



ZONING MAP CHANGE REPORT

Meeting Date: November 12, 2024

A. Executive Summary

Dan Jewell, of Thomas & Hutton, proposes to change the zoning designation of six parcels of land totaling 95.48 acres, and generally located in an area bounded by Hoover Road and Angier Avenue to the west, Ashe Street to the north, US Highway 70/I-885 to the east, and East End Avenue to the south (see Attachment B, Aerial Map). The current zoning is Industrial (I), Industrial Light (IL), and Residential Urban-5 (RU-5). The applicant proposes to change this designation through a graphic development plan to Planned Development Residential 19.811 (PDR 19.811) to allow up to 1,880 residential units and up to 49,500 square feet of non-residential development.

The properties are currently designated Mixed Use Neighborhood on the Place Type Map (PTM) (Attachment C). The proposed PDR 19.811 zoning is consistent with the designated Place Type due to the commitment to include non-residential development.

B. Application Summary

Application Information			
Case Number	Z2300046	Submittal Date	November 17, 2023
Case Name	Brickworks		
Case Type	Graphic Development Plan		
Proposal	Up to 1,880 residential units and up to 49,500 square feet of non-residential		
Applicant Contact	Dan Jewell, jewell.d@tandh.com		
Staff Contact	Aaron Cain, Aaron.Cain@DurhamNC.gov		
Site Information			
Location	2701 & 2801 Angier Avenue, 2946 & 2952 Ashe Street, and 202 & 214 East End Avenue	Legacy Cases	P99-17 (no development plan)
Site Acreage	95.48 acres	Existing Use	Undeveloped
REID(s)	118814 , 130556 , 130557 , 130558 , 130961 , 196401 ,		
Request			
Designation	Existing	Proposed	
Jurisdiction	City	No change	
Development Tier	Urban	No change	
Place Type Map	Mixed Use Neighborhood	No change	
Zoning District(s)	Industrial (I) Industrial Light (IL) Residential Urban-5 (RU-5)	Planned Development Residential 19.811 (PDR 19.811)	
Zoning Overlay(s)	Falls/Jordan District B	No change	
Urban Growth Boundary	Within UGB	No Change	
Allowable Use(s)	All uses allowed in the I, IL, and RU-5 districts per the UDO Use Table	Uses shall be limited to two-family residential, multifamily residential (including triplex, townhouse, and apartment), upper story residential, community service, care center, medical facilities, office, parks and open space, utilities, conference center, retreat house, event venue, banquet hall, restaurant, and	

		retail sales and service (except convenience store with gasoline sales). In addition, no use with a drive-through facility shall be allowed per the proposed development plan.
Compliance with UDO and Adopted Plans		
UDO Compliance	The zoning map change request has been reviewed by staff and determined to be compliant with UDO requirements.	
Adopted Plans	The site lies within the Eastern Durham Open Space Plans, but there are no recommendations for this site. The DCHC MPO Comprehensive Transportation Plan (CTP) identifies Rowena Avenue, East End Avenue, and Angier Avenue as needing bicycle lanes.	

C. Commitments in Excess of the UDO

Commitments Exceeding UDO Requirements	
Uses shall be limited to a combination of use categories and specific uses. Allowed use categories include community service, care center, medical facilities, parks and open space, and utilities. Specific uses allowed include two-family, multifamily, upper story residential, conference center, retreat house, event venue, banquet hall, restaurant, retail sales and service (except convenience store with gasoline sales), and office.	
Drive-through facilities shall be prohibited.	
Housing types shall be limited to townhouse, duplex, triplex, and apartment.	
The maximum number of residential dwelling units shall be limited to 1,880.	
The maximum square footage for non-residential uses shall be limited to 49,500.	
At full build-out of the residential and non-residential uses, the site shall contain at least 5,000 linear feet of walking trails.	
The maximum proposed height is 100 feet except where limited to 40 feet.	
Any building with four or more habitable stories shall include an elevator.	
Native tree species shall only be allowed for required street tree plantings where native species are allowed under the Durham Landscape Manual.	
A minimum of five percent of the apartment unit count shall be provided at a rental rate which is, on average, affordable for households earning 60% of the area median income or less.	
At full buildout there shall be a minimum of 100 townhouses and 100 apartments.	
A minimum of four (4) parking spaces shall be electric vehicle parking spaces with associated vehicle charging infrastructure and installed at full buildout.	
Prior to the issuance of a certificate of compliance, provide a one-time contribution of \$60,000 to Durham Public Schools	

D. Environmental Summary

Environmental Data				
Watershed Overlay	Falls/Jordan District B			
NC Natural Heritage Inventory	The NCNHI does not identify any unique, endangered, or sensitive species or vegetation on the site or the NCNHI identifies. *Disclaimer: An NHI inventory has not been conducted on this site. The lack of designation on the NHI dataset does not necessarily mean there are no unique, endangered, or sensitive species or vegetation on the site, but rather, a survey has not been completed in relation to the subject site.			
Wildlife Corridor	The site is not within a wildlife corridor.			
UDO Compliance	Does Not Apply	Meets UDO	Exceeds UDO	UDO Reference

Impervious Surface			The applicant has committed to 24 percent maximum impervious surface.	Section 8.7, Watershed Protection Overlay Standards
Regulated Floodplain	None on site			Section 8.4, Floodplain and Flood Damage Protection Standards
Steep Slopes		Any development on steep slopes will meet UDO requirements at the site plan stage.		Section 8.8, Steep Slope Protection Standards
Stream Buffers		Stream buffers of 50-100 feet are shown on the development plan and meet UDO requirements.		Section 8.5, Riparian Buffer Protection Standards
Stream Buffer or Floodplain Intrusion		Up to five stream crossings are shown and will be required to meet UDO requirements.		Section 8.5, Riparian Buffer Protection Standards
Project Boundary Buffers		Project boundary buffers of 0.8 adjacent to IL zoned land and 1.0 adjacent to I zoned land are committed. No buffer is required adjacent to residential use land; if mass graded, a minimum 0.6 buffer will be required.		Section 9.4, Project Boundary Buffers
Wetlands		Wetland buffers consistent with UDO requirements will be required at the site plan stage.		Section 8.9, Wetlands Protection Standards
Open Space		The proposal will provide the required 20 percent open space.		Article 6, District Intensity Standards Section 7.2, Open Space
Tree Coverage			The applicant has committed to an overall tree coverage of seven percent, which meets the residential use requirement but is greater than the three percent required for the non-residential areas.	Sec. 8.3, Tree Protection and Tree Coverage

E. Housing and Income Impact Summary

Proposed Housing Conditions Information	
Number of Units	1,880
Density of Units	19.811 units/acre

Number/Percent Units Affordable (AMI)	A minimum of five apartment units (five percent of the total apartments, which are committed to be at least 100 units) at an average 60% AMI have been committed; more could be provided depending on the number of apartments units constructed.		
Unit Types (UDO Category)	Duplex, Triplex, Townhouse, Apartment		
Does the proposal add to or subtract from the housing supply?	This proposal adds to the inventory of market-rate and affordable housing available in Durham.		
Current Housing Costs (for Durham County)			
Median Sales Price	\$432,000 (as of August 2024)	Median Rental Rate	\$1,560 (as of July 2024)
Median Household Income			
Census Tract (Site)	\$32,500 (census tract 10.01) \$44,155 (census tract 18.02)	HUD Income Limits for 2024 for Durham-Chapel Hill MSA	
City Overall	\$78,105	County Overall	\$80,089

F. Social and Built Infrastructure Summary

Current Conditions			
Intensity of Current Zoning	Planning staff has estimated that the most intense use under the current zoning designation would be 20 multifamily dwelling units and 191,159 square feet of industrial development.		
Potential Impacts			
Durham Public Schools			
Region	Central		
	Elementary (PreK-5)	Middle (6-8)	High (9-12)
Base School Impacted	Y. E. Smith	Brogden	Riverside
Potential Students Generated – Current Zoning	2	1	1
Potential Students Generated – Proposed Zoning	160	64	96
Potential Impact of Proposed Zoning	+158	+63	+95
Durham County Per Pupil Costs	\$5,374 per pupil estimated annual operating costs \$100,000 per pupil estimated capital costs for new construction		
School Capacity			
Percent of Existing Capacity	76.3%	86.6%	126.2%
Infrastructure Impacts			
Water Connection and Capacity	The proposed project site is within the 566-foot pressure zone and the development will require at least two waterline connections. The water main shall be extended from the existing eight-inch waterline in Rowena Avenue and the existing 12-inch waterline in Angier Avenue. The project must have two waterline feeds constructed and operational prior to issuance of the 100 th Certificate of Compliance. Waterlines will be stubbed out to any future public street access points.		
Sewer Connection and Capacity	The proposed project site is within the Lick sewer basin. The project may connect to existing eight-inch gravity sewer within the development. Sewer will be stubbed out to any future public street access points upstream of the gravity sewer.		

G. Transportation Impact Summary

Intensity of Current Zoning	Planning staff has estimated that the most intense use under the current zoning designation would be 20 multifamily dwelling units and 191,159 square feet of industrial development.		
Infrastructure Impacts	Angier Avenue is the major road impacted by the proposed zoning change. There are no scheduled City of Durham or NCDOT roadway improvement projects in the area.		
Transit Service	Transit service is provided adjacent to the site along Angier Avenue via GoDurham Route 2.		
Affected Roadway	East End Avenue	Angier Avenue	
Type of Roadway	Two-lane undivided city/county class II arterial without left-turn lanes	Two-lane undivided city/county class II arterial without left-turn lanes	
Current Roadway Capacity (LOS D) (AADT)	11,800	11,800	
Latest Traffic Volume (AADT)	2,000	6,000	
	Traffic Generated by Present Designation (average 24 hour)	Traffic Generated by Proposed Designation (average 24 hour)	Potential Impact of Proposed Designation
Number of Trips	923	13,755 (103% of TIA)	+12,832
Assumptions	<p>Maximum Use of Existing Zoning: 20 multi-family units and 191,159 SF Manufacturing</p> <p>Maximum Use of Proposed Zoning: 375 townhouses, 1,520 multi-family units (mid-rise) and 49,500 SF retail (no supermarket)</p>		
Roadway Improvements	<ul style="list-style-type: none"> • Construct an exclusive westbound right-turn lane on East End Avenue and construct an exclusive southbound left-turn lane on Angier Avenue OR construct a roundabout at the entrance to the site on Angier Avenue • Construct an exclusive eastbound left-turn lane on East End Avenue at Rowena Avenue • Install an all-way stop at the intersection of East Pettigrew and South Briggs avenues • Construct the following at the intersection of Angier Avenue and the south site driveway: <ul style="list-style-type: none"> ○ An exclusive southbound left-turn lane, an exclusive northbound right-turn lane, and install a traffic signal; or ○ A roundabout 		
Site Access Points and Stub Outs	Access points are shown at Angier Avenue, Woods Street, Rowena Avenue, Carr Street, and an unnamed right-of-way off of East End Avenue. There are two stub outs shown to the adjacent property to the north.		
Right-Of-Way Dedication or Reservation	Dedicate 90 feet of right-of-way through the site for the future Carr Road Extension.		
Sidewalks	Construct a ten-foot shared use path for the full frontage of the site along the east side of Angier Avenue.		

Bicycle Lanes	Construct a ten-foot shared use path for the full frontage of the site along the east side of Angier Avenue.
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H. Equity and Engagement Summary

Neighborhood Meeting Information			
Required Meeting Dates & Additional Meeting(s)	October 25, 2023 November 6, 2024	Number of Attendees	16 N/A
Durham Rezoning Explorer			
Community comments from the Durham Rezoning Explorer Community Input Tool	There is one comment for this proposal as of October 15, 2024. Please refer to the Durham Rezoning Explorer for additional details.		
Equity: Potential Displacement			
	Tax Value Increase in Area	Evictions in Area	Cost-Burdened Renters
Potential Displacement Risk (Source)	28.2% (Census Tract 10.01) 18.0% (Census Tract 18.02) 26.6% (County)	73 per square mile (Census Tract 10.01) 9 per square mile (Census Tract 18.02) 21 per square mile (County)	49.3% (Census Tract 10.01) 0% (no reported renter households in 2022 in Census Tract 18.02) 48.7% (County)
Demographics			
(Source)	Census Tract	County	
People of Color	90.5% (Census Tract 10.01) 95.8% (Census Tract 18.02)	57.4%	
Median Age	26.0 (Census Tract 10.01) 38.7 (Census Tract 18.02)	35.7%	
Equity: Geography			
Is the area identified as “Disadvantaged” by the Climate and Economic Justice Screening Tool ? If yes, which burden thresholds and which socioeconomic thresholds does the area exceed?	This area, including two census tracts, is identified as “disadvantaged” by the Climate and Economic Justice Screening Tool. The burden thresholds and socioeconomic thresholds met by this project include income, transportation barriers, high school education achievement, percentage of residents with asthma and diabetes, historic underinvestment, housing costs, and unemployment.		
Is this in a formerly redlined area, as found in the Durham redline map ?	The proposal is not within a formerly redlined area as seen in the redlined map.		
Is this area in an opportunity area as identified in the Green Infrastructure Program ?	This area is not located in one of the priority areas identified by the Green Infrastructure Program.		

I. Adjacent and Surrounding Development

Active Cases (within a half-mile)	
Active Site Plans	D2400040 – Chandler Concrete Pettigrew St, Replace existing batch plant with new modern batch concrete plant D2400141 – 1028 Lynn Road Townhouses, development of 36 townhouses D2400176 – Fox Crossing II, 320 apartments and 4,800 square feet of commercial space

Active Zoning Map Changes	Z2300053 – Hoover Road Assemblage, mix of 402 townhouses and apartments	
Active Annexations	None	
Proximity to Essential Services		
	Distance from Site	Amenity
Proximity to Grocery/Food	1.6 miles 1.9 miles	Tropicana Supermarket Food Lion
Proximity to Retail/Commercial	1.6 miles 1.9 miles 2.5 miles	The Village Joyland Shopping Center Phoenix Crossing/Square
Proximity to a Park/Public Space	0.9 miles 1.2 miles	C. R. Wood Park East End Park
Proximity to Healthcare	2.4 miles 6.0 miles	Lincoln Community Health Center Duke University Hospital
Proximity to a School	1.3 miles 5.1 miles 10.2 miles	Y. E. Smith Elementary Brogden Middle Riverside High
Proximity to a Transit Stop	Adjacent	GoDurham Route 2

J. Comprehensive Plan Policies

Comprehensive Plan Policy Consistency		
Generally consistent with the following number of applicable policies of the Comprehensive Plan	Consistent by Exceeding UDO	11
	Consistent by Meeting UDO	10
	Policy Not Met	4
	Policy Not Applicable	0
Comprehensive Plan Policy Consistency Analysis	Attachment E	

K. Case Timeline Summary

Timeline of Activity on the Case	
Date of Presubmittal Meeting	July 27, 2023
Date Completed Application Submitted	November 17, 2023
Date All Comments Addressed	August 14, 2023
Date of Planning Commission Public Hearing	November 12, 2023
Date of City Council or BOCC Public Hearing	TBD

L. Advisory Body Recommendations

Bicycle and Pedestrian Advisory Commission (BPAC)	
Bicycle Pedestrian Advisory Commission (BPAC) Comments	Construct 12-foot multiuse paths (MUP) along Carr Ext, Angier, Hoover, East End, and Rowena with 10-foot buffer with planted trees. Include on-ramps at all intersections and high visibility crosswalks with pedestrian signals along all sides of any intersections. Any future

	<p>stub-out roads should include the same. Where planned interior walking trails crossroads, build raised crosswalks to keep pedestrians at level of interior trail while crossing.</p> <ul style="list-style-type: none"> • The applicant has committed to a 10-foot shared use path along Angier Avenue. <p>In order to comply with the DCHC MPO Comprehensive Transportation Plan, build on-road protected bicycle facilities using bollards on Angier, East End, and Rowena. Add asphalt as needed to ensure bicycle lanes will be 6 feet wide with 2-foot buffer. Connect the MUP on the eastern section of East End Ave to the MUP parallel to US70 that is planned in the DCHC MPO CTP.</p> <ul style="list-style-type: none"> • The applicant has not committed to this request. <p>Connect MUP/sidewalks from Rowena and East End to CR Woods Park, including a high visibility crosswalk with pedestrian signal.</p> <ul style="list-style-type: none"> • The applicant has not committed to this request. <p>Connect MUP/sidewalks along the edge of the development to all bus stops on Angier within 0.5 miles, build a shelter with bike rack, coordinating with GoDurham or GoTriangle. For stops without lighting, build street lighting, working with Durham Public Works.</p> <ul style="list-style-type: none"> • The applicant has not committed to this request. <p>Is the railroad still in use, and if so, how does developer plan to connect western triangle to the remainder of the development?</p> <ul style="list-style-type: none"> • To the best of staff's knowledge, this railroad spur remains in use. The applicant did not address this question directly. <p>For any curb radius greater than 10 feet, add paint on asphalt to bring all curb radii at the intersection to 5-10 feet. Install a mountable curb to slow car traffic while still allowing emergency and transit vehicles to take advantage of the original curb radius.</p> <ul style="list-style-type: none"> • The applicant has not committed to this request.
Planning Commission	
Planning Commission Vote	TBD

M. Conclusion

The proposal would allow the development of up to 1,880 duplex, triplex, townhouse and apartment units on six undeveloped parcels. A minimum of five apartment units are committed to be affordable to 60% AMI, more could be forthcoming depending on the final unit type mix. The site for the proposal is in East Durham just north of the East End Connector (I-885).

While the proposal sets aside a significant amount of environmentally sensitive land from development, and commits to a maximum impervious surface of 24 percent, there would be up to five stream crossings and one wetland crossing under the proposed development plan. Via the stub out to Carr Road, and access to East End Avenue and Angier Avenue, the site would be able to distribute vehicular traffic to lessen congestion effects. Furthermore, with existing transit service on the west side of the site, well-designed pedestrian infrastructure would provide easy access to bus service.

The commitment to both residential and non-residential uses meets the policy definition for the Mixed Use Neighborhood Place Type. The proposal does not permit single-family residential uses in a neighborhood where that is the predominant housing type, aside from multifamily residential properties on Hoover Road and a proposal north of this site for additional multifamily development. The proposal therefore furthers policies for a mix of housing types throughout the city. Project boundary buffers, as shown on the development plan, will help address externalities from adjacent industrial uses.

This proposal is consistent with (21 of 25) of applicable policies of the Comprehensive Plan, as found in Attachment E – Comprehensive Plan Consistency. The proposal is generally consistent with the Place Type Map designation of Mixed Use Residential.

N. Notification

Staff certifies that newspaper advertisements, letters to property owners, and the posting of the property have been carried out in accordance with paragraph 3.2.5 of the UDO. In addition, email notice was provided per the Durham Planning Public Notification Service.

O. Attachments

Attachment A – Zoning Context Map
Attachment B – Aerial Map
Attachment C – Place Type Map
Attachment D – Proposed Development Plan
Attachment E – Comprehensive Plan Policy Review
Attachment F – TIA Memo

Attachment A: Zoning Context Map

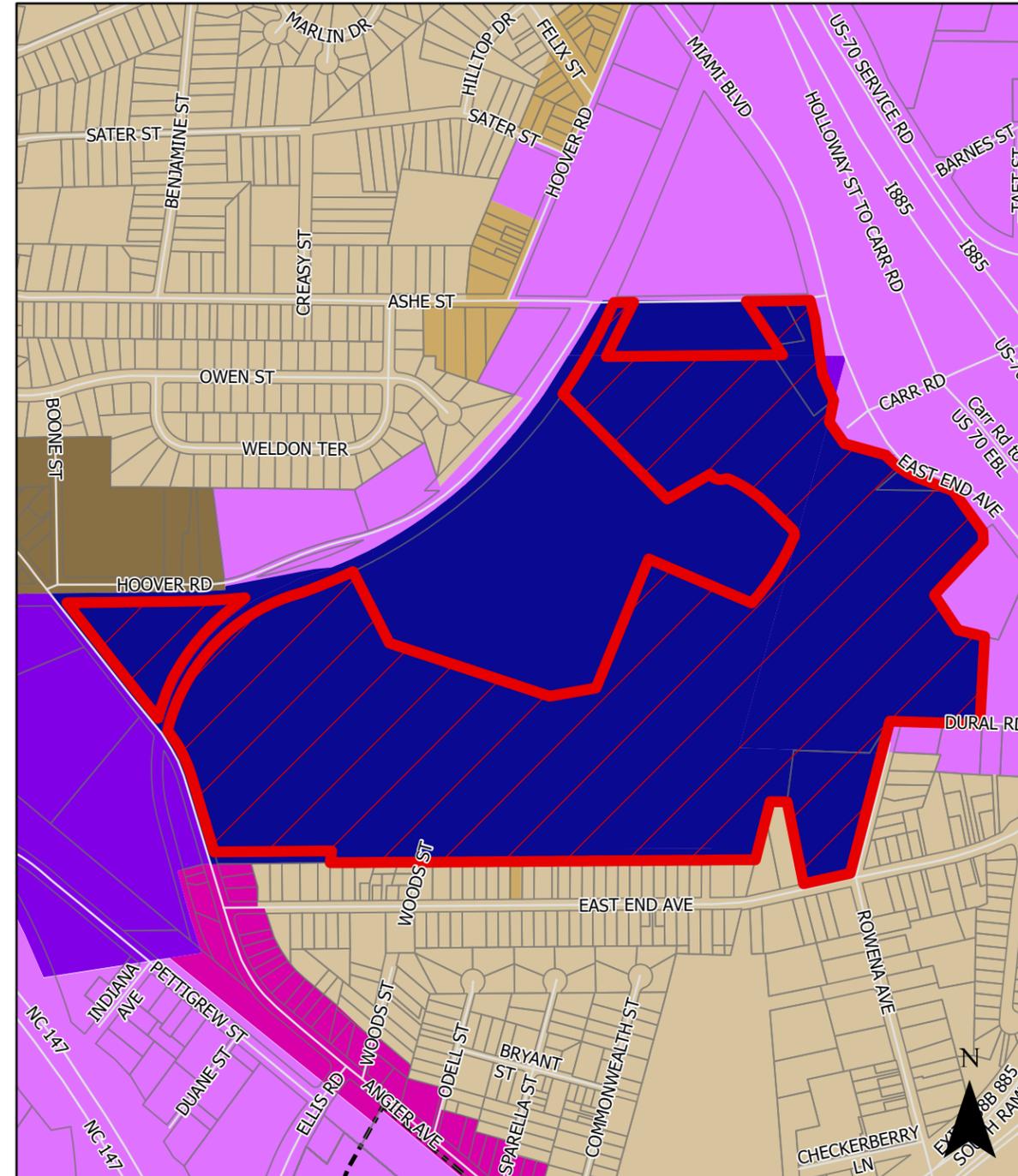
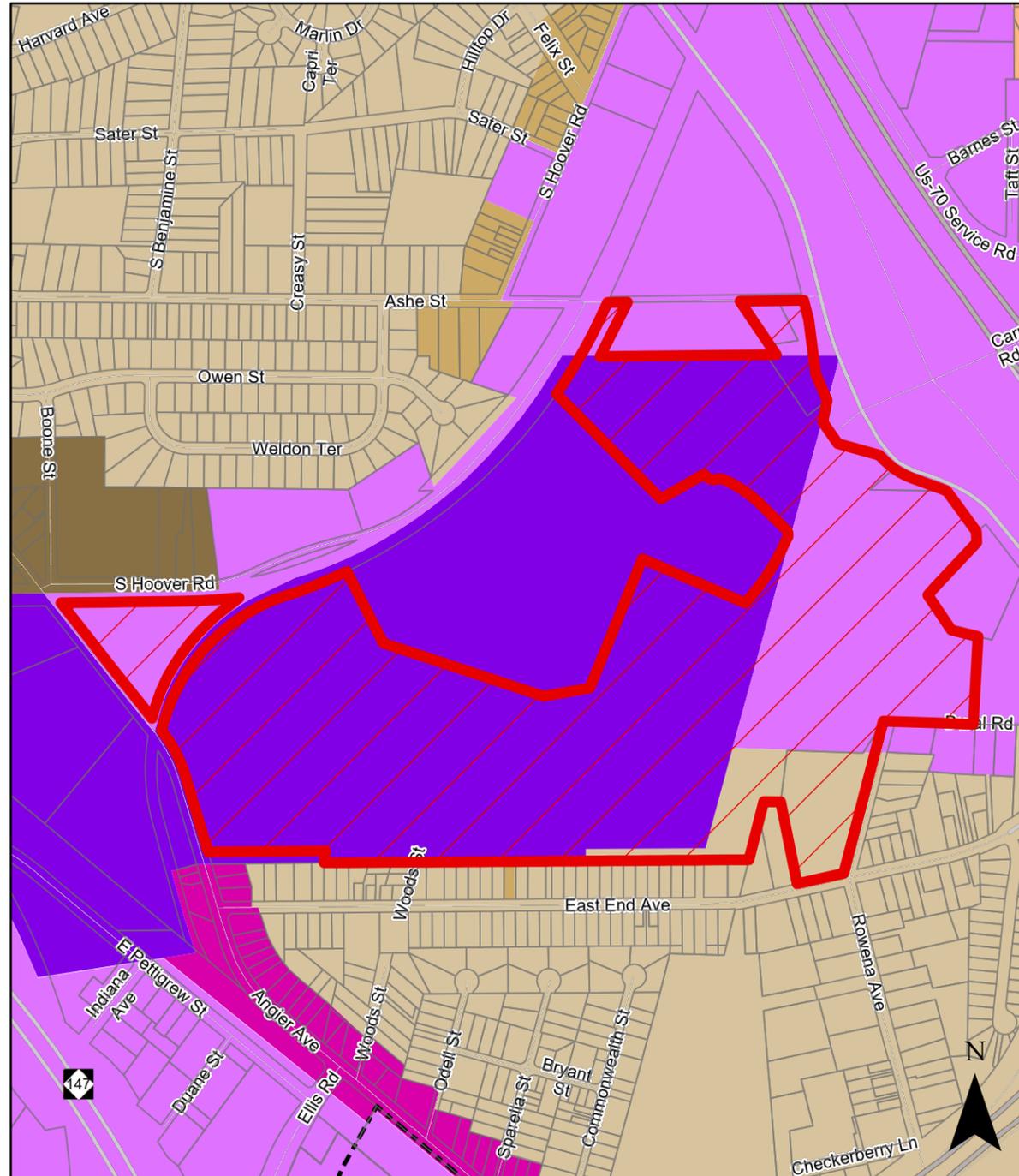
Z2300046 - Brickworks



Planning

Existing: Residential Suburban - 20 (RS-20)

Proposed: Planned Development Residential 19.690 (PDR 19.690)



- Legend:**
- Parcels
 - City of Durham
 - Durham County
 - Z2300046
 - RS-8
 - RU-5
 - RU-5(2)
 - RU-M
 - CN
 - CG
 - I
 - IL
 - PDR (> 12 du/ac)



Attachment B: Aerial Map

Z2300046 - Brickworks

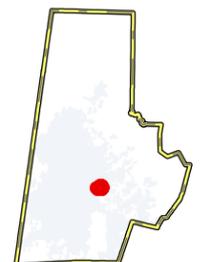


Planning



Legend:

- Parcels
- City of Durham
- Durham County
- Z2300046



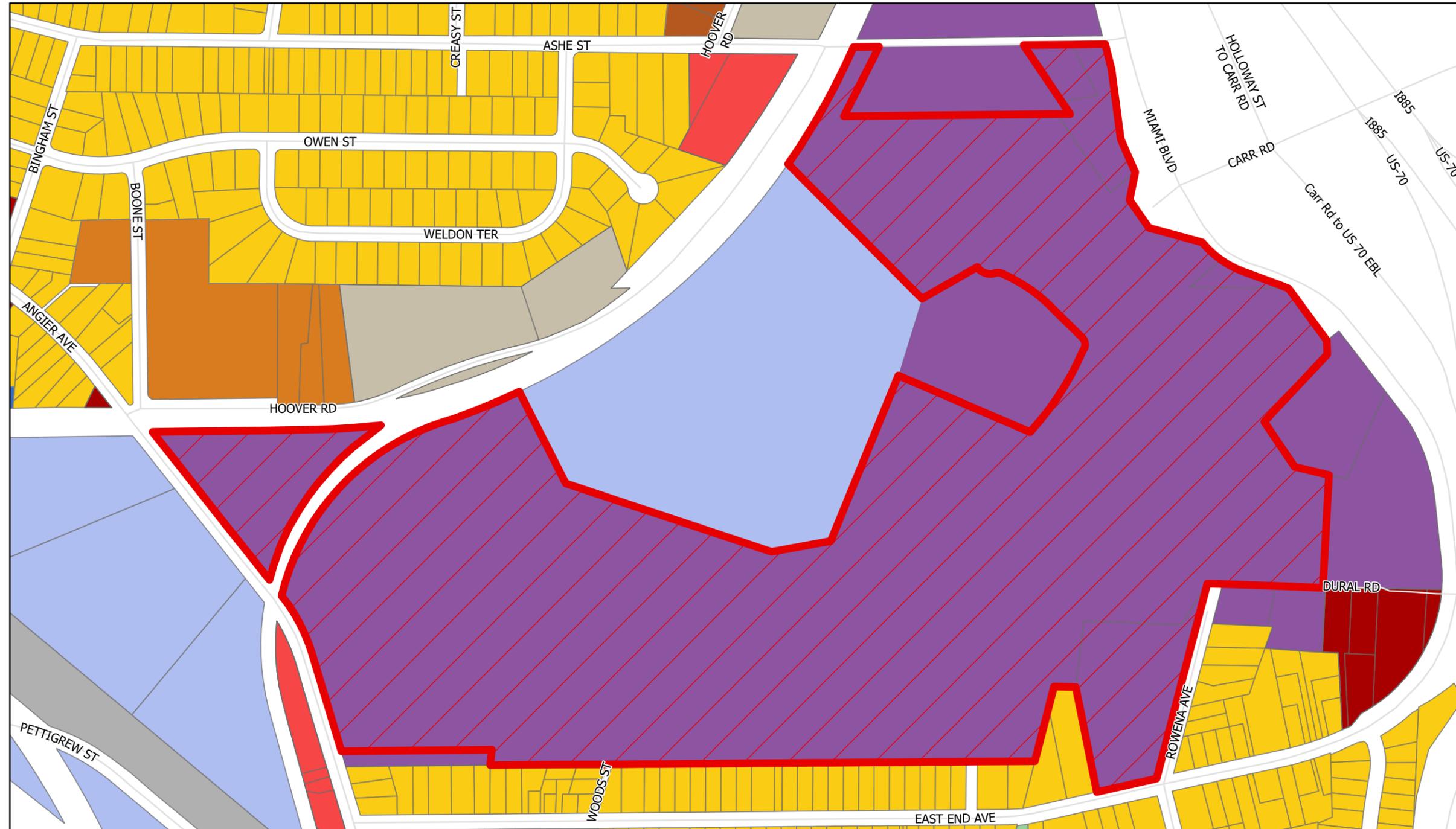
Attachment C: Place Type Map

Z2300046 - Brickworks



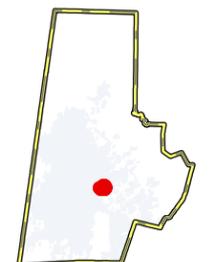
Planning

Place Type: Mixed Use Neighborhood



Legend:

- Parcels
- City of Durham
- Durham County
- Z2300046
- Place Types**
- Apartment & Townhouse Neighborhood
- Community Institution
- Established Residential
- General Industrial
- Mixed Employment
- Mixed Residential Neighborhood
- Mixed Use Neighborhood
- Neighborhood Services
- Recreation & Open Space
- Suburban Commercial
- Utility & Public Works Facilities



Durham City-County Planning Department
November 21, 2023



VICINITY MAP
SCALE: 1" = 3000'

DEVELOPMENT PLAN OF BRICKWORKS

2801 ANGIER AVENUE
DURHAM, NC

CLIENT:

SARAH BAXENDALE
436 EAST 36TH STREET
CHARLOTTE, NC 28205
416-564-1385

APPLICANT / CONSULTANT:

LANDSCAPE ARCHITECT / LAND PLANNER:
THOMAS & HUTTON
2510 MERIDIAN PARKWAY, SUITE 100
DURHAM, NC 27713
919-682-0368
CONTACT: DANIEL JEWELL, RLA

CIVIL ENGINEER:

THOMAS & HUTTON
2510 MERIDIAN PARKWAY, SUITE 100
DURHAM, NC 27713
919-682-0368
CONTACT: PRESTON ROYSTER, PE

REID: 130556, 196401, 131216, 118814,
130557, 130558

J-30992.055

PREPARED BY:



SUBMITTAL HISTORY	
	DATE
DEVELOPMENT PLAN SUBMITTAL #4	06-25-24
DEVELOPMENT PLAN SUBMITTAL #3	03-14-24
DEVELOPMENT PLAN SUBMITTAL #2	02-02-24
DEVELOPMENT PLAN SUBMITTAL #1	11-14-23
SUBMITTED TO THE CITY OF DURHAM	DATE

Sheet List Table

Sheet Number	Sheet Title
C0	COVER SHEET
G0.1	SITE DATA AND COMMITMENTS
DP1.1	EXISTING CONDITIONS & STEEP SLOPES
DP2.1	DEVELOPMENT PLAN

APPROVAL STAMPS

DEVELOPMENT PLAN CASE #: Z2300046



THOMAS & HUTTON
2510 Meridian Parkway • Suite 100
Durham, NC 27713
p.919.682.0368
www.thomasandhutton.com

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BRICKWORKS
J-30992.055
02/02/2024

EXISTING CONDITIONS DATA

SITE AREA
 AREA OF REZONING: 95.48 ACRES

ZONING
 EXISTING ZONING: I, IL, & RU-5
 OVERLAY: N/A

ENVIRONMENTAL PROTECTION
 RIVER BASIN: NEUSE
 WATERSHED PROTECTION OVERLAY: FALLS OF THE NEUSE / JORDAN LAKE PROTECTED AREA (F/J-B)
 100' STREAM BUFFER: 1,172,592 SF / 26.92 ACRES = 28.2% OF SITE

IMPERVIOUS SURFACE
 EXISTING FOR REZONING AREA: 707 SF / 0.016 ACRES = 0.017% OF SITE

STREAM BUFFERS
 THERE ARE STREAM BUFFERS ON THE PROJECT SITE

FLOODWAY FRINGE PROTECTION
 THE SITE IS NOT AFFECTED BY A MAPPED FLOODPLAIN ACCORDING TO FIRM MAPS 3720083100J (MAY 2, 2006) & 3720084100K (OCTOBER 19, 2018)

FLOODWAY
 THE SITE IS NOT AFFECTED BY A MAPPED FLOODWAY ACCORDING TO FIRM MAPS 3720083100J (MAY 2, 2006) & 3720084100K (OCTOBER 19, 2018)

STEEP SLOPE PROTECTION
 THERE ARE STEEP SLOPES, AS DEFINED BY THE DURHAM UDO ON THE SITE.

WETLANDS
 THERE ARE POTENTIAL JURISDICTIONAL WETLANDS ON-SITE.

ADOPTED PLANS

- 2006 DURHAM COMPREHENSIVE BICYCLE TRANSPORTATION PLAN:
 - PROPOSED BICYCLE LANES INDICATED ON ANGIER AVE AND EAST END AVE & PROPOSED GREENWAY INDICATED ON RAIL LINE TO THE NORTH PER MAP 4.5 / CENTRAL DURHAM.
- DURHAM TRAILS AND GREENWAYS MASTER PLAN
 - NO IMPACT TO PROJECT SITE

POTENTIAL JURISDICTIONAL WETLAND AREA	
ID	APPROXIMATE AREA (ACRES)
WAA	0.037
WAB	0.476
WAC	0.410
WAD	0.070
WAE	0.028
WAF	0.010
WAG	0.033
WAH	0.027
WAI	0.066
WAL	0.193
WAM	0.034
WAN	0.129
WAP	0.011
WAS	0.068
WAR	0.055
WAS	0.039
WAT	0.002
WAU	0.089
WAV	0.080
WAW	0.044
WAX	0.148
WAY	0.011
WAZ	0.096
WAAA	0.161
WABE	0.016
WACC	0.012
WACE	0.022
WAGS	0.140
WAWH	0.110
TOTAL	2.707

NOTE: FEATURE WAWH HAS BEEN DETERMINED BY NCDEQ TO BE A POND & IS NOW LABELED AS "POND 2"



NO.	REVISIONS	BY	DATE
3	CITY COMMENTS	T&H	6/24/24
2	GRAPHIC ADJUSTMENTS	T&H	05/29/24
1	CITY COMMENTS	T&H	03/14/24



THOMAS & HUTTON

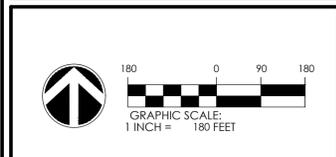
2510 Meridian Parkway • Suite 100
 Durham, NC 27713 • 919.682.0368
www.thomasandhutton.com

EXISTING CONDITIONS & STEEP SLOPES

BRICKWORKS

PROJECT LOCATION:
 2801 Angier Avenue
 Durham, NC

CLIENT/OWNER:
 Sarah Baxendale
 436 East 34th Street
 Charlotte, NC 28205



DATUM: HORIZ.: NAD 83 VERT.: NAVD 88

JOB NO: 30992.055
 DATE: 02/02/2024
 DRAWN: DAJ, MIC
 DESIGNED: DAJ
 REVIEWED: DAJ
 APPROVED: DAJ
 SCALE: 1" = 180'

DP1.1

DEVELOPMENT PLAN NOTES

PROPOSED ZONING:

- PDR 19.811
- OVERLAY - FALLS OF THE NEUSE / JORDAN LAKE PROTECTED AREA (FJ-B)

SITE ACREAGE:

- AREA TO BE REZONED 4,159,109 SF / 95.48 ACRES

LAND USE:

- MULTI-FAMILY - APARTMENTS AND TOWNHOMES
- MIXED-USE

DEVELOPMENT INTENSITY:

- 19.811 UNITS / ACRE
- MAXIMUM OF +/- 1,880 APARTMENT AND TOWNHOME UNITS
- MAXIMUM OF +/- 49,500 SF MIXED-USE

COMMITTED IMPERVIOUS SURFACE:

- MAXIMUM COMMITTED = 24%
- MAXIMUM ALLOWED IN THE FJ-B WATERSHED = 70%

COMMITTED OPEN SPACE:

- REQUIRED MINIMUM = 20%
- MINIMUM COMMITTED = 20%

TREE COVERAGE:

- REQUIRED MINIMUM RESIDENTIAL = 7%
- REQUIRED MINIMUM NONRESIDENTIAL = 3%
- MINIMUM OVERALL COMMITTED TREE PRESERVATION = 7%

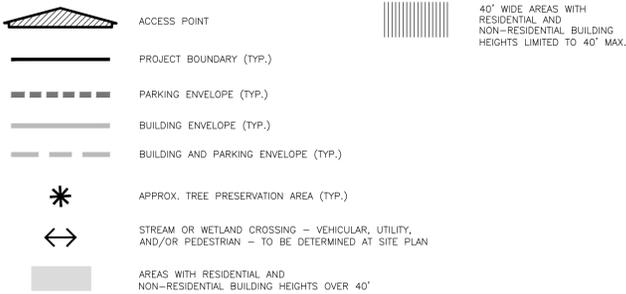
MAX. BUILDING HEIGHT:

- ALLOWED: 100'
- PROPOSED: 100' EXCEPT WHERE LIMITED TO 40' AS SHOWN ON THE DEVELOPMENT PLAN

MIN. BUILDING SEPARATION

- 5'

DEVELOPMENT PLAN LEGEND



DENSITY CALCULATION

Overall Project Area	4,159,109 SF			
15% of Land Area in Steep Slopes (outside of buffers)	29,864 SF	x 15%	= 4,480 SF	0.103 AC
Land Area Not Constrained by Natural Features	4,129,245 SF	x 100%	= 4,129,245 SF	+ 94.794 AC
				Subtotal = 94.897 AC
				Net Land Area for Density Calculation = 94.897 AC
				# of Townhouse and Apartment Units = 1,880
				PDR = 19.811

POTENTIAL JURISDICTIONAL WETLAND AREA	
ID	APPROXIMATE AREA (ACRES)
WAA	0.037
WAB	0.476
WAC	0.410
WAD	0.010
WAE	0.028
WAF	0.013
WAG	0.033
WAH	0.027
WAI	0.066
WAL	0.193
WAM	0.034
WAN	0.129
WAP	0.011
WAS	0.068
WAT	0.055
WAW	0.039
WAX	0.002
WAY	0.089
WAZ	0.080
WAA	0.044
WAB	0.148
WAC	0.031
WAD	0.096
WAE	0.161
WAF	0.016
WAG	0.012
WAH	0.022
WAI	0.140
WAL	0.110
WAM	0.170
WAN	0.120
WAP	0.110
WAS	0.110
WAT	0.110
WAW	0.110
WAX	0.110
WAY	0.110
WAZ	0.110
WAA	0.110
WAB	0.110
WAC	0.110
WAD	0.110
WAE	0.110
WAF	0.110
WAG	0.110
WAH	0.110
WAI	0.110
WAL	0.110
WAM	0.110
WAN	0.110
WAP	0.110
WAS	0.110
WAT	0.110
WAW	0.110
WAX	0.110
WAY	0.110
WAZ	0.110
TOTAL	2.707

NOTE: FEATURE WAHH HAS BEEN DETERMINED BY NCDENR TO BE A POND & IS NOW LABELED AS "POND 2"

NO.	REVISIONS	BY	DATE
3	CITY COMMENTS	T&H	06/24/24
2	CITY COMMENTS	T&H	03/25/24
1	CITY COMMENTS	T&H	02/02/24



THOMAS & HUTTON
 2510 Meridian Parkway • Suite 100
 Durham, NC 27713 • 919.682.0368
 www.thomasandhutton.com

DEVELOPMENT PLAN

BRICKWORKS

PROJECT LOCATION:
 2801 Angier Avenue
 Durham, NC

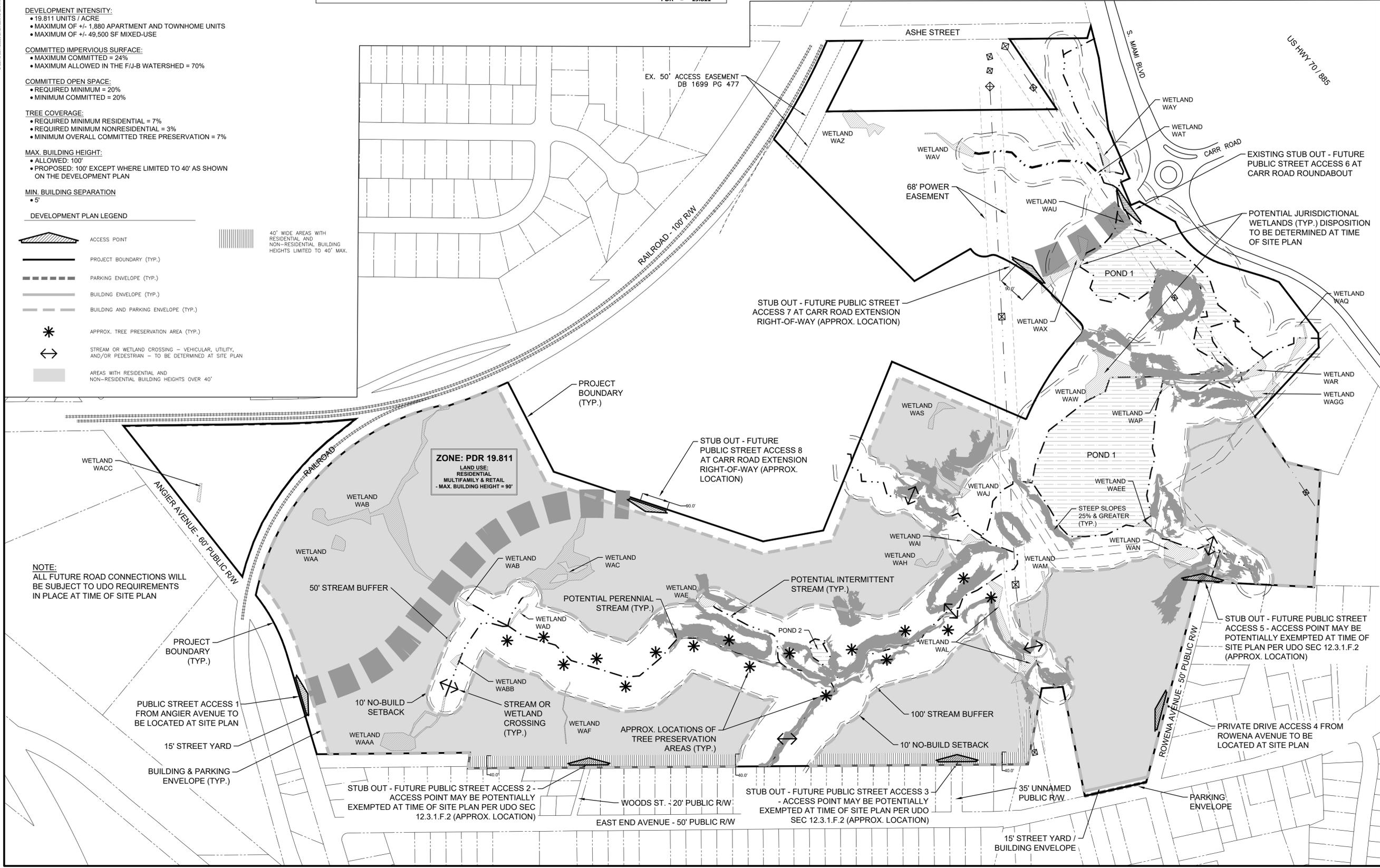
CLIENT/OWNER:
 Sarah Baxendale
 436 East 34th Street
 Charlotte, NC 28205

DATUM: HORIZ: NAD 83 VERT: NAVD 88

GRAPHIC SCALE: 1" = 150 FEET

JOB NO: 30992.055
 DATE: 02/02/2024
 DRAWN: DAJ, MIC
 DESIGNED: DAJ
 REVIEWED: DAJ
 APPROVED: DAJ
 SCALE: 1" = 150'

DP2.1





COMPREHENSIVE PLAN CONSISTENCY REVIEW

BRICKWORKS (Z2300046)

Applicable Policy	Consistent	How consistent
<p>Policy 33: Discourage development patterns, such as exclusively single-family neighborhoods, that segregate and concentrate high-wealth communities.</p>	<p>Consistent by exceeding UDO standards</p>	<p>Development plan prohibits single-family developments while allowing multifamily residential in a predominantly single-family and industrial area; proposal requires a minimum of 100 townhouses and 100 apartments.</p>
<p>Policy 37: Design new developments to prioritize pedestrians in ways compatible with existing neighborhoods, such as by placing buildings close to the street, oriented toward sidewalks, green spaces, or community areas where people gather; locating vehicle access and parking to the side or rear of buildings and lots; maintaining connected streets and frequent intersections; and designing buildings to engage with the street through stoops, porches, or other welcoming entranceways.</p>	<p>Consistent by meeting UDO standards</p>	<p>UDO requirements include stub outs, setback and sidewalk requirements</p>
<p>Policy 39: Preserve and create natural areas, open spaces, community gardens, and trees within new housing developments or redevelopments—particularly for affordable housing—to improve the physical and mental health of residents.</p>	<p>Consistent by meeting UDO standards</p>	<p>UDO requirements of tree save and open space are met</p>
<p>Policy 40: Affordable housing should be included in new development proposals. Encourage and incentivize housing that meets the needs of Durham residents in terms of cost, unit size, housing type, ADA accessibility, and location. Tenures for housing affordability should run, where feasible, with the land in perpetuity. When this is not possible, affordability tenures should last for a minimum of 30 years and have an associated deed restriction.</p>	<p>Consistent by exceeding UDO standards</p>	<p>Proposal commits to 5% of apartment units be income restricted for 60% AMI for a 30-year period.</p>
<p>Policy 48: Encourage, incentivize, and require a variety of housing types in new developments that allow for a mix of age groups, and discourage developer commitments that isolate seniors by restricting housing based on age.</p>	<p>Consistent by exceeding UDO standards</p>	<p>Elevators are committed for any building of four stories or more</p>
<p>Policy 49: Work towards healthier housing and lower utility costs for residents by using green building techniques and technologies (such as solar panels, passive solar design, low VOC materials), particularly in affordable housing units. Use durable, environmentally sustainable materials in publicly and privately funded affordable housing to create healthier homes.</p>	<p>Policy not met</p>	<p>Development plan does not include any green building techniques</p>
<p>Policy 50: Encourage the location of new residential development such that homes are within a safe ten-</p>	<p>Consistent by exceeding UDO standards</p>	<p>Site is within a ½ mile of the C. R. Wood Park</p>

minute walking distance (approximately one-half mile) of public parkland.		
Policy 55: Fill in gaps in the existing sidewalk, bicycle, and transit infrastructure to create an accessible, safe, and direct transportation network for all residents. Focus on improving residents’ access to needed resources, including healthcare services, grocery stores, employment areas, and schools.	Consistent by meeting UDO standards	UDO requirements for bike/sidewalk infrastructure will be met at the site plan stage
Policy 57: Encourage new developments to fill in gaps or upgrade transportation infrastructure by building or dedicating rights-of-way within and adjacent to the project site.	Consistent by meeting UDO standards	DDOT/NCDOT requirements and/or Reference Guide for Development will be met at the site plan stage
Policy 63: Improve ADA accessibility at crosswalks, sidewalks, and bus stops for all people, regardless of ability or age. Improve pedestrian infrastructure, including street crossings, intersections, signals, wayfinding, and sidewalks prioritizing the safety of people with disabilities, senior citizens, students, and families with young children.	Consistent by meeting UDO standards	UDO requirements for ADA accessibility and pedestrian connectivity will be met at the site plan stage
Policy 70: Reduce the amount of land used for automobile travel and parking and encourage pedestrian- and transit-friendly design. Discourage conversion of land into uses primarily or exclusively supportive of automobiles, such as gas stations and car washes.	Consistent by exceeding UDO standards	Development plan prohibits convenience stores with gas sales and drive-thru facilities; Vehicle sales and service are not allowed in the PDR district
Policy 72: Ensure new development is connected to adjacent neighborhoods and commercial areas with walking and biking infrastructure. This can include building, improving, or dedicating right-of-way for sidewalks, and constructing bicycle paths, greenways, off-street bicycle and pedestrian connections, bus stop infrastructure, and collector streets, as called for in locally adopted transportation plans.	Consistent by meeting UDO standards	UDO stub outs and connectivity standards will be met at the site plan stage
Policy 79: Protect Durham’s most sensitive natural areas (including floodplains, wetlands, wildlife habitats, hillsides, drinking water sources, critical watersheds, and natural heritage areas) from the impacts of development.	Policy not met	Wetlands and streams will be impacted by the proposed development
Policy 81: Locate open space in new development so that it protects the most environmentally sensitive portions of the site and creates large and contiguous habitat areas, rather than narrow and disconnected strips of open space.	Consistent by exceeding UDO standards	Tree preservation is located within the riparian stream buffers, and the building and parking envelope does not encroach into the northeastern portion of the site
Policy 84: Discourage development that contributes to a loss of biodiversity, particularly through disruptive clear-cutting and mass grading. Mass grading should be discouraged for new residential projects. When mass grading of new development sites is proposed, it should occur in phases rather than across the entire area at once, to reduce on-site stormwater runoff and erosion, and to retain tree cover between the phases of construction.	Consistent by meeting UDO standards	Will meet UDO requirements for phased mass grading

<p>Policy 85: New developments should include tree coverage beyond that required by development regulations. Tree canopy should be distributed throughout new developments to maintain a consistent mature tree canopy wherever possible.</p>	<p>Policy not met</p>	<p>Development plan does not include tree coverage beyond that required of the UDO</p>
<p>Policy 94: Increase Durham’s urban tree canopy, prioritizing neighborhoods and communities with comparably less canopy. Prioritize native trees in replanting efforts.</p>	<p>Consistent by meeting UDO standards</p>	<p>Landscape Manual prioritizes native species, and the UDO requires native species for Tree Replacement Areas</p>
<p>Policy 96: Implement strategies to reduce the heat island effect and its impact on residents. Ensure that new developments mitigate the urban heat island effect in areas currently experiencing it. Encourage new developments that minimize impervious surfaces and include green infrastructure, reflective materials, and plentiful tree canopy.</p>	<p>Consistent by exceeding UDO standards</p>	<p>Development plan commits to a maximum of 24% impervious surface</p>
<p>Policy 101: Encourage new development that incorporates native plants, wildlife habitats, natural landscaping, and that discourages invasive exotic species.</p>	<p>Consistent by exceeding UDO standards</p>	<p>Proposal commits to only using native trees for street trees</p>
<p>Policy 108: Encourage green infrastructure, such as native trees and vegetation, protected green spaces, green roofs and walls, bioswales, rain gardens, and permeable pavement. Green infrastructure should be prioritized in low-income and BIPOC communities if desired by those communities.</p>	<p>Consistent by exceeding UDO standards</p>	<p>Proposal commits to only using native trees for street trees</p>
<p>Policy 111: Encourage innovative stormwater management practices that will preserve and enhance water quality and will not increase the quantity of water discharged downstream of new developments. Encourage innovative stormwater management practices that will prepare our community and its infrastructure for increasingly heavy precipitation events.</p>	<p>Consistent by meeting UDO standards</p>	<p>Will meet UDO requirements for stormwater treatment at the site plan stage.</p>
<p>Policy 145: Co-locate childcare facilities within or adjacent to employment centers, education and medical institutions, and community and civic places.</p>	<p>Consistent by exceeding UDO standards</p>	<p>Development plan allows for day cares as a permitted use</p>
<p>Policy 152: Coordinate school planning and land use planning to proactively prepare for increased student growth from new development. When a proposed residential development causes any school level (ex: elementary, middle, and high school) within a region to be over-capacity, Durham Public Schools, the Durham City-County Planning Department, and the development team should consider mitigation measures for the school system (ex: land dedication, payments in-lieu-of improvements, or other proffers). Coordinate with Durham Public Schools to calculate what mitigation is necessary based on the best available estimates.</p>	<p>Consistent by exceeding UDO standards</p>	<p>Development plan provides one-time contribution of \$60,000 to Durham Public Schools</p>

Place Type Policies		
Policy	Consistent	How Consistent
<p>Policy 46: At least 20% of housing in the Transit Opportunity Areas Place Type should be affordable to households making 30-80% of Area Median Income (AMI), with half of those units being affordable for households making 30-50% of AMI. At least 15% of housing in all other residential and mixed-use place types should be affordable to households making 30-80% of AMI.</p>	<p>Not consistent</p>	<p>Proposed affordable units is less than 15% desired for the MUN Place type.</p>
<p>Policy 171 Development in the Mixed Use Neighborhood Place Type should include a mix of residential and non-residential uses and a mix of housing types and sizes. Non-residential uses should be located within a 15-minute walking distance of all residential uses. Residential uses should be provided at a variety of price points, with a portion being housing that is accessible to those with low incomes.</p>	<p>Consistent</p>	<p>The proposal includes a mix of residential and nonresidential uses with some affordable units to create a varied price points for the development. To be more in line with this policy, applicant should consistent a variety of sizes within the unit types.</p>



Date: August 12, 2024

To: Durham City County Planning Department

From: Earlene Thomas PE, City of Durham Department of Transportation

Subject: Brickworks aka Project Avatar (Z2300046) Traffic Impact Analysis - FINAL

The Unified Development Ordinance (UDO) requires a Traffic Impact Analysis (TIA) to be provided with development applications estimated to generate 150 or more peak-hour vehicle trips. The proposed development consists of 375 townhomes, 1,520 multi-family units (mid-rise) and 49,500 square-foot (SF) of retail. The proposed development is located between Angier Avenue, South Hoover Road, Ashe Street, and East End Avenue. Access to the site will be provided via three full-movement driveways, two to Angier Avenue and one to East End Avenue via Rowena Avenue. The expected completion year is 2030, and the TIA analysis year is 2031. The TIA was prepared by Kimley-Horn and Associates, Inc. in November 2023 with a subsequent update in May 2024.

Study Area

The study area includes the following intersections:

- Holloway Street – North Miami Boulevard/Gray Street;
- North Miami Boulevard – Liberty Street;
- Carr Road/Site Driveway – South Miami Boulevard/East End Avenue (Roundabout);
- Carr Road – I-885/US 70 SB Ramps (Roundabout);
- Carr Road – I-885/US 70 NB Ramps (Roundabout);
- South Alston Avenue – Angier Avenue;
- Angier Avenue – South Driver Street;
- South Driver Street – East Peabody Street;
- East Pettigrew Street – South Driver Street;
- East Pettigrew Street – South Briggs Avenue;
- South Briggs Avenue – NC-147 NB Ramps;
- South Briggs Avenue – NC-147 SB Ramps;
- South Briggs Avenue – East Lawson Street/NC-147 SB On-Ramp;
- Angier Avenue – East End Avenue;
- East End Avenue – Rowena Avenue;
- Ellis Road – Angier Avenue;
- Ellis Road – East Pettigrew Street;
- Ellis Road – So-Hi Drive;
- Angier Avenue – South Site Driveway; and,
- East End Avenue – Site Driveway.

Trip Generation

Trip generation numbers are based on the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 11th Edition, 2021. The proposed development will generate an estimated 13,354 trips per day, with 932 a.m. peak-hour trips (251 entering and 681 exiting) and 1,071 p.m. peak-hour trips (618 entering and 453 exiting). The trips were adjusted using allowable internal capture and pass-by reductions, resulting in 10,976 net new



trips per day, with 886 a.m. peak-hour trips (228 entering and 658 exiting) and 840 p.m. peak-hour trips (496 entering and 344 exiting).

Traffic Data Collection

The a.m. and p.m. peak- hour turning movement counts for the intersections in the study area were collected in May, September, and October of 2023 during the hours of 7:00-9:00 a.m. and 4:00-6:00 p.m. on days when school was in session.

Trip Distribution and Assignment

The assignment of site traffic on the study area roadway network was based on the following trip distribution percentages:

- 20% to/from the northwest via NC-147 and Briggs Avenue;
- 15% to/from the south via US-70;
- 15% to/from the north via I-885/US-70;
- 10% to and 15% from the southeast via NC-147 and Briggs Avenue;
- 10% to and 5% from the southeast via Ellis Road;
- 5% to/from the north via South Alston Avenue;
- 5% to/from the south via Angier Avenue;
- 5% to/from the west via Liberty Street;
- 5% to/from the west via So-Hi Drive;
- 5% to/from the west via East Lawson Street;
- 2% to/from developments along Angier Avenue between Alston Avenue and Driver Street;
- 2% to/from developments along Ellis Road between East Pettigrew Street and So-Hi Drive; and,
- 1% to/from developments along Angier Avenue between Driver Street and Hoover Road.

Due to the construction of the East Pettigrew bridge over South Alston Avenue at the time of existing traffic counts, a diversion was implemented to accurately represent future traffic conditions with the bridge connection in place.

Approved Developments and Background Growth

A uniform annual compounded growth rate of 1% was utilized to determine the background traffic projections. The TIA also used traffic volume projections from the following nearby developments:

- Angier Avenue Apartment: 521 multi-family units located on the west side of Angier Avenue, west of Ruritan Road.
- Northeast Creek – Phase 3 (unbuilt portions): 146 single family homes and 199 townhomes located south of Glover Road and east of NC 147.

TIP Roadway Improvements

The following roadway improvement project is proposed in the area, and was assumed to be in place for all Build scenarios:

South Alston Avenue at Angier Avenue (U-3308)

- Construct an eastbound left-turn lane with 100 feet of storage and appropriate taper
- Construct a westbound left-turn lane with 100 feet of storage and appropriate taper
- Extend the northbound left-turn lane to provide 215 feet of storage and appropriate taper

- Construct a continuous northbound shared through-right lane
- Extend the southbound left-turn lane to provide 165 feet of storage and appropriate taper
- Construct a continuous southbound shared through-right lane

Capacity Analysis

Capacity analyses were performed using the a.m. peak-hour and p.m. peak-hour for the following scenarios:

- Existing (2023) conditions;
- No-Build (2031) conditions (2023 Existing + Background growth traffic + Improvements by others);
- Build (2031) conditions (2023 Existing + Background growth traffic + Site traffic); and
- Build (2031) with Improvements conditions (2031 Build + Improvements).

This development and project study area are located within the Suburban Tier where the adopted LOS standard is LOS D. The following table summarizes the average delay for the various Levels of Service (LOS) for unsignalized and signalized intersections:

	Signalized Intersections	Unsignalized Intersections
Level of Service	Average Vehicle Delay (Seconds)	Average Vehicle Delay (Seconds)
A	0-10	0-10
B	10-20	10-15
C	20-35	15-25
D	35-55	25-35
E	55-80	35-50
F	>80	>50

Summary Level of Service Table

Intersection	Existing (2023)		No-Build (2031)		Build (2031)		Build (2031) with Improvements	
	a.m. LOS (delay)	p.m. LOS (delay)	a.m. LOS (delay)	p.m. LOS (delay)	a.m. LOS (delay)	p.m. LOS (delay)	a.m. LOS (delay)	p.m. LOS (delay)
Holloway St – North Miami Blvd/Gray Street	C (23)	C (33)	C (24)	C (34)	C (24)	D (35)	-	-
North Miami Blvd – Liberty Street	B (14)	B (13)	B (14)	B (13)	B (12)	B (12)	-	-
Carr Rd – S Miami Blvd/East End Ave	A (3)	A (4)	A (3)	A (4)	A (5)	A (5)	-	-
Carr Road – I-885/US 70 SB Ramps	A (3)	-	-					
Carr Road – I-885/US 70 NB Ramps	A (4)	A (5)	-	-				



Intersection	Existing (2023)		No-Build (2031)		Build (2031)		Build (2031) with Improvements	
	a.m. LOS (delay)	p.m. LOS (delay)	a.m. LOS (delay)	p.m. LOS (delay)	a.m. LOS (delay)	p.m. LOS (delay)	a.m. LOS (delay)	p.m. LOS (delay)
Angier Ave – South Driver Street	A (8)	B (13)	A (10)	B (14)	B (12)	B (20)	-	-
South Driver Street – East Peabody Street	C (28)	C (22)	C (31)	C (25)	D (41)	D (34)	-	-
East Pettigrew Street – South Driver Street	B (13)	B (14)	B (15)	B (15)	B (16)	B (18)	-	-
East Pettigrew Street – South Briggs Avenue	B* (12)	B* (12)	B* (12)	B* (14)	C* (20)	D* (25)	B (14)	C (17)
South Briggs Avenue – NC-147 NB Ramps	B (18)	A (8)	B (20)	A (9)	B (14)	A (8)	-	-
South Briggs Avenue – NC-147 SB Ramps	B* (13)	B* (11)	B* (14)	B* (11)	B* (14)	B* (12)	-	-
South Briggs Avenue – East Lawson Street/NC-147 SB On-Ramp	A (8)	B (14)	A (8)	B (14)	A (8)	B (13)	-	-
Angier Avenue – East End Avenue	B* (12)	C* (16)	B* (13)	C* (18)	F* (80)	F* (112)	E* (41)	D* (34)
East End Avenue – Rowena Avenue	A* (9)	A* (9)	A* (9)	B* (9)	B* (13)	B* (14)	B* (13)	B* (14)
Ellis Road – Angier Avenue	B (15)	B (16)	B (16)	B (17)	B (19)	C (21)	-	-
Ellis Road – East Pettigrew Street	C* (22)	C* (35)	C* (23)	D* (36)	C* (27)	D* (42)	-	-
Ellis Road – So-Hi Drive	B (16)	B (18)	B (17)	B (18)	B (19)	B (19)	-	-
Angier Avenue – South Site Driveway	-	-	-	-	F* (254)	F* (424)	B* (18)	B* (13)
Rowena Avenue – Site Driveway	-	-	-	-	A* (9)	A* (9)	A* (9)	A* (9)

* Unsignalized operation, with LOS reported for the worst approach

Improvements Required of This Development:

The following improvements are not currently required of any other development. Per the TIA, to provide an acceptable Level of Service for the Build scenario, the following improvements are required.

Angier Avenue – East End Avenue

This intersection currently operates at a LOS B during the a.m. peak-hour and a LOS C during the p.m. peak-hour. For the No-Build (2031) condition, the intersection is anticipated to continue to operate at a LOS B during the



a.m. peak-hour and a LOS C during the p.m. peak-hour. With the additional site traffic, the intersection will operate at a LOS F during both the a.m. and p.m. peak-hours. The TIA identified the following required improvement to address the LOS deficiency at this intersection:

- Construct an exclusive westbound right-turn lane on East End Avenue with a minimum of 100 feet of storage plus appropriate taper.

With the improvement listed above, the intersection will operate at a LOS F during the a.m. peak-hour and a LOS F during the p.m. peak-hour for the Build (2031) condition. The following additional mitigation is required to address the LOS deficiency at this intersection:

- Construct an exclusive southbound left-turn lane on Angier Avenue with a minimum of 100 feet of storage plus appropriate taper.

With this additional improvement, the intersection will operate at a LOS E during the a.m. peak-hour and a LOS D during the p.m. peak-hour for the Build (2031) condition. Although a LOS E and F is undesirable at signalized intersections, a LOS E or F is typical at many unsignalized intersections and driveways during the peak hours until such time a traffic signal is warranted since nearly all of the anticipated delay is confined to the side street approach.

In lieu of the improvements identified above, the following improvement may be implemented:

- Construct a roundabout at the Angier Avenue/Site Driveway intersection.

East End Avenue – Rowena Avenue

This intersection currently operates at a LOS A during the a.m. peak-hour and a LOS A during the p.m. peak-hour. For the No-Build (2031) condition, the intersection is anticipated to continue to operate at a LOS A during the a.m. peak-hour and a LOS A during the p.m. peak-hour. With the additional site traffic, the intersection will operate at a LOS A during both the a.m. and p.m. peak-hours. The TIA did not identify any improvements for this intersection. However, the following improvement is required to address site traffic impacts:

- Construct an exclusive eastbound left-turn lane on East End Avenue at Rowena Avenue with a minimum of 50 feet of storage plus appropriate taper.

East Pettigrew Street – South Briggs Avenue

This intersection currently operates at a LOS B during the a.m. peak-hour and a LOS B during the p.m. peak-hour. For the No-Build (2031) condition, the intersection is anticipated to continue to operate at a LOS B during the a.m. peak-hour and a LOS B during the p.m. peak-hour. With the additional site traffic, the intersection will operate at a LOS C during the a.m. peak-hour and a LOS D during the p.m. peak-hour. The TIA did not identify any improvements for this intersection. However, the following improvement is required to address site traffic impacts:

- Install and all-way stop at the intersection of E Pettigrew Street and S Briggs Avenue (subject to MUTCD warrants and approval by the City and NCDOT).

With the improvement listed above, the intersection will operate at a LOS B during the a.m. peak-hour and a LOS C during the p.m. peak-hour for the Build (2031) condition.

Angier Avenue – Site Driveway

The TIA recommended the following required improvement to address site traffic impacts:

- Construct the South Site Driveway as a full movement driveway with one ingress lane, two egress lanes and 100 feet of Internal Protected Storage.
- Construct an exclusive southbound left-turn lane on Angier Avenue at the South Site Driveway with a minimum of 150 feet of storage plus appropriate taper.
- Construct an exclusive northbound right-turn lane on Angier Avenue at the South Site Driveway with a minimum of 200 feet of storage plus appropriate taper.
- Install a traffic signal with steel poles and mast arms (subject to MUTCD warrants and approval by NCDOT).

With the improvement listed above, the intersection will operate at a LOS B during the a.m. peak-hour and a LOS B during the p.m. peak-hour for the Build (2031) condition. In lieu of the improvements identified above, the following improvement may be implemented:

- Construct a roundabout at the Angier Avenue/Site Driveway intersection.

Rowena Avenue – Site Driveway

The TIA recommended the following required improvement to address site traffic impacts:

- Construct the Site Driveway as a full movement driveway with one ingress lane, one egress lane and 100 feet of Internal Protected Storage.

With the improvements listed above the intersection is projected to operate at a LOS A during the a.m. peak-hour and a LOS B during the p.m. peak hour for the Build (2031) condition.

Intersections With No Required Improvements

With the additional site traffic, the following intersections are projected to operate at an acceptable LOS D or better during both the a.m. and p.m. peak-hour for the Build (2031) condition. No roadway improvements are required to address site traffic impacts.

- Holloway Street – North Miami Boulevard/Gray Street;
- North Miami Boulevard – Liberty Street;
- Carr Road/Site Driveway – South Miami Boulevard/East End Avenue (Roundabout);
- Carr Road – I-885/US 70 SB Ramps (Roundabout);
- Carr Road – I-885/US 70 NB Ramps (Roundabout);
- South Alston Avenue – Angier Avenue;
- Angier Avenue – South Driver Street;
- South Driver Street – East Peabody Street;
- East Pettigrew Street – South Driver Street;
- South Briggs Avenue – NC-147 NB Ramps;
- South Briggs Avenue – NC-147 SB Ramps;
- South Briggs Avenue – East Lawson Street/NC-147 SB On-Ramp;
- Ellis Road – Angier Avenue;
- Ellis Road – East Pettigrew Street; and,
- Ellis Road – So-Hi Drive.

Summary of improvements required of this development:

Angier Avenue – East End Avenue

1. Construct an exclusive westbound right-turn lane on East End Avenue with adequate storage plus appropriate taper.
2. Construct an exclusive southbound left-turn lane on Angier Avenue with adequate storage plus appropriate taper.

In lieu of the improvements identified above, the following improvement may be implemented:

1. Construct a roundabout at the Angier Avenue/Site Driveway intersection.

East End Avenue – Rowena Avenue

1. Construct an exclusive eastbound left-turn lane on East End Avenue at Rowena Avenue with adequate storage plus appropriate taper.

East Pettigrew Street – South Briggs Avenue

1. Install an all-way stop at the intersection of E Pettigrew Street and S Briggs Avenue (subject to MUTCD warrants and approval by the City and NCDOT).

Angier Avenue – Site Driveway

1. Construct the South Site Driveway as a full movement driveway with one ingress lane, two egress lanes and adequate Internal Protected Storage.
2. Construct an exclusive southbound left-turn lane on Angier Avenue at the South Site Driveway with adequate storage plus appropriate taper.
3. Construct an exclusive northbound right-turn lane on Angier Avenue at the South Site Driveway with adequate storage plus appropriate taper.
4. Install a traffic signal with steel poles and mast arms (subject to MUTCD warrants and approval by NCDOT).

In lieu of the improvements identified above, the following improvement may be implemented:

1. Construct a roundabout at the Angier Avenue/Site Driveway intersection.

Rowena Avenue – Site Driveway

1. Construct the Site Driveway as a full movement driveway with one ingress lane, one egress lane and adequate Internal Protected Storage.