	\$358,744.00
Power Items:		Power Items:		Construction Total	\$99,276.00
Telephone Poles	\$78,592.00	Telephone Poles		Alternate Total	\$458,020.00
Telephone Items		Telephone Items			
Gas Line:	\$0.00	Gas Line:			
Gas Items:		Gas Items:			
Water Line:		Water Line:	\$91,500.00		
Water Items:		Water Items:	\$7,776.00		
Sewer Line:		Sewer Line:			
Sewer Items:		Sewer Items:			
Misc.Items:		Misc.Items:			

Summary: Southern Design Alternative
Requesting Party: James Bridges, P.E., Project Plannin
Estimate Date: June 26, 2014

Relocation Totals		Construction Total		Alternate Totals	
Power Poles:	\$303,498.00	Power Poles:		Relocation Total	\$391,914.00
Power Items:		Power Items:		Construction Total	\$105,108.00
Telephone Poles	\$88,416.00	Telephone Poles		Alternate Total	\$497,022.00
Telephone Items		Telephone Items			
Gas Line:		Gas Line:			
Gas Items:		Gas Items:			
Water Line:		Water Line:	\$91,500.00		
Water Items:		Water Items:	\$13,608.00		
Sewer Line:		Sewer Line:			
Sewer Items:		Sewer Items:			
Misc.Items:		Misc.Items:			

Summary: Central Design Alternative
Requesting Party: James Bridges, P.E., Project Plannin
Estimate Date: June 26, 2014

Relocation Totals		Construction Total		Alternate Totals	
Power Poles:	\$163,422.00	Power Poles:		Relocation Total	\$232,190.00
Power Items:		Power Items:		Construction Total	\$99,276.00
Telephone Poles	\$68,768.00	Telephone Poles		Alternate Total	\$331,466.00
Telephone Items		Telephone Items			
Gas Line:	\$0.00	Gas Line:			
Gas Items:		Gas Items:			
Water Line:		Water Line:	\$91,500.00		
Water Items:		Water Items:	\$7,776.00		
Sewer Line:		Sewer Line:	\$0.00		
Sewer Items:		Sewer Items:			
Misc.Items:		Misc.Items:			

Detail: Northern Design Alternate				
Power Poles				
Type	Location	Number	Cost / Pole	Total Cost
Distribution Pole Three Phase		24	\$11,673.00	\$280,152.00
		Total:	24	\$280,152.00
Telephone Poles				
Type	Location	Number	Cost / Pole	Total Cost
Three Cable Telephone Pole		16	\$4,912.00	\$78,592.00
		Total:	16	\$78,592.00
Gas Lines				
Line Type	Location	Length	Cost per Ft.	Total Cost
4" Gas Line Per Linear Foot		0	\$111.00	\$0.00
		Total:		\$0.00
Water Lines				
Line Type	Location	Length	Cost per Ft.	Total Cost
12" DIP Water Line Per Linear Foot		750	\$122.00	\$91,500.00
		Total:		\$91,500.00
Water Items				
Item	Location	Number	Unit Cost	Total Cost
Water Meter Relocation		8	\$972.00	\$7,776.00
		Total:		\$7,776.00
			Alternate Total	\$458,020.00
Detail: Southern Design Alternative				
Power Poles				
Type	Location	Number	Cost / Pole	Total Cost
Distribution Pole Three Phase		26	\$11,673.00	\$303,498.00
		Total:	26	\$303,498.00
Telephone Poles				
Type	Location	Number	Cost / Pole	Total Cost
Three Cable Telephone Pole		18	\$4,912.00	\$88,416.00
		Total:	18	\$88,416.00
Water Lines				
Line Type	Location	Length	Cost per Ft.	Total Cost
12" DIP Water Line Per Linear Foot		750	\$122.00	\$91,500.00
		Total:		\$91,500.00
Water Items				
Item	Location	Number	Unit Cost	Total Cost
Water Meter Relocation		14	\$972.00	\$13,608.00
		Total:		\$13,608.00
			Alternate Total	\$497,022.00

Detail: Central Design Alternative**Power Poles**

Type	Location	Number	Cost / Pole	Total Cost
Distribution Pole Three Phase		14	\$11,673.00	\$163,422.00
		Total:	14	\$163,422.00

Telephone Poles

Type	Location	Number	Cost / Pole	Total Cost
Three Cable Telephone Pole		14	\$4,912.00	\$68,768.00
		Total:	14	\$68,768.00

Gas Lines

Line Type	Location	Length	Cost per Ft.	Total Cost
4" Gas Line Per Linear Foot		0	\$111.00	\$0.00
		Total:		\$0.00

Water Lines

Line Type	Location	Length	Cost per Ft.	Total Cost
12" DIP Water Line Per Linear Foot		750	\$122.00	\$91,500.00
		Total:		\$91,500.00

Water Items

Item	Location	Number	Unit Cost	Total Cost
Water Meter Relocation		8	\$972.00	\$7,776.00
		Total:		\$7,776.00

Sewer Lines

Line Type	Location	Length	Cost per Ft.	Total Cost
			\$0.00	\$0.00
		Total:		\$0.00

Alternate Total \$331,466.00

North Carolina Department of Transportation
Functional Design Level
Construction Cost Estimate

TIP No. **Y-4810K**
 Route Rogers Lake Rd (North Corridor)
 From Cooper Avenue to Meadow Avenue
 Typical Section 3 Travel Lanes with Bike Lanes and Sidewalks

North

County: **CABARRUS**

***CONSTR. COST
\$15,100,000**

Prepared By: HDR 5/20/14
 Requested By: NCDOT 5/21/14
 Priced By: Doug Lane 5/23/14

Line Item	Des	Sec No.	Description	Quantity	Unit	Price	Amount
			Clearing and Grubbing	16.0	Acre	\$ 15,000.00	\$ 240,000.00
			Earthwork (Borrow Excavation)	246,000	CY	\$ 7.00	\$ 1,722,000.00
			Drainage of Proposed Location	0.76	Miles	\$ 300,000.00	\$ 228,000.00
			Fine Grading	18,784	SY	\$ 2.00	\$ 37,568.00
			Pavement Widening	1,334	SY	\$ 60.00	\$ 80,040.00
			New Pavement	13,743	SY	\$ 50.00	\$ 687,150.00
			Pavement Resurfacing	3,100	SY	\$ 12.00	\$ 37,200.00
			3.0" Average Asphalt Wedging	3,100	SY	\$ 15.00	\$ 46,500.00
			Breaking of Existing Asphalt Pavement	14,700	SY	\$ 2.00	\$ 29,400.00
			Removal of Existing Asphalt Pavement	4,700	SY	\$ 4.00	\$ 18,800.00
			Steel Beam Guardrail	4,900	LF	\$ 15.00	\$ 73,500.00
			Guardrail Anchor Units, Type III	4	EA	\$ 1,300.00	\$ 5,200.00
			Guardrail Anchor Units, Type 350	2	EA	\$ 1,800.00	\$ 3,600.00
			Guardrail Anchor Units, Type CAT-1	2	EA	\$ 600.00	\$ 1,200.00
			2'-6" Concrete Curb and Gutter	8,000	LF	\$ 15.00	\$ 120,000.00
			4" Concrete Sidewalk	5,500	SY	\$ 26.00	\$ 143,000.00
			Fencing				
			Erosion Control	16.0	Acres	\$ 20,000.00	\$ 320,000.00
			New 1-Lane Roundabout Intersection (150' Inscribed Circle Diameter)	1.0	Each	\$ 750,000.00	\$ 750,000.00
			Traffic Control	1.0	LS	\$ 250,000.00	\$ 250,000.00
			Thermo and Markers	0.76	Miles	\$ 20,000.00	\$ 15,200.00
			Structures				
			MSE Wall (Sta 33+50, 25.2' avg x 228') (Sta 38+00, 25.4' avg x 230')	11,590.00	SF	\$ 90.00	\$ 1,043,100.00
			Bridging				
			Bridge	29,610.00	SF	\$ 110.00	\$ 3,257,100.00
			Misc. & Mob (15% Structures)				\$ 645,030.00
			Misc. & Mob (45% Functional)				\$ 2,163,761.10
			<i>Subtotal Cost</i>				\$ 11,917,349.10
			Utility Cost (10% of Subtotal)				\$ 1,191,650.90

Lgth 0.76 Miles

Contract Cost \$ 13,109,000.00
E. & C. 15% \$ 1,991,000.00
Construction Cost* **\$ 15,100,000.00**

*Construction Cost does NOT include ROW acquisition

North Carolina Department of Transportation
Functional Design Level
Construction Cost Estimate

TIP No. **Y-4810K**
Route Rogers Lake Rd (Central Corridor)
From Cooper Avenue to Meadow Avenue
Typical Section 3 Travel Lanes with Bike Lanes and Sidewalks

Central

County: **CABARRUS**

***CONSTR. COST**
\$12,300,000

Prepared By: HDR 5/20/14
Requested By: NCDOT 5/21/14
Priced By: Doug Lane 5/23/14

Line Item	Des	Sec No.	Description	Quantity	Unit	Price	Amount
			Clearing and Grubbing	13.0	Acre	\$ 15,000.00	\$ 195,000.00
			Earthwork (Borrow Excavation)	255,000	CY	\$ 7.00	\$ 1,785,000.00
			Drainage of Proposed Location	0.74	Miles	\$ 300,000.00	\$ 222,000.00
			Fine Grading	17,442	SY	\$ 2.00	\$ 34,884.00
			Pavement Widening	1,500	SY	\$ 60.00	\$ 90,000.00
			New Pavement	12,032	SY	\$ 50.00	\$ 601,600.00
			Pavement Resurfacing	3,800	SY	\$ 12.00	\$ 45,600.00
			3.0" Average Asphalt Wedging	3,800	SY	\$ 15.00	\$ 57,000.00
			Breaking of Existing Asphalt Pavement	17,200	SY	\$ 2.00	\$ 34,400.00
			Removal of Existing Asphalt Pavement	6,600	SY	\$ 4.00	\$ 26,400.00
			Steel Beam Guardrail	4,550	LF	\$ 15.00	\$ 68,250.00
			Guardrail Anchor Units, Type III	4	EA	\$ 1,300.00	\$ 5,200.00
			Guardrail Anchor Units, Type 350	2	EA	\$ 1,800.00	\$ 3,600.00
			Guardrail Anchor Units, Type CAT-1	2	EA	\$ 600.00	\$ 1,200.00
			2'-6" Concrete Curb and Gutter	7,500	LF	\$ 15.00	\$ 112,500.00
			4" Concrete Sidewalk	5,200	SY	\$ 26.00	\$ 135,200.00
			Fencing				
			Erosion Control	13.0	Acres	\$ 20,000.00	\$ 260,000.00
			New 1-Lane Roundabout Intersection (150' Inscribed Circle Diameter)	1.0	Each	\$ 750,000.00	\$ 750,000.00
			Traffic Control	1.0	LS	\$ 250,000.00	\$ 250,000.00
			Thermo and Markers	0.74	Miles	\$ 20,000.00	\$ 14,800.00
			Structures				
			MSE Wall (Sta 33+25, 28.75' avg x 254') (Sta 37+50, 23.8' avg x 218')	12,484.00	SF	\$ 90.00	\$ 1,123,560.00
			Bridging				
			Bridge	27,720.00	SF	\$ 110.00	\$ 3,049,200.00
			Misc. & Mob (15% Structures)				\$ 625,914.00
			Misc. & Mob (45% Functional)				\$ 211,685.30
			<i>Subtotal Cost</i>				\$ 9,702,993.30
			Utility Cost (10% of Subtotal)				\$ 970,006.70

Lgth 0.74 Miles

Contract Cost \$ 10,673,000.00
E. & C. 15% \$ 1,627,000.00
Construction Cost * \$ 12,300,000.00

*Construction Cost does NOT include ROW acquisition

North Carolina Department of Transportation
Functional Design Level
Construction Cost Estimate

TIP No. **Y-4810K**
Route Rogers Lake Rd (South Corridor)
From Cooper Avenue to Meadow Avenue
Typical Section 3 Travel Lanes with Bike Lanes and Sidewalks

South

County: **CABARRUS**

***CONSTR. COST**
\$14,800,000

Prepared By: HDR 5/20/14
Requested By: NCDOT 5/21/14
Priced By: Doug Lane 5/23/14

Line Item	Des	Sec No.	Description	Quantity	Unit	Price	Amount
			Clearing and Grubbing	15.0	Acre	\$ 15,000.00	\$ 225,000.00
			Earthwork (Borrow Excavation)	256,250	CY	\$ 7.00	\$ 1,793,750.00
			Drainage of Proposed Location	0.75	Miles	\$ 300,000.00	\$ 225,000.00
			Fine Grading	18,017	SY	\$ 2.00	\$ 36,034.00
			Pavement Widening	1,534	SY	\$ 60.00	\$ 92,040.00
			New Pavement	13,494	SY	\$ 50.00	\$ 674,700.00
			Pavement Resurfacing	4,400	SY	\$ 12.00	\$ 52,800.00
			3.0" Average Asphalt Wedging	4,400	SY	\$ 15.00	\$ 66,000.00
			Breaking of Existing Asphalt Pavement	9,200	SY	\$ 2.00	\$ 18,400.00
			Removal of Existing Asphalt Pavement	2,350	SY	\$ 4.00	\$ 9,400.00
			Steel Beam Guardrail	4,700	LF	\$ 15.00	\$ 70,500.00
			Guardrail Anchor Units, Type III	4	EA	\$ 1,300.00	\$ 5,200.00
			Guardrail Anchor Units, Type 350	2	EA	\$ 1,800.00	\$ 3,600.00
			Guardrail Anchor Units, Type CAT-1	2	EA	\$ 600.00	\$ 1,200.00
			2'-6" Concrete Curb and Gutter	7,900	LF	\$ 15.00	\$ 118,500.00
			4" Concrete Sidewalk	5,500	SY	\$ 26.00	\$ 143,000.00
	?		Fencing				
			Erosion Control	15.0	Acres	\$ 20,000.00	\$ 300,000.00
			New 1-Lane Roundabout Intersection (150' Inscribed Circle Diameter)	1.0	Each	\$ 750,000.00	\$ 750,000.00
			Traffic Control	1.0	LS	\$ 250,000.00	\$ 250,000.00
			Thermo and Markers	0.75	Miles	\$ 20,000.00	\$ 15,000.00
			Structures				
			MSE Wall (Sta 34+00, 26' avg x 234') (Sta 38+50, 20.9' avg x 198')	10,224.00	SF	\$ 90.00	\$ 920,160.00
			Bridging				
			Bridge	28,350.00	SF	\$ 110.00	\$ 3,118,500.00
			Misc. & Mob (15% Structures)				\$ 605,799.00
			Misc. & Mob (45% Functional)				\$ 2,182,555.80
			<i>Subtotal Cost</i>				\$ 11,677,138.80
			Utility Cost (10% of Subtotal)				\$ 1,167,861.20

Lgth 0.75 Miles

Contract Cost \$ 12,845,000.00
E. & C. 15% \$ 1,955,000.00
Construction Cost * \$ 14,800,000.00

*Construction Cost does NOT include ROW acquisition



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APPENDIX C

AGENCY COORDINATION

US Environmental Protection Agency	September 8, 2011
City of Kannapolis	September 26, 2011
Cabarrus-Rowan MPO	October 19, 2011
NC Division of Water Quality	September 15, 2011
NC State Historic Preservation Office	September 23, 2011
NCDOT Division of Bicycle and Pedestrian Transportation	October 6, 2011



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From: Gibilaro, Carl
Sent: Monday, September 12, 2011 11:47 AM
To: Even, Darren L
Subject: FW: Y-4810K Request for Comments

Carl Gibilaro, PE
 Group Manager, Transportation Design and Planning - Mid Atlantic
 Associate Vice President

ATKINS

5200 Seventy Seven Center Drive, STE 500, Charlotte, NC, 28217 | Tel: +1 (704) 522 7275 | Fax: +1 (704) 525 2838 | Direct: +1 (704) 665 4478 |
 Email: carl.gibilaro@atkinsglobal.com | Web: www.atkinsglobal.com/northamerica www.atkinsglobal.com

From: Solberg, Kristina L [mailto:ksolberg@ncdot.gov]
Sent: Friday, September 09, 2011 3:17 PM
To: Gibilaro, Carl
Subject: FW: Y-4810K Request for Comments

Carl,

Comments and questions from EPA, please add this to the project file.

Thanks,
 Kristina

From: Militscher.Chris@epamail.epa.gov [mailto:Militscher.Chris@epamail.epa.gov]
Sent: Thursday, September 08, 2011 10:34 AM
To: Solberg, Kristina L
Subject: Y-4810K Request for Comments

Kristina: EPA has reviewed the scoping package and request for comments for the Rogers Lake Road (Universal Street) grade separation and closing of Winecoff School Road crossing with the future HSR in Cabarrus County. We have several comments and questions:

1. Generally, we support the purpose and need for the proposed project and closing the Winecoff School Road crossing.
2. Current AADTs (2006 & 2008) are provided for the two crossings. Design year AADTs are not provided.
3. We understand that a grade separation is potentially needed for the Rogers Lake Road crossing but do not understand the potential extent of improvements to the existing roadway being planned (New location estimates based upon 1,000-foot corridors vs. Widening estimates based upon 200-foot corridor).
4. Only one build alternative is identified in the package for the future EA. Why?
5. Is NCDOT planning to widen Rodgers Lake Road in addition to the new grade separation over the rail line? And if so, why would there be a new location component in this very urbanized area?

Thank you for the opportunity to comment. If either widening or a new location alternative is considered in the project study area for Rodgers Lake Road, EPA would appreciate receiving a copy of the EA when it becomes available.

Christopher A. Militscher, REM, CHMM
 USEPA Region 4 Raleigh Office
 919-856-4206

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September 26, 2011

Ms. Kristina L. Solberg, PE
Rail Project Development Engineer
North Carolina Department of Transportation Rail Division
Environmental and Planning Branch
1553 Mail Service Center
Raleigh, NC 27699-1553

Subject: **Request for Comments – Rogers Lake Road (Universal Street) Grade Separation and closing of Winecoff School Road (SR 1790) crossing, STIP Project No. Y-4810K, State WBS Project No. 40325.1.46, Federal-aid No.: TCSP-1034(18)**

Dear Ms. Solberg,

We have received your letter dated August 29, 2011 requesting comments for the Rogers Lake Road (Universal Street) Grade Separation and closing of the Winecoff School Road (SR 1790) railroad crossing project. As you know, Rogers Lake Road is a major east-west connector for the City of Kannapolis and the City has made significant road improvements on the west side of Rogers Lake Road via a new \$4 million connector road which has enhanced connectivity between Kannapolis Parkway and Dale Earnhardt Boulevard/NC Highway 3. The improvements to the crossing between Main Street and Ridge Avenue have been identified as a top priority for the City for a number of years.

Therefore, the City of Kannapolis continues to support the separated grade crossing at the Rogers Lake Road railroad crossing. Because of the volume of existing and projected future vehicular traffic across the railroad tracks in this area a separated grade crossing is needed for both safety and the relief of current and future traffic congestion.

It is also important that these improvements to this railroad crossing correspond with the long range goals of the City. As part of these long range goals the City has adopted a Walkable Community Plan that addresses pedestrian and bicycle facilities. We encourage NCDOT to incorporate these types of facilities as part of the Rogers Lake Road Separated Grade Study.

While the grade separated crossing of Rogers Lake Road has long been a priority project for the City, the closing of the Winecoff School Road railroad crossing has not. This crossing is vital to connectivity in the southern portion of the City. It is our understanding, that the last traffic count study that was conducted in this area indicated that approximately 8,000 vehicles a day use this

crossing. The closing of this railroad crossing along with unexpected closing of the Ridge Avenue Bridge over I-85 that is now included as part of the I-85 widening project will greatly impact travel in the southern portion of Kannapolis. This will be a significant impact to residents, businesses and schools forcing motorists to either use the Rogers Lake Road crossing, approximately 2 miles to the north, or force them to go south into an already congested area in Concord to reach many of the southern parts of Kannapolis. Although it is obvious it will impact and inconvenience the citizens, businesses and schools, more importantly, it will greatly impact the effective delivery of emergency service response times for not only the City of Kannapolis, but also the City of Concord.

The Kannapolis Fire Department has completed a brief study on how the closure on the Winecoff School railroad crossing will impact response times for their department. That study indicated that closure will increase response time to the area in vicinity of this closure by 35%. In addition to the additional response time, this will also add response area to what is currently one of the City's busiest fire stations. From an emergency service perspective, the total impact of this crossing closure will not only be felt in the immediate area, but it will have a domino effect across the entire City.

In 1996, the City of Kannapolis and the NCDOT entered into an agreement based upon a traffic separation study which included a recommended grade separated crossing in the vicinity of Rogers Lake Road and upon completion of that project, the closure of the Winecoff School Road at grade crossing. At the time of execution of this agreement, this seemed to be a reasonable compromise. However, in light of the news that the Ridge Avenue Bridge over I-85 will be eliminated as part of the I-85 widening project we believe closing the Winecoff School Road crossing is no longer a reasonable compromise.

The City of Kannapolis has long been a partner with the NCDOT Rail Division in promoting rail travel and facilitating improvements to rail safety. We understand the reason for this closure centers exclusively on public safety and we agree that the most effective approach to improving rail safety is to close as many at grade crossings as possible. However, for reasons previously stated, the closing of the Winecoff School crossing is an action that the City of Kannapolis can no longer endorse. The closure may mean improved rail safety but it will negatively impact the safety of our citizens from an emergency services perspective.

We believe that there are other alternatives that will provide motorists safer travel in this area, such as an extension of Mt. Olivet Road to align with Winecoff School Road along with an enhanced/corresponding railroad crossing. This concept has been discussed by the Cabarrus-

Ms. Kristina L. Solberg, PE
September 26, 2011
Page 3 of 3

Rowan MPO for several years. We would like to have the opportunity to discuss these alternatives with NCDOT.

Sincerely,

Mike Legg
City Manager

Copy: Marc Hamel, Mgr. - Rail Project Development & Environmental Evaluation
Paul Worley, Director - Engineering and Safety Branch, NCDOT Rail Division
Carl Gibilaro, PE – Atkins
Phil Conrad – Cabarrus-Rowan MPO
Joe Wilson, III, P.E. – Director of Transportation, City of Concord
Wilmer Melton, III – Director of Public Works, City of Kannapolis
Steve Bissinger – City Engineer, City of Kannapolis
Ernie Hiers – Fire Chief, City of Kannapolis
Woody Chavis – Police Chief, City of Kannapolis
File



**CABARRUS - ROWAN URBAN AREA
METROPOLITAN PLANNING ORGANIZATION**

CABARRUS COUNTY • CHINA GROVE • CLEVELAND • CONCORD • GRANITE QUARRY • HARRISBURG • KANNAPOLIS • LANDIS
MIDLAND • MOUNT PLEASANT • ROCKWELL • EAST SPENCER • ROWAN COUNTY • SALISBURY • SPENCER • FAITH

October 19, 2011

North Carolina Department of Transportation Rail Division
Environmental and Planning Branch
1553 Mail Service Center
Raleigh, North Carolina 27699-1553

Attn: Ms. Kristina L. Solberg, PE – Rail Project Development Engineer
Mr. Marc Hamel – Manager, Rail Project Development & Environmental Evaluation
Mr. Carl Gibilaro, PE - Atkins

Subject: Request for Comments – Rogers Lake Road (Universal Street) Grade Separation and
closing of Winecoff School Road (SR 1790) crossing, STIP Project No. Y-4810K,
State WBS Project No. 40325.1.46, Federal-aid No.: TCSP-1034(18)

Dear Ms. Solberg, Mr. Hamel and Mr. Gibilaro;

The Cabarrus-Rowan Metropolitan Planning Organization (CR MPO) supports the Rogers Lake Road Grade Separation. Rogers Lake Road is a major east-west connector for the City of Kannapolis and the City has made significant improvements via a new \$4 million connector road to enhance connectivity between Kannapolis Parkway and Dale Earnhardt Boulevard. However, the CR MPO believes the proposed closure of the Winecoff School Road at-grade crossing leaves a significant gap in east-west connectivity for the southern portion of Kannapolis. We understand that the City of Kannapolis does not support this crossing closure and for very good reasons. Coupled with the unexpected closing of the Ridge Avenue Bridge over I-85 as part of the I-85 widening, travel will be severely impeded and emergency response times compromised, should this crossing be closed. Therefore, the CR MPO believes an alternative to this proposal is merited, such as an extension of Mt. Olivet Road to align with Winecoff School Road along with an enhanced/corresponding railroad crossing. This concept has been discussed among the participating agencies in the CR MPO for several years. The CR MPO supports a continued dialogue between the Rail Division and the City of Kannapolis on these projects.

Thank you for the opportunity to provide input on this proposal. If you should have any additional questions, please do hesitate to contact our office at 704-795-7528.

Sincerely,

Phil Conrad, AICP
Executive Director
Cabarrus-Rowan MPO

cc: Mayor Bob Misenheimer, City of Kannapolis
Mr. Mike Legg, Kannapolis City Manager
Mr. Wilmer Melton, Kannapolis Director of Public Works



North Carolina Department of Environment and Natural Resources
Division of Water Quality

Beverly Eaves Perdue
Governor

Coleen H. Sullins
Director

Dee Freeman
Secretary

September 12, 2011



Kristina L. Solberg, P.E.
NCDOT Rail Division
1553 Mail Service Center
Raleigh, NC 27699-1553

Subject: Scoping Comments on the Proposed Rogers Lake Road (Universal Street) Grade Separation and Closing of Winecoff School Road (SR 1790) Crossing, STIP Project No. Y-481K, State WBS Project No. 40325.1.46, Federal Aid No. TCSP-1034(18), Cabarrus County

Dear Ms. Solberg:

Please reference your correspondence dated August 29, 2011, in which you requested comments for the above referenced project. An analysis of the project reveals the potential for multiple impacts to jurisdictional streams in the project area. More specifically, impacts to:

Stream Name	River Basin	Stream Classification/ 303(d) Listed	Stream Index Number
Threemile Branch	Yadkin	Class C/Not a 303d Listed stream	13-17-9-4-5

The Division of Water Quality (DWQ) requests that the NCDOT Rail Division consider the following environmental issues for the proposed project:

General Project Comments:

1. The environmental document should 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 should consider design criteria that reduce the impacts to streams and wetlands from storm water runoff. These alternatives should include 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.
3. Prior to the issuance of the 401 Water Quality Certification, the NCDOT Rail Division 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 should 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 should 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. NCDOT Rail Division should 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. 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.
7. Bridge deck drains should not discharge directly into the stream. Stormwater should 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*.
8. If concrete is used during construction, a dry work area should 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.
9. If temporary access roads or detours are constructed, the site shall be graded to its preconstruction contours and elevations. Disturbed areas should be seeded or mulched to stabilize the soil and appropriate native woody species should be planted.
10. When using temporary structures, the area should 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.
11. 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 dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and down stream 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.
12. If multiple pipes or barrels are required, they should 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 should 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.
13. If foundation test borings are necessary; it should be noted in the document. Geotechnical work is approved under General 401 Certification Number 3687/Nationwide Permit No. 6 for Survey Activities.
14. 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.
15. All work in or adjacent to stream waters should be conducted in a dry work area unless otherwise approved by NCDWQ. 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.

16. Sediment and erosion control measures should not be placed in wetlands and streams.
17. Borrow/waste areas should avoid wetlands to the maximum extent practical. Impacts to wetlands in borrow/waste areas could precipitate compensatory mitigation.
18. Heavy equipment should 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 should be inspected daily and maintained to prevent contamination of surface waters from leaking fuels, lubricants, hydraulic fluids, or other toxic materials.
19. 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 should 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 should be stabilized with grass and planted with native tree species. Tall fescue should not be used in riparian areas.
20. Riprap should 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.

Thank you for requesting our input at this time. The NCDOT Rail Division 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.

Sincerely,



Robert B. Krebs, Regional Supervisor
Surface Water Protection

Cc: Liz Hair, USACE Asheville Regional Office (electronic copy)
Chris Militscher, EPA (electronic copy)
Marella Buncick, US Fish and Wildlife Service (electronic copy)
Marla Chambers, NC Wildlife Resources Commission (electronic copy)
Sonia Carrillo, DWQ Transportation Permitting Unit (electronic copy)
File Copy



**North Carolina Department of Cultural Resources
State Historic Preservation Office**

Ramona M. Bartos, 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

September 23, 2011

MEMORANDUM

TO: Kristina Solberg
Rail Division
NC Department of Transportation

FROM: Ramona M. Bartos *RSE for Ramona M. Bartos*

SUBJECT: Rogers Lake Road Grade Separation and Close Winecoff School Road Crossing, Y-4810K,
Cabarrus County, ER 11-1730

Thank you for your letter of August 29, 2011, concerning the above project.

We have conducted a review of the proposed undertaking and are aware of no historic resources which would be affected by the project. Therefore, we have no comment on the undertaking as proposed.

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.



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

MEMO TO: Ms. Kristina Solberg, PE, Rail Project Development Engineer,
Rail Project Development and Environmental Evaluation Unit

FROM: Robert Mosher, ASLA, AICP
Division of Bicycle and Pedestrian Transportation

DATE: October 6, 2011

SUBJECT: Scoping Comments for TIP No. Y-4810 K, Grade Separation Rogers Lake Rd.,
City of Kannapolis, Cabarrus County

MESSAGE: In response to your request for comments on Y-4810K, the grade separation of Rogers Lake Rd. over North Carolina Railroad and Norfolk and Southern Railroad in Kannapolis NC, the Division of Bicycle and Pedestrian Transportation has the following comments:

Our Division, in partnership with the City of Kannapolis, completed a comprehensive pedestrian plan in February of 2007. This plan identifies Rogers Lake Rd. as a major east/west pedestrian corridor across the south-central sector of Kannapolis. The plan states that "Rogers Lake Rd. and Extension will provide east-west connectivity in an area with increasing development and plans for growth. It will connect three other proposed pedestrian routes, including West Kannapolis Connector, Oakwood Ave. Extension and the South Main & Fisher Street Connector." This corridor also ties existing residential neighborhoods to the Shady Brook Elementary School, which is about a mile west of this crossing.

We recommend that the bridge crossing provide for a minimum width, 5.5 ft. wide sidewalks crossing on both sides of the bridge. Minimum rail height should be 42 inches. This should safely accommodate pedestrians along this increasingly busy street.

The Division of Bicycle and Pedestrian Transportation appreciates this opportunity to comment and looks forward to continue coordination on this project as it develops. If you need additional information please contact me at 919-707-2606 or at rmosher@ncdot.gov.

cc: K.A. Trivedi Interim Director, Div. of Bicycle and Pedestrian Transportation
Steve Gurganus, Community Studies Team Leader

APPENDIX D

RELOCATION REPORT

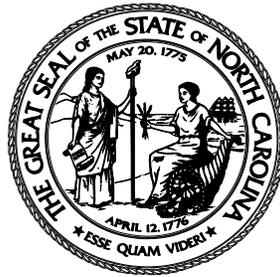


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PROFESSIONAL
PROPERTY
SERVICES, INC.

A EIS Relocation Report
For
The North Carolina Department of Transportation Right of Way Branch
Proposed Grade Separation of Rogers Lake Road (Universal St.) in Kannapolis





PROFESSIONAL
PROPERTY
SERVICES, INC.

July 18, 2014

Mr. Neal Strickland
Right of Way Consultant Coordinator
North Carolina Department of Transportation
1546 Mail Service Center
Raleigh, NC 27699

RE: Relocation Estimate: Proposed Grade Separation of Rogers Lake Road (Universal St.) in Kannapolis, Project #4810K, WBS No. 40325.1.46 Division 10

Dear Mr. Strickland:

The following described alternatives have been field reviewed for the Environmental Impact Statement (EIS) and is intended to be a brief summary of the projected relocation activity, not a detailed report. The depth of the report is directly proportional to the scope of work which was to obtain information from a windshield view of the project utilizing secondary sources to project the relocation assistance that will be required in the future based upon this alignment of Northern, Central, and Southern Alternatives.

Thank you for the opportunity to be of service to the NCDOT. If you have any questions regarding the reports, please call me.

Sincerely,

Craig L. Long, SR/WA, PLS
Professional Property Services, Inc.

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EIS Relocation Report Central Alternative

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EIS Relocation Report Southern Alternative

- **EIS Relocation Report Addendum for Southern Alternative**
- **Pictures**

EIS Relocation Report Additional Data

EIS RELOCATION REPORT

North Carolina Department of Transportation
RELOCATION ASSISTANCE PROGRAM

E.I.S. CORRIDOR DESIGN

WBS ELEMENT:	40325.1.46	COUNTY	Cabarrus	Alternate	Northern	Design	Alternate
T.I.P. No.:	Y-4810K						
DESCRIPTION OF PROJECT:	Proposed Grade Separation of Rogers Lake Road (Universal St.) in Kannapolis						

ESTIMATED DISPLACED					INCOME LEVEL								
Type of Displacees	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP				
Residential	27	19	46	0	7	11	11	7	10				
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	4	\$ 0-150	0	
ANSWER ALL QUESTIONS					20-40M	0	150-250	0	20-40M	18	150-250	0	
Yes	No	Explain all "YES" answers.			40-70M	2	250-400	6	40-70M	73	250-400	0	
	X	1. Will special relocation services be necessary?			70-100M	15	400-600	7	70-100M	93	400-600	17	
	X	2. Will schools or churches be affected by displacement?			100 UP	10	600 UP	6	100 UP	287	600 UP	154	
X		3. Will business services still be available after project?			TOTAL	27		19		475		171	

REMARKS (Respond by number)

See Addendum for Remarks

Vivian B. Swanigan Right of Way Agent	07/18/14		7/21/14
Date		Relocation Coordinator	Date

List of Potential Displacees:

William P. Miller – 316 Rogers Lake Road, Kannapolis, NC 28083 – The current plans indicate impact to a duplex, which appears to be occupied.



William P. Miller – 318 Rogers Lake Road and 1401 Meadow Ave., Kannapolis, NC 28083 – The current plans indicate impact to a duplex, which appears to be occupied.



Howard V. Wyrick – 403, 405, and 407 Rogers Lake Road, Kannaopolis, NC 28083 – The current plans indicate impact to a duplex and single wide mobile home, which both appear to be occupied.



Patricia T. Cook –1310 Meadow Avenue, Kannapolis, NC 28083 – The current plans indicate impact to a single family residence, which appears to be occupied.



Enza Germano – 1309 Browdis Ave., Kannapolis, NC 28083 – The current plans indicate impact to a single family residence, which appears to be occupied.



Arnold J. Crouch – 312 Rogers Lake Road, Kannapolis, NC 28083 – The current plans indicate impact to a single family residence, which appears to be occupied.



M. Darlene Perkins – 1316 Browdis Ave., Kannapolis, NC 28083 – The current plans indicate impact to a single family residence and garage, which appears to be occupied.



Bridlewood Properties – 1400 and 1401 Murabito Lane, Kannapolis, NC 28083 – The current plans indicate impact to two mobile homes, which appear to be occupied.



James R. Duren – 1309 Oakshade Ave., Kannapolis, NC 28083 – The current plans indicate impact to a single family residence, which appears to be occupied.



Philip Evans – 1306 Oakshade Ave., Kannapolis, NC 28083 – The current plans indicate impact to a single family residence, which appears to be occupied.



Junior Lamarr Hall – 1305 Oakshade Ave., Kannapolis, NC 28083 – The current plans indicate impact to a house and storage building, which appears to be occupied.



Megan E. and Benjamin Wease – 1304 Oakshade Ave., Kannapolis, NC 28083 – The current plans indicate impact to a single family residence, which appears to be occupied.



Velba Arlene Perkins and Melba Darlene Perkins (JTWRS) – 1312 and 1314 Browdis Ave., Kannapolis, NC 28083 – The current plans indicate impact to a duplex, which appears to be occupied.



Velba Arlene Perkins and Melba Darlene Perkins (JTWRS) – 1308 and 1310 Browdis Ave., Kannapolis, NC 28083 – The current plans indicate impact to a duplex, which appears to be occupied.



Barbara H. Roche – 1303 Oakshade Ave., Kannapolis, NC 28083 – The current plans indicate impact to a two-story single family residence, which appears to be occupied.



Bigford Enterprises Inc. – South Ridge Mini Storage – 209 Russell St. and 1215 S Ridge Ave., Kannapolis, NC 28083 – The current plans indicate one row building of mini self storage units, which appear to be occupied.



City of Kannapolis – 1230 S Main St., Kannapolis, NC 28081 – The current plans indicate impact to a large commercial building, which appears to be occupied. It appears to have 10 – 20 employees.



Eddie B. Durham & Connie G. Durham – The Shooter – 1227 S. Main Street, Kannapolis, NC - The current plans indicate impact to a small business, which appears to have a gun range and sale gun accessories. It appears to have 3 – 5 employees.



Simeon Rozzell Miller – 201 Lowrance Ave., Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Eric Scott Smith – 203 Lowrance Ave., Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Roger L. Ritchie – 301 Lowrance Ave., Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Mrs. D B Jordan – 303 Lowrance Ave., Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Mrs. D B Jordan – 1302 Rogers Ave., Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Betty Sechler Ritchie – 307 and 309 Lowrance Avenue, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied, and a commercial building that appears to be unoccupied.



Frances J. Nicholson – 1303 Rogers Ave., Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Kenneth Miller – 446 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Stephen R. Jewett & Cathy G. Jewett – 453 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Johanna F. Roberts – 459 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Richard C. Horton – 471 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Darby T. Verbos – 501 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Victor Benitez/NC General Partnership – 500 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Laura Cruse Osborne – 503 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Myrtle F. Whitehead – 465 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Terry K Mease – 466 and 468 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a duplex, which appears to be occupied.



Mildred James Walter – 456 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a duplex, which appears to be occupied.



Leonard R. Troutman, Jr. and Clarissa P. Troutman – 508 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a duplex, which appears to be occupied.



Ellen M. Thompson – 502 and 504 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a duplex, which appears to be occupied.



Annalene O Chapman – 507 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



EIS RELOCATION REPORT ADDENDUM

WBS: 40325.1.46

COUNTY: CABARRUS

T.I.P.: Y-4810K

DESCRIPTION OF PROJECT: **Proposed Grade Separation of Rogers Lake Road (Universal St.) in Kannapolis – NORTHERN DESIGN ALTERNATIVE**

3. Several businesses are impacted but there are adequate properties available to relocate.

4. Three businesses are impacted:

- South Ridge Mini Storage – 50 unit mini storage building, which appears to have at least one employee
- City of Kannapolis – City building warehousing service trucks, which appear to have 10 to 20 employees
- The Shooter's – sell guns and accessories, which appear to have 2 to 4 employees

6. Multiple Listing Service, Homes.com, HUD, Section 8 Housing, Etc...

7. The area appears to have a lot of low income families, thus, housing programs should be considered.

8. Last Resort Housing should be considered due the income levels in the community

11. Public housing is available through Section 8 and the Kannapolis Housing Authority is accepting applications at this time.

12. Based upon the visual and the available housing on the market, it appears that that there will be adequate DSS housing for this project. It should be noted that these properties have not been inspected to assure that they meet the DSS standards. The available DSS dwellings listed above are located in Kannapolis, NC. More than 646 sales and rental listings are available in Kannapolis, NC. There are numerous mobile home parks in the area that appear to have rentals available. According to information provided by MLS and internet listings, there are very few rentals Available below \$400.00 in the Kannapolis area.

Note:

(1) It should be noted that the data provided in this report was collected via a windshield view of each property. Thus it was difficult to determine tenant occupied homes, businesses, the number of employees, and the numbers of minorities as there were no interviews conducted.

(2) There are several outdoor advertising signs located within the corridor.

EIS RELOCATION REPORT

North Carolina Department of Transportation
RELOCATION ASSISTANCE PROGRAM

E.I.S. CORRIDOR DESIGN

WBS ELEMENT:	40325.1.46	COUNTY	Cabarrus	Alternate	Central	Design	Alternate
T.I.P. No.:	Y-4810K						
DESCRIPTION OF PROJECT:	Proposed Grade Separation of Rogers Lake Road (Universal St.) in Kannapolis						

ESTIMATED DISPLACED					INCOME LEVEL							
Type of Displacees	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP			
Residential	28	23	51	0	8	12	8	12	11			
Businesses	7	0	7	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	4	\$ 0-150	0
ANSWER ALL QUESTIONS					20-40M	0	150-250	0	20-40M	18	150-250	0
Yes	No	<i>Explain all "YES" answers.</i>			40-70M	11	250-400	8	40-70M	73	250-400	0
	X	1. Will special relocation services be necessary?			70-100M	14	400-600	9	70-100M	93	400-600	17
	X	2. Will schools or churches be affected by displacement?			100 UP	13	600 UP	6	100 UP	287	600 UP	154
X		3. Will business services still be available after project?			TOTAL			23		475		171

REMARKS (Respond by number)

See Addendum for Remarks

	07/18/14		7/21/14
Vivian B. Swanigan Right of Way Agent	Date	Relocation Coordinator	Date

List of Potential Displacees:

William P. Miller – 316 Rogers Lake Road, Kannapolis, NC 28083 – The current plans indicate impact to a duplex, which appears to be occupied.



William P. Miller – 318 Rogers Lake Road and 1401 Meadow Ave., Kannapolis, NC 28083 – The current plans indicate impact to a duplex, which appears to be occupied.



Howard V. Wyrick – 403, 405, and 407 Rogers Lake Road, Kannaopolis, NC 28083 – The current plans indicate impact to a duplex and single wide mobile home, which both appear to be occupied.



Arnold J. Crouch – 312 Rogers Lake Road, Kannapolis, NC 28083 – The current plans indicate impact to a single family residence, which appears to be occupied.



M. Darlene Perkins – 1316 Browdis Ave., Kannapolis, NC 28083 – The current plans indicate impact to a single family residence and garage, which appears to be occupied.



Bridlewood Properties – 1400, 1401, 1402, and 1403 Murabito Lane, Kannapolis, NC 28083 – The current plans indicate impact to four (4) mobile homes, which appear to be occupied.





James R. Duren – 1309 Oakshade Ave., Kannapolis, NC 28083 – The current plans indicate impact to a single family residence, which appears to be occupied.



Philip Evans – 1306 Oakshade Ave., Kannapolis, NC 28083 – The current plans indicate impact to a single family residence, which appears to be occupied.



Junior Lamarr Hall – 1305 Oakshade Ave., Kannapolis, NC 28083 – The current plans indicate impact to a house and storage building, which appears to be occupied.



Megan E. and Benjamin Wease – 1304 Oakshade Ave., Kannapolis, NC 28083 – The current plans indicate impact to a single family residence, which appears to be occupied.



Velba Arlene Perkins and Melba Darlene Perkins (JTWRS) – 1312 and 1314 Browdis Ave., Kannapolis, NC 28083 – The current plans indicate impact to a duplex, which appears to be occupied.



Mrs. D B Jordan – 1302 Rogers Ave., Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Frances J. Nicholson – 1303 Rogers Ave., Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Kenneth Miller – 446 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Stephen R. Jewett & Cathy G. Jewett – 453 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Johanna F. Roberts – 459 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Richard C. Horton – 471 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Darby T. Verbos – 501 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Victor Benitez/NC General Partnership – 500 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Laura Cruse Osborne – 503 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Myrtle F. Whitehead – 465 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Terry K Mease – 466 and 468 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a duplex, which appears to be occupied.



Mildred James Walter – 456 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a duplex, which appears to be occupied.



Leonard R. Troutman, Jr. and Clarissa P. Troutman – 508 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a duplex, which appears to be occupied.



Ellen M. Thompson – 502 and 504 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a duplex, which appears to be occupied.



Annalene O Chapman – 507 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Howard V Wyrick – 1403 Oakshade Ave., 314 Rogers Lake Road, 1401 Tony Ct., Kannapolis, NC 28083 – The current plans indicate impact to a single family residence, and two mobile homes that appear to be occupied.



Teresa Roxanne Hamilton – 1311 S Ridge Ave., Kannapolis, NC 28083 – The current plans indicate impact to a commercial business, which appears to be a dog grooming business, there appears to be 3 to 5 employees.



Roxanne W. Reed – 1307 S Ridge Ave., Kannapolis, NC 28083 – The current plans indicate impact to a single family residence, which appears to be occupied.



Robert E. Stamey Sr. and Nancy O. Stamey – 1316 S Main St., Kannapolis, NC 28081 – The current plans indicate impact to a shopping complex:

A restaurant, La Riena, appears to have 8 to 10 employees.



Plans indicate impact to Robert's Unisex Barber shop – which appears to employ 5 to 7 employees.



Plans indicate impact to pizza restaurant, which appears to employ 8 to 10 employees.



The plans indicate impact to Stamey Grading, small business that appears to employ 3 to 5 employees.



The current plans indicate impact to Knight Automotive, which appears to employ 3 to 5 employees.



BNM Realty Inc., - 1314 S Main St., Kannapolis, NC 28081 – The current plans indicate impact to Pro Master, Inc., which appears to employ 20 to 25 employees.



Joe E. Williams – 204 Rogers Lake Road., Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Frankie Lavera Baker Gosa – 212 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Jacqueline M Helms – 208 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



David W. Nicholson and Angela C. Nicholson – 216 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Gwyneira L. Hoke – 309 Rogers Lake Road, Kannapolis, NC 28083 – The current plans indicate impact to a single family residence, which appears to be occupied.



Shirley J. and John M. Beaver – 1306 Rogers Ave., Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears occupied.



Charles Ray Reed III – 1307 Rogers Ave., Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Patricia Ann Jordan Goodnight and Shirley Ruth Jordan Beaver – 1308 Rogers Ave., Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Leonard C. Kee and Lillie D. Kee – 1400 Oakshade Ave., Kannapolis, NC 28083 – The current plans indicate impact to a single family residence, which appears to be occupied.



EIS RELOCATION REPORT ADDENDUM

WBS: 40325.1.46

COUNTY: CABARRUS

T.I.P.: Y-4810K

DESCRIPTION OF PROJECT: **Proposed Grade Separation of Rogers Lake Road (Universal St.) in Kannapolis – CENTRAL DESIGN ALTERNATIVE**

3. Several businesses are impacted but there are adequate properties available to relocate.

4. Seven businesses are impacted:

- Mutt Hutt – Dog grooming business, appears to have 3 to 5 employees
- LaRiena – Mexican restaurant, appears to have 8 to 10 employees
- Robert’s Unisex Barber – Barber shop, appears to have 5 to 7 employees
- Touchdown Pizza – pizza restaurant, appears to have 8 to 10 employees
- Stamey Grading – grading business, appears to have 3 to 5 employees
- Knight Automotive – car business, appears to have 3 to 5 employees
- Pro Master, Inc. – manufactures golf carts, appears to have 20 to 25 employees

6. Multiple Listing Service, Homes.com, HUD, Section 8 Housing, Etc...

7. The area appears to have a lot of low income families, thus, housing programs should be considered.

8. Last Resort Housing should be considered due the income levels in the community

11. Public housing is available through Section 8 and the Kannapolis Housing Authority is accepting applications at this time.

12. Based upon the visual and the available housing on the market, it appears that that there will be adequate DSS housing for this project. It should be noted that these properties have not been inspected to assure that they meet the DSS standards. The available DSS dwellings listed above are located in Kannapolis, NC. More than 646 sales and rental listings are available in Kannapolis, NC. There are numerous mobile home parks in the area that appear to have rentals available. According to information provided by MLS and internet listings, there are very few rentals Available below \$400.00 in the Kannapolis area.

Note:

(1) It should be noted that the data provided in this report was collected via a windshield view of each property. Thus it was difficult to determine tenant occupied homes, businesses, the number of employees, and the numbers of minorities as there were no interviews conducted.

(2) There are several outdoor advertising signs located within the corridor.

EIS RELOCATION REPORT

North Carolina Department of Transportation
RELOCATION ASSISTANCE PROGRAM

E.I.S. CORRIDOR DESIGN

WBS ELEMENT:	40325.1.46	COUNTY	Cabarrus	Alternate	Southern	Design	Alternate
T.I.P. No.:	Y-4810K						
DESCRIPTION OF PROJECT:	Proposed Grade Separation of Rogers Lake Road (Universal St.) in Kannapolis						

ESTIMATED DISPLACED					INCOME LEVEL								
Type of Displacees	Owners	Tenants	Total	Minorities	0-15M	15-25M	25-35M	35-50M	50 UP				
Residential	41	23	64	0	12	18	10	14	10				
Businesses	8	0	8	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	4	\$ 0-150	0	
ANSWER ALL QUESTIONS					20-40M	6	150-250	0	20-40M	18	150-250	0	
Yes	No	<i>Explain all "YES" answers.</i>			40-70M	12	250-400	8	40-70M	73	250-400	0	
	X	1. Will special relocation services be necessary?			70-100M	11	400-600	9	70-100M	93	400-600	17	
X		2. Will schools or churches be affected by displacement?			100 UP	12	600 UP	6	100 UP	287	600 UP	154	
X		3. Will business services still be available after project?			TOTAL	41		23		475		171	

REMARKS (Respond by number)

See Addendum for Remarks

Vivian B. Swanigan Right of Way Agent	07/18/14		7/21/14	
Date		Relocation Coordinator	Date	

List of Potential Displacees:

William P. Miller – 316 Rogers Lake Road, Kannapolis, NC 28083 – The current plans indicate impact to a duplex, which appears to be occupied.



William P. Miller – 318 Rogers Lake Road and 1401 Meadow Ave., Kannapolis, NC 28083 – The current plans indicate impact to a duplex, which appears to be occupied.



Howard V. Wyrick – 403, 405, and 407 Rogers Lake Road, Kannaopolis, NC 28083 – The current plans indicate impact to a duplex and single wide mobile home, which both appear to be occupied.



Arnold J. Crouch – 312 Rogers Lake Road, Kannapolis, NC 28083 – The current plans indicate impact to a single family residence, which appears to be occupied.



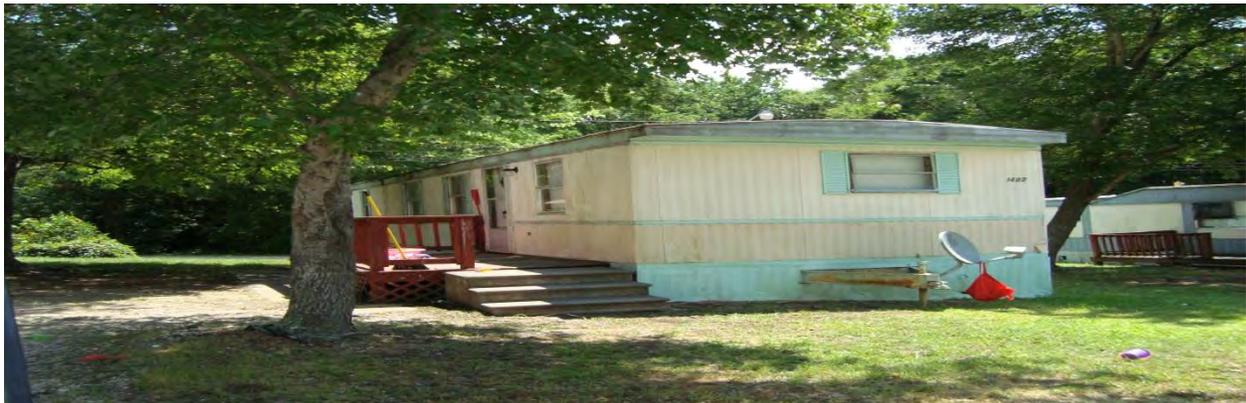
M. Darlene Perkins – 1316 Browdis Ave., Kannapolis, NC 28083 – The current plans indicate impact to a single family residence and garage, which appears to be occupied.



Bridlewood Properties – 1400, 1401, 1402, 1403, 1404, 1405, 1406, 1407, and 1408 Murabito Lane, Kannapolis, NC 28083 – The current plans indicate impact to nine (9) mobile homes, which appear to be occupied.









James R. Duren – 1309 Oakshade Ave., Kannapolis, NC 28083 – The current plans indicate impact to a single family residence, which appears to be occupied.



Stephen R. Jewett & Cathy G. Jewett – 453 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Johanna F. Roberts – 459 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Richard C. Horton – 471 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Darby T. Verbos – 501 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Victor Benitez/NC General Partnership – 500 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Laura Cruse Osborne – 503 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Myrtle F. Whitehead – 465 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Terry K Mease – 466 and 468 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a duplex, which appears to be occupied.



Leonard R. Troutman, Jr. and Clarissa P. Troutman – 508 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a duplex, which appears to be occupied.



Ellen M. Thompson – 502 and 504 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a duplex, which appears to be occupied.



Annalene O Chapman – 507 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Howard V Wyrick – 1403 Oakshade Ave., 314 Rogers Lake Road, 1401 Tony Ct., Kannapolis, NC 28083 – The current plans indicate impact to a single family residence, and two mobile homes that appear to be occupied.



Gwyneira L. Hoke – 309 Rogers Lake Road, Kannapolis, NC 28083 – The current plans indicate impact to a single family residence, which appears to be occupied.



James J. Kuffner and Crystal G. Kuffner – 411 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Daniel Ray Rosenbalm – 1300 Todd Ave. and 405 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a business, Morgan’s Garage, which appears to employ 3 to 5 employees.



Dennis A. and Amy A. Daniels – 305, 307, 309, 311 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a Quadraplex, which appears to be occupied.



Jesus Christ is the Answer – 310 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a Church, which appears to employ 3 to 5 people.



William VanWieren II – 303 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



William Shane Mesimer – 308 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears occupied.



Cecil G. and Betty G. Keller – 1400 Rogers Ave., Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Evelyn Ruth Byrd Life Estate – 1402 Rogers Ave., Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Jeremy Sellers – 1404 Rogers Ave., Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Michael J. and Eva M. Garver – 1406 Rogers Ave., Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Richard C. Owings and Tammy S. Owings – 114 Triage St., Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Harold G. and Reba Jean Wilkinson – 112 Triage St., Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears occupied.



Harry Wayne and Charlee S. Smith – 110 Triage St., Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Harry L. Smith – 1404 S. Main St., Kannapolis, NC 28081 – The current plans indicate impact to a business, Gio's Tire and Wheel Service, which appears to employ 4 to 6 employees.



Harry L. Smith – 1402 S Main St., Kannapolis, NC 28081 – The current plans indicate impact to a business, Tire Service, which appears to employ 2 – 3 employees.



Adam Cantero – 101 Rogers Lake Road and 1400 S. Main St., Kannapolis, NC 28081 – The current plans indicate impact to a business, which appears to employ 2 – 3 employees.



Claude J. Moss, Trustee and Montine M. Moss, Trustee – 1401 S Main St., Kannapolis, NC 28081 – The current plans indicate impact to a business, CJ Moss Real Estate Inc., which appears to employ 5 to 7 employees.



Joe Stamper Plott, Jr. and Ava Plott – 1403 S Main St., Kannapolis, NC 28081 – The current plans indicate impact to a business, Paws and Claws, a pet grooming service, which appears to employ 2 to 4 employees.



H L Red Smith LLC – 135 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Michael Deron Simmons – 207 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



James W. Fink – 211 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Shelley Leanne Williams – 217 Rogers Lake Road, Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Priscilla O Summers – 300 Triage St., Kannapolis, NC 28081 – The current plans indicate impact to a single family residence, which appears to be occupied.



Dwight D. Deese and Beatrice C. Deese – 1408 S Ridge Ave., Kannapolis, NC 28083 – The current plans indicate impact to a single family residence, which appears to be occupied.



Melba Darlene Perkins – 1410 S Ridge Ave., Kannapolis, NC 28083 – The current plans indicate impact to a single family residence, which appears to be occupied.



Troy Day and Pauline S. Day – 1412 S Ridge Ave., Kannapolis, NC 28083 – The current plans indicate impact to a business, LeBleu’s Towing, which appears to employ 2 – 4 employees.



Pamela G. Lucas and Roy Lucas – 1413 S Ridge Ave., Kannapolis, NC 28083 – The current plans indicate impact to a single family residence, which appears to be occupied.



Milton Archie Lucas Life Estate – 1411 S Ridge Ave., Kannapolis, NC 28083 – The current plans indicate impact to a business, South Car Auto Repair, which appears to employ 1 to 3 employees.



William D. and Linda A. Hassig – 1405 S Ridge Ave., Kannapolis, NC 28083 – The current plans indicate impact to a mobile home, which appears to be occupied.



Leonard C. Kee and Lillie D. Kee – 1400 Oakshade Ave. Kannapolis, NC 28083 – The current plans indicate impact to a single family residence, which appears to be occupied.



Alexis Jason Chovit – 1404 Oakshade Ave., Kannapolis, NC 28083 – The current plans indicate impact to a single family residence, which appears to be occupied.



John David Greene – 1408 Oakshade Ave., Kannapolis, NC 28083 – The current plans indicate impact to a single family residence, which appears to be occupied.



Agnes Blake – 1407 Oakshade Ave., Kannapolis, NC 28083 – The current plans indicate impact to a single family residence, which appears to be occupied.



Agnes Blake – 1405 Oakshade Ave., Kannapolis, NC 28083 – The current plans indicate impact to a single family residence, which appears to be occupied.



EIS RELOCATION REPORT ADDENDUM

WBS: 40325.1.46

COUNTY: CABARRUS

T.I.P.: Y-4810K

DESCRIPTION OF PROJECT: **Proposed Grade Separation of Rogers Lake Road (Universal St.) in Kannapolis – SOUTHERN DESIGN ALTERNATIVE**

2. One Church will be impacted but there are adequate properties available to relocate.
3. Several businesses are impacted but there are adequate properties available to relocate.
4. Eight businesses are impacted:
 - LeBleu's Towing – appears to employ 2 to 4 employees
 - Morgan's Garage – appears to employ 2 to 4 employees
 - Tire Service – appears to employ 1 to 3 employees
 - Gio's Tire and Wheel Service – appears to employ 4 to 6 employees
 - Hobb's Mixed Martial Arts – appears to employ 2 to 3 employees
 - CJ Moss Real Estate Services, Inc. – appears to employ 5 to 7 employees
 - Paws and Claws – appears to employ 2 to 4 employees
 - South Company Auto Repairs – appears to employ 1 to 3 employees
6. Multiple Listing Service, Homes.com, HUD, Section 8 Housing, Etc...
7. The area appears to have a lot of low income families, thus, housing programs should be considered.
8. Last Resort Housing should be considered due the income levels in the community
11. Public housing is available through Section 8 and the Kannapolis Housing Authority is accepting applications at this time.
12. Based upon the visual and the available housing on the market, it appears that that there will be adequate DSS housing for this project. It should be noted that these properties have not been inspected to assure that they meet the DSS standards. The available DSS dwellings listed above are located in Kannapolis, NC. More than 646 sales and rental listings are available in Kannapolis, NC. There are numerous mobile home parks in the area that appear to have rentals available. According to information provided by MLS and internet listings, there are very few rentals Available below \$400.00 in the Kannapolis area.

Note:

(1) It should be noted that the data provided in this report was collected via a windshield view of each property. Thus it was difficult to determine tenant occupied homes, businesses, the number of employees, and the numbers of minorities as there were no interviews conducted.

(2) There are several outdoor advertising signs located within the corridor.

EIS RELOCATION REPORT ADDITIONAL DATA

WBS: 40325.1.46

COUNTY: CABARRUS

T.I.P.: Y-4810K

DESCRIPTION OF PROJECT: **PROPOSED GRADE SEPARATION OF ROGERS LAKE ROAD (UNIVERSAL ST) IN KANNAPOLIS.**

The Median Home Sale Price is \$130,170 this compares to the country median home sale price of \$155,500 / Kannapolis. Kannapolis has 36,193 households with the average house hold size of 2.6 people.

Kannapolis INSIDE THE HOUSING MARKET	
Median Home Sale Price	130,170
Owner-Occupied (dwellings)	14,795
Renter-Occupied (dwellings)	9,873
Average Household Size (people)	2.6
In Current Residence 5+ years	35.02%
Annual Residence Turnover	21.56%
Households	36,193
Households Family	30,796
Households Non-family	5,397
Households with Children	5,360
Households no Children	2,392

Kannapolis has 14,795 owner occupied dwellings with 9,873 renter occupied dwellings. In Kannapolis there are 5,360 households with children compared to 2,392 without children.

Public Housing Agencies in the Kannapolis Area

Cabarrus County Social Services

1303 S Cannon Blvd., Kannapolis, NC 28083
Phone: (704) 920-1400

Concord Housing Department

283 Harold Goodman Circle SW
Concord, NC 28025
Phone: (704) 788-1139

Sample of the Social Services in the Kannapolis Area

The Salvation Army Thrift Stores Thrift Stores

704-788-2055
2901 Cloverleaf Parkway, Kannapolis, NC 28081

The Spirit Central

704-933-4669
2116 Woodlawn Street, Kannapolis, NC 28083

Prosperity Unlimited
1660 Garnet St.
Kannapolis, NC 28083
704-933-7405
www.prosperitycdc.org

Community Link
601 East 5th St., Suite 220
Charlotte, NC 28202
1-800-977-1969
www.communitylink-nc.org