

DIN 01609

# Fordham Boulevard Traffic Technical Report

Durham-Orange Light Rail Transit Project



**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 21<sup>st</sup> 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
AA	Alternatives Analysis
DEIS	Draft Environmental Impact Statement
D-O	Durham-Orange
I-40	Interstate 40
LPA	Locally Preferred Alternative
LRT	Light Rail Transit
NC	North Carolina
NCRR	North Carolina Railroad
NHC	New Hope Creek
ROMF	Rail operations and maintenance facility
US	United States
VA	Veteran Affairs



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### 1. Introduction

Through the Alternatives Analysis (AA) process completed in 2012, which included extensive public outreach, a Locally Preferred Alternative (LPA) was selected in September 2012 to address the purpose and need of the Durham-Orange (D-O) Corridor. The proposed project is a 17.1 mile double-track light rail transit (LRT) line with 17 proposed stations that will greatly expand transit service in Durham and Orange Counties. The study segment in this Fordham Boulevard Traffic Technical Memo includes the one-mile corridor that runs southeast of the UNC Hospitals in the Town of Chapel Hill.

#### 1.1 Description of the Proposed D-O LRT

The proposed D-O LRT alignment generally follows North Carolina (NC) Highway 54 (NC 54), Interstate 40 (I-40), United States (US) 15-501, and the North Carolina Railroad (NCRR) Corridor in downtown Durham and east Durham. The proposed alignment begins in Chapel Hill at UNC Hospitals, parallels Fordham Boulevard, proceeds eastward adjacent to NC 54, travels north along I-40, parallels US 15-501 before it turns east towards Duke University and runs within Erwin Road, and then follows the NCRR Corridor that parallels NC Highway 147 (NC 147) through downtown Durham, before reaching its eastern terminus in Durham near Alston Avenue. A total of 17 stations are planned, and approximately 5,000 parking spaces along the D-O LRT alignment will be provided. In addition, a rail operations and maintenance facility (ROMF) will be constructed to accommodate the D-O LRT fleet. It should be noted that the ROMF location is anticipated to generate minimal traffic during the peak hours. As such, those impacts were not evaluated as part of this report.

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

#### 1.2 Proposed Project Alternatives

The Draft Environmental Impact Statement (DEIS) will examine the potential environmental impacts of the LRT alternative as well as a small number of alignment, station, and ROMF siting alternatives, including the following:

- Crossing of Little Creek between the Friday Center and the proposed Leigh Village Development (i.e., Alternatives C1, C1A, C2, C2A and associated station locations)
- Crossing of New Hope Creek (NHC) and Sandy Creek between Patterson Place and South Square (i.e., NHC-LPA, NHC Alternatives 1 and 2 and associated station locations)
- Station alternatives at Duke and Durham Veteran Affairs (VA Medical Centers)
- Five proposed locations for the ROMF

In addition to the LRT, the DEIS will consider a No-Build alternative, which includes the existing and programmed transportation network improvements, with the exception of planned rail improvements and associated bus network modifications.



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### 2. Study Area

Fordham Boulevard is a four-lane divided facility with two northbound travel lanes and two southbound travel lanes separated by a center grass median. It should be noted that Fordham Boulevard is planned to be widened from four lanes to six lanes in the future 2040 No-Build Conditions as part of U-5304. The original study segment extends along Fordham Boulevard from Kings Mill Road to Old Mason Farm Road evaluating the following study intersections which are also shown in the attached study area (DEIS appendix K3 Traffic Analysis Methodology):

- Fordham Boulevard at Kings Mill Road (unsignalized intersection)
- Fordham Boulevard at Mason Farm Road (unsignalized intersection)
- Fordham Boulevard at Manning Drive
- Fordham Boulevard at Old Mason Farm Road

Fordham Boulevard at Manning Drive and Fordham Boulevard at Old Mason Farm Road are signalized under current traffic conditions, whereas the intersections of Fordham Boulevard at Kings Mill Road and Fordham Boulevard at Mason Farm Road have stop-controlled side street approaches.

### 3. D-O LRT Findings

Due to the close proximity of the study intersections to the D-O LRT alignment, these intersections were originally included in the scope of the Draft Environmental Impact Statement (DEIS), which examined the potential environmental impacts of the LRT alternative. Since the scoping of the DEIS, LRT alignment designs have been developed for the Fordham Boulevard segment that eliminate any interaction with the at-grade roadway. The designs for the proposed D-O LRT alignment near Fordham Boulevard and are included in the *Basis for Engineering Design* plans (DEIS appendix L). The D-O LRT alignment would leave the Mason Farm Road Station and immediately proceed north elevated (above grade) along the west side of Fordham Boulevard, cross Manning Drive and Carmichael Street above grade, then cross Fordham Boulevard above grade to reach the eastern side of the roadway north of Old Mason Farm Road before continuing towards NC 54. One LRT station, the Mason Farm Road Station, is proposed for implementation along this section to the north of Kings Mill Road along Mason Farm Road.

Since the D-O LRT alignment would be elevated in the study area and does not interact with traffic along Fordham Boulevard, traffic controls at each intersection are assumed to remain the same as the Existing Conditions under the No-Build and Build Alternatives. With the U-5304 widening incorporated in the No-Build Alternative, the only difference between the No-Build and Build Alternative would be the elevated D-O LRT tracks with no modifications proposed to the Fordham Boulevard roadway or intersections. As a result, there will be no effects or impacts to vehicular traffic along Fordham Boulevard from the D-O LRT alignment.