# 701 MARTIN LUTHER KING, JR. BOULEVARD RESIDENTIAL

## TRANSPORTATION IMPACT ANALYSIS - FINAL

## EXECUTIVE SUMMARY

**Prepared for:**

The Town of Chapel Hill
Public Works Department - Engineering

**Prepared by:**

***HNTB North Carolina, PC***

*343 East Six Forks Road*
*Suite 200*
*Raleigh, NC 27609*

*NCBELS License #: C-1554*

April 2025

HNTB

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# EXECUTIVE SUMMARY

## Project Overview

A new development known as 701 Martin Luther King, Jr. Boulevard Residential, located at the intersection of Longview Street and NC 86 (Martin Luther King Jr. Boulevard), is being proposed in Chapel Hill. The project proposes to construct a new residential multi-story building featuring 175 units and 1,500 square feet of restaurant space on two existing parcels in the northwest quadrant of the intersection. **Figure ES-1** shows the general location of the site. The project is anticipated to be fully complete by 2028. This report analyzes the complete build-out scenario for the year 2029 (one year after anticipated completion), the no-build scenario for 2029, as well as 2024 existing year traffic conditions.

The proposed site concept plan shows one vehicular access point and one service vehicle access point along Longview Street. This vehicular access driveway will serve a proposed on-site parking deck. **Figure ES-2** displays the concept plan for the 701 Martin Luther King, Jr. Boulevard Residential development and nearby land uses and roadways. The project is expected to provide approximately 290 parking spaces in the on-site parking garage.

### Study Area Summary

This report analyzes and presents the transportation impacts that the 701 Martin Luther King, Jr. Boulevard Residential development will have on the following intersections in the project study area:

- NC 86 (Martin Luther King Jr. Boulevard) and Umstead Drive / Hillsborough Street
- NC 86 (Martin Luther King Jr. Boulevard) and Longview Street / Mill Creek Apartments Driveway
- NC 86 (Martin Luther King Jr. Boulevard) and North Street / N. Columbia Street
- Longview Street and Proposed Site Full Access Driveway

The site is located north of downtown Chapel Hill along NC 86 (Martin Luther King, Jr. Boulevard) in the northwest quadrant of its intersection with Longview Street. The study area contains three signalized intersections along NC 86. NC 86 is a major arterial facility providing connectivity between the UNC Main Campus/downtown area, north Chapel Hill, and the region. Remaining study area network roadways are either collector streets or local neighborhood access streets. The existing study area transportation network features numerous bus routes and connected sidewalks and bicycle facilities.

### Site Traffic Generation

With the addition of new peak hour trips during the weekday AM, noon, and PM peak hours, there are potential site traffic impacts to the study area intersections. **Table ES-1** shows the site trip generation details, with generation rates and methodologies taken from the *Institute of Transportation Engineers (ITE) Trip Generation Manual, Version 11*. A 10 percent reduction in vehicle trips for other transportation modes (pedestrian, bicycle, transit) was assumed for the residential land uses.

**Table ES-1. Weekday Vehicle Trip Generation Summary**

| Trip Generation Statistic | Daily | | | AM Peak Hour | | | Noon Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Enter | Exit | Total | Enter | Exit | Total | Enter | Exit | Total | Enter | Exit | Total |
| **Multi-Family Mid-Rise (ITE LUC 221) & High Turnover Sit-Down Restaurant (ITE LUC 832)** | 436 | 436 | 872 | 25 | 54 | 79 | 32 | 37 | 69 | 51 | 36 | 87 |

**Background Traffic**
Background traffic growth for the 2029 analysis year is expected to come from two sources - ambient regional traffic growth and specific development-related traffic growth. Based on existing information, five Town-approved development projects (Aura, E. Rosemary Street Parking Deck, 150 E. Rosemary Street Office Building, Link Rosemary Apartments, and W. Rosemary Street Hotel) in or near the project study area are expected to background traffic growth by the 2029 analysis year. All remaining estimated traffic growth in the area is assumed to occur due to overall region-wide ambient growth with an area-wide traffic growth percentage of 1.0 percent per year applied to existing traffic volumes based on information from the historic daily traffic growth patterns in the project study (NCDOT and Town daily traffic information) and comparison of current 2024 traffic count data to pre-COVID conditions.

## Impact Analysis

**Peak Hour Intersection Traffic Simulation Level-of-Service ($LOS_S$)**
Study results indicate existing traffic operations at all study area intersections are acceptable during the AM, noon, and PM weekday peak hours. 2029 build-out year+1 background traffic growth impacts are minimal, assuming periodic retiming of the three study area traffic signals by the Town of Chapel Hill. The addition of peak hour site-generated trips to the projected 2029 background traffic volumes, do not cause any additional study area intersections to experience deficient traffic operations in any peak hour. A summary of the traffic operations for each intersection, related to vehicular delays (intersection average as a whole if signalized, critical movement if stop-controlled) and the corresponding simulation Level-of-Service ($LOS_S$) is shown in **Table ES-2.**

**Table ES-2. LOS and Delay (Seconds/Vehicle) Summary**

| Intersections | Peak Hour | 2024 Existing | | 2029 No-Build | | 2029 Build | | 2029 Mitigated | |
|---|---|---|---|---|---|---|---|---|---|
| | | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay |
| NC 86 (Martin Luther King, Jr. Blvd) & Umstead Drive / Hillsborough Street | AM | B | 15.0 | B | 15.4 | B | 14.7 | N/A | N/A |
| | NOON | B | 15.9 | B | 15.0 | B | 15.2 | N/A | N/A |
| | PM | C | 22.3 | C | 22.1 | C | 22.8 | N/A | N/A |
| NC 86 (Martin Luther King, Jr. Blvd) & Longview Street / Mill Creek Apartments Driveway | AM | A | 7.6 | A | 6.8 | A | 8.6 | N/A | N/A |
| | NOON | A | 6.0 | A | 5.0 | A | 6.6 | N/A | N/A |
| | PM | A | 8.7 | A | 8.8 | A | 9.7 | N/A | N/A |
| NC 86 (Martin Luther King, Jr. Blvd) & N. Columbia Street / North Street | AM | A | 8.7 | A | 9.3 | A | 9.0 | N/A | N/A |
| | NOON | B | 13.3 | B | 13.5 | B | 13.5 | N/A | N/A |
| | PM | B | 13.4 | B | 14.3 | B | 16.0 | N/A | N/A |
| Longview Street & Proposed Site Driveway | AM | N/A | N/A | N/A | N/A | B | 13.2 | N/A | N/A |
| | NOON | N/A | N/A | N/A | N/A | A | 6.9 | N/A | N/A |
| | PM | N/A | N/A | N/A | N/A | C | 17.9 | N/A | N/A |

N/A – Not Applicable or No Improvements Necessary
***BOLD/ITALICS –*** Critical Movement or Overall Intersection Requires Mitigation Per Town TIA Guidelines
* - Worst-Case LOS/Delay for Unsignalized/Stop-Controlled Critical Movement

**Access Analysis**
Vehicular site access is to be accommodated via one proposed site driveway connection to Longview Street located approximately 125 feet from the signalized intersection of NC 86 and Longview Street. Driveway throat length is not shown on the proposed site concept plan and should be designed to provide at least 50 feet of storage prior to internal parking deck driveway aisles/parking spaces. Driveway

distance from the signalized intersection at Longview Street and NC 86 (Martin Luther King Jr. Boulevard) is acceptable (125 feet), based on recommendations of 100 foot minimum corner clearance as set forth in the 2003 *NCDOT Policy on Street and Driveway Access to North Carolina Highways* and 50 foot minimum along local streets as required in the 2023 *Town of Chapel Hill Public Works Engineering Design Manual*. Individual driveway spacing between the site driveway and the proposed adjacent service vehicle driveway does not meet the 50 foot minimum driveway spacing requirement in the Town Design Manual but should not cause substantial impact to traffic operations and safety, given the intermittent usage of the service vehicle driveway location.

**Crash Analysis**

Data from the NCDOT Traffic Safety Unit TEAAS software database was compiled for the recent five-year period for the NC 86 corridor in the study area. Crash rates for the NC 86 corridor indicates that the frequency of crashes for the facility are generally lower than or approximately equal to North Carolina statewide average for similar facilities. Crashes are generally clustered at high volume intersections, with some crashes occurring at existing mid-block pedestrian crossings and private driveway intersections along the corridor. The signalized intersection of NC 86 and Longview Street adjacent to the site experienced nine crashes of the 55 total reported crashes in the five-year period.

**Other Transportation-Related Analyses**

Other transportation-related analyses relevant to the 2001 Town of Chapel Hill Guidelines for the preparation of Traffic Impact Studies were completed as appropriate. The following topics listed in **Table ES-3** are germane to the scope of this study.

**Table ES-3. Other Transportation-Related Analyses**

| Analysis | Comment |
|---|---|
| Long-Range Daily Volume-Capacity Analysis | Since the proposed site is expected to add less than 1,000 new daily trips to the study area network, no long-range planning-level analyses of daily traffic impacts were conducted for this study. Existing daily traffic volumes on NC 86 are approximately 14,000 and its daily roadway capacity is approximately 40,000 vehicles. |
| Turn Lane Storage Requirements | Storage bay lengths at study area intersections were analyzed using TransModeler to generate estimated maximum queue lengths for the 2029 Build Scenario. In most cases, existing storage for turn lanes is adequate in the project study area, and can be managed with signal timing adjustments, if necessary. Extending existing or proposed future turn lane storage may require additional right-of-way to construct and was not analyzed for this study. |
| Appropriateness of Acceleration/ Deceleration Lanes | Given the proposed location and configuration of the site driveway and the lane geometrics, traffic patterns and posted speeds on Longview Street and NC 86, no special acceleration or deceleration lanes are required due to the proposed 701 Martin Luther King Jr. Boulevard Residential development. |
| Pedestrian and Bicycle Analysis | Existing pedestrian access and connectivity is excellent through the study area. Continuous sidewalk and intersections with crosswalks/pedestrian signals are present throughout the downtown Chapel Hill area. Designated bicycle “sharrow” lanes are present on NC 86 along the site frontage. |
| Public Transportation Analysis | Public transportation service to the site is excellent, with on-street bus stops located less than 200 feet away from the site on either side of NC 86 and multiple bus routes serving the study area. The site concept plan includes a provision for development of a future BRT station directly in front of the proposed site. |

## Mitigation Measures/Recommendations

### Planned Improvements

The Town of Chapel Hill *North-South Corridor Bus Rapid Transit (NSBRT)* project includes additional transit amenities for the NC 86 corridor through the study area, as well as potential cross-section widening and reallocation for dedicated transit lanes. Since final design details are not complete, the changes associated with this project were not explicitly considered to be complete for the purposes of this study. It should be noted that the site concept plan shows a potential BRT station along NC 86 directly in front of the site.

There are no other NCDOT or Town of Chapel Hill improvement projects that directly impact study area roadway facilities within the analysis year time frame of 2024-2029.

### Background Committed Improvements

The *E. Rosemary Street Parking Deck and Office Building Redevelopment Transportation Impact Analysis* (HNTB, October 2020) included necessary improvements to the configuration of the NC 86 (Martin Luther King, Jr. Boulevard) intersection with North Street and N. Columbia Street, along with proposed signalization of the intersection. These improvements have been recently completed. There are no other known background committed improvements at study area intersections from any of the other background traffic generators analyzed in this report, other than recommendations to retime traffic signals along the NC 86 corridor to mitigate individual site development impacts. It was assumed that signal timing reoptimization for the three study area signalized intersections would occur over the 2024-2029 timeframe.

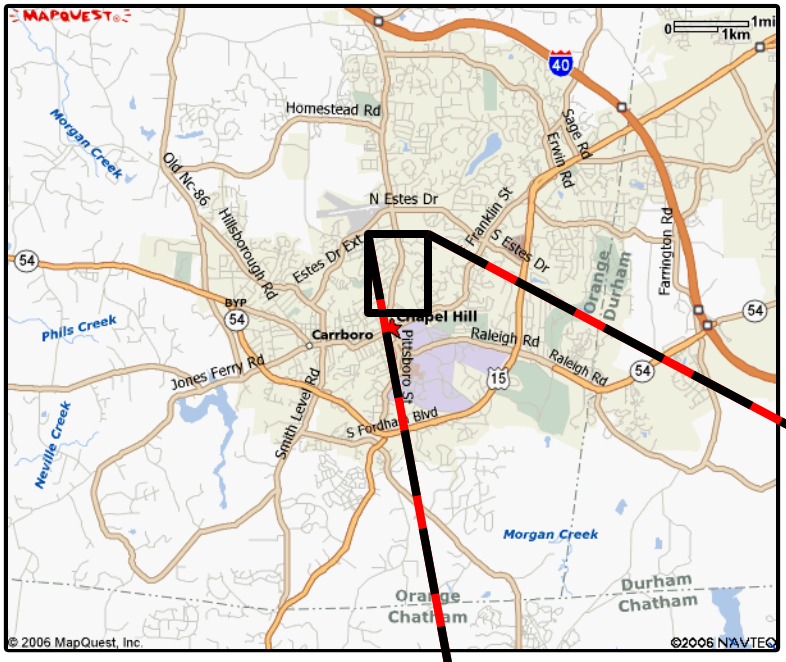
### Applicant Committed Improvements

Based on the preliminary site concept plans and supporting development information provided, there are no external transportation-related improvements proposed adjacent to the 701 Martin Luther King Jr. Blvd Residential – other than the addition of the proposed access and service driveways along the Longview Street and provision of internal sidewalk connecting to the NC 86 existing sidewalk along the site frontage. Two potential fire lane access locations are shown on the site concept plan that are not expected to impact normal site-related transportation operations.

### Necessary Improvements

Based on the 2029 design year peak hour intersection capacity analyses, no study area intersections expected to be over capacity (overall $LOS_S$ E or F) in any of the three weekday peak hours studied in this report.

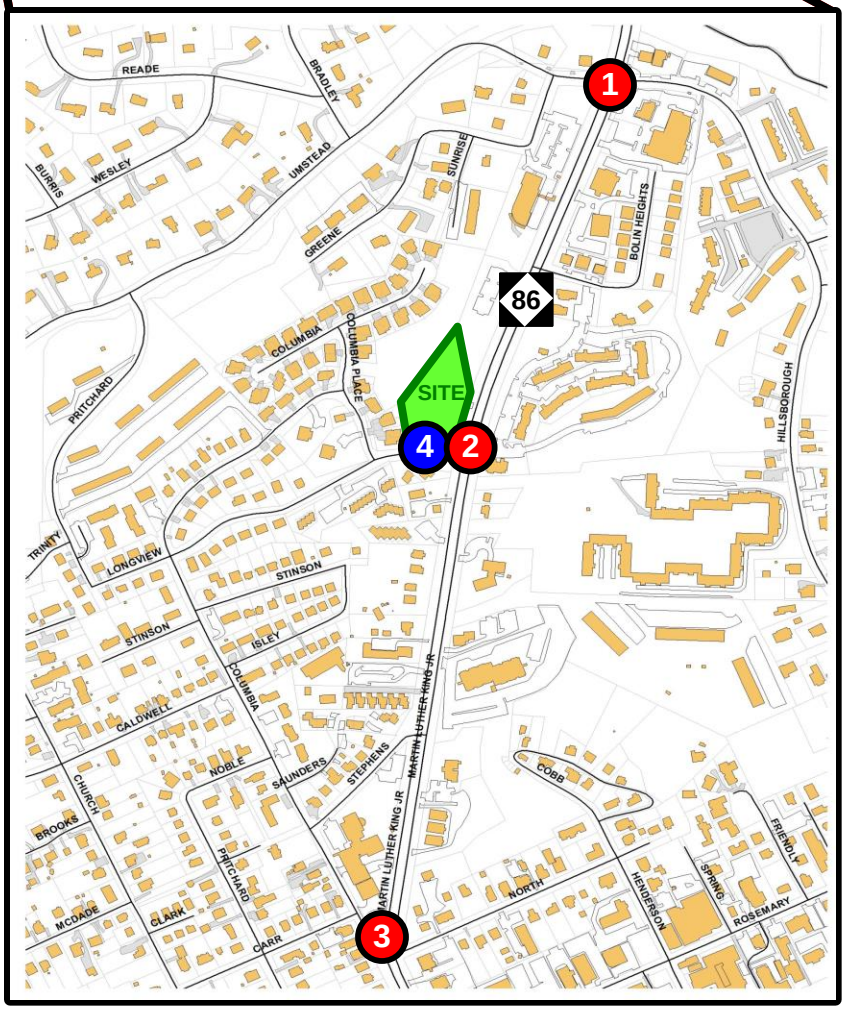
One recommended improvement shown in **Figure ES-3**, unrelated to intersection capacity analysis Level-of-Service results, but related to potential queue spillback issues on minor street approaches (eastbound Longview Street and eastbound Umstead Drive at the signalized intersections with NC 86 (Martin Luther King, Jr. Boulevard), would be to monitor operations at these intersections and adjust coordinated signal timings, particularly in the 2029 PM peak hour, to allow more green time to these signal phases to reduce potential queuing issues.




## LEGEND

- = Existing Building Footprint
- = Existing Study Area Intersection
- = Proposed New Full Access Site Driveway
- = Proposed Site Parcel

NOT TO SCALE




*FINAL*

HNTB

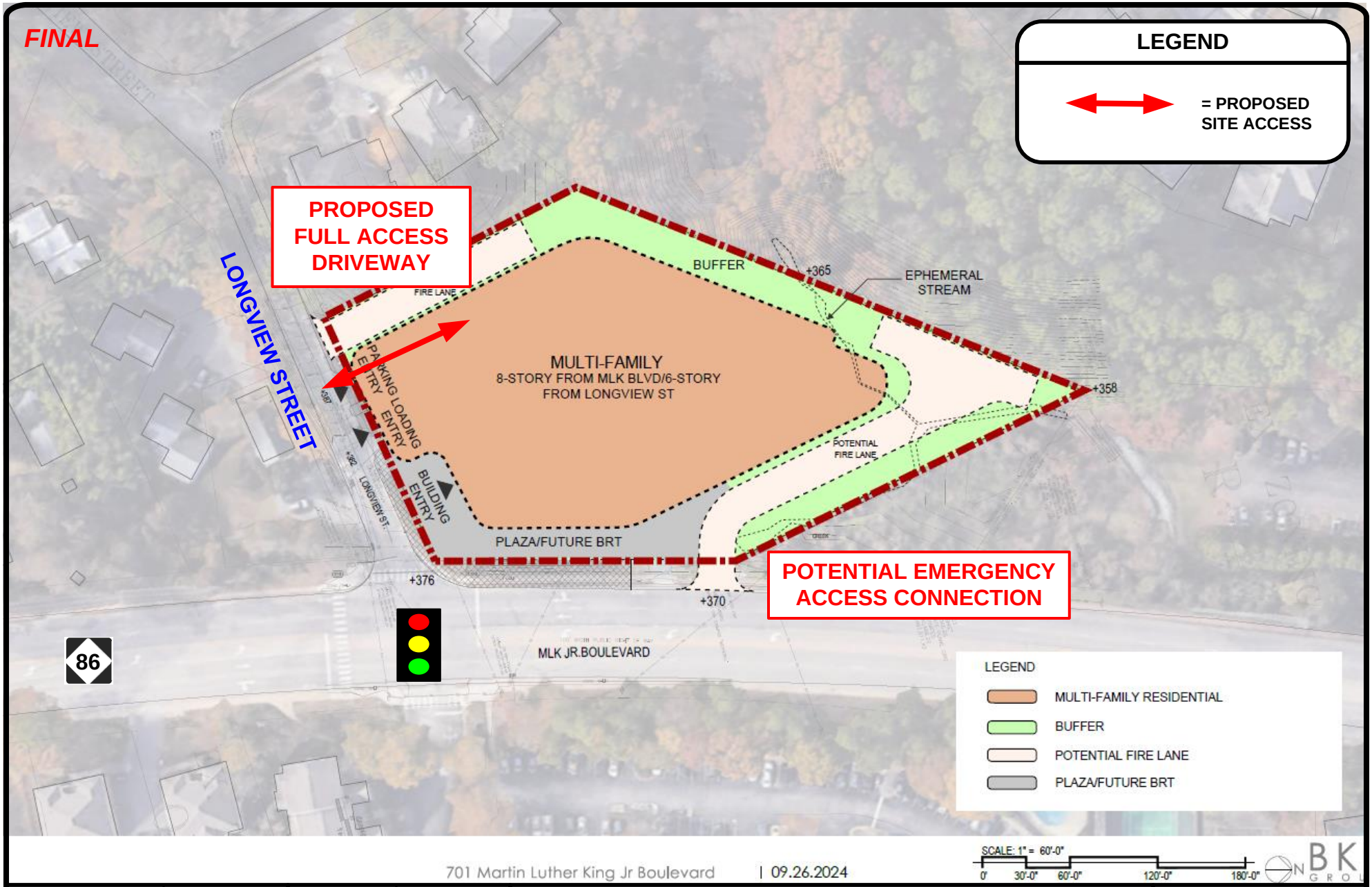
TOWN OF CHAPEL HILL

# 701 Martin Luther King Jr. Blvd Residential
## Transportation Impact Analysis

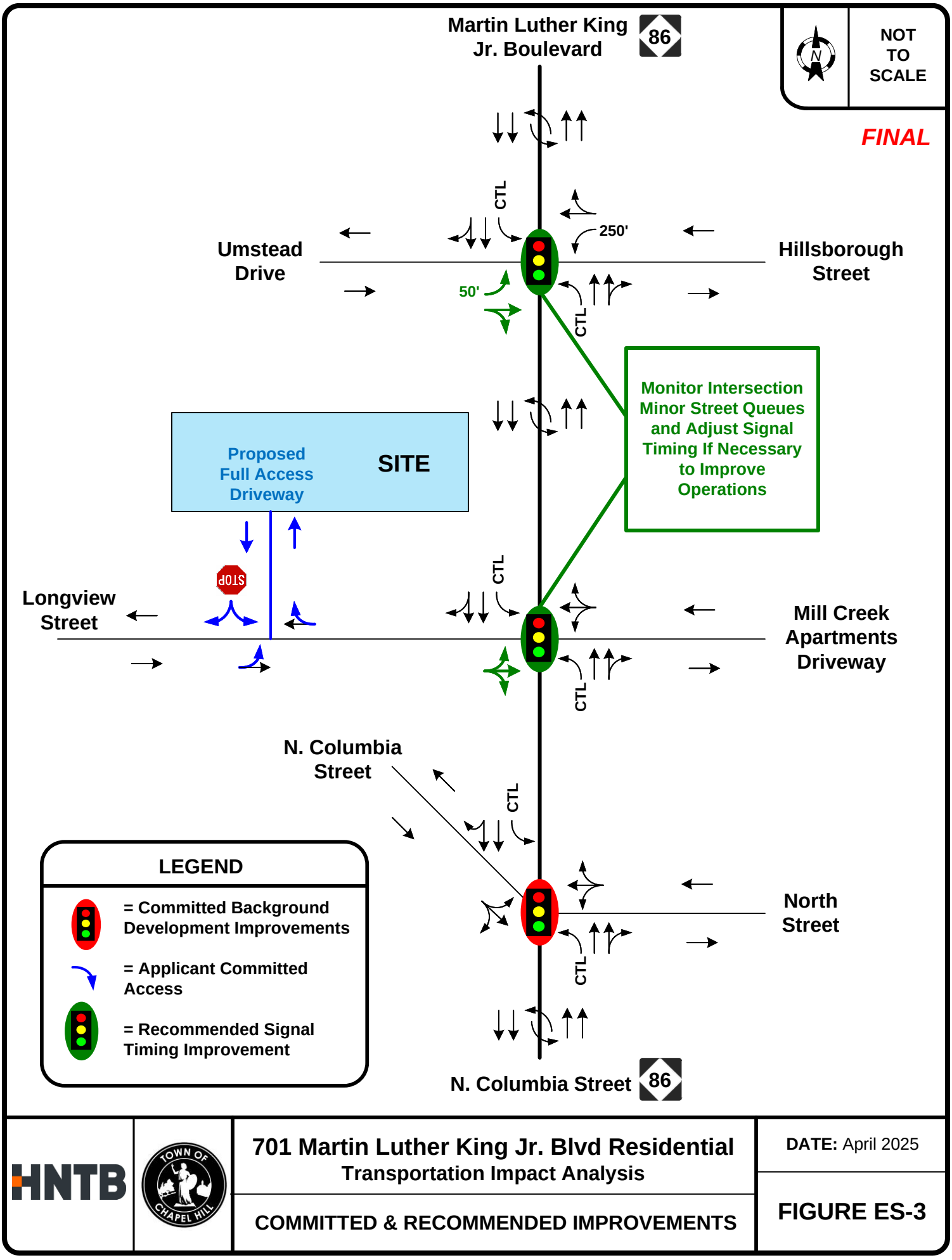
**DATE:** April 2025

**PROJECT STUDY AREA MAP**

**FIGURE ES-1**




| | | | | | |
|---|---|---|---|---|---|
| HNTB | TOWN OF CHAPEL HILL | N | NOT TO SCALE | **701 Martin Luther King Jr. Blvd Residential**<br>**Transportation Impact Analysis**<br>**SITE CONCEPT PLAN** | **DATE:** April 2025<br>**FIGURE ES-2** |

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TOWN OF CHAPEL HILL

# 701 Martin Luther King Jr. Blvd Residential
## Transportation Impact Analysis

**DATE:** April 2025

COMMITTED & RECOMMENDED IMPROVEMENTS

**FIGURE ES-3**