



Durham-Orange
Light Rail Transit Project

NCCU Station Refinement Supplemental Environmental Assessment



November 2016

Durham-Orange Light Rail Transit Project

Durham and Orange Counties, North Carolina

NCCU Station Refinement

Supplemental Environmental Assessment

Prepared pursuant to applicable federal environmental laws, regulations, and executive orders during the environmental review process. These requirements include, but are not limited to, National Environmental Policy Act of 1969 as amended (42 U.S.C. § 4321 et seq.); Moving Ahead for Progress in the 21st Century Act (Public Law 112-114); Fixing America's Surface Transportation Act (Public Law 114-94); applicable Federal Transit Laws (49 U.S.C. § 5301 et seq., 23 U.S.C. §139(n), and 49 U.S.C. 304(a)); Department of Transportation Act of 1966, Section 4(f) (49 U.S.C. § 303 and 23 U.S.C. § 138); National Historic Preservation Act of 1966, Section 106 (54 U.S.C. § 306108 et seq.); Clean Water Act (33 U.S.C. § 1251 et seq.); Endangered Species Act of 1973 (16 U.S.C. § 1531 et seq.); Clean Air Act (42 U.S.C. § 7401 et seq.); Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 U.S.C. § 4601 et seq.); the Council on Environmental Quality implementing NEPA (40 C.F.R. Parts 1500-1508) and Federal Transit Administration (FTA) regulations on environmental impact and related procedures (23 C.F.R. Parts 771 and 774); Executive Order 11988 (Floodplain Management); Executive Order 11990 (Protection of Wetlands); Executive Order 12898 (Environmental Justice); USDOT Order 5610.2(a) (Environmental Justice); and all relevant laws, regulations, and procedures of the State of North Carolina.

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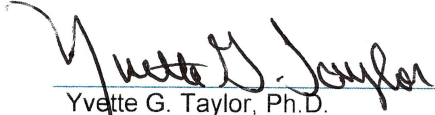
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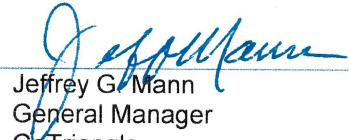
Research Triangle Regional Public Transportation Authority d/b/a Triangle Transit d/b/a GoTriangle

in cooperation with the

U.S. Environmental Protection Agency, U.S. Army Corps of Engineers, and Federal Highway Administration


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Durham-Orange Light Rail Transit Project

NCCU Station Refinement

Supplemental Environmental Assessment

Prepared for:

U.S. Department of Transportation, Federal Transit Administration

and

Research Triangle Regional Public Transportation Authority d/b/a Triangle Transit d/b/a GoTriangle



Prepared by:



November 2016

Title of Proposed Action

Supplemental Environmental Assessment for the Durham-Orange Light Rail Transit (D-O LRT) Project North Carolina Central University (NCCU) Station Refinement

Comments

All Comments on the Supplemental Environmental Assessment are due by December 7, 2016.

Written comments may be sent:

Via U.S. Mail: D-O LRT Project – NCCU Station Refinement, c/o GoTriangle, Post Office Box 13787, Research Triangle Park, NC 27709

Via Email: info@ourtransitfuture.com

Via the D-O LRT Project's website: <http://ourtransitfuture.com>

Two public meetings will be held on:

Saturday, November 12, 2016, from 10 to 11:30 a.m.
Holton Career and Resource Center
401 N Driver Street
Durham, NC 27703

Thursday, November 17, 2016, from 6:30 to 8:00 p.m.
WG Pearson Center
600 E. Umstead Street
Durham, NC 27701

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Summary

In response to comments made on the DEIS, in the FEIS/ROD, FTA and GoTriangle committed to analyze the feasibility of extending the alignment to NCCU. Early in this analysis, GoTriangle determined that this extension is feasible, and FTA determined that a supplemental EA would be required to document any associated environmental impacts. The proposed refinement would change the location of the eastern terminus by adding a station near North Carolina Central University (NCCU); herein referred to as the “NCCU Station Refinement.” This Supplemental Environmental Assessment (Supplemental EA) evaluates changes in the D-O LRT Project associated with the NCCU Station Refinement subsequent to the issuance of the Combined Final Environmental Impact Statement (FEIS)/Record of Decision (ROD) in February 2016.

The changes associated with the NCCU Station Refinement are described in section 2.2, and potential impacts of the NCCU Station Refinement are discussed in chapters 3, 4, and 5. Chapter 6 includes a summary of public outreach efforts and agency coordination conducted since the publication of the Combined FEIS/ROD, and chapter 7 outlines next steps in the D-O LRT Project.



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Acronyms and Abbreviations

Acronym	Definition
ACHP	Advisory Council on Historic Preservation
ACS	American Community Survey
ADA	Americans with Disabilities Act of 1990, as amended
APE	Area of Potential Effect
BMP	Best Management Practices
CEQ	Council on Environmental Quality
C.F.R.	Code of Federal Regulations
CME	Christian Methodist Episcopal
dBA	A-weighted decibels (decibel unit)
DCHC MPO	Durham-Chapel Hill-Carrboro Metropolitan Planning Organization
DEIS	Draft Environmental Impact Statement
DHA	Durham Housing Authority
D-O	Durham-Orange
D-O LRT Project	Durham-Orange Light Rail Transit Project
DOT	Department of Transportation
DTCC	Durham Technical Community College
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EJ	environmental justice
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Environmental Site Assessment
FAST	Fixing America's Surface Transportation
FEIS	Final Environmental Impact Statement

Acronym	Definition
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
FTA	Federal Transit Administration
Ldn	Day-night noise level
LEP	Limited English Proficiency
LOS	Level of Service
LPA	Locally Preferred Alternative
LRT	Light Rail Transit
L RTP	Long Range Transportation Plan
LUST	Leaking Underground Storage Tank
MAP-21	Moving Ahead for Progress in the 21th Century Act
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MPO	Metropolitan Planning Organization
MTP	Metropolitan Transportation Plan
NC	North Carolina
NCCU	North Carolina Central University
NCRR	North Carolina Railroad Company
NEPA	National Environmental Policy Act
NCNHP	North Carolina Natural Heritage Program
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NR	National Register
NRHP	National Register of Historic Places
O&M	Operations and Maintenance
OSA	Office of State Archaeology
ROD	Record of Decision
ROMF	Rail Operations and Maintenance Facility
ROW	Right-Of-Way
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SHPO	State Historic Preservation Officer
STIP	State Transportation Improvement Program
SWPPP	Storm Water Pollution Prevention Plan
TRM	Triangle Regional Model



Acronym	Definition
UNC	University of North Carolina at Chapel Hill
US or U.S.	United States
U.S.C.	United States Code
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
VMT	Vehicle Miles Traveled



1

Introduction

This Supplemental Environmental Assessment (Supplemental EA) has been prepared to evaluate the inclusion of the North Carolina Central University (NCCU) Station Refinement (herein referred to as NCCU Station Refinement) into the Durham-Orange Light Rail Transit Project (D-O LRT Project). The NCCU Station Refinement would extend the alignment of the D-O LRT project 0.7 miles south of the Alston Avenue Station, over Durham Freeway/North Carolina Highway 147 (NC 147), then within the Alston Avenue median, to a new station at the Alston Avenue/ Lawson Street intersection at the northeast corner of the NCCU campus.

The footer of the Supplemental EA document shows a representation of the D-O LRT Project that was evaluated and selected in the Combined FEIS/ROD (in blue), as well as the NCCU Station Refinement (in red). The NCCU Station Refinement is the piece that is under consideration in this Supplemental EA.

1.1 Background

The Federal Transit Administration (FTA) and the Research Triangle Regional Public Transportation Authority d/b/a Triangle Transit d/b/a GoTriangle, in cooperation with the U.S. Environmental Protection Agency (EPA), U.S. Army Corps of Engineers (USACE), and Federal Highway Administration (FHWA), initiated an Environmental Impact Statement (EIS) and Section 4(f) Evaluation for the Durham-Orange Light Rail Transit Project (D-O LRT Project) in 2012. The Draft Environmental Impact Statement (DEIS) was issued on August 28, 2015, with the public comment period occurring between August 28, 2015, and October 13, 2015.

After the DEIS was published, the Fixing America's Surface Transportation (FAST) Act (Public Law 114-94) was signed into law by President Obama on December 4, 2015. Its provisions became effective on October 1, 2015. Although the FAST Act supersedes MAP-21, it still incorporates environmental streamlining requirements. The use of errata sheets and a Combined Final Environmental Impact Statement/Record of Decision (FEIS/ROD) complied with the requirements of the FAST Act.

The Combined FEIS/ROD was signed by FTA on February 11, 2016.

1.2 NCCU Station Refinement

In response to comments received on the DEIS, GoTriangle committed to evaluate several refinements during the New Starts Engineering Phase. GoTriangle committed to study the NCCU Station Refinement as part of the Durham-Chapel Hill-Carrboro (DCHC) Metropolitan Planning Organization's (MPO) update to the long range transportation plan, i.e., the 2045 Metropolitan Transportation Plan (MTP). This refinement would change the location of the project's eastern terminus in Durham from Alston Avenue to a new station located at Alston Avenue and Lawson Street, adjacent to the NCCU campus.

During preparation of the DCHC MPO's 2045 MTP update, GoTriangle conducted a preliminary evaluation of the refinement to determine the feasibility of adding the NCCU Station. GoTriangle concluded that the new station is conceptually feasible.

An updated schedule for the D-O LRT Project reflects anticipated entry into FTA's New Starts Engineering phase in early 2017. The effort to advance the NCCU Station Refinement in conjunction with the previously-approved project elements involves preparation of this Supplemental EA and also proposed action by the DCHC MPO to amend the Locally Preferred Alternative (LPA) to identify the NCCU Station as the eastern terminus and amend

the 2040 MTP to include the amended LPA as part of the project.



2

Description of Proposed Changes

This section describes the proposed NCCU Station Refinement in the context of the D-O LRT Project.

The NCCU Station Refinement would change the location of the eastern terminus by adding a station near NCCU. The light rail alignment would be extended approximately 0.7 miles from the current terminus to access the new NCCU Station.

2.1 Purpose and Need

The purpose and need of the proposed D-O LRT Project were presented in chapter 1 of the DEIS and summarized in section 1.2.1 of the Combined FEIS/ROD. The NCCU Station Refinement provides for enhanced mobility, transit access, and connection of activity centers in fulfillment of the goals of the D-O LRT Project.

The NCCU Station Refinement would enhance mobility by providing a competitive, reliable alternative to auto use for the students, faculty, and visitors of NCCU. This connection to NCCU would also increase transit operating efficiency by eliminating a transfer to bus from the Alston Avenue Station.

The NCCU Station Refinement would continue to expand transit options between Durham and Chapel Hill by providing expanded service and direct connection to neighborhoods not previously served by the D-O LRT Project. It would also add a major activity center by including a station at NCCU in Southeast Central Durham.

Finally, it would continue to support local land use plans that foster compact development throughout the corridor. The direct linkage to NCCU would make the campus more accessible by public transportation, and would provide the opportunity for consideration of additional compact development in the areas surrounding the NCCU Station.

2.2 Description of Proposed NCCU Station Refinement

The D-O LRT Project identified in the February 11, 2016 Combined FEIS/ROD remains the same as approved between the UNC Hospitals and the Dillard Street Station in Downtown Durham. Changes evaluated in this Supplemental EA include the following changes in the scope and design of the project (see **Figure 2-1** and **Figure 2-2**):

- Reconfiguration of Alston Avenue Station, park-and-ride, and associated alignment.
- Addition of alignment from Alston Avenue Station to new NCCU Station.
- Addition of new NCCU Station (new eastern project terminus).

The potential effects (impacts and benefits) of the NCCU Station Refinement are analyzed in chapter 3 of this Supplemental EA.

2.2.1 Alston Avenue Station and Park-and-Ride

The NCCU Station Refinement requires a shift in the location of the Alston Avenue Station, located north of Pettigrew Street, to the west of Alston Avenue. In order for the light rail alignment to cross over the NC 147 and head toward NCCU, the location of the Alston Avenue Station must rotate clockwise

approximately 30 degrees in the direction of NC 147. The new location of the Alston Avenue Station would be within the property previously disclosed as the Alston Avenue park-and-ride garage.

As such, the Alston Avenue park-and-ride garage would need to be relocated and reconfigured. GoTriangle is proposing to use the GoTriangle owned property, east of Alston Avenue on Pettigrew Street, as the new location for the parking garage. The area around the new Alston Avenue Station location would also be used as a park-and-ride (surface lot). See also **Figure 2-3**.

While the light rail alignment, Alston Avenue Station and associated park-and-ride were previously disclosed, the shift in the location of the platform, the configuration of the alignment and platform, as well as the configuration of the park-and-ride lot, and the location of the parking garage are changes to the design.



Figure 2-1: D-O LRT Project with NCCU Station Refinement

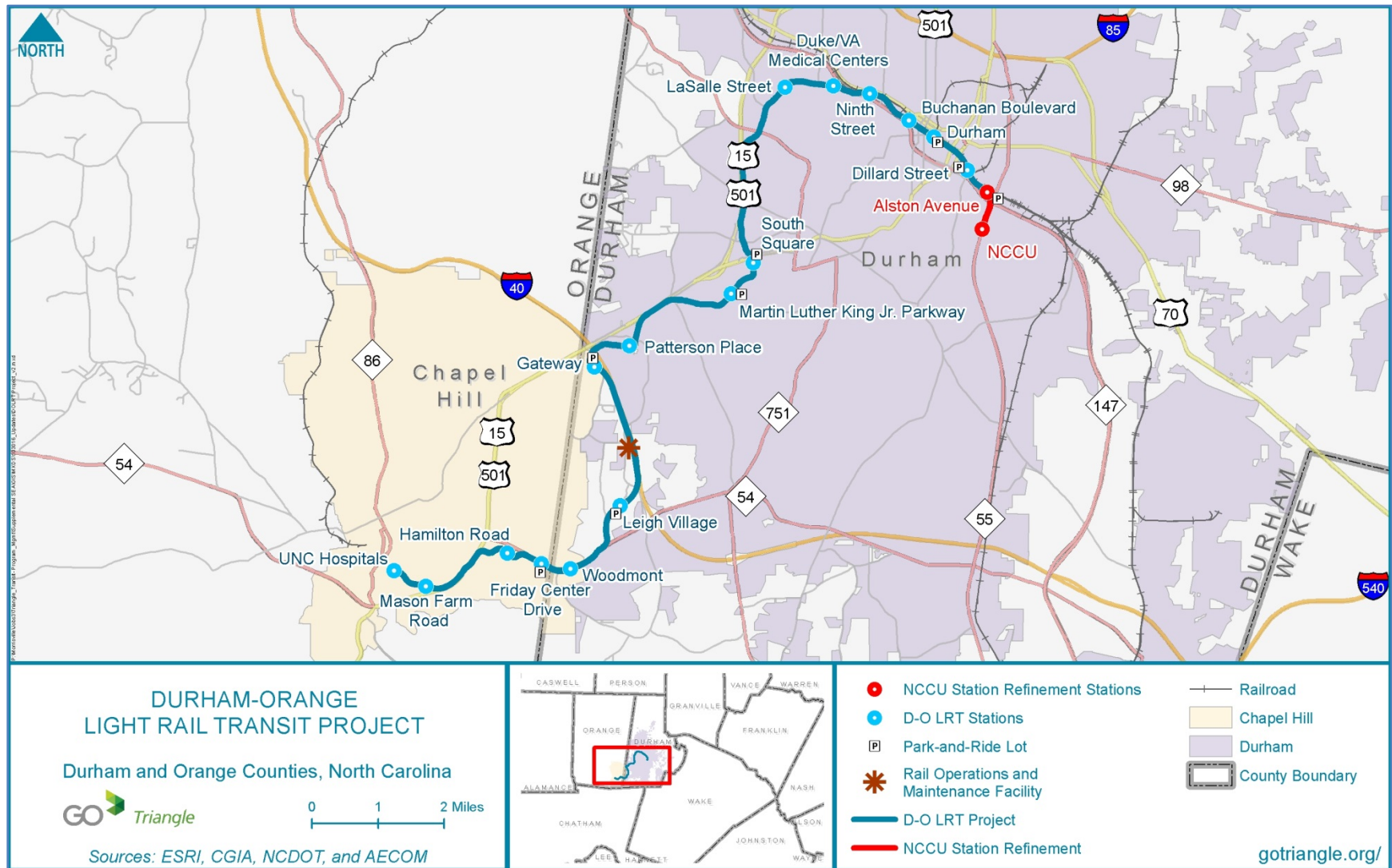


Figure 2-2: NCCU Station Refinement

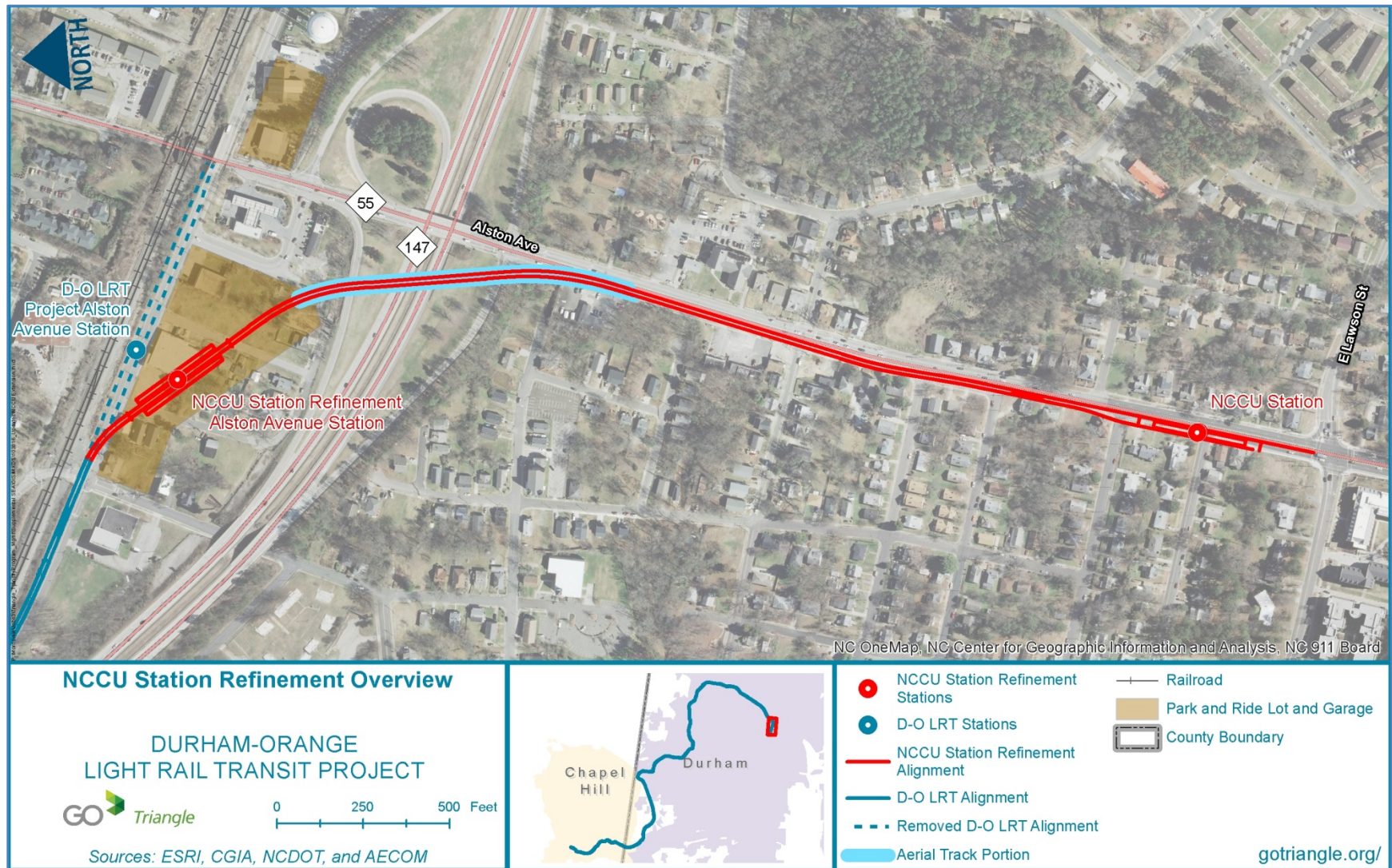


Figure 2-3: Conceptual Plan for the Alston Avenue Station



2.2.2 Alston Avenue Alignment

From the new Alston Avenue Station location, a new segment of the light rail alignment would ascend on structure in order to cross NC 147. The light rail alignment would cross over NC 147 on a bridge, and then descend just south of the NC 147 southbound ramps, where it would enter the median of Alston Avenue (NC 55).

The construction of the light rail guideway in the median of Alston

Avenue would require the reconstruction of Alston Avenue. In order to reduce the number of potential property acquisitions, no changes are proposed to the northbound lanes. The light rail guideway would be constructed in the center of Alston Avenue within a median and the existing number of remaining travel lanes would be reconstructed on the western side. While the reconstruction of Alston Avenue requires acquisition of properties along the western side of Alston Avenue, the total number of properties required will be

less than widening to the east or equal widening of both sides of Alston Avenue.

The light rail alignment between the NC 147 ramps and Lawson Street would primarily include the light rail tracks on ballast, with the exception of the at-grade crossing of Linwood Avenue that would include concrete crossing panels for traffic. Vehicular access along Alston Avenue would be restricted to right-in / right-out movements, with the exception of Linwood Avenue and Lawson Street, which would remain full-movement intersections controlled by traffic signals.



2.2.3 NCCU Station

The NCCU Station Refinement would include the addition of a new station, located near the NCCU campus, in the median of Alston Avenue just north of Lawson Street. The new NCCU Station would serve as the eastern project terminus (see **Figure 2-4** and **Figure 2-5**).

Access to the station would be at-grade with the roadway at the intersection of Alston Avenue and Lawson Street. Pedestrians would cross at the traffic signal crosswalk at the intersection of Alston Avenue and Lawson Street to enter the station.

The station would be a walk-up station with no park-and-ride parking. As such, primary modes of access to the station would consist of walk-up, bicycle, or bus. Bus stops, some of which are existing, would be adjusted to make walking to and from the station more convenient. As identified in the prior environmental documentation, buses may be reconfigured to integrate with the rail.

Bicycle racks would be included at numerous locations adjacent to the NCCU Station.



Figure 2-4: Conceptual Plan for the NCCU Station (as Proposed for the NCCU Station Refinement)

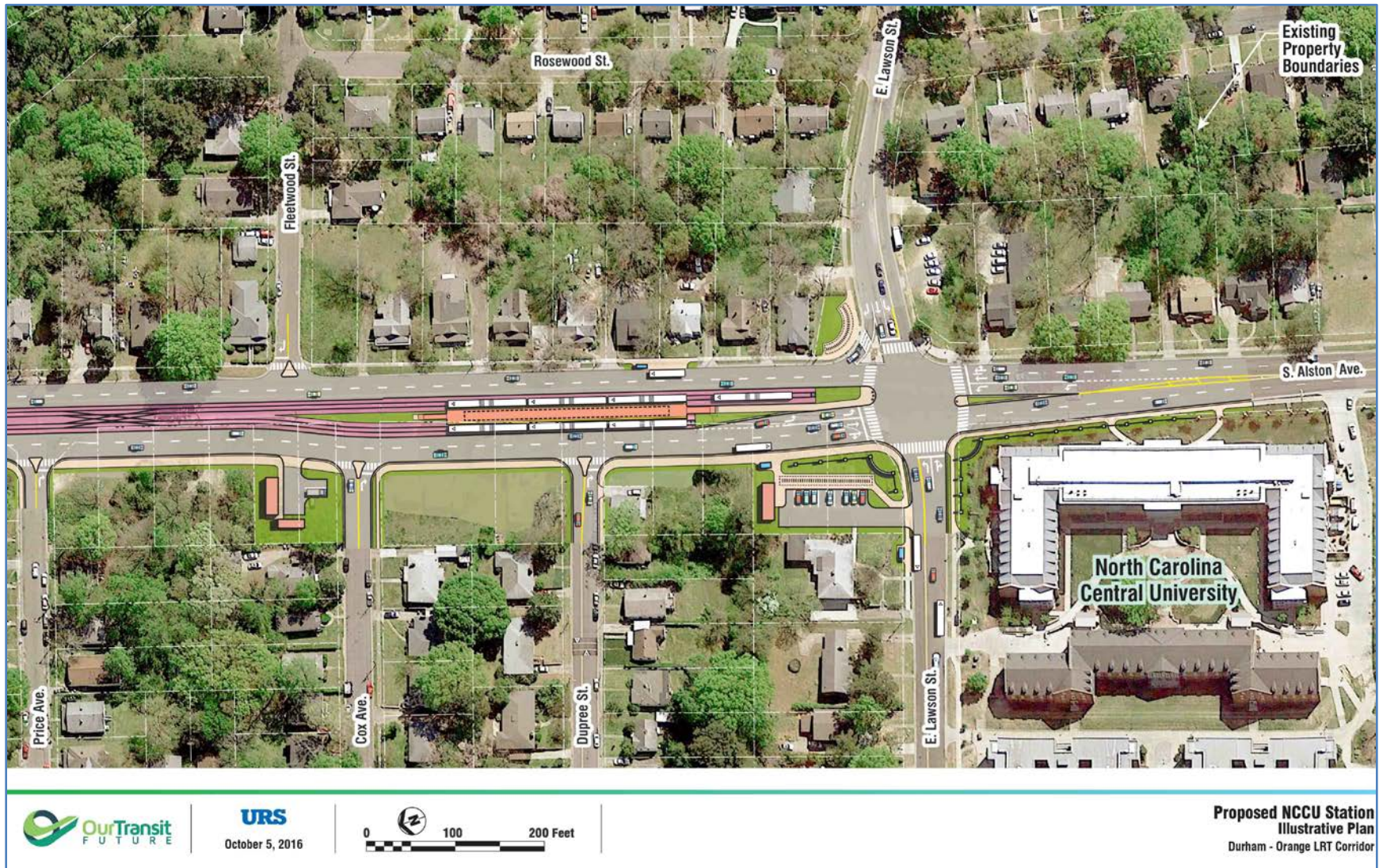


Figure 2-5: Proposed NCCU Station Rendering (conceptual only, subject to change without notice)



3

Affected Environment / Environmental Consequences

This chapter summarizes the affected environment and environmental consequences associated with the NCCU Station Refinement. Each resource area was assessed to determine if the refinement would result in effects to the resource. Methodologies for the NCCU Station Refinement are the same as those used in the DEIS, unless otherwise noted.

Where effects are anticipated, the effects are discussed in detail in this chapter. This information is summarized in **Table 3-16** and further supported by the data and analysis in the appendices.

Where no effects are anticipated, the resource is not discussed further in this chapter; a brief summary of the evaluation of that resource is included in appendix A. The NCCU Station Refinement would result in no impacts to the following resource categories:

- Freight and passenger railroads
- Airports
- Parklands and recreation
- Water resources
- Air quality

Each section in this chapter is organized as follows:

- **Affected Environment:** a summary of the existing conditions in the NCCU Station Refinement study area
- **Environmental Consequences:** a summary of the direct impact findings for each of the resource areas as a result of implementation of the proposed NCCU Station Refinement
- **Mitigation Measures:** the measures that would be implemented to avoid, minimize, or mitigate impacts of the NCCU Station Refinement, as appropriate

3.1 Transportation

This section presents the existing conditions, potential impacts to transportation resources, and mitigation measures proposed for the NCCU Station Refinement. The following topics are discussed:

- Public transportation
- Roadways
- Parking

- Pedestrian and bicycle facilities

3.1.1 Public Transportation

This section assesses the potential public transportation impacts associated with the NCCU Station Refinement.

Affected Environment

The existing public transportation system as described in the Combined FEIS/ROD captured the NCCU Station Refinement study area. No additional public transportation exists in the NCCU Station Refinement area.

Environmental Consequences

The NCCU Station Refinement would result in increased access to transit.

Bus Connections

The proposed NCCU Station would provide bus connections to existing GoDurham Routes 8 and 12 and to

future GoDurham Route 53. The proposed service plan, travel times, and ridership forecasts would change based on the NCCU Station Refinement.

Proposed Service Plan

The NCCU Station Refinement would require an additional train for peak period operation in order to maintain a minimum 10-minute layover time at each end-of-line. The light rail service frequencies would remain the same as described in the D-O LRT Project.

Travel Times

The total travel time would increase from approximately 42 to 44 minutes each way to approximately 44 to 46 minutes each way with the NCCU Station Refinement.

Ridership Forecasts

The daily ridership including the NCCU Station Refinement in the D-O LRT Project (**Table 3-1**) is forecasted to

Table 3-1: 2040 Daily Ridership Forecasts with NCCU Station Refinement

	D-O LRT Project ¹	With NCCU Station Refinement	Total
Forecasted average weekday light rail boardings in 2040	23,020	+3,860	26,880
Forecasted average weekday Corridor bus boardings in 2040 ^b	16,990	+1,640	18,360
Forecasted average weekday Corridor total boardings in 2040	40,010	+5,500	45,510

Source: Amendment to Travel Demand Methodology and Results Report (appendix B).

Note: Rounding was used and may lead to discrepancy in totals.

¹ DEIS Table 3.1-3 (also summarized in Combined FEIS/ROD Table FEIS-1)



include 3,860 more trips than the daily ridership forecasted for the D-O LRT Project as published in the Combined FEIS/ROD for the year 2040, including 2,160 daily boardings anticipated at the proposed NCCU Station. The weekday corridor bus boardings are anticipated to increase by approximately 1,600 with the NCCU Station Refinement. **Table 3-1** summarizes the daily ridership forecasts and **Table 3-2** summarizes boardings and alightings by station including the NCCU Refinement. **Figure 3-1** shows daily ridership by trip purpose and **Figure 3-2** shows daily ridership by access mode. Revised ridership results for the NCCU Station Refinement are documented in the *Amendment to Travel Demand Methodology and Results Report* (Appendix B.1).

and completing a Transit Service and Fare Equity Analysis.

Mitigation Measures

The NCCU Station Refinement would increase access to transit, and therefore mitigation measures would not be needed. The commitments identified in the Combined FEIS/ROD would be applicable and appropriate for the NCCU Station Refinement. Those commitments include GoTriangle working with service planning staff from Chapel Hill Transit (CHT), GoDurham, and Duke Transit to develop and implement a plan to integrate bus and rail service within the D-O Corridor prior to revenue service,



Table 3-2: 2040 Daily Ridership Forecasts by Stations with NCCU Refinement

Station	UNC-NCCU Boardings	UNC-NCCU Deboardings	NCCU-UNC Boardings	NCCU-UNC Deboardings
UNC Hospitals	3,580	0	0	3,580
Mason Farm Road	1,030	40	40	1,030
Hamilton Road	220	80	80	220
Friday Center Drive	660	1,310	1,310	660
Woodmont	310	380	380	310
Leigh Village	500	1,560	1,560	500
Gateway	740	700	700	740
Patterson Place	520	620	620	520
Martin Luther King Jr. Parkway	720	880	880	720
South Square	870	360	360	870
LaSalle Street	660	770	770	660
Duke Medical Center	940	530	530	940
Ninth Street	390	300	300	390
Buchanan Boulevard	270	240	240	270
Durham	560	1,210	1,210	560
Dillard Street	340	1,570	1,570	340
Alston Avenue	1,130	730	730	1,130
NCCU	0	2,160	2,160	0
TOTAL	13,440	13,440	13,440	13,440

Source: Amendment to Travel Demand Methodology and Results Report (appendix B).

Note: Rounding was used and may lead to discrepancy in totals.

Note: Average weekday ridership estimates.



Figure 3-1: 2040 Daily Ridership Forecasts by Trip Purpose

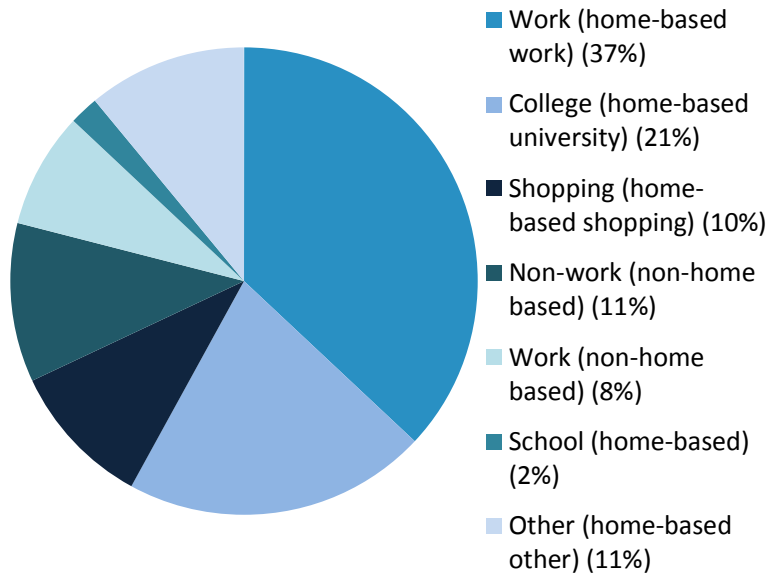
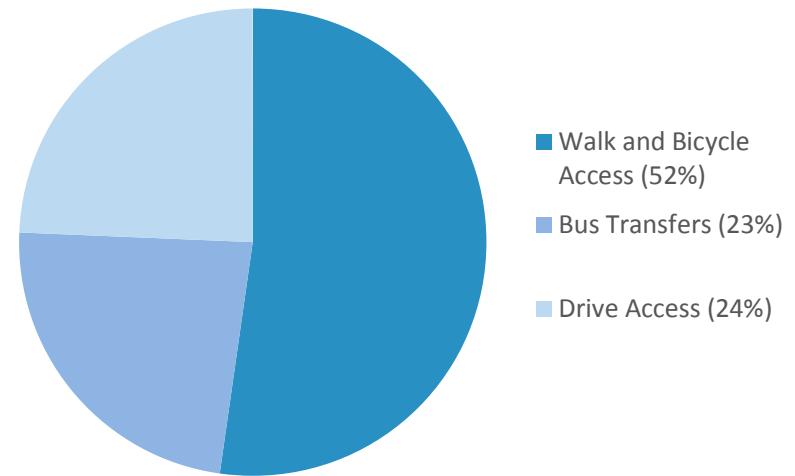


Figure 3-2: 2040 Daily Ridership Forecasts by Mode of Access



Source: Amendment to Travel Demand Methodology and Results Report (appendix B).

Note: Home-based trips are trips where the home of the trip maker is either the origin or destination of the trip, whereas non-home based trips are trips that neither begin nor end at the home.

Source: Amendment to Travel Demand Methodology and Results Report (appendix B).



3.1.2 Roadways

This section describes the expected impacts of the NCCU Station Refinement on the existing roadway network and measures recommended to mitigate such impacts. This section also summarizes existing and projected 2040 traffic conditions for roadways and intersections and traffic operations analyses developed for the NCCU Station Refinement. Information included in this section is based on the results and findings provided in the *D-O LRT Project NCCU Station Refinement Traffic Memorandum* (appendix B.2).

Affected Environment

Existing roadway information in the Alston Avenue Station area was described in DEIS Section 3.2.2. Roadways in the NCCU Station Refinement study area include Pettigrew Street, Alston Avenue (NC 55), and NC 147, as well as several intersecting streets.

Pettigrew Street is a two-lane local street. Alston Avenue is a four-lane state highway. NC 147 is a controlled-access freeway with an interchange with Alston Avenue. Other minor roadways in the study area are two-lane local streets. There are signalized intersections at the following locations south of the NC 147 interchange:

- Alston Avenue/Linwood Avenue
- Alston Avenue/Lawson Street

Environmental Consequences

Impacts associated with the NCCU Station Refinement are described below.

Pettigrew Street

The NCCU Station Refinement would introduce a new at-grade crossing of Pettigrew Street at the reconfigured Alston Avenue Station just east of the Grant Street at-grade crossing. The LRT crossing would not result in a substantial impact to the intersection, as the overall intersection maintains Level of Service (LOS) B in year 2040 under the NCCU Station Refinement.

Alston Avenue

The NCCU Station Refinement would introduce a new at-grade crossing at the signalized Alston Avenue/Linwood Avenue intersection, and median-running LRT from Linwood Avenue to Lawson Street. The NCCU Station Refinement would convert Massey Avenue, Price Avenue, Cox Avenue, Dupree Street, and Fleetwood Street to right-in/right-out at Alston Avenue.

As indicated in **Table 3-3**, all intersections along Alston Avenue are projected to operate at LOS D or better during both peak hours in 2040. Therefore, the NCCU Station Refinement is not projected to result in substantial operational impacts to the intersections along Alston Avenue.

There are a few locations where the maximum peak hour queue is expected

Table 3-3: Overall Intersection 2040 LOS

Segment	Intersection	2040 No-Build		2040 NCCU Station Refinement	
		a.m.	p.m.	a.m.	p.m.
NCCU Station Refinement	S Alston Avenue/E Lawson Street ¹	D	D	C	D
	S Alston Avenue/Linwood Avenue ¹	A	A	A	B
	S Alston Avenue/NC 147 EB Off ramp ¹	B	B	B	B
	S Alston Avenue/Gann Street ¹	A	A	A	A
	Pettigrew Street/Grant Street ¹	A	B	B	B

¹ NCDOT traffic impact criteria is applied.

² City of Durham traffic impact criteria is applied.



to exceed the available queue storage in one or both peak hours; however, the maximum queue is not expected to affect the upstream intersection and the average queue would fit within the available storage. Therefore, the proposed design does not include lengthening the turn bay at these locations due to the limited operational benefits that would require large capital expenditures via significant right-of-way acquisitions and would further increase roadway widths. This is consistent with the design approach for similar situations elsewhere on the project alignment described in DEIS appendices K.04 through K.11.

Mitigation Measures

Mitigation commitments included in the Combined FEIS/ROD to address the introduction of new at-grade intersections and the conversion of driveways to right-in / right-out are applicable to the NCCU Station Refinement.

At-grade crossings will be signalized or equipped with gates with bells to warn of oncoming trains. The trains will also have bells and horns. Bells, gates, and horns would be activated according to GoTriangle operating procedures and safety guidelines. During Engineering, GoTriangle will coordinate with City of Durham, NCDOT and major institutional

stakeholders regarding other roadway projects in the area as well as modifications to the roadways to accommodate the NCCU Station Refinement.

3.1.3 Parking

This section describes the potential direct, physical impacts to existing parking facilities anticipated with the NCCU Station Refinement. It does not include impacts to existing parking associated with acquired and/or displaced businesses affected by the project. Those impacts are described in section 3.12.

Affected Environment

On-street parking along local streets, some parking for businesses, and a small surface parking lot at the Alston Avenue/Lawson Street intersection is available within the NCCU Station Refinement study area.

Environmental Consequences

The NCCU Station Refinement includes the reconfigured Alston Avenue Station with a parking garage east of Alston Avenue, and parking lots that would surround the reconfigured LRT platform. The Alston Avenue Station would provide for a total of approximately 1,200 parking spaces (approximately 920 in a

parking deck and approximately 280 on surface lots), an increase of 220 over the approximately 980 proposed in the Combined FEIS/ROD.

The NCCU Station Refinement would include additional alignment from the reconfigured Alston Avenue Station to the NCCU Station. The construction of the light rail guideway in a newly constructed median of Alston Avenue would require the road to be reconstructed and additional right-of-way on the western side of Alston Avenue would be required between the NC 147 ramps and Lawson Street. This would affect a total of ten off-street parking spaces located at the northwest corner of Alston Avenue and Lawson Street; however, this parking area would be reconfigured so as to not impact the number of parking spaces. The NCCU Station Refinement would also affect up to a total of 16 on-street parking spaces along the following cross streets that intersect with Alston Avenue:

- Linwood Avenue: Two westbound on-street spaces (no parking on eastbound side)
- Massy Avenue: Two westbound and two eastbound on-street spaces
- Price Avenue: Two westbound and two eastbound on-street spaces



- Cox Avenue: Two westbound and two eastbound on-street spaces
- Dupree Street: Two eastbound on-street spaces (no parking on westbound side)

The new NCCU Station would serve as the eastern project terminus, and would be a walk-up station with no park-and-ride spaces. There is the potential to add a limited number of parking spaces (potentially ADA-accessible spaces) on properties that would be acquired along Alston Avenue to provide improved access to light rail for mobility-impaired passengers.

Mitigation Measures

The NCCU Station Refinement would require no additional mitigation commitments beyond those included in the Combined FEIS/ROD. As described in Table ROD-1, GoTriangle will work with the municipalities to develop appropriate mitigation measures if spillover parking becomes a concern.

3.1.4 Pedestrian and Bicycle Facilities

This section describes existing and planned transportation-related pedestrian and bicycle facilities located in the NCCU Station Refinement area and potential impacts of the NCCU Station Refinement.

Affected Environment

Existing and planned pedestrian and bicycle infrastructure in the Alston Avenue Station area and along Alston Avenue was described in DEIS section 3.6.2 and DEIS appendix K.12. Facilities located within the NCCU Station Refinement area are identified in **Table 3-4**. These facilities include existing pedestrian sidewalks and crosswalks, and planned bicycle facilities generally associated with Pettigrew Street and Alston Avenue.

Refinement. The DCHC 2040 MTP calls for 4-foot bike lanes on Pettigrew Street and Alston Avenue; however, these planned bicycle lanes on Pettigrew Street and Alston Avenue are not included in the proposed reconstruction of those roadways with the NCCU Station Refinement due to constraints on the further widening of those roads.

Light Rail Crossings of Pedestrian and Bicycle Infrastructure

The NCCU Station Refinement would have one new at-grade crossing of an

Table 3-4: Impacts to Pedestrian and Bicycle Infrastructure

Facility Name	Facility Type	NCCU Station Refinement Crossing Type
Alston Avenue – sidewalks (R.K. Bryant Connector)	Existing; pedestrian	N/A
Alston Avenue – bicycle lanes	Planned; bicycle	Elevated [^]
Chatham Place – sidewalks	Existing; pedestrian	Elevated
Colfax Street – sidewalks	Existing; pedestrian	N/A
Grant Street – sidewalks	Existing; pedestrian	N/A
Murphy Street – sidewalks	Existing; pedestrian	N/A
Pettigrew Street – bicycle lanes	Planned; bicycle	At-Grade*
Pettigrew Street – sidewalks	Planned; pedestrian	At-Grade
Linwood Avenue – crosswalk	Existing; pedestrian	At-Grade

* Planned bicycle lanes on Pettigrew Street would not be accommodated due to limited right-of-way.

[^] With the NCCU Station Refinement, planned bicycle lanes on Alston Avenue would not be accommodated due to limited right-of-way.

Environmental Consequences

Table 3-4 lists existing and planned pedestrian and bicycle infrastructure and the impacts of the NCCU Station

existing pedestrian facility, as displayed in **Table 3-4**. This is a pedestrian crosswalk at Linwood Avenue. In addition, the NCCU Station Refinement, with its aerial structure over NC 147,



would have grade-separated crossings of the new sidewalk on Chatham Place just south of the Alston Avenue Station, as well as the reconstructed sidewalk on the west side of Alston Avenue just south of NC 147.

Three at-grade crossings of existing sidewalks on Colfax Street, Murphy Street, and Grant Street that were included in the D-O LRT Project would be eliminated with the NCCU Station Refinement. The NCCU Station Refinement alignment would cross Pettigrew Street east of Grant Street, eliminating the requirement for pedestrians to cross the street to access the LRT as was the case for the D-O LRT Project. The NCCU Station Refinement alignment would turn south before crossing the R. Kelly Bryant Jr. Pedestrian Connector, so there would be no elevated crossing of that facility with the NCCU Station Refinement.

Pedestrian and Bicycle Connections

The Alston Avenue Station would include an extensive network of pedestrian connections, including sidewalks along Pettigrew Street, Grant Street, Colfax Street, Chatham Place, and Gann Street, as well as pedestrian connections to the proposed park-and-ride parking deck east of Alston Avenue. This is in addition to the enhanced pedestrian connection between the R. Kelly Bryant Jr. Pedestrian Bridge included in the

February 2016 Combined FEIS/ROD, Table ROD-1. The proposed NCCU Station Refinement would have pedestrian connections along Alston Avenue.

Widening Alston Avenue to Accommodate Light Rail Tracks and NCCU Station

As part of the NCCU Station Refinement, the light rail tracks would be located in the median of Alston Avenue, requiring widening of the street in order to maintain the existing number of traffic lanes. Widening of Alston Avenue will increase the amount of time it takes for pedestrians to cross the street. The proposed NCCU Station would also be located along Alston Avenue near Lawson Street. An added pedestrian refuge at the south end of the station near the Lawson Street intersection would allow pedestrians to cross the street in two stages if needed.

Mitigation Measures

To mitigate the loss of opportunity for on-street bicycle facilities on Alston Avenue, GoTriangle will work with the City of Durham, NCDOT, and local advocates to identify the potential for off-street facilities or on-street facilities on parallel or nearby roadways. Other mitigation measures for the NCCU Station Refinement would be the same as those

identified in the Combined FEIS/ROD for other similar locations. Sidewalks, crosswalks, curb ramps, and other pedestrian infrastructure that the light rail alignment would affect would be rebuilt or enhanced as depicted in the *NCCU Station Refinement Basis for Engineering Documents* (appendix C). Pedestrian crossings of the light rail tracks would be designed in accordance with current ADA design requirements and standards to ensure access and mobility for all users. Station areas would be designed according to best management practices for pedestrian and bicycle safety.



3.2 Land Use and Zoning

This section describes existing land uses and potential land use impacts from the NCCU Station Refinement.

Affected Environment

The NCCU Station Refinement is located in the East Durham evaluation area, which is described in DEIS Section 4.1.2.1. This area included the Alston Avenue Station area, NCCU and Durham Technical Community College (DTCC), as well as surrounding residential areas.

North of NC 147 along Pettigrew Street between Fayetteville Street and Alston Avenue, land uses are primarily industrial, interspersed with commercial, single-family homes, and multi-family residences. Existing railroad tracks and NC 147 are located close together here, leaving a narrow strip of land that is largely former or active industrial land. In the *Durham Comprehensive Plan*, the area around the proposed Alston Avenue Station is identified as a Compact Neighborhood, Durham’s equivalent of a transit-oriented district.

Along Alston Avenue, land use is generally residential between NC 147 and the NCCU campus, with single-family homes constructed in the 1940s

and 1950s. Approximately two blocks east of Alston Avenue is McDougald Terrace, Durham’s largest public housing community. This area is currently part of the Urban Tier in Durham’s comprehensive plan. Development in the Urban Tier is intended to have an urban form with small lot sizes and proximity of uses. In 2012, the Durham Housing Authority was awarded a Choice Neighborhoods Planning Grant to support the development of a plan for revitalization. The resulting *Southeast Central-McDougald Terrace Transformation Plan* (2014) includes an implementation plan to replace distressed public housing with high quality mixed income housing, as well as improve access to jobs and public transportation and improve pedestrian and bicycle mobility in the Southeast Central neighborhood. Section 3.4 contains additional discussion of neighborhood planning work completed recently for this area and potential future changes that may occur within the area.

NCCU is a historically African American university and part of the University of North Carolina system. The approximately 140-acre campus is located south of Lawson Street between Alston Avenue and Fayetteville Street. *The North Carolina Central University 2007 Campus Master Plan*, originally adopted in 1995, was last updated in 2007. The Master Plan update

anticipates significant construction projects on the existing campus footprint and expansion into adjoining neighborhoods. The plan calls for the purchase and demolition of almost 150 residences south and west of the existing campus for additional academic buildings and residence halls, as well as expanding the business campus. These expansion plans will result in increased development and a change in land use along the Alston Avenue corridor and NCCU Station area, as well as on the Fayetteville Street corridor and in the Dillard Street station area.

Environmental Consequences

Based on input from NCCU officials, the NCCU Station Refinement will complement the University’s plans to expand the campus with a new Business School building that is planned for the northeast corner in the vicinity of the proposed NCCU Station.

Existing zoning and future land use in the vicinity of the NCCU Station Refinement are primarily medium density residential (six to 12 units per acre) and institutional (NCCU campus). These uses are transit-supportive but would not allow for higher density uses that would be expected to develop at other proposed stations along the D-O LRT Project. The City of Durham may choose to make updates to its future land use



plan to incorporate the proposed NCCU Station.

Mitigation Measures

The mitigation commitments identified in the Combined FEIS/ROD, including working with municipalities on rezonings, tax abatement, and affordable housing programs in station areas, would be applicable and appropriate for the NCCU Station Refinement. In addition, during Engineering, GoTriangle will coordinate with NCCU regarding property acquisitions and campus development plans to inform the final placement and design of the NCCU Station. GoTriangle will coordinate with the City of Durham to evaluate potential updates to their future land use plan and station area infrastructure needs in the NCCU Station Refinement area.

3.3 Socioeconomic and Demographic Conditions

This section describes the socioeconomic characteristics (population, households, and employment) for the NCCU Station Refinement area.

Affected Environment

The East Durham evaluation area, as presented in DEIS Section 4.3.2 and summarized in the Combined FEIS/ROD, includes the area that contains the NCCU Station Refinement. **Table 3-5** summarizes demographic conditions for the East Durham evaluation area.

Station Area Socioeconomics

For the ½-mile distance around the proposed stations, a detailed socioeconomic review was conducted in accordance with FTA New Starts criteria. Base year (2010) data and horizon year (2040) estimates from the Triangle Regional Model (TRM) traffic analysis zones (TAZ) were used for population, households, and employment. American Community Survey (ACS) (2007-2011) data was used for limited English proficiency (LEP), zero car households, and under 18/over 65 populations.

The NCCU Station Refinement includes a shift in the location of the proposed Alston Avenue Station, which results in a change in the ½-mile area around the station. This shift also results in a change in the ½-mile area around the proposed Dillard Street Station, due to the proximity and overlap in the two station areas. In addition, a new ½-mile station area was developed for the NCCU Station. Other ½-mile station areas did not change from what was

Table 3-5: East Durham Evaluation Area Demographics

	East Durham
2010 Population	7,700
2040 Population	9,600
2010 Households	3,200
2040 Households	3,900
2010 Employment	21,700
2040 Employment	10,400
% LEP (2010)	5%
% Zero-Car Households (2010)	50%
% Under 18 & 65 and Over (2010)	34%
Median Household Income (2010)	\$24,019

Source: US Census Bureau, 2010 Demographic Profile and socioeconomic data prepared for the 2040 MTP

included in the Combined FEIS/ROD. **Table 3-6** shows socioeconomic conditions for the NCCU Station Refinement based on revised station areas at Dillard Street and Alston Avenue and the new station area at NCCU.

Environmental Consequences

The NCCU Station Refinement is not expected to cause substantial increase or decrease in population, households, or employment from the regional perspective; however, population, households, and employment may become more concentrated in the vicinity of the proposed NCCU Station over time.



Table 3-6: Station Area Socioeconomic and Demographic Conditions

	D-O LRT Project ¹	With NCCU Station Refinement	Total
Population			
2010	25,500	+2,300	27,800
2040	53,000	+2,200	55,200
Households			
2010	12,600	+900	13,500
2040	25,800	+700	26,500
Employment			
2010	75,000	+1,800	76,800
2040	119,100	+3,700	122,800
Limited English Proficient Population			
2007-2011	2,700	0	2,700
Zero-Car Households			
2007-2011	2,400	+400	2,800
Under 18/Over 65			
2007-2010	10,900	+800	11,700

¹ DEIS Table 4.2-4 (also summarized in Combined FEIS/ROD Table FEIS-1)



At other proposed stations evaluated for the D-O LRT Project, future land use plans incorporate transit-oriented development and Compact Neighborhood principles, which support alternate transportation modes and include provisions for affordable housing. However, as described in section 3.2 (Land Use and Zoning), existing zoning and future land use in the vicinity of the NCCU Station Refinement are primarily medium density residential (six to 12 units per acre) and institutional (NCCU campus). This zoning may result in redevelopment pressures that would replace rental and lower-income households with higher-income households.

Property Tax Base

The acquisition of additional private property associated with the NCCU Station refinement would decrease the property tax base for Durham County by approximately \$1.7 million.

Operation and Maintenance Economic Impacts

Spending related to transit operations and maintenance contributes to the local and regional economy, leading to direct and indirect/induced effects on regional jobs and earnings. Anticipated operations and maintenance costs with the NCCU Station Refinement as part of the D-O LRT Project would result in

incremental demand effects of an additional 15 full-time equivalent jobs and \$750,000 (2015 dollars) in labor costs and earnings.

Mitigation Measures

Mitigation commitments from the Combined FEIS/ROD would remain applicable to the NCCU Station refinement. This includes working with municipalities to identify policies to promote redevelopment, infill, and economic development opportunities around affected areas. In addition, GoTriangle will coordinate with the City of Durham to evaluate potential updates to their future land use plan and station area infrastructure needs in the NCCU Station Refinement area. This commitment is also reflected as part of the discussion of land use (section 3.2).

3.4 Neighborhoods and Community Resources

This section describes the existing neighborhoods and community resources and potential neighborhood and community resource impacts that would be associated with the NCCU Station Refinement. Potential impacts are discussed qualitatively in terms of the type of impacts to access and

mobility, community cohesion, and community resources.

Affected Environment

The NCCU Station Refinement would reconfigure the Alston Avenue Station platform and the associated park and ride. These features of the NCCU Station Refinement are located within the previously documented East Durham evaluation area. Community resources in the East Durham evaluation area are described in DEIS section 4.3.2.8 and DEIS Table 4.3-8 and summarized in the Combined FEIS/ROD.

In addition to the Alston Avenue Station and park and ride reconfiguration, the NCCU Station Refinement would extend the alignment over NC 147 and down the middle of Alston Avenue in order to add a new eastern terminal station at the intersection of Alston Avenue and Lawson Street. These new features of the refinement are located in a different neighborhood area within the East Durham evaluation area, known as the Southeast Central Durham neighborhood. This neighborhood was not previously documented in the DEIS or Combined FEIS/ROD, as it was located outside of the D-O LRT Corridor at the time.

Southeast Central Durham is the area located south of NC 147 and bound by Roxboro Street to the west, DTCC to the



east, and NCCU to the south. Southeast Central Durham includes nearly 1,000 acres with over 3,000 households surrounding NCCU. The neighborhood includes single-family homes and multifamily public housing projects constructed in the 1940s and 1950s, as well as older, historic areas, including a portion of the historical Hayti neighborhood, settled after the Civil War by freed slaves. The National Register Stokesdale Historic District and locally-designated Fayetteville Street Historic District are located along Fayetteville Street and are important cultural resources for the Southeast Central Durham community.

NCCU was established in 1909 as the first public liberal arts college for African Americans, and today has an enrollment of 8,155 students and employs more than 1,800 faculty and staff. The historic portion of the campus is listed on the National Register of Historic Places.

About two blocks east of Alston Avenue, McDougald Terrace, a 360-unit public housing property, is the largest conventional public housing community in Durham. The 25-acre development was built in 1953. In 2012, the Durham Housing Authority was awarded a Choice Neighborhoods Planning Grant to support the development of a plan for revitalization. The resulting *Southeast Central-McDougald Terrace*

Transformation Plan (2014) includes an implementation plan to replace distressed public housing with high quality mixed income housing, as well as improve access to jobs and public transportation and improve pedestrian and bicycle mobility in the Southeast Central Durham neighborhood.

Environmental Consequences

The NCCU Station Refinement would result in impacts to access, mobility, and community resources. These impacts include: changes to neighborhood traffic operations and street patterns, changes in access to neighborhoods and community resources, acquisition of a portion of a property with a community resource, and temporary impacts to school bus routes and vehicle patterns during construction of the project.

Table 3-7 presents a summary of effects of the NCCU Station Refinement in comparison to the D-O LRT Project presented in the Combined FEIS/ROD. **Figure 3-3** shows community resources near the NCCU Station Refinement.

Table 3-7: Summary of Potential Impacts on Neighborhoods

Impact Type	D-O LRT Project	NCCU Station Refinement
Access and Mobility	No Impact	Impact
Community Cohesion	No Impact	No Impact
Community Resources	Impact	Impact

Access and Mobility

West of Grant Street, the light rail guideway would be located between the roadway travel lane(s) and the existing railroad tracks. Pettigrew Street would be shifted slightly to the south to allow for two-way traffic. The NCCU Station Refinement would cross Pettigrew Street just east of Grant Street to the proposed Alston Avenue Station, located between NC 147 and Pettigrew Street west of Alston Avenue. Colfax Street and Gillette Avenue would be realigned; Colfax Street to Grant Street and Gillette Avenue extended east to Chatham Place would provide access to the proposed station and to remaining residences on Gillette Avenue. Surface parking would surround the Alston Avenue Station with access from Pettigrew Street and Gillette Avenue. Sidewalks would be installed throughout the proposed station area.



East of Alston Avenue on GoTriangle-owned property, a multi-story parking structure would be constructed to provide a garage for the proposed Alston Avenue Station park and ride. Access to the garage would be from Alston Avenue and Pettigrew Street, with pedestrian connections on the Pettigrew Street bridge over Alston Avenue to the proposed Alston Avenue Station.

Along Alston Avenue, where the light rail guideway would be in the median, cross streets, including Massey Avenue, Price Avenue, Cox Avenue, Dupree Street, and Fleetwood Street would be converted to right-in right-out only access to Alston Avenue. Residents of neighborhoods east and west of Alston Avenue would not be permitted to make left turns onto Alston Avenue from these roads. The existing road network provides opportunities for residents to access multi-direction travel via signalized intersections such as Alston/Lawson, Alston/Linwood and other alternate routes without requiring substantial out-of-direction travel.

In general, the NCCU Station Refinement would improve connectivity between this area, which includes several neighborhoods and community resources, such as NCCU and DTCC, and other areas of Durham and improve access to large employers and retail areas. In addition, pedestrian

accommodations, including sidewalk, crosswalks, and restrictions on crossings between signalized intersections, would result in improved pedestrian mobility and safety.

Community Cohesion

Neighborhoods in this area have been previously separated by the railroad tracks and then by the construction of NC 147. There are a few individual residences in the area north of NC 147 where the NCCU Station Refinement would pass between Colfax Street and Murphy Street. The NCCU Station Refinement would result in displacement of 15 residences for the proposed Alston Avenue Station.

Five businesses and 14 residences along the west side of Alston Avenue would be displaced to allow for relocation of the southbound roadway lanes to accommodate the light rail guideway in the median of Alston Avenue. There would be no right-of-way impacts to the larger residential areas east or west of Alston Avenue. The impacts of the NCCU Station Refinement would be primarily within or adjacent to an existing transportation corridor, and the individual residential properties along Alston Avenue are not considered historic or culturally notable within Southeast Central Durham. Therefore, impacts to community cohesion are not anticipated.

Community Resources

As described in the DEIS, the property that includes the John Avery Boys and Girls Club, at the corner of Grant Street and Pettigrew Street, would be affected when Pettigrew Street is shifted to accommodate the light rail guideway but there would be no impacts to the building. Impacts described for the D-O LRT Project in the Combined FEIS/ROD would not change with the NCCU Station Refinement.

South of NC 147, access to the Russell Memorial Christian Methodist Episcopal (CME) Church and Child Development Center (daycare) would be converted to right-in / right-out only from northbound Alston Avenue. Access via Ridgeway Avenue and Linwood Avenue would be maintained; therefore, no impact to this community resource is anticipated. There would be no right-of-way impacts to the church or daycare properties.

Other community resources in the East Durham evaluation area, including NCCU and DTCC, would benefit from improved access to transit and connectivity to other areas of Durham.

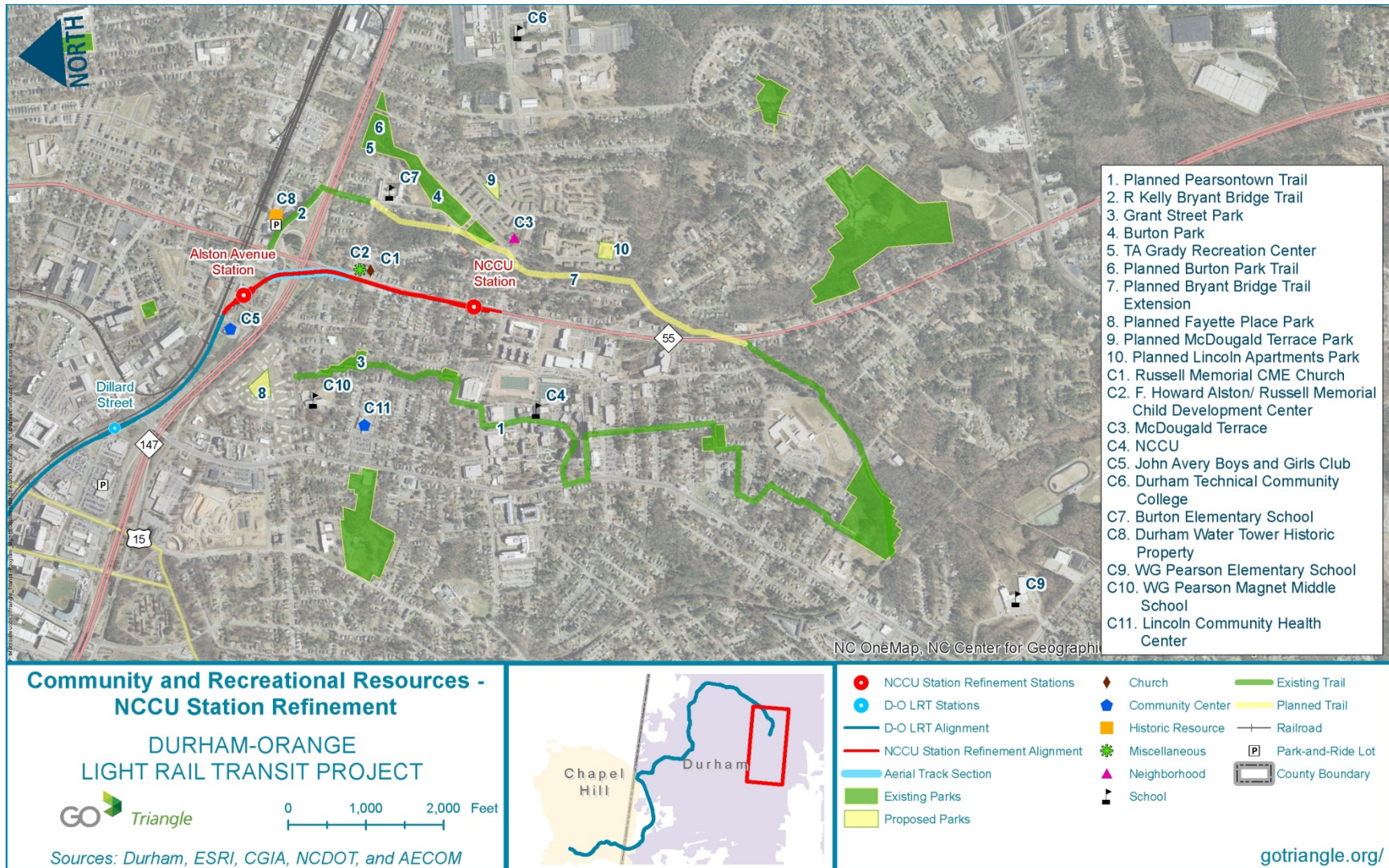


Mitigation Measures

Impacts would be addressed by mitigation measures included in the Combined FEIS/ROD, such as coordinating with affected residents, businesses, and community facilities to identify strategies to minimize neighborhood effects through refinements in the project design, developing a Maintenance of Traffic Plan for temporary closure and access changes, and cooperating with owners of the John Avery Boys and Girls Club to maintain or replace the existing fence around the play field, maintain or improve existing access to the site and building, and improve the sidewalk along Pettigrew Street and Grant Street including marked crosswalks. No additional mitigation measures are necessary for the NCCU Station Refinement.



Figure 3-3: NCCU Station Refinement Neighborhoods and Community Resources



3.5 Visual and Aesthetic Conditions

This section summarizes the *Visual and Aesthetic Conditions for NCCU Station Refinement* memo (see appendix D), which includes a re-assessment of Landscape Unit #10 (Urban Industrial) and an evaluation of a new landscape unit – Landscape Unit #11: Industrial Residential. These landscape units are shown on **Figure 3-4**.

Affected Environment

Landscape Unit #10: Urban Industrial (East Durham) included the easternmost portion of the D-O LRT Project viewshed, including the proposed Alston Avenue Station area. Existing conditions in this viewshed are described in DEIS section 4.4.2.

In order to conduct a visual assessment of the extension of the alignment and new NCCU station, a new landscape unit was established – Landscape Unit #11: Industrial Residential. Landscape Unit #11 is characterized by minor industrial activity and single-family residential land uses. This unit abuts the NCCU Campus. The landscape unit contains mostly single-family homes, a few small businesses, and several stand-alone places of worship. Viewers in this area

include motorists and transit riders, church members, residents, business owners, and university employees and students.

Environmental Consequences

This section evaluates potential impacts for Landscape Unit #10 and Landscape Unit #11 associated with the NCCU Station Refinement.

Landscape Unit #10

Overall visual impacts of the NCCU Station Refinement on Landscape Unit #10 would be moderate. This is a change in visual impacts from what was included in the Combined FEIS/ROD, where visual impacts for Landscape Unit #10 were low-moderate. This change is due primarily to the addition of a multi-story parking structure on the property adjacent to the Durham Water Tower and Valve House, a National Register-eligible resource (see section 3.6 for additional discussion of visual effects on this NRHP resource). Visual changes in Landscape Unit #10 are shown in **Table 3-8** for the NCCU Station Refinement.

Landscape Unit #11

The viewers in Landscape Unit #11 would have low to high sensitivity to visual changes, as shown in **Table 3-9**.

The NCCU Station Refinement would be located on new transportation right-of-

way between Pettigrew Street and Alston Avenue, and along the Alston Avenue corridor from NC 147 to Lawson Street. Visual changes would include light rail transit infrastructure and new stations. The proposed NCCU Station would have canopies, pedestrian accommodations, and lighting. A portion of the alignment would be elevated on a bridge to cross over NC 147 and the ramps on the west side of the NC 147/Alston Avenue interchange. Retaining walls would be installed on both sides of the light rail tracks to retain the fill as the tracks descended from the aerial structure down to Alston Avenue. These retaining walls would be approximately 400 feet long, varying in height from approximately 20 feet down to 2 feet. Alston Avenue would be widened to the west to accommodate the light rail alignment and proposed NCCU Station in the median. Visual changes in Landscape Unit #11 are shown in **Table 3-9**. Overall visual impacts would be moderate.

Mitigation Measures

As potential impacts of the NCCU Station Refinement on visual resources are similar in type and magnitude to those disclosed in the Combined FEIS/ROD, no additional mitigation measures are proposed. Mitigation proposed in the Combined FEIS/ROD included coordinating with municipalities



and those affected to further minimize visual effects of the project, incorporating landscaping and aesthetic treatments, and identifying Art-in-Transit opportunities.



Table 3-8: Visual Impacts (Landscape Unit #10)

Viewer Response		Visual Change	
Viewers	Viewer Response	Visual Elements	Degree of Change for Visual Elements – NCCU Station Refinement
Residents- Single-family housing	High	Transit Infrastructure	Moderate
Business owners	High	Elevation	Minor
Children and teachers- school (Boys and Girls Club)	Moderate	Displacement of structures	Moderate
Church members	Moderate	Parking area/structure	Substantial
Motorists	Low	View Disruption	Minor
Transit riders	Low	Removal of existing screens to res. uses	Moderate
		Visual changes to parklands	-
		Blocks scenic features	Minor
		Changes to street scape	Moderate
		Removal of vegetation	Minor
		Visual change to historic resources	Moderate
		New night lighting	Moderate

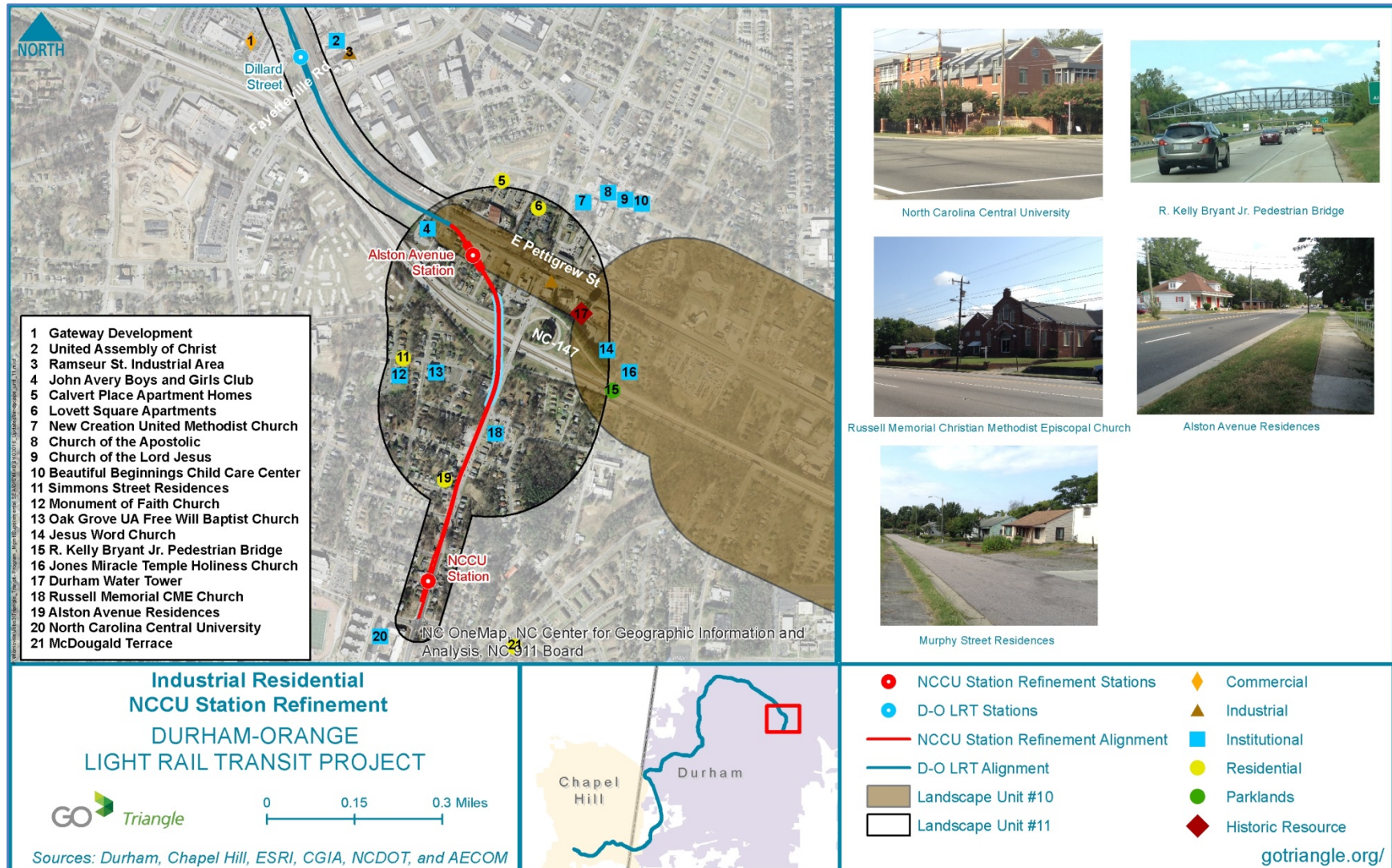
¹ Visual and Aesthetics Technical Report (DEIS appendix K15)

Table 3-9: Visual Impacts (Landscape Unit #11)

Viewer Response		Visual Change	
Viewers	Viewer Response	Visual Elements	Degree of Change for Visual Elements
Residents- Single-family housing	High	Transit Infrastructure	Substantial
Business owners	High	Elevation	Substantial
Children and teachers- F. Howard Alston Russell Mem. Child Dev. Center	Moderate	Displacement of structures	Substantial
Church members- Russell Memorial Christian Methodist Episcopal Church	Moderate	Parking area/structure	Substantial
Motorists	Low	View Disruption	Moderate
Transit riders	Low	Removal of existing screens to res. uses	Minor
University visitors, students, professors, staff	Moderate	Visual changes to parklands	Minor
		Blocks scenic features	Minor
		Changes to street scape	Substantial
		Removal of vegetation	Minor
		Visual change to historic resources	Minor
		New night lighting	Moderate



Figure 3-4: Landscape Unit #11 (Industrial Residential)



3.6 Historic and Archaeological Resources

This section describes the potential effects on archaeological resources and historic resources listed or eligible for listing on the National Register of Historic Places (NRHP) for the NCCU Station Refinement, as required under 36 C.F.R. Part 800. All identification and assessment of effects of archaeological and historic resources was carried out by persons who meet the Secretary of the Interior’s Professional Qualification Standards.

Affected Environment

Area of Potential Effects

Areas of Potential Effect (APE) were developed for both historic and archaeological resources. The APEs are consistent with the methodology used for APE development as part of the D-O LRT Project.

The APE for historic resources is described as follows and is presented in **Figure 3-5**:

- The historic APE generally includes resources overlooking the project and excludes resources screened from the project. In addition, the APE was expanded to include the entire

boundary of any NRHP-listed or eligible properties and to include the park and ride facilities around Alston Avenue Station.

- The State Historic Preservation Office (SHPO) confirmed the historic APE in a letter to FTA dated October 18, 2016 (see appendix E).

The draft APE for archaeological resources is described as follows and is presented in **Figure 3-6**:

- The proposed archaeological APE extends 100 feet from/to either side of the centerline of the NCCU Station Refinement alignment, so is generally 200 feet wide. In addition, the APE extends around the park-and-ride facilities located at the Alston Avenue Station.
- The FTA submitted the draft archaeological APE to the SHPO by a letter dated October 27, 2016 requesting SHPO review and concurrence.

Architectural Historic Properties

An architectural historic resources survey was conducted within the APE to identify historic properties in the historic APE for the NCCU Station Refinement. A consulting parties meeting was held on October 19, 2016, for the FTA to receive input on the draft APE as well as the

potentially eligible resources identified in the historic survey.

The Durham Water Tower and Valve House (DH-3508), previously identified in studies for the D-O LRT Project as eligible for the NRHP, falls within the APE and was considered during the historic resources survey for the NCCU Station Refinement. The Durham Water Tower and Valve House, located at 1318 East Pettigrew Street, was erected in 1939. It was determined eligible for NRHP listing in 2015 by the FTA under Criterion A for its association with the local activities of the Federal Emergency Administration of Public Works, which funded it, and Criterion C as an excellent and unusually large example of a 1930s-era water tower. The NRHP-eligible boundaries include the fenced 0.4-acre area encompassing the Water Tower and Valve House, which retains its integrity.

The FTA has made a recommendation that no additional historic properties within the APE for the NCCU Station Refinement are eligible for listing on the National Register of Historic Places.

Archaeological Historic Properties

No previously-recorded archaeological sites exist within the APE. Soils in the project area are classified as disturbed urban soil types. Historic development of this portion of Durham occurred in the



second and third quarters of the 20th century.

Environmental Consequences

Architectural Historic Properties

The NCCU Station Refinement would add an eight-story parking structure on the GoTriangle-owned property immediately west of the Durham Water Tower's NRHP-eligible boundary. The structure would rise no more than 60 feet above Pettigrew Street.

The tower and the NCCU Station Refinement are within an urban setting characterized by industrial and transportation-related buildings and small single-family residences. At 145 feet tall, the water tower would remain the dominant visual feature of the surrounding area.

Pending design code approval from the City of Durham, the design of the parking deck will include no stairwells, elevator towers, or other structures that rise above the 60-foot height on the eastern half of the structure. This would minimize visual effects on the Water Tower. Therefore, the FTA has made a preliminary determination, in consultation with the SHPO that the parking structure would result in no adverse effect on the Durham Water Tower and Valve House and that the NCCU Station Refinement

would have no adverse effect any historic properties within the APE.

Archaeological Historic Properties

Given the urbanized landscape, previously disturbed nature of the APE, and age of the historic occupation in the area, it is anticipated that no significant archaeological resources are present and impacts to archaeological resources from the NCCU Station Refinement would be non-existent or minimal.

The FTA will make a determination in consultation with the SHPO on the need for any additional Phase I survey areas within the NCCU Station Refinement area.

Mitigation Measures

Mitigation commitments identified in the Combined FEIS/ROD would be applicable and appropriate for the NCCU Station Refinement. The Memorandum of Agreement (MOA) developed for the D-O LRT Project addresses the procedures by which FTA, GoTriangle, and SHPO will work together to ensure the effective protection of historic and/or archaeological resources during the implementation and construction of the proposed D-O LRT Project.

FTA and GoTriangle will seek concurrence from the SHPO that there will be no adverse effect on any historic property, provided that no structures on

the east side of the parking garage will rise above the 60-foot level of the garage. A signed concurrence form will document the agencies' agreement.



Figure 3-5: Historic Resource APE

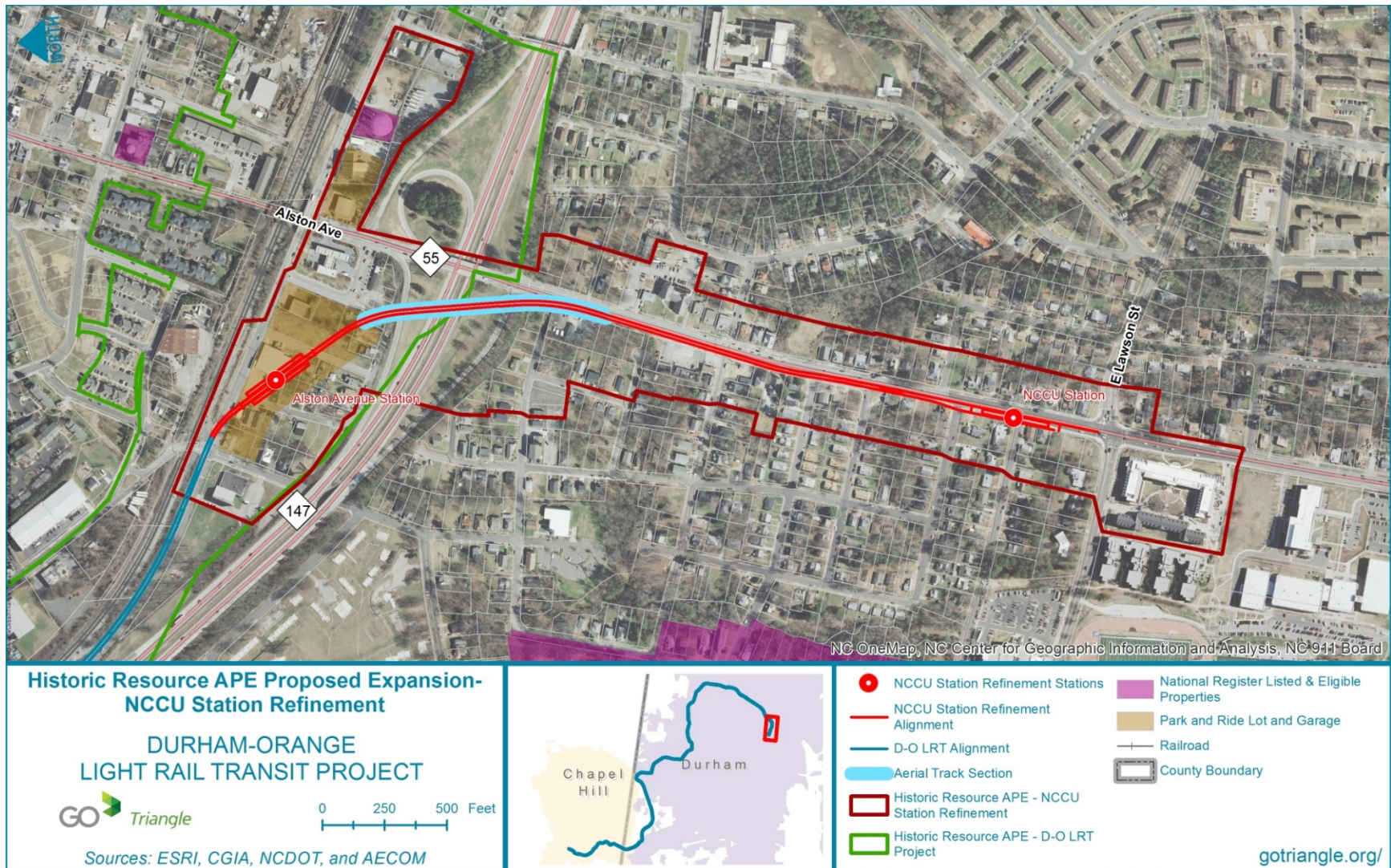
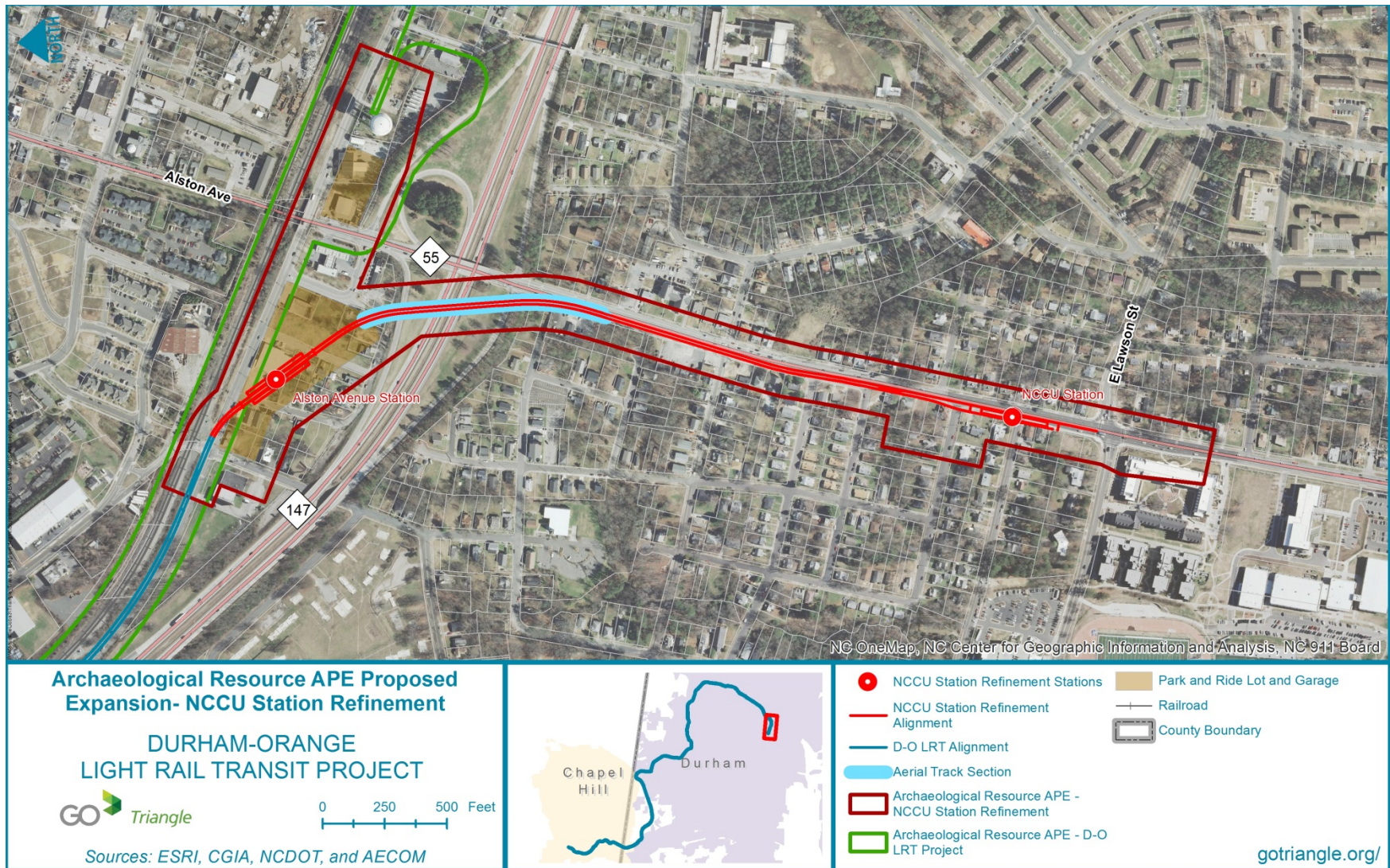


Figure 3-6: Archaeological Resource APE



3.7 Natural Resources

This section describes the existing conditions and potential natural resource impacts for the NCCU Station refinement. Additional information is included in the *Supplemental Natural Resources Technical Report* in appendix F.

Affected Environment

Existing natural resources in the NCCU Station Refinement study area are as follows:

- Soils: No unique soils were identified in the area of the NCCU Station Refinement.
- Terrestrial Communities: One terrestrial community was identified in the NCCU Station Refinement area - maintained/disturbed, which consists mostly of residential and commercial development.
- Terrestrial Wildlife: All animal species expected to occur within the NCCU Station Refinement area are opportunistic species.
- Threatened and Endangered Species: Of the three federally protected species listed for Durham County, Michaux’s sumac and the northern long-eared bat have the

potential to occur within the NCCU Station Refinement study area.

- Rivers and Harbors Act Section 10 Navigable Waters: There are no surface waters identified as “Navigable Waters” under Section 10 of the Rivers and Harbors Act (33 U.S.C. § 403) in the NCCU Station Refinement study area.
- Bald Eagle and Golden Eagle Protection Act: A review of the North Carolina Natural Heritage Program’s (NCNHP) records, updated July 2016, indicates no known bald eagle occurrences within one mile of the study area.
- Migratory Bird Treaty Act: A number of observed and expected bird species are located in the NCCU Station Refinement study area that fall under the purview of the Migratory Bird Treaty Act of 1918. However, migratory birds are mobile and transient and are not likely to be adversely affected by the proposed project.
- Endangered Species Act Candidate Species: In a list updated on December 26, 2012, the United States Fish and Wildlife Service (USFWS) identified no candidate species under the ESA for Durham County.

- Essential Fish Habitat: The National Marine Fisheries Service (NMFS) identified no Essential Fish Habitat (EFH) located within Durham County (National Oceanic and Atmospheric Administration [NOAA]).

Environmental Consequences

The NCCU Station Refinement would convert approximately 18 acres of maintained/disturbed terrestrial community to transportation use as identified in **Table 3-10**.



Table 3-10: Terrestrial Community Impacts

	NCCU Station Refinement ¹
Biotic Resources (acres)	18
Bottomland	0
Alluvial	0
Mesic Mixed	0
Maintained/ Disturbed	18

¹ October 2016 Natural Resources Memo (AECOM 2016)

Mitigation Measures

Mitigation commitments made in the Combined FEIS/ROD for natural resources are adequate to address the natural resource impacts of the NCCU Station Refinement. No additional mitigation measures are necessary.

3.8 Noise and Vibration

This section describes the noise, vibration, and ground-borne noise impacts anticipated for the NCCU Station Refinement.

The NCCU Station Refinement was analyzed for noise, vibration, and ground-borne noise impacts in accordance with the *FTA Transit Noise and Vibration Impact Assessment* (May 2006) and follows the same methodology as the *D-O LRT Noise and Vibration Technical Report*. The results of this evaluation are documented in detail in the *Supplemental Noise and Vibration*

Analysis – NCCU Station Refinement (appendix G).

Affected Environment

A total of 11 noise-sensitive and five vibration-sensitive receptors were identified in the NCCU Station Refinement study area. The receptors are identified on **Table 3-11** and their locations are illustrated on **Figure 3-7**. All receptors except one are residential houses. The other receptor is the Russell Memorial CME church.

Ambient noise measurements were performed at three representative locations along the light rail alignment for

the NCCU Station Refinement in order to characterize the existing noise environment. Monitoring locations are also illustrated on **Figure 3-7**. The existing noise conditions were found to range from 66.0 to 74.5 Ldn.

Environmental Consequences

The track alignment plan and profile drawings for the NCCU Station Refinement were used to evaluate the proximity between the centerline of the proposed light rail track and the adjacent noise and vibration sensitive receptors. New crossover tracks by Cox Avenue along Alston Avenue were also considered in the evaluation of ground-

Table 3-11: Noise and Vibration Receptors NCCU Station Refinement

Site #	Name/Location of Receptor Sites	FTA Noise Category (Land Use)	Distance from Receptor to Tracks (feet)	Noise Receptor	Vibration Receptor
R1	Grant Street House	2	470	X	
R2	Coffax St. House	2	210	X	
R3	Gillette Ave House 1	2	330	X	
R4	Gillette Ave House 2	2	220	X	
R5	S. Alston East House E1	2	70	X	X
R6	CME Church	3	70	X	X
R7	S. Alston East House E2	2	60	X	X
R8	S. Alston East House E3	2	65	X	X
R9	S. Alston West House W1	2	80	X	X
R10	S. Alston West House W2	2	160	X	
R11	S. Alston West House W3	2	160	X	

Source: *Supplemental Noise and Vibration Analysis – NCCU Station Refinement* (AECOM 2016)



borne noise and vibration.

Table 3-12 summarizes the noise, vibration, and ground-borne impacts for the NCCU Station Refinement.

Table 3-12: Noise, Vibration, and Ground-Borne Noise Impacts

	NCCU Station Refinement ¹
Noise impacts	0
Vibration impacts	2
Ground-borne noise impacts	3

¹ Supplemental Noise and Vibration Analysis – NCCU Station Refinement (AECOM 2016)

Noise

It is anticipated that all of the residential and commercial properties that front the west side of South Alston Avenue between the 147 off-ramp and Lawson Street will need to be acquired for the NCCU Station Refinement in order to accommodate the construction of the light rail alignment, the reconstructed Alston Avenue roadway, and the new NCCU station. As a result, the light rail alignment will be located between 80-160 feet from remaining receptors on the west side of Alston Avenue and 60-80 feet from the receptors on the east side of Alston Avenue.

The NCCU Station Refinement would not result in noise impacts to the surrounding community.

Vibration and Ground-borne Noise

The primary vibration and ground-borne noise inducing elements of the light rail alignment along South Alston Avenue include the placement of crossover tracks between Price Avenue and Cox Avenue, which results in an increase of 10 vibration decibels (VdB). As was the case in the original analysis documented in the *D-O LRT Noise and Vibration Technical Report*, DEIS Appendix K24, efficient soils were assumed within the study area, which result in 10 additional VdB added to all receptors. Conversely, the elevated structure over NC 147 results in a reduction of 10 VdB to adjacent receptors.

Three of the receptors analyzed are projected to have ground-borne noise impacts and two of those three receptors would also have vibration impacts. These three receptor locations are shown on **Figure 3-8** and are representative of a total 26 residential properties that are projected to be impacted by either ground-borne noise or vibration as a result of the NCCU Station Refinement.

The assumption of efficient soil transmission and placement of the crossover tracks are both major contributing factors to impacts at residential properties along Alston Avenue.

Mitigation Measures

Mitigation commitments made in the Combined FEIS/ROD, including conducting a detailed vibration analysis during the Engineering phase to further evaluate geotechnical conditions and more precisely predict the vibration effects of the proposed light rail system on area receptors and implementing vibration mitigation measures consisting of special track support systems, resilient fasteners, ballast mats, resiliently supported ties, and floating slabs are applicable to the NCCU Station Refinement area. Implementation of these mitigation measures is anticipated to reduce the vibration and ground-borne noise impacts below the level of significant impact.



Figure 3-7: Noise Monitoring Sites and Noise and Vibration Receptor Locations

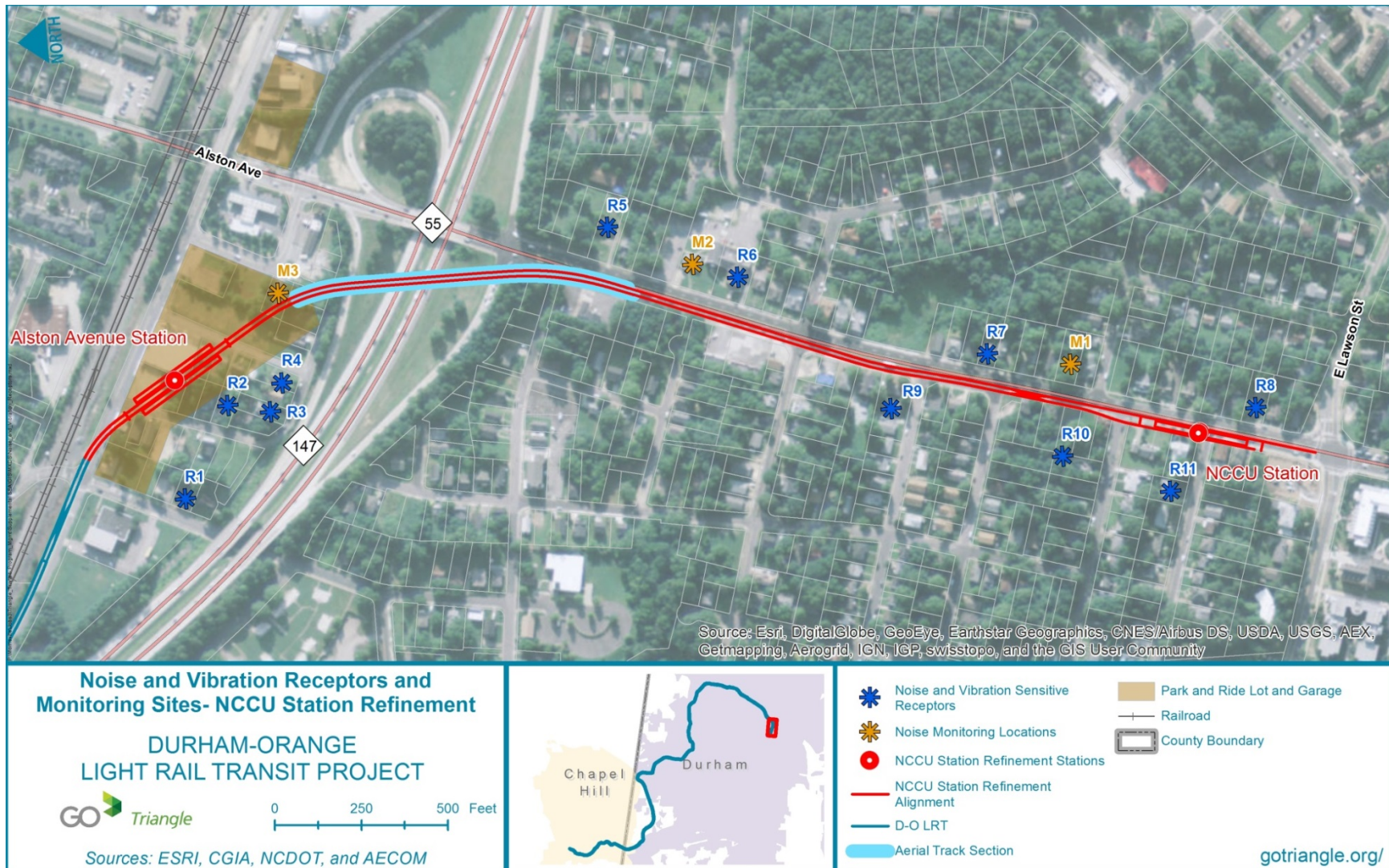
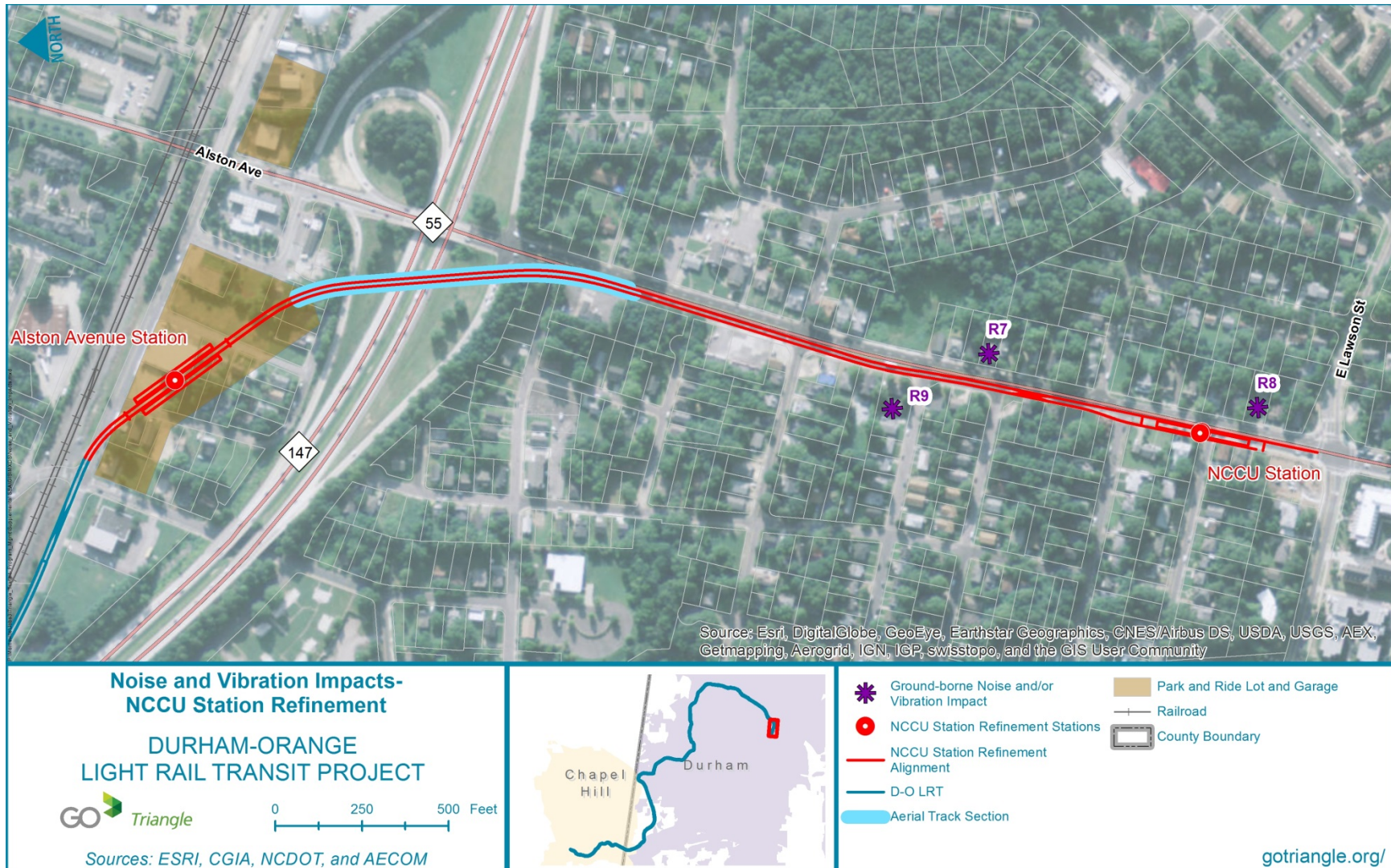


Figure 3-8: Vibration and Ground-Borne Noise Impacted Receptors



3.9 Hazardous, Contaminated, and Regulated Materials

This section describes contaminated properties and the potential for disturbing high- and medium-risk hazardous, contaminated, and regulated materials within the NCCU Station Refinement study area. Additional detail is included in appendix H.

Affected Environment

A limited Phase I Environmental Site Assessment (ESA) of the NCCU Station Refinement study area identified 13 properties of concern.

Environmental Consequences

The NCCU Station Refinement changes the number of high and medium-risk sites. Based on information gathered from a database review and site reconnaissance, the number of sites as presented in the DEIS and Combined FEIS/ROD would be revised as follows:

- “Orange Recycling” located at 1010 East Pettigrew Street is elevated from medium risk to high risk due to observation of 55 gallon drums without labeling and secondary containment in an outside cage made during site reconnaissance.

- “Exxon-45383 Ruffins” located at 602 South Alston Avenue is elevated from low risk to medium risk due to the change in distance (now less than 500 feet) from the alignment of the NCCU Station Refinement.
- “Parkview Convenience” located at 701 South Alston Avenue is elevated from low risk to medium risk due to the change in distance (now less than 500 feet) from the alignment of the NCCU Station Refinement.
- “Evans M/M 2” located at 706 and 710 South Alston Avenue is elevated from low risk to high risk due to the change in distance (now less than 500 feet) from the alignment of the NCCU Station Refinement and possible historical use as a dry cleaner.
- Medium Risk – “High J Otis Garage” located at 1012 South Alston Avenue due to its historical use as an automobile repair facility and associated petroleum products and storage.
- High Risk – “NCCU Chidley Hall and McDougald House” located at East Lawson and Alston Avenue due to an active LUST site.

Table 3-13 provides a summary of the revised number of high and medium-risk sites associated with the NCCU Station Refinement.

Additionally, new sites have been identified including:

- Medium Risk – “Pettigrew Street Garage” located at 904 East Pettigrew Street due to its historical use as an automobile repair facility and associated petroleum products and storage.
- High Risk – “Aguilera, Filemon – Property” located at 1102 Gann Street due to an active leaking underground storage tank (LUST) site.



Table 3-13: Summary of High and Medium Risk Sites

	NCCU Station Refinement
High Risk	4
Medium Risk	3*

*A total of four (4) new sites were added to the medium category, but one (1) site was elevated from medium to high risk, therefore the net increase is three (3) sites.

Mitigation Measures

Mitigation measures identified in the Combined FEIS/ROD, including additional assessment and coordination for high and medium risk properties, are adequate and applicable for the reclassified and new sites identified above. No additional mitigation measures are recommended.

3.10 Safety and Security

This section describes the potential safety and security impacts anticipated with the NCCU Station Refinement.

Affected Environment

Existing safety and security plans, policies, and procedures address safety and security for current transit operations and are described in detail in DEIS section 4.12.2.

Environmental Consequences

The types of potential impacts to passenger safety; transit vehicles; employees and contractors; pedestrians, bicyclists, and motorists; and police, security, and emergency service operations would be the same as described for the D-O LRT Project and summarized in the Combined FEIS/ROD. The NCCU Station Refinement would add to the area where these potential impacts could occur by reconfiguring the Alston Avenue Station, extending the light rail guideway along Alston Avenue, and adding a station at NCCU.

The NCCU Station Refinement would introduce two new at-grade intersections between motorists and the light rail trains – on Pettigrew Street and on Alston Avenue at Linwood Avenue. The NCCU Station Refinement would reconfigure the location of the Alston Avenue Station platform, which would require the light rail alignment to cross Pettigrew Street after Grant Street on a diagonal to the new location of the Alston Avenue Station platform. In addition, while most of the existing intersections along Alston Avenue would be converted to right-in right-out movements, the light rail alignment would have an at-grade crossing of Linwood Avenue, which would remain full movement.

The NCCU Station Refinement would include a new area in which the light rail

guideway would operate between opposing directions of street traffic. The alignment would depart the Alston Avenue Station and ascend on elevated structure to cross NC 147. The alignment would descend on retained fill to enter the middle of Alston Avenue. The alignment would then travel in the middle of Alston Avenue in its own guideway at-grade with the roadway.

The NCCU Station would also be located in the median of Alston Avenue, which would introduce a conflict for pedestrians crossing vehicular traffic to access the station.

Mitigation Measures

The mitigation commitments identified in the Combined FEIS/ROD for safety and security would be applicable and appropriate for the NCCU Station Refinement. This includes commitments related to passenger safety, station platform and park-and-ride facility design, and working with local law enforcement and emergency medical personnel.



3.11 Energy

This section quantifies the net expenditure of energy associated with the construction, maintenance, and operation of the NCCU Station Refinement.

Affected Environment

Information on the existing energy environment, including energy providers in the D-O LRT Project area can be found in section 4.13 of the DEIS. The NCCU Station Refinement study area does not include any additional energy providers or energy consumption characteristics.

Environmental Consequences

The change in direct energy used for transportation in the Triangle region is dependent upon the vehicle miles traveled (VMT) by automobiles, buses, and light rail vehicles. The NCCU Station Refinement would result in substantial additional energy savings as a result of the increase in transit ridership and the decrease in automobile VMT regionally (see **Table 3-16**).

Mitigation Measures

The NCCU Station Refinement would result in additional energy savings over that calculated for the D-O LRT Project.

Therefore, mitigation would still not be warranted.

3.12 Acquisitions, Relocations, and Displacements

This section describes the potential property acquisitions, relocations, and displacements for the NCCU Station Refinement.

Affected Environment

Existing land uses in the NCCU Station Refinement study area are described in section 3.2 (Land Use and Zoning).

Environmental Consequences

In total, the NCCU Station Refinement would result in 34 additional full acquisitions, five partial acquisitions, and 23 additional displacements, not previously disclosed. **Table 3-14** includes a summary of full and partial acquisitions.

Table 3-14: Acquisitions, Relocations, and Displacements

	NCCU Station Refinement
Full Acquisitions	+34
Partial Acquisitions	+5
Relocations/Displacements	+23

At the Alston Avenue Station, the NCCU Station Refinement would reconfigure the station platform and include park and ride surface lots. This reconfiguration would occur within approximately the same footprint as the park and ride garage disclosed in the Combined FEIS/ROD. However, redesign of Grant Street and Colfax Street around the station and parking lot would require full acquisition of two additional parcels along Grant Street.

In order for the light rail alignment to continue south toward NCCU, the alignment would have to be extended from the current Alston Avenue terminus. This would require acquisition of property from six additional parcels (four full acquisitions and two partial acquisitions) in the Alston Avenue Station area and would result in four additional displacements of single-family residences. One parcel identified as a partial acquisition in the Combined FEIS/ROD would now be a full acquisition.

The NCCU Station Refinement would also include construction of a parking garage east of Alston Avenue since the relocated Alston Avenue Station can no longer accommodate the parking garage that was envisioned as part of the D-O LRT Project. The garage would be constructed on GoTriangle-owned



property. As such, this change would not require additional acquisitions.

The alignment would then travel over NC 147 to enter the median of Alston Avenue. The reconstruction of the existing lanes is expected to occur to the western side of Alston Avenue. This reconstruction would require full acquisition of 27 parcels and four partial acquisitions. These parcels were not previously disclosed in the DEIS or accounted for in the Combined FEIS/ROD, and include five commercial parcels, ten residential parcels, one institutional parcel, and 15 vacant parcels (no structures on parcel). Along Alston Avenue, there would be five commercial displacements and 14 residential displacements, including three multi-family units. The commercial displacements include a laundromat/car wash, a cell phone retailer, a thrift store, and two convenience stores.

Mitigation Measures

The mitigation commitments identified in the Combined FEIS/ROD would be applicable and appropriate for the NCCU Station Refinement. GoTriangle will conduct the acquisition and relocation process in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. During Engineering, GoTriangle will coordinate with NCCU

regarding property acquisitions and campus development plans to inform the final placement and design of the NCCU Station.

3.13 Utility Impacts

This section describes the existing utilities and potential impacts anticipated with the NCCU Station Refinement.

Affected Environment

Utilities typical of the urban setting are located in the NCCU Station Refinement area, (e.g., including water and sewer, gas, electric power, telecommunications, cable television, and traffic signals.)

Environmental Consequences

The NCCU Station Refinement would include the reconfiguration of the Alston Avenue Station, which would require the alignment to cross Pettigrew Street. In addition, the NCCU Station Refinement would include the light rail alignment crossing over NC 147 and running in the median of Alston Avenue. The alignment would result in additional utility impacts, particularly for utilities that run within, under, and adjacent to the Alston Avenue right-of-way. From NC 147 to Price Avenue, overhead utilities are present on the east side of Alston Avenue. At Price Avenue, overhead utilities cross Alston Avenue and

continue on the west side of Alston Avenue between Price Avenue and Lawson Street. These existing utilities would be affected as part of widening the roadway to create the median to accommodate the NCCU Station Refinement trackway and NCCU Station. Up to two miles of utility impacts could result from the NCCU Station Refinement. Utility impacts are summarized in **Table 3-15**.

Table 3-15: Summary of Utility Impacts

	NCCU Station Refinement
Utility Impacts	2 miles of utility lines 0 cell towers

New utility services, including power, water, and sewer services, would be required for the NCCU Station Refinement to accommodate a traction power substation, signal house, operator comfort facility, and communications facility and NCCU Station on Alston Avenue.

Mitigation Measures

The mitigation commitments identified in the Combined FEIS/ROD would be applicable and appropriate for the NCCU Station Refinement, and no additional mitigation is proposed for the NCCU Station Refinement. As noted in the Combined FEIS/ROD, GoTriangle will



survey existing utilities during the Engineering phase to avoid or limit impacts, minimize utility outages during construction, and notify residences and businesses of utility work.

3.14 Construction

This section identifies the additional construction impacts of the NCCU Station Refinement. This section also assesses whether the impacts associated with the NCCU Station Refinement would result in any changes to the impacts previously documented in the Combined FEIS/ROD.

Construction Scenario

The construction of the NCCU Station Refinement would utilize the same construction techniques described in DEIS section 4.16 and determined in the Combined FEIS/ROD. These techniques would include the construction of stations, a park-and-ride lot and garage, an elevated light rail structure over a highway (over NC 147), light rail guideway on retained fill, and at-grade light rail guideway in a dedicated alignment within an existing roadway (along Alston Avenue).

Construction Consequences

Resources that would be impacted during construction of the NCCU Station Refinement are discussed below.

Transportation

Public Transportation

Construction of the light rail guideway, reconstruction of the roadways, intermittent lane closures, intersection closures, and sidewalk closures, as well as roadway detours may result in intermittent impacts to bus operations within the construction area. This may include temporary bus stop relocations or closures due to sidewalk closures or detours. In addition, temporary lane closures or detours due to light rail construction may result in temporary bus route detours or suspensions of service for segments of routes.

Roadways

Construction of the NCCU Station Refinement would be expected to result in disruptions to traffic operations, including temporary lane closures, short-term intersection and roadway closures, and detours that would cause localized increases in congestion.

Along Alston Avenue, disruption to normal traffic patterns is expected, as the roadway is shifted to create a median for the construction of the light rail

guideway within it. Temporary lane closures, lane shifts, and travel lane reductions will be necessary to construct this section. Access to driveways and side streets will be maintained during construction, but changes will occur. Another disruption of normal traffic will occur along Pettigrew Street where the light rail guideway will pass at-grade across a realigned Pettigrew Street. Temporary lane closures and possibly a temporary road closure may be necessary. Similarly, sidewalk closures and roadway detours may affect pedestrian traffic patterns. In addition, dirt and debris may be tracked onto the roadways due to the construction activities.

Work zone maintenance of traffic plans will be prepared and approved by the appropriate agency during the Engineering and Construction phases. These plans will be coordinated with the City of Durham, universities and colleges (NCCU, DTCC), emergency services and the NCDOT.

Construction of the major aerial structure over NC 147, the Alston Avenue and NCCU Stations, the parking lots around the Alston Avenue Station, and the parking deck will employ methods and sequencing of construction to minimize the impacts to the roadway users on NC 147, Alston Avenue, Pettigrew Street and the adjacent roadways. The



contractors will be required to maintain clean streets to avoid the accumulation of dirt and debris on the area streets.

Parking

During construction, some off-street parking impacts are expected due to the delivery and temporary storage of construction materials and equipment.

Pedestrian and Bicycle Facilities

During construction, some impacts to pedestrian facilities are expected as Alston Avenue is shifted to create a median for the light rail guideway. Pedestrian access on the west side of Alston Avenue would be limited or eliminated throughout the construction process due to the roadway shift, but will be maintained to the greatest extent possible on the east side of the street.

If crosswalks are temporarily closed, pedestrians will be directed to use alternate crossings nearby. Sidewalks and crosswalks will be required to meet minimum standards for accessibility and be free of slipping and tripping hazards.

Business Impacts

There are not expected to be business impacts due to the construction of the NCCU Station Refinement, as the existing businesses along Alston Avenue in this segment will be acquired to accommodate the expanded roadway.

Neighborhoods and Community Resources

Traffic detours may increase traffic through the adjacent residential neighborhood streets or change access to community facilities such as the John Avery Boys and Girls Club and the Russell Memorial CME Church. Similarly, sidewalk closures and detours may affect pedestrian traffic patterns. Local property owners and community organizations will be informed of roadway disruptions and other construction-related activities and consequences by using construction education and outreach plans.

Visual and Aesthetic Considerations

Temporary impacts would include changes to views in and around the construction and construction laydown areas. Construction activities would introduce heavy equipment such as cranes, bulldozers, backhoes, graders, scrapers, trucks, and light machinery into view. Cranes would be prevalent for the bridge construction over NC 147, and the parking deck along Alston Avenue and Pettigrew Street.

The following steps will be taken as needed and feasible to reduce visual impacts associated with construction activities:

- Stabilizing embankments and planting of vegetation in construction

areas as quickly as possible so that sediment and erosion control devices can be removed.

- Directing lighting toward the interior of the construction areas or providing shielding to minimize light pollution into adjacent properties.

Cultural, Historic, and Archaeological Resources

Vibration impacts to the historic Durham Water Tower on Pettigrew Street east of the proposed parking garage could be experienced during construction as a result of heavy equipment operations necessary to construct the Alston Avenue parking deck. These impacts would be minimized and would be short-term and temporary.

Construction of the Alston Avenue Station parking deck adjacent to the existing water tower along Pettigrew Street will utilize techniques such as drilled shaft foundations to minimize disruption and avoid disruption or damage to the water tower and adjacent valve house. GoTriangle and its contractors will also monitor vibration impacts on the water tower and valve house during construction, due to their historic classification.

The construction of a driveway connection to Pettigrew Street from the parking deck is proposed within a small area of the water tower's historic



boundary but contained within the proposed right-of-way acquired by the NCDOT Alston Avenue widening project (STIP U-3308). Other cultural resources along the NCCU Station Refinement are not expected to experience an impact during construction.

Water Resources

Typical construction activities would disturb soils and could cause runoff that could potentially erode slopes and drainage ways, and introduce stormwater-borne sediment in adjacent storm water facilities. No water resources are present within the NCCU Station Refinement area, therefore no additional impacts beyond those identified in the Combined FEIS/ROD are anticipated.

Construction activities would be conducted in accordance with local, state, and federal regulations, including the *NCDWQ Stormwater Best Management Practices Manual (2007)*, the *Erosion and Sediment Control Planning and Design Manual (NCDLQ 2009)*, and the *Design Standards in Sensitive Watersheds (15A N.C.A.C. § 04B.0124)*. A storm water pollution prevention plan (SWPPP) will be created during the Engineering phase of the project. Best Management Practices (BMP) such as silt fencing, fiber matting, straw bales, sediment traps, desilting basins, and other methods required through the permitting process will be

employed to alleviate storm water runoff impacts.

Air Quality

For temporary periods, lane, street, or intersection closures may be required, which could result in a temporary reduction in roadway capacity and traffic congestion. This temporary increase in traffic congestion may result in increased emissions and higher concentrations of air pollutants near those roadways.

In addition to temporary increases in traffic-related emissions, the operation of construction vehicles may result in temporary higher concentrations of air pollutants in construction areas. Greater impacts would be anticipated at the Alston Avenue Station and park-and-ride, the new bridge over NC 147, along Alston Avenue from NC 147 to Lawson Street, as well as at the NCCU Station site, but these impacts would be localized to the construction areas. Airborne dust may be generated around the construction site as well with higher potential at the two station sites and parking garage.

Dust generated during construction will be minimized through standard dust control measures such as applying water to exposed soils and limiting the duration of exposed soil conditions. Measures to mitigate fugitive dust emissions into the air include the following:

- Shutting off construction equipment not in direct use
- Watering areas of exposed soil
- Covering open body trucks transporting materials to and from construction sites
- Rerouting truck traffic away from schools (NCCU, DTCC) and residential communities when possible
- Repaving and/or replanting exposed areas as soon as possible following construction

Noise and Vibration

Construction activities typically cause temporary, localized increases in noise and vibration. Construction noise varies greatly depending on the construction processes and types, and condition of equipment used. The construction processes for the NCCU Station Refinement use equipment operations that typically result in high noise levels adjacent to the construction sites. The use of especially noisy equipment, such as a rail saw, concrete saw, jack hammer, scrapers, and pneumatic tools, would be common throughout the alignment. Compaction equipment and structure foundation construction would result in both noise and vibration impacts.



It is likely that noise impacts would occur in residential areas and commercial/industrial areas within 50 feet of the proposed light rail alignment because of the construction activities, however due to the linear nature of track construction, these impacts would be intermittent and temporary. Potential vibration impacts to properties within 50 feet of construction activities would result from drilling of shafts for the elevated track structures and parking deck. It is not anticipated that the construction vibration levels would not result in structural damage to any properties, but may result in human annoyance during such activities.

During the Engineering phase of the project when sufficient engineering detail is available, a detailed construction noise assessment will be completed which will provide property specific details to develop mitigation plans to keep the noise levels at or below acceptable levels during construction. Vibration and noise monitoring may be conducted during construction depending on the sensitivity of the surrounding resources. It is anticipated that drilled shafts and/or spread footings will be used for the foundations for the aerial structure over NC 147 and the parking garage to avoid the significant noise and vibration issues with driving piles. Drilled shaft foundation construction operations will be of limited duration. The use of vibratory

compaction equipment near sensitive structures will be avoided or minimized. Vibration levels may be monitored at sensitive structures during construction. In the event monitoring identifies impacts beyond acceptable levels, additional site-specific mitigation will be implemented.

Off-hour construction activities may be limited adjacent to residential neighborhoods, institutional and commercial areas in order to minimize construction disturbances.

Hazardous, Contaminated, and Regulated Materials

A limited Phase I ESA was completed for the NCCU Station Refinement (see appendix H). Three new (and one re-categorized from medium in the D-O LRT Combined FEIS/ROD) high risk and three medium risk sites were found to be located within 500 feet of the footprint. These sites would be further assessed during the Engineering phase to determine the presence, type, and magnitude of contaminated soil and/or groundwater. A high risk area or medium risk area has a greater known risk potential based on contamination type. Potential construction phase impacts would include disturbance of contaminated soil and the potential exposure associated with disturbance.

Prior to property acquisition a Phase I ESA will be completed for disturbances

in areas under the NCCU Station Refinement to identify the type of contaminated materials. The results of the investigation would be used to determine whether contaminated materials could be minimized or avoided or whether additional investigation is needed to define the extent of contamination (Phase II ESA).

Measures to minimize construction-related impacts related to hazardous materials include:

- Complying with applicable federal and state regulations
- Following Occupational Safety and Health Administration (OSHA), state, and local standards in handling and storage of fuels and other materials
- Disposing of hazardous materials according to applicable federal, state, and local guidelines
- Cleaning construction vehicles to prevent off-site contamination
- Disposing of construction waste at approved sites

Safety and Security

The safety of the public, particularly the passage of pedestrians, bicyclists, and other spectators near open excavations and other construction activities will be addressed through the creation, proper timing, and placement of protective



safety programs, public information efforts, and selected protective measures. Construction workers may encounter hazards to personal safety by working adjacent to active lanes of vehicular traffic or in deep and confined spaces during utility relocations and construction. They also may face potential exposure to contaminants during soil excavation and drilling work. North Carolina and OSHA standards for safety of construction site personnel would be maintained. Where practicable, construction site access would be limited by fencing and security gates to prevent inadvertent access by those without authorized clearance.

Utility impacts

Construction phase impacts to utilities are most likely to occur early in the Construction phase and in advance of other construction activities such as excavation and grading activities, placement of structural foundations for the stations, parking deck, and aerial structure over NC 147, and work that requires large-scale equipment which could impact subsurface and overhead utilities. Utility service disruptions could occur throughout construction to facilitate utility relocations. It is anticipated that these disruptions would be minimal, with advance notice and temporary connections provided to customers prior to permanent relocation activities.

Avoidance and minimization of utility disruptions will include coordinating utility construction with other construction activities and limiting construction around existing utility lines such as excavations, removal of fill, and grading. Contractors will be required to adhere to the following items to mitigate utility impacts:

- Prior to construction, area utility companies and utility agencies will be requested to provide utility line location measures and approval of the proposed alteration of utility lines.
- During construction, should utilities be identified that were not identified prior to construction, appropriate utility companies and agencies will be contacted to identify the line(s).
- Property owners affected by the utility construction work will be notified in advance of the work, and temporary utility connections will be installed as required to minimize utility service outage.

Mitigation Measures

GoTriangle would develop a project construction, education, and outreach plan during the Engineering phase of the project. This plan would identify how GoTriangle will educate the public and stakeholders about ongoing and upcoming construction and construction impacts (e.g., detours, and utility service

interruptions). It would be expected to include both broad-based approaches to educate the public (e.g., media, web site, newsletters, public meetings) and targeted outreach to those who may be more directly affected by the construction activities (e.g., direct mail, small group meetings, in-person communication).

Construction impacts discussed under the methods of construction will be minimized through selection and implementation of BMPs and the other mitigation commitments made in the Combined FEIS/ROD. Additional mitigation measures for the NCCU Station Refinement include:

- Additional monitoring of the historic water tower and valve house on Pettigrew Street east of the proposed Alston Avenue Station parking garage for potential vibration impacts.

3.15 Indirect and Cumulative Effects

The following section describes the potential indirect and cumulative impacts associated with the NCCU Station Refinement.

3.15.1 Indirect Impacts

Indirect impacts are reasonably foreseeable effects that occur later in time or further in distance from the



proposed project. Potential impacts of indirect development associated with the proposed station locations associated with the NCCU Station Refinement were evaluated for various resources, including:

- Land use
- Economic development
- Visual and aesthetic resources
- Historic resources
- Natural resources
- Water resources
- Acquisitions, relocations, and displacements
- Electromagnetic fields

The analysis evaluated the area within ½ mile of proposed stations and a horizon year of 2040.

Environmental Consequences

Indirect impacts associated with the NCCU Station refinement would be the same as those described in the Combined FEIS/ROD for the D-O LRT Project for economic development, historic resources, and electromagnetic fields. The area around the NCCU Station refinement is moderately developed with single-family residential, commercial properties, and the NCCU

campus. Indirect impacts on visual and aesthetics, natural resources, and water resources are not anticipated.

Land Use

Development interests attracted to a new NCCU Station area in response to the transit investment may not be consistent with the current adopted *Durham Comprehensive Plan*, which calls for medium-density residential uses in this area. It is likely that the NCCU Station Refinement would result in a review and potential update of the future land use plan by the City of Durham to acknowledge the proposed station.

Acquisitions and Displacements

Indirect land use changes associated with the NCCU Station Refinement could result in acquisitions, relocations, and displacements for existing property owners and potentially for residents and business owners as a result of private development that may be induced by the project.

Gentrification and reduction in affordable housing is a potential effect of the NCCU Station Refinement. GoTriangle has engaged in substantial public involvement regarding this issue, and is a participant in the Coalition for Affordable Housing and Transit, with the goal of protecting existing affordable housing and create new affordable housing within station areas. With the

NCCU Station Refinement, this is a similar concern for the Alston Avenue and NCCU Station areas. Additionally, some indirect effect on land use could occur through additional residential density, which is higher than the medium density proposed in the Durham future land use plans. GoTriangle would mitigate this concern by working with the City of Durham to identify appropriate areas for increased densities, as described in section 3.2 (Land Use and Zoning).

The proposed D-O LRT Project will include commercial space within the parking deck at the proposed Alston Avenue Station and GoTriangle will work with the City of Durham to provide opportunities for local businesses to benefit from that space.

As a result of the mitigation commitments for potential direct project impacts included in the Combined FEIS/ROD and the coordination efforts identified in section 3.2, acquisitions, relocations, and displacements that could result as an indirect consequence of the NCCU Station Refinement are not anticipated to materially affect the availability of housing and business opportunities within the D-O Corridor.

Mitigation Measures

No specific mitigation measures are proposed to address indirect effects for



the NCCU Station Refinement. Development and operation of the project in accordance with all applicable guidelines and regulations, as well as mitigation commitments for direct effects, will reduce the indirect effects to levels that are less than substantial.

3.15.2 Cumulative Impacts

Cumulative impacts result from the incremental impact of an action when added to past, present, and reasonably foreseeable future actions. Cumulative impacts associated with the D-O LRT Project are discussed in DEIS section 4.17.2 for the following resources: parking, freight and passenger railroads, pedestrian and bicycle conditions, land use (community character), economic development, visual and aesthetic, habitat, water quality, and historic resources. Past, present, and reasonably foreseeable future actions considered in evaluating cumulative impacts on each resource are described in DEIS section 4.17.2.2.

Affected Environment

Past, present and reasonably foreseeable future actions that are relevant to the NCCU Station Refinement include:

- Opening of Durham Freeway in 1970

- Alston Avenue widenings performed by NCDOT:
 - 1971 between Price Avenue and NC 147
 - 2002 entire section of Alston Avenue between SR 1945 and NC 147
 - 2012 between Dayton Street and Cox Avenue
 - Current project underway to widen north of NC 147 (NCDOT Project U-3308)
- Roadway, transit, and bicycle and pedestrian improvement projects included in the NCDOT STIP, CAMPO and DCHC MPO 2040 MTP
- Implementation of the *Durham Comprehensive Plan* and NCCU campus master plan
- Public and private investment in commercial and industrial activity, and the planned expansion of major universities and medical facilities by 2040
- Federal, state, and local environmental protection legislation and projects

Environmental Consequences

The past, present and future projects identified above combine to result in cumulative effects due to prolonged construction activity and multiple rounds of property acquisition resulting in smaller lots along Alston Avenue. At the same time, there is increased mobility in the corridor resulting from multiple transportation investments.

The NCCU Station Refinement would not contribute to cumulative impacts on freight and passenger railroads, economic development, visual and aesthetics, habitat, water quality, or historic resources.

Parking

The NCCU Station Refinement would provide approximately 220 more parking spaces at the Alston Avenue Station park and ride lot and parking structure than the D-O LRT Project. The number of existing parking spaces to be displaced, less than 20, would continue to be small in the context of the total existing parking spaces available within the NCCU Station Refinement area.

Pedestrian and Bicycle Conditions

The NCCU Station Refinement would result in improved conditions for pedestrians and cyclists anticipated with the D-O LRT Project. Where sidewalks would be reconstructed, the new



sidewalks may be wider and would include ADA ramps in locations where they may not exist currently.

The NCDOT Alston Avenue widening project (STIP U-3308) is adding wide outside lanes from the NC 147 interchange to the north on Alston Avenue. The proposed D-O LRT Project will evaluate the potential for extending an on-street or off-street bicycle facility south of the NC 147 interchange to Lawson Street during Engineering. The cumulative effect would result in bicycle infrastructure on Alston Avenue between Lawson Street and Holloway Street (US 70 Business/NC 98).

Land Use (Community Character)

The Southeast Central Durham area was previously affected by the construction of NC 147 in the 1960’s, which divided residential neighborhoods located to the north and south of the highway. As a result, the Alston Avenue corridor has been affected several times by NCDOT projects to widen Alston Avenue. As noted above these past actions have resulted in negative effects and positive effects. Negative effects include disruption from ongoing construction activity and property acquisitions and reducing lot sizes along Alston Avenue. Positive effects include increased mobility in the corridor from transportation investments.

The NCCU Station Refinement area also has been and will continue to be impacted by expansion plans at NCCU. The 2007 Campus Master Plan calls for development of a business school, renovation of existing campus buildings, and acquisition and demolition of numerous private residences, among other improvements. As discussed in section 3.2 (Land Use and Zoning), Alston Avenue south of NC 147 and the NCCU Station area are included in the Urban Tier in Durham’s comprehensive plan. Current zoning and future land use in the area call for medium-density residential development (six to 12 units per acre) and institutional uses around NCCU.

In 2014, the Durham Housing Authority, in coordination with Southeast Central Durham residents, developed the *Southeast Central-McDougal Terrace Transformation Plan*, which calls for redevelopment and revitalization of public housing projects and underutilized property in the neighborhood, as well as improved access to jobs and public transportation.

The NCCU Station Refinement is expected to result in the following direct and indirect effects to land use:

- Acquisitions and displacements of residences and businesses along Alston Avenue to allow for widening

of Alston Avenue to accommodate the light rail trackway

- Pressure for increased density of development, particularly around the proposed stations
- Acquisitions and displacements resulting from indirect land use changes
- Gentrification and reduction in affordable housing

The direct and indirect effects of the NCCU Station Refinement, when considered in combination with other past, present, and reasonably foreseeable projects, would result in cumulative land use effects along Alston Avenue and in the NCCU Station area that would result in further changes to the character of the community along Alston Avenue.

Parcels along the west side of Alston Avenue that may have experienced partial acquisitions as part of previous widening projects along Alston Avenue would be fully acquired as part of the NCCU Refinement. The residences and businesses on these parcels would be demolished, and the parcels would be converted to transportation right of way.

As discussed under Indirect Impacts (section 3.15.1), the type of transit investment associated with the D-O LRT Project and NCCU Station Refinement



lead to pressure for increased density of development, particularly around station areas. This in turn leads to land use changes, acquisition and displacement of existing land uses, and replacement of less dense uses with higher density development. In the NCCU Station Refinement area, this higher density development is not reflected in current zoning or land use planning documents developed by the City of Durham.

Durham’s comprehensive plan was developed with the D-O LRT Project in mind and incorporates transit-supportive zoning at station areas, including the proposed Alston Avenue Station. However, because the NCCU Station was added to the project at a later date, the Durham City-County Planning Department has not revisited their planning program in light of the NCCU Station Refinement. It is anticipated that if the NCCU Station Refinement is approved, Durham City-County Planning Department will initiate a review of and potentially update its Comprehensive Plan to acknowledge the proposed NCCU Station and develop future land use recommendations for the area. Per Durham policies, if the plan is updated, the update process would be conducted with public and stakeholder input.

The NCCU Station Refinement may contribute to cumulative impacts on parking, pedestrian and bicycle

conditions, and land use. However, the NCCU Station Refinement is anticipated to result in positive effects on these resources including improved non-motorized connectivity and mobility, and the potential for more efficient long-term land use. These effects are consistent with potential cumulative effects identified for the D-O LRT Project as documented in the Combined FEIS/ROD.

Mitigation Measures

Mitigation commitments identified for direct impacts to bicycle and pedestrian conditions may enhance the cumulative benefits to non-motorized mobility and connectivity resulting from the D-O LRT Project and NCCU Station Refinement.

Potential cumulative land use changes, including redevelopment and densification, in the immediate vicinity of the NCCU Station Refinement are not consistent with Durham’s adopted comprehensive plan; however, they are supportive of the recent Transformation Plan for the neighborhood. To address inconsistencies with the adopted plan, GoTriangle will coordinate with Durham to evaluate potential updates to its future land use plan and station area infrastructure needs in the NCCU Station Refinement area.



Table 3-16: Summary of Impacts of Proposed Project Changes, NCCU Station Refinement

Impact Category	Impacts as Initially Disclosed in Combined FEIS/ROD (February 2016)	New Impacts	Change in Impacts
Transportation			
Public Transportation	<ul style="list-style-type: none"> 23,020 average weekday light rail boardings in 2040 (considered to be beneficial). The D-O LRT Project would offer end-to-end travel time of 42-44 minutes. 	<p>The NCCU Station Refinement is forecast to add 3,860 average weekday light rail boardings.</p>	<p>The NCCU Station Refinement would result in:</p> <ul style="list-style-type: none"> 26,880 average weekday light rail boardings in 2040. Connections to existing GoDurham Routes 8 and 12 and to future GoDurham Route 53. End-to-end travel time of 44-46 minutes. The NCCU Station Refinement would result in no impacts to public transportation. The mitigation commitments identified in the Combined FEIS/ROD for public transportation would be applicable and appropriate for the NCCU Station Refinement.
Roadways	<ul style="list-style-type: none"> Traffic delays and queues at some intersections, resulting in traffic impacts at five intersections. Introduction of new at-grade intersections and train operations along NC 54 with potential to cause roadway delays and intersection queues at intersections including: <ul style="list-style-type: none"> Barbee Chapel Road Littlejohn Road Downing Creek Parkway Roadway safety from introduction of new at-grade intersections and train operations. Conversion of driveways on Erwin Road to right-in/right-out, resulting in impacts to the Crest Street Neighborhood. 	<ul style="list-style-type: none"> The NCCU Station Refinement would result in minor increases in traffic at the Grant Street/Pettigrew Street, Linwood Avenue/Alston Avenue, and Lawson Street/Alston Avenue intersections in the study area. The NCCU Station Refinement would introduce new at-grade intersections and train operations (at Pettigrew Street just east of Grant Street and at Alston Avenue/Linwood Street). Roadway safety from introduction of two new at-grade crossings. Conversion of Massey Avenue, Price Avenue, Fleetwood Street, Cox Avenue, and Dupree Street on Alston Avenue to right-in/right-out. 	<ul style="list-style-type: none"> Impacts to roadways for the NCCU Station Refinement would generally be the same as those described in the Combined FEIS/ROD for the D-O LRT Project, but would extend these impacts to a new area. The mitigation commitments identified in the Combined FEIS/ROD for roadways would be applicable and appropriate for the NCCU Station Refinement.
Parking	<ul style="list-style-type: none"> Removal of 545 parking spaces from existing parking facilities at proposed stations and along the alignment, after 	<ul style="list-style-type: none"> The NCCU Station Refinement would result in the removal of 16 on-street and 10 off-street spaces (with 8 of the off- 	<ul style="list-style-type: none"> Removal of 563 parking spaces from existing parking facilities at proposed stations and along the alignment, after mitigation.



Table 3-16: Summary of Impacts of Proposed Project Changes, NCCU Station Refinement

Impact Category	Impacts as Initially Disclosed in Combined FEIS/ROD (February 2016)	New Impacts	Change in Impacts
	mitigation.	street spaces being replaced after mitigation).	<ul style="list-style-type: none"> The loss of on- and off-street parking spaces has been minimized to the extent practicable. No additional mitigation measures are required.
Freight and Passenger Railroads	No direct impacts on the daily rail operations for freight or passenger rail service	The NCCU Station Refinement would add 0.7 miles of new track in a dedicated right-of-way, all of which would be outside of the existing railroad right-of-way.	<ul style="list-style-type: none"> There would be no change in impacts to freight or passenger rail service as a result of the NCCU Station Refinement. Therefore, mitigation is not required for the implementation of the NCCU Station Refinement; however, coordination with NCRR, NS, and NCDOT Rail Division will continue through design and construction for use of the NCRR right-of-way.
Airports	No direct impacts to airport-owned property, portions would be located within the 5 mile protection zone.	No direct impacts to airport-owned property. The NCCU Station Refinement is located outside of the 5,000/10,000 foot protection zones but would be located within the 5 mile protection zone.	<ul style="list-style-type: none"> There would be no change in impacts to airport protection zones a result of the NCCU Station Refinement. Therefore, mitigation is not required for the implementation of the NCCU Station Refinement.
Pedestrian and Bicycle Facilities	<ul style="list-style-type: none"> Improvements including bicycle amenities at stations reconstructed and enhanced sidewalks and crosswalks. Would result in 80 pedestrian and bicycle facility crossings of which 48 would be at-grade, bicycle lanes on some roads would not be accommodated. 	<ul style="list-style-type: none"> The DCHC 2040 MTP calls for 4-foot bike lanes on Pettigrew Street and Alston Avenue; however, these planned bicycle lanes are not included in the proposed reconstruction of those roadways with the NCCU Station Refinement due to constraints on the further widening of those roads. Both the reconfigured Alston Avenue Station and the NCCU Station would include bicycle parking at stations and improved sidewalks and cross walks, including pedestrian refuge on Alston Avenue at Lawson Street. There would be a 77 total pedestrian and bicycle facility crossings; 45 at-grade. 	<ul style="list-style-type: none"> The NCCU Station Refinement would have one new at-grade crossing of existing and planned pedestrian and bicycle infrastructure, but would eliminate four at-grade crossings (one would be converted to an elevated crossing) and one elevated crossing as compared to the D-O LRT Project described in the Combined FEIS/ROD. To mitigate this loss of opportunity for on-street bicycle facilities on Alston Avenue, GoTriangle will work with the City of Durham, NCDOT, and local advocates to identify the potential for off-street facilities or on-street facilities on parallel or nearby roadways. This mitigation is consistent with the Combined FEIS/ROD. No additional mitigation measures are required.



Table 3-16: Summary of Impacts of Proposed Project Changes, NCCU Station Refinement

Impact Category	Impacts as Initially Disclosed in Combined FEIS/ROD (February 2016)	New Impacts	Change in Impacts
Environment			
Land Use and Zoning	<p>No impacts anticipated: consistent with Local Planning Efforts. The D-O LRT Project would result in a conversion of lower density land uses to higher density and mixed-use land uses (considered to be beneficial).</p>	<p>The NCCU Station Refinement may result in a conversion of lower density land uses to institutional. Existing zoning and future land use in the vicinity of the NCCU Station Refinement are primarily medium density residential (six to 12 units per acre) and institutional (NCCU campus). These uses are transit-supportive but would not allow for higher density uses that would be expected to develop at other proposed stations along the D-O LRT Project. The Durham City-County Planning Department may choose to make updates to its future land use plan to incorporate Compact Neighborhood policies in this area to allow more transit-oriented land use changes around the proposed NCCU Station.</p>	<ul style="list-style-type: none"> • The NCCU Station Refinement may result in expansion of the University's northeast corner in the vicinity of the proposed NCCU Station. • GoTriangle will commit to work with Durham City-County Planning to prioritize land use planning for this new station area. Land use plans will help to identify future land uses and densities based on community input. • Durham City-County Planning may work with the community to identify the most appropriate current and future land use classifications, based on community input. These land use plans could include preservation of established neighborhoods to ensure that induced growth and densities do not encroach on established neighborhoods or community cohesion. • Impacts would be addressed by mitigation measures included in the Combined FEIS/ROD. No additional mitigation measures are required.
Socioeconomic and Demographic Conditions	<ul style="list-style-type: none"> • Due to the acquisition of private property to implement the D-O LRT Project, there would be a reduction in the property tax base for Durham and Orange Counties of \$55.9 million. • The D-O LRT Project would result in demand effects in terms of full-time employment and labor costs and earnings that would introduce approximately 480 incremental full-time equivalent jobs and \$22.9 million (2015 dollars) in labor costs and earnings. 	<ul style="list-style-type: none"> • Additional acquisition of private property to implement the NCCU Station Refinement would result in an overall reduction in the property tax base for Durham and Orange Counties of \$57.6 million. • There would be a total of 495 incremental full-time equivalent jobs and \$23.8 million (2015 dollars) in labor cost and earnings. 	<ul style="list-style-type: none"> • The NCCU Station Refinement would further reduce the property tax base by \$1,735,000 for Durham County directly resulting from acquisition of land for the project. The NCCU Station Refinement would be expected to add an additional 15 full-time equivalent jobs and \$750,000 in labor costs and earnings above what was presented in the Combined FEIS/ROD. • Mitigation measures identified in the Combined FEIS/ROD are adequate and applicable for the change in property tax base.



Table 3-16: Summary of Impacts of Proposed Project Changes, NCCU Station Refinement

Impact Category	Impacts as Initially Disclosed in Combined FEIS/ROD (February 2016)	New Impacts	Change in Impacts
Neighborhoods and Community Resources	<ul style="list-style-type: none"> Impacts to access and mobility and community resources in some places. Improves mobility and access for communities and to community facilities. 	<ul style="list-style-type: none"> The NCCU Station Refinement would affect access and mobility due to the conversion of numerous intersections along Alston Avenue to right-in and right-out access only; however, the existing grid street network would still provide convenient access to the affected neighborhoods. With the proposed NCCU Station Refinement, neighborhoods and community resources in the study area, including NCCU and DTCC, would benefit from enhanced access to transit and the resulting increased mobility and connectivity associated with implementation. 	<ul style="list-style-type: none"> Impacts to neighborhoods and community resources for the NCCU Station Refinement would generally be the same as those described in the Combined FEIS/ROD for the D-O LRT Project, but would extend these impacts to a new area. Impacts would be addressed by mitigation measures included in the Combined FEIS/ROD. No additional mitigation measures are required.
Visual Resources and Aesthetics	<p>The D-O LRT Project would have low-moderate visual impacts in Landscape Unit #10. Landscape Unit #10: Urban Industrial (East Durham) included the easternmost portion of the D-O LRT Project viewshed, including the proposed Alston Avenue Station area. D-O LRT Project would introduce new visual elements to the viewshed. These new elements could negatively affect visually sensitive resources by altering the view to and/or from the resource, or by adding an element that would be out of scale or character with the existing visual context.</p>	<p>The NCCU Station Refinement would change impact of Landscape Unit #10 and add Landscape Unit #11.</p> <ul style="list-style-type: none"> For the NCCU Station Refinement, visual impacts in Landscape Unit #10 would be moderate. This is a change from the visual impacts identified in the Combined FEIS/ROD for Landscape Unit #10 for the D-O LRT Project, which were expected to be low-moderate. This change is due to the addition of a multi-story parking structure on the property adjacent to the Durham Water Tower and Valve House, a National Register resource. Visual impacts for the NCCU Station Refinement for Landscape Unit #11 	<ul style="list-style-type: none"> The NCCU Station Refinement would result in moderate visual impacts in Landscape Units #10 and #11. Potential mitigation options for locations where impacts occur are described in the Combined FEIS/ROD Table ROD-1. As potential impacts of the NCCU Station Refinement on visual resources are similar in type and magnitude to those disclosed in the Combined FEIS/ROD, no additional mitigation measures are required.



Table 3-16: Summary of Impacts of Proposed Project Changes, NCCU Station Refinement

Impact Category	Impacts as Initially Disclosed in Combined FEIS/ROD (February 2016)	New Impacts	Change in Impacts
		would be moderate. No visual impacts to this area were anticipated with the D-O LRT Project, as the project did not extend into this area.	
Cultural, Historic and Archaeological Resources	<ul style="list-style-type: none"> • Preliminary determination of no adverse effects. • Indirect impacts to 13 of 25 architectural historic properties within APE. 	The NCCU Station Refinement would add an eight-story parking structure on the GoTriangle-owned property immediately west of the Durham Water Tower's eligible boundary. Preliminary determination of no adverse effect on the Durham Water Tower and Valve House (DH-3508).	<ul style="list-style-type: none"> • The NCCU Station Refinement would result in the relocation of parking structure, and an increase in height of the parking structure now located adjacent to the Durham Water Tower. • The mitigation commitments identified in the Combined FEIS/ROD would be applicable and appropriate for the NCCU Station Refinement. • FTA and GoTriangle will seek concurrence from the SHPO that there will be no adverse effect on any historic property, provided that no structures on the east side of the parking garage will rise above the 60-foot level of the garage. A signed concurrence form will document the agencies' agreement.
Parklands and Recreational Areas	Direct impacts to 5 parks (13.3 acres), elevated crossings of an open space resource and trails.	The proposed NCCU Station Refinement does not directly affect any public parklands, greenways, trails, recreation areas or Section 6(f) resources existing or planned.	<ul style="list-style-type: none"> • The NCCU Station Refinement would result in no impacts to parklands and recreational areas and Section 6(f). • The mitigation commitments identified in the Combined FEIS/ROD for parklands, recreational areas and Section 6(f) would be applicable and appropriate for the NCCU Station Refinement.
Natural Resources	Under the D-O LRT Project: <ul style="list-style-type: none"> • Approximately 316 acres of habitat would be impacted. • Approximately 220 acres of maintained/disturbed terrestrial community would be converted to a transportation use. • No significant adverse impacts to 	The NCCU Station Refinement would convert approximately 18 acres of habitat (maintained/ disturbed terrestrial community) to transportation use. Of the three federally protected species listed for Durham County, Michaux's sumac and the northern long-eared bat have the potential to occur within the NCCU Station Refinement study area.	Under the NCCU Station Refinement: <ul style="list-style-type: none"> • Approximately 334 acres of habitat would be impacted. • Approximately 238 acres of maintained/disturbed terrestrial community would be converted to a transportation use. • No significant adverse impacts to terrestrial or aquatic wildlife anticipated.



Table 3-16: Summary of Impacts of Proposed Project Changes, NCCU Station Refinement

Impact Category		Impacts as Initially Disclosed in Combined FEIS/ROD (February 2016)	New Impacts	Change in Impacts
		terrestrial or aquatic wildlife anticipated. <ul style="list-style-type: none"> No significant impacts to federal or state-listed threatened or endangered species anticipated. No impacts to farmland. 		<ul style="list-style-type: none"> No significant impacts to federal or state-listed threatened or endangered species anticipated. No impacts to farmland. The mitigation commitments identified in the Combined FEIS/ROD would be applicable and appropriate for the NCCU Station Refinement. No additional mitigation measures are required.
Water Resources	Groundwater	No impacts anticipated	None	No change; updated Notice of Jurisdictional Determination received from USACE on October 19, 2016.
	Streams	Impacts to 3,413 linear feet (0.438 acre) of streams	None	
	Wetlands	Impacts to 0.558 acre of wetlands	None	
	Riparian Buffer Zone 1	Impacts to 216,455 square feet (4.97 acres) of Riparian Buffer Zone 1	None	
	Riparian Buffer Zone 2	Impacts to 178,517 square feet (4.10 acres) of Riparian Buffer Zone 2	None	
	Open Water/ Ponds	Impacts to 0.005 acre of open water/ponds	None	
	100-Year Floodplain	Impacts to 6.420 acres of 100-Year Floodplain	None	
	500-Year Floodplain	Impacts to 0.378 acre of 500-Year Floodplain	None	
	Floodway	Impacts to 0.880 acre of Floodway	None	
Air Quality		No impacts anticipated: no violations of the 1-hour or 8-hour NAAQS for CO are expected.	None	<ul style="list-style-type: none"> The NCCU Station Refinement would result in no impacts to air quality. No mitigation commitments were identified in the Combined FEIS/ROD for air quality and none are required for the NCCU Station Refinement.
Noise and Vibration		One severe noise impact, 4 moderate noise impacts, 8 vibration impacts, and 13 ground-borne noise impacts.	One severe noise impact, 4 moderate noise impacts, 10 vibration impacts, and 16 ground-borne noise impacts.	<ul style="list-style-type: none"> The NCCU Station Refinement would add two vibration and three ground-borne noise impacts to the D-O LRT Project. Mitigation commitments made in the Combined FEIS/ROD, including conducting a detailed vibration analysis during the Engineering phase to further evaluate geotechnical conditions and more



Table 3-16: Summary of Impacts of Proposed Project Changes, NCCU Station Refinement

Impact Category	Impacts as Initially Disclosed in Combined FEIS/ROD (February 2016)	New Impacts	Change in Impacts
			<p>precisely predict the vibration effects of the proposed light rail system on area receptors and implementing vibration mitigation measures consisting of special track support systems, resilient fasteners, ballast mats, resiliently supported ties, and floating slabs are applicable to the NCCU Station Refinement area. Implementation of these mitigation measures is anticipated to reduce the vibration and ground-borne noise impacts below the level of significant impact. These mitigation measures are adequate and applicable; therefore, no additional mitigation is required.</p>
Hazardous Materials	Chance of disturbing 41 high risk sites, 83 medium risk sites within 500 feet of D-O LRT Project.	Chance of disturbing 45 high risk sites and 86 medium risk sites within 500 feet of D-O LRT Project with the NCCU Station Refinement.	<ul style="list-style-type: none"> The NCCU Station Refinement would result in one reclassification from medium to high (not added to the total) and seven newly listed or reclassified sites. Two sites upgraded from low to medium, and one site upgraded from low to high. Additionally, four new sites (two medium and two high risk) would also be included. Mitigation measures identified in the Combined FEIS/ROD are adequate and applicable for the reclassified and new sites identified.
Safety and Security	Minimal impacts anticipated: potential safety hazards at stations, light rail vehicles, park-and-ride facilities, impacts to police, security, and emergency service operations.	The NCCU Station Refinement would include a new area in which the light rail system would operate between opposing directions of street traffic, two new at-grade intersections between motorists and the light rail system at Pettigrew Street and Alston Avenue at Linwood Avenue, and a new station platform at NCCU. The number of at-grade crossings of the light rail with pedestrian and bicycle facilities would be reduced from the D-O LRT Project as a	<ul style="list-style-type: none"> The NCCU Station Refinement would result in minimal impacts to safety and security. The mitigation commitments identified in the Combined FEIS/ROD for safety and security would be applicable and appropriate for the NCCU Station Refinement.



Table 3-16: Summary of Impacts of Proposed Project Changes, NCCU Station Refinement

Impact Category	Impacts as Initially Disclosed in Combined FEIS/ROD (February 2016)	New Impacts	Change in Impacts
		result of the reorientation of the Alston Avenue Station; however, the NCCU Station would be located in the median of Alston Avenue, which would introduce a conflict for pedestrians and bicyclists crossing vehicular traffic to access the station.	
Energy	No impacts anticipated: annual energy savings of 83 billion BTUs compared to the No Build Alternative.	The NCCU Station Refinement would add to the energy savings anticipated for the D-O LRT Project, resulting in a total annual energy savings of 218 billion BTUs compared to the No Build Alternative.	<ul style="list-style-type: none"> Additional annual energy savings of 135 billion BTUs compared to D-O LRT as a result of reduced VMT and increased transit ridership.
Acquisitions, Displacements, and Relocations	Acquisitions, relocations, and displacements include 92 potential full acquisitions, 138 potential partial acquisitions, and 65 displacements.	Acquisitions, relocations, and displacements include 126 potential full acquisitions, 143 potential partial acquisitions, and 88 displacements.	<ul style="list-style-type: none"> The NCCU Station Refinement would result in 34 new full acquisitions (including one that was a partial), 5 new partial acquisitions, and 23 additional displacements. The mitigation commitments identified in the Combined FEIS/ROD would be applicable and appropriate for the NCCU Station Refinement, and no additional mitigation would be required.
Utilities	Potential impacts to 85 miles of utility lines. Potential impacts to the cell tower on the Farrington Road ROMF site.	Potential impacts to 87 miles of utility lines.	<ul style="list-style-type: none"> Potential impacts to 2 additional miles of utility lines. Impacts to existing utilities and provision for new utility services for the NCCU Station Refinement would generally be the same as those described in the Combined FEIS/ROD for the D-O LRT Project, but would extend these impacts to a new area. The mitigation commitments identified in the Combined FEIS/ROD would be applicable and appropriate for the NCCU Station Refinement, and no additional mitigation would be required.
Construction	Temporary impacts to: <ul style="list-style-type: none"> Transportation, traffic, and parking Access for residents and businesses 	The same types of temporary impacts would be expected for the NCCU Station Refinement as were shown for the D-O LRT	<ul style="list-style-type: none"> The NCCU Station Refinement would result in impacts of the same type and magnitude, as the same construction techniques will be used over a



Table 3-16: Summary of Impacts of Proposed Project Changes, NCCU Station Refinement

Impact Category	Impacts as Initially Disclosed in Combined FEIS/ROD (February 2016)	New Impacts	Change in Impacts
	<ul style="list-style-type: none"> • Neighborhood and community resources • Visual and aesthetics • Historic and archaeological resources • Water resources • Air quality • Noise and vibration • Hazardous, contaminated, and regulated materials • Safety and security • Utilities 	<p>Project, as the same construction techniques will be used to construct the additional guideway and station.</p>	<p>slightly longer corridor. Monitoring of vibration impacts during construction are recommended to be conducted on the historic water tower and valve house located on Pettigrew Street east of the proposed Alston Avenue Station parking garage.</p> <ul style="list-style-type: none"> • Other mitigation commitments identified in the Combined FEIS/ROD for construction would be applicable and appropriate for the NCCU Station Refinement. No additional mitigation measures are required.
Indirect and Cumulative	<p>The study area is already developed, and the overall change from the presence of the light rail or induced development would be tempered as it runs through an urban and/or suburban corridor. Indirect and Cumulative impacts generally are not expected. However, some could result in the following resource areas:</p> <ul style="list-style-type: none"> • The implementation of LRT could have indirect effects on a historic property, such as changing the property's setting by adding a transportation facility or other new building or increasing the density of the area. • Acquisitions, relocations, and displacements that could result as an indirect consequence of the D-O LRT Project are not anticipated to materially affect the availability of housing and business opportunities within the D-O Corridor. 	<p>The NCCU Station Refinement may contribute to indirect impacts to land use due to new growth that may not be consistent with the current adopted Durham Comprehensive Plan, which calls for medium-density residential uses in this area. The NCCU Station Refinement may contribute to cumulative impacts on parking, pedestrian and bicycle conditions, and land use. However, the impacts are anticipated to result in positive effects on these resources, improved regional connectivity, and more efficient land use. These effects are consistent with potential cumulative effects identified for the D-O LRT Project as documented in the Combined FEIS/ROD.</p>	<ul style="list-style-type: none"> • The NCCU Station Refinement would result in similar levels of indirect impacts on land use compared to the D-O LRT Project. • The NCCU Station Refinement would result in similar levels of cumulative impacts on parking, pedestrian and bicycle conditions, and land use, compared to the D-O LRT Project. • GoTriangle will commit to work with Durham City-County Planning to prioritize land use planning for this new station area. Land use plans will help to identify future land uses and densities based on community input. • Durham City-County Planning may work with the community to identify the most appropriate current and future land use classifications, based on community input. No other mitigation would be required.

Source: AECOM 2016.



4

Section 4(f) Evaluation

This Draft Section 4(f) Evaluation has been prepared to comply with the United States Department of Transportation (USDOT) Act of 1966 (23 U.S.C. § 138 and 49 U.S.C. § 303), hereinafter referred to as “Section 4(f),” and its implementing regulations codified at 23 C.F.R. Part 774. Additional guidance was obtained from FHWA Technical Advisory T6640.8A (FHWA 1987b) and the revised FHWA Section 4(f) Policy Paper (FHWA 2012).

This Section 4(f) Evaluation was prepared using the methodology described in chapter 6 of the DEIS and incorporates by reference all definitions related to Section 4(f) Uses,

Temporary Occupancy Exception, De Minimis Impacts, and Constructive Use.

The Project Description for the NCCU Station Refinement is provided in section 2.2 of this Supplemental EA.

This section evaluates whether the NCCU Station refinement will result in any new uses of Section 4(f) property.

4.1 Section 4(f) Properties

An existing bicycle and pedestrian path that connects with the R. Kelly Pedestrian Bridge is located on the east side of Alston Avenue, south of the planned parking garage property owned by GoTriangle.

There are no other publicly-owned park, recreation, or wildlife or waterfowl refuges within 250 feet of the NCCU Station Refinement that meet the criteria for protection as a Section 4(f) property.

There is one Section 4(f) historic property in the Area of Potential Effects of the NCCU Station Refinement. The Durham Water Tower and Valve House, located at 1318 East Pettigrew Street was determined eligible for National Register of Historic Places (NRHP) listing in 2015 by the FTA under Criterion A and Criterion C, which qualifies it for protection under Section 4(f).

Section 4(f) resources are shown on **Figure 4-1**.

4.2 Preliminary Section 4(f) Determination

The NCCU Station Refinement would not involve any new use of Section 4(f) properties.

4.2.1 R. Kelly Pedestrian Bridge Connecting Pedestrian/Bicycle Path

This path is an existing pedestrian/bicycle connection (as described in appendix K.12 of the DEIS) owned by the City of Durham. This path provides a connection between an existing Section 4(f) resource – the Bryant Bridge Trail, and a planned Section 4(f) resource – the planned Bryant Bridge Trail Extension (both located two blocks to the east of the proposed NCCU Station Refinement alignment and outside of the area of effect for the NCCU Station Refinement). The path currently exists in an urban environment directly adjacent and perpendicular to Alston Avenue.

No temporary or permanent easements or property acquisition would be required from this property and therefore, there would be no direct use of the property.

All construction would be confined to the GoTriangle-owned proposed parking garage property to the north, along Alston Avenue, and the Alston Avenue Station area to the west. Access would be maintained and the user experience would not be substantially impaired by noise, visual, or other effects. Since there are no proximity effects, no constructive use of the resource would occur.

4.2.2 Durham Water Tower and Valve House

The NCCU Station Refinement would not require the acquisition of property or any easements within the NRHP-eligible boundary of the water tower. The NCCU Station Refinement has been designed to avoid taking any property located within the water tower's National Register boundaries. Therefore, no direct use, either temporary or permanent, of this property would occur.

The NCCU Station Refinement would add an eight-story parking structure on the GoTriangle-owned property immediately west of the Durham Water Tower's eligible boundary. The garage is expected to rise no more than 60 feet above Pettigrew Street and would have a permanent visual effect on the tower, particularly when viewed from west of Alston Avenue.

The tower and the NCCU Station Refinement are within an urban setting characterized by industrial and transportation-related buildings and smaller single-family residences. At 145 feet tall, the water tower would remain the dominant visual feature of the surrounding area.

The design of the parking deck will be completed in such a way that no stairwells or other structures would rise above the 60-foot height on the eastern side of the structure to further obstruct the view of the tower.

Given the current setting of the historic property and the tower and valve house's



industrial character, the FTA has made a preliminary determination that the NCCU Station Refinement would result in no adverse effect on the this NRHP-eligible property under Section 106 of the National Historic Preservation Act.

The FTA has made a preliminary determination that the NCCU Station Refinement would not substantially impact the eligibility criteria for listing the Durham Water Tower and Valve House on the National Register of Historic Places that qualify the property for Section 4(f) protection. Therefore, the NCCU Station Refinement does not create a use of the Durham Water Tower and Valve House.

This mitigation commitment remains applicable to the path and would be implemented as part of the D-O LRT Project.

FTA and GoTriangle will seek concurrence from the SHPO that there will be no adverse effect on any historic property, provided that no structures on the east side of the parking garage will rise above the 60-foot level of the garage. A signed concurrence form will document the agencies' agreement.

4.3 Mitigation Measures

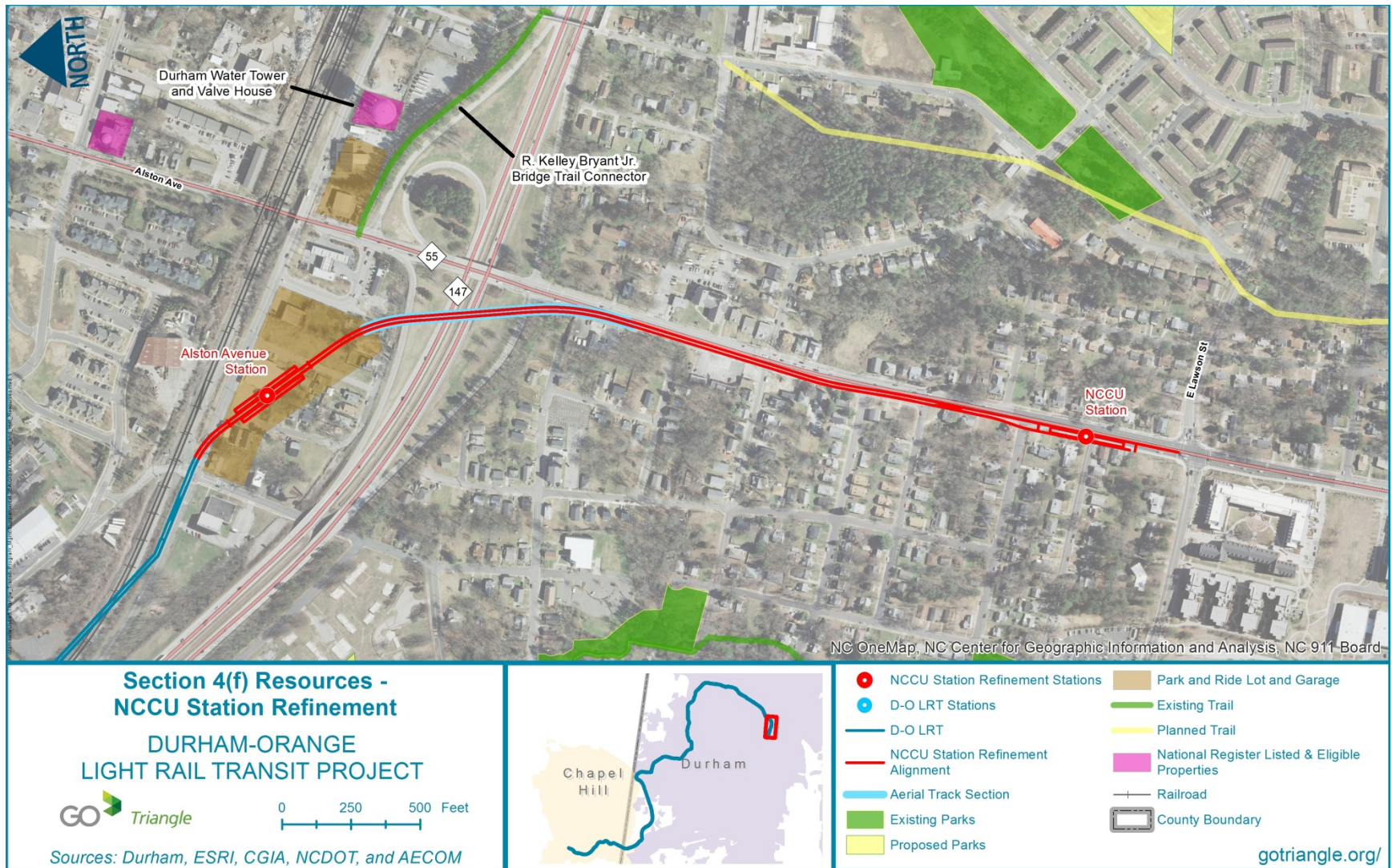
The NCCU Station Refinement does not involve any new use of Section 4(f) properties.

The Combined FEIS/ROD identified the following mitigation commitment for the City of Durham path connecting between Alston Avenue and the Bryant Bridge Trail:

- Design and implement a sidewalk or multi-use path connection from the proposed Alston Avenue station to the existing R. Kelly Bryant Jr. Pedestrian Bridge in consultation with the City of Durham, NCDOT, the Durham Bicycle and Pedestrian Advisory Commission, and representatives from the Alston Avenue neighborhood.



Figure 4-1: NCCU Station Refinement Section 4(f) Resources



5

Environmental Justice

This chapter assesses the effects of the NCCU Station Refinement on Environmental Justice (EJ) populations. The documentation was prepared in accordance with Executive Order (EO) 12898; Department of Transportation Order 5610.2(a); and FTA Circular 4703.1 and using the same methodologies described in the Combined FEIS/ROD.

5.1 Methodology

Concentrations of minority and low-income populations in the study area were identified through analysis of the 2010 U.S. Census data and American Community Survey (ACS) five-year data (2007-2011) at both the county and block group level. The individual block group data were compared to the respective countywide data to determine whether any of the block groups would qualify as “EJ area” or “non-EJ area” within the study area. Consistent with the Combined FEIS/ROD, the study area for the NCCU Station Refinement is defined as the area located within ¼-mile on either side of the proposed alignment, and within ½-mile of proposed stations. An “EJ area” was defined to include any block group in which the minority or low-income population meets either of the following thresholds:

- The minority or low-income population in the block group exceeds 50 percent.
- The percentage of a minority or low-income population in the affected area is meaningfully greater than the lowest percentage in the respective county.

For this project, it was determined that the minority or low-income population is “meaningfully greater” than the average in the surrounding jurisdictions if it is higher than the average for Durham County. The overall percentage of minorities in Durham County is 57 percent, and the low-income population in Durham County is 26 percent.

The effort to identify EJ populations was supplemented by the extensive public outreach GoTriangle conducted as part of the project.

In Final Circular 4703.1, the FTA advises that a small minority or low-income population in the study area does not eliminate the possibility of a disproportionately high and adverse effect on these populations. Therefore, while the analysis of potential disproportionately high and adverse effects focused on areas with high concentrations of EJ population, the analysis considered whether there would be disproportionately high and adverse effects on minority and low-income populations in all block groups within the study area.

5.2 Affected Environment

As shown in **Table 5-1**, in East Durham, where the NCCU Station Refinement is proposed, 93 percent of the population is minority and 64 percent is living below the poverty level (low-income). The NCCU

Station Refinement study area includes additional portions of three block groups that were not part of the study area for the Combined FEIS/ROD. Of the 84 block groups in the refined East Durham Evaluation Area, 37 (44 percent) have higher concentrations of EJ populations than the county averages.

Figure 5-1 provides a block group map of the NCCU Station Refinement study area, indicating the expanded area. **Table 5-1** provides the total population, minority and low-income populations in each block group, within the NCCU Station Refinement study area.

Table 5-1: Summary of Minority and Low-Income Populations (East Durham)

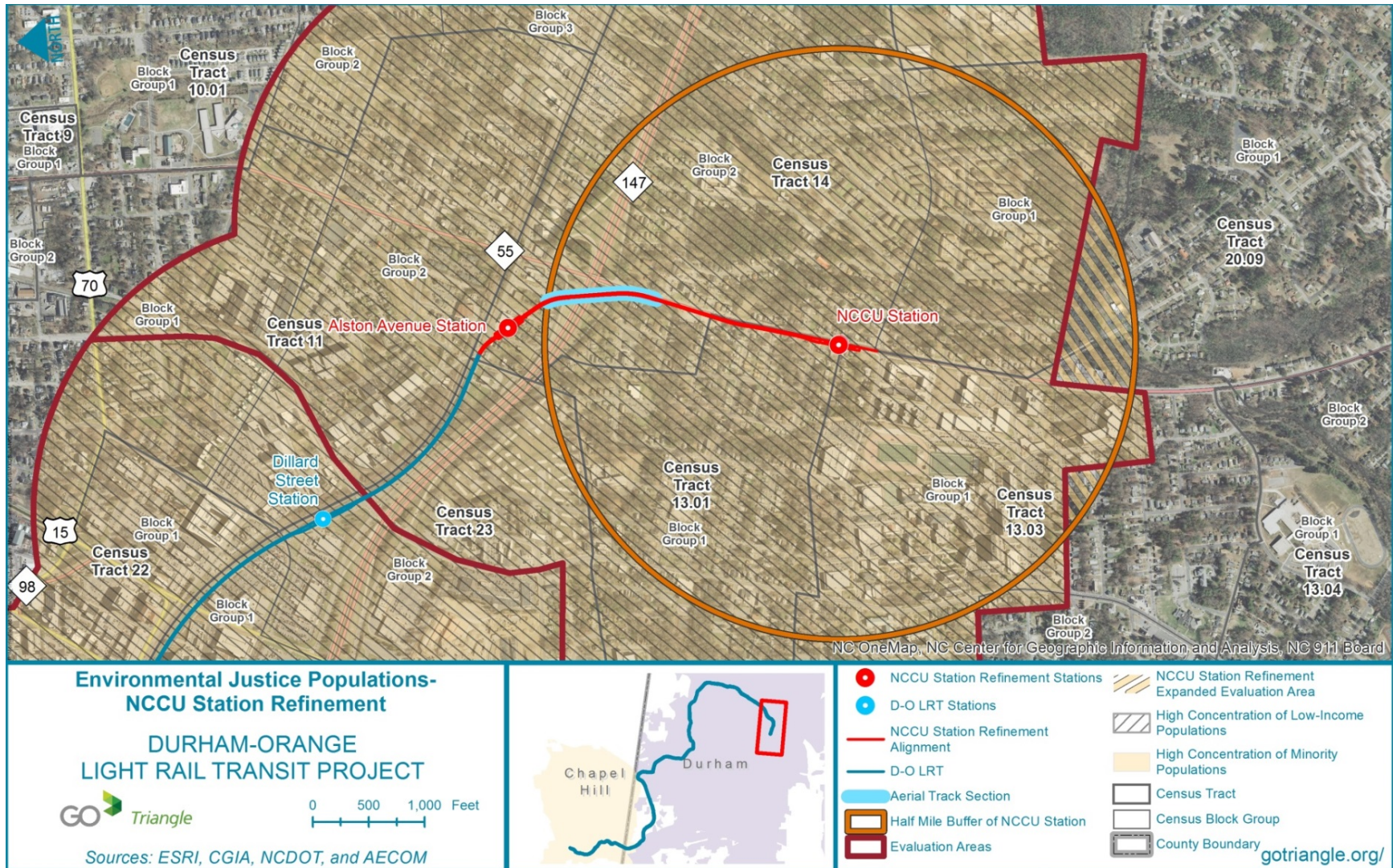
Geography	Total Population	% Minority Population	% Below Poverty
D-O LRT Project – East Durham Evaluation Area	8,500	94%	64%
NCCU Station Refinement – East Durham Evaluation Area	8,700	93%	64%
Combined FEIS/ROD – Full Study Area	60,300	51%	43%
Durham County	263,900	57%	26%

Source: US Census Bureau, American Community Survey 5-year Estimates (2007-2011) Block Group data.

Note: Population numbers have been rounded to the nearest hundred to reflect that these are estimates.



Figure 5-1: Environmental Justice Populations



Outreach to EJ Populations

GoTriangle has conducted a robust public outreach program with an emphasis on interaction and communication with EJ populations as a key element of the proposed D-O LRT Project and NCCU Station Refinement. The engagement of local residents, business owners, and other stakeholders began with scoping (2012) and is on-going. The outreach program was conducted in accordance with the *D-O LRT Project Public Involvement Plan*, EO 12898, and guiding principles contained in FTA Circular 4703.1.

Outreach efforts are described in detail in chapter 6.

Feedback Received from EJ Communities

Based on feedback received from EJ communities on the NCCU Station Refinement, there is general support for extending the D-O LRT project to NCCU, with increased mobility and access to jobs and the NCCU campus as noted benefits. As detailed in the tables in **section 6**, questions and comments received from EJ outreach meetings and public open house events include the following:

- Interest in future plans or extensions/connections beyond the

NCCU terminal, as well as connections to the bus network

- Questions/concerns over traffic impacts
- Questions about the property acquisition process, and the timing and number of acquisitions
- Concern for the project’s potential to affect property values
- Questions about the overall project timeline, duration of construction, and opening year of service
- Questions about alignment details for Alston Avenue, including how the roadway would be widened – specifically property owners that would be affected by the widening inquired if it could be widened bi-laterally
- Questions about fare monitoring

Questions regarding changes/modifications to the Alston Avenue station.

5.3 Environmental Consequences

This section will describe any new impacts that would be associated with the NCCU Station Refinement. Similar to the D-O LRT Project, the NCCU Station Refinement would improve accessibility for all communities, including low-income and

minority populations. Overall, the potential impacts would be minimal compared with the proposed project’s benefits, which would include improvements to connectivity and mobility; access to jobs, services, education, and entertainment; pedestrian and bicycle conditions; access to transit; and reliability in transit service. In those areas where stations are proposed, there is the potential for economic opportunities through associated development.

Table 5-3 provides a summary of the potential long-term impacts of the D-O LRT Project and the NCCU Station Refinement. Only those resources that would be affected are listed.

The NCCU Station Refinement would have the following effects on specific resources in EJ areas:

- Access changes along Alston Avenue from conversion of five streets to right-in right-out access only
- Improved connectivity between neighborhoods located north and south of NC 147 that were separated by the construction of the highway



Table 5-2: Summary of Environmental Impacts

- Visual impacts in the Alston Avenue Station area from a new parking garage
- Access changes and visual impacts for the Russell Memorial Christian Methodist Episcopal Church and Child Development Center (daycare)
- Three ground-borne noise and two vibration impacts
- Residential and commercial acquisitions and displacements in the Alston Avenue Station area and along Alston Avenue
- Indirect and cumulative impacts to land use in the Southeast Central Durham neighborhood, including indirect effects associated with potential gentrification and reduction in affordable housing opportunities

Resource	Impact of NCCU Station Refinement
Parking Facilities	Loss of 16 on-street parking spaces; reconfiguration and relocation of Alston Avenue parking garage with 1,200 additional spaces
Pedestrian and Bicycle Facilities	Loss of opportunity for on-street bicycle facilities on Alston Avenue
Access and Mobility	Generally an improvement to access and mobility for EJ communities around the NCCU Station area; five roadway intersections would be converted to right-in right-out access only.
Land Use	Land uses around NCCU station could promote higher density residential not currently indicated in Durham's future land use plans.
Community Cohesion	Increased connectivity between neighborhoods north and south of NC 147 previously separated by the construction of the highway.
Employment	Minor increase of 15 full time equivalent jobs in the region
Community Facilities	Improved access to community facilities; impacts to John Avery Boys and Girls Club
Visual and Aesthetic	Change from low-moderate to moderate visual impacts in Landscape Unit #10 from introduction of multi-story parking garage east of Alston Avenue; new moderate visual impacts in Landscape Unit #11
Vibration	Three impacts: 3 ground-borne noise impacts 2 of which also would have vibration impacts.
Safety and Security	At-grade crossings of LRT; LRT between opposing lanes of traffic
Acquisitions and Displacements	Full acquisitions: +14 residential; +5 commercial Partial: +2 residential /-1 residential; +1 community facilities Displacements: +18 residential, +5 commercial, no additional community resources
Indirect and Cumulative	Indirect and cumulative effects to land use (community character).

5.4 Mitigation

The mitigation measures included in the Combined FEIS/ROD would be applied to the NCCU Station Refinement and would address many of the impacts identified. Mitigation included in the Combined FEIS/ROD would address additional impacts from the NCCU Station Refinement to access and mobility, community facilities, visual and aesthetics, noise and vibration, and acquisitions and displacements.

Mitigation identified for the loss of opportunity for bicycle facilities along Alston Avenue would be addressed through coordination between GoTriangle, the City of Durham, NCDOT, and local advocates to identify the potential for off-street facilities or on-street facilities on parallel or nearby roadways.

Additional mitigation measures to address impacts to land use and indirect and cumulative impacts of the NCCU Station Refinement are as follows:

- During Engineering, GoTriangle will coordinate with NCCU regarding property acquisitions and campus development plans to inform the final placement and design of the NCCU Station.
- GoTriangle will also coordinate with the City of Durham to evaluate potential updates to their future land use plan and station area infrastructure needs in the NCCU Station Refinement area.



5.5 Assessment of Disproportionately High and Adverse Impacts

The USDOT/FTA definition of a disproportionately high and adverse effect on minority and low-income populations means an adverse effect that: (1) is predominately borne by a minority population 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.

Table 5-3 summarizes the assessment of the potential for disproportionately high and adverse effects associated with the NCCU Station Refinement. While there are identified impacts to EJ populations, none of these impacts are considered to be disproportionately high or adverse once mitigation measures are applied based on mitigation commitments from the Combined FEIS/ROD and additional mitigation measures proposed for the NCCU Station Refinement.



Table 5-3: Assessment of Disproportionately High and Adverse Impacts

Resource	Change with NCCU Station Refinement	Is Impact Disproportionately High and Adverse?
Parking Facilities	Approximately 1,200 additional parking spaces.	No
Pedestrian and Bicycle Facilities	Loss of opportunity for on-street bicycle facilities on Alston Avenue	No
Access and Mobility	Generally an improvement to access and mobility for EJ communities around the NCCU Station area.	No
Land Use	Land uses around NCCU station could promote higher density residential not currently indicated in Durham's future land use plans.	No
Community Cohesion	Increased connectivity between neighborhoods north and south of NC 147 previously separated by the construction of the highway.	No
Employment	Increase in regional FTEs.	No
Community Facilities	Improved access to community facilities; impacts to John Avery Boys and Girls Club.	No
Visual and Aesthetic	Change from low-moderate to moderate visual impacts in Alston Avenue Station area from introduction of multi-story parking garage east of Alston Avenue; new moderate visual impacts along Alston Avenue.	No
Vibration	Three impacts: 3 ground-borne noise impacts 2 of which also would have vibration impacts.	No
Safety and Security	At-grade crossings of LRT; LRT between opposing lanes of traffic.	No
Acquisitions and Displacements	Additional impacts in EJ area.	No
Construction	Additional impacts in EJ area.	No
Indirect and Cumulative	Indirect and cumulative effects to land use (community character).	No



5.5.1 Offsetting Benefits of the Proposed New Service

The effects and benefits described above would occur in EJ communities as well as non-EJ communities. The proposed D-O LRT Project and the NCCU Station Refinement would provide an additional and affordable option for travel in the D-O Corridor. Extending the D-O LRT Project to the NCCU campus would provide greater access to a major educational institution and other destinations within the corridor. Increased travel reliability and time-saving are further benefits of the project. The main benefits of the D-O LRT Project and the NCCU Station Refinement include the following:

- Employment opportunities due to construction and the potential redevelopment/development opportunities in the areas surrounding stations, which would result in positive economic gains in the form of increased wages and spending
- Competitive advantages for existing and future businesses located along the corridor due to the additional transportation capacity and accessibility for customers
- Improved pedestrian and bicycle enhancements, connections, and access
- Faster transit service

- More reliable, more frequent, and higher capacity service for transit riders
- Improved mobility through the project vicinity
- Improved connections to existing transit as well as to employment, education, shopping, medical services, recreation, and cultural opportunities
- Opportunities for improved overall health of the users of the D-O LRT Project and the NCCU Station Refinement by increasing opportunities to walk and bike to stations and surrounding areas along the corridor

While these benefits are distributed throughout the project’s service area, they would be experienced to a higher degree by minority and low-income populations within the D-O Corridor and the NCCU Station Refinement area due to a higher reliance on transit. Having a station in one’s neighborhood provides access and mobility improvements, and 12 of the 18 proposed stations are located in EJ areas.

5.6 Summary

Taking all factors described above into account, the NCCU Station Refinement would not have “disproportionately high and adverse effects” on EJ populations. As previously stated, mitigation measures identified would address impacts from light rail operations and construction activities

that may affect EJ populations. Nonetheless, GoTriangle recognizes that some of the specific impacts of the D-O LRT Project may adversely affect EJ populations, particularly with regards to potential displacements. GoTriangle is committed to working with all affected residents to ensure that they are compensated in accordance with provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act. GoTriangle will continue to provide outreach to EJ communities to implement the proposed mitigation strategies effectively.





6

Public Involvement and Agency Coordination

For GoTriangle, education, inclusion, transparency, accountability, and responsiveness have been key principles of the planning process for transit service in the D-O Corridor, from before the Alternatives Analysis (AA) was completed in 2012 through the ongoing NEPA and Project Development process.

Agencies, non-governmental groups, and the public were engaged throughout the planning process for the proposed D-O LRT Project as required by federal and state law. This has continued throughout the NCCU Station Refinement as well.

The following sections document the public involvement and agency coordination efforts related to the NCCU Station Refinement.

6.1 NEPA Public Involvement Program

After the release of the D-O LRT Project DEIS, GoTriangle received public comments on the document. GoTriangle responded to substantive comments in the Combined FEIS/ROD.

In the response to comments, GoTriangle committed to studying a number of potential refinements to the project's design. One of the refinements identified was the proposal to continue the project alignment beyond the DEIS eastern terminus at the Alston Avenue Station and add a station to serve NCCU. At the time of the Combined FEIS/ROD, GoTriangle committed to studying this proposal during the DCHC MPO's update of the MTP.

GoTriangle performed preliminary engineering feasibility analyses and travel demand modeling to evaluate whether the proposed NCCU Station Refinement would be feasible and practicable. GoTriangle staff found that it is both feasible and practicable, with predicted high ridership and significant support from elected officials, members of the public, and NCCU.

To promote awareness of the proposed NCCU Station Refinement, GoTriangle built upon the previous Public

Involvement Program (documented in DEIS section 9.3 and the Combined FEIS/ROD section 2.7). GoTriangle recognizes that, like the rest of the Durham-Orange Corridor, residents and interested parties within the NCCU Station Refinement area are diverse in terms of the length of time living and working within the area, income levels, and languages spoken in the home, as well as race and national origin.

A public outreach program with an emphasis on interaction and communication with Environmental Justice populations continues to be a key element of the D-O LRT Project. The Environmental Justice Outreach Program (documented in DEIS, section 5.3 and the Combined FEIS/ROD) is in compliance with the D-O LRT Project Public Involvement Program, EO 12898, and guiding principles contained in FTA Circular 4703.1.

The NCCU Station Refinement is within low-income, minority communities. Outreach efforts for the NCCU Station Refinement were designed to provide all community members with equal opportunities to engage in the decision-making process.

Steps taken by GoTriangle to ensure full and broad participation by the affected community include the following:

- meeting with community leaders to discuss the NCCU Station Refinement and discuss messages and approaches for connecting and communicating with the community
- attending key stakeholder meetings, specifically meetings with targeted Small Groups and Organizations (for a list of meetings see **Table 6-1** and **Table 6-2**)
- attending community festivals in the EJ community (e.g., Phoenix Fest)
- holding open houses on weekdays and weekends, and in different locations at different times of the day, to facilitate attendance by all members of the community
- holding open houses in community spaces (e.g., Durham main library, John Avery Boys and Girls Club, Hayti African American Heritage Center); within a quarter mile of a bus stop
- Holding open houses within the Downtown, East Durham and Southeast Central Durham low-income, minority communities
- providing Spanish-speaking project staff at all open houses
- providing one-on-one conversations for open house attendees



- providing written comment cards and offering to transcribe comments verbalized to staff

GoTriangle uses multiple channels for releasing outgoing messages, project progress, and requests for public input. The formal notification channels are described in the section that follows. Public outreach materials from the NCCU Station Refinement outreach activities are included in Appendix J.

6.1.1 Public and Stakeholder Mailers and Print Materials for Outreach Notification

Table 6-1 provides a summary of methods used for outreach on the NCCU Station Refinement. Postal mailings were used to invite property owners and tenants that could be directly affected by the NCCU Station Refinement to attend open houses hosted by GoTriangle. Print materials, including handouts, renderings, and maps were developed for distribution during the open house meetings.

In addition, GoTriangle distributed a press release, which resulted in media interest and coverage of the proposal. Members of the media have attended a number of key public stakeholder meetings, such as official sessions of the

Durham City Council and the Durham Board of County Commissioners.

GoTriangle will continue its efforts to engage property owners, tenants, other key stakeholders and community groups in the analysis and evaluation of the impacts and opportunities presented by the proposed NCCU Station Refinement.

6.1.2 Stakeholder Meetings

Between August 2016 and December 2016, GoTriangle met or will be meeting with a variety of project stakeholders, including elected officials, neighborhood and community groups, organized committees, educational institutions, property owners, and professional organizations, as well as federal, state, and local agencies. During these meetings, GoTriangle staff present information regarding the NCCU Station Refinement, LPA amendment and 2040 MTP amendment; answer questions; and receive comment.

As mentioned in section 1.2 above, there is a current proposal to amend the LPA to identify the NCCU Station as the eastern terminus and amend the 2040 MTP to include the amended LPA as the definition of the project. This proposal was supported by the Durham City Council and Board of County Commissioners by action taken by these bodies at public meetings on September

22, 2016, and October 4, 2016, respectively.

The process for amending the 2040 MTP was initiated with the MPO and the MPO Policy Board voted on October 19, 2016 to open the public comment period on the proposal to amend the MTP and the LPA to modify the definition of the project for a new eastern terminal station at NCCU. The MPO will hold a public hearing on the amendment on November 9, 2016 and the public comment period will close and the MPO will vote on the proposed amendment on December 14, 2016.

Table 6-2 lists all stakeholder meetings between August 2016 and December 2016. **Table 6-3** lists the stakeholders GoTriangle specifically targeted due to their jurisdiction or representation of the NCCU Station Refinement area.

6.1.3 Public Open House Meetings

In September 2016 GoTriangle began engaging property owners and tenants within the study area for the NCCU Station Refinement to discuss the proposed refinement. The dates of the meetings, method of invitation, location of the meeting, attendance, and summary of concerns and questions are summarized in **Table 6-4**.



Two meetings are scheduled in November 2016 to provide the public additional opportunity to learn about the proposed NCCU Station Refinement.



Table 6-1: Summary of Notifications

Timeframe	Method of Outreach	Topic	Number of Targeted Stakeholders/Addresses
Targeted Outreach			
August 2016 ^a	Phone Calls/Emails/ In-Person Meetings	Stakeholder notification of NCCU Station Refinement; discussed refinement and requested permission to present during meetings with group leaders	<ul style="list-style-type: none"> • PAC-1 • PAC-4 • Durham Committee for the Affairs of Black People • Durham People's Alliance • Northeast Central Durham Leadership Council
September 2016	Phone Calls/Emails/ In-Person Meetings	Meetings with elected and appointed officials regarding the NCCU Station Refinement	<ul style="list-style-type: none"> • Durham City Council • Durham Board of County Commissioners
September 2016 ^a	Postal Mail	Property Owner/Tenant Meetings	<ul style="list-style-type: none"> • Letters mailed to property owners, managers, and tenants
September 2016 ^a	Printed Handouts	Property Owner/Tenant Meetings	Distributed materials to meeting attendees <ul style="list-style-type: none"> • What is Light Rail • Timeline for NCCU Station Refinement/D-O LRT Project • Comment Cards
October 2016	Postal Mail	Property Owner/Tenant Meetings	<ul style="list-style-type: none"> • Letters mailed to property owners, managers, and tenants
Mass Outreach			
September 2016	Press Release	D-O LRT NCCU Station Refinement	Press Release Emailed to: TV Stations – <ul style="list-style-type: none"> • FOX 50 • ABC 11 (TV/Radio) • Time Warner Cable - News 14 • WRAL (TV/Radio) • WNCN • WTVD • Univision 40^b • La Conexion – EstrellaTV^b • Arriba Latinos TV^b Newspapers – <ul style="list-style-type: none"> • LaNoticia^b • Que Pasa^b • La Conexion^b • The Carolinian^a • Triangle Tribune^a • Durham Herald Sun • News and Observer • Indy Weekly



Timeframe	Method of Outreach	Topic	Number of Targeted Stakeholders/Addresses
			<ul style="list-style-type: none"> • News of Orange County • Raleigh Downtowner • Wake Weekly Campus Newspapers – • NCCU Campus Echo^a • UNC Daily Tar Heel • NCSU Technician Online Radio – • WFXK 104.3/107.1 FM^a • La Mega NC 1310AM/94.3FM^b • La Grande AM 1530 AM^b • WCHL 1360 AM • WUNC 91.5 FM • WPTF 680 AM Local Blogs – • Bull City Rising • DTR • Raleigh Public Record

^a Targeting EJ Populations

^b Targeting LEP Populations



Table 6-2: All Stakeholder Meetings (August 2016 to December 2016)

Date	Presentation or Meeting With
8/1/2016	Management Staff, Durham County
8/1/2016	North Carolina Central University (NCCU) Leadership Team
8/12/2016	UNC Chapel Hill Monthly Coordination Meeting
8/16/2016	Alston Avenue Corridor Tour with Durham City Council Members
8/22/2016	Durham County Commissioners
8/29/2016	NCDOT, NCDOT Division 5, City of Durham Transportation Department
9/1/2016	FTA HQ TPE – call RE: Roadmap/direction on NCCU Station
9/1/2016	City of Durham Transportation Department
9/7/2016	DCHC MPO Staff and Technical Committee Members (City of Durham and Town of Chapel Hill)
9/9/2016	FTA Region IV – call RE: LPA/MTP Amendment
9/9/2016	UNC Chapel Hill – Monthly coordination meeting
9/12/2016	Duke University – Monthly coordination meeting
9/13/2016	Management Staff, Durham County
9/14/2016	Durham County Commissioners
9/19/2016	PAC-1 Co-Facilitator; Member, Northeast Central Durham Leadership Council ^a
9/21/2016	Acting NCCU Chancellor and NCCU Leadership Team
9/22/2016	Durham City Council Work Session
9/27/2016	Member, Durham Committee for the Affairs of Black People ^a
9/28/2016	Durham Chapel Hill Carrboro Metropolitan Planning Organization – Technical Committee
9/28/2016	GoTriangle Board of Trustees
9/30/2016	DCHC MPO Staff and City of Durham Transportation Department
10/1/2016	Phoenix Fest (African American cultural community festival) ^a
10/4/2016	Durham Board of County Commissioners Work Session
10/5/2016	Durham City-County Planning Department
10/6/2016	Northeast Central Durham Leadership Council ^a
10/6/2016	Durham Committee for the Affairs of Black People ^a
10/8/2016	Durham Partners Against Crime (PAC) - PAC 4 (Proposed NCCU Station area) ^a
10/11/2016	Duke University Office of Durham and Regional Affairs
10/13/2016	Durham Regional Association of REALTORS
10/15/2016	Durham Partners Against Crime (PAC) – PAC 1 (Alston Avenue Station area) ^a
10/19/2016	DCHC MPO – Policy Board
10/19/2016	Section 106 Consultation Meeting (FTA, SHPO, City of Durham, Preservation NC, Preservation Durham, NCRR)
10/19/2016	City of Durham and Durham County Managers' Offices

^a Targeting EJ Populations; ^b Targeting LEP Populations



**Table 6-3: GoTriangle Targeted Small Groups, Organizations, and Agency Stakeholder Meeting List
(August 2016 to December 2016)**

Date	Meeting	Location	Attendees	Summary of Public Comments/Questions
9/22/2016	Durham City Council Work Session	Durham City Hall - Committee Room, 2 nd Floor 101 City Hall Plaza Durham, NC 27701	Durham City Council, Staff, and public; NCDOT Staff attending for Highway 70 presentation (unrelated)	<ul style="list-style-type: none"> Support for NCCU Station Questions from City Council about planned public outreach efforts Need to hold meeting with Russell Memorial CME Church Question whether City Center Station is still being evaluated Action: recommend city council support DCHC MPO amend the LPA and 2040 MTP for the proposed NCCU Station Refinement; unanimous support
9/28/2016	Durham Chapel Hill Carrboro Metropolitan Planning Organization – Technical Committee	Durham City Hall - Committee Room, 2 nd Floor 101 City Hall Plaza Durham, NC 27701	DCHC MPO Technical Committee; NCDOT Staff; other Durham City Staff	<ul style="list-style-type: none"> Questions relating to proposed amendment of 2040 MTP Questions relating to funding for the project Support for connection to NCCU Action: unanimous support recommending amendment of LPA and 2040 MTP to the DCHC MPO Policy Board
9/28/2016	GoTriangle Board of Trustees	4600 Emperor Blvd, Durham, NC 27703	GoTriangle Board; no members of the public attended	<ul style="list-style-type: none"> Questions relating to public outreach, outreach contact to date, feedback from public Request for list of planned meetings; dates/locations
10/04/2016	Durham County Board of Commissioners Work Session	Durham County Commissioners Chambers, 200 E. Main Street, Durham, NC 27701	Durham County Board of Commissioners and Staff, members of the public	<ul style="list-style-type: none"> Support for the NCCU Station Questions regarding the inclusion of a City Center (DPAC) Station Questions regarding the potential increase in ridership at the NCCU Station Action: Durham Board of County Commissioners unanimously recommended that the DCHC MPO amend the LPA and 2040 MTP for the proposed NCCU Station Refinement
10/6/2016	Northeast Central Durham Leadership Council ^a	Golden Belt 807 E Main St, Durham, NC 27701	NECD Leadership	<ul style="list-style-type: none"> Questions about traffic impacts; other corridors/alternatives studied; connections to DTCC; parking Public involvement efforts with Russell Memorial CME Church Concern that process is moving too fast Other alignments to East Durham; plans to go further east; Alston Station should be renamed Overall impression from NECD Leadership Council is that NCCU Station Refinement is positive and valuable addition to project Non-D-O LRT questions: other East Durham transit plans; if Wake County commuter rail will connect at Alston Avenue or NCCU
10/6/2016	Durham Committee for the Affairs of Black People ^a	601 Fayetteville Street, Durham, NC 27701	DCABP Meeting Attendees	<ul style="list-style-type: none"> Questions about parking at Alston Avenue Station Question about how many properties would be acquired; when GoTriangle will know this information Concern that many people currently own their homes but that the (fair market



Date	Meeting	Location	Attendees	Summary of Public Comments/Questions
				<p>value) compensation will not be enough for them to buy something nearby</p> <ul style="list-style-type: none"> • Question about what the total ridership will be • Delighted that GoTriangle has heard the voice of the community and responded • General support for the project and proposed NCCU Station Refinement • Non-D-O LRT questions: what happens if Wake County gets approval; what connections will there be to commuter rail
10/8/2016	<p>Durham Partners Against Crime (PAC) - 4^a</p> <p>(covers proposed NCCU Station area)</p>	<p>Campus Hills Recreation Center 2000 S Alston Avenue Durham, NC 27701</p>	PAC 4 Meeting Attendees	<ul style="list-style-type: none"> • General support for the project • Broad support for the NCCU Station Refinement, noting benefits including enhanced mobility and access to jobs for NCCU students • Questions about the property acquisition process, including the use of eminent domain • Question about the project timeline, including the anticipated groundbreaking date, duration of construction, and opening year • Question about the design of the project, in particular whether the alignment would be elevated or at street level along Alston Avenue and whether the project would be coordinated with the NCDOT Alston Avenue Widening Project
11/9/2016	<p>Durham Chapel Hill Carrboro Metropolitan Planning Organization Board Meeting</p>	<p>Durham City Hall - Committee Room, 2nd Floor 101 City Hall Plaza Durham, NC 27701</p>	DCHC MPO policy board, members of the public	

^a Targeting EJ Populations

^b Targeting LEP Populations



Table 6-4: Open Houses for Potentially Affected Property Owners and Tenants

Date	Method of Invitation	Location	Attendance	Summary of Comments/Questions
9/23/2016	Letter ^a	Durham County Public Library – Main Library 300 N. Roxboro Durham, NC 27701	3 property owners; 2 interested public	<ul style="list-style-type: none"> • Questions about project timeline • Questions relating to property acquisition; needs, process, and timeline • Question about whether widening could occur equally to both sides of Alston Avenue (from a property owner on the west side that would be affected by the widening) • Comments relating to final design: fare policy, fare monitoring, fare options; connecting bus network
9/24/2016	Letter ^a	John Avery Boys & Girls Club 808 E. Pettigrew St. Durham, NC 27701	3 property owners; 1 interested public	<ul style="list-style-type: none"> • Questions relating to property acquisition; process and timeline
10/6/2016	Letter ^a	Hayti Heritage Center 804 Old Fayetteville St. Durham, NC 27701	3 property owners	<ul style="list-style-type: none"> • Questions about property acquisition and project timeline • Questions about changes in Alston Avenue Station Area • Question about whether widening could occur to both sides of Alston (from a property owner on East Side that would not be affected)
10/7/2016	Letter ^a	Boys & Girls Club of Greater Durham 808 E. Pettigrew St. Durham, NC 27701	1 property "tenant"	<ul style="list-style-type: none"> • Question about configuration at Alston Avenue Station and how the alignment would extend from Alston Avenue to NCCU; where on Alston Avenue • Interested in real estate acquisition process and timing • Potential impacts to billboards • Generally supportive of the project and the proposed NCCU Station Refinement
11/12/2016	Letter ^a	Holton Career and Resource Center 401 N Driver Street Durham, NC 27703		<ul style="list-style-type: none"> •
11/17/2016	Letter ^a	WG Pearson Center 600 E. Umstead Street Durham, NC 27701		<ul style="list-style-type: none"> •

^a Targeting EJ Populations

^b Targeting LEP Populations



6.2 Agency Coordination

As described in the DEIS, the FTA is the lead federal agency on the proposed D-O LRT Project, including the NCCU Station Refinement, and GoTriangle is the lead local agency. Three other federal agencies – USACE, Federal Highway Administration (FHWA), and U.S. Environmental Protection Agency (EPA) – are cooperating agencies.

Participating agencies, as indicated in the DEIS, include: the State Historic Preservation Office (SHPO), North Carolina Department of Transportation (NCDOT), City of Durham, Durham County, North Carolina Central University (NCCU), Durham Technical Community College (DTCC), and the North Carolina Railroad (NCRR).

Agency coordination on the NCCU Station Refinement is ongoing.

Additional information on this coordination is included in **Table 6-2**. Coordination to date has included:

- Coordination meetings or phone calls with participating agencies to discuss the NCCU Station Refinement (see Table 6-2)
- Submittal of a request to amend the Jurisdictional Determination to document that no waters of the U.S. are present in the NCCU Station

Refinement area – USACE concurred with the findings October 19, 2016 and provided a Notification of Jurisdictional Determination, included in appendix I

- Coordination with the North Carolina Historic Preservation Office regarding the APE for historic resources and the APE for archaeological resources – concurrence on APE in appendix E
- Conducting a Section 106 consulting parties meeting on October 19, 2016 with the FTA, SHPO, NCCU, Durham City/County Planning, Preservation Durham, and Preservation North Carolina; a meeting with federal, state, and local individuals with a demonstrated interest in the project as it relates to historic resources to solicit information on historic resources in the NCCU Station Refinement area

The Supplemental EA will be made publicly available on the project website (ourtransitfuture.com) as well as at the NCCU library and provided to cooperating and participating agencies. The comment period will extend for 30-days from the publication date of the Supplemental EA.





7

Conclusions/Next Steps

This section summarizes the conclusions as identified in the preceding chapters and discusses the next steps in the NEPA process for the D-O LRT Project and the NCCU Station Refinement.

7.1 Conclusions

Based on the information presented in chapters 3, 4, 5, and 6, it is anticipated that there will be no new significant impacts associated with the NCCU Station Refinement beyond those that were already addressed in DEIS and the Combined FEIS/ROD. The mitigation measures identified in the D-O LRT Project Combined FEIS/ROD are sufficient to address most of the impacts identified with the NCCU Station Refinement. Nevertheless, additional mitigation measures are necessary in order to address the expanded project area and some impacts that are unique to the NCCU Station Refinement.

Based on the analysis herein, it is believed that with the implementation of all mitigation measures identified in this Supplemental EA and supporting appendices, there will be no significant impacts that will remain with implementation of the NCCU Station Refinement.

7.2 Next Steps

FTA and GoTriangle now seek input on the content and tentative conclusions identified in this Supplemental EA. Once public and agency input have been received and considered, FTA will determine whether further study is necessary.

