



Wake Forest Board of Commissioners Work Session
Meeting Agenda
March 05, 2024 at 6:00 PM

1. Presentations

- 1.1. Presentation of LEGISLATIVE CASE RZ-23-06, Star Road Tech Center, a rezoning filed by St. John Properties to rezone 30.35 acres located at 0 Star Road, being Wake County Tax PINs 1739-65-3709, 1739-55-8441, and 1739-65-4232 from Highway Business (HB) and Special Highway Overlay (SH1-O) to Highway Business Conditional District (HB-CD) and Special Highway Overlay (SH1-O).

[BOC Agenda Summary RZ-23-06.pdf](#)

[RZ-23-06 Staff Report v2.pdf](#)

[Attachment A - Neighborhood Meeting Information.pdf](#)

[Attachment B - Application.pdf](#)

[Attachment C - Maps.pdf](#)

[Attachment D - Planning Board Recommendation and Plan Consistency Analysis.pdf](#)

[Attachment E - TIA Executive Summary and NCDOT Review Report and U-5307 email.pdf](#)

[Attachment F - RZ-21-09 Ordinance and Staff Report.pdf](#)

[Exhibit 1 - Proposed Conditional District Plan.pdf](#)

- 1.2. Presentation of the Toms Creek Watershed Study

[Attachment_A_03052024_Summary.docx](#)

[Attachment_B_Watershed_Report.pdf](#)

2. Discussion of Monthly Financial Report

- 2.1. Monthly Financial Summary

[Monthly Financial Report_summary.pdf](#)

[January 31, 2024 Financial Summaries.pdf](#)

3. Review of Draft Agenda for Upcoming Regular Meeting

- 3.1. Review of Draft Agenda for Upcoming Regular Meeting

[DraftBOCAgenda_Mar202419.pdf](#)

4. Other Business

5. Commissioner Reports

6. Adjournment



Board of Commissioners Work Session Agenda Item Report

Agenda Item No.: 2023-360-
Submitted by: Patrick Reidy
Submitting Department: Planning
Meeting Date: March 5, 2024

SUBJECT

Presentation of LEGISLATIVE CASE RZ-23-06, Star Road Tech Center, a rezoning filed by St. John Properties to rezone 30.35 acres located at 0 Star Road, being Wake County Tax PINs 1739-65-3709, 1739-55-8441, and 1739-65-4232 from Highway Business (HB) and Special Highway Overlay (SH1-O) to Highway Business Conditional District (HB-CD) and Special Highway Overlay (SH1-O).

Recommendation:

Item Summary:

ATTACHMENTS

- [BOC Agenda Summary RZ-23-06.pdf](#)
- [RZ-23-06 Staff Report v2.pdf](#)
- [Attachment A - Neighborhood Meeting Information.pdf](#)
- [Attachment B - Application.pdf](#)
- [Attachment C - Maps.pdf](#)
- [Attachment D - Planning Board Recommendation and Plan Consistency Analysis.pdf](#)
- [Attachment E - TIA Executive Summary and NCDOT Review Report and U-5307 email.pdf](#)
- [Attachment F - RZ-21-09 Ordinance and Staff Report.pdf](#)
- [Exhibit 1 - Proposed Conditional District Plan.pdf](#)

Agenda Item: Presentation of LEGISLATIVE CASE RZ-23-06, Star Road Tech Center, a rezoning filed by St. John Properties to rezone 30.35 acres located at 0 Star Rd, being Wake County Tax PINs 1739-65-3709, 1739-55-8441, and 1739-65-4232 from Highway Business (HB) and Special Highway Overlay (SH1-O) to Highway Business Conditional District (HB-CD) and Special Highway Overlay (SH1-O).

Summary: A public comment session was held at the February 13, 2024 Planning Board meeting. The Planning Board voted 7-0 to find the request inconsistent with the Community Plan and recommended denial of the zoning map amendment (rezoning).

Since the Planning Board meeting, the applicant has chosen not to revise their plans or conditions.

Attachments: See Staff Report



Staff Report

Case RZ-23-06: Star Road Tech Center Conditional District

Meeting Date	March 5, 2024
Requested Actions	Consideration of the following items related to the Conditional Zoning Map Amendment request for 0 Star Road: 1. Act on Plan Consistency Statement 2. Rezone 30.35 acres on the Town of Wake Forest Zoning Map from Highway Business (HB) and Special Highway Overlay (SH1-O) to Highway Business Conditional District (HB-CD) and Special Highway Overlay (SH1-O).
Case Manager	Patrick Reidy, Senior Planner – Development Services
Planning Board Recommendation	Recommended denial by a vote of 7-0 of the zoning map amendment request. Since the Planning Board meeting, the applicant has chosen not to make any changes to the plan or rezoning conditions. See Attachment D for the Planning Board Recommendation and Plan Consistency Analysis.

PUBLIC MEETINGS

Neighborhood Meeting	Public Comment Session	Public Hearing
September 18, 2023 <i>(See Attachment A)</i>	February 13, 2024	March 19, 2024

CASE INFORMATION

Applicant	St. John Properties C/O Dustin Atkielski 8601 Six Forks Road, Suite 400 Raleigh, NC 27615
Developer	St. John Properties C/O Dustin Atkielski 8601 Six Forks Road, Suite 400 Raleigh, NC 27615

Property Owners	Star Landing LLC C/O Dustin Atkielski 2560 Lord Baltimore Drive Baltimore, MD 21244 Star Landing 2 LLC C/O Dustin Atkielski 2560 Lord Baltimore Drive Baltimore, MD 21244
Location	Frontage along Star Road, south of the intersection of Star Road and US-1
Addresses	0 Star Road
Wake County Tax PIN(s)	1739653709, 1739558441, and 1739654232
Acreage	30.35 acres
Zoning	Existing: Highway Business (HB) and Special Highway Overlay (SH1-O) Proposed: Highway Business Conditional District (HB-CD) and Special Highway Overlay (SH1-O)
Land Use	Existing: Vacant Proposed: Commercial, Office, and Light Industrial
Community Plan Designation	Corridor Commercial; Commercial & Industrial Areas Plan (Area #1 – Capital Boulevard)
Corporate Limits	This application is outside the Town’s corporate limits and within the Town’s extraterritorial planning jurisdiction (ETJ). An annexation petition has not been filed at this time.

See Attachment B for a copy of the application and Attachment C for Aerial, Zoning, and Land Use Maps. See Community Plan [page 42](#) for a description of Corridor Commercial and [page 54](#) for a description of Capital Boulevard Commercial & Industrial Areas Plan map.

SURROUNDING LAND USES AND ZONING

	Land Use	Zoning
North	Professional Services (City of Raleigh Water Lab under construction) and Light Industrial (City of Raleigh North Operations Center)	Highway Business
South	Vacant; Religious Institution (Living Word Family Church)	Highway Business
East	Vacant; Railroad Right-of-Way	Highway Business

	Land Use	Zoning
West	US-1 Right-of-Way	Highway Business
The proposed land use is generally incompatible with surrounding land uses. The proposed zoning is generally compatible with surrounding zoning. <i>See Attachment C for associated maps.</i>		

ZONING HISTORY

The applicant has requested a Conditional Rezoning to request significant modifications to the UDO to develop the property with Light Industrial uses. The requested modifications are detrimental to orderly Town growth and development patterns. Examples of the UDO deviations requested include 1) allowing driveway access to light industrial directly on a road that is not classified as a thoroughfare and therefore not suitable for non-intermittent tractor trailer traffic, 2) not building a road shown on the Comprehensive Transportation Plan (CTP) and required to be built by the UDO, and 3) reducing SHOD building setbacks in order to accommodate existing site topography and increase visibility to buildings fronting Star Road. These deviations are not in keeping with the spirit and intent of the UDO. Thoroughfare roads are designed to support more traffic volume and Star Road is a narrow road that does not support heavy tractor trailer traffic. New streets being constructed according to the CTP and UDO are for the public benefit of creating a complete road network. By not constructing the road, the burden to construct the road would require taxpayer funds. The intent of the SHOD is to protect major access corridors for future widening and enhance buffering to create a vegetative buffer along the roadways. The building setback of 100' is intended to minimize the need to acquire buildings for future road projects. The U-5307 project will widen Star Road and allowing a building to be setback 50' instead of the required 100' could put NCDOT in a position to have to acquire the front buildings of this development.

While not associated with this rezoning request, the Board of Commissioners approved a rezoning for property north of this project (RZ-21-09 Hawthorne Phase 2) that was inconsistent with the Community Plan. It is important to note that while those apartments were inconsistent with the Community Plan, other aspects of the rezoning request were in accordance with the UDO and Comprehensive Transportation Plan. See Attachment F for approved Ordinance and Staff Report.

MASTER PLAN ANALYSIS

Parking	Required: Per UDO Chapter 9.4, the parking requirement for Commercial uses has a range of requirements. The most conservative parking requirement is 1 space per 200 square feet or 102 parking spaces. The parking requirement for Office is 1 space per 300 square feet or 86 parking spaces. The parking requirement for Light Industrial has a range of requirements. The most conservative parking requirement is 1 per 200 square feet of Indoor Sales Area or 487 spaces. A total of 675 parking spaces are required. The bike parking requirement for Commercial is 2 per 50 auto spaces or 6 bike spaces. The bike parking requirement for Office is 2 per 50 auto spaces or 4 bike spaces. The bike parking requirement for Light Industrial is 2 per 50 auto spaces or 20 bike spaces. A total of 30 bike spaces are required. Proposed: The applicant proposes a zoning condition requiring a parking ratio of 1 parking space per 500 square feet for the Light Industrial uses, regardless of the proposed layout of each space and keeping the remaining commercial and office parking ratios as required. The Master Plan shows 170 spaces provided for commercial, 102 spaces for office, and 267 spaces for light industrial. The applicant proposes to provide 60 bicycle parking spaces. Summary: The proposed Master Plan does not comply with the minimum parking requirements in the UDO.
Public Utilities	Required: The UDO requires that public water and sewer mains are extended to serve the site. Proposed: This property is served by a 12" water line located along Star Road. It is also served by a 12" sewer line located along the eastern property boundary and adjacent to the streams within the project that will be extended through the project. Summary: The proposed Master Plan complies with the public utility requirements in the UDO.
Roads	Required: The Comprehensive Transportation Plan requires a US-1 Service Road South of S. Main Street cross section for Star Road. The 50' cross section includes 2.5' curb and gutter on the west side, 2-12' travel lanes, and 2.5' curb and gutter, a 4' verge, and a 5' sidewalk on the east side of Star Road. The CTP also requires a 2A cross section for a backage road that is shown along the eastern side of this project. The 55' cross section requires curb and gutter, 6' sidewalks, curb and gutter, and two 12' travel lanes. Based on the square footage proposed, the UDO required a Transportation Impact Analysis (TIA). Proposed: The proposed Master Plan (Exhibit 1, Sheet C-3) complies with the US-1 service road cross section for Star Road for the required improvements, but the master plan shows issues with alignment of the improvements that are not consistent with the U-5307 public hearing maps. The required backage road is showing right-of-way dedication with only a required turnaround for

Road 1. Staff has advised the applicant that the road improvements must be provided and a fee-in-lieu for half of the stream crossing must be provided to comply with the UDO requirements. The applicant has refused to construct the roadway and provide a fee-lieu for the roadway and stream crossing.

The US 1 Council of Planning determined that the proposed Master Plan was generally in compliance with the US 1 Corridor Study at its October 31, 2023 meeting. The US 1 Council of Planning commented that the U-5307 project team needed to determine if the frontage improvements were properly aligned and that the backage road needed to be provided. An e-mail dated 12/1/23 (Attachment E) from the U-5307 project manager, Terry Farr indicates that the plans do not resolve their concerns about potential risk impacts to the proposed commercial buildings. Staff informed the application that the alignment needed to be resolved prior to taking the item to the Planning Board for a recommendation and the Board of Commissioners for action. The applicant was unwilling to resolve it and has stated that the proposed drive-thru lanes will be coordinated with NCDOT as part of the construction plans. By not resolving this the issue now, the resolution could have significant impacts on the overall site design or U-5307 and require a major modification to the rezoning application should it be approved.

A TIA was provided for the project (Attachment E). The improvements required to mitigate the impact of the development are:

US-1 and Star Road Connector

- Install signal at the western side of the existing reduced conflict intersection (Capital Boulevard and Star Road Connector). Coordinate with NCDOT to develop a coordination and timing plan for all signals along Capital Boulevard.
- Convert to free-flow (north bound and south bound Star Road approaches converted to stop-control)

Capital Boulevard and Height Lane/Montys Lane

- Modify signal timings to allow more green time for minor street approach.

Star Road and Star Road Connector

- Provide a two-way left-turn lane (TWLTL) for northbound approach, extending to southbound approach of Site Access A. (~600 feet)

Star Road and Site Access A

- Construct the westbound approach as a full movement intersection with one ingress lane and one egress lane.
- Provide southbound TWLTL that extends to Star Road and Star Road Connector intersection. (~600 feet)
- Provide stop-control for westbound approach.
- Provide an internal protected stem (IPS) of at least 100 feet for westbound approach.

	Summary: The proposed Master Plan does not comply with the minimum roadway infrastructure requirements in the UDO.
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PROPOSED MODIFICATIONS OF BASE HIGHWAY BUSINESS ZONING DISTRICT STANDARDS

Article 2.2.5.C.1 Principal Front Setback (min)	
Required:	30 feet
Proposed:	20 feet for Office Building A, Light Industrial Building B and C
Article 2.4.3.D.1 Special Highway Overlay Dimensional Requirements	
Required:	Building Setback: 100 feet from property line abutting major access corridor.
Proposed:	Building Setback: 50 feet from property line abutting major access corridor. This reduction could potentially eliminate the landscaping and buildings adjacent to Star Road as part of the U-5307 project. A 100-foot buffer would preserve the structures and most likely some of the vegetation.
Article 3.9.1.C Supplemental Use Standards – Industry/Wholesale/Storage Vehicular Access	
Required:	Vehicular Access to the site shall be provided on a thoroughfare of suitable industrial capacity as determined by the Administrator and/or any Required Transportation Impact Analysis.
Proposed:	Light Industrial uses shall be permitted on the site with vehicular access via Star Road.
Article 6.5.1.H.2.a Stub Street Location and Arrangement	
Required:	New development shall connect to any existing street stub from an adjacent property.
Proposed:	The applicant is proposing to provide a parking lot stub and a fee-in-lieu to stop the stub short of connecting to Via Fortunata instead of existing the street to Road A. This would require the Town to subsidize funding or construct the future road connection required to be constructed by the developer.

Article 6.6.1 New Streets Designated in Transportation Plan	
Required:	Where a proposed subdivision or development includes any part of a thoroughfare which has been designated as such on the officially adopted Town of Wake Forest Transportation Plan, as provided for by NCGS, such part of such thoroughfare shall be reserved, platted, dedicated, and constructed in the location shown on the plan and at the width specified in the Transportation Plan.
Proposed:	The CTP shows a backage road along the eastern property line, but the applicant has refused to construct the roadway and provide a fee-lieu for the roadway and stream crossing. Only right-of-way dedication is being shown. As a result, the Town would have to subsidize funding or construct the future road connection required to be constructed by the developer.
Article 9.4.B Parking Requirements – Schedule B	
Required:	Light Industrial Uses are listed as the type of use occurring within the space, ranging from 1 parking space required per 200 square feet for indoor sales area to 1 per 2,000 square feet for motor vehicle outdoor sales area, 50,000 square feet and greater indoor storage/warehouse/vehicle storage/manufacturing area.
Proposed:	1 parking space required per 500 square feet
<i>See Attachment B for proposed zoning conditions.</i>	

COMPREHENSIVE PLAN CONSISTENCY

Community Plan	The proposed zoning map amendment request is generally inconsistent with the adopted Community Plan. The five main areas of inconsistency are: - Land Use Plan (pages 42 and 47): The Land Use Plan calls for Corridor Commercial for these properties. Corridor Commercial uses include auto-oriented retail and service businesses, such as large-scale shopping centers, grocery stores, restaurants, gas stations, and hotels. Standalone office uses are included within this designation. Corridor Commercial areas serve patrons from within Wake Forest and the region and play a role in strengthening the Town’s tax base. This development provides small scale retail, office, and light industrial uses. Only the office use is consistent with the Land Use Plan. Larger scale commercial is more appropriate than the small scale retail and light industrial is not appropriate in corridor commercial. - Commercial and Industrial Areas Plan – Capital Boulevard (page 54): Capital Boulevard is a major arterial roadway that connects Wake Forest with the surrounding region, including the City of Raleigh. It is the primary route residents and visitors take to pass through the Town. The development of undeveloped and underdeveloped land along Capital Boulevard into commercial uses should be encouraged with both a local and regional customer base. This should be done in coordination with NCDOT’s planned controlled-access highway conversion project that will affect roadway configurations.
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	The uses are not appropriate along Capital Boulevard and the Star Road service road has not been coordinated enough with NCDOT and the backage road in the CTP is not being built. - Commercial Development (page 66): Promote multi-story structures within Corridor Commercial; encourage pedestrian- oriented shopping environments; buildings facing each other to create a sense of enclosure; provide outdoor seating; and promote cross-access and pedestrian pathways between parking lots and buildings. No multi-story buildings are proposed, pedestrian connectivity is only provided along the sidewalks leading to Road A and not connections between the buildings, and building are situated so that each is isolated from the other. There are opportunities to connect parking areas and buildings with additional sidewalks/stairs. The developer provided a rezoning condition that says they will commit to pursue additional outdoor seating or gathering spaces, but it does not provide any enforceable information to ensure these will be provided. - Community Character (page 70): Encourage public art and enhanced landscaping. The developer provided a rezoning condition that says they will commit to pursue public art, but it does not provide any enforceable information to ensure these will be provided. Only required landscaping has been provided. - Capital Boulevard (page 76): Continue to work closely with NCDOT to implement the project and promote commercial growth in accordance with the Land Use Plan. The applicant is unwilling to continue to have conversations so that U-5307 conformance can be determined and implemented.
Comprehensive Transportation Plan (2019)	The proposed zoning map amendment request is generally inconsistent with the Comprehensive Transportation Plan for the following reason: Roadway Recommendations (page 73): The CTP calls for a new collector road along the eastern side of the property to be constructed. Only right-of-way dedication is being provided.
Historic Preservation Plan (2022)	The Historic Preservation Plan is not applicable to the zoning map amendment request.
Northeast Neighborhood Plan (2007)	The Northeast Neighborhood Plan is not applicable to the zoning map amendment request.
Park, Recreation, and Cultural Resources Master Plan (2015)	The Parks, Recreation, and Cultural Resources Master Plan is not applicable to the zoning map amendment request.

Renaissance Plan (2017)	The Renaissance Plan is not applicable to the zoning map amendment request.
<i>See Attachment D for detailed Plan Consistency Analysis. The Comprehensive Transportation Plan is not included in the Consistency Analysis since cross-sections are the only applicable element of the Plan.</i>	

STAFF RECOMMENDATION

The zoning map amendment request is generally **Inconsistent** with the relevant policies in the Comprehensive Plan, and **Denial** of the zoning map amendment request is reasonable and in the public interest.

ATTACHMENTS

Attachment A: Neighborhood Meeting Information
Attachment B: Application
Attachment C: Maps
Attachment D: Planning Board Recommendation and Plan Consistency Analysis
Attachment E: TIA Executive Summary, NCDOT Review Report, and U-5307 e-mail
Attachment F: RZ-21-09 Ordinance and Staff Report

EXHIBITS

Exhibit 1: Proposed Conditional District Plan

Star Road Tech Center Neighborhood Meeting Summary

On Monday, September 18, 2023, a neighborhood meeting was held to inform neighboring property owners of the proposed Star Road Conditional District Rezoning (Project) project to answer any questions and gain their feedback for consideration. The notification sent to the neighboring property owners is attached along with the list of neighboring property owners notified. The neighboring property owners that attended the meeting are shown on the attached attendees list. The attendees that represented the development team included Jon Fraizer, FLM Engineering and Dustin Atkielski, St John Properties, Inc.

Following a brief introduction, the neighboring property owners in attendance were invited to ask questions and share concerns. Below is a list of the questions, comments, and concerns raised along with the answers provided by the development team. The feedback and questions are in no particular order and summarized for brevity.

Keith Wallace

In Feedback:

support of Project.

Questions:

Q1: What is the anticipated vertical construction timing of the Project if approved?

A1: If the Project is approved, the timing to get to vertical construction is approximately Q3 of 2024.

Q2: Who is the general contractor for the development?

A2: We are working with various local contractors, but none have been selected at this time.

Q3: What type of uses do you anticipate?

A3: The project anticipates a mix of uses that are currently allowed under the existing HB zoning code, ranging from retail to research and development.

<u>Address</u>	<u>Owner</u>	<u>REID</u>	<u>PIN</u>	<u>Mailing Address 1</u>	<u>Mailing Address 2</u>	<u>Mailing Address 3</u>
10520 VIA FORTUNATA PLZ	STAR ROAD PROPERTIES LLC	468927	1739641968	5310 NC HIGHWAY 55 STE 101	DURHAM NC 27713-7813	
10501 VIA FORTUNATA PLZ	STAR ROAD PROPERTIES LLC	468925	1739556212	5310 NC HIGHWAY 55 STE 101	DURHAM NC 27713-7813	
10521 VIA FORTUNATA PLZ	STAR ROAD PROPERTIES LLC	468926	1739558155	5310 NC HIGHWAY 55 STE 101	DURHAM NC 27713-7813	
10500 VIA FORTUNATA PLZ	STAR ROAD PROPERTIES LLC	468928	1739546963	5310 NC HIGHWAY 55 STE 101	DURHAM NC 27713-7813	
10520 STAR RD	LIVING WORD FAMILY CHURCH INC	150944	1739640646	PO BOX 61129	RALEIGH NC 27661-1129	
10700 STAR RD	CITY OF RALEIGH	338301	1739661393	PO BOX 590	RALEIGH NC 27602-0590	
0 STAR RD	LA SCALA ASSOCIATES LLC	312392	1739558441	STE 101	847 WAKE FOREST BUSINESS PARK	WAKE FOREST NC 27587-6576
0 STAR RD	LA SCALA ASSOCIATES LLC	379120	1739653709	STE 101	847 WAKE FOREST BUSINESS PARK	WAKE FOREST NC 27587-6576
0 STAR RD	LA SCALA ASSOCIATES LLC	312391	1739750868	STE 101	847 WAKE FOREST BUSINESS PARK	WAKE FOREST NC 27587-6576
0 STAR RD	PURYEAR INVESTMENTS, LLC	379119	1739654232	5844 LEASE LN	RALEIGH NC 27617-4708	
0 STAR RD	HAWTHORNE AT WAKEFIELD APARTMENTS LLC	509590	1739760567	806 GREEN VALLEY RD STE 311	GREENSBORO NC 27408-7076	
5228 UNICON DR	5228 UNICON DRIVE LLC	478278	1739740366	701 FINGER LAKES DR	WAKE FOREST NC 27587-9571	
0 STAR RD	HAWTHORNE AT WAKEFIELD APARTMENTS PHASE II LLC	414675	1739662623	806 GREEN VALLEY RD STE 311	GREENSBORO NC 27408-7076	
10510 STAR RD	CASA ESPERANZA HOLDING LLC	43448	1739640225	10510 STAR RD	WAKE FOREST NC 27587-7765	
1808 INDUSTRY OAKS LN	MERRITT-WF1 LLC	502555	1739743970	2066 LORD BALTIMORE DR	BALTIMORE MD 21244-2501	



[illegible]



September 6th, 2023

**RE: Star Road Technology Center-Conditional District Rezoning & Site Master Plan
Neighborhood Meeting Notification**

Dear Neighboring Property Owner,

We are writing to notify all property owners within 500 feet of a neighborhood meeting to present and discuss the proposed Conditional District Rezoning and Site Master Plan approval (RZ-23-06) for St John Properties, Inc.

The subject parcels are located off the east side of Star Road just north of Via Fortunata Plaza and have the following Parcel Identification Numbers (PIN):

1739558441
1739653709
1739654232

We've also included a vicinity map with this letter, highlighting the subject parcels in yellow.

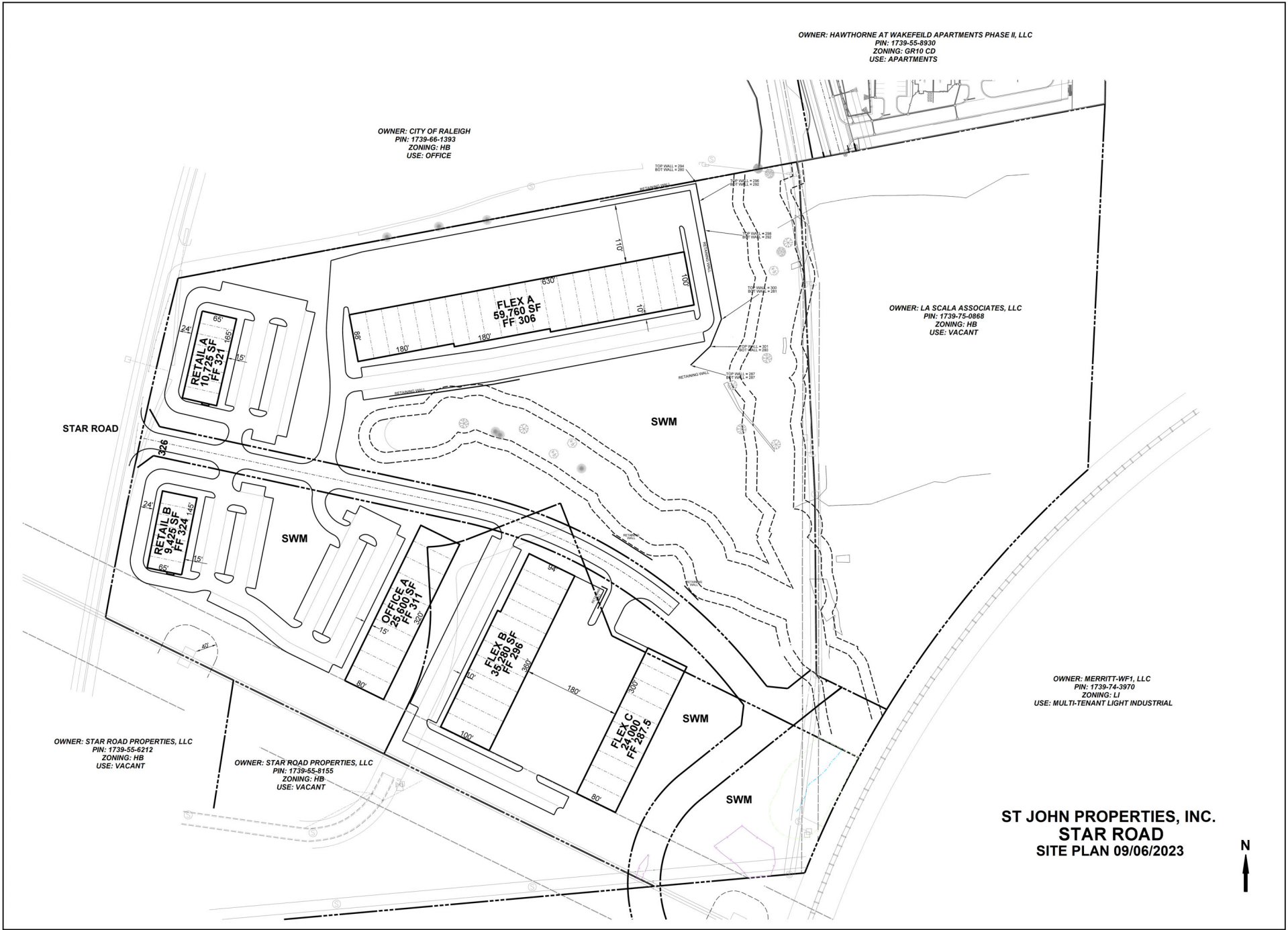
The neighborhood meeting will be held on Monday, September 18th, 2023, at 6:00 PM in the Richland Creek Community Church, which is located at 3229 Burlington Mills Rd, Wake Forest, NC 27587. Please use the parking lot to the east of the property and the east entrance to the Church.

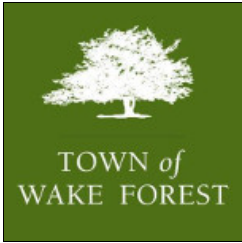
If you have any questions about this rezoning, please contact St John Properties, Inc. at infoWF@sjpi.com or the Town of Wake Forest at (919) 435-9510. This project will be taken up for future consideration by the Town's Board of Commissioners for a public hearing and those notices will be sent from the Town at a future date.

Thanks,

A handwritten signature in blue ink, appearing to read "Dustin Atkielski".

Dustin Atkielski
St John Properties, Inc.
(919) -827-0100





Conditional District Rezoning Application

(Conditional District Rezoning Workflow)

Town of Wake Forest, NC

301 S. Brooks St.

Wake Forest, NC 27587-2932

TEL (919) 435-9510 | FAX (919) 435-9539

Project Overview

#984005

Project Title: Star Road Tech Center Conditional District Rezoning

Jurisdiction: Town of Wake Forest (Wake County)

Application Type: Conditional District Rezoning

State: NC

Workflow: Conditional District Rezoning

County: Wake

Submittal Requirements

A submittal checklist is available to view additional documents which are required to be submitted with this application. After answering the application questions, you will be asked to upload the required documents.

[VIEW CONDITIONAL DISTRICT REZONING SUBMITTAL CHECKLIST](#)

Missing items will result in the application being declined and returned to the applicant to resubmit. A revised and complete application including all missing items must be received or the application will be not be deemed complete and routed for review.

Please confirm you have reviewed the associated submitted checklist for this permit and confirm you will submit all documents required on the submittal checklist: Yes

Pre-Application Meeting

Has a pre-application conference been held?: Yes

*Note: This type of project requires a pre-application conference be completed prior to official submittal. If this has not been completed, please return to the home screen and select **Pre-Application Conference** from the application type drop down list in order to schedule your required meeting.*

Pre-Application Conference Date: 03/07/2023

Staff Member Met With: Patrick Reidy

Pre-application Conference Project Number:

Address & Basic Site Information

Please Note:

In some cases, a parcel address may not verify. In the event that our system is unable to verify the address you enter, please submit the project as an *Unverified Parcel* and provide zoning and land use information as requested below. For verified addresses, the zoning and land use information will be added to the application automatically (you do not need to provide it below).

Project Address or PIN:

- 1739653709 (Unverified)

Tax PIN:

- 1739558441 (Unverified)
- 1739654232 (Unverified)

Acreage: 30.35

Name of Existing Development/Subdivision (if applicable--for reference only):

For unverified addresses/parcels only. please provide below 1) the current use of the parcel, 2) the zoning district(s) it is in, and 3) any overlay districts that apply. Reference the [zoning map](#) and the [overlay districts map](#) on the town's website.

Current Use & Zoning (required only if address/parcel is unverified):

Vacant parcel, HB zoning

*Note: Projects falling outside the limits of the Town or ETJ will be required to submit an annexation petition in conjunction with their project submittal. In this case, please return to the home screen and select **Annexation Petition** from the application type drop down.*

GIS Site Information (Automatically Generated - Not Available for Unverified Addresses)

Parcel Area:

Wake Forest (WF):

Base District:

In SH2-O Overlay:

In TND Overlay:

In HL-O Overlay:

In National Register of Historic Places:

Current Use:

Planning and Zoning:

In SH1-O Overlay:

In Water Supply Watershed Protection Overlay:

In SF Overlay:

In MVCP-O Overlay:

In Flood Hazard Area:

Additional Zoning Information

Currently a Conditional District?: No

Currently a Conditional Use?: No

Is there an existing Special Use Permit for the Property?: No **Case Number of related site plan (if applicable):**

Case Numbers of other related approvals (if applicable): N/A

Project Contacts

Please enter all project contacts related to your application.

This is an important step to ensure all members of the applicant team receive email notifications associated with the project which may include comments, requested revisions, scheduled meetings or hearings, and final decisions. This also informs Town staff of the team members assigned role with the project.

Project Contact - Applicant

Dustin Atkeilski

8601 Six Forks Rd, Ste 400

Raleigh, NC 27615

P:9198270600

datkielski@sjpi.com

Project Contact - Developer

Dustin Atkeilski

8601 Six Forks Rd, Ste 400

Raleigh, NC 27615

P:9198270600

Project Contact - Property Owner

Dustin Atkeilski

Star Landing LLC

2560 Lord Baltimore Dr

Baltimore, MD 21244-2677

P:919-827-0600

Project Contact - Engineer

Jon Frazier

FLM Engineering, Inc

PO Box 91727

Raleigh, NC 27675

P:9196101051

Transportation Impact Analysis

As per Section 6.11.1 of the UDO is the project required to provide a Traffic Impact Analysis (TIA)? Yes

Was the TIA reviewed in a separate permit prior to this application? No

Project Number:

For projects requiring a TIA, a separate TIA application must be submitted in conjunction with this application. Please review the [TIA submittal checklist](#) and submit a ***Transportation Impact Analysis Review*** application in IDT.

- i** If the request is to a Conditional District (CD), this application should be accompanied by a master plan that includes land use, existing conditions, buildings, lots, etc. per Chapter 15 of the UDO. In addition, please provide a narrative of the proposed use and list any proposed conditions.

Proposed Conditional Zoning District: HB-CD, Highway Business

Proposed Land Use:
See submitted zoning conditions

Proposed Number of Lots: 2

Number of Buildings: 4

Number of Single-Family Lots: 0

Number of Townhome Lots: 0

Number of Multi-Family Units: 0

Number of Stories: 1

Square Footage of All Buildings (non-residential): 126960

Plan Information - Conditional Rezoning**Description of Request:**

Development of 126,960 SF of flex space in four buildings with associated infrastructure

Initial Proposed Conditions Offered by Applicant:

See submitted conditions

Justification of Consistency with Comprehensive Plan:

Comprehensive plan calls for corridor commercial and the request is for Highway Business Conditional District, which is consistent with the plan



December 15, 2023

Patrick Reidy, AICP, CZO
Senior Planner - Development Services
Town of Wake Forest
301 S Brooks Street
Wake Forest, NC 27587

Reference: Wake Forest Exchange (RZ-23-06)
Proposed Zoning Conditions

Dear Mr. Reidy:

The proposed zoning conditions for the Wake Forest Exchange, Town of Wake Forest Case No. RZ-23-06, are listed below:

1. The site master plan is a condition of the rezoning request. Amendments to the master plan shall require a rezoning amendment unless the administrator finds the modification to be minor and in keeping with the spirit and intent of the approved site master plan.
2. The following uses shall be permitted:

A. Residential

None

B. Lodging

None

C. Office/Service

ATM

Bank, Credit Union, Financial Services

Business Support Services

Dry Cleaning & Laundry Services

Medical Clinic

Personal Services

Personal Services, Restricted

Post Office

Professional Services

Small Equipment Repair/Rental

Veterinary Services

D. Commercial/Entertainment

Alcoholic Beverage Sales Store

Amusement, Indoor
 Bar/Tavern
 General Commercial
 Night Club
 Open Air Retail
 Outdoor Seating
 Outside or Display Sales
 Restaurant
 Shooting Range, Indoor
 Theater, Indoor Movie or Live
 Performance

E. Civic

Civic Meeting Facility
 Community or Cultural Facility
 Conference/Convention Center
 Public Safety Station
 Recreation Facility, Indoor
 Religious Institution
 F. Educational/Institutional
 Child/Adult Day Care Center (More than 8
 persons)
 Community Support Facility

Studio – Art, dance, martial arts, music
 G. Automotive
 Drive-In Facility
 Vehicle Services – Minor
 Maintenance/Repair
 Vehicle Services – Major Repair/Body
 Work

H. Industry/Wholesale/Storage

Industry, Light
 Light Manufacturing Workshop

I. Agriculture

Kennel
 Produce Stand

J. Infrastructure

Wireless Telecommunications Facility
 (Non-Tower)
 Wireless Telecommunications Facility
 (Tower)

Utilities – Class 1

Utilities – Class 2

K. Other

Temporary Uses

3. Section 3.9.1.C. shall not apply to the site. Industry, Light uses shall be permitted on the site with vehicular access via Star Road.
4. Section 2.4.3.D.1. (SH1-0 Special Highway Overlay Building Setback) shall be reduced from 100' to 50' to accommodate existing site topography and increase visibility to buildings fronting Star Road.
5. Section 2.2.5.C.1. (Principal Front Building Setback) shall be reduced from 30' to 20' for Office Building A, Light Industrial building B, and Light Industrial building C to accommodate topography, environmental constraints, and existing easements.
6. If an impact is approved by NCDEQ (the "Approval") to the Neuse Buffer, the location and shape of Light Industrial building A's parking lot and building may be adjusted if the

building size does not exceed a net change greater than 5 %. Written confirmation of the Approval including proof of payment for mitigation costs shall be provided during construction document approval.

7. Overnight parking or storage of client vehicles for Vehicle Services Minor or Major uses shall only be allowed in the truck court areas or building interiors for all Light Industrial ("LI") buildings. The truck court areas include all pavement behind LI building A and LI building B, including the area in front of LI building C.
8. Child/Adult Day Care Centers located within the Light Industrial buildings will only be placed on the ends of the building, next to a complementary use, or substitute location deemed appropriate by the administrator, which approval shall not unreasonably be conditioned, withheld, or delayed.
9. A minimum of four electric vehicle charging locations will be added to the development.
10. Light Industrial buildings will have a parking rate of 1 spot per 500 SF.
11. A commitment to pursue the addition of public art to the development.
12. A commitment to pursue additional outdoor seating or gathering space to the development.
13. Associated road improvements shall be constructed in accordance with the approved TIA (including all NCDOT requirements from the TIA review) and UDO.

Sincerely,



Dustin Atkielski
Regional Partner
919-827-0600
datkielski@sjpi.com

Agent Authorization Form



TOWN of
WAKE FOREST

The Wake Forest Unified Development Ordinance (UDO) states that applications for development approvals may only be made by the landowner, a lessee or person holding an option or contract to purchase or lease the land, or an authorized agent of the landowner (see [Sec. 15.2.5.C](#)). This agent authorization form must be signed by the landowner and included with any application not submitted by the landowner or lessee as specified above. If more than one landowner is involved, a separate agent authorization form must be submitted by each landowner.

Address(es) and Tax PIN(s) for
which authorization is granted: 1739-65-3709 & 1739-55-8441

Landowner's name*: Star Landing, LLC

Application(s) for which
authorization is granted (e.g.,
Rezoning, Special Use Permit): Rezoning, Master Site Plan, Construction Docs., etc.

Person authorized to submit
application(s) as landowner's
agent (*must be the same
person listed as the applicant
on the application form*): Dustin Atkielski, Regional Partner, St John Properties, Inc

Landowner's Signature: _____

Date: 12/19/2023

*Please provide below the name, address, and other information
of the person signing this form.*

Name: Dustin Atkielski

Address: 2560 Lord Baltimore Dr., Baltimore, MD 21244

Telephone number: 919-827-0600

Email address: datkielski@sjpi.com

If signing for a corporation or other entity, please
specify title and/or relationship to the corporation
or other entity (e.g., Member, Executive Officer): Authorized Person

**Owner of record as shown on the latest equalized assessment rolls of Wake County, or, if ownership has recently been transferred, the grantee shown on the recorded deed (a copy of the deed must accompany this form).*

Agent Authorization Form



TOWN of
WAKE FOREST

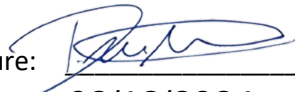
The Wake Forest Unified Development Ordinance (UDO) states that applications for development approvals may only be made by the landowner, a lessee or person holding an option or contract to purchase or lease the land, or an authorized agent of the landowner (see [Sec. 15.2.5.C](#)). This agent authorization form must be signed by the landowner and included with any application not submitted by the landowner or lessee as specified above. If more than one landowner is involved, a separate agent authorization form must be submitted by each landowner.

Address(es) and Tax PIN(s) for
which authorization is granted: 1739-65-4232

Landowner's name*: Star Landing 2, LLC

Application(s) for which
authorization is granted (e.g.,
Rezoning, Special Use Permit): All applications

Person authorized to submit
application(s) as landowner's
agent (*must be the same
person listed as the applicant
on the application form*): Dustin Atkielski, Regional Partner, St. John Properties, Inc.

Landowner's Signature: 

Date: 02/12/2024

Please provide below the name, address, and other information
of the person signing this form.

Name: Dustin Atkielski

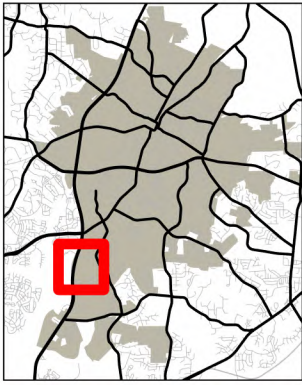
Address: 2560 Lord Baltimore Dr, Baltimore, MD 21244

Telephone number: 919-827-0600

Email address: datkielski@sjpi.com

If signing for a corporation or other entity, please
specify title and/or relationship to the corporation
or other entity (e.g., Member, Executive Officer): Authorized Person

*Owner of record as shown on the latest equalized assessment rolls of Wake County, or, if ownership has recently been transferred, the grantee shown on the recorded deed (a copy of the deed must accompany this form).



Aerial



TOWN of
WAKE FOREST

RZ-23-06

Star Road Tech Center Conditional District Rezoning
PINS: 1739653709, 1739558441 & 739654232

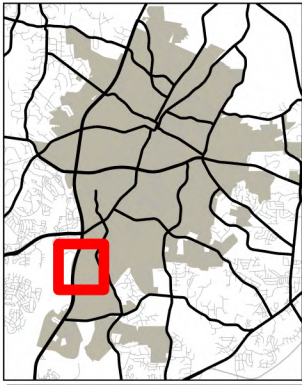
10/9/2023



Please note that this map is intended for illustrative purposes only.
For specific inquiries regarding zoning boundaries, contact the
Town Wake Forest Planning Department at 919-435-9510.

0 500 1,000 1,500 2,000 2,500
Feet





Zoning

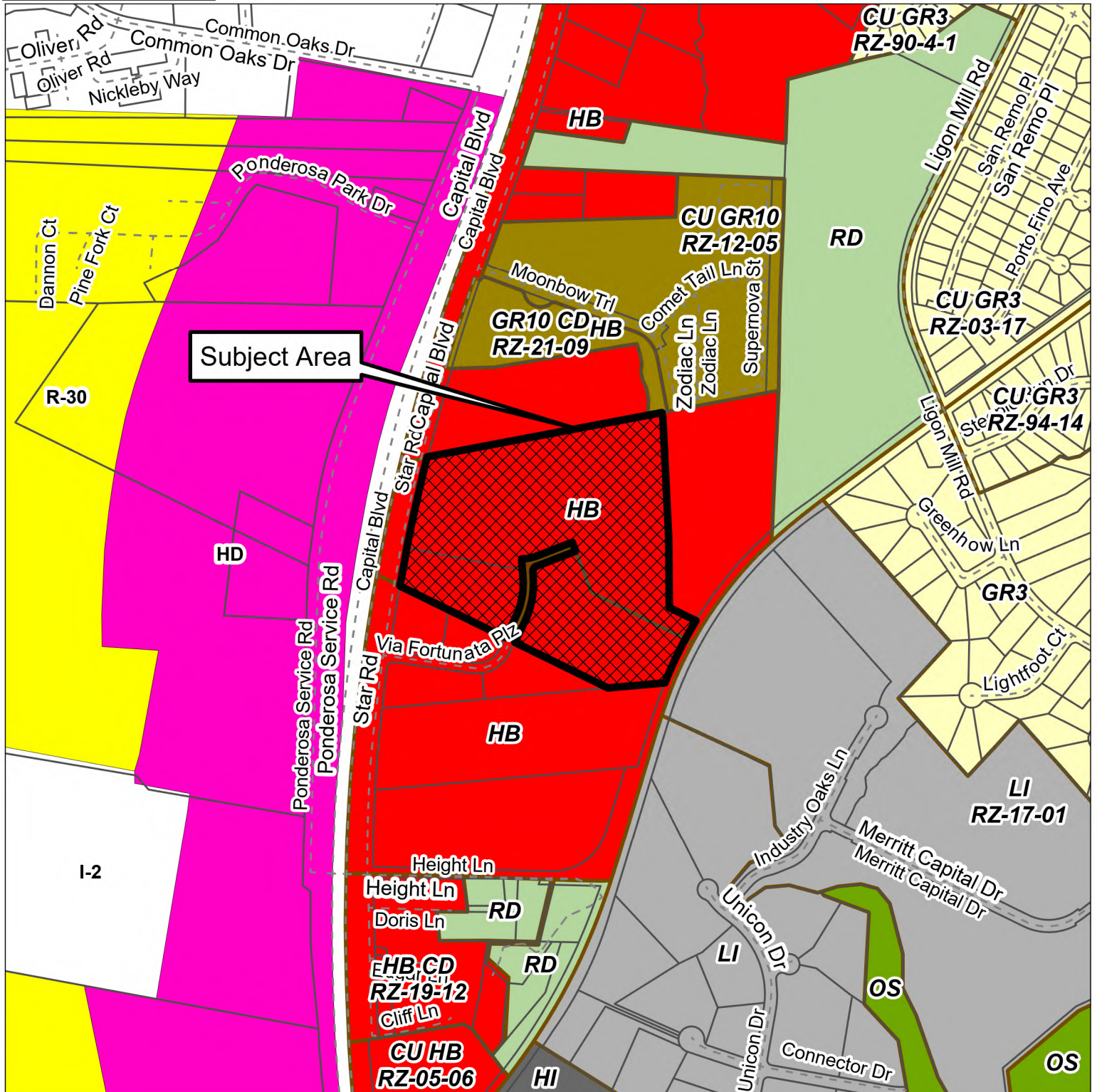


TOWN of
WAKE FOREST

RZ-23-06

Star Road Tech Center Conditional District Rezoning PINS: 1739653709, 1739558441 & 739654232

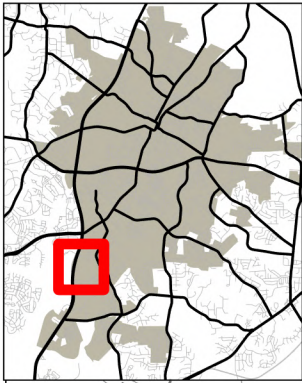
10/9/2023



Please note that this map is intended for illustrative purposes only.
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0 500 1,000 1,500 2,000
Feet





Land Use Plan

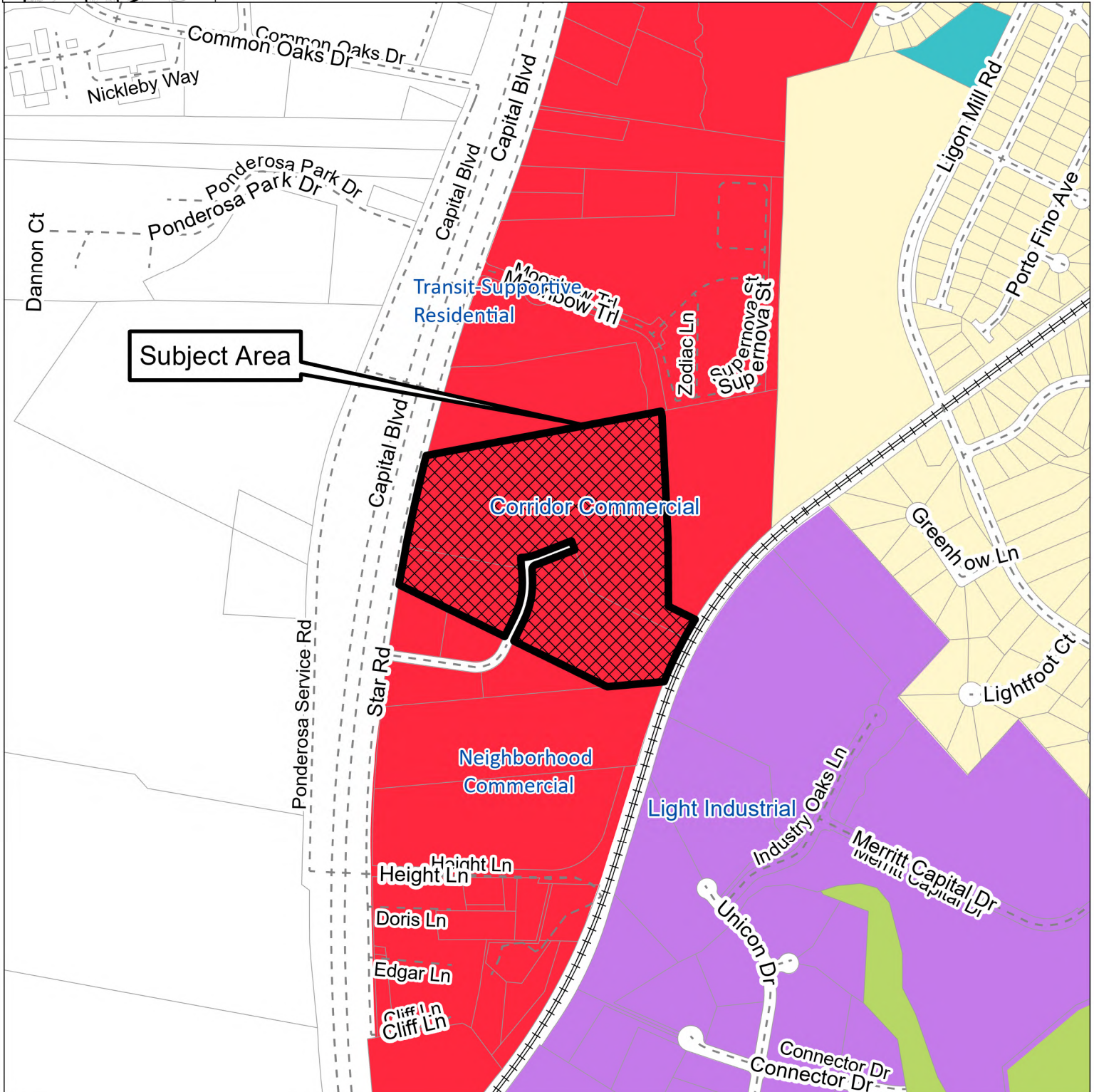


TOWN of
WAKE FOREST

RZ-23-06

Star Road Tech Center Conditional District Rezoning PINS: 1739653709, 1739558441 & 739654232

10/9/2023



Please note that this map is intended for illustrative purposes only.
For specific inquiries regarding zoning boundaries, contact the
Town Wake Forest Planning Department at 919-435-9510.

0 500 1,000 1,500 2,000
US Feet





TOWN of WAKE FOREST

Report Requirements:

Per NCGS 160D-604, all proposed amendments to the zoning ordinance or zoning map shall have a written report provided from the Planning Board to the Board of Commissioners within 30 days of referral of the amendment to the Planning Board, or the Board of Commissioners may proceed in its consideration of the amendment without the Planning Board report. Furthermore, in no case is the Board of Commissioners bound by the recommendations, if any, of the Planning Board.

Per NCGS 160D-604, the Planning Board shall advise and comment on whether the proposed zoning amendment is consistent with all applicable officially adopted plans, and provide a written recommendation to the Board of Commissioners that addresses plan consistency and other matters as deemed appropriate by the Planning Board, but a comment by the Planning Board that a proposed amendment is inconsistent with the officially adopted plans shall not preclude consideration or approval of the proposed amendment by the Board of Commissioners.

GENERAL INFORMATION

Applicant: St. John Properties

Owner: Star Landing LLC

Requested Action: Rezone 30.35 acres on the Town of Wake Forest Zoning Map from Highway Business (HB) and Special Highway Overlay (SH1-O) to Highway Business Conditional District (HB-CD) and Special Highway Overlay (SH1-O)

Existing Zoning: Highway Business (HB) and Special Highway Overlay (SH1-O)

Location: 0 Star Road

Size: 30.35 acres

Tax PINs: 1739653709, 1739558441, and 1739654232

Existing Land Use: Vacant

Applicable Officially Adopted Plans:

The request is generally *inconsistent* with the relevant policies in the Comprehensive Plan, and *denial* of the zoning map request is reasonable and in the public interest. See Attachment.

This report reflects the recommendation of the Planning Board, this the 13th day of February 2024.

Introduced by Planning Board member: Adam Redler

Seconded by Planning Board member: Michael Almqvist

Attest:


Karin Kuropas, Planning Board Chair


Courtney Tanner, Planning Director

Community Plan Consistency Grid: RZ 23-02					
	POLICIES FOR AFFORDABLE HOUSING		YES	NO	NA
	AH-1	Implement Affordable Housing Plan			
	POLICIES FOR RESIDENTIAL CHARACTER		YES	NO	NA
	RC-1	Encourage single-family attached and multifamily development to incorporate varied building frontages and rooflines, front porches, front yards, and balconies to provide visual interest and complement the scale and character of surrounding single-family neighborhoods			
	RC-2	Setbacks of infill development should match the existing context as much as possible as uniform setbacks can help foster a pedestrian-friendly environment			
	RC-3	Promote higher density infill and redevelopment within older established neighborhoods to provide greater housing choices while matching the scale and character of existing properties			
	RC-4	Promote higher density housing along key corridors and surrounding activity centers. This includes near areas designated in the Land Use Plan as Commercial Corridor; Neighborhood Commercial; Light Industrial; and Office, Civic, and Institutional			
	RC-5	For larger scale planned subdivisions that provide a mix of housing types, work with private developers to locate lower density housing near existing single-family detached neighborhoods to create appropriate transitions and preserve the character of established neighborhoods			
	RC-6	Consider requiring a minimum percentage of housing types in new neighborhood developments to increase housing diversity and affordability (e.g. at least 20% duplexes/townhomes)			
	RC-7	Review and update the UDO to align with residential character recommendations within this Community Plan			
	POLICIES FOR SENIOR HOUSING		YES	NO	NA
	SH-1	Promote senior housing within a quarter mile of transit stops, Downtown, shopping areas, parks, and recreational facilities			
	SH-2	Encourage smaller lot, single-story housing types for seniors that are ADA accessible			
	SH-3	Encourage age-targeted cooperative housing types for community-oriented senior living, such as co-housing and cottage home courts			
	SH-4	Promote the development of continuing care retirement communities (CCRC), or life plan communities, which offer distinct types of housing and care levels based on a senior's needs			
	SH-5	Encourage developers of age-targeted housing to include amenities attractive to seniors, such as front porches, back patios, walking paths, and outdoor sports facilities, and activated gathering spaces			

Community Plan Consistency Grid: RZ 23-02					
POLICIES FOR COMMERCIAL DEVELOPMENT			YES	NO	NA
CD-1	Enhance established commercial areas by incentivizing redevelopment and/or renovation of existing businesses.				
CD-2	Support small, local businesses within commercial centers to support unique shopping options within Wake Forest				
CD-3	Establish architectural design standards for commercial building facades that promote quality design while allowing for flexibility that encourages creative design				
CD-4	Promote multi-story structures within Commercial Corridor and Neighborhood Commercial areas at appropriate scales that offer residential or office above ground-floor commercial				
CD-5	Encourage pedestrian-oriented shopping environments with sidewalks, attractive storefronts, and buildings facing each other to create a sense of enclosure				
CD-6	Encourage the incorporation of pedestrian/bicyclist/transit-oriented areas in large-scale shopping centers that provide outdoor seating and gathering areas, bicycle parking stations, and access to transit services				
CD-7	Promote cross-access and pedestrian pathways between adjacent parking lots and leading to buildings to promote well-connected, cohesive shopping areas				
CD-8	Encourage the consolidation of commercial driveways onto major streets to reduce traffic conflicts				
CD-9	Require "360 degree architecture" (high quality architecture on all sides of the building as opposed to just the front-facing façade), including well-designed or screened service areas				
CD-10	Encourage businesses to replace existing, non-conforming signage with attractive signage that meets Town standards				
CD-11	Promote outparcel development to improve the character along primary roadways and break up views of large parking lots				
CD-12	Review and update the UDO, including the US 1 Special Highway Overlay (SH1-O) and Dr Calvin Jones Highway Overlay (SH2-O) districts, to align with commercial development recommendations within this Community Plan				
CD-13	Support accessory commercial units (ACUs) that allow the ground floor of residential properties or an accessory structure facing the street to contain a commercial use beneficial to the surrounding neighborhood				
CD-14	Establish block standards for commercial areas to break up large tracts into more human scale pieces with streets or street-like features within the development				
POLICIES FOR MINORITY & WOMEN-OWNED BUSINESSES			YES	NO	NA
MWOB-1	Work with organizations, such as the Chamber and the Black Business Alliance, to expand diversity, equity, and inclusion programs that are supported with grassroots community engagement				
MWOB-2	Explore successful programs for supporting minority and women-owned businesses in surrounding communities to implement in Wake Forest				
MWOB-3	Explore regional, state, and federal grants available for minority and women businesses, such as grants from the National Institute of Economic Development and Carolina Community Impact				
MWOB-4	Support informational sessions and/or provide educational resources to employers on how they can establish equitable work environments and policies within their businesses				
POLICIES FOR SETBACKS			YES	NO	NA
SB-1	Incentivize businesses to situate new buildings at or near the property line to improve walkability, such as by requiring more landscaping if parking lots are located in front of buildings rather than to the rear/side				
SB-2	Promote consistency in setbacks within commercial and residential areas to form desirable continuity in the streetwall, or the facades of buildings facing the street				
SB-3	Encourage outparcel development with 360 architecture to "hold the corner" of commercial corridor development				
SB-4	Ensure adequate setbacks of industrial or other high intensity uses to reduce potential sound or visual impacts on adjacent lower intensity uses				
SB-5	Allow for flexibly in setbacks in Downtown where existing conditions prevent a consistent streetwall, while maintaining a close interface with the street (e.g., utility, landscaping, and/or topography challenges)				
POLICIES FOR PARKING LOTS			YES	NO	NA
PL-1	For existing front-loaded surface parking lots, encourage property owners to improve their character with perimeter and interior landscaping, and/or decorative walls and fencing				

Community Plan Consistency Grid: RZ 23-02					
PL-2	Require off-street parking to be located to the side or rear of the primary building				
PL-3	Encourage shared parking agreements where neighboring uses with different peak parking demand times can use the same parking lot, reducing the need for additional parking lots				
PL-4	Reevaluate minimum parking standards and consider implementing maximum parking standards to reduce excessive requirements				
PL-5	Monitor parking supply and strategically encourage structured or underground parking in higher density areas if needed, such as in Downtown, TOD, and activity center areas, to reduce the amount of land dedicated to surface parking				
PL-6	Consider offering incentives for structured parking, such as density bonuses, allowable lot coverage increases, and height limit increases.				
PL-7	Encourage the integration of structured parking into multifamily buildings to minimize surface parking lots				
PL-8	Encourage North Carolina Department of Environmental Quality's (NCDEQ) Stormwater Nitrogen and Phosphorus (SNAP) nutrient-reducing practices, such as permeable surfaces, that allow water infiltration in parking lots to improve stormwater drainage and water quality				
PL-9	Encourage the provision of pedestrian walkways in parking lots to enhance connectivity and safety to businesses				
POLICIES FOR SCREENING & BUFFERING			YES	NO	NA
SB-1	Ensure sufficient screening and buffering of industrial and commercial uses next to residential uses to minimize potential adverse impacts, such as in the Unicon Drive area				
SB-2	Encourage new development to preserve existing wooded areas along the perimeter of sites to provide natural buffering				
SB-3	Encourage screening of utility, loading, outdoor storage, and trash disposal areas that are visible from the right-of-way and adjacent development				
SB-4	Promote the use of setbacks for walls and fences that allow for plantings between the property line and the right-of-way and adjacent development				

Community Plan Consistency Grid: RZ 23-02					
POLICIES FOR COMMUNITY CHARACTER			YES	NO	NA
CC-1	Preserve vistas and view corridors that contribute to the economic and aesthetic value of Wake Forest, such as the church steeple at Southeastern Baptist Theological Seminary, S White Street in Downtown, and N Main Street in the Wake Forest Local Historic District				
CC-2	Curate public outdoor spaces for important monuments and artworks to showcase them as anchors and entry points to neighborhoods				
CC-3	Leverage historic structures, events, and people to create a sense of place through placemaking and branding				
CC-4	Ensure new development is contextual to the existing character of the area in terms of scale, massing, setback, fenestration, and design features (porches, storefronts, etc.)				
CC-5	Encourage developers to incorporate landscaping to beautify neighborhoods and commercial areas, such as landscaped medians and roundabouts.				
CC-6	Incorporate landscaping and gateway features into public rights-of-way, such as landscaped streetscapes, green infrastructure, and public promenades				
CC-7	Emphasize quality development along highly visible thoroughfares in the Town to reinforce its positive image				
CC-8	In accordance with the Land Use Plan, ensure incompatible, high intensity uses are directed away from low intensity residential areas				
CC-9	Continue to provide quality municipal services for the maintenance and upkeep of neighborhoods, such as street cleaning, snow removal, and trash disposal services				
CC-10	Work with NCDOT to identify areas for roadway enhancements				
CC-11	Refer to the Public Art Vision Plan for guidance when public art is being proposed in private development				
CC-12	Work with developers to improve the character of retaining walls, such as by incorporating public art or tiering the walls to reduce their visual impact				
POLICIES FOR UTILITY LINES			YES	NO	NA
UL-1	Create a master plan for burying utility lines with community involvement to identify priority areas for conversion				
UL-2	Ensure major Town entrances and gateway corridors and highly visible, pedestrian-oriented areas are prioritized for conversion				
UL-3	Consider trenching utilities as capital improvements are made in the right-of-way for all areas of the Town				
UL-4	Investigate partnering with private developers to install conduit for fiber and/or burying utility lines in priority conversion areas				
UL-5	Explore partnerships with private developers for boring and burying additional conduit along main roadways				
UL-6	Consider and install conduit with greenway project construction.				

Community Plan Consistency Grid: RZ 23-02					
	POLICIES FOR HISTORIC PRESERVATION		YES	NO	NA
	HP-1	Work with the Historic Preservation Commission (HPC) and the Planning Department to continue to implement the 2019 Historic Property Handbook and Design Standards and continue to preserve existing and new historic landmarks			
	HP-2	Continue to enforce the Historic Preservation Ordinance for the Wake Forest Local Historic District and local historic landmarks			
	HP-3	Promote State and Federal Tax Incentives for qualified rehabilitation projects for properties listed individually or as contributing historic properties in the National Register of Historic Places			
	HP-4	Ensure development surrounding and within historic districts is sensitive to the historic context of the neighborhood			
	HP-5	Encourage adaptive reuse, restoration, and repurposing of historic structures to preserve Wake Forest's history			
	HP-6	Continue to enforce the Demolition of Historic Structures Ordinance for the protection of all historic properties in Wake Forest			
	HP-7	Investigate the adoption of new local historic districts or character historic overlay districts to preserve Wake Forest's historic character			
	POLICIES FOR COMMUNITY FACILITIES		YES	NO	NA
	CF-1	Expand Town facilities concurrently with new growth			
	CF-2	Annually review the Town's Work Management Plan, Staffing, and Budget section to reflect current needs and priorities			
	CF-3	Work with the Wake Forest Parks, Recreation, and Cultural Resources Department to identify strategies to close gaps in park service areas, such as west of Capital Boulevard and the southern and eastern portion of Town			
	CF-4	Work with the Wake Forest Parks, Recreation, and Cultural Resources Department to expand equity in the quality of public park facilities and programming			
	CF-5	Explore green infrastructure options that also beautify spaces, like bioswales and planters			
	CF-6	Continue to work with regional educational entities to provide support as they seek new facility locations or expansion with growth			
	CF-7	Coordinate with regional educational entities to ensure increased equity in educational facilities across the community			
	CF-8	Coordinate with the Police and Fire Departments to ensure response times are sufficient for all areas of town with growth			
	CF-9	Consider emerging best practices for community safety, such as mental health crisis response teams			
	CF-10	Promote and incorporate sustainable building practices into community facilities, setting a precedent for private developers to implement			
	CF-11	Coordinate with regional healthcare providers to explore opportunities to locate a full service hospital or regional medical facilities in the Town			
	CF-12	Evaluate existing streets and explore UDO updates to address traffic congestion, traffic speed, reduce collisions, and improve safety conditions for all modes of transportation			
	CF-13	Regularly update the Town Pavement Management System program			

Community Plan Consistency Grid: RZ 23-02					
	POLICIES FOR PUBLIC TRANSIT		YES	NO	NA
	PT-1	Continue to work with transit partners to consider more frequent service and route network expansions to key locations to improve rider experience and attract more usage of mass transit			
	PT-2	Coordinate with property owners, private developers, and transit partners to set aside land for transit stops at appropriate locations. The Town should obtain a transit easement for these locations and construct and maintain quality bus shelter infrastructure			
	PT-3	Work with GoRaleigh and GoTriangle to construct smart bus shelters, or sustainable shelters that incorporate elements like interactive screens with live timetables, smart lighting, solar panels, and bike lock stations			
	PT-4	Explore incorporating public art into bus shelters			
	PT-5	Continue to evaluate and coordinate Park and Ride locations with transit partners			
	PT-6	Explore best long term transit options such as fixed or microtransit			
	POLICIES FOR CAPITAL BOULEVARD		YES	NO	NA
	CB-1	Continue to work closely with NCDOT to implement the project and promote commercial growth in accordance with the Land Use Plan			
	CB-2	Continue advocating for improvements along the corridor to assist in improving the quality of life for Wake Forest residents, businesses, and property owners			
	POLICIES FOR STREET CONNECTIVITY		YES	NO	NA
	SC-1	Promote short blocks of less than 600 linear feet between intersections of local roads to improve walkability			
	SC-2	Avoid dead-ends, cul-de-sacs, and T-intersections in places where four-way intersections can be aligned			
	SC-3	Study the appropriateness of traffic circles at four-way intersections to ease congestion and improve safety			
	POLICIES FOR SIDEWALKS & MULTI-USE PATHS		YES	NO	NA
	SP-1	Update the CTP to include an inventory of sidewalks in addition to multi-use paths and establish project priorities, private-public funding, and time frames for closing gaps in the network			
	SP-2	Update the CTP to identify priority areas for high visibility crosswalks, bulb outs, refuge islands, rectangular rapid flashing beacons, and other pedestrian improvements			
	SP-3	Work with Public Works to identify crosswalk ramps that are not ADA compliant and prioritize upgrades			
	SP-4	In coordination with roadway improvements, upgrade aging sidewalks or install new sidewalks if none exist			
	SP-5	Promote sidewalk, multi-use path, or trail connectivity between residential subdivisions and nonresidential development to improve pedestrian and bicycle connectivity			
	SP-6	Continue to ensure all new residential development provides sidewalks on both sides of the street			
	SP-7	Encourage multi-use paths to be provided along the main road in developments			
	SP-8	Ensure multifamily and commercial developments include strong pedestrian networks within and between their sites			

Community Plan Consistency Grid: RZ 23-02					
	POLICIES FOR BIKEWAYS, GREENWAYS & TRAILS		YES	NO	NA
	BGT-1	Identify trail head locations as the greenway and trail network continues to expand			
	BGT-2	Explore opportunities along greenways to add amenities (i.e. water fountains, seating /rest areas, pocket parks, public art, and fix it stations) and programming with the Parks, Recreation, and Cultural Resources Department or other organizations like StoryWalks			
	BGT-3	Encourage development along greenways to incorporate greenway access into the site, particularly for uses attractive to trail users (i.e. restaurant, cafes, and bars)			
	POLICIES FOR LOCAL FOOD SYSTEMS		YES	NO	NA
	LFS-1	Continue to support the Northern Community Food Security Team and together explore other locations for community food hubs within the Town			
	LFS-2	Partner with local food cooperatives and regional food networks, such as the Capital Area Food Network, to address food insecurity in the community			
	LFS-3	Encourage regenerative practices, such as use of organic fertilizers, crop rotation, and crop variation for healthy soil			
	LFS-4	Conduct a meal gap survey to better assess the immediate and long term needs in the community			
	LFS-5	Evaluate the economic impact of local food systems in the community to encourage localized marketplaces for food producers			
	LFS-6	Explore updates to the UDO that would promote urban agriculture and repurposing of vacant or underutilized lots for such uses			
	POLICIES FOR CONSERVATION DESIGN		YES	NO	NA
	CD-1	Encourage conservation design in the UDO's subdivision development regulations, particularly for areas within watershed protection areas			
	CD-2	Explore incentives for promoting conservation design, such as density bonuses to allow for comparable number of housing units but greater preserved green space within the site			
	CD-3	Encourage developers to enhance preserved green spaces as accessible amenities for residents, such as trails and outdoor seating			
	POLICIES FOR GREEN SPACE PRESERVATION		YES	NO	NA
	GSP-1	Prioritize higher density redevelopment and infill development within already developed areas to avoid premature development in long term growth areas and reduce greenfield development			
	GSP-2	Work with private developers to preserve significant natural assets within sites, such as streams, steep slopes, unique geological formations, wetlands, and mature stands of trees, which can be incorporated as development amenities			
	GSP-3	Continue to identify and strategically acquire environmentally sensitive land to preserve as dedicated conservation areas and publicly accessible open space			
	GSP-4	Explore incentives to promote conservation design in future development, such as density bonuses, to promote clusters of taller structures that preserve natural areas of the site			
	GSP-5	Explore strategies to further promote green space preservation within the updated UDO, such as increasing set aside requirements, and evaluate what is credited as open space			
	GSP-6	Explore strategies to further protect wildlife and environmentally sensitive areas in the UDO			

Community Plan Consistency Grid: RZ 23-02					
POLICIES FOR TREE CANOPY			YES	NO	NA
TC-1	Continue to support the Town in administering the Urban Forestry Program and planting, preserving, and maintaining trees on public properties and rights-of-way				
TC-2	Explore updates to the UDO that could further promote tree preservation and replacement in new developments				
TC-3	Review existing incentives and consider additional incentives for private developers to promote tree preservation above what is required by the UDO				
TC-4	Explore ways to increase the number of trees required in parking lots during the update to the UDO, such as requiring an island every 20 parking spaces or decreasing the minimum distance a parking space can be from a tree				
TC-5	Ensure public and private tree plantings and xeriscaping are made up of native plant species that are adapted to local environmental conditions and require less irrigation				
TC-6	Coordinate efforts to influence State regulations related to the expansion of tree preservation standards				
POLICIES FOR SUSTAINABLE DEVELOPMENT			YES	NO	NA
SD-1	Encourage private developers to incorporate green building, LID, and green infrastructure practices in future developments				
SD-2	Incorporate green infrastructure into public streetscapes, prioritizing pedestrian-oriented areas like Downtown, TOD, and Neighborhood Commercial areas				
SD-3	Continue to incorporate sustainable design best practices into Town-owned infrastructure and community facilities, striving to incorporate LEED practices into future facilities				
SD-4	Use the Environmental Protection Agency's (EPA) "Revising Local Codes to Facilitate Low Impact Development" guide to help identify regulations within the UDO that discourage LID practices				
SD-5	Evaluate potential rainwater collection programs and composting programs				
SD-6	Explore an incentive program to encourage development to provide stormwater when lots are exempt from stormwater requirements				
SD-7	Update the Manual of Specifications, Standards and Design to reference green infrastructure design				
SD-8	Explore decommissioned rights-of-way as potential stormwater routes				
SD-9	Support the use of attractive, safe, and sustainable street furniture and infrastructure, such as solar streetlights, and LED traffic lights				
SD-10	Expand the electric vehicle (EV) charging network by requiring the installation of charging stations, or the infrastructure needed to accommodate future charging stations, in all new parking lots, especially parking lots of multifamily and large scale developments, and increasing supply of public charging stations				
SD-11	Promote adaptive reuse over redevelopment for structures that are structurally sound, feature desirable built form, and/or are historically significant. This includes creating an online inventory of buildings available for adaptive reuse				
SD-12	Investigate developing a solar energy ordinance and enrolling in the SolSmart program, a national designation program funded by the US Department of Energy charged with making solar power faster, easier, and more affordable				
SD-13	Explore ways to incentivize renewable energy and passive solar design in the Town's development standards. SolSmart's Solar Energy Toolkit can be used as resource for better promoting solar panels within the code				
SD-14	Continue partnership with Raleigh to encourage homeowners to incorporate practices for water conservation				
POLICIES FOR TOURISM			YES	NO	NA
T-1	Grow the Town's art community and reputation as a regional arts destination with a Downtown focus				

Community Plan Consistency Grid: RZ 23-02					
T-2	Explore the potential of constructing a recreational destination facility with a regional draw				
T-3	Develop annual Tourism Economic Impact Reports to help quantify progress made in Wake Forest's tourism sector and identify trends, issues, and opportunities that can help Town staff prioritize future investments				
T-4	Support the Wake Forest Area Chamber to create and market a local visitor's center as a public resource hub for the Town's attractions, events, and businesses for visitors				
T-5	Leverage Wake County's Room Occupancy Tax to build, finance, and create new establishments or run events related to tourism, allowing the Town to capitalize on its success in drawing hotel occupants				
T-6	Create a community-wide wayfinding plan to improve sense of place and signage that directs visitors and residents to Town destinations				
T-7	Continue to support Wake Forest Downtown Inc. (a Main Street America accredited program) in meeting the National Accreditation Standards of Performance as outlined by the National Main Street Center				
T-8	Continue to participate in the NC Main to Main Trail program, a network that connects the State's Main Street America communities, and leverage this designation in the Town's marketing strategy				
T-9	Investigate hiring consultants to provide a comprehensive evaluation of Town events and provide recommendations for improved programs				
T-10	Explore the creation of a social district, where customers can carry and consume food and drinks purchased from businesses outside in a designated zone				
POLICIES FOR GATEWAYS			YES	NO	NA
GW-1	Create a Gateway Plan to identify and prioritize sites for gateway features and establish design standards. Ensure the Plan works in synergy with the Town's Wayfinding Plan.				
GW-2	Improve roadway infrastructure along key gateway routes to enhance their character and multimodal connectivity.				
POLICIES FOR DOWNTOWN WAKE FOREST			YES	NO	NA
DWF-1	Evaluate existing zoning regulations around density in appropriate locations to balance Downtown's development potential with preserving its historic character				
DWF-2	Identify strategies to fill vacant buildings Downtown that promote an entrepreneurial and small-business culture				
DWF-3	Identify strategies to attract families and younger populations to Downtown with inviting public spaces, entertainment, and destinations for all ages				
DWF-4	Provide guidelines for how buildings should be orientated to support pedestrian-friendly environments				
DWF-5	Reassess parking demand and supply with consideration for a new parking garage(s) to minimize surface parking lots				
DWF-6	Identify strategies to create an "experience-based" Downtown retail environment with unique local businesses and a pedestrian-oriented environment				
DWF-7	Reassess strategies to improve gateways and wayfinding to and within Downtown to better direct people and create a distinct sense of place				
DWF-8	Identify opportunities for Downtown events and public gathering spaces to bring the community together, such as live outdoor events and festivals				



Star Road Development
Traffic Impact Analysis - Update
Wake Forest, North Carolina

TRAFFIC IMPACT ANALYSIS

FOR

STAR ROAD DEVELOPMENT - UPDATE

LOCATED

IN

WAKE FOREST, NC

Prepared For:
St. John Properties
8601 Six Forks Road, Suite 400
Raleigh, NC 27615

Prepared By:
Infrastructure Consulting Services, Inc.
dba
Ramey Kemp Associates
5808 Faringdon Place
Raleigh, NC 27609
License #F-1489

SEPTEMBER 2023



9/12/23

RKA Project No. 23025

Prepared By: CDS, VT

Reviewed By: DC

TRAFFIC IMPACT ANALYSIS
STAR ROAD DEVELOPMENT
WAKE FOREST, NORTH CAROLINA

EXECUTIVE SUMMARY

1. Development Overview

A Traffic Impact Analysis (TIA) was conducted for the proposed Star Road development in accordance with the Wake Forest (Town) Unified Development Ordinance (UDO) and North Carolina Department of Transportation (NCDOT) capacity analysis guidelines. The proposed development is to be located east of Star Road and north of Via Fortunata Plaza in Wake Forest, North Carolina. The proposed development, anticipated to be completed in 2027, is assumed to consist of the following uses:

- 119,100 square feet (s.f.) General Light Industrial
- 93 student Daycare Center
- 25,600 s.f. General Office
- 20,150 s.f. Strip Retail Plaza

Site access is proposed via one full-movement driveway along Star Road.

2. Existing Traffic Conditions

The study area for the TIA was determined through coordination with the Town and NCDOT and consists of the following existing intersections:

- S Main Street and Star Road
- Capital Boulevard and Star Road Connector / Ponderosa Service Road
- Star Road and Star Road Connector
- Capital Boulevard and Height Lane / Montys Lane
- Height Lane and Star Road

Existing peak hour traffic volumes were determined based on traffic counts conducted at the study intersection listed below, in April of 2023 during weekday AM (7:00 AM – 9:00 AM) and PM (2:00 PM – 6:00 PM) peak periods:

- S Main Street and Star Road
- Capital Boulevard and Star Road Connector / Ponderosa Service Road
- Star Road and Star Road Connector
- Capital Boulevard and Height Lane / Montys Lane
- Height Lane and Star Road

Traffic volumes were balanced between intersections where appropriate.

3. Site Trip Generation

The proposed development is assumed to consist of the land uses found below:

- 119,100 square feet (s.f.) General Light Industrial
- 93 student Daycare Center
- 25,600 s.f. General Office
- 20,150 s.f. Strip Retail Plaza

Average weekday daily, AM peak hour, and PM peak hour trips for the proposed development were estimated using methodology contained within the ITE Trip Generation Manual, 11th Edition. Table E-1, on the following page, provides a summary of the trip generation potential for the site.

Table E-1: Site Trip Generation

Land Use (ITE Code)	Intensity	Daily Traffic (vpd)	Weekday AM Peak Hour Trips (vph)		Weekday PM Peak Hour Trips (vph)	
			Enter	Exit	Enter	Exit
Light Industrial (110)	119,100 s.f.	500	75	10	6	40
Daycare Center (565)	93 Students	378	37	33	32	37
General Office (710)	25,600 s.f.	356	46	6	9	45
Strip Retail Plaza (822)	20,150 s.f.	1,100	29	19	66	67
Total Trips		2,334	187	68	113	189
<i>Internal Capture (3% AM & 1% PM)*</i>			-7	-1	-0	-3
Total External Trips			180	67	113	186
<i>Pass-By Trips: Daycare Center (44% PM)</i>			--	--	-15	-15
<i>Pass-By Trips: Strip Retail Plaza (29% PM)</i>			--	--	-19	-19
Total Primary Trips			180	67	79	152

*Utilizing methodology contained in the NCHRP Report 684.

4. Future Traffic Conditions

Through coordination with the Town and NCDOT, it was determined that an annual growth rate of 3% would be used to generate 2027 projected weekday AM and PM peak hour traffic volumes. The Hawthorne Development was identified as an adjacent development to be considered under future conditions.

The study analyzes traffic conditions during the weekday AM and PM peak hours for the following scenarios:

- 2023 Existing Traffic Conditions
- 2027 No-Build Traffic Conditions
- 2027 Build Traffic Conditions
- 2027 Build Traffic Conditions with Improvements

5. Recommendations

Based on the findings of this study, specific geometric and traffic control improvements have been identified at study intersections. The improvements are summarized below and are illustrated in Figure E-1.

Improvements by others

Capital Boulevard and Height Lane / Montys Lane

- Extend the existing southbound left-turn lane to 500 feet of full width storage.

Recommended Improvements by the Star Road Development

Capital Boulevard and Star Road Connector

- Install signal at the western side of the existing reduced conflict intersection (Capital Boulevard and Star Road Connector). Coordinate with NCDOT to develop a coordination and timing plan for all signals along Capital Boulevard.

Capital Boulevard and Height Lane / Montys Lane

- Modify signal timings to allow more green time for minor street approach.

Star Road and Star Road Connector

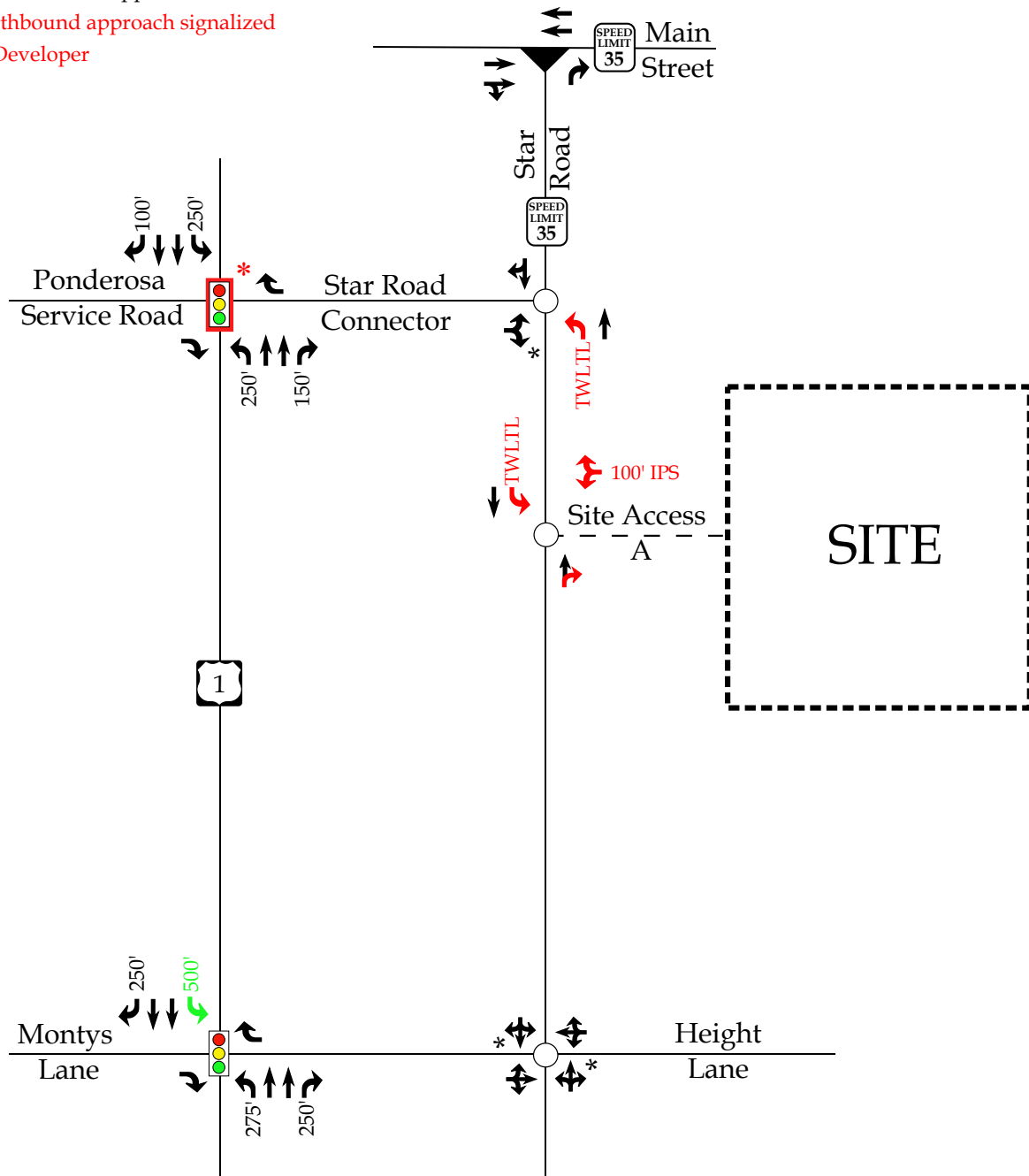
- Provide a two-way left-turn lane (TWLTL) for northbound approach, extending to southbound approach of Site Access A. (~600 feet)

Star Road and Site Access A

- Construct the westbound approach as a full movement intersection with one ingress lane and one egress lane.
- Provide southbound TWLTL that extends to Star Road and Star Road Connector intersection. (~600 feet)
- Provide stop-control for westbound approach.
- Provide an internal protected stem (IPS) of at least 100 feet for westbound approach.

* Stop-controlled approach

* Northbound approach signalized
by Developer



- Unsignalized Intersection
- ◫ Signalized Intersection
- ➔ Existing Lane

LEGEND

x' Storage (In Feet)

➔ Improvement by Developer

▲ Right-In / Right-Out Intersection

▲ Left-Over Intersection

➔ Adjacent Improvement



Star Road Development
Wake Forest, NC

Recommended Lane
Configurations

Scale: Not to Scale

Figure E-1



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Roy Cooper
Governor

J. Eric Boyette
Secretary

September 27, 2023

Star Road Development

Traffic Impact Analysis Review Report Congestion Management Section

TIA Project: SC-2021-080R2
Division: 5
County: Wake



Nicholas C. Lineberger, P.E. Regional Engineer
Madonna Saleh, Design Engineer

Star Road Development

SC-2021-080R2

Wake Forest

Wake County

Per your request, the Congestion Management Section (CMS) of the Transportation Mobility and Safety Division has completed a review of the subject site. The comments and recommendations contained in this review are based on data for background conditions presented in the Traffic Impact Analysis (TIA) and are subject to the approval of the local District Engineer's Office and appropriate local authorities.

Date Initially Received by CMS	09/13/23	Date of Site Plan	08/21/23
Date of Complete Information	09/13/23	Date of Sealed TIA	09/12/23

Proposed Development

The TIA assumes the development is completed by 2027 and consists of the following:

Land Use	Land Use Code	Size
General Light Industrial	110	119,100 sq.ft.
Day Care Center	565	93 Students
General Office Building	710	25,600 sq.ft.
Strip Retail Plaza (<40k)	822	20,150 sq.ft.

Trip Generation - Unadjusted Volumes During a Typical Weekday

	IN	OUT	TOTAL
AM Peak Hour	187	68	255
PM Peak Hour	113	189	302
Daily Trips			2,334

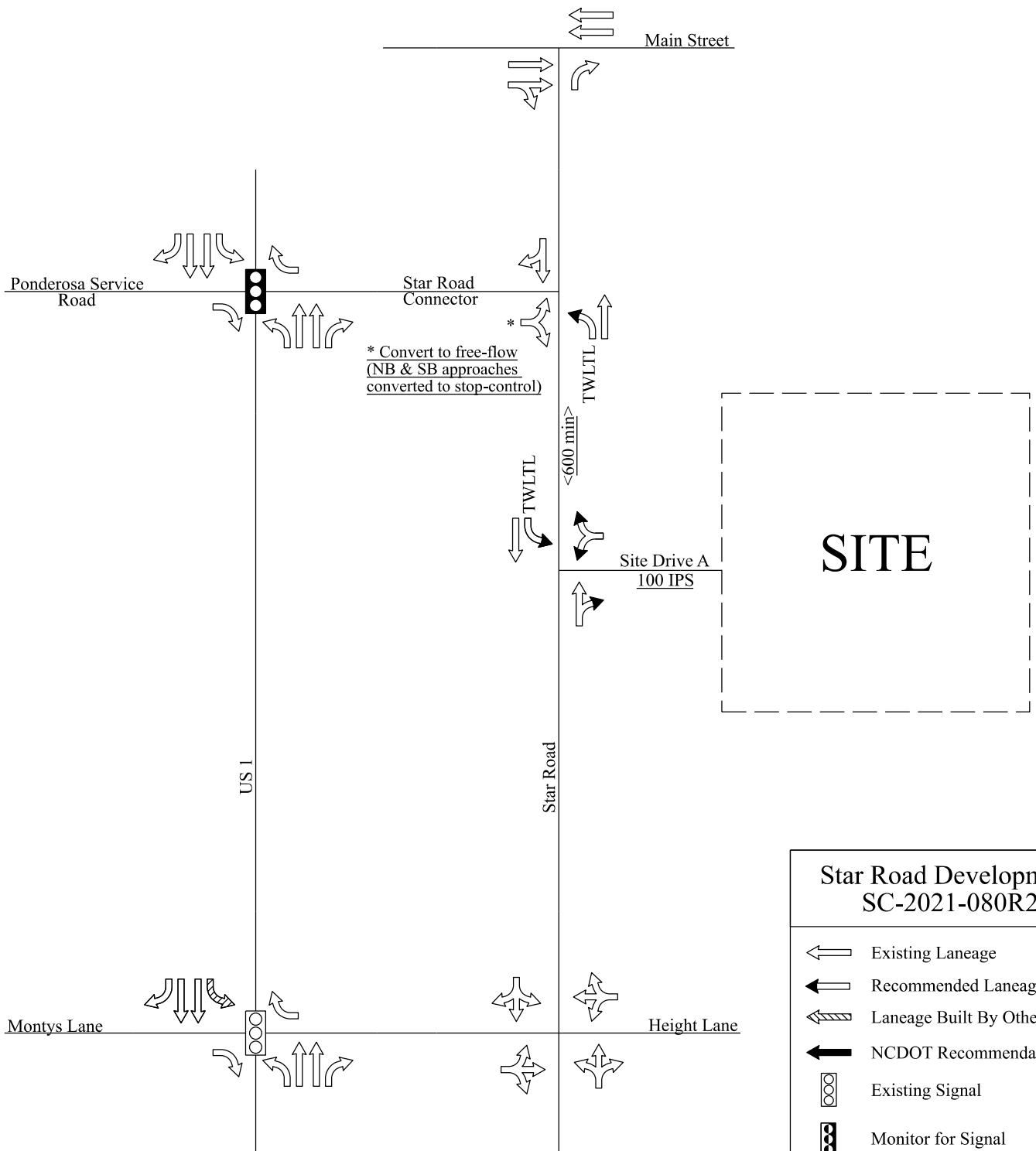
General Reference

For reference to various documents applicable to this review please reference the following link: <https://connect.ncdot.gov/resources/safety/Pages/Congestion-Management.aspx>

Once the driveway permit has been approved and issued, a copy of the final driveway permit requirements should be forwarded to this office. If we can provide further assistance, please contact the Congestion Management Section.

Signalization

We defer to the District Engineer, the Division Traffic Engineer, and the Regional Traffic Engineer for final decisions regarding signalization.



Star Road Development SC-2021-080R2

-  Existing Laneage
-  Recommended Laneage
-  Laneage Built By Others
-  NCDOT Recommendation
-  Existing Signal
-  Monitor for Signal
-  Developer Proposed Signal
- XXX Storage
- XXX NCDOT Recommended Storage
- <XXX> Distance Between Intersections
- IPS Internal Protected Stem
- All Distances in Feet
- Drawing Not to Scale



From: [Reidy, Patrick](#)
To: [Farr, Terry E](#); [Nicholson, Jacob P](#); [Palermo, Elisabeth](#)
Cc: [Glass, Chris](#); [Nolfo, Matthew J](#); [Currin, Jennifer](#)
Subject: RE: [External] Star Rd. Technology Center
Date: Monday, December 4, 2023 8:49:36 AM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)
[image006.png](#)
[image007.png](#)
[townlogoemail_5539183b-0da4-4043-9c73-07de5dbbb2f8.png](#)
[facebook_b2dd47ff-b525-412c-bfe8-a5aad35c6135.png](#)
[twitter_80c973cd-4947-4b97-bfe6-25403b679296.png](#)
[instagram_2d31c576-710b-4ab9-97eb-ae8ac7d2d21.png](#)
[linkedin_1c34b13b-4980-47a2-b625-4e056d4f8a38.png](#)

Terry,

Thank you for that confirmation.



Patrick Reidy, AICP, CZO

Senior Planner - Development Services
PLANNING

Office: 919-435-9510 | Direct: 919-435-9515 | Mobile: 919-761-3105
301 S. Brooks Street | Wake Forest, NC 27587
wakeforestnc.gov



Where Innovation Meets Opportunity

Correspondence to and from this E-mail address may be subject to the North Carolina Public Records Law (NCGS Chapter 132) and may be disclosed to third parties.

From: Farr, Terry E <tefarr@ncdot.gov>
Sent: Friday, December 1, 2023 4:30 PM
To: Reidy, Patrick <preidy@wakeforestnc.gov>; Nicholson, Jacob P <jpnicholson@ncdot.gov>; Palermo, Elisabeth <epalermo@wakeforestnc.gov>
Cc: Glass, Chris <cglass@wakeforestnc.gov>; Nolfo, Matthew J <mjnolfo@ncdot.gov>
Subject: RE: [External] Star Rd. Technology Center

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe. Please use the **Phish Alert Button** to submit any suspicious emails for review.

We have been in contact with the developer and have provided them responses that mirror your concern. We are shifting Star Rd to the East a bit in that location and our service road conflicts with their development. They will either need to use our design and redesign something that would work with the U-5307 project or risk impact to the buildings once we get into design. No guarantee for design minimization can be given. All their pdf shows is our design overlaid on their development, solidifying that there is a conflict.

Thanks,

Terry E. Farr, PE
Senior Project Manager, Project Management Unit
North Carolina Department of Transportation

919 707 6017 Office
tefarr@ncdot.gov

1000 Birch Ridge Drive (Delivery)
Raleigh, NC 27610

1582 Mail Service Center (Mail)
Raleigh, NC 27699-1582



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From: Nicholson, Jacob P <jpnicholson@ncdot.gov>
Sent: Friday, December 1, 2023 3:29 PM
To: Palermo, Elisabeth <epalermo@wakeforestnc.gov>
Cc: Glass, Chris <cglass@wakeforestnc.gov>; Nolfo, Matthew J <minolfo@ncdot.gov>; Farr, Terry E <tefarr@ncdot.gov>
Subject: RE: [External] Star Rd. Technology Center

Liz,

I will defer to Terry Farr (cc'd) on this one as I have had limited involvement on this development and U-5307.

Terry,

Please take a look at Liz's email below and provide feedback. I've attached the exhibit referenced below.

Thanks,

Jacob Nicholson
Assistant District Engineer
Wake County District Office (Division 5 District 1)
North Carolina Department of Transportation

jpnicholson@ncdot.gov

Office Number: (919) 814 – 6115

Physical Address

4009 District Drive
Raleigh, NC 27607

Mailing Address

1575 Mail Service Center
Raleigh, NC 27699-1575



Email correspondence to and from this sender is subject to the N.C. Public Records Law and may be disclosed to third parties.

From: Palermo, Elisabeth <epalermo@wakeforestnc.gov>
Sent: Friday, December 1, 2023 9:01 AM
To: Nicholson, Jacob P <jpnicholson@ncdot.gov>
Cc: Glass, Chris <cglass@wakeforestnc.gov>

Subject: [External] Star Rd. Technology Center

CAUTION: External email. Do not click links or open attachments unless verified. Report suspicious emails with the Report Message button located on your Outlook menu bar on the Home tab.

Mr. Nicholson,

I asked the [Star Rd Developer](#) to submit an exhibit showing an overlay of the U-5307 project so we could see how it will impact the project. You approved as noted last time so the review would not have gone to you. The exhibit is not very clear, but it appears to me that the drive through will be in the construction/utility easement and the building appears to be very near the edge of the easement. I had to use an electric scale on printed drawings (scale 1"=200ft) so I might be wrong. The easement line is not on the submitted exhibit. I used a printed copy of the NCDOT recommended U-5307 drawings to determine the depth of the easement compared to the property line. The link should take you to the IDT project page. The exhibit is under submittal 5 and has U-5307 overlay in the title. Would you mind taking a look at it and letting me know if you have any comments or concerns or even if there is anything else you would like to see labelled in the exhibit?

Thank you for your help,

Liz Palermo



Elisabeth Palermo

Engineering Technician Assistant
ENGINEERING

Office: 919-435-9510 | Direct: 919-435-9441
301 S. Brooks Street | Wake Forest, NC 27587

wakeforestnc.gov



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ORDINANCE 2022-24

ORDINANCE AMENDING THE OFFICIAL ZONING DISTRICT MAP OF THE TOWN OF WAKE FOREST TO CHANGE THE ZONING OF APPROXIMATELY 6.47 ACRES LOCATED AT 0 STAR ROAD, BEING WAKE COUNTY TAX PIN 1739662623, FROM USE HIGHWAY BUSINESS (HB) TO GENERAL RESIDENTIAL 10 CONDITIONAL DISTRICT (GR10-CD)

RZ-21-09, HAWTHORNE WAKE FOREST PHASE 2

WHEREAS, the application submitted by Kimley-Horn for the rezoning of land hereinafter described was duly filed with the Planning Department; and

WHEREAS, the Planning Board held a public comment session on June 14, 2022 and the Board of Commissioners held a public hearing on August 16, 2022; and

WHEREAS, mailed notices, property sign postings, and a newspaper notice publication were carried out for the public comment session and public hearing pursuant to G.S. § 160D-602 and the Unified Development Ordinance; and

WHEREAS, the Planning Board submitted its recommendation to the Board of Commissioners recommending approval of said application that was generally consistent with the Comprehensive Plan for the lands hereinafter described, all in accordance with the requirements of the Town of Wake Forest Unified Development Ordinance and the provisions of Chapter 160D, Article 6, of the North Carolina General Statutes;

NOW, THEREFORE, BE IT ORDAINED by the Board of Commissioners of the Town of Wake Forest, North Carolina:

Section 1: The lands that are the subject of the Ordinance are those certain lands described in Exhibit 1 – Legal Description, which is incorporated herein by reference, and said lands are hereafter referred to as the “Rezoned Lands.”

Section 2: The parcels identified by the Wake County Tax Parcel Identification Number 1739662623 and adjacent right-of-way to centerlines, and described in Exhibit 1, are located within the Town’s Corporate Limits.

Section 3: The Town of Wake Forest Unified Development Ordinance, including the Town of Wake Forest North Carolina Official Zoning District Map which is a part of said Ordinance, is hereby amended by changing the zoning classification of the “Rezoned Lands” from Highway Business (HB) to General Residential 10 Conditional District (GR10-CD) as shown on Exhibit 1, subject to the conditions stated herein.

Section 4: The “Rezoned Lands” are subject to all of the standards and conditions in Exhibit 3 Hawthorne Wake Forest Phase 2 Site Master Plan, which are imposed as part of this rezoning.

Section 5: The Administrator is hereby authorized and directed to cause the said Official Zoning District Map for the Town of Wake Forest, North Carolina, to be physically revised and amended to reflect the zoning changes ordained by this Ordinance.

Section 6: After reviewing all the information presented at the public hearing and the Wake Forest plans, policies and ordinances, the Wake Forest Board of Commissioners

find the zoning map amendment request reasonable and consistent with the Community Plan and the Comprehensive Transportation Plan and adopted a written consistency statement, which is on file with the Wake Forest Planning Department and attached as Exhibit 2.

Section 7: The "Rezoned Lands" are subject to the following conditions which are imposed as part of this rezoning:

1. Phase 2 open space requirements shall be satisfied by excess open space and active open space in Phase 1 of Hawthorne at Wake Forest. Phase 2 requires 0.6 acres of open space and 0.15 acres of active open space for a total of 0.75 acres. Phase 1 provided an additional 2.1 acres of open space and an additional 1.06 acres of active open space for a total of 3.16 acres. Residents of Phase 2 shall have full rights to use the active open space found within Phase 1.

Section 8: The "Rezoned Lands" shall be perpetually bound to the conditions imposed including the uses authorized, unless subsequently changed or amended as provided for in the Unified Development Ordinance.

Section 9: This ordinance shall be in full force and effect from and after its adoption.

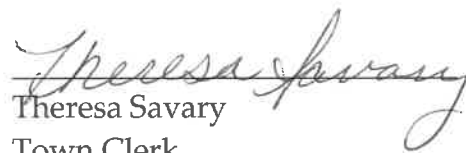
Adopted and effective this the 6th day of September 2022.



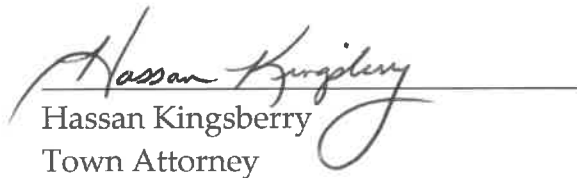
Vivian A. Jones
Mayor

ATTEST:

APPROVED AS TO FORM:



Theresa Savary
Town Clerk



Hassan Kingsberry
Town Attorney





Staff Report

Case RZ-21-09: Hawthorne Wake Forest Phase 2 Conditional District

Meeting Date	September 6, 2022
Requested Actions	Consideration of the following items related to the Conditional Zoning request for O Star Road: 1. Act on Plan Consistency Statement 2. Rezone 6.47 acres on the Town of Wake Forest Zoning Map from Highway Business (HB) to General Residential 10 Conditional District (GR10-CD).
Case Manager	Patrick Reidy, Senior Planner
Planning Board Recommendation	The Planning Board voted 5-1 to find the request inconsistent with the Comprehensive Plan and recommended denial of the zoning map amendment request. <i>See Attachment D for Planning Board recommendation.</i>

PUBLIC MEETINGS

Neighborhood Meeting	Public Comment Session	Public Hearing
December 16, 2021 (See Attachment A)	June 14, 2022	September 6, 2022

CASE INFORMATION

Applicant	Evolve Companies C/O Matt Rogers 2012 Eastwood Road Wilmington, NC 28403
Property Owner	Forest Greenery Group LLC 500 Avenue P Newark, NJ 07105
Location	Near the intersection of Star Road and Capital Boulevard
Address	O Star Road
Wake County Tax PIN(s)	1739-66-2623
Acreage	6.47 acres (includes right-of-way)

Zoning	Existing: Highway Business (HB) and US 1 Special Highway Overlay (SH1-O) Proposed: General Residential 10 Conditional District (GR10-CD) and US 1 Special Highway Overlay (SH1-O)
Land Use	Existing: Vacant Proposed: Dwelling - Multifamily (56 units)
Future Land Use Map	Existing: Corridor Commercial Proposed: Transit-Supportive Residential
Corporate Limits	This application is in the Town's corporate limits.
See Attachment B for a copy of the application and Attachment C for Aerial, Zoning, and Community Plan Maps. See pages 39, 42, and 54 for descriptions of Corridor Commercial, Transit-Supportive Residential, and Commercial & Industrial Area: Capital Boulevard in the Community Plan .	

SURROUNDING LAND USES AND ZONING

	Land Use	Zoning
North	Dwelling - Multi-family (Hawthorne at Wake Forest Phase 1) (Under Construction)	Conditional Use General Residential 10
South	Industry, Light (City of Raleigh Northern Operations Center)	Highway Business
East	Dwelling - Multi-family (Hawthorne at Wake Forest Phase 1) (Under Construction)	Conditional Use General Residential 10
West	Star Road/Capital Boulevard ROW	Highway Business
The proposed land use is generally incompatible with surrounding land uses. The proposed zoning is generally incompatible with surrounding zoning. See Attachment C for associated maps.		

MASTER PLAN ANALYSIS

Size	6.47 ± Acres	
<i>Open Space</i>	<i>Required:</i>	<i>10% or 0.6 acres</i>
	<i>Proposed:</i>	<i>0% or 0.0 acres</i>
	<i>Summary:</i>	<i>The applicant has proposed a rezoning condition to allow excess open space in Phase 1 to count towards the requirements of Phase</i>

		2. The proposed Master Plan does not comply with the minimum open space percentage requirement in the UDO.
Park Space	Required: 2.5% or 0.15 acres Proposed: 0% or 0.0 acres Summary: The applicant has proposed a rezoning condition to allow excess open space in Phase 1 to count towards the requirements of Phase 2. The proposed Master Plan does not comply with the minimum open space percentage requirement in the UDO.	
Roads	Required: The Comprehensive Transportation Plan requires the US 1 Service Road cross-section for Star Road. Based on trip generation, a TIA is not required for this project. See Attachment E for details. Proposed: The proposed Master Plan (Exhibit 1, Sheet C-100) proposed to provide the US-1 Service Road cross section for Star Road. Summary: The proposed Master Plan complies with the minimum roadway infrastructure requirements in the UDO.	
Parking	Required: Per UDO Chapter 9.4, the parking requirement for dwelling-multifamily is 1.8 spaces per unit or 101 parking spaces. The bike parking requirement is 2 spaces per 40 automobile spaces or 6 bike spaces. Proposed: The applicant is proposing to provide 103 parking spaces through off-street parking spaces and 8 bike parking spaces. Summary: The proposed Master Plan complies with the minimum parking requirements in the UDO.	
Public Utilities	Required: The UDO requires that public water and sewer mains are extended to serve the site. Proposed: This property is served by an 8" water line located along Moonbow Trail that is currently under construction. It is also served by an 8" sewer line located along Moonbow Trail that is currently under construction. Summary: The proposed Master Plan complies with the public utility requirements in the UDO.	

PROPOSED MODIFICATIONS OF BASE GENERAL RESIDENTIAL 10 ZONING DISTRICT STANDARDS

No modifications of the General Residential 10 district standards are proposed.

See Exhibit 1, Sheet C-000 for proposed zoning condition.

COMPREHENSIVE PLAN CONSISTENCY

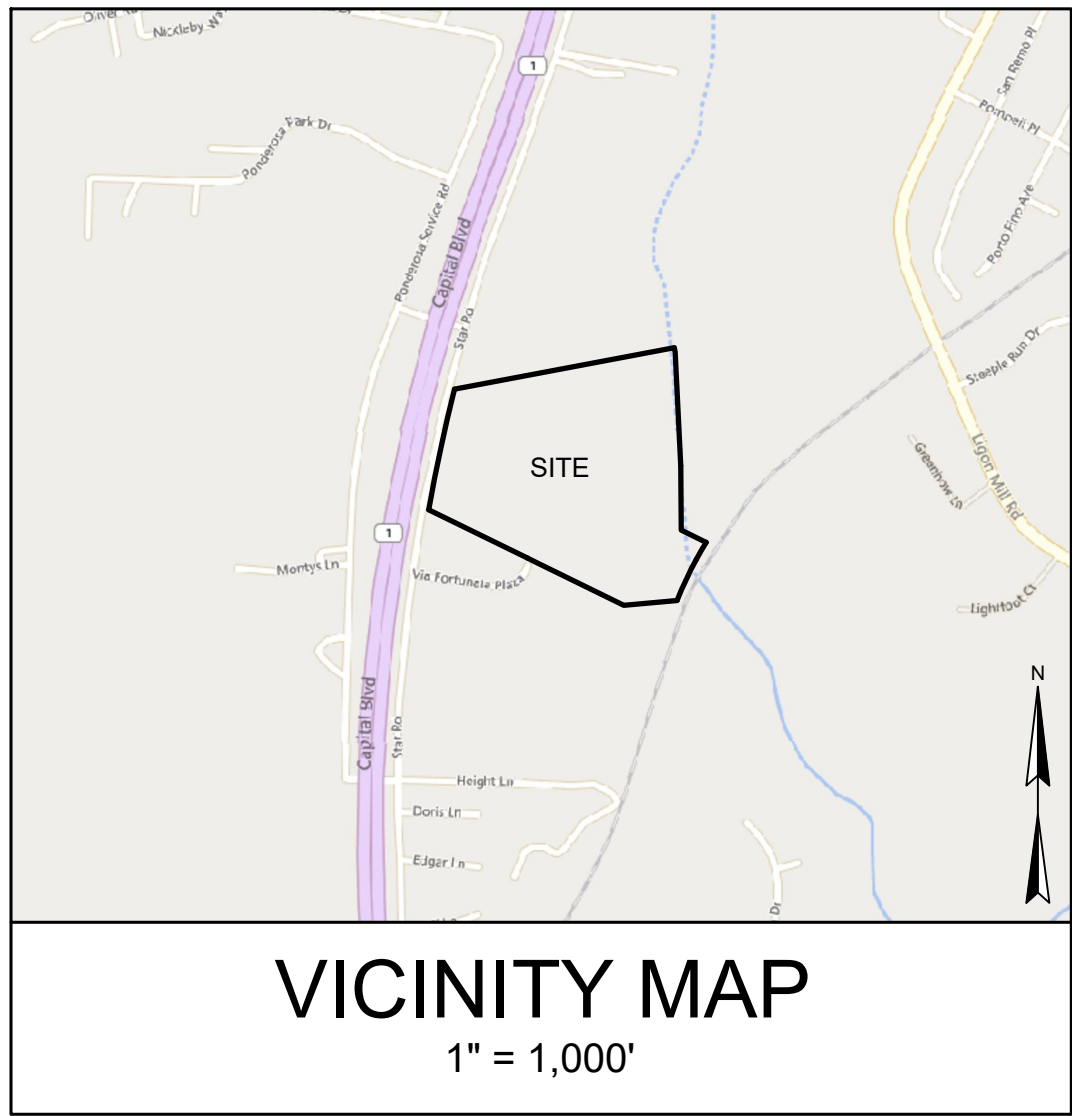
Community Plan (2022)	The proposed zoning map amendment request is generally inconsistent with the adopted Community Plan. (Note: Applicant has requested that the application be reviewed against the recently adopted Community Plan, which is permitted by law)
Comprehensive Transportation Plan (2019)	The Comprehensive Transportation Plan is not applicable to the zoning map amendment request.
Historic Preservation Plan (2012)	The Historic Preservation Plan is not applicable to the zoning map amendment request.
Northeast Neighborhood Plan (2007)	The Northeast Neighborhood Plan is not applicable to the zoning map amendment request.
Park, Recreation, and Cultural Resources Master Plan (2015)	The Parks, Recreation, and Cultural Recourses Master Plan is not applicable to the zoning map amendment request.
Public Art Vision Plan (2009)	The Public Art Vision Plan is not applicable to the zoning map amendment request.
Renaissance Plan (2017)	The Renaissance Plan is not applicable to the zoning map amendment request.
<i>See Attachment D for detailed Plan Consistency Analysis.</i>	

STAFF RECOMMENDATION

The zoning map amendment request is generally **Inconsistent** with the relevant policies in the Comprehensive Plan, and **Denial** of the zoning map amendment request is reasonable and in the public interest.

ATTACHMENTS

- Attachment A: Neighborhood Meeting Information
- Attachment B: Application
- Attachment C: Maps
- Attachment D: Planning Board Recommendation and Plan Consistency Analysis
- Attachment E: Trip Generation Letter
- Attachment F: Request for Public Hearing Delay
- Attachment G: Proposed Conditional District Master Plan
- Attachment H: Resolution
- Exhibit 1: Consistency Statement



PROPOSED ZONING CONDITIONS

1. THE SITE MASTER PLAN IS A CONDITION OF THE REZONING REQUEST. AMENDMENTS OF THE MASTER PLAN SHALL REQUIRE A REZONING AMENDMENT UNLESS THE ADMINISTRATOR FINDS THE MODIFICATION TO BE MINOR AND IN KEEPING WITH THE SPIRIT AND INTENT OF THE APPROVED SITE MASTER PLAN.
2. THE FOLLOWING USES SHALL BE PERMITTED:
- | | |
|---|--|
| A. RESIDENTIAL
NONE
B. LODGING
NONE
C. OFFICE/SERVICE
ATM
BANK, CREDIT UNION, FINANCIAL SERVICES
BUSINESS SUPPORT SERVICES
DRY CLEANING & LAUNDRY SERVICES
MEDICAL CLINIC
PERSONAL SERVICES
PERSONAL SERVICES, RESTRICTED
POST OFFICE
PROFESSIONAL SERVICES
SMALL EQUIPMENT REPAIR/RENTAL
VETERINARY SERVICES
D. COMMERCIAL/ENTERTAINMENT
ALCOHOLIC BEVERAGE SALES STORE
AMUSEMENT, INDOOR
BAR/TAVERN
GENERAL COMMERCIAL
NIGHT CLUB
OPEN AIR RETAIL
OUTDOOR SEATING
OUTSIDE OR DISPLAY SALES
RESTAURANT
SHOOTING RANGE, INDOOR
THEATER, INDOOR MOVIE OR LIVE PERFORMANCE
E. CIVIC
CIVIC MEETING FACILITY
COMMUNITY OR CULTURAL FACILITY
CONFERENCE/CONVENTION CENTER
PUBLIC SAFETY STATION
RECREATION FACILITY, INDOOR
RELIGIOUS INSTITUTION | F. EDUCATIONAL/INSTITUTIONAL
CHILD/ADULT DAY CARE CENTER (MORE THAN 8 PERSONS)
COMMUNITY SUPPORT FACILITY
STUDIO - ART, DANCE, MARTIAL ARTS, MUSIC
G. AUTOMOTIVE
DRIVE-IN FACILITY
VEHICLE SERVICES - MINOR
MAINTENANCE/REPAIR
VEHICLE SERVICES - MAJOR REPAIR/BODY WORK
H. INDUSTRY/WHOLESALE/STORAGE
INDUSTRY, LIGHT
LIGHT MANUFACTURING WORKSHOP
I. AGRICULTURE
KENNEL
PRODUCE STAND
J. INFRASTRUCTURE
WIRELESS TELECOMMUNICATIONS FACILITY (NON-TOWER)
WIRELESS TELECOMMUNICATIONS FACILITY (TOWER)
UTILITIES - CLASS 1
UTILITIES - CLASS 2
K. OTHER
TEMPORARY USES |
|---|--|
3. SECTION 3.9.1.C. SHALL NOT APPLY TO THE SITE. INDUSTRY, LIGHT USES SHALL BE PERMITTED ON THE SITE WITH VEHICULAR ACCESS VIA STAR ROAD.
4. SECTION 2.4.3.D.1. (SH1-0 SPECIAL HIGHWAY OVERLAY BUILDING SETBACK) SHALL BE REDUCED FROM 100' TO 50' TO ACCOMMODATE EXISTING SITE TOPOGRAPHY AND INCREASE VISIBILITY TO BUILDINGS FRONTING STAR ROAD.
5. SECTION 2.2.5.C.1. (PRINCIPAL FRONT BUILDING SETBACK) SHALL BE REDUCED FROM 30' TO 20' FOR OFFICE BUILDING A, LIGHT INDUSTRIAL BUILDING B, AND LIGHT INDUSTRIAL BUILDING C TO ACCOMMODATE TOPOGRAPHY, ENVIRONMENTAL CONSTRAINTS, AND EXISTING EASEMENTS.
6. IF AN IMPACT IS APPROVED BY NCDEQ (THE "APPROVAL") TO THE NEUSE BUFFER, THE LOCATION AND SHAPE OF LIGHT INDUSTRIAL BUILDING A'S PARKING LOT AND BUILDING MAY BE ADJUSTED IF THE BUILDING SIZE DOES NOT EXCEED A NET CHANGE GREATER THAN 5 %. WRITTEN CONFIRMATION OF THE APPROVAL INCLUDING PROOF OF PAYMENT FOR MITIGATION COSTS SHALL BE PROVIDED DURING CONSTRUCTION DOCUMENT APPROVAL.
7. OVERNIGHT PARKING OR STORAGE OF CLIENT VEHICLES FOR VEHICLE SERVICES MINOR OR MAJOR USES SHALL ONLY BE ALLOWED IN THE TRUCK COURT AREAS OR BUILDING INTERIORS FOR ALL LIGHT INDUSTRIAL ("LI") BUILDINGS. THE TRUCK COURT AREAS INCLUDE ALL PAVEMENT BEHIND LI BUILDING A AND LI BUILDING B, INCLUDING THE AREA IN FRONT OF LI BUILDING C.
8. CHILD/ADULT DAY CARE CENTERS LOCATED WITHIN THE LIGHT INDUSTRIAL BUILDINGS WILL ONLY BE PLACED ON THE ENDS OF THE BUILDING, NEXT TO A COMPLEMENTARY USE, OR SUBSTITUTE LOCATION DEEMED APPROPRIATE BY THE ADMINISTRATOR, WHICH APPROVAL SHALL NOT UNREASONABLY BE CONDITIONED, WITHHELD, OR DELAYED.
9. A MINIMUM OF FOUR ELECTRIC VEHICLE CHARGING LOCATIONS WILL BE ADDED TO THE DEVELOPMENT.
10. LIGHT INDUSTRIAL BUILDINGS WILL HAVE A PARKING RATE OF 1 SPOT PER 500 SF.
11. A COMMITMENT TO PURSUE THE ADDITION OF PUBLIC ART TO THE DEVELOPMENT.
12. A COMMITMENT TO PURSUE ADDITIONAL OUTDOOR SEATING OR GATHERING SPACE TO THE DEVELOPMENT.
13. ASSOCIATED ROAD IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE APPROVED TIA (INCLUDING ALL NCDOT REQUIREMENTS FROM THE TIA REVIEW) AND UDO.

WAKE FOREST EXCHANGE

MASTER SITE PLANS

RZ-23-06

STAR ROAD
WAKE FOREST, NORTH CAROLINA
PINS: 1739-65-3709, 1739-55-8441 & 1739-65-4232

OWNERS:

STAR LANDING, LLC (1739-65-3709 AND 1739-55-8441)
2560 LORD BALTIMORE DR
BALTIMORE, MD 21244

PURYEAR INVESTMENTS, LLC (1739-65-4232)
5844 LEASE LN
RALEIGH, NC 27617

DEVELOPER:

ST. JOHN PROPERTIES
CONTACT: DUSTIN ATKIELSKI
8601 SIX FORKS RD, STE 400
RALEIGH, NC 27615
919.827.0600
DATKIELSKI@SJPI.COM

ENGINEER OF RECORD:

FLM ENGINEERING, INC
CONTACT: JON FRAZIER, PE
PO BOX 91727
RALEIGH, NC 27675
919.610.1051
JFRAZIER@FLMENGINEERING.COM

SUMMARY INFORMATION
DEVELOPMENT NAME: WAKE FOREST EXCHANGE
SITE ADDRESS: STAR ROAD, WAKE FOREST, NC
PIN NUMBER(S): 1739-65-3709, 1739-55-8441 & 1739-65-4232
TOTAL AREA: 30.35 AC
EXISTING USE: VACANT PROPOSED USE: COMMERCIAL/RESTAURANT (CR), OFFICE & LIGHT INDUSTRIAL (LI)
JURISDICTION: TOWN OF WAKE FOREST (ETJ ANNEXATION REQUIRED PRIOR TO CONSTRUCTION DRAWING APPROVAL)
CURRENT ZONING DISTRICT: HB PROPOSED ZONING DISTRICT: HB CD
OVERLAY DISTRICT: SPECIAL HIGHWAY OVERLAY (SH1-0)
2022 COMMUNITY PLAN DESIGNATION: CORRIDOR COMMERCIAL
PROP BUILDING AREA: CR BLDG. A AREA: 10,824 SF CR BLDG. B AREA: 9,504 SF OFFICE BLDG. A AREA: 25,600 SF LI BLDG. A AREA: 59,640 SF LI BLDG. B AREA: 35,280 SF LI BLDG. C AREA: 24,000 SF TOTAL BUILDING AREA: 164,848 SF
HB MAX. BUILDING HEIGHT: 3 STORIES PROP. BUILDING HEIGHT: 1 STORY
BUILDING SETBACKS: FRONT: 30' SIDE STREET: 20' SIDE: 10' REAR: 30'
AUTO PARKING CALCULATIONS: REQUIRED PARKING: CR BLDG. A PARKING: 54 SPACES (1 PER 200 SF) CR BLDG. B PARKING: 48 SPACES (1 PER 200 SF) OFFICE A PARKING: 86 SPACES (1 PER 300 SF) LI BLDG. A PARKING: 120 SPACES (1 PER 500 SF) LI BLDG. B PARKING: 71 SPACES (1 PER 500 SF) LI BLDG. C PARKING: 48 SPACES (1 PER 500 SF) TOTAL REQUIRED PARKING: 427 SPACES
PROPOSED PARKING: CR BLDG. A PARKING: 92 SPACES (4 ADA) CR BLDG. B PARKING: 78 SPACES (4 ADA) OFFICE A PARKING: 102 SPACES (4 ADA) LI BLDG. A PARKING: 132 SPACES (6 ADA) LI BLDG. B PARKING: 84 SPACES (4 ADA) LI BLDG. C PARKING: 51 SPACES (4 ADA) TOTAL PROPOSED PARKING: 539 SPACES (26 ADA)
BICYCLE PARKING CALCULATIONS: REQUIRED PARKING: 2 PER 40 AUTO SPACES = 539 / 40 X 2 = 27 SPACES PROPOSED PARKING: 60 SPACES (30 INVERTED 'U' RACKS)
EXISTING IMPERVIOUS COVERAGE: 2,523 SF / 0.06 AC (0.3%) PROPOSED IMPERVIOUS COVERAGE: 552,000 SF / 12.67 AC (41.7%)

SHEET	TITLE
C-1	COVER
C-2	EXISTING CONDITIONS & DEMOLITION PLAN
C-3	SITE PLAN
C-4	UTILITY PLAN
C-5	GRADING & DRAINAGE PLAN
C-6	LANDSCAPING PLAN
C-7	LIGHTING PLAN



POST OFFICE BOX 91727
RALEIGH, NORTH CAROLINA 27675
PHONE: 919.610.1051
FIRM NC LICENSE NUMBER C-4222

REVISION HISTORY			
REV #	DESCRIPTION	DATE	BY
1	TOWF COMMENTS	9/14/2023	FLM
2	TOWF COMMENTS	10/6/2023	FLM
3	TOWF COMMENTS	11/13/2023	FLM
4	TOWF COMMENTS	12/15/2023	FLM

ORIGINAL PLAN SIZE: 24" X 36"

PRELIMINARY
PLANS
DO NOT USE FOR CONSTRUCTION

SCALE ADJUSTMENT
THIS BAR IS 1 INCH IN LENGTH
ON ORIGINAL DRAWING
0 1"
IF IT IS NOT 1 INCH ON THIS
SHEET, ADJUST YOUR SCALE
ACCORDINGLY

MASTER SITE PLANS

WAKE FOREST EXCHANGE
WAKE FOREST, NC

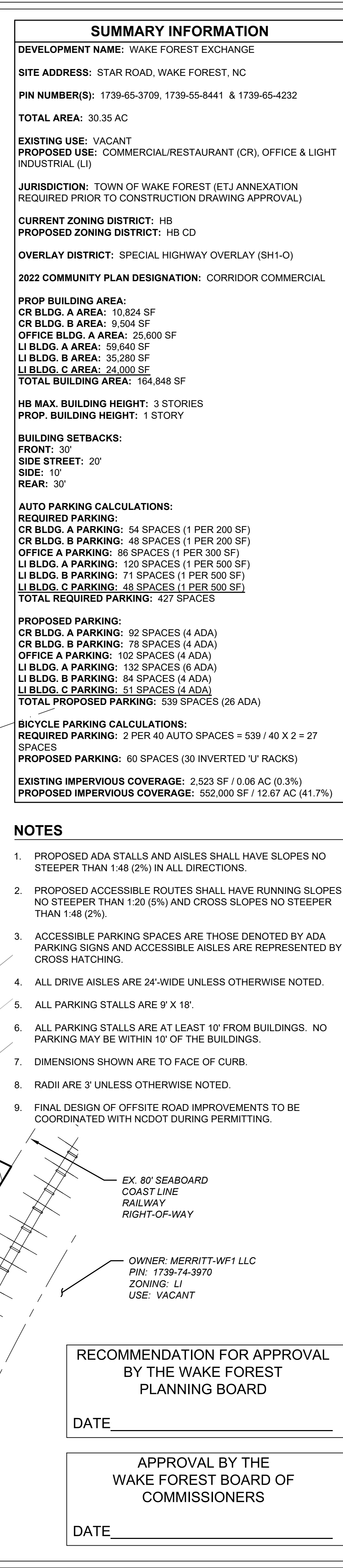


DATE:	06-09-2023
SCALE:	AS SHOWN
DESIGNED BY:	FLM
APPROVED BY:	FLM
PROJECT NO.:	23003

COVER

C-1

SHEET 1 OF 7



FLM ENGINEERING			
POST OFFICE BOX 91727 RALEIGH, NORTH CAROLINA 27675 PHONE: 919.610.1051 FIRM NC LICENSE NUMBER C-4222			
REVISION HISTORY			
REV #	DESCRIPTION	DATE	BY
1	TOWF COMMENTS	9/14/2023	FLM
2	TOWF COMMENTS	10/6/2023	FLM
3	TOWF COMMENTS	11/13/2023	FLM
4	TOWF COMMENTS	12/15/2023	FLM
ORIGINAL PLAN SIZE: 24" X 36"			
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION 60 30 0 60 60 60 SCALE: 1 INCH = 60 FEET N ↑ SCALE ADJUSTMENT THIS BAR IS 1 INCH IN LENGTH ON ORIGINAL DRAWING 0 1" 0 1" IF IT IS NOT 1 INCH ON THIS SHEET, ADJUST YOUR SCALE ACCORDINGLY			
MASTER SITE PLANS WAKE FOREST EXCHANGE WAKE FOREST, NC			
ST. JOHN PROPERTIES			
DATE:		06-09-2023	
SCALE:		AS SHOWN	
DESIGNED BY:		FLM	
APPROVED BY:		FLM	
PROJECT NO.:		23003	
SITE PLAN			
C-3 SHEET 3 OF 7			

NOTES

1. ALL NON-RETAIL BUILDINGS SHALL BE EQUIPPED WITH AN AUTOMATIC SPRINKLER SYSTEMS.
2. ALL WATER AND SANITARY SEWER CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH STANDARDS AND SPECIFICATIONS.
3. CONSTRUCTION APPROVAL THROUGH THE CITY OF RALEIGH IS REQUIRED FOR WATER AND SANITARY SEWER MAIN EXTENSIONS.
4. ON-SITE SANITARY SEWER EASEMENTS SHALL BE DEDICATED AS NECESSARY SO THAT THE COMBINATION OF RIGHT-OF-WAY AND EASEMENT EQUALS 15' ON EACH SIDE OF THE SANITARY SEWER MAIN.
5. THE UTILITIES SHOWN ARE NOT GUARANTEED TO BE A REPRESENTATION OF ALL UTILITIES WITHIN THE PROJECT EXTENT.
6. THE CONTRACTOR SHALL CALL THE NORTH CAROLINA ONE-CALL-CENTER AT LEAST 48 HOURS PRIOR TO BEGINNING WORK.
7. THE CONTRACTOR SHALL VERIFY DEPTHS AND LOCATIONS OF ALL UTILITIES PRIOR TO BEGINNING WORK AND SHALL USE CARE WHEN OPERATING AROUND EXISTING UTILITIES.
8. THE CONTRACTOR SHALL BE FINANCIALLY RESPONSIBLE FOR THE REPAIR OF ANY EXISTING UTILITIES DAMAGED DURING CONSTRUCTION.

OWNER: CITY OF RALEIGH
PIN: 1739-66-1393
ZONING: HB
USE: INDUSTRIAL

OWNER: HAWTHORNE AT
WAKEFIELD APARTMENTS
PHASE II LLC
PIN: 1739-66-8930
ZONING: GR10 CD
USE: APARTMENTS

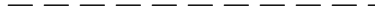
OWNER: HAWTHORNE AT
WAKEFIELD APARTMENTS
PHASE II LLC
PIN: 1739-66-2623
ZONING: GR10 CD
USE: APARTMENTS

OWNER: STAR
LANDING LLC
PIN: 1739-75-0868
ZONING: HB
USE: VACANT

ER: MERRITT-WF1 LLC
PIN: 1739-74-3970
ZONING: LI
USE: VACANT

OWNER: STAR ROAD
PROPERTIES LLC
PIN: 1739-55-6212
ZONING: HB
USE: VACANT

LEGEND

- | | |
|---|----------------------------|
|  | EX. PROPERTY LINE |
|  | EX. RIGHT-OF-WAY |
|  | EX. ADJACENT OWNERS |
|  | EX. EASEMENT |
|  | EX. ROAD CENTERLINE |
|  | EX. CHANNEL/STREAM |
|  | EX. STREAM BUFFER |
|  | EX. OVERHEAD ELECTRIC LINE |
|  | EX. WATER LINE |
|  | EX. SANITARY SEWER |
|  | EX. STORM SEWER |
|  | PROP. RIGHT-OF-WAY |
|  | PROP. SETBACK LINE |
|  | PROP. EASEMENT |
|  | PROP. RETAINING WALL |
|  | PROP. WATER LINE |
|  | PROP. SANITARY SEWER |
|  | PROP. STORM SEWER |

OWNER: STAR ROAD
PROPERTIES LLC
PIN: 1739-55-8155
ZONING: HB
USE: VACANT

OWNER: STAR ROAD
PROPERTIES LLC
PIN: 1739-64-1968
ZONING: HB
USE: VACANT

**CITY OF RALEIGH STANDARD
UTILITY NOTES
(AS APPLICABLE)**

1. ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH DESIGN STANDARDS, DETAILS & SPECIFICATIONS (REFERENCE: CORPUS HANDBOOK, CURRENT EDITION)
2. UTILITY SEPARATION REQUIREMENTS:
- A) A DISTANCE OF 100' SHALL BE MAINTAINED BETWEEN SANITARY SEWER & RCP OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN IMPOUNDED RESERVOIR USED AS A SOURCE OF DRINKING WATER. IF ADEQUATE LATERAL SEPARATION CANNOT BE ACHIEVED, FERROUS SANITARY SEWER PIPE SHALL BE INSTALLED TO WATERLINE SPECIFICATIONS. HOWEVER, THE MINIMUM SEPARATION SHALL NOT BE LESS THAN 25' FROM A PRIVATE WELL OR 30' FROM A PUBLIC WELL
 - B) WHEN INSTALLING WATER MAINS, THE HORIZONTAL SEPARATION BETWEEN UTILITIES SHALL BE 10' IF THIS SEPARATION CANNOT BE MAINTAINED DUE TO EXISTING CONDITIONS, THE VARIATION ALLOWED IS THE WATER MAIN IN A SECH SIDE TREND WITH THE INSTALLED OF THE WATER MAIN AT LEAST 18" ABOVE THE TOP OF THE SEWER & MUST BE APPROVED BY THE PUBLIC UTILITIES DIRECTOR. ALL DISTANCES ARE MEASURED FROM OUTSIDE OF UTILITY TO OUTSIDE OF UTILITY
 - C) WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER SEPARATION, OR ANYTIME A SANITARY SEWER PASSES OVER A WATERLINE, DIP MATERIALS OR STEEL ENCASEMENT SHALL BE USED. EACH SIDE OF CROSSING MUST BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS
 - D) 5.0' MINIMUM HORIZONTAL SEPARATION IS REQUIRED BETWEEN ALL SANITARY SEWER & STORM SEWER UTILITIES, UNLESS DIP MATERIAL IS SPECIFIED FOR SANITARY SEWER
 - E) MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL WATERMAIN & RCP STORM DRAIN CROSSINGS. MAINTAIN 18" MIN. VERTICAL SEPARATION AT SANITARY SEWER & RCP STORM DRAIN CROSSINGS. WHEN ADEQUATE SEPARATIONS CANNOT BE ACHIEVED, SPECIFY DIP MATERIALS & A CONCRETE CRADLE HAVING 6" MIN. CLEARANCE (PER CORPUS DETAIL W-41 & S-49)
 - F) ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN. VERTICAL SEPARATION REQUIRED
3. ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN &/OR PROFILE BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PRIOR TO CONSTRUCTION
- DEVELOPER SHALL PROVIDE 30 DAYS ADVANCE WRITTEN NOTICE TO OWNER, CITY OF RALEIGH, WITHIN AN EXISTING CITY OF RALEIGH UTILITY EASEMENT TRAVERSING PRIVATE PROPERTY
5. CONTRACTOR SHALL MAINTAIN CONTINUOUS WATER & SEWER SERVICE TO EXISTING RESIDENCES & BUSINESSES THROUGHOUT CONSTRUCTION OF PROJECT. ANY NECESSARY SERVICE INTERRUPTIONS SHALL BE PRECEDED BY A 24 HOUR ADVANCE NOTICE TO THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT
6. 3.0" MINIMUM COVER IS REQUIRED ON ALL WATER MAINS & SEWER MAINS. 4.0" MINIMUM COVER IS REQUIRED ON ALL REUSE MAINS
7. IS THE DEVELOPER'S RESPONSIBILITY TO ABANDON OR REMOVE EXISTING WATER & SEWER SERVICES NOT BEING USED IN REDEVELOPMENT OF A SITE UNLESS OTHERWISE DIRECTED BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT. THIS INCLUDES ABANDONING TAP AT MAIN & ABANDONING SERVICE FROM ROW OR EASEMENT PER CORPUS HANDBOOK PROCEDURE
8. INSTALL 1/2" COPPER WATER SERVICES WITH METERS LOCATED AT ROW OR WITHIN A 2'X2' WATERLINE EASEMENT IMMEDIATELY ADJACENT. NOTE: IT IS THE APPLICANT'S RESPONSIBILITY TO PROPERLY SIZE THE WATER SERVICE FOR EACH CONNECTION TO PROVIDE ADEQUATE FLOW & PRESSURE
9. INSTALL 4" PVC SEWER SERVICES @ 1% MINIMUM GRADE WITH CLEANOUTS LOCATED AT ROW OR EASEMENT LINE & SPACED EVERY 75 LINEAR FEET MAXIMUM
10. PRESSURE REDUCING VALVES ARE REQUIRED ON ALL WATER SERVICES EXCEEDING 80 PSI. BACKWATER VALVES ARE REQUIRED ON ALL SANITARY SEWER SERVICES HAVING BUILDING DRAINS LOWER THAN 1.0' ABOVE THE NEXT UPSTREAM MANHOLE
11. ALL ENVIRONMENTAL PERMITS APPLICABLE TO THE PROJECT MUST BE OBTAINED FROM NCDDO, USACE &/OR FEMA FOR ANY RIPARIAN BUFFER, WETLAND &/OR FLOODPLAIN IMPACTS (RESPECTIVELY) PRIOR TO CONSTRUCTION
12. NCDDOT /RAILROAD ENCROACHMENT AGREEMENTS ARE REQUIRED FOR ANY UTILITY WORK (INCLUDING MAIN EXTENSIONS & SERVICE TAPS) WITHIN STATE OR RAILROAD ROW PRIOR TO CONSTRUCTION
13. GREASE INTERCEPTOR /OIL WATER SEPARATOR SIZING CALCULATIONS & INSTALLATION SPECIFICATIONS SHALL BE PROVIDED BY THE DEVELOPER TO THE CITY OF RALEIGH PRIOR TO ISSUANCE OF A BUILDING PERMIT. CONTACT STEPHEN CALVERLEY AT (919) 996-2334 OR STEPHEN.CALVERLEY@RALEIGHNC.GOV FOR MORE INFORMATION
14. CROSS-CONNECTION CONTROL PROTECTION DEVICES ARE REQUIRED BASED ON DEGREE OF HEALTH HAZARD INVOLVED AS SET FORTH IN APPENDIX C OF THE 2015 RALEIGH PUBLIC WATER SYSTEMS IN NORTH CAROLINA. THESE GUIDELINES ARE THE MINIMUM REQUIREMENTS. THE DEVICES SHALL MEET AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) C100.10 OR BE LISTED ON THE 2015 ASSE APPROVED IN CALIFORNIA APPROVAL LIST. THE DEVICES SHALL BE INSTALLED AND TESTED (BOTH INITIAL AND PERIODIC TESTING THEREAFTER) IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. THE CROSS-CONNECTION CONTROL PROGRAM, WHICHEVER IS MORE STRINGENT, A CERTIFICATE OF COMPLIANCE SHALL ALSO BE OBTAINED FOR EACH DEVICE PRIOR TO ISSUANCE OF A BUILDING PERMIT. CONTACT JOANIE HARTLEY AT RALEIGHNC.GOV FOR MORE INFORMATION

RECOMMENDATION FOR APPROVAL
BY THE WAKE FOREST
PLANNING BOARD

DATE _____

APPROVAL BY THE
WAKE FOREST BOARD OF
COMMISSIONERS

DATE _____



POST OFFICE BOX 91727
RALEIGH, NORTH CAROLINA 27675
PHONE: 919.610.1051
FIRM NC LICENSE NUMBER C-4222

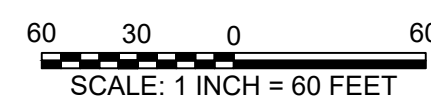
REVISION HISTORY

REV #	DESCRIPTION	DATE	BY
1	TOWF COMMENTS	9/14/2023	FLM
2	TOWF COMMENTS	10/6/2023	FLM
3	TOWF COMMENTS	11/13/2023	FLM
4	TOWF COMMENTS	12/15/2023	FLM

ORIGINAL PLAN SIZE: 24" X 36"

PRELIMINARY PLANS

DO NOT USE FOR CONSTRUCTION



SCALE ADJUSTMENT

THIS BAR IS 1 INCH IN LENGTH
ON ORIGINAL DRAWING



IF IT IS NOT 1 INCH ON THIS
SHEET, ADJUST YOUR SCALE
ACCORDINGLY

MASTER SITE PLANS

WAKE FOREST EXCHANGE
WAKE FOREST, NC



DATE:	06-09-2023
SCALE:	AS SHOWN
DESIGNED BY:	FLM
APPROVED BY:	FLM
PROJECT NO.:	23003

UTILITY PLAN

C-4

SHEET 4 OF 7

	EX. PROPERTY LINE
	EX. RIGHT-OF-WAY
	EX. ADJACENT OWNERS
	EX. EASEMENT
	EX. ROAD CENTERLINE
	EX. CHANNEL/STREAM
	EX. STREAM BUFFER
	EX. OVERHEAD ELECTRIC LINE
	EX. WATER LINE
	EX. SANITARY SEWER
	EX. STORM SEWER
	EX. MAJOR CONTOUR (5')
	EX. MINOR CONTOUR (1')
	PROP. RIGHT-OF-WAY
	PROP. SETBACK LINE
	PROP. EASEMENT
	PROP. RETAINING WALL
	PROP. WATER LINE
	PROP. SANITARY SEWER
	PROP. STORM SEWER
	PROP. MAJOR CONTOUR (5')
	PROP. MINOR CONTOUR (1')

DATE _____



Board of Commissioners Work Session Agenda Item Report

Agenda Item No.: 2024-43-
Submitted by: Steven Meyer
Submitting Department: Engineering
Meeting Date: March 5, 2024

SUBJECT

Presentation of the Toms Creek Watershed Study

Recommendation:

This is the Final Report to summarize the findings and recommendations by LJB concerning the Toms Creek Watershed Study.

Item Summary:

ATTACHMENTS

- [Attachment_A_03052024_Summary.docx](#)
- [Attachment_B_Watershed_Report.pdf](#)

Agenda Item: Toms Creek Watershed Study

Summary: The Toms Creek Watershed is one of the watersheds within the Town of Wake Forest. LJB, Inc. has developed a Watershed Plan that identifies and recommends projects that will improve the water quality of the Toms Creek watershed. The Watershed Plan provides a compilation of data, watershed characterization, condition assessment, improvement evaluations, and develops a recommendation of actions. The watershed plan will serve as a guide for prioritizing stormwater improvements in the Toms Creek watershed in the future.

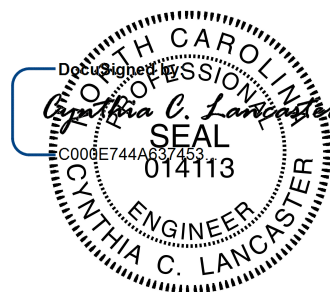
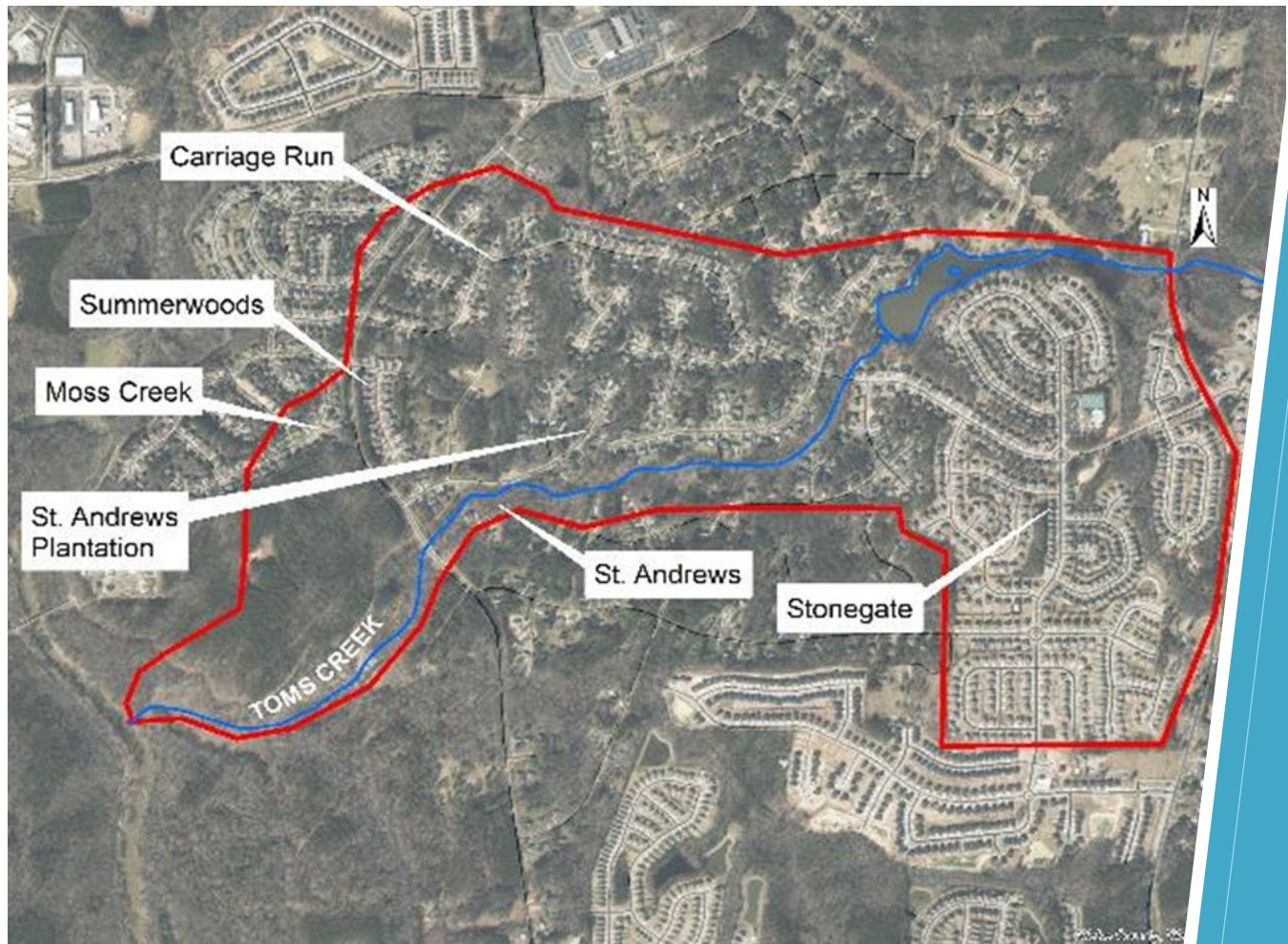
Attachments: Attachment_A_03052024_Summary
 Attachment_B_Watershed_Report



Toms Creek Watershed Plan Report

TOWN OF WAKE FOREST

FEBRUARY 2024



LJB Engineering PC

2/23/2024

Executive Summary

The Town of Wake Forest is a community of 52,000± residents that encompasses an area of approximately 19.7 square miles in the northern portion of Wake County. The Town's Stormwater Program is responsible for the management and maintenance of storm drainage facilities, as well as protecting the water quality of its streams and waterbodies. In an effort to meet the increasing challenges from development and climate related stresses, as well as more proactively address existing/potential problems and identify enhancement opportunities, the Town is undertaking an initiative to study and develop stormwater plans for each of the Town's main watersheds. This report represents the study for the Toms Creek Watershed.

Introduction

The objective of this watershed study is to identify and recommend projects (or other actions) that will improve, enhance, and/or protect the watershed drainage systems that are within the Toms Creek Watershed. The specific focus of this report is for the portion of the watershed that is within the Town limits (i.e. focus area). The scope of the effort generally included data compilation/collection, watershed characterization, watershed condition assessment, evaluation of improvements, and development of recommended actions.

Data Compilation and Collection

A wide variety of existing data and information was obtained and compiled to support the watershed analysis and mitigation evaluation, including general base mapping, topography, land use/land cover, buildings/parcels, drainage system infrastructure, previous studies, and many more. In general, many of the datasets were directly provided by the Town or obtained from Wake County or other public data sources. In addition to compilation of existing data, LJB performed field reconnaissance and assessments to verify/supplement existing datasets, as well as to assess more granular site/feature conditions. The Town also sought to engage residents to gather input of stormwater issues and concerns, understand resident priorities, and consider any resident-led ideas for improvements. The Town solicited input through an on-line community survey and then a follow-up public meeting.

Watershed Characteristics

The Toms Creek watershed is an approximate 4.7 sq mi area that drains portions of Wake Forest, Raleigh, Rolesville, and unincorporated Wake County. The drainage area extends east from its outlet at the confluence with the Neuse River and is roughly bounded by Burlington Mills Road to the north, Business US 401 to the south/southeast, and the Neuse River to the west. Toms Creek flows through the central portion of the watershed for a length of 3.5 mi. The Creek passes through several roadway culverts as well as through Browns Lake and under bridge crossings at Coach Lantern Avenue and Ligon Mill Road.

The portion of the watershed that is within the Town of Wake Forest municipal limits (i.e. focus area) is approximately 510 acres (0.8 sq mi) that is largely comprised of residential neighborhoods. The section of Toms Creek in the focus area extends 1.7± mi from the outlet of the Forestville Road culverts to the confluence with the Neuse River.

Watershed Assessment

As part of this study, LJB performed an assessment of existing conditions within the Toms Creek watershed, including planning level evaluations of drainage/flooding, infrastructure repair needs,

stream stability/erosion, and water quality conditions within the study focus area. Tom's Creek is a Federal Emergency Management Agency (FEMA) mapped stream and is designated as an AE zone with a regulated floodway and floodplain. Several homes along Toms Creek between Ligon Mill Road and Coach Lantern Avenue are projected to be at risk of flooding in extreme storm events and are mapped within FEMA's regulated Special Flood Hazard Area (SFHA). A separate 2D hydraulic model, developed as part of the study, mapped flood extents along the tributaries to Toms Creek. For locations along tributaries showing structures potentially at risk of flood damage, it is generally because the areas adjacent to the home are lower or roughly at the same elevation as the low point in the downstream roadway. Thus, floodwaters back up against the structure as the capacity of the culvert under the downstream road or driveway is exceeded and the road/driveway begins to overtop. The culvert hydraulic analyses for this study, based on a 4% annual chance storm typical of design standards for neighborhood streets, project very minimal overtopping at one crossing on Coach Lantern Avenue and one on Kemble Ridge Drive.

The stream reaches in the Toms Creek watershed area within the Wake Forest town limits were assessed for erosion severity and potential continued erosion problems. Approximately 3.6 miles of stream reaches were assessed in total, and nearly 1.3 miles (37%) of streams were categorized as "High" or "Extremely High" indicating a need for restoration/stabilization measures to limit shear stress and ongoing sediment export to downstream areas.

The NC Department of Environmental Quality (DEQ) classifies Toms Creek under North Carolina's 303(d) list as a water body with Class C, NSW (Nutrient Sensitive Waters). DEQ rates Toms Creek as impaired because it is unable to support an acceptable community of aquatic organisms, indicating that the stream does not fully support its designated uses. A 2002 DEQ study identified the most probable causes and sources of Toms Creek's impairment as chlorine toxicity from the Deer Chase wastewater treatment plant (WWTP) discharge and aquatic habitat degradation, manifested by sediment deposition and substrate instability. The WWTP later switched from chlorine to UV for disinfection, so chlorine toxicity is no longer a concern. However, streambank erosion and sediment deposition are still evident in parts of the watershed observed within the Wake Forest jurisdictional areas in 2022-23 by the LJB study team and streambank erosion remains the probable cause of poor aquatic habitat.

Stormwater Management Improvements Evaluation

There were a number drainage, stream stability, and general water quality issues noted within the study focus area, as well as a few needed infrastructure repair needs. The next phase of the study was to identify and evaluate improvements and/or other strategies that can be taken to mitigate the identified issues.

Potential flood risk reduction options for flood-prone structures and roadways in the Toms Creek were considered as part of the watershed study. Concern for homes along Toms Creek at risk of flooding prompted consideration of additional flood detention storage in Browns Lake and/or the smaller upstream lake, but these options were determined to be unfeasible. Floodplain benching, often incorporated into stream restoration projects to help reduce the shear stresses along the toe of a stream bank, is recommended as part of stream stability projects along Toms Creek between the bridges under Coach Lantern Avenue and Ligon Mill Road, as a means of lowering flood risk for homes as well as mitigating erosion. Culvert upgrades at Coach Lantern Avenue and Kemble Ridge Drive would reduce the risk of overtopping of the road and ponding of floodwaters beside and around homes.

Within Toms Creek watershed areas, potential stream restoration is limited by the available

corridor widths along the stream banks that could possibly be made available by an HOA or private property owner to facilitate wider floodplain benching. The goal for Toms Creek stream stabilization improvements is for restoration, with as much floodplain benching as is feasible, in most of the reaches with a very high or high Bank Erosion Hazard Index (BEHI) scoring. Where reaches are too short or narrow to accommodate better restoration measures, improvements may be limited to stabilization of banks.

Several of the streets in the western areas of the watershed are wide enough to accommodate “green streetscaping” near sag points, with bioretention areas built out into the street at about the width of a parked car and back into the area behind the curb. This would help to provide some water quality treatment for neighborhoods where no Structural Control Measures (SCMs) for stormwater were required when they were developed. In several areas along one tributary stream recommended for stream stability improvements, there is enough area outside of required buffers for installing new SCMs to better protect water quality and stream stability.

Summary of Recommended Watershed Actions

Table ES-1 provides a summary listing of recommended improvement projects for the Toms Creek watershed. A separate Town study by Timmons includes recommendations for improvements for culvert crossings under Falconhurst Drive between Hampton Chase Court and Ligon Mill Road.

Table ES-1. Summary of Recommended Projects

PROJECT ID	PROJECT	ESTIMATED COST
FALCONHURST ¹	Alternative 2, Phase 1 and 2 as Recommended by Timmons Group	\$580,000
TC-DI-01	Culvert Replacements on Coach Lantern Avenue and Kemble Ridge Drive	\$720,000
TC-DI-02	Culvert Replacements for Driveways on west side of Hampton Chase Ct	\$190,000
TC-ER-06	Construct Stable Channel on UT-S5 Reach 3	\$270,000
TC-ER-05	Priority 2/3 Restoration on UT-N4 Reach 6	180,000
TC-ER-07	Grade Control Structures on UT-S7 Reach 2&3	\$240,000
TC-ER-03	Priority 3/4 Restoration on TC Reach 4	\$360,000
TC-ER-01	Priority 3/4 Restoration on UT-N3 Reach 3, UT-N3A Reach 1	\$610,000
TC-ER-04	Priority 3/4 Restoration on TC Reach 3	Varies depending on participating owners (~\$450,000)
TC-ER-01A ²	Outlet Stabilization on UT-N3 Reach 3, UT-N3A Reach 1	\$250,000
TC-ER-02	Priority 3/4 Restoration on UT-N3 Reach 2	\$500,000
TC-WQ-01	Green Streetscaping at 3 Sag Points on Coach Lantern Avenue	Dependent on number of installations – Estimated at \$50,000 to \$100,000 each (~\$400,000)
TC-WQ-02	Pond SCMs at 3 sites on UT-S7 south of Coach Lantern Avenue	\$100,000 to \$150,000 per SCM dependent on size (~\$400,000)
ESTIMATED TOTAL PROJECT COSTS		\$4.9 Million

¹Evaluation, recommendations, and project costs developed by Timmons Group under a separate study : ² Project only to be considered if TC-ER-01 not feasible – not included in total project costs

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1. Introduction

1.1 Overview and Background

The Town of Wake Forest is a community of 52,000± residents that encompasses an area of approximately 19.7 square miles in the northern portion of Wake County. The Town's Stormwater Program is responsible for the management and maintenance of storm drainage facilities, as well as protecting the water quality of its streams and waterbodies. The Town implements measures required by its National Pollutant Discharge Elimination System (NPDES) Stormwater Permit, along with additional local initiatives to meet program goals. The Town has more than quadrupled in population since 2000, with an average annual growth rate of 7%. The growth and associated development have resulted in increased impervious area and have put increased strain on the Town's built and natural drainage systems.

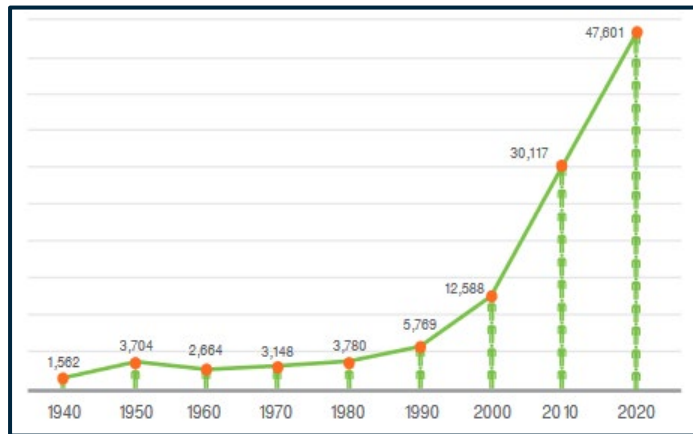


Figure 1. Town of Wake Forest Population Growth

In an effort to meet the increasing challenges from development and climate related stresses, as well as more proactively address existing/potential problems and identify enhancement opportunities, the Town is undertaking an initiative to study and develop stormwater plans for each of the Town's main watersheds.

The entire area of the Town drains to the Neuse River which borders the southern edge of the Town limits. There are four major streams that drain the Town - Horse Creek, Richland Creek, Smith Creek, and Toms Creek (see Figure 2). The Town has received American Rescue Plan Act (ARPA) funding to study two of the watersheds – Toms Creek and Horse Creek. This report represents the study for the Toms Creek Watershed. It is anticipated that a combination of local funding and grants will be utilized to fund improvements recommended by the watershed studies. In addition, the Town is in the process of implementing a stormwater utility that will provide dedicated funding to address stormwater needs.

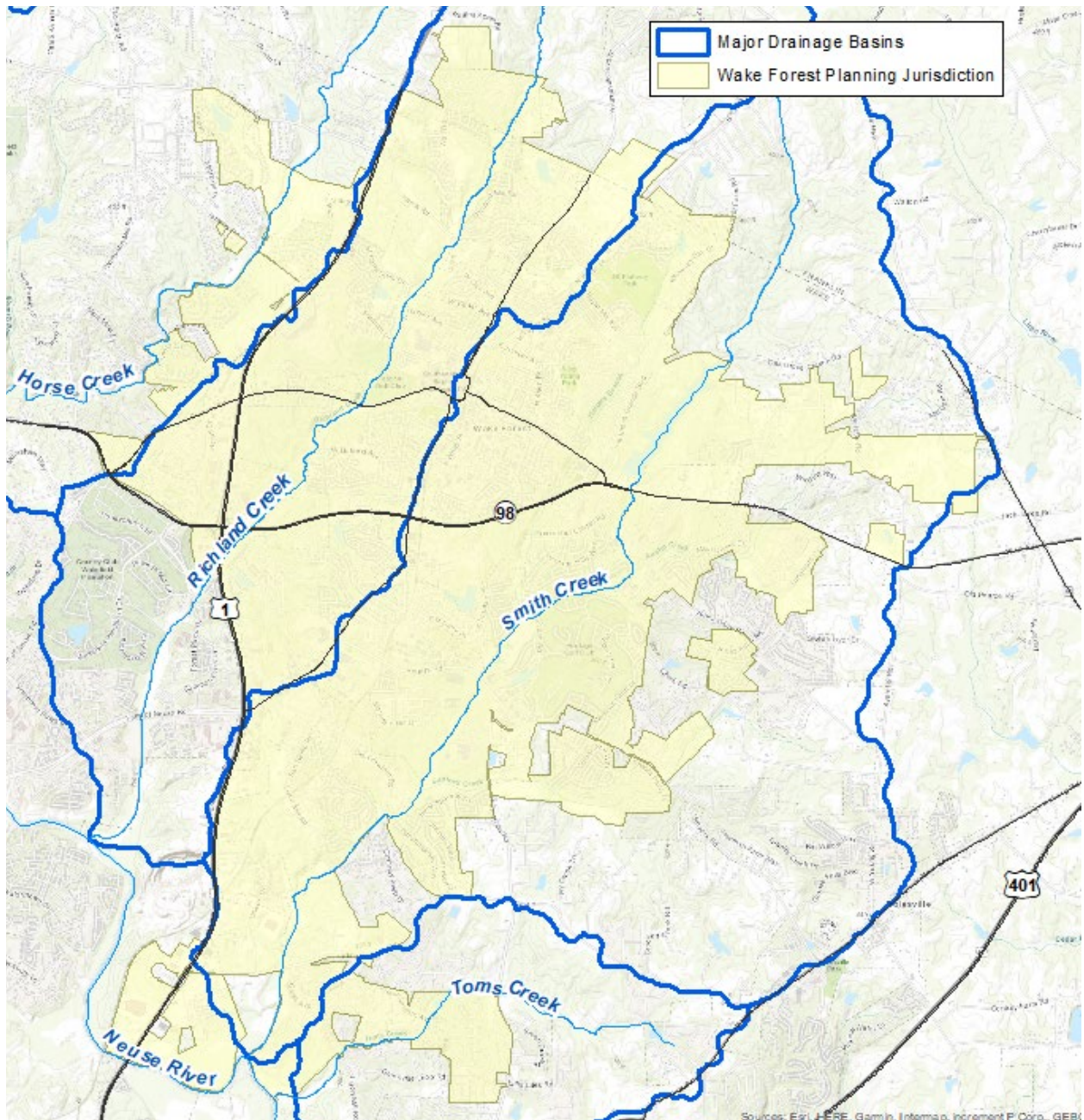


Figure 2. Major Streams and Drainage Basins

1.2 Project Objectives and Scope

The objective of this watershed study is to identify and recommend projects (or other actions) that will improve, enhance, and/or protect the watershed drainage systems that are within the Toms Creek Watershed. The specific focus of this report is for the portion of the watershed that is within the Town limits (i.e. focus area). The scope of the effort generally included data compilation/collection, watershed characterization, watershed condition assessment, evaluation of improvements, and development of recommended actions. It is anticipated that the Town will seek/leverage local funding and/or grant opportunities to refine and implement improvement concepts and other actions recommended in this study.

2. Data Compilation and Collection

There is a variety of data and information from numerous sources that was collected, compiled, and processed to support this watershed study. This information was integrated to aid in more informed and refined evaluations. A summary of data collection is presented in the subsections below.

2.1 Compilation of Existing Data / Information

A wide variety of existing data and information was obtained and compiled to support the watershed analysis and mitigation evaluation, including general base mapping, topography, land use/land cover, buildings/parcels, drainage system infrastructure, previous studies, and many more. In general, many of the datasets were directly provided by the Town or obtained from Wake County or other public data sources. Table 1 below summarizes key data compiled for the study.

Table 1. Data Sources

ITEM	SOURCES	DESCRIPTION / USE
General Base Data / Mapping	Town, Wake County, ESRI, USGS, and others	Data layers used for general reference, such as aerials, streets, streams, political boundaries, planimetrics.
Property Information	Wake County	GIS tax parcels used for existing land use assessment, development age, and property ownership.
Drainage System	Town	Combination of GIS inventories of stormwater infrastructure used help assess drainage patterns and infrastructure sufficiency.
Topographic / Elevation Data	NCEM	Lidar-based digital elevation models (DEMs) used to support watershed classification and hydrologic/hydraulic evaluations
Flood Hazard Information	Town, FEMA	Includes 2022 Wake County FEMA Flood Insurance Study Used to assess flood risk
Previous Watershed Studies	Town, NCDEQ	Includes 2023 Toms Creek / Falconhurst Drive study, 2022 Wake Forest Storm Water Infrastructure Assessment Project, and 2002 Toms Creek Biological Impairment Study used to provide existing flood/infrastructure risk and environmental conditions as well as inform potential improvement options.
Soils	NRCS	GIS soils layer with associated properties used in watershed characterizations and hydrologic analysis.
Water Quality / Environmental	NCDEQ	Previous reports; current data on Deer Chase WWTP and 303(d) listings

2.2 Field Reconnaissance and Assessments

In addition to compilation of existing data, LJB performed field reconnaissance and assessments to verify/supplement existing datasets, as well as to assess more granular site/feature conditions. Field efforts consisted of the following items:

- walking and assessing erosion potential along most defined channels
- verification/inspection of significant culverts, water quality Structural Control Measures (SCMs), and other key drainage infrastructure
- limited collection/measurements of infrastructure missing from GIS inventory and as-built data

- limited discussion with property owners
- visual assessment of site conditions

Multiple field visits were made during Spring – Fall 2023. Field notes, measurements, and photo documentation were captured and integrated into the overall study evaluation. Observations and findings associated with the field effort are integrated with Watershed characterization and assessments included in Sections 3 and 4.

2.3 Community Engagement

In addition to compiling technical data and information, the Town sought to engage residents to gather input of stormwater issues and concerns, understand resident priorities, and consider any resident-led ideas for improvements. The Town solicited input through an on-line community survey and then a follow-up public meeting.

Seventy-five (75) residents responded to the survey. All but two of them listed themselves as residing within the Toms Creek watershed. Only one listed themselves as also having a business within the watershed. Nineteen of the respondents have lived in the watershed for 20 years or more. The average length of time stated for having lived in the watershed was 13.4 years.

Wildlife and water quality were listed by over 80% of respondents as topics of importance. Some specific concerns related to protection of wildlife habitat and water quality were expressed in survey comments:

- A need for the Town to collaborate with other jurisdictions in protecting the environmental health sustainability of the watershed.
- Concerns about residents removing vegetation within stream buffer areas.
- Worries about impacts of development projects on the water quality.
- Multiple references to erosion and sedimentation problems.

In regard to stormwater problems in the watershed neighborhoods, 50% of respondents said erosion is impacting their private property and 41% listed flooding as a direct impact. Just over 50% of respondents had observed flooding of streets due to overtopping and/or inadequate capacity at storm inlets.

The survey was also intended to gauge public support for implementation of stormwater projects within the Toms Creek neighborhoods. Over 70% of residents responded that they would be supportive of streambank stabilization projects aimed at mitigating erosion and enhancing water quality, even if it didn't directly benefit their property.

More detailed information from the survey results is provided in Appendix A.

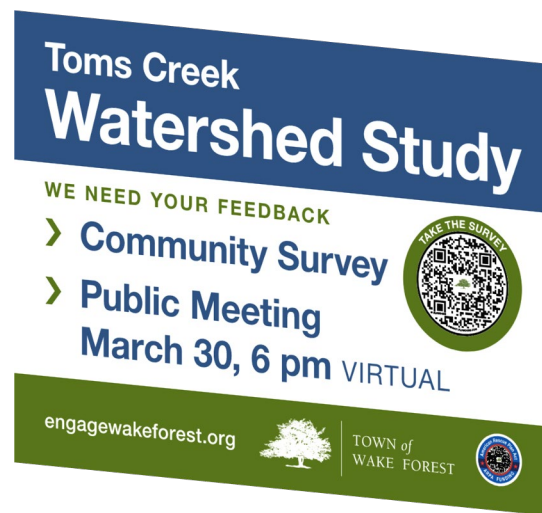


Figure 3. Community Engagement Meeting

3. Watershed Characteristics

The Toms Creek watershed is an approximate 4.7 sq mi area that drains portions of Wake Forest, Raleigh, Rolesville, and unincorporated Wake County. The drainage area extends east from its outlet at the confluence with the Neuse River and is roughly bounded by Burlington Mills Road to the north, Business US 401 to the south/southeast, and the Neuse River to the west. Toms Creek flows through the central portion of the watershed for a length of 3.5 mi. The Creek passes through several roadway culverts as well as through Browns Lake and under bridge crossings at Coach Lantern Avenue and Ligon Mill Road.

The portion of the watershed that is within the Town of Wake Forest municipal limits (i.e. focus area) is approximately 510 acres (0.8 sq mi) that is largely comprised of residential neighborhoods. The section of Toms Creek in the focus area extends 1.7± mi from the outlet of the Forestville Road culverts to the confluence with the Neuse River. Figure 4 shows the Toms Creek watershed and study focus area.

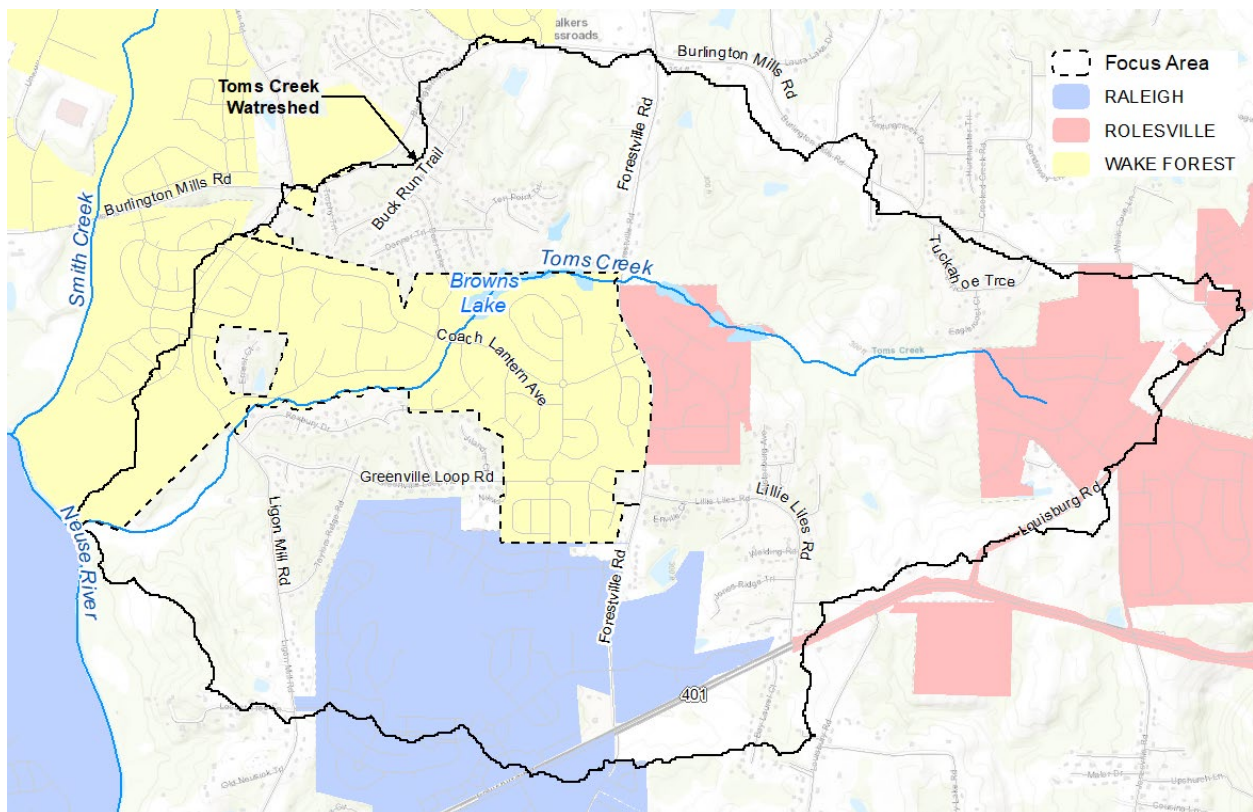


Figure 4. Toms Creek Watershed and Study Focus Area

3.1 Topography and Soils

The Toms Creek watershed (as is all of Wake County) is in the Piedmont physiographic region of North Carolina. The topography in the watershed is generally characterized by relatively steep slopes and well-defined drainage features as is typical in Piedmont areas. However, the reach of Toms Creek downstream of Ligon Mill Road flows through a relatively flat wetland area that is part of the floodplain for the Neuse River. Elevations in the watershed range from 180± ft near the outlet to 410± at the eastern headwaters. Within the focus area, elevations are generally between 200 – 300 ft.

Soil types play a crucial role in determining the amount of runoff from storms. Tom's Creek watershed area is characterized by the presence of three soil types. Most of the Hydrologic soil groups (HSG) are as follows: group B comprise 31%, group C 47%, and group D 21% of the total area. (see Figure 5). Group B soils are moderately well drained with fine to moderate coarse texture providing moderate water transmission. Group C soils, consists of moderately fine to fine texture, have a slow rate water transmission. And group D soils characterized by claypan or clay layer at or near the surface, exhibit a very slow infiltration rate leading to high runoff potential. The B/D classification indicates a potentially high water table that will limit infiltration unless the soils are adequately drained.

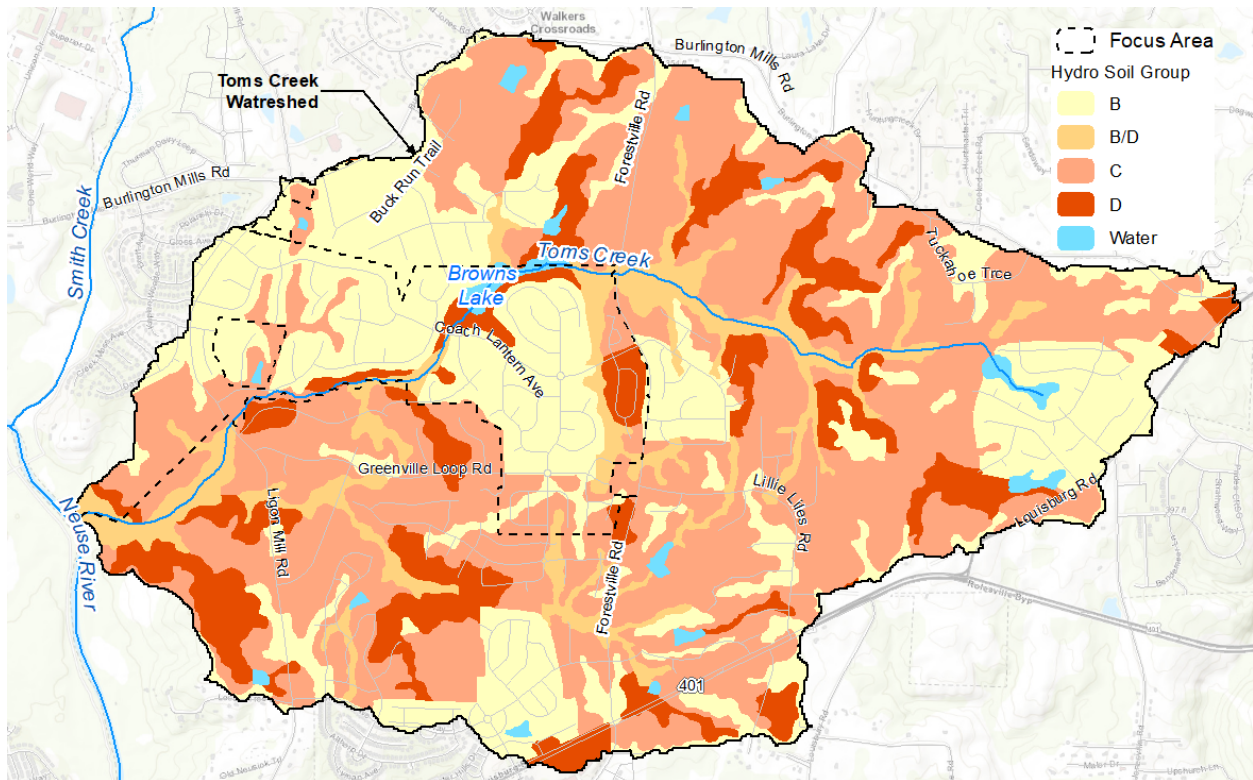


Figure 5. Hydrologic Soil Group Map

3.2 Land Use

The Toms Creek watershed consists predominately of single-family residential and undeveloped land uses, with limited institutional, commercial, and other uses. There are large undeveloped tracts of land in the unincorporated areas below Ligon Mill Road and above Browns Lake.

Within the focus area, land uses are almost entirely (92%+) single-family residential, typically with $\frac{1}{3}$ to $\frac{1}{2}$ acre lots. The west side of the focus area was built in the 1990's through early 2000's and is characterized by larger lot sizes and limited/no stormwater control measures (SCMs). In contrast, the east side features newer developments, smaller lot sizes, and numerous detention pond, level spreader, and other SCMs. Figure 6 shows the existing land use for the watershed.

The focus area is already developed and thus would not be expected to experience significant change in the future. The remaining "woods/undeveloped" portions are wetland areas downstream of Ligon Mill Road and buffers along streams and around lakes. The significant

portion of undeveloped land to the east of the focus area currently is predominately zoned low-density residential (generally 1 – 2 ac lot sizes). This suggests future development might be more modest, however, as the general area grows significantly the area could be developed at higher densities through rezoning or similar processes. Table 2 shows Land Use Category Summary across Toms Creek Watershed.

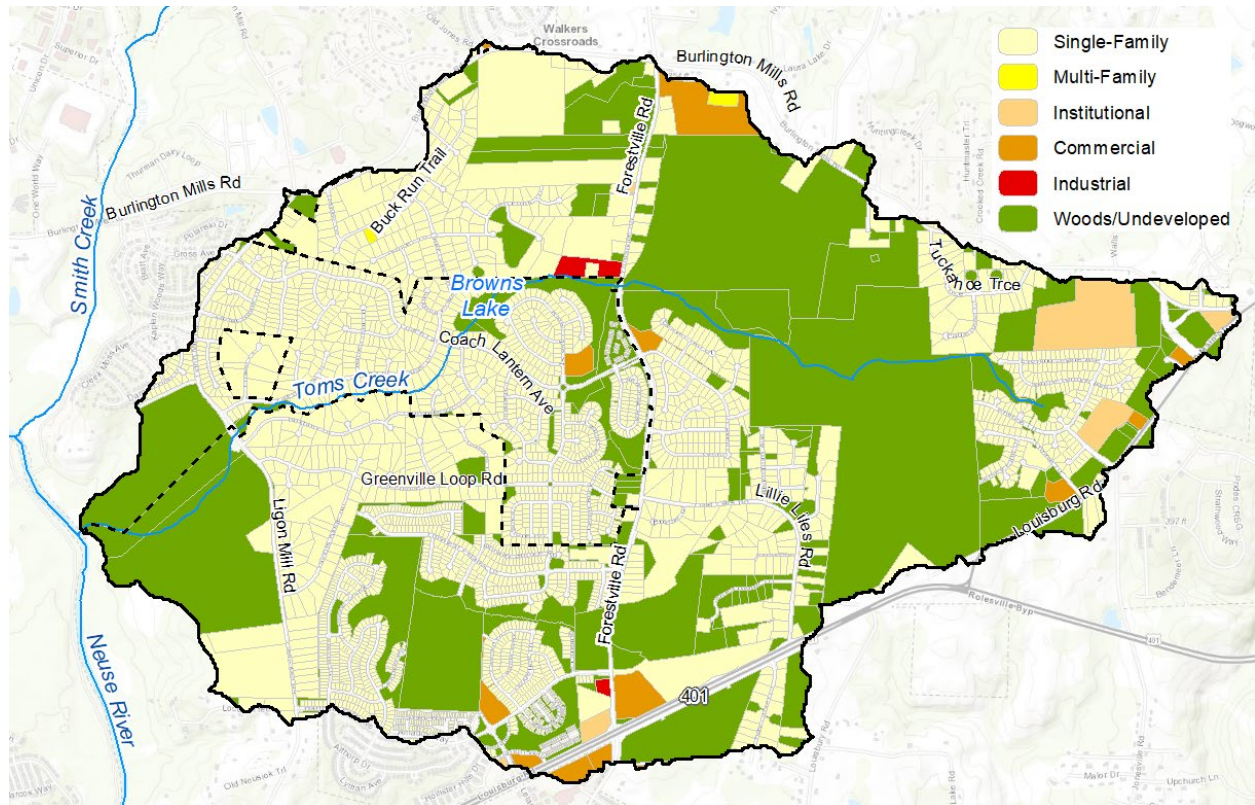


Figure 6. Existing Land Use Map

Table 2. Land Use Category Summary

LAND USE CATEGORY	% TOTAL AREA	TYPICAL % IMPERVIOUS
Commercial	2.2%	80-90%
Industrial	0.3%	70-80%
Institutional	1.9%	60-70%
Multi-Family	0.1%	60-70%
Single-Family	49.2%	20-35%
Woods/Undeveloped	46.3%	0-2%
Total	100%	

3.3 Drainage Systems

A drainage system is the collection of man-made and natural infrastructure that collects and transports stormwater runoff through a watershed. Pipes, drainage inlets, and other “hard”

infrastructure comprise the “closed” system, whereas, stream channels, ditches, and water bodies make up the open system. An evaluation was performed to better define and characterize the existing drainage system and as a basis for comparing alternatives considered in subsequent subsections. The drainage system evaluation also aided in the identification of data gaps and collection needs to support asset management and maintenance efforts by the Town.

Toms Creek is included in the Effective Flood Insurance Study (FIS) for Wake County (dated July 2022). There is a mapped floodplain/floodway from the confluence with Neuse River to approximately 4,500± upstream of Forestville Road. Based on GIS processing of topographic and drainage datasets Town-wide, there is an estimated 18.5 miles of drainage system components (primarily open-system) conveying drainage from 20 or more acres, of which 3.9 miles are within the focus area. Within the focus area, there are several notable unnamed tributaries (UT-N3 and UT-N4) that flow from the north to Toms Creek under Falconhurst Drive, just west of Hampton Chase Court, which drain much of the established neighborhoods (Carriage Run, St. Andrews Plantation) in the northwestern portion of the focus area. Many of these tributary stream channels are relatively small and flow along the back of lots where there is little to no natural buffer area. There are also significant tributaries which drain the eastern (more newly developed) portions of the focus area. One of the larger tributaries (UT-S7) has a substantial wooded stream buffer area, with two SCMs treating stormwater and several level spreaders to promote diffuse flow through the buffer.

The project focus area also includes Browns Lake and dam, as well as a smaller upstream dam. The dam at Browns Lake is rated by NC Dam Safety as high hazard. The lake has a surface area of about 8½ acres at the normal pool elevation. The dam is earthen with a concrete spillway chute as the main outlet. Additionally, there is a smaller masonry dam at the upstream end of Browns Lake. There are extensive wetland areas along Toms Creek from the smaller dam upstream to the Forestville Road culvert crossing and beyond.



Figure 7. Browns Lake Dam and Masonry Dam above Browns Lake

Drainage infrastructure information is not readily available for the entire watershed area, but the Town’s compilation of infrastructure information includes the focus area. Inlets and pipe networks within the focus area/Town limits generally are adequately sized and function well. Reinforced concrete pipe was installed in all public rights-of-way when the residential areas were developed, so the Town isn’t facing the problems common in areas where there was extensive installation of corrugated metal pipes that have aged and deteriorated.

Based on GIS drainage inventory information provided by the Town and supplemental compilation

and verification performed by LJB, it is estimated that the closed system consists of 420± “hard” drainage structures (e.g. catch basins, manholes, etc.) and 6.9± miles of connected pipes within the focus area. A significant majority (70%+) of the pipes are relatively small (≤ 18 ”). The largest pipe size is 54” and there are only a handful of pipes that are 48” or greater. There are two primary bridges where Toms Creek passes under Ligon Mill Road and Coach Lantern Avenue. Figure 8 illustrates the drainage infrastructure within the watershed and Tables 3 and 4 list the pipe lengths and structures.

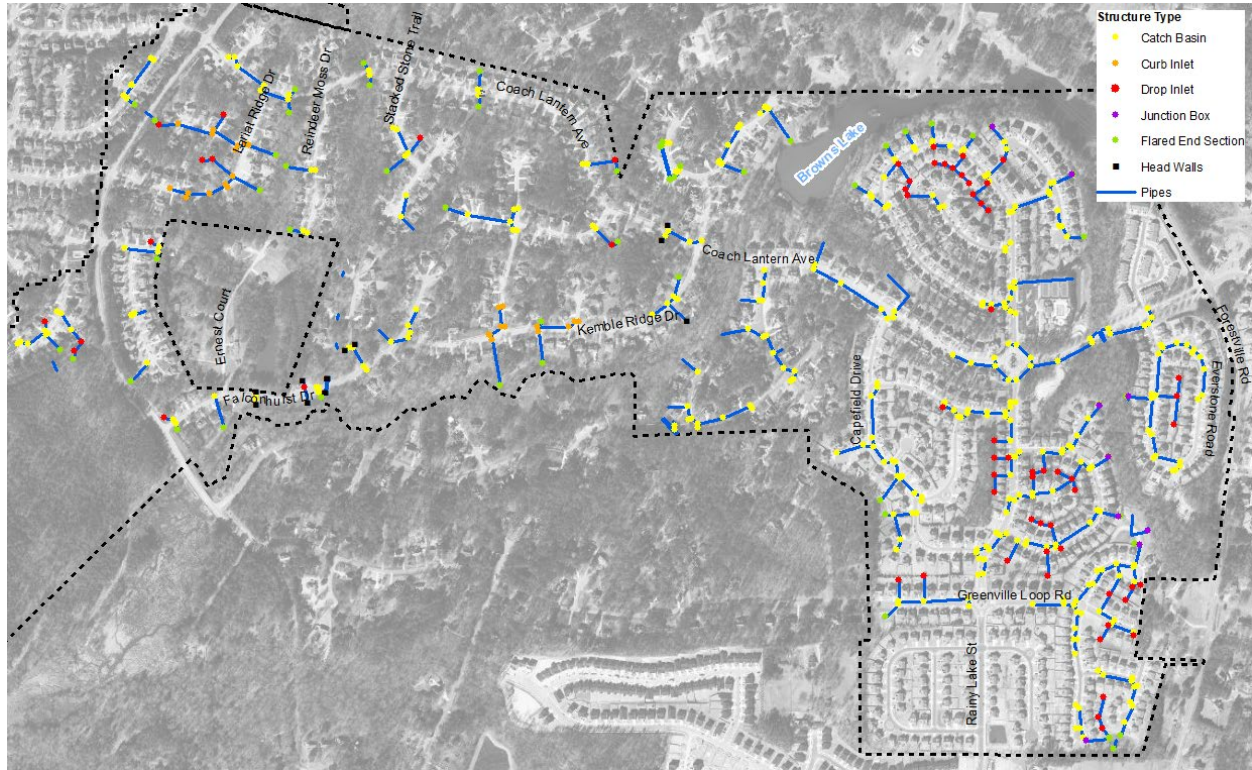


Figure 8. Drainage System Map

Table 3. Pipe Lengths by Size

Pipe Size (in)	Length(ft)
12	193
15	14,796
18	10,866
20	408
24	6,418
30	1,209
36	1,093
42	894
48	215
54	346

Table 4. Structure Numbers by Type

Structure Type	Number
Catch Basins	339
Curb Inlets	26
Drop Inlets	64
Junction Boxes	9
Flared End Sections	56
Headwalls	13

4. Watershed Assessment

As part of this study, LJB performed an assessment of existing conditions within the Toms Creek watershed. The assessment, largely based on the compilation (and supplemental field collection) of data/information discussed in Section 2, included planning level evaluations of drainage/flooding, infrastructure repair needs, stream stability/erosion, and water quality conditions within the study focus area.

4.1 Drainage and Flooding Assessment

Tom's Creek is a Federal Emergency Management Agency (FEMA) regulated stream located on Flood Insurance Rate Map (FIRM) panel 1748, map number 3720174800K, dated July 19, 2022, and is designated as an AE zone with a regulated floodway and floodplain. FEMA's HEC-RAS model for Toms Creek uses flows calculated from USGS regression equations, was developed in 2012, and includes modelling for projected future watershed conditions. A separate flood risk analysis, inclusive of the Smith Creek and Toms Creek watersheds and developed for the Town of Wake Forest by Freese and Nichols, Inc. (F&N), was based on a two-dimensional (2D) rainfall-on-grid HEC-RAS model.

LJB built a more refined 2D hydrologic and hydraulic model specifically for the Toms Creek watershed, but rooted in the same rainfall, land use, and roughness coefficients as were the basis of the larger F&N model. This model was used for the following assessments of existing conditions:

- Comparisons to FEMA Flood Rate Insurance Maps (FIRMs) in regard to projected limits of flooding along Toms Creek in a 1% annual chance flood event, especially regarding homes projected to be located within the inundation zones.
- Modelling of culvert performance in a 4% annual chance flood event for culvert pipes within the Town's watershed jurisdiction that are 30" or larger.
- Checking for flood prone structures along the tributaries to Toms Creek in areas of the Town's jurisdiction.

Flood Risk Along Toms Creek

Table 5 below lists projected 1% annual chance peak discharges used in FEMA's HEC-RAS model, computed from USGS regression equations, as compared to the peak discharges at the same locations in LJB's two-dimensional HEC-RAS rain-on-grid model. Table 6 compares projected maximum flood elevations at a couple of locations along Toms Creek in various configurations of the two models. FEMA estimated 10% impervious cover in their modelling and mapping for existing conditions and also ran future watershed conditions models for 20% and 35% impervious cover (IC). The 2D HEC-RAS model, developed by F&N and refined for Toms Creek as part of this study, was based on 2019 land use cover information for existing conditions and modifying some of the presently undeveloped areas to reflect future medium intensity development. Figure 9 shows a comparison map for the FEMA-mapped 1% annual chance floodplain limits, based on a one-dimensional HEC-RAS model, to the limits based on LJB's 2D model.

Table 5. Projected 1% Annual Chance Peak Discharges along Toms Creek

LOCATION	FEMA EX 10% IC (CFS)	FEMA 20% IC (CFS)	FEMA 35% IC (CFS)	2D HEC-RAS EX (CFS)	2D HEC-RAS FUT (CFS)
Ligon Mill Bridge	1950	2200	2640	2110	2250
Coach Lantern Bridge	1530	1850	2250	1930	2090

Table 6. Projected 1% Annual Chance Peak Flood Elevations along Toms Creek

LOCATION	FEMA EX (FT)	FEMA 20% IC (FT)	FEMA 35% IC (FT)	2D HEC-RAS EX (FT)	2D HEC-RAS FUT (FT)
1 - Upstream of Falconhurst pipe outlets	207.8	208.3	209.1	207.7	207.1
2 - At Kemble Ridge 54" RCP outlet	219.5	219.8	220.3	218.8	219.0
3 - Browns Lake	233.2	233.9	234.8	233.6	233.8

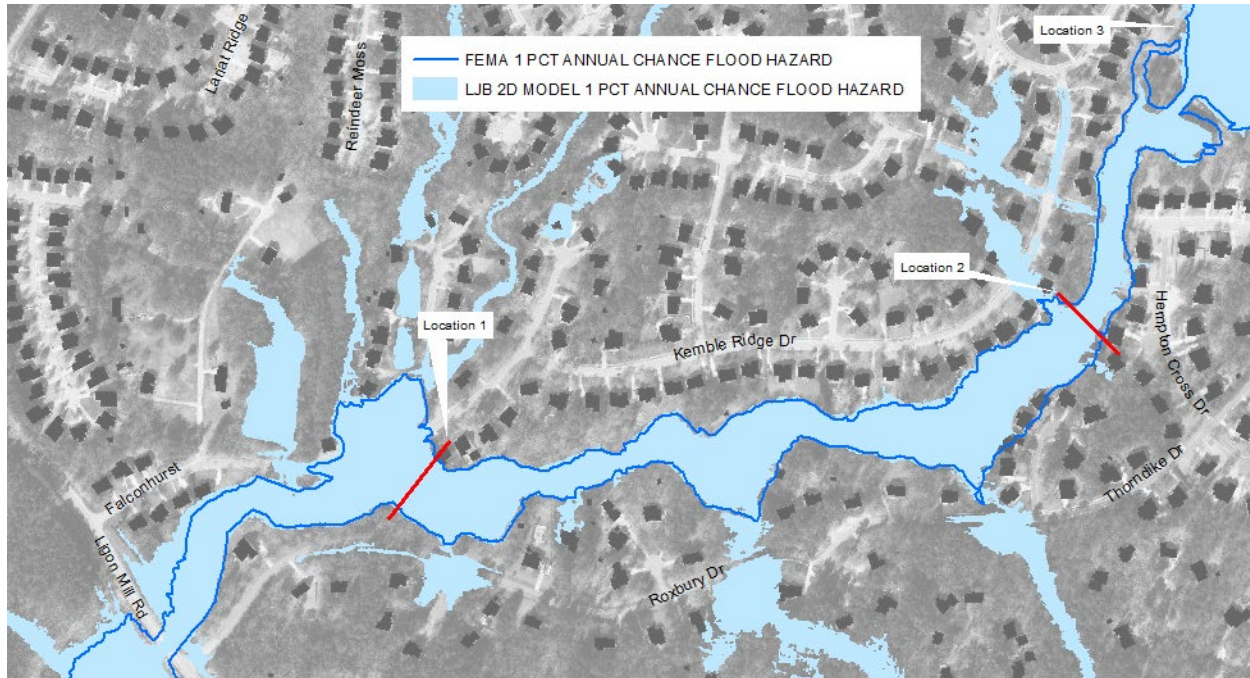


Figure 9. Comparison of FEMA vs. 2D Model 1% Annual Chance Flood Extents

The HEC-RAS 2D existing conditions model produces higher peak discharges along Toms Creek than does the FEMA model, likely because of the seven-year gap in the watershed land uses on which the models were based. For future conditions, the existing conditions 2D model estimates a peak discharge very close to FEMA's 20% model at the location of the Ligon Mill Road bridge, but a bit higher than the 20% model at Coach Lantern Avenue. Except in Browns Lake, the 2D model projects lower peak flood elevations along Toms Creek than does the FEMA model, likely because the 2D model is based on newer and more detailed topographical information.

Several homes along Toms Creek between Ligon Mill Road and Coach Lantern Avenue are projected to be at risk of flooding in extreme storm events and are mapped within FEMA's regulated Special Flood Hazard Area (SFHA). The 2D model also computed flood risk along the tributaries to Toms Creek and mapped flood extents. For locations where the estimated inundation area is mapped against residences, it is generally because the areas adjacent to the home are lower or roughly at the same elevation as the low point in the downstream roadway. Thus, floodwaters back up against the structure as the capacity of the culvert under the downstream road or driveway is exceeded and the road/driveway begins to overtop.

Culvert Performance

Although 2D rain-on-grid models provide useful insights on flow patterns through a watershed, they aren't designed to account for every inlet and the pipe that is conveying flows underground. For this reason, LJB separately developed hydrologic analysis for the contributory drainage areas for each of the culvert crossings with pipe diameters that are 30 inches or more. Projected headwater depths in a 4% annual chance storm were computed using HydroCAD to check for overtopping of roadways. Consistent with F&N's modelling, LJB's 2D HEC-RAS model was developed for an SCS Type B storm distribution. LJB's independent hydrologic analysis for peak flows in a 4% annual chance storm event is based on a frequency storm developed from NOAA precipitation-depth-frequency tables for the Toms Creek watershed area, which reflects higher peak rainfall intensities.

F&N's culvert assessments, based on a 2% annual chance storm, indicated overtopping at several culverts within the Toms Creek watershed. In particular, significant sediment accumulation was noted as affecting culverts under Falconhurst Road conveying two tributary streams from the north (UT-N3 and UT-N4) to Toms Creek. A study was recommended for this area and has been completed by the Timmons Group. Recommendations include grading of floodplain benches along Toms Creek through confluence area, replacement of culverts, and floodplain benching along the downstream reach of UT-N3. Since a separate study of the Falconhurst culvert crossings had been contracted by the Town of Wake Forest, LJB did not separately analyze those crossings.

F&N's analysis of the 2% annual chance storm event in their 2D RAS model also indicated overtopping for the culvert crossings at Coach Lantern Avenue and Kemble Ridge Drive for UT-N5, conveyed through 48" and 54" RCPs at the respective crossings. The analyses for this study, based on a 4% annual chance storm typical of design standards for neighborhood streets, project very minimal overtopping at these crossings or headwater elevations that are within inches of the top of road. The specific results are dependent on the analysis model and applied parameters for land use and travel times. There is also some potential for houses upstream of these crossings to be impacted when the roads are overtopped. Upgrades for these two culverts are recommended for inclusion in the Town's capital improvement program.

The analyses for the 4% annual chance storm event also projected high headwater elevations upstream of the 3-42" RCP culvert crossing of UT-S7 under Coach Lantern Avenue between Rainy Lake Drive and Forestville Road. However, the upstream area has a wide stream buffer and no homes are projected to be impacted by the backup of water. Continuing upstream development east of Forestville Road, an eventual upstream culvert replacement at Forestville Road, and/or degradation of the upstream channel have potential to increase peak discharges and risk of overtopping at the Coach Lantern crossing.

4.2 Infrastructure Repair Needs

Although an overall condition assessment of the entire drainage infrastructure was not scoped as part of this study, some issues were noted in the course of the study either by Town staff, by citizens responding to the survey, or by LJB staff viewing structures and pipes in the field. The following stormwater assets have compromised function such that repairs or enhancements were considered as part of this study:

- In contrast to the almost 100% placement of concrete as the pipe material in this watershed, the culvert pipes conveying UT-N4 flows under three driveways along Hampton Chase Court are corrugated metal pipes (CMPs). As is typical for CMP, the bottoms have

rusted and partially deteriorated over time, with at least one of the pipes beginning to have enough bottom eroded out to cause structural integrity concerns.

- The earliest parts of the Stonegate neighborhoods were not required to treat stormwater, but were required to facilitate diffuse flow of stormwater discharges through stream buffer areas with the use of level spreaders. One of these level spreaders was observed to no longer be functional and several were noted as having compromised function.

Most of the SCMs providing stormwater treatment from newer areas of Stonegate seem to be well-maintained and functioning as intended. However, one of them seems to have received a significant volume of sediment and no longer drains properly. Wetland vegetation has become established within what was most likely intended to function as a dry pond. An owner of adjacent property noted that the SCM condition causes problems with mosquitoes during the summer.

4.3 Stability Assessments

The stream reaches in the focus area were assessed for erosion severity and potential continued erosion problems. LJB walked the streams and estimated bank height/bankfull depth ratios, bank angle, root density, root depths and surface protection. The Bank Erosion Hazard Index (BEHI) Ratings for the stream reaches were classified as Extremely High, High, Moderate, Low and Extremely Low based on observed existing conditions. The classifications are depicted in Figure 10 and detailed in Table 7.

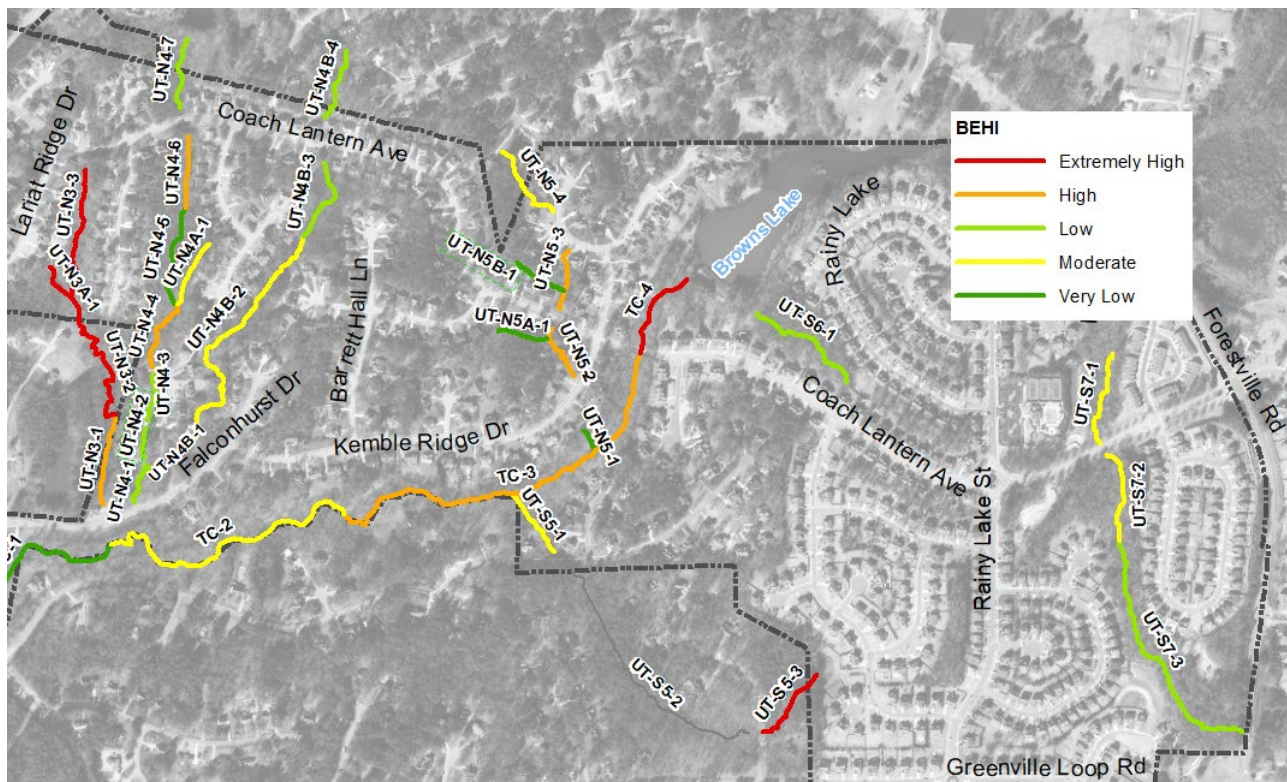


Figure 10. Erosion Hazard Rating Map

Table 7. Erosion Hazard Ratings

STREAM NAME	REACH ID	LENGTH (FT)	BEHI	COMMENTS
TC	1	1107	Very Low	Low velocities; potentially impacted by downstream beaver dams
TC	2	1587	Moderate	Banks mostly stable
TC	3	2198	High	Undercutting or steep banks in some areas
TC	4	592	Extremely High	Extensively eroded banks, particularly in area of SS aerial crossing; some scour below dam in spite of heavy armoring
UT-N3	1	466	High	Some downcutting with roots/rocks at drops; bank erosion at upstream end
UT-N3	2	989	Extremely High	Extensive downcutting and severely eroded banks
UT-N3	3	620	Extremely High	Extensive downcutting and severely eroded banks, substantial scouring below pipe outlets in spite of armoring
UT-N3A	1	221	Extremely High	Extensive downcutting and severely eroded banks
UT-N4	1	238	Low	
UT-N4	2	159	Low	
UT-N4	3	259	Low	
UT-N4	4	418	High	Some head cuts anchored by tree roots
UT-N4	5	543	Very Low	Very stable stream channel through this reach
UT-N4	6	375	High	Stream rerouted by a homeowner; erosion potential increased by the excavation and lack of vegetated buffer
UT-N4	7	390	Low	Stable
UT-N4A	1	371	Moderate	Some head cutting and bank erosion below armored area
UT-N4B	1	62	Low	
UT-N4B	2	1625	Moderate	Wooded area with good buffers, but banks are scoured in some areas; erosion worsens towards downstream end
UT-N4B	3	475	Low	Wetland-type area; braided stream
UT-N4B	4	413	Low	Wetland-type area; braided stream
UT-N5	1	134	Very Low	Outlet armored with riprap
UT-N5	2	337	High	Undercutting and eroded stream banks; only minimal downcutting
UT-N5	3	331	High	Undercutting and eroded stream banks where not armored
UT-N5	4	475	Moderate	Some bank erosion and undercutting beginning
UT-N5A	1	262	Very Low	Piped and/or armored by homeowners
UT-N5B	1	295	Very Low	Armored by homeowners

UT-S5	1	379	Moderate	Some areas have eroded banks and undercutting; well-buffered
UT-S5	3	439	Extremely High	Severe head cut; potential for extensive upstream erosion to cut a channel from SCM to current head cut location
UT-S7	1	536	Moderate	Well-buffered, but still has some erosion occurring
UT-S7	2	517	Moderate	Well-buffered, but still has some erosion occurring
UT-S7	3	1367	Low	Wetland-type area; braided stream

The only area noted where stream bank erosion has significantly and adversely affected infrastructure was the erosion around an aerial sanitary sewer crossing on Toms Creek above Coach Lantern Avenue, where stabilization work has been done by the City of Raleigh since LJB's initial observations. In some other areas, sedimentation has negatively impacted downstream drainage capacities as a result of upstream erosion. This is most strongly evident in the area along the west end of Falconhurst Drive specifically evaluated in the recent Timmons study.

Table depicts the distribution of Erosion Hazard Ratings as a percentage of total mileage of assessed streams. Approximately 3.6 miles of stream reaches were assessed in total, and nearly 1.3 miles (37%) of streams were categorized as "High" or "Extremely High" indicating a need for restoration/stabilization measures to limit shear stress and ongoing sediment export to downstream areas. Figure 11 illustrates severe erosion on Toms Creek between Browns Lake and Coach Lantern Bridge (TC-4) as an example of "Extremely High" category.

Table 8. Erosion Hazard Rating Summary

EROSION HAZARD RATING	TOTAL LENGTH (FT)	%TOTAL LENGTH
Extremely High	4125	22%
High	2862	15%
Moderate	5489	29%
Low	4033	21%
Very Low	2342	13%
Total	18851	100%



Figure 11. Severe Erosion on Toms Creek

4.4 Water Quality Observations

The NC Department of Environmental Quality (DEQ) classifies Toms Creek under North Carolina's 303(d) list as a water body with Class C, NSW (Nutrient Sensitive Waters). LJB did not conduct an independent water quality assessment for Toms Creek. This section presents current water quality information available from NCDEQ's Division of Water Resources (DWR) and a previous study conducted on Toms Creek. DWR rates Toms Creek as impaired because it is unable to support an acceptable community of aquatic organisms, indicating that the stream does not fully support its designated uses. A Watershed Assessment and Restoration Project (WARP) for Toms Creek was developed soon after the stream was listed as impaired (NCDENR-DWQ June 2002).

The WARP study identified the most probable causes and sources of Toms Creek's impairment as chlorine toxicity from the Deer Chase wastewater treatment plant (WWTP) discharge and aquatic habitat degradation, manifested by sediment deposition and substrate instability. The WWTP later switched from chlorine to UV for disinfection, so chlorine toxicity is no longer a concern. The rebuilding of Browns Lake dam in 2004-2005 addressed the accelerated erosion from a large gully noted in the WARP report. However, streambank erosion and sediment deposition are still evident in parts of the watershed observed within the Wake Forest jurisdictional areas in 2022-23 by the study team and streambank erosion remains the probable cause of poor aquatic habitat.

The Deer Chase wastewater treatment plant continues to discharge to Toms Creek under a permit from NCDEQ. The permit was renewed in July 2023, permitting continued discharge up to 50,000 gallons per day (GPD) with an allowance for potentially expanding to 200,000 GPD with an approved facility expansion. The new permit discontinues the requirement for Whole Effluent Toxicity (WET) monitoring but imposes more stringent ammonia-nitrogen limits to be met within an 18-month period. The plant was cited for exceeding their old ammonia-nitrogen average monthly discharge concentration violation in July 2023. DEQ maintains a website for public access to records of their oversight of the facility.

In the 20+ years since the WARP study, the Town of Wake Forest has developed effective regulations and management of land development planning and construction activities, which were among the WARP-recommended efforts for protecting water quality in Toms Creek. Newer development in the Stonegate areas includes five pond SCMs providing treatment of stormwater runoff, and the older sections have level spreaders to facilitate diffuse flows at pipe outfalls. Other recommendations for improving water quality included bank stabilization measures, riparian

buffer restoration, and watershed education, which have also become part of Town programs though not yet with specific projects applied within the Toms Creek watershed. Stream and buffer restoration and improvements remain important tools considered as part of this study along with installation of retrofit SCMs in older neighborhood areas and repairs and/or enhancements to SCMs in newer areas.

5. Stormwater Management Improvements Evaluation

As described in the previous section, there were a number drainage, stream stability, and general water quality issues noted within the study focus area, as well as some needed infrastructure repair needs. The next phase of the study was to identify and evaluate improvements and/or other strategies that can be taken to mitigate the identified issues. There are a number of potential structural and non-structural (e.g. programmatic) strategies that can be taken to mitigate identified issues. Table 9 below provides a list of the main strategies that were considered.

Table 9. Potential Stormwater Management Improvements

Drainage and Flooding	Stream Stability	Water Quality
• Drainage System Improvements • Flood Detention • Floodplain Benching	• Stream Restoration • Bank Stabilization • Energy Dissipation at Outlets • Grade Control Structures	• Green Streetscaping • SCM Enhancements • Roof-Drain Disconnects • Buffer Enhancements

5.1 Drainage and Flooding

Potential flood risk reduction options for flood-prone structures and roadways in the Toms Creek watershed were considered as part of the watershed study. Concern for homes along Toms Creek at risk of flooding prompted consideration of additional flood detention storage in Browns Lake. However, reducing flood risk for downstream homes would have to also protect upstream homes from increased risk in order for FEMA to permit any changes to the dam outlet structures. Due to the close horizontal and vertical proximity of homes to the flood risk areas, it was not deemed feasible to provide additional flood storage in Browns Lake. Raising the existing masonry dam to add flood storage upstream was also found to be impractical since the dam controls the tailwater conditions for the culvert crossing at Forestville Road, which is at risk of overtopping in extreme storm events. Other drawbacks to dam modifications would have included extensive costs for the Town, as well as the liability of responsibility for a high hazard dam in the case of Browns Lake. Thus, flood detention is not recommended as an option for this watershed.

Floodplain benching is often incorporated into stream restoration projects to help reduce the shear stresses along the toe of a stream bank. “Benching” usually means that the upper part of a stream bank is excavated to create a flat shelf area at a lower elevation. This is recommended as part of stream projects along Toms Creek between the bridges under Coach Lantern Avenue and Ligon Mill Road, as a means of lowering flood risk for homes as well as mitigating erosion. The reduction to flood risk would vary depending on the location, linear extents, and space available for benching back the existing stream banks.

Culvert upgrades at Coach Lantern Avenue and Kemble Ridge Drive for conveyance of UT-N5 flows would reduce the risk of overtopping of the road and ponding of floodwaters beside and around

homes. Specifically, the pipes conveying under Coach Lantern should be upsized from 48" to 54" RCP and those under Kemble Ridge from 54" to 60" RCP, assuming that this is feasible with the existing sewer mains crossing below each of these two crossings. Cost estimates were developed assuming that larger single pipes can be installed and the double pipes will not be required for providing additional stormwater conveyance. Specific information for the culvert replacements is provided in Appendix B.

5.2 Stream Stability

Stream restoration measures are categorized based on the level of overall ecological improvement that can be expected. Prioritization level 1 measures are intended to replicate as fully as possible the stream horizontal and vertical profiles and cross-section geometry for a comparable reference stream that remains unaffected by urbanization and degradation. This is seldom feasible in a developed or developing watershed and no Priority 1 stream projects were considered practical within the Toms Creek watershed. Priority 2 restoration measures aim to establish a smaller lower floodplain bench for the incised channel. Priority 3 measures are similar, but the amount of benching is constrained by development in adjacent areas. Priority 4 measures involve only stabilization of the banks to reduce erosion and offer minimal improvement to aquatic habitat other than arresting the export of sediment to points further downstream.

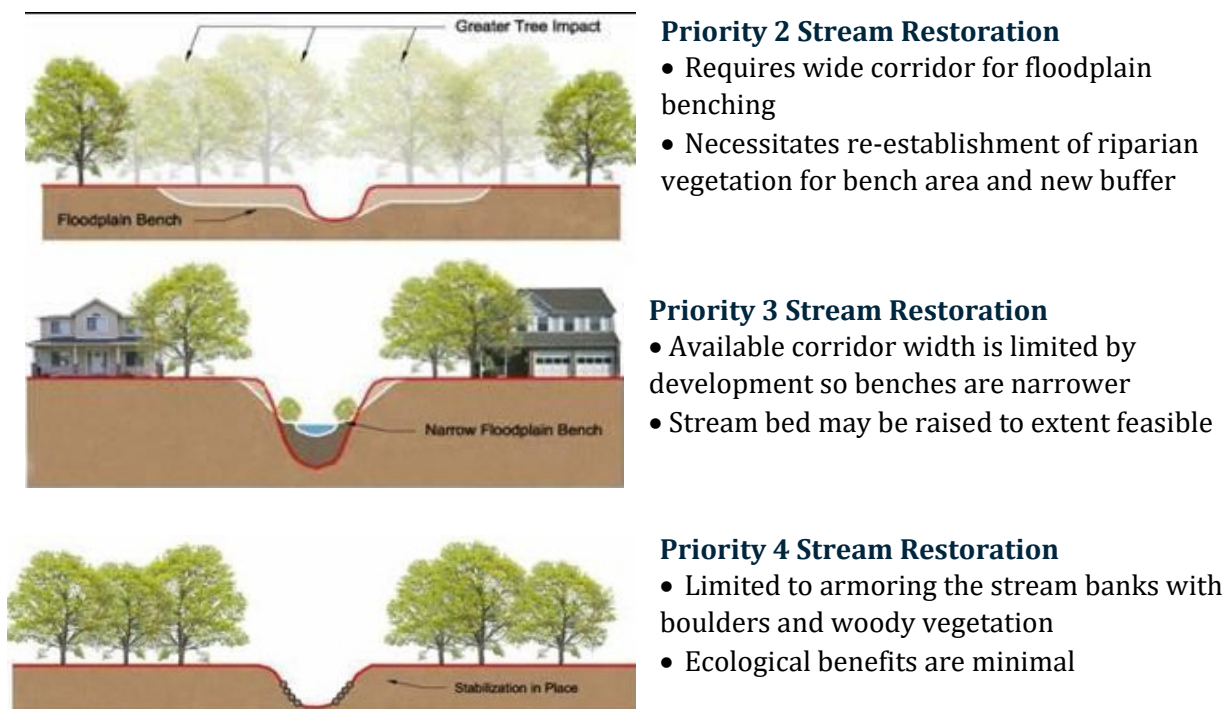


Figure 12. Stream Restoration Scenarios

Within Toms Creek watershed areas, potential stream restoration is limited by the available corridor widths along the stream banks that could possibly be made available by an HOA or private property owner to facilitate wider floodplain benching. The wider the bench and the longer the reach where it can be established, the greater would be the potential reductions to flood elevations and to the shear stresses driving the stream bank erosion. The goal for Toms Creek stream stabilization improvements is for Priority 3 restoration, with as much floodplain benching as is feasible, in most of the reaches with a very high or high BEHI scoring. Where reaches are too short

or narrow to accommodate better restoration measures, improvements may be limited to Priority 4 stabilization of banks. Table 10 provides a summary of recommended stream stability improvement measures. Proposed project locations are shown in Figure 13.

Table 10. Recommended Stream Stability Improvement Measures

PROJECT ID	REACH ID	LOCATION DESCRIPTION	EROSION HAZARD RATING	POTENTIAL PROJECTS
TC-ER-01	UT-N3 Reach 3, UT-N3A Reach 1	Behind homes along Lariat Ridge and Reindeer Moss Drive	Extremely High	Priority 3/4 Stabilization at Outlets
TC-ER-01A	UT-N3 Reach 3, UT-N3A Reach 1	Alternative project to TC-ER-01	Extremely High	Stabilization at Outlets
TC-ER-02	UT-N3 Reach 2	Through County jurisdiction and behind homes along Hampton Chase Court	High to Extremely High	Priority 3/4 Restoration/Stabilization
TC-ER-03	TC Reach 4	Between Browns Lake dam and Coach Lantern Avenue bridge	Extremely High	Priority 3/4 Restoration/Stabilization
TC-ER-04	TC Reach 3	Between Coach Lantern Avenue bridge and discharge pipe from Hampton Chase	High	Priority 3/4 Restoration/Stabilization
TC-ER-05	UT-N4 Reach 6	Behind homes along Stacked Stone Trail	High/ Future Risk	Priority 2/3 Restoration/Stabilization
TC-ER-06	UT-S5 Reach 3	From SCM off of Capefield Drive to headcut within County jurisdiction	Extremely High/ Future Risk	Establishing Stable Channel Upstream of Head Cut
TC-ER-07	UT-S7 Reach 2&3	From Forestville Road to Coach Lantern Avenue	Low to Moderate/ Future Risk	Grade Control at Access Points



Figure 13. Proposed Stream Stabilization Projects

On UT-N4 Reach 6, the small stream channel has been partially relocated by a property owner and shows some early signs of destabilization. Though the stream is rated as Extremely High erosion hazard, this mostly reflects future risk as the channel incision and bank erosion are in early stages. Thus, some limited restoration measures to maintain the stream profile and floodplain connection, in addition to re-establishment of vegetated buffers are considered appropriate and adequate for protecting the stream against the projected impacts of the recent disruption.

Though the conditions along UT-S7 Reaches 2 and 3 indicate low-to-moderate erosion hazard conditions, several large stormwater outlet pipes, for which no peak discharge controls were required, discharge to this channel. In spite of wide and well-vegetated buffers, there is risk of future channel incision and destabilization as the stream continues to adjust to a new flow regime reflecting the developed conditions. Installation of grade control measures such as cross-vanes or buried boulder structures could limit downcutting of the stream bed through this reach and thus the destabilization and sediment export.

Implementing improvements along the stream reaches in the Toms Creek watershed will present a number of challenges and considerations for the Town and for the surrounding property owners.

1. Lack of space for optimal restoration – Full ecological restoration and stabilization of a degraded stream reach ideally involves re-establishing a riffle-pool sequence with floodplain connection and meanders approximating pre-development conditions. The less width is available for optimizing these measures, the less ecologically effective the restoration is likely to be. Where space is severely limited, the project becomes more of a stabilization and/or flood reduction effort and is less effective in restoring a healthy biological stream habitat.
2. Need for permanent or temporary easements – For most of the recommended projects, there are either no easements or very limited easements along the stream channels. At a minimum, temporary easements will be required and for long-term maintenance the Town may want to acquire adequate permanent easements as part of the project. In addition to the need for easements along the stream channel, specific access corridors will need to be established and maintained at least long enough to assure adequate establishment of vegetative measures associated with the stream improvements.
3. Vegetation Issues – The tributary streams within the Toms Creek watershed generally have at least a small width of forested buffers. Implementing a stream improvement project for re-establishing stability and improving water quality and habitat often requires a substantial loss of trees for construction access and installation of in-stream structures. For some residents that can mean the visual buffers along the rear of their property will be compromised until trees grow to an adequate height. Using natural channel design measures along a stream can include very dense vegetation along a stream bank and adjacent area. For residents who have fenced off their backyards from the stream or for stream channels within HOA property, this is unlikely to be a problem. For residents who traverse over small footbridges and/or enjoy having a view of the stream, consideration of alternative vegetation options may be desirable.
4. Maintenance responsibilities - When a municipality implements a stormwater improvement on private property, it is important to have an agreement establishing maintenance responsibilities and what that will involve. For a stream improvement project, the Town would be responsible for ensuring adequate establishment of vegetation and for any needed repairs to instream structures. When a project is permitted under a Corps of

Engineers Nationwide Permit 27 for stream/wetland restoration or enhancement, there are inspection requirements for a specified time period after project construction.

5. Grant funding – Grant funding for stream projects is available from several funding sources, most notably from the NC Land & Water Fund. Grant funding is usually prioritized based on the degree of ecological “uplift” that is expected to result from project implementation. Additional weight is often added for projects in a public space where there is an educational component and broader public benefit than may be possible with the proposed projects within the Toms Creek watershed. However, the longer the reach of the proposed stream improvements the more likely it is that ecological uplift can be projected. Recently, there has been increasing funding available for projects aimed at improved “resiliency” related to flood impacts and damages. The prioritization schemes target projects where the most structures and/or citizens can expect reduced impacts from flooding.

5.3 Water Quality

One focus of the watershed study involved exploring options to incorporate water quality improvements within this mostly-developed watershed in addition to addressing the previously noted functional problems with existing SCMs and level spreaders.

For the western portion of the focus area, where neighborhoods were built before post-construction stormwater controls were required, the street rights-of-way are the only publicly owned or community-shared spaces available for locating SCMs to provide some water quality treatment. Several of the streets are wide enough to accommodate “green streetscaping” near sag points, with bioretention areas built out into the street at about the width of a parked car and back into the area behind the curb. Gutter flows would be directed to the bioretention area for treatment before discharge into the drainage pipe, with overflows beyond the SCM capacity routed directly to the curb inlet downgradient. The photos below show concepts for an SCM partially within the street and one within right-of-way behind the curb.



Figure 14. Examples of Green Streetscaping

For the stream stability protection discussed in the previous section for UT-S7 south of Coach Lantern Avenue, the access for grade control installations would be through existing drainage easements, most of which have a level spreader at the outfall to the HOA property. In several areas, there is enough area outside of required buffers for installing SCMs to better protect water quality and stream stability. See Figure 15 below.

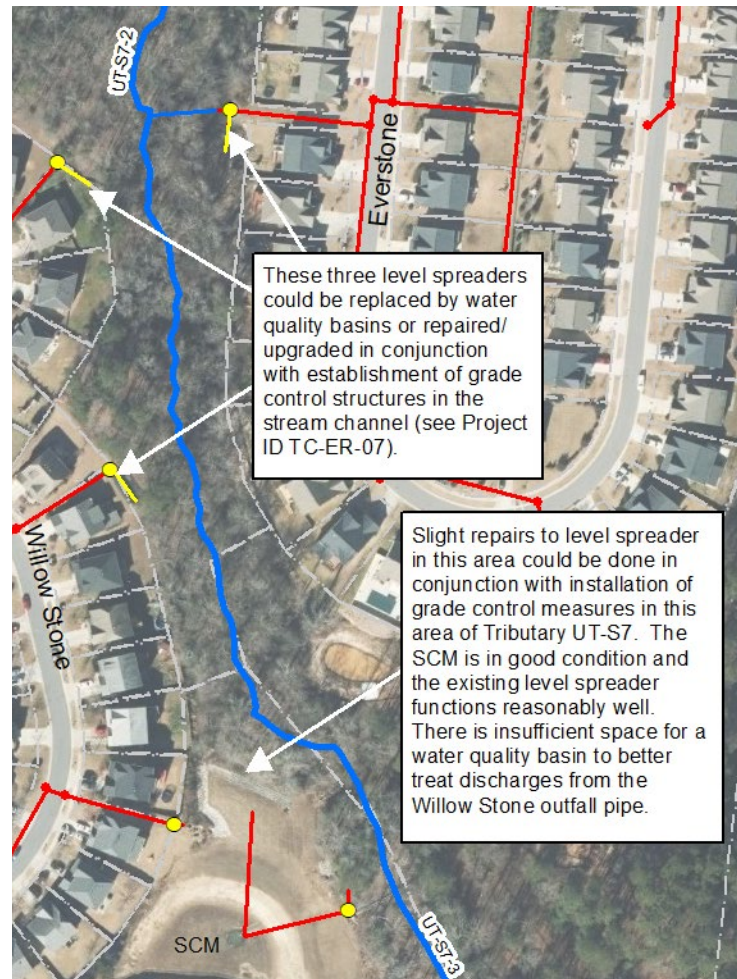


Figure 15. Potential Water Quality Improvements on UT-S7

Other potential options for improving water quality within the Toms Creek watershed could be implemented by individual property owners: disconnections of roof downspouts, installations of backyard rain gardens as SCMs, and/or preservation or enhancements of vegetated buffers along stream channels. The Town can provide public education, training, and possible financial incentives for encouraging property owners to invest in improving water quality.

6. Recommended Watershed Actions

Recommended stormwater improvements are summarized in this section, along with repairs needed for the problematic infrastructure components noted in Section 4.

1.1. Drainage Infrastructure Improvements

Culvert upgrades on Falconhurst Drive are already under consideration by the Town, with specific recommendations and costs detailed in the Timmons study. Additionally, replacements are recommended for the culvert crossings under Coach Lantern Avenue and Kemble Ridge Drive for UT-N5, though at a lower priority than the Falconhurst projects due to the lesser risk of overtopping.

For replacement of deteriorated driveway pipe on Hampton Chase Court, and possibly the other

two as well, there are existing drainage easements for the stream channel and driveway culverts. Due to the deteriorating condition of these pipes, planning in conjunction with the property owners for replacement of these pipes is recommended. Details on permitting and project costs are provided in Appendix B.

Project costs are listed in Table 11. The project cost listed for the Hampton Cross driveways assumes replacement of all three pipes. The project locations are shown in Figure 16.

Table 11. Recommended Drainage Infrastructure Improvements

PROJECT ID	REACH ID	PROJECT	ESTIMATED COST
FALCONHURST*		Alternative 2, Phase 1 and 2 as Recommended by Timmons Group	\$580,000
TC-DI-01	UT-N5 between Reaches 1 and 3	Culvert Replacements on Coach Lantern Avenue and Kemble Ridge Drive	\$720,000
TC-DI-02	UT-N4 between Reaches 1 and 4	Culvert Replacements for Driveways on west side of Hampton Chase Ct	\$190,000
ESTIMATED TOTAL PROJECT COSTS			\$1.5 Million

*Evaluation, recommendations, and project costs developed by Timmons Group under a separate study

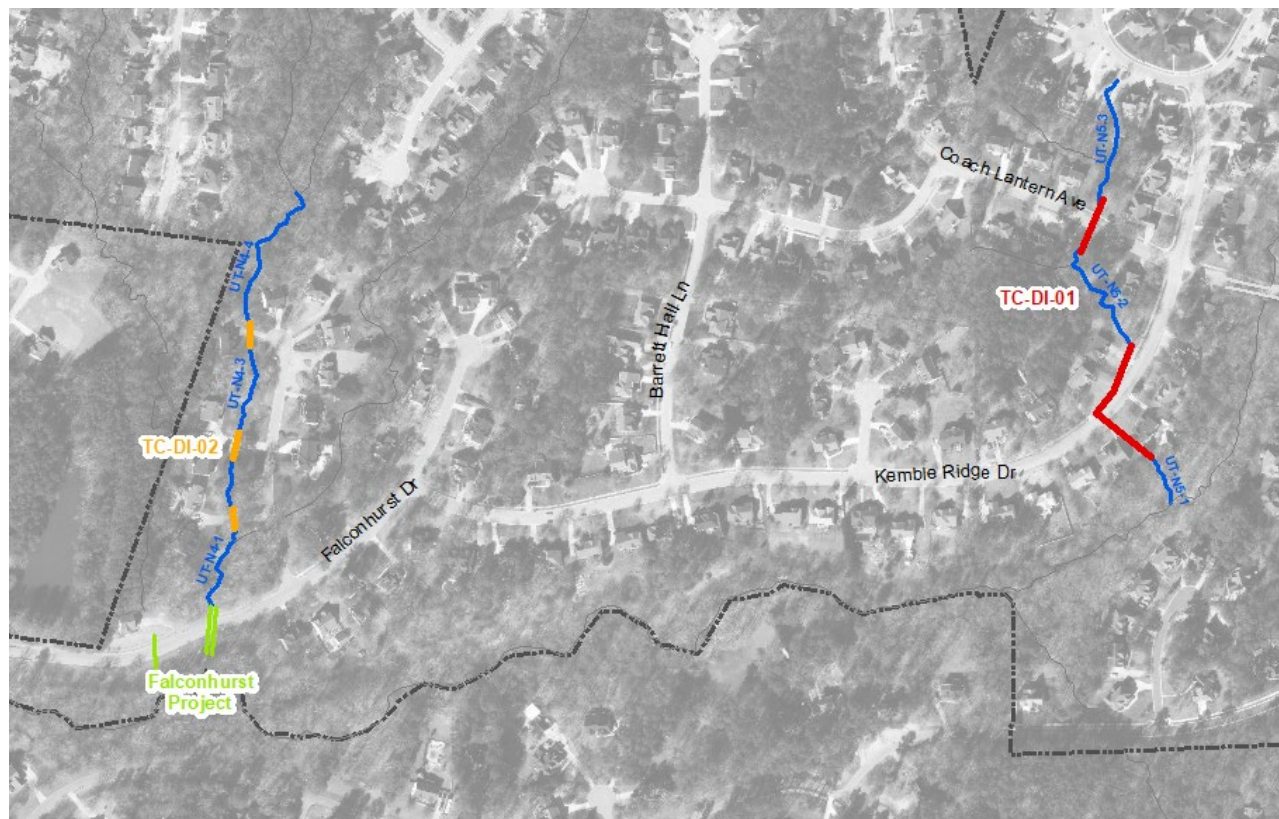


Figure 16. Proposed Drainage Infrastructure Improvements

6.1 Stream Stabilization Improvements

Appendix C provides discussion of stream restoration/stabilization projects recommended for consideration and prioritization, with detailed descriptions, photographs, affected properties, expected permit requirements, and an anticipated range of costs. A summary is listed below in

Table 12. The project locations are depicted in [Figure 13](#). Information on scoring for Benefit and Access is included in the project descriptions in Appendix C.

Table 12. Ranking/Scoring for Stream Stability Improvement Measures

PROJECT ID	PROJECT	RANKING	EROSION HAZARD RATING	BENEFIT SCORE	ACCESS SCORE	ESTIMATED COST
TC-ER-06	Stable Channel on UT-S5 Reach 3	1	Extremely High/ Future Risk	1	4	\$270,000
TC-ER-03	Priority 3/4 Restoration on TC Reach 4	2	Extremely High	1	3	\$360,000
TC-ER-05	Priority 2/3 Restoration on UT-N4 Reach 6	3	High/ Future Risk	2	2	\$180,000
TC-ER-07	Grade Control Structures on UT-S7 Reach 2&3	4	Low to Moderate/ Future Risk	3	2	\$240,000
TC-ER-01	Priority 3/4 Restoration on UT-N3 Reach 3, UT-N3A Reach 1	5	Extremely High	1	5	\$610,000
TC-ER-04	Priority 3/4 Restoration on TC Reach 3	6	High	3 ¹	3	Varies depending on participating owners – estimated at \$450,000
TC-ER-01A ²	Outlet Stabilization on UT-N3 Reach 3, UT-N3A Reach 1	7	Extremely High	4	4	\$250,000
TC-ER-02	Priority 3/4 Restoration on UT-N3 Reach 2	8	Extremely High/High	2 ³	5	\$500,000
ESTIMATED TOTAL PROJECT COSTS						\$2.6 Million

Notes: 1 – benefit dependent on conditions and length of project stream reach; 2 – project only to be considered if TC-ER-01 not feasible – not included in total project costs; 3 – benefit will be only be maximized with stabilization of upstream reach

6.2 Water Quality Repairs and Improvements

Recommended water quality measures to address problems with existing infrastructure include removal of a failed level spreader and restoration of a poorly functioning pond SCM, green streetscaping, and new pond SCMs. Proposed water quality improvements are installations of green streetscaping and new pond SCMs as listed in Table 12.

Table 13. Recommended Water Quality Improvements

PROJECT ID	PROJECT	LOCATION	ESTIMATED COST
TC-WQ-01	Green Streetscaping	3 Sag Points on Coach Lantern Avenue	Dependent on number of installations – Estimated at \$50,000 to \$80,000 each – Budgeted at \$400,000
TC-WQ-02	Pond SCMs at 3 sites	UT-S7 south of Coach Lantern Avenue	\$100,000 to \$150,000 per SCM dependent on size—Budgeted at \$400,000
ESTIMATED TOTAL PROJECT COSTS			\$0.8 Million

The failed level spreader behind the home on Lower Lake Drive isn't recommended for restoration back to design conditions and there is insufficient space for installing an improved level spreader. Because the level spreader has failed to function in recent years, it is expected that the low area and downstream berm can be graded out without exacerbating conditions below the existing outfall. However, there is potential for installation of an SCM for this discharge flow within the HOA property downgradient between the sanitary sewer easement and Browns Lake.

The existing SCM behind homes on Capefield Drive, owned and maintained by the Stonegate HOA, is in need of restoration to restore proper function. The bottom area needs to be graded to facilitate gravity flow and draining of the SCM and the suitable vegetation needs to be re-established.

Green streetscaping SCMs are recommended for installation at several locations along Coach Lantern Avenue. Potential installation locations and associated costs are provided in Appendix D.

Construction of three SCMs along UT-S7 between Coach Lantern Avenue and Forestville Road at locations shown in Figure 14 is recommended to be incorporated into establishment of stream channel grade control measures. Project descriptions, permitting issues, and construction costs are noted in Appendix D.

7. Implementation Considerations

This study has identified a number of specific recommendations to address stormwater issues and/or to provide water quality benefits in the Toms Creek watershed. The next logical step is to develop a strategy for implementing the recommendations. Developing the strategy will require weighing the needs and recommendations identified in this report with other watershed studies (and Town needs), securing funding, refining the improvement concepts for project design/permitting, and then constructing/implementing the improvements. Considerations for each of these phases is presented below.

7.1 Integration/Prioritization with Other Watershed Studies

As indicated previously the Town has four main watersheds. Two watersheds (including Toms Creek) are currently being studied, and the remaining two likely will be studied in the relative near future. Once the studies are all complete, it would be prudent to integrate and prioritize the significant capital improvement project (CIP) recommendations from all the watershed studies into a combined CIP list. This would allow the Town to implement stormwater/water quality projects in a “needs-based” and equitable manner.

7.2 Funding Sources

The Wake Forest Town Council recently (November 2023) approved implementation of a stormwater utility fee for residential and non-residential properties in the Town. The fee is based on the amount of impervious area on a given property and will be assessed at \$45 per Equivalent Residential Unit (ERU) (=1,200 sq. ft.) per year. The stormwater utility will be a new dedicated funding source to help support Town stormwater needs.

As the stormwater utility will also be used to support operations and maintenance needs, it may not be sufficient to fund desired capital improvements in a timely manner. In addition to the local funding, there are a number of state/federal grant opportunities and other external funding sources that are oriented towards stormwater management, water quality, flood control projects, as well as general infrastructure. The Town could pursue grants to help fund recommendations from the watershed studies. A number (8±) of state (and federal) grants are administered through the North Carolina Department of Environmental Quality (NC DEQ). Many of these grants have two application cycles per year. Information of available grants administered through NC DEQ, as well as information and resources for applying to these grants can be found at the 'I Need Funding' webpage at the link below.

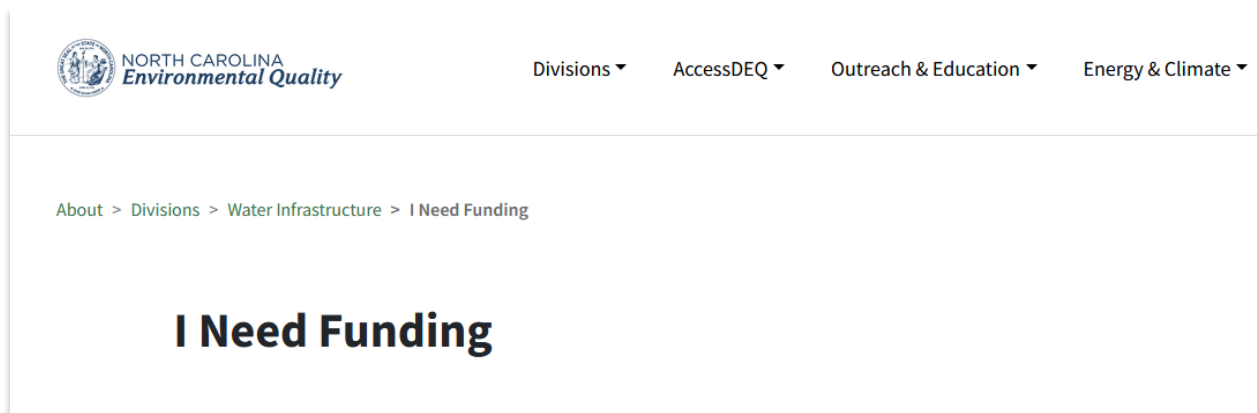
Wake Forest establishes stormwater fee

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November 24, 2023

By Reggie Ponder

editor@wakeweekly.com | 919-556-3182



<https://www.deq.nc.gov/about/divisions/water-infrastructure/i-need-funding>

Beyond grants administered by NC DEQ, there are a number of additional grants that could be investigated. Select examples of other applicable grants and funding sources are listed below.

Agency/Source	Weblink
Golden LEAF	https://goldenleaf.org/
NC Land and Water Fund	https://nclwf.nc.gov/grants
FEMA Flood Mitigation Grants (BRIC, FMA)	https://www.fema.gov/grants/mitigation
EPA 319 Nonpoint Source Pollution	https://www.epa.gov/nps/319-grant-program-states-and-territories

7.3 Design/Permitting/Implementation

The improvement recommendations presented in this watershed study are conceptual in nature and based on higher-level planning evaluations. Before any recommendations could be implemented, the improvements would first need to be refined through additional engineering

analysis and evaluation, then they would need to go through the engineering design/permitting before they could be constructed/implemented. The integrated CIP list mentioned above could be used to determine the general “order” to implement each of the recommendations. Funding availability, internal/external resource capacity, and public/political will often drive how many and how quickly the improvement projects can be implemented.

APPENDIX A

WATERSHED CITIZEN SURVEY RESULTS

Compilations for responses and comments received in the citizen survey conducted as part of the Toms Creek Watershed Study are summarized below for each of the survey questions.

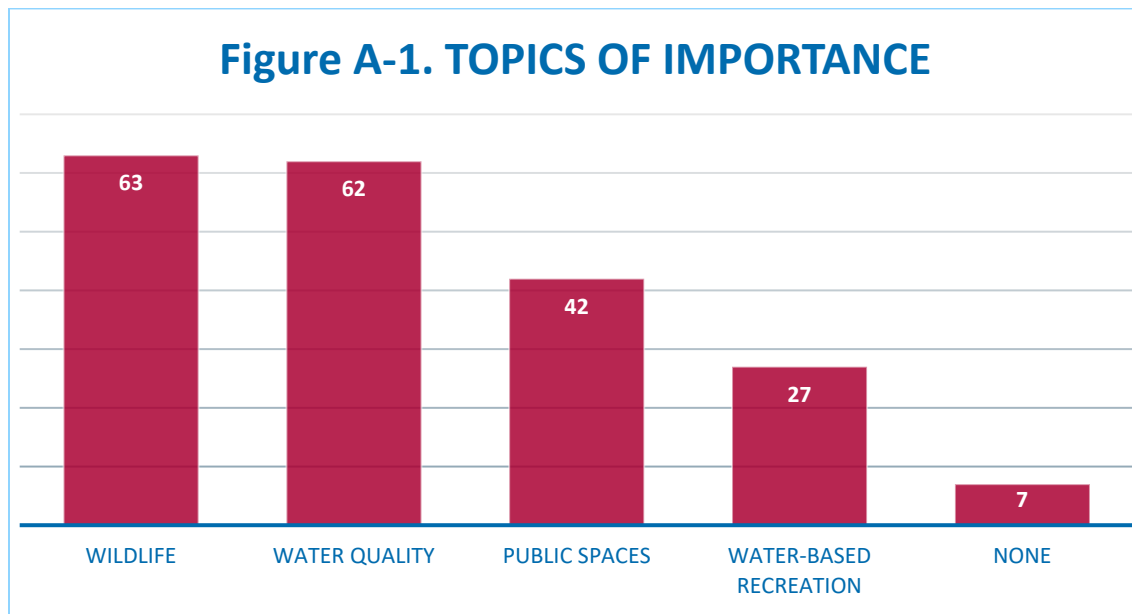
A.1. - Topics of Importance

Out of the 75 responses, 63 listed wildlife as a topic of importance and 62 listed water quality. Some specific concerns related to protection of wildlife habitat and water quality expressed in survey comments:

- A need for the Town to collaborate with other jurisdictions in protecting the environmental health sustainability of the watershed.
- Concerns about residents removing vegetation within stream buffer areas.
- Worries about impacts of development projects on the water quality, with particular reference to a large planned project east of Ligon Mill Road within the watershed.
- Multiple references to erosion and sedimentation problems.

Presumably the residents' listing of "wildlife" as an important topic expresses a desire for protection of diversity and habitat. However, LJB staff doing field work have also heard concerns about the *presence* of wildlife such as coyotes in the watershed because of the danger to children and pets. Beavers are another concern to residents, due to the potential for beaver dams to impede stream flows and exacerbate flooding problems.

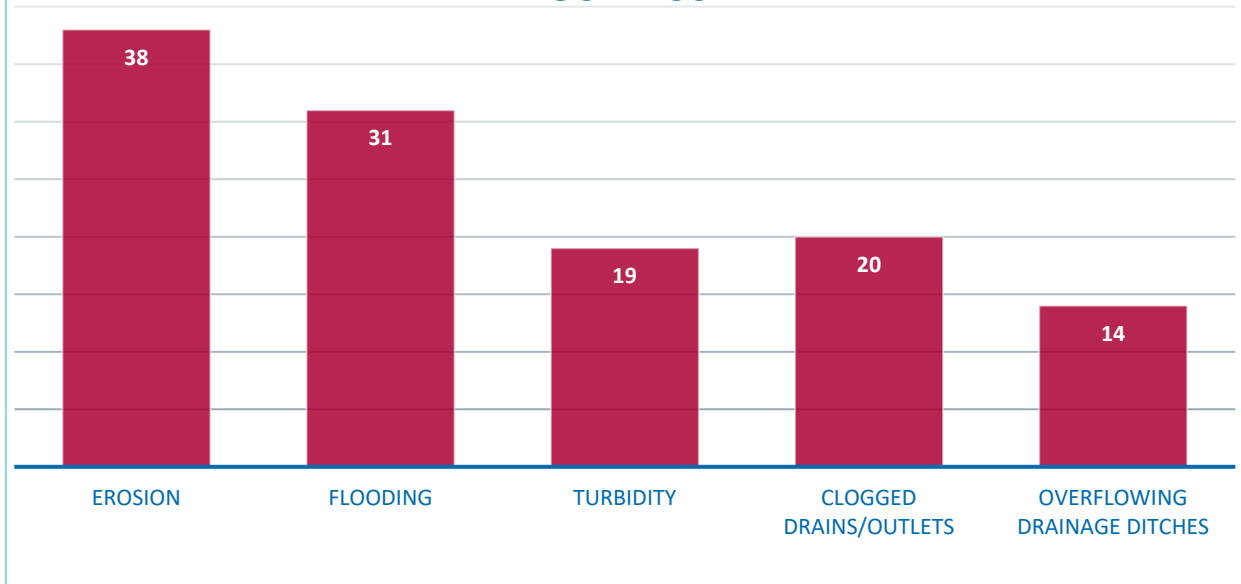
Figure A-1 shows a tabulation of the residents' listing of topics of importance.



A-2. - Stormwater Issues Causing Direct Effects to Residents

Residents were asked what stormwater problems directly affect their home and/or business. Figure 2 shows a tabulation of the four drop-down choices:

Figure A-2. DIRECT EFFECTS TO HOME OR BUSINESS



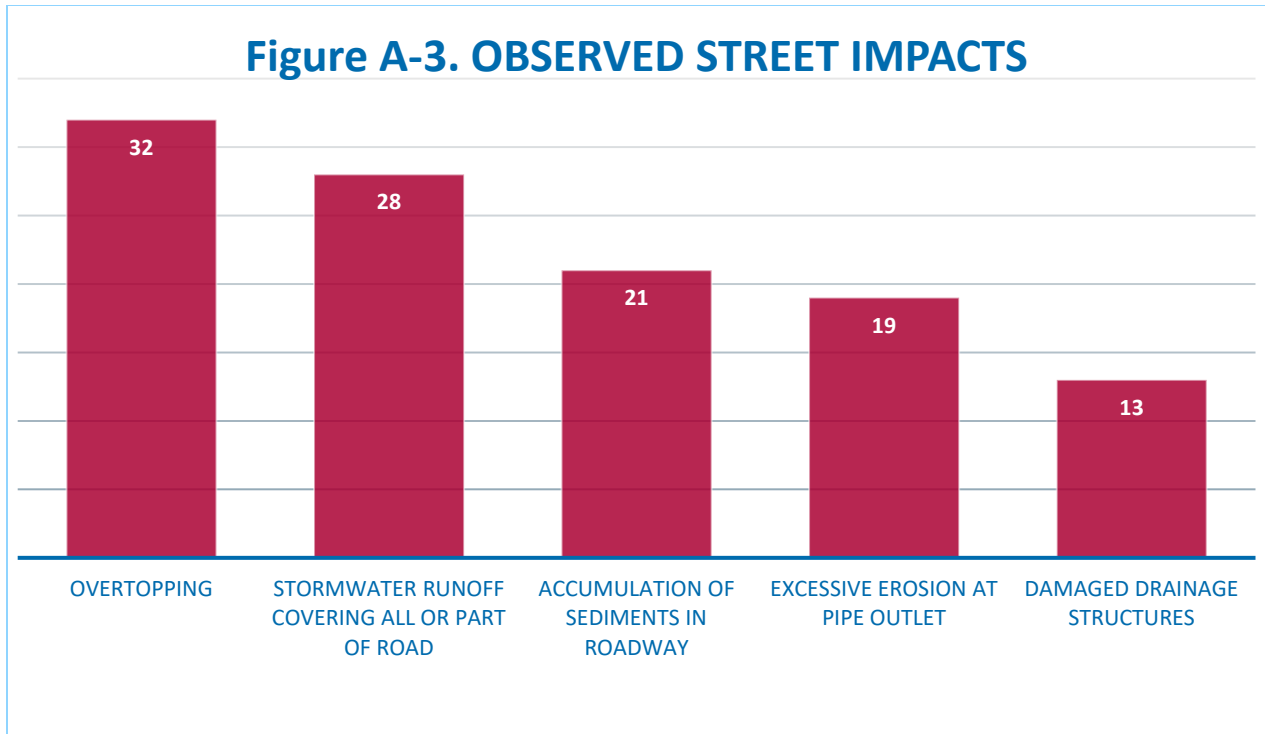
Thirty (30) respondents listed direct effects as “none” or left it blank. Additional effects listed under “other” included the following:

- algae in Browns Lake
- litter/trash carried in stormwater runoff
- water quality and odor problems
- spillway discharge from Browns Lake

Residents were also asked to describe the frequency and extent of problems experienced. In reference to erosion problems, the response was frequently “with every heavy rain” or a similar statement. Several residents noted erosion as having been observed over a number of years (5-6, 10, etc.) One 25-year resident on Toms Creek noted having lost 15 feet at the back of his property to streambank erosion. Backyard flooding problems and issues related to clogging infrastructure and overflowing ditches are noted to range in frequency from “every heavy rain” to “only in deluge storms”. One resident along Toms Creek reported that his home is threatened with flooding during extreme storm events. Specific comments on problems affecting property owners are listed in Table A-1.

A-3. - Impacts to Streets

Many of the residents reported having observed stormwater problems related to streets in the Toms Creek watershed. Figure 3 illustrates the observed problems cited. Thirty-eight (38) of the 46 residents who listed observed problems noted flooding of roadways by overtopping of a stream channel and/or runoff not being drained off. Erosion and sedimentation problems were also frequently cited as having been observed by residents.



A.4 - Willingness to Support Stormwater Projects

Eroding stream channels tend to be located along the back property lines in a residential area such that repairing and improving the stream will require construction access, probable loss of some trees, and up to a couple of months of construction activity. Thus, residents were queried as to their level of willingness to provide the Town with access and/or easement to facilitate these types of projects. Clearly, the majority of respondents, having expressed that they view water and environmental quality as important, indicated a willingness to collaborate with the Town in efforts to improve natural streams in the Toms Creek watershed.

Figure A-4. WILLINGNESS TO BE INVOLVED

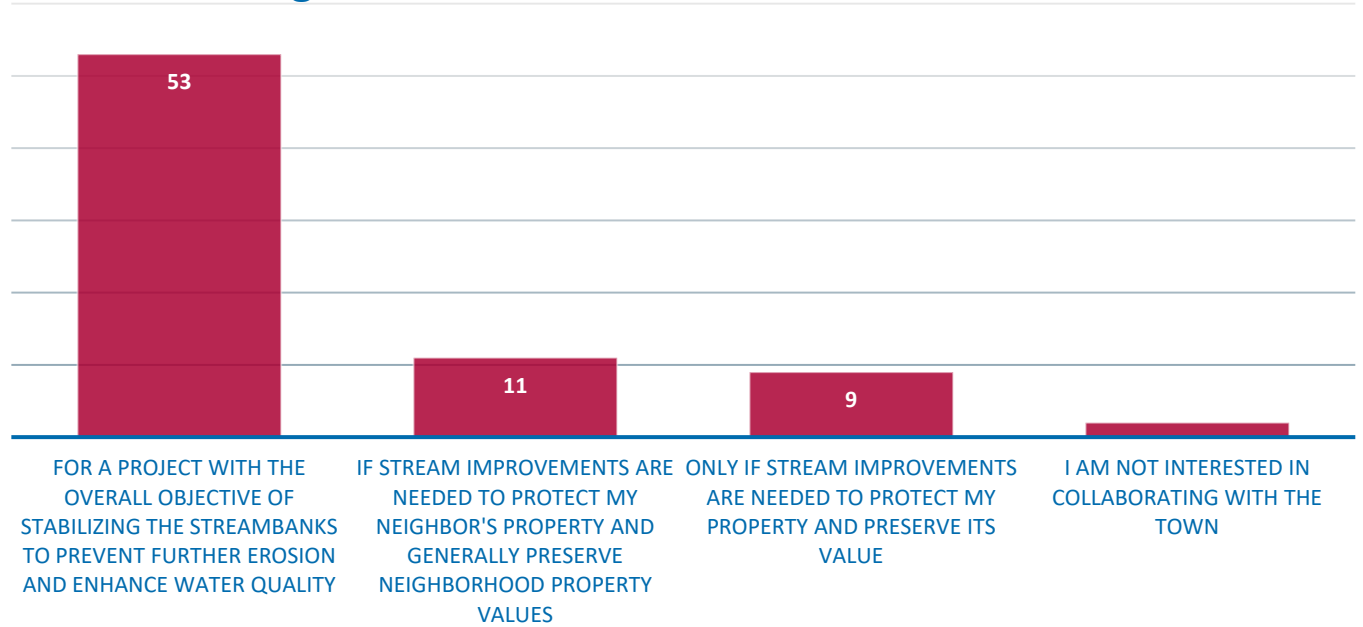


Table A-1. Listing of Specific Problems Affecting Property Owners

Street	Primary Categories	Adjacent Stream	Description
Falconhurst	Multiple	Toms Creek	Drainage pipes from the road discharge adjacent to this property. The creek overflows and causes drastic flooding through the easement. A portion of the owner's property ss unusable due to the frequent flooding and muddy conditions.
Falconhurst	Flooding/ Erosion	Toms Creek	Flooding and erosion have been observed for at least the past 5-6 years with every heavy rain event. Up to about 15 ft of land along the creek bank has been lost to erosion. Sediment deposition in the yard up to 12" deep has occurred, as well as downed trees along the bank.
Kemble Ridge	Erosion	Toms Creek	Erosion during heavy rain days.
Kemble Ridge	Multiple	Toms Creek	Large rain events cause Toms Creek to overflow its boundaries which creates flooding, erosion of its banks and sedimentation that has all but destroyed any living creatures that once thrived in the waters of Tom Creek when we first moved here. Storm water off of Kemble Ridge Dr. drains directly into Toms Creek, adding pollution. This creek once had abundance of clams and fish, but no more.
Kemble Ridge	Flooding/ Erosion	Toms Creek	When there are heavy storms/hurricanes, the creek floods resulting in erosion.
Kemble Ridge	Erosion	Toms Creek	My backyard is the bottleneck from the elevated spillway to the creek below.
Chelridge	Flooding	Toms Creek	Any substantial amount of rain, especially during high-intensity events, overflows creek into yard and threatens home.
Hempton Cross	Erosion	Toms Creek	Severe erosion along Toms Creek has been lost due to increased volumes and velocities of flows from Browns Lake after development of townhomes in Stonegate. Reports 3-5 feet of stream bank lost.
Hempton Cross	Flooding	Toms Creek	Infrequent topping of the banks
Hampton Chase	Flooding	UT-N3; UT-N4	It floods 3 or 4 times a year and makes a big mess.
Hampton Chase	Pipe Failure/ Flooding	UT-N4	Front yard began flooding from creek ~6 years ago. Owner lined the stream w/ large stone When we bought our property, we lined the stream (it really was nothing but a stream and dry most of the time) with large stone over 20 yrs ago, which is now buried. Culvert is being undercut and shared driveway is cracking. Front yard along stream has become "swampy" and can no longer be mowed.
Hampton Chase	Flooding	UT-N4	The creek has become eroded in recent years. When it rains hard it for long periods of time, there is overflow and drains are impacted. It also overflows into the roadway down the street, which has been impassable on several occasions.
Falconhurst	Multiple	UT-N4B	Flooding, erosion, clogged inlets, overflowing ditches all observed whenever there are hard rains.
Falconhurst	Flooding	UT-N4B	Back yard floods with every heavy rain. Home and concrete appears to be sinking in the direction of the creek.
Coach Lantern	Multiple	UT-N4B	Drainage conveyance eroding due to neighbor's removal of trees along the bank. Ponding of water occurs due to poor grading for routing runoff from neighboring properties. Turbidity is increasing since development of Stonegate.
Coach Lantern	Erosion	UT-N5	Excessive erosion at a pipe outlet.
Coach Lantern	Flooding/Erosion	UT-N5	All of the time.
Coach Lantern	Erosion	UT-N5B	Continued erosion in backyard over at least ten years.
Rainy Lake St	Turbidity	UT-S6, Browns Lake	Algae growth in shallow areas of Browns Lake from June to Sept
Kaytena	Flooding	Ephemeral	Backyard will flood in moderate to heavy rains.
Kaytena	Turbidity	Ephemeral	Ephemeral stream channels overflowing more and more over time during heavy rains and encroaching on backyards where this never happened before. Problems are worse during heavy rains. New construction is making the problems worse.
Falconhurst	Flooding	None	Creek overflows, usually during spring and early summer rains.
Falconhurst	Flooding/ Erosion	None	Water drainage along Ligon Mill Road water runs onto the road when drains become clogged. Also, the creek itself in our neighborhood backs up and comes up over the road in a couple of places.
Kemble Ridge	Erosion	None	With heavy rains there is runoff from property that heavily pools on the sidewalk. Poor drainage.

APPENDIX B

DRAINAGE INFRASTRUCTURE PROJECTS

Project ID:
TC-DI-01

Reach ID:
UT-N5- Reaches 1 to 3

Proposed Project:

Replace existing 48" culverts under Coach Lantern Avenue and existing 54" culverts under Kemble Ridge Drive with larger pipes or double pipes, dependent on utility conflicts and other issues affecting costs.

Location:

Highlighted pipe reaches shown west and south of Coach Lantern/Kemble Ridge intersection.

Impacted Properties:

The Town has 20-foot drainage easements along these pipes, but some temporary adjacent easement areas will be needed for the construction. Several property owners will be directly impacted by the pipe replacement under one driveway and along another.

Implementation Issues:

1. Should be able to obtain 404/401 permits for stream and wetland impacts under NWP for maintenance.
2. Probable utility conflicts may present constraints requiring either relocations for mains or services or double drainage pipes.
3. Road closures and traffic detours.

Approximate Cost: \$720,000 (includes design, permitting, and construction) based on replacement with 54" and 60" RCP.



Project ID:
TC-DI-02

Reach ID:
UT-N4- Reaches 1 to 4

Proposed Project:

Replace three existing 48" CMP culverts under driveways along Hampton Chase Court due to deterioration in the bottom of the pipe. Recommendation is to replace with 54" HDPE buried 6" below stream bed for increased flow conveyance and improved aquatic passage.

Location:

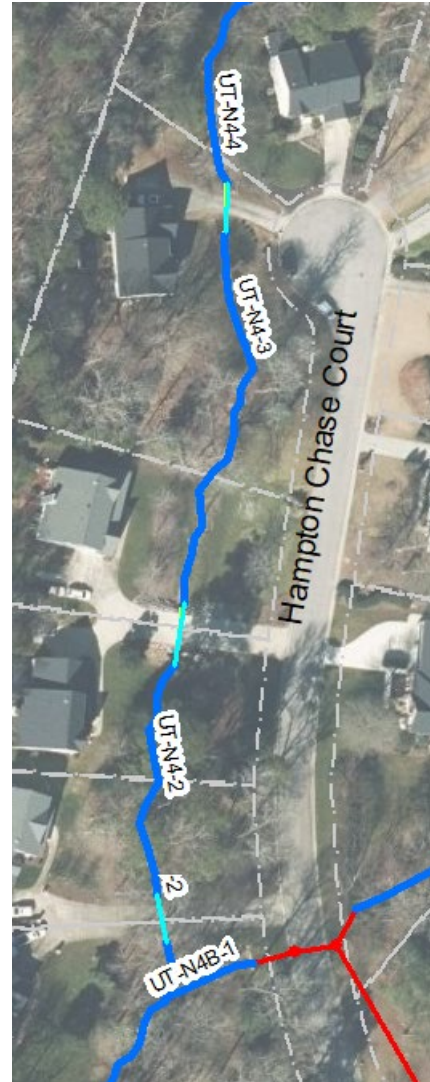
Highlighted pipes shown under driveways.

Impacted Properties:

The Town has 20-foot drainage easements along these pipes. Each of the four directly affected homeowners will lose vehicular access during replacement of their specific crossing.

Implementation Issues:

1. Given that these pipes are on private property and not within a public right-of-way, the Town will need to determine if and to what extent the Town will participate and/or manage replacement of the pipes.
2. The pipes adequately convey 4% annual chance peak flows, though not without significant backwater effects. Floodwaters are projected to impound against the structure upstream of the northernmost driveway crossing before it is overtopped.
3. A more detailed inspection of each pipes may determine that not all of them need to be replaced at this point and it may be beneficial for the Town and/or preferred by property owners to selectively replace as vehicular safety starts to become compromised.
4. Approvals would be expected for 404/401 permits for stream and wetland impacts under NWP 3 for maintenance.
5. Maintenance of emergency access to impacted homes.



Approximate Cost: \$190,000 (includes design, permitting, and construction) for replacement of three pipes.

APPENDIX C

STREAM STABILIZATION IMPROVEMENT PROJECTS

Project ID:

TC-ER-01

TC-ER-01A

Reach ID:

UT-N3-Reach 3

UT-N3A-Reach 1

Proposed Project:

Stream restoration and stabilization to reduce ongoing sediment export to downstream areas, inclusive of instream structures, floodplain benching with stable slopes and appropriate riparian vegetation. Project 01 would cover the entire reach and is assigned a Benefit score of 1 (highest) due to the volume of sediment export that could be prevented by stabilization efforts. However, the assigned Access score is 5 (lowest) due to the numerous affected owners and the limited stream corridor space.

As an alternative, recommended target areas would be at the pipe discharge points along the reach. Specifically the areas circled in red would be stabilized with energy dissipation pools at pipe outlets and stabilized stream reaches. Benefit score is 4 and Access score is 4.

Location:

Behind homes fronting on Lariat Ridge and Reindeer Moss Drive

Impacted Properties:

There are 19 privately owned parcels along this reach. The Town has a 20-foot Drainage and Utility Easement along the stream centerline and along outfall pipes per plat map.

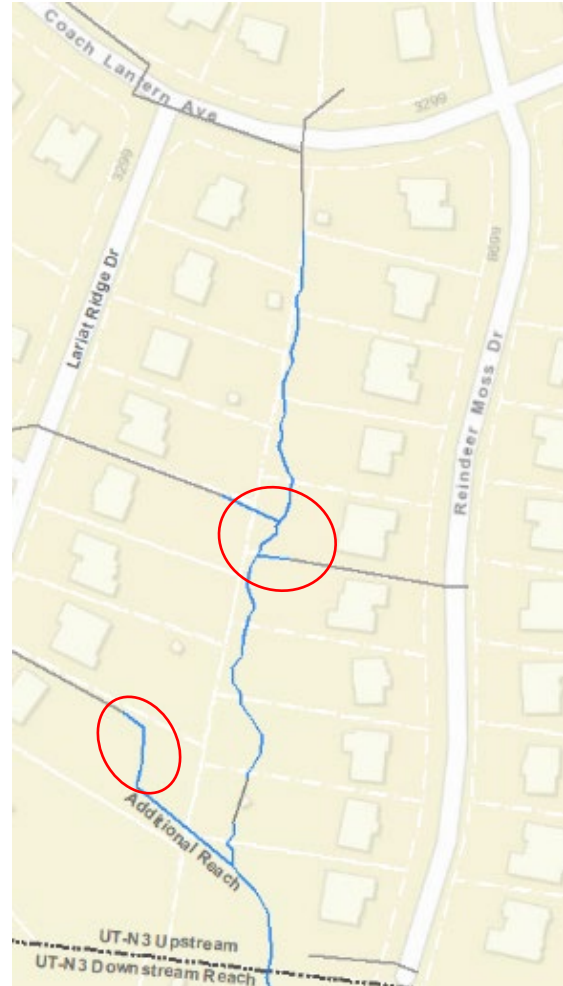
Implementation Requirements:

1. 404/401 permit for stream and wetland impacts
2. Permanent and temporary easements along stream
3. Easements for access and staging areas

Approximate Cost for Design, Permitting and Construction:

Project 01: \$610,000 (includes design, permitting, and construction)

Project 01A: \$250,000 (includes design, permitting, and construction)



Project ID:
TC-ER-02

Reach ID:
UT-N3- Reach 2

Proposed Project:

Stream restoration and stabilization to reduce ongoing sediment export to downstream areas, inclusive of instream structures, floodplain benching with stable slopes and appropriate riparian vegetation. Assigned Benefit score is 2 since stabilization of the stream will help protect downstream culverts from sedimentation problems, but that assumes stabilization of upstream reach also. Access score is assigned as 5 due to proximity of stream to some homes and need to work with non-Town property owners.

Location:

Through County jurisdiction and behind homes along Hampton Chase Court

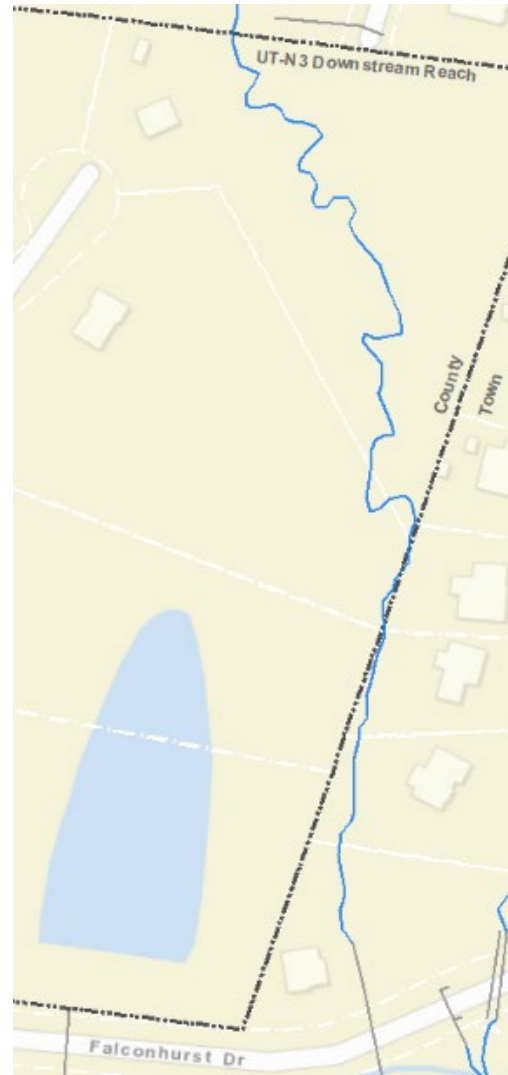
Impacted Properties:

Private ownership totaling eight separate parcels. Within Town jurisdiction, the Town has a 20-foot Drainage and Utility Easement along the stream centerline per as-built drawings.

Implementation Requirements:

1. Buy-in from County property owners where the Town has no easements or jurisdiction.
2. 404/401 permit for stream and wetland impacts.
3. Permanent and temporary easements along stream.
4. Easements for access and staging areas.

Approximate Cost: \$500,000 (includes design, permitting, and construction)



Project ID:
TC-ER-03

Reach ID:
TC- Reach 4

Proposed Project:

Stream restoration for improved energy dissipation and bank stabilization to reduce further impacts to private backyard areas and to downstream areas. Project will include improved dissipation below the dam and a series of boulder steps or cross vanes as drop structures to reduce velocities through the reach and under the bridge. It is expected that only minimal floodplain benching can be accomplished with this project. Benefit score is assigned as 1 due to severity of ongoing erosion and Access score is 3 since there are relatively few affected owners.



Location:

Between Browns Lake dam and Coach Lantern Avenue bridge

Impacted Properties:

Upstream end is owned by Adams Developments LLC, with the parcel (inclusive of dam) classified as HOA. There are four additional privately owned parcels adjacent to the stream channel. The plat maps show 50-foot stream buffers along Toms Creek, but no easements excepting a 20-foot public sanitary sewer easement on the property on the west side of the stream reach.

Implementation Requirements:

1. 404/401 permit for stream and wetland impacts
2. Permanent and temporary easements along stream
3. Easements for access and staging areas

Approximate Cost: \$360,000 (includes design, permitting, and construction)



Project ID:
TC-ER-04

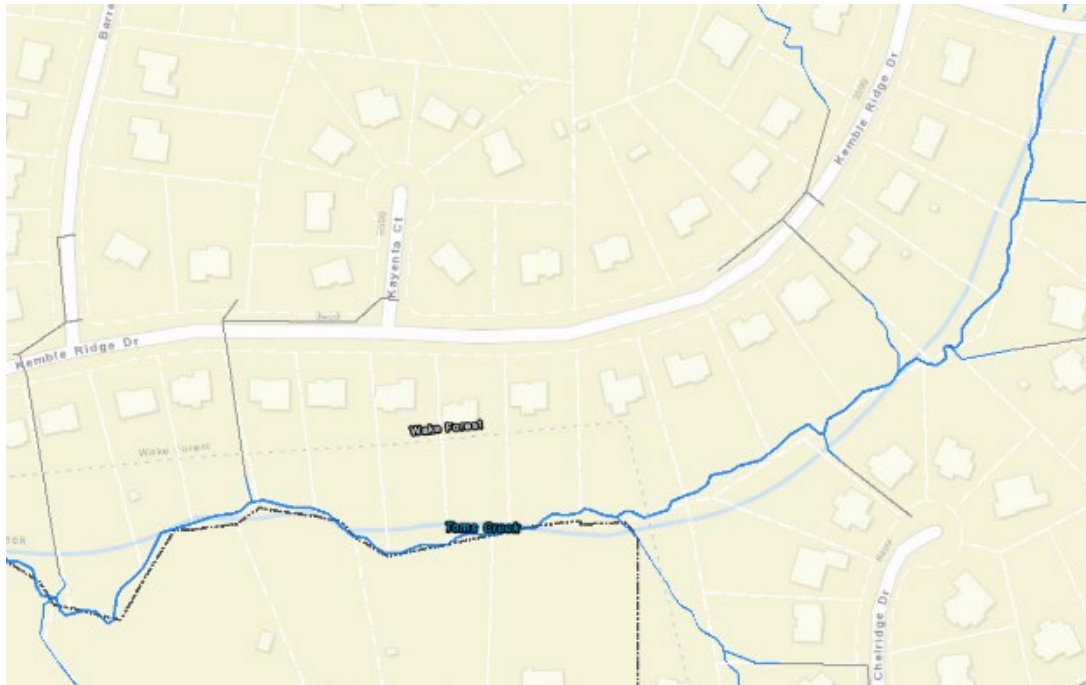
Reach ID:
TC-Reach 3

Proposed Project:

Stream restoration and stabilization, with an emphasis on floodplain benching to reduce flooding as part of limiting shear stresses along the stream banks. Specific projects would be identified based on willing and motivated property owners. Benefit score is assumed as 3 but will depend on erosion severity and lengths stabilized reaches. An Access score of 3 is based on cooperative property owners but impacts and tree loss related to projects.

Location:

Between Coach Lantern Avenue bridge and discharge pipes from Falconhurst Drive.



Impacted Properties:

All of this reach is along the backyards of private residential properties in both Town and County jurisdictions. A restoration project along the full length of the stream is estimated to potentially impact 26 Town parcels and 4 within County jurisdiction. However, it is assumed that projects would be developed based on support and cooperation of particular property owners and would possibly be limited to working on one side of a particular stream reach.

Implementation Requirements:

1. 404/401 permit for stream and wetland impacts
2. Permanent and temporary easements along stream
3. Easements for access and staging areas

Approximate Cost per 100 Foot per side of Stream Channel: \$25,000 - \$40,000 per 100 foot of bank stabilization (includes design, permitting, and construction) – dependent on type of bank stabilization and overall length of combined projects.

Project ID:
TC-ER-05

Reach ID:
UT-N4- Reach 6

Proposed Project:

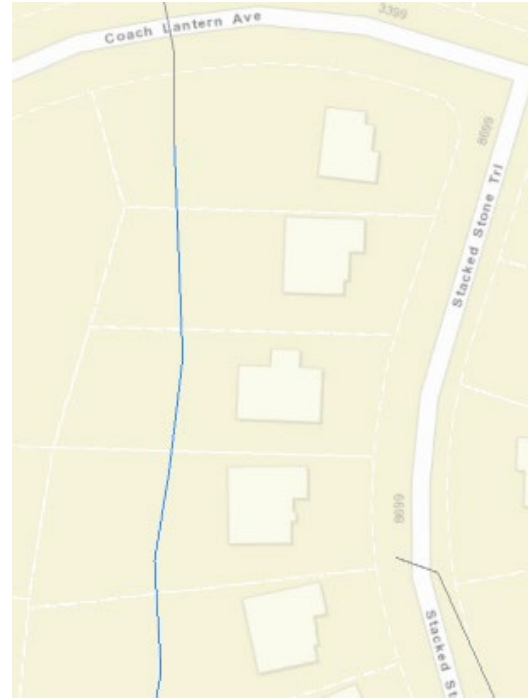
Stream restoration and stabilization to protect against headcutting and erosion along this reach disturbed by homeowners and lacking vegetated buffers in some areas. Benefit score is assigned as 2 for expected reduction in sediment export for a relatively smaller project cost. Access score is 2 for fewer property owners and access to stream from back of properties.

Location:

Behind homes along Stacked Stone Trail

Impacted Properties:

This reach flows through the backyards of five property owners. A 20-foot drainage easement is shown on plat maps along the stream channel.



Implementation Requirements:

1. 404/401 permit for stream and wetland impacts
2. Permanent and temporary easements along stream
3. Easements for access and staging areas

Approximate Cost: \$180,000 (includes design, permitting, and construction)



Project ID:
TC-ER-06

Reach ID:
UT-S5- Reach 3

Proposed Project:

Establishing a stable stream channel from the SCM outlet to the existing headcut location, with drop structures as appropriate for adequate energy dissipation and transition to downstream channel. The assigned Benefit score is 1 due to the volume of sediment export that can be prevented by implementing this project. Access score is 4 due to anticipated challenges of working with the affected property owners.

Location:

From SCM off of Capefield Drive to headcut on private property within County jurisdiction.



Impacted Properties:

The stream impacted by the existing headcut and threatened by further upstream destabilization crosses through two residential parcels within Wake County jurisdiction.

Implementation Requirements:

1. 404/401 permit for stream and wetland impacts.
2. Permanent and temporary easements along stream.
3. Easements for access and staging areas.

Approximate Cost: \$270,000 (includes design, permitting, and construction)



Project ID:
TC-ER-07

Reach ID:
UT-S7- Reach 2&3

Proposed Project:

Grade control structures to guard against headcutting and exacerbated erosion along this stream reach while it is still relatively stable. The proposal is to install the grade control measures at locations accessible from existing drainage easements. A Benefit score of 3 is assigned based on prevention of probable sediment export to Browns Lake. An Access score of 2 reflects the project implementation with HOA property, but probable need to access along easements between homes.

Location:

From Forestville Road to Coach Lantern Avenue

Impacted Properties:

Most of this stream reach is within property of the Homeowners Association of Stonegate, Inc., with one parcel still owned by a developer (Stonegate Enterprises, LLC). A 60-foot conservation easement is in place along the stream.

Implementation Requirements:

1. 404/401 permit for temporary stream and wetland impacts for ecological protection and enhancements within a conservation easement.
2. Agreements with the HOA and developer for project implementation.
3. Notifications to property owners of planned access through existing drainage easements.

Approximate Cost: \$240,000 (includes design, permitting, and construction)



APPENDIX D

WATER QUALITY IMPROVEMENT PROJECTS

Project ID:

TC-WQ-01 Green Streetscaping on Coach Lantern Avenue

Proposed Project:

Development of bioretention areas to be constructed upgradient of sag points on Coach Lantern Avenue. These SCMs would also serve as traffic calming measures for this thoroughfare.

Location:

Recommended SCM locations and potential sizes shown in green on aerial photos below.



Impacted Properties:

The SCMs would preclude parking along the street at those locations.

Implementation Issues:

1. Investigation of utility conflicts, integration with existing drainage infrastructure.
2. Coordination within Town departments and with homeowners for maintenance responsibilities.
3. Some property owners may donate easement for expansion of SCM within their property, increasing the water quality volume (WQV) which can be treated.

Approximate Cost: \$50,000 to \$80,000 per SCM area, dependent on size (includes design, permitting, and construction)

Project ID:

TC-WQ-02 New SCMs at Outfalls to UT-S7

Proposed Project:

Development of SCMs to be constructed at outfalls to UT-S7 to replace existing level spreaders. These SCMs would be designed provide treatment of stormwater and stability protection for the downstream channel.

Location:

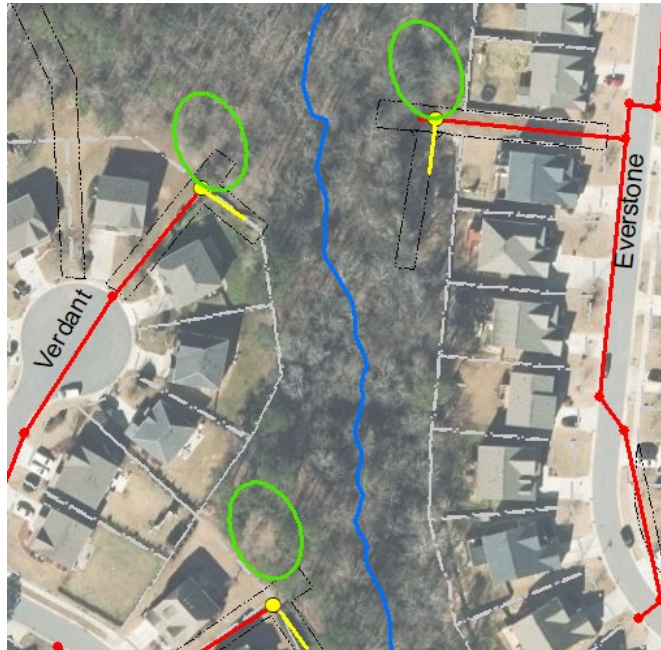
Recommended SCM locations shown in green on aerial photo.

Impacted Properties:

In addition to being located on HOA property, individual homeowners would be impacted during construction and for access through existing Town easements. The easements may also need to be used for ongoing maintenance access.

Implementation Issues:

1. If there are wetlands in any of the proposed areas, this may preclude installation of an SCM or present constraints and require 401/404 permitting.
2. Available space may constrain the water quality volume which can be treated. To be competitive for grant funding, a minimum treatment for one-half of the regulatory WQV is likely to be required.
3. Coordination with the HOA for construction of the SCMs.
4. Coordination with the HOA and homeowners for maintenance responsibilities and/or access.



Approximate Cost: \$100,000 to \$150,000 per SCM area (includes design, permitting, and construction) -- dependent on size, permitting issues, and whether multiple SCMs can be constructed under a single contract.



Board of Commissioners Work Session Agenda Item Report

Agenda Item No.: 2024-79-
Submitted by: Aileen J. Staples
Submitting Department: Finance
Meeting Date: March 5, 2024

SUBJECT

Monthly Financial Summary

Recommendation:

Item Summary:

ATTACHMENTS

- [Monthly Financial Report_summary.pdf](#)
- [January 31, 2024 Financial Summaries.pdf](#)

Agenda Item: Monthly Financial Report

Summary: Staff prepares monthly financial reports for each of the respective operating funds for which an annual budget is authorized by the Board of Commissioners. The reports are accompanied by highlights during respective month for each fund.

Attachments: Financial reports

Town of Wake Forest

January 31, 2024

GENERAL FUND HIGHLIGHTS:

- Total year-to-date revenues are at 70.43% of annual budgeted amounts.
- Ad valorem taxes represent over 50% of the general fund revenues – they are due September 1. Penalties and interest do not accrue until January 2024. Majority of this revenue source comes in towards the end of December and before January 6.
- Unrestricted intergovernmental revenues (sales and utility franchise tax) represent over 20% of general fund revenues. The first four distributions of these revenues received through January - **\$5.5 million (4.6% above previous fiscal year to date)**
- Other financing sources include installment purchase proceeds, interfund transfers and appropriated fund balance – reflective later in the fiscal year.
- Total year-to-date expenditures are at 64.33% of appropriations (includes encumbrances).
 - **Public Facilities (500) includes purchase order issued for generators (town hall and operations center). Budget amendment forthcoming in February.**
 - **Parks, Recreation and Cultural Resources (620) reflects purchase of property (Devon Square – 8 acres) – funds were transferred from Recreation Capital Reserve (impact fees) for this acquisition. Budget amendment forthcoming in February.**
- Net increase YTD (*increase in fund balance*) is **\$10.7 million**.
 - Increased collections in current year ad valorem taxes - \$7.5 million for the month.
 - **Please keep in mind that this will level out the remainder of the year**
 - Capital purchases and debt service will occur in March-June.

DEBT SERVICE FUND HIGHLIGHTS:

- \$300,986 in debt service payments made in January.
- Remaining distribution of Powell Bill funds received in December - \$216,000 over expectations.
- Net increase YTD (*increase in fund balance*) is **\$2,688,069**.

WF BIP:

- Other financing sources represents transfer from General Fund.
- Expenditures are below expected guideline (58%).

DMSD HIGHLIGHTS:

- \$69,999 collected in DMSD taxes in January.
- Transfers to Debt Service fund and General Fund (façade improvements) made in December.

January 31, 2024 - Financial Summaries – page 2

WFRC HIGHLIGHTS:

- Expenditures are at 54.66% which is below the guideline (58%).
- Other financing sources represents transfer from General Fund for personnel costs.

ELECTRIC FUND HIGHLIGHTS:

- Total year-to-date revenues are at 62.95% of budgeted amounts.
- Total expenses are at 89.06% (includes encumbrances) – without inventory encumbrance – 60.8%.
 - Purchase for resale – power for January **(\$1,133,961)** is paid in February and not reflected in the attached.
 - **Purchase order for \$4,383,350 was issued in April 2022 per bids received for transformers (inventory) – based on updated information – at this time, we do not have a delivery date. Staff will determine in early 2024 if these are needed and may consider cancelling this order.**
 - Purchases for inventory are accounted for on a cash basis during the fiscal year then reconciled to the balance sheet at year end.
 - Purchase orders for transformers carried forward from FY 22 and FY 23.
- Net gain YTD is **\$539,182**

Rate adjustments approved on March 21, 2023, with respective effective dates of April 1, 2023, and September 1, 2023.

AMERICAN RESCUE PLAN ACT (ARPA):

- Report is a “life to date” (LTD) meaning everything reported is cumulative from the beginning – July 2021.
- Due to reporting and accounting requirements, funds received to date are shown as “deferred revenue” and is recorded as revenue as we incur expenditures over the next few years. For monthly reporting purposes, it is shown that all funds have been received.
- Funds must be encumbered (or under contract/obligated) by December 31, 2024 and expended (paid) by December 31, 2026.

GENERAL FUND
January 31, 2024

Monthly Target Percentage

58.00%

Department	Amended Budget	YTD Actual	Encumbrances	Remaining Budget (including encumbrances)	% Budget Used (includes encumbrances)	PY YTD Actuals
REVENUES						
Ad Valorem Taxes	\$ 38,078,440	\$ 37,466,350	-	\$ 612,090	98.39%	\$ 34,643,738
Other Taxes	55,000	30,487	-	24,513	55.43%	27,442
Unrestricted Intergovernmental	18,435,300	6,156,172	-	12,279,128	33.39%	6,046,438
Restricted Governmental	2,297,540	1,512,900	-	784,640	65.85%	1,116,755
Permits and Fees	2,514,750	1,778,500	-	736,250	70.72%	1,603,032
Other Revenue	1,903,470	1,271,748	-	631,722	66.81%	965,984
Sales and Services	5,096,750	2,150,886	-	2,945,864	42.20%	1,876,453
Investment Earnings	650,000	973,012	-	(323,012)	149.69%	448,792
Other Financing Sources	8,437,160	3,222,433	-	5,214,727	38.19%	589,919
General Fund Total	\$ 77,468,410	\$ 54,562,489	-	22,905,921	70.43%	\$ 47,318,553

Department	Amended Budget	YTD Actual	Encumbrances	Remaining Budget (including encumbrances)	% Budget Used (includes encumbrances)	PY YTD Actuals
EXPENDITURES						
410 Board of Commissioners	\$ 470,885	\$ 191,249	\$ -	\$ 279,636	40.61%	\$ 150,717
412 Legal Services	397,600	263,494	-	134,106	66.27%	236,911
420 Town Manager's Office	896,750	537,805	117,930	241,015	73.12%	495,853
421 Town Clerk	250,500	139,913	-	110,587	55.85%	-
422 Organizational Performance	474,180	273,750	-	200,430	57.73%	-
423 Budget Management	232,785	82,091	-	150,694	35.26%	-
425 Communications	1,292,800	707,403	73,143	512,254	60.38%	618,149
430 Human Resources	1,182,910	669,490	24,569	488,850	58.67%	688,768
431 Risk Management	483,730	378,613	400	104,717	78.35%	-
435 Downtown Development	526,785	282,928	-	243,857	53.71%	218,477
440 Financial Services	1,283,435	933,825	1,484	348,126	72.88%	980,656
445 Information Technology	2,281,575	1,376,412	54,435	850,728	62.71%	943,665
480 Inspections	2,411,175	1,236,652	57,436	1,117,088	53.67%	1,114,954
490 Planning	4,319,425	1,700,665	734,162	1,884,598	56.37%	1,317,463
500 Public Facilities	3,471,860	1,806,213	1,701,128	(35,482)	101.02%	1,670,765
510 Police	16,369,175	9,708,443	406,932	6,253,800	61.80%	8,566,514
520 Fire	12,703,150	6,774,008	412,264	5,516,878	56.57%	6,091,606
530 Public Works Administration	313,115	174,378	-	138,737	55.69%	164,335
535 Urban Forestry	530,750	267,773	33,345	229,632	56.73%	232,434
540 Engineering	1,780,185	889,067	177,223	713,896	59.90%	807,747
545 Stormwater Management	796,560	236,656	112	559,791	29.72%	-
550 Fleet Maintenance	653,895	342,746	4,219	306,929	53.06%	280,796
560 Streets	3,902,780	1,764,816	738,327	1,399,638	64.14%	1,409,461
580 Solid Waste	5,986,800	2,513,962	215,813	3,257,025	45.60%	2,474,257
620 Parks and Recreation	6,253,965	5,815,991	1,188,431	(750,457)	112.00%	2,274,520
999 Transfers	8,201,640	4,825,277	-	3,376,363	58.83%	4,171,151
General Fund Total	\$ 77,468,410	\$ 43,893,621	\$ 5,941,354	27,633,436	64.33%	\$ 34,909,199

General Fund - Net Gain (Loss)

\$ 10,668,869

\$ 12,409,354

Debt Service Fund
January 31, 2024

Monthly Target Percentage

58.00%

Department	Amended Budget	YTD Actual	Remaining Budget (including encumbrances)	% Budget Used (includes encumbrances)	PY YTD Actuals
REVENUES					
Restricted Governmental	\$ 1,290,595	1,514,715	(224,120)	0.00%	1,286,484
Permits and Fees	707,610	388,607	319,003	0.00%	348,511
Investment Earnings	30,520	14,765	15,755	0.00%	16,144
Other Financing Sources	6,078,775	3,573,035	2,505,740	58.78%	3,050,109
General Fund Total	\$ 8,107,500	5,491,123	2,616,377	67.73%	\$ 4,701,248

Department	Amended Budget	YTD Actual	Remaining Budget (including encumbrances)	% Budget Used (includes encumbrances)	PY YTD Actuals
EXPENDITURES					
440 Financial Services	\$ 762,870	\$ 6,076	\$ 756,794	\$ -	-
445 Information Technology	397,135	393,604	3,532	99.11%	401,354
480 Building Inspections	54,455	50,920	3,535	93.51%	100,158
490 Planning	12,595	6,296	6,299	49.98%	-
500 Public Facilities	617,190	411,899	205,291	66.74%	718,681
510 Police	673,215	412,329	260,886	61.25%	364,448
520 Fire	290,355	145,169	145,186	50.00%	134,543
535 Urban Forestry Division	8,555	4,273	4,282	49.95%	4,272
540 Engineering	6,985	3,523	3,462	50.44%	3,523
550 Fleet Maintenance	20,715	10,348	10,367	0.00%	4,273
560 Streets	1,620,525	264,683	1,355,842	16.33%	409,752
570 Powell Bill	1,522,590	585,034	937,556	38.42%	436,034
580 Solid Waste	235,605	117,783	117,822	49.99%	53,952
620 Parks and Recreation	1,884,710	391,116	1,493,594	20.75%	417,412
General Fund Total	\$ 8,107,500	2,803,053	5,304,447	34.57%	\$ 3,048,401

Debt Service Fund - Net Gain (Loss)

\$ 2,688,069

\$ 1,652,847

Wake Forest Business and Industry Partnership Fund (BIP)
January 31, 2024

Monthly Target Percentage

58.00%

Department	Amended Budget	YTD Actual	Encumbrances	Remaining Budget (including encumbrances)	% Budget Used (includes encumbrances)	PY YTD Actuals
REVENUES						
Sales and Services	\$ -	\$ -	\$ -	\$ -	0.00%	\$ -
Other Revenue	2,500	8,986	-	(6,486)	359.46%	-
Other Financing Sources	550,700	277,200	-	273,500	50.34%	213,071
WFRC Fund Total	\$ 553,200	286,186	-	267,014	51.73%	\$ 213,071

Department	Amended Budget	YTD Actual	Encumbrances	Remaining Budget (including encumbrances)	% Budget Used (includes encumbrances)	PY YTD Actuals
EXPENDITURES						
415 Economic Development	\$ 553,200	\$ 204,315	\$ -	\$ 348,885	36.93%	\$ 86,015
WFRC Fund Total	\$ 553,200	204,315	-	348,885	36.93%	\$ 86,015

WFBIP Fund - Net Gain (Loss) **\$ 81,871** **\$ 127,056**

DMSD Special Revenue Fund
January 31, 2024

Monthly Target Percentage

58.00%

Department	Amended Budget	YTD Actual	Encumbrances	Remaining Budget (including encumbrances)	% Budget Used (includes encumbrances)	PY YTD Actuals
REVENUES						
Ad Valorem Taxes	\$ 155,570	\$ 150,590	-	\$ 4,980	96.80%	\$ 138,256
Investment Earnings	9,430	11,629	-	(2,199)	123.32%	4,901
Other Financing Sources	-	-	-	-	0.00%	-
DMSD Special Revenue Fund Total	\$ 165,000	162,219	-	2,781	98.31%	\$ 143,157

Department	Amended Budget	YTD Actual	Encumbrances	Remaining Budget (including encumbrances)	% Budget Used (includes encumbrances)	PY YTD Actuals
EXPENDITURES						
Transfers In (Out)	\$ 165,000	\$ 83,300	-	\$ 81,700	50.48%	\$ 65,000
DMSD Special Revenue Fund Total	\$ 165,000	83,300	-	81,700	50.48%	\$ 65,000

Downtown District - Net Gain (Loss)

78,919

78,157

Wake Forest Renaissance Centre
January 31, 2024

Monthly Target Percentage

58.00%

Department	Amended Budget	YTD Actual	Encumbrances	Remaining Budget (including encumbrances)	% Budget Used (includes encumbrances)	PY YTD Actuals
REVENUES						
Sales and Services	\$ 249,710	\$ 95,929	\$ -	\$ 153,781	38.42%	\$ 77,262
Other Revenue	140,700	94,676	-	46,024	67.29%	77,585
Other Financing Sources	757,785	422,208	-	335,577	55.72%	333,305
WFRC Fund Total	\$ 1,148,195	612,812	-	535,383	53.37%	\$ 488,152

Department	Amended Budget	YTD Actual	Encumbrances	Remaining Budget (including encumbrances)	% Budget Used (includes encumbrances)	PY YTD Actuals
EXPENDITURES						
626 Wake Forest Renaissance Centre	\$ 1,148,195	\$ 622,066	\$ 5,500	\$ 520,629	54.66%	\$ 505,768
WFRC Fund Total	\$ 1,148,195	622,066	5,500	520,629	54.66%	\$ 505,768

WFRC Fund - Net Gain (Loss) **\$ (9,254)** **\$ (17,616)**

WAKE FOREST POWER (ELECTRIC FUND)
January 31, 2024

Monthly Target Percentage

58.00%

Department	Amended Budget	YTD Actual	Encumbrances	Remaining Budget (including encumbrances)	% Budget Used (includes encumbrances)	PY YTD Actuals
REVENUES						
Charges for Services	\$ 22,616,900	\$ 14,591,646	-	\$ 8,025,254	64.52%	\$ 12,515,245
Sales Tax - Utility	1,567,350	1,015,327	-	552,023	64.78%	867,957
Other Revenue	412,500	228,869	-	183,631	55.48%	221,798
Investment Earnings	31,250	34,282	-	(3,032)	109.70%	28,044
Other Financing Sources	582,000	-	-	582,000	0.00%	149,500
Electric Fund Total	\$ 25,210,000	15,870,124	-	9,339,876	62.95%	\$ 13,782,543

Department	Amended Budget	YTD Actual	Encumbrances	Remaining Budget (including encumbrances)	% Budget Used (includes encumbrances)	PY YTD Actuals
EXPENDITURES						
840 Electric - Billing & Collections	\$ 575,820	\$ 349,111	\$ 116	\$ 226,593	60.65%	\$ -
850 Electric - Operations	\$ 24,015,635	14,591,867	7,121,057	2,302,711	90.41%	12,208,646
860 Electric - Tree Trimming	618,545	389,965	-	228,580	63.05%	204,501
Electric Fund Total	\$ 25,210,000	15,330,943	7,121,173	2,757,884	89.06%	\$ 12,413,147

Electric Fund - Net Gain (Loss) \$ - **539,182** **1,369,396**

AMERICAN RESCUE PLAN ACT (ARPA)
01/31/2024 (Cumulative - Life to Date)

Monthly Target Percentage

N/A

N/A						
Department	Amended Budget	LTD Actual	Encumbrances	Remaining Budget	% Budget Used	PY YTD Actuals
REVENUES						
Restricted Governmental	\$ 14,541,000	14,541,846	-	(846)	100.01%	-
Investment Earnings	-	649,765	-	(649,765)	0.00%	-
Other Financing Sources	-	-	-	-	0.00%	-
General Fund Total	\$ 14,541,000	15,191,611	-	(650,611)	104.47%	\$ -
Department	Amended Budget	LTD Actual	Encumbrances	Remaining Budget	% Budget Used	PY YTD Actuals
EXPENDITURES						
445 Information Technology	\$ 1,030,000	\$ 166,929	\$ 277,254	\$ 585,817	43.12%	\$ -
525 Public Safety (ARPA)	2,800,000	1,284,047	1,654,000	(138,047)	104.93%	-
540 Engineering	6,325,000	763,058	616,296	4,945,646	21.81%	-
638 Other Improvements	4,386,000	1,924,677	1,076,640	1,384,683	68.43%	-
General Fund Total	\$ 14,541,000	4,138,711	3,624,190	6,778,099	53.39%	\$ -
ARPA Fund - Net Gain (Loss)		\$ 11,052,900				\$ -



Board of Commissioners Work Session Agenda Item Report

Agenda Item No.: 2024-80-

Submitted by: Terry Savary

Submitting Department: Administration

Meeting Date: March 5, 2024

SUBJECT

Review of Draft Agenda for Upcoming Regular Meeting

Recommendation:

Item Summary:

ATTACHMENTS

- [DraftBOCAgenda_Mar202419.pdf](#)



Wake Forest Board of Commissioners

Draft Meeting Agenda

March 19, 2024 at 6:00 PM

All items listed are for discussion and possible action.

Call to Order

Pledge of Allegiance

1.Approval of Agenda

2.Approval of Minutes

- 2.A. February 6, 2024 Work Session
February 20, 2024 Regular Meeting

3.Presentations

- 3.A. Proclamation Recognizing April 11, 2024, as "PARKINSON'S DAY" in the Town of Wake Forest, NC
- 3.B. Proclamation Recognizing March 29, 2024, as "National Vietnam War Veterans Day"
- 3.C. Resolution Recognizing Senior Police Officer Richard B. May on his retirement

4.Public hearings / Public Comment

- 4.A. Public Hearing on LEGISLATIVE CASE RZ-23-06, Star Road Tech Center, a rezoning filed by St. John Properties to rezone 30.35 acres located at 0 Star Road, being Wake County Tax PINs 1739-65-3709, 1739-55-8441, and 1739-65-4232 from Highway Business (HB) and Special Highway Overlay (SH1-O) to Highway Business Conditional District (HB-CD) and Special Highway Overlay (SH1-O).
- 4.B. Public Hearing to receive public input for the FY 2024-2025 Annual Operating Budget
- 4.C. Public Comment: If anyone would like to address the Board of Commissioners on an item other than a public hearing item during the time of public comment, please sign up with the Town Clerk prior to the meeting. Each speaker is asked to limit comments to 3 minutes. Please provide the clerk with copies of any handouts you have for the Board. Although the Board is interested in hearing your concerns, speakers should not expect Board action or deliberation on subject matter brought

up during the Public Comment segment. Topics requiring further investigation will be referred to the appropriate Town Staff and may be scheduled for a future agenda. Thank you for your consideration of the Board of Commissioners, staff and other speakers.

5.Consent Agenda

(A Consent Agenda is a group of items passed with a single motion and vote. These matters are of a generally routine nature. No debate is allowable on any item included on the Consent Agenda. If a Commissioner or any citizen of Wake Forest or its ETJ wants separate consideration of any item, it may be removed from the Consent Agenda by request.)

- 5.A. Resolution to Accept Streets into the Town of Wake Forest Street System for Maintenance.
- 5.B. Approval of a resolution to schedule the public hearing and certify the sufficiency for a petition requesting annexation submitted by McAdams Company C/O Bill Andrews for property associated with the rezoning request RZ-22-07, located at 12621 and 12631 Capital Blvd being Wake County PINs 1831-85-3681 and 1831-85-5861 being approximately 5.54 acres.
- 5.C. Approval of a Resolution to surplus the badge and service weapon carried by Senior Police Officer Richard May
- 5.D. Approval of Housing Initiatives Special Revenue Fund
- 5.E. Approval of Ordinance Codification for the Town's Code of Ordinances, Supplement 17

6.Legislative Items

7.Planning Items

- 7.A. Consideration of LEGISLATIVE CASE RZ-23-06, Star Road Tech Center, a rezoning filed by St. John Properties to rezone 30.35 acres located at 0 Star Road, being Wake County Tax PINs 1739-65-3709, 1739-55-8441, and 1739-65-4232 from Highway Business (HB) and Special Highway Overlay (SH1-O) to Highway Business Conditional District (HB-CD) and Special Highway Overlay (SH1-O).

8.Administration and Financial Items

9.Public Services Items

10.Parks and Recreation Items

11.Public Safety Items

12.Other Business

12.A. Department Monthly Report

12.B. Commissioner Reports

13.Adjournment