EAST LAKEVIEW TOWNHOMES

DRAFT TRANSPORTATION IMPACT ANALYSIS

EXECUTIVE SUMMARY

Prepared for:

The Town of Chapel Hill
Public Works Department - Engineering

Prepared by:

HNTB North Carolina, PC

4000 Center at North Hills
Suite 500
Raleigh, NC 27609

NCBELS License #: C-1554

March 2025

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Project Overview

This study analyzes the transportation impacts from East Lakeview Townhomes, a residential development proposed on a site located in the northwest quadrant of the Lakeview Drive and Old Chapel Hill Road in Chapel Hill, NC. The project proposes to develop vacant land in this vicinity and construct several low-rise multi-family residential buildings, with a total of 86 residential units. **Figure ES-1** shows the general location of the site. The entire project is anticipated to be fully complete by 2028. This report analyzes the transportation impacts for the build-out scenario for the year 2029 (one year after anticipated completion), the no-build scenario for the 2029 analysis year, as well as 2025 base year traffic conditions. The analysis also includes impacts from three adjacent developments (Gateway Residential, Old Chapel Hill Road Apartments, and Chapel Hill Crossing) which have been approved or are in the approval process for construction by the Town and have previously been evaluated in separate transportation impact analyses (TIAs) for the Town.

The preliminary site concept plans show internal transportation network connections and external access points. New site driveways are proposed to connect to Lakeview Drive and Old Chapel Hill Road. Parking will include surface lots and private lots/garages. **Figure ES-2** displays the preliminary site concept plan for the development, transportation network changes, and nearby land uses and roadways. This report analyzes the transportation impacts that the East Lakeview Townhomes development is expected to have on the following existing and future intersections in the project study area:

- US 15-501 and Sage Road / Old Durham Road
- US 15-501 and Eastowne Drive (South) / Service Road
- US 15-501 and Eastowne Drive (North) / Lakeview Drive
- US 15-501 and I-40 Eastbound Ramps
- US 15-501 and I-40 Westbound Ramps
- Lakeview Drive / Nova Apartments Driveway & Old Durham Road
- Lakeview Drive and W. Lakeview Drive / Red Roof Inn Driveway
- Lakeview Drive and Gateway Residential Access Street (future)
- Old Chapel Hill Road and White Oak Drive
- Old Chapel Hill Road and Proposed Site Driveway (future)
- Old Chapel Hill Road and Pope Road
- Old Chapel Hill Road and Mount Moriah Road

The impacts of the proposed site at the study area intersections were evaluated during the AM and PM peak hours of an average weekday.

Existing Conditions

Study Area

The site is located in northeast Chapel Hill along Old Chapel Hill Road at its intersection with Lakeview Drive. The study area contains four unsignalized intersections along Old Chapel Hill Road, two of which are roundabouts at Pope Road and Mt. Moriah Road, and the signalized intersections along US 15-501 between Sage Road/Old Durham Road and the I-40 interchange. US 15-501 is a major arterial facility providing connectivity between Chapel Hill, Durham and the I-40 corridor. Old Chapel Hill Road is a minor arterial facility providing connectivity between the US 15-501 corridor and southwest Durham. Remaining study area network roadways are minor collector or local access streets.

Site Traffic Generation

With additional new trips during the weekday AM and PM peak hours, there are potential site traffic impacts to the study area intersections. **Table ES-1** shows site trip generation details, with generation rates taken from the Institute of Transportation Engineers *Trip Generation Manual, Version 11*.

Table ES-1. Weekday Vehicle Trip Generation Summary

Description	Density	Daily			AM Peak			PM Peak		
		Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
Townhomes/Duplex Low-Rise	86 units	314	314	628	12	38	50	36	22	58
Unadjusted Trip Generation Totals		**314**	**314**	**628**	**12**	**38**	**50**	**36**	**22**	**58**
Multi-Modal Trip Reduction (Transit/Ped/Bike) - 10%		-31	-31	-62	-1	-4	-5	-4	-2	-6
Total Vehicular Trips Generated		**283**	**283**	**566**	**11**	**34**	**45**	**32**	**20**	**52**

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. Four developments in the project study area that are currently approved or under review by the Town of Chapel Hill were included to contribute to specific background traffic generator growth. They are the UNC Health Care Medical Office Building #2 development, Gateway Residential, Old Chapel Hill Road Apartments, and Chapel Hill Crossing. All remaining estimated traffic volume increases are assumed to occur due to overall region-wide ambient growth (assumed 1.0 percent per year based on NCDOT/Town historic traffic growth data).

Impact Analysis

Peak Hour Intersection Simulation Level of Service (LOSs)

Existing traffic operations at all study area intersections are acceptable during the two peak hours analyzed, though the intersection of US 15-501 and Sage Road/Old Durham Road is congested and nearing capacity during peak travel periods. No unsignalized intersection along Old Durham/Old Chapel Hill Road has existing operational issues. The projected ambient and background development traffic growth increase intersection delay and queue impacts by 2029 but would be mitigated to some extent by committed background development improvements and traffic signal reoptimization along the US 15-501 corridor. The southbound stop-controlled left-turn at Old Chapel Hill Road/Lakeview Drive intersection is expected to operate at a LOSs F in the 2029 PM peak hour. Northbound Lakeview Drive traffic at the US 15-501 intersection is expected to potentially cause queueing issues that block the nearby W. Lakeview Drive/Red Roof Inn Access Roadway intersection.

With the addition of peak hour site-generated trips to the projected 2029 background traffic volumes, existing study area intersections are expected to experience marginally longer vehicular delays and queues. The projected PM peak hour queuing on Lakeview Drive upstream from its intersection with Old Chapel Hill Road may block the proposed site driveway intersection and results in excessive delays for site traffic utilizing this access point. Proposed geometric, traffic control, and signal timing improvements are expected to mitigate anticipated deficient LOS conditions throughout the study area and improve queue storage and safety, as well. 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 traffic microsimulation Level-of-Service (LOS_S) is shown in **Table ES-2**.

Table ES-2. Peak Hour Intersection Capacity Analysis Summary

Intersections	Peak Hour	2025 Existing		2029 No-Build		2029 Build		2029 Mitigated	
		LOSs	Delay	LOSs	Delay	LOSs	Delay	LOSs	Delay
US 15-501 and Sage Road / Old Durham Road	AM	D	38.3	D	50.4	D	51.7	D	43.0
	PM	D	39.6	D	49.3	D	50.0	D	51.1
US 15-501 and Eastowne Drive (South) / Service Road	AM	B	14.7	B	19.1	B	18.8	C	25.4
	PM	B	17.7	C	22.0	C	21.6	C	21.9
US 15-501 and Eastowne Drive (North) / Lakeview Drive	AM	B	14.6	C	24.8	C	25.1	C	20.8
	PM	C	23.0	C	33.1	D	36.2	C	29.9
US 15-501 and I-40 Eastbound Ramps	AM	C	31.5	C	28.4	C	28.8	C	27.0
	PM	C	34.8	C	27.9	C	28.8	C	27.9
US 15-501 and I-40 Westbound Ramps	AM	C	33.0	C	34.9	D	35.1	C	34.0
	PM	C	27.4	C	30.6	C	31.5	C	33.8
Old Durham Road and Lakeview Drive#@	AM	B	12.0	D	31.2	D	29.4	A	7.1
	PM	C	23.9	***F***	***205***	***F***	***203***	A	9.9
Old Chapel Hill Road and White Oak Road#	AM	A	5.3	B	13.7	B	13.5	B	14.8
	PM	B	11.2	C	22.8	C	23.2	C	22.3
Old Chapel Hill Road and Site Driveway (RIRO)#	AM	n/a	n/a	n/a	n/a	A	5.6	n/a	n/a
	PM	n/a	n/a	n/a	n/a	A	6.8	n/a	n/a
Old Chapel Hill Road and Pope Road	AM	A	3.9	A	4.8	A	4.9	n/a	n/a
	PM	A	6.0	A	7.3	A	7.5	n/a	n/a
Old Chapel Hill Road and Mount Moriah Road	AM	A	4.8	A	5.5	A	5.4	n/a	n/a
	PM	A	6.7	A	7.9	A	8.0	n/a	n/a
Lakeview Drive and W. Lakeview Dr/Red Roof Dr#	AM	A	4.6	D	33.1	E	39.1	C	20.7
	PM	A	6.0	C	26.9	D	27.2	B	10.8
Lakeview Drive and Gateway Residential Access St#@	AM	n/a	n/a	B	10.8	B	11.4	A	3.7
	PM	n/a	n/a	A	5.9	A	6.3	A	3.2
Lakeview Drive and Site Driveway#	AM	n/a	n/a	n/a	n/a	A	4.3	A	5.0
	PM	n/a	n/a	n/a	n/a	***F***	***103***	A	4.7

BOLD/ITALICS **–** Critical Movement or Overall Intersection Requires Mitigation Per Town TIA Guidelines
- Worst-Case LOS/Delay for Unsignalized Critical Movement
@ - Mitigated Results For Overall Roundabout/Traffic Signal Operations

Access Analysis

Vehicular site access for the site parcel is to be accommodated by a proposed access driveways connecting to Old Chapel Hill Road and Lakeview Drive for entry/exit to the proposed on-site surface parking facilities, as shown on **Figure ES-2**. Design details related to driveway throat lengths shown on the site plan and driveway spacing from existing intersections and adjacent driveways adhere to NCDOT *Policy on Street and Driveway Access to North Carolina Highways* and the Town of Chapel Hill Design Manual. Access for pedestrians and bicyclists in the immediate project study area along Old Chapel Hill Road is excellent, as marked bicycle lanes and sidewalk facilities on both sides of the road provided by the recent NCDOT STIP project.

Signal Warrant Analysis

Based on projected 2029 traffic volumes and proposed access plans, one unsignalized intersection in the project study area would warrant traffic signal installation, based on the peak hour warrant methodology found in the *2009 Manual on Uniform Traffic Control Devices (MUTCD).* This refers to the intersection of Lakeview Drive and Old Chapel Hill Road. The intersection continues the need to be monitored for signalization or other traffic control improvements, as it is projected to experience PM peak queuing issues with additional background and site-related traffic growth.

Crash Analysis

Data from the NCDOT Traffic Safety Unit was extracted for the five-year period 8/31/2019 to 9/30/2024 for the Old Chapel Hill Road and Lakeview Drive segments near the proposed site. There were 22 crashes reported along the Old Chapel Hill Road corridor between Lakeview Drive and Pope Road over the five year period, with 16 crashes along Lakeview Drive in the vicinity of the site between Old Chapel Hill Road and US 15-501. The primary crash types were rear end and angle crashes, and crashes were primarily clustered near the higher volume intersections. Overall, the number and severity of crashes along Old Chapel Hill Road and Lakeview Drive in the project study area are generally higher than state-wide averages for similar urban North Carolina secondary roadways. This may, in part, be due to on-going construction during the crash data collection period that is now complete, with the finished project along the Old Chapel Hill Road corridor expected to provide multi-modal safety benefits.

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
Turn Lane Storage Requirements	Storage bay lengths at intersections were analyzed using maximum queue length estimates for the 2029 Build Scenarios. One unsignalized intersection (Old Chapel Hill Rd/Lakeview Dr) is expected to have excessive peak hour queues that exceed existing turn lane storage. Recommendations to improve turn lane storage were made for the US 15-501 and Eastowne Drive/Lakeview Drive intersection –this location will have a high degree of background development traffic impact. Storage issues not due to site-related traffic impacts are not easily correctable at other intersections, given the high traffic volumes along US 15-501, but adjustments to signal timing can potentially reduce side street queues at critical locations.
Appropriateness of Acceleration/ Deceleration Lanes	The site concept plan shows no specifics related to acceleration/deceleration lanes. Due to the speed limit on Old Chapel Hill Road (35 mph) and the potential blockages and safety issues caused by left-turn traffic entering White Oak Drive from both directions, left-turn lanes are recommended in both directions at this location. Existing intersections along US 15-501 currently have left-turn and right-turn auxiliary deceleration lanes. No other specific acceleration/deceleration lane issues were analyzed in the project study area.
Pedestrian and Bicycle Analysis	Pedestrian access exists in the project study area, with excellent connectivity along the Old Chapel Hill Road/Old Durham Road corridor and is limited along the US 15-501 corridor. Bicycle lanes extend along Sage Road, Old Durham Road / Old Chapel Hill Road, and a short section of Eastowne Drive. The site plan includes retention of existing sidewalk along site frontage on the north side of Old Chapel Hill Road and preservation of right-of-way for a multi-use path that will connect to the Gateway Residential development.
Public Transportation Analysis	Public transportation service to the study area, and to the proposed site, is excellent, with bus stops and multiple local and regional bus routes on both Old Chapel Hill Road and US 15-501 proximate to the site. Existing bus stops on both sides of Old Chapel Hill Road are provided to serve East Lakeview Townhomes.

Mitigation Measures/Recommendations

Planned Improvements

There are no significant Town of Chapel Hill / North Carolina Department of Transportation improvement projects affecting study area roadway facilities within the analysis year time frame of 2025-2029. The US 15-501 corridor is currently being studied for capacity improvements as part of NCDOT STIP U-5304F, but these improvements are not known at this time and were not considered to be complete by the 2029 analysis year.

NCDOT is in the process of upgrading signalized intersection configurations that feature an approach that has a shared through/right-turn lane and an exclusive right-turn lane utilizing right-turn overlap signal phasing – a condition that exists at the US 15-501/Lakeview Drive – Eastowne Drive intersection in the northbound direction on Lakeview Drive. For the purposes of this study, it was assumed that future 2029 scenarios would include a change to the Lakeview Drive approach that would initially convert the shared through/right-turn lane to a through-only lane and keep the right-turn lane and overlap signal phasing.

Background Committed Improvements

Committed improvements from study area development projects are shown in **Figure ES-3**. As part of recommended mitigation in the TIA for the UNC Health Care MOB #2 project, the southbound left-turn lane for the Eastowne Drive / US 15-501 intersection was recommended to be lengthened and the three traffic signals along US 15-501 (Sage Road/Eastowne Drive – Service Road/Eastowne Drive – Lakeview Drive) were recommended for reoptimization.

Additional background committed improvements for the Gateway Residential, Old Chapel Hill Road Apartments, and Chapel Hill Crossing developments were included in the 2029 No-Build and Build scenarios for this study. For the Gateway Residential project, a public access street connection to Lakeview Drive was included as a stop-controlled intersection with an additional 100 foot left-turn lane southbound on Lakeview Drive. For the Old Chapel Hill Apartments project, left-turn lanes along Old Chapel Hill Road in both directions were recommended at the White Oak Drive intersection. Both studies included recommendation to re-optimize traffic signals along US 15-501 in the project study area.

Applicant Committed Improvements

Based on the preliminary site plans and supporting development information provided, there are several minor specific transportation-related improvements proposed internal to the site or related to site access. These improvements include the following:

- Vehicular access connections to Lakeview Drive and Old Chapel Hill Road
- Cross-access vehicular connection to the proposed Old Chapel Hill Road Apartments project internal local street system
- Preservation of internal right-of-way for a 10 foot wide multi-use path connection between development to the north and Old Chapel Hill Road.

Necessary Improvements

Based on traffic capacity analyses for the 2029 design year, and analyses of existing study area turning bay storage lengths, site access and multi-modal mobility, the following improvements (see **Figure ES-3**) are recommended as being necessary for adequate transportation network operations for the Condition 4 Build Scenario, with assumed background and site-generated traffic:

1) To reduce the number of vehicular conflicts in this vicinity, the proposed driveway access connection to Old Chapel Hill Road should be limited to right-turn in/right-turn out (RIRO) access only. This

improvement is necessitated by the transportation impacts of the proposed East Lakeview Townhomes project.

2) The planned 10 foot wide paved multi-use path that connects the site to future development to the north should be constructed through the right-of-way easement in the middle of the site to connect to the sidewalk and bicycle lane on Old Chapel Hill Road. This improvement is necessitated by the transportation impacts of the proposed East Lakeview Townhomes project.

3) The intersection of Old Chapel Hill Road and Lakeview Drive, as part of the Wegman's permitting process, will be monitored for the need to make traffic control improvements, depending on the meeting of signal warrant thresholds or exhibiting excessive observed delay/queuing from field data. The study results for this TIA indicate that the 2029 projected future peak hour traffic volumes will meet MUTCD peak hour signal warrants for the PM peak hour, similar to previous results from the *Old Chapel Hill Road Apartments TIA*. Without signalization, projected traffic queues on Lakeview Drive may block the proposed site driveway full access location and cause safety and operational issues for site traffic. This improvement is necessitated by the combination of impacts from the proposed Old Chapel Hill Apartments, Gateway Residential, and Chapel Hill Crossing developments.

4) In order to meet NCDOT guidelines for proper laneage for right-turn overlap signal phasing combinations, the current northbound Lakeview Drive through/right-turn lane at the US 15-501 intersection should be converted to a right-turn only lane and the existing outer right-turn lane retained. This configuration eliminates a signal phase at the intersection, improving efficiency and allows for the dual right-turn lanes to have an overlap signal phase, reducing northbound queues. Additional signage, pavement markings, and median channelization for the right-turn lanes to prevent northbound through traffic movements will be necessary, as shown on **Figure ES-3A**. The signal will also need to be re-optimized for this new configuration. This improvement is necessitated by the combination of impacts from the proposed adjacent study area developments.

5) Signal timings at all five study area intersections along US 15-501 should be reoptimized after the site is complete to account for the effects of site-related traffic in the AM and PM peak hours. This improvement is necessitated by the combination of impacts from the proposed East Lakeview Townhomes project and the adjacent study area developments.

6) To reduce congestion and traffic conflicts and better manage access in the vicinity of the US 15-501/Lakeview Drive intersection, it is recommended to install a concrete median from the intersection northbound approach back to the proposed Gateway Residential access street connection to Lakeview Drive, restricting both side streets (W. Lakeview Drive and Red Roof Inn Access) along Lakeview Drive to RIRO operation. This will allow Lakeview Drive northbound storage to be extended to approximately 250 feet. This improvement is necessitated by the combination of impacts from the proposed adjacent study area developments.

7) To allow traffic to/from W. Lakeview Drive and the Red Roof Inn Driveway to make u-turn movements to access these roadway facilities, it is recommended that a single-lane roundabout be designed for the future Gateway Residential access street intersection with Lakeview Drive. This improvement is necessitated by the combination of impacts from the proposed adjacent study area developments.

8) Consideration should be given to adjust the existing Chapel Hill Transit CL route southbound on Old Chapel Hill Road to directly serve the proposed site and adjacent Gateway Residential and Old Chapel Hill Road Apartments developments. The route change, as shown in **Figure ES-3**, would utilize White Oak Drive and the proposed Gateway Residential Access Street and return to Old Chapel Hill Road via southbound Lakeview Drive. If the route change is implemented, transit stops and amenities should be constructed for all developments. This improvement should be implemented after full build-out of the Gateway Residential and East Lakeview Townhomes projects.

NOT TO SCALE

DRAFT

LEGEND

- = Existing Study Intersection
- = Future Study Intersection
- = Proposed Site Access
- = Future Background Development Parcel Locations
- = Site Parcel

UNC Health Care – Eastowne Campus

UNC HC MOB #2

UNC HC MOB #1

Wegmans

Gateway Residential
316 Units Multi-Family
+ 72 Senior Apts

Old Chapel Hill Road Apartments
398 Residential Units

Chapel Hill Crossing
148 Multi-Family Units

Chapel Hill Crossing
370 Res. Units + 24k Commercial

DREW HILL
PROVIDENCE
OLD STERLING
PROVIDENCE GLEN
GLENCREST
IVES
PINEGATE
SAGE
DICKENS
COSGROVE
DOBBINS
FORDHAM SERVICE
OLD DURHAM RD
EASTOWNE DR
FORDHAM
15
501
RED ROOF INN
I 40 W ENT 270
I 40 E EXIT 270
I 40
I 40 E ENT 270
I 40 W EXIT 270
US 15 5
MOUNT MORIAH RD
LAKEVIEW DR
WHITE OAK DR
WHITE OAK
OLD CHAPEL HILL
WHITE OAK DR
CANDLELIGHT
HUSE
POPE ROAD
OLD CHAPEL HILL RD
CRICKET GROU
POPE
ALBA
SCARLETT
LEGION
NEW COOPER
OLD COOPER
COOPER
STANDISH
BLUEFIELD
CHARLESTON

Source: Town of Chapel Hill & Durham County GIS Files

HNTB

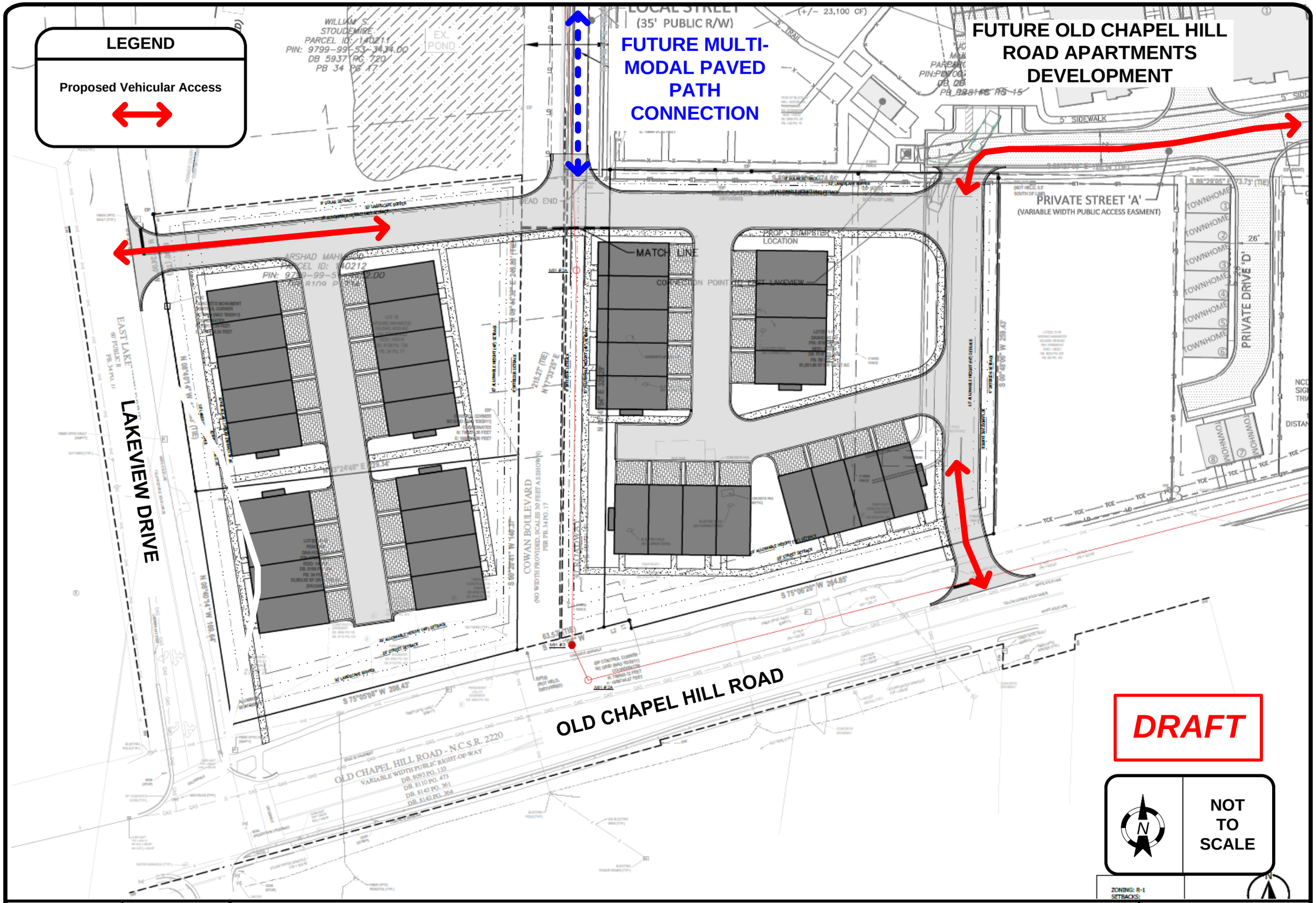
TOWN OF CHAPEL HILL

East Lakeview Townhomes
Transportation Impact Analysis

PROJECT STUDY AREA

DATE: March 2025

FIGURE ES-1



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TOWN OF CHAPEL HILL

East Lakeview Townhomes
Transportation Impact Analysis

PRELIMINARY SITE CONCEPT PLAN

DATE: March 2025

FIGURE ES-2

DRAFT

Sage Road

Eastowne Drive (South)

Eastowne Drive (North)

SEE FIGURE ES-3A
Remove Through Movement – Allowing Dual Right-Turn Overlap Signal Phase

I-40 EB Off-Ramp

40

Reoptimize Traffic Signals Along US 15-501 Corridor

15 501

Durham-Chapel Hill Boulevard

Fordham Boulevard

125' 225' DUAL

DROP

250'

350'

400' DUAL

250'

150'

75'

375'

200'

400'

400'

200'

150' 350' 175'

Service Road

300' ADD 300'

800'

800'

100'

300' ADD

250' 200'

250' 250'

250'

450' DUAL

450' DUAL

250'

500' DUAL 700' DUAL

SEE FIGURE ES-3A
Contruct Median and Limit Side Street Access to RIRO

I-40 WB Off-Ramp

Old Durham Road

W. Lakeview Drive

Red Roof Inn Driveway

STOP

STOP

100'

Contruct Single-Lane Roundabout

TRAFFIC CIRCLE

STOP

Gateway Residential Access Street

White Oak Drive

Improve White Oak Drive to Town Local Street Standards - Construct Sidewalk

Mt. Moriah Road

Lakeview Drive

STOP

Site Driveway

Site Driveway

SITE

100'

150'

STOP

STOP

100'

Construct Left-Turn Lanes

Old Chapel Hill Road

125'

Install Traffic Signal

Construct Paved Multi-Use Path Connection

Limit Access to RIRO

Construct Crosswalk

TRAFFIC CIRCLE

TRAFFIC CIRCLE

Old Chapel Hill Road

Nova Apts Driveway

White Oak Drive

Pope Road

LEGEND

= COMMITTED/ASSUMED BACKGROUND IMPROVEMENT

= COMMITTED APPLICANT IMPROVEMENT

= NECESSARY SHORT-TERM IMPROVEMENT

= NECESSARY IMPROVEMENT

= CHT CL ROUTE MODIFICATION

HNTB

TOWN OF CHAPEL HILL

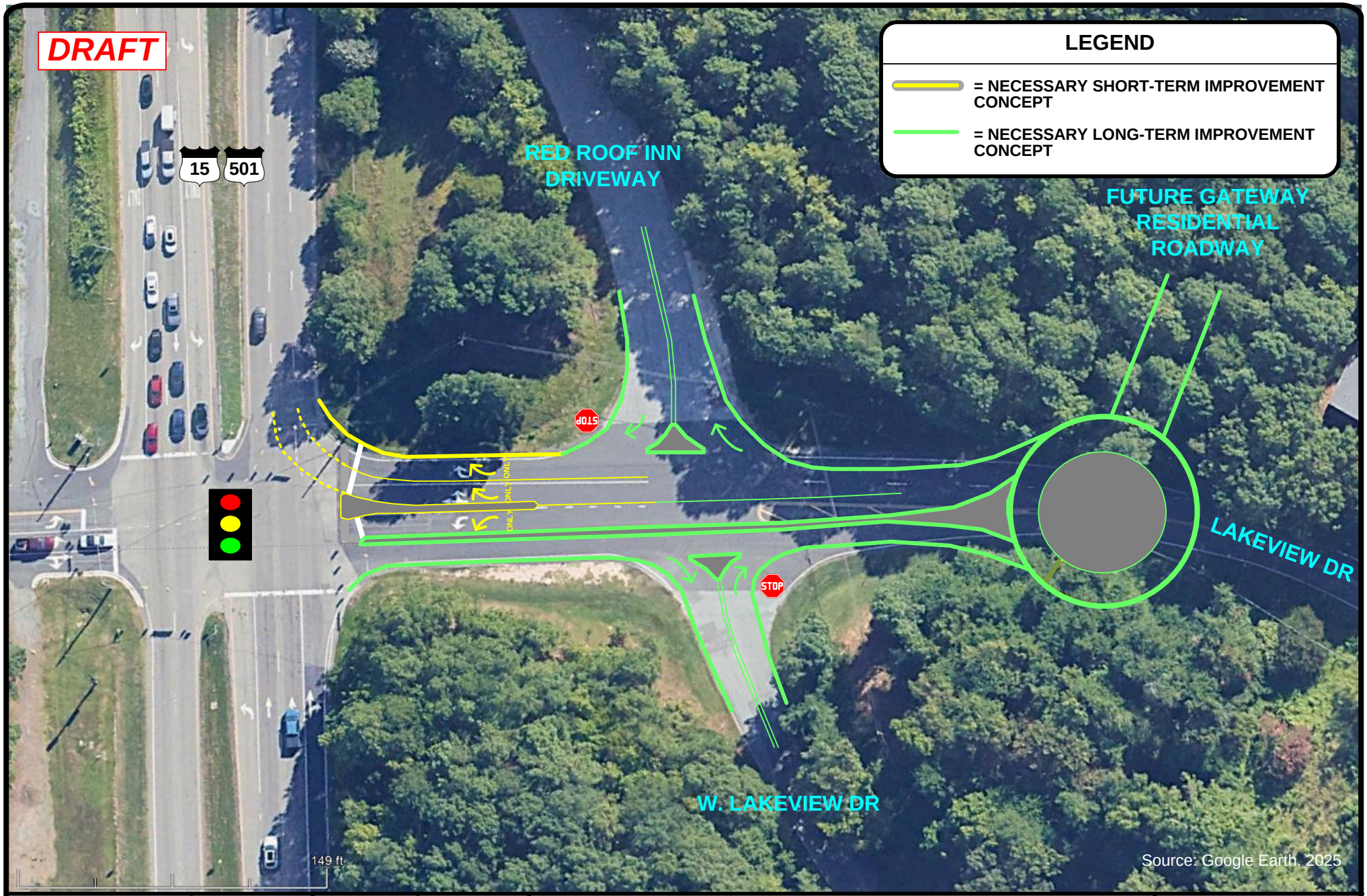
NOT TO SCALE

East Lakeview Townhomes
Transportation Impact Analysis

COMMITTED AND RECOMMENDED IMPROVEMENTS

DATE: March 2025

FIGURE ES-3



HNTB	TOWN OF CHAPEL HILL		NOT TO SCALE	**East Lakeview Townhomes** **Transportation Impact Analysis** **LAKEVIEW DRIVE IMPROVEMENT CONCEPTS**	**DATE:** March 2025 **FIGURE ES-3A**