URS DIN 01564

Pedestrian and Bicycle Facilities Technical Report

Durham-Orange Light Rail Transit Project

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July 24, 2015

The NEPA Preferred Alternative for the D-O LRT Project would generally follow NC 54, I-40, US 15-501, and the North Carolina Railroad (NCRR) Corridor in downtown Durham and east Durham. The alignment would begin at UNC Hospitals, parallel Fordham Boulevard, proceed east on NC 54, travel north on I-40, parallel US 15-501 before it turns east toward the Duke University campus along Erwin Road, and then follow the NCRR Corridor parallel to NC 147 through downtown Durham, before reaching its eastern terminus near Alston Avenue. The alignment would consist of at-grade alignment, fill and cut sections, and elevated structures. In two sections of the alignment, Little Creek and New Hope Creek, multiple Light Rail Alternatives are evaluated in the DEIS.

This technical report contains information for all alternatives analyzed in the DEIS. However, pursuant to MAP 21, the Moving Ahead for Progress in the 21st Century Act (P.L. 112-141), a NEPA Preferred Alternative has been developed, which recommends C2A in the Little Creek section of the alignment, NHC 2 in the New Hope Creek section of the alignment, the Trent/Flowers Drive station, and the Farrington Road Rail Operations and Maintenance Facility.

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List of Acronyms and Abbreviations

Acronym/Abbreviation	Definition
ADA	Americans with Disabilities Act
DCHC	Durham-Chapel Hill-Carrboro
DEIS	Draft Environmental Impact Statement
D-O	Durham-Orange
D-O LRT	Durham-Orange Light Rail Transit
DTCC	Durham Technical Community College
I-40	Interstate 40
LPA	Locally Preferred Alternative
LRA	Light Rail Alternative
LRT	light rail transit
MTP	Metropolitan Transportation Plan
NC	North Carolina
NCCU	North Carolina Central University
NCRR	North Carolina Railroad
NHC	New Hope Creek
ROMF	rail operations maintenance facility
UNC	University of North Carolina at Chapel Hill
US	United States
VA	Veteran Affairs

1. Introduction

Triangle Transit, in cooperation with the Federal Transit Administration (FTA), has prepared a Draft Environmental Impact Statement (DEIS) to evaluate a potential high-capacity transit improvement in the Triangle region, within the Durham-Orange (D-O) Corridor, between Chapel Hill and Durham. This technical appendix describes the condition of existing transportation-related pedestrian and bicycle facilities located in the D-O Corridor. This report also discusses potential environmental consequences anticipated for pedestrian and bicycle facilities that would result from implementation of the project.

This *Pedestrian and Bicycle Facilities Technical Report* is a detailed technical appendix to the assessment of pedestrian and bicycle impacts presented in the *Durham-Orange Light Rail Transit Project DEIS,* chapter 3.7. Recreational pedestrian and bicycle infrastructure is discussed in the *Durham-Orange Light Rail Transit Project DEIS,* chapter 4.6.

1.1 Description of the Study Corridor

The D-O Corridor is located within the Triangle region. It extends roughly 17 miles from southwest Chapel Hill to east Durham, and includes several educational, medical, and other key activity centers that generate a large number of trips each day. The land uses in the D-O Corridor are supported by a network of major highways, including North Carolina (NC) Highway 54 (NC 54), Interstate 40 (I-40), United States (US) 15-501, Erwin Road, and NC 147. Additional detail regarding the study corridor is included in the *Durham-Orange Light Rail Transit Project DEIS*, chapters 1 and 2.

1.2 Alternatives Considered

- No-Build Alternative
- Light Rail Alternatives

In addition to the Light Rail Alternatives, the DEIS considers a No-Build Alternative comprised of the existing and programmed transportation network improvements without the planned rail improvements and associated bus network modifications. Additional detail regarding the alternatives considered is included in the *Durham-Orange Light Rail Transit Project DEIS,* chapter 2.

1.2.1 No-Build Alternative

The No-Build Alternative includes the existing and planned transportation programs and projects scheduled to be built and implemented before forecast year 2040 and contained in the 2040 Metropolitan Transportation Plan (MTP), excluding only the proposed Light Rail Alternatives, rail transit improvements, and related bus transit modifications that would be associated with the proposed Durham-Orange Light Rail Transit (D-O LRT) Project.

1.2.2 Light Rail Alternatives

Through the Alternatives Analysis and Scoping process, a majority of the proposed D-O LRT Project alignment was identified. However, there are a few areas where different alternatives were retained for further evaluation. As a result, multiple alignments crossing Little Creek and New Hope Creek are evaluated in the DEIS.

- Four potential crossings of Little Creek between Hamilton Road and the proposed Leigh Village Station (Alternatives C1, C1A, C2, and C2A)

- Three potential crossings of New Hope Creek and Sandy Creek between Patterson Place and South Square (Alternatives New Hope Creek [NHC] Locally Preferred Alternative [LPA], NHC 1, and NHC 2)
- Station alternatives at Duke/Veterans Affairs (VA) Medical Centers (i.e., Duke Eye Center and Trent/Flowers Drive)
- Five proposed locations for the Rail Operations and Maintenance Facility (ROMF) (i.e., Leigh Village ROMF, Farrington Road ROMF, Patterson Place ROMF, Cornwallis Road ROMF, and Alston Avenue ROMF)

The Light Rail Alternatives would generally follow NC 54, I-40, US 15-501, and the North Carolina Railroad (NCRR) Corridor in downtown Durham and east Durham. The alignment would begin in Chapel Hill at the University of North Carolina at Chapel Hill (UNC) Hospitals, parallel Fordham Boulevard, proceed eastward adjacent to NC 54, travel north along I-40, parallel US 15-501 before it would turn east toward Duke University and run within Erwin Road, and then follow the NCRR Corridor that parallels NC 147 through downtown Durham, before reaching its eastern terminus in Durham near Alston Avenue. The alignment would consist of at-grade alignment, fill and cut sections, and elevated structures. A total of 17 stations are planned, and up to 5,100 parking spaces would be provided along the Light Rail Alternatives. In addition, an ROMF would be constructed to accommodate the D-O LRT fleet (initially 17 vehicles, with the ability to accommodate up to 26 vehicles without needing expansion).

Bus routes would be modified to feed into the D-O LRT stations, and headways would be adjusted to provide more frequent bus service and minimize transfer waiting times. These services would also connect light rail passengers with other area transportation hubs, including park-and-ride lots and transfer centers.

2. Legal and Regulatory Framework

No specific laws or executive orders regulate how impacts to pedestrian and bicycle facilities resulting from transit projects are evaluated. The National Environmental Policy Act (41 United States Code [USC] 4321) forms the general basis of consideration of these potential impacts. In addition, the Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR] 1502) contains regulatory requirements for the description of the affected environment and environmental consequences for general resources, including pedestrian and bicycle facilities.

3. Methodology

The existing and planned pedestrian and bicycle conditions were assessed in the D-O Corridor through field visits, aerial photography, and reviews of the following local pedestrian and bicycle plans:

- *Chapel Hill Bicycle & Pedestrian Action Plan* (2004)
- *Chapel Hill Bike Plan* (2014)
- *Chapel Hill Greenways Master Plan* (2013)
- *Durham-Chapel Hill-Carrboro (DCHC) 2040 MTP* (2013)
- *Duke Illustrative Master Plan Update* (2010)
- *DurhamWalks! Pedestrian Plan* (2006)
- *Durham Comprehensive Bicycle Transportation Plan* (2006)
- *Durham Trails and Greenways Master Plan* (2011)
- *University of North Carolina (UNC) Master Plan* (2007)

Specifically, existing and planned pedestrian and bicycle infrastructure within 150 feet of the D-O LRT Project were evaluated. This study area was consistent for the entire length of the corridor. The analysis was organized according to eight evaluation areas for the Light Rail Alternatives. The proposed stations and station alternatives are listed in Table 3-1 according to evaluation area and are shown on Figure 3-1. The eight evaluation areas are described below:

- **UNC Campus Area** – This evaluation area covers the UNC main campus, downtown Chapel Hill's business district on Franklin and Rosemary Street to the north, and residential neighborhoods to the east and south of the university.
- **East Chapel Hill** – This evaluation area covers UNC's Finley Golf Course and athletic fields to the west, the Glen Lennox neighborhood to the north, the Meadowmont neighborhood to the northeast, the New Hope Creek Corridor to the east, Durham's Falconbridge neighborhood farther to the east, and UNC's Friday Center (event center) to the south.
- **Leigh Village** – This evaluation area covers a section of I-40, with Leigh Farm Park and the New Hope Creek Corridor to the east, an office park to the south, and suburbanizing residential neighborhoods to the west and north, including Durham's Five Oaks neighborhood.
- **US 15-501 Corridor** – This evaluation area covers a section of I-40 and US 15-501, with the New Hope Commons and Patterson Place shopping centers, plus residential neighborhoods, to the east, the New Hope Creek Corridor at the evaluation area's center, and South Square shopping center, plus residential neighborhoods, to the north and east. Durham neighborhoods in the evaluation area include Knollwood, Westgate Townes, Valley Run, Parc at University, Cameron Woods, Duke Forest, and Colony Park.
- **Duke West Campus and Medical Center** – This evaluation area covers the Duke University Golf Club to the south, Duke University's West Campus at the evaluation area's center, and mixed residential and commercial land uses west and north of Duke University West Campus. Durham neighborhoods in the evaluation area include Welcome Circle, Duke Forest, and Crest Street.

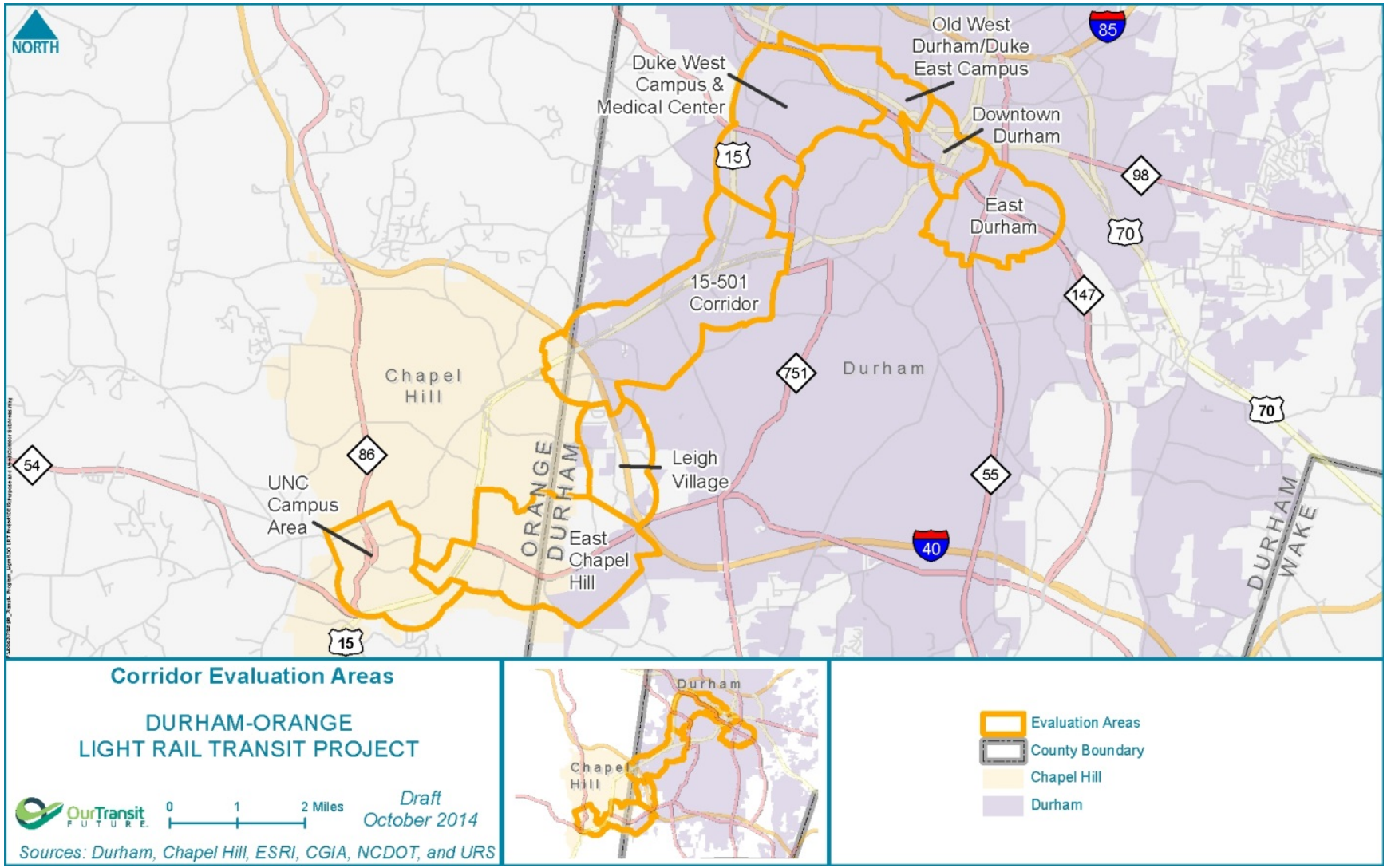
- **Old West Durham/Duke East Campus** – This evaluation area covers the Old West Durham neighborhood to the west, including the commercial district on Ninth Street, Duke University's East Campus, and the Trinity Heights neighborhood at the evaluation area's center, the Trinity Park neighborhood to the east, and portions of the Burch Avenue, West End, and Morehead Hill neighborhoods to the south.
- **Downtown Durham** – This evaluation area covers the Warehouse District and Central Park neighborhoods to the north, the Cleveland-Holloway neighborhood to the east, downtown Durham at the evaluation area's center, the Morehead Hill neighborhood to the west, and the Southside/St. Teresa neighborhood to the south.
- **East Durham** – This evaluation area covers the Edgemont, Golden Belt, and Eastway Village neighborhoods to the north, the Old East Durham neighborhood to the east, North Carolina Central University (NCCU) and DTCC to the south, and the Southside/St. Teresa neighborhood to the west.

Table 3-1: Evaluation Areas, Proposed Stations, and Proposed Rail Operation and Maintenance Facilities

Evaluation Area	Proposed Stations	Proposed ROMF*
UNC Campus Area	UNC Hospitals, Mason Farm Road	None
East Chapel Hill	Hamilton Road; Friday Center Drive alternatives: C1/C1A, C2, C2A; Meadowmont Lane/Woodmont	None
Leigh Village	Leigh Village	Leigh Village ROMF Farrington Road ROMF
US 15-501 Corridor	Gateway; Patterson Place alternatives: NHC LPA, NHC 1, and NHC 2; Martin Luther King Jr. Parkway alternatives: NHC LPA, NHC 2, NHC 1; South Square	Patterson Place ROMF Cornwallis Road ROMF
Duke West Campus and Medical Center	LaSalle Street; Duke/VA Medical Centers alternatives: Duke Eye Center, Trent/Flowers Drive	None
Old West Durham/Duke East Campus	Ninth Street; Buchanan Boulevard	None
Downtown Durham	Durham; Dillard Street	None
East Durham	Alston Avenue	Alston Avenue ROMF

*One of the five ROMFs will be selected as the preferred alternative.

Figure 3-1: Corridor Evaluation Areas



4. Affected Environment

The different evaluation areas show substantial variation in pedestrian infrastructure, ranging from no pedestrian infrastructure to extensive sidewalk networks with marked crosswalks, ramps, pedestrian signals, and multi-use paths. The UNC Campus Area, East Chapel Hill, Duke West Campus and Medical Center, Old West Durham/Duke East Campus, and Downtown Durham evaluation areas have the most pedestrian infrastructure. The Leigh Village and East Durham evaluation areas have the least.

Existing bicycle infrastructure includes sharrows, wide shoulders, bicycle lanes, and multi-use paths. As with pedestrian infrastructure, there is substantial variation among evaluation areas. The East Chapel Hill evaluation area has the most extensive bicycle network with bicycle lanes in the Meadowmont development and multi-use paths along NC 54. Leigh Village has the least bicycle infrastructure.

Table 4-1 summarizes the existing pedestrian and bicycle conditions in each evaluation area, while Table 4-2 lists the existing facilities within 150 feet of the proposed D-O LRT Project. Table 4-3 identifies planned facilities within 150 feet of the proposed D-O LRT Project; the plan or plans that propose a facility are indicated by footnote. The map IDs correspond to figures of existing and planned pedestrian and bicycle infrastructure (Figure 5-1 to Figure 5-8).

Table 4-1: Summary of Existing Pedestrian and Bicycle Conditions by Evaluation Area

General Description	Barriers to Pedestrians/Cyclists	Notable Pedestrian/Bicycle Infrastructure
UNC Campus Area		
The UNC Campus Area is highly walkable with a robust sidewalk network, marked crosswalks, pedestrian signals, and bicycle lanes and sharrows.	Fordham Boulevard (US 15-501) Two lane roads with limited shoulders south of Manning Drive	Extensive sidewalk network on campus Pedestrian bridges Bicycle lanes and sharrows
East Chapel Hill		
The East Chapel Hill evaluation area is characterized by mixed-use developments, single-family homes, medical offices, and university uses. Pedestrian and bicycle infrastructure is common except for the eastern portion of the evaluation area.	Fordham Boulevard (US 15-501) NC 54 Wide, high-volume intersections	Multi-use path paralleling NC 54 Meadowmont Trail multi-use path Tunnel under NC 54 for pedestrians/cyclists
Leigh Village		
The Leigh Village evaluation area is suburban and the least developed of the evaluation areas.	I-40 Farrington Road, the only connection across I-40, lacks sidewalks and bicycle lanes	Sidewalks around Creekside Elementary School to new residential neighborhoods

General Description	Barriers to Pedestrians/Cyclists	Notable Pedestrian/Bicycle Infrastructure
US 15-501 Corridor		
The US 15-501 Corridor evaluation area is characterized by large suburban-style commercial developments and apartment complexes as well as lower density, predominantly single-family residential neighborhoods. Forests and wetlands surround New Hope Creek in the center of the evaluation area. Pedestrian infrastructure is present within developed commercial and residential areas, but is absent between developments.	I-40 US 15-501 US 15-501 lacks sidewalks and bicycle lanes Wide, high-volume intersections with limited pedestrian crossings	Bicycle lanes on Southwest Durham Drive and Martin Luther King Jr. Parkway
Duke West Campus and Medical Center		
This evaluation area has several notable trip generators: Durham VA Medical Center, Duke University Hospital, and the Duke University campus. There is an existing pedestrian network connecting much of the evaluation area.	Erwin Road is a prominent five to six lane road, but has signalized pedestrian crossings US 15-501 NC 147	Pedestrian tunnel connecting Duke University Hospital with a parking deck Bicycle lanes throughout the Duke University campus Bike share facilities at Duke University
Old West Durham/Duke East Campus		
This evaluation area is urban with a robust sidewalk network, crosswalks, and pedestrian signals. Duke University is a major pedestrian trip generator.	Railroad tracks NC 147	Sidewalks and bicycle lanes on Campus Drive, under Main Street and NC 147, connecting Duke University campuses Duke University pedestrian trail under development west of Trent Drive
Downtown Durham		
Downtown Durham is a developed, dense area with an extensive sidewalk network and some bicycle accommodations. In addition to the restaurants, shops, and apartments in the city's downtown area, there are several notable pedestrian trip generators: American Tobacco campus, Durham Amtrak Station, Durham City Hall, Durham Performing Arts Center, Durham Bulls Athletic Park, and Durham Transit Station.	Railroad tracks NC 147	Sidewalks and bicycle lanes on West Chapel Hill Street, connecting the Amtrak Station with the Durham Transit Station On-street trails: Downtown Trail (Blackwell Street)

General Description	Barriers to Pedestrians/Cyclists	Notable Pedestrian/Bicycle Infrastructure
East Durham		
The East Durham evaluation area has less pedestrian infrastructure than the other evaluation areas in Durham and has several educational institutions that are trip generators: NCCU, Durham Technical Community College, and Eastway Elementary School. Many of the neighborhoods in this area lack sidewalks and crosswalks.	Railroad tracks NC 147 Pettigrew Street, a main east-west road, lacks sidewalks and bicycle lanes	Bryant Bridge, a pedestrian and bicycle bridge over NC 147, connecting residential neighborhoods, Burton Elementary School, and Grant Park

Table 4-2: Existing Pedestrian and Bicycle Infrastructure by Evaluation Area

Map ID	Facility Name	Type
UNC Campus Area		
A	Kenan-Flagler Business School connection to Mason Farm Road - path	Pedestrian
B	Baity Hill Drive – sidewalks	Pedestrian
C	East Drive – sidewalks	Pedestrian
D	Hibbard Drive – sidewalks	Pedestrian
E	Jackson Circle – sidewalks	Pedestrian
F	Manning Drive – sidewalks	Pedestrian
G	Mason Farm Road – sidewalks	Pedestrian
East Chapel Hill		
H	West Barbee Chapel Road - bicycle lanes	Bicycle
I	West Barbee Chapel Road – sidewalks	Pedestrian
J	East Barbee Chapel Road - bicycle lanes	Bicycle
K	East Barbee Chapel Road – sidewalks	Pedestrian
L	Carmichael Street – sidewalks	Pedestrian
M	Cedar Pond Lane – sidewalks	Pedestrian
N	Durham-Chapel Hill Greenway	Pedestrian and bicycle
O	Friday Center Drive – sidewalks	Pedestrian
P	Iron Mountain Road – sidewalks	Pedestrian
Q	Marriot Way – sidewalks	Pedestrian
R	Meadowmont Lane - bicycle lanes	Bicycle
S	Meadowmont Lane – sidewalks	Pedestrian
T	Meadowmont Lane Driveways – sidewalks	Pedestrian
U	Meadowmont Trail	Pedestrian and bicycle
V	Park Bluff Drive – sidewalks	Pedestrian
W	Prestwick Road – sidewalks	Pedestrian

Map ID	Facility Name	Type
X	Sprunt Street - bicycle lanes	Bicycle
Y	Sprunt Street – sidewalks	Pedestrian
Z	The Exchange – sidewalks	Pedestrian
Leigh Village		
	None	
US 15-501 Corridor		
AA	Garrett Road – sidewalks	Pedestrian
AB	Honeycutt Drive – sidewalks	Pedestrian
AC	Ivy Creek Boulevard/Snow Crest Trail – sidewalks	Pedestrian
AD	Larchmont Road – sidewalks	Pedestrian
AE	Lyckan Parkway – sidewalks	Pedestrian
AF	Martin Luther King Jr. Parkway - bicycle lanes	Bicycle
AG	Martin Luther King Jr. Parkway – sidewalks	Pedestrian
AH	McFarland Drive – sidewalks	Pedestrian
AI	McFarland Drive driveway1 – sidewalks	Pedestrian
AJ	McFarland Drive driveway2 – sidewalks	Pedestrian
AK	Mount Moriah Road – sidewalks	Pedestrian
AL	Pickett Road – sidewalks	Pedestrian
AM	Southwest Durham Drive - bicycle lane	Bicycle
AN	Southwest Durham Drive – sidewalks	Pedestrian
AO	University Drive – sidewalks	Pedestrian
AP	Westgate Drive – sidewalks	Pedestrian
AQ	Witherspoon Boulevard – sidewalks	Pedestrian
Duke West Campus and Medical Center		
AR	Anderson Street – sidewalks	Pedestrian
AS	Downing Street – sidewalks	Pedestrian
AT	Emergency Drive – sidewalks	Pedestrian
AU	Erwin Road – sidewalks	Pedestrian
AV	Flowers Drive – sidewalks	Pedestrian
AW	Fulton Street – sidewalks	Pedestrian
AX	Lambeth Circle – sidewalks	Pedestrian
AY	LaSalle Street – sidewalks	Pedestrian
AZ	Morreene Road – sidewalks	Pedestrian
BA	Research Drive – sidewalks	Pedestrian
BB	Trent Drive – sidewalks	Pedestrian
Old West Durham/Duke East Campus		
BC	Buchanan Boulevard – sidewalks	Pedestrian
BD	Campus Drive – sidewalks	Pedestrian
BE	Erwin Road – sidewalks	Pedestrian
BF	Maxwell Avenue – bicycle lane	Bicycle

Map ID	Facility Name	Type
BG	Swift Avenue – sidewalks	Pedestrian
Downtown Durham		
BH	Blackwell Street - sidewalks [Downtown Trail]	Pedestrian
BI	Duke Street – sidewalks	Pedestrian
BJ	Fayetteville Street – sidewalks	Pedestrian
BK	Gregson Street – sidewalks	Pedestrian
BL	Mangum Street – sidewalks	Pedestrian
BM	Roxboro Street – sidewalk	Pedestrian
BN	West Chapel Hill Street - bicycle lane	Bicycle
BO	West Chapel Hill Street - sidewalks	Pedestrian
BP	Wilkerson Avenue – sidewalks	Pedestrian
East Durham		
BQ	Alston Avenue - sidewalks (R.K. Bryant Connector)	Pedestrian
BR	Chatham Place – sidewalks	Pedestrian
BS	Colfax Street - sidewalks	Pedestrian
BT	Grant Street – sidewalks	Pedestrian
BU	Murphy Street – sidewalks	Pedestrian

Table 4-3: Planned Pedestrian and Bicycle Infrastructure by Evaluation Area

Map ID	Facility Name	Type
UNC Campus Area		
1	Fordham Boulevard/Chapel Hill Boulevard - bicycle lanes[1]	Bicycle
2	Fordham Boulevard/Chapel Hill Boulevard – sidewalks[1]	Pedestrian
3	Manning Drive - bicycle lanes[1,2]	Bicycle
4	Mason Farm Road - bicycle lanes[1]	Bicycle
East Chapel Hill		
5	Barbee Chapel Road - bicycle lanes[3]	Bicycle
6	Barbee Chapel Road – sidewalks[1,]	Pedestrian
7	Durham-Chapel Hill Greenway Extension[4]	Pedestrian and bicycle
8	Finley Golf Course Road - bicycle lanes[1,2,4]	Bicycle
9	Finley Golf Course Road – sidewalks[1,4,5]	Pedestrian
10	NC 54 – sidewalks[1]	Pedestrian
11	NC 54 Greenway[6]	Bicycle
12	NC 54/Raleigh Road - bicycle lanes[1,3,6]	Bicycle
13	Old Mason Farm Road - bicycle lanes[1,2,4,6]	Bicycle
14	Old Mason Farm Road – sidewalks[1,4]	Pedestrian
Leigh Village		
15	Farrington Road - bicycle lanes	Bicycle
16	Little Creek Connector Trail (on-road)[6]	Pedestrian
US 15-501 Corridor		

Map ID	Facility Name	Type
17	Durham-Chapel Hill Boulevard A1- sidewalks[1]	Pedestrian
18	Durham-Chapel Hill Boulevard A2- sidewalks[1,7]	Pedestrian
19	Durham-Chapel Hill Boulevard A4- sidewalks[1]	Pedestrian
20	Durham-Chapel Hill Boulevard side path[1,3]	Pedestrian and bicycle
21	Garrett Road - bicycle lanes[1,3]	Bicycle
22	Garrett Road A4 – sidewalks[1,7]	Pedestrian
23	Mount Moriah Road - bicycle lanes[1,3]	Bicycle
24	Old Durham Road/Old Chapel Hill Road - bicycle lanes[1,3]	Bicycle
25	Old Durham Road/Old Chapel Hill Road – sidewalks[1]	Pedestrian
26	Pickett Road - bicycle lanes[1,3]	Bicycle
27	Pope Road - bicycle lanes[1,3]	Bicycle
28	Shannon Road - bicycle lanes[1,3]	Bicycle
29	Shannon Road – sidewalks[1,7]	Pedestrian
30	Southwest Durham Drive - bicycle lane[1]	Bicycle
31	University Drive - bicycle lanes[1,3]	Bicycle
Duke West Campus and Medical Center		
32	Anderson Street - bicycle lanes[3]	Bicycle
33	Cameron Boulevard - bicycle lanes[3]	Bicycle
34	Cameron Boulevard – sidewalks[1,7]	Pedestrian
35	Campus Drive – bicycle lanes[8]	Bicycle
36	Campus Drive - bicycle lanes[1]	Bicycle
37	Cornwallis Road - Shoulder and bicycle lane[1,3]	Bicycle
38	Cornwallis Road – sidewalks[1,7]	Pedestrian
39	East Campus pedestrian way (Broad Street and Perry Street) [8]	Pedestrian
40	Erwin Road - bicycle lanes[1,3]	Bicycle
41	Flowers Drive - bicycle lanes[1,3, 8]	Bicycle
42	Fulton Street - bicycle lanes[1,3]	Bicycle
43	LaSalle Street - bicycle lanes[1,3]	Bicycle
44	Morreene Road/Towerview Road - bicycle lanes[1,3]	Bicycle
45	Pedestrian Esplanade Extension[8]	Pedestrian and bicycle
46	Research Drive - bicycle lanes[1,3]	Bicycle
47	Trent Drive - bicycle sharrows[1]	Bicycle
48	Yearby Avenue - bicycle lane improvements[8]	Bicycle
Old West Durham/Duke East Campus		
49	Campus Drive - bicycle lanes[1]	Bicycle
50	Swift Avenue - bicycle lanes[1,3]	Bicycle
51	Swift Avenue – sidewalks[1,7]	Pedestrian
52	Buchanan Boulevard - bicycle lanes[1,3]	Bicycle
Downtown Durham		
53	Blackwell Street - bicycle sharrows [Downtown Trail][1,5]	Bicycle

Map ID	Facility Name	Type
54	Dillard Street - bicycle sharrows[1]	Bicycle
55	Duke Street - bicycle lanes[1,3]	Bicycle
56	Fayetteville Street - bicycle lanes/road diet/sharrows[1,3]	Bicycle
57	Gregson Street - bicycle lanes[1,3]	Bicycle
58	Mangum Street - bicycle lanes[1,3]	Bicycle
59	Pettigrew Street - bicycle lanes[1,3]	Bicycle
60	Roxboro Street - bicycle lanes[1,3]	Bicycle
East Durham		
61	Alston Avenue - bicycle lanes[3]	Bicycle
62	Bacon Street - bicycle lanes[1,3]	Bicycle
63	Pettigrew Street - bicycle lanes[1,3]	Bicycle
64	Pettigrew Street – sidewalks[1]	Pedestrian
65	Plum Street Trail[6]	Pedestrian and bicycle

[1]DCHC 2040 MTP (2013), [2]Chapel Hill Bike Plan (2014), [3]Durham Comprehensive Bicycle Transportation Plan (2006), [4]Chapel Hill Greenways Master Plan (2013), [5]Chapel Hill Bicycle & Pedestrian Action Plan (2004), [6]Durham Trails and Greenways Master Plan (2011), [7]DurhamWalks! Pedestrian Plan (2006), [8]Duke Illustrative Master Plan Update (2010).

5. Environmental Consequences

The potential environmental consequences to existing and planned pedestrian and bicycle infrastructure resulting from the alternatives are assessed for each of the eight evaluation areas.

5.1 No-Build Alternative

Under the No-Build Alternative, the existing pedestrian and bicycle infrastructure discussed in Table 4-1 would remain. In addition, it is assumed that the planned pedestrian and bicycle infrastructure identified in Table 4-3 would be built.

5.2 Light Rail Alternatives

At-grade crossings of pedestrian and bicycle infrastructure, both existing and planned, are identified in Table 4-2 and Table 4-3 and shown on Figure 5-1 through Figure 5-8. The number of crossings differs by alignment alternative. The combination of the common sections of the Light Rail Alternatives, C2, and NHC 1 Alternative would have the fewest crossings with 70; while the combination of the common sections of the Light Rail Alternatives, C1A, and NHC LPA Alternative would have the most with 87. See Table 5-1.

Table 5-1: At-Grade Crossings of Existing and Planned Pedestrian and Bicycle Infrastructure

At-Grade Crossings	Light Rail Alternatives (LRA)	Little Creek Alternatives				New Hope Creek Alternatives		
		C1	C1A	C2	C2A	NHC LPA	NHC 1	NHC 2
Existing facilities	30	10	12	3	9	10	4	7
Planned facilities	28	3	5	4	4	2	1	2
Total Crossings	**58**	**13**	**17**	**7**	**13**	**12**	**5**	**9**

LRA consists of the common segments of the Light Rail Alternatives.

Figure 5-1: Existing and Planned Pedestrian Facilities

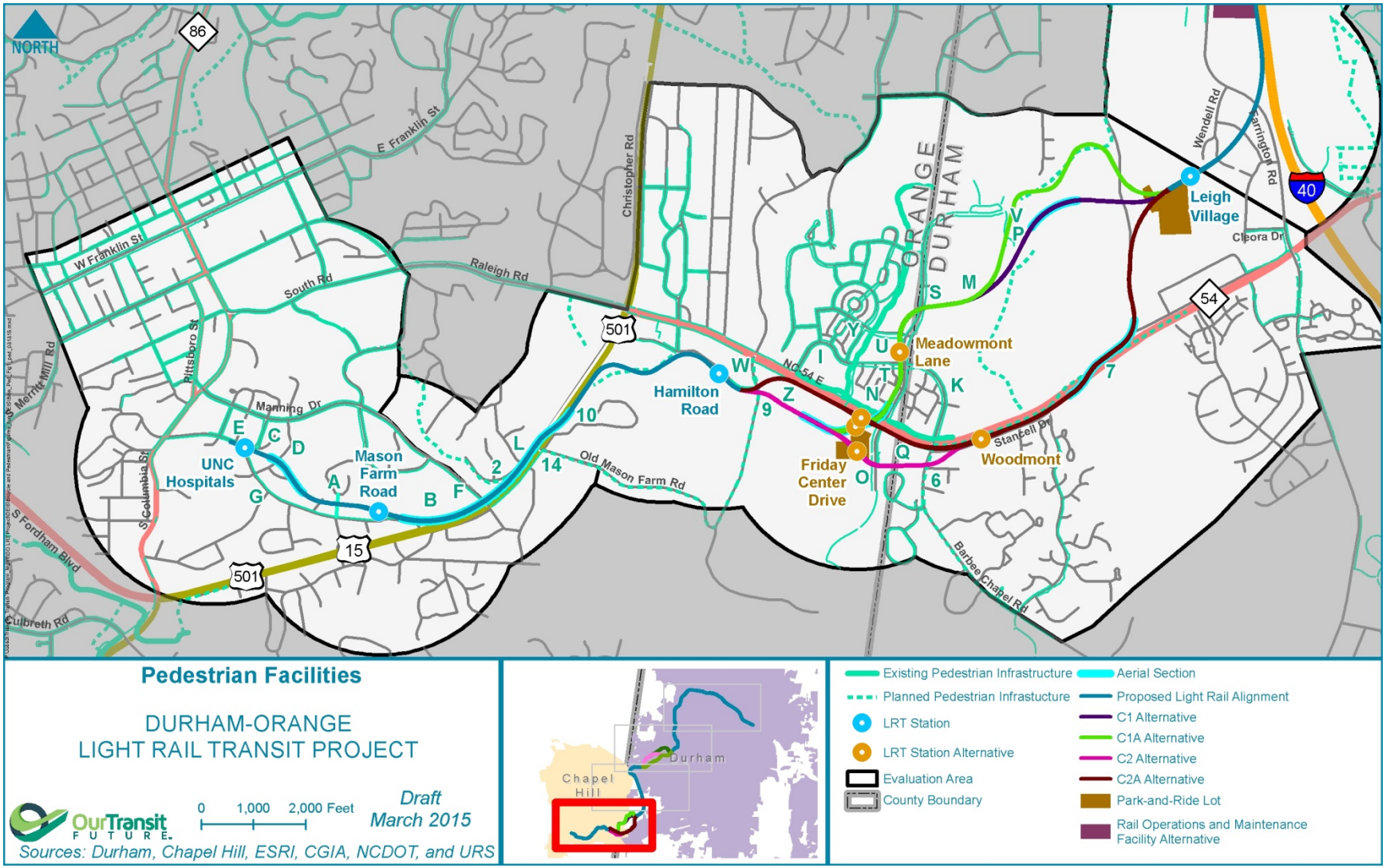


Figure 5-2: Existing and Planned Pedestrian Facilities

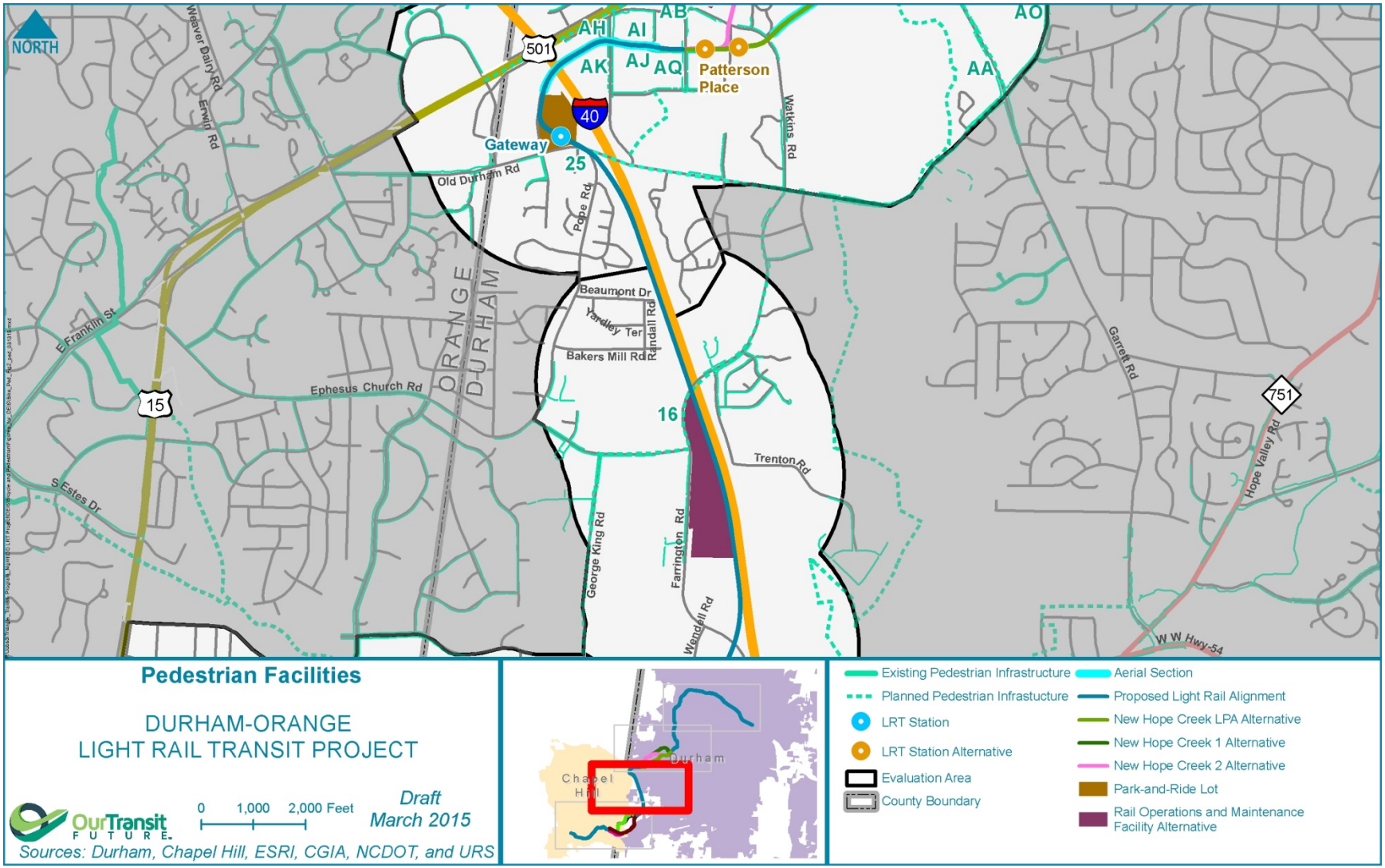


Figure 5-3: Existing and Planned Pedestrian Facilities

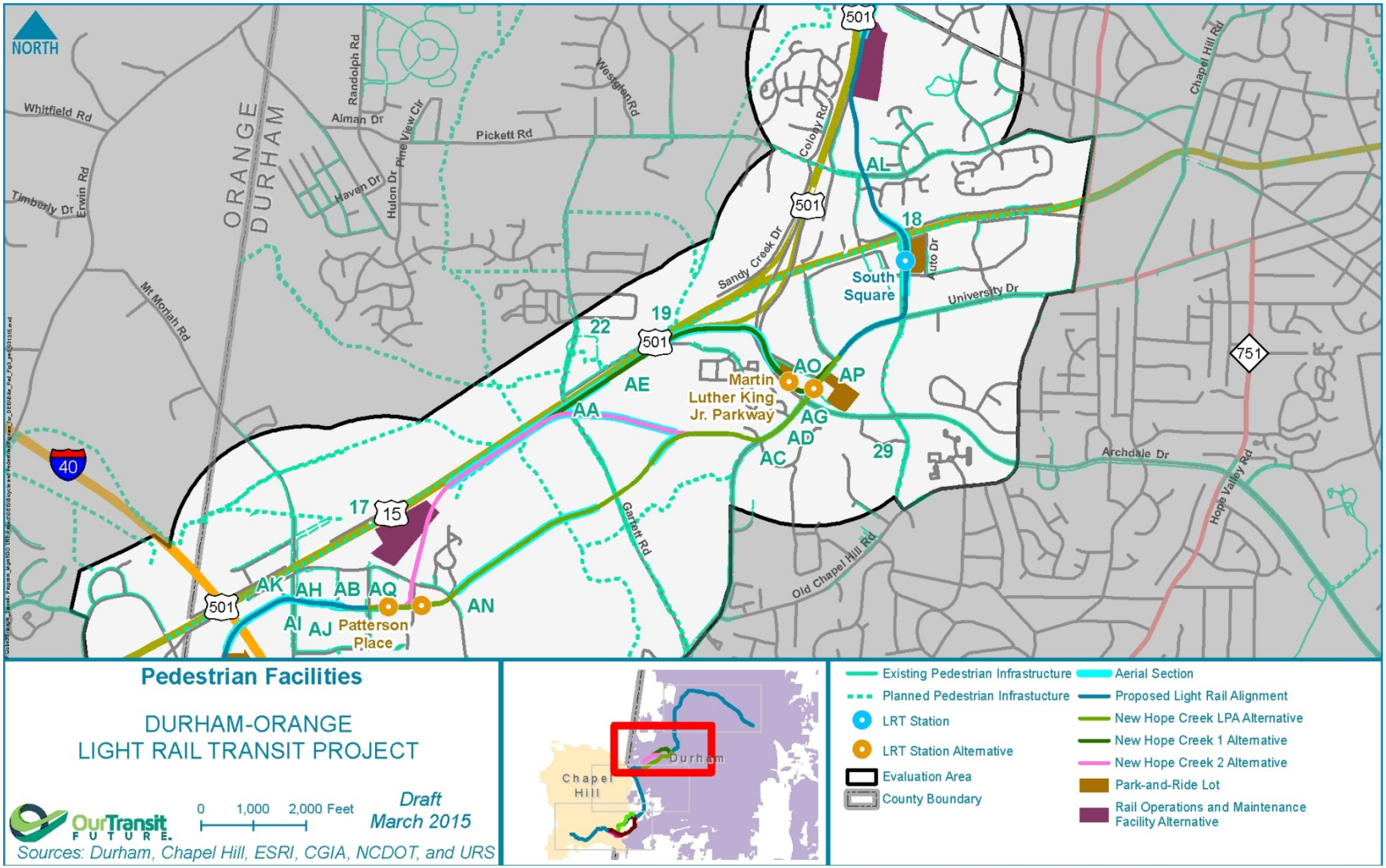


Figure 5-4: Existing and Planned Pedestrian Facilities

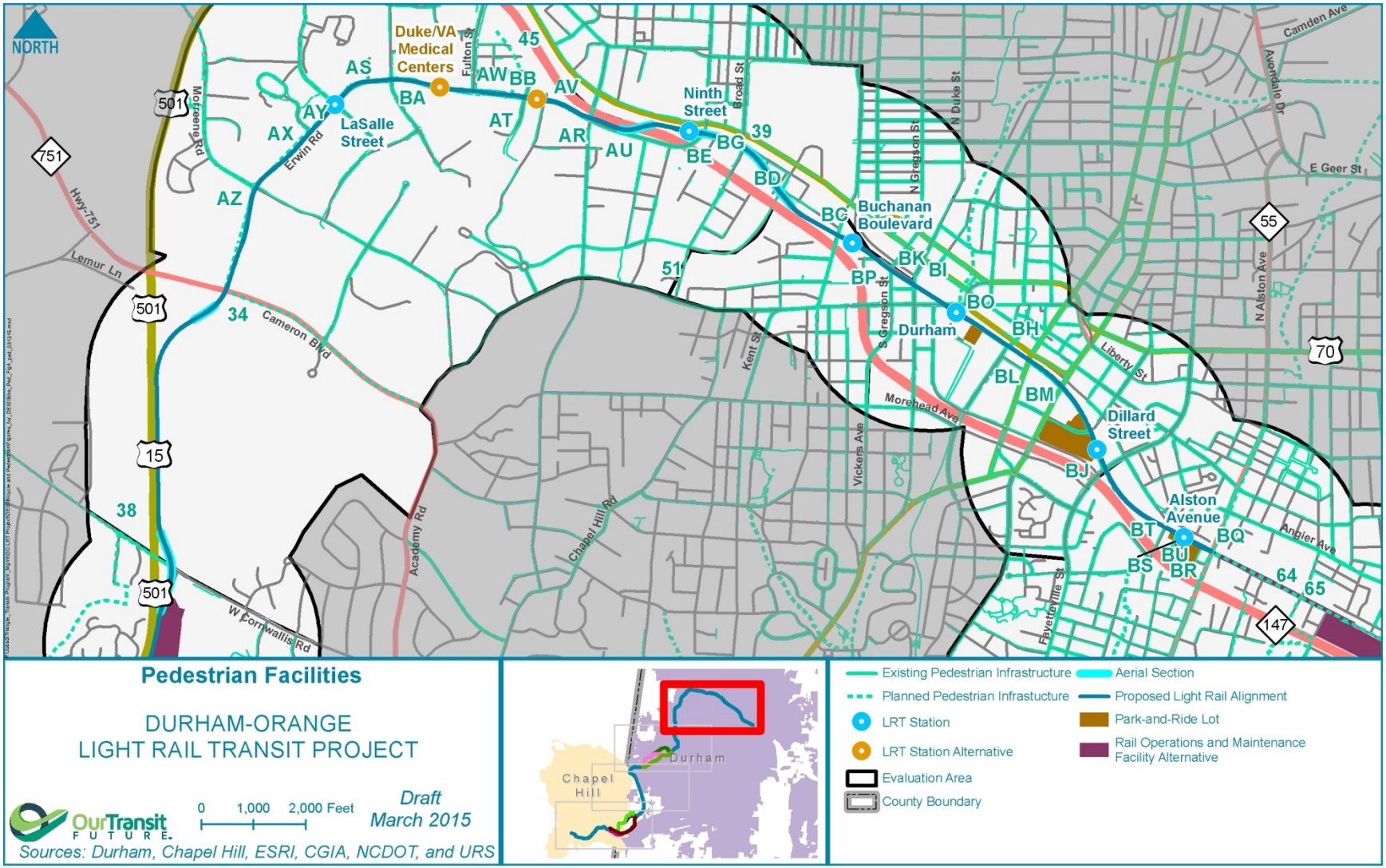


Figure 5-5: Existing and Planned Bicycle Facilities

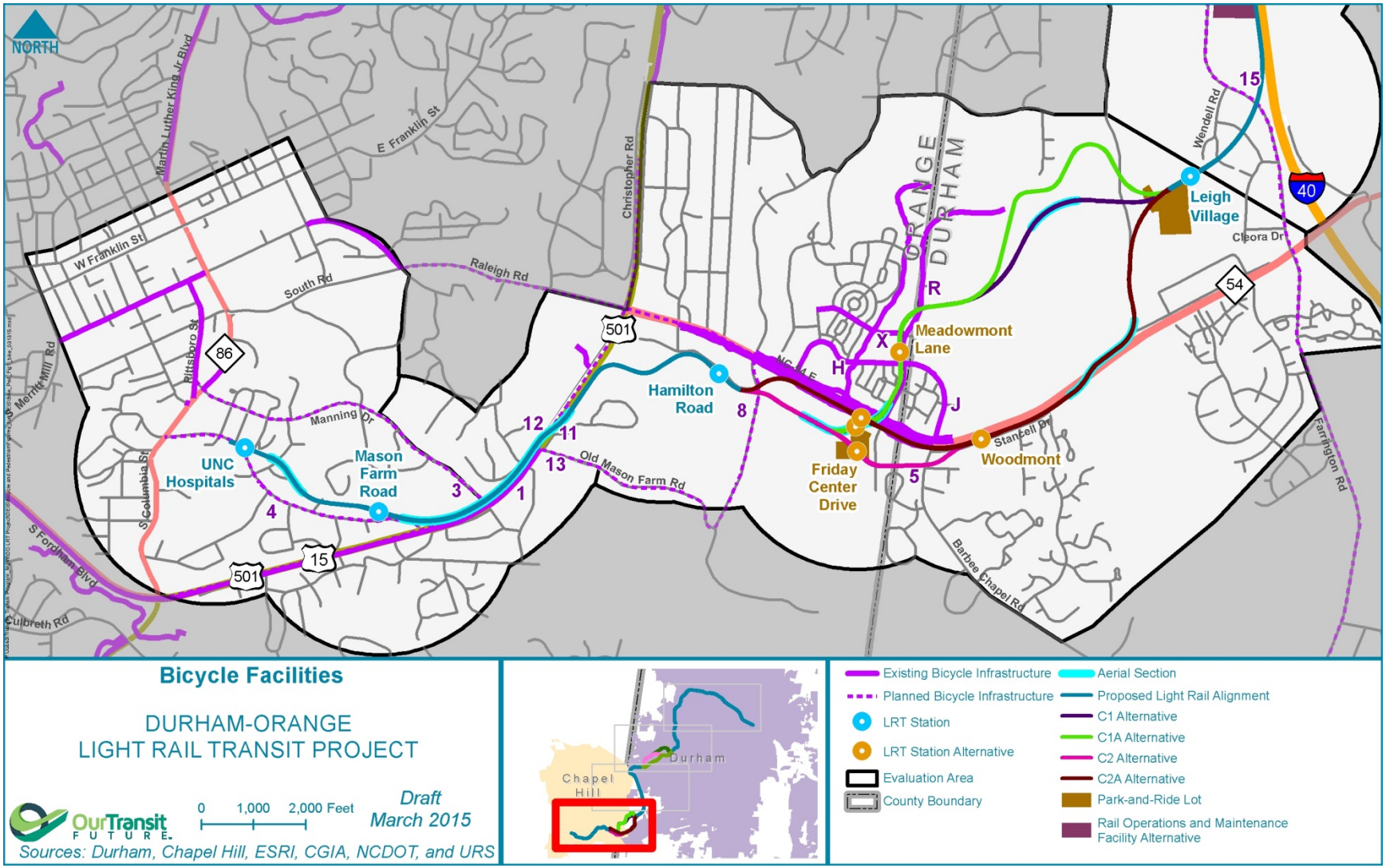


Figure 5-6: Existing and Planned Bicycle Facilities

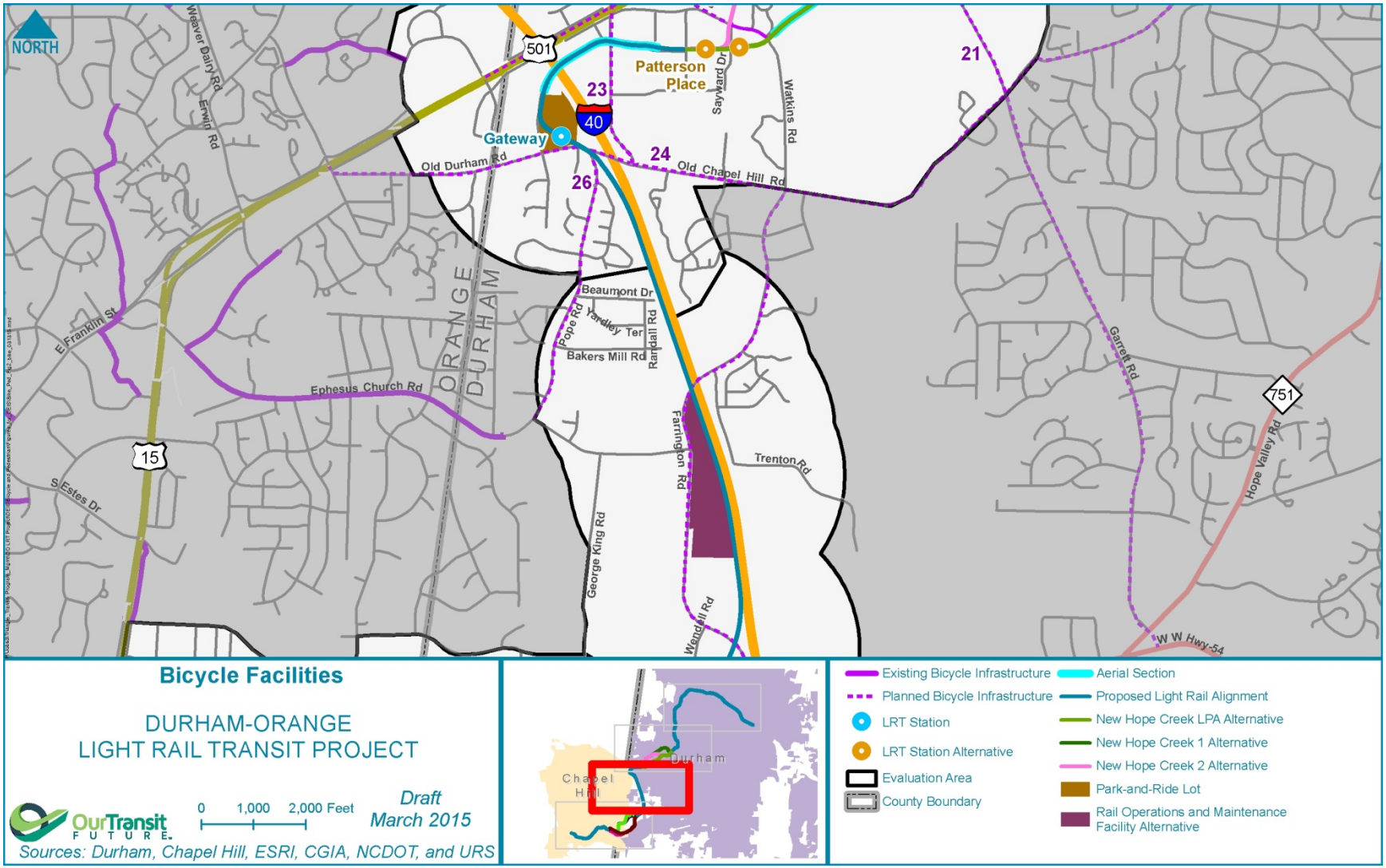


Figure 5-7: Existing and Planned Bicycle Facilities

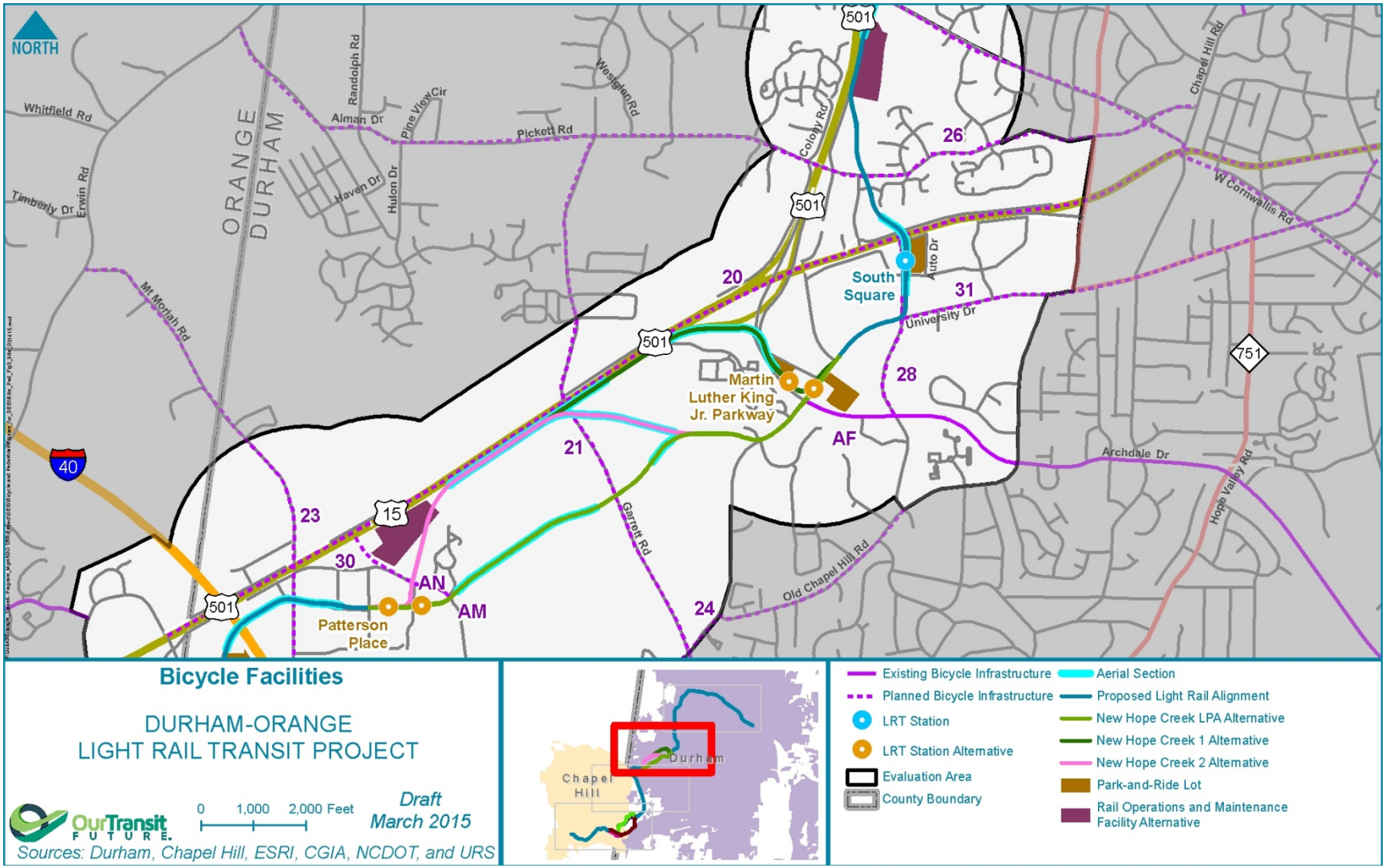
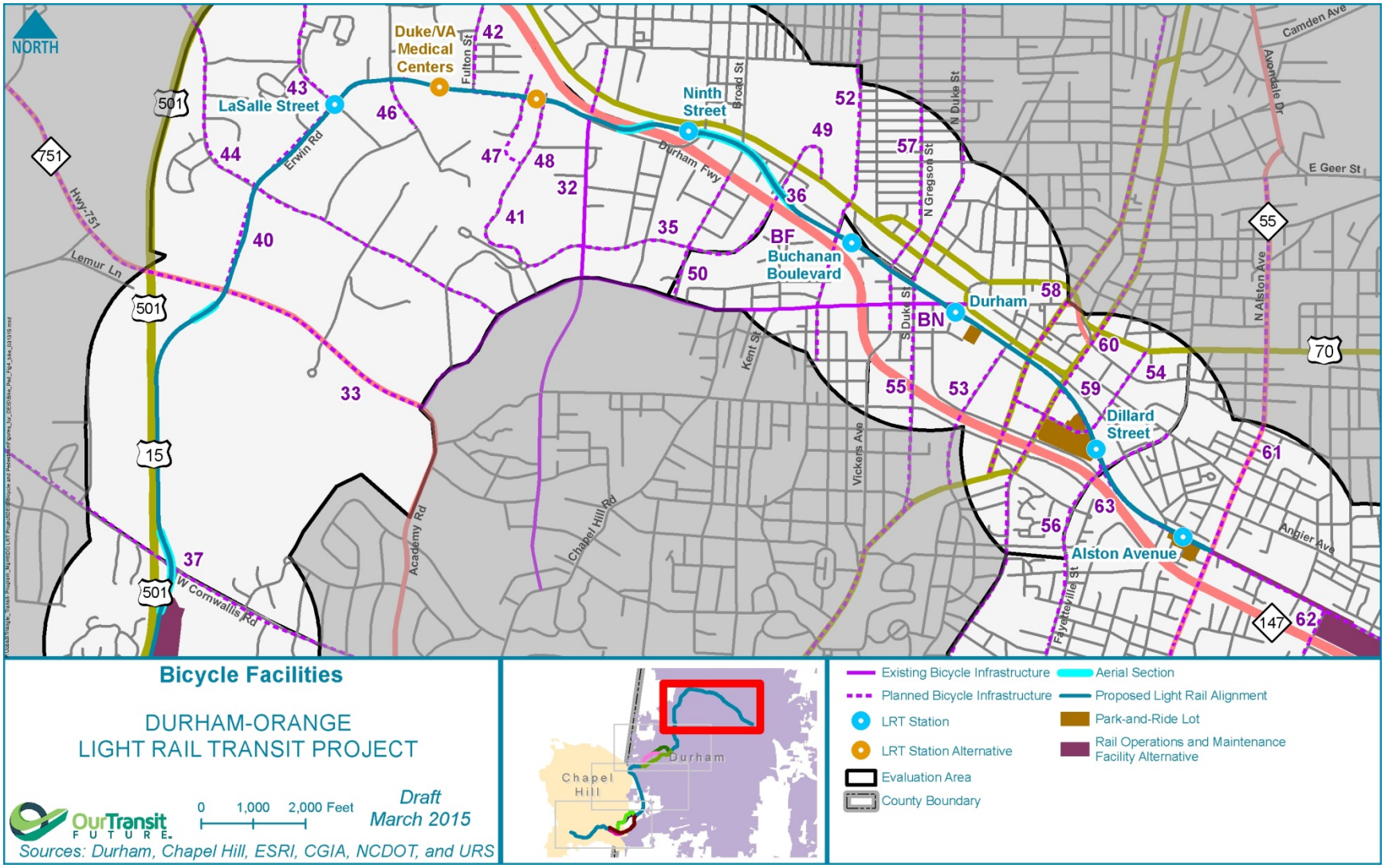


Figure 5-8: Existing and Planned Bicycle Facilities



5.2.1 Bicycle Parking

Bicycle parking would be proposed at stations as part of the Light Rail Alternatives. There are three bicycle parking designations: small (10 to 16 spaces), medium (14 to 34 spaces), and large (32 to 50 spaces). These designations were determined based on current and anticipated bicycle traffic, nearby bicycle infrastructure, and available right-of-way. Table 5-2 lists the bicycle parking designation by station. At stations with alternatives, each alternative would have the same bicycle parking designation. The proposed D-O LRT would not remove any existing or planned bicycle parking facilities.

5.2.2 Pedestrian and Bicycle Connections

The street adjacent to a station is considered to be a pedestrian connection if it has existing or planned sidewalks on one or both sides of a street. Bicycle connections are existing or planned bicycle lanes, shared lanes, paths, or greenways connecting to the station. Pedestrian and bicycle connections are summarized by station in Table 4-3.

Table 5-2: Bicycle Parking Designation and Connections by Station

Station	Pedestrian Connections	Bicycle Connections	Bicycle Parking Designation
UNC Hospitals	3	1	Large
Mason Farm Road	2	1	Medium
Hamilton Road	1	0	Medium
Friday Center Drive (3 alternatives)	2	1	Large
Meadowmont Lane	3	3	Small
Woodmont	1	1	Small
Leigh Village	1	1	Large
Gateway	2	1	Medium
Patterson Place (2 alternatives)	3	0	Medium
Martin Luther King Jr. Parkway (2 alternatives)	2	1	Medium
South Square	2	1	Medium
LaSalle Street	2	1	Large
Duke/VA Medical Centers (2 alternatives)	3	1 for Duke Eye Center 2 for Trent/Flowers Drive	Large
Ninth Street	2	0	Large
Buchanan Boulevard	1	1	Medium
Durham	2	1	Large
Dillard Street	2	1	Medium
Alston Avenue	3	0	Large

5.2.3 UNC Campus Area

In the UNC Campus Area, portions of the light rail alignment would be elevated, while other portions would be at grade. The at-grade portions would cross existing and planned pedestrian and bicycle infrastructure as summarized in Table 5-3.

Table 5-3: Pedestrian and Bicycle Crossings in the UNC Campus Area

At-Grade Crossings	Light Rail Alternatives
Pedestrian Crossings	
Existing	5
Planned	0
Subtotal	*5*
Bicycle Crossings	
Existing	0
Planned	0
Subtotal	*0*
Total Crossings	**5**

There are two proposed stations in the UNC Campus Area: UNC Hospitals and Mason Farm Road. Included in the proposed station plans are improvements for pedestrians and cyclists:

- Pedestrian bridge would connect the UNC Hospitals Station with the UNC Hospitals pedestrian walkway network via the third level of the Dogwood Parking Deck on the north side of Mason Farm Road, thereby providing pedestrian access separated from vehicular traffic to the hospitals.
- A new path would be constructed that would connect the proposed Mason Farm Road Station with the Dean Smith Center and housing on Baity Hill Drive.

Table 5-4 notes the pedestrian and bicycle connections to the stations as well as bicycle parking that would be provided.

Table 5-4: Stations in the UNC Campus Area

Station	Pedestrian Connections	Bicycle Connections	Bicycle Parking *
UNC Hospitals	**3 Connections (Map ID)**: East Drive (C) Mason Farm Road (G) Pedestrian Bridge to UNC Hospitals[1]	**1 Connection (Map ID)**: Mason Farm Road (4)	**Large**
Mason Farm Road	**2 Connections (Map ID)**: Baity Hill Drive (B) Dean Smith Center[1]	**1 Connection (Map ID):** Mason Farm Road (4)	**Medium**

*Refer to section 5.2.1 for a description of bicycle parking. [1]These facilities are included as part of the station plans and are not mapped. Refer to the *Basis for Engineering Design*, February 2015.

5.2.3.1 Pedestrian Infrastructure

Existing and planned pedestrian facilities in the vicinity of the Light Rail Alternatives within the UNC Campus Area are listed in Table 5-5.

Table 5-5: Pedestrian Infrastructure in the UNC Campus Area

Map ID	Facility	Status	Crossing Alternative	Crossing Type
A	Kenan-Flagler Business School connection to Mason Farm Road - path	Existing	LRA	At-Grade
B	Baity Hill Drive – Sidewalks	Existing	LRA	At-Grade
C	East Drive – Sidewalks	Existing	LRA	At-Grade
2	Fordham Boulevard/Chapel Hill Boulevard – Sidewalks	Planned[1]	LRA	Elevated
D	Hibbard Drive – Sidewalks	Existing	LRA	Elevated
E	Jackson Circle – Sidewalks	Existing	LRA	At-Grade
F	Manning Drive – Sidewalks	Existing	LRA	Elevated
G	Mason Farm Road - Sidewalks	Existing	LRA	At-Grade

[1]DCHC 2040 MTP (2013), LRA consists of the common segments of the Light Rail Alternatives.

5.2.3.2 Bicycle Infrastructure

Existing and planned bicycle facilities in the vicinity of the Light Rail Alternatives within the UNC Campus Area are listed in Table 5-6.

Table 5-6: Bicycle Infrastructure in the UNC Campus Area

Map ID	Facility	Status	Crossing Alternative	Crossing Type
1	Fordham Boulevard/Chapel Hill Boulevard - Bicycle Lanes	Planned[2]	LRA	Elevated
3	Manning Drive - Bicycle Lanes	Planned[1,2]	LRA	Elevated
4	Mason Farm Road - Bicycle Lanes	Planned[2]	None	None

[1]Chapel Hill Bike Plan (2014), [2]DCHC 2040 MTP (2013), LRA consists of the common segments of the Light Rail Alternatives.

5.2.4 East Chapel Hill

In the East Chapel Hill evaluation area, portions of the light rail alignment would be elevated, while other portions would be at grade. There are four alignment alternatives in the evaluation area between Finley Golf Course Road and the proposed Leigh Village Station: C1, C1A, C2, and C2A. The at-grade portions would cross existing and planned pedestrian and bicycle infrastructure as summarized in Table 5-7 by each of these alignment alternatives.

Table 5-7: Pedestrian and Bicycle Crossings in the East Chapel Hill Area

At-Grade Crossings	Light Rail Alternatives	C1 Alt.	C1A Alt.	C2 Alt.	C2A Alt.
Pedestrian Crossings					
Existing	1	7	9	3	6
Planned	0	2	4	2	2
Subtotal	*1*	*9*	*13*	*5*	*8*
Bicycle Crossings					
Existing	0	3	3	0	3
Planned	0	1	1	2	2
Subtotal	*0*	*4*	*4*	*2*	*5*
Total Crossings	**1**	**13**	**17**	**7**	**13**

There are three stations and several station alternatives proposed in the East Chapel Hill evaluation area. A crosswalk would be added on Prestwick Road by the Hamilton Road Station as part of the station plans. Table 5-8 notes the pedestrian and bicycle connections to the stations as well as bicycle parking that would be provided.

Table 5-8: Stations in the East Chapel Hill Area

Station	Pedestrian Connections	Bicycle Connections	Bicycle Parking *
Hamilton Road	**1 Connection (Map ID):** Prestwick Road (W)	**0 Connections**	**Medium**
Friday Center Drive Alternatives	**2 Connections (Map ID):** Friday Center Drive (O) Durham-Chapel Hill Greenway (N)	**1 Connection (Map ID):** Durham-Chapel Hill Greenway (N)	**Large**
Meadowmont Lane	**3 Connections (Map ID):** Barbee Chapel Road (I, K) Meadowmont Lane (S) Sprunt Street (Y)	**3 Connections (Map ID):** Barbee Chapel Road (H, J) Meadowmont Lane (R) Sprunt Street (X)	**Small**
Woodmont	**1 Connection (Map ID):** Stancell Drive[1]	**1 Connection (Map ID):** Stancell Drive[1]	**Small**

*Refer to section 4.2.1 for a description of bicycle parking. [1]These facilities are included as part of the station plans and are not mapped. Refer to the *Basis for Engineering Design*, February 2015.

This section describes walking distances (defined as the shortest Americans with Disabilities Act [ADA] accessible path) to key destinations within the corresponding evaluation areas. These distances would differ based on the station alternative. Table 5-9 compares the walking distances from the proposed Friday Center, Meadowmont Lane, and Woodmont Stations to the Friday Center, Meadowmont Development, The Exchange, and Downing Creek Neighborhood for the station alternatives associated with the Little Creek alignment alternative (C1, C1A, C2, or C2A).

Table 5-9: Approximate Distances to Destinations in the Vicinity of the Friday Center and Meadowmont Development (feet)

Destination	Friday Center Station C1 and C1A Alt.	Friday Center Station C2 Alt.	Friday Center Station C2A Alt.	Meadowmont Lane Station C1 and C1A Alt.	Woodmont Station C2 and C2A Alt.
Friday Center	950	400	1,400	Served by Friday Center Station C1 and C1A Alternative	Served by Friday Center Station C2 or C2A Alternative
Meadowmont Village	Served by Meadowmont Station Alternative	2,300	1,700	700	Served by Friday Center Station C2 or C2A Alternative
The Exchange	2,100	1,900	1,800	Served by Friday Center Station C1 and C1A Alternative	Served by Friday Center Station C2 or C2A Alternative
Downing Creek Neighborhood	4,000	Served by Woodmont Station Alternative	Served by Woodmont Station Alternative	Served by Friday Center Station Alternative C1 and C1A	1,300

5.2.4.1 Pedestrian

Existing and planned pedestrian facilities in the vicinity of the Light Rail Alternatives within the East Chapel Hill evaluation area are listed in Table 5-10. The following improvements to pedestrian infrastructure would be implemented as a part of this project:

- Near the Hamilton Road Station, a pedestrian crossing would be constructed under the alignment in order to retain pedestrian connectivity between the Highland Woods neighborhood and Prestwick Road to the north.
- Under the C2A Alternative, the multi-use path on the south side of NC 54 would be reconstructed south of the alignment between The Exchange and Barbee Chapel Road. The existing tunnel for pedestrians and cyclists would be extended.

Table 5-10: Pedestrian Infrastructure in the East Chapel Hill Area

Map ID	Facility	Status	Crossing Alternative	At-Grade Change
I, K	Barbee Chapel Road - Sidewalks	Existing	C1, C1A	At-Grade
6	Barbee Chapel Road - Sidewalks	Planned[1,3]	C2, C2A	At-Grade
L	Carmichael Street - Sidewalks	Existing	LRA	Elevated
M	Cedar Pond Lane - Sidewalks	Existing	C1, C1A	At-Grade
N	Durham-Chapel Hill Greenway	Existing	C2A	At-Grade
			C1, C1A	Elevated
7	Durham-Chapel Hill Greenway Extension	Planned[2]	C2, C2A	Elevated
9	Finley Golf Course Road - Sidewalks	Planned[1,2,3]	C1, C1A, C2, C2A	At-Grade
O	Friday Center Drive - Sidewalks	Existing	C2, C2A	At-Grade
P	Iron Mountain Road - Sidewalks	Existing	C1A	At-Grade
Q	Marriot Way - Sidewalks	Existing	C2	At-Grade
S	Meadowmont Lane - Sidewalks	Existing	C1, C1A	At-Grade
T	Meadowmont Lane Driveways - Sidewalks	Existing	C1, C1A	At-Grade
U	Meadowmont Trail	Existing	None	None
10	NC 54 - Sidewalks	Planned[3]	C1, C1A	Elevated
14	Old Mason Farm Road - Sidewalks	Planned[1,2,3]	None	None
V	Park Bluff Drive - Sidewalks	Existing	C1A	At-Grade
W	Prestwick Road - Sidewalks	Existing	C1, C1A, C2, C2A	At-Grade
Y	Sprunt Street - Sidewalks	Existing	C1, C1A	At-Grade
Z	The Exchange - Sidewalks	Existing	C2A	At-Grade

[1]Chapel Hill Bicycle & Pedestrian Action Plan, [2]Chapel Hill Greenways Master Plan (2013), [3]DCHC 2040 MTP (2013), LRA consists of the common segments of the Light Rail Alternatives.

5.2.4.2 Bicycle

Existing and planned bicycle facilities in the vicinity of the Light Rail Alternatives within the East Chapel Hill evaluation area are listed in Table 5-11. The following improvements to bicycle infrastructure would be implemented as a part of this project:

Under the C2A alternative, the multi-use path on the south side of NC 54 would be reconstructed south of the alignment between The Exchange and Barbee Chapel Road. The existing tunnel for pedestrians and cyclists would be extended.

Table 5-11: Bicycle Infrastructure in the East Chapel Hill Area

Map ID	Facility	Status	Crossing Alternative	Crossing Type
5	Barbee Chapel Road - Bicycle Lanes	Planned[4]	C2, C2A	At-Grade
H, J	Barbee Chapel Road - Bicycle Lanes	Existing	C1, C1A	At-Grade
N	Durham-Chapel Hill Greenway	Existing	C2A	At-Grade
			C1, C1A	Elevated
7	Durham-Chapel Hill Greenway Extension	Planned[2]	C2, C2A	Elevated
8	Finley Golf Course Road - Bicycle Lanes	Planned[1,2,3]	C1, C1A, C2, C2A	At-Grade
R	Meadowmont Lane - Bicycle Lanes	Existing	C1, C1A	At-Grade
U	Meadowmont Trail	Existing	None	None
11	NC 54 Greenway	Planned[5]	LRA	Elevated
12	NC 54/Raleigh Road - Bicycle Lanes	Planned[3,4,5]	C1, C1A	Elevated
13	Old Mason Farm Road - Bicycle Lanes	Planned[1,2,3,5]	None	None
X	Sprunt Street - Bicycle Lanes	Existing	C1, C1A	At-Grade

[1]Chapel Hill Bike Plan (2014), [2]Chapel Hill Greenways Master Plan (2013), [3]DCHC 2040 MTP (2013), [4]Durham Comprehensive Bicycle Transportation Plan (2006), [5]Durham Trails and Greenways Master Plan (2011), LRA consists of the common segments of the Light Rail Alternatives.

5.2.5 Leigh Village

In the Leigh Village evaluation area, the light rail alignment would be at grade. The alignment would be under the Farrington Road bridge across I-40. As summarized in Table 5-12, the alignment would not cross any existing facilities at grade; it would cross one planned bicycle facility.

Table 5-12: Pedestrian and Bicycle Crossings in the Leigh Village Area

At-Grade Crossings	Light Rail Alternatives
Pedestrian Crossings	
Existing	0
Planned	0
Subtotal	*0*
Bicycle Crossings	
Existing	0
Planned	1
Subtotal	*1*
Total Crossings	**1**

Leigh Village is the only proposed station in the Leigh Village evaluation area. Table 5-13 notes the pedestrian and bicycle connections to the station as well as bicycle parking that would be provided.

Table 5-13: Stations in the Leigh Village Area

Station	Pedestrian Connections	Bicycle Connections	Bicycle Parking *
Leigh Village	**1 Connection:** Multi-Use Path included in station plans[1]	**1 Connection:** Multi-Use Path included in station plans[1]	**Large**

*Refer to section 4.2.1 for a description of bicycle parking. [1]These facilities are included as part of the station plans and are not mapped. Refer to the *Basis for Engineering Design*, February 2015.

5.2.5.1 Pedestrian

There is currently no pedestrian infrastructure in the vicinity of the proposed Leigh Village Station. The proposed alignment would cross Farrington Road in two locations and would cross streets in residential neighborhoods. As noted in Table 5-14, an on-street trail is proposed on Farrington Road. The alignment would cross under the trail at the Farrington Road bridge across I-40. As part of this project, a multi-use path would be built parallel to the alignment between George King Road and Farrington Road. Sidewalks would be included on new streets constructed as part of the station plans.

Table 5-14: Pedestrian Infrastructure in the Leigh Village Area

Map ID	Facility	Status	Crossing Alternative	Crossing Type
16	Little Creek Connector Trail (On-Road)	Planned[1]	LRA	Elevated

[1]Durham Trails and Greenways Master Plan (2011), LRA consists of the common segments of the Light Rail Alternatives.

5.2.5.2 Bicycle

There are no existing bicycle facilities in the vicinity of the Light Rail Alternatives within the Leigh Village evaluation area. Bicycle lanes are planned on Farrington Road and are listed in Table 5-15. As part of this project, a multi-use path would be built parallel to the alignment between George King Road and Farrington Road.

Table 5-15: Bicycle Infrastructure in the Leigh Village Area

Map ID	Facility	Status	Crossing Alternative	Crossing Type
15	Farrington Road - Bicycle Lanes	Planned[1,2]	LRA	At-Grade
			LRA	Elevated

[1]DCHC 2040 MTP (2013), [2]Durham Comprehensive Bicycle Transportation Plan (2006), LRA consists of the common segments of the Light Rail Alternatives.

5.2.6 US 15-501 Corridor

In the US 15-501 Corridor evaluation area, portions of the light rail alignment would be elevated while other portions would be at grade. There are three alignment alternatives in the evaluation area between the proposed Patterson Place Station and the Martin Luther King Jr. Parkway Station: NHC LPA, NHC 1, and NHC 2. The at-grade portions would cross existing and planned pedestrian and bicycle infrastructure as summarized in Table 5-16 for each of these alignment alternatives.

Table 5-16: Pedestrian and Bicycle Crossings in the US 15-501 Corridor

At-Grade Crossings	Light Rail Alternatives	NHC LPA	NHC 1	NHC 2
Pedestrian Crossings				
Existing	1	8	4	7
Planned	2	0	0	0
Subtotal	*3*	*8*	*4*	*7*
Bicycle Crossings				
Existing	0	2	0	0
Planned	5	2	1	2
Subtotal	*5*	*4*	*1*	*2*
Total Crossings	**8**	**12**	**5**	**9**

There are four stations and several station alternatives proposed in the US 15-501 Corridor evaluation area. Table 5-17 notes the pedestrian and bicycle connections to the stations as well as bicycle parking that would be provided. At Gateway Station, sidewalks would be added as a part of this project to Old Chapel Hill Road and White Oak Road. In the NHC LPA Alternative, McFarland Drive would be extended to Southwest Durham Drive, thereby adding a pedestrian connection between Patterson Place and commercial and residential developments on Southwest Durham Drive.

The Martin Luther King Jr. Parkway Station would be located on the east side of Martin Luther King Jr. Parkway under the NHC 1 Alternative. There is currently no pedestrian infrastructure on this road and the speed limit is 55 miles per hour (mph), which is considerably higher than the 35 mph speed limit on University Drive where the station would be located in either of the NHC LPA and NHC 2 alternatives. University Drive currently has sidewalks, and bicycle lanes are planned as well.

Included in the proposed station plans under the NHC 1 Alternative is a pedestrian bridge across University Drive to connect the station with the proposed park-and-ride lot. This bridge would have ramps instead of elevators.

This section describes walking distances (defined as the shortest ADA accessible path) to key destinations within the corresponding evaluation areas. These distances would differ based on the Station alternative. Table 5-18 compares the walking distances from the two Patterson Place station alternatives to the Patterson Place commercial development and Colonial Grand at Patterson Place apartments. Table 5-19 compares the walking distances from the two Martin Luther King Jr. Parkway Station alternatives to Blue Cross Blue Shield, ITT Technical Institute Durham Campus, the proposed South Square park-and-ride, and several nearby apartment complexes.

Table 5-17: Stations in the US 15-501 Corridor

Station	Pedestrian Connections	Bicycle Connections	Bicycle Parking *
Gateway	**2 Connections (Map ID):** Old Chapel Hill Road (25) White Oak Road[1]	**1 Connection (Map ID):** Old Chapel Hill Road (24)	**Medium**
Patterson Place NHC LPA	**3 Connections (Map ID):** McFarland Drive (AH) Sayward Drive North[1] Sayward Drive South[1]	**0 Connections**	**Medium**
Patterson Place NHC 1/ NHC 2	**3 Connections (Map ID):** McFarland Drive (AH) Sayward Drive[1] Witherspoon Boulevard (AQ)	**0 Connections**	**Medium**
Martin Luther King Jr. Parkway LPA, NHC 2	**2 Connections (Map ID):** Lyckan Parkway (AE) University Drive (AO)	**1 Connection (Map ID):** University Drive (31)	**Medium**
Martin Luther King Jr. Parkway NHC 1	**2 Connections (Map ID):** Martin Luther King Jr. Parkway (AG) University Drive (AO)	**1 Connection (Map ID):** University Drive (31)	**Medium**
South Square	**2 Connections (Map ID):** Auto Park Drive[1] Shannon Road (29)	**1 Connection (Map ID):** Shannon Road (28)	**Medium**

*Refer to section 4.2.1 for a description of bicycle parking. [1]These facilities are included as part of the station plans and are not mapped. Refer to the *Basis for Engineering Design*, February 2015.

Table 5-18: Approximate Distances to Destinations in the Vicinity of Patterson Place Station Alternatives (feet)

Destination	Patterson Place Station: NHC LPA	Patterson Place Station: NHC 1 and NHC 2
Patterson Place (commercial development)	1,600	850
Colonial Grand at Patterson Place (apartments)	1,700	2,000

Table 5-19: Approximate Distances to Destinations in the Vicinity of Martin Luther King Jr. Parkway Station Alternatives (feet)

Destination	Martin Luther King Jr. Parkway Station: NHC LPA and NHC 2	Martin Luther King Jr. Parkway Station: NHC 1
Blue Cross Blue Shield	1,800	2,200
ITT Technical Institute Durham campus	1,000	1,300
Martin Luther King Jr. Parkway Station park-and-ride lot	1,000	1,400
Apartment Complexes (Alden Place at South Square, Mission University Pines, Westgate Condos)	1,800	2,100

5.2.6.1 Pedestrian

Existing and planned pedestrian facilities in the vicinity of the Light Rail Alternatives within the US 15-501 Corridor evaluation area are listed in Table 5-20. The names of the facilities listed in the table refer to the name that is included in the source plan. With widening of University Drive to accommodate light rail will increase the time it takes pedestrians to cross the street. The following pedestrian improvements would be implemented as a part of this project:

- Sidewalks added to Old Chapel Hill Road and White Oak Road by the proposed Gateway Station
- Station in the median of University Drive, which will create a pedestrian refuge for those crossing the street, under the NHC LPA and NHC 2 Alternatives
- Pedestrian bridge over University Drive connecting the proposed Martin Luther King Jr. Parkway Station and park-and-ride lot under the NHC 1 Alternative

Table 5-20: Pedestrian Infrastructure in the US 15-501 Corridor

Map ID	Facility	Status	Crossing Alternative	Crossing Type
17	Durham-Chapel Hill Boulevard A1-Sidewalks	Planned[1]	None	None
18	Durham-Chapel Hill Boulevard A2-Sidewalks	Planned[1,2]	LRA	Elevated
19	Durham-Chapel Hill Boulevard A4-Sidewalks	Planned[1]	None	None
20	Durham-Chapel Hill Boulevard Sidepath	Planned[1,3]	LRA	Elevated
AA	Garrett Road - Sidewalks	Existing	NHC LPA	At-Grade
			NHC 1, NHC 2	Elevated
22	Garrett Road A4 - Sidewalks	Planned[1,2]	None	None
AB	Honeycutt Drive - Sidewalks	Existing	LRA	Elevated
AC	Ivy Creek Boulevard/Snow Crest Trail - Sidewalks	Existing	NHC LPA, NHC 2	At-Grade
AD	Larchmont Road - Sidewalks	Existing	NHC LPA, NHC 2	At-Grade
AE	Lyckan Parkway - Sidewalks	Existing	NHC LPA, NHC 1, NHC 2	At-Grade
AG	Martin Luther King Jr. Parkway - Sidewalks	Existing	NHC LPA, NHC 2	At-Grade
AH	McFarland Drive - Sidewalks	Existing	LRA	Elevated
AI	McFarland Drive Driveway 1 - Sidewalks	Existing	LRA	Elevated
AJ	McFarland Drive Driveway 2 - Sidewalks	Existing	LRA	Elevated
AK	Mount Moriah Road - Sidewalks	Existing	LRA	Elevated
25	Old Durham Road/Old Chapel Hill Road - Sidewalks	Planned[1]	LRA	At-Grade
AL	Pickett Road - Sidewalks	Existing	LRA	At-Grade
29	Shannon Road - Sidewalks	Planned[1,2]	LRA	At-Grade
AN	Southwest Durham Drive - Sidewalks	Existing	NHC LPA	At-Grade
AO	University Drive - Sidewalks	Existing	NHC LPA, NHC 2	At-Grade
AP	Westgate Drive - Sidewalks	Existing	NHC LPA, NHC 1, NHC 2	At-Grade
AQ	Witherspoon Boulevard - Sidewalks	Existing	NHC LPA, NHC 1, NHC 2	At-Grade

[1]DCHC 2040 MTP (2013), [2]DurhamWalks! Pedestrian Plan (2006), [3]Durham Comprehensive Bicycle Transportation Plan (2006), LRA consists of the common segments of the Light Rail Alternatives.

5.2.6.2 Bicycle

Existing and planned bicycle facilities in the vicinity of the Light Rail Alternatives within the US 15-501 Corridor evaluation area are listed in Table 5-21. The *Basis for Engineering Design*, February 2015, for the proposed D-O LRT Project would accommodate bicycle lanes on University Drive.

Table 5-21: Bicycle Infrastructure in the US 15-501 Corridor

Map ID	Facility	Status	Crossing Alternative	Crossing Type
20	Durham-Chapel Hill Boulevard Sidepath	Planned[1,2]	LRA	Elevated
21	Garrett Road - Bicycle Lanes	Planned [1,2]	NHC LPA	At-Grade
			NHC 1, NHC 2	Elevated
AF	Martin Luther King Jr. Parkway - Bicycle Lanes	Existing	None	None
23	Mount Moriah Road - Bicycle Lanes	Planned[1,2]	LRA	Elevated
24	Old Durham Road/Old Chapel Hill Road - Bicycle Lanes	Planned[1,2]	LRA	At-Grade
26	Pickett Road - Bicycle Lanes	Planned[1,2]	LRA	At-Grade
27	Pope Road - Bicycle Lanes	Planned[1,2]	LRA	At-Grade
28	Shannon Road - Bicycle Lanes	Planned[1,2]	LRA	At-Grade
30	Southwest Durham Drive - Bicycle Lane	Planned[1]	NHC 1, NHC 2	At-Grade
AM	Southwest Durham Drive - Bicycle Lane	Existing	NHC LPA	At-Grade
31	University Drive - Bicycle Lanes	Planned[1,2]	LRA, NHC LPA, NHC 2	At-Grade

[1]DCHC 2040 MTP (2013), [2]Durham Comprehensive Bicycle Transportation Plan (2006), LRA consists of the common segments of the Light Rail Alternatives.

5.2.7 Duke West Campus and Medical Center

In the Duke West Campus and Medical Center evaluation area, most of the light rail alignment would be at grade while some portions would be elevated. The at-grade portions would cross existing and planned pedestrian and bicycle infrastructure as summarized in Table 5-22.

Table 5-22: Pedestrian and Bicycle Crossings in the Duke West Campus and Medical Center Area

At-Grade Crossings	Light Rail Alternatives
Pedestrian Crossings	
Existing	10
Planned	1
Subtotal	*11*
Bicycle Crossings	
Existing	0
Planned	0
Subtotal	*9*
Total Crossings	**20**

There are two stations and two station alternatives proposed in the Duke West Campus and Medical Center evaluation area: LaSalle Street and Duke/VA Medical Centers Stations. The Duke/VA Medical Centers Station has two alternatives Duke Eye Center and Trent/Flowers Drive. Table 5-23 notes the pedestrian and bicycle connections to the stations as well as bicycle parking that would be provided.

Table 5-23: Stations in the Duke West Campus and Medical Center Area

LaSalle Street	**2 Connections (Map ID):** Erwin Road (AU) LaSalle Street (AY)	**1 Connection (Map ID):** LaSalle Street (43)	**Large**
Duke/VA Medical Centers: Duke Eye Center	**3 Connections (Map ID):** Duke Eye Center[1] Erwin Road (AU) VA Medical Center[1]	**1 Connection (Map ID):** Fulton Street (42)	**Large**
Duke/VA Medical Centers: Trent/Flowers Drive	**3 Connections (Map ID):** Erwin Road (AU) Flowers Drive (AV) Trent Drive (BB)	**2 Connections (Map ID):** Flowers Drive (41) Trent Drive (47)	**Large**

*Refer to section 4.2.1 for a description of bicycle parking. [1]These facilities are included as part of the station plans and are not mapped. Refer to the *Basis for Engineering Design*, February 2015.

This section describes walking distances (defined as the shortest ADA accessible path) to key destinations within the corresponding evaluation areas. These distances would differ based on the station alternative. Table 5-24 compares the walking distances from the Duke/VA Medical Centers Station alternatives to the Durham VA Medical Center, Duke University Medical Center, and Duke University Chapel, at the center of Duke University's main academic campus (West Campus).

Table 5-24: Distances to Destinations in the Vicinity of Duke/VA Medical Center Station Alternatives

Destination	Duke/VA Medical Centers Station: Duke Eye Center	Duke/VA Medical Centers Station: Trent/Flowers Drive
Durham VA Medical Center	1,300	1,600
Duke University Medical Center	950	1,200
Duke University (Duke University Chapel)	3,400	3,900

5.2.7.1 Pedestrian

Existing and planned pedestrian facilities in the vicinity of the Light Rail Alternatives within the Duke West Campus and Medical Center evaluation area are listed in Table 5-25. As part of this project, a sidewalk would be added to the east side of Erwin Road. The existing pedestrian tunnel connecting a parking deck in the northeast corner of Fulton Street and Erwin Road with the Duke University Medical Center on the south side of Erwin Road would remain.

Table 5-25: Pedestrian Infrastructure in the Duke West Campus and Medical Center Area

Map ID	Facility	Status	Crossing Alternative	Crossing Type
AR	Anderson Street - Sidewalks	Existing	LRA	At-Grade
34	Cameron Boulevard - Sidewalks	Planned[1,3]	LRA	Elevated
38	Cornwallis Road - Sidewalks	Planned[1,3]	LRA	Elevated
AS	Downing Street - Sidewalks	Existing	LRA	At-Grade
39	East Campus Pedestrian way (Broad Street and Perry Street)	Planned[2]	None	None
AT	Emergency Drive - Sidewalks	Existing	LRA	At-Grade
AU	Erwin Road - Sidewalks	Existing	LRA	At-Grade
			LRA	Elevated
AV	Flowers Drive - Sidewalks	Existing	LRA	At-Grade
AW	Fulton Street - Sidewalks	Existing	LRA	At-Grade
AX	Lambeth Circle - Sidewalks	Existing	None	None
AY	LaSalle Street - Sidewalks	Existing	LRA	At-Grade
AZ	Morreene Road - Sidewalks	Existing	LRA	At-Grade
45	Pedestrian Esplanade Extension	Planned[2]	LRA	At-Grade
BA	Research Drive - Sidewalks	Existing	LRA	At-Grade
BB	Trent Drive - Sidewalks	Existing	LRA	At-Grade

[1]DCHC 2040 MTP (2013), [2]Duke Illustrative Master Plan Update (2010), [3]DurhamWalks! Pedestrian Plan (2006), LRA consists of the common segments of the Light Rail Alternatives.

5.2.7.2 Bicycle

Existing and planned bicycle facilities in the vicinity of the Light Rail Alternatives within the Duke West Campus and Medical Center evaluation area are listed in Table 5-26. Bicycle lanes called for by the DCHC 2040 MTP along Erwin Road from Cameron Boulevard to Anderson Street would not be accommodated by this project due to right-of-way constraints (*Basis for Engineering Design*, February 2015).

Table 5-26: Bicycle Infrastructure in the Duke West Campus and Medical Center Area

Map ID	Facility	Status	Crossing Alternative	Crossing Type
32	Anderson Street - Bicycle Lanes	Planned[3]	LRA	At-Grade
33	Cameron Boulevard - Bicycle Lanes	Planned[3]	LRA	At-Grade
35	Campus Drive	Planned[2]	None	None
36	Campus Drive - Bicycle Lanes	Planned[1]	None	None
37	Cornwallis Road - Shoulder and Bicycle Lane	Planned[1,3]	LRA	Elevated
40	Erwin Road - Bicycle Lanes	Planned[1,3]	LRA	At-Grade
41	Flowers Drive - Bicycle Lanes	Planned[1,2,3]	LRA	At-Grade
42	Fulton Street - Bicycle Lanes	Planned[1,3]	LRA	At-Grade
43	LaSalle Street - Bicycle Lanes	Planned[1,3]	LRA	At-Grade
44	Morreene Road/Towerview Road -Bicycle Lanes	Planned[1,3]	LRA	At-Grade
46	Research Drive - Bicycle Lanes	Planned[1,3]	LRA	At-Grade
47	Trent Drive - Bicycle Sharrows	Planned[1]	LRA	At-Grade
48	Yearby Avenue - Bicycle Lane Improvements	Planned[2]	None	None

[1]DCHC 2040 MTP (2013), [2]Duke Illustrative Master Plan Update (2010), [3]Durham Comprehensive Bicycle Transportation Plan (2006), LRA consists of the common segments of the Light Rail Alternatives.

5.2.8 Old West Durham/Duke East Campus

In the Old West Durham/Duke East Campus evaluation area, portions of the light rail alignment would be elevated, while other portions would be at grade. The at-grade portions would cross existing and planned pedestrian and bicycle infrastructure as summarized in Table 5-27.

Table 5-27: Pedestrian and Bicycle Crossings in the Old West Durham/Duke East Campus Area

At-Grade Crossings	Light Rail Alternatives
Pedestrian Crossings	
Existing	1
Planned	0
Subtotal	*1*
Bicycle Crossings	
Existing	0
Planned	1
Subtotal	*1*
Total Crossings	**2**

There are two proposed stations in the Old West Durham/Duke East Campus evaluation area: Ninth Street and Buchanan Boulevard. The sidewalk would be completed on Pettigrew Street between Erwin Road and Swift Street as part of the station plans for the Ninth Street Station. Table 5-28 notes the pedestrian and bicycle connections to the stations as well as bicycle parking that would be provided.

Table 5-28: Stations in the Old West Durham/Duke East Campus Area

Station	Pedestrian Connections	Bicycle Connections	Bicycle Parking *
Ninth Street	**2 Connections (Map ID)**: Erwin Road (BE) Pettigrew Street (64)	**0 Connections**	**Large**
Buchanan Boulevard	**1 Connection (Map ID)**: Buchanan Boulevard (BC)	**1 Connection (Map ID)**: Buchanan Boulevard (52)	**Medium**

*Refer to section 4.2.1 for a description of bicycle parking.

5.2.8.1 Pedestrian

Existing and planned pedestrian facilities in the vicinity of the Light Rail Alternatives within the Old West Durham/Duke East Campus evaluation area are listed in Table 5-29. The sidewalk would be completed on Pettigrew Street between Erwin Road and Swift Street.

Table 5-29: Pedestrian Infrastructure in the Old West Durham/Duke East Campus Area

Map ID	Facility	Status	Crossing Alternative	Crossing Type
BC	Buchanan Boulevard - Sidewalks	Existing	LRA	At-Grade
BD	Campus Drive - Sidewalks	Existing	LRA	Elevated
BE	Erwin Road - Sidewalks	Existing	LRA	Elevated
51	Swift Avenue - Sidewalks	Planned[1,2]	LRA	Elevated

[1]DCHC 2040 MTP (2013), [2]DurhamWalks! Pedestrian Plan (2006), LRA consists of the common segments of the Light Rail Alternatives.

5.2.8.2 Bicycle

Existing and planned bicycle facilities in the vicinity of the Light Rail Alternatives within the Old West Durham/Duke East Campus evaluation area are listed in Table 5-30.

Table 5-30: Bicycle Infrastructure in the Old West Durham/Duke East Campus Area

Map ID	Facility	Status	Crossing Alternative	Crossing Type
52	Buchanan Boulevard - Bicycle Lanes	Planned[1,2]	LRA	At-Grade
49	Campus Drive - Bicycle Lanes	Planned[1]	LRA	Elevated
BF	Maxwell Avenue – Bicycle Lanes	Existing	None	None
50	Swift Avenue - Bicycle Lanes	Planned[1,2]	LRA	Elevated

[1]DCHC 2040 MTP (2013), [2]Durham Comprehensive Bicycle Transportation Plan (2006), LRA consists of the common segments of the Light Rail Alternatives.

5.2.9 Downtown Durham

In the Downtown Durham evaluation area, portions of the light rail alignment would be elevated, while other portions would be at grade. The at-grade portions would cross existing and planned pedestrian and bicycle infrastructure as summarized in Table 5-31.

Table 5-31: Pedestrian and Bicycle Crossings in the Downtown Durham Area

At-Grade Crossings	Light Rail Alternatives
Pedestrian Crossings	
Existing	7
Planned	0
Subtotal	*7*
Bicycle Crossings	
Existing	1
Planned	8
Subtotal	*9*
Total Crossings	**16**

There are two proposed stations in the Downtown Durham evaluation area: Durham and Dillard Street Stations. Table 5-32 notes the pedestrian and bicycle connections to the stations as well as bicycle parking that would be provided.

Table 5-32: Stations in the Downtown Durham Area

Station	Pedestrian Connections	Bicycle Connections	Bicycle Parking *
Durham	**2 Connections (Map ID):** Pettigrew Street (64) West Chapel Hill Street (BO)	**1 Connection (Map ID):** West Chapel Hill Street (BN)	**Large**
Dillard Street	**2 Connections (Map ID):** Dillard Street[1] Pettigrew Street (64)	**1 Connection (Map ID):** Dillard Street (54)	**Medium**

*Refer to section 4.2.1 for a description of bicycle parking. [1]This facility is included as part of the station plans and is not mapped. Refer to the *Basis for Engineering Design*, February 2015.

5.2.9.1 Pedestrian

Existing and planned pedestrian facilities in the vicinity of the Light Rail Alternatives within the Downtown Durham evaluation area are listed in Table 5-33. As part of this project, sidewalks would be added to Dillard Street connecting the proposed Dillard Street Station with Fayetteville Street.

Table 5-33: Pedestrian Infrastructure in the Downtown Durham Area

Map ID	Facility	Status	Crossing Alternative	Crossing Type
BH	Blackwell Street - Sidewalks [Downtown Trail]	Existing	LRA	At-Grade
BI	Duke Street - Sidewalks	Existing	LRA	At-Grade
BJ	Fayetteville Street - Sidewalks	Existing	LRA	At-Grade
BK	Gregson Street - Sidewalks	Existing	LRA	At-Grade
BL	Mangum Street - Sidewalks	Existing	LRA	At-Grade
BM	Roxboro Street - Sidewalks	Existing	LRA	At-Grade
BO	West Chapel Hill Street - Sidewalks	Existing	LRA	At-Grade
BP	Wilkerson Avenue - Sidewalks	Existing	LRA	At-Grade

LRA consists of the common segments of the Light Rail Alternatives.

5.2.9.2 Bicycle

Existing and planned bicycle facilities in the vicinity of the Light Rail Alternatives within the Downtown Durham evaluation area are listed in Table 5-34. The DCHC 2040 MTP proposes bicycle lanes on Pettigrew Street. Due to right-of-way constraints, this project would not accommodate these bicycle lanes (*Basis for Engineering Design*, February 2015).

Table 5-34: Bicycle Infrastructure in the Downtown Durham Area

Map ID	Facility	Status	Crossing Alternative	Crossing Type
53	Blackwell Street - Bicycle Sharrows [Downtown Trail]	Planned[1,3]	LRA	At-Grade
54	Dillard Street - Bicycle Sharrows	Planned[1]	LRA	At-Grade
55	Duke Street - Bicycle Lanes	Planned[1,2]	LRA	At-Grade
56	Fayetteville Street - Bicycle Lanes/Road Diet/Sharrows	Planned[1,2]	LRA	At-Grade
57	Gregson Street - Bicycle Lanes	Planned[1,2]	LRA	At-Grade
58	Mangum Street - Bicycle Lanes	Planned[1,2]	LRA	At-Grade
59	Pettigrew Street - Bicycle Lanes	Planned[1,2]	LRA	At-Grade
60	Roxboro Street - Bicycle Lanes	Planned[1,2]	LRA	At-Grade
BN	West Chapel Hill Street - Bicycle Lane	Existing	LRA	At-Grade

[1]DCHC 2040 MTP (2013), [2]Durham Comprehensive Bicycle Transportation Plan (2006), [3]Durham Trails and Greenways Master Plan (2011), LRA consists of the common segments of the Light Rail Alternatives.

5.2.10 East Durham

In the East Durham evaluation area the light rail alignment would be at grade with one elevated crossing over Alston Avenue. The at-grade crossings of existing and planned pedestrian and bicycle infrastructure are summarized in Table 5-35.

Table 5-35: Pedestrian and Bicycle Crossings in the East Durham Area

At-Grade Crossings	Light Rail Alternatives
Pedestrian Crossings	
Existing	4
Planned	1
Subtotal	*5*
Bicycle Crossings	
Existing	0
Planned	0
Subtotal	*0*
Total Crossings	**5**

There is one proposed station in the East Durham evaluation area: Alston Avenue. Table 5-36 notes the pedestrian and bicycle connections to the station as well as bicycle parking that would be provided.

Table 5-36: Stations in the East Durham Area

Station	Pedestrian Connections	Bicycle Connections	Bicycle Parking *
Alston Avenue	**3 Connections (Map ID):** Chatham Place (BR) Colfax Street (BS) Pettigrew Street (64)	**0 Connections**	**Large**

*Refer to section 4.2.1 for a description of bicycle parking.

5.2.10.1 Pedestrian

Existing and planned pedestrian facilities in the vicinity of the Light Rail Alternatives within the East Durham evaluation area are listed in Table 5-37.

Table 5-37: Pedestrian Infrastructure in the East Durham Area

Map ID	Facility	Status	Crossing Alternative	Crossing Type
BQ	Alston Avenue - Sidewalks (R.K. Bryant Connector)	Existing	LRA	Elevated
BR	Chatham Place - Sidewalks	Existing	LRA	At-Grade
BS	Colfax Street - Sidewalks	Existing	LRA	At-Grade
BT	Grant Street - Sidewalks	Existing	LRA	At-Grade
BU	Murphy Street - Sidewalks	Existing	LRA	At-Grade
64	Pettigrew Street - Sidewalks	Planned[1]	LRA	At-Grade

[1]DCHC 2040 MTP (2013), LRA consists of the common segments of the Light Rail Alternatives.

5.2.10.2 Bicycle

Existing and planned bicycle facilities in the vicinity of the Light Rail Alternatives within the East Durham evaluation area are listed in Table 5-38. The DCHC 2040 MTP proposes bicycle lanes on Pettigrew Street.

Due to right-of-way constraints, this project would not accommodate bicycle lanes on Pettigrew Street (*Basis for Engineering Design*, February 2015).

Table 5-38: Bicycle Infrastructure in the East Durham Area

Map ID	Facility	Status	Crossing Alternative	Crossing Type
61	Alston Avenue - Bicycle Lanes	Planned[2]	LRA	Elevated
63	Pettigrew Street - Bicycle Lane	Planned[1,2]	LRA	At-Grade*

[1]DCHC 2040 MTP (2013), [2]Durham Comprehensive Bicycle Transportation Plan (2006), LRA consists of the common segments of the Light Rail Alternatives.

*Planned bicycle lanes on Pettigrew Street would not be accommodated due to limited right-of-way as shown in the *Basis for Engineering Design*, February 2015. This is counted as one crossing in the Downtown Durham evaluation area.

5.2.11 Rail Operations and Maintenance Facilities

There are five alternatives for a proposed ROMF as part of the Light Rail Alternatives, which are listed in Table 5-39. The only ROMF alternative that would result in at-grade crossings of existing and planned pedestrian and bicycle infrastructure is the Alston Avenue ROMF, which is in the East Durham evaluation area. The crossings are summarized in Table 5-39.

Table 5-39: Pedestrian and Bicycle Crossings at the Alston Avenue ROMF

At-Grade Crossings	Light Rail Alternatives
Pedestrian Crossings	
Existing	0
Planned	2
Subtotal	*2*
Bicycle Crossings	
Existing	0
Planned	4
Subtotal	*4*
Total Crossings	**6**

5.2.11.1 Pedestrian

Existing and planned pedestrian facilities in the vicinity of the Light Rail Alternatives at the Alston Avenue ROMF are listed in Table 5-40.

Table 5-40: Pedestrian Infrastructure at the Alston Avenue ROMF

Map ID	Facility	Status	Crossing Alternative	Crossing Type
64	Pettigrew Street – Sidewalk	Planned[1]	LRA	At-Grade
65	Plum Street Trail	Planned[2]	LRA	At-Grade

[1]DCHC 2040 MTP (2013), [2]Durham Trails and Greenways Master Plan (2011), LRA consists of the common segments of the Light Rail Alternatives.

5.2.11.2 Bicycle

Existing and planned bicycle facilities in the vicinity of the Light Rail Alternatives and the Alston Avenue ROMF are listed in Table 5-41. The DCHC 2040 MTP proposes bicycle lanes on Pettigrew Street. Due to right-of-way constraints, this project would not accommodate bicycle lanes (*Basis for Engineering Design*, February 2015).

Table 5-41: Bicycle Infrastructure at the Alston Avenue ROMF

Map ID	Facility	Status	Crossing Alternative	Crossing Type
62	Bacon Street – Bicycle Lane	Planned[1,2]	LRA	At-Grade
63	Pettigrew Street – Bicycle Lane	Planned[1]	LRA	At-Grade
64	Plum Street Trail	Planned[3]	LRA	At-Grade

[1]DCHC 2040 MTP (2013), [2]Durham Comprehensive Bicycle Transportation Plan (2006), [3]Durham Trails and Greenways Master Plan (2011), LRA consists of the common segments of the Light Rail Alternatives.

6. Mitigation Measures

Mitigation measures for the Light Rail Alternatives are contained in the following sections.

6.1 No-Build Alternative

The No-Build Alternative includes other transportation projects that are presumed to be constructed – even if the proposed D-O LRT Project is not built. The sponsor(s) of those projects will perform environmental studies to establish mitigation requirements as required by law.

6.2 Light Rail Alternatives

Sidewalks, crosswalks, curb ramps, and other pedestrian infrastructure that would be impacted by the light rail would be rebuilt or enhanced as depicted in the *Basis for Engineering Design* (February 2015). Examples of enhancements that would be anticipated as part of project-related roadway reconstruction include installing wider replacement sidewalks along some segments, and installing new sidewalk where there are currently gaps.

As noted in sections 5.2.7 and 5.2.8, planned bicycle lanes would not be accommodated with the reconstruction of Erwin Road and Pettigrew Street. To mitigate this loss of opportunity for on-street bicycle facilities on these two roadways, Triangle Transit 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.

The Durham City-County Planning Department is currently refining the Compact Neighborhood Tier boundaries in station areas. The Compact Neighborhood Tier promotes high density and intensity infill, redevelopment, and new development that integrates a mix of uses through an urban fabric.(Durham City-County Planning Department, 2005) The application of the Compact Neighborhood Tier would efficiently focus a mix of land uses woven together in a compact area with supportive transportation infrastructure to encourage the use of non-motorized transportation, such as walking, bicycling and transit. This type of development pattern would therefore be less dependent on motorized vehicle travel than the existing land use patterns, which are more typical of conventional automobile-oriented suburban development.

The result of this Durham City-County Planning Department work will guide City and County staff, elected officials, and the development community on future development proposals and rezonings. The application of Compact Neighborhoods in proposed station areas, where this DEIS currently proposes roadway modifications, including the Martin Luther King Jr. Parkway, South Square, LaSalle Street, and Duke / VA Medical Centers stations, may result in a change in transportation modes and traffic operations. As such, it will be important to balance the currently proposed roadway modifications that support more vehicle traffic based on existing transportation policies and land uses, with the emerging need to provide a more comprehensive transportation network to support compact development that is safe and inviting for people who are walking, riding bicycles, or riding transit both along and across these roadways.

Coordination with the City of Durham and NCDOT will continue during the Engineering phase to refine the recommended roadway modifications currently identified in this DEIS, particularly as the City develops transportation standards for the areas designated as Compact Neighborhoods. If new transportation design strategies or evaluation policies emerge that are more supportive of the Compact

Neighborhood land use designations, then mitigation strategies may be refined. Examples of refined mitigation measures may include: provision of fewer travel or turn lanes; incorporation of additional bicycle and pedestrian infrastructure, where practicable; and, the development of Travel Demand Management programs to further encourage mode shifts from personal automobiles to transit and non-motorized travel in the station areas.

Pedestrian crossings of light rail tracks will be designed in accordance with current ADA design requirements and standards to ensure access and mobility for all users. Station areas will be designed according to best management practices for pedestrian and bicycle safety. Measures will be taken to discourage pedestrians from crossing the tracks outside of designated track crossings and to enhance safety at permitted crossing locations, such as by providing pedestrian signals and well-marked crosswalks.

If impacts to pedestrian and bicycle facilities cannot be avoided, potential reconstruction options and design guidelines will be discussed with agencies that have jurisdiction over those facilities. If pedestrian and bicycle facilities have restrictive covenants due to funds used for construction, these requirements will also be addressed. Potential indirect effects to pedestrian and bicycle facilities, including safety concerns and visual impacts, will also be identified.