



Morrisville Town Council

Regular Meeting

September 8, 2026, 6:00 PM

Town of Morrisville Mission Statement: Connecting our diverse community to an enhanced quality of life through innovative programs and services.

- 1. Call to Order**
- 2. Recognition of Sergeant at Arms**
- 3. Invocation**
- 4. Pledge of Allegiance**
- 5. Adoption of Regular Agenda**
Call for any conflicts of interest in relation to the proposed agenda.
- 6. Consent Agenda**
 - 6.a [Resolution Authorizing Construction of the International Drive Sidewalk Project](#)
Mark Spanioli, P.E., Director of Engineering
[2026-318-0 RES Auth International Drive Sidewalk Project.pdf](#)
 - 6.b ["Key to the Town" Policy](#)
Brandon Zuidema, Town Manager
Work Session - August 11, 2026
Work Session - August 27, 2026
Action - September 8, 2026 (Consent)
[2026-267-0 RES Approving a Key to the Town Policy REVISED.pdf](#)
[2026-2676-0 ATTH01 Key to the Town Policy - REVISED.pdf](#)
[2026-2676-0 ATTH02 Key to the Town Policy - REVISED CLEAN.pdf](#)
 - 6.c [Resolution Approving a Lease for the Relocation/Expansion of the Senior Center](#)
Brandon Zuidema, Town Manager
Presentation - August 25, 2026
Approval (Consent) - September 8, 2026
[2026-304-0 RES Senior Center Lease.pdf](#)
[2026-304-0 ATTH01 Senior Center Lease.pdf](#)

6.d [Locally Preferred Alternative for the Wake Bus Rapid Transit: Western Corridor Extension](#)

Bret Martin, Transportation Project Manager

Michele Stegall, Planning Director

Work Session - July 30, 2026

Discussion on Letter - August 25, 2026

Action - September 8, 2026

[2026-239-0_ATTH01_Wake BRT Extensions Concept of Operation Study Final Report.pdf](#)

[2026-239-0_ATTH02_WakeBRT System Guidelines.pdf](#)

[2026-239-0_ATTH03_Recommended LPA for Wake BRT Western Extension.pdf](#)

[2026-239-0_ATTH05A_Draft Town Council Letter to CAMPO on BRT Alignment - THIS ITEM HAS BEEN UPDATED.pdf](#)

[2026-239-0-ATTH05B_Draft Town Council Letter to CAMPO on BRT Alignment - Redline - THIS ITEM IS NEW.pdf](#)

[2026-239-0_PRES_Wake Bus Rapid Transit-Western Corridor Extension Update.pdf](#)

7. Items Pulled from Consent (if any)

8. Proclamations

8.a Proclamation Recognizing National Preparedness Month (*for reference only*)

[2026-237-0 PROC Recognizing National Preparedness Month.pdf](#)

9. Morrisville Speaks: Public Comment

10. Administrative Reports

10.a [Chamber of Commerce Quarterly Report](#)

Christie Moser, Chamber of Commerce President

[2026-320-0 Chamber Quarterly Update Q1.pdf](#)

11. Public Hearings

11.a [Resolution Authorizing an Economic Incentive Grant Agreement with Novartis Innovative Technologies, Inc.](#)

Tiffany McNeill, Economic Development Director

Public Hearing & Action - September 8th, 2026

[2026-317-0 RES Novartis Innovative Technologies Economic Incentive Agreement.pdf](#)

[2026-317-0 ATTH01 UPDATED_Novartis Innovative Technologies Incentive Grant Agreement.pdf](#)

[2026-317-0 ATTH02 Original Authorizing Resolution](#)

[2026-317-0 ATTH03 Original Novartis Agreement](#)

11.b [Annexation 808 Church St and 0 Church St Hamlet Development](#)

Jordan Prince, Planner I

August 11 - Resolutions Initializing Process

August 25 - Resolution Amending Public Hearing Date

September 8 - Public Hearing & Action

[2026-262-0A SIGNED RES Sufficiency of the Petition](#)

[2026-262-0B SIGNED RES Setting Date for Public Hearing](#)

[2026-262-0C SIGNED RES Amending Date for Public Hearing - THIS ITEM HAS BEEN UPDATED](#)

[2026-262-0 ORD Approving the Annexation.pdf THIS ITEM HAS BEEN UPDATED](#)

[2026-262-0 ATTH 01 Annexation Petition and Supporting Documents.pdf](#)

[2026-262-0 ATTH 02 Maps.pdf](#)

[2026-262-0 PRES Hamlet Annexation THIS ITEM HAS BEEN UPDATED.pdf](#)

11.c [Resolution Approving a Special Use Permit for the West Wake Solid Waste Facility.](#)

Rachel Cypher, Planner II

September 8 - Public Hearing

September 22 - Action

[2026-291-0 RES Approving the Application](#)

[2026-291-0 ATTH 01 Applicant Packet](#)

[2026-291-0 ATTH 02 Special Use Permit FAQ](#)

[2026-291-0 ATTH 03 Maps](#)

[2026-291-0 PRES Applicant](#)

[2026-291-0 PRES Staff](#)

12. Action Items

12.a [False Alarm Ordinance](#)

Justin Rosser, Chief of Police

Presentation - August 25

Action - September 8

[2026-294-0 ORD Amending False Alarm Policy.pdf](#)

[2026-294-0 RES Fee Schedule Amendment False Alarms.pdf](#)

[2026-294-0 ATTH 02 False Alarm Revisions REDLINE.pdf](#)

[2026-294-0 ATTH 03 False Alarm Revisions CLEAN.pdf](#)

[2026-294-0 PRES False Alarm Ordinance Revisions.pdf](#)

[2026-294-0 PRES False Alarm Statistics NEW ATTACHMENT.pdf](#)

13. Future Meetings, Events and Resident Involvement Opportunities For a full listing of events, please see the Town Calendar at www.MorrisvilleNC.gov

14. Council and Manager Comments

15. Work Sessions

15.a [MAFC Insurance-Based Memberships Follow-Up](#)

Cindi King | Director, PRCR

Megan Young | Assistant Director, PRCR

Mark Hassig | Manager, MAFC

Laura Crumpler | Manager MSC

[2026-189-0_ATTH01_Survey Results.pdf](#)

[2026-189-0_PRES_MAFc Insurance.pdf](#)

16. Closed Sessions

- 16.a Closed Session Pursuant to NCGS § 143-318.11 (a)(3) to Discuss a Matter of Attorney-Client Privilege

17. Adjournment

Thank you for attending this meeting of the Morrisville Town Council. We hope you plan to join us again! Please feel free to email your Town Council members at TownCouncil@morrisvillenc.gov or visit www.MorrisvilleNC.gov/Council for additional contact information.

Town Council Agenda Item Report

Agenda Item No. 6.a

Submitted by: Mark Spanioli

Submitting Department Engineering

Meeting Date: September 8, 2026

SUBJECT

Resolution Authorizing Construction of the International Drive Sidewalk Project

Recommendation:

Approve

Updates/History of Briefing:

NA

Executive Summary and Background Information:

In 2021, the Town updated their Sidewalk Program Development Policy which identified and ranked sidewalk gaps throughout Morrisville. International Drive sidewalk gaps were identified, ranked and in 2025, the Town initiated the design and permitting phase of the project. The project includes new sidewalk construction, grading and various infrastructure improvements along International Drive from Aviation Parkway to Southport Drive and includes approximately 5,000 linear feet (just short of a mile) of sidewalk installation.

In July of 2026, the Town advertised an Invitation to Bid for qualified construction companies to submit a bid package to the Town for review and consideration. Staff and our design consultant have evaluated the bid packages and determined that Browe Construction, Inc. was the lowest responsive and responsible bidder with a stipulated price of \$560,810. Staff are recommending that an additional \$60,000 be set aside for construction contingency for additional administrative, construction support and testing costs as needed. The total construction cost for this project including construction, inspections/testing and contingencies is estimated at \$620,810.

Town staff are recommending the award of the International Drive Sidewalk Project to Browe Construction, Inc. as the lowest responsive and responsible bidder in an amount not to exceed of \$560,810. The attached resolution is to accept the lowest responsive and responsible bidder, Browe Construction, Inc, for the stipulated price \$560,810 and authorize the Town Manager to execute a construction contract to construct the International Drive Sidewalk Project. In addition, staff are recommending an additional owner contingency of \$60,000 to cover any additional administrative or construction costs to be used during the construction

phase.

Funding for this project comes from transportation reserves and is currently appropriated in the Transportation Capital Projects Fund for this project.

Advisory Board/Committee Review:

None

Insert Date of Advisory Board/Committee Review:

Advisory Board/Committee Recommendation and/or Vote:

None

Potential Options:

Approve the resolution for the International Drive Sidewalk Project

Do not approve the resolution for the International Drive Sidewalk Project

Staff Recommendation:

None

ATTACHMENTS

- [2026-318-0 RES Auth International Drive Sidewalk Project.pdf](#)



**RESOLUTION 2026-318-0 OF THE MORRISVILLE TOWN
COUNCIL AUTHORIZING A CONTRACT AWARD FOR THE
INTERNATIONAL DRIVE SIDEWALK PROJECT**

WHEREAS, in 2021, the Town updated their Sidewalk Program Development Policy which identified and ranked sidewalk gaps throughout Morrisville; and

WHEREAS, in 2025, design and permitting was initiated for the International Drive sidewalk gap project; and

WHEREAS, the project includes new sidewalk construction, grading and various infrastructure improvements along International Drive from Aviation Parkway to Southport Drive and includes approximately 5,000 linear feet of sidewalk installation; and

WHEREAS, in July of 2026, the Town advertised an Invitation to Bid for qualified construction companies to submit a bid package to the Town for review and consideration; and

WHEREAS, in August of 2026, following Town procurement guidelines, evaluated bids received and determined that Browe Construction, Inc. was the lowest responsive and responsible bidder for the project in the amount of \$560,810; and

WHEREAS, staff are recommending that an additional \$60,000 be set aside for construction contingency for additional administrative, construction support and testing costs as needed; and

WHEREAS, the funding for this project comes from transportation reserves and is appropriated in the Transportation Capital Projects Fund; and

WHEREAS, pursuant to the bid review, Town staff are recommending entering into a contract with Browe Construction, Inc. in an amount not to exceed of \$560,810.

NOW, THEREFORE, BE IT RESOLVED THAT THE MORRISVILLE TOWN COUNCIL hereby authorizes the Town Manager to execute a construction contract with Browe Construction, Inc. in an amount not to exceed \$560,810 with an additional construction contingency of \$60,000, within available budgeted appropriations in the Capital Project Fund for the International Drive Sidewalk Project.

Adopted this the 8th day of September 2026,

ATTEST:

TJ Cawley, Mayor

Kayla Bertling, Town Clerk

Town Council Agenda Item Report

Agenda Item No. 6.b

Submitted by: Brandon Zuidema

Submitting Department Administration

Meeting Date: September 8, 2026

SUBJECT

"Key to the Town" Policy

Recommendation:

Adopt

Updates/History of Briefing:

August 11, 2026

At the August 11th Council meeting, Council provided feedback on recommended modifications to the draft policy, including more flexibility, the possibility of an option for dignitaries, and timing guidelines. The following adjustments have been made to the draft policy to address Council feedback:

- Amended the Scope section to acknowledge the possibility of heroic actions and dignitary visits being addressed in this policy.
- Added definitions for "Heroic/Lifesaving Act" and "Honored Presence" in the policy.
- Modified sections IV and V to address "Exemplary Contributions"
- Added language to section IV.1 giving Council to waive the ten-year requirement.
- Added timeframe language to section V.
- Modified section V.2 to clarify it can be the Mayor or Mayor Pro Tem on the committee but that the Mayor Pro Tem can be a Council representative if not serving in lieu of the Mayor.
- Added section VI to allow for Council to recognize a "Heroic/Lifesaving" incident and/or a visiting dignitary.

Staff will review these proposed changes with Council.

August 27, 2026

Council was provided the updates and agreed that the changes addressed their concerns. One minor edit was made to correct a misspelling and the policy will now be on the September 8 agenda for approval on consent.

Executive Summary and Background Information:

The Town has previously awarded a "Key to the Town" on five occasions. However, the Town has not previously adopted a policy to establish guidelines for the awarding of this recognition. This policy is intended to establish those guidelines to ensure consistency in criteria for any future awards. Staff will review the draft policy with Council for discussion and feedback.

Advisory Board/Committee Review:

None

Insert Date of Advisory Board/Committee Review:

Advisory Board/Committee Recommendation and/or Vote:

None

Potential Options:

Approve the Resolution adopting a Key to the Town Policy

Request changes and approve the Resolution adopting a Key to the Town Policy

Do not approve the Key to the Town Policy

Staff Recommendation:

None

ATTACHMENTS

- [2026-267-0 RES Approving a Key to the Town Policy REVISED.pdf](#)
- [2026-2676-0 ATTH01 Key to the Town Policy - REVISED.pdf](#)
- [2026-2676-0 ATTH02 Key to the Town Policy - REVISED CLEAN.pdf](#)



RESOLUTION 2026-267-o OF THE MORRISVILLE TOWN COUNCIL APPROVING A “KEY TO THE TOWN” POLICY

WHEREAS, the Town of Morrisville has previously awarded a “Key to the Town” to individuals who have supported and/or provided exemplary service to the Town; and

WHEREAS, the Town has not formally established criteria for the selection and anticipates awarding “Keys to the Town” in the future; and

WHEREAS, the creation of a policy to establish formal criteria around this award is the appropriate method to ensure consistency in its award and the future.

NOW, THEREFORE, BE IT RESOLVED THAT THE MORRISVILLE TOWN COUNCIL hereby approves a “Key to the Town” policy as attached to this resolution.

Adopted this 8th day of September 2026.

ATTEST:

TJ Cawley, Mayor

Kayla Bertling, Town Clerk

	POLICY OR STANDARD PROCEDURE	
	Administration Dept.	Effective: September 10, 2026
Policy for Awarding a “Key to the Town”		Supersedes: N/A
		Prepared By: Brandon Zuidema, Town Manager
		Approved By: Town Council

I. Purpose

The Town of Morrisville seeks to recognize individuals who have made exemplary contributions to the community through voluntary service, outstanding leadership, and/or notable achievements. The contributions must reflect a commitment to at least one of the Town’s four values – Dedication, Integrity, Courtesy, and Innovation.

The "Key to the Town" is an honorary award symbolizing the highest level of appreciation and respect bestowed by the Town. This policy outlines the criteria, procedures, and decision-making process for awarding the Key to the Town.

II. Scope

The Key to the Town award is a prestigious honor that recognizes individuals who have significantly impacted the Town of Morrisville through their actions or through their visiting the Town. By establishing clear guidelines and a structured selection process, the Town ensures that this award is given thoughtfully and meaningfully, celebrating those who have dedicated themselves to the betterment of the community.

III. Definitions

1. Heroic/Lifesaving Act – when an individual or group of individuals take action(s) to save the life of another person(s).
2. Honored Presence – when a dignitary or other individual of great importance visits the Town of Morrisville and their presence is an honor to the Town.
3. Stakeholder – someone who has collaborated or engaged with the Town in an official or meaningful capacity, such as through partnerships, civic involvement, business interactions, or project participation.
4. Volunteer Service – any unpaid, self-initiated effort performed for the benefit of the Town or its community, carried out with a genuine commitment to helping others, supporting civic activities, or improving community well-being. This service should demonstrate sustained dedication and result in a meaningful, positive, and lasting impact on the Town or its residents.

IV. Criteria for Awarding a “Key to the Town” for Exemplary Contributions

1. Length of Service

The nominee must have demonstrated a long-term commitment to the community. Typically, this would involve a minimum of ten years of service or contribution to the Town of Morrisville. It is at the discretion of Council to reduce this requirement in unique circumstances.

2. Connection to Morrisville

The nominee must have either resided, worked or owned a business, or otherwise been a stakeholder in Morrisville and must have made exemplary contributions to the community during that time.

3. Exemplary Contributions

The nominee’s exemplary contributions to the Town can include but are not limited to:

- Volunteer service that has had a lasting impact on the community; and/or
- Leadership in civic, cultural, or social endeavors that have benefited the Town; and/or
- Achievements in their profession or field of expertise that have brought recognition or great benefit to Morrisville.

4. Exclusions

A sitting member of Town Council is not eligible to receive a Key to the Town.

A current staff member is not eligible to receive a Key to the Town.

V. Nomination and Selection Process for Exemplary Contributions

1. Nominations

Nominations for the award of a Key to the Town can be submitted by any Council Member or employee of the Town.

- a. Stakeholders can request a nomination be submitted by a Council Member who will determine if it is submitted to the full Council. Stakeholders cannot nominate themselves or a business they are associated with.
- b. Nominations must be submitted in writing to the Town Clerk using the Town form (included as Attachment “A” and available on SharePoint) and include detailed information about the nominee's contributions and connection to the community.
- c. The timeframe from the submission of a nomination to the awarding of the key (when approved) is anticipated to be a minimum of sixty (60) days given the need to constitute the selection committee, review the nomination, take the nomination to Council for approval, and schedule the awarding of the key.
- d. Recognizing the award takes time to purchase and prepare following approval, Council should work with staff to understand production and scheduling timelines.

2. Selection Committee

The decision to recommend the award of a Key to the Town will be made by a Selection Committee, which will consist of five members:

- The Mayor or the Mayor Pro Tem;
- Two members of the Town Council (which can include the Mayor Pro Tem if not serving in lieu of the Mayor);
- The Town Manager (or their designee from the Senior Leadership Team); and
- A Department Head selected by the Town Manager.

The Selection Committee will review all nominations and decide on whether to recommend the award to the full Town Council based on the established criteria.

3. Council as Final Decision-Makers

Upon receiving a recommendation from the Selection Committee, the full Town Council will discuss the recommendation in an open meeting and will vote by majority rule whether to award a Key to the Town to the recommended nominee.

4. Awarding the Key

The Key to the Town will be awarded at a formal ceremony, typically during a Town Council meeting or a special community event. The recipient will be presented with a ceremonial key and a proclamation recognizing their contributions.

VI. Criteria for Awarding a “Key to the Town” for a One-Time Occurrence

1. There are two primary occurrences which would result in the awarding of a Key to the Town for a one-time occurrence:
 - a. An “Honored Presence” in Morrisville by a dignitary or another individual deemed by Council to be of great importance in the context of visiting the Town.
 - b. A “Heroic/Lifesaving” incident occurring in the Morrisville community in which one or more persons are responsible for saving the life of one or more persons outside of their normal career responsibilities.
2. A nomination for this award must come from a member of Council. The nominating Council member can seek staff assistance in advance of the meeting during which they make their nomination. Council may elect to vote on a nomination the same night it is presented, particularly if time is of the essence in having the award ready to present.
3. It is at Council’s discretion to award a Key to the Town for either of these one-time occurrences based on a majority vote (there will not be a selection committee given the nature of these awards).
4. The anticipated timing for the award of a Key to the Town for a one-time occurrence is anticipated to be two weeks from the time Council approves such an award. Council may request that staff attempt to expedite this process in unique circumstances.

VII. Review and Amendments

This policy shall be reviewed at least once every two years by the Town Council to ensure its relevance and effectiveness. Amendments to the policy can be proposed by a member of the Town Council or the Town Manager and must be approved by a majority vote of the Town Council.

ATTACHMENT A

Key to the Town Application – Enter Nominator Name

* Required

* This form will record your name, please fill your name.

Nominee Information

1. Name of Nominee *

2. Position/Title *

3. Phone Number *

4. Email *

5. Relationship to Morrisville *

☐ Resident

☐ Works

☐ Business Owner

☐ Stakeholder

6. Length of Service or Contribution to Morrisville *

Exemplary Contributions

7. Volunteer Service with Lasting Impact:

8. Leadership in Civic, Cultural, or Social Endeavors:

9. Achievements Bringing Recognition or Benefit to Morrisville:

10. Supporting Documentation

 Upload file

File number limit: 2 Single file size limit: 100MB Allowed file types: Word, Excel, PPT, PDF, Image, Video, Audio

ATTACHMENT 1 – REVISED FOR 8/25/26

	POLICY OR STANDARD PROCEDURE	
	Administration Dept.	Effective: September 10, 2026
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		Prepared By: Brandon Zuidema, Town Manager
		Approved By: Town Council

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IV. Criteria for Awarding a “Key to the Town” for Exemplary Contributions

1. Length of Service

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- Achievements in their profession or field of expertise that have brought recognition or great benefit to Morrisville.

4. Exclusions

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A current staff member is not eligible to receive a Key to the Town.

V. Nomination and Selection Process for Exemplary Contributions

1. Nominations

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- a. Stakeholders can request a nomination be submitted by a Council Member who will determine if it is submitted to the full Council. Stakeholders cannot nominate themselves or a business they are associated with.
- b. Nominations must be submitted in writing to the Town Clerk using the Town form (included as Attachment “A” and available on SharePoint) and include detailed information about the nominee’s contributions and connection to the community.
- c. Recognizing the award takes time to purchase and prepare following approval. Council should work with staff to understand production and scheduling timelines.

2. Selection Committee

The decision to recommend the award of a Key to the Town will be made by a Selection Committee, which will consist of five members:

- The Mayor or the Mayor Pro Tem;
- Two members of the Town Council (which can include the Mayor Pro Tem if not serving in lieu of the Mayor);
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VI.VII. Review and Amendments

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- The Town Manager (or their designee from the Senior Leadership Team); and
- A Department Head selected by the Town Manager.

The Selection Committee will review all nominations and decide on whether to recommend the award to the full Town Council based on the established criteria.

3. Council as Final Decision-Makers

Upon receiving a recommendation from the Selection Committee, the full Town Council will discuss the recommendation in an open meeting and will vote by majority rule whether to award a Key to the Town to the recommended nominee.

4. Awarding the Key

The Key to the Town will be awarded at a formal ceremony, typically during a Town Council meeting or a special community event. The recipient will be presented with a ceremonial key and a proclamation recognizing their contributions.

VI. Criteria for Awarding a “Key to the Town” for a One-Time Occurrence

1. There are two primary occurrences which would result in the awarding of a Key to the Town for a one-time occurrence:
 - a. An “Honored Presence” in Morrisville by a dignitary or another individual deemed by Council to be of great importance in the context of visiting the Town.
 - b. A “Heroic/Lifesaving” incident occurring in the Morrisville community in which one or more persons are responsible for saving the life of one or more persons outside of their normal career responsibilities.
2. A nomination for this award must come from a member of Council. The nominating Council member can seek staff assistance in advance of the meeting during which they make their nomination. Council may elect to vote on a nomination the same night it is presented, particularly if time is of the essence in having the award ready to present.
3. It is at Council’s discretion to award a Key to the Town for either of these one-time occurrences based on a majority vote (there will not be a selection committee given the nature of these awards).

4. The anticipated timing for the award of a Key to the Town for a one-time occurrence is anticipated to be two weeks from the time Council approvals such an award. Council may request that staff attempt to expedite this process in unique circumstances.

VII. Review and Amendments

This policy shall be reviewed at least once every two years by the Town Council to ensure its relevance and effectiveness. Amendments to the policy can be proposed by a member of the Town Council or the Town Manager and must be approved by a majority vote of the Town Council.

ATTACHMENT A

Key to the Town Application – Enter Nominator Name

* Required

* This form will record your name, please fill your name.

Nominee Information

1. Name of Nominee *

2. Position/Title *

3. Phone Number *

4. Email *

5. Relationship to Morrisville *

- ☐ Resident
- ☐ Works in Morrisville
- ☐ Business Owner
- ☐ Stakeholder

6. Length of Service or Contribution to Morrisville *

Exemplary Contributions

7. Volunteer Service with Lasting Impact:

8. Leadership in Civic, Cultural, or Social Endeavors:

9. Achievements Bringing Recognition or Benefit to Morrisville:

10. Supporting Documentation

 Upload file

File number limit: 2 Single file size limit: 100MB Allowed file types: Word, Excel, PPT, PDF, Image, Video, Audio

Town Council Agenda Item Report

Agenda Item No. 6.c

Submitted by: Brandon Zuidema

Submitting Department Administration

Meeting Date: September 8, 2026

SUBJECT

Resolution Approving a Lease for the Relocation/Expansion of the Senior Center

Recommendation:

Approve the Resolution.

Updates/History of Briefing:

Council received a presentation on the proposed lease at their August 25 meeting and expressed support for this item being placed on the consent agenda on September 8 for approval.

Executive Summary and Background Information:

The Town opened its first Senior Center in 2020 in leased space at the McCrimmon Corners shopping center. As programming and interest has evolved, staff identified a need to expand the space available at the Senior Center. Staff had originally worked with the landlord (Westwood Financial) to expand into two adjacent tenant spaces next to the existing Senior Center. However, subsequent to that discussion Harris Teeter closed and it was determined that the two expansion spaces would not be available until 2028, thus delaying the project significantly.

Earlier this year, Westwood Financial reached back out to staff offering the former Petland space in the same shopping center as an alternate opportunity to expand the Senior Center space. The current Senior Center is approximately 3,048 sq ft and would have grown to approximately 5,459 sq ft with expansion. The Petland space is approximately 5,552 sq ft which is compatible with the original expansion space. Additionally, the floor plan of the Petland space is more flexible, the space has higher ceilings and windows across the front, does not receive direct sunlight like the existing space does, and has better accessibility in terms of accessible parking and sidewalk access.

The proposed lease for the Petland space includes the following highlights (see also ATTH01):

- A 59-month lease with the option for the Town to sign a second 59-month lease after.
- Annual rent of \$194,319.96 (\$16,193.33 per month) plus annual CAM (common area maintenance) charges of \$39,530.28 (\$3,294.19 per month) for a total annual lease cost of \$233,850.24 (this is less than a \$3,000 difference from the original expanded space lease).

The Town's contracted broker has confirmed that the lease and CAM charges are reasonable

for our market.

- The lease includes an 8-month period from time of lease signing until payment of rent commences allowing the Town time to design and upfit the new space (note - this was negotiated up from 90 days).
- The lease includes a negotiated provision that if the new expansion space is not ready for the existing Senior Center to move at the time of rent commencement, the rent for the existing space will be reduced to \$1,000/month until such time that the Town vacates the space.
- The lease includes a TIA (tenant improvement allowance) of \$15 per sq ft for a total of \$83,280 (the same TIA per sq ft from the original expansion space). Staff has also negotiated with the landlord to receive an additional \$50,000 in TIA to address the Town's expenditures-to-date in designing the original expansion space. This provides a total TIA of \$133,280.

The budget originally approved by Council to upfit the original expansion space was \$850,000. The ROM (rough order of magnitude) estimate for the upfit of the Petland space is approximately \$1,000,000. The Town has \$800,000 remaining from the original budget and is receiving \$133,280 from the landlord in TIA to support upfit. This leaves approximately \$62,720 in additional funding required based on the current ROM. Staff has identified interest earned in this project that can be encumbered to fund the \$62,720. That funding will be addressed separately in a future item before Council.

Staff is requesting authorization from Council to sign the lease for the former Petland space to provide expanded space for the Senior Center. Staff are separately bringing a request to authorize the Design-Bid-Bridging construction method for this upfit and will return to Council at a later date with a CPOA to fully fund the project.

Advisory Board/Committee Review:

None

Insert Date of Advisory Board/Committee Review:

Advisory Board/Committee Recommendation and/or Vote:

None

Potential Options:

Approve the Resolution authorizing the Town Manager to sign a lease for relocation/expansion of the Senior Center.

Request changes and approve the Resolution authorizing the Town Manager to sign a lease for relocation/expansion of the Senior Center.

Do not approve the Resolution authorizing the Town Manager to sign a lease for relocation/expansion of the Senior Center.

Staff Recommendation:

None

ATTACHMENTS

- [2026-304-0 RES Senior Center Lease.pdf](#)
- [2026-304-0 ATTH01 Senior Center Lease.pdf](#)



**RESOLUTION 2026-304-o OF THE MORRISVILLE TOWN
COUNCIL AUTHORIZING AN AGREEMENT WITH WFC
MCCRIMMON I, LLC FOR A RELOCATED AND EXPANDED
SENIOR CENTER**

WHEREAS, Town Council has expressed the desire to provide additional space for Senior Programming; and

WHEREAS, the Senior Center located at 4117 Davis Drive in the McCrimmon Corners Shopping Center is no longer deemed to be sufficient for the Town's growing participation; and

WHEREAS, Town Council approved funding in the FY2026 Operating Budget for the expansion of the Senior Center space; and

WHEREAS, Town staff, in conjunction with the Senior Advisory Committee, has conducted a space needs and programming exercise; and

WHEREAS, WFC McCrimmon I, LLC has offered the Town the former Petland space at 4031 Davis Drive in the McCrimmon Shopping Center with a total of 5,552 sq. ft.; and

WHEREAS, a cross-departmental team of Town staff from Administration, Engineering, Inspections, Parks, Recreation and Cultural Resources, and Public Works have evaluated the space and have found it to be viable for this project; and

WHEREAS, on August 13, 2026, the Town's Senior Advisory Committee reviewed the preliminary space concept and lent support to the approval of the lease; and

WHEREAS, the lease authorized in this agreement will facilitate a design-build-bridging construction process for the upfit of the proposed Senior Center space.

NOW, THEREFORE, BE IT RESOLVED THAT THE MORRISVILLE TOWN COUNCIL hereby authorizes the Town Manager to execute the lease agreement with WFC McCrimmon I, LLC for a 59-month Senior Center lease at a cost of approximately \$233,850 per year (in accordance with the terms and provisions of the lease) at 4031 Davis Drive.

Adopted this the 8th day of September 2026.

TJ Cawley, Mayor

ATTEST:

Kayla Bertling, Town Clerk

SHOPPING CENTER LEASE

**LANDLORD: WFC MCCRIMMON I LLC,
A DELAWARE LIMITED LIABILITY COMPANY**

**TENANT: TOWN OF MORRISVILLE,
A NORTH CAROLINA MUNICIPALITY**

**PROPERTY ADDRESS: 4117 DAVIS DRIVE
MORRISVILLE, NORTH CAROLINA 27560**

LANDLORD'S PROPERTY NO.: 7605-A101

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SHOPPING CENTER LEASE

THIS SHOPPING CENTER LEASE (hereinafter the “**Lease**”) is dated, for reference purposes only, August 1, 2026, and is entered into by and between WFC MCCRIMMON I LLC, a Delaware limited liability company (hereinafter “**Landlord**”), and Town of Morrisville, a North Carolina municipality (hereinafter “**Tenant**”). As used herein, “Tenant” shall mean the aforementioned individual/entity and shall include its permitted assignees, successors, transferees and sublessees.

BASIC LEASE PROVISIONS

A.	Shopping Center:	The Premises is located in or may be part of a multi-use shopping center commonly known as MCCRIMMON CORNERS; Landlord Property No. 7605-A101	
B.	Premises:	The premises is commonly known by the address of 4031 Davis Drive, Morrisville, North Carolina 27560	(Section 2.1)
C.	Square Footage of the Premises:	Approximately 5,552 square feet	(Section 2.1)
D.	Commencement Date:	On the date Landlord delivers possession of the Premises to Tenant	(Section 2.2)
E.	Lease Term:	The lease term (hereinafter “Lease Term”) shall commence on the Commencement Date and shall expire 59 months after the Rent Commencement Date.	(Section 2.2)
F.	Rent Commencement Date:	The earlier to occur of (a) the date on which Tenant first opens the Premises for business or (b) 240 days after the Commencement Date.	(Section 2.2)
G.	Minimum Rent:	\$16,193.33 per month	(Section 3.1)
H.	CAM Estimate:	\$3,294.19 per month	(Section 18.1)
I.	Percentage Rent:	None.	
J.	Permitted Use:	Tenant shall use the Premises solely to operate a town facility primarily offering programs supported by the Parks, Recreation, and Cultural Resources Department, and may also be used to provide internal staff training, host drop-in community information sharing meetings or other Town meetings displaced from another location; and for no other use or purpose (hereinafter, the “ Permitted Use ”). The training and drop-in meetings will be limited to 100 persons or less. Senior Center and other Town activities may be conducted Monday through Sunday. Training and drop-in meetings will only be conducted after 5pm on weekdays or on Saturdays and/or Sundays.	(Section 6.1)
K.	Trade Name:	MORRISVILLE SENIOR CENTER; Tenant's trade name shall not be changed without Landlord's written consent.	
L.	Security Deposit:	None	
M.	Radius:	None	
N.	Landlord’s Address For Notices:	WFC McCrimmon I LLC c/o Westwood Financial 5610 Glenridge Drive NE, Suite 107 Sandy Springs, GA 30342 Attn: Property Management <u>With a copy of notices to:</u> WFC McCrimmon I LLC c/o Westwood Financial 10877 Wilshire Boulevard, Suite 1105 Los Angeles, California 90024 Attn: Legal Department	(Section 31.14)
O.	Tenant’s Address For Notices:	Town of Morrisville 100 Town Hall Drive Morrisville, North Carolina 27560 Attn: Administration Department	(Section 31.14)
P.	Address For Payment of Rent:	WFC McCrimmon I LLC c/o Westwood Financial P.O. Box 31080 Tampa, Florida 33630	(Section 3.1)
Q.	Landlord’s Broker(s):	None	
R.	Tenant’s Broker(s):	None	
S.	Guarantor(s):	None	
T.	Lease Incentive:	Up to \$133,280.00	(Section 1.2)
U.	Option Period	One (1) additional period of 59 months	(Section 1.1)

1. SPECIAL LEASE PROVISIONS.

1.1 Tenant’s Option Rights. Subject to the terms hereinafter set forth, Tenant may add a new Lease Term for one (1) period of 59 months (such right being referred to as the “**Option**” and such 59month period being hereinafter referred to as the “**Option Period**”). The

Option Period shall commence on the expiration of the initial Lease Term (the "**Option Commencement Date**") and upon commencement shall be considered a new Lease Term, provided all the terms and conditions shall remain the same as the initial Lease Term, except as otherwise set forth herein.. The Option is personal to the Tenant named in the Lease and may not be assigned. Tenant may only exercise the Option by furnishing written notice to Landlord of Tenant's exercise of its right to add a new Lease Term ("**Tenant's Option Notice**"), with Tenant's Option Notice to be received by Landlord not more than eighteen (18) months nor less than twelve (12) months prior to the expiration of the initial Lease Term. If Tenant fails to timely provide Tenant's Option Notice during the specified period above, Tenant shall have no further right to extend the Lease. Tenant's exercise of the Option shall, at Landlord's sole election, be of no force or effect in the event: (i) Tenant is in Default or Breach under the Lease at the time of Landlord's receipt of Tenant's Option Notice or prior to the commencement of the Option Period, regardless of whether or not a Default notice was served by Landlord; or (ii) Tenant was at any time prior to Landlord's receipt of Tenant's Option Notice or prior to the commencement of the Option Period delinquent in the payment of any Rent due under the Lease for a period of more than ten (10) days, regardless of whether or not a Default notice was served by Landlord. Except as otherwise expressly set forth in this Lease, the terms and conditions of this Lease during the Option Period shall be the same as during the initial Lease Term, except that the Minimum Rent shall be as set forth below, Tenant shall not be entitled to any free rent, tenant improvement allowance or other similar concessions and Tenant shall have no further right to extend the Lease Term.

(a) **Option Rent.** During the Option Period, all terms and conditions of the Lease shall remain in full force and effect, except as follows: (i) the Minimum Rent in effect at the commencement of the Option Period shall be \$18,772.51. Thereafter, commencing on the first day of the month of each anniversary of the applicable Option Commencement Date (each such anniversary, an "Adjustment Date"), the Minimum Rent shall increase in accordance with the provisions of this Section and with reference to the Consumer Price Index (All Items) for All Urban Consumers, US City Average as published by the Bureau of Labor Statistics of the United States Department of Labor (1982-84=100) (hereinafter the "**Index**"). The Index published for the date which is three (3) calendar months prior to the Adjustment Date (hereinafter the "**Adjustment Index**") shall be compared with the Index published for the date which is fifteen (15) calendar months prior to the Adjustment Date (hereinafter the "**Base Index**"). If the Adjustment Index is greater than the Base Index, then the annual Minimum Rent payable from and after the Adjustment Date (until the next adjustment) shall be determined by increasing the annual Minimum Rent by the greater of (i) the percentage determined by a fraction, the numerator of which shall be the Adjustment Index and the denominator of which shall be the Base Index (hereinafter, the "**CPI Adjustment**"), or (ii) three percent (3%) of the amount of the annual Minimum Rent in effect immediately prior to the applicable Adjustment Date. When the adjusted annual Minimum Rent is determined, Landlord shall give Tenant written notice indicating the amount and method of computation thereof, however, Landlord's failure to provide or timely provide such notice shall not be deemed a waiver of Landlord's right to collect any and all Minimum Rent owed to it, and shall not excuse Tenant's obligation to timely pay all Rent owed by it under this Lease. If at any Adjustment Date the Index shall not exist on such Adjustment Date, then Landlord may substitute any official Index published by the Bureau of Labor Statistics or successor or similar agency that is then most nearly equivalent to the Index. Nothing contained herein is intended to abrogate or limit in any manner Tenant's obligation during the Option Period to pay all Additional Rent required by the Lease, regardless of the Minimum Rent determination set forth above

1.2 Lease Incentive. Landlord grants Tenant an allowance set forth in paragraph T of the Basic Lease Provisions ("**Lease Incentive**") to be used for any purpose Tenant desires, including for costs incurred in connection with alterations to the Premises, the cost of purchasing furniture, fixtures and equipment for the Premises, or to pay Rent. Any and all improvements, alterations, and additions to the Premises in excess of the Lease Incentive shall be at Tenant's sole cost and expense, and subject to provisions of the Lease governing same.

Provided Tenant is not then in Default under the Lease, Landlord shall pay said Lease Incentive to Tenant within thirty (30) days after the later of (1) Tenant opening for business and installing its exterior fascia signage in accordance with any necessary Landlord approvals and the requirements of this Lease; (2) receipt by Landlord of paid invoices for Tenant's Work, as defined in Section 9.1; (3) receipt by Landlord of "Unconditional Release of Lien" documents from all general contractors and subcontractors for all material and labor supplied in connection with Tenant's Work as well as a copy of the Certificate of Occupancy for the Premises; and (4) Landlord's reasonable satisfaction that the improvements made to the Premises by Tenant have been done in a good, workmanlike manner. Landlord shall have no obligation to pay the Lease Incentive to Tenant if Tenant does not send Landlord, within one hundred eighty (180) days of the Rent Commencement Date, the items specified above.

1.3 Previous Lease. Landlord and Tenant are parties to that certain lease dated February 6, 2020 (as amended, "**Previous Lease**") for the space located at 4117 Davis Drive, Morrisville, North Carolina ("**Previous Space**"), and agree and acknowledge that the Previous Lease is terminated as of the Rent Commencement Date and be of no further force or effect except for those obligations which by the terms of the Previous Lease survive the expiration or termination of the Previous Lease; provided, however, that the annual adjustments for CAM Expenses for the year 2026 pursuant to Section 18.5 of the Previous Lease will occur sometime in the future when Landlord completes its annual reconciliation and accordingly, Landlord will bill these charges as Additional Rent under Article 18 of this Lease (in the event of a deficiency) or credit Tenant against future CAM Expenses (in the event of an overpayment) when Landlord completes its annual reconciliation. Until the Rent Commencement Date, Tenant shall continue to occupy the Previous Space, and all terms and conditions of the Previous Lease shall remain in full force and effect, including Tenant's obligation to pay all Rent and other charges due thereunder. Notwithstanding the foregoing, if Tenant has not completed Tenant's Work in the Premises and is not and ready for Tenant's occupancy as of the Rent Commencement Date, Tenant may, at its option, continue to occupy and operate from the Previous Space, and the Previous Lease shall remain in effect, until the earlier of (i) the date the Premises is completed and ready for Tenant's occupancy or (ii) two (2) months after the Rent Commencement Date. During such period, Tenant shall pay the Rent due for the Premises under this Lease; provided, however, that Tenant's rent obligation under the Previous Lease shall be reduced to One Thousand Dollars (\$1,000.00) per month. Upon the earlier of such dates, Tenant shall vacate the Previous Premises and commence occupancy of the Premises in accordance with this Lease, and the Previous Lease shall terminate.

2. PREMISES/TERM.

2.1 Premises. Landlord leases to Tenant, and Tenant leases from Landlord, the Premises, for the Lease Term, at the rental rate, and upon all of the terms, covenants and conditions set forth in this Lease. The Premises is measured from the outside of all exterior walls and/or storefront glass surfaces and the mid-point of shared interior demising walls as shown as the cross-hatched area on the site plan attached hereto as Exhibit "A" ("**Site Plan**") and made a part hereof. Tenant acknowledges and agrees that Site Plan consists of an approximation of the present location and size of the Premises and the surrounding property, and Tenant further acknowledges that it has not relied on the Site Plan in making its decision to enter into this Lease. It is expressly understood that the use of the roof and faces of exterior walls is expressly reserved to Landlord. The square footage set forth above in Paragraph C of the Basic Lease Provisions is an approximation which Landlord and Tenant agree is reasonable and for purposes of this Lease shall be deemed to equal such amount. In the event it is determined at any time that the square footage of the Premises is greater or less than the amount estimated, neither Landlord nor Tenant shall be entitled to any credit, reduction or reimbursement for or relating to any past, present or future Minimum Rent.

2.2 Term. The Lease Term shall commence on the Commencement Date and shall be for a period of time equal to the Lease Term specified above in the Basic Lease Provisions and expiring on the last day of such period (the "**Expiration Date**"); provided however, that in the event the Rent Commencement Date falls on a date other than the first day of a month, the Lease Term hereof shall be extended to the last day of the month in which the Lease Term would otherwise expire. Possession shall be deemed given upon Landlord's notice to Tenant that Premises is ready to be delivered (with keys or other means of entry available) to Tenant. Notwithstanding the Commencement Date, the Lease is a binding agreement upon execution and delivery of this Lease by US mail, overnight courier, personal delivery, or electronic mail by both Landlord and Tenant, and execution of any applicable guaranty by all guarantors, if any (hereinafter the "**Lease Effective Date**"). Further, neither the Commencement Date nor the Rent Commencement Date shall be delayed, nor shall the Lease Term be extended in the event that Tenant fails to timely deliver to Landlord proof, pursuant to Article 14, that Tenant has obtained all of the insurance required of it under this Lease. Landlord shall deliver a confirmation of the term of the Lease setting forth the Commencement Date, Rent Commencement Date and Lease expiration date ("**Confirmation of Lease Term**") to Tenant after the Commencement Date. Landlord's failure to deliver the Confirmation of Lease Term shall not affect the Commencement Date.

2.3 Delay in Possession. If for any reason Landlord cannot deliver possession of the Premises to Tenant, Landlord shall not be subject to any liability therefore, nor shall such failure affect the validity of this Lease or the obligations of Tenant hereunder, except as

otherwise expressly set forth herein. In the event that Landlord has not delivered possession of the Premises to Tenant on or before the date that is twelve (12) months after the Lease Effective Date, then either Tenant or Landlord may terminate this Lease by giving written notice to the other party, which notice must be given no later than ten (10) days after the expiration of said twelve (12) month period and prior to delivery of possession of the Premises to Tenant.

3. RENT.

3.1 Minimum Rent.

(a) Except as set forth in Article 4, below, commencing on the Rent Commencement Date and thereafter, Tenant shall pay to Landlord minimum rent (hereinafter the **"Minimum Rent"**) in advance, on the first (1st) day of each succeeding calendar month in the sum as set forth in Paragraph G of the Basic Lease Provisions and as hereinafter adjusted, without notice or demand, deduction or offset. Said Minimum Rent shall be paid to Landlord in lawful money of the United States of America at the address set forth in Paragraph P of the Basic Lease Provisions or to such other entity or at such other address as Landlord may from time to time designate in writing.

Tenant shall pay Rent, as defined in Section 3.3 below, to Landlord using an electronic funds transfer initiated by Tenant from Tenant's bank account to an automated clearing house (**"ACH"**) account established by Landlord, for payment on the due date, subject to such additional payment instructions as Landlord may provide to Tenant Upon Tenant's execution of this Lease. Tenant shall deliver to Landlord an amount equal to the total of: (a) the first full month's installment of Minimum Rent, the first full month's CAM Estimate, pole or monument sign rental and rental taxes, if applicable, and all other sums required to be paid by Tenant pursuant to and upon execution of this Lease (collectively, the **"Prepaid Rent"**); and (b) the Security Deposit. The Prepaid Rent shall be applied to the first full calendar month following the Rent Commencement Date (the **"First Full Month"**). If the Rent Commencement Date occurs on a date other than the first day of a calendar month, Minimum Rent for the period from the Rent Commencement Date to the last day of the calendar month in which the Rent Commencement Date falls will be prorated and Tenant shall pay such prorated Minimum Rent to Landlord on or before the first day of the First Full Month.

(b) The monthly Minimum Rent shall be as set forth below, with "Month 1" to commence on the Rent Commencement Date; provided that, if the Rent Commencement Date occurs on a date other than the first day of a calendar month, Month 1 will end on the last day of the first full calendar month immediately following the Rent Commencement Date. If the Rent Commencement Date occurs on a date other than the first day of a calendar month, the Rent due for the period commencing from the Rent Commencement Date to the last day of the calendar month in which the Rent Commencement Date falls will be prorated.

Months 1 – 12:	\$16,193.33	per month
Months 13 – 24:	\$16,679.13	per month
Months 25 – 36:	\$17,179.50	per month
Months 37 – 48:	\$17,694.89	per month
Months 49 – 59:	\$18,225.74	per month

3.2 Intentionally Omitted.

3.3 **Additional Rent.** In addition to the Minimum Rent, Tenant shall pay as "Additional Rent" from and after the Rent Commencement Date all other sums of money or charges required to be paid pursuant to the terms of this Lease. All monetary obligations of Tenant, including without limitation Minimum Rent, Additional Rent and Percentage Rent are deemed to be rent (**"Rent"**).

4. POSSESSION AND CONDITION OF THE PREMISES.

Subject to Article 2 and Tenant's compliance with its insurance obligations under Article 14, possession of the Premises will be given to Tenant on the Commencement Date. Tenant acknowledges that it has examined the Premises and that Landlord has delivered and Tenant has accepted the Premises in its **"AS IS"** condition as of the Commencement Date and throughout the Lease Term except that prior to delivery of the Premises to Tenant, Landlord will substantially complete Landlord's Work as described on Exhibit "B", if any. In no event shall Landlord be liable for any defect in the Premises or for any limitation on Tenant's use of the Premises. Tenant acknowledges that: (a) it has been advised by Landlord to satisfy itself with respect to the condition of the Premises (including, but not limited to, the information technology infrastructure, electrical, HVAC and other air-handling equipment, and fire sprinkler systems, security, environmental aspects, and compliance with Applicable Law), its suitability, physical condition, compatibility or any other matter affecting or relating to Tenant's intended use, and Tenant's ability to obtain permits or licensing required for transacting its business in the Premises including, without limitation, building, occupancy, use and other governmental permits and/or approvals required in connection with the construction of Tenant's Work and a certificate of occupancy for the Premises upon completion thereof (or an equivalent if the governmental authority having jurisdiction does not issue certificates of occupancy), and (b) neither Landlord or Landlord's agents have made any oral or written representations or warranties with respect to said matters other than as set forth in this Lease. No later discovery by Tenant that the Premises are unsuitable for Tenant's intended use, or that Tenant is unable to use the Premises for Tenant's intended use for any reason, shall relieve Tenant from any of Tenant's obligations, including payment of Rent when due, pursuant to this Lease.

5. Intentionally Deleted

6. USE AND LIMITATIONS.

6.1 **Use.** The Premises shall be used and occupied by Tenant solely for the Permitted Use as described in Paragraph J of the Basic Lease Provisions and for no other purpose whatsoever and: (a) in accordance with all Applicable Law including but not limited to all present and future zoning laws, rules and regulations of governmental authorities having jurisdiction thereof; (b) subject to all covenants, conditions, restrictions, easements and rights of way of record, if any, which are presently in existence or hereafter consented to in writing by Landlord; (c) subject to all other exclusive uses of other tenants and occupants of the Shopping Center now in effect or hereafter granted by Landlord, and (d) in full compliance with all documents and agreements which contain terms and provisions applicable to Tenant's occupancy and use of the Premises. Notwithstanding anything to the contrary in this Lease, Landlord, in its sole and exclusive discretion, may withhold its consent to a request to change the Permitted Use for any reason, or for no reason. Tenant agrees that the entire operation of its business including but not limited to the appearance of the employees and the advertising and circularization, if any, shall be conducted in a first-class manner at least equal to comparable operations in other comparable buildings. Tenant's consent shall not be required for the creation of any covenants, easements or rights of way affecting the Premises or the Shopping Center which are created or required by the action of any governmental authority. Tenant will not overload the floors, structures or the building systems in the Premises, nor deface or injure the Premises. Tenant will keep the Premises and sidewalks, service-ways and loading areas adjacent to the Premises neat, clean and free from dirt, rubbish, ice or snow at all times.

6.2 **Uses Prohibited.** Tenant shall not do or permit anything to be done in or about the Premises which will in any way adversely affect any other tenant or occupant within the Shopping Center, obstruct or interfere with the rights of other tenants or occupants within the Shopping Center or injure or annoy them or allow the Premises to be used for any improper, immoral, unlawful or objectionable purpose (including, without limitation, cultivation, distribution, storage, display or sale of marijuana, cannabis or related paraphernalia and products, which is strictly prohibited).

7. SIGNS.

7.1 **Signs and Storefront.** Without Landlord's prior written consent, Tenant shall not: (a) install any exterior lighting or plumbing fixtures, shades or awnings, fences, structures, exterior decorations or signs, or make any changes to the storefront; (b) erect or install any window signs, door signs, advertising media, window or door lettering, trademarks, placards or any other like items on the exterior of the Premises; (c) keep or display any merchandise on, or otherwise obstruct, the sidewalks or other Common Areas of the Shopping Center; (d)

affix, place, or maintain on either side of any storefront window or within the interior of the Premises any paper signs, cardboard signs, advertising placards, descriptive material or other like items within twelve (12) feet of the front entrance to the Premises that can be seen from the Common Areas of the Shopping Center keeping the show windows and all signs in a neat and clean condition; (e) use any advertising or other media objectionable to Landlord or other tenants, such as loudspeakers, phonographs, or radio broadcasts that can be heard outside the Premises, nor install or maintain any flashing, revolving, neon, fiber optic or other lighting deemed distracting by Landlord anywhere within or upon the Premises or Common Areas of the Shopping Center; or (f) affix or install any type of sunscreen, tinting film, solar screen or similar product to any window or door glass of the Premises. Without limiting Landlord's remedies under this Lease, at law or in equity, Landlord may, at Tenant's cost, remove any item or sign erected in violation of this Section or Applicable Law. Landlord agrees that Tenant may install on the Premises the fascia signage currently installed at the Previous Space.

Tenant, at its sole cost and expense, shall install its signage on the fascia of the Premises, which sign shall (i) be in strict conformity with any guidelines or sign criteria adopted by Landlord, including, without limitation, the sign criteria set forth in Exhibit "E" attached hereto, (ii) be subject to Landlord's prior written approval, and (iii) be in accordance with Applicable Laws. Prior to fabrication of any Tenant's fascia signage, Tenant shall submit its sign package for Tenant's fascia signage to Landlord for approval including within fourteen (14) days following the Lease Effective Date for Tenant's initial fascia signage. Tenant shall install its fascia signage on the exterior of the Premises on or before the Rent Commencement Date. Within sixty (60) days following Landlord's notice, Tenant shall, at its sole cost and expense, remodel or replace Tenant's store signs to conform with the then current sign criteria for the Shopping Center, subject to this Section 7.1.

8. MAINTENANCE AND REPAIRS.

8.1 Nuisance Control. Tenant shall, at Tenant's sole cost and expense, take all steps necessary (including without limitation those required by Landlord or any governmental entity having jurisdiction over the Premises, the Shopping Center or Tenant's business) to prevent and shall not allow any loud music, noise, vibrations, sounds, odors, fumes, water or other liquids, waste or similar nuisances (collectively, "**Nuisance**") to emanate from the Premises (such steps to include, without limitation, installation of additional ventilation fans, installation of sufficient sound insulating materials in common walls, mullions and storefront windows, if necessary, and ensuring that all walls are constructed and insulated to the roof deck) and/or disturb any other tenants in the Shopping Center or their customers, guests, employees or invitees, or interfere in any way with such other tenants' business or the use of the Common Areas. Tenant is responsible for all damage and liability incurred by Landlord and other tenants or occupants of the Shopping Center which result from Tenant's violation of this Section, and Tenant hereby agrees to defend, indemnify and hold Landlord harmless from all claims, liabilities and/or damages arising directly or indirectly from Tenant's violation of this Section. In the event of a violation of this Section 8.1, which includes Tenant's failure to immediately take all actions directed by Landlord to mitigate or eliminate any Nuisance to Landlord's satisfaction, Tenant acknowledges and agrees that in addition to any and all remedies under this Lease at law or in equity, Landlord may seek a temporary and/or permanent restraining order or injunction to enjoin Tenant from causing, continuing, allowing and/or maintaining any Nuisance, and Tenant agrees it shall be responsible for all of Landlord's costs in connection therewith, including any reasonable attorney's fees and all bonding costs.

8.2 Tenant's Maintenance and Repairs. Subject to the provisions of Section 8.3, Tenant shall keep the Premises and every non-structural part thereof, in good order, condition and repair, making all interior repairs and replacements, above or below ground, whether ordinary or extraordinary and whether or not the need for such repairs or replacements occurs as a result of Tenant's use, any prior use, the elements or the age of such portion of the Premises, including without limiting the generality of the foregoing, all work done by Landlord, if any, to deliver the Premises, all heating, ventilation and air-conditioning systems ("**HVAC**"), plumbing, electrical wiring, conduits, glazing, electrical lighting facilities and equipment from time to time within the Premises, fixtures, interior walls, ceilings, roof, floors, storefront, thresholds, weather-stripping, window casements, windows, doors, plate glass and sky lights located within or upon the Premises. Tenant shall also keep, maintain and repair all alterations, additions or improvements to the Premises made by Tenant as provided in Article 9. Tenant shall keep the Premises free from insects, rodents and other pests, and shall cause a licensed pest control company to perform extermination services not less often than quarterly, and Tenant shall be responsible for the cost of any extermination or preventive measures in any areas adjoining the Premises necessitated as a result of infestation within the Premises. Any damage to adjacent premises caused by Tenant's use of the Premises shall be repaired at the sole cost and expense of Tenant; if Tenant fails to repair such damage after notice from Landlord, Landlord may cause the damage to be repaired and Tenant shall immediately reimburse Landlord for the costs of such repair as Additional Rent, plus fifteen percent (15%) to cover Landlord's overhead and administrative costs. Tenant shall repair and/or replace any damage to the Premises caused by breaking and entering or the criminal acts or negligence of any third party.

8.3 Landlord's Maintenance and Repairs. Landlord shall, as part of CAM Expenses (as defined in Section 18.4), keep in good order, condition and repair the foundations, exterior walls (excluding the interior of all walls and the exterior or interior of any windows, doors, plate glass, and display windows but including repainting of the exterior walls), roof (subject to Section 9.3 below, including the repair and/or replacement, but excluding interior ceilings), and any plumbing or sewage main lines (only beyond the point at which Tenant's plumbing or sewage lines connect to such main lines), or other utilities servicing more than one tenant of such building, except for any damage thereto caused by any act, negligence or omission of Tenant or Tenant's employees, agents, contractors or customers, and except for reasonable wear and tear and except for any structural alterations or improvements required by any governmental agency by reason of Tenant's use or occupancy of the Premises. Landlord may, in its sole and absolute discretion, retain service and/or maintenance companies or others to inspect, service and maintain the roof or other components of the Shopping Center on a regular periodic inspection and service basis. Landlord shall not be liable for any failure to make such repairs or to perform any maintenance unless such failure continues for more than thirty (30) days after Tenant's written notice to Landlord of the need of such repairs or maintenance and Landlord has made no attempt to make such repairs, unless Landlord determines such work is unnecessary and/or the responsibility of Tenant. There shall be no abatement of Rent and no liability of Landlord by reason of any injury to or interference with Tenant's business arising from the making of or Landlord's failure to make any repairs, alterations or improvements in or to any portion of the building or the Premises or in or to its fixtures, appurtenances and equipment therein. Landlord's liability for any defects, repairs, replacement or maintenance for which Landlord is specifically responsible for under this Lease shall be limited to the cost of performing the work.

8.4 Tenant's Failure. If Tenant fails to perform Tenant's obligations under this Article 8, Landlord may, at its option (without obligation), enter upon the Premises after prior written notice to Tenant of the specific failure of Tenant under this Article 8 (or immediately, and without notice, in the event of an emergency), and put the same in good order, condition and repair. The cost thereof, plus fifteen percent (15%) to cover Landlord's overhead and administrative costs, together with interest at the Interest Rate, shall become due and payable as Additional Rent to Landlord together with Tenant's next Rent installment.

8.5 Waiver. Except for the obligations of Landlord under Section 8.3, Article 16, and Article 26, it is intended by the parties hereto that Landlord shall have no obligation whatsoever to repair and maintain the Premises, or to pay for the repair and/or maintenance of the Premises nor for any building or improvements located thereon (or the equipment therein), whether roof, structural or non-structural. Tenant expressly waives the benefit of any statute now or hereafter in effect which would otherwise afford Tenant the right to make repairs at Landlord's expense, or to terminate this Lease because of Landlord's failure to keep the Premises in good order, condition and repair. Tenant further waives the provisions of any statute now or hereafter in effect with respect to Tenant's right to make repairs and deduct the expenses of such repairs from the Rent.

8.6 Compliance With Law. Tenant shall at Tenant's sole cost and expense, comply promptly with all "**Applicable Law**", which term is used in this Lease to include all applicable statutes, ordinances, rules, regulations, laws (including, but not limited to, the Americans with Disabilities Act), orders, restrictions of record, if any, and requirements now or hereinafter in effect, or any part thereof, regulating the use or occupancy by Tenant of the Premises, or relating in any manner to the environmental conditions in, under or about the Premises. Tenant shall, within five (5) days after receipt of Landlord's written request, provide Landlord with copies of all documents and information, including, but not limited to, permits, registrations, applications, reports and certificates, evidencing Tenant's compliance with any Applicable Law specified by Landlord. Tenant shall immediately upon receipt of any threatened or actual claim, notice, citation, warning, complaint or report pertaining to or involving failure by Tenant or the Premises to comply with any Applicable Law, notify Landlord in writing (with copies of any documents involved). Tenant shall undertake such repairs, maintenance, alterations or replacements to or of the Premises as are required or modify its use of the

Premises as required by Applicable Law, unless the governmental entity requiring such work requires that it be completed pending the outcome of the administrative or judicial proceeding, and in such event, Tenant shall comply with the directives of the governmental agency notwithstanding the pendency of the administrative or judicial proceeding. Tenant agrees to indemnify and hold the Landlord Indemnified Parties (as hereafter defined) harmless from and against any and all liability that the Landlord Indemnified Parties may sustain by reason of Tenant's failure or delay in complying with Applicable Law, which indemnity shall survive the expiration or termination of this Lease.

8.7 HVAC Maintenance. As a part of Tenant's repair and maintain obligations of the Premises described in Section 8.2 above, Tenant shall be obligated to retain an air conditioning service company approved by Landlord to service and maintain the air conditioning equipment servicing the Premises on a regular periodic inspection and service basis which provides inspection and servicing not less frequently than once quarterly. Notwithstanding the foregoing, Landlord may, at Landlord's sole option, as a part of CAM Expenses, employ a company satisfactory to Landlord to perform periodic inspections of the HVAC system servicing the Premises and to perform any necessary work of maintenance and/or repair thereto.

8.8 Surrender of Premises. Subject to Section 9.4, Tenant shall, upon the Expiration Date or sooner termination of this Lease hereof, surrender the Premises to Landlord free of all tenancies, occupancies, liens, encumbrances and Tenant's trade fixtures or personal property and in a good, broom clean condition, ordinary wear and tear excepted, but in all circumstances, Tenant shall be required to surrender the Premises to Landlord in a condition equal to or better than the condition the Premises was required to be maintained by Tenant pursuant to Section 8.2. Tenant shall notify Landlord in writing ("**Tenant's Inspection Notice**") at least one hundred twenty (120) days prior to vacating the Premises and shall within thirty (30) days prior to vacating arrange to meet with Landlord for a joint inspection of the Premises prior to vacating. If Tenant timely delivers Tenant's Inspection Notice and the parties meet for a joint inspection of the Premises prior to Tenant's vacation of the Premises, then Landlord shall have the right, as it deems necessary or desired, to provide Tenant with a list of items ("**Landlord's Inspection List**") that Landlord shall require Tenant, at Tenant's sole cost, to remove, repair, replace and/or restore prior to the Expiration Date or any earlier termination date. If Tenant fails to timely give such Tenant's Inspection Notice or to timely arrange for such inspection, then Landlord's inspection of the Premises shall be deemed conclusive for the purpose of determining Tenant's responsibility for removal, repairs, replacement and/or restoration of the Premises. Landlord shall have the right (whether or not Landlord has inspected the Premises prior to Tenant's vacation thereof) to inspect the Premises after Tenant vacates and surrenders possession of the Premises to Landlord to determine whether or not additional removal, repairs, replacement and/or restoration work is required by Tenant hereunder, in which case, Tenant shall continue to be responsible for any such additional items of removal, repair, replacement and/or restoration work identified by Landlord. In addition, at least fourteen (14) days but no more than thirty (30) days prior to the Expiration Date or any earlier termination date, Tenant shall deliver to Landlord a certificate from an engineer reasonably acceptable to Landlord certifying that the HVAC and other air-handling systems are then in a state of good repair and working order. No act or conduct of Landlord, except a written acknowledgment of acceptance of surrender signed by Landlord, shall be deemed to be or constitute an acceptance of the surrender of the Premises by Tenant prior to the Expiration Date. If any evidence of this Lease was recorded, then Tenant, upon surrender, shall execute, acknowledge and deliver a memorandum of termination of this Lease, and, if Tenant shall fail or refuse to do so, Landlord shall, as Tenant's attorney-in-fact, have the right to execute, acknowledge and deliver such memorandum of termination. On or before the Expiration Date or earlier termination of this Lease, Tenant, at its sole cost and expense, shall remove any signage Tenant installed on the exterior of the Premises and shall repair any damage to the exterior of the Premises or the Common Areas caused by such removal. In addition, Tenant, at its sole cost and expense, shall: (x) remove any pylon, monument or roof sign panels previously installed; (y) replace such sign panels with blank panels of a background color as set forth in Landlord's current sign criteria; and (z) repair, to Landlord's satisfaction, any damage to the Common Areas, the exterior of the Premises, or roof, as the case may be, caused by such removal. In the event Tenant fails to perform any such removals and repairs, Landlord may, at its option (without obligation), perform same at Tenant's expense.

8.9 Mold. Tenant acknowledges that mold spores can be present essentially anywhere and that mold can grow in most any moist location. Tenant agrees to immediately notify Landlord if it observes mold, mildew and/or moisture conditions from any source, including leaks, and to allow Landlord, its employees, agents and contractors to enter the Premises to evaluate and/or make recommendations concerning mold prevention or remediation. Tenant acknowledges that if mold growth occurs, the cost of such necessary mold remediation shall be the sole responsibility of Tenant. Tenant releases, indemnifies, defends and holds harmless Landlord and the Landlord Indemnified Parties and Landlord's property manager for, from and against any and all claims, losses and liabilities for personal injury, bodily injury and/or property damage in any way arising from or relating to or associated with any moisture or any growth of or occurrence of mold or mildew on or within the Premises.

9. ALTERATIONS AND NEW IMPROVEMENTS.

9.1 Tenant's Work and Alterations. As soon as reasonably possible after the Commencement Date, Tenant shall, at its sole cost and expense, make the alterations, additions or improvements in, on, to or about the Premises necessary to open for business at the Premises for Tenant's Permitted Use (collectively, "**Tenant's Work**") within sixty (60) days of the Rent Commencement Date, provided such Tenant's Work is consistent with Approved Tenant Plans (as defined below). Not less than fifteen (15) days prior to the commencement of Tenant's Work, or any subsequent alterations, additions or improvements in, on, to or about the Premises by Tenant ("**Alterations**") with a cumulative value in excess of Five Thousand and 00/100 Dollars (\$5,000.00), Tenant shall provide to Landlord detailed plans, specifications, drawings, photographs and all other documents and information necessary for or requested by Landlord for its review of such work, all of which shall be subject to the prior written consent of Landlord, which consent may be granted or withheld in Landlord's sole discretion.

Prior to Tenant preparing any plans, drawings, designs, specifications, and/or calculations ("**Tenant's Plans**") pertaining to Tenant's Work, Tenant shall cause its architect and engineer(s) to familiarize themselves with, and verify by physical inspection, the Premises and all local building codes and existing job conditions. Tenant shall submit Tenant's Plans to Landlord within fifteen (15) days following the Lease Effective Date and Landlord shall use commercially reasonable efforts to review Tenant's Plans in a timely manner following receipt from Tenant. Tenant's Plans shall be prepared and performed with full knowledge of and in compliance with all Applicable Laws. Tenant's Plans shall be prepared by architect(s) and engineer(s) fully qualified and licensed in the State wherein the Premises is located who shall certify that Tenant's Plans comply with all Applicable Laws.

Tenant's Plans, and the design and quality of all work and installations undertaken by Tenant in the Premises, shall be subject to the approval of Landlord who may approve, disapprove or modify Tenant's Plans in their sole and absolute discretion. Tenant's Plans, as revised and approved by Landlord shall be referred to herein as the "**Approved Tenant Plans**." Landlord's architect's approval of Tenant's Plans shall not create any responsibility or liability on the part of Landlord for their completeness, sufficiency, design or compliance with Applicable Laws, and shall not relieve Tenant of any of Tenant's responsibility or liability hereunder. Any changes to the Approved Tenant Plans requested by Tenant shall be subject to Landlord's approval and shall be reviewed by Landlord's architect. Tenant shall pay any additional expenses incurred in connection with such processing, including any additional fees of Landlord's architect, which costs shall be deposited by Tenant at the option of Landlord prior to the commencement of such processing.

Tenant's Work shall be made under the supervision of a competent architect or licensed structural engineer (if Tenant's Work requires a building permit) in a good and workmanlike manner and shall be diligently prosecuted to completion in accordance with the Approved Tenant's Plans and Applicable Laws. At Tenant's sole cost, Landlord may (without obligation), perform any work Tenant failed to construct in accordance with the Approved Tenant's Plans, after ten (10) days' notice from Landlord (or with no advance notice if, in Landlord's sole and absolute judgment, Landlord's action is necessary to remediate a dangerous condition at the Premises which is a potential hazard to Tenant, Tenant's employees or agent, other tenants of the Shopping Center or the public or the Premises does not comply with the Applicable Laws). Tenant, at its sole cost and expense, shall be responsible for obtaining all necessary permits including building and health department permits for the performance of Tenant's Work and for the payment of any impact, capacity, usage, and/or similar fee in connection with Tenant's Work. Upon completion of Tenant's Work, Tenant shall record in the office of the County Recorder where the Shopping Center is located a Notice of Completion, as required or permitted by law, and Tenant shall deliver to Landlord, within ten (10) calendar days after completion of said work, a copy of the final signed-off building inspection card, permit or report with respect thereto, the Certificate of Occupancy, copies of all mechanics' lien releases or other lien releases on account of Tenant's Work, notarized and unconditional, in such form reasonably approved by Landlord, a copy of Tenant's recorded valid Notice of Completion, copies of all building permits indicating inspection and approval by the issuer of said

permits, and an architect's certification that the Premises have been constructed in accordance with the Approved Tenant's Plans and are complete. Not later than thirty (30) days after completion of Tenant's Work, Tenant shall furnish Landlord with a set of as-built plans (in an electronic (CADD) format) and an assignment of warranties from the general contractor, all subcontractors and equipment manufacturers (e.g. HVAC, hot water); provided, however, such warranties shall not inure to the benefit of Landlord until the expiration or earlier termination of the Lease Term or at such earlier time that Landlord shall be responsible for the repair of the warranted item, if applicable. The Premises shall at all times be a complete unit, except during the period of work, and Tenant shall perform all such work so as not to obstruct access to the Common Areas or the premises of or interfere with the quiet enjoyment of any other tenant in the Shopping Center.

Tenant shall not open for business in the Premises until the Premises fully and strictly comply with the Approved Tenant Plans and all Applicable Laws, in the reasonable judgment of Landlord ("**Finished Tenant Work**"). Such prohibition on Tenant opening for business in the Premises shall not delay the occurrence of the Rent Commencement Date. In the event Tenant fails to complete the Finished Tenant Work within sixty (60) days of the Rent Commencement Date, Tenant shall be in Breach under this Lease; provided, however, that Tenant shall not be afforded any grace period to cure such Breach as would otherwise be applied in accordance with Section 22.1 (c) hereof. During the performance of Tenant's Work, Tenant shall be responsible for the removal from the Shopping Center on a daily basis of all trash, construction debris and surplus construction materials, or at Landlord's option, the placement on a daily basis of such trash, debris and/or materials in Landlord designated receptacles.

Tenant shall give Landlord such notice as is required by Applicable Law, but in any event not less than fifteen (15) days' notice, in writing prior to the commencement of Tenant's Work or Alterations and Landlord shall have the right to post notices of non-responsibility in or on the Premises, as provided by Applicable Law. Tenant's Work and any Alterations to the Premises, including, but not limited to walls, wall covering, floor covering, window covering, paneling and built-in cabinet work, but excepting only moveable furniture and trade fixtures, shall at once become a part of the realty and belong to Landlord and except as set forth in Section 9.5 shall be surrendered with the Premises. Tenant shall not cause or allow bars or security gates to be installed outside the Premises, and any such security items installed inside the Premises will be hidden from sight during business hours.

Subject to Landlord's prior review and approval of Tenant's plans and specifications, and at Tenant's sole cost and expense: (i) Tenant may install signage designating up to four (4) additional parking spaces in front of the Building as reserved ADA-accessible parking spaces; and (ii) Tenant may install signage designating up to two (2) parking spaces directly in front of the Premises as reserved during Tenant's normal business hours for use by Tenant's patrons. Landlord and Tenant may mutually agree in writing to increase the number of parking spaces reserved for Tenant's patrons.

9.2 Liens. Tenant shall pay when due all claims for labor and materials furnished or alleged to have been furnished to or for Tenant at or for use in the Premises, which claims are or may be secured by any mechanic's or materialmen's lien against the Premises, or any interest therein, and Tenant agrees to indemnify and hold Landlord and the Landlord Indemnified Parties (as defined in Section 13.1) and Premises harmless from and against any and all liability arising out of any such claims, which indemnity shall survive the expiration or termination of this Lease. If any such claim of lien shall be filed against the Premises or the Shopping Center, Tenant shall cause the lien to be discharged; provided, however, Tenant may contest any such lien, so long as the enforcement thereof is stayed and the lien is removed of record by means of a bond or any other lawful means. If Tenant shall fail to cause said lien to be released of record within fifteen (15) days after notice to Tenant from Landlord, then in addition to any and all other rights and remedies it may have at law or in equity, Landlord may, but shall not be obligated to, discharge the same by payment, settlement, deposit or bonding, and/or retain the services of an attorney to protect Landlord's rights. Any amount paid by Landlord and all costs and expenses incurred by Landlord in connection therewith shall constitute Additional Rent and shall be paid by Tenant to Landlord on demand, along with interest at the Interest Rate from the date of payment by Landlord until reimbursed by Tenant. Notwithstanding the foregoing, Tenant shall not permit any claims of lien to be filed by any person, including claims of lien under any mechanic's, materialmen's or other lien statute against the Premises or the Shopping Center.

9.3 Roof-Prohibited Alterations. In addition to and notwithstanding any restrictions set forth elsewhere in this Lease in regard to Tenant's Work or Alterations, Tenant shall not, without the prior written consent of Landlord, which consent may be withheld for any reason, or no reason at all: (i) make any alterations or additions to, or penetrate the membrane of, the roof over the Premises; (ii) install any antennas, satellite reception devices, telephonic equipment, electronic transmission or reception devices, signs, billboards, advertisements or any other equipment on the roof or any exterior portion of the Premises; or (iii) make any alterations or improvements to the roof not specifically permitted in this Lease. Tenant shall provide to Landlord not less than fifteen (15) days' prior written notice in the event Tenant desires to gain access to or perform any alterations on the roof of the building wherein the Premises is located, and Landlord may condition its consent, if given, on Tenant's agreement to use a roofing or general contractor selected by Landlord to perform the work required by Tenant, and Tenant shall be obligated to pay all costs and expenses incurred in regard to such access or alterations, including, but not limited to, the cost to have a roofing contractor designated by Landlord supervise such access and/or alterations or review the plans and specifications of Tenant. In addition to Tenant's indemnity and other financial obligations set forth elsewhere in this Lease, in the event that the acts or omission of Tenant or its officers, agents, contractors, customers, licensees, guests, invitees or employees results in or leads to the invalidation or cancellation of any warranty on the roof, HVAC or other structure or equipment at the Premises or the Shopping Center, Tenant shall immediately reimburse Landlord, as Additional Rent, for the cost of a replacement warranty, and Tenant shall further indemnify and hold Landlord, and the Landlord Indemnified Parties, harmless from and against all costs, expenses, claims and damages that would not have been incurred but for the cancellation of the heretofore described warranty, and these obligations shall survive the expiration or termination of this Lease.

9.4 Removal. Tenant's leasehold improvements shall remain on and be surrendered with the Premises on the expiration or termination of the Lease Term, except that Landlord can elect not later than thirty (30) days prior to the Expiration Date to require Tenant to remove any leasehold improvements. If Landlord so elects, Tenant, at its sole cost and expense, shall, forthwith and with all due diligence, remove the designated leasehold improvements and repair any damage to the Premises caused by such removal. In the event Tenant shall fail to remove such leasehold improvements, as provided herein, prior to the Expiration Date, Landlord may, but shall not be obligated to, at Tenant's expense, remove such leasehold improvements and repair all damage to the Premises resulting from such removal and may, but shall not be obligated to, at Tenant's expense, store the same, and in any event Landlord shall have no liability to Tenant for any loss or damage to Tenant's leasehold improvements caused by or resulting from such removal or otherwise. Notwithstanding the foregoing, if installed by Tenant, a divider wall that extends into the open space to create two separate spaces for programming may be removed by Tenant prior to the expiration or termination of this Lease, provided that Tenant shall repair all damage to the Premises resulting from such removal.

9.5 Refurbishment. In the event the total length of the Term and any extended term is for a period of ten (10) lease years or more, Tenant shall, at its sole cost and expense, be responsible for performing a cosmetic refurbishment of the interior of the Premises to "like new" condition such work to include, but not be limited to new paint, ceilings, wall and floor coverings (hereinafter "**Required Improvements**"). The Required Improvements shall be performed during the first three (3) months of the sixth (6th) lease year of the Term and every five (5) lease years thereafter, if applicable. The Required Improvements shall be performed in accordance with the provisions of the Lease.

10. UTILITIES.

Tenant shall pay for all water, sewer, gas, heat, light, power, steam, telephone and all other utilities and services, including repairs to same, supplied to the Premises, together with any taxes thereon. If any such services are not separately metered to Tenant, Tenant shall pay a reasonable proportion to be determined by Landlord of all charges jointly metered with all other premises. Under no circumstances shall Landlord be responsible for any interruption, cessation or interference with any such utility service.

11. REAL PROPERTY TAXES.

11.1 Allocation. Tenant shall pay, as Additional Rent, all Real Property Taxes (as defined below) applicable to the Premises during Tenant's occupancy of the Premises or the Lease Term, whichever is greater ("**Tenant's Allocated Real Property Taxes**"). If the Premises is not separately assessed, Tenant's Allocated Real Property Taxes shall be Tenant's Proportionate Share (as defined below in Section 18.1) of all Real Property Taxes levied and assessed upon the Shopping Center or parcel of which the Premises is a part. The amount

of Real Property Taxes assessed against a parcel in the Shopping Center and paid for exclusively and solely by another tenant at the Shopping Center (hereinafter the **"Excluded Real Property Taxes"**) shall not be included within Tenant's Allocated Real Property Taxes, and when assessing Tenant's Allocated Real Property Taxes, Tenant's Proportionate Share shall be adjusted to exclude the square footage occupied by the tenant directly paying the Excluded Real Property Taxes.

11.2 Payment of Real Property Taxes. If Tenant's Allocated Real Property Taxes are not billed to Tenant as part of the CAM Expenses (including if the Premises is separately assessed), then all of Tenant's Allocated Real Property Taxes shall be paid by Tenant at least ten (10) days prior to the delinquency date of such payment, and Tenant shall promptly furnish Landlord with satisfactory evidence that such taxes have been paid. If Tenant shall fail to timely pay any of Tenant's Allocated Real Property Taxes, Landlord shall have the right to pay the same, in which case Tenant shall reimburse Landlord with Tenant's next Rent installment, together with interest at the Interest Rate, Tenant shall also pay to Landlord an amount equal to fifteen percent (15%) of the amount paid by Landlord to cover Landlord's overhead and administrative costs. At Landlord's option, regardless if the Premises is separately assessed, Tenant shall pay in advance one-twelfth (1/12th) of the amount estimated by Landlord (from time to time) to be Tenant's Allocated Real Property Taxes with each monthly installment of Rent and other expenses due hereunder in the manner set forth in Section 18.5.

11.3 Definition. As used herein the term **"Real Property Taxes"** shall include any form of real estate and other ad valorem taxes, assessment (including, but not limited to, general and special assessments), license fee, commercial Rent tax, franchise or gross margins tax (but only to the extent attributable to the Rent received by Landlord from Tenant and the other tenants in the Shopping Center), levy, penalty, or tax (other than inheritance or estate taxes and income taxes), imposed by any authority having the direct or indirect power to tax, including any city, county, state or federal government, or any school, agricultural, lighting, drainage, facilities or other improvement district thereof, as against any legal or equitable interest of Landlord in the Premises, the Shopping Center or in the real property of which the Premises is a part, as against Landlord's right to Rent or other income therefrom, or as against Landlord's business of leasing the Premises, or any tax imposed in substitution, partially or totally, of any tax previously included within the definition of Real Property Taxes, or any additional tax the nature of which was previously included within the definition of Real Property Taxes, or any fees and costs of Landlord incurred in determining, filing, contesting and/or appealing any such tax, including accountant's, attorney's and consultant's fees.

11.4 Contest. Only Landlord may contest the legal validity or amount of any Real Property Taxes for the Shopping Center against the taxing authority. In the event Tenant contests Real Property Taxes in contrary to this Section 11.4, such filing shall be Default under this Lease without the necessity of any notice from Landlord. If as a result of any such contest filed by Tenant, Real Property Taxes is increased in any manner, Tenant shall be solely responsible for, and shall pay upon demand by Landlord, all Real Property Taxes (not only Tenant's Proportionate Share) assessed in excess of the Real Property Taxes which would have been payable in the absence of the protest.

11.5 Increased Assessment. Tenant acknowledges and understands that (a) the Shopping Center and/or the Premises may be re-assessed for tax purposes on an annual basis (or from time to time) by the taxing authority under Applicable Law, and (b) in the event Landlord should at any time in the future sell or transfer the Shopping Center and/or the Premises, there may potentially be an increase in the Real Property Taxes. Landlord makes no representations, statements or warranties to Tenant, expressly or impliedly, that it will not sell or transfer the Shopping Center and/or the Premises at any time in the future.

11.6 Timing of Real Property Tax Payments. In such cases where the Real Property Taxes are billed by the tax assessor in two (2) or more separate installments and not all of the installments are due in the same calendar year, and the taxpayer has the option of paying a second and/or any later installments in the same year as the first installment is due, and where Landlord is responsible for paying the Real Property Taxes, Landlord may elect to pay the second or any later installment of such Real Property Taxes bill in the same calendar year as the first installment is due. In such event, the cost thereof may be reflected on an invoice sent to Tenant after the close of a calendar year or sent at such other time as Landlord may determine. Tenant acknowledges that, in such event, there may be a balance due arising (in part or in whole) from that portion of the Real Property Taxes bill that relates to a portion of the fiscal year immediately following the calendar year in which such tax bill was paid. In such event, it is expressly understood and agreed that such balance due is simply a function of the timing of the payments, and does not constitute an improper or invalid demand for payment by Landlord, and Tenant agrees to reimburse Landlord for Tenant's Proportionate Share of the total of all Real Property Taxes paid by Landlord.

12. PERSONAL PROPERTY TAXES.

Tenant shall pay, or cause to be paid, before delinquency, any and all taxes levied or assessed and which become payable during Tenant's occupancy of the Premises or the Lease Term (whichever is greater) upon Tenant's business and all of Tenant's nonpermanent leasehold improvements, signage, equipment, furniture, fixtures, and any other personal property located in the Premises (collectively, **"Tenant's Personal Property"**). When possible, Tenant shall cause Tenant's Personal Property to be assessed and billed separately from the real property of Landlord. In the event Tenant's Personal Property is assessed with Landlord's real property and Landlord pays the Real Property Taxes, Tenant shall reimburse Landlord for the taxes attributable to Tenant's Personal Property within ten (10) days after delivery to Tenant by Landlord of a statement in writing setting forth the amount of such taxes attributable to Tenant's Personal Property.

13. INDEMNITY.

13.1 Indemnity. To the extent permitted and as limited by North Carolina law, and except to the extent caused by the gross negligence or willful misconduct of Landlord, its agents, employees, or contractors, Tenant shall defend, indemnify, and hold harmless Landlord, WPF Management LLC, a Delaware limited liability company ("Westwood"), and each of its members, partners, managers, directors, officers, employees, servants, agents, attorneys, parent or affiliated companies, subsidiaries, lenders, lessees, invitees, heirs, legal representatives, stockholders, or other principals or representatives, disclosed or undisclosed (and their respective successors and assigns) (collectively, the **"Landlord Indemnified Parties"**), from and against any and all allegations, demands, litigation, fines, penalties, claims, costs and expenses and liability whatsoever, including attorney's fees, expert fees and court costs (collectively, **"Claims"**) arising from or related to (i) any use or occupancy of the Premises, or from the conduct of business, or from any activity, work or things done, permitted or suffered by Tenant in or about the Premises, the building containing the Premises or elsewhere in the Shopping Center, (ii) any Breach or Default in the performance of any obligation on Tenant's part to be performed under the terms of this Lease, or (iii) arising from any act or omission of Tenant, or any of Tenant's officers, agents, contractors, customers, licensees, guests, invitees or employees (collectively, **"Tenant Parties"**). In case any action or proceeding is brought against any of the Landlord Indemnified Parties by reason of any such Claims, Tenant, upon written notice from any of the Landlord Indemnified Parties, shall defend the same at Tenant's expense by counsel reasonably satisfactory to Landlord. Tenant shall give prompt notice to Landlord in case of casualty or accidents in or about the Premises or in the event of an occurrence that gives rise to Tenant's obligation to indemnify the Landlord Indemnified Parties. Tenant's indemnification obligation under this Section 13.1 shall survive the expiration or earlier termination of this Lease.

13.2 Waiver. Except to the extent caused by the gross negligence or willful misconduct of Landlord, its agents, employees, or contractors, Tenant hereby agrees that neither Landlord, Westwood nor Landlord Indemnified Parties shall be liable for injury to Tenant's business, or any loss of income therefrom, or for damage to the goods, wares, merchandise or other property of Tenant, Tenant's employees, invitees, customers, or any other person in or about the Premises, nor shall Landlord or Westwood be liable for injury to the person of Tenant or Tenant Parties or any other person in or about the Premises, whether such damage or injury is caused by or results from fire, steam, explosion, falling plaster, electricity, gas, water or rain which may leak from any part of the building, or from the breakage, leakage, obstruction or other defects of pipes, sprinklers, wires, appliances, plumbing, air conditioning or lighting fixtures, or from the roof, street, sewer system, or sub-surface, or from any other cause, whether the damage or injury results from conditions arising upon the Premises or upon other portions of the building of which the Premises is a part, or from other sources or places where the resulting damage or injury occurs on or about the Premises, and regardless of whether the cause of such damage or injury, or the means of repairing the same, is inaccessible to Tenant. Landlord and Westwood shall not be liable for any damage arising from any act or neglect of any other tenant, if any, of the building and/or Shopping Center in which the Premises is located. Landlord and/or its agents shall not be liable for interference with the light, air, or for any latent defect in the Premises.

14. INSURANCE.

14.1 Tenant's Liability Insurance. Tenant, at its sole cost and expense, shall maintain occurrence basis commercial general liability insurance with a single combined liability limit of not less than One Million and 00/100 Dollars (\$1,000,000.00) per occurrence and Two Million and 00/100 Dollars (\$2,000,000.00) in the annual aggregate insuring against all liability of Tenant and its authorized representatives arising out of or in connection with Tenant's use or occupancy of the Premises. All public liability insurance shall insure performance by Tenant of the indemnity provisions of Article 13. Landlord (and, if requested by Landlord, Landlord's lender and Westwood) shall be named as additional insured in any policy obtained by Tenant. Tenant may provide this insurance under a blanket policy, provided that said insurance shall have a Landlord's protective liability endorsement attached thereto. Tenant shall deliver to Landlord, prior to right of entry, copies of policies of liability insurance required herein evidencing the existence and amounts of such insurance with loss payable clauses satisfactory to Landlord.

14.2 Tenant's Property Damage Insurance. Tenant, at its sole cost and expense, shall maintain on all of its personal property, Tenant's improvements and alterations, in, on, or about the Premises, a "Special Form – causes of loss" policy of insurance with earthquake sprinkler leakage (if the Premises is sprinklered) endorsements to the extent of at least one hundred percent (100%) of their full replacement cost, together with business interruption and extra expense coverage. The proceeds from any such insurance shall be used by Tenant for the replacement of property and the restoration of Tenant's improvements or alterations. The foregoing insurance shall include full coverage for plate glass on the Premises and Landlord (and, if requested by Landlord, Landlord's lender and Westwood) shall be named as additional insured. Tenant shall furnish Landlord with a copy of such policy prior to Tenant's entry onto the Premises and whenever required in order to satisfy Landlord that such policy is in full force and effect. Further, and notwithstanding anything to the contrary in Section 14.7 below, if Landlord elects, by written notice to Tenant, to require Tenant to obtain the Rent loss coverage described in such Section in lieu of Landlord obtaining and maintaining same, Tenant shall, at its sole cost and expense, obtain and maintain such Rent loss insurance, and Landlord (and, if requested by Landlord, Landlord's lender and Westwood) shall be named as a co-insured under such policy.

14.3 Tenant's Automobile Insurance. If Tenant utilizes vehicles in connection with the operation of its business at the Premises, Tenant, at its sole cost and expense, shall keep and maintain commercial automobile liability insurance insuring all owned, non-owned and hired vehicles used in the conduct of Tenant's business and operated upon or parked upon the Common Areas with limits of liability not less than Two Million and 00/100 Dollars (\$2,000,000.00) combined single limit for both bodily injury and property damage. Tenant shall increase the foregoing limits if Landlord deems such increase desirable to protect Tenant and/or Landlord.

14.4 Tenant's Worker's Compensation Insurance. Tenant, at its sole cost and expense, shall keep and maintain a standard form worker's compensation and employer's liability insurance covering all Tenant's employees for injury or illness suffered in the course of or arising out of their employment, providing statutory worker's compensation benefits and employer's liability limits of not less than the greater of: (a) One Million and 00/100 Dollars (\$1,000,000.00) or (b) the minimum amount required by Applicable Law.

14.5 Tenant's Construction Insurance. At all times during which Tenant is doing construction work at the Premises, Tenant, at its sole cost and expense, shall keep and maintain "Special Form – causes of loss" builders risk insurance with limits of coverage not less than one hundred percent (100%) of the replacement cost of Tenant's leasehold improvements and annual business interruption and extra expense coverage. Tenant shall also procure and maintain a policy of owners and contractors' protective insurance and independent contractors' insurance with coverage of at least Two Million and 00/100 Dollars (\$2,000,000.00) for a single occurrence and for property damage. Tenant may satisfy the foregoing insurance obligations by causing its contractors to procure and maintain equivalent coverage.

14.6 Use. No use shall be made or permitted to be made on the Premises, or acts done, which will increase the existing rate of insurance upon the building in which the Premises is located or upon the Shopping Center or cause the cancellation of any insurance policy covering the building or Shopping Center, or any part thereof, nor shall Tenant sell, or permit to be kept, used or sold, in or about the Premises, any article which may be prohibited by the standard form of fire insurance policies. Tenant shall, at its sole cost and expense, comply with any and all requirements pertaining to the Premises of any insurance organization or company, necessary for the maintenance of fire and public liability insurance, covering the Premises or the building of which it is a part. Tenant agrees to pay to Landlord as Additional Rent any increase in premiums on policies which may be carried by Landlord on the Premises covering damages to the building and loss of Rent caused by fire and the perils normally included in extended coverage, which increase is attributable to Tenant's particular use of the Premises. If, in the opinion of Landlord, or Landlord's insurance carrier, Tenant's particular use or occupancy of the Premises requires certain improvements or alterations to be made, or equipment installed within the Premises in order to remedy an otherwise potentially dangerous condition affecting the risk of fire or other damage to the Premises arising out of Tenant's occupancy or particular use of the Premises, then in such an event, Tenant, at its sole cost and expense, shall within thirty (30) days of receipt of written notice from Landlord, make such improvements, alterations, or equipment installations required to remedy such dangerous conditions, including but not limited to, (and by way of example only), the installation of automatic fire extinguishing systems in cases where Tenant is operating certain food preparation equipment creating grease laden vapors without the protection of such equipment.

14.7 Landlord's Insurance. Landlord shall maintain on the building in which the Premises is located and on the Shopping Center a "Special Form – causes of loss" property policy of insurance, to the extent of full replacement cost. Landlord may also maintain, at Landlord's election, coverage for one (1) year's or more Rent loss (provided however that Landlord may require Tenant to obtain the Rent loss coverage in lieu of Landlord obtaining and maintaining same), earthquake and/or flood coverage, terrorism coverage, and such coverage customarily provided under an environmental protection policy. The insurance Landlord procures may include coverage on buildings or improvements other than the Premises including all of the Shopping Center; and such coverage may be obtained by Landlord as part of an umbrella or blanket insurance coverage or in conjunction with other real property owned and insured by Landlord, and in such event, Tenant shall pay to Landlord, as Additional Rent, from and after the Rent Commencement Date, Tenant's Proportionate Share of the cost of any insurance obtained, and any deductibles paid for, by Landlord. Tenant's Proportionate Share of said cost shall be allocated by using the fraction described in Section 18.1. Landlord may collect Tenant's Proportionate Share thereof in the manner provided for in Sections 18.4 and 18.5 or may separately bill Tenant for its Proportionate Share, in which event Tenant shall pay Landlord the sum due on demand. Landlord's obligation to maintain the insurance coverage described in this Section and Section 14.8 shall be deemed to be satisfied in the event that Landlord owns and/or controls less than the entirety of the Shopping Center and/or the Common Areas therein, or in the event that Landlord is not the operator of or charged with the obligation to maintain all of the Common Areas within the Shopping Center, and such other owner, co-owner or operator maintains all or part of the insurance coverage Landlord is obligated to maintain under this Section and Section 14.8 and in such instances, the amounts charged to Landlord for such coverage shall be deemed to be part of Landlord's cost for obtaining the required insurance coverage and shall be payable by Tenant as set forth above, or, at Landlord's sole discretion, per the terms and provisions of Section 18.5.

14.8 Landlord's Liability Insurance. Landlord may, at Landlord's election, maintain commercial general liability insurance, including personal injury and property damage coverage, with a single combined liability limit of not less than One Million and 00/100 Dollars (\$1,000,000.00) and Two Million and 00/100 Dollars (\$2,000,000.00) in the annual aggregate insuring against claims for bodily injury, death or property damage occurring in or upon the Shopping Center. Landlord may increase the coverage as determined by Landlord's insurance broker or lender. The cost of said insurance shall be allocated and collected in the manner described in Section 14.7.

14.9 General Requirements. All insurance required to be maintained by Tenant under this Lease shall: (i) Be issued by an insurance company authorized to do business in the State wherein the Premises is located, with a financial rating of at least an AVIII status as rated in the most recent edition of Best's Insurance Reports; (ii) be issued as a primary, noncontributory policy; (iii) contain an endorsement requiring thirty (30) days' written notice from the insurance company to Landlord before cancellation; (iv) be evidenced by a policy or certificate of policy, together with evidence of payments of premiums, which policy and evidence shall be deposited with Landlord prior to Tenant's entry onto the Premises and on renewal of the policy not less than twenty (20) days before expiration of the term of the policy, and also whenever requested by Landlord; (v) not limit the liability of Tenant hereunder, nor shall the policy limits of any such insurance limit the extent of Tenant's liability hereunder; (vi) each such policy shall be issued in the name of Tenant and name Landlord and any other parties in interest from time to time designated in writing by notice by Landlord to Tenant as additional insured(s) and/or loss payee(s), as their interest appear; and (vii) Tenant shall, prior to the Commencement Date, and upon request by Landlord, provide proof of insurance consistent with the requirements of this Article 14. If Tenant fails to procure and maintain the insurance required of it under Sections 14.1, 14.2 and/or 14.5 or fails to abide by the requirements

set forth in this Section 14.9, Landlord may, but shall not be required to, with or without prior notice to Tenant, procure and maintain the same, but at the expense of Tenant, and any amounts expended or expenses incurred by Landlord in procuring and/or maintaining such insurance shall be immediately reimbursed by Tenant to Landlord as Additional Rent hereunder, all such payments advanced by Landlord being subject to the application of interest at the Interest Rate, plus fifteen percent (15%) of the amount expended to cover Landlord's overhead and administrative costs.

14.10 Outdated Policy. If, at any time during the Term, any type of insurance policy required by this Lease is no longer available, discontinued or generally considered outdated by name, coverage or otherwise within the insurance industry (collectively referred to herein as an **"Outdated Policy"**), then in lieu of such Outdated Policy, Landlord and Tenant shall maintain the new type of policy replacing and most comparable to the Outdated Policy.

15. WAIVER OF SUBROGATION.

Notwithstanding anything to the contrary contained in this Lease, Landlord and Tenant each (and on behalf of each of its insurers) hereby waives against each other any and all right to recovery and any right of subrogation for any and all direct and indirect property losses and damages, including those insured against under any "Special Form – causes of loss" insurance policy described in Article 14 in force at the time of such loss or damage or required to be in force at such time by the terms and conditions of this Lease. Landlord's and Tenant's insurance policies will contain appropriate provisions or endorsements containing mutual waivers of subrogation between Tenant and Landlord.

16. DAMAGE, DESTRUCTION AND RESTORATION.

16.1 Duty to Restore. Unless Landlord elects to terminate this Lease as provided in Section 16.2 below, if the Premises is partially or totally damaged by fire or other casualty so as to become partially or totally untenantable, which damage is insured against under any policy of fire and extended coverage insurance then covering the damaged improvements, and the amount of insurance proceeds payable is sufficient, in Landlord's sole discretion, to rebuild and/or repair all improvements so damaged, this Lease shall not terminate and said improvements shall be rebuilt by Landlord with reasonable diligence, using the proceeds from all available insurance policies. Tenant shall assign to Landlord any and all insurance proceeds payable as a result of such casualty, and Landlord shall further have the sole and exclusive right to determine in which order and under which policies of insurance, whether said policies be obtained by Landlord or Tenant under Article 14, claims for reimbursement are made. Landlord shall not be required to repair any injury or damage by fire or other cause, or make any repairs to, or replacements of, or reimbursements for any leasehold improvements, fixtures, or other personal property of Tenant, which obligation shall belong exclusively to Tenant.

16.2 Election to Terminate. If (a) the improvements on the Premises are damaged (i) by an insured casualty to the extent of at least twenty-five percent (25%) of their replacement cost (cost to repair or replace at the time of loss without deduction for physical depreciation) other than during the last three (3) years of the Lease Term, (ii) by an insured casualty to the extent of at least ten percent (10%) of their replacement cost during the last three (3) years of the Lease Term, or (iii) to any extent by an uninsured cause at any time during the Lease Term, (b) at any time, more than twenty-five percent (25%) of the building area of the Shopping Center (whether or not the Premises is affected) or more than twenty-five percent (25%) of the building of which the Premises is a part (whether or not the Premises is affected) is so damaged, or (c) if the holder of a mortgage, deed of trust or other lien on the Premises at the time of the casualty elects, pursuant to such mortgage, deed of trust or other lien, to require the use of all or part of Landlord insurance proceeds in satisfaction of all or part of the indebtedness secured by the mortgage, deed of trust or other lien, then Landlord shall, within not more than ninety (90) days after such damage, notify Tenant in writing of Landlord's election: (x) to terminate this Lease; or (y) to restore the improvements on the Premises and/or the buildings and Shopping Center, as the case may be. If Landlord elects to repair or restore the damaged improvements, then, with respect to the Premises, Section 16.1 will apply. If Landlord elects not to restore, as aforesaid, this Lease shall terminate, at Landlord's sole and exclusive option, as of the date of such damage or the date of Landlord's notice of election, but in either event, this Lease shall expire and all interest of Tenant in the Premises shall terminate, but such rights and obligations of Landlord and Tenant that would have survived the normal expiration or early termination of this Lease shall remain in full force and effect. If Landlord elects to restore or fails to give notice of its election, as aforesaid, then this Lease shall remain in full force and effect.

16.3 Rent Adjustments and Insurance Proceeds. If this Lease is not terminated, then, during the period of repair and restoration, the Rent shall not be reduced but Tenant shall be entitled to have the proceeds, if any, of the "Rent loss coverage" insurance applied to such Rent obligations. In the event of a termination of this Lease, or in any other instance where Landlord repairs any damage covered by insurance, all insurance proceeds payable as a result of the casualty, including all proceeds of Tenant's insurance, shall belong and be assigned to Landlord.

17. ASSIGNMENT, SUBLETTING AND RECAPTURE.

17.1 Request for Consent. This Lease shall not be assigned, nor shall any interest therein be transferred by Tenant, by operation of law or otherwise, without the prior written consent of Landlord, which consent may not be unreasonably withheld. If Tenant desires at any time to assign or otherwise transfer this Lease, it shall submit in writing to Landlord: (a) the name and address of the proposed assignee; (b) the nature of the proposed assignee's business to be carried on in the Premises, including proof that the proposed assignee intends to use the Premises only for the Permitted Use and for no other purpose; (c) a copy of any agreements to be entered into by Tenant and the proposed assignee or transferee concurrently with such assignment; and (d) such financial information as Landlord may request concerning the proposed assignee and the total consideration paid or to be paid to Tenant by the assignee. It shall be deemed that Landlord is not acting unreasonably in refusing to consent to an assignment or transfer if (i) Tenant is in Default or Breach of this Lease, (ii) the tangible net worth (exclusive of goodwill, primary residence and retirement accounts, as applicable) and financial capabilities of the proposed assignee is less than that of Tenant and any Guarantor(s), if any, as of the date of this Lease or at the time of the transfer, whichever is greater, (iii) the proposed assignee does not appear to be financially reputable and responsible as a tenant, (iv) the proposed assignee is not likely to conduct a business on the Premises of a type and quality substantially equal to or better than that conducted by Tenant, (v) the proposed assignment or transfer proposes a change in the Permitted Use, or (vi) the proposed written assignment is not in a form acceptable to Landlord. Tenant shall pay to Landlord the sum of Five Thousand and 00/100 Dollars (\$5,000.00) as the reasonable fee for Landlord's expenses in reviewing such proposed assignment and said fee shall be non-refundable. This Lease may not be assigned in reliance on any law relating to bankruptcy or debtor's rights generally unless adequate assurance of future performance is provided Landlord including adequate assurance of the source of Rent and other expenses due under this Lease for the entire term of this Lease, and further provided that any Guaranty then in effect concerning this Lease is not invalidated or terminated as a result of such assignment. Notwithstanding anything to the contrary herein, Tenant shall not pledge, encumber, hypothecate or mortgage its interest in this Lease or the Premises under any circumstances, and any pledge, encumbrance, hypothecation or mortgage, or attempt by Tenant to pledge, encumber, hypothecate or mortgage this Lease or the Premises shall be a Breach of this Lease and voidable at Landlord's option. Any change in the control of Tenant or any change in the legal form of Tenant shall constitute an assignment requiring Landlord's consent. The (i) transfer, on a cumulative basis, of twenty-five percent (25%) or more of the ownership interest in Tenant, any entity directly or indirectly controlling Tenant, or Guarantor of this Lease; or (ii) any other transfer or transactions which gives parties, other than those parties currently comprising Tenant, the authority to direct the management of the Tenant, shall constitute a change in control for purposes of the preceding sentence.

17.2 Subsequent Assignment. The consent by Landlord to any assignment shall not constitute a consent to any subsequent assignment by Tenant or to any subsequent or successive assignment by the assignee. Any subsequent assignment shall require Landlord's consent pursuant to Section 17.1.

17.3 No Release/Assignee's Default. Landlord's consent to any sale, assignment, encumbrance, occupation or other transfer shall not release Tenant from any of Tenant's obligations hereunder. In the event of any Default under this Lease, Landlord may proceed directly against Tenant, any guarantors or anyone else responsible for the performance of this Lease (including any assignments, amendments or modifications thereto), including the assignee without first exhausting Landlord's remedies against any other person or entity responsible therefore to Landlord, or any security held by Landlord for Tenant. Furthermore, Landlord's acceptance of Rent and/or consent to any assignment

of the Premises by Tenant shall not constitute an acknowledgment that no Default then exists under this Lease, nor shall such consent be deemed a waiver of any then existing Default, except as may be otherwise provided in writing by Landlord to Tenant at that time.

17.4 False Representations. The discovery of the fact that any financial statement, or any other fact, relied upon by Landlord in giving its consent to an assignment was materially false shall, at Landlord's option, render Landlord's consent null and void and constitute a Breach of this Lease.

17.5 Subletting, Partial Assignment and Hypothecation. Partial assignments of Tenant's interest in this Lease and the hypothecation of any of Tenant's interest in this Lease are prohibited. Except as provided in Section 22.2(b), Tenant shall not sublet all or any portion of the Premises. Any sale, assignment, encumbrance, occupation or other transfer of this Lease which does not comply with the provisions of this Article 17, and any subletting, shall, at Landlord's option, be void and a Breach hereunder.

17.6 Consideration. Tenant shall pay to Landlord, promptly following receipt and by cashier's or certified check, ten percent (10%) of the value of any consideration received by Tenant in connection with or related to any assignment of this Lease or the transfer of any interest therein, including without limitation any consideration received by Tenant as a result of the sale of Tenant's business. Tenant shall disclose the amount of consideration to be received by Tenant and provide Landlord with supporting documentation regarding same at the time Tenant requests Landlord's consent to the assignment of this Lease or the transfer of any interest therein. Any consent provided by Landlord hereunder shall be contingent upon Landlord's receipt of said consideration at the time the assignment of this Lease or transfer of any interest therein is consummated. Tenant's failure to promptly pay said amount shall at Landlord's election be deemed to be a material Breach of this Lease and/or a withdrawal of Landlord's consent to the assignment or transfer. In addition, Tenant shall pay to Landlord promptly following receipt one-half the amount by which all Rent and other payments for the use of the Premises received by Tenant from any other person occupying any portion of the Premises exceeds the Rent and any other amounts payable by Tenant pursuant to this Lease, with the Rent and other amounts payable by Tenant for the Premises allocated on the basis of the square footage occupied by the other party. The provisions of this Section 17.6 shall apply regardless of whether or not such assignment, subleasing or occupation is made in compliance with the terms of this Lease; however, nothing in this Section shall be deemed to constitute a consent by Landlord or a right by Tenant to assign the Lease or sublet any portion of the Premises other than as described in this Article 17. In the event Landlord consents to an assignment of this Lease: (a) Minimum Rent shall be increased but in no event decreased on the effective date of any such assignment (or if the effective date is not the first day of the month, then on the first day of the month immediately following the effective date), to the greater of: (i) the prevailing "market rent" for the Premises as determined by Landlord by averaging the minimum annual rents obtained by Landlord on a per square foot basis from the three (3) most recently signed leases covering premises owned by Landlord within the Shopping Center which are determined by Landlord in its sole discretion to be comparable in location and configuration to that of the Premises (such determination shall not, however, take into consideration any monetary concessions granted by Landlord, such as free rent, tenant improvement allowances, or other similar monetary inducements); or (ii) an amount equal to the total of the monthly Minimum Rent plus Percentage Rent required to be paid by Tenant pursuant to this Lease during the twelve (12) month period immediately preceding the effective date of such assignment; and (b) the Security Deposit shall be increased but in no event decreased on the effective date of any such assignment to an amount equal to two (2) months Minimum Rent for the last two (2) months of the Lease Term, plus the then current CAM Estimate, rounded to the nearest \$1,000. Any payments made to Landlord pursuant to this Section 17.6 shall not cure any Default under this Lease arising from such assignment, subleasing or occupation.

17.7 Recapture. If Tenant requests Landlord's consent to any assignment of this Lease, Landlord shall have the right, to be exercised by giving written notice to Tenant within thirty (30) days of receipt by Landlord of the information concerning such assignment required by Section 17.1, to terminate this Lease effective as of the date Tenant proposes to assign this Lease.

17.8 No Waiver. As a condition to Landlord's written consent as provided for in this Article 17, Tenant shall deliver to Landlord an executed copy of an assignment agreement whereby Tenant's proposed assignee agrees to assume the obligations of Tenant under this Lease. The collection or acceptance of Rent or other payment by Landlord from any person other than Tenant shall not be deemed a waiver of any payment provisions of this Article, the acceptance of any assignee or subtenant as Tenant hereunder, or a release of Tenant or any assignor from any obligation under this Lease. An assignment or subletting without Landlord's consent as required herein shall, at Landlord's option, be a Breach under this Lease without the necessity of any notice and grace period, and Landlord may either: (i) terminate this Lease, or (ii) upon 30 days written notice, increase the monthly Minimum Rent to 150% of the Minimum Rent then in effect throughout the remainder of the Lease Term.

18. MAINTENANCE OF PARKING AND COMMON AREAS.

18.1 Common Area Expenses. Tenant shall pay to Landlord, as Additional Rent, Tenant's Proportionate Share of the CAM Expenses, as hereinafter more particularly described. "Tenant's Proportionate Share" for any calendar year shall be that percentage that the total square footage of the Premises bears to: (i) the total square footage of the leasable buildings within the Shopping Center; (ii) the total floor area of the building or buildings or parcel of which the Premises is a part; or (iii) the total square footage of the tenants participating in the respective category of CAM Expenses, as set forth in Section 18.4. Landlord may use one or more of the prorata formulas described in the foregoing sentence, whichever is deemed appropriate by Landlord. Landlord may from time to time recalculate the square footage of the building in which the Premises is located and/or the square footage of the Shopping Center, and Landlord's determination of such square footage shall be deemed conclusive on Tenant unless and until it is thereafter re-calculated by Landlord. Tenant shall be responsible for any increased costs, as reasonably determined by Landlord, in the removal of rubbish, trash, debris and other materials from the Shopping Center above the costs for the removal of such items prior to the Commencement Date. Notwithstanding the foregoing, Landlord may, at Landlord's sole option, require Tenant to obtain its own trash removal service in lieu of Landlord providing for same. Tenant agrees to break down any boxes before depositing same in a trash container.

18.2 Common Areas. All areas from time to time within the exterior boundaries of the Shopping Center which are now or hereafter made available for the general use, convenience and benefit of all tenants of the Shopping Center and their customers, visitors and invitees, including, without limiting the generality of the foregoing, automobile parking areas, parking structures, stairways, escalators, elevators, service corridors, truckways, ramps, loading docks, delivery areas, public restrooms, access and interior roads, retaining walls, lighting facilities, bus stops, and landscaped and planted areas, if any, which are not reserved for the exclusive use of any Shopping Center tenants or occupants (hereinafter the "Common Areas"). The Common Areas shall be under the sole and exclusive control, management and direction of Landlord.

18.3 Maintenance. Landlord shall maintain the Common Areas in a commercially reasonable condition, and shall keep same lighted during normal and permitted hours of operation and landscaped, and shall repair any damage to the facilities thereof, but the cost to repair any damage caused to the Common Areas by Tenant or its agents or employees shall be borne exclusively by Tenant. Without limiting the generality of the immediately preceding sentence, Tenant acknowledges that LANDLORD MAKES NO REPRESENTATION OR WARRANTY REGARDING WHETHER OR NOT LANDLORD WILL PROVIDE SECURITY SERVICES OR, IF SO, WHAT FORM OF SECURITY SERVICES WILL BE PROVIDED.

18.4 Expenses. It is understood and agreed that the term "CAM Expenses" shall be construed to include all sums expended by Landlord in connection with the ownership and operation of the Shopping Center including, but not limited to:

- (a) The cost of installation, operation, repair and maintenance, in neat, clean, good order and condition, and if necessary, the replacement, of the following:
 - (i) The Common Areas and improvements in the Common Areas including, but not limited to, building exterior and interior painting and stucco coating, coverings, decorative items, carpets, drapes, and window coverings and, including, but not limited to, common entrances, lobbies, corridors, windows, stairways, airshafts, restrooms, public spaces, trash areas, roadways, parkways, walkways, driveways, landscaped areas, bumpers, irrigation systems, lighting facilities, parking areas, loading and unloading areas, including, but not limited to, slurring and striping of the preceding, utility raceways, areas of ingress and egress, fences and gates, elevators, escalators, roofs, and roof drainage systems;
 - (ii) Interior and exterior signs and any lessee directory installation;
 - (iii) Any fire detection and/or sprinkler systems;

(b) The cost of potable water, sewer, gas, steam, processed water, compressed air, electricity, information technology infrastructure, and telephone to service the Common Areas and any other utilities not separately metered, including distribution and powerhouse expenses (if any) and the costs of any utility surcharges to the Shopping Center;

(c) Trash disposal, janitorial services, snow removal, pest control services, property management, security services, and the costs of any environmental inspections and compliance;

(d) Real Property Taxes;

(e) The cost of insurance maintained by Landlord relating to the Shopping Center (including, without limitation, any insurance maintained by Landlord in connection with this Lease), including, without limitation, any premium finance charges, broker's fees, charges for risk management services which may be provided by Landlord or any affiliate of Landlord, and any retention amounts required to be held in reserve towards Landlord's anticipated losses within the deductible;

(f) Any deductible portion of an insured loss concerning the Shopping Center or the Common Areas, including for general liability claims;

(g) The cost of any capital improvement or other cost incurred in connection with the Shopping Center (i) that is intended as a labor saving device or to effect other economies in the operation or maintenance of the Shopping Center, or any portion thereof, (ii) that is required under Applicable Law, or (iii) that are in Landlord's opinion necessary to maintain the Shopping Center, or any portion thereof, in good condition and repair;

(h) Wages, salaries, applicable fringe benefits and costs (including any taxes levied thereon) of persons employed by Landlord to maintain and/or clean the Shopping Center, and the cost of materials, supplies and tools, used in maintaining and/or cleaning the Shopping Center;

(i) Accounting, legal and other professional fees and management fees and administration fees attributable to the operation of the Shopping Center (management fee shall be computed as a percentage not to exceed five percent (5%) of the yearly Rental Income from the Shopping Center, which term Rental Income shall mean and include, but not be limited to, all monetary payments from all other tenants, occupants and/or licensees at the Shopping Center for their use and/or occupancy of a portion of the Shopping Center, including any and all sums that would be classified as Rent or Additional Rent if charged under this Lease; and Tenant shall pay its prorata share of such Rental Income);

(j) Costs incurred to maintain the quality, integrity, functionality and appearance of the Shopping Center;

(k) Costs incurred for the purpose of reducing expenses;

(l) Costs incurred in complying with Applicable Law affecting the Shopping Center and the ownership, use, operation thereof and cost pursuant to any covenants conditions and restrictions, entitlements, and voluntary energy savings and/or governmental programs;

(m) Costs incurred in providing security to the Shopping Center, if any;

(n) Auditor verification fees, if any;

(o) Costs for purchase of equipment (or rent if equipment is leased) used for operating and/or maintaining the Common Areas; and

(p) The cost of any other services to be provided by Landlord that are stated elsewhere in this Lease to be included in CAM Expenses.

Landlord may, and without affecting its right to receive reimbursement for CAM Expenses, cause any or all of said services to be provided by an independent contractor or contractors, or by an entity or entities owned and/or controlled by Landlord. The amount of any item or items of expense paid for exclusively and solely by a tenant other than Tenant (hereinafter the "**Excluded Expense**") shall not be included within the charges for CAM Expenses assessed upon Tenant, and with respect to any such items of Excluded Expense, Tenant's Proportionate Share shall be adjusted to exclude the square footage occupied by the tenant directly paying the Excluded Expense when assessing Tenant's CAM Expenses. If Landlord owns and/or controls less than the entirety of the Shopping Center and/or the Common Areas therein, or if Landlord is not the operator of or charged with the obligation to maintain all of the Common Areas within the Shopping Center, or if Landlord is required to reimburse any person or entity for any costs or expenses incurred by such person or entity in maintaining the Common Areas, or for maintaining other parts of the Shopping Center not owned or controlled by Landlord, and such costs and expenses would, under this Lease, be considered to be CAM Expenses but for the fact that such were originally incurred by someone other than Landlord or were incurred in regard to Common Areas not owned or controlled by Landlord, then Landlord shall, in its sole and exclusive discretion, include the costs and expenses payable by it as CAM Expenses.

18.5 Proration of Expenses. Tenant shall pay to Landlord the above-described CAM Expenses, as well as Tenant's Proportionate Share of costs, expenses, and charges to be allocated to Tenant under any other provisions of this Lease, if Landlord elects to include same, in the following manner:

(a) From and after the Rent Commencement Date, but subject to adjustment as provided herein, Tenant shall pay Landlord on the first day of each month of the Lease Term the CAM Estimate as set forth at Paragraph H of the Basic Lease Provisions which shall be applied to Tenant's account and maintained by Landlord for the items included therein, which monthly amount is estimated by Landlord and may be adjusted from time to time by Landlord on the basis of Landlord's experience as well as the anticipated cost of all of the foregoing items. Landlord reserves the right in its sole discretion to amortize the cost of any non-recurring CAM Expenses over such period as Landlord determines and may accelerate and collect from Tenant at the expiration or earlier termination of the Lease Tenant's Proportionate Share of the unpaid portion of any such amortized non-recurring CAM Expenses. Notwithstanding anything contained herein or any verbal representations made by Landlord or Landlord's agent to the contrary, Landlord expressly does not represent or warrant that the CAM Estimate as set forth in Paragraph H of the Basic Lease Provisions, or in effect at any time hereof, is an accurate representation of the actual costs which may ensue for those items for which the estimated payments are being made. While Landlord may endeavor to estimate such actual costs, for various reasons, including fluctuations in many expenses and taxes over which Landlord may have little or no control, there may be a shortfall when the reconciliation of the estimates to such actual costs is made. Tenant expressly acknowledges that such a shortfall may occur, and hereby agrees to promptly pay its share of these costs in accordance with the terms of this Lease.

(b) If, at the end of any calendar year, Tenant's Proportionate Share of the foregoing CAM Expenses for the year exceeds the total of the CAM Estimates paid by Tenant during such calendar year, Tenant shall pay to Landlord the deficiency upon demand. If the CAM Estimates paid by Tenant during such calendar year exceed Tenant's Proportionate Share of CAM Expenses for the year, Tenant shall be entitled to a credit against CAM Expenses thereafter to become due to Landlord. Landlord shall furnish a statement showing categories of expenses to Tenant annually for the actual expenses for all of the foregoing items and the excess or deficiency of Tenant's payments (the "**CAM Reconciliation Statement**"). Tenant's duties under this Article 18 shall survive the expiration or earlier termination of this Lease. Notwithstanding if this Lease has expired or terminated prior to receiving a CAM Reconciliation Statement, Tenant shall pay to Landlord, within thirty (30) days after delivery by Landlord to Tenant of a CAM Reconciliation Statement, the amount such statement indicates is owed by Tenant.

18.6 Use of Common Areas. Tenant, for the use and benefit of Tenant, its agents, employees, customers and licensees shall have the non-exclusive right, in common with Landlord and other present and future owners, tenants, and their agents, employees, customers, licensees and subtenants, to use the Common Areas for ingress and egress, roadway, sidewalk and automobile parking, except for any restrictions and/or exclusions from such non-exclusive use for the benefit of any other tenant or other purpose. Tenant shall not permit its customers, employees, licensees or invitees to monopolize the Common Areas including without limitation the parking areas of the Shopping Center, and shall take corrective measures as directed by Landlord to ensure that the Common Areas and parking areas may be equally enjoyed by all other tenants and their customers, employees, licensees or invitees at the Shopping Center.

18.7 Tenant/Employee Parking. Tenant, and its employees, vendors and contractors, shall not park any vehicles in any vehicle parking areas of the Common Areas designated for patrons and/or customers of the Shopping Center. Landlord may designate the particular parking area to be used by Tenant and its employees, vendors and contractors. Alternatively, Landlord may ban Tenant and its employees, vendors and contractors from parking anywhere in the Common Areas. Tenant shall furnish Landlord with its and its employees, vendors and contractors' vehicle license plate numbers within fifteen (15) days after taking possession of the Premises, and within five (5) days of Landlord's written request. If Tenant fails to supply Landlord with the license plate numbers of Tenant and its employees, vendors and contractors, Tenant shall pay Fifty and 00/100 Dollar (\$50.00) to Landlord until provided as Additional Rent. If Tenant or its employees, vendors or contractors park

their cars in any part of the Common Areas or the Shopping Center other than the area expressly designated for their use, then Landlord may charge Tenant a Twenty and 00/100 Dollar (\$20.00) per day, as Additional Rent, for each day or partial day per car parked in violation, and Landlord may also cause such car(s) to be towed from the Common Areas or the Shopping Center at the cost of Tenant. All amounts due under the provisions of this Section shall be deemed to be Additional Rent and shall be payable by Tenant within three (3) days after a demand from Landlord for payment.

19. HOLDING OVER.

Should Tenant hold over after the Expiration Date or earlier termination of this Lease, Tenant shall become a tenant from month-to-month only and any such holding over shall not constitute an extension of this Lease. During such holding over, Tenant's Minimum Rent as set forth in Section 3.1 of this Lease shall be two hundred percent (200%) of the Minimum Rent in effect immediately prior to such hold over period (the "**Holdover Rent**"), plus all Additional Rent and plus the average monthly Percentage Rent (if the payment of Percentage Rent is required under this Lease) paid during the prior year, if applicable. When the Holdover Rent is determined, Landlord shall give Tenant written notice indicating the amount thereof, however, Landlord's failure to provide or timely provide such notice or Landlord's acceptance thereafter of the Minimum Rent in effect immediately prior to such holdover shall not be deemed a waiver of Landlord's right to collect any and all Holdover Rent owed it from and after the commencement of such holdover. Should Tenant hold over for any portion of a month, Tenant shall be liable for Holdover Rent for the entire month. Notwithstanding the foregoing, nothing contained in this Article shall: (a) constitute Landlord's consent, either express or implied, for Tenant to hold over following the Expiration Date; or (b) affect Landlord's rights of re-entry or any other rights of Landlord hereunder or as otherwise provided by law. Tenant shall indemnify, protect, defend (by counsel approved in writing by Landlord and, as applicable, Landlord's insurance carrier) and hold Landlord harmless from and against any and all claims, judgments, suits, causes of action, damages, losses, liabilities and expenses (including reasonable attorneys' fees and court costs) resulting from such failure to surrender, including, without limitation, any claim made by any succeeding tenant based thereon. The foregoing indemnity shall survive the expiration or earlier termination of this Lease.

20. HOURS OF BUSINESS/CONDUCT OF BUSINESS.

Tenant shall open for business with Tenant's Work complete for Tenant's Permitted Use within sixty (60) days of the Rent Commencement Date. From and after such date, Tenant shall continuously and uninterruptedly during the entire Lease Term conduct and carry on Tenant's business in the Premises. Tenant shall keep the Premises open for business and cause Tenant's business to be conducted therein during the usual business hours of each and every business day as is customary for businesses of like character in the city in which the Premises is located to be open for business. Tenant shall also keep its primary trade name sign lit during the evening hours as is customary for businesses of like character in the city in which the Premises is located, and particularly in conformity with the majority of the other tenants at the Shopping Center. In the event of a Default by Tenant of any of the conditions in this Article 20, Landlord shall have, in addition to any and all remedies herein provided, the right at its option to collect not only the Minimum Rent, but Additional Rent at the rate of one three-hundred-sixty-fifth (1/365th) of the amount of the annual Minimum Rent for each day Tenant is in Default or Breach of the provisions of this Article. Landlord and Tenant specifically acknowledge that the Additional Rent remedy provided for in the immediately preceding sentence is a provision for liquidated damages and is not a penalty, that the damages which Landlord is likely to suffer should Tenant breach any of the conditions in this Article are impossible to calculate at the time this Lease is executed and the parties have specifically negotiated this provision, without which Landlord would not have entered into this Lease.

21. Intentionally deleted

22. TENANT'S DEFAULT AND REMEDIES.

22.1 Default. A "**Default**" is defined as a failure by Tenant to observe, comply with or perform any of the terms, covenants, conditions or rules applicable to Tenant under this Lease. A "**Breach**" is defined as the occurrence of any one or more of the following Defaults and, where a grace period to cure after notice is specified herein, the failure by Tenant to cure said Default prior to the expiration of the applicable cure period:

(a) Tenant fails, after the date on which it is required by this Lease to open the Premises for business with the public, to be open for business as required by this Lease or vacate or abandons the Premises. The failure of Tenant to carry on its business at the Premises for a period of three (3) consecutive days shall be deemed to be a vacation and/or abandonment of the Premises (except for force majeure or as otherwise agreed to in writing by Landlord);

(b) The failure by Tenant to make any payment of Rent or any other payment required to be made by Tenant hereunder, as and when due, where such failure continues for a period of three (3) days after written notice thereof from Landlord to Tenant;

(c) The failure of Tenant to observe or perform any of the covenants, conditions or provisions of this Lease to be observed or performed by Tenant, other than described in sub-paragraph (b) above, where such failure shall continue for a period of ten (10) days after written notice thereof from Landlord to Tenant; provided, however, that if the nature of Tenant's Default is such that more than ten (10) days are reasonably required for its cure, then Tenant shall not be deemed to be in Default if Tenant commences such cure within said ten (10) day period and thereafter diligently pursues such cure to completion, but in no event shall the time to complete the cure of the Default be extended for a period in excess of thirty (30) days, notwithstanding Tenant's diligence in pursuing the cure of such Default;

(d) The making by Tenant of any general assignment for the benefit of creditors;

(e) The filing by or against Tenant of a petition in bankruptcy or a petition for reorganization or arrangement under any law relating to bankruptcy (unless, in the case of a petition filed against Tenant, the same is dismissed within thirty (30) days);

(f) The appointment of a trustee or receiver to take possession of all or substantially all of Tenant's assets located at the Premises or of Tenant's interest in this Lease, where possession is not restored to Tenant within thirty (30) days;

(g) The attachment, execution or other judicial seizure of all or substantially all of Tenant's assets located at the Premises, or of Tenant's interest in this Lease, where such seizure is not discharged within thirty (30) days; or

(h) The violation by Tenant of any provision of this Lease which specifies that Landlord may treat a violation by Tenant as a Breach of the Lease, in which case no notice of default or cure period shall be provided.

22.2 Remedies. In the event of any Breach by Tenant, Landlord may at any time thereafter, with or without notice or demand and without limiting Landlord in the exercise of any right or remedy which Landlord may have by reason of such Breach, avail itself of any or all of the following remedies:

(a) Terminate this Lease and Tenant's right to possession of the Premises by any lawful means, in which case Tenant shall immediately surrender possession of the Premises to Landlord. In such event Landlord shall be entitled to recover from Tenant all damages incurred by Landlord by reason of Tenant's Breach, including, but not limited to: the cost of recovering possession of the Premises; expenses of re-letting, including necessary renovation and alteration of the Premises, attorney's fees and any real estate commission actually paid; and the worth at the time of award of (i) the unpaid Rent and other charges called for under the Lease which had been earned at the time of termination, plus (ii) the amount by which the unpaid Rent and other charges called for under the Lease which would have been earned after termination until the time of award exceeds the amount of such Rent loss for the same period which Tenant proves could have been reasonably avoided, plus (iii) the amount by which the unpaid Rent and other charges called for under the Lease for the balance of the term after the time of such award exceeds the amount of such Rent loss for the same period that Tenant proves could be reasonably avoided, plus (iv) any and all other amounts necessary to compensate Landlord for the detriment proximately caused by Tenant's failure to perform its obligations under this

Lease, including, but not limited to, the costs incurred by Landlord for the taking of an inventory of, removal of and/or storage of any and all property left in, upon or about the Premises by Tenant, following Tenant's abandonment, vacating or otherwise surrendering of the Premises; plus (v) at Landlord's election, such other amounts in addition to or in lieu of the foregoing as may be permitted from time to time by Applicable Law. The worth at the time of award of the sums referred to in clauses (i) and (ii) above, shall be computed by allowing interest at the highest rate then allowed by Applicable Law. The worth at the time of award of the amount referred to in clause (iii) above, shall be computed by discounting such amount at the discount rate of the Federal Reserve Bank of San Francisco at the time of award plus one percent (1%);

(b) Maintain Tenant's right to possession, in which case this Lease shall continue in effect whether or not Tenant shall have abandoned the Premises. In such event, Landlord shall be entitled to enforce all of Landlord's rights and remedies under this Lease, including the right to recover the Rent and any other charges and adjustments as they become due hereunder. Notwithstanding the provisions of Article 17, in the event that following a Default or Breach of this Lease by Tenant and Landlord's election to pursue this remedy, Tenant shall have the right to assign the Lease or sublet the Premises subject to Landlord's consent, which consent will be subject to the standards, restrictions and requirements set forth in Section 17.1, and Tenant agrees that such standards, restrictions and requirements (including the requirement that the successor-in-interest use the Premises for the Permitted Use and for no other purpose) are reasonable;

(c) Pursue any other right or remedy, legal or equitable, now or hereafter available to Landlord under Applicable Law, and recover as damages, in addition to such other rights and remedies, the value of any abated Rent and any monetary contribution by Landlord for any Tenant improvements or other Lease concessions which may have been granted to Tenant hereunder prior to any such Breach. Notwithstanding the foregoing, Landlord shall not be liable for, nor required to credit, post-judgment replacement lease Rent income against pre-judgment Rent loss or other monetary damage sustained by Landlord as a result of any Default or Breach on the part of Tenant hereunder, and Tenant hereby waives any right Tenant may have to so apply such replacement lease Rent credit, if applicable; and

(d) Terminate Tenant's right of possession of the Premises by any lawful means, without terminating the Lease, in which case Tenant shall immediately surrender possession of Premises to Landlord. In such event Landlord shall be entitled to recover from Tenant all damages incurred by Landlord by reason of Tenant's Breach, including, but not limited to: the cost of recovering possession of the Premises; expenses of re-letting, including necessary renovation and alteration of the Premises, reasonable attorneys' fees and any real estate commission actually paid. Landlord shall, with or without service of notice or resort to process of law, take possession of the Premises and expel or remove Tenant and all of the parties occupying the Premises, and remove all property of Tenant and store such property in public warehouse or elsewhere the cost of and for the account of Tenant without being deemed guilty of trespass, or becoming liable for any loss or damage which may be occasion thereby. In such event, Landlord may receive and collect the rent for such reletting and shall apply it against any amounts due from Tenant hereunder, including, without limitation, such expenses as Landlord may have incurred and recovering possession of the Premises, placing the same in good order and condition, altering or repairing the same for reletting, and all other expenses, commissions and charges, including reasonable attorney's fees, which Landlord may have paid or incurred in connection with such repossession and reletting. Landlord may execute any Lease made pursuant hereto in Landlord's name or in the name of Tenant, as Landlord may see fit, and Tenant thereunder shall be under no obligation to see to the application by Landlord of any rent collected by Landlord, nor shall Tenant have any right to collect any rent thereunder. Whether or not the Premises are relet, Tenant shall pay Landlord all amounts required to be paid by Tenant up to the date of Landlord's re-entry, and thereafter Tenant shall pay to Landlord, until the end of the Lease Term, the amount of all rent and other charges required to be paid by Tenant hereunder, less the proceeds of such reletting as provided above. Such payments by Tenant shall be at such times as are provided elsewhere in this Lease, and Landlord need not wait until the termination of this Lease to recover them by legal action or otherwise. Landlord may be permitted to bring multiple actions to collect any amounts due hereunder. Landlord shall not be deemed to have terminated this Lease or the liability of Tenant for the total rent hereunder by any re-entry or other act unless Landlord shall give Tenant written notice of Landlord's election to terminate this Lease. Tenant shall also be liable hereunder for and Landlord shall be entitled to recover from Tenant any and all other amounts necessary to compensate Landlord for the detriment caused by Tenant's failure to perform its obligations under this Lease, including, but not limited to, the costs incurred by Landlord for the taking of an inventory of, removal of and/or storage of any and all property left in, upon or about the Premises by Tenant, following Tenant's abandonment, vacating or otherwise surrendering of the Premises;

(e) Notwithstanding anything herein to the contrary, Landlord shall be under no duty and shall not be required to mitigate its damages or relet the Premises, and Tenant hereby waives all rights and claims it may have with respect to any duty or requirement of Landlord to mitigate its damages hereunder.

23. DEFAULTS BY LANDLORD/LIMITATION OF ACTIONS.

Landlord shall not be in default under this Lease unless Landlord fails to perform obligations required of Landlord within a reasonable time, but in no event less than thirty (30) days after written notice by Tenant to Landlord and to the holder of each mortgage or deed of trust covering the Premises whose name and address shall have at any time been furnished to Tenant in writing, specifying wherein Landlord has failed to perform such obligations; provided, however, that if the nature of Landlord's obligation is such that more than thirty (30) days are required for performance, then Landlord shall not be in default if Landlord commences performance within such thirty (30) day period and thereafter diligently prosecutes the same to completion. Tenant agrees to provide the holder of the first mortgage ("First Mortgagee") with a copy of any notice of default given to Landlord under this Lease at the same time such notice of default is given to Landlord. In the event of any default by Landlord under this Lease, First Mortgagee shall have the right to cure such default during the same time period provide to Landlord. Notwithstanding the foregoing, First Mortgagee shall have no obligation to cure any default under this Lease. Tenant acknowledges that, as of the date of this Lease, First Mortgagee is Nationwide Life Insurance Company, One Nationwide Plaza, Columbus, Ohio 43215, Attention: Real Estate Investments 1-05-701. In no event shall Tenant have the right to terminate this Lease as a result of Landlord's default and Tenant's remedies shall be limited to actual and direct damages and/or an injunction. Moreover, any claim, demand, right or defense of any kind by Tenant which is based upon or arises in any connection with this Lease or the negotiations prior to its execution, shall be barred unless Tenant commences an action thereon, or interposes in a legal proceeding a defense by reason thereof, within three (3) years after the date of the inaction or omission or the date of the occurrence of the event or of the action to which the claim, demand, right or defense relates, whichever applies. Further, any charges billed to Tenant by Landlord under this Lease, including, but not limited to, Landlord's maintenance and repair expenses under Article 8, Tenant's Allocated Real Property Taxes under Article 11, the insurance reimbursements under Article 14, and the CAM Expenses under Article 18, shall conclusively be presumed to be valid and binding on Tenant unless Tenant has provided written notice to Landlord, within sixty (60) days of Landlord's delivery of an invoice or its demand for payment, notifying Landlord of Tenant's objection to such invoice or demand and setting forth in such notice the basis and reasons for such objection.

24. LATE CHARGES/INTEREST.

24.1 Late Charges. Tenant hereby acknowledges that late payment by Tenant to Landlord of Rent and other sums due hereunder will cause Landlord to incur costs not contemplated by this Lease, the exact amount of which will be extremely difficult to ascertain. Such costs include, but are not limited to processing and accounting charges, and late charges which may be imposed on Landlord by the terms of any mortgage or trust deed covering the Premises. Accordingly, if any installment of Rent or any other sum due from Tenant shall not be received by Landlord or Landlord's designee within five (5) days after such amount shall be due, Tenant shall pay to Landlord a late charge equal to ten percent (10%) of such overdue amount. The parties hereby agree that such late charge represents a fair and reasonable estimate of the costs Landlord will incur by reason of late payments by Tenant. Acceptance of such late charge by Landlord shall in no event constitute a waiver of Tenant's Default with respect to such overdue amount, nor prevent Landlord from exercising any of the other rights and remedies granted hereunder. Following each second consecutive installment of Rent that is not paid within five (5) days of the date when due, Landlord shall have the option (i) to require that beginning with the first payment of Rent next due, Rent shall no longer be paid in monthly installments but shall be payable quarterly three (3) months in advance; and/or (ii) to require that Tenant increase the amount of the Security Deposit by one hundred percent (100%).

24.2 Interest. Unless otherwise specifically provided herein, any sums payable to Landlord which are not paid when due shall bear interest at the rate of the lesser of (a) the maximum rate of interest allowed by Applicable Law, or (b) eighteen percent (18%) per annum from the date same becomes due, until paid ("Interest Rate").

25. SAFETY AND HEALTH.

Tenant covenants to comply with the requirements of the Occupational Safety and Health Act of 1970, 29 U.S.C. Subsection 651 et seq. and any similar legislation in the State wherein the Premises is located (hereinafter collectively the "**Act**"), to the extent that the Act applies to the Premises and any activities thereon. Tenant agrees to defend, indemnify and hold Landlord and the Landlord Indemnified Parties harmless from and against any Claims, arising as a result of Tenant's Breach of the foregoing covenant and from all costs, expenses and charges arising therefrom, including without limitation, attorney's fees and court costs in connection therewith, which indemnity shall survive the expiration or termination of this Lease.

26. CONDEMNATION/EMINENT DOMAIN.

26.1 Definition. If there is any taking of, or damage to, all or part of the Premises, or any interest therein because of the exercise of the power of eminent domain or inverse condemnation, whether by condemnation proceedings, or otherwise, or any transfer of any part thereof or any interest herein made in avoidance thereof (all of the foregoing being hereinafter referred to as a "**Taking**", or if the context so requires, "**Taken**"), the rights and obligations of the parties with respect to such Taking shall be as provided in this Article 26. In the event that any authority having the power of eminent domain requests that Landlord convey to such authority all or any portion of the Shopping Center or all or any portion of the Premises, Landlord shall have the right to make a voluntary conveyance to such authority of all or any portion of the Shopping Center or all or any portion of the Premises whether or not proceedings have been filed by such authority; and in the event of any such voluntary conveyance, it shall nevertheless for all purposes hereunder be deemed that there has been a Taking by such authority of the property voluntarily conveyed by Landlord. Accordingly, all of the provisions of this Article shall be applicable notwithstanding such voluntary conveyance.

26.2 Total and Partial Condemnation. If there is a Taking of all of the Premises, this Lease shall terminate, but such rights and obligations of Landlord and Tenant that would have survived the normal expiration or early termination of this Lease shall remain in force and effect. If twenty-five percent (25%) or more of the total square footage of the Premises shall be Taken, or if twenty-five percent (25%) or more of the floor areas of the building in which the Premises is located shall be Taken, Landlord (but not Tenant) shall be entitled to elect to terminate this Lease. If Landlord does not terminate pursuant to the prior sentence, or if less than twenty-five percent (25%) of the Premises or the floor area of the building shall be Taken, then this Lease shall remain in full force and effect and Rent shall be adjusted as provided in Section 26.3. If any part of the Common Areas shall be Taken or appropriated, Landlord shall, within sixty (60) days of the Taking, have the right at its option to terminate this Lease upon written notice to Tenant. If this Lease is terminated in accordance with the provisions of this Article 26, such termination shall become effective as of the date physical possession of the condemned portion is Taken.

26.3 Repair and Restoration; Rent Adjustment. If this Lease is not terminated, (i) Landlord shall, at its sole expense, restore, with due diligence, the remainder of the improvements occupied by Tenant so far as practicable to a complete unit of like quality, character and condition as that which existed immediately prior to the Taking, provided that the scope of the work shall not exceed the scope of the work done by Landlord originally in constructing the Premises, and further provided that Landlord shall not be obligated to expend an amount greater than that which was awarded for said restoration to Landlord for such Taking; and (ii) the Minimum Rent shall be reduced by that proportion which the square footage of the area Taken from the Premises bears to the total square footage of the Premises immediately before the Taking, and any other amounts payable by Tenant under this Lease that are based in whole or part on the square footage of the Premises shall be adjusted as elsewhere set forth in this Lease. Minimum Rent shall not be adjusted for any Taking of a portion of the Common Areas or the building in which the Premises is located.

26.4 Award. The total and entire award or compensation in such proceedings, whether for a total or partial Taking, or for diminution in the value of the leasehold or for the fee or for any other reason shall belong to, and be the property of, Landlord; provided, that Tenant shall be entitled to recover from the condemnor such compensation as may be separately awarded by the condemnor to Tenant or recoverable from the condemnor by Tenant for the Taking of trade fixtures and equipment owned by Tenant in its own right (meaning personal property, whether or not attached to the real property, which may be removed without injury to the Premises) and for the expense of removing and relocating them, and for the loss of goodwill to the extent that is severally awardable, provided that such award does not adversely affect Landlord's award.

27. HAZARDOUS MATERIALS.

27.1 Prohibition Against Hazardous Materials. Tenant shall not (either with or without negligence) cause or permit the escape, disposal or release of any Hazardous Materials (as defined herein) in or about the Premises or the property of which the Premises is a part. Tenant shall not allow the storage or use of any Hazardous Materials in any manner not sanctioned by law and/or by the highest standards prevailing in the industry for the storage and use of such Hazardous Materials, nor allow to be brought into the Premises any Hazardous Materials except to use in the ordinary course of Tenant's business, and then only in those limited amounts ordinarily used in similar businesses, and only after written notice is given to Landlord of the identity of such Hazardous Materials. Without limitation, "**Hazardous Materials**" shall mean any substance which is toxic, ignitable, explosive, reactive, or corrosive or which is regulated by any local government (city, county or state), or by the United States Government as a "Hazardous Substance", "Hazardous Waste", or "Hazardous Material", and shall include without limitation those described in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, 42 U.S.C. Article 9601 et seq., the Resource Conservation and Recovery Act, as amended, 42 U.S.C. Article 6901 et seq., any applicable state or local law and the regulations adopted under these acts, including but not limited to petroleum and its derivatives.

27.2 Compliance with Law/Indemnification. If any lender or governmental agency shall ever require any action to ascertain whether or not there has been any release of Hazardous Materials, then the costs thereof shall be reimbursed to Landlord from Tenant upon demand as Additional Rent if such requirement applies to the Premises. In addition, Tenant shall, at its sole expense, undertake to comply with any and all Applicable Law, statutes, and ordinances concerning Hazardous Materials to which Tenant, as part of its use and occupancy of the Premises, is subject, and Tenant hereby agrees to cooperate with Landlord as may be required by Landlord's undertaking to similarly comply. Tenant shall further reimburse Landlord for any and all costs or expenses incurred by or on behalf of Landlord in regard to the investigation or remediation of Hazardous Materials or compliance with Applicable Law or otherwise incurred under this Article, including without limitation any and all regulatory oversight costs. In all events, Tenant shall defend (with counsel satisfactory to Landlord), indemnify, release and hold Landlord and the Landlord Indemnified Parties harmless from all liability, claims, penalties, fines, judgments, costs, losses, damages and expenses of any kind, including, without limitation, investigation and/or cleanup costs, consultant's fees, expert's fees, and attorney's fee, court costs, settlement, a decrease in the value of the Premises or Shopping Center, damages due to loss or restriction of rentable or usable space, any damages due to an adverse impact on the marketing of the Premises, and any damages arising from, in connection with, resulting from and/or caused by the release of Hazardous Materials at and/or the migration of Hazardous Materials from the Premises. The obligations of Tenant under this Article 27 shall survive the expiration or other termination of this Lease.

27.3 Duty to Inform Landlord. If Tenant knows, or has reasonable cause to believe, that a Hazardous Material, or a condition involving or resulting from same, has come to be located in, on, under or about the Premises, other than as previously consented to by Landlord, Tenant shall immediately provide written notice of such information to Landlord. Tenant shall also immediately provide Landlord with a copy of any statement, report, notice, registration, application, permit, business plan, license, claim, action or proceeding given to, or received from, any governmental authority or private party, or persons entering or occupying the Premises, concerning the presence, spill, release, discharge of, exposure to or remediation of any Hazardous Materials or contamination in, on or about the Premises. In the event that Hazardous Materials are used at the Premises, requiring that Tenant, at its sole cost and expense, obtain and maintain a policy of pollution legal liability insurance ("**Environmental Insurance**") which Environmental Insurance policy shall be subject to the review and approval of Landlord and the insurance requirements set forth in Section 14.9, above. The Environmental Insurance shall name Landlord and Westwood, as additional named insureds with limits of liability of not less than One Million and 00/100 Dollars (\$1,000,000.00) per occurrence.

27.4 Prohibition Against Invasive Testing. Tenant shall not perform any Invasive Testing (as defined below) at the Premises without the prior written consent of Landlord, which consent may be withheld in Landlord's sole discretion. As used herein, "**Invasive Testing**" includes, without limitation, any testing, investigation, sampling, assessment or analysis of indoor air, soil, soil vapor or groundwater at the Premises or any disturbance of soil, soil vapor or groundwater at the Premises (including, without limitation, by drilling, coring, augering or otherwise).

27.5 Disposal of Hazardous Materials. Tenant shall not dispose of Hazardous Materials inside the Premises, or on any land owned by Landlord (including without limitation the Shopping Center) and shall not release Hazardous Materials into the storm water drain system or the sanitary sewer system, including without limitation any sinks, toilets or drains at the Premises. Tenant shall, in accordance with all Applicable Law, dispose of Hazardous Materials to licensed off-Premises Hazardous Materials disposal facilities by duly licensed Hazardous Materials haulers.

27.6 Pre-Existing Hazardous Materials. Notwithstanding anything to the contrary contained in this Lease, in no event shall Tenant be responsible for any Hazardous Materials located on the Premises prior to the Lease Effective Date or any Hazardous Materials caused by Landlord or other tenants of the Shopping Center.

28. NO ACCORD AND SATISFACTION.

No acceptance by Landlord of a lesser sum than the Rents or any other charge then due shall be deemed to be other than on account of whichever installment of such Rent or charge due as Landlord, at Landlord's sole discretion, so elects to apply, nor shall any endorsement or statement on any check or any letter accompanying any check or payment as Rent or other charge be deemed an accord and satisfaction, and Landlord may accept such check or payment without prejudice to Landlord's right to recover the balance of such installment or pursue any other remedy as provided in this Lease.

29. INTENTIONALLY OMITTED.

30. CHANGES TO SHOPPING CENTER/EASEMENTS AND LICENSES/RIGHT OF ENTRY.

30.1 Changes to and Constitution of the Shopping Center. Landlord reserves the right at any time or times, to remodel, expand, contract, delete, multi-deck or otherwise alter or change any portion or portions of the Shopping Center in any manner whatsoever without the consent of Tenant including, without limitation, the location, shape, size, design or any other component of the Shopping Center, including its Common Areas, and any such modified Shopping Center or Common Areas shall, effective as of the completion of such modification, be deemed to be the Shopping Center or Common Areas as described in this Lease. Landlord makes no warranties or representations as to the present occupants or occupancy level of the Shopping Center, or of future occupancy commitments. Tenant waives any duty or obligation, express or implied, on the part of Landlord to keep the Shopping Center leased or occupied, or partially leased or occupied, or to lease (or not to lease) portions of the Shopping Center for any specific purpose, use or type of use. Landlord reserves the absolute right to allow such other tenancies in the Shopping Center as Landlord shall determine to best promote the interests of the Shopping Center, which right includes the right to prohibit certain tenant uses and/or to grant exclusive use rights to other tenants or entities. Without limiting the foregoing, Landlord shall have the absolute right to allow the operation of kiosks, carts, "pop-ups", and other commercial uses in any area of the Shopping Center, including the Common Areas.

30.2 Easement, Licenses and Rights. Landlord reserves unto itself, and to the extent not so reserved Tenant hereby grants to Landlord, such licenses, easements, and other rights in, over or under the Premises, or any portion thereof as shall be required or desired by Landlord for the construction, installation, repair, replacement and/or maintenance of structural supports and members, mains, conduits, pipes or other facilities to serve the Shopping Center, or any part thereof, as the same may be altered as provided in Section 30.1 hereof, including, but not by way of limitation, the premises of any other occupants.

30.3 Waiver of Claims. Tenant hereby waives any and all claims and causes of action resulting directly or indirectly from Landlord's exercise of any of its rights, reservations, licenses or easements as provided in this Article, including by way of example but not limitation, claims for business interference, lost profits, damage to or loss of personal property, loss of benefit of the Lease or the Premises, or otherwise.

31. GENERAL PROVISIONS.

31.1 Force Majeure. If any party hereto shall be delayed or prevented from the performance of any act required hereunder by reason of acts of God, strikes, lockouts, labor troubles, impossibility to procure materials, restrictive governmental laws or regulations or by other cause without fault and beyond the control of the party obligated (financial inability excepted), performance of such act shall be excused for the period of the delay and the period for the performance of any such act shall be extended for a period equivalent to the period of such delay; provided, however, nothing contained in this Section 31.1 shall excuse Tenant from the prompt payment of any Rent or other charge required of Tenant hereunder except as may be expressly provided elsewhere in this Lease, nor shall Tenant's inability to obtain governmental approval for Tenant's Permitted Use or for its occupation of the Premises excuse any of Tenant's obligations hereunder.

31.2 Cumulative Remedies. No remedy or election hereunder shall be deemed exclusive but shall, wherever possible, be cumulative with all other remedies at law or in equity.

31.3 Covenants and Conditions. Each provision of this Lease performable by Tenant shall be deemed to be both a covenant and a condition.

31.4 Binding Effect/Choice of Law. Subject to any provisions hereof restricting assignment or subletting by Tenant and subject to the provisions of Article 17, this Lease shall bind the parties, their personal representatives, successors and assigns. This Lease shall be governed by the laws of the State wherein the Premises is located, and Landlord and Tenant agree that this Lease has been made and is to be performed in the County wherein the Premises is located.

31.5 Subordination/Attornment. Tenant hereby subordinates this Lease to any ground or senior master lease(s) covering all or a portion of the Shopping Center owned by Landlord of which the Premises are a part and any deed(s) of trust, mortgage(s), security deed(s), or the lien of any other security instrument for financing or refinancing (singularly, "**Security Instrument**" and collectively, "**Security Instruments**"), and any renewals, replacements, modifications or extensions thereof, which encumber(s) all or any portion of the Shopping Center owned by Landlord of which the Premises are a part, and to all advances made or hereafter to be made which are secured by any of the foregoing either now in force (collectively, "**Existing Encumbrances**") or subsequently in force (collectively, "**Future Encumbrances**"). The preceding sentence shall be self-operative and no further instrument of subordination shall be required; provided, however, to the extent Applicable Law requires further documentation to be executed in order to cause this Lease to be subordinate to either Existing Encumbrances or Future Encumbrances, and the renewals, replacements, modifications or extensions thereof: (i) Tenant hereby appoints Landlord as its attorney in fact coupled with an interest to execute any documentation which is determined by Landlord or its lender(s) to accomplish such subordination; or alternatively, (ii) within ten (10) days from Landlord's written demand, Tenant hereby agrees to execute, acknowledge and deliver such documents as are required by Landlord or its lender(s) to accomplish such subordination. If any of Landlord's lenders at any time require an express acknowledgment of the subordination of this Lease to any Security Instrument, Tenant shall execute, acknowledge and deliver such documentation required by such lender and return same to Landlord within ten (10) days from Landlord's written demand therefor. Any lender may at any time elect to cause this Lease to have priority over its Security Instrument by unilaterally executing an instrument subordinating its Security Instrument to this Lease, or accepting a Security Instrument containing a clause providing for such subordination, and if required by Landlord or its lender(s), within ten (10) days after Landlord's or Landlord's lender's request Tenant shall execute, acknowledge and deliver any and all instruments necessary or appropriate to confirm the priority of this Lease over such Security Instrument. In the event any proceedings are brought for foreclosure, or in the event of the exercise of the power of sale under any mortgage or deed of trust made by

Landlord covering the Premises or delivery to a mortgagee of a deed in lieu of foreclosure, Tenant shall attorn to the purchaser or transferee upon any such foreclosure or sale or transfer and recognize such entity as Landlord under this Lease. First Mortgagee (as defined in Article 23 above), any transferee who acquires Landlord's interest in the Premises or this Lease, by foreclosure, deed in lieu of foreclosure or otherwise, and the successors and assigns of such transferees shall not be liable for any acts, obligations or debts of the former Landlord(s) prior to the time such acquiring Landlord acquired the Premises or any prepaid rent, security deposit or other prepaid charges not actually received by such transferee. Tenant's failure to execute any such documentations as required hereunder shall, at Landlord's election, constitute a Breach by Tenant under this Lease.

Any subordination agreement executed by Tenant hereunder shall provide in all material respects that subject to the terms and conditions of the Lease, so long as the Lease is in full force and effect and Tenant is not then in Default under the Lease beyond all applicable notice and cure periods, the possession of Tenant under the Lease shall not be disturbed upon any judicial or non-judicial foreclosure or upon a third party acquiring title to the Premises by deed-in-lieu of foreclosure, or otherwise, and that such lender will accept the attornment of Tenant thereafter so long as Tenant is not in Default under the Lease beyond all applicable notice and cure periods.

31.6 Attorney's Fees. In the event of any litigation between Landlord and Tenant to enforce or interpret any provision of this Lease or any right of either party hereto, the unsuccessful party to such litigation shall pay the successful or prevailing party's reasonable attorney's fees and taxable and non-taxable costs and expenses, including expert witness fees. In addition, any judgment entered in the litigation shall expressly provide, among other things, for the successful or prevailing party's recovery, upon subsequent application to and approval of the Court, of any post-judgment attorney's fees and taxable and non-taxable costs and expenses incurred by such party in enforcing and/or collecting upon the judgment, and the judgment shall further expressly reserve jurisdiction in the Court to award, modify and/or supplement the judgment for the purpose of awarding such fees and costs. In the event Landlord engages the services of an attorney to enforce or protect its rights under the terms of this Lease as a result of the filing by or against Tenant or any guarantor of Tenant of a bankruptcy petition, Landlord shall be entitled to recoup its actual attorneys' fees and costs incurred, regardless of whether any action or litigation is commenced. In addition thereto, Tenant agrees to pay Landlord's costs, expenses and actual attorney's fees with respect to:

- (a) Each request by Tenant for permission or consent to assign or sublet the Premises, in whole or in part, (such costs being in addition to the non-refundable administrative fee as set forth in Section 17.1);
- (b) Each request made by Tenant to modify, amend or supplement this Lease;
- (c) Each request made by Tenant to make any Alterations (other than Tenant's Work), or to modify and/or improve the Premises; and
- (d) Any Breach or Default of Tenant which is cured prior to litigation or cured after litigation has commenced but prior to judgment.

Landlord shall notify Tenant of the amount of such costs and attorney's fees, and Tenant shall pay same (as Additional Rent) within three (3) days of such notice.

31.7 Landlord's Access. Landlord and Landlord's agents shall have the right to enter the Premises after providing 24-hours advance written notice to Tenant (except in the case of an emergency or to perform regularly scheduled services) for the purpose of testing and/or inspecting same, ensuring compliance with Tenant's obligations under this Lease, showing the Premises to prospective lenders, buyers, and/or tenants, and to post notices of non-responsibility. Landlord and Landlord's agents shall also have the right to enter the Premises and make any repairs or restoration as may be needed or allowed to maintain the Premises pursuant to the terms of this Lease and may for such purposes erect scaffolding and other necessary structures. Tenant hereby waives any claim for damages or for any injury or any inconvenience to or interference with Tenant's business, any loss of occupancy or quiet enjoyment of the Premises, and any other loss occasioned by Landlord's entry onto the Premises or its activities thereon. Landlord shall, without liability to Tenant, have the right to use any and all means which Landlord may deem proper to open the doors to the Premises in an emergency in order to obtain entry to the Premises. Any entry to the Premises obtained by Landlord by any of said means, or otherwise, shall not under any circumstances be construed or deemed to be a forcible or unlawful entry into, or a detainer of the Premises, or an eviction of Tenant from the Premises or any portion thereof. Landlord reserves the right to post two "For Lease" signs inside the windows of the Premises during the last sixty (60) days of the Lease Term, and Tenant agrees to allow such signs to be reasonably displayed and to keep such signs posted.

31.8 Merger. The voluntary or other surrender of this Lease by Tenant, or a mutual cancellation thereof, or a termination by Landlord, shall not act as a merger.

31.9 Estoppel Certificate. Tenant shall, upon not less than ten (10) days' prior written notice from Landlord and/or Landlord's lender, execute, acknowledge and deliver to Landlord, Landlord's lender and/or any prospective purchaser of the Shopping Center a statement in writing, on a form provided by Landlord or Landlord's lender, certifying that this Lease is unmodified and in full force and effect (or if modified, stating the nature of such modification and certifying that this Lease, as so modified, is in full force and effect), setting forth the dates to which the Rent and other charges are paid in advance, if any, and acknowledging that there are not, to Tenant's knowledge, any uncured defaults on the part of Landlord hereunder, or specifying such defaults if any are claimed, and setting forth the date of commencement of Rent and Expiration Date and setting forth such other matters as may be requested by Landlord and/or Landlord's lender. It is expressly understood and agreed that any such statement may be relied upon by any prospective purchaser or encumbrancer of all or any portion of the real property of which the Premises is a part. If Landlord desires to finance or refinance the Premises, or any part thereof, then upon not less than ten (10) days' prior written notice from Landlord and/or Landlord's lender, Tenant agrees to deliver to any lender designated by Landlord Tenant's and Guarantor's, if any, financial statements for the immediately preceding three fiscal years.

31.10 Severability. The invalidity of any provision of this Lease, as determined by a court of competent jurisdiction, shall in no way affect the validity of any other provision thereof.

31.11 Time of Essence. Time is of the essence with respect to all matters set forth in this Lease.

31.12 Captions. Article and Section captions are not a part hereof and are inserted only as a matter of convenience and in no way amplify, define, limit, construe or describe the scope or intent of such sections of this Lease.

31.13 Incorporation of Prior Agreements/Amendments. There are no oral agreements between the parties hereto, or their agents or brokers, if any, affecting this Lease, and this Lease supersedes and cancels any and all previous promises, negotiations, arrangements, brochures, agreements and understandings, if any, between the parties hereto or displayed by Landlord or its agents or brokers to Tenant or Tenant's agents or brokers with respect to the subject matter hereof, and none thereof shall be used to interpret or construe this Lease. This Lease contains all agreements of the parties with respect to any matter mentioned herein, there are no other representations or warranties between the parties and all reliance with respect to representations is solely upon the representations and agreements contained in this document. This Lease may be modified in writing only, signed by the parties in interest at the time of the modification.

31.14 Notice. All notices and demands which may or are required or permitted to be given by either party to the other hereunder shall be in writing and shall be deemed to have been given, if mailed by certified mail, postage prepaid, return receipt requested, on the date which is three (3) days after the date posted, if by overnight courier, such as Federal Express, on the date of actual delivery or refusal of delivery, or if personally delivered, on the date when delivered to the address shown above, or to such other places Tenant or Landlord may from time to time designate in a notice to the other. Either party may change its notice address upon at least ten (10) days' prior written notice to the other party. If a notice cannot be delivered because the intended recipient changed its address without notifying the other party as required by this Section 31.14, then the notice will be deemed refused by the intended recipient. Notwithstanding the foregoing, Landlord's service of notice to the Premises shall be deemed to be proper service and notice under this Lease. Notices hereunder may be given by an agent or attorney acting on behalf of Landlord. The parties acknowledge that copies of any notice sent by facsimile or e-mail or other electronic communication are for convenience only and shall not be deemed to be proper notice required hereunder.

31.15 Waiver. No waiver by Landlord of any provision hereof shall be deemed a waiver of any provision hereof or of any subsequent Default or Breach by Tenant of the same or any other provision, and no claim of waiver or estoppel shall be effective as against Landlord unless such waiver or estoppel is acknowledged in writing by Landlord. Landlord's consent to or approval of any subsequent act shall not be deemed to render unnecessary the obtaining of Landlord's consent to or approval of any act by Tenant. The acceptance of Rent hereunder by Landlord shall not be a waiver of any preceding Default or Breach by Tenant of any provision hereof, other than the failure of Tenant to pay the particular Rent so accepted, regardless of Landlord's knowledge of such preceding Default or Breach at the time of acceptance of such Rent.

31.16 Landlord's Liability. In the event of a transfer of title or Landlord's interest in or to the Premises and/or Shopping Center, Landlord herein named (and in case of any subsequent transfers the then grantor) shall be relieved from and after the date of such transfer of all liability for any of Landlord's obligations thereafter to be performed, but only if transferee assumes Landlord's obligations under the Lease arising after such transfer, including without limitation, Landlord's obligation with respect to any unused portion of the Security Deposit delivered hereunder. Notwithstanding anything to the contrary in this Lease, any judgment obtained by Tenant against Landlord shall be satisfied only out of Landlord's equity interest in the Shopping Center and the Rents receivable by Landlord therefrom. Neither Landlord nor any of its general or limited partners, officers, directors, shareholders, members, managers, beneficiaries or employees shall have any personal liability for any matter in connection with this Lease or Landlord's obligations as Landlord of the Premises. Except as otherwise expressly set forth herein, whenever Landlord's consent or approval is required, Landlord may withhold such consent in its sole and absolute discretion. If Tenant claims or asserts that Landlord has violated or failed to perform a covenant of Landlord not to unreasonably withhold or delay Landlord's consent or approval, Tenant's sole remedy shall be an action for specific performance, declaratory judgment or injunction and in no event shall Tenant be entitled to any monetary damages for a breach of such covenant and in no event shall Tenant claim or assert any claim for any monetary damages in any action or by way of set-off, defense, or counterclaim and Tenant hereby specifically waives the right to any money damages or other remedies.

31.17 Rules, Regulations and Restrictions. Tenant shall observe faithfully and comply directly with any and all rules, regulations, restrictions, conditions and/or covenants (except that Tenant's monetary obligations to Landlord under this Lease shall not be increased), including, but not limited to: (i) the rules and regulations attached to this Lease as an exhibit, if any, and (ii) such other rules, regulations, restrictions, conditions and/or covenants as may hereafter be in effect or as Landlord may hereafter from time to time adopt for the safety, care and/or cleanliness of the Premises, for the building and Shopping Center in which the Premises is located, and for the preservation of good order therein. Tenant agrees to pay Landlord, as Additional Rent, the sum of One Hundred and 00/100 Dollars (\$100.00) for each instance of violation of the rules and regulations not corrected within (2) days after Landlord's notice to Tenant. The parties hereby agree that such amount represents a fair and reasonable estimate of the cost which Landlord will incur by reason of such delay. Notwithstanding the foregoing, Tenant's payment of such amount shall not deprive Landlord of any other rights and remedies available to it under this Lease, at law or in equity as a result of Tenant's breach of its obligations described herein.

31.18 Mutual Agency/Co-Tenant. In the event Tenant hereunder is comprised or constituted of more than one person or entity, all of such persons and entities shall be jointly and severally liable hereunder. Furthermore, each Tenant hereby appoints each remaining Tenant as his, her or its agent, representative and attorney-in-fact, to act for and on behalf of said Tenant with respect to all matters relating to, or arising from this Lease, the tenancy created hereby, the obligations herein set forth, and the use and occupancy of the Premises, specifically including but not limited to the right to alter, amend, modify, extend, supplement and terminate this Lease and the tenancy created hereunder. This agency shall continue and is irrevocable at all times during the period that the Premises is occupied by any co-tenant. The powers of attorney granted herein are coupled with an interest.

31.19 Authority of Tenant. If any Tenant is a corporation, partnership, limited liability company or other non-incorporated business entity, each individual executing this Lease on behalf of said corporation, partnership, limited liability company or other non-incorporated business entity represents and warrants that he, she or it is duly authorized to execute and deliver this Lease on behalf of said corporation, partnership, limited liability company or other non-incorporated business entity in accordance with the bylaws and/or organization documents of said entity and further that this Lease is binding and obligatory upon said Tenant.

31.20 Jury Trial Waiver. To the extent permitted by law, Landlord and Tenant hereby intentionally, knowingly and irrevocably waive their respective right to trial by jury of any cause of action, claim, counter-claim or cross-complaint in any action, proceeding and/or hearing brought by either Landlord against Tenant or Tenant against Landlord on any matter whatsoever arising out of or in any way connected with this Lease or the negotiations leading up to the Lease, the relationship of Landlord and Tenant, Tenant's use or occupancy of the Premises or any claim of injury or damage, or the enforcement of any remedy under any law, statute or regulation now or hereafter in effect. If Landlord shall commence any summary proceeding against Tenant, Tenant shall not interpose any counterclaim of whatever nature or description in any such proceeding (unless failure to interpose such counterclaim would preclude Tenant from asserting in a separate action the claim which is the subject of such counterclaim), and will not seek to consolidate such proceeding with any other action which may have been or will be brought in any other court by Tenant or Landlord.

31.21 Broker's Fee. Landlord and Tenant each represent and warrant to the other that neither has had any dealings with any person, firm, broker or finder other than the person(s), if any, whose names are set forth in Paragraphs Q and R of the Basic Lease Provisions in connection with the negotiation of this Lease and/or the consummation of the transaction contemplated hereby, and no other broker or other person, firm or entity is entitled to any commission or finder's fee in connection with said transaction. Tenant and Landlord do each indemnify, hold harmless and agree to defend the other from and against any costs, expenses, attorney's fees or liability from compensation or charges which may be claimed by any such unnamed broker, finder or other similar party by reason of any dealings or actions of the indemnifying party, which indemnity shall survive the expiration or termination of this Lease.

31.22 Recordation. Neither Landlord nor Tenant shall record this Lease but a memorandum of this Lease may be recorded; provided however, the party recording the memorandum of this Lease shall cause to remove such memorandum within thirty (30) days following the expiration or termination of this Lease.

31.23 Returned Checks. Tenant agrees to pay Landlord as Additional Rent a fee no less than Fifty and 00/100 Dollars (\$50.00) for each returned check, in addition to any late charge or other penalties provided elsewhere in this Lease. Tenant authorizes Landlord to obtain Tenant's credit report periodically during its tenancy (including any extension of term, holdover or option period) in connection with the approval, modification or enforcement of this Lease.

31.24 Title to Premises. Tenant acknowledges that title to the Premises may be subject to easements, covenants, restrictions, conditions, declarations and agreements of record (hereinafter the "**Recorded Instruments**") and agrees to be bound by their terms. Tenant waives any right it may have to approve any subsequent changes to or amendment of the Recorded Instruments.

31.25 Quiet Enjoyment. Provided Tenant is not in Default of this Lease, Tenant shall have quiet possession of the Premises for the entire Lease Term, subject to all of the provisions of this Lease.

31.26 Interpretation. The parties hereby acknowledge and agree that each has been given the opportunity to independently review this Lease with legal counsel, and/or have the requisite experience and sophistication to understand, interpret, and agree to the particular language of the provisions hereof. In the event of any ambiguity in or dispute regarding the interpretation of same, the interpretation of this Lease shall not be resolved by any rule of interpretation providing for the interpretation against the party who caused the uncertainty to exist or against the draftsman.

31.27 Electronic Signature/Counterparts. "**Electronic Copy**" or "**Electronic Signature**" means, as applicable, an electronic copy or signature complying with the laws of the State wherein the Premises is located. This Lease may be executed in any number of counterparts, each of which shall be deemed an original, but all of which shall constitute one and the same instrument. Landlord and Tenant agree that electronic means will not be used by either party to modify or alter the content or integrity of this Lease without the knowledge and

consent of the other party. The parties agree that the electronic signature of any party to this Lease shall be as valid as an original signature of such party and shall be effective to bind such party to this Lease. The parties may execute and electronically deliver copies of this Lease and/or counterpart signature pages, which electronic copies shall be equally as effective as delivery of originally executed counterparts.

31.28 Confidentiality. Tenant acknowledges and agrees that as a material condition of this Lease, the negotiations preceding the execution of this Lease and the terms and conditions herein are confidential and are to remain strictly private to the fullest extent permitted by law. With the exception of Tenant’s attorneys, accountants, tax preparers, insurers and/or lenders, and any governmental agency having jurisdiction or authority over Tenant or the Premises, Tenant shall not disclose, consent to the disclosure or otherwise disseminate the foregoing confidential information to any person or third party, including, but not limited to, any existing or prospective tenant at the Shopping Center, any real estate broker or to any other person or entity. The foregoing restriction shall survive the termination of this Lease for a period of five (5) years, and any violation of this provision shall constitute a Breach of this Lease. Disclosures required by North Carolina laws are not precluded by the restrictions in this paragraph.

31.29 Exhibits. Any and all Exhibits described in the Table of Contents (and referenced therein as attached to the Lease), or referenced in or attached to this Lease, and any clauses, plats, riders, attachments, amendments and addenda, if any, affixed to this Lease are deemed a part of and are incorporated into this Lease as though fully set forth herein.

31.30 Changes Requested by Lender. If, in connection with obtaining financing for the Shopping Center, Landlord’s lender shall request modifications in this Lease as a condition to the financing, Tenant will not unreasonably withhold, condition, or delay its consent, provided that the modifications do not materially alter the obligations of Tenant or materially and adversely affect the leasehold interest created by this Lease.

31.31 Office of Foreign Assets Control, Department of the Treasury Certification. Tenant certifies that:

(a) It is not acting, directly or indirectly, for or on behalf of any person, group, entity or nation named by any Executive Order or the United States Treasury Department as a terrorist, “Specially Designated National and Blocked Person,” or other banned or blocked person, entity, nation or transaction pursuant to any law, order, rule or regulation that is enforced or administered by the Office of Foreign Assets Control; and

(b) It is not engaged in this transaction, directly or indirectly, on behalf of, or instigating or facilitating this transaction, directly or indirectly on behalf of, any such person, group, entity or nation.

Tenant hereby agrees to indemnify, defend and hold the Landlord Indemnified Parties harmless from and against any and all claims, damages, losses, risks, liabilities and expenses (including attorney’s fees and costs) arising from or related to any breach of the foregoing certification, which indemnity shall survive the expiration or termination of this Lease.

31.32 Relationship of the Parties. Nothing contained in this Lease shall be deemed or construed as creating the relationship of principal or agent or a partnership or joint venture between the parties hereto, it being understood and agreed that neither the method of computing rents nor any other provision contained herein nor the acts of the parties hereto shall be deemed to create any relationship between the parties other than landlord and tenant.

31.33 No Option. The submission by Landlord to Tenant of this Lease shall be deemed solely for Tenant's consideration and not for acceptance. Such submission shall have no binding force or effect, shall not constitute any rights or impose any obligations on either party. The execution and return of this Lease by Tenant to Landlord shall be deemed Tenant's offer to lease the Premises. This Lease shall have no binding force and effect unless and until Tenant and Landlord have executed this Lease and a duplicate original hereof shall have been returned by Landlord to Tenant.

NO REPRESENTATION OR RECOMMENDATION IS MADE BY LANDLORD AS TO THE LEGAL SUFFICIENCY, LEGAL EFFECT OR TAX CONSEQUENCES OF THIS DOCUMENT OR THE TRANSACTION RELATED THERETO. THIS DOCUMENT HAS BEEN PREPARED FOR SUBMISSION TO TENANT’S ATTORNEY FOR HIS, HER OR ITS REVIEW AND APPROVAL REGARDING TENANT’S PROTECTION OF ITS LEGAL RIGHTS.

IN WITNESS WHEREOF, the parties have executed this Lease under seal as of the latter day and year written below.

LANDLORD:

**WFC MCCRIMMON I LLC,
A DELAWARE LIMITED LIABILITY COMPANY**

**By: Westwood Financial Corporation,
a Delaware corporation**

Its: Manager

TENANT:

**TOWN OF MORRISVILLE,
A NORTH CAROLINA MUNICIPALITY**

By: _____ (SEAL)

Name: _____

Its: _____

Date: _____

By: _____ (SEAL)

Name: _____

Its: _____

Date: _____

This instrument has been pre-audited in the manner required by the Local government Budget and Fiscal Control Act.

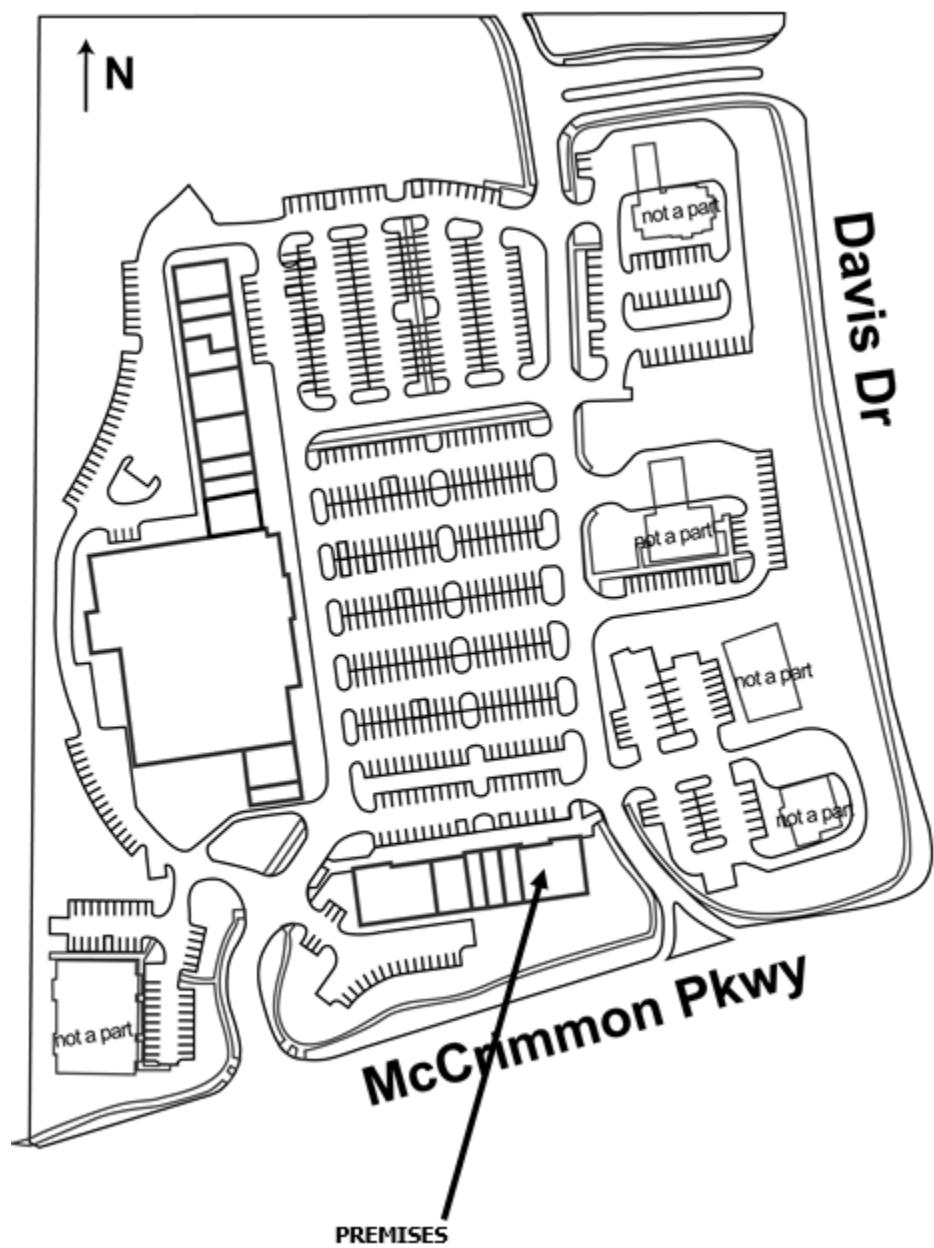
Name: _____

Its: Chief Financial Officer

Date: _____

**EXHIBIT “A”
SITE PLAN**

The site plan is presented solely for the purpose of identifying the approximate location and size of the improvements in the Shopping Center. Subject to the terms and conditions of this Lease, building sizes, dimensions, access and parking area, existing tenant locations and identities are subject to change without notice and at Landlord's discretion. Unit numbers as indicated are not necessarily the actual suite numbers and are intended for use as a reference only.



**EXHIBIT “B”
LANDLORD’S WORK**

Landlord’s work shall be as set forth below (“**Landlord’s Work**”).

NONE

**EXHIBIT “E”
SIGN CRITERIA**

The intent of developing these sign criteria for McCrimmon Corners is to achieve visual unity within the Shopping Center. This includes unifying the graphic images of tenant signs to create a consistent visual identity for McCrimmon Corners.

1. PERMITS

Permits are required by the Town of Morrisville Inspections Department prior to the fabrication or installation of any temporary or permanent sign. Signature of Landlord is required on all sign drawings submitted to the Town of Morrisville for permit. After obtaining design approval from Landlord, Tenant will obtain the required sign permits from the Town of Morrisville. Landlord requires a copy of this permit prior to installation of any sign.

2. APPROVAL

All signs are to be reviewed by Landlord prior to fabrication and installation. Drawings are to be submitted to Landlord for approval for compliance with these sign criteria. Drawings are to include the following:

- Sign appearance and spacing of letters
- Type and color of materials for letters
- Installation methods
- Elevation of complete building façade with sign location(s) dimensioned
- Scale: 1/4" = 1'-0"

The drawing submittal is to include four (4) sets of prints. If signs are not manufactured and installed properly, they will be manufactured and reinstalled by Landlord and cost plus 25% will be deducted from the Tenant Improvement Allowance, if any, or charged to Tenant if no such allowance is available.

3. SIGN SPECIFICATIONS

The cost of fabrication, installation and maintenance of all signs is the sole responsibility of Tenant.

1. Tenant is limited to one (1) wall sign, mounted on the building. Maximum allowable length to be seventy percent (70%) of the overall Premises frontage.
2. Letter height to be 12" minimum and 20" maximum for single lines of text. Letter height to be 18" maximum for two lines of text.
3. All signs are to consist of individual letters with white faces (7328 White), dark bronze (313 Bronze) returns and trim.
4. Font to be selected by Tenant and approved by Landlord.
5. One logo shall be allowed per tenant. Logo shall be a maximum of 20" square and in-line with lines of text. Logo shall be allowed to the right or the left of the lines of text or between 2 words, but no logo shall be allowed above or below the lines of text.
6. Federal and State registered trademarks or service marks may employ additional colors. Signs are to be submitted to Landlord for approval and are to be fabricated in the same manner as the individual letters.
7. Tenant signs are to consist of the name of Tenant business name only. No listing of merchandise or service is permitted unless it is part of the store name.
8. Signs to be constructed with inverted, painted aluminum channels and trim, with acrylic faces.
9. All signs to be internally illuminated.
10. All signs to consist of individual letters and are to be mounted to a continuous sign raceway.
11. Raceway color to match building facade.
12. All signs will comply with the Town of Morrisville's Zoning Ordinance and as noted below:
 - a) All internal illumination shall not exceed ten (10) foot-candles measured at a distance of ten (10) feet from the sign.
 - b) All electronically illuminated signs shall have a disconnecting switch located in accordance with the provisions of the National Electric Code.
 - c) For all illuminated signs, applications for both a sign permit and an electrical permit shall be submitted and approved by the Town of Morrisville prior to the installation of any illuminated sign.

4. RESTRICTIONS

- A. The fabrication, installation and operation of all signs are subject to the following restrictions:
1. No flashing, moving or blinking illumination will be permitted.
 2. No animation will be permitted.
 3. The name and/or stamp of the sign company will not be exposed to view.
- B. The following types of signs are prohibited:
1. Outrigger signs
 2. Moving signs
 3. Rooftop signs
 4. Iridescent signs
 5. Painted signs
 6. Box signs
 7. Neon signs

5. WINDOW SIGNAGE

- A. All window decals and/or lettering shall be WHITE or FROSTED WHITE VINYL LETTERING ONLY.
- B. All vinyl lettering on storefront windows shall be no higher than 30" above the bottom of the storefront windows.
- C. Typical store hour/credit card acceptance stickers/etc. shall be allowed on the entry door to the store or in the bottom corner of the storefront glass directly adjacent to the entry door to the store. Maximum letter height of 2". The display area for such information shall not exceed 1' x 2' in size.

6. REAR DOOR SIGNAGE

- A. Rear door signage shall be BLACK VINYL lettering at maximum height of 3" per line of text. The display area for such signage shall not exceed 1' x 2' in size.
- B. Rear door signage shall only indicate the following:
- a. Business Name
 - b. Business Address
 - c. Store and/or Delivery Hours

End of Exhibit

Town Council Agenda Item Report

Agenda Item No. 6.d

Submitted by: Bret Martin

Submitting Department Planning

Meeting Date: September 8, 2026

SUBJECT

Locally Preferred Alternative for the Wake Bus Rapid Transit: Western Corridor Extension

Recommendation:

Approve letter for submission to the Capital Area Metropolitan Planning Organization (CAMPO) regarding the locally preferred alternative (LPA) for the Wake BRT: Western Corridor Extension.

Updates/History of Briefing:

Town and CAMPO staff provided an overview presentation of the planning work completed for the Wake BRT: Western Corridor extension between downtown Cary and RTP at Town Council's July 30th work session, which included a recap of the 2023 MIS completed for the extension; an overview of the scope, findings, and recommendations of the Wake BRT Extensions Concept of Operations Study; the recommended locally preferred alternative (LPA) for the project; and next steps for the project and how the Town will be involved.

In response to this overview, there was some discomfort with the concept of adopting a resolution to endorse the recommended LPA, as several Council members expressed concerns about the lack of benefits to Morrisville residents associated with the recommended LPA's alignment. General direction was provided by Town Council to staff that a letter be developed for the Town Council to consider for submission to CAMPO that expresses this concern. Following up from this direction, staff developed a draft letter for Town Council's consideration of submission to CAMPO that outlines this and other related concerns that was originally provided for the August 25th Town Council meeting. Town Council discussed this letter and suggested minor edits that have been incorporated into an updated draft letter. A clean copy of the updated letter is provided as **Attachment 5A**, and a redline version of the letter is included as **Attachment 5B**. The previous Attachment 4, which was the draft resolution of endorsement for the LPA, has been removed from this item.

Executive Summary and Background Information:

In 2023, with active participation by Town of Morrisville staff, the Capital Area Metropolitan Planning Organization (CAMPO) completed a major investment study (MIS) that identified and evaluated potential alignments and transit priority treatments for a rapid bus service between downtown Cary and Research Triangle Park (RTP) with routing through the Town of Morrisville. The rapid bus service would extend westward the proposed core Wake BRT:

Western Corridor between downtown Raleigh and downtown Cary. The MIS also evaluated appropriate transit service levels for the extension, including the type and frequency of transit service and the destinations to be served. The general outcome of the study was a recommended preferred alternative for the mode, alignment, and termini for the extension for consideration of local and regional adoption.

Following up from the MIS, with continued active participation by Town of Morrisville staff, additional planning work for a potential rapid bus service between downtown Cary and RTP commenced in September of 2025 through a Wake Bus Rapid Transit (BRT) Extensions Concept of Operations Study, which was completed in June of 2026. This follow-up technical study was launched to develop BRT program guidelines and standards for future Wake Transit Plan BRT extension corridors; assess feasibility, costs, and benefits of different operational scenarios for the Wake BRT: Western Corridor extension; confirm the Locally Preferred Alternative (LPA) for the corridor; determine how extension services will coordinate with core BRT services; develop a preliminary conceptual operating plan for the proposed BRT service; and develop plans to prepare the BRT extension for potential future design work, funding, and implementation. The Town of Morrisville provided a partial funding contribution for the study of \$13,000, which afforded the Town membership on the study's regional core technical team that provided ongoing direction for the execution of the study's scope of work.

With the study now being complete, CAMPO is currently preparing to consider adoption of the project's LPA. CAMPO is also preparing to turn the project over to the City of Raleigh, as project sponsor, to begin further project development activities such as refined siting and preliminary design of stations and other necessary infrastructure elements, identification of right-of-way or easement acquisition needs, investigation of potential environmental impacts, and other similar activities, ultimately working toward service on the extension beginning in 2032.

At Town Council's July 30th work session, Town and CAMPO staff will provide an overview presentation of the planning work completed for the Wake BRT: Western Corridor extension between downtown Cary and RTP, including a recap of the 2023 MIS; an overview of the scope, findings, and recommendations of the Wake BRT Extensions Concept of Operations Study; the recommended LPA for the project; and next steps for the project and how the Town will be involved. The final report for the Wake BRT Extensions Concept of Operations Study is included as **Attachment 1**. Also included as **Attachment 2** are the Wake Transit BRT System Guidelines, which establish program-level guidelines and standards for such topics as station spacing and siting, station facility elements, roadway infrastructure elements, technology and vehicles to be used, operational characteristics, and identity and branding, among others, for all Wake Transit-funded BRT corridors, including any corridor extensions. These guidelines establish the basis for many of the elements of the proposed Wake BRT: Western Corridor extension.

Further, the recommended LPA confirmed by the BRT Concept of Operations Study and that is recommended for further project development and refinement is bound by the Cary Multimodal Center and Hub RTP and follows an east to west alignment using Harrison Avenue, NC 54/Chapel Hill Road, Weston Parkway, Evans Road/McCrimmon Parkway, and NC 54/Chapel Hill Road as depicted in **Attachment 3**. The CAMPO Executive Board is scheduled to consider adoption of the LPA at its September 16, 2026, regular meeting following a 30-day public comment period and public hearing. Following up from the Town Council's July 30th work session, Town Council will consider endorsement of the recommended LPA by resolution at its August 11th regular meeting in advance of CAMPO's consideration of adoption. The draft resolution for Town Council's consideration in August is included as **Attachment 4**.

Advisory Board/Committee Review:

None

Insert Date of Advisory Board/Committee Review:

Advisory Board/Committee Recommendation and/or Vote:

None

Potential Options:

Approve letter for submission to the Capital Area Metropolitan Planning Organization (CAMPO) regarding the locally preferred alternative (LPA) for the Wake BRT: Western Corridor Extension.

Request additional changes and approve letter for submission to the Capital Area Metropolitan Planning Organization (CAMPO) regarding the locally preferred alternative (LPA) for the Wake BRT: Western Corridor Extension.

Do not approve or submit letter to CAMPO or submit modified letter or other communication regarding the Town Council's position on the LPA for the Wake BRT: Western Corridor Extension.

Staff Recommendation:

None

ATTACHMENTS

- [2026-239-0_ATTH01_Wake BRT Extensions Concept of Operation Study Final Report.pdf](#)
- [2026-239-0_ATTH02_WakeBRT System Guidelines.pdf](#)
- [2026-239-0_ATTH03_Recommended LPA for Wake BRT Western Extension.pdf](#)
- [2026-239-0_ATTH05A_Draft Town Council Letter to CAMPO on BRT Alignment - THIS ITEM HAS BEEN UPDATED.pdf](#)
- [2026-239-0-ATTH05B_Draft Town Council Letter to CAMPO on BRT Alignment - Redline - THIS ITEM IS NEW.pdf](#)

- [2026-239-0_PRES_Wake Bus Rapid Transit-Western Corridor Extension Update.pdf](#)



Wake BRT Extension Concept of Operations

Final Report

June 2026



NC Capital Area Metropolitan Planning Organization

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1 INTRODUCTION

PROJECT OVERVIEW

The Wake Bus Rapid Transit (BRT) Extensions Concept of Operations study builds upon the recommended locally preferred alternatives defined in the 2023 Wake BRT Extensions Major Investment Study (MIS), with four key project goals:

- Develop BRT program guidelines and standards for future Wake Transit Plan BRT corridors
- Assess feasibility, costs, and benefits of different operational scenarios for the Western and Southern BRT Extensions
- Build upon previous MIS and confirm Locally Preferred Alternative for each corridor
- Develop detailed plans to prepare the BRT Extension corridors for potential future design work, funding, and implementation.

The BRT Guidelines are available as a separate document and helped to inform the development of final capital and operating plans in the later stages of the project.

PRIOR STUDIES

Wake County voters approved the half-cent sales tax advisory referendum to support the Wake Transit Plan in November 2016. The plan called for approximately 20 miles of BRT corridors centered around Downtown Raleigh. The initial Wake BRT MIS was developed in 2018 that defined four “core” BRT corridors: New Bern, Southern, Western, and Northern.

After this original MIS was published, anticipated growth in the region suggested that extensions to the original BRT corridors would expand the number of residents in the region that would have access to high quality transit service and build upon the capital investments made with these core BRT corridors. CAMPO conducted the Wake BRT Extensions MIS, published in 2023, which recommends extending the Southern corridor from its core route terminus in Garner to Clayton and the Western corridor from its core route terminus in Cary to Research Triangle Park (RTP). This study recommended a preferred alternative for the two extension corridors, but the unique nature of the extensions left unanswered operational questions before the projects could move into design and engineering.

Since the Wake BRT Extensions MIS was published, GoRaleigh has also continued to advance the design and engineering of the core Southern and Western BRT corridors. GoRaleigh’s latest core BRT operating assumptions (as of Fall 2025)—including route alignments, hours of operation, headways, and station locations—were used as the foundation of the Western and Southern BRT Extension operating assumptions.

SCENARIO DEVELOPMENT & SELECTION

To answer the remaining questions from the 2023 MIS and provide detailed capital, operating, and implementation plans in support of the design and engineering phases, this Concept of Operations Study developed and evaluated a series of operating scenarios through site visits, technical analysis, and stakeholder input. The following operating scenarios were analyzed for the two corridors:

- Western BRT Extension
 - **Scenario 1: Extend every trip** of Western BRT along extension corridor, operated by **GoRaleigh**
 - **Scenario 2: Extend alternating trips** of Western BRT along extension corridor, operated by **GoRaleigh**
 - **Scenario 3: Separate bus** serving extension corridor with timed transfer to Western BRT, operated by **GoTriangle**
 - **Scenario 4: Separate bus** serving extension corridor with timed transfer to Western BRT, operated by **GoCary**
- Southern BRT Extension
 - **Scenario 1: Extend alternating trips** of Southern BRT along extension corridor, operated by **GoRaleigh**
 - **Scenario 2: Separate bus** serving extension corridor with timed transfer to Southern BRT, operated by **GoRaleigh**
 - **Scenario 3: Separate bus** serving extension corridor with timed transfer to Southern BRT, operated by **GoTriangle**

Key partners on this project included potential project sponsors GoRaleigh, GoCary, and GoTriangle; municipalities including Town of Morrisville and Town of Clayton; business groups including Research Triangle Foundation/Park and Regional Transportation Alliance; and NCDOT. Representatives met monthly as part of the Core Technical Team (CTT) with members of the CAMPO project team to shape the scenarios, inform evaluation criteria, and approve the final recommended scenarios for each corridor. The Town of Garner was also a key stakeholder throughout the project process.

The recommended scenarios are **Southern BRT Extension Scenario 2** (separate bus operated by GoRaleigh) and **Western BRT Extension Scenario 2** (alternating extension operated by GoRaleigh). For full details on the scenario development and evaluation process, see the **Scenario Analysis Report**.

This Concept of Operations Final Report details the operating plan, capital plan, funding program, and implementation timeline for the selected scenarios.

2 RECOMMENDED SERVICE

The Concept of Operations Study finalized the recommended alternatives for the Western and Southern BRT Extensions. The original planned Western BRT is an 11.3-mile corridor that connects Downtown Raleigh with Downtown Cary, referred to in this study as the 'core' corridor. The Western BRT Extension is a proposed 11.4-mile corridor that extends from Downtown Cary to Research Triangle Park. The project would include 13 new stations with the possibility of 1 future infill station, defined in the station locations section below.

The original planned Southern BRT is a 5.1-mile corridor that connects Downtown Raleigh with Walmart in Garner. The Southern BRT Extension is a 17.2-mile corridor that extends from Garner to the Powhatan Road area in Clayton. The project would include 9 new stations with the possibility of 2 potential infill stations.

For both corridors, the new BRT stations would be uniquely branded for the service. Station platforms would provide level boarding, off-board fare collection, real-time bus arrival information, and schedule and route information. The route alignment, station locations, and transit priority treatments of the two corridors are detailed below.

ROUTE ALIGNMENT

The Western BRT Extension would be served by extending every other trip on the core Western BRT to RTP, while the alternating trips end at Cary. The turn-by-turn alignment of the Western BRT Extension is as follows (also shown in the map in Figure 1):

- In the westbound direction, the core Western BRT would end at the Cary Multimodal Center, and either return to Raleigh or continue along the extension to RTP. For extension trips leaving the Multimodal Center area, vehicles would then follow N Harrison Avenue to Chapel Hill Road, turn left onto Chapel Hill Road, turn right onto Weston Parkway, turn left onto Evans Road, which becomes McCrimmon Parkway, turn left onto the off-ramp to Chapel Hill Road, right onto Chapel Hill Road which becomes S Miami Boulevard, turn left onto NC-54, and turn right on Park Offices Drive, operating clockwise to the end of line.
- In the eastbound direction, upon leaving Hub RTP – Park Offices Drive, vehicles operate clockwise along Park Offices Drive, turn left on NC-54, turn right onto S Miami Boulevard which becomes Chapel Hill Road, turn left onto the on-ramp to McCrimmon Parkway, turn right onto McCrimmon Parkway which becomes Evans Road, turn right onto Weston Parkway, turn left onto Chapel Hill Road, turn right onto N Harrison Avenue, and turn right into the Cary Multimodal Center, before continuing on the core Western BRT alignment.

The Southern BRT Extension would be served by a separate extension bus, with riders transferring onto the core Southern BRT in Garner. The turn-by-turn alignment of the Southern BRT Extension is as follows (also shown in the map in Figure 3):

- In the eastbound direction, upon departing the Walmart in Garner, vehicles continue straight via Rupert Road, turn right on Garner Station Boulevard which becomes Mechanical Boulevard, turn right onto US-70, which becomes Clayton Boulevard in Johnston County, turn left on Powhatan Road, turn right on Best Wood Drive, turn right on N Tech Drive, proceeding to arrive at the end of line.
- In the westbound direction, upon leaving the start-of-line, vehicles continue via N Tech Drive, turn right on Clayton Boulevard (US-70) which becomes US 70 in Wake County, turn left on Mechanical Boulevard which becomes Garner Station Boulevard, turn left onto Rupert Drive, proceeding to arrive at the end-of-line and entering the bus turnaround.

The study team also explored a potential extension of the Southern BRT Extension via Powhatan Road to serve Novo Nordisk past the planned Powhatan terminus. Further conversations with Novo Nordisk would be needed to determine feasibility of a park-and-ride on their site, which should be done during the design and engineering phase of this corridor.

STATION LOCATIONS

Considerations for stop locations included agency and municipality input, overall stop spacing along the alignment, and remaining consistent with the Metropolitan Transportation Plan (MTP) by limiting changes from the MIS.

Stations along the extension alignments fall into the following four categories:

- **Core BRT station:** These stations will be constructed as part of the Core BRT corridor projects and can be utilized by the extension services without additional capital investment.
- **Transit facility:** Only applicable to the Western Extension, the Cary Multimodal Center is a planned transit facility that will not require capital investment as part of the extension project.
- **Opening day station:** These stops constitute the majority of planned stations for both extension corridors, with varying capital costs and operating considerations.
- **Future Infill station:** These locations will not have the development patterns to support a station on opening day but may be suitable for a station in the future as the region continues to grow. These stations are not taken into consideration when

calculating travel times, ridership, or capital costs, and are listed here solely to inform future development and planning decisions.

The recommended station locations for the Western BRT and Extension are shown on the map in Figure 1 and listed in the table in Figure 2. The station locations for the Southern BRT and Extension are shown in Figure 3 and listed in Figure 4.

Figure 1 Western BRT Station Locations

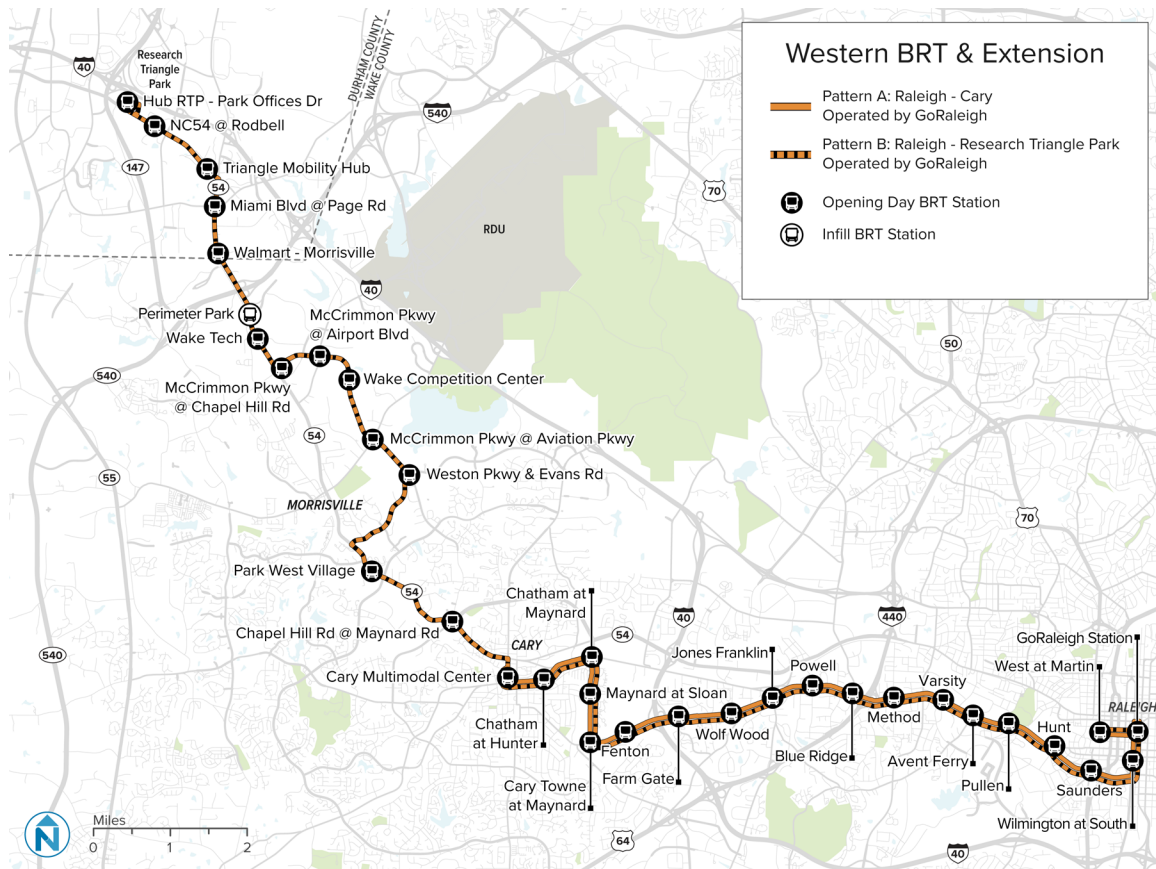


Figure 2 Western BRT Stations, Direction and Type

Corridor	Station	Direction	Station Type
Core	Blount St at Hargett St (GoRaleigh Station)	Eastern Terminus for All Trips	Core BRT
Core	West St at Martin St	EB Only	Core BRT
Core	Wilmington St at Hargett St (GoRaleigh Station)	EB & WB	Core BRT
Core	Wilmington St at South St	EB & WB	Core BRT
Core	Western Blvd at Saunders St	EB & WB	Core BRT
Core	Western Blvd at Hunt Dr	EB & WB	Core BRT

Corridor	Station	Direction	Station Type
Core	Western Blvd at Pullen Rd	EB & WB	Core BRT
Core	Western Blvd at Avent Ferry Rd	EB & WB	Core BRT
Core	Western Blvd at Varsity Dr	EB & WB	Core BRT
Core	Western Blvd at Method Dr	EB & WB	Core BRT
Core	Western Blvd at Blue Ridge Rd	EB & WB	Core BRT
Core	Western Blvd at Powell Dr	EB & WB	Core BRT
Core	Jones Franklin Rd at Western Blvd	EB & WB	Core BRT
Core	Western Blvd Ext. at Wolf Wood Dr	EB & WB	Core BRT
Core	Western Blvd at Farm Gate Rd	EB & WB	Core BRT
Core	Cary Towne Blvd at Trinity Rd	EB & WB	Core BRT
Core	Cary Towne Blvd at Maynard Rd	EB & WB	Core BRT
Core	Maynard Rd at Sloan Dr	EB & WB	Core BRT
Core	Chatham St at Maynard Rd	EB & WB	Core BRT
Core	Chatham St at Walker St	EB & WB	Core BRT
Core	Cary Multimodal Center	Western Terminus for Alternating Trips	Transit Facility
Extension	Cary Multimodal Center	EB & WB	Transit Facility
Extension	Chapel Hill Rd at Maynard Rd	EB & WB	Opening Day
Extension	Park West Village	EB & WB	Opening Day
Extension	Weston Pkwy & Evans Rd	EB & WB	Opening Day
Extension	McCrimmon Pkwy at Aviation Pkwy	EB & WB	Opening Day
Extension	Wake Competition Center	EB & WB	Opening Day
Extension	McCrimmon Pkwy at Airport Blvd	EB & WB	Opening Day
Extension	McCrimmon Pkwy at Chapel Hill Rd	EB & WB	Opening Day
Extension	Wake Tech	EB & WB	Opening Day
Extension	<i>Perimeter Park</i>	<i>EB & WB</i>	<i>Future Infill</i>
Extension	Walmart - Morrisville	EB & WB	Opening Day
Extension	Miami Blvd at Page Rd	EB & WB	Opening Day
Extension	Triangle Mobility Hub	EB & WB	Opening Day
Extension	NC 54 at Rodbell St	EB & WB	Opening Day
Extension	Hub RTP – Park Offices Dr	Western Terminus for Alternating Trips	Opening Day

Figure 3 Southern BRT Station Locations

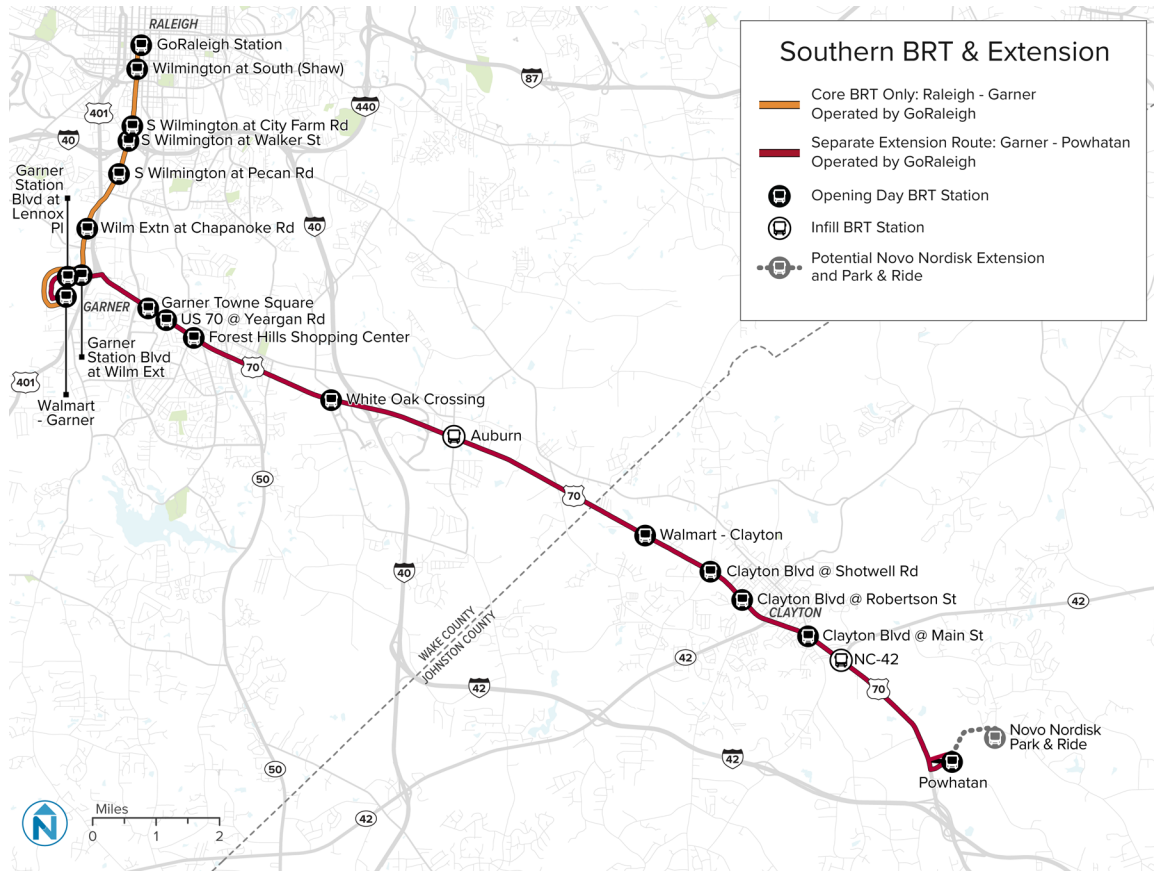


Figure 4 Southern BRT Stations, Direction and Type

Corridor	Station	Direction	Station Type
Core	Wilmington St at Hargett St (GoRaleigh Station)	Northern Terminus for All Trips	Core BRT
Core	Blount St at Hargett St	SB only	Core BRT
Core	Wilmington St at South St	NB & SB	Core BRT
Core	Wilmington St at Keeter Center Dr	NB & SB	Core BRT
Core	Wilmington St at Walker St	NB & SB	Core BRT
Core	Wilmington St at Pecan Rd	NB & SB	Core BRT
Core	Wilmington St Ex.t at Chapanoke Rd	NB & SB	Core BRT
Core	Wilmington St Ext. at Garner Station Blvd	NB & SB	Core BRT
Core	Garner Station Blvd at Lennox Place	NB & SB	Core BRT
Core	Walmart - Garner	Southern Terminus for All Trips	Core BRT

Corridor	Station	Direction	Station Type
Extension	Walmart - Garner	Northern Terminus for All Trips	Core BRT
Extension	Garner Station Blvd at Lennox Place	NB & SB	Core BRT
Extension	Garner Towne Square	NB & SB	Opening Day
Extension	US 70 at Yeargan Rd	NB & SB	Opening Day
Extension	Forest Hills Shopping Center	NB & SB	Opening Day
Extension	White Oak Crossing	NB & SB	Opening Day
<i>Extension</i>	<i>Auburn</i>	<i>NB & SB</i>	<i>Future Infill</i>
Extension	Walmart - Clayton	NB & SB	Opening Day
Extension	Clayton Blvd at Shotwell Rd	NB & SB	Opening Day
Extension	Clayton Blvd at Robertson St	NB & SB	Opening Day
Extension	Clayton Blvd at Main St	NB & SB	Opening Day
<i>Extension</i>	<i>NC 42</i>	<i>NB & SB</i>	<i>Future Infill</i>
Extension	Powhatan	Southern Terminus for All Trips	Opening Day

TRANSIT PRIORITY TREATMENTS

Transit priority treatments are infrastructure investments that improve bus speed and reliability. Three treatments were analyzed for implementation on the Southern and Western BRT Extension corridors: bus on shoulder systems, transit signal priority, and queue jump lanes. Refer to the Scenario Analysis Report for additional details about methodology and assumptions for identifying transit priority treatments.

Bus on shoulder systems (BOSS) allow operators to drive on the highway shoulder when certain conditions are met. BOSS is most effective when traffic in the general-purpose lanes slows below 35 mph due to traffic congestion and where the roadway has adequate shoulder width to accommodate bus traffic. The study team evaluated the shoulders and speeds along US 70 on the Southern BRT Extension and concluded that there were not sufficient sections of the highway where there were both wide shoulders and slow general traffic speeds. Thus, BOSS is not recommended for opening year of the BRT Extension. Additionally, there are projects planned for later years in the MTP that include the widening of US 70. These projects should be done with the BRT Extension in mind, potentially adding BOSS or dedicated lanes after the BRT has been implemented.

Transit Signal Priority (TSP) is a set of tools and traffic management systems that detect transit vehicles and modify traffic signals to prioritize transit movements. TSP is recommended at all signalized intersections along each extension corridor.

When paired with TSP, **queue jump lanes** provide buses with an early signal phase, allowing them to bypass congestion and re-enter the main traffic flow ahead of general traffic. Queue jumps are recommended only where feasible within the existing right-of-way at a relatively low cost, either simply through restriping an existing lane or shoulder or very minor geometric modifications. Ideally, queue jump lanes are accompanied by “receiving” lanes on the far side of the intersection where buses can smoothly transition back into general purpose lanes, though having a receiving lane was not a requirement for recommended queue jumps. Based on a queue jump feasibility analysis conducted at each intersection to identify the level of modification needed, queue jumps are recommended at 18 intersections along the Western BRT Extension corridor and at 21 intersections along the Southern BRT Extension corridor. Figure 5 and Figure 6 show the signalized intersections along the Western and Southern BRT Extension corridors, respectively, and the recommended level of transit priority treatment at each intersection.

Figure 5 Western BRT Extension Transit Signal Priority and Queue Jump Locations

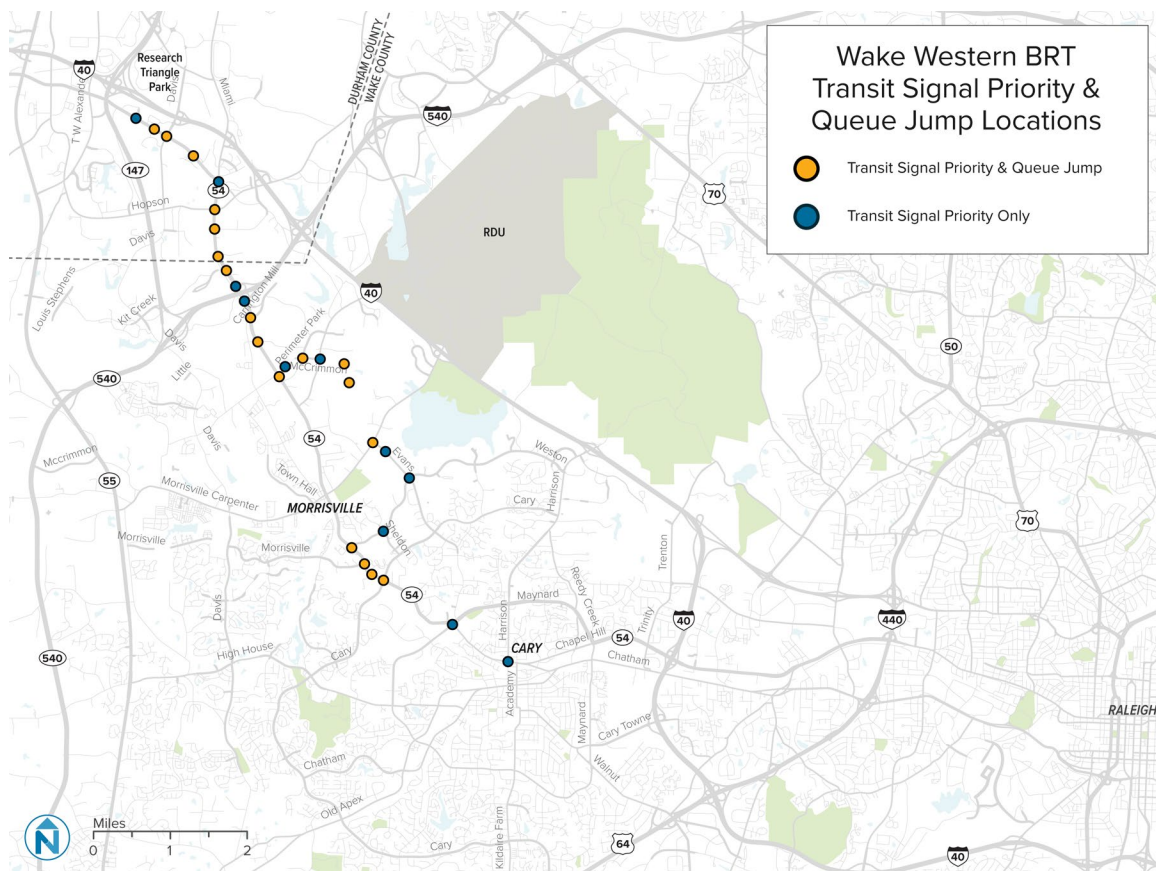


Figure 6 Southern BRT Extension Transit Signal Priority and Queue Jump Locations

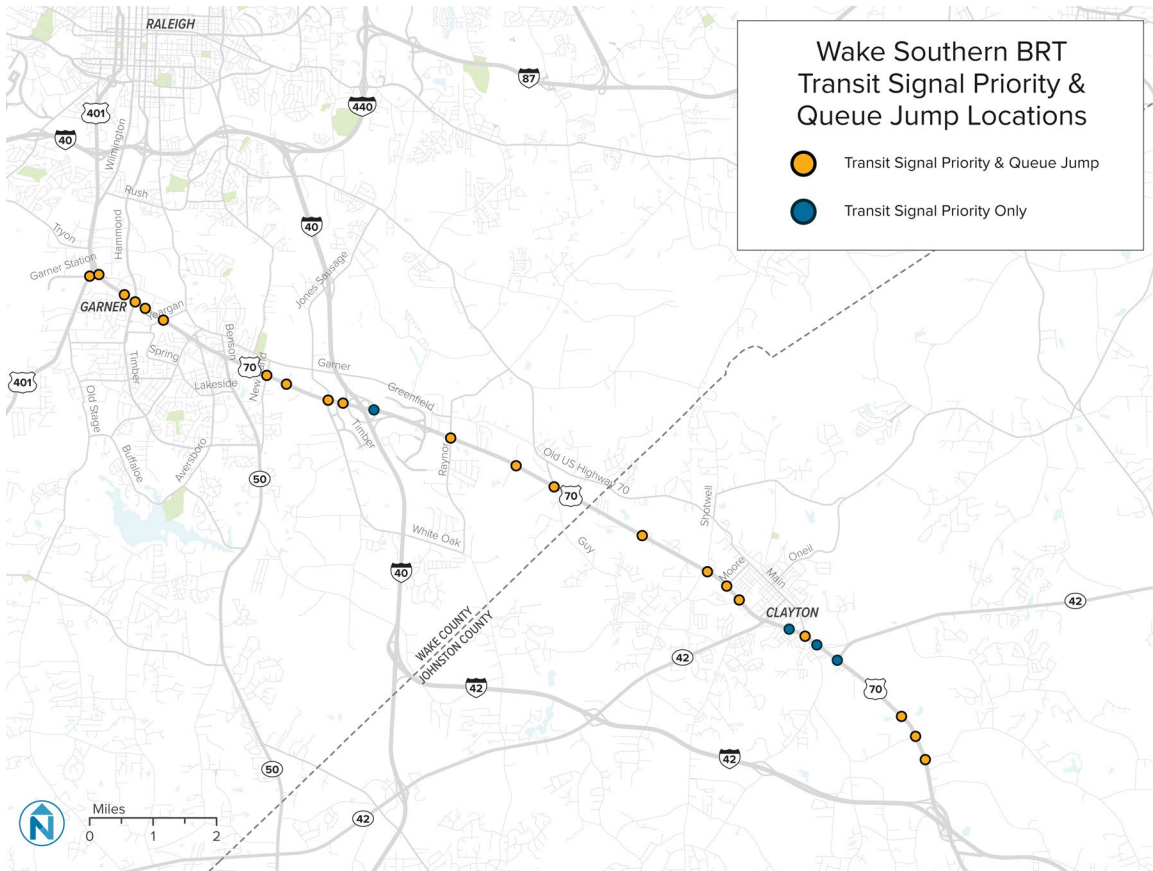


Figure 7 and Figure 8 list the proposed queue jump (QJ) intersections for the Western and Southern BRT Extension corridors respectively and indicates the presence of a receiving lane in each direction based on existing right-of-way.

Figure 7 Recommended Queue Jump Locations, Western Extension (2035)

On Street	Intersecting Street	Outbound QJ Direction	Outbound Receiving Lane?	Inbound QJ Direction	Inbound Receiving Lane?
Chapel Hill Rd/NC-54	NW Cary Pkwy			EB	No
Chapel Hill Rd/NC-54	Market Ctr Dr			EB	No
Chapel Hill Rd/NC-54	Morrisville Pkwy			EB	Yes
Chapel Hill Rd/NC-54	Weston Pkwy	WB	Yes		
Evans Rd	Aviation Pkwy	NB	No	SB	No
McCrimmon Pkwy	Strand St Future Signal	NB	No	SB	No
McCrimmon Pkwy	Future Odyssey Dr Extension, Future Signal			SB	No
McCrimmon Pkwy	Perimeter Park Dr	WB	Yes	EB	Yes
Chapel Hill Rd/NC-54	McCrimmon Pkwy	NB	Yes	SB	Yes
Chapel Hill Rd/NC-54	Watkins Rd			SB	Yes
Chapel Hill Rd/NC-54	Carrington Mill Blvd	NB	No		
Chapel Hill Rd/NC-54	Shiloh Glenn Dr	NB	No		
Chapel Hill Rd/NC-54	Surles Ct	NB	No		
S Miami Blvd/NC-54	Emperor Blvd	NB	No		
S Miami Blvd/NC-54	Hopson Rd/Page Rd	NB	No		
NC-54	New Millennium Wy	WB	No	EB	No
NC-54	Davis Dr	WB	No	EB	No
NC-54	Rodbell St	WB	No		

Source: Three Oaks Engineering for Nelson\Nygaard on behalf of CAMPO, 2025.

Figure 8 Recommended Queue Jump Locations, Southern Extension (2035)

On Street	Intersecting Street	Outbound QJ Direction	Outbound Receiving Lane?	Inbound QJ Direction	Inbound Receiving Lane?
Fayetteville Rd/US-401	Mechanical Blvd/Garner Station Blvd	EB	No	WB	No
US-70	Mechanical Blvd			WB	No
US-70	Jessup Dr	EB	No		
US-70	Timber Dr	EB	No	WB	No
US-70	Garner Town Square	EB	No	WB	No
US-70	Yeargan Rd	EB	No	WB	No
US-70	New Rand Rd	EB	No	WB	No
US-70	Medical Park Ct	EB	Yes	WB	No
US-70	Jones Sausage Rd/White Oak Rd	EB	No	WB	No
US-70	I-40 WB Ramps (WB Only)			WB	Yes
US-70	Raynor Rd	EB	Yes	WB	No
US-70	TV Tower Rd	EB	No	WB	Yes
US-70	Guy Rd	EB	No	WB	No
US-70	Town Centre Blvd	EB	Yes	WB	Yes
US-70	Shotwell Rd	EB	Yes	WB	No
US-70	S Moore St	EB	Yes	WB	No
US-70	S Robertson St	EB	Yes	WB	No
US-70	Champion St			WB	No
US-70	Cutter Lab Access Rd			WB	No
US-70	Pony Farm Rd	EB	No	WB	Yes
US-70	Powhatan Rd	EB	No		

Source: Three Oaks Engineering for Nelson\Nygaard on behalf of CAMPO, 2025.

3 OPERATING PLAN

OPERATING RECOMMENDATIONS

For each of the two BRT Extensions, the study team developed operating statistics, costs, and vehicle requirements and recommended the service span, headways, and travel times as well as the impact on existing routes, which are described in greater detail below. GoRaleigh is recommended as the project sponsor and operator for both the Western and Southern BRT Extension services.

Recommended Span of Service

The operating hours are proposed to differ slightly between the core BRT services and their extensions across all service days, as detailed in Figure 9. The recommended weekday service spans are the same for both core BRT corridors, where buses would operate 20 hours per day, and on the two extension corridors, with service operating for 19 hours per day. Saturday spans of service are one hour shorter across all corridors, beginning one hour later than on weekdays, and Sunday service on the extension would be reduced to 16 hours, ending at 10:00 PM.

Figure 9 Service Span (Western and Southern)

Corridor	Weekday	Saturday	Sunday
Core	4:00 AM – 12:00 AM	5:00 AM – 12:00 AM	5:00 AM – 12:00 AM
Extension	5:00 AM – 12:00 AM	6:00 AM – 12:00 AM	6:00 AM – 10:00 PM

Recommended Headways

The services on the two extension corridors are recommended to be half as frequent as the core BRT corridors, as shown in Figure 10. On the Western BRT Extension, this frequency is achieved by extending every other core Western BRT bus to RTP and ending the other half of the buses at Cary Multimodal Center. On the Southern BRT Extension, this frequency is achieved by running a separate extension bus between Garner and Powhatan and ending all core BRT buses at Garner.

Figure 10 Recommended Headways (Western and Southern)

Day and Time	Span of Service	Core Corridor Headways	Extension Corridor Headways
Weekday Very Early	4 AM – 5 AM	20 minutes	-
Weekday Early AM	5 AM – 6 AM	20 minutes	40 minutes
Weekday Peak/Day	6 AM – 7:30 PM	10 minutes	20 minutes
Weekday Night	7:30 PM – 12 AM	20 minutes	40 minutes
Saturday Early AM	5 AM – 6 AM	20 minutes	-
Saturday Day	6 AM – 7:30 PM	15 minutes	30 minutes
Saturday Night	7:30 PM – 12 AM	20 minutes	40 minutes
Sunday Early AM	5 AM – 6 AM	20 minutes	-
Sunday Day	6 AM – 7:30 PM	15 minutes	30 minutes
Sunday Evening	7:30 PM – 10 PM	20 minutes	40 minutes
Sunday Late Night	10 PM – 12 AM	20 minutes	-

Existing Routes

When fully implemented, the full Western BRT and Extension corridor could replace two existing GoTriangle routes with similar alignments. The core Western BRT service could replace GoTriangle Route 300, and the Extension BRT service could replace the existing GoTriangle Route 310, which primarily serves the recommended BRT alignment. The FY 27 Wake Transit Work Plan estimated the cost savings of replacing the GoTriangle Route 300 and GoTriangle Route 310 in 2031 (estimated opening year of the Western BRT) to be approximately \$4 Million. It is assumed that other GoRaleigh, GoTriangle, and GoCary routes that serve any portion of the Western BRT and extension corridor could remain in place without any service modifications directly related to BRT implementation. Existing stops for routes that cross the corridor could remain adjacent to the recommended BRT stations.

The full Southern BRT and Extension corridor would not fully replace any existing route, but the implementation of the core BRT service may be timed with a reduction in service frequency of local GoRaleigh Route 7. The Southern BRT Extension service would not replace any existing service.

OPERATING COST ESTIMATES

Unlike headways and service spans, where riders have distinct experiences on the core and extension corridors, operating estimates such as cycle times and revenue miles for Western BRT occur at the operating pattern level of the bus service, with the core pattern operating

between Raleigh and Cary and the secondary pattern operating on both the core and extension corridors between Raleigh and RTP. The following sections present findings for the full Western BRT and Extension by operating pattern rather than by corridor. The incremental costs of implementing the alternating extension pattern compared to the core Western BRT alone were estimated by comparing the full corridor total to the previous Western BRT Operations Plan. For the Southern BRT and Extension, results are presented by corridor, as the separate bus operations means the corridors and operating patterns represent the same trips.

All annualized figures are based on 255 weekdays, 52 Saturdays, and 58 Sundays/Holiday service levels in a calendar year.

Travel Time

During the scenarios analysis stage of the study, travel times for each scenario were estimated based on forecasted traffic levels, standardized dwell times at each station, transit priority treatments, and an assumption that the bus would stop at every station along a route (refer to Scenario Analysis Report for more details). Once a preferred scenario was selected, the study team refined these travel times by assigning dwell times to each station based on estimated ridership: 15 seconds for stations expected to have high ridership, seven seconds for stations with medium ridership, and four for lower ridership stations. The team also assumed that buses would continue to stop at all stops at peak times but would skip approximately a quarter of stops during off-peak times. Figure 11 shows the refined corridor lengths, estimated speeds, and one-way travel times.

Figure 11 Wake BRT Extension One-Way Corridor Length, Speed, and Travel Time

	Western BRT Extension	Southern BRT Extension
Corridor Length	11.4 miles	17.2 miles
Estimated Speed at Peak Hours	22 mph	29 mph
One-Way Travel Time at Peak Hours	31 minutes	36 minutes
Estimated Speed at Off-Peak Hours	23 mph	31 mph
One-Way Travel Time at Off-Peak Hours	28 minutes	33 minutes

These travel times were then used to estimate the cycle time of each route, which is the amount of time a bus takes to travel round trip and layover before starting its next trip at the defined frequency. A minimum layover time of 10% of travel time is recommended to allow for adequate recovery and driver breaks.

GoRaleigh's operating plans for the core Western and Southern BRT were used to define the cycle times for the core BRT segments as needed. For the full Western BRT and Extension, the Raleigh to Cary route pattern is estimated to have a cycle time of 100 minutes, and the

Raleigh to RTP route pattern is estimated to have a cycle time of 180 minutes. The core Southern BRT will operate with a 50-minute cycle time, round-trip between downtown Raleigh and Walmart-Garner with layover and recovery. The Southern BRT Extension has a peak cycle time of 100 minutes, including two-way travel time between Walmart-Garner and Powhatan, plus layover and recovery.

Annual Revenue Hours and Miles

Annual operations of the full Western BRT and Extension are estimated to result in nearly 79,000 revenue hours and 1,119,000 miles of revenue service (Figure 12). The higher number of annual revenue miles for the extension is due to the overlapping service that also serves the Core BRT alignment between Raleigh and Cary. Implementing the alternating extension pattern is an annual incremental increase of approximately 24,000 hours and 251,000 miles over the original core Western BRT.

Figure 12 Annualized Revenue Hours and Miles by Operating Pattern (Western)

Operating Pattern	Annual Revenue Hours	Annual Revenue Miles
Core Pattern: Raleigh to Cary	30,491	393,528
Core + Extension Pattern: Raleigh to RTP	48,099	725,027
Total	78,590	1,118,555
Extension Portion (Incremental)	24,342	250,595

Annual operations of the full Southern BRT and Extension are estimated to result in nearly 54,000 revenue hours and 895,000 miles of revenue service (Figure 13). Despite lower frequency and slightly lower annual revenue hours, the longer distance travelled on the Southern BRT Extension results in a much higher annual revenue miles total than for the core Southern BRT.

Figure 13 Annualized Revenue Hours and Miles (Southern)

Corridor	Annual Revenue Hours	Annual Revenue Miles
Core	28,107	343,840
Extension	24,958	550,318
Total	53,338	894,157

Annual Cost and Fleet Requirements

Annual operating costs are a reflection of the recommended service design, the assumed operator, scheduled service, and travel time assumptions. GoRaleigh operating costs per revenue hour are assumed to be \$120. The full Western BRT and Extension would require an estimated \$9,431,000 for annual operating costs and 14 vehicles during peak service, as

shown in Figure 14. For just the BRT Extension portion of the route, the annual operating cost would be \$2,921,000, with four peak vehicles required.

The Southern BRT Extension would add an estimated \$3,028,000 in annual operating costs for a total of \$6,400,000 annually to operate both the core Southern BRT and the BRT Extension. Both corridors are estimated to require five vehicles each, for a total of 10 vehicles in peak service, as shown in Figure 15. The similar operating costs and vehicle needs between the two segments despite the different frequencies are explained through the differences in the distances of the two segments.

Figure 14 Annualized Costs and Vehicle Needs (Full Western BRT and Extension)

Operating Pattern	Annual Operating Cost	Peak Vehicles Required
Core Pattern: Raleigh to Cary	\$3,659,000	5
Core + Extension Pattern: Raleigh to RTP	\$5,772,000	9
Total	\$9,431,000	14
Extension Portion (Incremental)	\$2,921,000	4

Figure 15 Annualized Cost and Vehicle Needs (Full Southern BRT and Extension)

Corridor	Annual Operating Cost	Peak Vehicles Required
Core	\$3,372,000	5
Extension	\$3,028,000	5
Total	\$6,400,000	10

In addition, as the Southern BRT Extension operates in both Wake and Johnston counties, Figure 16 delineates operating cost and mileage between the two counties. As shown in the table, the majority of the mileage (57%) remains in Wake County.

Figure 16 Annualized Southern BRT Extension Cost and Mileage by County

County	Alignment Mileage (Two-Way)	Annual Mileage	% of Extension	Annual Operating Cost
Wake County	19.8	315,835	57%	\$1,738,000
Johnston County	14.7	234,483	43%	\$1,290,000
Extension Total	34.5	550,318	100%	\$3,028,000

4 CAPITAL PLAN

CAPITAL RECOMMENDATIONS

The capital planning of the Western and Southern BRT Extensions is built upon the recommended new station locations, signalized intersections, and corridor length, as well as fleet requirements identified as part of the operations modeling. The capital plan focuses on the extension corridors and does not include components that are a part of the core Western and Southern BRT.

On the Western BRT Extension alignment, 27 side-running station platforms and 31 signalized intersections were assumed along the 11.4-mile corridor. The full Western BRT and Extension corridor will require 14 60-foot articulated vehicles during peak service. Ten vehicles are included in the Core BRT capital plan, so this capital plan only accounts for the remaining four vehicles.

On the Southern BRT Extension alignment, 21 side-running station platforms and 25 signalized intersections were assumed along the 17.2-mile corridor. The extension corridor will require five 40-foot vehicles during peak service.

Related Capital Projects

Several projects are planned along the extension corridors and are assumed to be in place by the time the BRT service opens. The costs of these projects were not included as a part of the BRT cost estimates, but it is important for the BRT project development team to be aware of and coordinate with these other capital projects.

Along the Western BRT Extension corridor, the following projects will affect the final design of the BRT service:

- Triangle Mobility Hub – the design of new signalized intersections along NC-54, as well as the location of the BRT platform (on-street or within the transit center). The facility is expected to open in 2029.
- Downtown Cary Multi-Modal Center – the design of the BRT platforms or bays, as well as how the two different route patterns will circulate through the facility. The facility is expected to open in 2030.
- McCrimmon Parkway – a new intersection and street grid is planned through extending Odyssey Drive to meet McCrimmon Parkway. A new signalized intersection is also planned at Strand Street and Stephens Park Drive, which will be operational by 2028.

- McCrimmon Parkway & NC 54 – a grade separation project is planned at McCrimmon Parkway & NC 54, which will affect how the BRT Extension turns from McCrimmon Parkway onto NC 54 in Morrisville. The project let date is July 2027, with project completion expected three to four years after that.

Along the Southern BRT Extension corridor, the following projects are of note:

- US 401 – a superstreet is planned between Garner Station Rd and Old Stage Rd in 2035, which will restrict turning movements on US 401 near the start of the extension corridor.
- Vandora Springs Road – a bridge reconstruction is proposed at Vandora Springs Road and US 70, which would enable better pedestrian connectivity at the recommended BRT station platforms.

Additionally, it is important to track ongoing developments around Perimeter Park on the Western BRT Extension and Auburn and NC 42 on the Southern BRT Extension as these are the locations for potential infill stations.

CAPITAL COST ESTIMATES

Final capital cost estimates include assumed construction and non-construction costs, as well as allocated and unallocated contingency. As these are high-level conceptual planning estimates, they include a significant portion of contingency that will gradually be phased out as uncertainties in design and engineering decrease in future project phases. Unit costs were developed for various capital construction elements, including stations and station areas, intersection transit priority treatments, and technology, as well as for vehicles. The base year for all unit costs is 2025, and any historic unit costs were escalated to the 2025 base year. The main data sources used were the New Bern Avenue 100% engineering estimates and vehicle and technology costs provided by GoRaleigh. For the Southern BRT Extension, capital construction costs are allocated to Wake and Johnston counties based on station and intersection locations. All other costs are split by the proportional corridor length within each county.

Breakdown by Cost Type

Construction Costs

Construction costs include stations and station areas, intersection transit priority treatments, technology, and sitework. Methodology for developing unit costs and lump sum allocations is summarized below:

- **Stations & Station Areas:** Station platform costs assume level boarding (or near-level boarding) and all amenities associated with core BRT stations as defined in the Wake BRT Guidelines, including the boarding areas, shelters and seating, lighting and wayfinding, ticket vending and fare validation machines, emergency telephones, real-time arrival information, CCTVs, and touch-screen kiosks with optional Wi-Fi. Ten percent of the estimated station platform cost is allocated to station area pedestrian and multimodal improvements. Southern BRT Extension costs include the planned Powhatan Park and Ride at the southern end-of-line. The estimated cost of this site is based on costs of a comparable project escalated from 2019.
- **Intersection Transit Priority Treatments:** Transit signal priority (TSP) is recommended at all signalized intersections along each extension corridor. Queue jumps are recommended only where feasible within the existing right-of-way at a relatively low cost, i.e. not requiring major street geometry reconfiguration. Based on a queue jump feasibility analysis conducted at each intersection, signalized intersections are assigned to one of three unit costs: TSP only, TSP with a low-cost queue jump, and TSP with a medium-cost queue jump. A low-cost queue jump involves just restriping an existing lane, while a medium-cost queue jump involves additional modifications.
- **Systems:** Communications fiber is assumed to run for the entire length of each extension corridor.
- **Sitework:** Sitework costs are estimated based on the sum of all other construction costs. The 25% allocation for sitework includes a 10% allocation for utilities and a 15% allocation for temporary facilities and other indirect construction costs.

Figure 17 summarizes capital construction unit costs and allocations by construction category and element. Construction contingency equals 30% of all direct construction costs and is intended to cover unforeseen costs encountered during construction.

Total construction costs for each corridor, including quantities when applicable, are presented in Figure 18 and Figure 19. The estimated construction cost of the Western BRT Extension including contingency is \$41,279,000. Southern BRT Extension construction costs are allocated to Wake and Johnston counties based on station and intersection locations and the proportional corridor length within each county (57% in Wake County, 43% in Johnston County). The estimated construction cost of the Southern BRT Extension including contingency is \$44,932,000, with \$20,660,000 allocated to Wake County and the remaining \$24,272,000 allocated to Johnston County. The Western BRT Extension has a higher construction cost per mile than the Southern BRT Extension due to a higher concentration of stations and intersections.

Figure 17 Construction Unit Costs and Allocations

Element	Unit Cost (\$) or Allocation (%)
Stations & Station Areas	
BRT Station Platform	\$651,390
Powhatan Park and Ride (Southern BRT Extension only)	\$4,467,900
Station Area Pedestrian and Multimodal Improvements	10% of station costs
Intersection Transit Priority Treatments	
TSP Only	\$23,000
TSP and Low-Cost Queue Jump	\$34,000
TSP and Medium-Cost Queue Jump	\$160,000
Systems	
Communication Fiber	\$75 per linear foot
Sitework	
Utilities, Temporary Facilities, and Other Indirect Construction Costs	25% of all other construction costs
Construction Contingency	30% of direct costs

Figure 18 Total Construction Costs in FY2025\$ (Western BRT Extension)

Element	Quantity	Total Cost
Stations & Station Areas		
BRT Station Platform	27	\$17,588,000
Station Area Pedestrian and Multimodal Improvements	27	\$1,759,000
Intersection Transit Priority Treatments		
TSP Only	13	\$299,000
TSP and Low-Cost Queue Jump	13	\$442,000
TSP and Medium-Cost Queue Jump	5	\$800,000
Systems		
Communication Fiber	60,200	\$4,515,000
Sitework		
Utilities, Temporary Facilities, and Other Indirect Construction Costs	N/A	\$6,351,000
Construction Direct Cost		\$31,754,000
Construction Contingency		\$9,526,000
Construction Total Cost		\$41,280,000

Figure 19 Total Construction Costs in FY2025\$ (Southern BRT Extension)

Element	Quantity: Wake County	Total Cost: Wake County	Quantity: Johnston County	Total Cost: Johnston County	Grand Total Cost
Stations & Station Areas					
BRT Station Platform	10	\$6,514,000	11	\$7,165,000	\$13,679,000
Powhatan Park and Ride	0	\$0	1	\$4,468,000	\$4,468,000
Station Area	10	\$652,000	11	\$717,000	\$1,368,000
Intersection Transit Priority Treatments					
TSP Only	1	\$23,000	3	\$69,000	\$92,000
TSP and Low-Cost Queue Jump	10	\$340,000	7	\$238,000	\$578,000
TSP and Medium-Cost Queue Jump	3	\$480,000	1	\$160,000	\$640,000
Systems					
Communication Fiber	57%	\$3,917,000	43%	\$2,908,000	\$6,825,000
Sitework					
Utilities, Temporary Facilities, and Other Indirect Construction Costs	57%	\$3,967,000	43%	\$2,946,000	\$6,913,000
Construction Direct Cost		\$15,893,000		\$18,671,000	\$34,564,000
Construction Contingency		\$4,768,000		\$5,601,000	\$10,369,000
Construction Total Cost		\$20,661,000		\$24,272,000	\$44,933,000

Non-Construction Costs

Non-construction costs include vehicle requirements and professional services. Methodology for developing unit costs and lump sum allocations is summarized below:

- **Vehicle Requirements:** The Western BRT Extension is assumed to utilize 60-foot articulated CNG buses, and the Southern BRT Extension is assumed to use 40-foot CNG buses. Vehicle needs are determined based on peak service, as described in the Operating Plan chapter. An additional 20% spare ratio is added onto the number of service vehicles required to determine the final fleet requirements. Vehicle contingency equals 10% of all other vehicle costs.
- **Professional Services:** Professional services include design and engineering, as well as associated project management, construction administration, and legal costs. 20%

of total construction costs (including construction contingency) are allocated towards professional services.

Figure 20 summarizes capital non-construction unit costs and allocations by category and element.

Figure 20 Non-Construction Unit Costs and Allocations

Element	Unit Cost (\$) or Allocation (%)
Vehicles	
Articulated 60-Foot Buses	\$1,200,000
40-Foot Buses	\$900,000
Spares	20% of fleet
Spare Parts	50% of vehicle costs
Professional Services	
Professional Services	20% of total construction costs
Vehicles Contingency	10% of direct vehicle costs

Total non-construction costs for each corridor, including quantities when applicable, are presented in Figure 21 and Figure 22. The estimated non-construction cost of the Western BRT Extension including contingency is \$15,186,000. Southern BRT Extension non-construction costs are allocated to Wake and Johnston counties based on the proportional corridor length within each county (57% in Wake County, 43% in Johnston County). The estimated non-construction cost of the Southern BRT Extension including contingency is \$15,223,000, with \$8,737,000 allocated to Wake County and the remaining \$6,486,000 allocated to Johnston County.

Figure 21 Total Non-Construction Costs in FY2025\$ (Western BRT Extension)

Element	Quantity	Total Cost
Vehicles		
Articulated 60-Foot Buses	4	\$4,800,000
Spares	1	\$1,200,000
Spare Parts	N/A	\$300,000
Professional Services		
Professional Services	N/A	\$8,256,000
Vehicle Contingency		\$630,000
Non-Construction Total Cost		\$15,186,000

Figure 22 Total Non-Construction Costs in FY2025\$ (Southern BRT Extension)

Element	Quantity (Total)	Total Cost: Wake County	Total Cost: Johnston County	Grand Total Cost
<i>Allocation by County</i>		57%	43%	
Vehicles				
40-Foot Buses	5	\$2,583,000	\$1,917,000	\$4,500,000
Spares	1	\$517,000	\$383,000	\$900,000
Spare Parts	N/A	\$155,000	\$115,000	\$270,000
Professional Services				
Professional Services	N/A	\$5,157,000	\$3,829,000	\$8,986,000
Vehicle Contingency		\$325,000	\$242,000	\$567,000
Non-Construction Total Cost		\$8,737,000	\$6,486,000	\$15,223,000

Capital Costs Summary

Total capital cost estimates include construction elements, non-construction elements, and unallocated contingency. Unallocated contingency is applied to the total project costs and is designed to represent the costs of changes in scope as design and engineering progresses, as well as variance in market conditions that can affect capital costs. A 10% unallocated contingency is used for these estimates.

Figure 23 and Figure 24 summarize total capital cost estimates for the Western and Southern BRT Extension corridors, respectively. The estimated total capital cost of the Western BRT Extension is \$62,112,000, or approximately \$3.6 million per mile for the 11.4-mile extension corridor. Southern BRT Extension unallocated contingency is allocated to Wake and Johnston counties based on the proportional corridor length within each county (57% in Wake County, 43% in Johnston County). The estimated total capital cost of the Southern BRT Extension is \$66,171,000 (approximately \$3.8 million per mile for the 17.2-mile corridor), with \$32,850,000 allocated to Wake County and the remaining \$33,321,000 allocated to Johnston County.

Figure 23 Total Capital Costs in FY2025\$ (Western BRT Extension)

Cost Category	Total Cost (Including Contingency)
Construction	\$41,279,000
Vehicles	\$6,930,000
Professional Services	\$8,256,000
Unallocated Contingency	\$5,647,000
Total Cost	\$62,112,000
Cost per Corridor Mile	\$3,621,000/mile

Figure 24 Total Capital Costs in FY2025\$ (Southern BRT Extension)

Cost Category	Total Cost (Including Contingency): Wake County	Total Cost (Including Contingency): Johnston County	Grand Total Cost (Including Contingency)
Construction	\$20,660,000	\$24,272,000	\$44,932,000
Vehicles	\$3,580,000	\$2,657,000	\$6,237,000
Professional Services	\$5,157,000	\$3,829,000	\$8,986,000
Unallocated Contingency	\$3,453,000	\$2,563,000	\$6,016,000
Total Cost	\$32,850,000	\$33,321,000	\$66,171,000
Cost per Corridor Mile	-	-	\$3,847,000/mile

5 FUNDING PLAN

ESTIMATED COSTS AND ALLOCATED FUNDING

The analysis in the prior chapters estimated operating and capital costs for the Western and Southern BRT Extension, as shown in Figure 25. Note that these costs do not include the core Western and Southern BRT costs, which have their own funding plans.

Figure 25 Estimated Costs for Western and Southern BRT Extensions

	Western BRT Extension	Southern BRT Extension (Total)	Southern BRT Extension (Wake County)	Southern BRT Extension (Johnston County)
Annual Operating Cost (FY25\$)	\$2,921,000	\$3,028,000	\$1,738,000	\$1,290,000
Total Capital Cost (FY25\$)	\$62,112,000	\$66,171,000	\$32,850,000	\$33,321,000

The most recent State Transportation Improvement Program (STIP) and Wake Transit Plan have allocated capital funding for the Wake BRT Extensions. For the entire Clayton to RTP corridor, the STIP has allocated \$100 million in funding, with half going to the core BRT corridors and the other half going to the extensions. For the Western BRT Extension, the STIP has allocated \$30 million and Wake Transit has allocated \$8.247 million. For the Southern BRT Extension, the STIP has allocated \$20 million and Wake Transit has allocated \$23.346 million. These funds were combined, then split up by year and category in the Wake Transit Financial Model, as shown in Figure 26.

Figure 26 Allocated Funding for BRT Extensions

	Western BRT Extension	Southern BRT Extension
Planning Funds (FY26\$)	\$702,000	\$796,000
Project Development & Engineering (FY27\$)	\$6,750,000	\$7,446,000
Construction (FY28\$)	\$15,184,000	\$17,208,000
Construction (FY29\$)	\$15,791,000	\$17,897,000
Total (FY26-29\$)	\$38,247,000	\$43,346,000

The funding allocated in the STIP and Wake Transit Plan covers a significant portion of the total capital cost of the Wake BRT Extensions, but there remains a funding gap. Across the two extensions, there is approximately a \$44-million capital funding gap, not including inflation. Operating costs, at least the Wake County portion, are assumed to be covered by the Wake Transit Plan.

The following sections detail potential funding sources that could be used to fill this funding gap.

STANDARD FEDERAL, STATE, AND LOCAL FUNDING SOURCES

This section presents a menu of potential supplemental funding sources that could be explored by the project sponsor and its funding partners to fund the proposed BRT extensions. These sources could address potential funding gaps associated with planning, capital, and operational costs. Figure 27 summarizes a list of currently available funding sources that Wake BRT projects may qualify for, and that meet the specific needs of this region, with further details provided below the table. Using either a checkmark to signify yes or an X to signify no, the first two columns indicate whether the funding source was already assumed in the Wake Transit Plan (WTP) or, if it was not considered in the WTP, if it is likely to be a potential funding source for the Wake BRT Extension projects. The Planning, Capital, and Operating columns similarly use a checkmark or an X to indicate if the funding may be used for a specific type of expense.

Given the ever-changing landscape of the transit funding environment, the funding programs described in this document may change over time or may not be available when specific applications are pursued. Accordingly, this document is provided for informational and planning purposes to support funding discussions and decision-making related to the implementation and long-term operation of Wake BRT.

Figure 27 Currently Available Federal, State, and Local Funding Sources

Assumed in WTP	New Potential Source	Program Name	Planning	Capital	Operating	Relevant Counties
Federal						
X	X	FTA Section 5309 – Capital Investment Grants (Small Starts / New Starts)	✓	✓	X	Wake, Johnston
X	✓	FTA Section 5307 – Urbanized Area Formula	✓	✓	✓	Wake, Johnston
X	✓	FTA Section 5339 – Buses and Bus Facilities	X	✓	X	Wake, Johnston
X	✓	FTA Section 20005(b) – Transit Oriented Development (TOD) Pilot	✓	X	X	Wake, Johnston

Assumed in WTP	New Potential Source	Program Name	Planning	Capital	Operating	Relevant Counties
X	✓	Better Utilizing Investments to Leverage Development (BUILD)	✓	✓	X	Wake, Johnston
X	✓	FTA Section 5337 – State of Good Repair for Fixed Guideway	✓	✓	✓	Wake, Johnston
State						
✓	X	North Carolina Strategic Transportation Investments (STI)	X	✓	X	Wake, Johnston
X	✓	Congestion Mitigation and Air Quality (CMAQ)	X	✓	✓	Wake, Johnston
X	✓	SMAP State Maintenance Assistance Program - Operating Assistance	X	X	✓	Wake, Johnston
X	✓	ConCPT Coordination Program	X	X	✓	Wake, Johnston
Local						
✓	X	Local Transit Sales Tax (NCGS Ch. 105, Article 43)	✓	✓	✓	Wake
✓	X	Local County Sales Tax (NCGS Ch. 105, Article 46)	✓	✓	✓	Wake
✓	X	CAMPO Locally Administered Projects Program (LAPP)	✓	✓	X	Wake, Johnston
✓	X	TWTPPO Regional Flexible Funding	✓	✓	X	Durham
✓	X	Vehicle registration tax for Wake Transit	✓	✓	✓	Wake
✓	X	Vehicle rental tax for Wake Transit	✓	✓	✓	Wake

Federal Programs

It is important to remember that if more than one funding program is applied to a single project, whichever program's allowable federal share is lowest will be the controlling amount.

FTA Section 5309 – Capital Investment Grants

FTA Section 5309, known as the Capital Investment Grants (CIG) program is the primary federal funding source for transit fixed-guideway capital investments, such as BRT. The competitive grant program can fund major capital elements such as guideway construction, stations, vehicles, intelligent transportation systems (ITS), and transit signal priority. Small Starts and New Starts are the two most common for fixed-guideway and corridor-based transit investments.

- New Starts are designed for large-scale, high-capacity transit investments that involve substantial capital construction and transformative regional impacts. Usually \$400 million or more.
- Small Starts is typically used to fund BRT and Corridor-Based Bus projects due to the lower project costs that align with the grant thresholds (projects less than \$400 million in total project cost and that are seeking CIG funding of less than \$150 million).
 - CIG program shares are capped at 80% federal share / 20% local match, though FTA typically encourages sponsors to cap the federal share below 50-60%.
 - Federal law requires transit agencies seeking CIG funding to complete a series of steps over several years to compete and remain grant-eligible for the funding.

At the time of this study, the Western and Southern BRT Extensions are not likely to be competitive for CIG funding, due to the nature of the corridors. However, this funding source is included in this compilation in case future conditions drastically change the potential ridership on these corridors.

FTA Section 5307 – Urbanized Area Formula

FTA Section 5307 provides flexible formula-based funding for transit agencies serving urbanized areas. Urbanized areas with populations between 50,000 and 200,000 are also eligible to receive operating funds, which means that Johnston County may soon have access to these funds given Clayton's urbanized area reaching 50,000 in population in the 2020 US Census.

- This source is commonly used for stations, vehicles, and corridor improvements.
- Section 5307 is often paired with Section 5309 funding to help advance BRT projects or is used during early project phases such as preliminary engineering or initial corridor enhancements.
- Bus-related operating expenses are only eligible if the operator operates 100 or fewer buses during peak service, a threshold GoRaleigh is likely to soon cross, although the funds can be used for preventative maintenance.

FTA Section 5339 – Buses and Bus Facilities

The Section 5339 program supports capital investments related to buses and associated facilities. Eligible activities include the replacement, rehabilitation, and purchase of buses and vans, as well as the construction or improvement of maintenance facilities. There are both formula funds 5339(a) and competitive funds 5339(b) and (c) available.

- The program also allows funding for technological upgrades and innovations, including infrastructure to support low- or no-emission vehicles.
- Section 5339 is well-suited for funding BRT vehicles, maintenance and storage facilities, and charging infrastructure, and is often used to complement corridor funding from Section 5309 or other federal sources.
- For 5339, if the planning activity is clearly tied to the capital project and the project is in the STIP, and if FTA awards pre-award authority, the costs after NEPA (e.g., Final Design, construction-related engineering or post-NEPA environmental mitigation activities) may be reimbursable.

FTA Section 20005(b) – Transit Oriented Development Pilot

The FTA Transit Oriented Development (TOD) Planning Pilot Program is designed to be layered with the Capital Investment Grants program, though it can be used for projects without CIG funding. It provides funding for planning efforts associated with an eligible transit capital project.

- In Fiscal Year 2022, a TOD study grant was awarded to NCDOT for stations along the proposed S-Line project corridor.¹
- In Fiscal Year 2024, the program funded multiple TOD planning efforts along BRT corridors.²
- Eligible activities include both comprehensive corridor planning and site-specific station area planning aimed at supporting equitable development and ridership growth.

¹ <https://www.ncdot.gov/divisions/rail/s-line-projects/raleigh-richmond/Documents/r2r-s-line-project-january-2024.pdf>

² <https://www.transit.dot.gov/funding/grants/grant-programs/fiscal-year-2024-transit-oriented-development-tod-planning-projects>

Better Utilizing Investments to Leverage Development (BUILD)

The BUILD grant program, previously known as TIGER and later RAISE, provides competitive federal funding for surface transportation infrastructure projects that demonstrate significant local or regional impacts. The program can be a strong fit for BRT projects, particularly those that span multiple jurisdictions, integrate roadway, transit, pedestrian, and safety improvements, or include capital elements that do not align well with existing FTA programs.

- The program layers effectively with CIG funding by helping fill funding gaps. BUILD can fund capital construction and capital-eligible costs, including:
 - BRT stations and platforms (level boarding, shelters, real-time info)
 - Dedicated or semi-exclusive bus lanes (where transit-only or transit-priority)
 - Transit centers and intermodal hubs supporting BRT
 - Signal priority and corridor ITS
 - Pedestrian, bicycle, and ADA improvements that support BRT access
 - Streetscape and safety improvements along the BRT corridor
 - Bus storage, layover, or support facilities tied to the BRT corridor
- BUILD cannot (or rarely) funds:
 - Operating costs
 - Vehicle purchases (funded through 5339)
 - Standalone Planning studies (unless applying under a planning-only category)
- BUILD grants require a 20% local match if in urban areas, but there is no local match requirement if in rural areas, Areas of Persistent Poverty, or Historically Disadvantaged Communities; however because it is highly competitive, projects typically provide 20-50% non-federal match.

FTA Section 5337 – State of Good Repair for Fixed Guideway

FTA Section 5337, the State of Good Repair (SGR) Formula Program, provides funding for fixed guideway and high-intensity motorbus systems, including eligible BRT corridors, that have been in revenue service for at least seven full federal fiscal years. The program is primarily intended for preventive maintenance and rehabilitation to keep existing assets in a state of good repair, with funds most commonly supporting operating-related capital needs such as vehicle overhauls, stations, guideway elements, and support equipment.

State Sources

North Carolina Strategic Transportation Investments

The Strategic Transportation Investments (STI) program is North Carolina's primary state-funded capital source for Bus Rapid Transit (BRT) projects.

- Projects compete regionally and statewide.
- These funds are frequently used as local match for federal grants.

This program is used to develop the STIP, which has allocated significant funding to the Western and Southern BRT corridors (core and extensions).

Congestion Mitigation and Air Quality (CMAQ)

The Congestion Mitigation and Air Quality (CMAQ) program supports BRT and other transit capital investments in areas designated as air quality nonattainment or maintenance areas. All of Wake, Johnston, and Durham counties are within a designated maintenance area. Many types of projects are eligible under the CMAQ program including electric vehicles and charging stations, diesel engine replacements and retrofits, transit improvements, bicycle and pedestrian facilities, shared micromobility projects and more. In addition to improving air quality and reducing congestion, CMAQ projects can improve safety, and promote application of new and emerging technologies.

- Funding is then subject to the same rules and requirements as FTA 5307 formula funds.
- Funds may be used for any transit capital expenditures otherwise eligible for FTA funding as long as they have an air quality benefit.
- CMAQ funds may be used to support the initial years of BRT operations in eligible air quality nonattainment or maintenance areas. This flexibility can help agencies launch new BRT service by covering operating costs during startup and ridership ramp-up periods.
- Funding requires long-term replacement with local revenue.

SMAP State Maintenance Assistance Program - Operating Assistance

North Carolina's State Maintenance Assistance Program (SMAP) provides operating support for fixed-route transit services by helping cover the non-federal share of net operating costs. Funds are administered by NCDOT's Integrated Mobility Division (IMD) through the Unified Grant Application process and are generally allocated annually.

- This source is helpful but limited relative to BRT service costs and is best used as supplemental operating assistance.

NCDOT ConCPT Coordination Grant

The ConCPT Coordination Grant is intended to enhance coordination between two or more transit systems. Administered by NCDOT IMD, operating funding is provided for transit services where three or more public transportation grantees agree to establish formal relationships to maximize resources, gain efficiencies, and improve access to public transportation. In some cases, ConCPT projects involving two agencies instead of three or more may be approved. ConCPT funding is limited to a maximum of \$200,000 per year for each grantee involved in the coordination project.

- ConCPT could potentially offset operating costs of the Western and Southern BRT Extensions.

Local Sources

The Wake Transit Plan, which is funded through a combination of some of the local sources listed below, has allocated \$31.593 million to the Western and Southern BRT Extensions.

Local Transit Sales Tax (NCGS Chapter 105, Article 43)

The local transit half-cent sales tax authorized under North Carolina General Statutes (NCGS) Chapter 105, Article 43 is available only in Wake, Durham, Orange, and Mecklenburg Counties, unless expanded by future legislation.

- Most reliable and scalable operating funding source
- Dedicated to transit operations and service expansion
- Essential for frequent, all-day BRT service

Local County Sales Tax (NCGS Chapter 105, Article 46)

The quarter-cent county sales tax authorized under NCGS Chapter 105, Article 46 is not dedicated to transit and requires a voter referendum.

State Funds allocated by MPOs

- CAMPO Locally Administered Projects Program (LAPP)
 - Includes Surface Transportation Block Grant – Direct Attributable (STBG-DA), Transportation Alternatives Program – Direct Attributable (TAP-DA), and Congestion Mitigation for Air Quality (CMAQ) funds

- Must be used to fund NEPA/PE, Transit Capital, Right of Way Acquisition and/or Construction of a project
- TWTPO Regional Flexible Funding
 - Includes Surface Transportation Block Grant – Direct Attributable (STBG-DA), Transportation Alternatives Program – Direct Attributable (TAP-DA), Congestion Mitigation and Air Quality Direct Attributable (CMAQ-DA), and Bonus Allocation (BA)
 - Must be applied to one of the following phases: NEPA/Design, Land or Right-of-Way Acquisition, Construction (including environmental mitigation and utility relocation), Transit Capital, Travel Demand Management (TDM) Projects, Utilities, or Construction Engineering & Inspection (CEI)
 - Applicable only for the limited portion of the project occurring within Durham County at RTP

Wake Transit Plan Vehicle Taxes

The two vehicle taxes available for funding transit are already assumed by the Wake Transit Plan. The vehicle registration tax for Wake Transit includes a \$7 Wake County Vehicle Registration Tax and \$3 of the regional Vehicle Registration Tax, and the vehicle rental tax for Wake Transit is a dedicated portion of the regional 5% Vehicle Rental Tax for Wake County. The vehicle rental tax revenue assumed in the Wake Transit Financial Model is currently under discussion for removal from the Financial Model.

INNOVATIVE FUNDING SOURCES

In addition to traditional federal, state, and local funding sources, transit agencies can pursue several innovative financing strategies to bridge capital funding gaps and strengthen the long-term financial sustainability of BRT projects. These strategies include capital leasing arrangements, joint development initiatives, real property exchanges, and in-kind contributions.

Figure 28 Potential Innovative Funding Sources

Financing Strategy	Description	Typical BRT Applications	Key Benefits
Capital Leasing Arrangements	Allows transit agencies to lease facilities, vehicles, or equipment rather than purchase them outright, reducing upfront capital costs and spreading payments over time.	Maintenance facilities, park-and-ride structures, support infrastructure, vehicles or equipment	Improves cash flow; reduces upfront capital expenditures; accelerates project delivery; aligns payments with available revenue streams; preserves financial flexibility

Financing Strategy	Description	Typical BRT Applications	Key Benefits
Joint Development	Transit agencies partner with private developers to leverage surplus or station-adjacent property for transit-supportive development (TOD), generating revenue and advancing community goals.	Mixed-use TOD at BRT stations, multimodal hubs	Generates long-term revenue; increases ridership; supports housing and economic development; enhances station area vibrancy
Real Property Exchanges & In-Kind Contributions (Private Sector)	Private entities donate land or property interests to support BRT implementation, often to improve access, proximity to service, or development potential.	Station sites, access improvements, maintenance facilities	Reduces capital costs; helps close funding gaps; may count as eligible local match for federal programs (subject to valuation rules)
Real Property Exchanges & In-Kind Contributions (Public Sector)	Public land or right-of-way is made available through intergovernmental agreements, easements, or long-term use agreements rather than direct land transfer.	Use of municipal or state-owned ROW for BRT guideways and stations	Minimizes land acquisition costs; facilitates interagency coordination; accelerates project delivery
Transportation Infrastructure Finance and Innovation Act (TIFIA) Loans	TIFIA is a federal initiative designed to support major transportation projects by offering low-interest loans, loan guarantees, and lines of credit. TIFIA loans can finance up to 49% of eligible project costs and have a maximum term of 35 years with no pre-payment penalties. The interest rates are fixed and equivalent to Treasury rates, which are often lower than those found in the private market.	BRT corridor construction, station construction, bicycle and pedestrian infrastructure	Considered local match to federal grants, can fill funding gaps; however, the loan must be repaid within the repayment period with non-federal funds
Community Project Funding (Congressionally Directed Spending)	Discretionary federal funding directed by members of Congress to specific local projects through the annual appropriations process. Funds are typically administered through USDOT or FTA programs.	BRT corridor construction, station improvements, fleet electrification, safety and accessibility upgrades	Can supplement or fill gaps in traditional grant programs; flexible use for project phases or elements

EXAMPLE BRT FUNDING SOURCE DISTRIBUTION

The American Public Transportation Association (APTA) conducted interviews with small or mid-sized agencies on the funding composition of BRT projects as part of the August 2025 report *Bus Rapid Transit Program Development and Financing*. Figure 29 highlights recent examples that show a distribution of BRT funding sources.

Figure 29 APTA BRT Program Development and Financing Examples

Agency	BRT Project	Federal Share	Other Funding Sources
Chapel Hill Transit (Chapel Hill, NC)	North-South BRT	80%	Local sales tax; MPO and state funds
Transfort (Fort Collins, CO)	MAX BRT Elizabeth Corridor	67%	RAISE Grant, Low or No Emissions Grant; Parks & Rec, Transit & Climate 2050 Tax; multimodal options funding; CDOT FASTER Funds; Colorado State University Partner Funding; Xcel EV Infrastructure Funding
MCDOT (Montgomery County, MD)	Flash BRT Viers Mill Road Corridor	60%	Low or No Emissions Grant; State BRT Fund; state aid; GO Bonds; local mass transit fund
GoRaleigh (Raleigh, NC)	New Bern Corridor	50%	Local county sales tax

All listed projects utilized Small Starts CIG grants, which the Western and Southern BRT Extensions are not expected to be competitive for and thus would likely rely more heavily on state and local sources.

ADDITIONAL FUNDING CONSIDERATIONS

As the funding framework advances, several jurisdiction-specific considerations and implementation steps will need to be addressed to support successful project delivery. One such consideration involves where proposed BRT service extends into jurisdictions that do not currently participate in the dedicated Wake County transit tax, such as municipalities in Johnston County. In these cases, formal funding agreements, such as memoranda of understanding (MOUs) or memoranda of agreement (MOAs), will be required to clearly define commitments related to planning, capital investment, and ongoing operating costs. These agreements would establish how costs are shared among participating entities and ensure long-term financial support for service provided outside the existing transit tax base.

In addition, the applicability of funding sources will vary depending on whether project elements are located in urban versus rural areas, requiring careful alignment with eligibility requirements for funding programs. As project development continues, a more detailed funding plan should be prepared once funding gaps identified through this plan are better understood, including strategies to address those gaps.

Further coordination will also be necessary to define cost-sharing arrangements among Johnston County, the Town of Clayton, CAMPO, and the project sponsor (GoRaleigh), as well as reach agreement on the lead entity for future grant applications. Establishing a clear lead for grant development and submission will help ensure consistency, strengthen competitiveness for discretionary funding, and streamline coordination among partner agencies.

Successful funding will depend on aligning project development with the most appropriate funding sources, particularly for competitive federal and state programs. Clearly defining project scope, costs, phasing, and funding needs, and advancing project readiness activities such as environmental clearance, design, local match commitments, and governance agreements, will position projects to compete effectively for available funding. As funding opportunities arise, a strategic approach that matches each BRT project to the grants and programs best suited to its characteristics will be essential to supporting timely delivery and long-term operational sustainability.

6 IMPLEMENTATION

As project sponsor, GoRaleigh will continue to develop, design, and engineer the Wake BRT Extensions, building upon the results of this Concept of Operations Study. The following chapter details guidance on the implementation schedule and coordination with local partners.

IMPLEMENTATION SCHEDULE

The Southern and Western BRT Extensions are both envisioned to open for service in 2032. The key steps of completing the MIS, preparing the Concept of Operations Study, and recommending a preferred alternative have been completed. The immediate next step following this study is to begin the Wake Transit Concurrence Process, as well as bring the Locally Preferred Alternative (LPA) to be adopted by necessary governing bodies. To achieve an opening year of 2032, several additional milestones should be completed in the timeframes identified in Figure 30. Once design is underway, these milestones should be verified, and the schedule should be updated. This schedule assumes the BRT extensions will not be funded through the FTA CIG process, which would require additional steps not included in this schedule. Because the corridors cross multiple jurisdictions and include state facilities, close interagency coordination will be required throughout design, NEPA, and construction, which may influence milestone durations and the anticipated opening year.

Figure 30 Southern and Western BRT Extensions Implementation Schedule

Milestone	Timeframe
MIS Completed	Spring 2023
Concept of Operations Study Completed	Summer 2026
Locally Preferred Alternative (LPA) Selected	Summer 2026
Design and NEPA	2027 – 2029
Right-of-Way Acquisition	2029 – 2030
Construction	2030 – 2032
Revenue Service	2032

Design and NEPA

Design is anticipated to begin in 2027 and during the design process, the locations of queue jumps, TSP, any BOSS segments, and stations will be refined and confirmed based on additional information from traffic analysis, available right-of-way, and site conditions. The design process will follow the typical 30%, 60%, 90%, and 100% milestones. Close

coordination including multidisciplinary design reviews with the municipalities, counties, and NCDOT will be needed. It is also critical to identify third-party agreements that will be necessary for the construction and operation of the BRT extensions.

The National Environmental Policy Act (NEPA) is the primary law governing the environmental review process for all federal agencies. NEPA requires a process to consider reasonably foreseeable environmental, social, and economic impacts before carrying out a major project. Environmental review, documentation, and public involvement requirements for complying with NEPA vary depending on the type of project and the significance of the project's potential impacts. The NEPA process will be closely coordinated throughout the design process.

Right-of-Way Acquisition

The Southern and Western BRT Extensions have been planned to minimize the need for additional right-of-way acquisition. However, there may be locations where additional right-of-way is required to accommodate stations or transit priority treatments. Temporary construction easements may be needed when additional area is temporarily needed for accessing a site or the staging or storing of equipment during construction. Once design has reached the 60% milestone, permanent right-of-way acquisitions and temporary easements can be identified. Right-of-way acquisition must be completed prior to starting construction.

Construction

Currently no design has been completed so the construction schedule is unknown. However, based on previous experience on similar scale projects, construction for both extensions is anticipated to take approximately two years, occurring simultaneously. Once design begins and the extent of the construction is better determined this schedule should be verified and updated. The project sponsor may split the corridors into separate construction packages or create construction packages by discipline (e.g. roadways, stations) to expedite construction. During the construction period, the operator will need to initiate vehicle procurement given the long lead times typical for buses. In this project phase, Intelligent Transportation Systems (ITS) including TSP and communications systems will need to be integrated, tested, and accepted.

Revenue Service

Prior to opening the BRT extensions for revenue service, the operating agency will need to test the new vehicles, systems equipment, and stations as well as train bus operators. If the agency contracts with a private operator for their service, they will need to update their contract to include BRT Extension operations. The operator will also need to prepare a public

education campaign, publish route schedules and provide updated information for the new BRT service.

COORDINATION AND LOCAL INVESTMENTS

While GoRaleigh is the project sponsor and will design and build the BRT Extensions, continued coordination with local partners and NCDOT will be needed to ensure the success of this project.

Improving Access to Transit

While some funding for pedestrian improvements has been included as a part of the BRT Extension station costs, further improvements to the pedestrian and biking environment are needed beyond the immediate station area to ensure that riders can safely get to and from BRT stations on both sides of the street. As the Towns of Garner, Clayton, Cary, and Morrisville and RTP plan for future transportation investments, connections to BRT stations should be prioritized.

Local transit services, such as the Morrisville Smart Shuttle, RTP Connect, GoRaleigh Route 20 in Garner, and all GoCary routes should be well coordinated with the proposed BRT service and stations. Additionally, new local transit services should be explored to expand the reach of the BRT service in the following locations:

- Downtown Clayton, to connect to the Clayton Blvd at Robertson St and/or Clayton Blvd at Main St stations
- White Oak Crossing, to connect the vast shopping area to the White Oak Crossing station
- Perimeter Park, to connect the job sites to the future infill Perimeter Park station

Tracking Future Projects and Developments

Wake County and Clayton are growing, with many new developments under construction or planned. Transit Oriented Development (TOD) planning for each of the partner municipalities should continue to take the planned BRT stations into consideration, as there may be opportunities to work with developers to site and build the BRT stations in a way that is integrated with the new developments.

NCDOT also has plans for roadway expansion throughout the service area, including on US 70, US 401, and NC 54. The planning for these projects should keep the BRT service in mind,

finding opportunities to add transit priority and pedestrian improvements alongside the roadway expansion.



Wake Transit BRT System Guidelines

January 2026

GO FORWARD

A COMMUNITY INVESTMENT IN TRANSIT



NC Capital Area Metropolitan Planning Organization



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GLOSSARY/LIST OF ABBREVIATIONS

AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
APS	Automated Pedestrian Signals
APTA	American Public Transit Association
AV/CV	Automated and Connected Vehicles
AVL	Automatic Vehicle Location
BAT	Business Access and Transit
BRT	Bus Rapid Transit
CAD	Computer-Aided Dispatch
CIG	Capital Investment Grants
CCTV	Closed-Circuit Television
CMS	Central Management Software
CNG	Compressed Natural Gas
FTA	Federal Transit Administration
GPS	Global Positioning System
GSI	Green Stormwater Infrastructure
mph	Miles Per Hour
MUTCD	Manual on Uniform Traffic Control Devices
NACTO	National Association of City Transportation Officials
NCDOT	North Carolina Department of Transportation
NCHRP	National Cooperative Highway Research Program
NEPA	National Environmental Policy Act
PAR	Pedestrian Access Route
RFID	Radio-Frequency Identification
SEPA	North Carolina State Environmental Policy Act
TCE	Temporary Construction Easement
TOD	Transit-Oriented Development
TSP	Transit Signal Priority
TVM	Ticket Vending Machine

1 INTRODUCTION

In 2016, Wake County voters approved a plan for focused investment in public transit, putting the implementation of the Wake County Transit Plan in motion. The original plan calls for building approximately 20 miles of transit lanes along four bus rapid transit (BRT) corridors within Wake County, to be implemented and operated by the City of Raleigh. These corridors comprise the current planned Wake BRT system. This document is an update to the basis of design for the Wake BRT system and has been prepared in collaboration with project partners including the City of Raleigh, Town of Cary, Town of Clayton, Town of Morrisville, GoTriangle, Research Triangle Foundation, Regional Transportation Alliance, Capital Area Metropolitan Planning Organization (CAMPO), North Carolina Department of Transportation (NCDOT), and other regional planning partners. Additional BRT corridor extensions in the region are currently being studied, including the Western Corridor and Southern Corridor BRT extensions. Any future BRT extensions will be evaluated based on service characteristics for the inclusion into the Wake BRT system. The purpose of this document is to establish design guidelines and criteria that would be used for Wake BRT corridors, addressing factors that may affect the design of BRT and incorporating best practices for BRT implementation.

These design guidelines include:

- Station Spacing and Sitting
- Station Facilities
- Roadway
- Stormwater
- Technology
- BRT Fleet and Vehicles
- Identity and Branding
- Service Operations
- Design Considerations for Federal Funding

INTENDED AUDIENCE

This guide is intended to aid project stakeholders and design teams in planning and developing BRT facilities funded through the Wake Transit Plan. As design standards become more established within the Wake BRT system, current and future BRT project stakeholders may benefit from this guide as well, including design consultants, contractors, developers, public works administrators, and neighborhood and community organizations and leaders.

HOW TO USE THE GUIDE

This document establishes guidelines to be used for the four planned BRT corridors to be implemented and operated by the City of Raleigh (listed in [Section 2: Existing Conditions](#)) as well as planned BRT extensions that may be operated by additional project sponsors. This document includes facility descriptions, graphic renderings, design diagrams, and technical drawings to help illustrate how various BRT transit facilities should be designed. The graphics and tables included herein have been created to align with the region's transit vision and assist in accommodating the interests and needs of the various communities BRT would serve. While the establishment of System Guidelines provides consistency in operations and user experience, design flexibility is often needed to work within a given environment. As new design standards are developed, this guide should be updated accordingly.

Additional documents are available that describe various policies, procedures, and design standards applied by jurisdictions in the Wake County transit service area. These include, but are not limited to:

- Americans with Disabilities Act (ADA) Requirements
- American Association of State Highway and Transportation Officials (AASHTO) *A Policy on Geometric Design of Highways and Streets*
- American Public Transit Association (APTA) BRT Design Standards
- APTA BRT Branding, Imaging and Marketing
- Town of Cary Standard Specifications
- Town of Garner Standards
- City of Raleigh Street Design Manual
- National Association of City Transportation Officials (NACTO) Transit Street Design Guide
- National Cooperative Highway Research Program (NCHRP) Reports
- Manual on Uniform Traffic Control Devices (MUTCD)
- The National Environmental Policy Act¹ (NEPA)
- North Carolina State Environmental Policy Act² (SEPA)
- North Carolina Department of Transportation (NCDOT) Roadway Design Manual
- Title VI³ of the Civil Rights Act

These resources are referenced within these guidelines where applicable. Additionally, each jurisdiction in Wake County has individual permitting procedures and requirements governing use

¹ Federal Transit Administration NEPA overview: <https://www.transit.dot.gov/regulations-and-guidance/environmental-programs/national-environmental-policy-act>

² North Carolina Department of Environmental Quality SEPA overview: <https://deq.nc.gov/permits-regulations/sepa>

³ FTA Title VI guidance: <https://www.transit.dot.gov/regulations-and-guidance/civil-rights-ada/title-vi-guidance>

and development of private property as well as the public right-of-way. The BRT project sponsor will work with each jurisdiction to ensure compliance with permitting requirements for each project.

BUS RAPID TRANSIT OVERVIEW

BRT is defined by the Federal Transit Administration (FTA) as high-capacity bus-based transit that delivers fast and efficient service. BRT may include dedicated lanes, busways, transit signal priority, off-board fare collection, elevated platforms, and enhanced stations. BRT has several distinguishing features, described in greater detail throughout this guide.⁴

Dedicated Bus Lanes

BRT buses operate primarily in their own lane in traffic. Dedicated lanes prevent traffic delays even during rush hour, and they reduce the risk of collisions between buses and other vehicles, increasing safety for all road users.



Transit Signal Priority

BRT buses can coordinate with traffic signals along the route to extend green lights and shorten red lights, reducing the amount of time buses spend idling at traffic lights. This increases service speed and reliability.



Frequent, On-Time Service

With dedicated lanes and less frequent stops, BRT buses are better able to adhere to their posted schedules. BRT buses should also have onboard real-time location information so stations can display live, accurate, updates for bus arrival time. BRT service is planned to operate with 10-minute peak frequency and matching or exceeding fixed-route frequencies at all other times.



Off-Board and All-Door Fare Collection

Passengers should purchase physical fare media at stations instead of on the bus, speeding up boarding and reducing dwell time at stations. Passengers should be able to validate physical fare media or mobile app codes at all doors of the BRT vehicle to decrease boarding times. Cash should not be accepted on board BRT buses. BRT fares should be the same as the project sponsor's fixed route fares. In the future, local transit systems



⁴ BRT Icons: <https://raleighnc.gov/services/transit-streets-and-sidewalks/what-bus-rapid-transit-brt>

may be able to accept open payment through contactless cards or mobile wallets.

Enhanced Stations

BRT stations should include improvements to ticketing, scheduling information, and boarding to enhance the passenger experience. Stations should also have raised platforms that reduce or eliminate the gap between the station and the bus, making boarding easier, quicker, and more accessible for all passengers – including those using mobility devices.



Specialized Vehicles

Wake BRT should utilize custom 60' articulated buses with higher seat and mobility device capacity than the buses typically used on local routes. BRT vehicles should also have doors on both sides and lower floors to allow for easier boarding.



Unique Branding

Wake BRT should have its own unique branding to make buses and stations more visible and help passengers distinguish between BRT and other transit services.



BRT SERVICE TYPES

For the purposes of these guidelines, BRT service is categorized as either Urban BRT or Arterial BRT. As corridors evolve, BRT may change from Arterial BRT to Urban BRT as frequencies increase and additional projects are implemented to achieve the minimum dedicated guideway threshold.

Urban BRT

Urban BRT is characterized by at least 50% dedicated guideway, TSP at all signalized intersections, enhanced stations, unique BRT branding, specialized 60-foot buses with left and right side doors, and peak frequencies of at least 10 minutes.

Arterial BRT

Arterial BRT is characterized by less than 50% dedicated guideway, TSP, enhanced stations, unique BRT branding, and ideal peak frequencies of at least 10 to 15 minutes, although 20 or 30 minute frequency may be initially implemented for longer or more rural corridors. Service is operated by

specialized 60-foot buses or 40-foot buses. Typically, the land use and ridership contexts for Arterial BRT corridors vary from those of the Urban BRT.

IMPLEMENTING SYSTEM GUIDELINES

Every transit facility project is designed within the context of its physical space. Facilities are designed to reduce long-term maintenance demand and with passenger safety and comfort in mind. Facilities should also promote safe, efficient, and reliable transit service. To achieve that goal, this document contains guidelines that serve as a starting point for design development.

Variations from Guidelines

The Wake BRT System Guidelines are intended to apply to all BRT projects that receive capital and/or operational funding through the Wake Transit Plan for consistency in design, operation, and rider experience. However, each BRT corridor is unique, so these guidelines have been developed with flexibility, differentiating between requirements, recommendations, and optional elements. Even with this flexibility, there may be circumstances where deviations are needed from these guidelines to address site-specific conditions.

In these cases, the project sponsor is required to complete a written memorandum detailing the requested variance and present the application to the Transit Planning Advisory Committee (TPAC) for consideration and approval. The memorandum should clearly reference the Wake BRT System guideline and detail the requested variance. The reason(s) for the requested variance should be articulated with excerpts and citations to any applicable roadway standards triggering the variance. Furthermore, supporting documentation in the form of maps and plan sheets should be included with the memorandum.

The TPAC discussion and decision regarding the variance will be documented in the meeting minutes. The TPAC will attach an excerpt from the meeting minutes of the variance agenda item to the project sponsor's memorandum and transmit the package to the project sponsor for their records. Lastly, the TPAC will maintain a log of requested variances and their outcomes to be used in the regular review and update of the Wake BRT System Guidelines.

Coordination with Overlapping Projects

To effectively plan, design, and construct intersection and guideway improvements, particularly supporting pedestrian infrastructure, planned roadway projects should be identified and evaluated. It is more efficient and cost effective to incorporate elements such as TSP, queue jumps, sidewalk segments, and crosswalks into transportation projects planned for the BRT corridors. It is also critical that the other roadway projects are designed to not preclude these elements required for future BRT service. These elements not only support BRT service, but they also address the safety and connectivity of all roadway users. For example, TSP improves response times for emergency responders in addition to improving transit reliability and speed. Strong collaboration is needed between the local NCDOT divisions, NCDOT Integrated Mobility Division, NCDOT Transportation

Mobility and Safety Division, CAMPO, transit agencies, and municipalities, facilitated through regular meetings and the NCDOT Complete Streets process.

Third-Party Agreements

The term third-party agreement refers to those agreements entered into by the project sponsor with an outside party (i.e. NCDOT, municipalities, utility companies, other transit agencies, etc.) that are necessary to facilitate the financing, design, permitting, construction, or operation and maintenance of a capital project. Each BRT project will require specific third-party agreements based on the project sponsor, funding requirements, utility impacts, right-of-way ownership, jurisdiction, operating agency, etc. For example, any BRT project operating on a road owned or maintained by NCDOT will require third-party agreements between the project sponsor and NCDOT.

Failure to timely execute critical third-party agreements is highly likely to cause changes to the project's baseline scope, budget, and schedule. The lack of executed agreements may slow the progress of design, impede the start or progress of project construction, delay start-up, or interrupt operations. Verifying the execution of critical third-party agreements is an important part of successfully implementing BRT projects and should be addressed as early as possible for each corridor.

REGULAR UPDATING OF THE GUIDELINES

As additional BRT corridors in the region are designed, constructed, and operated and industry guidance evolves, it is important to regularly review and update these guidelines at least once every three years. TPAC will oversee the review, update, and adoption of the guidelines with collaboration from BRT project sponsors and operators in the region. As part of the regular update process, TPAC will review:

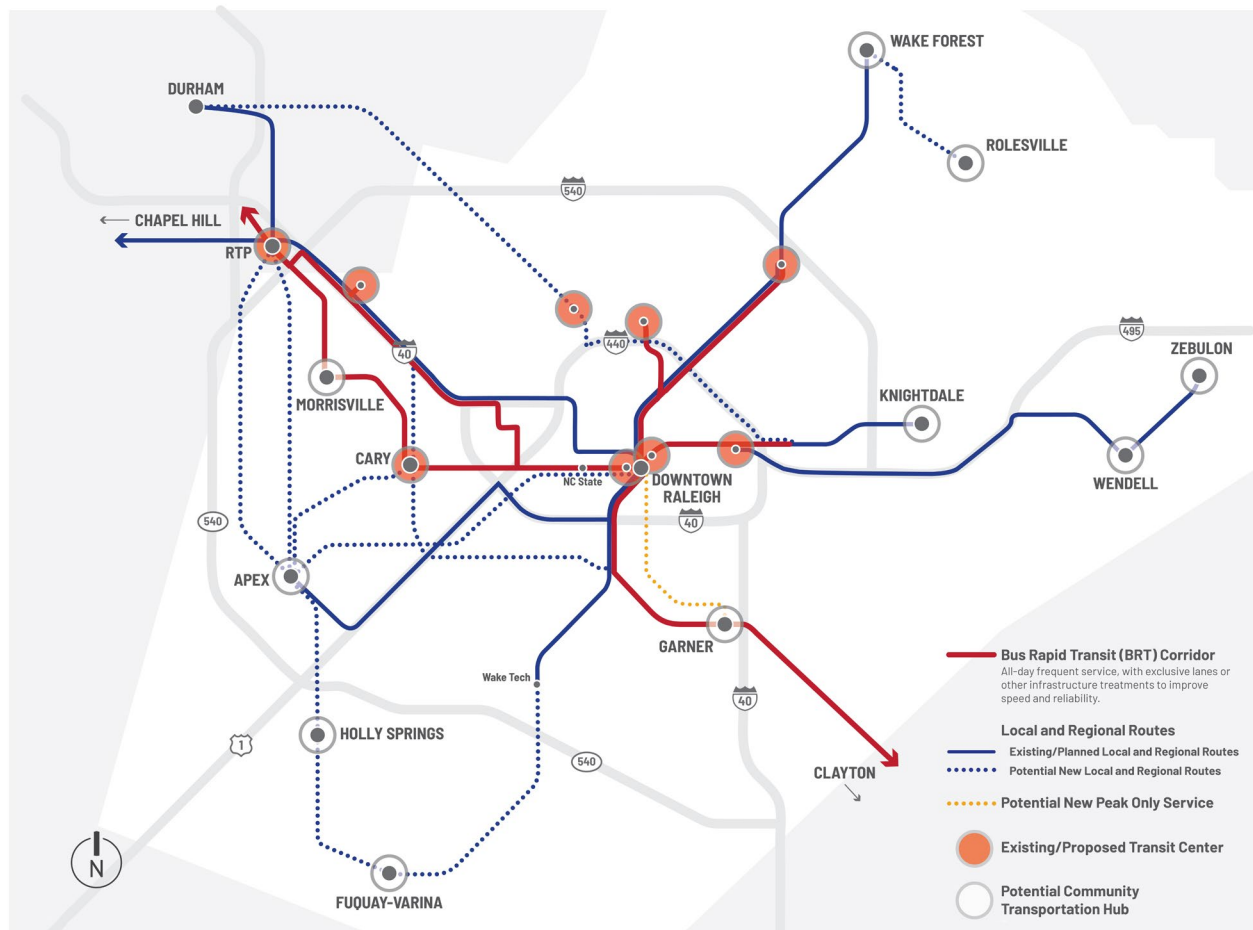
- Variances from the past three years to identify specific guidelines that may require revision
- Updates to NCDOT Roadway Design Manual
- Updates to municipal street specifications and standards
- Revised or new guidance from national organizations such as AASHTO, APTA, NACTO, and NCHRP

2 EXISTING CONDITIONS

LAND USE AND DEVELOPMENT

Figure 2.1 above shows proposed BRT corridors to be implemented and operated by the City of Raleigh in a variety of land use contexts, including residential, commercial, institutional, and mixed-use areas, as well as downtown Raleigh, industrial centers, and healthcare facilities. Vacant or undeveloped lots may also be adjacent to Wake BRT routes and/or stations. Land use patterns shape station nodes and impact pedestrian traffic and the transit environment. These patterns should be considered when selecting lighting, determining the placement and type of station elements including pedestrian/bicycle access and various safety measures. Stations and support facilities should aesthetically and functionally complement the character of their surroundings within the common design kit of parts, should be designed to take advantage of existing attractive site features and be compatible with surrounding land uses and development. Where consistent with land use policies, stations can form the nucleus for transit-oriented development.

Figure 2.1 Wake County BRT Corridor Map



ROADWAYS

Roadway classifications are determined using the appropriate municipal and state roadway design manuals. Arterial BRT corridors would most often operate on major streets, including 4 and 6-lane avenues, one and two-way, and divided or undivided. Each classification of roadway has specific requirements for design speeds, right-of-way width, curb radii, and other standards. The following corridors are currently planned for BRT service in Wake County.

WAKE BRT PROJECTS

New Bern BRT

Heading east, this route begins in downtown Raleigh, continues past the WakeMed Raleigh Campus, and terminates in a low-density commercial and industrial area past Interstate 440.

Figure 2.2 WakeMed Campus⁵



⁵ WakeMed Image: <https://www.wakemed.org/>

Northern BRT

This route follows Capital Boulevard or West Street from downtown Raleigh to Crabtree Boulevard. Final routing is yet to be determined at the time of this writing.

Figure 2.3 William Peace University⁶



Western BRT

Heading west, this route would follow Western Boulevard to Cary Towne Boulevard (via a new roadway extension), Maynard Road and terminate at the Downtown Cary Multi-Modal Center.

Figure 2.4 North Carolina State University Campus⁷



⁶ William Peace University Image: <https://peace.edu/academics/academic-resources/core-curriculum/>

⁷ North Carolina State University Image: <https://magazine.cals.ncsu.edu/the-power-of-giving-entrepreneur-and-philanthropist-and-cals-alum-carroll-joyner/>

Southern BRT

The northern portion of this route would use South Wilmington Street, while the southern piece would use the S Wilmington Street extension (by new roadway construction).

Figure 2.5 Martin Marietta Center for the Performing Arts⁸



Western and Southern BRT Extensions

The original Wake Transit Plan in 2016 identified the above four corridors for BRT investments. Since then, further studies have identified two additional corridor extensions. The Western BRT Extension would extend the Western BRT from Cary to Research Triangle Park (RTP). The Southern BRT Extension would extend the Southern BRT from Garner to Clayton and Johnston County.

⁸ Martin Marietta Center for the Performing Arts Image: <https://www.visitraleigh.com/listing/martin-marietta-center-for-the-performing-arts/57123/>

LAND USE CONTEXT

Planned BRT corridors in Wake County include a wide array of adjacent land use context. Land uses include high- to low-density residential and commercial areas as well as light industrial areas. Routes also serve institutional uses such as primary and secondary schools, colleges and universities, and hospitals.

High Density

High density land uses along BRT corridors are typically located in activity centers with high pedestrian volumes, such as downtown. Transit facilities in these areas would require high levels of access and circulation as they often can experience the highest ridership levels on the corridor. Right-of-way can be limited with vertical adjustments constrained. Stations must be designed to maximize pedestrian movements and limit adverse impacts on storefront businesses. A high-density land use is shown below in **Figure 2.6**.

Figure 2.6 High Density Land Use Example⁹



⁹ High Density Land Use: <https://www.bing.com/maps>

Moderate Density

Moderate density land uses along BRT corridors are typically located in areas just outside activity centers and often in predominantly residential or commercial areas. More space for transit facilities is available than in high density areas, but increased traffic speeds and reduced pedestrian activity may impact the implementation of BRT stations and exclusive runningways. An example of moderate density land use is shown below in **Figure 2.7**.

Figure 2.7 Moderate Density Land Use Example on New Bern Avenue in Raleigh



Low Density

Low density land uses along BRT corridors are typically located in areas farther from activity centers with lower pedestrian volumes. Right-of-way tends to be less constrained, but low pedestrian volumes can reduce need for BRT exclusive stations and runningways. Low density locations often contain higher speed segments. Stations may require additional setbacks from roadways, constraining platform element placement. A low-density land use example is shown below in **Figure 2.8**.

Figure 2.8 Low Density Land Use Example¹⁰



¹⁰ Low Density Land Use: <https://www.google.com/maps/@35.7977859,-78.5772489,3a,75y,65.63h,89.18t/data=!3m6!1e1!3m4!1srH6nSU5pEWxXqZLLoCe7Dg!2e0!7i16384!8i8192>

3 STATION SPACING AND SITING

STATION SPACING

BRT stop spacing seeks to balance speed and access. Speed is prioritized to ensure that BRT is an attractive service for transit users and competitive with driving. Fewer stops allow for faster travel but also reduce the number of destinations within a short walk of a stop. **Table 3.1** below indicates general guidelines for application of Urban and Arterial BRT stop spacing and proportion of dedicated transit runningway based on surrounding land use context. These are approximate distances recommended between stations. Station placement depends on the guideway location, station locations, intersection conditions, right-of-way impacts, vehicle type, etc.

A BRT stop is defined as a single platform in one direction of travel. Closer stop spacing is warranted in moderate to high-density areas with more trip generators, while in lower-density areas, speed is prioritized to ensure that BRT is an attractive alternative to driving. Moderate to high density areas are those with at least ten residents and jobs per acre, and low-density areas have less than ten people and jobs per acre.

The core distinction between Urban BRT and Arterial BRT is the number of dedicated guideways. For Urban BRT, at least 50% of the corridor should be in dedicated BRT lanes. While there is no minimum percentage established for Arterial BRT, dedicated guideway should be considered in targeted sections of the corridor where speed and reliability can be enhanced for the BRT vehicles and BRT travel time can be decreased.

Table 3.1 Station Spacing

Stop Spacing	Moderate to High Density (≥10 people and jobs per acre)	Low Density (<10 people and jobs per acre)
Minimum stop spacing	0.5 miles	1 mile
Maximum stops per mile	2	1
Dedicated Runningway		
Urban BRT Minimum percentage of all-day dedicated runningway	50%	N/A*
Arterial BRT Minimum percentage of all-day dedicated runningway	No minimum, but encouraged	No minimum, but encouraged

*Implementation of dedicated runningway for low-density segments would be context sensitive. Benefit/Cost analysis is recommended.

STATION SITING

After the general location for a BRT station is identified through the corridor planning process, several factors influence the specific location of station platforms, including right-of-way needs, public input, adjacent property/business access, population and job density, community destinations,

land use and (re)development potential, connecting transit routes, and nearby pedestrian and bicycle infrastructure.

STATION ORIENTATION

Five different station orientation categories, as referenced by NACTO¹¹¹²¹³, are used for station design. Each orientation describes the location context based on the roadway itself, as well as physical limitations or contexts. These categories are not mutually exclusive, as near-side, far-side, and mid-block describe proximity to an intersection, while split island and shared island stations reference the roadway layout.

Near Side

Near-side stations are described by platforms that are placed on the close side of the intersection to the direction of travel. Near-side stations allow for the bus to pull up to the station while in traffic prior to the intersection signal. If a bus pulls into the station during a green light cycle, allowing for boarding time, it may have to wait until the next cycle to proceed through the intersection. Limited transit signal priority (TSP) advantages can be implemented in this configuration. **Figure 3.1** shows a schematic of a near-side station in relation to an intersection along the BRT corridor.

Figure 3.1 Near Side Station¹⁴



¹¹ Near-Side, Far-Side, Mid-Block: <https://nacto.org/publication/transit-street-design-guide/stations-stops/stop-design-factors/stop-placement-intersection-configuration/>

¹² Split Island: <https://nacto.org/publication/transit-street-design-guide/stations-stops/stop-configurations/in-street-boarding-island-stop/>

¹³ Shared Island: <https://nacto.org/publication/transit-street-design-guide/stations-stops/stop-configurations/median-stop-left-side-boarding/>

¹⁴ Station Siting Graphic: <https://nacto.org/publication/transit-street-design-guide/stations-stops/stop-design-factors/stop-placement-intersection-configuration/>

Far Side

A far-side station is placed on the distant side of the intersection from the direction of traffic. These stations allow for buses to travel through the intersection before boarding. Additionally, if TSP is implemented, far-side stops allow buses to travel through the intersection during a green light, stop at the BRT platform, and depart without additional delay. **Figure 3.2** shows a schematic of a far-side station in relation to an intersection along the BRT corridor.

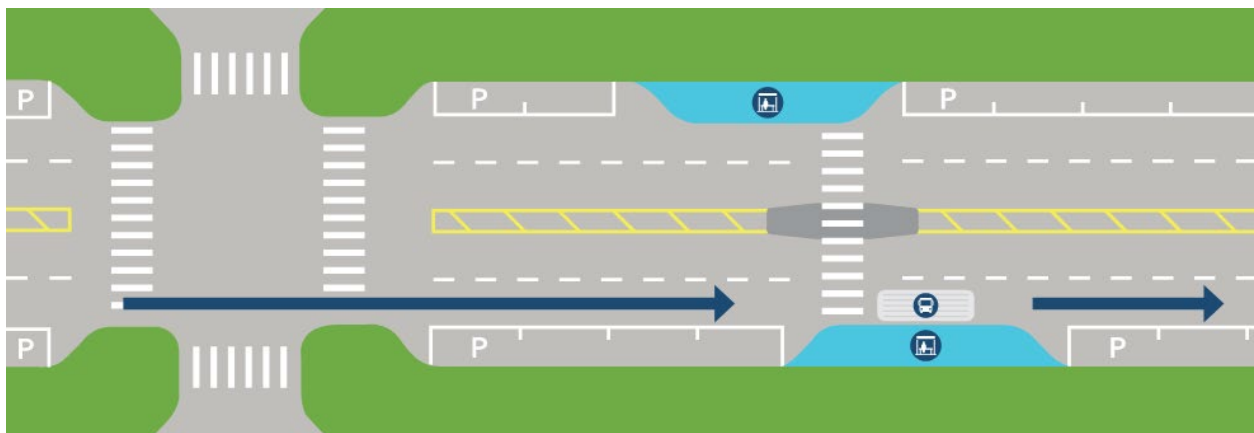
Figure 3.2 Far Side Station



Mid-Block

Mid-block stations are located at a distance between intersections when the station is unable to be placed near intersections due to driveway access, on-street parking, or other operational safety concerns near the intersection. Mid-block stations ideally still allow for nearby access to key destinations. However, due to their greater distance from pedestrian roadway crossings, mid-block stations are typically proposed only where near-intersection platforms are not feasible, or where mid-block pedestrian crossing facilities are warranted. **Figure 3.3** shows the schematic of a mid-block station in relation to an intersection along the BRT corridor.

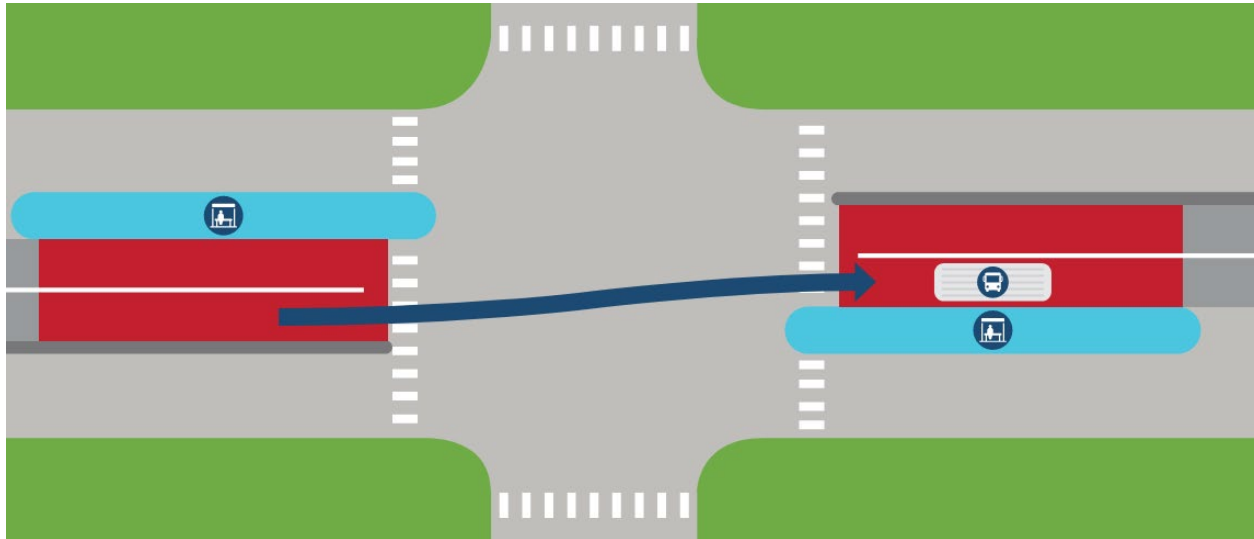
Figure 3.3 Mid-Block Station



Split Island

Split island stations are placed in the median of a dedicated transitway. With through traffic at the back edge of the platform, a protective edge behind the platform must be implemented to ensure the security of waiting passengers. Split island stations are typically associated with dedicated transitway roadway configurations. **Figure 3.4** shows the schematic of a split island station in relation to an intersection along the BRT corridor.

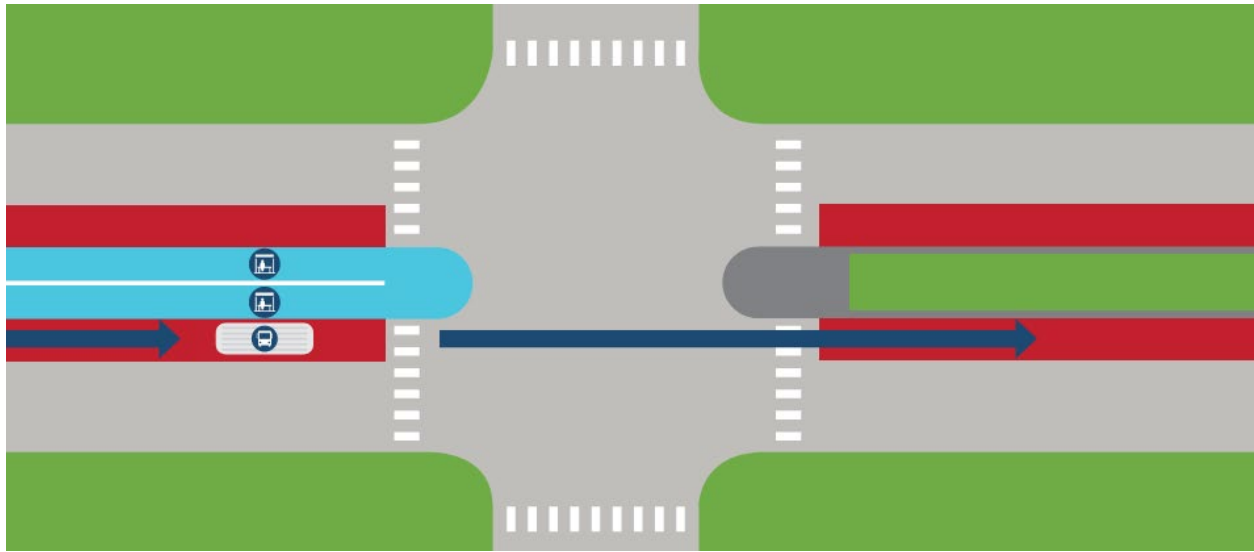
Figure 3.4 Split Island Station



Shared Island

Shared island stations are placed where transit routes require high capacity stops and have adequate right-of-way available to allow for both median-adjacent transit stops as well as passenger waiting space for a bi-directional platform. Sufficient passenger capacity and adequate rider pedestrian access are the primary considerations for this type of station. Buses are required to have left-boarding doors for this configuration. **Figure 3.5** shows the schematic of a shared island station in relation to an intersection along the BRT corridor.

Figure 3.5 Shared Island Station



Factors Influencing Station Orientation

The context of a station site influences where the station should be located. Far-side platforms are generally preferable from an operational standpoint, optimizing the potential for TSP to enable a bus to pass through an intersection without delay, and reducing dwell times after boarding. However, there are situations in which near side platforms better meet operational needs. In some cases, a mid-block platform may be appropriate when intersection-adjacent sites do not allow for adequate platform length.

Other factors that are considered in selecting a station site include the location of utilities, vertical roadway elements, access from local streets, and whether pedestrian guideway elements such as fencing or vertical separations would be needed for safety or other purposes. Space needs for the travel lane, curb and gutter, clear zone, through zone, furnishing zone, and tactile platform edge must also be accounted for during station site selection. When necessary, due to constrained right-of-way, this evaluation should also consider the possibility for a through zone combination with the clear zone. Full descriptions of each zone in the platform area can be found in the station facilities section.

4 STATION FACILITIES

BRT stations should include branding and as many consistent elements as possible to enhance the ease of the rider's experience. The ability to include elements will depend on site-specific conditions such as available right-of-way, topography, etc. At a minimum, all Urban BRT and Arterial BRT stations should include the elements identified in **Table 4.1**.

Table 4.1 Station Elements

Required Station Elements	Urban BRT	Arterial BRT
Shelter with seating	•	•
Trash and recycling receptacles	•	•
Bicycle racks	•	•
Lighting	•	•

In addition to these required station elements, the following elements are recommended at all BRT stations when possible:

- Raised Platform
- Reserved space and signage for micromobility parking

Raised platforms are desired but may not be feasible due to site-specific constraints.

PLATFORMS

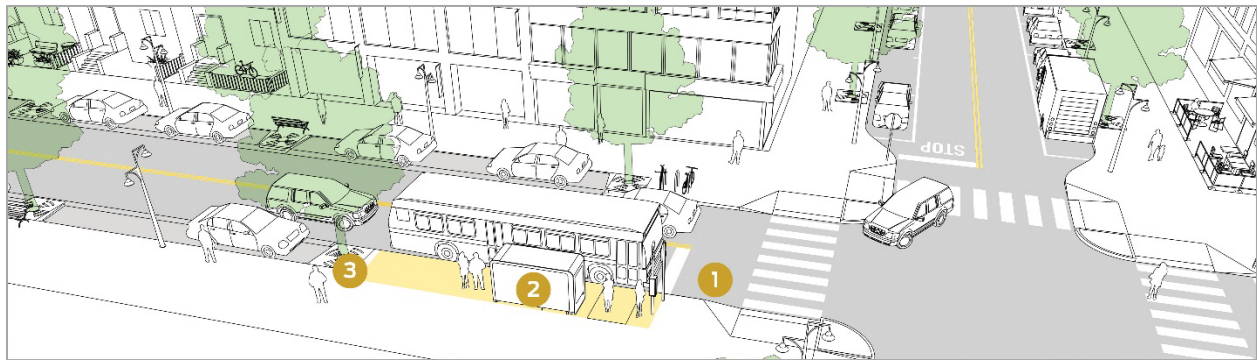
Stations must serve users efficiently, safely, conveniently, and comfortably. Station design should be compatible with the station's surrounding environment and reflective of the regional context and branding.

Stations should be standardized to the fullest extent, practical to provide a consistent experience. This is essential for ensuring accessibility for all users. Standard graphical information systems are especially important. Some design elements can be modified based on ridership and neighborhood setting.

Configuration

There are several configuration types that would be used in Wake BRT. Stations can be located curbside, on a curbside island, or on a median island. Curb configurations occur on the edges of the mainline rather than the middle, like the medians. Islands describe where the platform is separated from the sidewalk by either vehicle or bicycle traffic lanes. Bus bulbs are curb extensions that align the bus stop with the parking lane, allowing buses to stop and board passengers without leaving the travel lane (**Figure 4.1**). Bus bulbs help buses move faster and more reliably by decreasing the amount of time lost when merging in and out of traffic.

Figure 4.1 Bus Bulbs



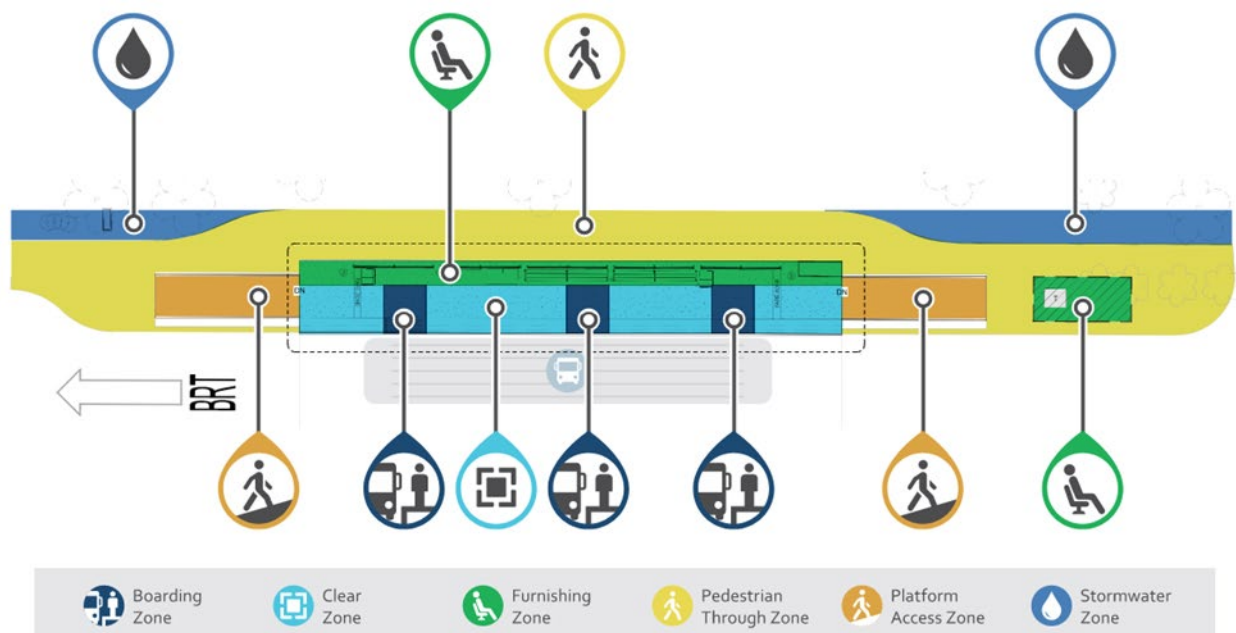
Source: NACTO Transit Street Design Guide

Level boarding (14" tall platforms for the proposed New Flyer 60-foot articulated vehicles) should be provided at all platforms to the fullest extent possible. Level boarding should be provided at all stations where possible and the platform height should be determined based on the vehicle type that will serve that station. Where level boarding is not feasible due to site constraints, individuals with disabilities may board the BRT vehicle by using a deployable bridge plate spanning the gap between the bus and the platform.

PLATFORM ZONES

Platform zones are specific areas at a station dedicated for different uses, such as boarding, drainage, walking, etc. These areas are distinguished for both design and practical applications. All platforms should include the following zones, as shown in **Figure 4.2**.

Figure 4.2 Station Zones



Furnishing Zone



The furnishing zone at the back of the platform includes permanent furniture items at the station such as seating, ticket vending, and waste disposal. Spanning the length of the platform, riders would use this zone for waiting, ticket vending, and disposing of waste. This zone is generally about 3 feet in depth and does not interfere with other pedestrian zones described below. Additionally, a furnishing zone will be included adjacent to the platform to accommodate bike parking.

Clear Zone



This area describes the defined area where passengers wait to board and alight the bus. This zone should have adequate access from pedestrian sidewalks and trails adjacent to the platform. Detectable warning strips are located within the clear zone along the curbside edge of the platform. Waiting passengers should not enter the detectable warning area unless boarding or alighting the bus. Furniture, landscaping, and other vertical elements should not be placed here. This zone is not to be confused with the “traversable clear zones” required by the North Carolina Department of Transportation (NCDOT) adjacent to highway travel lanes where there are no fixed hazards (such as trees or non-breakaway structures).

Boarding Zone



To improve consistency in ridership experience, a boarding zone should be explicitly established within the clear zone at each station to indicate to riders where they should enter the bus. The purpose of specifically and visually defining the areas in which riders would board helps to improve rider organization and understanding of the boarding process at each station. Though there would be multiple doors to board the bus, certain doors should be specified for different ridership experiences. The front door (mid-way along the vehicle for left-door boarding stations) should be the established point for wheelchair boarding and the back door should be the established point for bicyclist boarding. The boarding zone cross slope should not exceed 2% to meet ADA requirements. All doors should be indicated by station markings for operational consistency.

Pedestrian Through Zone



The pedestrian through zone provides continuous access through the station area. Located behind the station platform, this zone should feature a clearly designated pedestrian access route (PAR) and allow pedestrian traffic to travel uninhibited by the BRT platform and BRT riders. Depending on the station type, there should be several locations in which pedestrians would be able to exit the pedestrian through zone to enter the platform itself.

Platform Access Zone



The platform access zone describes the ramps on either side of the platform on which pedestrians would enter the station area. The zone contains ADA accessible ramps and railings, allowing all riders to access the station without obstacles.

Stormwater Zone



The stormwater zone indicates the area in which landscaping features are placed to collect runoff from the shelter, platform, and adjacent walkways and assist in drainage infiltration purposes. This area is not meant to be used by riders.

Ramps

All station ramps must adhere to ADA standards. However, each station has more specific dimensions depending on the configuration. Across all types, ramp lengths are typically 10 feet with a 6-foot minimum landing per ADA standards when required, but many stations require longer ramp dimensions for slope criteria. Ramp widths are typically 8 feet including railing foundations with larger widths occurring at stations with available space.

Surface and Edge Treatments

Surface and edge treatments should be placed along the full length of the platform with varied coloration at boarding zones. All platform surfaces should be non-skid and use durable, weather-resistant materials. The tactile warning plates at the platform edge must be fabricated with high-strength concrete, urethane, or other approved materials. The plate must accept the deployable ramp of a BRT vehicle if it is used and be sufficiently textured to be detected by users with visual impairments without impeding passage for wheelchairs. Tactile warning plates must be compliant with ADA requirements, which currently stipulate a width of 24 inches from the clear zone on tangent or curved platforms. A potential example of a tactile surface used on a station is shown below in **Figure 4.3**.

Figure 4.3 Tactile Warning Plate Example¹⁵



STATION TYPOLOGIES

Typologies have been developed with references to both land use contexts and station orientations. Land use context, discussed in Section 2. Existing Conditions impact the typology choice by providing the setting for the station. High density uses tend to have station typologies that are designed for more compact spaces or higher pedestrian counts. Low density uses typically are prescribed station types that allow for pull-outs or do not have as much pedestrian space. Each typology has different configurations, dimensional specifications, amenities, and uses, among other criteria. **Table 4.2** shows a detailed description of the typologies. **Figure 4.4** depicts a typical station amenities layout and **Figure 4.5** shows typical station dimensions. Variations from the dimensions in **Table 4.2** would require a variance as discussed in Section 1.

¹⁵ Tactile Warning Image: <http://www.whsupply.com/products/ada-tactile-systems>

Table 4.2 Station Typologies

	Urban Core	Sub-Urban/Intermodal	Peripheral	Split Island	Shared Island
Configuration	Curbside (in-lane or pull-out)	Curbside (in-lane or pull-out)	Curbside (pull-out)	Median island (in-lane)	Median island (in-lane)
Platform length	75' typical, 65' minimum, 140' at terminal or connecting station (accommodates two 60-foot buses with 20 feet of maneuvering space)				
Platform width	12' standard, 10' constrained				
Platform height	14" standard, 6" constrained	14" standard, 6" constrained	6" minimum	14" standard, 6" constrained	14" standard, 6" constrained
Level Boarding (14")	Yes	Yes	No	Yes	Yes
Boarding type	Right side typical	Right side typical	Right side typical	Right side typical	Left side typical; right side optional
Accessed via	Sidewalk (2 end ramps), rear mid-platform access	Sidewalk (2 end ramps), Intermodal: + rear mid-platform access	Sidewalk (through platform)	Crosswalk (1 ramp)	Crosswalk (1 ramp)
Ramp length	10' typical + 6' landing	10' typical + 6' landing	N/A	14' typical + 6' landing	14' typical + 8' landing
Ramp width	6' standard, 5' minimum	6' standard, 5' minimum	N/A	6' minimum	8' standard, 6' minimum

Figure 4.4 Station Amenities Layout

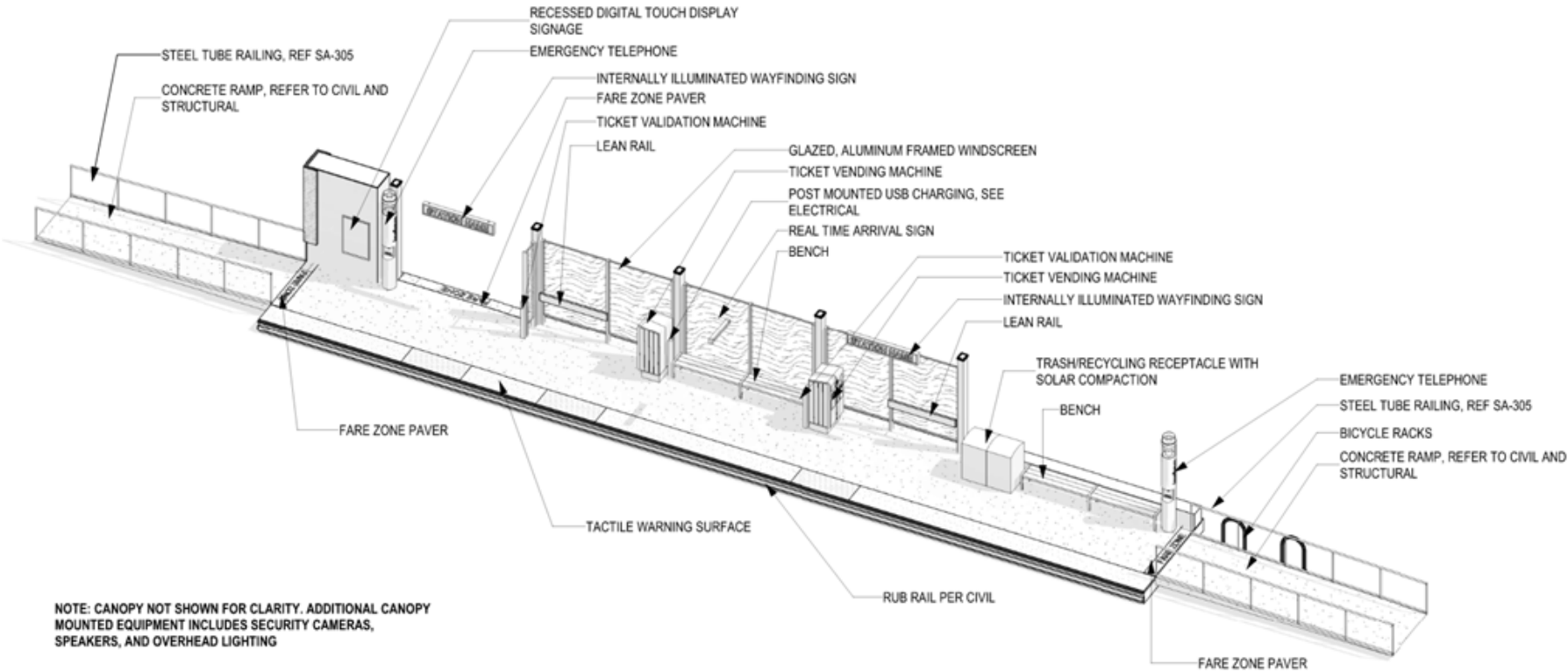
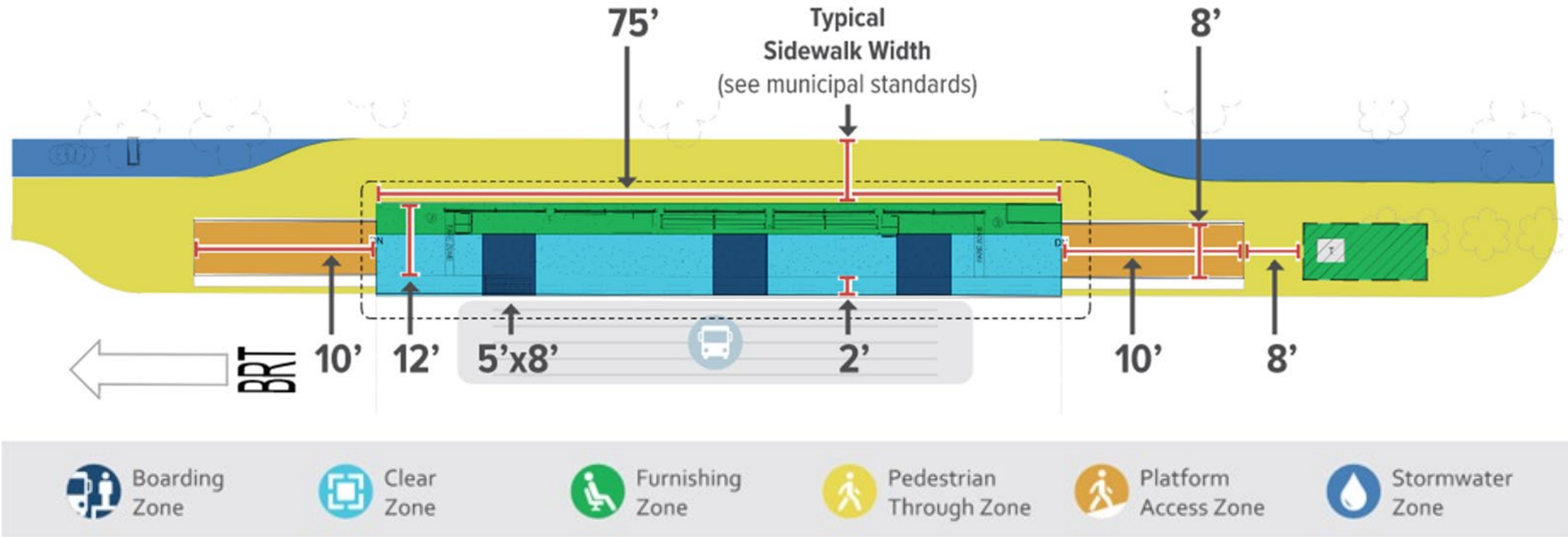


Figure 4.5 Station Dimensioning



DESIGN KIT OF PARTS

Each transit station should contain a design kit of parts of repeatable elements, components, and materials. These elements are placed at every station for both utility and consistency. Using consistent components allows for more efficient and easier maintenance of stations compared to unique components. Providing amenities and other useful features helps improve the rider experience of BRT. Additionally, whenever possible, it is crucial for a transit agency to provide a consistent rider experience across all stations with the focus of equity. Below is a list of station elements included in the design kit of parts:

- Fare Kiosk
- Fare Validator (Optional)
- Bench Seating
- Lean Rail
- Trash/Recycling Receptacle
- Emergency Phone
- Interactive Route Map
- Local Information/Wayfinding
- Community Messaging
- Real-Time Arrival Information
- Closed-Circuit Television Cameras
- Annunciators
- Bike Racks
- Step Up Platform Access
- Branding Elements

Station elements in the design kit of parts are shown separately in **Figure 4.6**, and in a generic station context in **Figure 4.4** previously

Figure 4.6 Design Kit of Parts



Customizable Elements

Providing consistent BRT elements at all stations is important for rider experience and maintenance. However, some elements do not need to be identical, and they can be customized to accommodate locations of greatest use, need, or space. Opportunities for incorporating public art in station design should be identified for each corridor, considering the station context, local municipality, and available resources.

Specific examples include the use of step-up platform access at urban and intermodal stations as well as bike parking at intermodal stations adjacent to multi-use paths. Other examples include community artwork, landscaping, and additional station seating. Placemaking goals and initiatives would rely heavily on these customizable elements to make the area unique and prominent.

Customizable elements that exceed standard expenses are not eligible for federal funding and may require additional local funds or resources for installation and maintenance. If a customizable element is requested by an area stakeholder, the installation and maintenance must be agreed upon by the transit design team, the project sponsor/operator, and area stakeholders.

5 ROADWAY

BRT corridors would primarily be constructed on existing roadways in Wake County and should conform to NCDOT and local street and transit standards as applicable; roadway design should follow the required standards of the governing roadway authority. Special attention should be given to providing convenient and safe at-grade accommodations for transit customers crossing roadways on foot, in mobility devices, or on bicycles.

RUNNINGWAY TYPES

BRT vehicles would operate in the roadway via three major runningway types: business access and transit (BAT) lanes, transitway, and mixed traffic lanes. The runningway types determine the need for roadway improvements, pavement markings, platform configuration, and other criteria. Careful consideration should be made for how buses would enter and exit bus-only roadways to allow clear delineation for bus traffic and general traffic.

Whenever possible and reasonable, separation should be added between BRT and general-purpose lanes. Median islands are a preferred method for separation, but pavement markings are also a reasonable alternative. At median stations, protection should be considered for both adjacent travel lanes and pedestrians.

Business Access and Transit Lane

BAT lane operation would primarily consist of a bus and right-turning vehicle exclusive lane located on the outermost lane in both directions without physical separation. The BAT lane should be indicated by pavement lettering and signage. **Figure 5.1** and **Figure 5.2** show a one-way and two-way BAT lane runningway typical section, respectively.

Figure 5.1 BAT One-Way Lane Typical Section

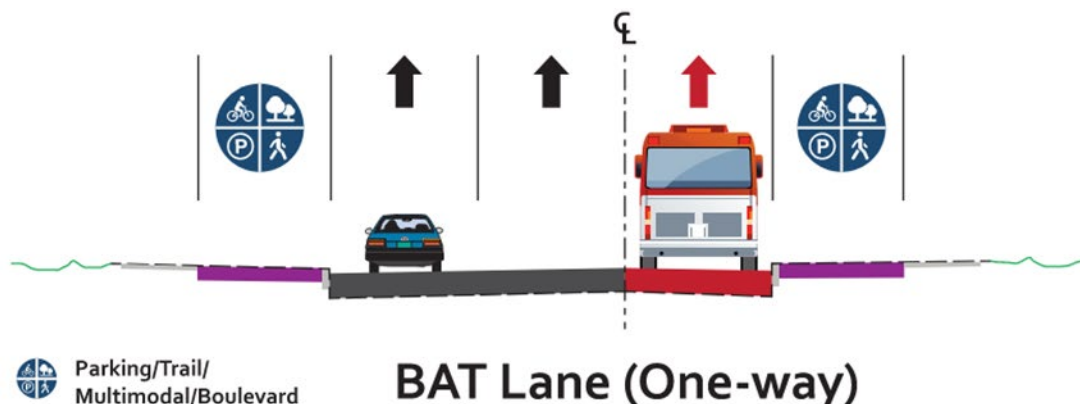
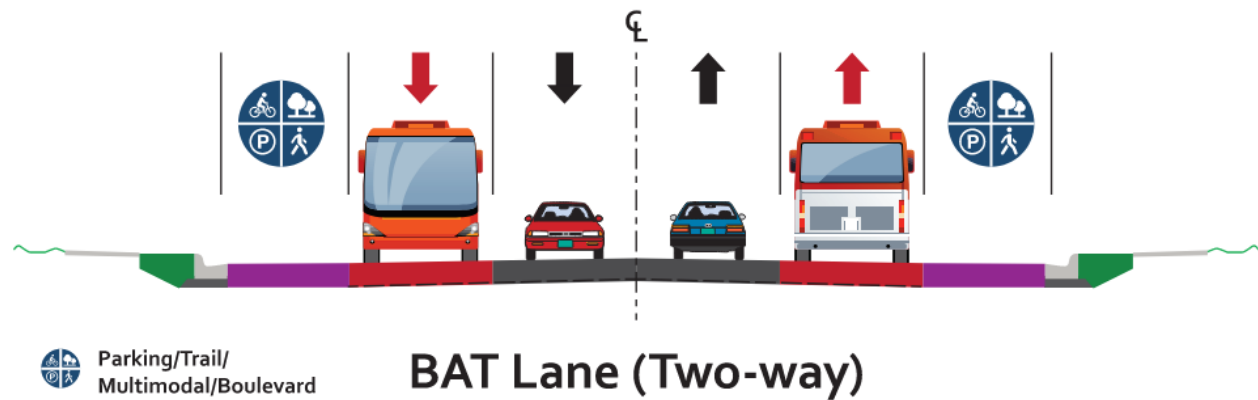


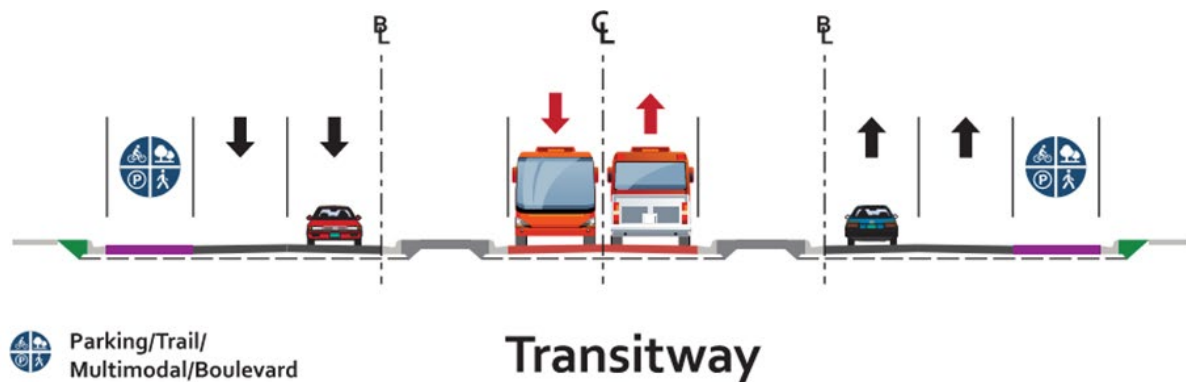
Figure 5.2 BAT Lane Two-Way Typical Section



Transitway

In a transitway, lanes should be physically separated from the general-purpose traffic lanes by medians or platforms. Bus traffic in opposing directions would run in adjacent lanes. All other vehicle travel except for emergency vehicles should be prohibited in these lanes. The BRT lane should be indicated by overhead signage, pavement lettering, and red pavement marking spanning the entire transitway lane for a determined length adjacent to transitway intersections. **Figure 5.3** shows a typical general transitway section.

Figure 5.3 Transitway Typical Section

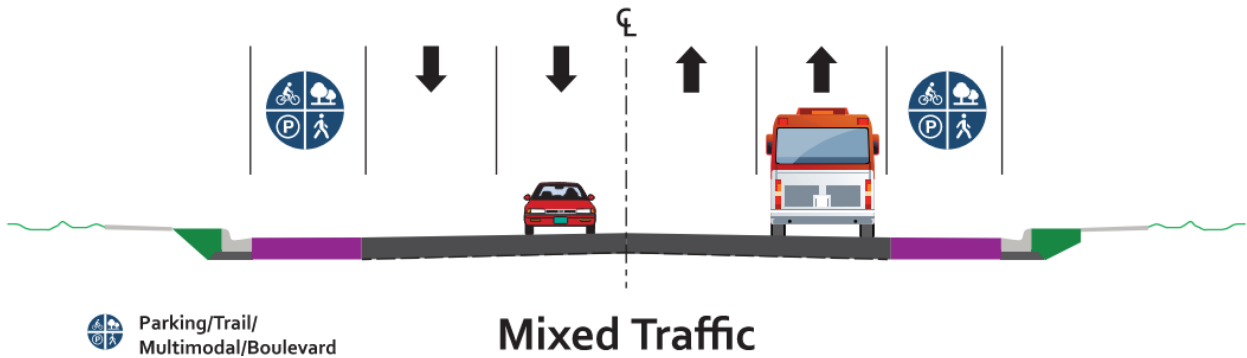


Mixed Traffic

In some corridors, BRT vehicles would operate in mixed traffic segments. No reconstruction would occur on the roadway itself, and buses should use existing travel lanes mixed with normal traffic.

Figure 5.4 shows a mixed traffic typical section.

Figure 5.4 Mixed Traffic Typical Section



POSTED SPEED LIMITS

Roadway posted speed limits are a significant factor related to BRT platform design. Most roadways where BRT would operate have posted speeds of 35 to 45 miles per hour (mph). The posted speed limit impacts and informs platform design development with particular attention to NCDOT “traversable clear zone” standards. If clear zone standards cannot be met, coordination is needed with NCDOT to achieve a safe and accessible platform design. **Table 5.1** shows BRT platform clear zone requirements.

Table 5.1 Clear Zone Requirements

Posted Speed Limits	Platform Clear Zone Width	Total Clear Zone Width
35 mph or less	8'	14' (BAT lane designated as clear zone)
45 mph or greater	12'	20' (NCDOT memo allows approved structures 12' from face of curb)

Figure 5.5 Typical Urban/Sub-Urban/Intermodal/Split Island/Shared Island Platform

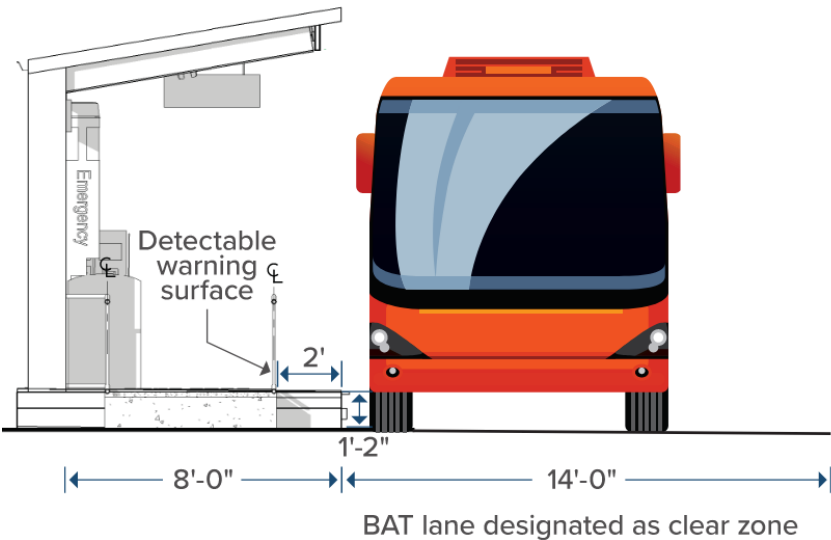
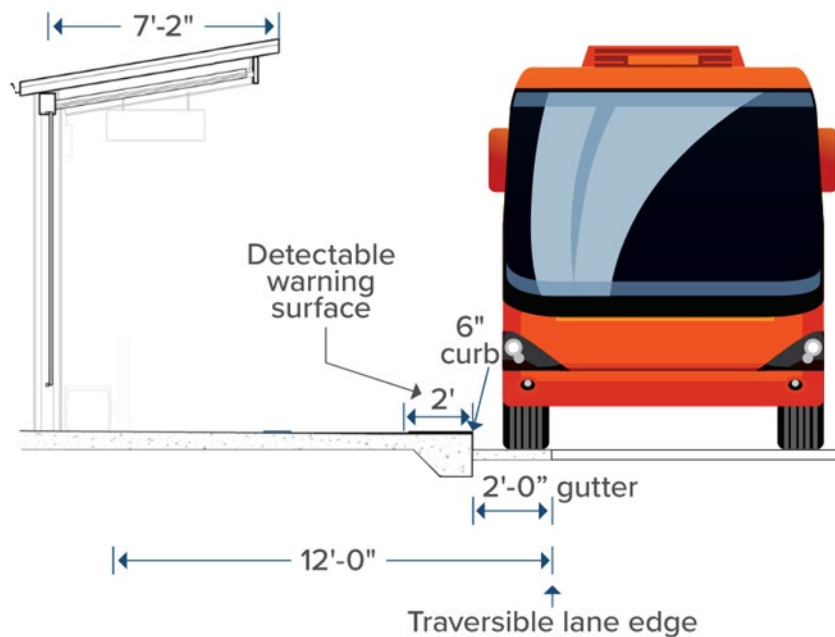


Figure 5.6 Typical Peripheral Platform



DESIGN CRITERIA

As stated previously, design criteria should adhere to the standards of the governing roadway entity. For NCDOT owned and maintained roadways, the NCDOT Roadway Design Manual should be followed. For roadways owned and maintained by municipalities, their local requirements should be met. A design criteria document should be developed specifically for each BRT corridor outlining the design requirements for that corridor and AASHTO standards, Transportation Research Board (TRB) publications, NACTO, and other resources listed in Appendix A can be incorporated. Coordination with the project sponsor, NCDOT, and other municipalities is necessary to develop the design criteria. Design criteria will include but are not limited to lane width, horizontal and vertical clearance, cross slope, clear zone, and other factors.

Vehicle turning movement software should be used to verify adequate space when analyzing turning movements and platform locations with the proper design vehicle. In addition, ADA requirements should be considered when determining longitudinal grade of the roadway at platform locations.

QUEUE JUMPS

Queue jump lanes combine short, dedicated transit facilities with a leading bus interval or TSP. This allows buses to easily enter traffic flow in a priority position. Applied thoughtfully, queue jump treatments can reduce delay considerably for transit vehicles, resulting in travel time savings and increased reliability for transit users while minimizing impacts on general travel. A bus head-start can significantly improve bus performance by routing vehicles through congested intersections ahead of traffic. An example of a queue jump is shown below in **Figure 5.7**.

Figure 5.7 Example of a Queue Jump with a Signal from Alexandria, VA.



Specialized transit-only signals are triggered by approaching BRT vehicles equipped with TSP in queue jump lanes that allow buses to pass through the intersection without additional signal delay.

Queue jumps can be applied at near-side, far-side, or non-stop configurations. At near-side stops, the bus completes loading before rolling forward onto a loop detector that gives signal priority. At far-side or non-stop locations, the bus receives priority signal treatment and proceeds either into a far-side stop or ahead of the traffic flow using a queue jump.

Queue jumps should be applied on signalized streets with low or moderately frequent bus routes, especially where transit operates in a right lane with high peak hour volumes but relatively few right turns. In some locations, implementing turning restrictions may be necessary. Queue jumps are recommended at intersections in Urban and Arterial BRT corridors, where appropriate to increase speed and reliability.

Before implementation, coordination with appropriate roadway authorities should take place to ensure consistency with existing roadway and traffic standards.

RIGHT-OF-WAY REQUIREMENTS

In many cases, to accommodate stations and other station area elements, additional right-of-way may be needed along the corridor. There are several types of right-of-way acquisition, but in the most basic sense, the process results in either permanent or temporary usage of the land.

Permanent Acquisition

Right-of-way, that would be continuously used in both the construction and operation of the BRT should be permanently acquired. This land is purchased at fair market value price by a governing public entity. Due to the permanency of the acquisition, the land can later be used by the agency for other purposes, such as station rehabilitation or additions, or transit-oriented development (TOD). Reducing the amount of land needed for BRT operation is beneficial for lowering project costs and delays. Common strategies to reduce right-of-way impacts include repurposing existing traffic lanes or on-street parking for BRT-only use, incorporating center stations in the existing right-of-way, utilizing retaining walls, and operating in mixed traffic. Due to the high public profile of typical BRT projects, property acquisition through eminent domain should only be used judiciously.

Temporary Construction Easements (TCE)

Temporary construction easements (TCE) are used when additional area is temporarily needed for accessing a site or the staging and storing of equipment during construction. Unlike permanent acquisition, this land cannot be permanently altered and must return to its original state once construction has finished. However, because it is a temporary transaction, it is cheaper than permanent acquisition.

Figure 5.8 BRT Station Construction¹⁶



¹⁶ BRT Station Construction Image: <https://www.sfexaminer.com/news/van-ness-brt-construction-impact-set-to-increase/>

MULTIMODAL CONNECTIVITY

Figure 5.9 Raleigh Union Station with Intermodal Connections between Rail, Regional Bus, Local Bus, and Future BRT



High-visibility crosswalks should be installed at all intersections, signalized and unsignalized, in Urban BRT and Arterial BRT corridors for pedestrian safety. Leading Pedestrian Interval (LPI), which gives pedestrians a head start to cross the roadway, should be implemented at all signalized intersections along BRT corridors and on roadways approaching BRT corridors that meet the conditions specified by the NCDOT Guidelines for LPI Implementation: “LPI shall be implemented at signalized intersections where all of the following conditions and a vehicle-pedestrian interaction is existing, in design, or under construction at one or more approaches:

- Countdown pedestrian signal heads
- Pedestrian pushbuttons, where pedestrian phase is not automatic
- Marked crosswalks
- Accessible ramps at marked crosswalks
- Sidewalk on marked crosswalk approaches
- Supporting controller”

In addition, Accessible Pedestrian Signals (APS) should be installed at all signalized intersections that are modified as part of a BRT project as required by the Public Right-of-Way Accessibility Guidelines

(PROWAG). APS have audible and vibrotactile features indicating the walk interval so that a pedestrian who is blind or has low vision will know when to cross the street.

Connecting BRT stations with the existing sidewalk network is critical for promoting station access and safety. In areas where a network does not exist, sidewalks should be provided from the BRT station to the nearest intersection or destination land use. If BRT stations are located mid-block and intersections are greater than 800 to 1,000 feet apart, a signalized mid-block crossing should be provided.

Access to adjacent multi-use paths should be incorporated in BRT system designs. To increase usage and access by pedestrians and bikers, these paths would connect stations to important routes and features, as well as provide greater access for different modes throughout the corridor. Paths would include combined space for bikes and pedestrians on a wide trail separated from the roadway.

While dedicated bike lanes are preferred, in certain conditions, bicycles and buses may share lanes. These dedicated lanes, called shared bus and bike lanes, are primarily used in locations where separate bike and bus traffic is not feasible or reasonable but have high bicycle traffic. Shared bus and bike lanes offer a compromise between having the refuge of a separated bicycle space and on-street biking. General traffic cannot use shared bus and bike lanes, so bus and bicycle traffic volumes must be considered when analyzing their potential usage. An example of a shared bus and bike lane is shown in **Figure 5.10**.

Figure 5.10 Shared Bus and Bike Lane¹⁷



¹⁷ Shared Bus and Bike Lane Image: <https://nacto.org/publication/transit-street-design-guide/transit-lanes-transitways/transit-lanes/shared-bus-bike-lane>

6 STORMWATER

Stormwater is an important consideration for BRT stations and guideways, particularly when projects increase impervious surface in a corridor. The stormwater requirements and guidance from the local municipalities along the BRT corridors need to be reviewed and incorporated into the BRT design. If proposing GSI on NCDOT maintained roadways, NCDOT Hydraulic Guidelines and Stormwater Best Management Practices Toolbox (referenced in the Appendix) should be referenced in the narrative and must be followed; the location, design and O&M Manual must be NCDOT approved; and a facility-specific encroachment is recommended.

Maintenance responsibilities for stormwater infrastructure should be clearly identified in the third-party agreements as mentioned previously.

BRT projects provide opportunities to implement Green Stormwater Infrastructure (GSI), which includes bioretention areas, permeable pavements, and green roofs. GSI manages stormwater at its source, lowering the demand on existing stormwater infrastructure, reducing flooding, and improving local water quality. GSI also enhances the station realm for riders and community. The unique characteristics of each BRT corridor such as available right-of-way, soil types, topography, and the presence of sensitive environmental features should be assessed to determine which GSI practices are most suitable.

7 TECHNOLOGY

BRT operations rely on a wide variety of technologies. Some of the technology is essential to the functionality of the system, while other applications are amenities intended to improve rider experience. All elements of technology are part of a wider network, which requires standardization to ensure compatibility with other aspects of the system. Standardization also ensures equity between different stations and routes. Device uniformity also increases ease of use and wayfinding by using systems riders already have familiarity with.

COMMUNICATIONS INFRASTRUCTURE

Technology implemented as part of a BRT system requires a robust communications infrastructure capable of transmitting large amounts of information over high speeds and distances. Fiber optic cable would meet these needs and provide opportunities for future expansion. Fiber optic trunkline should be installed along BRT routes. Branch fiber should then connect the trunkline to signal cabinets or communications cabinets, where the fiber would be terminated.

Communications cabinets should be installed at each station next to an electric cabinet. Due to the large size of the cabinet and limited space on the platform, cabinets should be installed off the platform. Cabinets should be placed with enough clearance so that the doors can open fully and do not disrupt activity in the surrounding area. Visual screening and/or artistic/branding treatments of the cabinets should be used to minimize aesthetic impacts.

Devices on the network should also be monitored for malfunctions and outages. A centralized hub where all technology is monitored combined with clearly defined responsibilities and procedures reduces confusion and down time. Additionally, a compatible monitoring system should issue real-time reports whenever a device malfunctions so repairs and maintenance can be conducted as needed.

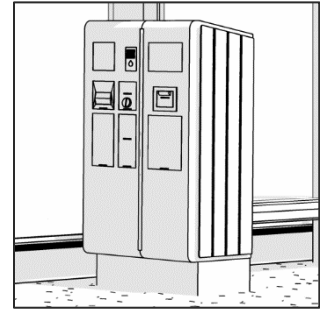
STATION TECHNOLOGY COMPONENTS

BRT stations should have the following amenities:

- Ticket Vending and Fare Validation Machines
- Emergency Telephones
- Closed-Circuit Television Cameras
- Real-Time Information
- Touch Screen Kiosks with optional Wi-Fi
- Public Address

Ticket Vending Machines

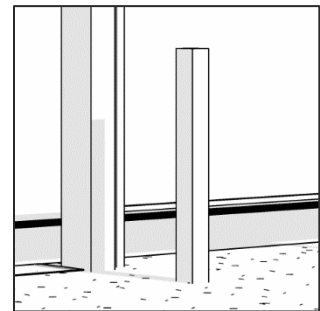
To speed up boarding times, fare vending should occur at the station platform rather than on board vehicles. Two ticket vending machines (TVMs) should be present at each BRT station except where ridership projections or space constraints may limit TVMs to one. TVMs should be placed in visible areas of the platform and oriented to minimize impacts to station circulation. TVMs should be equipped with closed-circuit television cameras facing the transaction area that are managed and conform to the same guidelines as the CCTV cameras discussed below.



Purchasing fares at TVMs should match processes used in existing fare vending. Fares purchased at BRT stations should be accepted at other transit locations and vice versa. TVMs should meet regional and BRT branding and design guidelines and ADA requirements. TVMs should sell paper tickets with magnetic strips as well as radio-frequency identification (RFID) smart cards compatible with fare validators at stations and on vehicles. Riders with existing RFID smart cards would be able to check the balance and add funds to their cards at TVMs. In addition to single ride fares, duration-based passes such as a 7-day pass should be sold at TVMs. Discounts requiring validation such as youth or senior passes would not be available through TVMs, but rather at the project sponsor's existing locations for such pass sales. TVMs would accept payment in the form of cash, debit, or credit cards.

Fare Validation

Fare validation should be provided on board BRT vehicles at all doors to speed up boarding and reduce dwell time at stations. Fare validation may also be provided on the station platform and should take place at a separate location than the fare vending to minimize wait times and crowding. Fare validation machines should be compatible with existing regional transit technology, such as those on-board vehicles. Fare validators would be capable of reading magnetic strip cards and RFID smart cards used as fare for BRT or local buses. After reading the fare, the validator would indicate if the transaction was successful or not with audio and visual cues. These cues should match indicators on existing local fare validation systems. Design and branding of fare validators should conform to regional, BRT, and ADA requirements and standards.

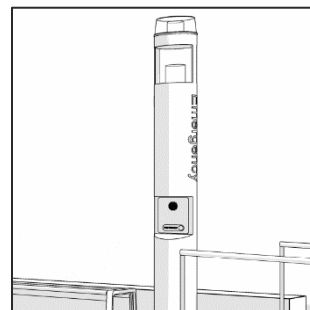


Emergency Telephones

To increase safety at platforms and the surrounding areas, emergency telephones should be installed at each BRT station. Areas around the emergency telephone should be clear of obstacles and other devices so they can be accessed quickly.

The emergency telephones should be labeled clearly and distinctly to avoid accidental use. Using the telephones should be simple, such as a single button press. Emergency telephones should meet ADA requirements.

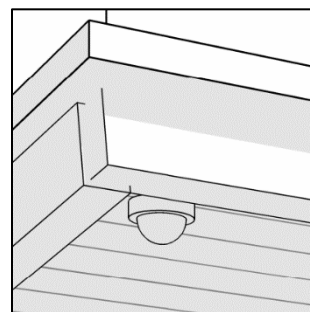
Calls from emergency telephones would be sent to a designated operator facility that can route calls to appropriate safety personnel. All calls should be recorded and kept for an established retention period.



Closed-Circuit Television (CCTV) Cameras

For safety and security, two CCTV cameras should be installed into the shelter ceiling at each station. The location of the CCTV cameras should provide full 24/7 coverage of the platform. Specifically, areas to be covered include the TVMs and any areas prone to falls, such as rear stair access to the platforms and along the front of the platform curb. Station lighting and CCTV placement should be coordinated for night coverage. CCTVs should be compatible with existing local CCTV infrastructure.

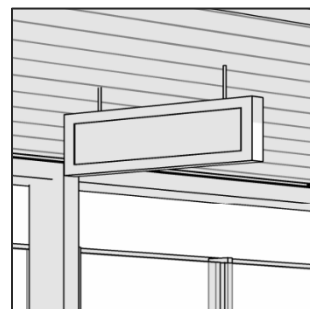
CCTV footage should be available for live monitoring and as recorded footage. Recorded footage should be stored at a centralized control center for 30 days before deletion. All footage should be tagged with date, time, and location information. Live footage would also be immediately available for the operators of the emergency telephones.



Real-Time Information

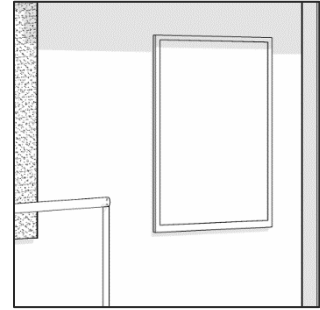
Real-time information signs provide estimated arrival time of buses based on dynamic vehicle location. Other Real-time information signs should display upcoming bus routes along with the estimated arrival time via a Variable Message Sign. Typical sign placement within the platform is shown in Section 4: Station Facilities.

Accessible push buttons located near the real-time display should prompt an announcement via speaker of the information displayed on the real-time signs. The push buttons and signage should conform to ADA standards.



Touch Screen Kiosk with Optional WI-Fi

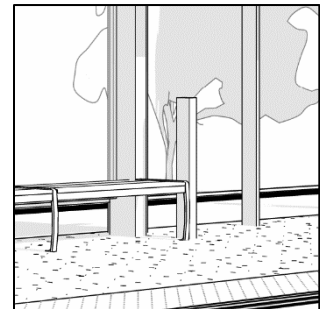
Interactive touch screens provide tools and information such as wayfinding and local events to users. These screens are separate from real-time signs, which only provide arrival times of buses; however, if desired, these screens can also be formatted to provide the same real-time data in addition to other information. These signs should be located away from fare vending, fare validation, and boarding zones so as not to interfere with normal operations. Signs should match regional and BRT branding as well as ADA requirements.



Wi-Fi may be provided by the project sponsor to riders waiting at the station. However, providing Wi-Fi may encourage loitering at stations and should be considered by the project sponsor. If Wi-Fi is provided, it can be done through modems in the touch screens. The Wi-Fi should be coordinated with the service provided aboard the buses to avoid the need for users to re-authenticate their connection when boarding.

Optional USB Charging Station

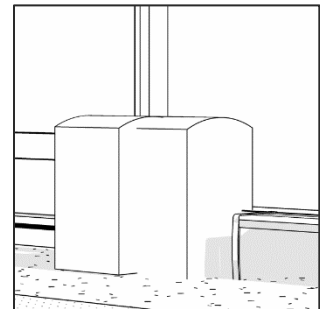
Similar to free Wi-Fi, power outlets with USB charging ports may encourage loitering and providing them should be at the project sponsor's discretion. Furthermore, the high frequency of BRT services mean that riders would have relatively short time to charge devices.



Trash And Recycling Receptacles

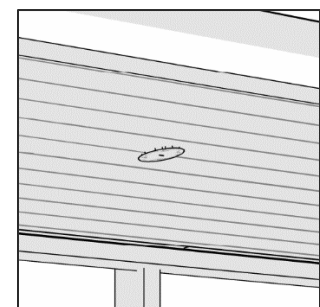
Each transit station should be equipped with trash and recycling receptacles to keep the surrounding areas clean and pest-free.

All waste receptacles should be clearly labelled as either trash or recycling. Any design features should match regional branding and design guidelines.



Public Address

Public address speakers should be installed in the canopy of each station shelter. Pre-recorded voice messages should convey real-time bus arrival information at regular intervals. Speakers may also be used for other information, such as changes to routes, safety reminders, or service alerts.



TRANSIT SIGNAL PRIORITY (TSP)

TSP reduces wait time for transit vehicles by changing signal behavior. TSP can be used to extend, truncate, or reallocate the green signal phase. TSP can be given conditional or unconditional priority throughout a corridor. Conditional priority applies to TSP only if the transit vehicle is delayed by a certain, defined amount of time. Unconditional priority occurs when the transit vehicle signal is given priority 100 percent of the time, reducing transit vehicle delays, but may adversely impact cross traffic by increasing the amount of time those signals receive a red light. Signal behavior may be managed at a centralized hub, or independently at each intersection.

The priority control system shall consist of vehicle equipment, intersection equipment, and a Central Management Software (CMS). The software should allow authorized local and remote users to set and read all user-programmable features and retrieve data collected by the system.

The in-vehicle equipment shall operate without requiring any action from the vehicle operator or occupants once power is applied. The system shall be intersection-centric, where configuration of system operation parameters shall be completed on the intersection equipment and not require interaction with the vehicle equipment.

Signal controllers equipped with TSP technology should be implemented at each signalized intersection along the Urban or Arterial BRT corridor, including at existing signals. The controllers should be equipped with both priority and preemption capabilities, even if those TSP methods are not planned for use at the intersection at that time. Signal timing, including conditional TSP requests, is controlled and operated by the governing roadway jurisdiction. Specific TSP equipment ownership and maintenance responsibilities are agreed upon with each individual road authority.

Figure 7.1 Traffic Signal¹⁸



¹⁸ Traffic Signal Image: <https://www.bizjournals.com/triangle/news/2020/12/23/bus-rapid-transit-raleigh-wake-county-usdot-funds.html>

8 BRT FLEET/VEHICLES

VEHICLES

Specialized transit vehicles should be used in the operation of Urban BRT and Arterial BRT services. The Urban BRT fleet should be comprised of 60-foot articulated buses with five total doors: three on the right and two on the left. Doors on both sides are provided to increase loading and unloading flexibility, increasing potential for a variety of bus stop configurations, including center, left-door boarding stations. In addition to the standard 60-foot articulated bus, 40-foot buses may be added to the fleet when vehicle load calculations based on ridership forecasts demonstrate that loads would not exceed the loading guidelines established in **Table 10.4** for any segment of the BRT corridor, including interlined BRT services.

Arterial BRT fleets may include either 40-foot or 60-foot vehicles and may or may not have left-side boarding doors depending on the stations they will be serving. Median BRT stations require vehicles with left-side boarding doors. On 40-foot buses bicycles would be transported on exterior front racks rather than inside the vehicle. BRT vehicles should not include fare collection equipment on-board but should include fare validation equipment at all doors. BRT vehicles will include deployable ADA ramps at the frontmost door of either side of the vehicle (**Figure 8.1**) and kneeling capabilities to achieve ADA-accessible boarding even in locations without a level boarding platform.

Figure 8.1 Deployable Ramp¹⁹



¹⁹ Bus Without On-Board Validators Example: <https://www.goldcoasttransit.org/how-to-ride/specialized-guides/accessibility>

Current GoRaleigh bus fleet utilizes compressed natural gas (CNG) for propulsion. Additional CNG buses are planned for procurement on the New Bern Corridor. However, consideration for additional propulsion types, including electric, hydrogen, and diesel, should allow for increased flexibility in fleet operations. In addition to bus specifications, necessary maintenance, storage, and operations modifications would need to be made at garage facilities and along the corridor to support the chosen fuel type. **Table 8.1** summarizes the recommended vehicle characteristics for Urban BRT and Arterial BRT, which are discussed in further detail in this section.

Table 8.1 Vehicle Characteristics

Vehicle Characteristics	Urban BRT	Arterial BRT
40-foot vehicle		•
60-foot vehicle	•	•
Left boarding door(s)	•	Required if making stops at median stations
All door boarding	•	•
Automatic wheelchair securement	•	•
Kneeling	•	•
Fare Validation at all boarding doors	•	•
Interior Bicycle Storage	•	Yes, if 60-foot bus
Exterior Bicycle Racks		Yes, if 40-foot bus
AVL/CAD Technology on Buses	•	•
Wi-Fi	•	•
USB Charging	•	•

AVL/CAD TECHNOLOGY

Automated Vehicle Location / Computer-Aided Dispatch (AVL/CAD) technology should be used on buses. AVL/CAD software is a widely implemented vehicle feature that connects riders and transit providers to GPS locations and data of vehicles in a transit system. This helps passengers with planning when there are delays, gives operators more information on where unexpected slowdowns occur most frequently, and helps operators coordinate changes in real time.

STORAGE AND AMENITIES

Riders who use bicycles to access the BRT should have interior storage of their bikes available. To avoid users stepping off station platforms in non-designated locations, bike racks at the front of the bus would not be available.

Figure 8.2 On-Board Bike Storage on a GoRaleigh 60-foot Articulated BRT Bus



To improve experience for riders, several amenities should be included on BRT vehicles. Wi-Fi, USB charging ports, and wheelchair securement should be available on all buses.

Passengers using wheelchairs should use self-securing technology on buses which uses a rear-facing device that allows riders to secure themselves with a button. This feature increases passenger independence while alleviating the need for transit operators to assist, which speeds up efficiency and decreases loading time. This improvement from typical wheelchair securing procedures would improve accessibility, equity, and operating efficiency.

Figure 8.3 Wheelchair Securement Technology²⁰



EMERGING TECHNOLOGIES

As vehicle technologies continue to evolve, project sponsors should consider incorporating advanced technologies in future bus procurements. Such technologies include:

- Lane detection systems
- Smooth acceleration and braking systems
- Collision avoidance systems

Additionally, it is widely expected that precision-docking technology will continue to develop and would at some point be widely used. In several cities across the country, automated and connected vehicles (AV/CV) are being demonstrated in revenue service. AV/CV technology will continue to evolve and find new markets. Battery electric bus use is increasing and as battery technology evolves and the range between charges increases, it is anticipated that battery electric bus technology will become a more frequently used propulsion system. Battery electric buses need to be carefully considered for BRT operations given that reliability is even more critical for delivering frequent service and range is important given longer spans of service. Operating electric buses as part of the BRT system should be coordinated with the project sponsor's fleet transition plan. In addition, some transit agencies are deploying hydrogen fuel cell buses particularly on longer routes and in areas with extreme climates. Many technologies are not yet widely used in the transit industry, and as such they will not be discussed in detail. However, guidelines documents are living documents and are frequently updated as circumstances warrant. Future versions of this document would discuss these technologies as they become more prevalent in the transit industry.

²⁰ Wheelchair Securement Image: <https://www.qstraint.com/quantum>

9 IDENTITY AND BRANDING

This chapter reviews the GO+ brand and provides guidance for further developing and refining the identity and branding for Arterial BRT.

GO+ BRAND

The GO+ Wake Bus Rapid Transit system (hereafter referred to as GO+) features uniquely branded buses with enhanced stations and passenger amenities, with operating characteristics that include direct routes, dedicated transit-only lanes and tract signal priority to reduce travel times and increase reliability. GO+ station features include shelters with real-time arrival information, level-boarding, off-board fare payment, digital wayfinding, and pedestrian and bicycle connections to improve safety. Three parts comprise the logo, which includes the GO lettering, the + sign, and the orange variegated chevron made of individual triangle units.

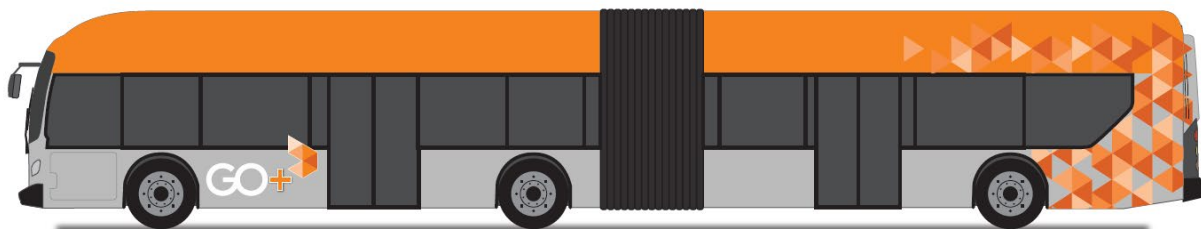
Figure 9.1 GO+ Logo



The Wake BRT system is pronounced "Go Plus," and is represented in print and graphics using the capitalized GO lettering and the orange + sign. When written with letters only, a plus sign should be included after "GO". The GO+ system name should not appear written out as two words: GO Plus. The GO+ color palette includes orange, shades of orange, dark gray, and light gray. The primary color for the GO+ brand is orange, with dark gray as an accent color. Orange adds to the current bright and vibrant color palette and helps riders distinguish the GO+ vehicles from other transit lines. Orange is prominent in vehicle wraps, GO+ station design, and marketing collateral materials.

Branding on vehicles should include three main elements: the logo, an orange roofline, and the triangle design found in the logo. The logo should appear near the middle of the vehicle or toward the front. The word "GO" should appear in white on medium to dark backgrounds but should appear in PMS Cool Gray 9 on lighter backgrounds. The orange roofline height will vary depending on the vehicle but should be about 25% of the vehicle height or less in order to draw the eye upward. The triangular design elements also will vary by vehicle but generally should be visually weighted toward the rear of the vehicle.

Figure 9.2 Articulated BRT Bus with GO+ Branding



Usage

The GO+ brand is trademarked by the City of Raleigh. The brand is to be utilized for the initial core BRT corridors identified within the Wake Transit Plan (New Bern BRT, Southern, BRT, Western BRT and Northern BRT).

Any future BRT projects can collaborate with GoRaleigh and GO+ to determine brand applicability based on project characteristics including service frequencies, amenities provided, and operating agency. These guidelines defer branding decisions for Arterial BRT corridors that are not anticipated to *initially* meet frequency standards for federal CIG funding, i.e., at least 15-minute frequency all day or 10-minute peak/20-minute off-peak. Project sponsors of Arterial BRT corridors may refer to the following considerations when designing brands for Arterial BRT.

BRANDING CONSIDERATIONS

Considerations for branding BRT service are provided as guidance once a project sponsor is selected. Determining the appropriate branding for BRT service depends on meeting CIG requirements, the service plan, and maintaining flexibility for operators. Branding should be intentionally designed for riders to distinguish BRT service from regular fixed-route service and identify the operator to effectively plan their trip.

Compatibility

Arterial BRT branding should be compatible with the operator's existing branding and with the region's GO family of brands. Providing this consistency will allow riders and community to understand how the various transit services in the region are connected and how to use them.

CIG Branding Requirements

The FTA CIG Program requires that for BRT systems "the provider must apply a separate and consistent brand identity to stations and vehicles".²¹ Most BRT systems in the United States are implemented with CIG funding, including GoRaleigh's Urban BRT corridors in the planning, design, and construction phases. Therefore, it is critical that the GO+ brand continue to be distinct from regular bus services in the region. The GO+ brand should only be used for BRT that meets the requirements for CIG funding as listed in **Table 11.1** unless the same vehicle operating the CIG-funded corridor is also operating the non-CIG funded corridor as interlined service.

Service Plan

The service plans for operating BRT extensions are important considerations for branding. If the Core BRT vehicles operate the BRT extensions as a one-seat ride, then they will already be branded as

²¹ FTA Capital Investment Grants Final Policy Guidance, November 2025.

GO+. If the BRT extensions are operated independently of Core BRT, then there is an opportunity to apply a separate identity and brand to BRT extension vehicles as well.

Flexibility

Branding and the service operator are interrelated. If a bus is branded specifically for a service, it must be used for that service exclusively and cannot be used interchangeably on other routes. This impacts how the operator interlines routes, positions vehicles, deploys spares, and schedules bus pullouts. Maintaining a proper balance between unique branding for rider recognition, funding requirements, and operator flexibility is important. Recognizing that corridors will evolve over time in response to changing land use and demographics, possibly transitioning from Arterial BRT corridors to Urban BRT corridors in the future, branding should be designed to be flexible. As with traditional fixed routes, operators should be able to increase BRT service frequencies without needing to rebrand the route.

To achieve this balance, the branding for buses operating the BRT extensions or Arterial BRT may use the same color palette as the operator's existing fixed-route service. They could be differentiated from the operator's regular fixed-route service by adding the plus sign before the name of the agency such as *Go+ Cary* or *Go+ Triangle*.

Recognition and Wayfinding

Arterial BRT branding should include the operator's name on the vehicle so that riders can effectively plan their trip and understand which agency to consult for schedule, fare, and contact information.

Recognizing that each system in the region uses their own nomenclature for route names, there is not a prescribed convention for Arterial BRT; rather an expectation that the route name should differentiate Arterial BRT from regular fixed-route service in some manner. For example, some agencies across the country use letters to name BRT routes while others use "BRT" in the route name. In some systems, colors are used to identify BRT routes. However, using a unique color for each BRT line in this region would be challenging given that color is already used to distinguish between operators.

The BRT route name could remain the same even if the Arterial BRT corridor is upgraded to an Urban BRT corridor in the future. This would avoid the need to rebrand the route and communicate that significant change to the community which could cause confusion.

10 SERVICE OPERATIONS

Service guidelines for either Urban BRT or Arterial BRT should exceed those of the operator for regular fixed-route service as BRT is intended to provide faster and more reliable service. Furthermore, these guidelines should not be considered maximums; rather, spans and frequencies for Urban BRT and Arterial BRT can exceed these levels.

DEFINITIONS

The following definitions are drawn from the Wake County Transit Plan Major Investment Study - BRT Design Standards and Performance Measures document²² and are used to inform and guide the development of Wake BRT: System Guidelines related to bus service and operations.

- BRT service is bus service that operates within the BRT infrastructure and is branded as BRT service. While branded vehicles may operate outside of the BRT infrastructure, the guidelines and targets set in this document do not apply outside of the infrastructure.
- A standard sets the minimum investment required to achieve the desired characteristics of BRT.
- A measure is a reference point against which performance is evaluated. Measures are evaluated against a target.
- A target is the defined value set for individual measures. For example, the target for productivity is 25 passengers per revenue hour.

This section focuses primarily on operations guidelines for BRT service and is intended to communicate the customer-facing characteristics of BRT routes. Measures and targets would be primarily internally focused and should be the subject of a separate System Policies memorandum.

²² Wake County Transit Plan Major Investment Study - BRT Design Standards and Performance Measures document. Accessed February 2020 from <http://goforwardnc.org/wp-content/uploads/2018/11/Wake-MIS-BRT-Design-Standards-Performance-Measures-FINAL.pdf>.

SPAN OF SERVICE

Span of service denotes the minimum hours of operation for a BRT during a typical weekday, Saturday, or Sunday. The BRT span of service should meet the baseline span of service established by other routes within the project sponsor's system. The span of service includes a definition of the portions of the day defined as the morning and afternoon peaks when frequency on BRT services may be higher to accommodate demand. Span of service for a particular BRT route may be extended beyond the minimum standard based on the transit agency's ridership and productivity guidelines. Proposed minimum standards for spans of service on Urban and Arterial BRT routes are shown in **Table 10.1** and peaks are shown in

Table 10.2.²³

Table 10.1 Span of Service

Span of Service	Urban BRT	Arterial BRT
Weekday	4 am - 12 am (20 hrs.)	5 am - 12 am (19 hrs.)
Saturday	5 am - 12 am (19 hrs.)	6 am - 12 am (18 hrs.)
Sunday	5 am - 12 am (19 hrs.)	7 am - 10 pm (15 hrs.)

Table 10.2 Peak Service Spans

Span of Service	Urban BRT	Arterial BRT
Weekday	6 am – 7:30 pm (13.5 hrs.)	6 am – 7:30 pm (13.5 hrs.)
Saturday		
Sunday		

SERVICE FREQUENCY

Frequencies for Urban BRT and Arterial BRT should be more frequent than those for the operator's regular fixed-route service as these systems benefit from increased speed and reliability and distinguish the BRT service. **Table 10.3** identifies the recommended range of frequencies for Urban BRT and Arterial BRT based on the span of service. The FTA Capital Investment Grants (CIG) Program, which is discussed further in [Section 11](#), requires a 15-minute maximum headway throughout the weekday or 10-minute maximum headway during peak and 20-minute maximum headway off-peak. On weekends, New Starts projects must have frequencies no less than every 30 minutes. There is no weekend service requirement for Small Starts projects. Note that the higher end of the weekday frequency range for Arterial BRT at 30 minutes would not qualify for CIG funding.

²³ Note: FTA guidelines for a BRT project to qualify for New Starts funding state that the project "must provide short headway, bidirectional service for at least a fourteen-hour span of service on weekdays and a ten-hour span of service on weekends." FTA will consider projects that provide weekday-only service for Small Starts, including the same requirement for a minimum span of service of 14 hours for the weekdays.

Source: APTA Recommended Practice: Bus Rapid Transit Service Design. Accessed February 2020 from https://www.apta.com/wp-content/uploads/Standards_Documents/APTA-BTS-BRT-RP-004-10.pdf.

Table 10.3 Frequency

Frequency (minutes)	Urban BRT	Arterial BRT
Weekday Early AM	15-20	20-30
Weekday AM/PM Peak	10-15	15-30
Weekday Midday	10-15	15-30
Weekday Night	15-20	20-30
Weekend Early AM/Night	15-30	20-30
Weekend Day	15-20	20-30

CAPACITY AND LOADING

Capacity refers to the total number of passengers that can be accommodated on a single BRT vehicle. Seated capacity indicates the number of passenger seats available on a single BRT vehicle; total capacity indicates the maximum number passengers that can be accommodated (including seated passengers and standees).

Vehicle load refers to the percentage of a vehicle's seated capacity that is used on any given trip. Loading standards are based on the maximum acceptable average load across a given time period. The maximum acceptable average load may differ between peak and off-peak periods, as shown in **Table 10.4**.

Table 10.4 Vehicle Loading Standards

Vehicle Loading Standard	Peak	Off-Peak
Maximum acceptable average load (BRT service) ²⁴	120% of seated capacity	100% of seated capacity

LOCAL SERVICE

An important factor in designing BRT projects is determining whether the BRT service would operate as a stand-alone route, or whether BRT stations and guideway features would be shared by underlying or connecting local bus routes. Wider station spacing offers the opportunity to deliver faster trips for BRT buses, with the trade-off of necessitating the provision of local bus service for customers who may not be able to walk to BRT stations. Underlying local service will be analyzed once BRT route and service begin along each corridor.

²⁴ BRT loading standards are as defined in the Wake County Transit Plan Major Investment Study - BRT Design Standards and Performance Measures document. Accessed February 2020 from <http://goforwardnc.org/wp-content/uploads/2018/11/Wake-MIS-BRT-Design-Standards-Performance-Measures-FINAL.pdf>.

Figure 10.1 GoRaleigh Bus²⁵



CONNECTIONS AND TRANSFERS

When BRT service is implemented, the service plan should assess opportunities for improved connections with other local routes outside the corridor. Where possible, nearby routes could be extended to connect at major BRT stations, offering customers a convenient transfer to the BRT network. At the same time, routes that substantially duplicate BRT service or that operate in nearby parallel corridors could receive reduced service levels, as the BRT service would be expected to attract many of those route's riders. These service planning decisions should be made based on a detailed understanding of the ridership and operating context of each BRT corridor.

²⁵ GoRaleigh Bus Image: <https://goraleigh.org/goraleigh-fares-passes>

11 FEDERAL FUNDING CONSIDERATIONS

The design and operating plan of a BRT project determine eligibility for several federal funding sources. Dedicated lanes and operating plans affect whether a project qualifies for programs such as FTA Section 5307, FTA Section 5309 CIG, and FTA Section 5337 State of Good Repair funds. This chapter explains the connection between project design, operating plan, and funding opportunities.

FTA SECTION 5307 URBANIZED AREA FORMULA FUNDING

As an urbanized area with more than 200,000 in population, the Raleigh urbanized area is eligible to receive annual FTA Section 5307 allocations based on population, population density, bus vehicle revenue miles, passenger miles traveled, operating cost, and fixed guideway characteristics. Fixed guideway is defined as a public transportation facility using and occupying a separate right-of-way for the exclusive use of public transportation and can be rail, catenary system, ferry system, or BRT. Dedicated lanes for the use of BRT are considered fixed guideways.

Additional dedicated BRT lanes would allow the Raleigh urbanized area to qualify for additional funding under the 5307 fixed guideway tier. The formula for this tier depends on whether the urbanized area has commuter rail and a population greater than 750,000. Since the Raleigh urbanized area does not currently fall into this category, funding in the fixed guideway tier would be based on the following variables pertaining to fixed guideway service: directional route miles, vehicle revenue miles, passenger miles traveled, and operating cost.

FTA SECTION 5309 CAPITAL INVESTMENTS GRANT PROGRAM

The CIG Program funds heavy rail, light rail, commuter rail, streetcar, BRT, trolleybus, gondola, and ferry projects that meet eligibility and program requirements under three categories: New Starts, Small Starts, and Core Capacity. New Starts and Small Starts categories include new high-capacity projects or extensions to existing systems whereas Core Capacity projects address current or anticipated capacity issues within ten years in an existing fixed-guideway system.

The key eligibility differences between New Starts and Small Starts are cost, CIG program funding request, minimum dedicated guideway, and weekend service as outlined in **Table 11.1**. In addition to meeting these eligibility requirements, projects must complete the required steps in the New Starts and Small Starts processes and receive an overall project rating of at least Medium as defined by law to receive CIG funding.

Table 11.1 FTA CIG Eligibility Requirements for BRT Projects

Requirement	New Starts	Small Starts
Capital Cost Total capital cost of the project	\$400 million or more	Less than \$400 million
CIG Program Funds Funding request from the CIG Program	\$150 million or more	Less than \$150 million
Minimum dedicated guideway General traffic permitted to make turns	More than 50%	No minimum
Defined stations accessible For persons with disabilities, offer shelter from the weather, and provide information on schedules and routes	•	•
Faster travel times Using active signal priority in separated guideway, and either queue jump lanes or active signal priority in non-separated guideway	•	•
Short headway, bidirectional service on weekdays At least a 14-hour span of service with 15-minute maximum headway throughout the day or 10-minute maximum headway during peak and 20-minute maximum headway off-peak	•	•
Short headway service on weekends At least 10-hour span of service with 30-minute maximum service	•	
Separate and consistent brand identity applies to stations and vehicles	•	•

FTA Capital Investment Grants Final Policy Guidance, November 2025.

FTA SECTION 5337 STATE OF GOOD REPAIR

FTA Section 5337 funding, known as the State of Good Repair (SGR) Program, is specifically designed to support the maintenance, rehabilitation, and replacement of fixed guideway systems. Fixed guideway refers to any public transportation system that operates on exclusive or controlled rights-of-way or rails, including rail transit, BRT in dedicated lanes, and streetcar lines. The primary objective of Section 5337 is to ensure that these transit assets remain in a state of good repair, thereby enhancing safety, reliability, and performance for riders.

The Section 5337 funding formula is based on several key factors and funding categories, including the total mileage of fixed guideway systems, vehicle revenue miles, and the age of the infrastructure. There are also distinct categories under the program, such as High Intensity Fixed Guideway and High Intensity Motorbus, which help determine how funds are allocated to different types of transit services. To be eligible, a system generally must have been in operation for at least seven years, ensuring that resources are dedicated to the upkeep of established transit assets. Recipients use these resources for capital projects that maintain, replace, or rehabilitate existing infrastructure including rolling stock. Unlike Section 5307, which supports a broader range of transit needs, Section 5337 is narrowly focused on the preservation and improvement of fixed guideway assets, reinforcing the importance of long-term system sustainability.

APPENDIX A

TECHNICAL REFERENCES

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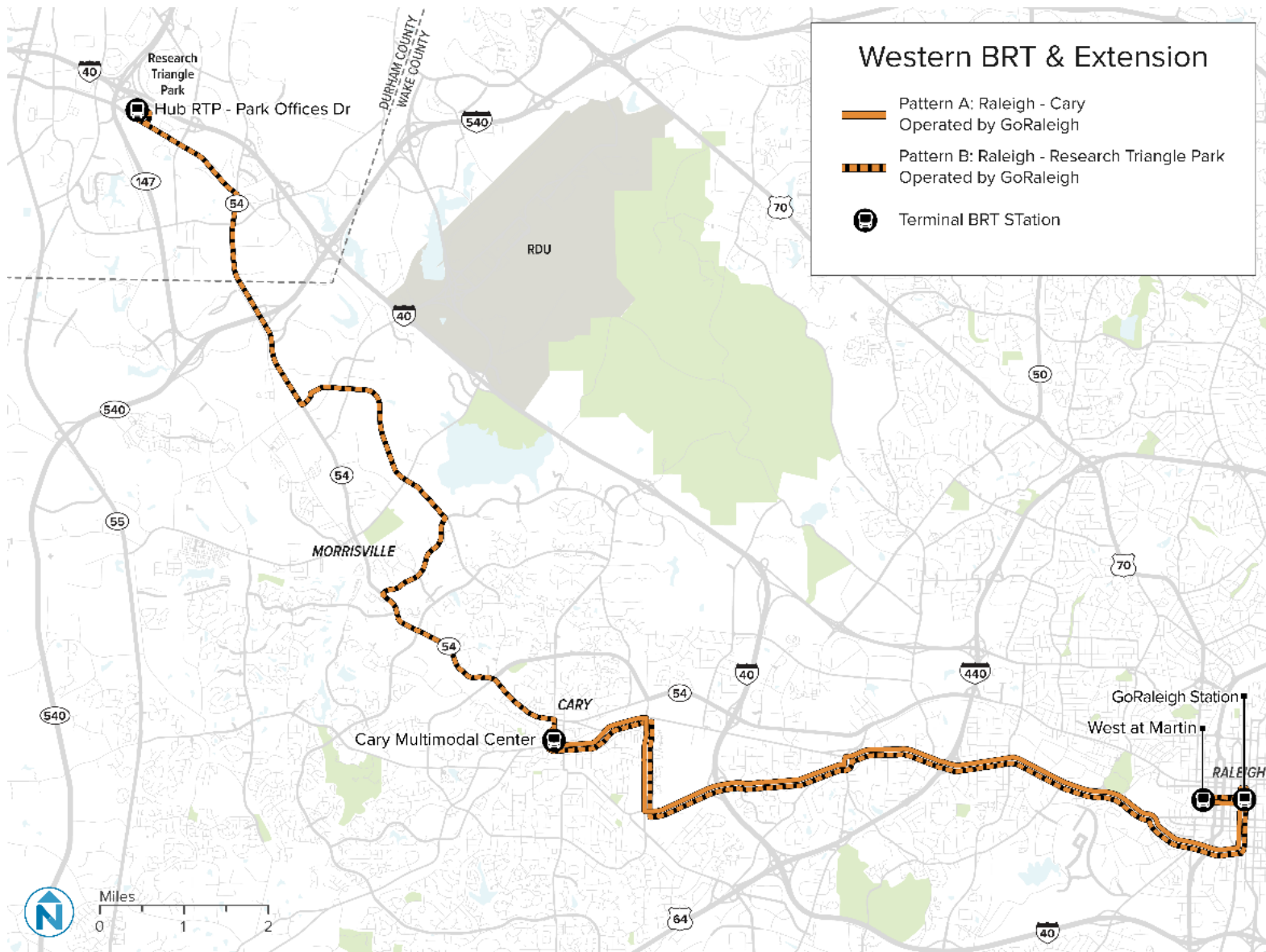
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ATTACHMENT 3 – Recommended Locally Preferred Alternative for Wake BRT: Western Corridor Extension





September 8, 2026

Chris Lukasina
Executive Director
N.C. Capital Area Metropolitan Planning Organization
1 Fenton Main Street, Suite 201
Cary, NC 27511

RE: Wake Bus Rapid Transit (BRT): Western Corridor Extension Alignment and 2035 Wake Bus Plan Service Concepts

Mr. Lukasina,

On July 30, 2026, the Morrisville Town Council received an update from Town and CAMPO staff on the findings and recommendations of the Wake Bus Rapid Transit (BRT) Extensions Concept of Operations Study and the recommended locally preferred alternative (LPA) for the Wake BRT: Western Corridor Extension. Following up from this update, the Morrisville Town Council would like to submit formal comments in response to the 30-day public comment period for the CAMPO Executive Board's consideration of the LPA and in response to the first phase of public engagement for the 2035 Wake Bus Plan update soliciting input on bus service priorities throughout Wake County.

The Wake BRT: Western Corridor Extension will connect downtown Cary to Research Triangle Park (RTP) with most of the alignment traversing the Town of Morrisville. The Town considers the overall concept of the Western Corridor Extension to be a valuable future asset to the region and very generally to the Town, as it presents a great opportunity to expand transportation choices for Morrisville and greater Triangle residents and visitors. The Town's FYs 2026-2029 adopted strategic plan includes a goal to enhance mobility options through improved accessibility, connectivity, and collaboration, and it is the hope of the Morrisville Town Council that the Western Corridor BRT Extension plays a significant role in advancing this goal. In a 2022 National Community Survey for Morrisville, only 26% of residents rated ease of travel by public transportation in the community as 'excellent' or 'good', demonstrating the need to continue expanding and improving public transportation options in the Town.

While substantial investment in public transportation service in Morrisville has been made over the past several years in local and regional fixed-route services (GoCary Route 7 and GoTriangle Route 310) and a more locally focused node-based microtransit system (Morrisville Smart Shuttle), very expansive and highly developed areas of Morrisville where the majority of the Town's population resides west of NC 54 and the North Carolina Railroad corridor remain completely unserved with any local or regional fixed-route or higher-capacity service offerings. This unserved area also includes vast highly populated and

developed areas of western Cary and northern Apex in the presence of a strong north/south travel market generally situated along the Davis Drive corridor. This area remains unserved after 10 years of Wake Transit bus service planning and implementation.

Upon the Morrisville Town Council's further review of the recommended alignment for the Wake BRT: Western Corridor Extension, and given this context, the Town would like to offer the following comments:

1. While the Town previously expressed support for the recommended alignment of the Wake BRT: Western Corridor Extension running along NC 54, Evans Road, and McCrimmon Parkway in response to the final LPA recommendation from the Wake BRT: Western and Southern Rapid Bus Extensions Major Investment Study (MIS) through a letter provided in December of 2022, we are also concerned that this significant investment will not serve the majority of Morrisville residents who reside west of the North Carolina Railroad corridor. This concern most particularly arises from the absence of any other planned fixed-route or higher-capacity service investment in the near-term that would provide transit accessibility to many of the Town's residents and improve Morrisville residents' connectivity to the regionally recommended alignment.

While it is understood that the primary purpose of the extension is to serve a strong east/west travel market between RTP, Cary, and Raleigh with a direct travel path providing a time-competitive option on roadways with more feasible means to support such travel, the regionally recommended alignment in the absence of this other investment does little to benefit Morrisville residents that will otherwise be disconnected from its utility.

2. The Morrisville Town Council supports the overall concept of a BRT extension between downtown Cary and RTP and the benefits it would provide to the region at large. It is understood by the Town that the other alignments evaluated through the aforementioned MIS (i.e., Davis Drive and NC 54) that are not recommended pose significant constructability obstacles and challenges to the speed-enhancing and directness of travel characteristics of BRT. The Town recognizes the value of the regionally recommended alignment, particularly in relation to having an implemented BRT corridor rather than no BRT service in Morrisville at all.

However, the Town urges, and would very strongly welcome and appreciate, a more comprehensive transit accessibility and connectivity evaluation and approach to Wake Transit BRT and bus service planning throughout the Town of Morrisville and other highly developed and populated adjoining areas of western Wake County. This would ensure residents, visitors, and businesses in these areas are able to benefit from the County's overall transit network expansion. The success of BRT services is highly dependent on feeders and connections to/from other transit services that expand the overall network footprint because they enlarge the range of origins and destinations that BRT users may access. Without applying this more comprehensive approach to ensure greater access and connectivity within the overall network, the regionally

recommended BRT alignment for the Western Extension will likely not be as successful at serving the identified east-west travel market.

3. Building from the first two (2) comments, the public input solicitation materials for the 2035 Wake Bus Plan update lay out two (2) new fixed-route service concepts that would directly serve residents and businesses in Morrisville west of the North Carolina Railroad corridor. One is a north/south-oriented route that would generally run along Davis Drive through the Town of Morrisville between Cornerstone Village in Cary and the Regional Transit Center in southeastern Durham. The other route would generally ‘zig-zag’ in a generally southeast/northwest fashion from Park West Village along Morrisville Parkway, Davis Drive, Morrisville-Carpenter Road, Green Level Church Road, O’Kelly Chapel Road, and NC 55 to Parkside Town Commons in far northwestern Cary.

The Town very strongly supports these proposed fixed-route service concepts, their inclusion in the earlier years of bus service expansion programming in the 2035 Wake Bus Plan, and their expeditious implementation. The implementation of these services in advance of, or in concert with, the implementation of the Wake BRT: Western Corridor Extension would go a long way toward resolving the expansive transit service access deficiency where the majority of Morrisville residents live, as well as for adjoining highly developed and populated areas of western Wake County. It would also provide both a north/south service in the unserved but strong travel market situated along Davis Drive and a strong east/west connection to the regionally recommended alignment for the Wake BRT: Western Corridor Extension, which would institute regular fixed-route transit access to the BRT for a much wider cohort of Morrisville residents.

Thank you for the opportunity to provide these comments on the proposed Wake BRT: Western Corridor Extension and express our support for proposed new fixed-route concepts that would help address transit service access deficiencies in Morrisville. If you have any questions about these comments, please contact Bret Martin, Transportation Project Manager, at (919) 463-1654 or bmartin@morrisvillenc.gov.

Sincerely,

TJ Cawley, Mayor
Town of Morrisville

Cc: Brandon Zuidema, Town Manager
Giselle Rodriguez, Deputy Town Manager
Michele Stegall, Planning Director
Bret Martin, Transportation Project Manager
Ben Howell, Wake Transit Program Manager, CAMPO



September 8~~August 25~~, 2026

Chris Lukasina
Executive Director
N.C. Capital Area Metropolitan Planning Organization
1 Fenton Main Street, Suite 201
Cary, NC 27511

RE: Wake Bus Rapid Transit (BRT): Western Corridor Extension Alignment and 2035 Wake Bus Plan Service Concepts

Mr. Lukasina,

On July 30, 2026, the Morrisville Town Council received an update from Town and CAMPO staff on the findings and recommendations of the Wake Bus Rapid Transit (BRT) Extensions Concept of Operations Study and the recommended locally preferred alternative (LPA) for the Wake BRT: Western Corridor Extension. Following up from this update, the Morrisville Town Council would like to submit formal comments in response to the 30-day public comment period for the CAMPO Executive Board's consideration of the LPA and in response to the first phase of public engagement for the 2035 Wake Bus Plan update soliciting input on bus service priorities throughout Wake County.

The Wake BRT: Western Corridor Extension will connect downtown Cary to Research Triangle Park (RTP) with most of the alignment traversing the Town of Morrisville. The Town considers the overall concept of the Western Corridor Extension to be a valuable future asset to the region and very generally to the Town, as it presents a great opportunity to expand transportation choices for Morrisville and greater Triangle residents and visitors. The Town's FYs 2026-2029 adopted strategic plan includes a goal to enhance mobility options through improved accessibility, connectivity, and collaboration, and it is the hope of the Morrisville Town Council that the Western Corridor BRT Extension plays a significant role in advancing this goal. In a 2022 National Community Survey for Morrisville, only 26% of residents rated ease of travel by public transportation in the community as 'excellent' or 'good', demonstrating the need to continue expanding and improving public transportation options in the Town.

While substantial investment in public transportation service in Morrisville has been made over the past several years in local and regional fixed-route services (GoCary Route 7 and GoTriangle Route 310) and a more locally focused node-based microtransit system (Morrisville Smart Shuttle), very expansive and highly developed areas of Morrisville where the majority of the Town's population resides west of NC 54 and the North Carolina Railroad corridor remain completely unserved with any local or regional fixed-route or higher-capacity service offerings. This unserved area also includes vast highly populated and

developed areas of western Cary and northern Apex in the presence of a strong north/south travel market generally situated along the Davis Drive corridor. This area remains unserved after 10 years of Wake Transit bus service planning and implementation.

Upon the Morrisville Town Council's further review of the recommended alignment for the Wake BRT: Western Corridor Extension, and given this context, the Town would like to offer the following comments:

1. While the Town previously expressed support for the recommended alignment of the Wake BRT: Western Corridor Extension running along NC 54, Evans Road, and McCrimmon Parkway in response to the final LPA recommendation from the Wake BRT: Western and Southern Rapid Bus Extensions Major Investment Study (MIS) through a letter provided in December of 2022, we are also concerned that this significant investment will not serve the majority of Morrisville residents who reside west of the North Carolina Railroad corridor. This concern most particularly arises from the absence of any other planned fixed-route or higher-capacity service investment in the near-term that would provide transit accessibility to many of the Town's residents and improve Morrisville residents' connectivity to the regionally recommended alignment.

While it is understood that the primary purpose of the extension is to serve a strong east/west travel market between RTP, Cary, and Raleigh with a direct travel path providing a time-competitive option on roadways with more feasible means to support such travel, the regionally recommended alignment in the absence of this other investment does little to benefit Morrisville residents that will otherwise be disconnected from its utility.

2. The Morrisville Town Council ~~strongly~~ supports the overall concept of the Wake BRT: Western Corridor Extension between downtown Cary and RTP and the benefits it would provide to the ~~Town and~~ region at large. It is understood by the Town that the other alignments evaluated through the aforementioned MIS (i.e., Davis Drive and NC 54) that are not recommended pose significant constructability obstacles and challenges to the speed-enhancing and directness of travel characteristics of BRT. The Town recognizes the value of ~~supports the~~ the regionally recommended alignment, particularly in relation to having an implemented BRT corridor rather than no BRT service ~~in within the context of supporting its implementation versus not implementing any BRT corridor through~~ Morrisville at all.

However, the Town urges, and would very strongly welcome and appreciate, a more comprehensive transit accessibility and connectivity evaluation and approach to Wake Transit BRT and bus service planning throughout the Town of Morrisville and other highly developed and populated adjoining areas of western Wake County. This would ensure residents, visitors, and businesses in these areas are able to benefit from the County's overall transit network expansion. The success of BRT services is highly dependent on feeders and connections to/from other transit services that expand the overall network footprint because they enlarge the range of origins and destinations

that BRT users may access. Without applying this more comprehensive approach to ensure greater access and connectivity within the overall network, the regionally recommended BRT alignment for the Western Extension will likely not be as successful at serving the identified east-west travel market.

3. Building from the first two (2) comments, the public input solicitation materials for the 2035 Wake Bus Plan update lay out two (2) new fixed-route service concepts that would directly serve residents and businesses in Morrisville west of the North Carolina Railroad corridor. One is a north/south-oriented route that would generally run along Davis Drive through the Town of Morrisville between Cornerstone Village in Cary and the Regional Transit Center in southeastern Durham. The other route would generally 'zig-zag' in a generally southeast/northwest fashion from Park West Village along Morrisville Parkway, Davis Drive, Morrisville-Carpenter Road, Green Level Church Road, O'Kelly Chapel Road, and NC 55 to Parkside Town Commons in far northwestern Cary.

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Town of Morrisville

Cc: Brandon Zuidema, Town Manager
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Ben Howell, Wake Transit Program Manager, CAMPO



Wake BRT Extensions

Concept of Operations Study and Recommended Locally Preferred Alternative

Bret Martin, Town of Morrisville
Ben Howell, CAMPO

Morrisville Town Council
July 30, 2026

Agenda

- 1 Background, Planning Context, and Town of Morrisville Participation
- 2 2026 BRT Extensions Concept of Operations Study
- 3 Locally Preferred Alternative
- 4 Next Steps



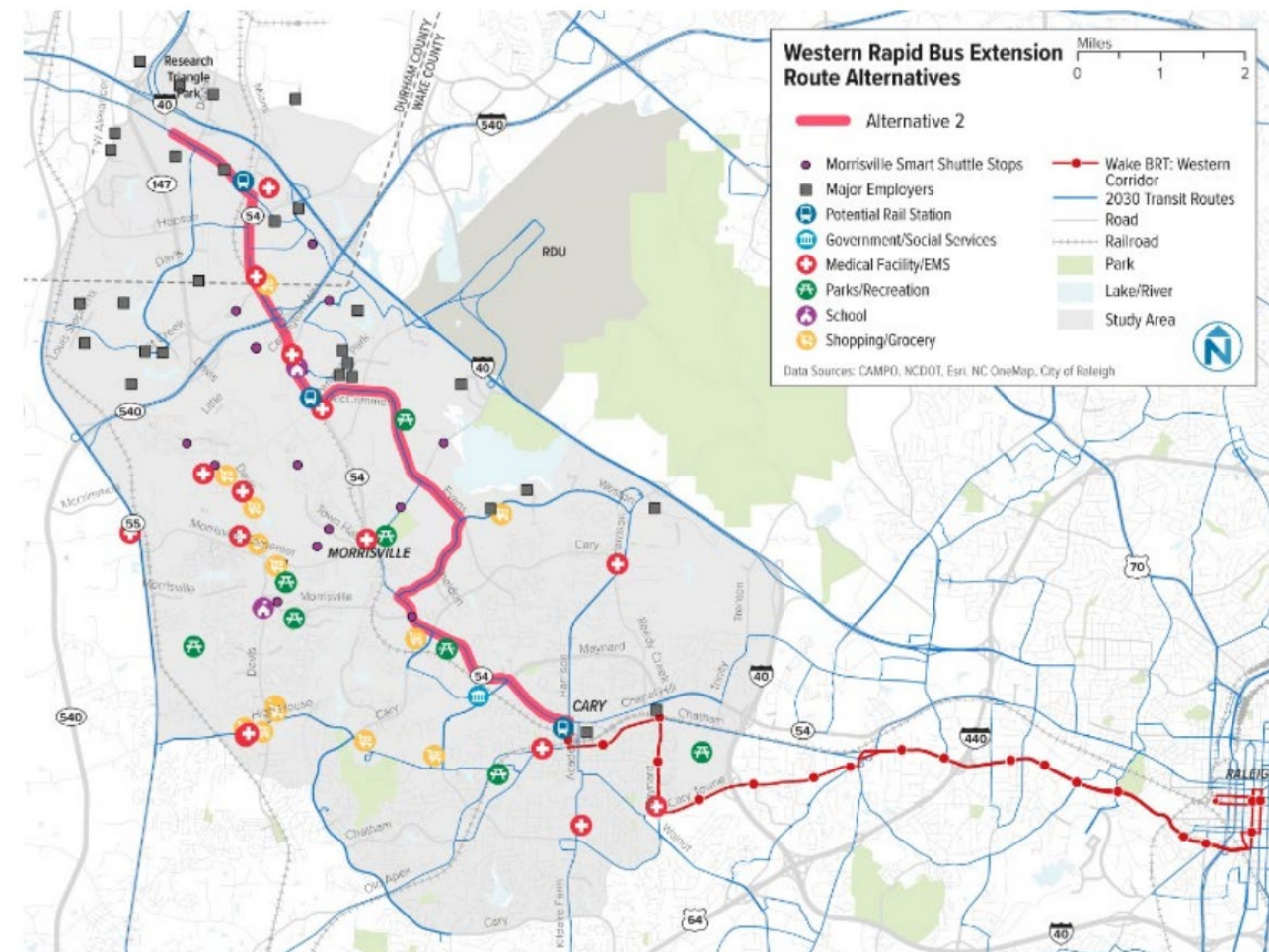
Note: This is an informational item, and there are no decisions to be made by Town Council at this stage in the BRT extension planning process. While no specific feedback is being requested, Town Council is encouraged to ask questions to better understand the proposed project.

Background, Planning Context, and Town of Morrisville Participation



1

Western BRT Extension Background



- **Core Western BRT Corridor:** Downtown Raleigh to Downtown Cary
- **Western BRT Extension:** Downtown Cary to Research Triangle Park (RTP)
- **Basis for BRT Extension Investment:**
 - Provide reliable transit service between Cary and RTP by implementing transit infrastructure to bypass congestion points and facilitate faster transit service
 - Facilitate ridership growth and provide improved and more competitive service and rider experience
 - Accommodate existing and continued growth of corridor's travel market and provide a competitive alternative mode to driving

BRT Extension Development Process

Major Investment Study (MIS)*

- Assessed the existing and future conditions of the study area
- Evaluated potential segment and alignment alternatives to develop locally preferred alternative (LPA)
- Collected public and stakeholder feedback on potential alternatives



Concept of Operations Study**

- Determine how extension services will coordinate with Core BRT services, based on:
 - Route interlining
 - Project sponsor/operator
 - Service levels
 - Fleet
- Confirm final route alignments, stations, and technology



Design & Engineering***

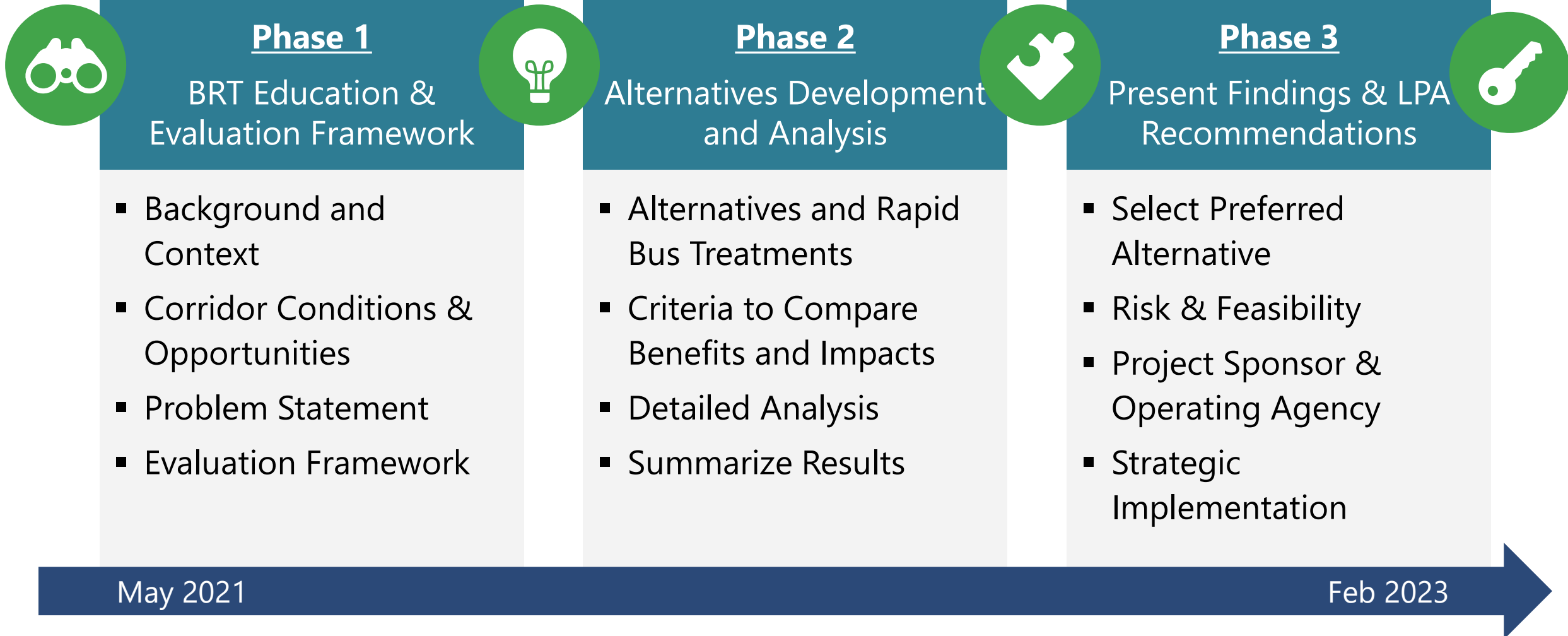
- Design and engineering of each station and other investments in each station area
- Design and engineering of each queue jump and bus on shoulder lane
- Begin right-of-way or easement acquisition where needed

*Included Town of Morrisville staff participation on core technical team for study

**Included Town of Morrisville staff participation on core technical team and partial funding contribution for study

***No Town financial contribution necessary for project design or implementation unless there is a desire for Town betterments

MIS Study Framework



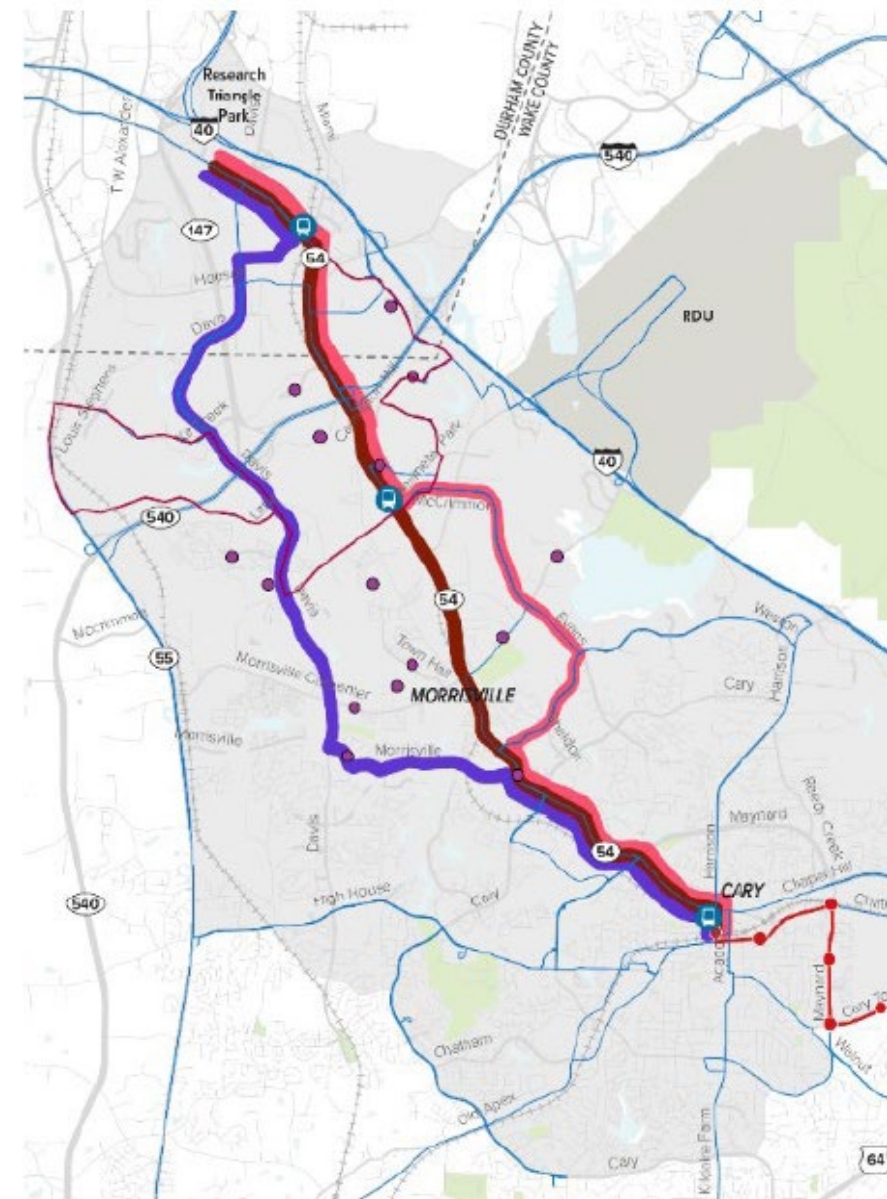
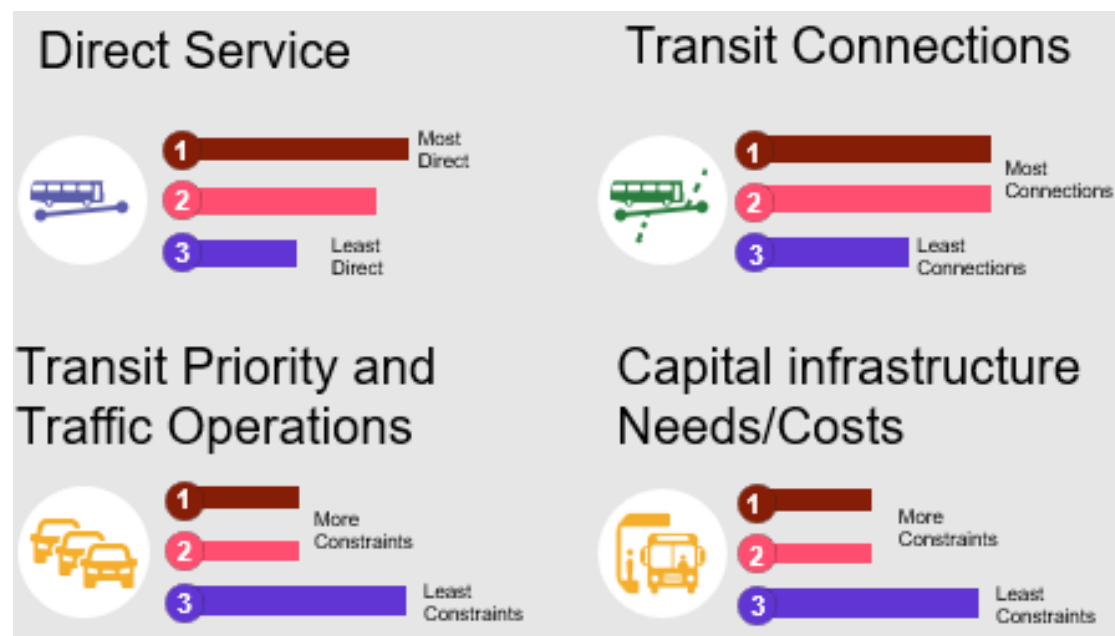
Western BRT Extension – Alternatives Screening

Alternatives screening results identified three (3) alternatives that could support rapid bus service from Cary to RTP.

Alternative 1: Chapel Hill Road Route (NC 54)

Alternative 2: NC-54/Chapel Hill Road & Evans Road

Alternative 3: Davis Drive, Morrisville Pkwy & Chapel Hill Road



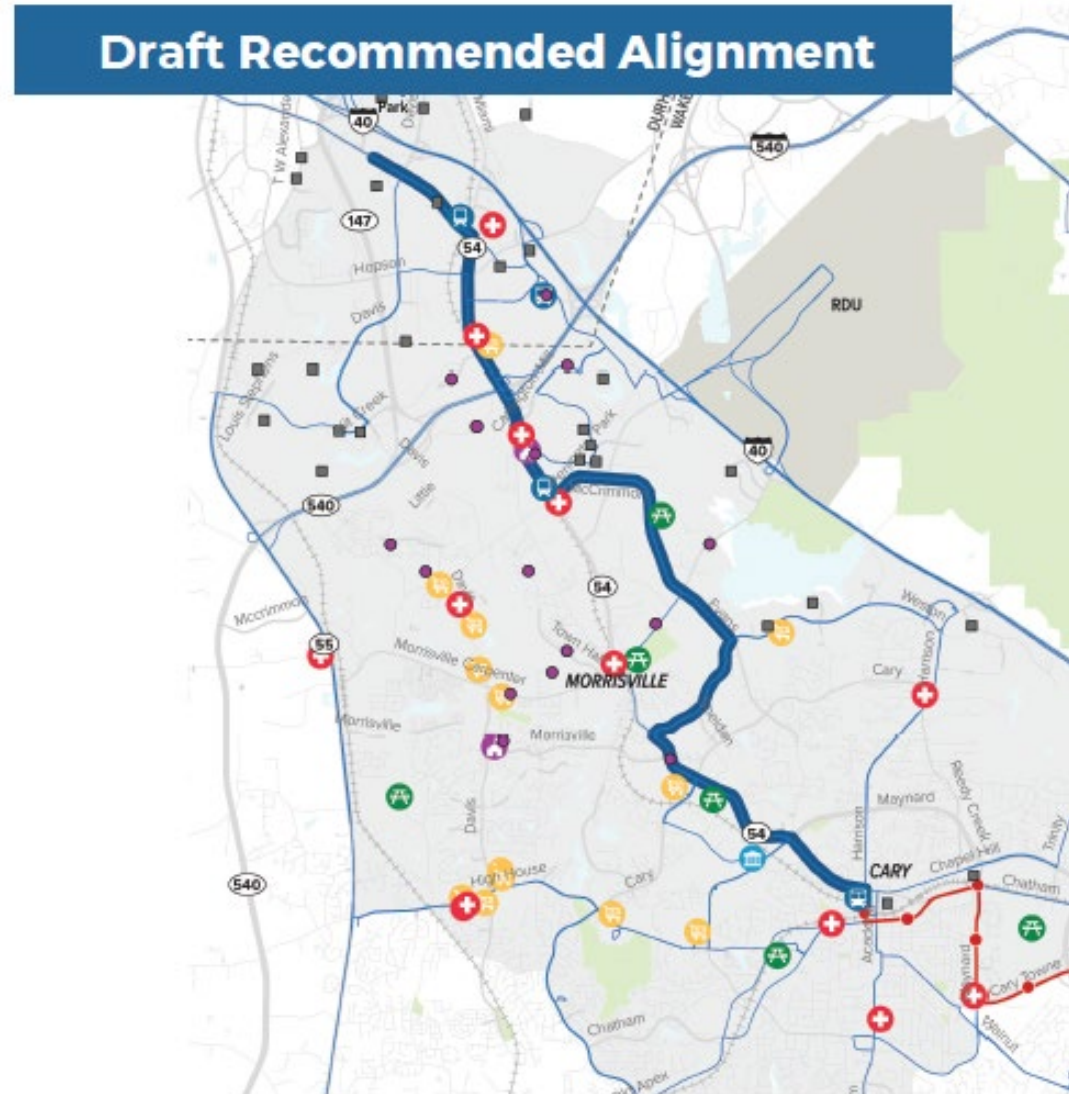
Western BRT Extension Recommendations

Recommended Mode: Zero-emission buses, with speed and reliability investments (transit signal priority and queue jump lanes) where feasible.

Recommended Alignment: **Alternative 2 (NC 54 and Evans Rd)** has better redevelopment opportunity and potential for transit speed and reliability treatments. It also avoids constrained segments of NCRR right-of-way.

RTP to Raleigh: 1-seat service

Opening year: Beyond 2035
(original assumption but now planned for 2032)



2026 BRT Extensions Concept of Operations Study (Agenda Item Attachment 1



2

Concept of Operations Study Goals



Develop BRT program guidelines and standards for future rapid bus extension corridors and integration into the Wake BRT system



Assess feasibility, costs, and benefits of different operational scenarios for the western and southern Wake BRT extensions



Build upon previous MIS and confirm Locally Preferred Alternative for each corridor



Develop detailed plans to prepare the BRT extension corridors for potential future design work, funding, and implementation



Wake BRT Design Guidelines (Agenda Item Attachment 2)

Wake BRT System Standards

- Draft published by City of Raleigh in September 2021
- Established standards to be used for four core BRT corridors:
 - Station spacing and siting
 - Station facilities
 - Roadway
 - Technology
 - BRT fleet and vehicles
 - Identity and branding
 - Service operations
 - Green stormwater and infrastructure

Bus Rapid Transit Components



BRT Extension Service Types

Urban BRT	Arterial BRT
BRT service with transit signal priority (TSP), enhanced stations, unique BRT branding, and peak frequencies at least as often as every 10 minutes. The service operates in at least 50% dedicated guideway in the corridor. Service is operated by specialized, 60-foot buses.	BRT service with TSP, enhanced stations, unique BRT branding, and peak frequencies of 15 to 30 minutes. The service may have dedicated guideway on some of the corridor. Service is operated by specialized, 60-foot buses or 40-foot buses.

Recommended BRT Service Levels

Recommended Service Levels		Urban BRT	Arterial BRT
Span of Service	Weekday	4 am - 12 am (20 hrs.)	5 am - 12 am (19 hrs.)
	Saturday	5:30 am - 12 am (18.5 hrs.)	6 am - 12 am (18 hrs.)
	Sunday	5:30 am - 12 am (18.5 hrs.)	7 am - 10 pm (15 hrs.)
Frequency of Service (minutes)	Weekday Early AM	15-20	20-30
	Weekday AM/PM Peak	10	15-30
	Weekday Midday	15	15-30
	Weekday Night	15-20	20-30
	Weekend Early AM/Night	30	30
	Weekend Day	15	30
Vehicle Loading (seated capacity)	Peak	120%	120%
	Off-Peak	100%	100%

Note: Standards for BRT service should exceed those for the operator's fixed-route service.

BRT Station Placement

BRT Stations		Urban BRT	Arterial BRT
Recommended Station Spacing	Moderate to High Density ($\geq 4,000$ people + jobs/sq mi)	0.5 mile	0.5 mile
	Low Density ($< 4,000$ people + jobs/sq mi.)	1 mile	1 mile
Station Placement	Curb Running	●	●
	Split Island	●	●
	Shared Island	●	●

Note: Compares to every 1/4- to 1/3-mile station spacing for fixed-route bus service.

Station Elements

Required Station Elements

Required Station Elements	Urban BRT	Arterial BRT
Shelter with seating	•	•
Trash and recycling receptacles	•	•
Bicycle racks	•	•
Lighting	•	•

Recommended Station Elements

- Touch Screen Kiosks
- Ticket Vending and Fare Validation Machines
- Emergency Telephones
- Raised Platform
- Public Address
- CCTV
- Real-Time Information
- Reserved Space and Signage for Micromobility Parking

Vehicles

Vehicle Characteristics	Urban BRT	Arterial BRT
40-foot		•
60-foot	•	•
Left boarding door(s)	•	Required if making stops at median stations
All door boarding	•	•
Automatic wheelchair securement	•	•
Kneeling	•	•
Fare Validation at all boarding doors	•	•
Interior Bicycle Storage	•	Yes, if 60-foot bus
Exterior Bicycle Racks		Yes, if 40-foot bus
AVL/CAD Technology on Buses	•	•
Wi-Fi	•	•
USB Charging	•	•

Intersection and Guideway Treatments

Intersection Treatments	Urban BRT	Arterial BRT
Dedicated Guideway	At least 50%	No minimum, but encouraged
Transit Signal Priority (TSP)	Technology to be provided at all signalized intersections, recommended to increase speed and reliability	
Queue Jumps	Recommended where appropriate to increase speed and reliability	
High-Visibility Crosswalks	All intersections, signalized and unsignalized	

Branding Guidelines

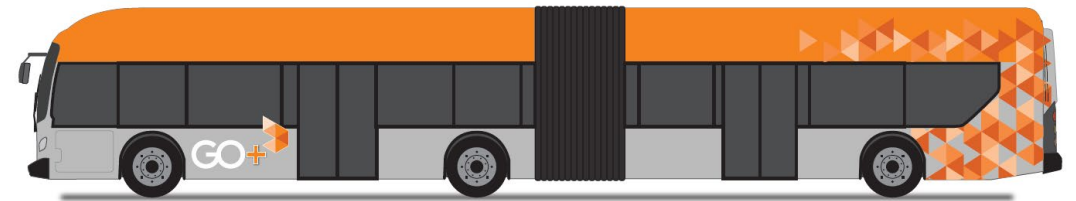
■ GO+ Brand

- Used for BRT that meets the requirements for Federal Transit Administration (FTA) Capital Investment Grant (CIG) funding
- Coordination with City of Raleigh – brand is trademarked



■ Considerations for Project Sponsor

- Compatibility with operator's existing branding and with the region's GO family of brands
- FTA CIG branding requirements
- Service plan
- Flexibility for the operator
- Recognition and wayfinding





Concept of Operations Study Scenarios

Western BRT Extension Scenarios

	Operator	Core BRT Coordination	Frequency on Extension Corridor
Scenario 1	GoRaleigh	Extend every trip of Western BRT along extension corridor	Weekday 10-min peak/15-min off-peak
Scenario 2	GoRaleigh	Extend alternating trips of Western BRT along extension corridor	Weekday 20-min peak/30-min off-peak
Scenario 3	GoTriangle	Separate route serving extension corridor with timed transfer to Western BRT	Weekday 20-min peak/30-min off-peak
Scenario 4	GoCary	Separate route serving extension corridor with timed transfer to Western BRT	Weekday 20-min peak/30-min off-peak

Other Scenarios Considered & Ruled Out	
Considered Scenario	Reason for Ruling Out
GoCary operates the BRT Extension as a separate route, riders transfer to Core BRT at Cary Depot.	For a separate Extension route scenario, GoTriangle is the more likely sponsor as current operator of Route 310
Every BRT Extension trip on a 40-ft bus goes to Raleigh (skip-stop service on Core BRT alignment).	Duplicative service along Core BRT alignment; skip-stop could be confusing from rider perspective.

Station Types

- **Core BRT station:** Constructed as part of the Core BRT corridor projects, can be utilized by the extension services without additional capital investment
- **Transit facility** (Western Extension only): The Cary Multimodal Center is a planned transit facility that will not require capital investment as part of the extension project.
- **Opening day station:** Constitute the majority of planned stations for both extension corridors, with varying capital costs and operating considerations that will be evaluated and compared across scenarios.
- **Future infill station:** Locations that will not have the development to support a station on opening day but may be suitable for a station in the future as the region continues to grow. Not included for evaluation purposes.

Final Station Locations

Station	Street	Cross Street	Station Type
Cary Multimodal Center	Hillsboro St	Harrison Ave	Transit facility
Chapel Hill Rd at Maynard Rd	Chapel Hill Rd	Maynard Rd	Opening day
Park West Village	Chapel Hill Rd	Market Center Dr	Opening day
Weston Pkwy & Evans Rd	Weston Pkwy	Evans Rd	Opening day
McCrimmon Pkwy at Aviation Pkwy	Evans Rd – McCrimmon Pkwy	Aviation Pkwy	Opening day
Wake Competition Center	McCrimmon Pkwy	Strand St	Opening day
McCrimmon Pkwy at Airport Blvd	McCrimmon Pkwy	Airport Blvd	Opening day
McCrimmon Pkwy at Chapel Hill Rd	McCrimmon Pkwy	Chapel Hill Rd	Opening day
Wake Tech	Chapel Hill Rd	Watkins Rd	Opening day
Perimeter Park	Chapel Hill Rd	Carrington Mill	Future infill
Walmart - Morrisville	Chapel Hill Rd	Surles Ct	Opening day
Miami Blvd at Page Rd	Miami Blvd	Page Rd	Opening day
Triangle Mobility Hub	NC 54	Select Dr	Opening day
NC 54 at Rodbell St	NC 54	Rodbell St	Opening day
Hub RTP – Park Offices Dr	Park Offices Dr	NC 54	Opening day



Concept of Operations Study Evaluation

Goal 1: Access to Destinations

TRAVEL TIMES

Relative Scoring

 Higher
 Neutral
 Lower

- Core BRT travel times were based on GoRaleigh's Core BRT Operating Plans
- Extension travel times were estimated stop-by-stop based on travel time model
- Scenarios 3 and 4 assume 5-minute timed transfers at Cary Multimodal Center
- All times are averages of inbound and outbound times between endpoints
- For RTP-Powhatan, each scenario is paired with most similar Southern Extension scenarios



Peak Travel Times	Scenario 1 GoRaleigh Full Extension	Scenario 2 GoRaleigh Alternating Extension	Scenario 3 GoTriangle Separate Route	Scenario 4 GoCary Separate Route
RTP to Downtown Cary	31 minutes	31 minutes	31 minutes	31 minutes
RTP to Downtown Raleigh	72 minutes	72 minutes	77 minutes	77 minutes
McCrimmon/NC 54 to Downtown Raleigh	59 minutes	59 minutes	64 minutes	64 minutes
RTP to Powhatan	132 minutes	134 minutes	144 minutes	144 minutes

Goal 2: Access to Transit Services

TRANSFER & WAIT TIMES

- Scenarios 3 and 4 assume a 5-minute transfer time between core and extension BRT services (schedules were set to facilitate the timed transfer)
- Average wait time assumes that an average wait is half of bus frequency and accounts for different frequencies throughout the day

	 Scenario 1 GoRaleigh Full Extension	 Scenario 2 GoRaleigh Alternating Extension	 Scenario 3 GoTriangle Separate Route	 Scenario 4 GoCary Separate Route
Transfer time	-	-	5 minutes	5 minutes
Average wait time	6 minutes	12 minutes	12 minutes	12 minutes
Total Wait & Transfer	6 minutes	12 minutes	17 minutes	17 minutes

Goal 3: Productive & Sustainable Service

OPERATING COST PER RIDER

- Operating cost based on **increase** over Core BRT costs
- Ridership estimates based on boardings at extension stops, plus those who board in the Core portions but alight in the Extension portions of Scenario 1 and 2 (using STOPS model)
- Scenario 2's alternating patterns can be scheduled efficiently, using the same number of additional buses as Scenarios 3 and 4

	 Scenario 1 GoRaleigh Full Extension	 Scenario 2 GoRaleigh Alternating Extension	 Scenario 3 GoTriangle Separate Route	 Scenario 4 GoCary Separate Route
Peak buses in operation	7 60' buses	4 60' buses	4 40' buses	4 40' buses
Operating cost per hour	\$120	\$120	\$172	\$117
Annual operating cost	\$6,094,600	\$3,820,400	\$5,475,900	\$3,723,600
Annual extension ridership	578,300	520,800	307,700	336,500
Operating Cost per Rider	\$10.54/rider	\$7.34/rider	\$17.79/rider	\$11.07/rider

Goal 3: Productive & Sustainable Service

CAPITAL COST PER RIDER

- Capital costs are based on construction of only extension portions of BRT routes
- Vehicle costs include purchase of 40' or 60' buses beyond those necessary for the Core BRT
- Other costs include professional services and unallocated contingency

	Scenario 1 GoRaleigh Full Extension	Scenario 2 GoRaleigh Alternating Extension	Scenario 3 GoTriangle Separate Route	Scenario 4 GoCary Separate Route
Construction cost	\$28,809,200	\$28,809,200	\$28,812,200	\$28,812,200
Vehicle cost	\$12,176,700	\$6,764,800	\$3,612,300	\$3,612,300
Other cost	\$10,436,600	\$9,895,400	\$9,581,100	\$9,581,100
Total capital cost	\$51,422,500	\$45,469,400	\$42,005,600	\$42,005,600
Annualized capital cost	\$2,780,000	\$2,217,900	\$1,890,000	\$1,890,000
Annual extension ridership	578,300	520,800	307,700	336,500
Capital Cost per Rider	\$4.81/rider	\$4.26/rider	\$6.14/rider	\$5.62/rider

Goal 3: Productive & Sustainable Service

OPERATIONAL CONCERNS

	 Scenario 1 GoRaleigh Full Extension	 Scenario 2 GoRaleigh Alternating Extension	 Scenario 3 GoTriangle Separate Route	 Scenario 4 GoCary Separate Route
Facility Location	4104 Poole Rd	4104 Poole Rd	5201 Nelson Rd	160 Towerview Ct
Capacity Needed and Planned	9 articulated 60' buses – exceeds planned capacity	5 articulated 60' buses – could be accommodated	5 40' buses – no capacity challenges with expanded facility	5 40' buses – no capacity challenges with expanded facility
Deadhead Distance Nearest Terminus	4.8 miles to GoRaleigh Station	4.8 miles to GoRaleigh Station	5.2 miles to Park Offices Drive at RTP	2.2 miles to Cary Multimodal Center
Turnaround and Layovers	No challenges at RTP or GoRaleigh Station	Plans to accommodate 60' buses at Cary Multimodal Center in progress	Plans to accommodate 60' buses at Cary Multimodal Center in progress	Plans to accommodate 60' buses at Cary Multimodal Center in progress
Level Boarding at Stations	Level boarding possible	Level boarding possible	Level boarding not possible	Level boarding not possible
Route Length & Reliability	Greater On-Time Performance risk, less transfer risk	Greater On-Time Performance risk, less transfer risk	Less On-Time Performance risk, greater transfer risk	Less On-Time Performance risk, greater transfer risk

Goal 4: Safety & Compatibility with the Surrounding Environment

TRANSIT DEMAND / SERVICE LEVELS

- Average station area transit demand, western extension corridor:
 - 2035 density: 26/acre, supports 15 to 30-minute service
 - 2055 density: 38/acre, supports 10 to 15-minute service
- Proposed frequencies:
 - Scenario 1 (full extension) ○
 - 10-15 minutes, frequency may be high for opening year but would be suitable within 5-10 years of opening
 - Scenarios 2-4: ^
 - 20-30 minutes, frequency well-suited for opening year

LAND USE	DENSITY		TRANSIT
Land Use Type	Residents per Acre	Jobs per Acre	Frequency of Service
 Downtowns & High Density Corridors	>45	>25	 10 mins or better
 Urban Mixed-Use	30-45	15-25	 10-15 minutes
 Neighborhood & Suburban Mixed-Use	15-30	10-15	 15-30 minutes
 Mixed Neighborhoods	10-15	5-10	 30-60 minutes
 Low Density	2-10	2-5	 60 mins or less or On Demand
 Rural	<2	<2	 On Demand

Summary

ALL METRICS

Relative Scoring	
	Higher
	Neutral
	Lower

Scenario 2 (Alternating Extension operated by GoRaleigh) performs best based on scenario evaluation for opening year (2035).

Metric	Scenario 1 GoRaleigh Full Extension	Scenario 2 GoRaleigh Alternating Extension	Scenario 3 GoTriangle Separate Route	Scenario 4 GoCary Separate Route
Travel time				
Transfer & wait times				
Operating cost per rider				
Capital cost per rider				
Operational concerns				
Future transit demand				

Reliability Tradeoffs

Scenarios 1 and 2 (Full/Partial Extension)	Scenarios 3 and 4 (Separate Routes)
Longer route – more opportunities for compound delays	Shorter route – fewer opportunities for compounding delays
No transfer risk for riders	Possibility of missed transfer if either route falls behind – ridership will be lower
All stations can have level boarding	40' buses cannot be level with 14" BRT platform heights
Greater risk to on-time performance of core portion of route	Less risk to on-time performance of core BRT route

Operational Recommendations

2026 Concept of Operations Study evaluated four operating scenarios, ultimately recommending **extending alternating trips** of the core Western BRT along the Western BRT Extension corridor, **operated by GoRaleigh** using **60-foot articulated buses**

Service Frequency

- Half as frequent as core BRT corridors
- Approximately **every 20 minutes** during weekday peak (6am-7:30pm), and 30-40 minutes during weekends and weekday off-peak

Service Span

- **Weekdays** 5:00 AM to 12:00 AM (19 hours)
- **Saturdays** 6:00 AM to 12:00 AM (18 hours)
- **Sundays** 6:00 AM to 10:00 PM (16 hours)

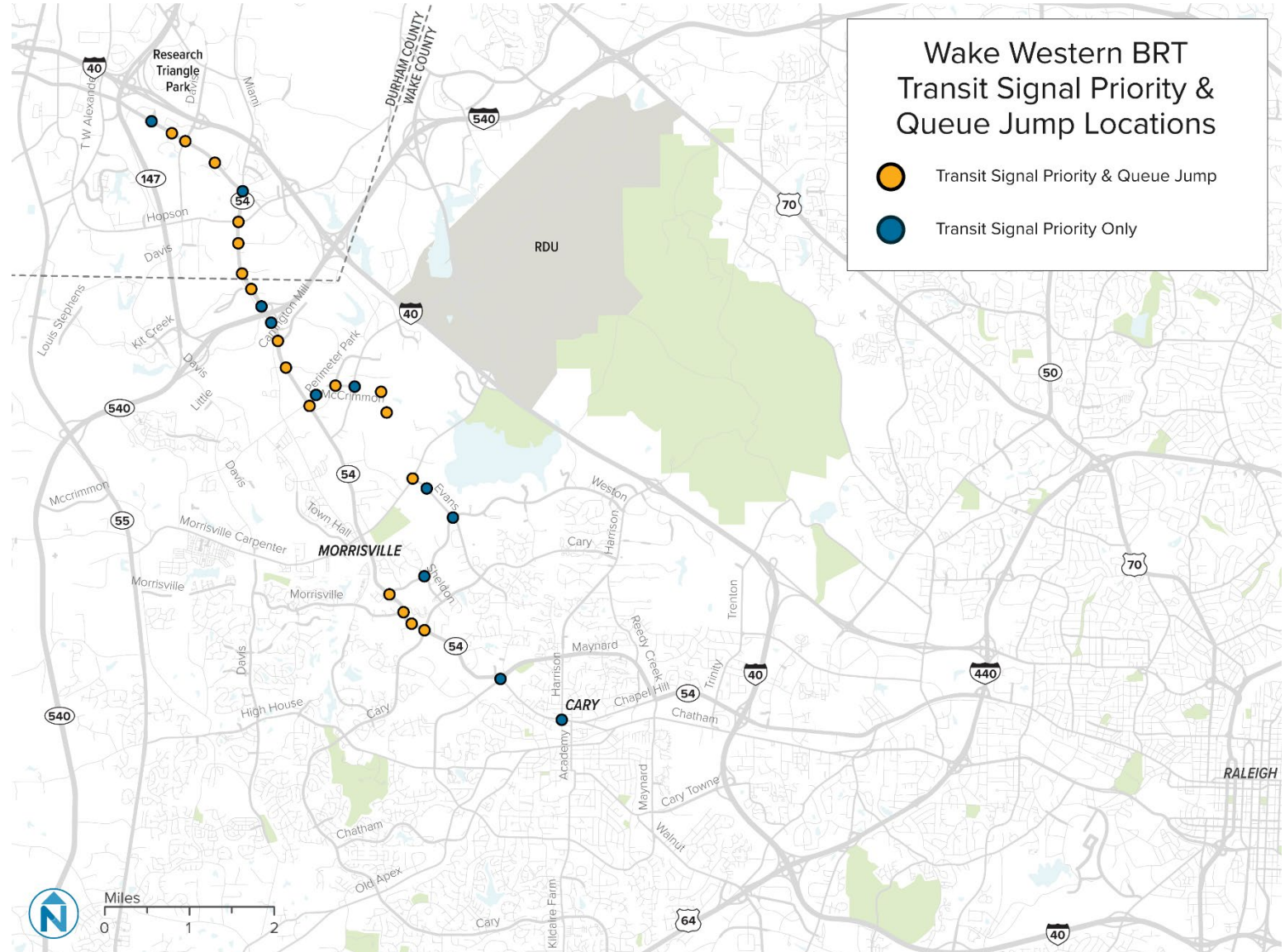
Transit Priority

- **Transit signal priority** (TSP) recommended at all 31 existing and planned signalized intersections
- **Queue jumps** recommended at 18 intersections, where feasible within existing right-of-way

Transit Priority Treatments

Western BRT Extension

- **TSP** is recommended at **all signalized intersections** along each extension corridor
- **Queue jumps** are recommended at **18 intersections** along the Extension corridor



Final Operating & Capital Cost Estimates

Annualized Costs and Vehicle Needs (Full Western BRT and Extension)

Operating Pattern	Annual Operating Cost	Peak Vehicles Required
Core: Raleigh to Cary	\$3,659,000	5
Core + Extension: Raleigh to RTP	\$5,772,000	9
Total	\$9,431,000	14

Total Capital Costs (Western BRT Extension)

Cost Category	Total Cost (Including Contingency)	Project affecting Final Design
Construction	\$41,279,000	Triangle Mobility Hub
Vehicles	\$6,930,000	Downtown Cary Multi-Modal Center
Professional Services	\$8,256,000	McCrimmon Parkway
Unallocated Contingency	\$5,647,000	McCrimmon Parkway & NC 54
TOTAL Cost	\$62,112,000	

Implementation Schedule

- Opening year – coordinated with Core BRT opening years
- Tentative schedule only, assuming no additional federal CIG funds are being sought

Southern and Western BRT Extensions Implementation Schedule

Milestone	Timeframe
MIS Completed	Spring 2023
Concept of Operations Study Completed	Summer 2026
Locally Preferred Alternative (LPA) Selected	Summer 2026
Design and NEPA	2027 – 2029
Right-of-Way Acquisition	2029 – 2030
Construction	2030 – 2032
Revenue Service	2032

Coordination & Local Investments

Improving Access to Transit

- Garner, Clayton, Cary, Morrisville & RTP should prioritize pedestrian and biking connections to BRT stations
- Local transit services, such as the Morrisville Smart Shuttle, RTP Connect, GoRaleigh Route 20 in Garner, and all GoCary routes should be well coordinated with the proposed BRT service and stations
- New local transit services can expand the reach of the BRT service:
 - Downtown Clayton, to connect to the Clayton Blvd at Robertson St and/or Clayton Blvd at Main St stations
 - White Oak Crossing, to connect the vast shopping area to the White Oak Crossing station
 - Perimeter Park, to connect the job sites to the future infill Perimeter Park station

Tracking Future Projects and Developments

- Transit Oriented Development (TOD) planning for municipalities should continue to take the planned BRT stations into consideration to work with developers to integrate BRT stations with new developments.
- NCDOT has plans for roadway expansion, including on US 70, US 401, and NC 54. Planning should add transit priority and pedestrian improvements alongside the roadway expansion.

**Locally Preferred Alternative
(LPA)
(Agenda Item Attachment 3)**



3

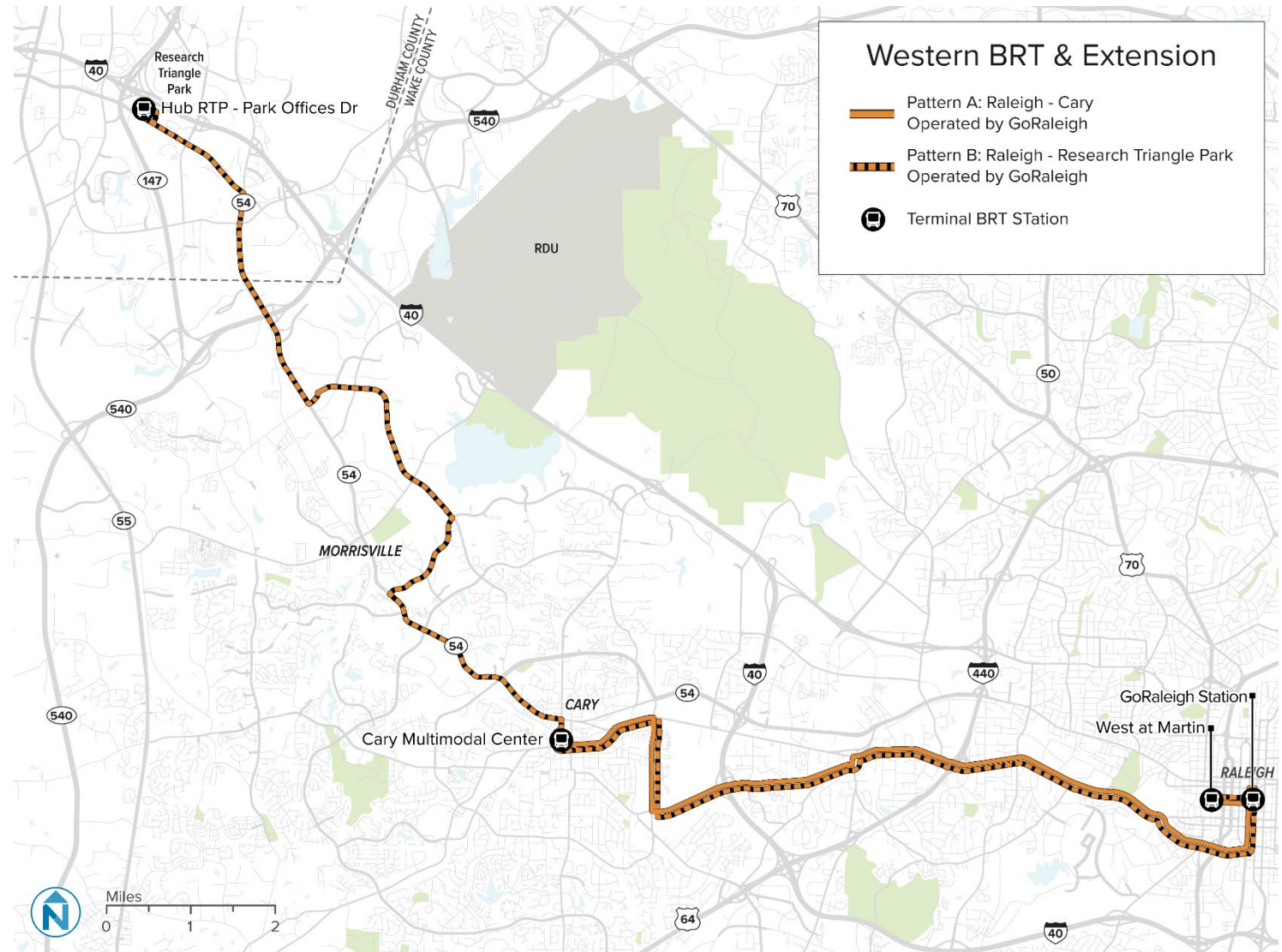
Locally Preferred Alternative (LPA)

Corridor:

- LPA = Route Alignment, Mode, and Termini
- 11.4-mile extension from Cary to RTP **via Chapel Hill Road and McCrimmon Parkway**
- BRT service would operate along the Western BRT Extension corridor starting at **Cary Multimodal Center**, the core Western BRT western terminus, to **Hub RTP at Park Offices Drive**

Stations:

- 13 new opening-day stations
- 1 future infill station



Next Steps



4

LPA Adoption

- LPA Adoption required by CAMPO for *Regionally Significant Projects*
 - *ONLY Mode, Alignment, Termini considered as LPA*
 - *Town Council action of endorsement scheduled for August 11th (Agenda Item Attachment 4)*
- LPA Adoption Timeline
 - CAMPO Public Comment Period: August 17th – September 15th
 - CAMPO TCC Presentation and Consideration: September 3rd
 - CAMPO Executive Board Public Hearing and Consideration: September 16th
- Following LPA Adoption, City of Raleigh will become Project Sponsor
 - *City of Raleigh will manage future phases: Design, Engineering, Right-of-Way and Construction*

Project Implementation

- Funding in adopted STIP: \$100 Million for entire corridor from RTP to Clayton
 - RTP to Cary Section: Approximately \$20 Million
 - Wake Transit has approximately \$18 Million in additional funds allocated for project
 - Capital Funding Gap: Approximately \$24 Million
- Implementation Schedule: Unknown
 - STIP Funding available as early as 2030; Wake Transit Funding available as early as FY27
- Town Involvement
 - Coordination with Raleigh on Design and Engineering phases
 - Provide input as necessary on station location and design
 - Manage any required permitting for stations/infrastructure
 - Assist with marketing service once in operation



Thank You

Ben Howell

Wake Transit Program Manager - CAMPO

Ben.Howell@campo-nc.us



Proclamation

*Recognizing September as National
Preparedness Month*

WHEREAS, the Town of Morrisville and Wake County are at risk for a multitude of hazards including severe weather, terrorism, biological events, hazardous materials incidents, nuclear emergencies, civil unrest, and other man-made or natural disasters; and

WHEREAS, the Morrisville Community Emergency Response Team (CERT) plays a vital role in disaster preparedness and response, supporting residents through training, outreach, and deployment of resources such as natural disaster bags and portable lighting, and actively participating in community events to enhance readiness; and

WHEREAS, every business, family, and individual in Morrisville is encouraged to be ready for disasters and other emergency situations that might disrupt normal daily activities; and

WHEREAS, all Morrisville residents can take steps such as making a family disaster plan, creating an emergency supply kit, and staying informed to help make preparedness and personal responsibility a priority; and

WHEREAS, the Town of Morrisville recommends residents include the safety of their pets and livestock in their emergency plans; and

WHEREAS, FEMA and the Office of the President of the United States recognize September as National Preparedness Month to encourage North Carolinians and Morrisville residents to be disaster ready.

NOW, THEREFORE, the Town Council of the Town of Morrisville does hereby recognize September as National Preparedness Month in Morrisville and encourages all residents to plan and prepare for weather-related and man-made disasters by assembling their emergency supply kits and updating their emergency plans.

TJ Cawley, Mayor

Kayla Bertling, Town Clerk

Town Council Agenda Item Report

Agenda Item No. 10.a

Submitted by: Brandon Zuidema

Submitting Department Administration

Meeting Date: September 8, 2026

SUBJECT

Chamber of Commerce Quarterly Report

Recommendation:

Review the report.

Updates/History of Briefing:

N/A

Executive Summary and Background Information:

Chamber President Christie Moser is presenting the quarterly Chamber of Commerce update to Council per the requirement in the Services Agreement between the Town and the Chamber of Commerce.

Advisory Board/Committee Review:

None

Insert Date of Advisory Board/Committee Review:

Advisory Board/Committee Recommendation and/or Vote:

None

Potential Options:

Acknowledge the Administrative report.

Pull the Administrative report for questions and then acknowledge the report.

Request changes and then acknowledge the report.

Staff Recommendation:

None

ATTACHMENTS

- [2026-320-0 Chamber Quarterly Update Q1.pdf](#)

MORRISVILLE CHAMBER UPDATE

September 2026



Morrisville Chamber of Commerce

New Members Since June 2026 • 18 New Members

Company Name	Membership Level	City	Joined
Carolina Kettle Potato Chips	Trade	Raleigh, NC	Jun 1
Aging in Place North Carolina	Sole Proprietor	Morrisville, NC	Jun 9
Andy's Frozen Custard	11-20 Employees	Morrisville, NC	Jun 9
Atlantic Union Bank	6-10 Employees	Morrisville, NC	Jul 8
SMU Lyle School of Engineering	Retired Executives	Durham, NC	Jul 8
Icy Hot Heating and Air Conditioning	Sole Proprietor	Morrisville, NC	Jul 20
Sonesta Select RDU Airport Morrisville	6-10 Employees	Morrisville, NC	Jul 24
Disability Rights North Carolina	Charitable Org / Non-Profit	Raleigh, NC	Jul 27
PhRMA	6-10 Employees	Washington, DC	Jul 30
Bambino's Pizza	2-5 Employees	Morrisville, NC	Jul 30
RadioNyra	2-5 Employees	Morrisville, NC	Aug 11
Primrose School at the Park	6-10 Employees	Morrisville, NC	Aug 14
Duke Health	Courtesy	Durham, NC	Aug 14
Portal Warehousing	Sole Proprietor	Morrisville, NC	Aug 17
G13 BJJ Morrisville	2-5 Employees	Morrisville, NC	Aug 21
Moxie Salon & Beauty Bar	6-10 Employees	Morrisville, NC	Aug 25
Newsboy Consulting LLC	Sole Proprietor	Morrisville, NC	Aug 31
Peak Energy, Inc.	2-5 Employees	Holly Springs, NC	Sep 1

Level Key:

Trade

Sole Proprietor

2-5 Employees

6-10 Employees

11-20 Employees

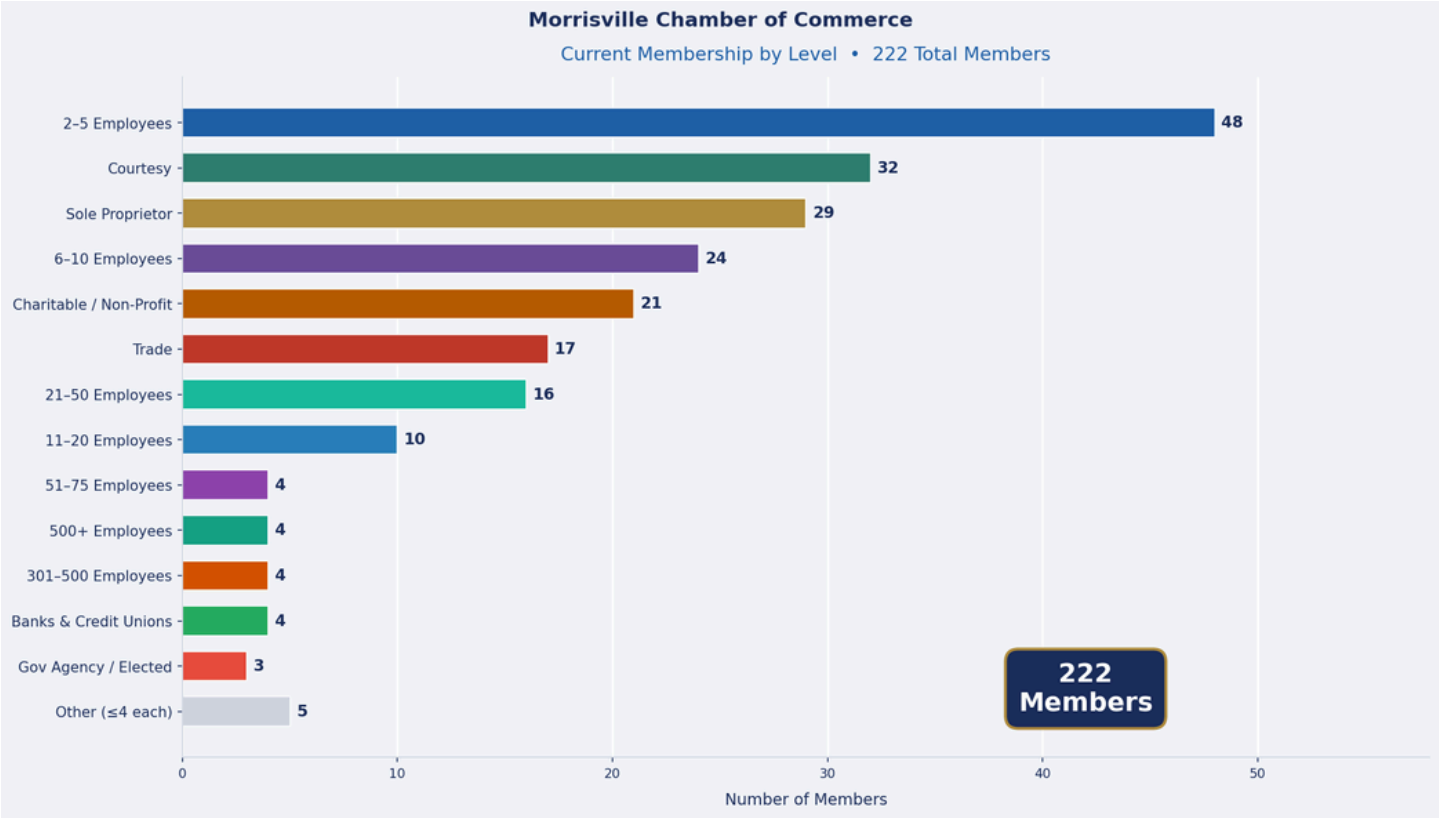
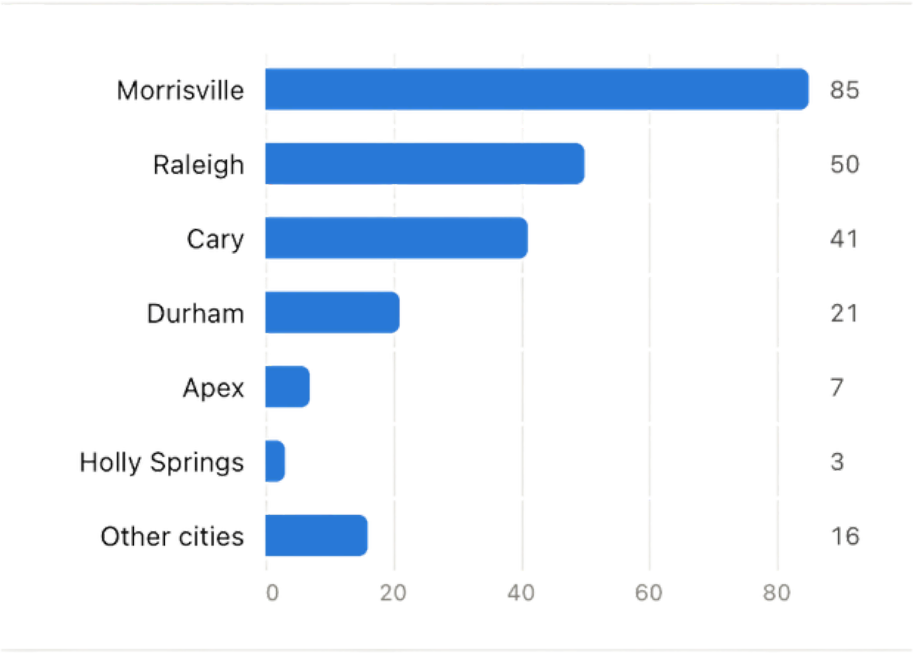
Retired Executives

Charitable Org / Non-Profit

Courtesy

Chamber members by city
Physical address city, combined member export

223 total members across 18 cities



1 additional member added after the 2nd graph

Chamber renewals by membership level

101-150 employees

Forge Battery

11-20 employees

Brown Immigration Law

Southport Innovation Center

2-5 employees

Apella, Meeting & Events Venue

Sip n spices

2029 World University Games

Capitol Broadcasting Company

Catering By Design

District Station

Aire Serv of Cary

Grace Park, An Urban Village

21-50 employees

Enbridge NC

Jordan, Price, Wall, Gray, Jones & Carlton

Banks & credit unions

Fidelity Bank - Morrisville

Charitable organizations / non-profit

Shop Local Raleigh

Special Olympics North Carolina

Colleges/universities

Wake Technical Community College

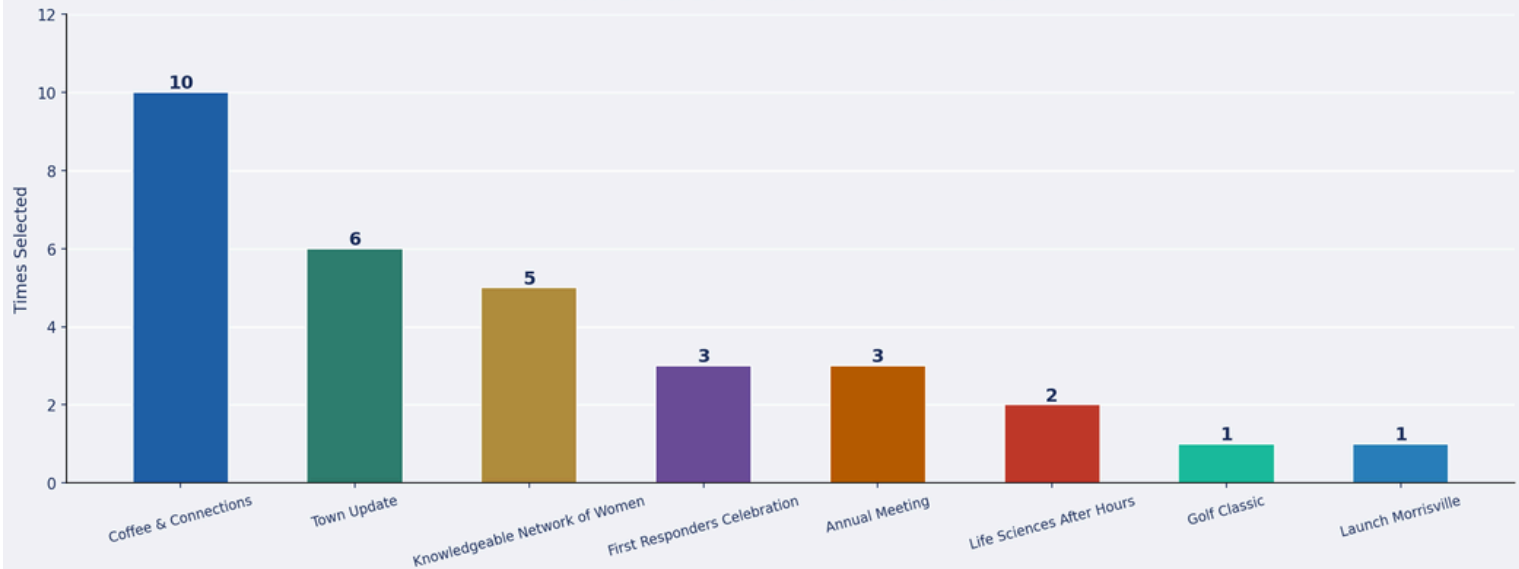
Sole proprietor

Exit Factor of Raleigh-Durham

Bull City Web Design

Member Survey Results — Most Valuable Events

Which Events Do Members Find Most Beneficial?



Member Survey Results — What Members Are Saying

HOW THEY DESCRIBE US

- "Try it for a year and attend different events to see what works for you."
- "Excellent way to meet professionals and build a network in the area."
- "A great opportunity to meet business owners and create meaningful relationships."
- "Connecting with genuine people is what MC is about."

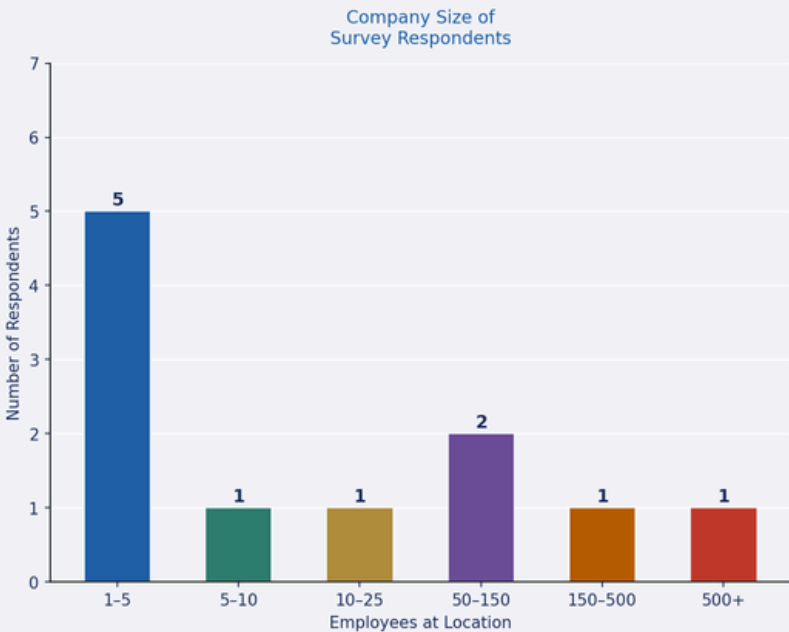
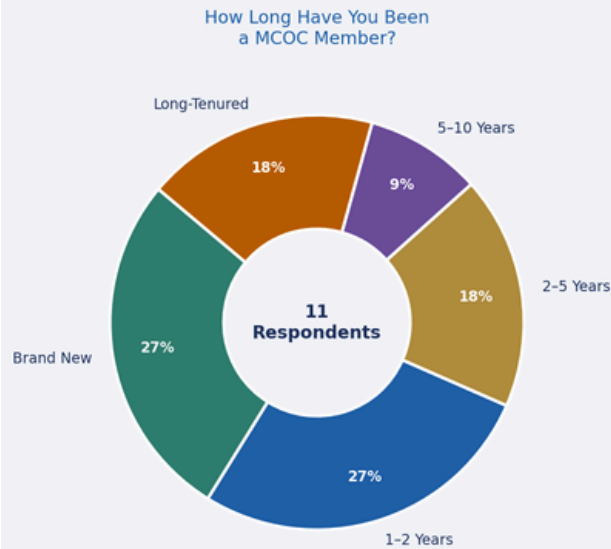
HOW TO IMPROVE COMMUNICATION

- "Advertise events on social media more aggressively."
- "More networking and invited speakers."
- "Email communications are perfect — keep it up!"
- "Allow members to resubscribe if they've accidentally unsubscribed."

TRENDS & FUTURE INTERESTS

- "More small biz programming around AI tools."
- "Social media trends and contact exchange can be improved."
- "Invite more HR professionals to give talks on local job markets."
- "AI adoption in local government — worth exploring."

Member Survey Results — Who Responded?



Town Partnerships - 2026

- January 29: Branding for Impact Virtual Event w/ Amelia Hosine (10-25 attendees)
- May 20: Morrisville Catering & Restaurant Roundtable (37 registrations)
- Launch Morrisville, summer & fall (10 week program). 9 in the cohort.
- HUB Workshop, July
- Small Business Listening Session with Cherith Roberson
- Unlock the Money
- How to go Beyond Business Cards

Site Visits: Amelia Hosine & Wendy Peele

- Leo's Italian Social
- Perspire Spa
- Venice Nails
- Laser Aesthetics
- SaRa Elegance

*Updates to our strategic plan are underway. More details and metrics for that will be in future presentations.

June 2026						
Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	2	3 US Biotech Leadership	4 Coffee & Connections	5	6	7
8	9 Agentic AI for Small B Wells Family Dental	10	11	12	13	14
15	16	17 Chamber Info Session Patient-Focused Drug D	18	19	20	21
22	23	24 Small Business	25	26	27	28
29 Annual Golf Classic	30 2026 Raffle Ends					

Attendees:

Coffee & Connections - 40

Chamber Information Session - 26

Annual Golf Classic - 140

July 2026						
Mon	Tue	Wed	Thu	Fri	Sat	Sun
		1	2	3	4	5
6 Andy's Sweet Since '86	7 Building Safe Conv. AI	8	9 Coffee & Connections	10	11	12
13 Life Sciences Unplugged	14	15 Perspire Sauna Studio Unlock The Money:	16 Now What? Pivoting After WakeMed My 365	17	18	19
20	21	22	23	24	25	26
27 Your Patients Already	28	29	30	31		

Chamber Events
Community Events
Member Events

Attendees:

Coffee & Connections - 43

Life Sciences After Hours at Lenovo - 45

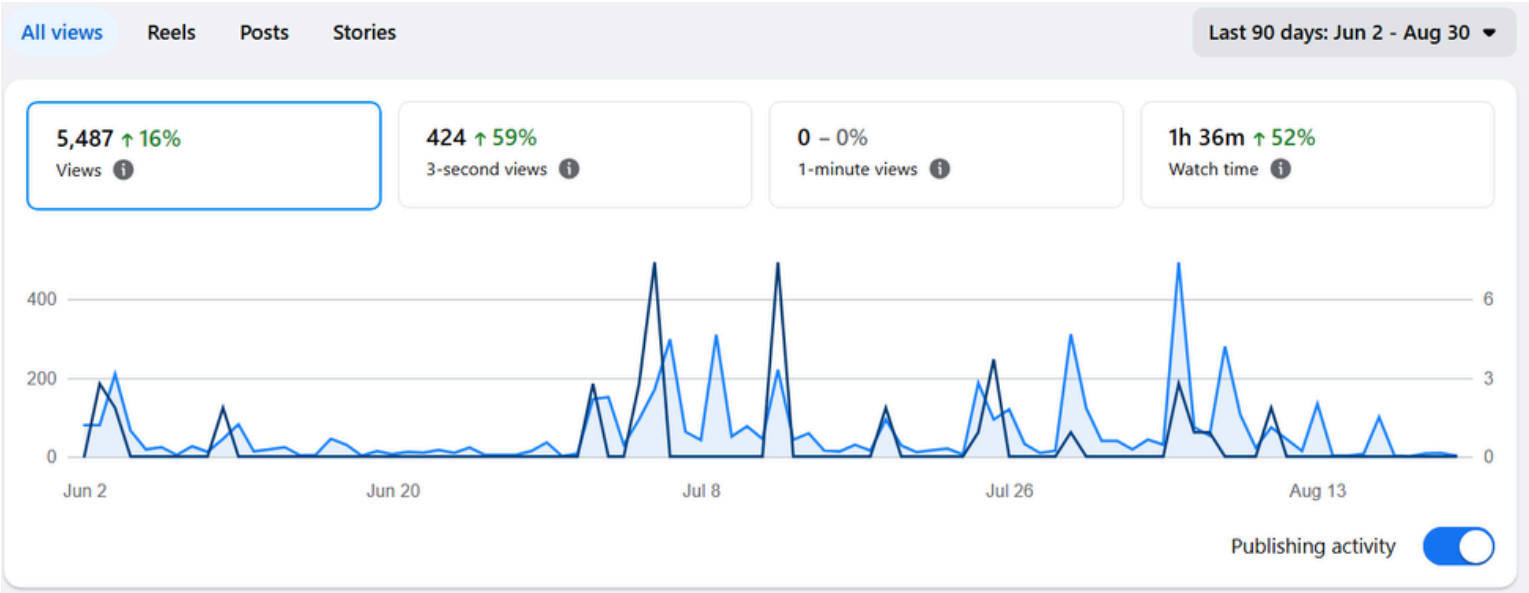
August 2026						
Mon	Tue	Wed	Thu	Fri	Sat	Sun
					1	2
3	4 Bambino's Pizza Ribbon	5 Launch Morrisville	6 Coffee & Connections	7	8	9
10	11 Wake Counseling	12	13 KNOW Event: Network Your Patients Already	14	15	16
17	18	19	20 SpeedPro NW Raleigh	21 Atlantic Union Bank	22	23
24	25	26 HOW TO GO BEYOND	27	28	29	30
31						

Attendees:

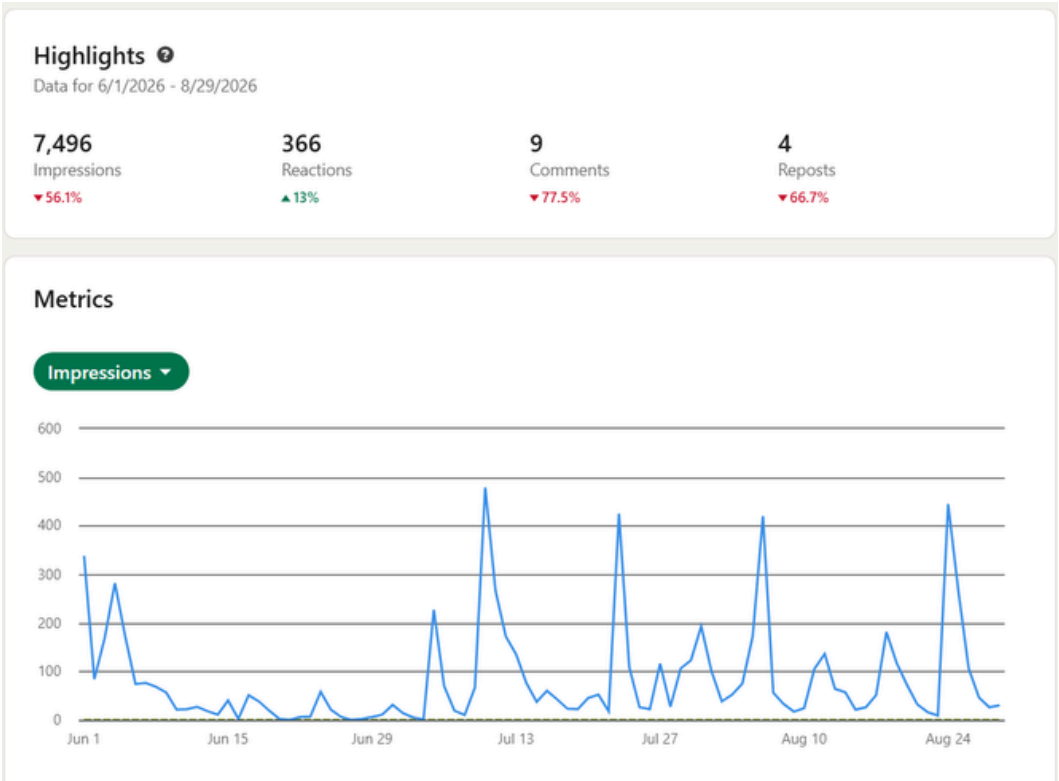
Coffee & Connections - 40

KNOW - 27

Implementing a QR Code for feedback. This will help us to better define our impact in the community as well.



Facebook Metrics



LinkedIn Metrics

Town Council Agenda Item Report

Agenda Item No. 11.a

Submitted by: Tiffany McNeill

Submitting Department Economic Development

Meeting Date: September 8, 2026

SUBJECT

Resolution Authorizing an Economic Incentive Grant Agreement with Novartis Innovative Technologies, Inc.

Recommendation:

Approve resolution authorizing economic incentive grant in accordance with the Town of Morrisville Economic Development Incentive Policy.

Updates/History of Briefing:

NA

Executive Summary and Background Information:

Action is needed to formalize a proposed amendment to the previously approved Economic Development Incentive Grant Agreement for Novartis Gene Therapies, Inc. (now known as Novartis Innovative Technologies, Inc.), related to Project Titan. The amendment encompasses an expanded project scope, with the inclusion of Project Maple Oak, resulting in a consolidated incentive agreement covering both initiatives. The proposed agreement establishes \$200,000,000 in assessed value as the threshold for the company to become eligible for Town grant payments, consistent with the assessed value benchmark established in Wake County's Project Titan and Project Maple Oak incentive agreements.

Novartis Innovative Technologies plans to establish operations in Morrisville focused on expanding national capabilities for cancer drug treatment. The facility will be located at 1000 Science Drive on Pathway Triangle's life science campus.

The expanded project estimates a new capital investment of \$451,000,000 and the creation of 180 new full-time jobs within five years. Hiring is expected to begin in 2026. The investment will generate significant new annual tax revenue for the Town.

This project aligns with the Town's Strategic Plan, Goal 5: Economic Prosperity, specifically:

- Objective 5.1: Attract and retain businesses that support economic growth and community vitality.
- Objective 5.2: Support workforce readiness through business and education partnerships.

Under the Town's Economic Incentives Policy, new companies may qualify for incentives of up to 1% based on investment, job creation, and wage criteria. The Novartis project meets all requirements.

A public hearing is required to approve the contractual incentive agreement between the Town and Novartis Innovative Therapies. The notice of hearing was published on August 26, 2026, and a draft agreement is provided for Council review. The agreement outlines a 1.0% incentive based on the full assessed value of the initial investment, currently estimated to qualify the Company for eight annual grant payments totaling \$4,510,000, beginning no earlier than 2030. Annual payments will adjust proportionately if the assessed value is lower than expected and are contingent upon meeting both investment and job creation benchmarks. Grant payments are issued only after property tax payments are made.

In addition to Town participation, the State of North Carolina has proposed a Job Development Investment Grant, and Wake County intends to support the project through a Business Development Grant Agreement.

Advisory Board/Committee Review:

None

Insert Date of Advisory Board/Committee Review:

Advisory Board/Committee Recommendation and/or Vote:

None

Potential Options:

Approve the Resolution authorizing an economic development incentive with Novartis Innovative Technologies, Inc.;

Direct changes and approve the Resolution authorizing an economic development incentive with Novartis Innovative Technologies, Inc.;

Do not approve the Resolution authorizing an economic development incentive with Novartis Innovative Technologies, Inc.;

Staff Recommendation:

None

ATTACHMENTS

- [2026-317-0 RES Novartis Innovative Technologies Economic Incentive Agreement.pdf](#)
- [2026-317-0 ATTH01 UPDATED_Novartis Innovative Technologies Incentive Grant Agreement.pdf](#)
- [2026-317-0 ATTH02 Original Authorizing Resolution](#)
- [2026-317-0 ATTH03 Original Novartis Agreement](#)



**RESOLUTION 2026-317-0 OF THE MORRISVILLE TOWN
COUNCIL AUTHORIZING AN INCENTIVE GRANT
AGREEMENT WITH NOVARTIS INNOVATIVE
TECHNOLOGIES INC.**

WHEREAS, Novartis Innovative Technologies Inc. (name change effective May 2026, formerly known as Novartis Gene Therapies Inc.), a global healthcare company with headquarters in Bannockburn, Illinois, and parent company, Novartis AG, headquartered in Basel, Switzerland, is known for developing innovative medicines that address a wide range of diseases, from cancer and cardiovascular conditions to neurological, autoimmune and rare disorders; and

WHEREAS, Novartis Innovative Technologies Inc. plans to establish an operation that will expand national capabilities in the production of cancer treatments on Pathway Triangle's life science campus located at 1000 Science Drive in Morrisville;

WHEREAS, the proposal reflects an expanded project scope beyond the original operation, for which the Town authorized an agreement by Resolution 2025-408-0; and

WHEREAS, Novartis Innovative Technologies Inc. plans to employ a minimum 180 net new full-time jobs at the Morrisville site, with a combined average annual wage of at least \$116,000; and

WHEREAS, with a proposed minimum investment of \$451,000,000, the Town will realize significant increased tax revenue annually; and

WHEREAS, the Town of Morrisville agreed in principle to support the location of Novartis Innovative Technologies Inc. in Morrisville by participating with the State of North Carolina and Wake County in providing financial incentives in accordance with the Town's Economic Development Incentive Policy, through payment of an estimated \$4,510,000 in grant payments, subject to adjustment based on one percent (1%) of the project's assessed value, to be paid in eight equal annual installments; and

WHEREAS, grant payments will not exceed eight years in duration, and actual grant payments will be calculated on the assessed value of Novartis Innovative Technologies Inc.'s property improvements as of January 1 of the preceding calendar year; and

WHEREAS, grant payments will be made only after the property tax revenues from the Novartis Innovative Technologies Inc. investment are realized by the Town and do not impact other town revenue or expenditure allocations; and

WHEREAS, notice of the public hearing on the proposed Economic Development Incentive Grant Agreement was duly published on August 26, 2026, in accordance with N.C. General Statute 158-7.1.

NOW, THEREFORE, BE IT RESOLVED THAT THE MORRISVILLE TOWN COUNCIL hereby authorizes the payment of financial incentives to Novartis Innovative Technologies Inc. as outlined in the attached draft incentives grant agreement between the Town of Morrisville and Novartis Innovative Technologies Inc.

BE IT FURTHER RESOLVED THAT Resolution 2025-408-0 be rescinded in favor of the updated agreement.

Adopted this the 8th day of September 2026.

TJ Cawley, Mayor

Kayla Bertling, Town Clerk

INCENTIVE GRANT AGREEMENT

This Incentive Grant Agreement (the “**Agreement**”) is made and entered into as of the 9th day of September 2026 (the “**Effective Date**”) by and between Town of Morrisville, a municipal corporation of the State of North Carolina, 100 Town Hall Drive, Morrisville, North Carolina, USA (the “**Town**”), and Novartis Innovative Technologies, Inc. (name change effective May 2026, formerly Novartis Gene Therapies, Inc.), a Delaware corporation, with its principal office located at 2275 Half Day Road, Suite 300, Bannockburn, IL 60015 (the “**Company**”). The Town and the Company may from time-to-time hereinafter be referred to individually as a “**Party**” and collectively as the “**Parties**”.

Recitals:

- A. WHEREAS, the “Local Development Act of 1925”, as amended (Article 1, Chapter 158 of the North Carolina General Statutes) grants the Town the authority to make appropriations for economic development purposes, if determined by the governing body of the Town to increase the population, taxable property, employment, or business prospects of the Town; and
- B. WHEREAS, the Company proposes to locate a facility in the Town to engage in small molecule manufacturing reinforcing the domestic pharmaceutical supply chain, to be located in Pathway Triangle Campus (the “**Developer**”) at 1000 Science Drive, Morrisville, N.C. 27560 (the “**Location**”); and
- C. WHEREAS, the Company proposes to upfit the facility at the Location with improvements to real estate and installation of additional machinery, fixtures and equipment to accommodate the Company’s operations (the “**Facility**”); and
- D. WHEREAS, the Company anticipates employing substantial new, full-time employees at the Location; and
- E. WHEREAS, the Town Council has determined, following a public hearing on September 8th, 2026 that the proposed activity by the Company will tend to increase the population, taxable property, employment, and business prospects of the Town, and that a grant to the Company by the Town will encourage the Company to undertake the project described in these recitals (the “**Project**”); and
- F. WHEREAS, on August 12, August 26, September 9, and October 14, 2025, and on May 26, 2026, the Morrisville Town Council met in closed session regarding the Company and its location possibilities and determined that (i) the Project would tend to increase the population, taxable property base and business prospects of the Town, (ii) an incentive grant would encourage the Company to locate and provide

jobs in Morrisville, and (iii) it would be in the public interest to provide assistance as authorized by N.C. Gen. Stat. § 158-7.1, and approved the negotiation of a business investment grant agreement for the Project; and

- G. WHEREAS, as the result of negotiations between the Town and the Company, the Town has agreed to provide to the Company the Grant described herein, as authorized by Town policy and as an incentive to undertake the Project, with the intent on the part of the Town of causing an indirect benefit to the community-at-large in the form of additional investment in the community and additional jobs, and not as compensation for specific quantifiable services rendered by Company; and
- H. WHEREAS, the Town Council has determined that the consideration the Town will receive, based on prospective tax revenues to be generated over the Grant Period, will exceed the amount of the Grant described herein; and
- I. WHEREAS, the Grant payments by the Town will allow the Company to qualify for incentive grant funds from Wake County, North Carolina.

NOW, THEREFORE, in consideration of the premises, the mutual promises contained herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereto agree as follows:

1. Payment of Grant.

1.1 Incentive. In order to provide an incentive to the Company for creating jobs and making capital investments within the Town, the Town will pay to the Company a cash grant (the “**Grant**”), to partially reimburse the Company for the costs of the Improvements (as defined below) and associated tangible personal property that the Company or the Developer incurs for the Project. The Grant will equal a percentage of the taxable property base of such Improvements, as determined by the Wake County Tax Assessor as more specifically set forth in Section 1.2.

1.2 Computation and Timing.

Provided the Company has met the performance requirements set forth in Section 2 and has submitted the required documentation under Section 3, the Company will be eligible to receive Grant payments as described herein. The Grant payments shall begin the year after the taxable property base of the Improvements with respect to the Project and associated personal property as determined by the County tax assessor first meets or exceeds at least \$200,000,000. This investment shall occur over a four-year period (2026-2029). The exact date of payments during each Grant year shall be at the discretion of the Town but shall be made during the period from January 1 through April 30. The first year of

eligibility for a Grant payment from the Town would be 2031 based on the increase in the taxable property base as of the January 1, 2030 lien date. The Company may request that the Grant payments begin at a later date.

The aggregate amount of the Grant payments to be paid by the Town to the Company shall be 1% of the assessed value of the Improvements with respect to the Project and associated personal property, paid over a period of eight years (the “**Grant Period**”).

Beginning on January 1, 2031, the Grant payment to be paid by the Town to the Company shall be equal to .125% of the assessed value of the Improvements with respect to the Project and associated tangible personal property as of January 1 of the preceding calendar year (i.e., grant payment received in calendar year 2031 will be based on assessed value as of January 1, 2030).

The obligation of the Town to make Grant payments shall not be limited or restricted to any particular source of funds but such reimbursement may be paid from any funds lawfully available to the Town for such purpose.

Company projects a total capital investment of Four Hundred Fifty-One Million Dollars (\$451,000,000) over the life of the Project. Any adjustments to the assessed taxable value as determined by the Wake County Tax Assessor shall be reflected in the calculation of subsequent annual Grant payments.

1.3 Limitation. The amount of the Grant payment to be paid by the Town to the Company in any calendar year shall in no event exceed the aggregate of the ad valorem taxes paid by the Company or the Developer on the assessed value of the Improvements with respect to the Project and associated personal property for the preceding calendar year.

1.4 Directed Payment. Grant payments are to be made payable to the Company and mailed to the Company at the address provided in Section 7.1.

2. Performance by Company.

This Agreement and the expenditure of Town funds for the Grant is expressly contingent upon Company achieving certain performance requirements and within the time period set forth herein.

2.1 Investment in Real Estate Improvements and Equipment. The Company shall make, or cause to be made, investments for improvements to real estate and for installation of equipment and tangible personal property (together, the “**Improvements**”), which shall total at least \$451,000,000 and which shall occur on or before December 31, 2029. The

Improvements shall include all real and personal property (excluding land) related to the Project.

2.2 Employment. The Company shall have employed at the Location as of December 31, 2029, at least 180 New Employees with an average annual wage of at least \$116,000, excluding bonuses and benefits, which the Parties agree is at least 110% of the 2026 average annual wage for the County as determined by the North Carolina Department of Commerce. For purposes of grant payments, proposed new jobs as outlined in this section represent the minimum number of jobs that will be created. The term “**New Employee**” as used in this Agreement means a full-time employee who represents a net increase in the Company’s full-time employees based in the Town of Morrisville. A “**full- time employee**” is a person who is employed by the Company for at least 35 hours per week and whose wages are subject to withholding.

2.3 Use. The improvements shall be made to accommodate the intended purpose as a small molecule manufacturing services facility of the Company.

2.4 Payment of Taxes by Company. The Town must receive confirmation from the County Tax Assessor’s Office that all taxes due and payable on the assessed value of the Facilities have been paid by the Company, the Developer, or the then current landlord of the Company.

3. Documentation from the Company.

In connection with each request for a Grant payment, the Company shall deliver to the Town’s Finance Director a performance letter (each, a “**Performance Letter**”) on or before February 28 (or 29 if Leap Year) of each Grant Year, certifying that (a) the Company, and to the best of the Company’s knowledge, the Developer, have satisfied the requirements enumerated in Section 2 (b) that at the date of the letter, the Facility has been substantially completed in accordance with the established timeline, a Certificate of Occupancy has been issued therefor, and the Facility is in operation. If the Company does not meet all of the conditions required to be certified in the Performance Letter, the Company shall not qualify for a Grant payment for that calendar year. Upon the request of the Town’s Finance Director, the Company shall present to the Town such evidence as may be reasonably requested to confirm the facts in the Performance Letter, including those relating to employment. The Company also authorizes the Town Finance Director to request and receive information from the N.C. Department of Commerce to verify the information contained in the annual Performance Letter. To the full extent allowed by law, such

requested evidence shall not be considered a public record, shall be kept confidential and shall remain the property of the Company to be returned after the Town's review.

The Town, through its auditors, shall have the right, upon reasonable notice and during normal business hours, to inspect, audit, examine and copy corporate records pertaining to capital expenditures made in respect of the Facility and the wages paid to the Company's employees. All records revealed by the Company to the Town's internal or external auditors are not "**Public Records**" as that term is defined by N.C. Gen. Stat. § 132-1 and shall remain confidential and may be used by the Town only for audit purposes to the full extent allowed by law.

The Company acknowledges that it has been informed by the Town that the Town is required by law, upon request, to disclose Public Records. Notwithstanding the immediately preceding sentence, the Town acknowledges that some or all of the information made available by the Company to the Town pursuant to this Agreement may be exempt from disclosure as a Public Record pursuant to N.C. Gen. Stat. §§ 132-1.2 and/or 132-6(d), and that all such information may be proprietary. Some or all of the information made available to the Town pursuant to this Agreement may be designated by the Company as confidential and as a trade secret at the time of disclosure to the Town. The Town, to the fullest extent allowed by North Carolina law, will hold such designated information as confidential. The Town shall, if it receives a request for disclosure of any such information, notify the Company of such request so that the Company may defend any claims or disputes arising from efforts of others to cause such trade secrets to be disclosed as a Public Record, and the Town shall refrain from making any such disclosures unless or until it (a) receives the Company's written permission to do so; or (b) is compelled to do so by the final order of a court of competent jurisdiction. The Company shall have the right to direct any litigation of such dispute and shall indemnify the Town for any legal fees and expenses incurred by the Town in opposing such request for disclosure. The Company acknowledges that the Town has satisfied the disclosure requirements set forth in N.C. Gen. Stat. § 132-1.11(b).

4. Construction of Facilities.

The Facility shall be designed, constructed, and completed in accordance with the applicable standards established by federal, state, local, and Town regulations and laws; and

The Town shall not be responsible for any aspect of the design or construction of the Facility.

5. Compliance.

The Company acknowledges that it will be subject to North Carolina state law and applicable Town ordinances, policies, procedures, and other regulations.

6. Term and Termination.

The term of this Agreement (the “**Term**”) will commence on the Effective Date and will terminate at the conclusion of the final year of the Grant Period.

7. Miscellaneous.

7.1 Notices and Payments. Any notice or payment provided or permitted to be given under this Agreement must be in writing, shall be given when actually received if transmitted by hand delivery, and in the case of notices shall be deemed given three days after deposit or transmittal if deposited in the United States mail (which must be postage prepaid and registered or certified, with a return receipt requested) or if transmitted by Federal Express or other shipping or courier service (with provision made for the fees thereof), and in the case of either method addressed as follows:

If to the Town, to:

Town of Morrisville

Attn: Town Manager

100 Town Hall Drive

Morrisville, North Carolina 27560

If to the Company, to:

For notices:

Novartis Innovative Technologies, Inc

Attn: Robert Zamboldi, Secretary

One Health Plaza

East Hanover NJ 07936

For payments:

Novartis Innovative Technologies, Inc Attn: Kim Deer,

One Health Plaza

East Hanover NJ 07936

A party may change its address for notices and payments by giving notice thereof in the manner hereinabove provided.

7.2 Jurisdiction. Any controversy or claim arising out of this Agreement shall be settled by an action initiated in the appropriate division of the General Court of Justice in Wake County, North Carolina.

7.3 Governing Law. The Parties agree that this Agreement is to be governed and construed by the laws of the State of North Carolina. The provisions of this Agreement will be upheld by the Town to the extent allowed by North Carolina law. The Town will be held harmless to any provisions of this Agreement deemed illegal in a North Carolina court of law.

7.4 Entire Agreement; Amendment. This Agreement contains the entire agreement of the Parties with respect to the subject matter hereof and there are no other representations, inducements, or provisions other than those expressed in this writing. All amendments, changes, additions, or deletions to this Agreement must be in writing and signed by all Parties.

7.5 Authority. The undersigned hereby represent, warrant and affirm that they have executed this Agreement with full authority to bind and the Parties each hereby represent, warrant, and affirm that they have executed and delivered such with full capacity and intent to bind hereby.

7.6 Parties. This Agreement shall be binding upon and shall inure to the benefit of the Parties and their successors and assigns. As used herein, words in the singular include the plural and the masculine includes feminine and neuter genders, as appropriate.

7.7 Assignment. The Company may assign all or part of its rights and/or obligations under this Agreement to one or more affiliates designated by the Company.

7.8 Paragraph Headings. The subject headings of the sections and paragraphs of this Agreement are included for purposes of convenience only and shall not affect the construction or interpretation of any of its provisions.

7.9 Counterparts. This Agreement may be executed in two counterparts, each of which so executed in conjunction with the other shall be deemed an original and shall constitute one and the same Agreement.

7.10. Edits & Corrections. Following the public hearing on September 8, 2026, the Parties authorize the Town Manager and Town Attorney to make technical corrections and edits that may be needed to clarify the terms of the Agreement to conform to state law and Town incentive grant policy.

This instrument has been preaudited in the manner required by the Local Government Budget and Fiscal Control Act.

Byron Hayes, Chief Financial Officer

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be fully executed as of the date and year first above written.

TOWN:

Town of Morrisville

By: _____

Name: Brandon Zuidema

Title: Town Manager

ATTEST:

Name: Kayla Bertling

Title: Town Clerk

COMPANY:

Novartis Innovative Technologies, Inc

By: _____

Name: Robert Zamboldi

Title: Secretary

ATTEST:

Name: Alvaro Franco

Title: Principal Engineer Project Manager

Approved as to form:

Name: R. Frank Gray

Title: Town Attorney

4911-6936-6727, v. 3

4911-6936-6727, v. 3

INCENTIVE GRANT AGREEMENT

This Incentive Grant Agreement (the “**Agreement**”) is made and entered into as of the 9th day of September 2026 (the “**Effective Date**”) by and between Town of Morrisville, a municipal corporation of the State of North Carolina, 100 Town Hall Drive, Morrisville, North Carolina, USA (the “**Town**”), and Novartis Innovative Technologies, Inc. (name change effective May 2026, formerly Novartis Gene Therapies, Inc.), a Delaware corporation, with its principal office located at 2275 Half Day Road, Suite 300, Bannockburn, IL 60015 (the “**Company**”). The Town and the Company may from time-to-time hereinafter be referred to individually as a “**Party**” and collectively as the “**Parties**”.

Recitals:

- A. WHEREAS, the “Local Development Act of 1925”, as amended (Article 1, Chapter 158 of the North Carolina General Statutes) grants the Town the authority to make appropriations for economic development purposes, if determined by the governing body of the Town to increase the population, taxable property, employment, or business prospects of the Town; and
- B. WHEREAS, the Company proposes to locate a facility in the Town to engage in small molecule manufacturing reinforcing the domestic pharmaceutical supply chain, to be located in Pathway Triangle Campus (the “**Developer**”) at 1000 Science Drive, Morrisville, N.C. 27560 (the “**Location**”); and
- C. WHEREAS, the Company proposes to upfit the facility at the Location with improvements to real estate and installation of additional machinery, fixtures and equipment to accommodate the Company’s operations (the “**Facility**”); and
- D. WHEREAS, the Company anticipates employing substantial new, full-time employees at the Location; and
- E. WHEREAS, the Town Council has determined, following a public hearing on September 8th, 2026 that the proposed activity by the Company will tend to increase the population, taxable property, employment, and business prospects of the Town, and that a grant to the Company by the Town will encourage the Company to undertake the project described in these recitals (the “**Project**”); and
- F. WHEREAS, on August 12, August 26, September 9, and October 14, 2025, and on May 26, 2026, the Morrisville Town Council met in closed session regarding the Company and its location possibilities and determined that (i) the Project would tend to increase the population, taxable property base and business prospects of the Town, (ii) an incentive grant would encourage the Company to locate and provide

jobs in Morrisville, and (iii) it would be in the public interest to provide assistance as authorized by N.C. Gen. Stat. § 158-7.1, and approved the negotiation of a business investment grant agreement for the Project; and

- G. WHEREAS, as the result of negotiations between the Town and the Company, the Town has agreed to provide to the Company the Grant described herein, as authorized by Town policy and as an incentive to undertake the Project, with the intent on the part of the Town of causing an indirect benefit to the community-at-large in the form of additional investment in the community and additional jobs, and not as compensation for specific quantifiable services rendered by Company; and
- H. WHEREAS, the Town Council has determined that the consideration the Town will receive, based on prospective tax revenues to be generated over the Grant Period, will exceed the amount of the Grant described herein; and
- I. WHEREAS, the Grant payments by the Town will allow the Company to qualify for incentive grant funds from Wake County, North Carolina.

NOW, THEREFORE, in consideration of the premises, the mutual promises contained herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereto agree as follows:

1. Payment of Grant.

1.1 Incentive. In order to provide an incentive to the Company for creating jobs and making capital investments within the Town, the Town will pay to the Company a cash grant (the “**Grant**”), to partially reimburse the Company for the costs of the Improvements (as defined below) and associated tangible personal property that the Company or the Developer incurs for the Project. The Grant will equal a percentage of the taxable property base of such Improvements, as determined by the Wake County Tax Assessor as more specifically set forth in Section 1.2.

1.2 Computation and Timing.

Provided the Company has met the performance requirements set forth in Section 2 and has submitted the required documentation under Section 3, the Company will be eligible to receive Grant payments as described herein. The Grant payments shall begin the year after the taxable property base of the Improvements with respect to the Project and associated personal property as determined by the County tax assessor first meets or exceeds at least \$200,000,000. This investment shall occur over a four-year period (2026-2029). The exact date of payments during each Grant year shall be at the discretion of the Town but shall be made during the period from January 1 through April 30. The first year of

eligibility for a Grant payment from the Town would be 2031 based on the increase in the taxable property base as of the January 1, 2030 lien date. The Company may request that the Grant payments begin at a later date.

The aggregate amount of the Grant payments to be paid by the Town to the Company shall be 1% of the assessed value of the Improvements with respect to the Project and associated personal property, paid over a period of eight years (the “**Grant Period**”).

Beginning on January 1, 2031, the Grant payment to be paid by the Town to the Company shall be equal to .125% of the assessed value of the Improvements with respect to the Project and associated tangible personal property as of January 1 of the preceding calendar year (i.e., grant payment received in calendar year 2031 will be based on assessed value as of January 1, 2030).

The obligation of the Town to make Grant payments shall not be limited or restricted to any particular source of funds but such reimbursement may be paid from any funds lawfully available to the Town for such purpose.

Company projects a total capital investment of Four Hundred Fifty-One Million Dollars (\$451,000,000) over the life of the Project. Any adjustments to the assessed taxable value as determined by the Wake County Tax Assessor shall be reflected in the calculation of subsequent annual Grant payments.

1.3 Limitation. The amount of the Grant payment to be paid by the Town to the Company in any calendar year shall in no event exceed the aggregate of the ad valorem taxes paid by the Company or the Developer on the assessed value of the Improvements with respect to the Project and associated personal property for the preceding calendar year.

1.4 Directed Payment. Grant payments are to be made payable to the Company and mailed to the Company at the address provided in Section 7.1.

2. Performance by Company.

This Agreement and the expenditure of Town funds for the Grant is expressly contingent upon Company achieving certain performance requirements and within the time period set forth herein.

2.1 Investment in Real Estate Improvements and Equipment. The Company shall make, or cause to be made, investments for improvements to real estate and for installation of equipment and tangible personal property (together, the “**Improvements**”), which shall total at least \$451,000,000 and which shall occur on or before December 31, 2029. The

Improvements shall include all real and personal property (excluding land) related to the Project.

2.2 Employment. The Company shall have employed at the Location as of December 31, 2029, at least 180 New Employees with an average annual wage of at least \$116,000, excluding bonuses and benefits, which the Parties agree is at least 110% of the 2026 average annual wage for the County as determined by the North Carolina Department of Commerce. For purposes of grant payments, proposed new jobs as outlined in this section represent the minimum number of jobs that will be created. The term “**New Employee**” as used in this Agreement means a full-time employee who represents a net increase in the Company’s full-time employees based in the Town of Morrisville. A “**full- time employee**” is a person who is employed by the Company for at least 35 hours per week and whose wages are subject to withholding.

2.3 Use. The improvements shall be made to accommodate the intended purpose as a small molecule manufacturing services facility of the Company.

2.4 Payment of Taxes by Company. The Town must receive confirmation from the County Tax Assessor’s Office that all taxes due and payable on the assessed value of the Facilities have been paid by the Company, the Developer, or the then current landlord of the Company.

3. Documentation from the Company.

In connection with each request for a Grant payment, the Company shall deliver to the Town’s Finance Director a performance letter (each, a “**Performance Letter**”) on or before February 28 (or 29 if Leap Year) of each Grant Year, certifying that (a) the Company, and to the best of the Company’s knowledge, the Developer, have satisfied the requirements enumerated in Section 2 (b) that at the date of the letter, the Facility has been substantially completed in accordance with the established timeline, a Certificate of Occupancy has been issued therefor, and the Facility is in operation. If the Company does not meet all of the conditions required to be certified in the Performance Letter, the Company shall not qualify for a Grant payment for that calendar year. Upon the request of the Town’s Finance Director, the Company shall present to the Town such evidence as may be reasonably requested to confirm the facts in the Performance Letter, including those relating to employment. The Company also authorizes the Town Finance Director to request and receive information from the N.C. Department of Commerce to verify the information contained in the annual Performance Letter. To the full extent allowed by law, such

requested evidence shall not be considered a public record, shall be kept confidential and shall remain the property of the Company to be returned after the Town's review.

The Town, through its auditors, shall have the right, upon reasonable notice and during normal business hours, to inspect, audit, examine and copy corporate records pertaining to capital expenditures made in respect of the Facility and the wages paid to the Company's employees. All records revealed by the Company to the Town's internal or external auditors are not "**Public Records**" as that term is defined by N.C. Gen. Stat. § 132-1 and shall remain confidential and may be used by the Town only for audit purposes to the full extent allowed by law.

The Company acknowledges that it has been informed by the Town that the Town is required by law, upon request, to disclose Public Records. Notwithstanding the immediately preceding sentence, the Town acknowledges that some or all of the information made available by the Company to the Town pursuant to this Agreement may be exempt from disclosure as a Public Record pursuant to N.C. Gen. Stat. §§ 132-1.2 and/or 132-6(d), and that all such information may be proprietary. Some or all of the information made available to the Town pursuant to this Agreement may be designated by the Company as confidential and as a trade secret at the time of disclosure to the Town. The Town, to the fullest extent allowed by North Carolina law, will hold such designated information as confidential. The Town shall, if it receives a request for disclosure of any such information, notify the Company of such request so that the Company may defend any claims or disputes arising from efforts of others to cause such trade secrets to be disclosed as a Public Record, and the Town shall refrain from making any such disclosures unless or until it (a) receives the Company's written permission to do so; or (b) is compelled to do so by the final order of a court of competent jurisdiction. The Company shall have the right to direct any litigation of such dispute and shall indemnify the Town for any legal fees and expenses incurred by the Town in opposing such request for disclosure. The Company acknowledges that the Town has satisfied the disclosure requirements set forth in N.C. Gen. Stat. § 132-1.11(b).

4. Construction of Facilities.

The Facility shall be designed, constructed, and completed in accordance with the applicable standards established by federal, state, local, and Town regulations and laws; and

The Town shall not be responsible for any aspect of the design or construction of the Facility.

5. Compliance.

The Company acknowledges that it will be subject to North Carolina state law and applicable Town ordinances, policies, procedures, and other regulations.

6. Term and Termination.

The term of this Agreement (the “**Term**”) will commence on the Effective Date and will terminate at the conclusion of the final year of the Grant Period.

7. Miscellaneous.

7.1 Notices and Payments. Any notice or payment provided or permitted to be given under this Agreement must be in writing, shall be given when actually received if transmitted by hand delivery, and in the case of notices shall be deemed given three days after deposit or transmittal if deposited in the United States mail (which must be postage prepaid and registered or certified, with a return receipt requested) or if transmitted by Federal Express or other shipping or courier service (with provision made for the fees thereof), and in the case of either method addressed as follows:

If to the Town, to:

Town of Morrisville

Attn: Town Manager

100 Town Hall Drive

Morrisville, North Carolina 27560

If to the Company, to:

For notices:

Novartis Innovative Technologies, Inc

Attn: Robert Zamboldi, Secretary

One Health Plaza

East Hanover NJ 07936

For payments:

Novartis Innovative Technologies, Inc Attn: Kim Deer,

One Health Plaza

East Hanover NJ 07936

A party may change its address for notices and payments by giving notice thereof in the manner hereinabove provided.

7.2 Jurisdiction. Any controversy or claim arising out of this Agreement shall be settled by an action initiated in the appropriate division of the General Court of Justice in Wake County, North Carolina.

7.3 Governing Law. The Parties agree that this Agreement is to be governed and construed by the laws of the State of North Carolina. The provisions of this Agreement will be upheld by the Town to the extent allowed by North Carolina law. The Town will be held harmless to any provisions of this Agreement deemed illegal in a North Carolina court of law.

7.4 Entire Agreement; Amendment. This Agreement contains the entire agreement of the Parties with respect to the subject matter hereof and there are no other representations, inducements, or provisions other than those expressed in this writing. All amendments, changes, additions, or deletions to this Agreement must be in writing and signed by all Parties.

7.5 Authority. The undersigned hereby represent, warrant and affirm that they have executed this Agreement with full authority to bind and the Parties each hereby represent, warrant, and affirm that they have executed and delivered such with full capacity and intent to bind hereby.

7.6 Parties. This Agreement shall be binding upon and shall inure to the benefit of the Parties and their successors and assigns. As used herein, words in the singular include the plural and the masculine includes feminine and neuter genders, as appropriate.

7.7 Assignment. The Company may assign all or part of its rights and/or obligations under this Agreement to one or more affiliates designated by the Company.

7.8 Paragraph Headings. The subject headings of the sections and paragraphs of this Agreement are included for purposes of convenience only and shall not affect the construction or interpretation of any of its provisions.

7.9 Counterparts. This Agreement may be executed in two counterparts, each of which so executed in conjunction with the other shall be deemed an original and shall constitute one and the same Agreement.

7.10. Edits & Corrections. Following the public hearing on September 8, 2026, the Parties authorize the Town Manager and Town Attorney to make technical corrections and edits that may be needed to clarify the terms of the Agreement to conform to state law and Town incentive grant policy.

This instrument has been preaudited in the manner required by the Local Government Budget and Fiscal Control Act.

Byron Hayes, Chief Financial Officer

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be fully executed as of the date and year first above written.

TOWN:

Town of Morrisville

By: _____

Name: Brandon Zuidema

Title: Town Manager

ATTEST:

Name: Kayla Bertling

Title: Town Clerk

COMPANY:

Novartis Innovative Technologies, Inc

By: _____

Name: Robert Zamboldi

Title: Secretary

ATTEST:

Name: Alvaro Franco

Title: Principal Engineer Project Manager

Approved as to form:

Name: R. Frank Gray

Title: Town Attorney



**RESOLUTION 2025-408-0-OF THE MORRISVILLE
TOWN COUNCIL AUTHORIZING AN INCENTIVE
GRANT AGREEMENT WITH NOVARTIS GENE
THERAPIES INC.**

WHEREAS, Novartis Gene Therapies, Inc., a global healthcare company with headquarters in Bannockburn, Illinois, and parent company, Novartis AG, headquartered in Basel, Switzerland, is known for developing innovative medicines that address a wide range of diseases, from cancer and cardiovascular conditions to neurological, autoimmune and rare disorders; and

WHEREAS, Novartis Gene Therapies, Inc. plans to establish an operation that will expand national capabilities in the production of small production of solid dosage tablets and capsules, including packaging for key lifesaving medicines on Pathway Triangle's life science campus located at 1000 Science Drive in Morrisville; and

WHEREAS, Novartis Gene Therapies, Inc. plans to employ a minimum 100 net new full-time jobs at the Morrisville site, with an average annual wage of at least \$121,080; and

WHEREAS, with a proposed minimum investment of \$231,000,000, the Town will realize significant increased tax revenue annually; and

WHEREAS, the Town of Morrisville agreed in principle to support the location of Novartis Gene Therapies Inc. to Morrisville by participating with the State of North Carolina and Wake County in providing financial incentives in accordance with the Town's Economic Development Incentive Policy through payment of up to \$2,310,000 of grant payments, beginning no earlier than 2030 and paid with eight equal payments of \$288,750 over eight years; and

WHEREAS, Grant payments will not exceed eight years in duration, and actual grant payments will be calculated on the assessed value of Novartis Gene Therapies Inc.'s property improvements as of January 1 of the preceding calendar year; and

WHEREAS, Grant payments will be made only after the property tax revenues from the Novartis Gene Therapies, Inc. investment are realized by the Town and do not impact other town revenue or expenditure allocations.

NOW, THEREFORE, BE IT RESOLVED THAT THE MORRISVILLE TOWN COUNCIL hereby authorizes the payment of financial incentives to Novartis Gene Therapies Inc. as outlined in the attached draft incentives grant agreement between the Town of Morrisville and Novartis Gene Therapies Inc. The Town Manager and Town Attorney are authorized to make technical and clarifying changes to the Incentive Grant Agreement, consistent with its intent and purpose.

Adopted this the 25th day of November 2025.



TJ Cawley, Mayor

ATTEST



Kayla Bertling, Town Clerk



INCENTIVE GRANT AGREEMENT

This Incentive Grant Agreement (the “**Agreement**”) is made and entered into as of the 25th day of November 2025 (the “**Effective Date**”) by and between Town of Morrisville, a municipal corporation of the State of North Carolina, 100 Town Hall Drive, Morrisville, North Carolina, USA (the “**Town**”), and Novartis Gene Therapies, Inc., a North Carolina corporation, with its principal office located at 2275 Half Day Road, Suite 300, Bannockburn, IL 60015 (the “**Company**”). The Town and the Company may from time-to-time hereinafter be referred to individually as a “**Party**” and collectively as the “**Parties**”.

Recitals:

- A. WHEREAS, the “Local Development Act of 1925”, as amended (Article 1, Chapter 158 of the North Carolina General Statutes) grants the Town the authority to make appropriations for economic development purposes, if determined by the governing body of the Town to increase the population, taxable property, employment, or business prospects of the Town; and
- B. WHEREAS, the Company proposes to locate a facility in the Town to engage in small molecule manufacturing reinforcing the domestic pharmaceutical supply chain, to be located in Pathway Triangle Campus (the “**Developer**”) at 1000 Science Drive, Morrisville, N.C. 27560 (the “**Location**); and
- C. WHEREAS, the Company proposes to upfit the facility at the Location with improvements to real estate and installation of additional machinery, fixtures and equipment to accommodate the Company’s operations (the “**Facility**”); and
- D. WHEREAS, the Company anticipates employing substantial new, full-time employees at the Location; and
- E. WHEREAS, the Town Council has determined, following a public hearing on November 25, 2025 that the proposed activity by the Company will tend to increase the population, taxable property, employment, and business prospects of the Town, and that a grant to the Company by the Town will encourage the Company to undertake the project described in these recitals (the “**Project**”); and
- F. WHEREAS, on August 12, August 26, September 9, and October 14, 2025, the Morrisville Town Council met in closed session regarding the Company and its location possibilities and determined that (i) the Project would tend to increase the population, taxable property base and business prospects of the Town, (ii) an incentive grant would encourage the Company to locate and provide jobs in Morrisville, and (iii) it would be in the public interest to provide assistance as

authorized by N.C. Gen. Stat. § 158-7.1, and approved the negotiation of a business investment grant agreement for the Project; and

- G. WHEREAS, as the result of negotiations between the Town and the Company, the Town has agreed to provide to the Company the Grant described herein, as authorized by Town policy and as an incentive to undertake the Project, with the intent on the part of the Town of causing an indirect benefit to the community-at-large in the form of additional investment in the community and additional jobs, and not as compensation for specific quantifiable services rendered by Company; and
- H. WHEREAS, the Town Council has determined that the consideration the Town will receive, based on prospective tax revenues to be generated over the Grant Period, will exceed the amount of the Grant described herein; and
- I. WHEREAS, the Grant payments by the Town will allow the Company to qualify for incentive grant funds from Wake County, North Carolina.

NOW, THEREFORE, in consideration of the premises, the mutual promises contained herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereto agree as follows:

1. Payment of Grant.

1.1 Incentive. In order to provide an incentive to the Company for creating jobs and making capital investments within the Town, the Town will pay to the Company a cash grant (the “**Grant**”), to partially reimburse the Company for the costs of the Improvements (as defined below) and associated personal property that the Company or the Developer incurs for the Project. The Grant will equal a percentage of the taxable property base of such Improvements, as determined by the County Tax Assessor as more specifically set forth in Section 1.2.

1.2 Computation and Timing.

Provided the Company has met the performance requirements set forth in Section 2 and has submitted the required documentation under Section 3, the Company will be eligible to receive Grant payments as described herein. The Grant payments shall begin the year after the taxable property base of the Improvements with respect to the Project and associated personal property as determined by the County tax assessor first meets or exceeds \$231,000,000. This investment shall occur over a three-year period (2026-2028). The exact date of payments during each Grant year shall be at the discretion of the Town but shall be made during the period from January 1 through March 31. The first year of eligibility for a

Grant payment from the Town would be 2029. The Company may request that the Grant payments begin at a later date.

The aggregate amount of the Grant payments to be paid by the Town to the Company shall be 1% of the assessed value of the Improvements with respect to the Project and associated personal property, paid over a period of eight years (the “**Grant Period**”). Beginning on January 1, 2029, the Grant payment to be paid by the Town to the Company shall be equal to .125% of the assessed value of the Improvements with respect to the Project and associated personal property as of January 1 of the preceding calendar year.

The obligation of the Town to make Grant payments shall not be limited or restricted to any particular source of funds but such reimbursement may be paid from any funds lawfully available to the Town for such purpose.

1.3 Limitation. The amount of the Grant payment to be paid by the Town to the Company in any calendar year shall in no event exceed the aggregate of the ad valorem taxes paid by the Company or the Developer on the assessed value of the Improvements with respect to the Project and associated personal property for the preceding calendar year.

1.4 Directed Payment. Grant payments are to be made payable to the Company and mailed to the Company at the address provided in Section 7.1.

2. Performance by Company.

This Agreement and the expenditure of Town funds for the Grant is expressly contingent upon Company achieving certain performance requirements and within the time period set forth herein. The requirements are set out in this Section 2.

2.1 Investment in Real Estate Improvements and Equipment. The Company shall make, or cause to be made, investments for improvements to real estate and for acquisitions of tangible personal property (together, the “**Improvements**”), which shall total at least \$231,000,000, which shall occur on or before December 31, 2028. The Improvements shall include all real and personal property (excluding land) related to the Project.

2.2 Employment. The Company shall have employed at the Location as of December 31, 2030 at least 100 New Employees with an average annual wage of at least \$121,080, excluding bonuses and benefits, which the Parties agree is at least 120% of the 2025 average annual wage for the County as determined by the North Carolina Department of Commerce. For purposes of grant payments, proposed new jobs as outlined in this section represent the minimum number of jobs that will be created. The term “**New Employee**” as used in this

Agreement means a full-time employee who represents a net increase in the Company's full-time employees based in the Town of Morrisville. A "**full- time employee**" is a person who is employed by the Company for at least 35 hours per week and whose wages are subject to withholding.

2.3 Use. The improvements shall be made to accommodate the intended purpose as a small molecule manufacturing services facility of the Company.

2.4 Payment of Taxes by Company. The Town must receive confirmation from the County Tax Assessor's Office that all taxes due and payable on the assessed value of the Facilities have been paid by the Company, the Developer, or the then current landlord of the Company.

3. Documentation from the Company.

In connection with each request for a Grant payment, the Company shall deliver to the Town's Finance Director a performance letter (each, a "**Performance Letter**") on or before January 31 of each Grant Year, certifying that (a) the Company, and to the best of the Company's knowledge, the Developer have satisfied the requirements enumerated in Section 2; (b) that at the date of the letter, the Facility has been substantially completed in accordance with the established timeline, a Certificate of Occupancy has been issued therefor, and the Facility is in operation. If the Company does not meet all of the conditions required to be certified in the Performance Letter, the Company shall not qualify for a Grant payment for that calendar year. Upon the request of the Town's Finance Director, the Company shall present to the Town such evidence as may be reasonably requested to confirm the facts in the Performance Letter, including those relating to employment. The Company also authorizes the Town Finance Director to request and receive information from the N.C. Department of Commerce to verify the information contained in the annual Performance Letter. To the full extent allowed by law, such requested evidence shall not be considered a public record, shall be kept confidential and shall remain the property of the Company to be returned after the Town's review.

The Town, through its auditors, shall have the right, upon reasonable notice and during normal business hours, to inspect, audit, examine and copy corporate records pertaining to capital expenditures made in respect of the Facility and the wages paid to the Company's employees. All records revealed by the Company to the Town's internal or external auditors are not "**Public Records**" as that term is defined by N.C. Gen. Stat. § 132-1 and shall remain confidential and may be used by the Town only for audit purposes to the full extent allowed by law.

The Company acknowledges that it has been informed by the Town that the Town is required by law, upon request, to disclose Public Records. Notwithstanding the immediately preceding sentence, the Town acknowledges that some or all of the information made available by the Company to the Town pursuant to this Agreement may be exempt from disclosure as a Public Record pursuant to N.C. Gen. Stat. §§ 132-1.2 and/or 132-6(d), and that all such information may be proprietary. Some or all of the information made available to the Town pursuant to this Agreement may be designated by the Company as confidential and as a trade secret at the time of disclosure to the Town. The Town, to the fullest extent allowed by North Carolina law, will hold such designated information as confidential. The Town shall, if it receives a request for disclosure of any such information, notify the Company of such request so that the Company may defend any claims or disputes arising from efforts of others to cause such trade secrets to be disclosed as a Public Record, and the Town shall refrain from making any such disclosures unless or until it (a) receives the Company's written permission to do so; or (b) is compelled to do so by the final order of a court of competent jurisdiction. The Company shall have the right to direct any litigation of such dispute and shall indemnify the Town for any legal fees and expenses incurred by the Town in opposing such request for disclosure. The Company acknowledges that the Town has satisfied the disclosure requirements set forth in N.C. Gen. Stat. § 132-1.11(b).

4. Construction of Facilities.

The Facility shall be designed, constructed, and completed in accordance with the applicable standards established by federal, state, local, and Town regulations and laws; and The Town shall not be responsible for any aspect of the design or construction of the Facility.

5. Compliance.

The Company acknowledges that it will be subject to North Carolina state law and applicable Town ordinances, policies, procedures, and other regulations.

6. Term and Termination.

The term of this Agreement (the "**Term**") will commence on the Effective Date and will terminate at the conclusion of the final year of the Grant Period.

7. Miscellaneous.

7.1 Notices and Payments. Any notice or payment provided or permitted to be given under this Agreement must be in writing, shall be given when actually received if transmitted by hand delivery, and in the case of notices shall be deemed given three days after deposit or transmittal if deposited in the United States mail (which must be postage prepaid and

registered or certified, with a return receipt requested) or if transmitted by Federal Express or other shipping or courier service (with provision made for the fees thereof), and in the case of either method addressed as follows:

If to the Town, to:

Town of Morrisville

Attn: Town Manager

100 Town Hall Drive

Morrisville, North Carolina 27560

If to the Company, to:

For notices:

Novartis Gene Therapies, Inc

Attn: John McKenna, President

One Health Plaza

East Hanover NJ 07936

For payments:

Novartis Gene Therapies, Inc

Attn: Eduard Marti, Treasurer

One Health Plaza

East Hanover NJ 07936

A party may change its address for notices and payments by giving notice thereof in the manner hereinabove provided.

7.2 Jurisdiction. Any controversy or claim arising out of this Agreement shall be settled by an action initiated in the appropriate division of the General Court of Justice in Wake County, North Carolina.

7.3 Governing Law. The Parties agree that this Agreement is to be governed and construed by the laws of the State of North Carolina. The provisions of this Agreement will be upheld by

the Town to the extent allowed by North Carolina law. The Town will be held harmless to any provisions of this Agreement deemed illegal in a North Carolina court of law.

7.4 Entire Agreement; Amendment. This Agreement contains the entire agreement of the Parties with respect to the subject matter hereof and there are no other representations, inducements, or provisions other than those expressed in this writing. All amendments, changes, additions, or deletions to this Agreement must be in writing and signed by all Parties.

7.5 Authority. The undersigned hereby represent, warrant and affirm that they have executed this Agreement with full authority to bind and the Parties each hereby represent, warrant, and affirm that they have executed and delivered such with full capacity and intent to bind hereby.

7.6 Parties. This Agreement shall be binding upon and shall inure to the benefit of the Parties and their successors and assigns. As used herein, words in the singular include the plural and the masculine includes feminine and neuter genders, as appropriate.

7.7 Assignment. The Company may assign all or part of its rights and/or obligations under this Agreement to one or more affiliates designated by the Company.

7.8 Paragraph Headings. The subject headings of the sections and paragraphs of this Agreement are included for purposes of convenience only and shall not affect the construction or interpretation of any of its provisions.

7.9 Counterparts. This Agreement may be executed in two counterparts, each of which so executed in conjunction with the other shall be deemed an original and shall constitute one and the same Agreement.

7.10. Edits & Corrections. Following the public hearing on November 25, 2025, the Parties authorize the Town Manager and Town Attorney to make technical corrections and edits that may be needed to clarify the terms of the Agreement to conform to state law and Town incentive grant policy.

This instrument has been preaudited in the manner required by the Local Government Budget and Fiscal Control Act.

Bryron Hayes, Chief Financial Officer

[Signature Page Follows]

DRAFT

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be fully executed as of the date and year first above written.

TOWN:

Town of Morrisville

By: _____

Name: Brandon V. Zuidema

Title: Town Manager

ATTEST:

Name: Kayla Bertling

Title: Town Clerk

Approved as to form:

Name: R. Frank Gray

Title: Town Attorney

COMPANY:

Novartis Gene Therapies, Inc.

By: _____

Name: John McKenna

Title: President

ATTEST:

Name: Jaime Huertas

Title: Secretary

Town Council Agenda Item Report

Agenda Item No. 11.b

Submitted by: Jordan Prince

Submitting Department Planning

Meeting Date: September 8, 2026

SUBJECT

Annexation 808 Church St and 0 Church St Hamlet Development

Recommendation:

Approve as presented.

Updates/History of Briefing:

August 11

Council set the date of the public hearing for August 25 and instructed the Clerk to investigate the sufficiency of the petition. Council had no questions on the item.

August 25

Council rescheduled the date of the public hearing to September 8. Council had no questions on the item. The public hearing and decision are scheduled for September 8th.

Executive Summary and Background Information:

1. Resolution 2026-262-0B of the Morrisville Town Council Setting a Date for Public Hearing on the Question of Voluntary Annexation for Property Located at 808 Church ST and 0 Church St (ANX-26-0015)

2. Resolution 2026-262-0B of the Morrisville Town Council Setting a Date for a Public Hearing on the Question of Voluntary Annexation for Property Located at 808 Church St and two parcels located at 0 Church St (ANX-26-0015).

3. Ordinance 2026-262-0 of the Morrisville Town Council Pertaining to the Extension of the Town of Morrisville Corporate Limits to Include Property Located at 808 Church St and two parcels located at 0 Church St (ANX-26-0015).

Middleburg Communities, LLC has submitted a petition for annexation for property located on the east side of Church Street, approximately 2,000 feet south of the intersection of Church Street and McCrimmon Parkway. The subject property, identified by Wake County PINs 0746-80-0096, 0746-80-2190, and 0746-80-3273, consists of approximately 2.519 acres of single-family detached residential and vacant land and is contiguous to the Town's corporate limits on all sides.

Advisory Board/Committee Review:

None

Insert Date of Advisory Board/Committee Review:

Advisory Board/Committee Recommendation and/or Vote:

None

Potential Options:

The Town Council is asked to consider the proposed annexation and should either:

1. Approve the annexation; or
2. Deny the annexation.

Consideration of an annexation is a legislative decision and is discretionary. A public hearing and action on the petition is scheduled for the August 25, 2026, meeting.

Staff Recommendation:

None

ATTACHMENTS

- [2026-262-0A SIGNED RES Sufficiency of the Petition](#)
- [2026-262-0B SIGNED RES Setting Date for Public Hearing](#)
- [2026-262-0C SIGNED RES Amending Date for Public Hearing - THIS ITEM HAS BEEN UPDATED](#)
- [2026-262-0 ORD Approving the Annexation.pdf THIS ITEM HAS BEEN UPDATED](#)
- [2026-262-0 ATTH 01 Annexation Petition and Supporting Documents.pdf](#)
- [2026-262-0 ATTH 02 Maps.pdf](#)
- [2026-262-0 PRES Hamlet Annexation THIS ITEM HAS BEEN UPDATED.pdf](#)



**RESOLUTION 2026-262-0A OF THE MORRISVILLE TOWN COUNCIL
PERTAINING TO THE SUFFICIENCY OF THE PETITION TO EXTEND THE
TOWN OF MORRISVILLE CORPORATE LIMITS TO INCLUDE 808
CHURCH ST AND 0 CHURCH ST (ANX-26-0015)**

WHEREAS, on April 6, 2026 the Town received a petition requesting voluntary annexation of approximately 2.159 acres of property located at 808 Church St and 0 Church St, specifically identified by Wake County PINs: 0746-80-0096, 0746-80-2190 and 0746-80-3273; and

WHEREAS, G.S. 160A-31 provides that the Town Clerk shall investigate the sufficiency of the petition before further annexation proceedings may take place; and

WHEREAS, the Town Council of the Town of Morrisville deems it advisable to proceed in response to this voluntary request for annexation;

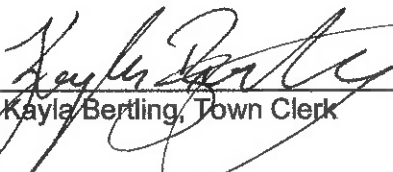
NOW, THEREFORE, BE IT RESOLVED BY THE MORRISVILLE TOWN COUNCIL THAT:

The Town Clerk is hereby directed to investigate the sufficiency of the above-described petition and to certify as soon as possible to the Town Council the result of his investigation.

Adopted this the 11th day of August 2026.


TJ Cawley, Mayor

ATTEST:


Kayla Bertling, Town Clerk





**RESOLUTION 2026-262-0B OF THE MORRISVILLE TOWN COUNCIL
SETTING A DATE FOR PUBLIC HEARING ON THE QUESTION OF
VOLUNTARY ANNEXATION FOR PROPERTY LOCATED AT 808
CHURCH ST AND 0 CHURCH ST (ANX-26-0015)**

WHEREAS, RBW Realty LLC, owner of approximately 2.159 acres of property located at 808 Church St and 0 Church St specifically identified by Wake County PINs: 0746-80-0096, 0746-80-2190 and 0746-80-3273 has submitted a petition requesting voluntary annexation of said property to the Town of Morrisville; and

WHEREAS, the property subject to the requested voluntary annexation is depicted on Exhibit "A" attached hereto; and

WHEREAS, the legal description of the property subject to the requested voluntary annexation is depicted on Exhibit "B" attached hereto; and

WHEREAS, the Morrisville Town Council has, by resolution, directed the Town Clerk to investigate the sufficiency of the petition; and

WHEREAS, certification by the Town Clerk as to the sufficiency of the petition has been made.

NOW, THEREFORE, BE IT RESOLVED BY THE MORRISVILLE TOWN COUNCIL THAT:

Section 1. A public hearing on the question of annexation of the area described herein will be held at Morrisville Town Hall, 100 Town Hall Drive, Morrisville, NC at 6:00 PM on Tuesday, August 25, 2026.

Section 2. The area proposed for annexation is described as follows:

Property Owner: RBW Realty LLC
Wake County PINs: 0746-80-0096, 0746-80-2190 and 0746-80-3273
Total Size: 2.519 acres

Section 3. Notice of the public hearing shall be published in The News & Observer, a newspaper having general circulation in the Town of Morrisville, at least ten (10) days prior to the date of the public hearing.

Adopted this the 11th day of August 2026

TJ Cawley, Mayor

Kayla Bertling, Town Clerk



Exhibit B - Meets and Bounds

Beginning at a new iron pipe on the eastern right of way of Church St (SR 1637) (Variable Width Public R/W), said pipe having NC grid coordinates (NAD – 2011) of N=760,087.53, E=2,047,965.10, thence from said beginning point leaving said right of way North 78°36'33" East 204.96 feet to an existing iron pipe, thence North 22°38'27" West 106.97 feet to an existing iron pipe, thence North 21°12'02" West 42.53 feet to a new iron pipe, thence North 78° 47'04" East 347.09' to an existing iron pipe, thence South 23°28'55" East 256.51' to an existing iron pipe, thence South 78°32'04" West 215.32' to an existing iron pipe, thence South 78°05'03" West 37.10 feet to an existing iron pipe, thence South 78°26'33" West 301.67' to an existing rebar on the eastern right of way of Church Street (SR 1637) (Variable Width Public R/W), thence with said right of way North 23°52'06" West 109.13 feet to the point and place of beginning, containing 2.518 acres (109,697 sq. ft.) more or less.



**RESOLUTION 2026-262-0C OF THE MORRISVILLE TOWN COUNCIL
SETTING A DATE FOR PUBLIC HEARING ON THE QUESTION OF
VOLUNTARY ANNEXATION FOR PROPERTY LOCATED AT 808
CHURCH ST AND 0 CHURCH ST (ANX-26-0015)**

WHEREAS, RBW Realty LLC, owner of approximately 2.159 acres of property located at 808 Church St and 0 Church St specifically identified by Wake County PINs: 0746-80-0096, 0746-80-2190 and 0746-80-3273 has submitted a petition requesting voluntary annexation of said property to the Town of Morrisville; and

WHEREAS, the property subject to the requested voluntary annexation is depicted on Exhibit "A" attached hereto; and

WHEREAS, the legal description of the property subject to the requested voluntary annexation is depicted on Exhibit "B" attached hereto; and

WHEREAS, the Morrisville Town Council has, by resolution, directed the Town Clerk to investigate the sufficiency of the petition; and

WHEREAS, certification by the Town Clerk as to the sufficiency of the petition has been made.

NOW, THEREFORE, BE IT RESOLVED BY THE MORRISVILLE TOWN COUNCIL THAT:

Section 1. A public hearing on the question of annexation of the area described herein will be held at Morrisville Town Hall, 100 Town Hall Drive, Morrisville, NC at 6:00 PM on Tuesday, September 8, 2026.

Section 2. The area proposed for annexation is described as follows:

Property Owner: RBW Realty LLC
Wake County PINs: 0746-80-0096, 0746-80-2190 and 0746-80-3273
Total Size: 2.519 acres

Section 3. Notice of the public hearing shall be published in The News & Observer, a newspaper having general circulation in the Town of Morrisville, at least ten (10) days prior to the date of the public hearing.

BE IT FURTHER RESOLVED, that Resolution 2026-262-0A be rescinded to amend the date of the public hearing as set forth above.

Adopted this the 25th day of August 2026

TJ Cawley
TJ Cawley, Mayor

Kimberly Kowanick
Kimberly Kowanick, Deputy Town Clerk



Exhibit A- Boundary Survey

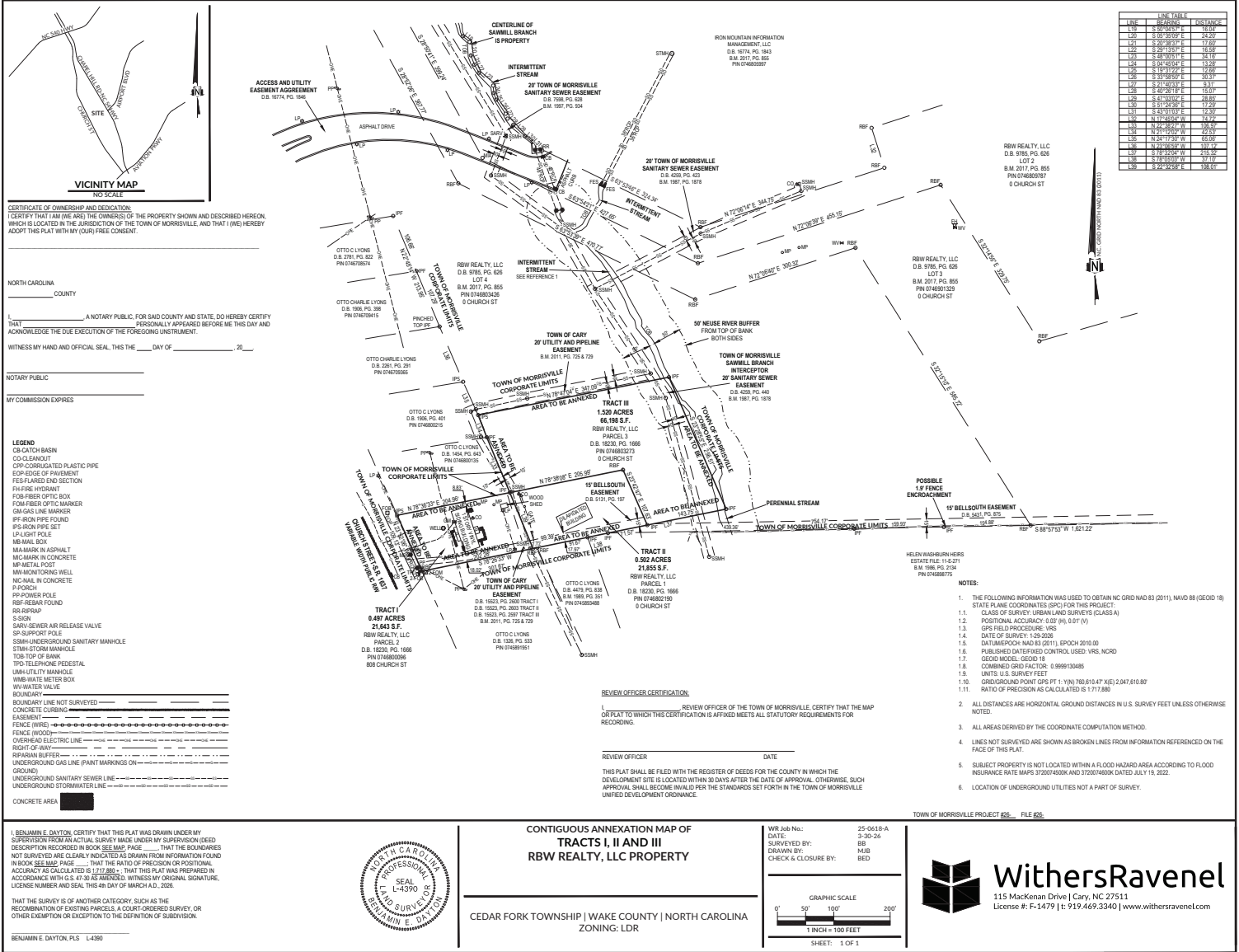


Exhibit B - Meets and Bounds

Beginning at a new iron pipe on the eastern right of way of Church St (SR 1637) (Variable Width Public R/W), said pipe having NC grid coordinates (NAD – 2011) of N=760,087.53, E=2,047,965.10, thence from said beginning point leaving said right of way North 78°36'33" East 204.96 feet to an existing iron pipe, thence North 22°38'27" West 106.97 feet to an existing iron pipe, thence North 21°12'02" West 42.53 feet to a new iron pipe, thence North 78° 47'04" East 347.09' to an existing iron pipe, thence South 23°28'55" East 256.51' to an existing iron pipe, thence South 78°32'04" West 215.32' to an existing iron pipe, thence South 78°05'03" West 37.10 feet to an existing iron pipe, thence South 78°26'33" West 301.67' to an existing rebar on the eastern right of way of Church Street (SR 1637) (Variable Width Public R/W), thence with said right of way North 23°52'06" West 109.13 feet to the point and place of beginning, containing 2.518 acres (109,697 sq. ft.) more or less.



**ORDINANCE 2026-262-0 OF THE MORRISVILLE TOWN COUNCIL
PERTAINING TO THE EXTENSION OF THE TOWN OF MORRISVILLE
CORPORATE LIMITS TO INCLUDE PROPERTY LOCATED AT 808
CHURCH ST AND 0 CHURCH ST (ANX-26-0015)**

WHEREAS, pursuant to G.S. 160A-31, as amended, RBW Realty LLC, owner of 2.519 acres of property located at 808 Church St and 0 Church St, identified by Wake County PINs 0746-80-0096, 0746-80-2190 and 0746-80-3273 has submitted a petition requesting a voluntary annexation of said property to the Town of Morrisville; and

WHEREAS, the location of the property subject to the requested voluntary annexation is depicted on Exhibit "A" attached hereto; and

WHEREAS, the legal description of the property subject to the requested voluntary annexation is depicted on Exhibit "B" attached hereto; and

WHEREAS, the property subject to the requested voluntary annexation is contiguous to the Town of Morrisville corporate limits on all sides; and

WHEREAS, the Town Council, by resolution, directed the Town Clerk to investigate the sufficiency of the annexation petition as required by law; and

WHEREAS, the Town Clerk has certified the sufficiency of the annexation petition and Town Council conducted a public hearing on the requested annexation at Morrisville Town Hall, 100 Town Hall Drive, Morrisville, NC at 6:00 PM on Tuesday, September 8, 2026, after providing due notice in accordance with all requirements of law; and

WHEREAS, the Town Council finds that the petition meets the requirements of G.S. 160A-31, as amended.

NOW, THEREFORE, BE IT ORDAINED BY THE MORRISVILLE TOWN COUNCIL THAT:

Section 1. By virtue of the authority granted by G.S. 160A-31, the following described territory is hereby annexed and made a part of the Town of Morrisville as of September 8, 2026

Property Owner:	RBW Realty LLC
Wake County PINs:	0746-80-0096, 0746-80-2190 and 0746-80-3273
Total Size:	2.519 acres

Section 2. Upon and after September 8, 2026, the above described territory and its residents and property shall be subject to all debts, laws, ordinances, and regulations in force in the Town of Morrisville.

Section 3. The Mayor of the Town of Morrisville shall cause to be recorded in the office of the Register of Deeds of Wake County, and in the office of the Secretary of State in Raleigh, North Carolina, an accurate map of the annexed territory, described in Exhibit "A" attached hereto, together with a duly certified copy of this ordinance. Such map shall also be delivered to the County Board of Elections, as required by G.S. 163-288.1.

Ordained this the 8th day of September 2026

TJ Cawley, Mayor

ATTEST:

Kayla Bertling, Town Clerk

I, Kayla Bertling, Town Clerk of the Town of Morrisville, North Carolina, do hereby certify the foregoing to be a true copy of an ordinance duly adopted at the meeting of the Town of Morrisville Town Council held on this, ____ day of _____, 2026.

IN WITNESS WHEREOF, I have hereinto set my hand and have caused the seal of the Town of Morrisville to be affixed this ____ day of _____, 2026.

SEAL

**NORTH CAROLINA
WAKE COUNTY**

I, _____ a Notary Public in and for the above named County and State, do hereby certify that this day personally appeared before me, Kayla Bertling, Town Clerk of the Town of Morrisville, NC, who acknowledged and certified before me that the foregoing and attached is a true and correct copy of Ordinance Number 2026-262-0 entitled, "ORDINANCE 2026-262-0 OF THE MORRISVILLE TOWN COUNCIL PERTAINING TO THE EXTENSION OF THE TOWN OF MORRISVILLE CORPORATE LIMITS TO INCLUDE PROPERTY LOCATED AT 808 Church St and 0 Church St (ANX-26-0015)", which was adopted by the Town Council of Morrisville at their regular meeting on the 8th day of September, 2026, as taken from and compared with the official minutes of said Ordinance on file with the Town Clerk.

WITNESS my hand and notarial seal, this ____ day of _____, 2026.

My commission expires _____.

Notary Public Signature

Exhibit A- Boundary Survey

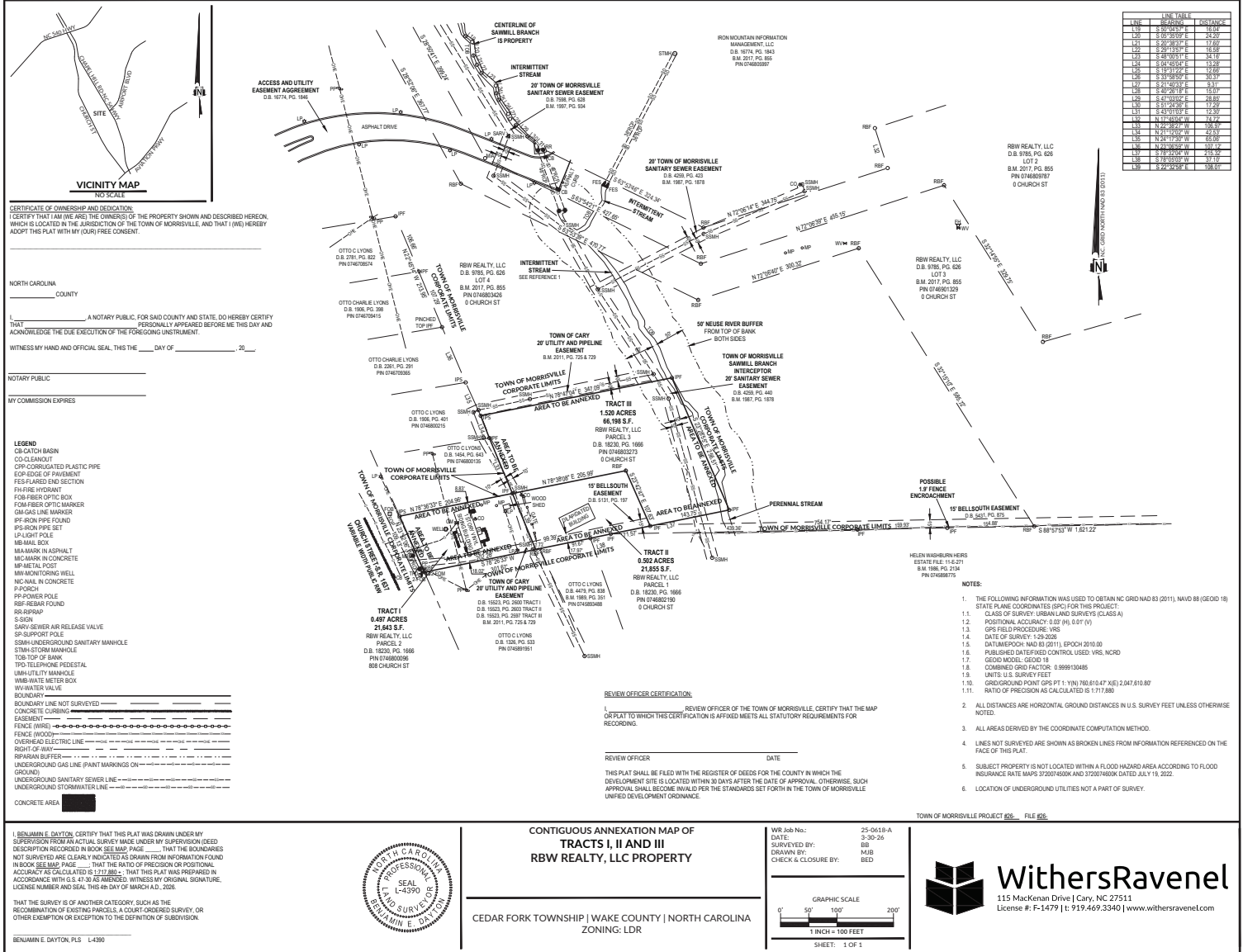


Exhibit B - Meets and Bounds

Beginning at a new iron pipe on the eastern right of way of Church St (SR 1637) (Variable Width Public R/W), said pipe having NC grid coordinates (NAD – 2011) of N=760,087.53, E=2,047,965.10, thence from said beginning point leaving said right of way North 78°36'33" East 204.96 feet to an existing iron pipe, thence North 22°38'27" West 106.97 feet to an existing iron pipe, thence North 21°12'02" West 42.53 feet to a new iron pipe, thence North 78° 47'04" East 347.09' to an existing iron pipe, thence South 23°28'55" East 256.51' to an existing iron pipe, thence South 78°32'04" West 215.32' to an existing iron pipe, thence South 78°05'03" West 37.10 feet to an existing iron pipe, thence South 78°26'33" West 301.67' to an existing rebar on the eastern right of way of Church Street (SR 1637) (Variable Width Public R/W), thence with said right of way North 23°52'06" West 109.13 feet to the point and place of beginning, containing 2.518 acres (109,697 sq. ft.) more or less.

ATTH 01 - Annexation Petition and Supporting Documents



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Annexation Petition

Applicant	Owner
Name: Middleburg Communities, LLC c/o Matthew J. Carpenter	Name: RBW Realty LLC
Mailing Address: 301 Fayetteville Street, Suite 1400, Raleigh NC 27601	Mailing Address: 1625 Oberlin Road, Raleigh NC 27608
E-mail Address: matthewcarpenter@parkerpoe.com	E-mail Address: asmith1625@earthlink.net
Phone Number: (919) 835-4032	Phone Number: (919) 818-6413

Property Location	
Location (e.g., east side of Smith St, approximately 750 feet south of its intersections with Jones Ave.): East side of Church Street, approximately 2,000 feet south of the intersection of Church Street and McCrimmon Parkway	
Parcel Address: 808 Church Street and Two Unaddressed Parcels	Parcel Identification Number(s): 0746800096, 0746802190, 0746803273
Latitude (decimal degrees): 35.83835°N	Longitude (decimal degrees): -78.83776°W

Property Information			
Site Acreage: 2.519 acres		Zoning: Low Density Residential (LDR)	
Number of buildings on-site: 2	Complete the following if changing from current conditions:		
	Proposed buildings on-site:	Approx. 3	
Existing uses:	Single-family residential and vacant	Proposed uses:	Dwelling, duplex
Existing total square footage:	Approximately 1,700 square feet	Proposed total square footage:	Approx. 9,000 sq ft
Existing residential units:	1	Proposed residential units:	Approx. 6
Property is requesting connection to Town of Cary:		☒ Water ☒ Sewer	

Written metes and bounds description of property proposed for annexation:
See Attached.

I/We hereby certify that all information furnished in this application, and included materials, are true to the best of my/our knowledge. Furthermore, I/We have authority to file an application in accordance Section 2.4.3.A, Authority to File Applications, of the Unified Development Ordinance.

RBW Realty, LLC
RBW Realty LLC
By: Alton B. Smith, Jr.
Its: Manager
Alton B. Smith, Jr.
Signature

Alton B. Smith, Jr.
Printed Name

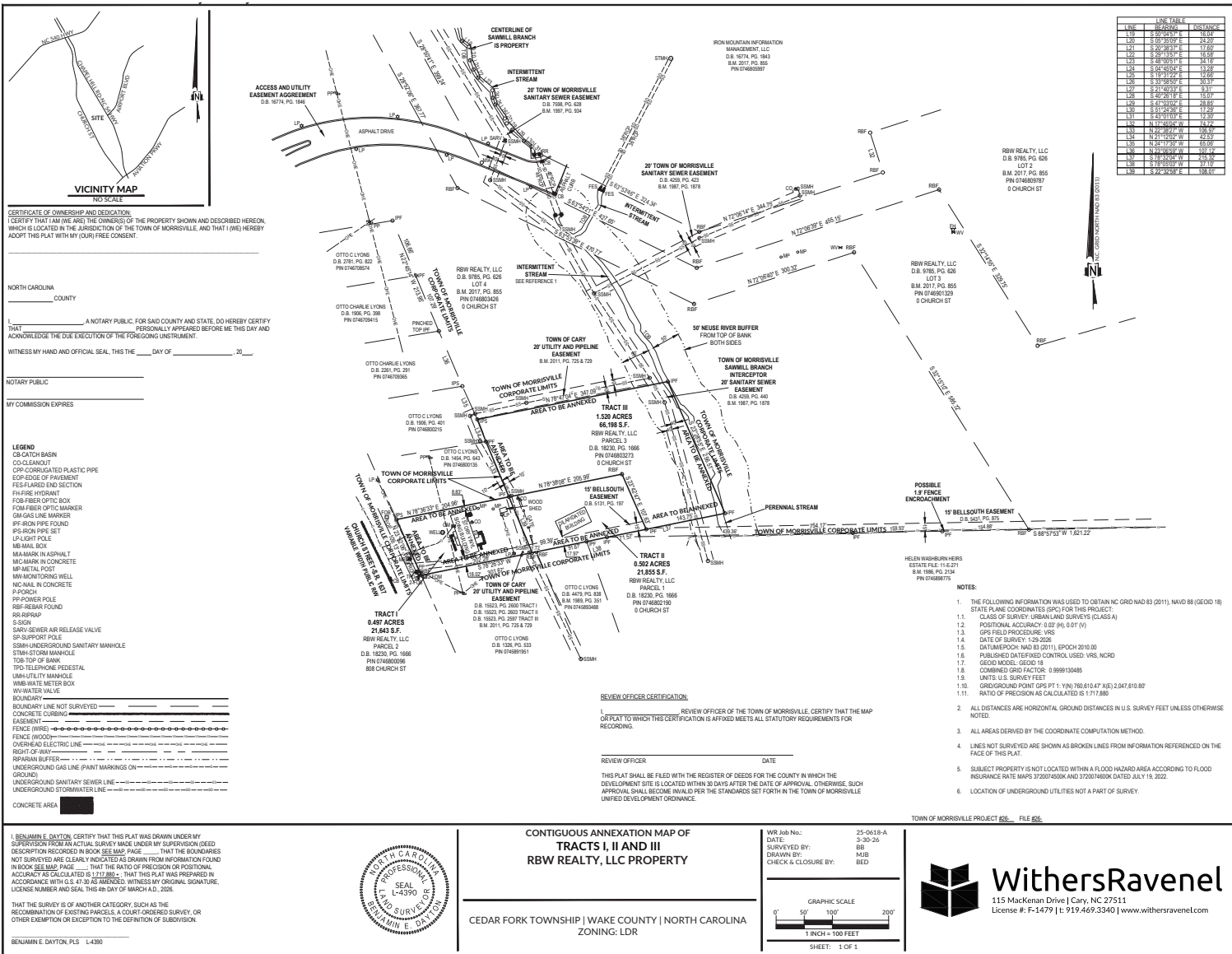
4/6/26
Date

Alton B. Smith, Jr.
Printed Name

4/6/26
Date

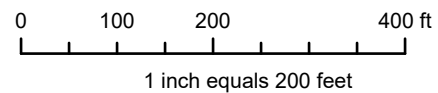
If there are multiple owners, contract purchasers, or other persons authorized to submit the application, all such persons shall sign the application or a letter or document consenting to the application.

Beginning at a new iron pipe on the eastern right of way of Church St (SR 1637) (Variable Width Public R/W), said pipe having NC grid coordinates (NAD – 2011) of N=760,087.53, E=2,047,965.10, thence from said beginning point leaving said right of way North 78°36'33" East 204.96 feet to an existing iron pipe, thence North 22°38'27" West 106.97 feet to an existing iron pipe, thence North 21°12'02" West 42.53 feet to a new iron pipe, thence North 78° 47'04" East 347.09' to an existing iron pipe, thence South 23°28'55" East 256.51' to an existing iron pipe, thence South 78°32'04" West 215.32' to an existing iron pipe, thence South 78°05'03" West 37.10 feet to an existing iron pipe, thence South 78°26'33" West 301.67' to an existing rebar on the eastern right of way of Church Street (SR 1637) (Variable Width Public R/W), thence with said right of way North 23°52'06" West 109.13 feet to the point and place of beginning, containing 2.518 acres (109,697 sq. ft.) more or less.

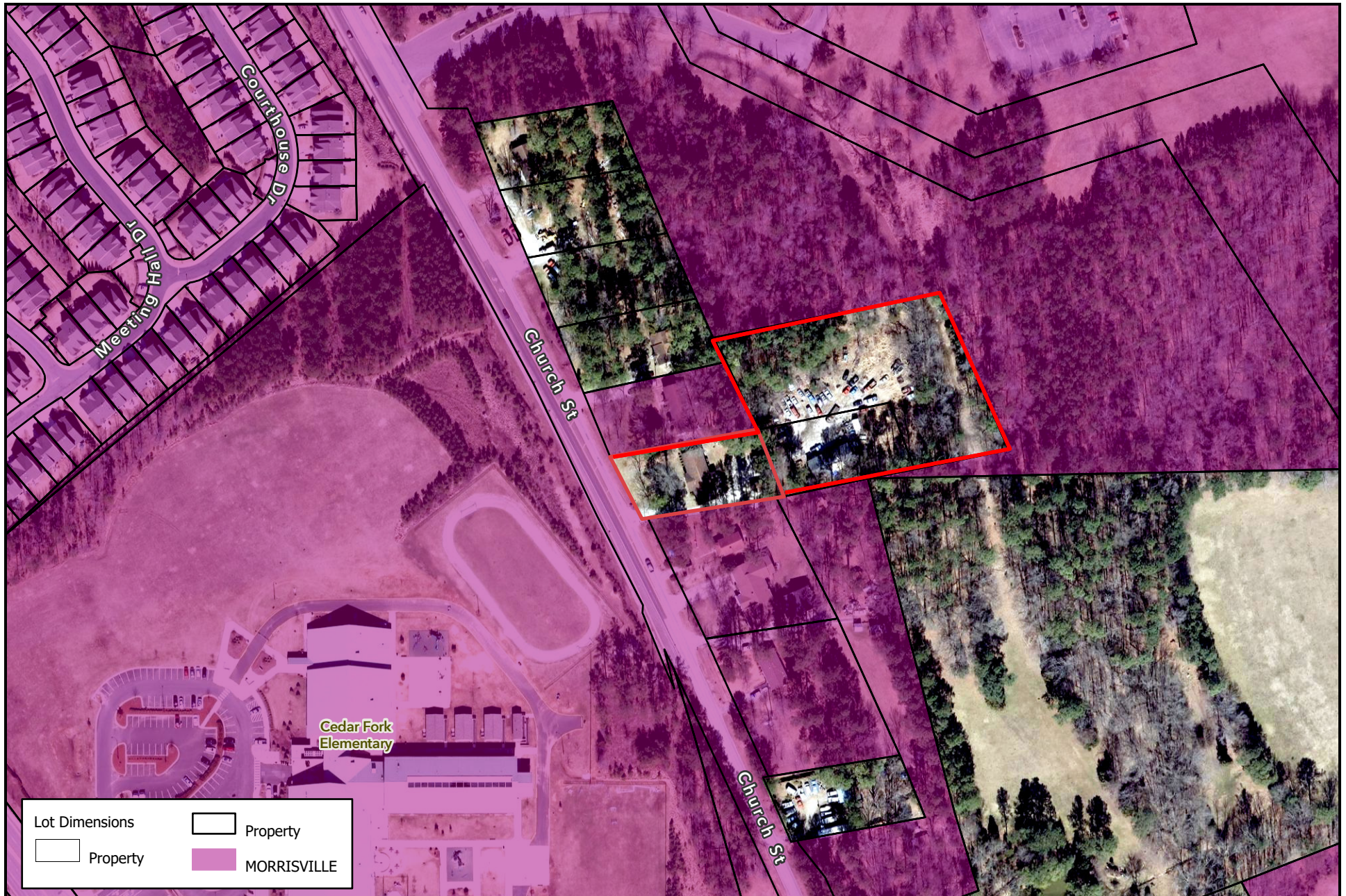




808 Church St and 0 Church St
 Morrisville Planning Department
 Map Generated August 2026
 Image Created 2021- Wake County GIS

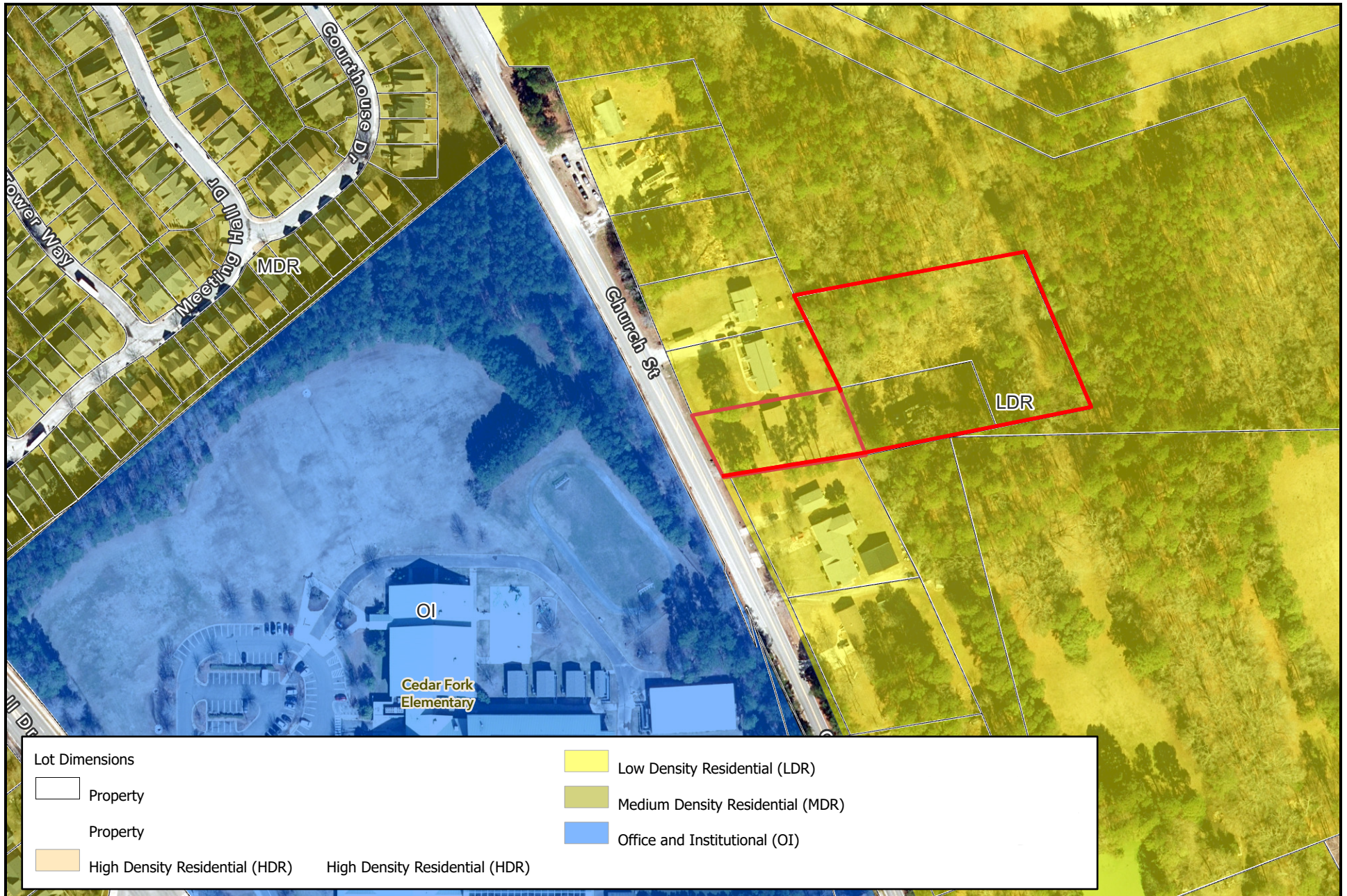


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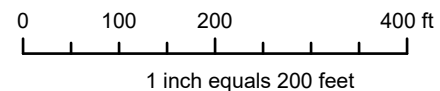


808 Church St and 0 Church St
 Morrisville Planning Department
 Map Generated August 2026
 Image Created 2021- Wake County GIS

Disclaimer
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808 Church and 0 Church St
 Morrisville Planning Department
 Map Generated August 2026
 Image Created 2021 - Wake County GIS



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2026-262-0

Consideration of Items Related to the Annexation Petition for 808 Church St and 0 Church St

Town Council Meetings on 8/25/26 and 9/8/2026

Jordan Prince, Planner I

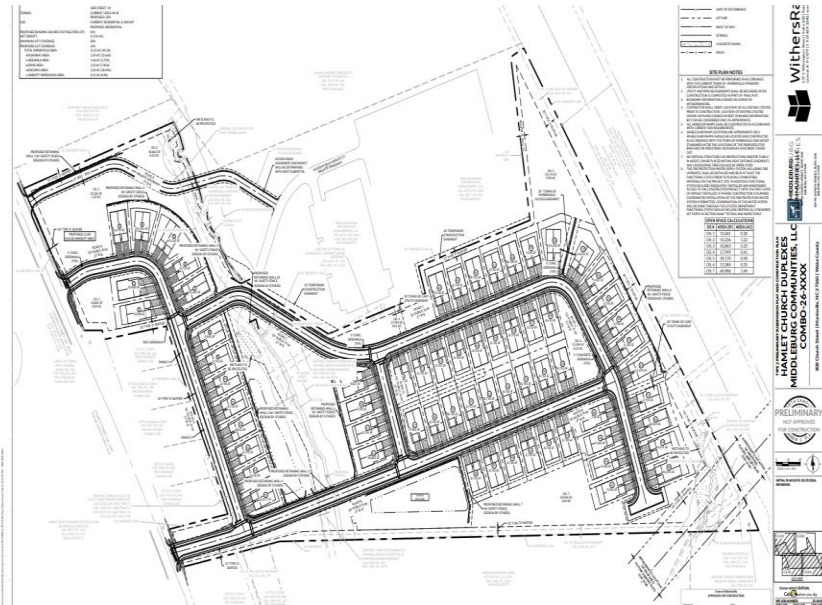
Request/Project Profile

- Zoning:
 - Low Density Residential (LDR)
- Applicant:
 - Middleburg Communities, LLC
- Current Land Use:
 - Single Family Dwelling and Vacant Land
- Proposed Land Use:
 - Dwelling, Duplex
- Address: 808 Church St and o Church St
- Wake Co. PINs: 0746-80-0096, 0746-80-2190 and 0746-80-3273
- Total Area: 2.159 acres



Preliminary Site Plan

- Hamlet Church Duplexes
- 34.83 Acres
- 128 Duplex Units
- Proposed Use: Low Density Residential



Staff Recommendation

Staff recommends approval of the petition to extend the Town of Morrisville corporate limits to the subject property for the following reasons:

- The Town has historically honored voluntary annexation requests;
- The annexation petition meets all statutory requirements;
- Annexation of the property would expand the Town's tax base; and
- The annexation and increase in tax base will improve the economies of scale in the delivery of Town services.

Suggested Action

September 8, 2026

- Public hearing
- Ordinance 2026-262-0 of the Morrisville Town Council Pertaining to the Extension of the Town of Morrisville Corporate Limits to Include Property Located at 808 Church St and 0 Church St (ANX-26-0015).

Town Council Agenda Item Report

Agenda Item No. 11.c

Submitted by: Rachel Cypher

Submitting Department Planning

Meeting Date: September 8, 2026

SUBJECT

Resolution Approving a Special Use Permit for the West Wake Solid Waste Facility.

Recommendation:

Review the application against the Special Use Permit Standards in Section 2.5.6.D of the Unified Development Ordinance (UDO).

Updates/History of Briefing:

None

Executive Summary and Background Information:

Resolution 2026-291-0 of the Morrisville Town Council Approving a Special Use Permit for a Major Utility Facility use to accommodate the future development of the Western Wake Solid Waste Facility at 414 Aviation Parkway Wake County PIN 0755462762 (QUASI-26-0012).

The applicant, Wake County, is requesting the approval of a Special Use Permit for a Major Utility Facility use to accommodate the future development and operation of the West Wake Solid Waste Facility at 414 Aviation Parkway. The property is specifically identified by Wake County PIN 0755462762 and is located east of the intersection of Aviation Parkway and International Drive in the Industrial Management (IM) Zoning District. The property is comprised of approximately 13.71 acres and is currently the site of the Town of Morrisville's Public Works Office and partially vacant. The site will be the future home of the West Wake Solid Waste Facility. On October 22nd 2024, a prior Special Use Permit was approved for a joint Wake County Convenience Center and Town of Morrisville Public Works Facility. The Morrisville Public Works Facility is no longer a part of this Special Use Permit. The Wake County Convenience Center has expanded to occupy the entirety of the site.

The West Wake Solid Waste Facility requires a Special Use Permit. The Special Use Permit review procedure is a quasi-judicial process in which the Town Council carefully applies the standards set in the Unified Development Ordinance to determine whether they have been met by the applicant.

Staff recommends reading ATTH 02 - Special Use Permit FAQ prior to the meeting. The quasi-judicial process consists of an evidentiary hearing, the purpose of which is to establish facts of the case, not to gather opinions about a given project. The hearing includes the

introduction of evidence under oath, cross-examination of witnesses, and the making of "findings of fact" relevant to the case. North Carolina State Statute prohibits council members from having "undisclosed ex parte communications" with other parties on the case. This means that Council members can only consider evidence entered in the hearing record when deciding the case and cannot discuss the case with anyone outside of the formal hearing.

The applicant has provided evidence in support of the required findings in the application packet (ATTH 01) in the form of preliminary site plans. The applicant will also provide expert testimony at the hearing. If the requested Special Use Permit is approved, the project will then go through the formal Site Plan/Construction Plan review process at the staff level. The proposed project will need to meet all associated standards and conditions of the Special Use Permit as well as all requirements set forth in the Unified Development Ordinance (UDO) and Engineering Design and Construction Manual (EDCM) for Site Plan/Construction Plan approval. The project will need to be in substantial conformance with the included preliminary site plan, however, a much more detailed site plan will be submitted and reviewed during Site Plan/Construction Plan review.

Advisory Board/Committee Review:

None

Insert Date of Advisory Board/Committee Review:

Advisory Board/Committee Recommendation and/or Vote:

None

Potential Options:

Approve the Special Use Permit for the West Wake Solid Waste Facility.

Approve the Special Use Permit for the West Wake Solid Waste Facility with conditions.

Do Not Approve the Special Use Permit for the West Wake Solid Waste Facility.

Staff Recommendation:

None

ATTACHMENTS

- [2026-291-0 RES Approving the Application](#)
- [2026-291-0 ATTH 01 Applicant Packet](#)
- [2026-291-0 ATTH 02 Special Use Permit FAQ](#)
- [2026-291-0 ATTH 03 Maps](#)
- [2026-291-0 PRES Applicant](#)
- [2026-291-0 PRES Staff](#)



**RESOLUTION 2026-291-0 OF THE MORRISVILLE TOWN COUNCIL
APPROVING A SPECIAL USE PERMIT FOR A MAJOR FACILITY
USE TO ACCOMMODATE THE FUTURE DEVELOPMENT OF THE
WEST WAKE SOLID WASTE FACILITY AT 414 AVIATION
PARKWAY WAKE COUNTY PIN 0755462762 (QUASI-26-0012)**

WHEREAS, on June 1, 2026, Wake County, applicant, submitted an application for a Special Use Permit for a Major Utility Facility use to accommodate the future development and operation of a Convenience Center at 414 Aviation Parkway; and

WHEREAS, the property subject to the proposed Special Use Permit is identified by Wake County PIN 0755-46-2762 and depicted on Exhibit "A" attached hereto; and

WHEREAS, the Town Council held a public hearing on September 8, 2026 on the requested Special Use Permit; and

WHEREAS, the requested Special Use Permit was duly advertised in accordance with all requirements of law; and

WHEREAS, based on the evidence and testimony presented at the September 8, 2026 Town Council public hearing, the Morrisville Town Council hereby makes the following findings of fact for the request:

FINDINGS (FROM DEVELOPMENT APPLICATION):

1. The subject property is located east of the intersection of Aviation Parkway and International Drive at the address of 414 Aviation Parkway. The property is comprised of approximately 13.71 acres.
2. The subject property is identified by Wake County PIN 0755462762 and is depicted on Exhibit B attached hereto.
3. The property is zoned Industrial Management (IM).
4. Based on the evidence and testimony received, the Council finds that:
 - A. Competent, material, and substantial evidence was presented at the quasi-judicial hearing that the proposed West Wake Solid Waste Facility (WWSWF) will not materially endanger the public health and safety. The WWSWF will enhance public health and safety. The WWSWF will offer expanded solid waste collection and management services and will replace the County's existing Convenience Center located 0.3 miles away, and which is over 30 years old. The WWSWF will include an internal site road running parallel to Aviation Parkway that will provide over 1,450 feet of space for residents' vehicles to line up without backing up onto Aviation Parkway (approximately 58 pickup trucks), which is a significant improvement over the limited space available at the existing Convenience Center (approximately 130 feet, which accommodates only 7 pickup trucks in line without backing up onto Aviation Parkway). The new WWSWF will lessen the traffic impacts on Aviation Parkway currently being caused by the existing Convenience Center and enhance public safety. The WWSWF will be constructed with 6 drop-off bays, with separate areas for different types of solid waste to be dropped off, and with separate circulation paths for customer vehicles and service vehicles, such that even

with the expanded services it will offer, the safety of residents using WWSWF will be enhanced and protected. The WWSWF will offer a place for residents to safely dispose of common household items that should not be disposed of in household garbage or recycling due to their potentially hazardous properties ("Household Hazardous Waste", or "HHW"), such as batteries, fluorescent light bulbs, paint and paint thinner, herbicides, pesticides, insecticides, and swimming pool chemicals. Specially-trained staff will sort the HHW by material type and package it in appropriate containers to ensure safe transport from WWSWF by a qualified vendor to an offsite qualified private processing facility. During the limited time HHW remains at the WWSWF before it is transported offsite, all flammable HHW will be stored in a specially constructed chemical storage unit equipped with a fire suppression system and secondary containment. The WWSWF will promote public health and safety by providing a safe and secure outlet for the disposal of HHW, rather than putting HHW in the household garbage or illegally dumping it. The WWSWF will be fully staffed with trained attendants, including attendants who are specially trained in handling HHW. All these same measures to safely collect and manage HHW have been successfully implemented at the other 3 Wake County Solid Waste Facilities that accept HHW. The HHW facility will include a concrete pad with an overhead canopy structure. All stored HHW will be under the canopy structure. Permanent HHW facilities are permitted through the North Carolina Department of Environmental Quality (NCDEQ), Division of Waste Management. The County will be submitting a permit application in accordance with the NC Administrative Code Title 15A Chapter 13 Solid Waste Management Rule .0300 – Treatment and Processing Facilities. Siting, operations, and closure site-specific information is required for NCDEQ review and approval. The WWSWF will be enclosed with a security fence and lockable gate, and the portion of the WWSWF where HHW is dropped off and temporarily stored until it is picked up will be surrounded by a separate security fence and separate lockable gate. The WWSWF will be monitored by security cameras 24 hours a day, 7 days a week. All these same measures to safely collect and manage solid waste, including HHW, have been successfully implemented at Wake County's 11 other Convenience Centers, including the County's 3 Solid Waste Facilities that accept HHW. There are Morrisville Fire Department and Morrisville Police Department stations approximately one mile from the proposed WWSWF, as well as a Duke Health Urgent Care and medical facility approximately three miles from the site.

B. The proposed development will comply with all regulations and standards generally applicable within the zoning district and specifically applicable to the particular type of Special Use.

The West Wake Solid Waste Facility will be designed to comply with all Morrisville UDO regulations and standards applicable within the Industrial Management (IM) zoning district to the construction and operation of the facility. Town of Morrisville planning staff determined that "Major Utility Facility" is the appropriate Use Category for the WWSWF under the Morrisville UDO's Principal Use Table. Pursuant to UDO Section 4.2.4, "Major Utility Facility" uses such as the WWSWF are allowed in the IM zoning district with approval of a Special Use Permit. The WWSWF will meet or exceed the requirements of Morrisville UDO Section 3.6.4, "Principal Intensity and Dimension Standards" (lot standards, setbacks, and building standards); UDO Section 5.4.4, "Tree Canopy Retention and Protection" (13% tree canopy required, 30% tree canopy provided); UDO Section 5.5.1, "Required Open Space;" and UDO Section 5.7, "Perimeter and Streetyard Buffers" (Type D buffer required and provided, as a minimum, along the

site's perimeter, Type G buffer required and provided along the site's Aviation Parkway frontage).

C. The proposed development will not substantially injure the value of adjoining property or is a public necessity.

The WWSFW is a public necessity because it will provide a place for residents of Morrisville, which is one of the fastest growing towns in North Carolina, to environmentally-responsibly drop off a variety of recyclable materials rather than throwing them in the household garbage, thereby diverting a variety of recyclable materials from entering the County's landfill, which has a finite amount of space and a limited lifespan remaining. The WWSFW is a public necessity because it will offer a place for Morrisville residents to safely dispose of HHW (common household items that should not be disposed of in household garbage due to their potentially hazardous properties such as batteries, fluorescent light bulbs, paint and paint thinner, herbicides, pesticides, insecticides, and swimming pool chemicals), rather than throwing HHW in the household garbage or illegally dumping HHW, both of which would harm the environment.

D. The proposed development will be in harmony with the intensity, scale, and character of development existing or planned in the surrounding area.

The proposed WWSWF is permitted as a special use in the Industrial Management (IM) zoning district. As a matter of law, this establishes a prima facie case that the use is in harmony with the surrounding area. The WWSWF is in harmony with the surrounding area in which it would be located. For approximately 30 years, Wake County has operated an existing Convenience Center less than half a mile away on Aviation Parkway. The new WWSFW will be constructed on a 13.7-acre parcel owned by the Town of Morrisville, with the WWSFW located on 6.7 acres. Some Morrisville Public Works structures will remain on the same parcel and in use. The adjoining properties are a mix of industrial, office, and residential uses, as well as open space to the east.

E. The proposed development will not cause undue traffic congestion or create a traffic hazard.

The proposed WWSWF will not cause undue traffic congestion or create a traffic hazard. The WWSWF will include an internal site road over 1,450 feet long running parallel to Aviation Parkway that will provide over 1,450 feet of space for residents' vehicles to line up without backing up onto Aviation Parkway (approximately 58 pickup trucks), which is a significant improvement over the limited space for vehicle stacking available at the County's existing Convenience Center less than a half mile away on Aviation Parkway. A Traffic Impact Analysis (TIA) has been prepared by a licensed North Carolina traffic engineer from Kimley-Horn and Associates, Inc. The TIA, which was performed in coordination with, and approved by, the Town of Morrisville and the North

Carolina Department of Transportation, identified improvements required to address traffic impacts associated with this project.

- F. The proposed development will not generate needs for transportation, water supply, sewage disposal, fire and police protection, and similar public services that cannot be adequately handled by available infrastructure and facilities.

The WWSWF will be for residential use only (not commercial), and residents will use their personal vehicles to drop off their household garbage, recyclable materials, and HHW. The only water supply needs generated by the WWSWF will be a few hose bibs and yard hydrants, fire hydrants, an eyewash station, and one restroom in the proposed small office building. The only sewage disposal needs generated by the WWSWF will be the restroom in the small office building on site, which will typically be used by only 4 or 5 attendants daily and which will not be open to the public. Fire and police protection needs will be no greater than those generated by the County's existing Convenience Center on Aviation Parkway, which has been located less than half a mile away for approximately 30 years.

- G. The proposed development will be consistent with the Comprehensive Plan.

The proposed WWSWF is consistent with the Morrisville Land Use Plan adopted in 2021, which identifies the parcel upon which it will be located with a future land use designation of "Institutional." One of the Key Considerations stated in the Land Use Plan for the "Institutional" land use designation is to "identify potential sites for long-term expansion of community facilities and related infrastructure that will be necessary to maintain the quality of services and amenities in Morrisville." The proposed WWSWF will replace, and will effectively serve as a long-term expansion of, the existing smaller Convenience Center which for approximately 30 years has been located approximately half a mile away on Aviation Parkway. The proposed WWSWF will offer expanded solid waste collection and management services necessary to maintain the quality of services and amenities available to the residents of fast-growing Morrisville by increasing the number of residents who can safely utilize the facility at the same time, as well as by providing a place for residents to safely dispose of HHW that should not be disposed of in household garbage such as batteries, fluorescent light bulbs, paint and paint thinner, herbicides, pesticides, insecticides, and swimming pool chemicals.

CONCLUSIONS:

Based on the foregoing Findings, the Town Council of the Town of Morrisville concludes that the applicant has met the requirements for approval of a Special Use Permit.

NOW, THEREFORE, BE IT RESOLVED THAT THE MORRISVILLE TOWN COUNCIL hereby approves the application for a Special Use Permit for a Major Utility Facility use to accommodate the future development of a Wake County Convenience Center at 414 Aviation Parkway, Wake County PIN 0755462762 subject to the following conditions:

1. In order to comply with all applicable Morrisville UDO requirements, Wake County will construct the recommended road improvements, as identified in the TIA, prior to the receipt of any certification of occupancy or final plat approval.

2. All traffic movements to and from the proposed Future County Driveway, as referenced and proposed in the approved transportation impact analysis (TIA) for the West Wake Solid Waste Facility to be realigned and reconstructed, shall be controlled by the traffic signal that is also proposed in the TIA to control all traffic movements at the intersection of International Drive and Aviation Parkway

3. The proposed development shall be developed consistent with the site plan. Notwithstanding the foregoing, minor modifications to the preliminary site plan may be approved administratively consistent with the provisions of UDO Section 2.5.6.C(6)(d).

Adopted the 8th day of September 2026

ATTEST:

TJ Cawley, Mayor

Kayla Bertling, Town Clerk

I, Kayla Bertling, Town Clerk of the Town of Morrisville, North Carolina, do hereby certify the foregoing to be a true copy of a resolution duly adopted at the meeting of the Town of Morrisville Town Council held on Tuesday, the 8th day of September 2026.

IN WITNESS WHEREOF, I have hereunto set my hand and have caused the seal of the Town of Morrisville to be affixed this 8th day of September 2026.

SEAL

I, _____, Notary Public, do hereby certify that this day Kayla Bertling, Town Clerk of the Town of Morrisville, NC personally appeared before me and acknowledged and certified before me that the foregoing and attached is a true and correct copy of Resolution Number 2026-291-0 entitled, "RESOLUTION 2026-291-0 OF THE MORRISVILLE TOWN COUNCIL APPROVING A SPECIAL USE PERMIT FOR MAJOR UTILITY FACILITY USE TO ACCOMMODATE THE FUTURE DEVELOPMENT OF A WAKE COUNTY CONVENIENCE CENTER AT 414 AVIATION PARKWAY WAKE COUNTY PIN 0755462762 (QUASI- 26-0012)" which was adopted by the Town Council of Morrisville at their regular meeting on 22nd day of September 2026, as taken from and compared with the official minutes of said Resolution on file with the Town Clerk.

Notary Signature

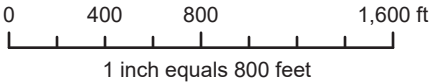
Seal

WITNESS my hand and notarial seal, this _____ day of _____ 2026.

My commission expires _____.



Wake County:
Proposed Site 414
Aviation Parkway



Disclaimer
*iMaps makes every effort to produce and publish the most current and accurate information possible. However, the maps are produced for information purposes, and are **NOT** surveys. No warranties, expressed or implied, are provided for the data therein, its use, or its interpretation.*

Wake County West Wake Solid Waste Facility Special Use Permit – 09/08/2026

Permit applications includes:

- Attachment 01 – Town SUP Checklist
- Attachment 02 – Aerial and Adjacent Parcel Map
- Attachment 03 – Survey
- Attachment 04 – SUP Permit Application Drawings
- Attachment 05 – Approved Traffic Impact Analysis (Updated)
- Attachment 06 – Statement of Justification
- Attachment 07 – Appraiser’s Analysis
- Attachment 08 – Legal Description of Properties
- Attachment 09 – Conditions

Special Event Permit Approval Submittal Checklist			
For each listed item, check (✓) if provided, write "n/a" if the feature does not exist or is not proposed, and write "w" if a waiver from the requirement is justified because it is unnecessary in the particular case to determine compliance with applicable regulations.			Staff Use Only
✓, n/a, or w		Application Submittal Requirement	✓, n/a, or w
	B	Fire Department (919) 463-6123	
	1	If applicable, the Fire Department will need a NC Department of Labor inspection certification for any bounce houses. Please call ahead if you plan to drop forms off in person.	
	2	If applicable, the Fire Department will need to inspect any bounce houses on the day of the event. You must contact the Fire Marshal to schedule an inspection.	
	3	If applicable, the Fire Department will need to be notified of any performances that involve pyrotechnics. You must contact the Fire Marshal for any pyrotechnics approvals.	
	4	If applicable, the Fire Department will need to inspect any tents larger than 200 sq ft. The inspection would need to take place the day of the event. You must contact the Fire Marshal to schedule an inspection.	
	C	Police Department (919) 463-1600	
	1	If applicable, the Police Department will need approve of any proposed alternative traffic patterns and/or street closures that are needed for the event. NCDOT must also approve of any alternative traffic patterns and/or street closures that directly affect NCDOT-maintained roads.	
	2	If applicable, the Police Department will need to confirm that you have agreed to hire/assign off-duty/on-duty officers in order to manage crowds, alternative traffic patterns, and/or road closures.	
	D	Public Works Department (919) 463-7070	
	1	If applicable, you will need to work with the Public Works Department in order to obtain the necessary amount of traffic cones for any alternative traffic patterns and/or road closures. Road cones will be available for pickup prior to the event but must be returned afterwards. Applicants are responsible for setting up traffic cones. Traffic cone placement must adhere to alternative traffic patterns and street closures approved by the Police Department and Public Works.	
	E	Parks Rec. & Cult. Resources Department (919) 463-7110	
	1	If applicable, please finalize all facility/park space rental agreements with the Parks, Recreation, & Cultural Resources Department	
	F	Planning Department: (919) 463-6210	
	1	Please provide a diagram indicating all available parking areas for the event, tents/temporary structures, bounce houses, performance spaces, restroom facilities, and vendors. Please note that adequate restroom facilities for attendees are required. Parking areas not operated by the applicant must provide written permission for their use. If there is not enough parking at the site, off-site parking must be made available. A shuttle service is typically implemented whenever off-site parking is necessary. Any temporary structures must comply with the State Building Code.	
	2	Please notify adjoining property owners of your event and provide proof of notification. For course events on roadways, sidewalks, or trails such as run/walk events, cycling events, and parades you must place one (1) notification sign for every 3,280 feet (1 kilometer) of the course.	
	3	Please provide a route map for any course events.	
	4	You must contact the Planning Department once you have completed all applicable tasks listed above. The Planning Department will then verify task(s) completion with responsible departments and issue a permit.	

4.5.29 Special Use Permit

Special Use Permit Submittal Checklist			
For each listed item, check (✓) if provided, write "n/a" if the feature does not exist or is not proposed, and write "w" if a waiver from the requirement is justified because it is unnecessary in the particular case to determine compliance with applicable regulations.			Staff Use Only
✓, n/a, or w		Application Submittal Requirement	✓, n/a, or w
	A	Basic Information	
✓	1	Fee payment	
	B	Existing Conditions Map	

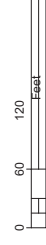
Special Use Permit Submittal Checklist			
For each listed item, check (✓) if provided, write "n/a" if the feature does not exist or is not proposed, and write "w" if a waiver from the requirement is justified because it is unnecessary in the particular case to determine compliance with applicable regulations.			Staff Use Only
✓, n/a, or w		Application Submittal Requirement	✓, n/a, or w
		Existing conditions map showing the following information, for an area including and within 500 feet of the site [8.5" x 11" or 11" x 17"]	
✓	1	Property lines	
✓	2	Zoning districts – boundaries and names	
✓	3	Notation of existing land uses	
✓	4	Names of existing and approved subdivisions and other developments	
✓	5	Existing and under-construction roadways and associated access rights-of-ways or easements (show name and label as public or private)	
✓	6	Existing and under-construction major water lines and fire hydrants	
✓	7	Existing and under-construction major sewer lines and pump stations/treatment facilities	
✓	8	Topographic contours (at intervals of not more than 5 feet)	
✓	9	Surface waters, FEMA 100-year floodway and floodway fringe boundaries	
✓	10	Inset map showing site's location relative to major roads	
✓	11	Title block showing name and address of site owner(s), name of plan designer, parcel identification number (PIN), date map prepared (and revised), bar scale, north arrow, and title "Existing Conditions Map"	
	C	Preliminary Site Plan	
		A preliminary site plan showing the following information for an area including and within 100 feet of the site [10 copies on 24"x 36" paper, at a scale of not less 1"=400', plus 2 copies on 8.5"x 11" or 11"x 17" paper]:	
✓	1	Property lines, with measured distances	
✓	2	Outline of existing and proposed structures (show total floor area and maximum height, plus setbacks of proposed structures from nearest property lines)	
✓	3	Outline of existing and proposed roadways [including proposed improvements] and driveways (show width and surface material), parking areas (show spaces and surface material), loading areas (show dimensions and surface material), and walkways (show surface material) – plus associated access rights-of-way and easements (show width) [Label roadways as public or private; note any access restrictions]	
✓	4	Existing or proposed vegetative screening and plantings along the perimeter and within parking areas (show location, type, and average mature height and spread)	
✓	5	Location of existing and proposed water lines (show diameter), fire hydrants, and/or wells (show capacity) – plus associated utility easements (show width) [Note water service provider]	
✓	6	Location of existing and proposed sewer lines (show diameter) and pump stations/treatment facilities (show capacity) – plus associated easements (show width) [Note sewer service provider], or outline existing and proposed septic tank and fields (including repair area)	
✓	7	Location and depth of proposed streetyard and perimeter bufferyards, plus proposed screening measures [For plantings, show location, type, and average mature height and spread; for berms, walls, and fences, show height; for existing vegetation, outline area and show general type, average height and spread, and indicate intensity]	
n/a	8	Location and width of riparian and watershed buffers	
✓	9	Notation of the amount of impervious surface coverage (sq. ft. and as % of total site area)	
✓	10	Topographic contours (at intervals of not more than 5 feet)	
✓	11	Surface waters, FEMA 100-year floodway and floodway fringe boundaries	
✓	12	Location, type, and relevant dimensions/capacities of stormwater management structures and other devices (if in a water supply watershed or if stormwater management is required) – plus associated easements (show width)	
✓	13	Location of existing and proposed signs (show type (ground, pole, etc.) and size (per side))	
✓	14	Inset map showing site's location relative to County's municipalities and major roads	
✓	15	Title block showing name and address of site owner(s), name of plan designer, parcel identification number (PIN), date map prepared (and revised), bar scale, north arrow, and title "Preliminary Special Use Permit Site Plan"	
	D	Other	
✓	1	List of the parcel identification numbers (PINs) and owners (and their mailing addresses) of all parcels 500 feet. This is provided by the Planning Department upon request.	
✓	2	Traffic Impact Analysis or Reduced Analysis	

Special Use Permit Submittal Checklist			
For each listed item, check (✓) if provided, write "n/a" if the feature does not exist or is not proposed, and write "w" if a waiver from the requirement is justified because it is unnecessary in the particular case to determine compliance with applicable regulations.			Staff Use Only
✓, n/a, or w		Application Submittal Requirement	✓, n/a, or w
✓	3	Statement of justification presenting factual evidence supporting each of the required Conclusions found in UDO Section 2.5.5.D	

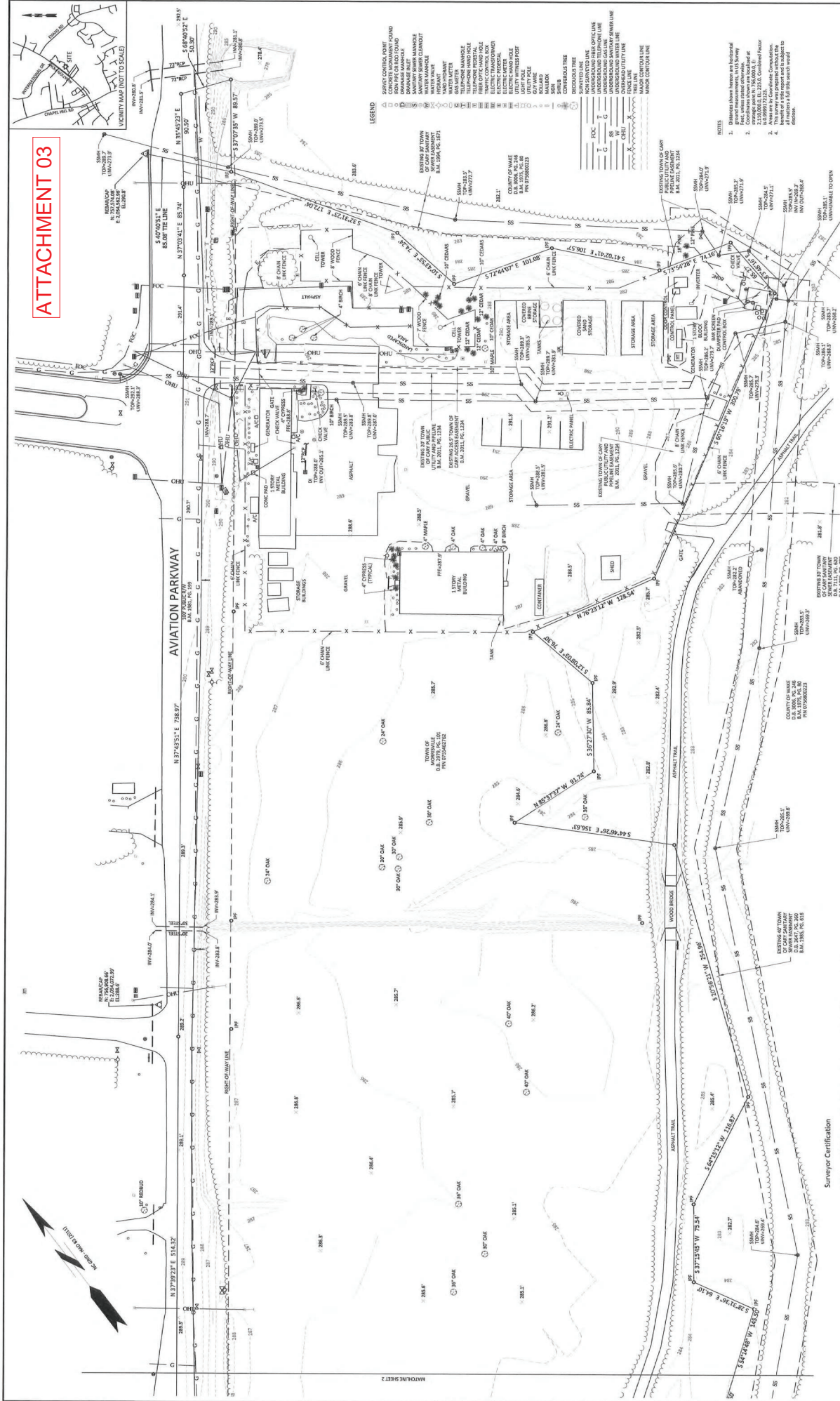
4.5.30 Stormwater Variance

Stormwater Variance Submittal Checklist			
For each listed item, check (✓) if provided, write "n/a" if the feature does not exist or is not proposed, and write "w" if a waiver from the requirement is justified because it is unnecessary in the particular case to determine compliance with applicable regulations.			Staff Use Only
✓, n/a, or w		Application Submittal Requirement	✓, n/a, or w
	A	Documents to be Submitted	
	1	Fee payment	
	2	Statement of justification presenting factual evidence supporting each of the required conclusions in Section 7.2.5 of the UDO	
	B	Existing Conditions Map	
		An existing conditions map showing the following information for an area including and within 1,000 feet of the site [8.5"x 11" or 11"x 17"]	
	1	Property lines	
	2	Zoning districts – boundaries and names	
	3	Notation of existing land uses	
	4	Names of existing and approved subdivisions and other major developments	
	5	Existing and under-construction stormwater management facilities and associated access rights-of-ways or easements	
	6	Existing and under-construction roadways and associated access rights-of-ways or easements (show name and label as public or private)	
	7	Topographic contours (at intervals of not more than 10 feet)	
	8	Surface waters, FEMA 100-year floodway and floodway fringe boundaries, flood hazard soils	
	9	Inset map showing site's location relative to County's municipalities and major roads	
	10	Title block showing name and address of site owner(s), name of plan designer, parcel identification number (PIN), date map prepared (and revised), bar scale, north arrow, and title "Existing Conditions Map"	
	C	Site Plan	
		A site plan showing the following information for an area including and within 50 feet of the site [24"x 36" at a scale of not less 1"=400']	
	1	Property lines, with measured distances	
	2	Topographic contours (at intervals of not more than 5 feet)	
	3	Surface waters, FEMA 100-year floodway and floodway fringe boundaries, flood hazard soils	
	4	Boundaries and identification of riparian buffer Zones One and Two	
	5	Location and relevant dimensions of any proposed structures, or structures proposed to be extended, to which the regulation proposed to be varied applies	
	6	Location and relevant dimensions of any existing structures, easements, etc. that substantially hinder strict compliance with the regulation proposed to be varied	
	7	Location and relevant dimensions of yards, setbacks, riparian areas, and other required areas that substantially hinder strict compliance with the regulation proposed to be varied	

AERIAL AND ADJACENT PARCEL MAP



ATTACHMENT 03



FIELD SURVEY BY: NRH FIELD SURVEY DATE: APRIL 2020 DRAWN BY: RWP CHECKED BY: TRI		DATE: 5/15/20 PROJECT No.: 3370-A DOCUMENT No.: 3370A-0001 SHEET No.: 1 OF 3	
PLAT OF BOUNDARY AND TOPOGRAPHIC SURVEY PREPARED FOR SCS ENGINEERS TOWN OF MORRISVILLE Deed Book: 3979 Page: 101 COUNTY OF WAKE Deed Book: 6782 Page: 387 & Deed Book: 2943 Page: 833		MORRISVILLE WAKE COUNTY NORTH CAROLINA	



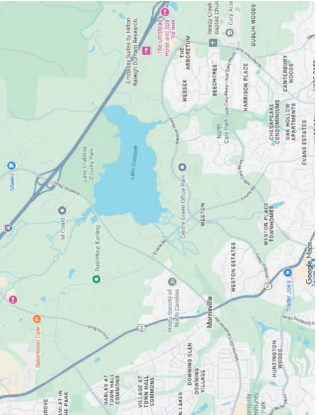
THE WOOTEN COMPANY
100 North Boyer Avenue, Raleigh, NC 27603-4163
919.832.8331 fax 919.834.3389
License Number: F-57115

Surveyor Certification

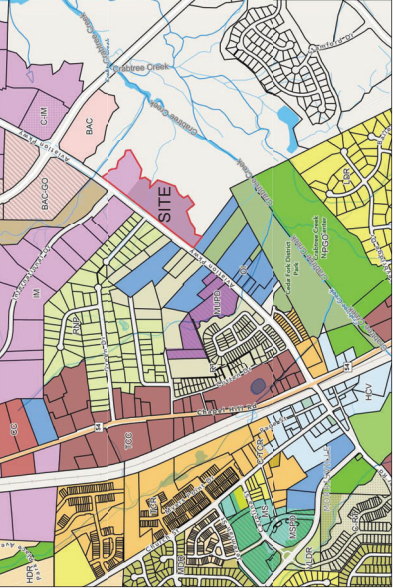
I, Richard W. Fenc, certify that this plat was prepared under my direct and responsible charge from an actual topographic survey made under my supervision and that the survey was performed in accordance with the standards and practices of the Surveying and Mapping profession in North Carolina, and that the datum is NAVD 83 (2011) as described in Note 2 hereon.

Richard W. Fenc Date 6/15/20

Richard W. Fenc, F.S. 15023



BASE INFORMATION/ SURVEY:
SOURCE OF BASE INFORMATION ON THIS SHEET AND SUBSEQUENT SHEETS IS FROM A COMBINATION OF A
FIELD TOPOGRAPHIC SURVEY CONDUCTED BY RICHARD W. PENCI, PLS LICENSE NO. L-10233 DATED MAY 15,
2020 (DOC. NO. 370A-0001), AVAILABLE AERIAL INFORMATION USING MAPS.GIS, TREE SURVEYS
CONDUCTED BY SOIL & ENVIRONMENTAL CONSULTANTS, PLS LEAF & LMB ON 2/26/2022 (SITE) AND 4/23/2022
(FRONTAGE/ROW)



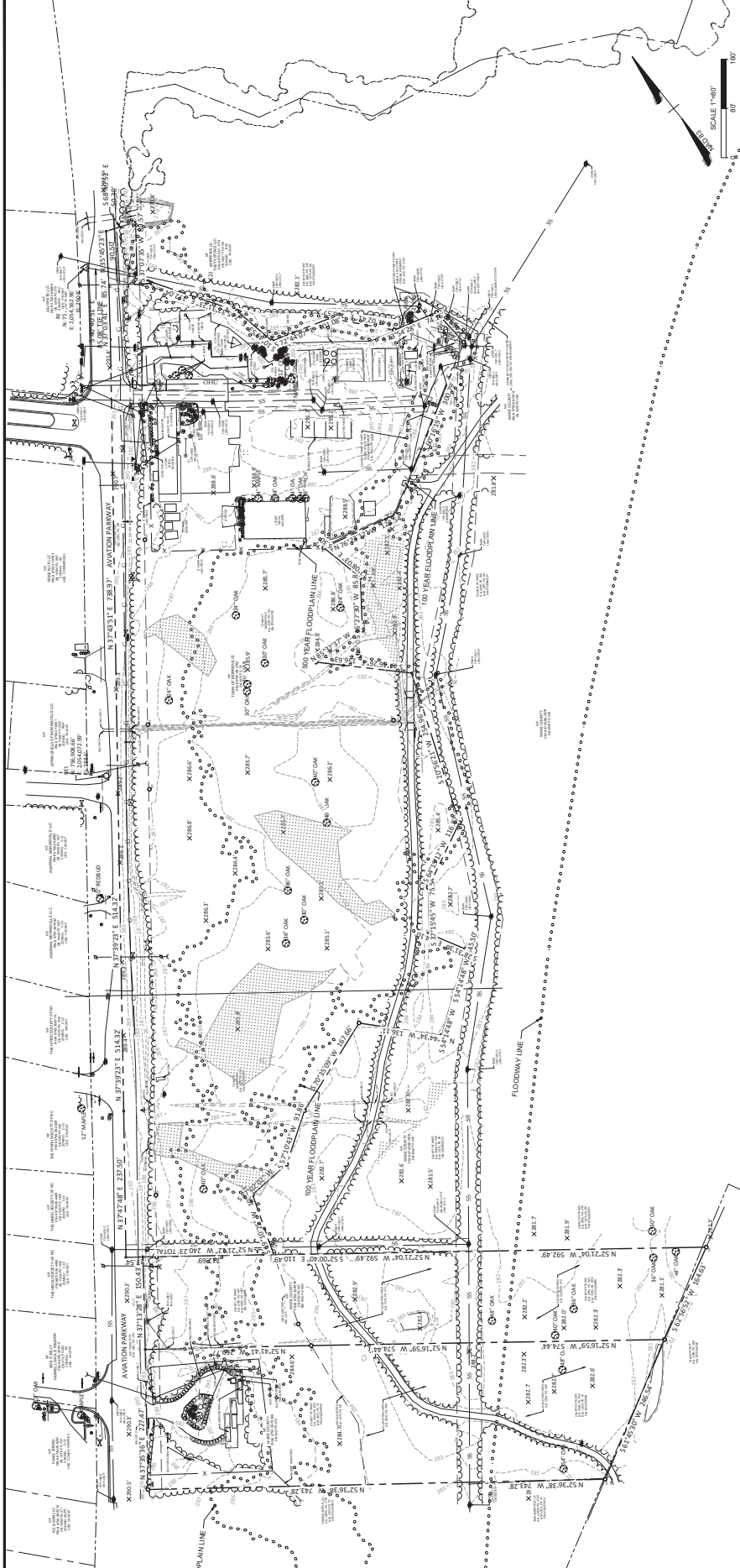
ZONING MAP (NOT TO SCALE)

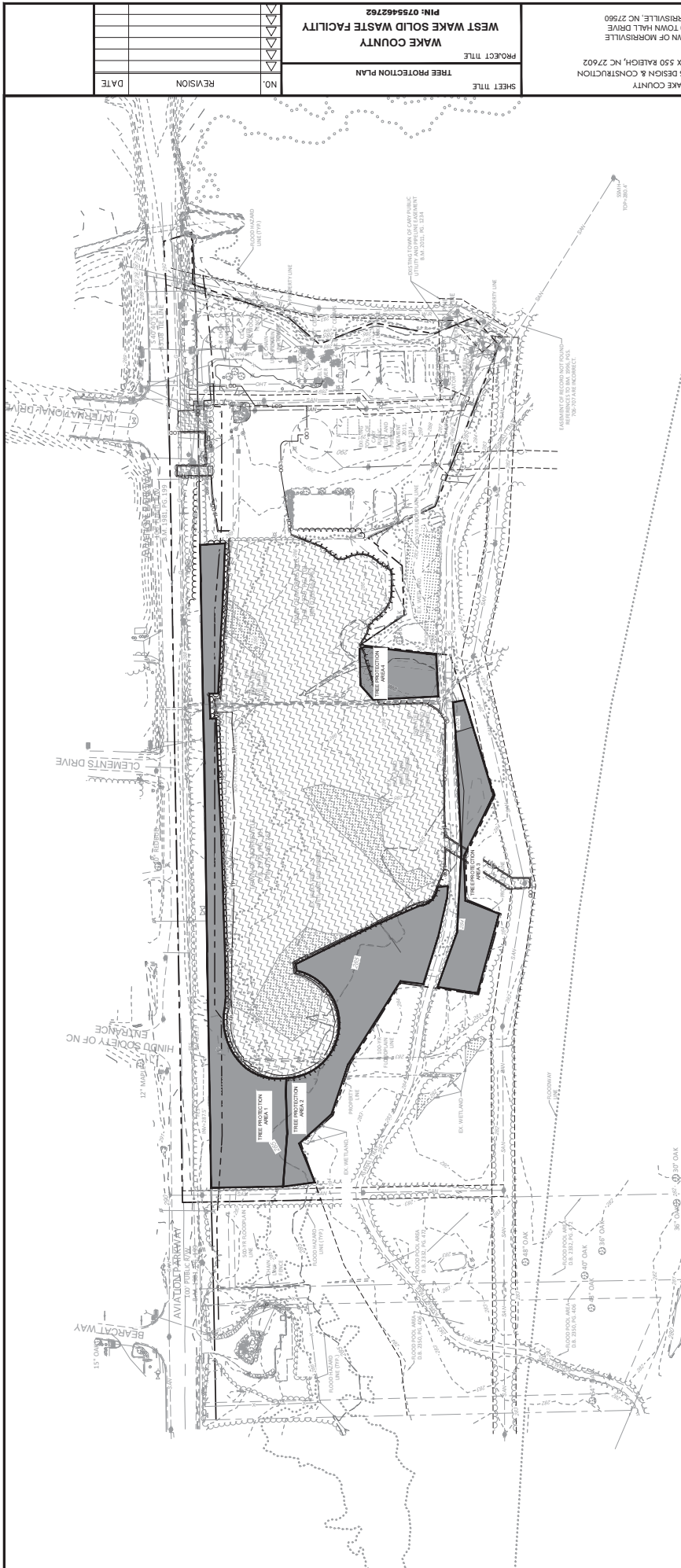
**SPECIAL USE PERMIT
PRELIMINARY SITE PLAN**

OWNER	PROJ. NO. 02199312.20		CAD FILE: DD SET	DATE: JULY 2026	SCALE: AS SHOWN	DRAWING NO. C-1.1	SHEET XX of XX
	DSC. BT 04K BT 14K BT	DSC. BT 02K BT 04K BT					
CLIENT	STEARNS, CONRAD AND SCHMIDT SC5 ENGINEERS, PC 3801 LAKE BOONE TRAIL SUITE 410 • RALEIGH, NC 27607 PH: (919) 663-3015						

WAKE COUNTY
FACILITIES DESIGN & CONSTRUCTION
P.O. BOX 550 RALEIGH, NC 27602
TOWN OF MORRISVILLE
100 TOWN HALL DRIVE
MORRISVILLE, NC 27560

EXIST TITLE
EXISTING CONDITIONS
PROJECT TITLE
WAKE COUNTY
WEST WAKE SOLID WASTE FACILITY
PIN: 0755462762





Species Code	Scientific Name	Common Name
ACQU	<i>Acacia robusta</i>	red taspie
ADAL	<i>Adiantum latifolium</i>	rock fern
CAHY	<i>Carya</i>	hickory
CATQ	<i>Carya tomentosa</i>	northern hickory
COFL	<i>Cornus florida</i>	flowering dogwood
ELOP	<i>Elm</i>	American elm
FRAL	<i>Fraxinus americana</i>	American holly
GLAN	<i>Quercus laevis</i>	live oak
LAN	<i>Liquidambar styraciflua</i>	sweet gum
LIST	<i>Liriodendron styraciflua</i>	swamp white
LU	<i>Liquidambar styraciflua</i>	black tupelo
MYSP	<i>Myrica spicata</i>	black bayberry
NTSP	<i>Myrica spicata</i>	black bayberry
PA	<i>Pinus strobus</i>	white pine
PITA	<i>Pinus taeda</i>	loblolly pine
PLOC	<i>Pinus taeda</i>	American symple
PREP	<i>Prunus serotina</i>	black cherry
QUAL	<i>Quercus alba</i>	white oak
QUAN	<i>Quercus alba</i>	white oak
QUPA	<i>Quercus pagoda</i>	chestnut oak
QUPH	<i>Quercus phellos</i>	phoenix oak
QUQU	<i>Quercus</i>	Northern red oak
QUST	<i>Quercus stellata</i>	post oak

TREE CANOPY REQUIREMENTS

PARCEL AREA:	121
FORESTED AREA:	9
DEVELOPED AREA:	3
PERCENT FORESTED:	

13% TREE CANOPY AREA SHALL

TREE CANOPY RETENTION REQUIRED

TREE CANOPY RETENTION PROVIDED

TOTAL TREE CANOPY RETENTION

PROTECTION RETAINED, PROTECTED, OR ESTABLISHED TREE CANOPY SHALL MEET THE FOLLOWING DIMENSIONAL STANDARDS:

•••	NO TREE CANOPY AREA SHALL MEASURE LESS THAN 1,600 SQUARE FEET IN SIZE.
•••	NO TREE CANOPY AREA SHALL MEASURE LESS THAN 20' IN WIDTH AT ITS NARROWEST POINT.

NOTE: EVERY EFFORT SHALL BE TAKEN TO PROTECT EXISTING VEGETATION IN PERIMETER BUFFERS; HOWEVER, IT'S LIKELY THAT THE LIMITS OF DISTURBANCE WILL NEED TO ENCROACH PERIMETER BUFFERS IN SEVERAL LOCATIONS.

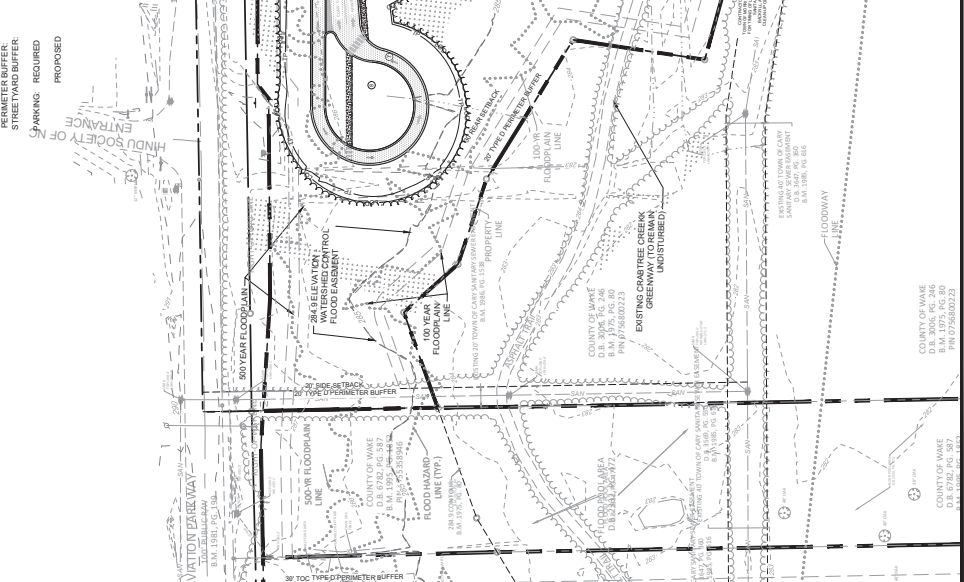
EXISTING	PROPOSED
CEMENT	CEMENT
CONCRETE	CONCRETE
ASPHALT	ASPHALT
GRAVEL	GRAVEL
GAZE LINE	G
WATER LINE	W
TELEPHONE LINE	TEL
SEWER LINE	S
SANITARY SEWER LINE	SAN
CABLE TV LINE	CV
STORM PIPE	ST
ROOF DRAIN PIPE	RD
CONSTRUCTION LIMITS	LOO
LIGHT POLE	LP
WIRE BOLLARD	WB
UTILITY POLE	UP
SANITARY SEWER MANHOLE	SMH
STORM DRAINAGE MANHOLE	DMH
CLEAUFOUT (SANITARY OR STORM)	CO
DRAIN INLET	DI
WATER VALVE	WV
FIRE HYDRANT	PH
TELECOM BOX	TX

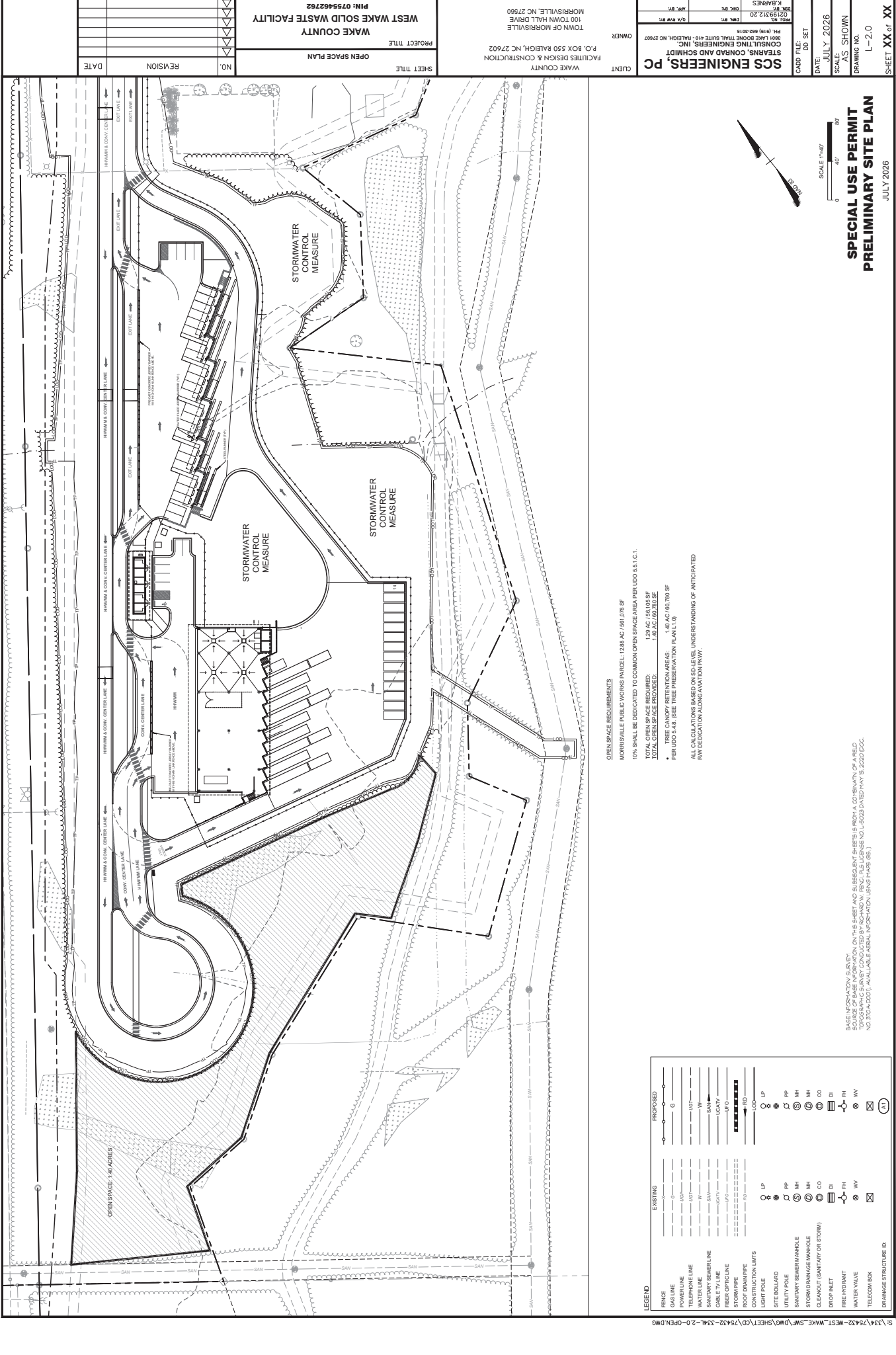
BASE INFORMATION/ SURVEY:
SOURCE OF BASE INFORMATION ON THIS SHEET AND SUBSEQUENT SHEETS IS FROM A COMBINATION OF A
FIELD TOPOGRAPHIC SURVEY CONDUCTED BY RICHARD W. PENCEL PLS LICENSE NO. L-5023 DATED MAY 15,
2020 (DOC. NO. 3704-0001), AVAILABLE AERIAL INFORMATION USING MAPS GIS

WAKE COUNTY
WEST WAKE SOLID WASTE FACILITY
PIN: 0755462762

	EXISTING	PROPOSED
FENCE	=====	=====
SALESMAN'S OFFICE	=====	=====
TELEPHONE LINE	=====	=====
WATER LINE	=====	=====
TELEPHONE LINE	=====	=====
WATER LINE	=====	=====
SANITARY SEWER LINE	=====	=====
CABLE TV LINE	=====	=====
FIBER OPTIC LINE	=====	=====
STORM DRAINAGE	=====	=====
CONSTRUCTION LIMITS	=====	=====
LIGHT POLE	=====	=====
SITE BOLLARD	=====	=====
UTILITY POLE	=====	=====
SANITARY SEWER MANHOLE	=====	=====
STORM DRAINAGE MANHOLE	=====	=====
CLEANOUT (SANITARY OR STORM)	=====	=====
DRAIN INLET	=====	=====
FIRE HYDRANT	=====	=====
WATER VALVE	=====	=====
TELECOM BOX	=====	=====
DRAINAGE STRUCTURE ID.	=====	=====

20 TYPE D BUFFER (SEE PLANTING PLAN, SHEET L-3.0)
20 TYPE G BUFFER (SEE PLANTING PLAN, SHEET L-3.0)





OPEN SPACE REQUIREMENTS
MORRISVILLE PUBLIC WORKS PARCEL: 12.88 AC / 161,278 SF
10% SHALL BE DEDICATED TO COMMON OPEN SPACE AREA PER UDO 5.5.1.C.1.
TOTAL OPEN SPACE REQUIRED: 1.29 AC / 161,058 SF
TOTAL OPEN SPACE PROVIDED: 1.40 AC / 160,780 SF
• TREE CANOPY RETENTION AREAS: 1.40 AC / 160,780 SF
PER UDO 5.4.8 (SEE TREE PRESERVATION PLAN L1.0)
ALL CALCULATIONS BASED ON 0.5% SLOPE, UNDERSTANDING OF ANTICIPATED
RWY DEDICATION ALONG AVATION PKWY

LEGEND	EXISTING	PROPOSED
FENCE	---	---
GAS LINE	---	---
SEWER LINE	---	---
TELEPHONE LINE	---	---
WATER LINE	---	---
SANITARY SINKER LINE	---	---
CABLE TV LINE	---	---
FIBER OPTIC LINE	---	---
STORM PIPE	---	---
CONSTRUCTION LIMITS	---	---
LIGHT POLE	---	---
UTILITY POLE	---	---
SANITARY SINKER MANHOLE	---	---
STORM DRAINAGE MANHOLE	---	---
CLEANOUT (SANITARY OR STORM)	---	---
DROP INLET	---	---
FIRE HYDRANT	---	---
WATER VALVE	---	---
TELECOM BOX	---	---
DRAINAGE STRUCTURE ID	---	---

BASE INFORMATION SURVEY
SOURCE OF BASE INFORMATION ON THIS SHEET AND SUBSEQUENT SHEETS IS FROM A COMPANY OF A FIELD
SURVEYOR. THE SURVEYOR'S LICENSE NO. IS 10003 DATED THAT IS 2022 DDC.
NO 370-A-0021. AVAILABLE AS A INFORMATION USING HAS 055.

**SPECIAL USE PERMIT
PRELIMINARY SITE PLAN**

JULY 2026

SHEET XX of XX

SCALE 1"=40'
0 40' 80'

DATE: JULY 2026
SCALE: AS SHOWN
DRAWING NO. L-2.0

SCS ENGINEERS, PC
STEVENSON, CONRAD AND SCHMIDT
CONSULTING ENGINEERS, INC.
3001 LAKE RIDGE TRAIL SUITE 410 - WAKEFIELD, NC 27587
P.O. BOX 550 RALEIGH, NC 27602
TOWN OF MORRISVILLE
FACILITIES DESIGN & CONSTRUCTION
P.O. BOX 550 RALEIGH, NC 27602

PROJECT TITLE
WEST WAKE SOLID WASTE FACILITY
WAKE COUNTY
PIN: 0755462762

NO.	REVISION	DATE

Revised Traffic Impact Analysis

West Wake Solid Waste Facility

Morrisville, NC



**Planning Department
Approval**

bmartin 08/31/2026

Prepared for:
Wake County Facilities
Design & Construction

Kimley»Horn

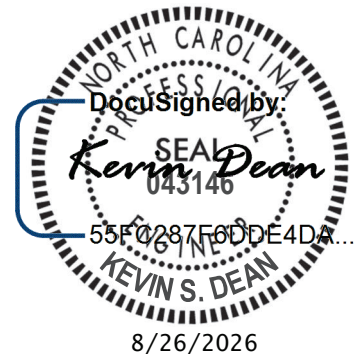
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Revised Traffic Impact Analysis for
West Wake Solid Waste Facility
Morrisville, North Carolina

Prepared for:
Wake County
Facilities Design & Construction

Prepared By:
Kimley-Horn and Associates, Inc.
NC License #F-0102
1070 S. Main Street, Suite 230
Holly Springs, NC 27540

016447001
August 2026



This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

Executive Summary

Kimley-Horn has prepared a revised traffic impact analysis (TIA) for the proposed construction of the West Wake Solid Waste Facility (WWSWF) along Aviation Parkway in Morrisville, North Carolina to reflect comments provided by the North Carolina Department of Transportation (NCDOT) as part of a review of the *West Wake Solid Waste Facility TIA* (Kimley-Horn, February 2026). The *Aviation Parkway Campus Expansions Revised TIA* (Kimley-Horn, April 2024) was performed for a previous version of the site that anticipated expansion and relocation of both the existing Wake County Convenience Facility and the Town Public Works facility on-site, with site access proposed via two full-movement driveways for that plan. However, the Town has since elected to relocate most of the current Public Works operations to another location in Town, and changes to the plan have warranted a new TIA.

As currently envisioned, the project proposes to build a new solid waste facility to the northeast with a single site access on Aviation Parkway aligning with International Drive at the existing Town of Morrisville Public Works Facilities access. The Town of Morrisville also plans to move most of the current Public Works facility staff from the project site to another location in Town, and some current Town buildings on-site will be demolished. Project build-out is anticipated in 2028, so the study year 2029 (build-out year + 1) will be used in this analysis per Town TIA requirements.

Study Intersections

Based on TIA scoping discussions with the Town of Morrisville and North Carolina Department of Transportation (NCDOT), the intersection of Aviation Parkway at International Drive/Existing Town Public Works Driveway/Proposed County Driveway was studied in this analysis.

Existing Traffic Data

Weekday AM peak hour (7-9am), weekday PM peak hour (4-6pm), and Saturday peak hour (10am-3pm) turning movement counts were performed at the subject intersection in December 2025 while Wake County Public Schools were in session (as applicable) for use in this analysis.

Future No-Build Traffic Volumes

To calculate projected (2029) background traffic volumes, a 2% annual growth rate was applied to existing through volumes along Aviation Parkway to the study year 2029. Consistent with the previous TIA, the annual growth rate was not applied to volumes onto/off International Drive or the existing Town Public Works Facility Driveway.

In addition to the annual growth rate, site traffic from the proposed expansion of the Hindu Society of North Carolina Campus (HSNC) was obtained from the *Aviation Parkway Campus Expansions Revised TIA* and included in this analysis as background traffic.

Trip Generation

Driveway volumes collected at the existing County Convenience Center site access on Aviation Parkway in May 2023 and December 2025 were reviewed to calculate weekday AM, weekday PM, and Saturday peak hour trip generation of the existing facility. While December 2025 data was found to be higher for the weekday AM peak hour, data from May 2023 was higher for the weekday PM and Saturday peak data. To present a conservative analysis, the higher of the driveway volumes from the two count data sets was

used as the basis for trip generation to present a conservative analysis. Consistent with the original TIA performed for this project, trip generation will be calculated as a 100% increase in driveway volumes collected at the existing site access.

Table ES-1. Trip Generation

Land Use	Intensity	Daily	AM Peak Hour			PM Peak Hour			Saturday Mid-Day Peak		
		Total	Total	In	Out	Total	In	Out	Total	In	Out
County Convenience Center		780	54	28	26	96	50	46	220	108	112

As shown in Table ES-1, the project has the potential to generate 780 new trips on a typical weekday, with 54 trips during the weekday AM peak hour, 96 trips during the weekday PM peak hour, and 220 trips during the Saturday peak hour.

Site Trip Distribution

Consistent with the original TIA, the following distribution was used for project site trips:

- 70% to/from the southwest on Aviation Parkway
- 30% to/from the northeast on Aviation Parkway

Network Traffic Diversions

The following reductions in existing peak hour network trips were accounted for in this analysis:

- Existing Public Works Trips: Based on estimates provided by the Town that approximately 40% of trips to/from the existing Public Works facility will remain, existing Public Works Facility driveway volumes were reduced by 60%.
- Existing County Site Trips: Through volumes along Aviation Parkway at the subject intersection were reduced to reflect the closure of the existing facility.

Capacity Analyses

Capacity analyses using Synchro 12 were performed incorporating UDO-required settings related to inputs such as a consistent peak hour factor (PHF) of 0.90, prohibition of right-turns on red (RTOR), and use of existing signal timings. Further, a minimum volume of 4 vehicles was used for each intersection movement even where existing or projected volumes are lower. **Table ES-2** summarizes the operation of the study intersection for the study peak hours, including LOS and delay for the existing unsignalized Town Driveway approach in the existing and background traffic conditions.

Table ES-2. Intersection Levels of Service for All Analysis Conditions

Major Street	Minor Street	Condition	AM	PM	Saturday
			LOS (Delay, sec.)	LOS (Delay, sec.)	LOS (Delay, sec.)
Aviation Parkway	International Drive/Existing Town Drwy./Future County Drwy.	Existing (2025)	International: A (6.2) Town: WB – C (18.7)	International: B (10.2) Town: WB – C (15.3)	International: A (2.5) Town: WB – B (14.4)
		Future (2029) Background	International: A (6.4) Town: WB – C (21.0)	International: B (10.5) Town: WB – C (17.5)	International: A (2.6) Town: WB – C (15.6)
		Future (2029) Build – Imp.	B (14.0)	B (19.0)	B (16.1)

Recommended Roadway Improvements

The following improvements are recommended to be performed as part of this project:

Aviation Parkway at International Drive/Existing Town Drwy./Future County Drwy.:

- Realign/reconstruct the existing Town Driveway as the Future County Drwy. and provide one ingress lane and two egress lanes
- Provide a southbound left-turn lane on Aviation Parkway with approximately 150 feet of storage (inclusive of deceleration) and tapers
- Provide a northbound right-turn lane on Aviation Parkway with approximately 150 feet of storage (inclusive of deceleration) and tapers
- Restripe the existing striped median on the eastbound approach of International Drive to provide an exclusive left-turn lane with 100 feet of storage and tapers, and restripe the existing left-turn lane as a through lane
- Modify the existing traffic signal to accommodate the identified laneage

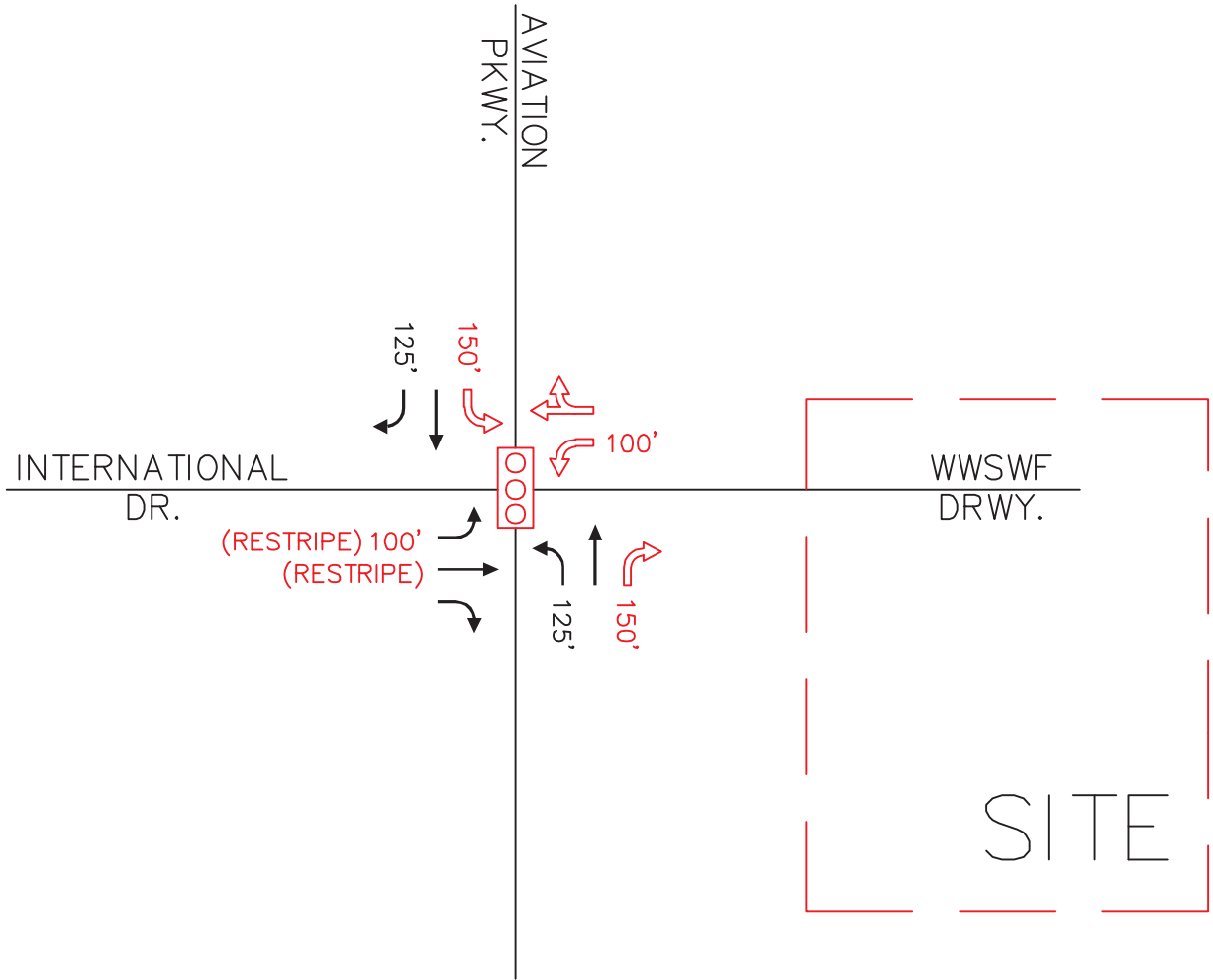
The recommended roadway laneage is shown on **Figure ES-1**.

Summary

Analyses indicate that the study intersection is expected to operate at an acceptable overall LOS at project build-out, with only relatively minor increases in intersection delays associated with the addition of project site traffic. As all movements at the study intersection are expected to continue to operate at acceptable LOS at project build-out, or at the same overall LOS as the background traffic condition if unacceptable LOS are anticipated in future traffic conditions, no additional or alternative improvements are recommended as part of this project.



NOT TO SCALE



LEGEND

- ← EXISTING LANE
- XX' STORAGE LENGTH
- ← RECOMMENDED LANE
-  RECOMMENDED TRAFFIC SIGNAL MODIFICATION



WEST WAKE SOLID
WASTE FACILITY
MORRISVILLE, NC
TRAFFIC IMPACT ANALYSIS

RECOMMENDED ROADWAY LANEAGE

FIGURE
ES-1

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Site Location, Access, and Background Information

Kimley-Horn has prepared a traffic impact analysis (TIA) for the proposed construction of the West Wake Solid Waste Facility (WWSWF) along Aviation Parkway in Morrisville, North Carolina. The *Aviation Parkway Campus Expansions Revised TIA* (Kimley-Horn, April 2024) was performed for a previous version of the site that anticipated expansion and relocation of both the existing Wake County Convenience Facility and the Town Public Works facility on-site, with site access proposed via two full-movement driveways for that plan. However, the Town has since elected to relocate most of the current Public Works operations to another location in Town, and changes to the plan have warranted a new TIA.

As currently envisioned, the project proposes to build a new solid waste facility to the northeast along Aviation Parkway with a single site access on Aviation Parkway aligning with International Drive at the existing Town of Morrisville Public Works Facilities access. The Town of Morrisville also plans to move most of the current Public Works facility staff from the project site to another location in Town, and some current Town buildings on-site will be demolished. Project build-out is anticipated in 2028, so the study year 2029 (build-out year + 1) will be used in this analysis per Town TIA requirements.

Town of Morrisville and NCDOT provided background information and were consulted regarding elements to be included in this analysis. The approved Memorandum of Understanding (MOU) is included in the Appendix of this report.

A map showing the vicinity of the site location is shown in **Figure 1**. The preliminary site plan for the proposed development is shown in **Figure 2**.

The major roadways in the study area include Aviation Parkway and International Drive. Aviation Parkway is generally a two-lane undivided north-south roadway in the vicinity of International Drive (though there are sections that include a two-way left-turn lane further northeast and southwest along the corridor) with a posted speed limit of 45 mph. With the implementation of recent intersection modifications that removed an existing landscaped median, International Drive is generally a 3-lane undivided roadway with a posted speed limit of 35 mph.

Based on TIA scoping discussions with the Town and NCDOT, the intersection of Aviation Parkway at International Drive/Proposed Site Access was studied in this analysis.

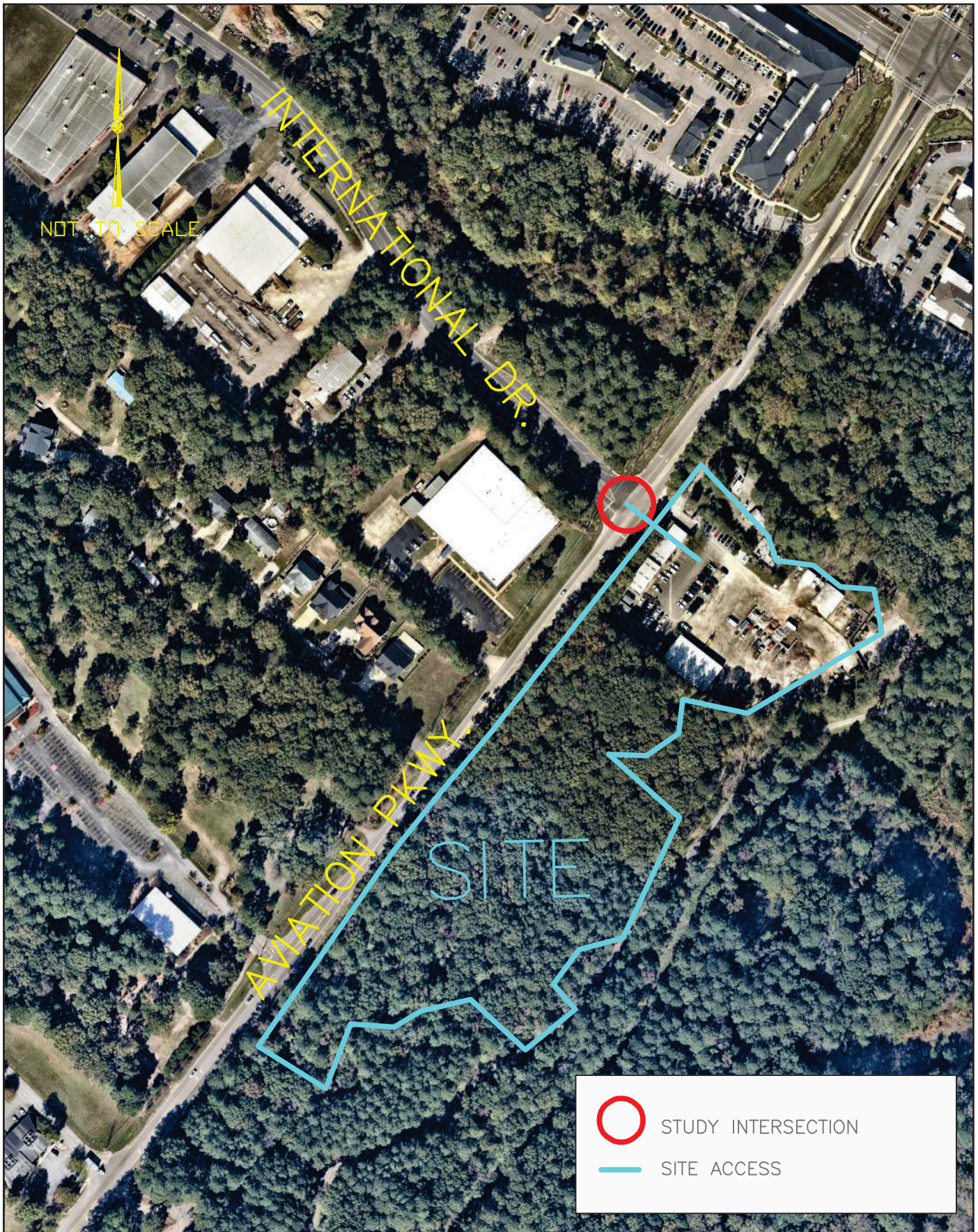
The existing laneage, turn bay storage lengths, and traffic control are shown in **Figure 3**.

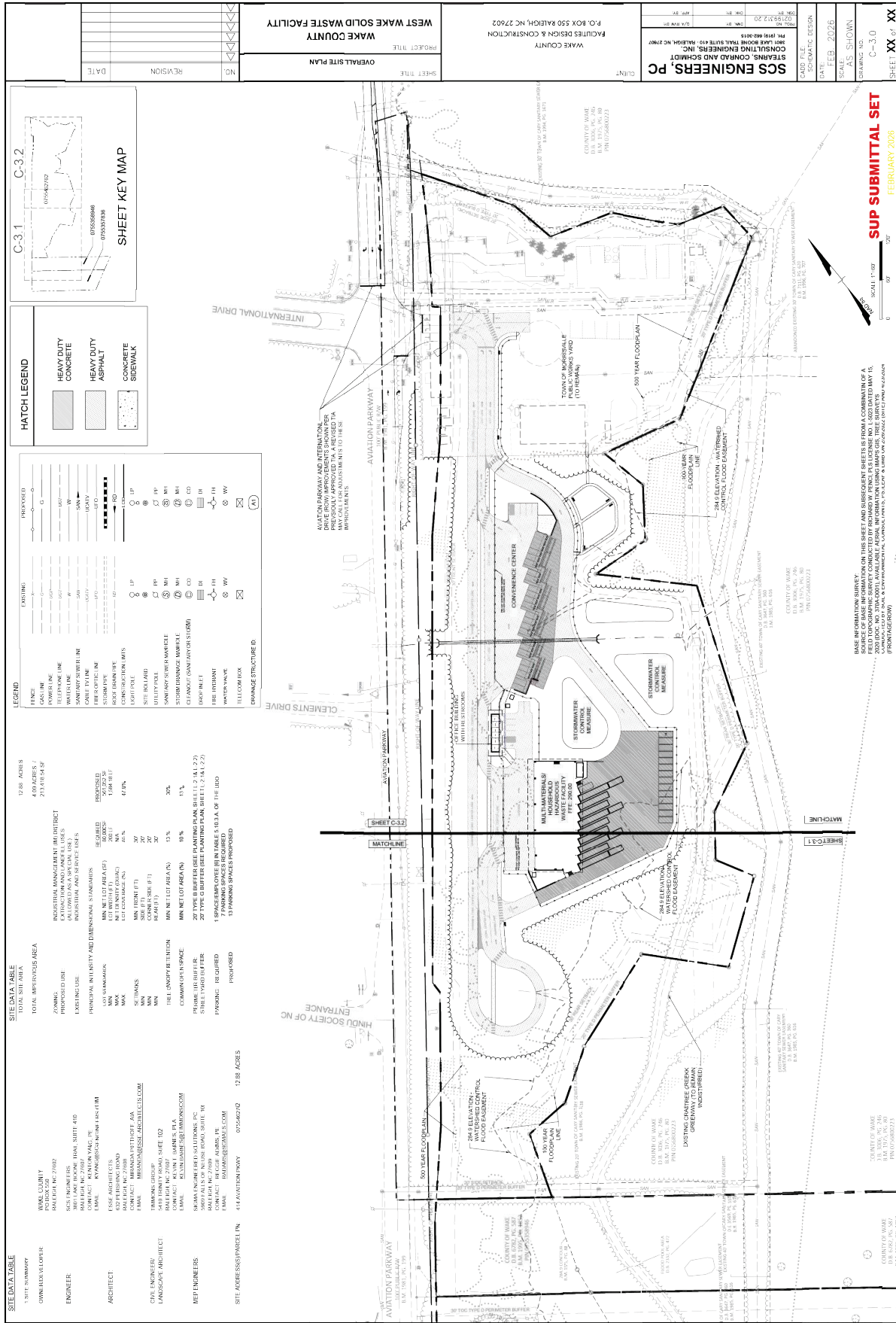
NCDOT-collected average annual daily traffic (AADT) data for the study area, where available, is shown in **Figure 4**.

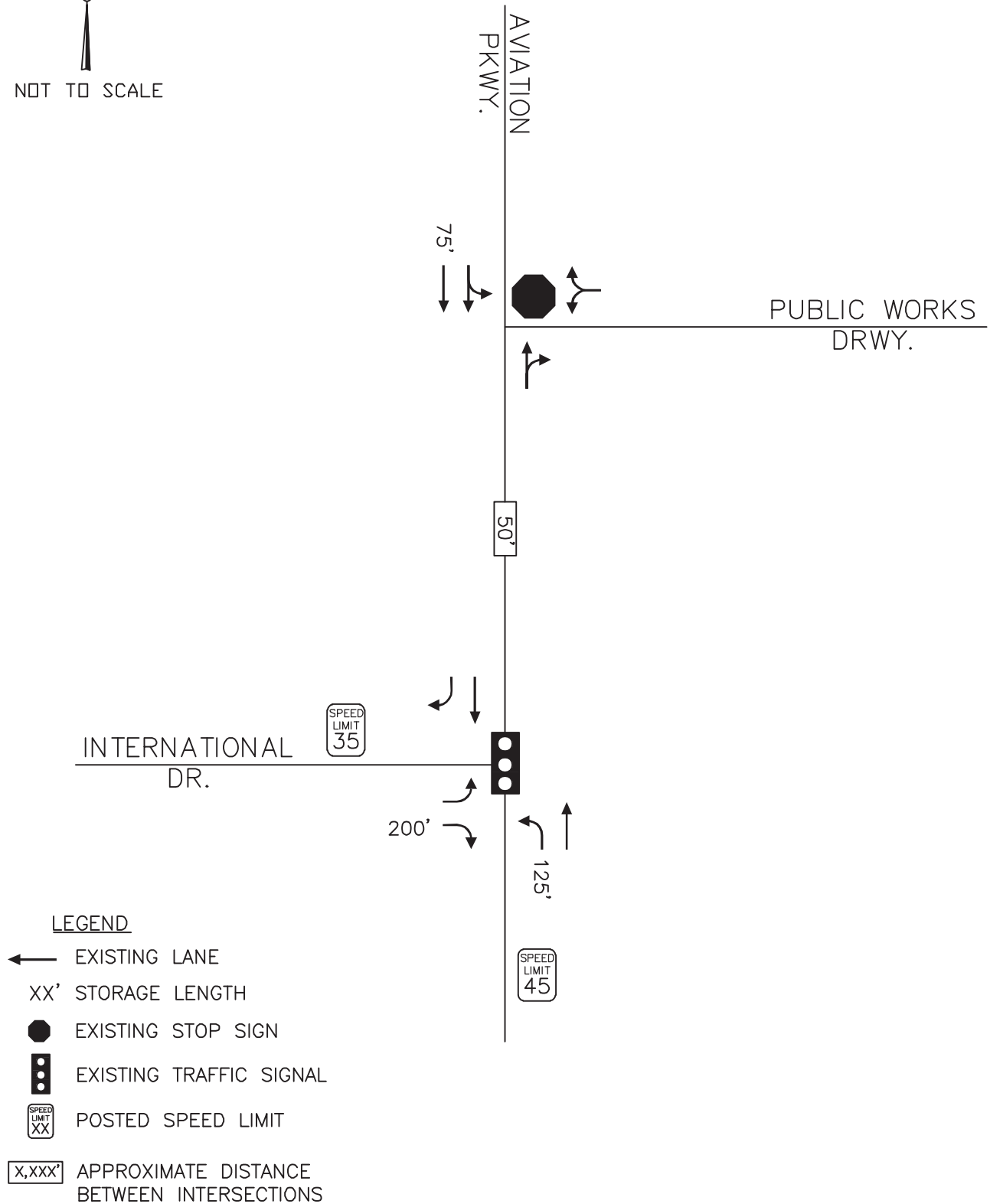
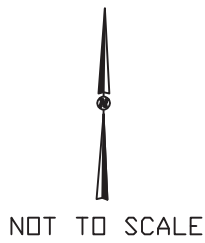
Along the study roadways in the vicinity of the site, sidewalks are currently present:

- Aviation Parkway: no sidewalk within 500 feet of International Drive
- International Drive: no sidewalk within 500 feet of Aviation Parkway

There are no GoTriangle stops in the immediate vicinity of the subject intersection, but there are stops to the northeast at the McCrimmon Parkway/Evans Road intersection.









NOT TO SCALE

AVIATION
PKWY.

PUBLIC WORKS
DRWY.

INTERNATIONAL
DR.

14,250

SOURCE:
NCDOT ANNUAL AVERAGE DAILY TRAFFIC VOLUME MAP



WEST WAKE SOLID
WASTE FACILITY
MORRISVILLE, NC
TRAFFIC IMPACT ANALYSIS

EXISTING (2025) AADT VOLUMES

FIGURE
4

Existing Analysis

The existing conditions analysis was developed using existing roadway geometry, traffic volumes, signal timings, and a 0.90 PHF. Signal timings for the study intersections provided by the Town of Cary for the April 2024 analysis were used in this study for consistency.

Existing Volume Development

Weekday AM (7-9am) and PM (4-6pm) peak hour turning movement counts were collected on December 4, 2025 while Wake County Public Schools were in session. Saturday peak hour (10am-3pm) counts were collected on December 6, 2025 when the existing County Convenience Center was open to the public and the Hindu Society hosted the “Annual Gala and Campus Expansion Fundraiser” event.

It was noted that left-turns were observed into and out of the existing Town Public Works driveway even though a left-turn lane is not provided into the driveway, and exiting movements are intended (per the “Right-out Only” sign on the driveway) to be limited to rights only. While those existing movements are prohibited, those volumes were assumed to remain in future traffic conditions and were analyzed in this analysis.

Volume Balancing

While there was only one study intersection included in this analysis, Synchro software limitations require that the existing unsignalized right-in/right-out Town Public Works driveway be analyzed as a separate node. Volumes were balanced in the Synchro analyses between the two intersection nodes, but no formal volume adjustments/corridor balancing applied for this analysis.

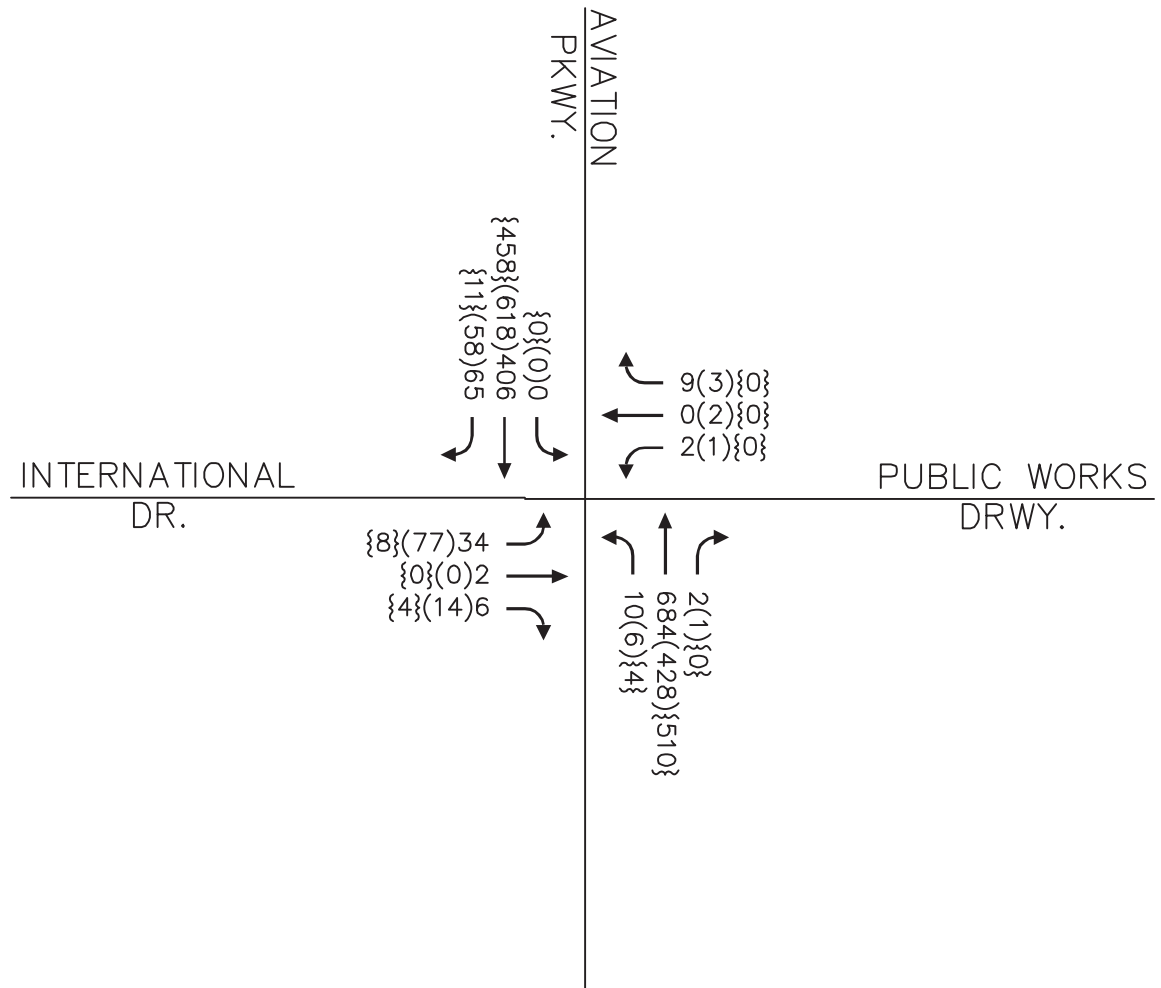
Existing turning movement counts for AM, PM, and Saturday peak hours are shown on **Figure 5**.

Existing Analysis Results

Capacity analyses for all intersections were performed using Synchro 12 software for each analysis scenario. Per the Town of Morrisville UDO, a peak hour factor (PHF) of 0.90 was used at the study intersection even where that differs from traffic count data. The findings of the capacity analysis are included later in this report in [Table 2](#).



NOT TO SCALE



LEGEND

- XX AM PEAK HOUR TRAFFIC
- (XX) PM PEAK HOUR TRAFFIC
- {XX} SATURDAY PEAK HOUR TRAFFIC

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

Future Background Analysis

The future background condition is generally analyzed using existing roadway geometry and signal timings with projected (2029) future background traffic volumes. A PHF of 0.90 was used at the study intersection.

Public Roadway Projects

Aviation Parkway is proposed to be widened to a four-lane divided roadway generally between NC 54 and I-40 (where not otherwise complete) as part of NCDOT STIP project U-5811, and recent public hearing maps suggest that the subject study intersection will remain a signalized, full-movement access. Per NCDOT's website for the project, right-of-way acquisition for the project is expected to begin in 2026 and construction in 2029. To be consistent with the previous TIA, and as the current project timeline for U-5811 suggests construction will not be complete prior to the build-out of this site, improvements proposed as part of the U-5811 project were not included in this analysis.

Background Growth

To calculate projected (2029) background traffic volumes, a 2% annual growth rate was applied to existing through volumes along Aviation Parkway to the study year 2029. Consistent with the previous TIA, the annual growth rate was not applied to volumes onto/off International Drive or the existing Town Public Works Facility Driveway.

Approved Development

In addition to the annual growth rate, site traffic from the proposed expansion of the Hindu Society of North Carolina Campus (HSNC) was obtained from the *Aviation Parkway Campus Expansions Revised TIA* and included in this analysis as background traffic. That campus expansion envisions the construction of a new temple and community center, with some repurposing of existing uses on-site, and the addition of site access to both Aviation Parkway and Clements Drive.

Total Background Traffic Volumes

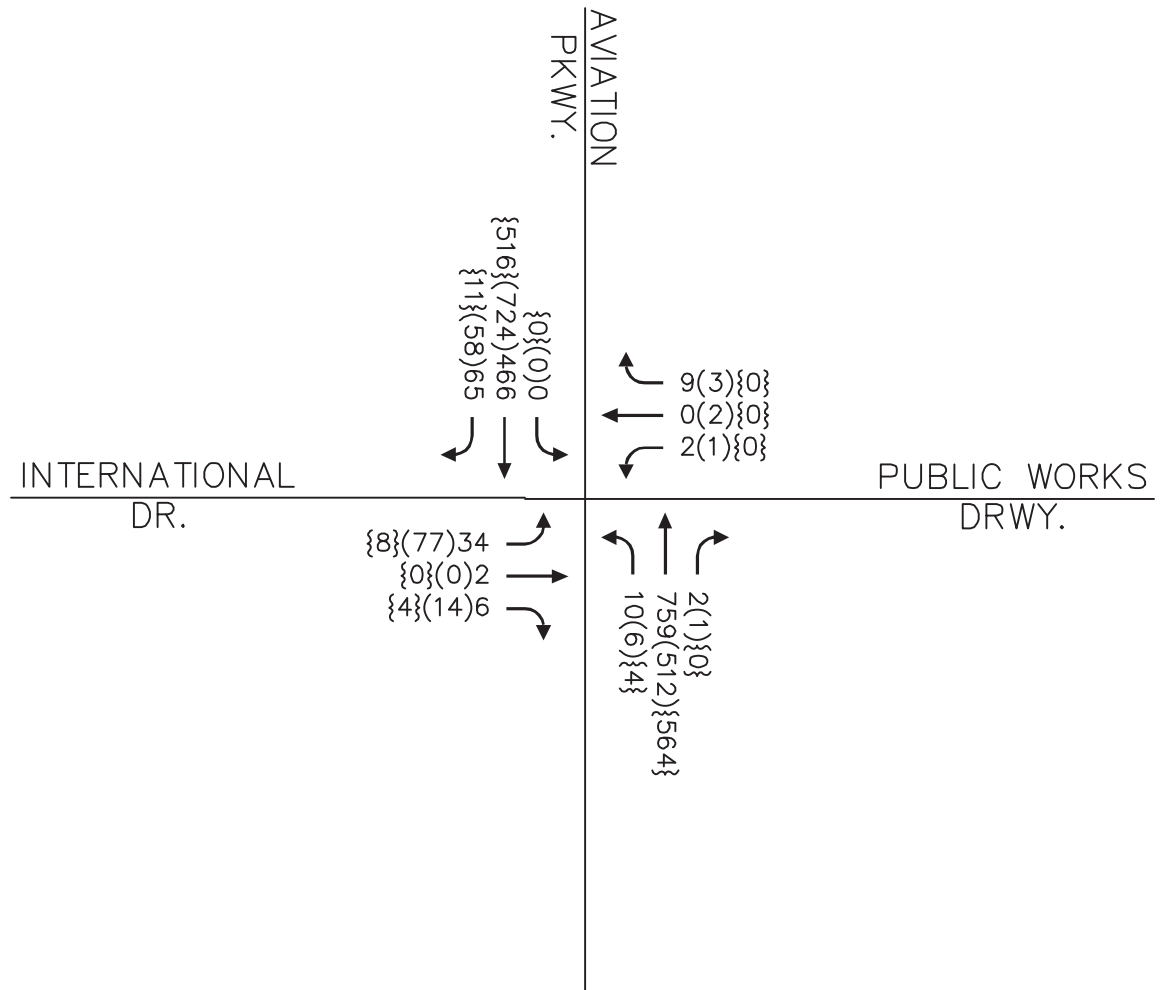
Total study peak hour background traffic volumes, which consist of the existing, background growth, and approved development volumes, are shown on **Figure 6**.

Future Background Analysis Results

The findings of the capacity analysis are included in [Table 2](#) in this report. Existing signal timings were used at the study intersections.



NOT TO SCALE



LEGEND

- XX AM PEAK HOUR TRAFFIC
- (XX) PM PEAK HOUR TRAFFIC
- {XX} SATURDAY PEAK HOUR TRAFFIC

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Trip Generation

As the proposed use is not included in the ITE *Trip Generation Manual*, trip generation calculations were performed based factored driveway volumes from the existing site consistent with the previous TIA and discussions with the Town and NCDOT.

Driveway volumes collected at the existing County Convenience Center site access on Aviation Parkway in May 2023 and December 2025 were reviewed to calculate weekday AM, weekday PM, and Saturday peak hour trip generation of the existing facility. While December 2025 data was found to be higher for the weekday AM peak hour, data from May 2023 was higher for the weekday PM and Saturday peak data. To present a conservative analysis, the higher of the driveway volumes from the two count data sets was used as the basis for trip generation to present a conservative analysis. Consistent with the original TIA performed for this project, trip generation will be calculated as a 100% increase in driveway volumes collected at the existing site access.

As shown in [Table 1](#), the project has the potential to generate 780 new trips on a typical weekday, with 54 trips during the weekday AM peak hour, 96 trips during the weekday PM peak hour, and 220 trips during the Saturday peak hour.

Table 1. Trip Generation

Land Use	Intensity	Daily	AM Peak Hour			PM Peak Hour			Saturday Mid-Day Peak		
		Total	Total	In	Out	Total	In	Out	Total	In	Out
County Convenience Center		780	54	28	26	96	50	46	220	108	112

Build-out Traffic Volumes

Trip Generation and Assignment

Consistent with the original TIA, the following overall site traffic distribution was used in this analysis for project site trips:

- 70% to/from the southwest on Aviation Parkway
- 30% to/from the northeast on Aviation Parkway

The overall trip distribution percentages and percent assignments at the study intersections for the HSNC campus are shown on **Figure 7**.

Site Traffic Volumes

AM, PM, and Saturday peak hour site traffic volumes for each scenario are shown on **Figure 8**.

Volume Diversions

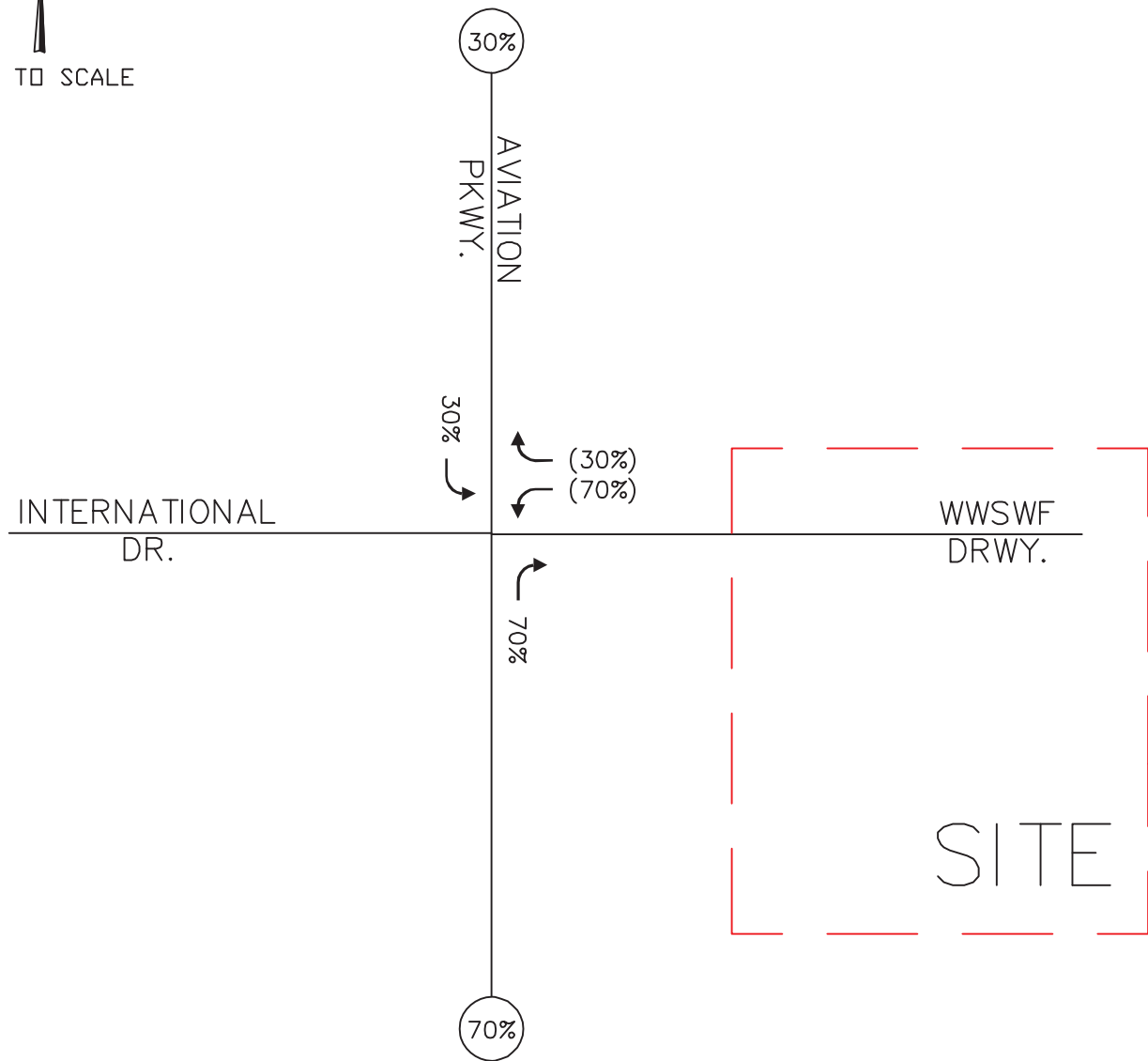
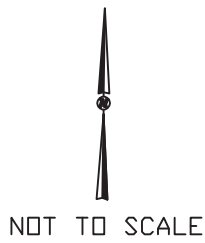
The following reductions in existing peak hour network trips were accounted for in this analysis:

- Existing Public Works Trips: Based on estimates provided by the Town that approximately 40% of trips to/from the existing Public Works facility will remain, existing Public Works Facility driveway volumes were reduced by 60%.
- Existing County Site Trips: Through volumes along Aviation Parkway at the subject intersection were reduced to reflect the closure of the existing facility.

Traffic diversions are summarized in the volume development worksheets in the Appendix of this report.

Total Build-out Traffic Volumes

Total build-out volumes, consisting of background volumes, site traffic, and diverted traffic for each of the AM, PM, and Saturday peak hours for each scenario, are shown on **Figure 9**.



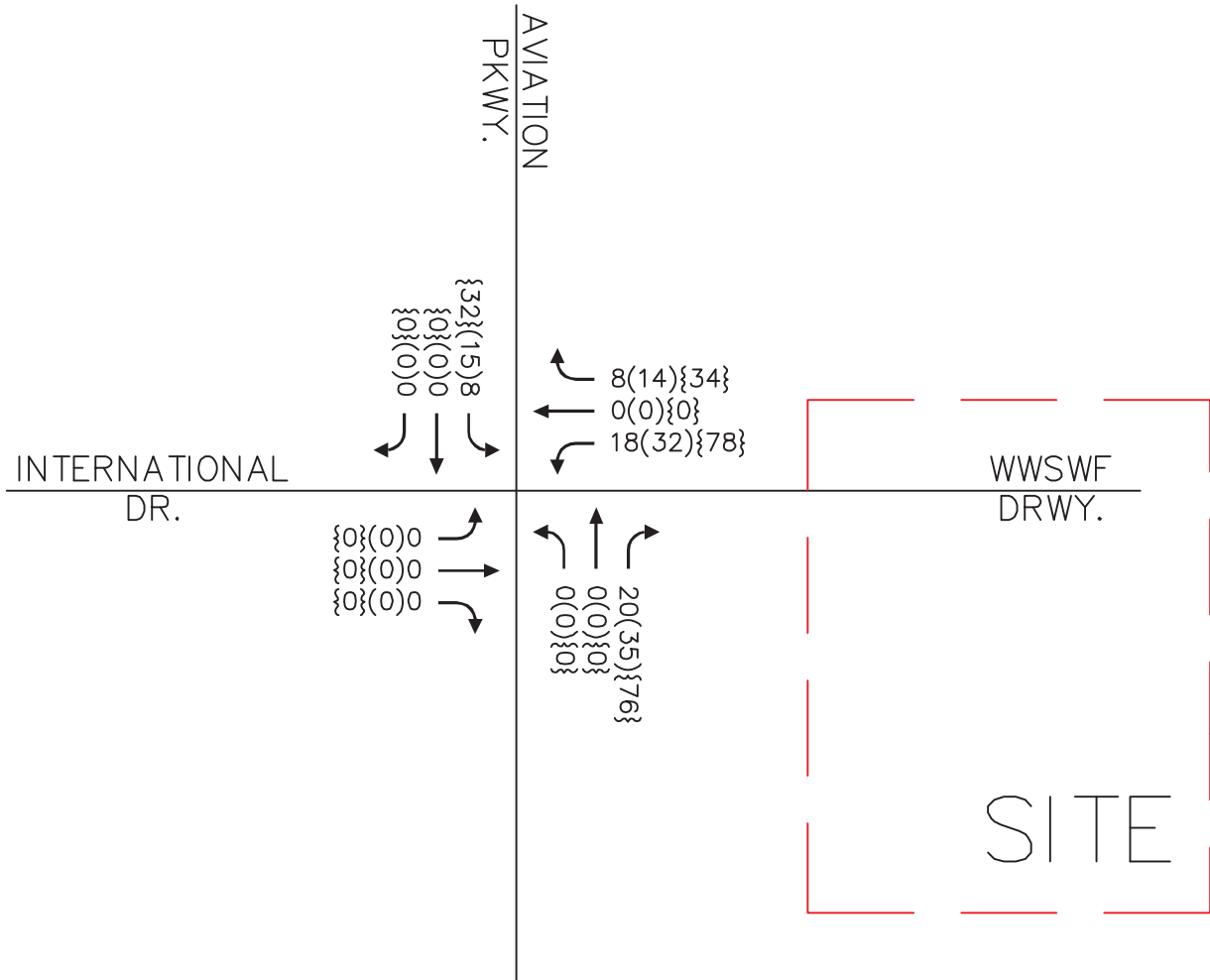
WEST WAKE SOLID
WASTE FACILITY
MORRISVILLE, NC
TRAFFIC IMPACT ANALYSIS

SITE TRAFFIC DISTRIBUTION AND
PERCENT ASSIGNMENT

FIGURE
7



NOT TO SCALE



LEGEND

- XX AM PEAK HOUR TRAFFIC
- (XX) PM PEAK HOUR TRAFFIC
- {XX} SATURDAY PEAK HOUR TRAFFIC



WEST WAKE SOLID
WASTE FACILITY
MORRISVILLE, NC
TRAFFIC IMPACT ANALYSIS

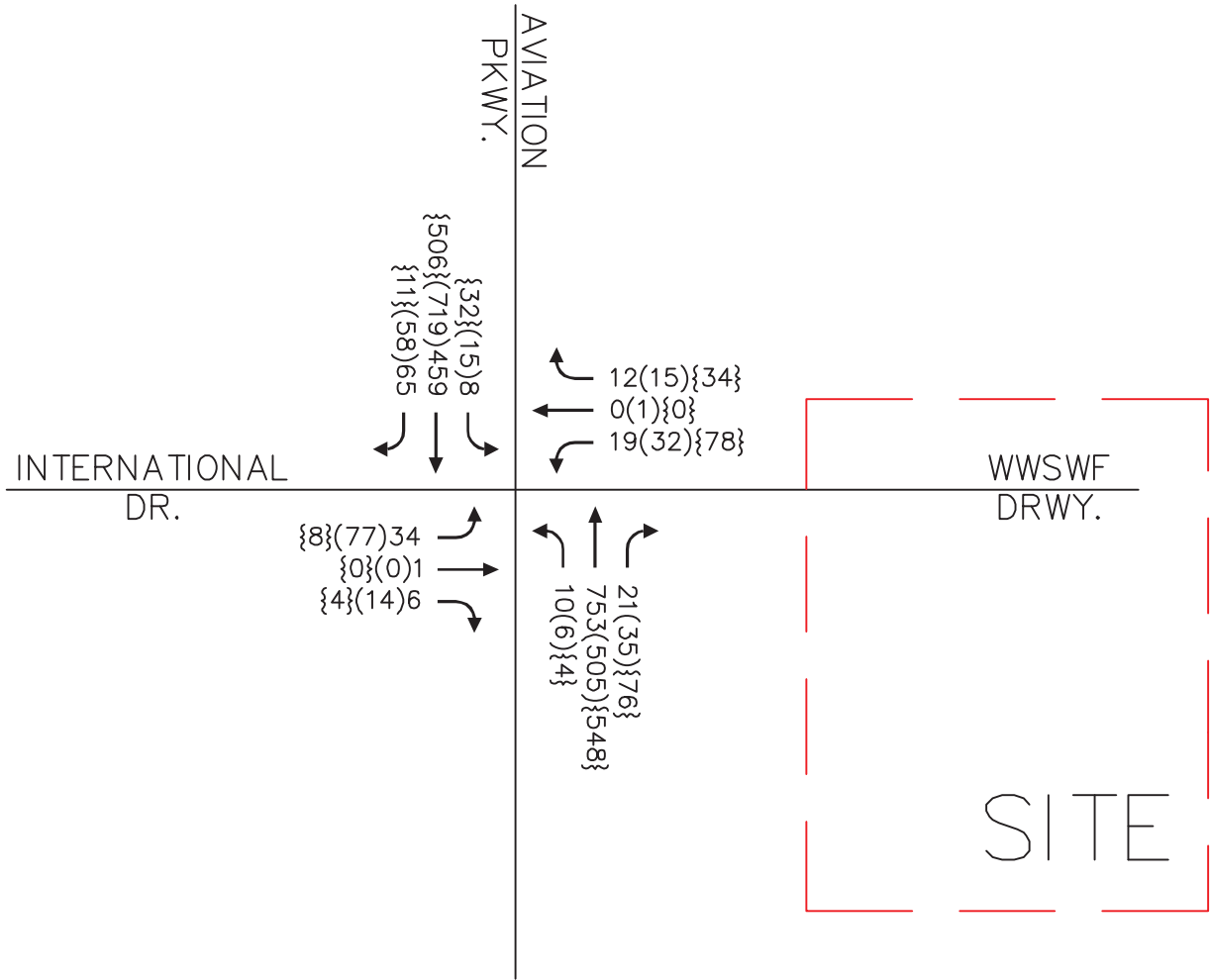
PEAK HOUR SITE TRIPS

FIGURE
8



NOT TO SCALE

* VOLUMES INCLUDE REASSIGNMENT
OF SOME EXISTING TOWN PUBLIC
WORKS AND COUNTY CONVENIENCE
CENTER SITE TRIPS



LEGEND

- XX AM PEAK HOUR TRAFFIC
- (XX) PM PEAK HOUR TRAFFIC
- {XX} SATURDAY PEAK HOUR TRAFFIC



WEST WAKE SOLID
WASTE FACILITY
MORRISVILLE, NC
TRAFFIC IMPACT ANALYSIS

PROJECTED (2029) BUILD-OUT
PEAK HOUR TRAFFIC VOLUMES

FIGURE
9

Future Build Analysis

The future build condition consists of the same roadway geometry and signal timings as the future background condition, though with the addition of the proposed site driveway and associated turn lanes. A PHF of 0.90 was also used in analyses for this traffic condition.

Recommended Roadway Improvements

The following improvements are recommended to be performed as part of this project:

Aviation Parkway at International Drive/Existing Town Drwy./Future County Drwy.:

- Realign/reconstruct the existing Town Driveway as the Future County Drwy. and provide one ingress lane and two egress lanes
- Provide a southbound left-turn lane on Aviation Parkway with approximately 150 feet of storage (inclusive of deceleration) and tapers
- Provide a northbound right-turn lane on Aviation Parkway with approximately 150 feet of storage (inclusive of deceleration) and tapers
- Restripe the existing striped median on the eastbound approach of International Drive to provide an exclusive left-turn lane with 100 feet of storage and tapers, and restripe the existing left-turn lane as a through lane
- Modify the existing traffic signal to accommodate the identified laneage

The recommended roadway laneage is shown on **Figure 10**.

Analysis of Laneage Alternatives per UDO

As all movements at the study intersection are expected to continue to operate at acceptable LOS at project build-out, or at the same overall LOS as the background traffic condition if unacceptable LOS are anticipated, no additional or alternative improvements were required to be identified to meet the standards of the Town's UDO.

The results of the future build condition capacity analysis are shown in Table 2, including LOS and delay for the existing unsignalized Town Driveway approach in the existing and background traffic conditions.

Table 2. Intersection Levels of Service for All Analysis Conditions

Major Street	Minor Street	Condition	AM	PM	Saturday
			LOS (Delay, sec.)	LOS (Delay, sec.)	LOS (Delay, sec.)
Aviation Parkway	International Drive/Existing Town Drwy./Future County Drwy.	Existing (2025)	International: A (6.2) Town: WB – C (18.7)	International: B (10.2) Town: WB – C (15.3)	International: A (2.5) Town: WB – B (14.4)
		Future (2029) Background	International: A (6.4) Town: WB – C (21.0)	International: B (10.5) Town: WB – C (17.5)	International: A (2.6) Town: WB – C (15.6)
		Future (2029) Build	Future (2029) Build – Imp.	B (14.0)	B (19.0)

Queue Analysis

A queue analysis was performed based on the 95th percentile queues reported by Synchro 12. In Synchro, the 95th percentile queue is defined as the maximum back of queue with 95th percentile traffic volumes (compared to the 50th percentile queue, which represents the maximum back of queue on a typical cycle). Synchro notes that, in practice, the 95th percentile queue will rarely be exceeded and is an acceptable measure for the design of storage bays. For unsignalized intersections, queues are reported in terms of queued vehicles. For reporting purposes, it was assumed that each vehicle represents 25 feet of queuing. The intent of the queue analysis is to identify the required storage lengths to mitigate traffic associated with the proposed development. The results of the queue analysis for the studied peak hours are shown on [Table 3](#). The projected background and build-out queues are shown for each movement with storage lengths.

Table 3. Synchro 95th Percentile Queues

Major Street	Minor Street	Intersection Lane Existing Storage (ft.)	AM	PM	Saturday
			Synchro 95 th Percentile Queue	Synchro 95 th Percentile Queue	Synchro 95 th Percentile Queue
Aviation Parkway	International Drive/Existing Town Drwy./Future County Drwy.	NBL: 125'	Background: 5' Build: 10'	Background: 4' Build: 8'	Background: 2' Build: 5'
		SBR: 125'	Background: 12' Build: 29'	Background: 12' Build: 27'	Background: 3' Build: 9'
		EBR: 200'	Background: 27' Build: 26'	Background: 31' Build: 31'	Background: 14' Build: 14'

Based on the queue analysis, the addition of project site traffic is expected to have a minimal impact on intersection queues and none of the existing intersection lanes were found to have deficient storage in the future analysis conditions.

Summary

No additional improvements are recommended based on this analysis.

Summary of Findings and Recommendations

The following improvements are recommended to be performed as part of this project:

Aviation Parkway at International Drive/Existing Town Drwy./Future County Drwy.:

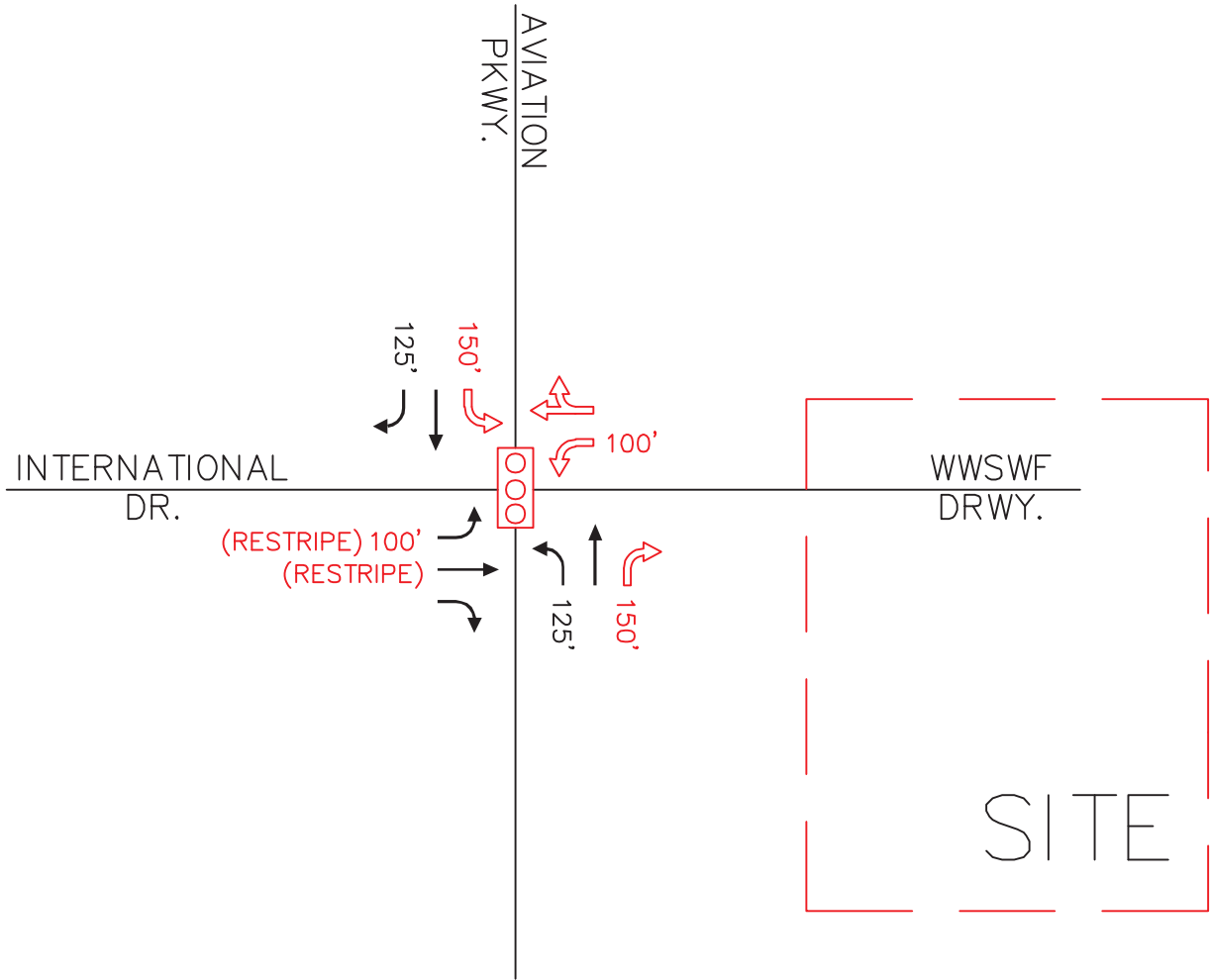
- Realign/reconstruct the existing Town Driveway as the Future County Drwy. and provide one ingress lane and two egress lanes
- Provide a southbound left-turn lane on Aviation Parkway with approximately 150 feet of storage (inclusive of deceleration) and tapers
- Provide a northbound right-turn lane on Aviation Parkway with approximately 150 feet of storage (inclusive of deceleration) and tapers
- Restripe the existing striped median on the eastbound approach of International Drive to provide an exclusive left-turn lane with 100 feet of storage and tapers, and restripe the existing left-turn lane as a through lane
- Modify the existing traffic signal to accommodate the identified laneage

The recommended roadway laneage is shown on **Figure 10**.

Analyses indicate that the study intersection is expected to operate at an acceptable overall LOS at project build-out, with only relatively minor increases in intersection delays associated with the addition of project site traffic. As all movements at the study intersection are expected to continue to operate at acceptable LOS at project build-out, or at the same overall LOS as the background traffic condition if unacceptable LOS are anticipated, no additional or alternative improvements were required to be identified to meet the standards of the Town's UDO or recommended as part of this project.



NOT TO SCALE



LEGEND

- ← EXISTING LANE
- XX' STORAGE LENGTH
- ← RECOMMENDED LANE
-  RECOMMENDED TRAFFIC SIGNAL MODIFICATION

Appendix

- A. Memorandum of Understanding
- B. Traffic Count Data
- C. Approved Development Data
- D. Trip Generation Calculations
- E. Volume Development Spreadsheet
- F. Signal Design Plan & Timing Data
- G. Synchro Output: Existing (2025)
- H. Synchro Output: Projected (2029) Background
- I. Synchro Output: Projected (2029) Build-out

Appendix A

Memorandum of Understanding

Preliminary TIA Assumptions
West Wake Solid Waste Facility (f.k.a. Convenience Center #3)
Morrisville, North Carolina

KHA will perform a traffic impact analysis (TIA) for the proposed construction of the West Wake Solid Waste Facility along Aviation Parkway in Morrisville, NC. The *Aviation Parkway Campus Expansions TIA* (Kimley-Horn, April 2024) was performed for a previous version of the site that anticipated expansion and relocation of both the Wake County Convenience Facility and Town Public Works facility on-site, and with two full-movement driveways proposed for access. However, the Town has since elected to relocate most Public Works operations to another location in Town, and only one site access is proposed, so an updated TIA has been requested.

As currently envisioned, the project proposes to build a new solid waste facility to the northeast along Aviation Parkway with a single site access on Aviation Parkway aligning with International Drive. The Town of Morrisville also plans to move most of the current Public Works facility staff from the project site to another location in Town, and some current Town buildings on-site will be demolished. Project build-out is anticipated in 2028, so the study year 2029 (build-out year + 1) will be used in this analysis per Town TIA requirements.

Study Traffic Conditions

Weekday AM (7-9am), PM (4-6pm), and Saturday (10am-1pm) peak hour analyses will be performed for the following traffic conditions:

- Existing Year (2025)
- Projected (2029) Background
- Projected (2029) Build-out – Unimproved
- Projected (2029) Build-out – Improved without Signal Timing Adjustments (if necessary)
- Projected (2029) Build-out – Improved with Signal Timing Adjustments (if necessary)

Study Intersection

The following study intersection will be included in this analysis:

- Aviation Parkway at International Drive/Proposed Site Access

Existing Volume Development

Weekday AM (7-9AM) and PM (4-6PM) and Saturday (10am-3pm) peak hour turning movement counts collected in December 2025 when Wake County Public Schools were in session (as applicable) will be used for capacity analyses in this study.

Background Traffic

Consistent with previous TIAs performed along the corridor, a 2% annual growth rate will be applied to existing traffic count volumes up to the study year 2029. However, no growth will be applied to volumes onto/off International Drive/Public Works Facility Driveway as development along those roadways is generally built-out. Where these streets intersect Aviation Parkway, growth will still be applied to through movements.

Approved Developments

Based on TIA scoping discussions, site traffic associated with the expansion of the Hindu Society of North Carolina (HSNC) campus will be included in this analysis as background traffic.

Trip Generation

Driveway volumes were collected at the existing site access in May 2023 and December 2025 to calculate weekday AM, weekday PM, and Saturday peak hour trip generation of the existing facility. While December 2025 data was higher for the weekday AM peak hour, data from May 2023 was higher for the weekday PM and Saturday peak data. To present a conservative analysis, the higher of the driveway volumes from the two count data sets will be used as the basis for trip generation to present a conservative analysis.

Consistent with the original TIA performed for this project, trip generation will be calculated as a 100% increase in driveway volumes collected at the existing site access.

Trip Distribution

Consistent with the original TIA, the following distribution will be used for project site trips:

- 70% to/from the southwest on Aviation Parkway
- 30% to/from the northeast on Aviation Parkway

Existing Trip Reduction

The following reductions in existing peak hour network trips will be applied in this analysis:

- Existing Public Works Trips: The Town has indicated that approximately 40% of trips to/from the existing Public Works facility will remain. Therefore, existing driveway volumes will be reduced by 60%.
- Existing County Site Trips: Through volumes along Aviation Parkway at the subject intersection will be reduced to reflect the closure of the existing facility.

Other Study Assumptions

- A PHF of 0.90 will be used in each traffic.
- Where U-turn volumes are less than 10 vehicles, those trips will be analyzed as left-turns.
- A minimum volume of 4 vehicles will be analyzed on study intersection movements even when existing or projected volumes are lower.
- Permitted + protected left-turn phasing will be permitted in the analysis where currently permitted, though right-turns on red (RTOR) will be prohibited even if permitted in the existing condition.
- Signal timings will be obtained from the original TIA and only modified to accommodate the 4th leg at the intersection. A build-out condition with optimized signal timings may be performed if needed, though a condition without optimized timings would also be provided.

TOWN OF MORRISVILLE:

Signed: Bret Martini

Date: 1/13/2025

Town of Morrisville
100 Town Hall Drive
Morrisville, NC 27560

PROJECT TRAFFIC ENGINEER:

Signed: Kevin Dean

Date: 12/22/2025

Kimley-Horn
1070 S. Main Street, Suite 230
Holly Springs, NC 27540

West Wake Solid Waste Facility

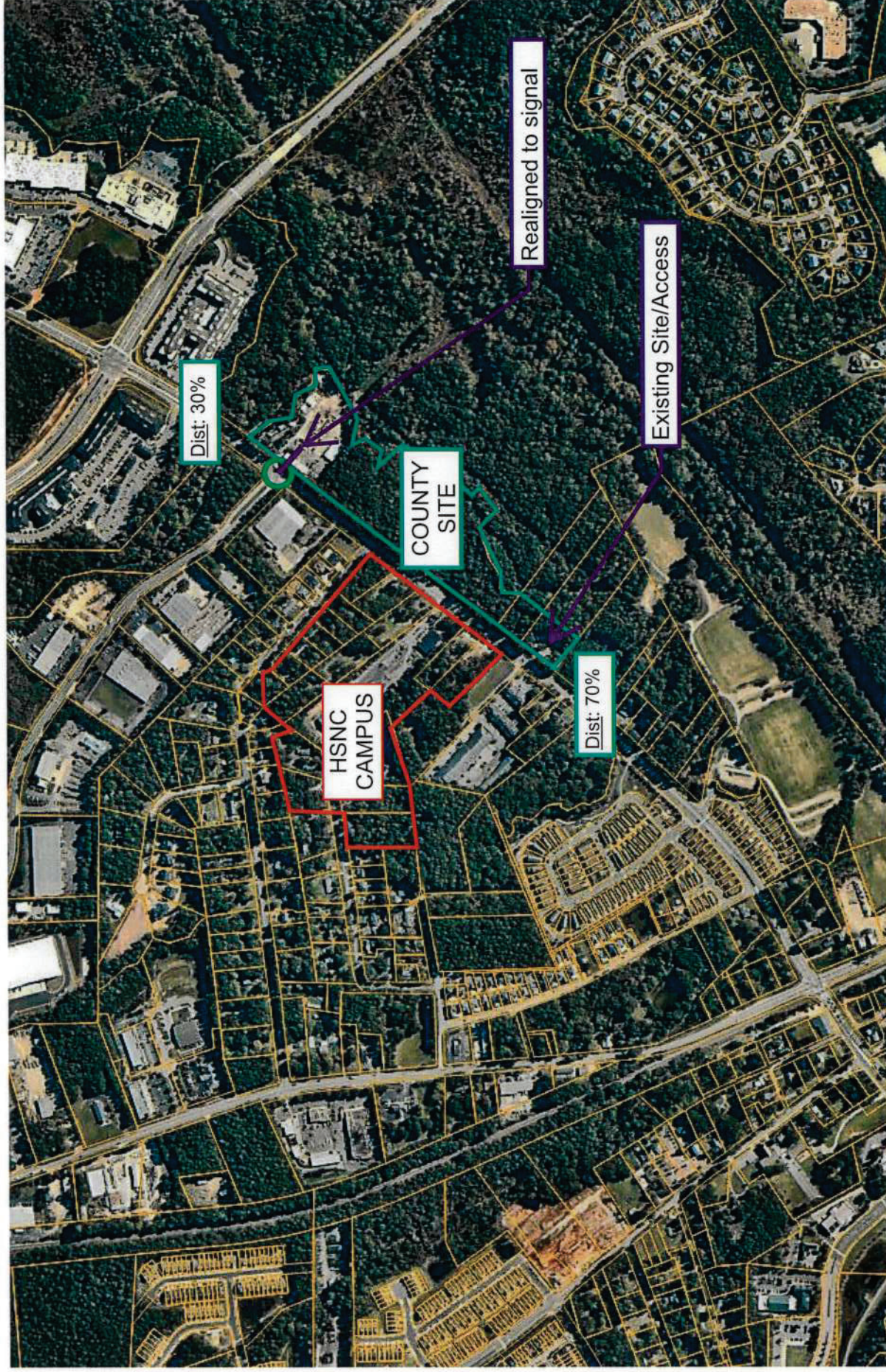
Table 1 - Trip Generation: Existing Facility (per Driveway Counts)

Land Use	Weekday - Daily			AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
- Existing Wake County Convenience Center: May 2023	352	200	152	18	10	8	48	25	23	110	54	56
- Existing Wake County Convenience Center: Dec 2025	383	194	189	27	14	13	25	12	13	110	46	47
Existing Trips (Rounded Daily): Max of May 2023/Dec 2025	390	195	195	27	14	13	48	25	23	110	54	56

West Wake Solid Waste Facility

Table 2 - Trip Generation: Proposed West Wake Solid Waste Facility

Land Use	Weekday - Daily			AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
- Existing Wake County Convenience Center	390	195	195	27	14	13	48	25	23	110	54	56
- Proposed Wake County Convenience Center	780	390	390	54	28	26	96	50	46	220	108	112
Total Net New External Trips	780	390	390	54	28	26	96	50	46	220	108	112



Proposed New Site Access



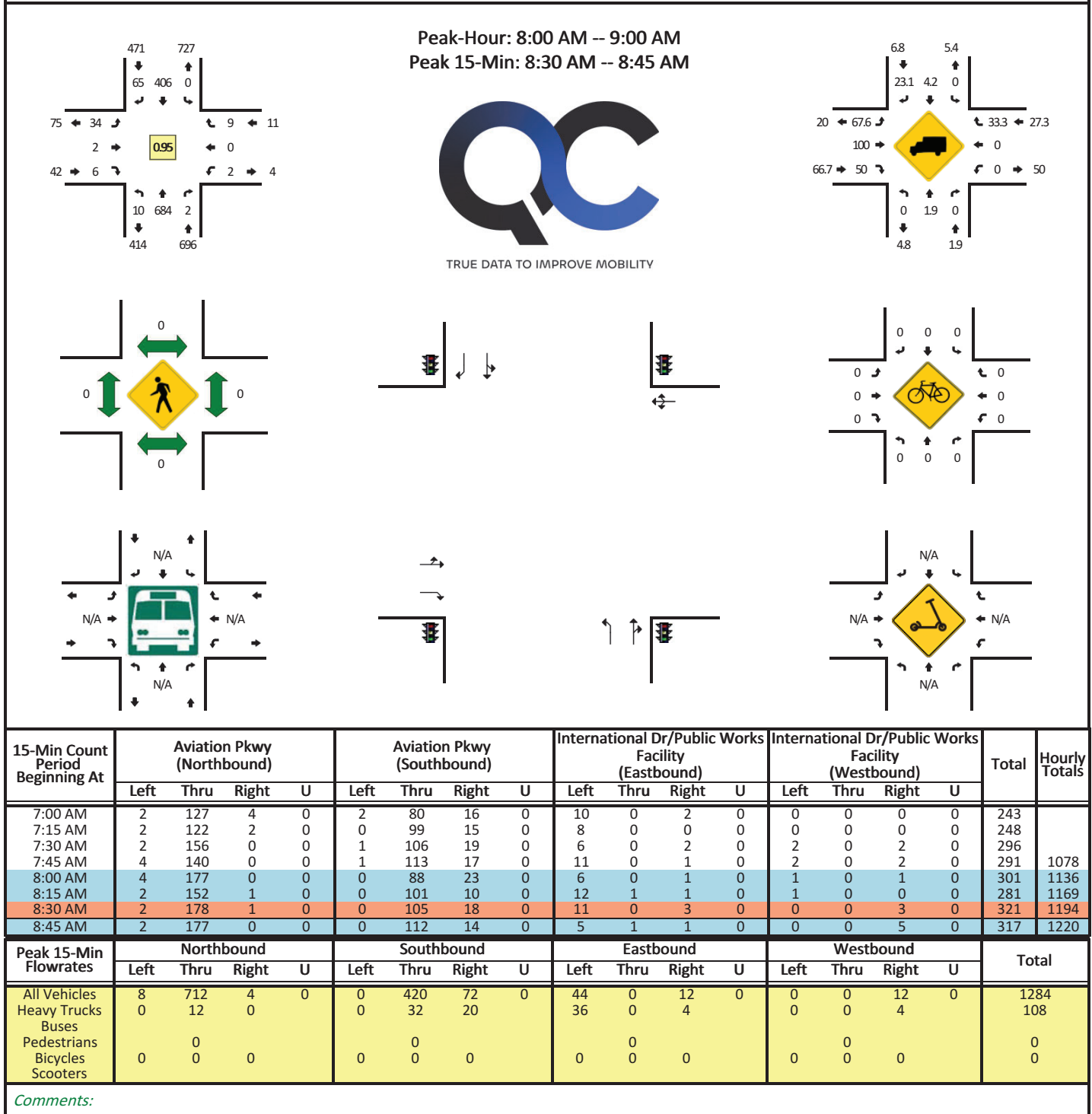
Proposed Study Intersection

Appendix B

Traffic Count Data

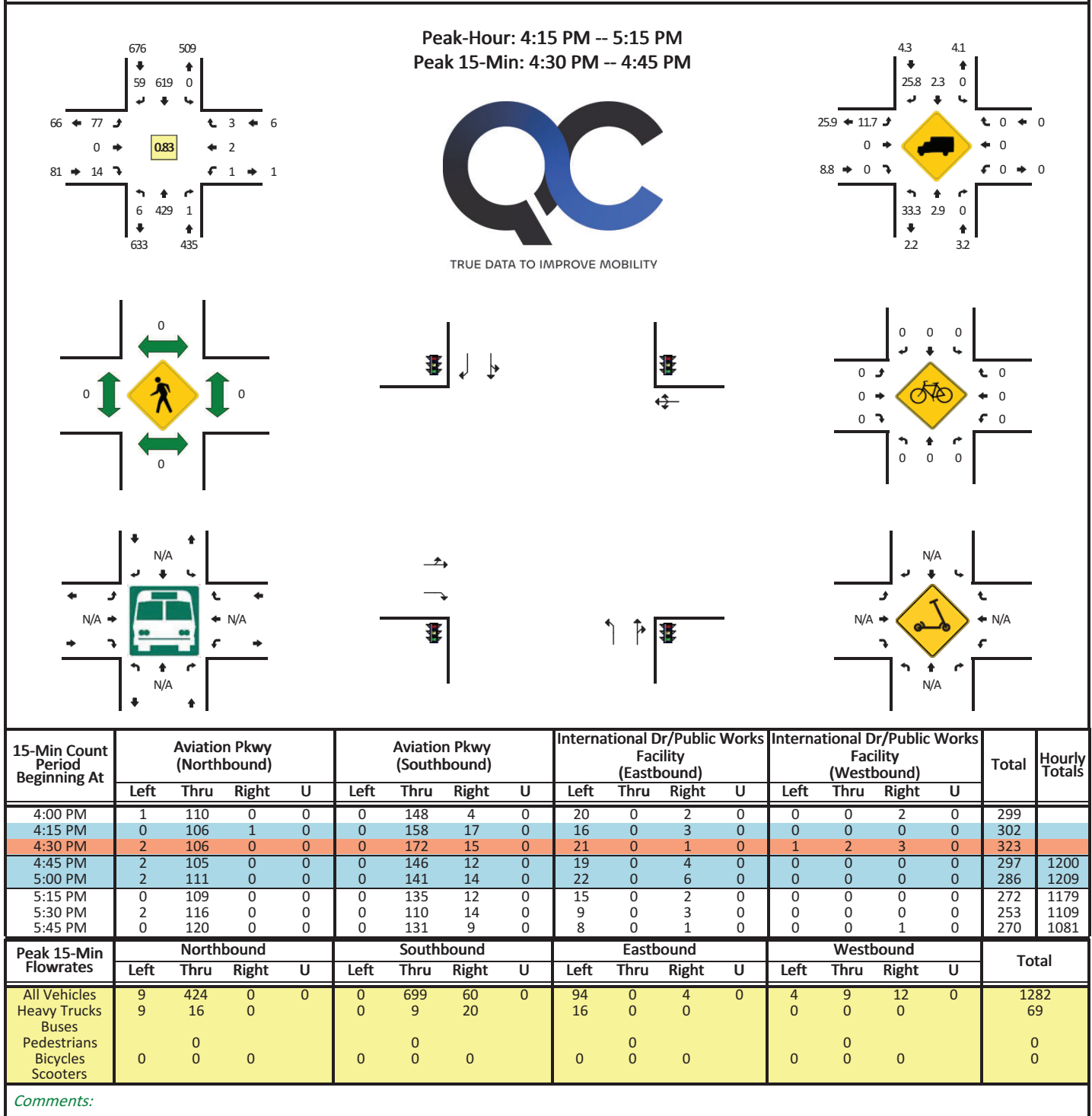
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CITY/STATE: Morrisville, NC

QC JOB #: 17362301
DATE: Thu, Dec 4 2025



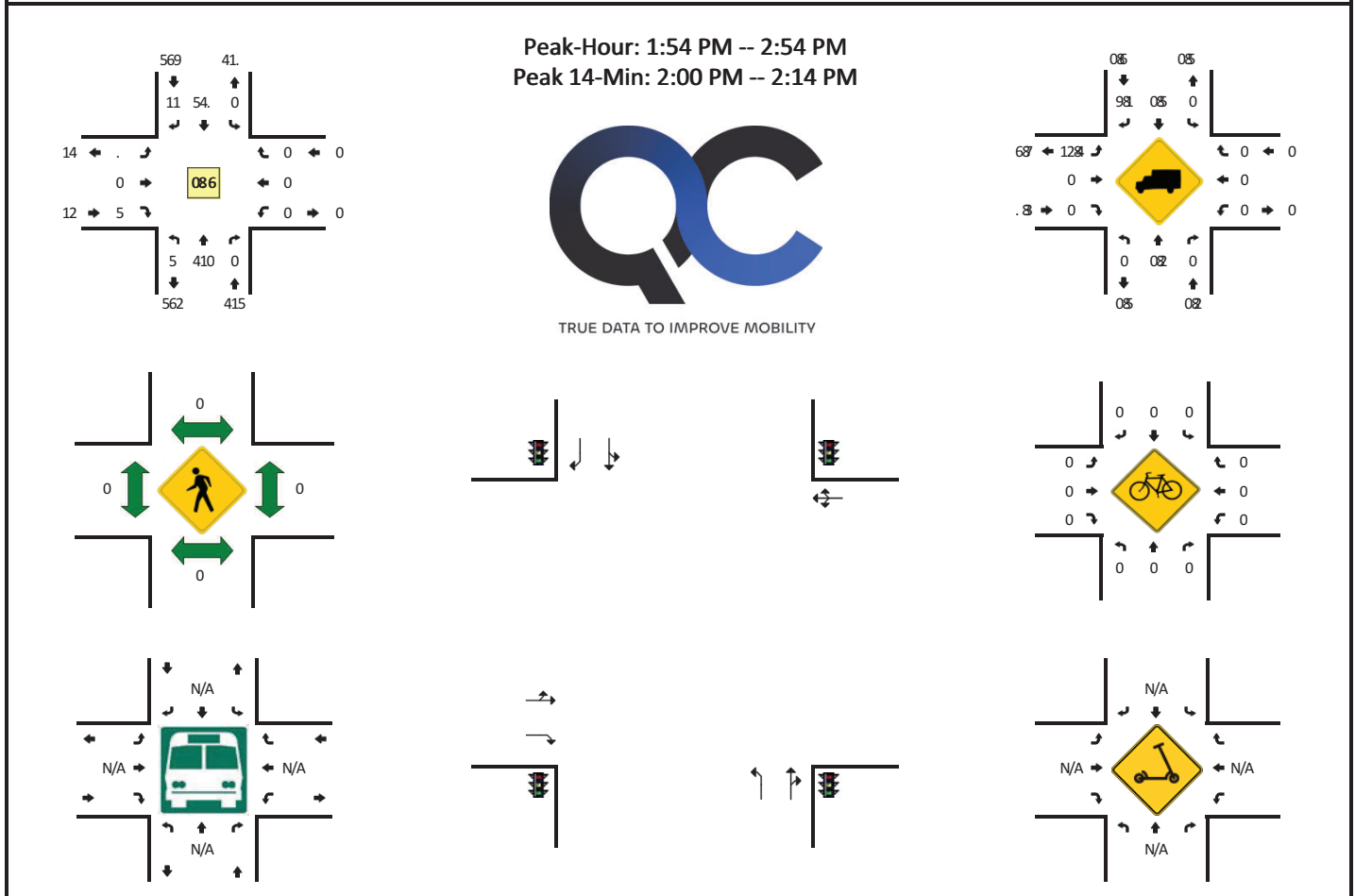
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CITY/STATE: Morrisville, NC

QC JOB #: 17362302
DATE: Thu, Dec 4 2025



LOCATION: Aviation Pkwy -- International Dr/Public Works Facility
CITY/STATE: Morrisville, NC

QC JOB #: 17362303
DATE: Sat, Dec 6 2024

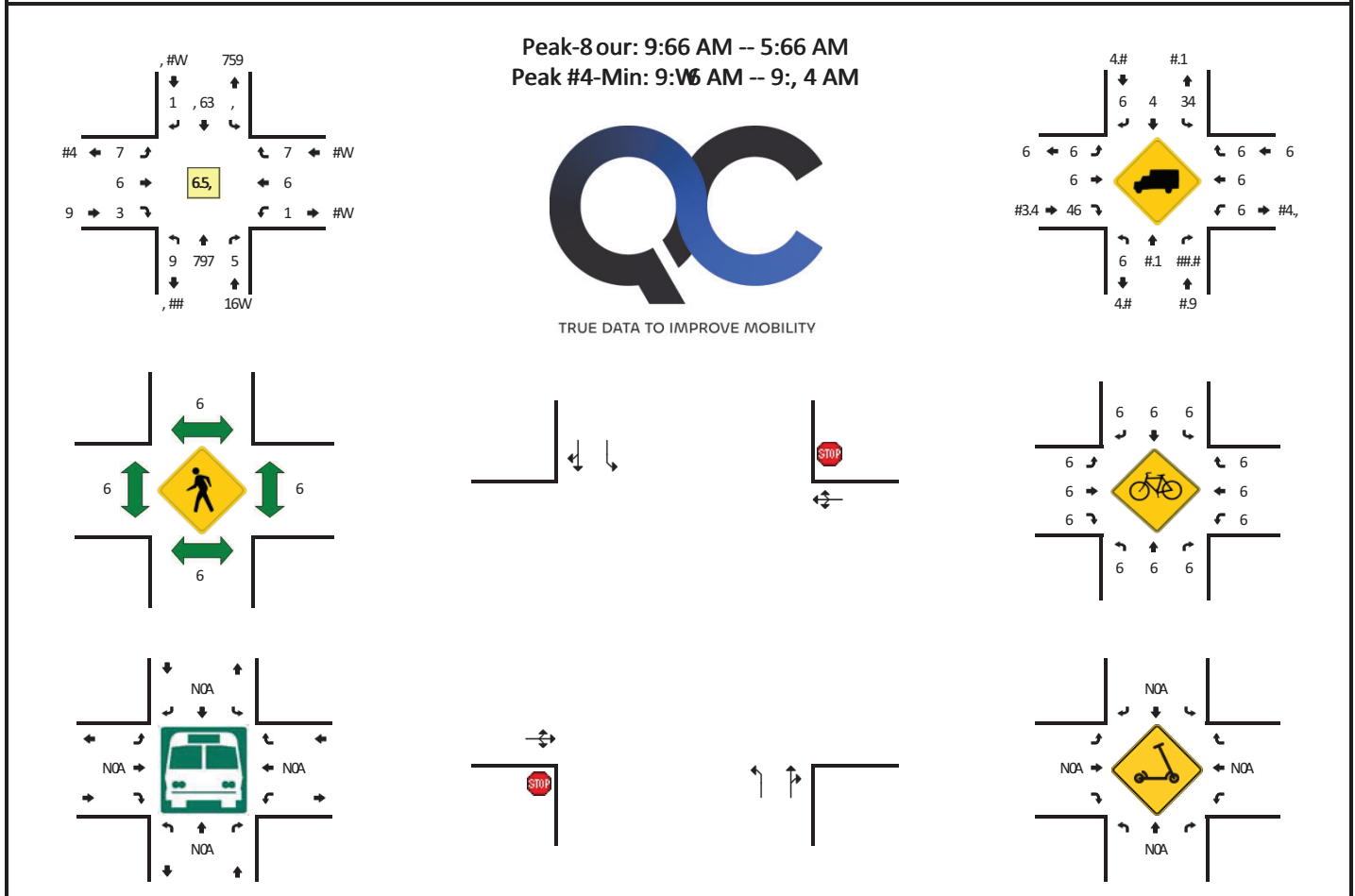


14-Min Count Period Beginning At	Aviation Pkwy (Northbound)				Aviation Pkwy (Southbound)				International Dr/Public Works Facility (Eastbound)				International Dr/Public Works Facility (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	22	0	0	0	14	6	0	3	2	0	0	0	0	0	0	5.	
6:14 AM	0	20	0	0	0	22	2	0	1	0	1	0	0	0	0	0	56	
6:30 AM	0	2.	0	0	0	1.	1	0	5	0	0	0	0	0	0	0	41	
6:54 AM	0	2.	0	0	1	30	5	0	1	2	0	0	1	0	1	0	6.	213
7:00 AM	0	41	0	0	0	23	4	0	4	0	1	0	0	0	0	0	.4	240
7:14 AM	0	55	0	0	0	24	4	0	5	0	0	0	0	0	0	0	7.	2.2
7:30 AM	1	36	0	0	0	30	3	0	2	0	0	0	0	0	0	0	72	303
7:54 AM	0	40	0	0	0	41	5	0	6	0	0	0	0	0	0	0	111	356
8:00 AM	0	60	0	0	0	53	10	0	1	0	1	0	0	0	0	0	114	376
8:14 AM	6	91	0	0	0	45	7	0	6	0	0	0	0	0	1	0	164	563
8:30 AM	1	75	0	0	0	45	.	0	5	0	3	0	0	0	0	0	155	434
8:54 AM	1	7.	0	0	0	60	5	0	3	0	0	0	0	0	0	0	156	470
9:00 AM	0	74	0	0	0	60	4	0	2	0	0	0	0	0	0	0	152	497
9:14 AM	0	91	0	0	0	72	6	0	2	0	2	0	0	0	0	0	173	604
9:30 AM	1	105	0	0	0	93	2	0	10	0	3	0	0	0	1	0	215	674
9:54 AM	0	9.	0	0	0	133	4	0	2	0	2	0	0	0	0	0	250	769
10:00 AM	1	119	0	0	0	93	2	1	5	0	6	0	0	0	0	0	226	.43
10:14 AM	2	.5	0	0	0	106	2	0	4	0	4	0	0	0	0	0	205	.5
10:30 AM	1	109	0	0	0	.7	3	0	6	0	0	0	0	0	0	0	206	.76
10:54 AM	0	121	0	0	0	97	3	0	3	1	0	0	1	0	0	0	226	.62
11:00 AM	2	9.	1	0	1	131	2	0	4	0	2	0	0	0	2	0	255	.0
11:14 AM	0	103	1	0	1	109	4	0	5	0	1	0	0	0	0	0	225	900
11:30 AM	1	100	0	0	0	124	7	0	3	0	0	0	1	0	1	0	23.	932
11:54 AM	1	124	1	0	0	112	9	0	4	0	2	0	1	0	0	0	246	962
12:00 PM	1	135	0	0	0	125	.	0	0	0	2	0	0	0	0	0	269	9.7
12:14 PM	6	119	0	0	0	99	0	1	2	0	5	0	0	0	0	0	231	995
12:30 PM	2	106	0	0	0	.7	4	0	4	0	2	0	0	0	1	0	20.	965
12:54 PM	0	112	0	0	0	95	5	0	2	0	0	0	0	0	0	0	212	920
1:00 PM	0	117	0	0	0	91	4	0	4	0	0	0	0	0	0	0	21.	.69
1:14 PM	0	116	0	0	0	116	2	0	7	0	1	0	0	0	0	0	252	.0
1:30 PM	2	95	0	0	0	124	1	1	1	0	3	0	0	0	0	0	227	.99
1:54 PM	1	99	0	0	0	111	3	0	1	0	0	0	0	0	0	0	214	902
2:00 PM	0	149	0	0	0	126	3	0	1	0	0	0	0	0	0	0	2.9	973
2:14 PM	2	137	0	0	0	10.	5	0	0	0	1	0	0	0	0	0	242	9.3
2:30 PM	1	114	0	0	0	113	1	0	6	0	3	0	0	0	0	0	239	994
2:54 PM	0	99	0	0	0	105	2	0	5	0	0	0	0	0	0	0	209	9.9
3:00 PM	1	92	0	0	0	129	6	0	1	0	0	0	0	0	0	0	229	929

14-Min Count Period Beginning At	Aviation Pkwy (Northbound)				Aviation Pkwy (Southbound)				International Dr/Public Works Facility (Eastbound)				International Dr/Public Works Facility (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:14 PM	1	110	0	0	0	112	3	0	2	0	1	0	0	0	0	0	229	906
3:30 PM	0	.7	1	0	0	119	1	0	2	0	2	0	0	0	0	0	212	.79
3:54 PM	0	95	0	0	0	100	4	0	1	0	0	0	0	0	1	0	201	.71
5:00 PM	1	121	0	0	0	109	4	0	3	0	2	0	0	0	0	0	251	.3
5:14 PM	1	101	0	0	0	103	2	1	0	0	0	0	0	0	0	0	20.	.62
5:30 PM	0	101	0	0	0	104	1	0	0	0	2	0	0	0	0	0	209	.49
5:54 PM	2	102	0	0	0	101	4	0	2	0	2	0	0	0	0	0	215	.72
4:00 PM	1	96	0	0	0	101	1	0	0	0	4	0	0	0	0	0	205	.34
4:14 PM	1	.6	0	0	0	151	0	0	3	0	0	0	0	0	0	0	231	.4.
4:30 PM	5	125	0	0	0	122	2	0	2	0	0	0	0	0	0	0	245	903
4:54 PM	0	.6	0	0	0	91	1	0	3	0	4	0	0	0	0	0	1.6	.74
6:00 PM	0	.4	0	0	0	.2	3	0	6	0	1	0	0	0	0	0	177	.5.
6:14 PM	0	76	0	0	0	111	2	0	3	0	1	0	0	0	0	0	193	.10
6:30 PM	0	91	0	0	0	74	5	0	4	0	1	0	0	0	0	0	176	732
6:54 PM	0	.2	3	0	0	.5	2	0	1	0	2	0	0	0	0	0	175	720
Peak 14-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	636	0	0	0	405	12	0	5	0	0	0	0	0	0	0	1146	
Heavy Trucks	0	0	0	0	0	5	5	0	0	0	0	0	0	0	0	0	.	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		
Comments:																		

LOCATION: Aviation Pkwy -- D lake County Convenience Center / WF wy
CITIZENSHIP: MorrisvilleSNC

QC JOB /: #1W3V61
FATE: ThuSFec, 3634



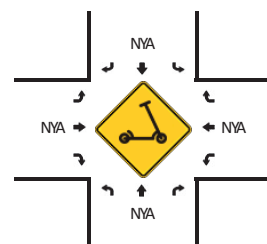
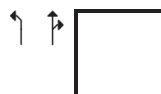
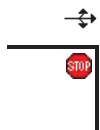
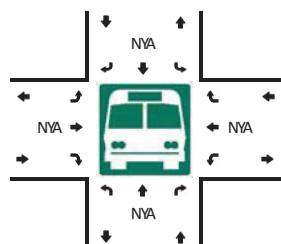
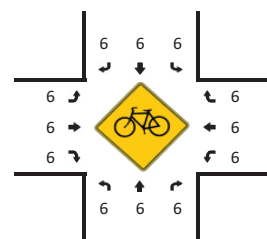
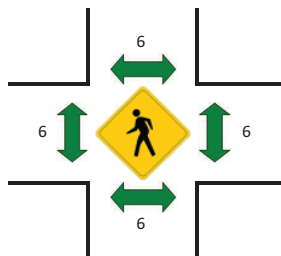
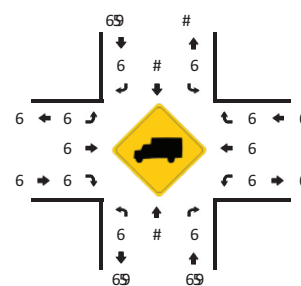
#4-Min Count Period Beginning At	Aviation Pkwy Northbound(				Aviation Pkwy Southbound(				D lake County Convenience Center / WF wy Eastbound(				D lake County Convenience Center / WF wy Westbound(				Total	Hourly Totals
	Left	Thru	Right	R	Left	Thru	Right	R	Left	Thru	Right	R	Left	Thru	Right	R		
7:66 AM	#	4	6	6	#	W	6	6	6	6	6	6	6	6	6	6	9W	
7:4 AM	6	41	6	6	6	W	6	6	6	6	6	6	6	6	6	6	53	
7:V6 AM	6	1#	6	6	6	41	#	6	6	6	6	6	6	6	6	6	#35	
7:, 4 AM	6	#3#	6	6	#	15	3	6	6	6	6	6	6	6	6	6	36W	461
1:66 AM	3	#V8	#	6	6	9W	W	6	6	6	6	6	6	6	6	6	33#	7, 4
1:4 AM	#	#34	#	6	6	51	3	6	6	6	#	6	6	3	6	6	335	193
1:V6 AM	#	#73	W	6	#	#67	#	6	6	6	6	6	#	6	6	6	314	539
1:, 4 AM	W	#V8	6	6	W	#4	3	6	#	6	6	6	#	6	W	6	377	55#
9:66 AM	3	#97	3	6	6	99	#	6	6	6	6	6	#	6	#	6	39#	#64#
9:4 AM	3	#, 3	6	6	W	#6#	3	6	#	6	6	6	#	6	3	6	344	#611
9:V6 AM	3	#9W	, 6	6	#	#63	3	6	4	6	6	6	3	6	3	6	V6W	#64
9:, 4 AM	3	#14	3	6	6	###	3	6	6	6	3	6	W	6	#	6	359	###
5:66 AM	3	#V	#	6	3	#6,	, 6	6	#	#	6	6	3	6	W	6	344	###
5:4 AM	#	#39	W	6	#	14	, 6	6	#	6	3	6	#	6	#	6	3#W	#675
5:V6 AM	6	#V8	, 6	6	W	#6	4	6	3	6	3	6	W	6	7	6	371	#6VW
5:, 4 AM	6	55	, 6	6	, ###	, 6	6	6	3	6	#	6	, 6	3	6	6	3V#	577
#6:66 AM	#	51	3	6	W	9,	#	6	3	6	6	6	W	6	6	6	#5W	56,
#6:4 AM	6	5W	#	6	6	96	4	6	6	6	6	6	6	6	4	6	#9,	914
#6:V6 AM	6	#6#	W	6	4	97	W	6	6	#	6	6	W	6	3	6	364	9#W
#6:, 4 AM	#	99	6	6	W	15	3	6	3	6	#	6	#	6	, 6	6	#9#	17W
##:66 AM	7	5#	3	6	#	99	#	6	#	6	6	6	#	6	#	6	#53	173
##:4 AM	#	5W	3	6	6	#6#	6	6	6	6	6	W	#	6	#	6	363	196
##:V6 AM	#	55	#	6	, 97	#	6	6	3	6	3	6	#	6	W	6	366	114
##:, 4 AM	6	5,	3	6	#	#5	6	6	6	6	6	W	#	6	, 6	6	33,	9#9
#3:66 PM	#	#67	3	6	6	#1	W	6	3	6	3	6	3	6	#	6	3V	973
#3:4 PM	W	#3,	, 6	6	, ###	#	6	6	#	6	, 6	6	W	6	#	6	347	5#7
#3:V6 PM	#	#4	, 6	6	3	#7	, 6	6	7	6	6	6	W	6	W	6	34#	571
#3:, 4 PM	3	#6W	W	6	3	, 6	6	6	6	6	#	6	3	6	3	6	344	559
#:66 PM	#	#4	W	6	6	#61	6	6	3	6	#	6	3	6	#	6	3V8	55,
#:4 PM	6	51	4	6	#	#66	W	6	W	6	3	6	, 6	W	W	6	3#9	547
#:V6 PM	W	###	, 6	6	3	#7	#	6	6	6	6	6	W	6	#	6	3,	5, 7
#:, 4 PM	#	54	1	6	4	#66	3	6	#	6	3	6	, 6	9	6	6	334	5#7
3:66 PM	6	#3#	W	6	3	51	, 6	6	#	6	6	6	, 6	W	W	6	3V#	5#5
3:4 PM	#	51	, 6	6	3	#36	3	6	#	6	3	6	, 6	W	W	6	3V	5V
3:V6 PM	6	#6,	W	6	3	#65	6	6	6	6	#	6	W	6	6	6	333	5#9
3:, 4 PM	#	#61	4	6	, #3	#	6	6	3	6	6	6	, 6	, 6	6	6	3, 6	5VW
W66 PM	6	#6#	#	6	W	#35	6	6	#	6	#	6	W	6	W	6	3, 3	5, 6

#4-Min Count Period Beginning At	Aviation Pkwy Northbound				Aviation Pkwy Southbound				Duke County Convenience Center / WFWY Eastbound				Duke County Convenience Center / WFWY Westbound				Total	Hourly Totals
	Left	Thru	Right	R	Left	Thru	Right	R	Left	Thru	Right	R	Left	Thru	Right	R		
W#4 PM	#	#6W	W	6	3	#34	6	6	W	6	3	6	#	6	,	6	3,,	5,9
W#6 PM	W	##,	3	6	3	#V6	,	6	3	6	3	6	#	6	6	3	373	599
W, 4 PM	3	#3#	6	6	W	##5	#	6	W	6	#	6	#	6	#	6	343	#666
, :66 PM	#	#67	3	6	W	#, 3	,	6	6	6	3	6	3	6	W	6	374	#63W
, :#4 PM	,	#64	6	6	#	#44	W	6	7	#	6	6	#	6	3	6	319	#641
, :V6 PM	6	#67	#	6	3	#1W	6	6	4	6	,	6	#	6	#	6	35W	#699
, : 4 PM	3	#6#	W	6	6	#41	6	6	#	6	6	6	#	6	3	6	371	#6W
4:66 PM	W	#61	#	6	3	#, W	#	6	W	6	4	6	6	6	3	6	371	##64
4:#4 PM	#	#65	W	6	6	#V0	6	6	,	6	#	6	3	6	W	6	37#	#699
4:V6 PM	3	##6	#	6	#	#65	#	6	3	6	4	6	#	6	6	6	3V0	#631
4:, 4 PM	7	#, #	#	6	3	#33	7	6	3	6	,	6	#	6	W	6	399	#6,9
7:66 PM	5	##5	6	6	6	#VW	3	6	W	6	5	6	6	6	6	6	314	#647
7:#4 PM	#6	#3W	#	6	3	#3,	W	6	6	#	9	6	#	6	3	6	314	#616
7:V6 PM	3	#34	#	6	#	#34	1	6	#	6	7	6	3	6	#	6	31#	##65
7:, 4 PM	,	##W	#	6	6	#69	1	6	3	6	#	6	#	6	6	6	3V1	#649
Peak #4-Min Lowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	R	Left	Thru	Right	R	Left	Thru	Right	R	Left	Thru	Right	R		
All Vehicles	9	1V0	#7	6	,	, 69	9	6	36	6	6	6	9	6	9	6	#3#3	
Heavy Trucks	6	#3	,		,	V0	6		6	6	6	6	6	6	6		43	
Buses																		
Pedestrians		6				6				6				6			6	
Bicycles	6	6	6		6	6	6		6	6	6		6	6	6		6	
Ycooters																		
Comments:																		

Report generated on #30##03634 #:41 PM

YOR) CE: Quality CountsSLLC Http://www.qualitycounts.net(#911-496-33#3

QC JOB /: #1W3W62
FATE: Sat, F ec 7 3634



#4-Min Count Period Beginning At	Aviation Pkwy Northbound(				Aviation Pkwy Southbound(				D ake County Convenience Center / WF wy Eastbound(				D ake County Convenience Center / WF wy HD estbound(				Total	Hourly Totals
	Left	Thru	Right	R	Left	Thru	Right	R	Left	Thru	Right	R	Left	Thru	Right	R		
7:66 AM	6	3W	6	6	#	#.	6	6	6	6	6	6	6	6	6	6	V2	
7:4 AM	6	#9	6	6	6	3.	6	6	6	6	6	6	6	6	6	6	. W	
7:6 AM	6	W#	6	6	6	#1	#	6	6	#	6	#	6	6	6	6	4#	
7:4 AM	6	37	#	6	6	W6	6	6	6	6	6	6	6	#	6	6	42	#96
1:66 AM	6	46	3	6	6	33	6	6	6	6	6	6	6	6	6	#	14	331
1:4 AM	6	. #	6	6	6	34	6	6	6	6	6	6	6	6	6	#	77	346
1:6 AM	W	W1	6	6	6	39	6	6	6	6	6	6	6	6	6	6	79	372
1:4 AM	#	. 2	#	6	#	4#	6	6	6	6	6	6	6	#	6	#	#6.	W#.
2:66 AM	6	73	#	6	#	W2	#	6	6	6	6	6	6	6	6	6	#6W	W3
2:4 AM	6	99	#	6	6	41	#	6	6	#	6	6	6	3	6	6	#7#	. W1
2:6 AM	.	1W	3	6	#	4W	W	6	6	6	W	6	6	#	6	3	#. 3	4#6
2:4 AM	6	14	#	6	#	47	6	6	W	#	6	6	6	#	#	3	#. #	4. 1
9:66 AM	3	1#	W	6	#	77	6	6	6	6	6	6	6	#	6	#	#. 4	429
9:4 AM	.	9#	W	6	W	73	3	6	6	6	6	6	6	3	6	W	#16	492
9:6 AM	1	#6.	#	6	7	2.	.	6	#	6	W	6	.	6	4	6	3#9	714
9:4 AM	7	#6W	.	6	#	#V8	W	6	6	6	4	6	W	6	3	6	349	19W
#6:66 AM	#W	#W	2	6	#	#6#	9	6	6	6	1	6	7	6	6	6	326	932
#6:4 AM	3	#34	.	6	#	#63	9	6	6	6	#	6	6	3	6	3	3. 2	#667
#6:6 AM	1	#36	.	6	3	#67	.	6	W	6	W	6	2	6	#	6	342	#6. 4
#6:4 AM	#	##1	7	6	4	#66	#	6	6	6	4	6	4	6	W	6	3. W	#639
##:66 AM	7	#6.	3	6	W	#39	3	6	#	6	W	6	.	6	.	6	342	#661
##:4 AM	4	#66	2	6	W	#63	3	6	#	6	7	6	4	6	.	6	3W	994
##:6 AM	#	##6	1	6	#	#V6	W	6	6	6	7	6	1	6	4	6	316	#661
##:4 AM	3	#W	2	6	.	##1	3	6	1	6	3	6	3	6	1	6	324	#6. 9
#3:66 PM	6	#. 4	2	#	6	#74	3	6	#	6	#	6	1	6	#	6	WV#	##33
#3:4 PM	W	###	.	6	4	#67	W	6	3	6	.	6	W	6	W	6	3. .	##V6
#3:6 PM	W	##W	2	6	3	9#	6	6	#	6	1	6	1	6	W	6	3W4	#694
#3:4 PM	W	###	#	6	#	#62	#	6	#	6	.	6	#	6	3	6	3WV	#6W
#:66 PM	3	#3#	4	#	#	9.	#	6	#	6	1	6	4	6	#	6	3V0	94#
#:4 PM	#W	##9	W	6	.	##.	#	6	W	6	4	6	4	6	.	6	31#	912
#:6 PM	4	12	2	6	W	#3.	.	6	.	6	1	6	3	6	7	6	3. #	92.
#:4 PM	2	#67	9	6	#	##6	#	6	6	6	7	6	7	6	W	6	346	#66#
3:66 PM	1	#. 9	1	6	3	#3W	W	6	3	6	#4	6	.	6	7	6	W#2	#626
3:4 PM	4	#32	#.	6	#	#6W	#	6	7	6	.	6	4	6	7	6	31W	#623
3:6 PM	W	#33	#3	6	#	#36	6	6	#	6	1	6	2	6	.	6	312	###9
3:4 PM	4	91	4	6	.	94	#	6	3	6	#	6	##	6	W	6	33.	#69W
W66 PM	4	94	4	6	.	##1	W	6	6	6	W	6	4	6	3	6	3V0	#6#.

#4-Min Count Period Beginning At	Aviation Pkwy Northbound				Aviation Pkwy Southbound				Duke County Convenience Center / WFWY Eastbound				Duke County Convenience Center / WFWY Westbound				Total	Hourly Totals
	Left	Thru	Right	R	Left	Thru	Right	R	Left	Thru	Right	R	Left	Thru	Right	R		
W#4 PM	.	#.	9	6	W	#62	6	6	6	6	#	6	9	6	3	6	346	99#
W#6 PM	.	93	#	6	3	#1	6	6	6	6	4	6	#6	6	3	6	3. W	947
W. 4 PM	4	99	9	6	3	94	W	6	6	6	4	6	1	6	W	6	332	976
.:66 PM	7	#36	4	6	W	#6W	6	6	W	6	7	6	1	6	7	6	349	926
.: #4 PM	W	#62	W	6	#	#63	W	6	4	6	#6	6	.	6	3	6	3. #	91#
.: #6 PM	9	#6	4	6	.	#6W	4	6	W	6	3	6	W	6	W	6	3. 1	914
.: . 4 PM	1	#64	4	6	#	#66	7	6	.	6	1	6	W	3	#	6	3. #	922
4:66 PM	W	###	7	6	4	#6.	3	6	#	6	.	6	4	6	W	6	3. .	91W
4: #4 PM	#	97	1	6	2	#1	3	6	#	6	W	6	1	6	4	6	3. 1	919
4: #6 PM	7	#. 3	4	6	6	##W	.	6	#	#	.	6	W	6	.	6	32W	#6#4
4: . 4 PM	4	#64	W	6	6	27	3	6	6	6	3	6	4	6	#	6	369	92W
7:66 PM	1	#66	W	6	#	13	.	6	#	6	.	6	#	6	W	6	#97	9W
7: #4 PM	3	2.	W	6	6	#63	6	6	3	6	6	6	3	6	#	6	#97	22.
7: #6 PM	1	#63	#	6	W	11	3	6	6	6	W	6	3	6	W	6	366	26#
7: . 4 PM	1	94	W	6	6	2.	.	6	.	6	.	6	W	6	W	6	361	199
Peak #4-Min Hourly Rates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	R	Left	Thru	Right	R	Left	Thru	Right	R	Left	Thru	Right	R		
All Vehicles	6	426	W8	.	6	776	2	6	.	6	.	6	32	6	.	6	#W8.	
Heavy Trucks	6	6	6		6	2	6		6	6	6		6	6	6		2	
Buses																		
Pedestrians		6				6				6				6			6	
Bicycles	6	6	6		6	6	6		6	6	6		6	6	6		6	
Scooters																		
Comments:																		

Report generated on 3/11/2013 4:41 PM

SOURCE: Quality Counts, LLC <http://www.qualitycounts.net> (800-211-426-3333)

Appendix C

Approved Development Data



Revised Traffic Impact Analysis

Aviation Parkway Campus Expansions

Morrisville, NC

Prepared for:

Town of Morrisville

Kimley»Horn

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Revised Traffic Impact Analysis for

Aviation Parkway Campus Expansions

Morrisville, North Carolina

Prepared for:

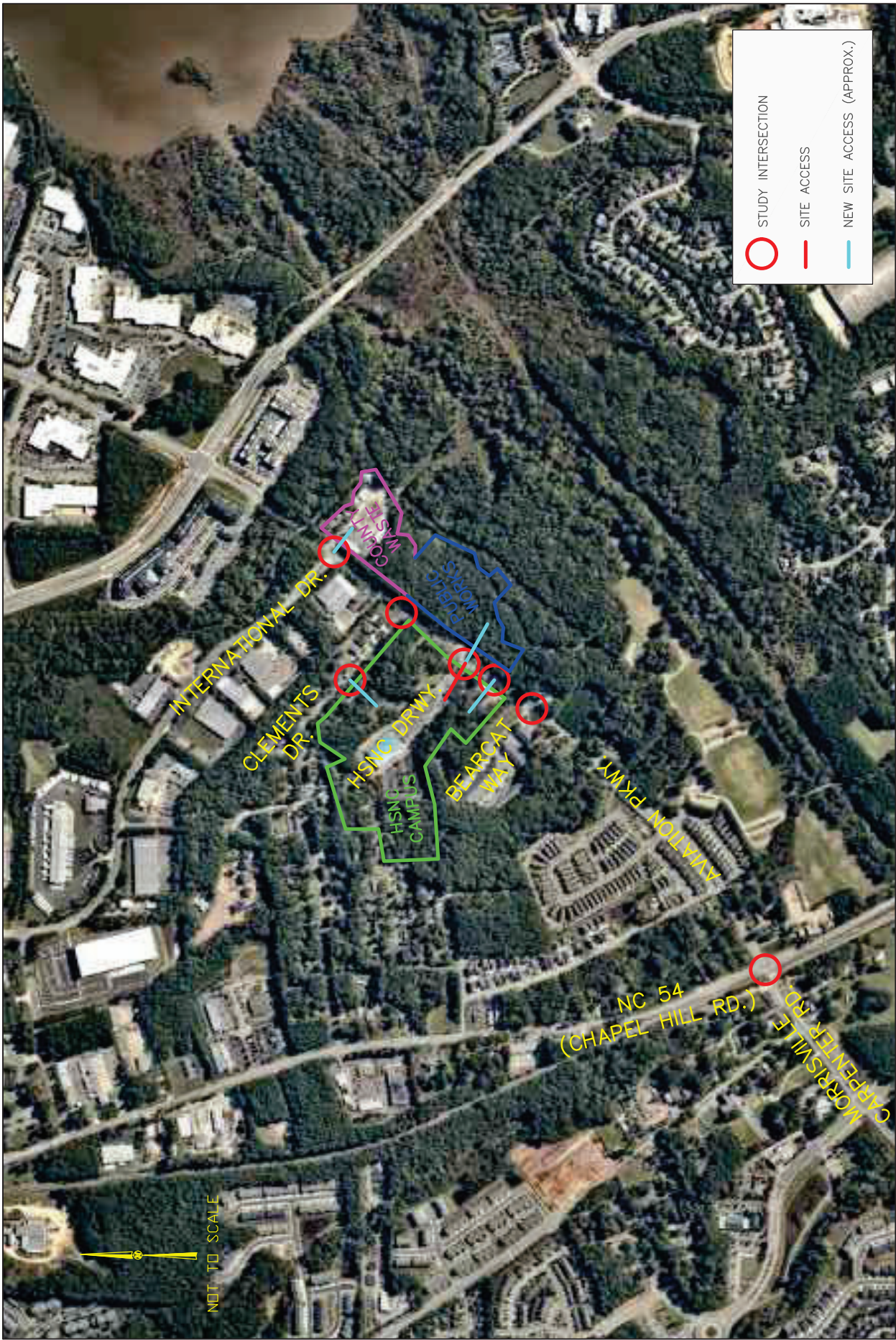
**Town of Morrisville, Wake County, and
Hindu Society of North Carolina**

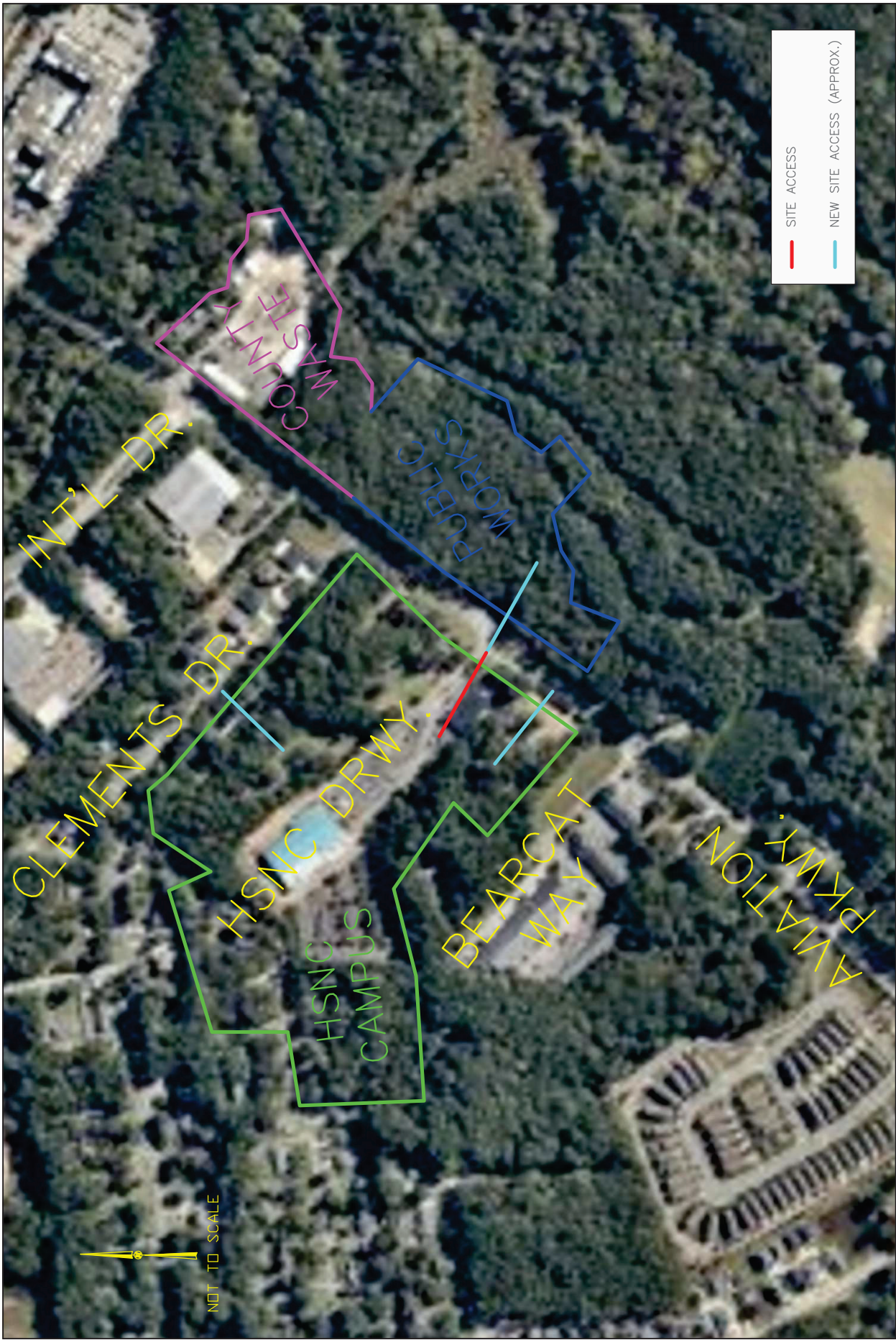
Prepared By:

Kimley-Horn and Associates, Inc.
NC License #F-0102
300 S. Main Street
Holly Springs, NC 27540

016447000
April 2024







Trip Generation

As many of these uses do not have specific categories in the ITE *Trip Generation Manual*, trip generation calculations were performed based on a combination of ITE data and factored driveway volumes from existing sites.

HSNC Campus

The current HSNC campus includes a ~7200 square foot (SF) temple, a ~21,100 SF activity center/learning center (including kitchen space), and a few residences for priests located along Fairview Avenue to the rear of the activity center site. As currently envisioned, new facilities are proposed on campus that would include a new 30,000 SF temple, a 20,000 SF community center with educational and recreational programs for members of the HSNC (mid-day activities for seniors, afternoon/evening activities for youth and adults), a 12,000 SF community center expansion (planned for kitchen/cafeteria space as a support use to other activities), a 20,000 SF religious space (the Yagnashala) proposed to be used for weekend/special events, and up to 20 low-rise multifamily DU for priest quarters/guest house for visiting spiritual leaders. Repurposing of the existing temple as a multipurpose/“welcome center” and the existing activity center will be converted for use as an off-peak assembly hall.

Consistent with scoping discussions, the following methodology was used to calculate the trip generation potential of the proposed uses during the weekday peak hours:

- Temple: assumed to be double the existing driveway volume
- Community center: used data from ITE LUC 495 (community center)
- Yagnashala, Kitchen/Cafeteria, Priest Quarters: no separate trip generation since accounted for in existing driveway volumes

Furthermore, to account for the repurposed existing temple and activity center, no reductions will be applied to the proposed trip generation or network volumes.

For Saturday trip generation, the total expanded campus trip generation was estimated as a 50% increase above the special event (used as the basis of driveway volume counts) in April 2023. As such, only the net increase in trips above the counted Saturday peak was assigned.

Town Public Works Facility

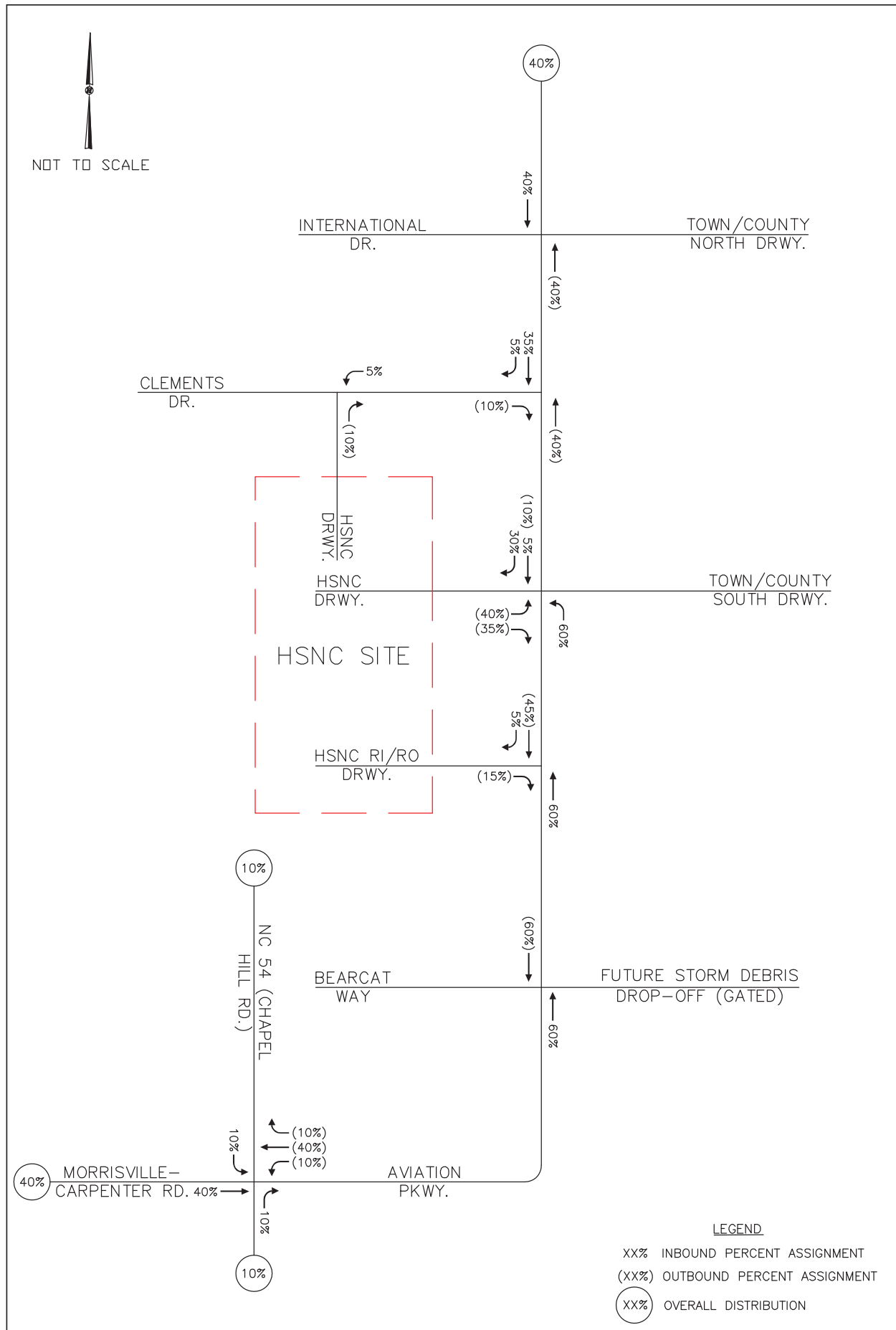
The current Town Public Works facility serves approximately 8 full-time on-site employees as well as 18 additional employees that park on site but work throughout Town during the day. The proposed expansion is anticipated to employ a total 10 full-time employees and approximately 25 additional employees working throughout Town, along with accommodating some vehicle and tool storage. For this analysis, trip generation for the Public Works Campus will be calculated as a 30% increase in driveway volumes collected at the existing site access. No material volume of site traffic is anticipated on typical Saturdays from the Public Works facility, so no weekend trip generation was calculated.

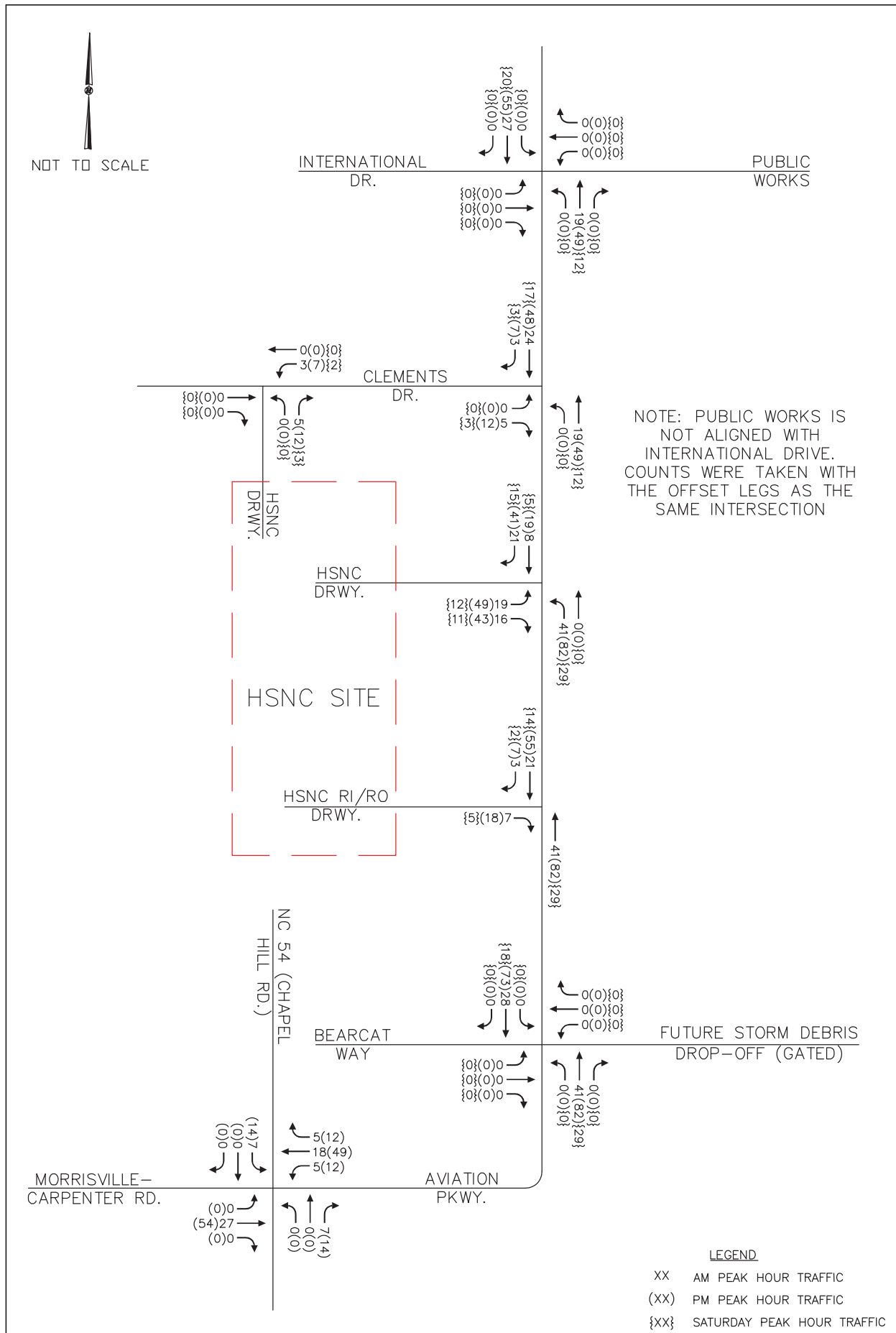
Wake County Convenience Center Campus

The current County Convenience Center employs 2 full-time employees and provides 4 waste containers and other drop-off containers. The proposed expansion is anticipated to employ 3 full-time employees and 2-3 part-time attendants, and will provide 12 waste containers. For this analysis, weekday peak and Saturday peak trip generation for the Public Works Campus will be calculated as a 100% increase in driveway volumes collected at the existing site access.

Table 1 details the trip generation calculations. Note: while the Saturday peak below for the HSNC campus represents total trip generation, only the net increase above the existing site was assigned (these trips represent a 50% increase above existing). All site trips for other HSNC peaks (which are expected to be additive on existing volumes) and the Town and County Campus expansions were added to the network.

Table 1 Trip Generation											
Land Use	Intensity	Daily	AM Peak Hour			PM Peak Hour			Saturday Mid-Day Peak		
		Total	Total	In	Out	Total	In	Out	Total	In	Out
HSNC Campus											
Recreational Community Center (ITE Land Use Code 495)	20,000 s.f.	576	38	25	13	85	40	45	0	0	0
Temple	30,000 s.f.	1,814	76	43	34	173	97	77	237	146	91
Total Trips: HSNC Campus		2,390	114	68	47	258	137	122	237	146	91
Trips Added with Expansion (Assigned in TIA)		2,390	114	68	47	258	137	122	79	49	30
Proposed Wake County Convenience Center											
County Convenience Center		720	36	20	16	96	50	46	220	108	112
Town Public Works Facility											
Town Public Works Facility		286	29	16	13	18	3	15	0	0	0





Appendix D

Trip Generation Calculations

West Wake Solid Waste Facility

Table 1 - Trip Generation: Existing Facility (per Driveway Counts)

Land Use	Weekday - Daily			AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
- Existing Wake County Convenience Center: May 2023	352	200	152	18	10	8	48	25	23	110	54	56
- Existing Wake County Convenience Center: Dec 2025	383	194	189	27	14	13	25	12	13	110	46	47
Existing Trips (Rounded Daily): Max of May 2023/Dec 2025	390	195	195	27	14	13	48	25	23	110	54	56

West Wake Solid Waste Facility

Table 2 - Trip Generation: Proposed West Wake Solid Waste Facility

Land Use	Weekday - Daily			AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
- Existing Wake County Convenience Center	390	195	195	27	14	13	48	25	23	110	54	56
- Proposed Wake County Convenience Center	780	390	390	54	28	26	96	50	46	220	108	112
Total Net New External Trips	780	390	390	54	28	26	96	50	46	220	108	112

Appendix E

Volume Development Spreadsheet

INTERSECTION ANALYSIS SHEET

Project: West Wake Solid Waste Facility
 Location: Morrisville, NC
 Ct. Date: 12/4/2025
 N/S Street: Aviation Parkway
 E/W Street: International Drive/Public Works

	AM In	AM Out	PM In	PM Out	Sat In	Sat Out
County Conven.:	28	26	50	46	108	112
Annual Growth Rate (Buildout):	2.0%			Existing Year: 2025		
Growth Factor (Buildout):	0.082			Buildout Year: 2029		

AM PEAK HOUR
 AM PHF = 0.95

Description	International Drive Eastbound			Public Works Westbound			Aviation Parkway Northbound			Aviation Parkway Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2025 Traffic Count	34	2	6	2	0	9	10	684	2	0	406	65
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2025 Existing Traffic	34	2	6	2	0	9	10	684	2	0	406	65
Growth Factor 2.0% per year to Build-out	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.082	0.000	0.000	0.082	0.000
2029 Background Growth	0	0	0	0	0	0	0	56	0	0	33	0
Committed Projects												
HSNC Campus Expansion	0	0	0	0	0	0	0	19	0	0	27	0
Total Committed Traffic	0	0	0	0	0	0	0	19	0	0	27	0
2029 Background Traffic	34	2	6	2	0	9	10	759	2	0	466	65
Project Traffic												
County Site Trips												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	70%	30%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	20	8	0	0
Percent Assignment Outbound	0%	0%	0%	70%	0%	30%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	18	0	8	0	0	0	0	0	0
Total County Site Traffic	0	0	0	18	0	8	0	0	20	8	0	0
Total Project Traffic	0	0	0	18	0	8	0	0	20	8	0	0
Existing Town PW Site Traffic - 60% Reduction	0	-1	0	-1	0	-5	0	0	-1	0	0	0
Reduction of Existing WW Site # Trips	0	0	0	0	0	0	0	-6	0	0	-7	0
2029 Buildout Total	34	1	6	19	0	12	10	753	21	8	459	65
Overall Percent Impact	4%											

PM PEAK HOUR
 PM PHF = 0.93

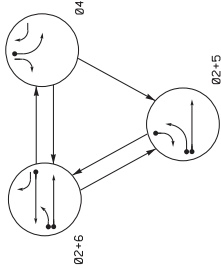
Description	International Drive Eastbound			Public Works Westbound			Aviation Parkway Northbound			Aviation Parkway Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2025 Traffic Count	77	0	14	1	2	3	6	428	1	0	618	58
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2025 Existing Traffic	77	0	14	1	2	3	6	428	1	0	618	58
Growth Factor 2.0% per year to Build-out	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.082	0.000	0.000	0.082	0.000
2029 Background Growth	0	0	0	0	0	0	0	35	0	0	51	0
Committed Projects												
HSNC Campus Expansion	0	0	0	0	0	0	0	49	0	0	55	0
Total Committed Traffic	0	0	0	0	0	0	0	49	0	0	55	0
2029 Background Traffic	77	0	14	1	2	3	6	512	1	0	724	58
Project Traffic												
County Site Trips												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	70%	30%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	35	15	0	0
Percent Assignment Outbound	0%	0%	0%	70%	0%	30%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	32	0	14	0	0	0	0	0	0
Total County Site Traffic	0	0	0	32	0	14	0	0	35	15	0	0
Total Project Traffic	0	0	0	32	0	14	0	0	35	15	0	0
Existing Town PW Site Traffic - 60% Reduction	0	0	0	-1	-1	-2	0	0	-1	0	0	0
Reduction of Existing WW Site # Trips	0	0	0	0	0	0	0	-7	0	0	-5	0
2029 Buildout Total	77	0	14	32	1	15	6	505	35	15	719	58
Overall Percent Impact	6%											

SATURDAY PEAK HOUR
 SAT PHF = 0.86

Description	International Drive Eastbound			Public Works Westbound			Aviation Parkway Northbound			Aviation Parkway Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2025 Traffic Count	8	0	4	0	0	0	4	510	0	0	458	11
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2025 Existing Traffic	8	0	4	0	0	0	4	510	0	0	458	11
Growth Factor 2.0% per year to Build-out	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.082	0.000	0.000	0.082	0.000
2029 Background Growth	0	0	0	0	0	0	0	42	0	0	38	0
Committed Projects												
HSNC Campus Expansion	0	0	0	0	0	0	0	12	0	0	20	0
Total Committed Traffic	0	0	0	0	0	0	0	12	0	0	20	0
2029 Background Traffic	8	0	4	0	0	0	4	564	0	0	516	11
Project Traffic												
County Site Trips												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	70%	30%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	76	32	0	0
Percent Assignment Outbound	0%	0%	0%	70%	0%	30%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	78	0	34	0	0	0	0	0	0
Total County Site Traffic	0	0	0	78	0	34	0	0	76	32	0	0
Total Project Traffic	0	0	0	78	0	34	0	0	76	32	0	0
Existing Town PW Site Traffic - 60% Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Reduction of Existing WW Site # Trips	0	0	0	0	0	0	0	-16	0	0	-10	0
2029 Buildout Total	8	0	4	78	0	34	4	548	76	32	506	11
Overall Percent Impact	17%											

Appendix F
Signal Design Plan
& Timing Data

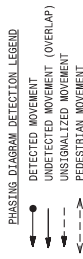
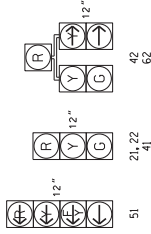
PHASING DIAGRAM



SIGNAL FACE	PHASE	
	02+6	02+5
21.22	G R Y	G R Y
41	R R G R	R R G R
42	R R G R	R R G R
51	R R G R	R R G R
61	R R G R	R R G R
62	R R G R	R R G R

SIGNAL FACE I.D.

All Heads L-E.D.

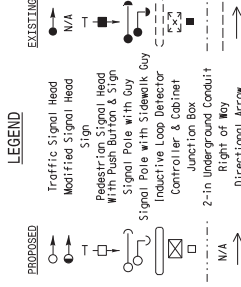
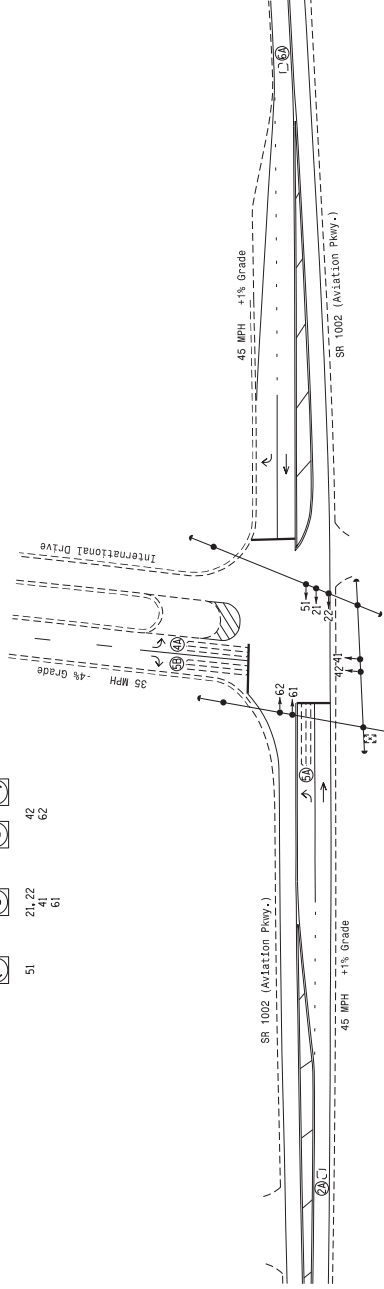


LOOP & DETECTOR INSTALLATION CHART ASC/3-2070L2E CONTROLLER W/ TS-2 CABINET									
LOOP NO	INDUCTIVE LOOPS			DETECTOR UNITS					
	SIZE (ft)	INT FROM 300 FT (ft)	URNS	ON/LEFT	ON/THRU	ON/RIGHT	ON/LEFT	ON/THRU	ON/RIGHT
2A	6X6	300	EXIST	-	X	2	-	X	-
4A	6X40	0	2-4-2	-	X	4	-	X	-
5A	6X40	0	2-4-2	-	X	2	-	X	DELAY 15 S
5B	6X40	0	2-4-2	-	X	2	-	X	DELAY 3 S
6A	6X6	300	EXIST	-	X	6	-	X	-

3 Phase
Fully Actuated
(Cary Signal System)

NOTES

1. Refer to "Roadway Standard Drawings NC001" dated January 2012 and "Standard Specifications" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 5 may be lagged.
4. Set all detector units to presence mode.
5. Pavement markings are existing.
6. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
7. Install new ASC/3 software in existing controller.
8. Cary Signal System data: Fiber Channel #: 17.



TIMING CHART ASC/3-2070L2E CONTROLLER									
PHASE	02	04	05	06	07	08	09	10	11
MINIMUM GREEN *	12 SEC	7 SEC	7 SEC	12 SEC	7 SEC	7 SEC	12 SEC	7 SEC	7 SEC
VEHICLE EXT *	6.0 SEC	2.0 SEC	2.0 SEC	6.0 SEC	2.0 SEC	2.0 SEC	6.0 SEC	2.0 SEC	2.0 SEC
YELLOW CHANGE INT.	4.4 SEC	3.0 SEC	3.0 SEC	4.4 SEC	3.0 SEC	3.0 SEC	4.4 SEC	3.0 SEC	3.0 SEC
RED CLEARANCE	1.5 SEC	2.4 SEC	2.6 SEC	1.5 SEC	2.4 SEC	2.6 SEC	1.5 SEC	2.4 SEC	2.6 SEC
MAX 1 *	90 SEC	25 SEC	20 SEC	90 SEC	25 SEC	20 SEC	90 SEC	25 SEC	20 SEC
RECALL POSITION	MIN RECALL	NONE	NONE	MIN RECALL	NONE	NONE	MIN RECALL	NONE	NONE
LOCK DET.	ON	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF
WALK *	- SEC	- SEC	- SEC	- SEC	- SEC	- SEC	- SEC	- SEC	- SEC
RED CLEAR	- SEC	- SEC	- SEC	- SEC	- SEC	- SEC	- SEC	- SEC	- SEC
VOLUME ENDSRT	ON	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF
ACTUATION B4 AID *	-	VEH	-	VEH	-	VEH	-	VEH	-
SEC PER ACTUATION *	2.5 SEC	- SEC	- SEC	2.5 SEC	- SEC	- SEC	2.5 SEC	- SEC	- SEC
MAX INITIAL *	34 SEC	- SEC	- SEC	34 SEC	- SEC	- SEC	34 SEC	- SEC	- SEC
TIME B4 REDUCTION *	15 SEC	- SEC	- SEC	15 SEC	- SEC	- SEC	15 SEC	- SEC	- SEC
TIME TO REDUCE *	40 SEC	- SEC	- SEC	40 SEC	- SEC	- SEC	40 SEC	- SEC	- SEC
MINIMUM GAP *	3.0 SEC	- SEC	- SEC	3.0 SEC	- SEC	- SEC	3.0 SEC	- SEC	- SEC
DUAL ENTRY	ON	ON	ON	ON	ON	ON	ON	ON	ON
SIMULTANEOUS GAP	ON	ON	ON	ON	ON	ON	ON	ON	ON

* Phase 11 may be 1.5 sec. adjusted. Do not adjust the Green and Extension times for phase 2 and 6 lower than what is shown. Min. Green for all other phases should not be lower than 4 seconds.

Signal Upgrade

Prepared by: J. D. Smith, PE

Checked by: J. D. Smith, PE

Approved by: J. D. Smith, PE

Scale: 1"=40'

North Arrow

SR 1002 (Aviation Pkwy.)

International Drive

Wake County

Division 5

Plan Date: October 2015

Revised By: P. N. Zilber

Revised By: P. N. Zilber

Revised By: P. N. Zilber

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Scale: 1"=40'

North Arrow

SR 1002 (Aviation Pkwy.)

International Drive

Wake County

Division 5

Plan Date: October 2015

Revised By: P. N. Zilber

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Revised By: P. N. Zilber

Revised By: P. N. Zilber

Weekday Timings

AM

Inv. No.	LOCATIONS	OFFSETS	PHASES								A=1,B=3,C=5,D=7
			1	2	3	4	5	6	7	8	
1533	Evans Rd	98	35	50	15	20	20	65	15	20	
1550	International Drive	7		98		22	15	83			
1281	Chapel Hill	93	15	40	20	45	23	32	20	45	
2258	Town Hall	70	15	65	15	25	15	65			

PM

Inv. No.	LOCATIONS	OFFSETS	PHASES								A=1,B=3,C=5,D=7
			1	2	3	4	5	6	7	8	
1533	Evans Rd	77	30	40	25	25	20	50	25	25	
1550	International Drive	47		98		22	15	83			

Inv. No.	LOCATIONS	OFFSETS	PHASES								A=1,B=3,C=5,D=7
			1	2	3	4	5	6	7	8	
1281	Chapel Hill Rd	53	20	60	20	60	38	42	20	60	
2258	Town Hall Dr	39		120	15	25	15	105			

Weekend Timings

AM

[illegible]

PM

[illegible]

Appendix G
Synchro Output:
Existing (2025)

West Wake Solid Waste Facility #3
1: Aviation Parkway & International Drive

Existing (2025) AM
01/29/2026

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	36	6	10	686	408	65
Future Volume (vph)	36	6	10	686	408	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	-4%			1%	1%	
Storage Length (ft)	0	200	125			0
Storage Lanes	1	1	1			1
Taper Length (ft)	50		100			
Satd. Flow (prot)	1102	986	1761	1853	1767	1502
Flt Permitted	0.950		0.480			
Satd. Flow (perm)	1102	986	890	1853	1767	1502
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	45	
Link Distance (ft)	1044			1081	116	
Travel Time (s)	20.3			16.4	1.8	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	67%	67%	2%	2%	7%	7%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	40	7	11	762	453	72
Turn Type	Prot	pm+ov	D.P+P	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4	6			6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	12.0	12.0	7.0
Minimum Split (s)	13.0	13.0	13.0	18.0	18.0	13.0
Total Split (s)	22.0	15.0	15.0	98.0	83.0	22.0
Total Split (%)	18.3%	12.5%	12.5%	81.7%	69.2%	18.3%
Yellow Time (s)	3.0	3.0	3.0	4.4	4.4	3.0
All-Red Time (s)	2.4	2.6	2.6	1.5	1.5	2.4
Lost Time Adjust (s)	-0.4	-0.6	-0.6	-0.9	-0.9	-0.4
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Recall Mode	None	None	None	C-Max	C-Max	None
Act Effect Green (s)	9.8	19.9	100.7	103.7	98.7	113.0
Actuated g/C Ratio	0.08	0.17	0.84	0.86	0.82	0.94
v/c Ratio	0.45	0.04	0.01	0.48	0.31	0.05
Control Delay (s/veh)	67.5	38.8	2.2	3.9	5.0	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	67.5	38.8	2.2	3.9	5.0	1.0

West Wake Solid Waste Facility #3
1: Aviation Parkway & International Drive

Existing (2025) AM
01/29/2026



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
LOS	E	D	A	A	A	A
Approach Delay (s/veh)	63.2			3.8	4.4	
Approach LOS	E			A	A	
Queue Length 50th (ft)	47	7	1	120	59	0
Queue Length 95th (ft)	101	27	5	226	194	12
Internal Link Dist (ft)	964			1001	36	
Turn Bay Length (ft)		200	125			
Base Capacity (vph)	156	183	826	1601	1452	1436
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.04	0.01	0.48	0.31	0.05

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 7 (6%), Referenced to phase 2:NBT and 6:NBSB, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.48

Intersection Signal Delay (s/veh): 6.2

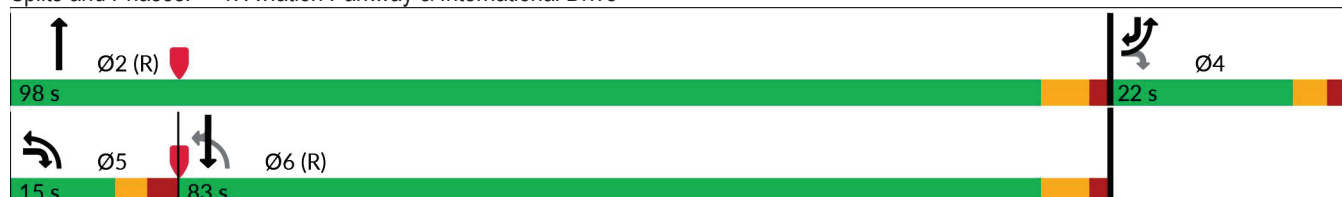
Intersection LOS: A

Intersection Capacity Utilization 50.3%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Aviation Parkway & International Drive



West Wake Solid Waste Facility #3
11: Aviation Parkway & Public Works Drwy.

Existing (2025) AM
01/29/2026

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	9	718	4	4	471
Future Volume (vph)	4	9	718	4	4	471
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	1334	0	1861	0	0	3374
Flt Permitted	0.986					
Satd. Flow (perm)	1334	0	1861	0	0	3374
Link Speed (mph)	25		45			45
Link Distance (ft)	1170		116			200
Travel Time (s)	31.9		1.8			3.0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	27%	27%	2%	2%	7%	7%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	0	802	0	0	527
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	48.0%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	W	T	T	T	T
Traffic Vol, veh/h	4	9	718	4	4	471
Future Vol, veh/h	4	9	718	4	4	471
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	27	27	2	2	7	7
Mvmt Flow	4	10	798	4	4	523

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1071	800	0
Stage 1	800	-	-
Stage 2	271	-	-
Critical Hdwy	7.005	6.605	-
Critical Hdwy Stg 1	5.805	-	-
Critical Hdwy Stg 2	6.205	-	-
Follow-up Hdwy	3.7565	3.5565	-
Pot Cap-1 Maneuver	198	337	-
Stage 1	389	-	-
Stage 2	690	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	197	337	-
Mov Cap-2 Maneuver	197	-	-
Stage 1	389	-	-
Stage 2	685	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	18.73	0	0.14
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	277	30
HCM Lane V/C Ratio	-	-	0.052	0.006
HCM Ctrl Dly (s/v)	-	-	18.7	9.6
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.2	0

West Wake Solid Waste Facility #3
1: Aviation Parkway & International Drive

Existing (2025) PM
01/29/2026

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	77	14	6	429	619	60
Future Volume (vph)	77	14	6	429	619	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	-4%			1%	1%	
Storage Length (ft)	0	200	125			0
Storage Lanes	1	1	1			1
Taper Length (ft)	50		100			
Satd. Flow (prot)	1674	1498	1744	1835	1818	1545
Flt Permitted	0.950		0.339			
Satd. Flow (perm)	1674	1498	622	1835	1818	1545
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	45	
Link Distance (ft)	1044			1081	116	
Travel Time (s)	20.3			16.4	1.8	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	10%	3%	3%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	86	16	7	477	688	67
Turn Type	Prot	pm+ov	D.P+P	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4	6			6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	12.0	12.0	7.0
Minimum Split (s)	13.0	13.0	13.0	18.0	18.0	13.0
Total Split (s)	22.0	15.0	15.0	98.0	83.0	22.0
Total Split (%)	18.3%	12.5%	12.5%	81.7%	69.2%	18.3%
Yellow Time (s)	3.0	3.0	3.0	4.4	4.4	3.0
All-Red Time (s)	2.4	2.6	2.6	1.5	1.5	2.4
Lost Time Adjust (s)	-0.4	-0.6	-0.6	-0.9	-0.9	-0.4
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Recall Mode	None	None	None	C-Max	C-Max	None
Act Effect Green (s)	11.1	23.7	95.9	98.9	91.3	109.4
Actuated g/C Ratio	0.09	0.20	0.80	0.82	0.76	0.91
v/c Ratio	0.55	0.05	0.01	0.32	0.50	0.05
Control Delay (s/veh)	65.0	37.8	2.5	3.4	8.4	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	65.0	37.8	2.5	3.4	8.4	1.2

West Wake Solid Waste Facility #3
1: Aviation Parkway & International Drive

Existing (2025) PM
01/29/2026



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
LOS	E	D	A	A	A	A
Approach Delay (s/veh)	60.7			3.4	7.7	
Approach LOS	E			A	A	
Queue Length 50th (ft)	70	11	1	68	218	6
Queue Length 95th (ft)	124	31	4	126	353	12
Internal Link Dist (ft)	964			1001	36	
Turn Bay Length (ft)		200	125			
Base Capacity (vph)	237	326	597	1512	1383	1439
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.05	0.01	0.32	0.50	0.05

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 47 (39%), Referenced to phase 2:NBT and 6:NBSB, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.55

Intersection Signal Delay (s/veh): 10.2

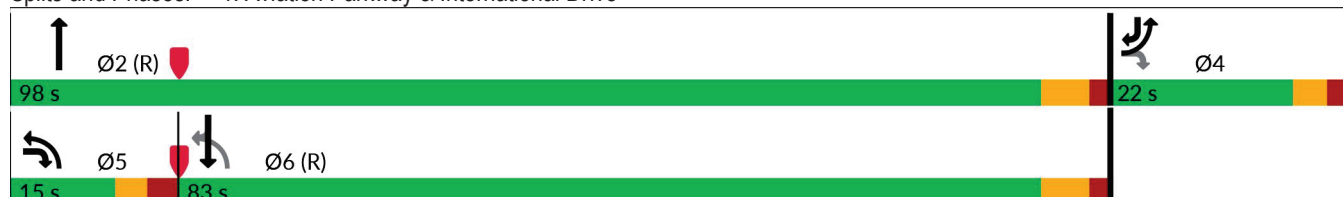
Intersection LOS: B

Intersection Capacity Utilization 46.7%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Aviation Parkway & International Drive



West Wake Solid Waste Facility #3
11: Aviation Parkway & Public Works Drwy.

Existing (2025) PM
01/29/2026

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	4	502	4	4	676
Future Volume (vph)	4	4	502	4	4	676
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	1694	0	1843	0	0	3471
Flt Permitted	0.976					
Satd. Flow (perm)	1694	0	1843	0	0	3471
Link Speed (mph)	25		45			45
Link Distance (ft)	1170		116			200
Travel Time (s)	31.9		1.8			3.0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	3%	3%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	562	0	0	755
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	36.7%		ICU Level of Service A			
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	4	4	502	4	4	676
Future Vol, veh/h	4	4	502	4	4	676
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	3	3	4	4
Mvmt Flow	4	4	558	4	4	751

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	944	560	0	0	562
Stage 1	560	-	-	-	-
Stage 2	384	-	-	-	-
Critical Hdwy	6.63	6.23	-	-	4.16
Critical Hdwy Stg 1	5.43	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.238
Pot Cap-1 Maneuver	275	527	-	-	995
Stage 1	571	-	-	-	-
Stage 2	658	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	274	527	-	-	995
Mov Cap-2 Maneuver	274	-	-	-	-
Stage 1	571	-	-	-	-
Stage 2	655	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	15.25	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	360	21
HCM Lane V/C Ratio	-	-	0.025	0.004
HCM Ctrl Dly (s/v)	-	-	15.2	8.6
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.1	0

West Wake Solid Waste Facility #3
1: Aviation Parkway & International Drive

Existing (2025) Saturday Peak
01/29/2026

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	8	4	4	510	458	11
Future Volume (vph)	8	4	4	510	458	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	-4%			1%	1%	
Storage Length (ft)	0	200	125			0
Storage Lanes	1	1	1			1
Taper Length (ft)	50		100			
Satd. Flow (prot)	1705	1525	1761	1853	1853	1575
Flt Permitted	0.950		0.462			
Satd. Flow (perm)	1705	1525	856	1853	1853	1575
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	45	
Link Distance (ft)	1044			1081	116	
Travel Time (s)	20.3			16.4	1.8	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	8%	8%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	4	4	567	509	12
Turn Type	Prot	pm+ov	D.P+P	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4	6			6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	12.0	12.0	7.0
Minimum Split (s)	13.0	13.0	13.0	18.0	18.0	13.0
Total Split (s)	22.0	15.0	15.0	98.0	83.0	22.0
Total Split (%)	18.3%	12.5%	12.5%	81.7%	69.2%	18.3%
Yellow Time (s)	3.0	3.0	3.0	4.4	4.4	3.0
All-Red Time (s)	2.4	2.6	2.6	1.5	1.5	2.4
Lost Time Adjust (s)	-0.4	-0.6	-0.6	-0.9	-0.9	-0.4
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Recall Mode	None	None	None	C-Max	C-Max	None
Act Effect Green (s)	7.4	12.6	109.0	113.0	110.5	116.5
Actuated g/C Ratio	0.06	0.11	0.91	0.94	0.92	0.97
v/c Ratio	0.09	0.03	0.00	0.32	0.30	0.01
Control Delay (s/veh)	55.1	43.8	1.3	1.5	2.4	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	55.1	43.8	1.3	1.5	2.4	0.6

West Wake Solid Waste Facility #3
1: Aviation Parkway & International Drive

Existing (2025) Saturday Peak
01/29/2026



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
LOS	E	D	A	A	A	A
Approach Delay (s/veh)	51.6			1.5	2.4	
Approach LOS	D			A	A	
Queue Length 50th (ft)	7	3	0	0	0	0
Queue Length 95th (ft)	26	14	2	92	166	3
Internal Link Dist (ft)	964			1001	36	
Turn Bay Length (ft)		200	125			
Base Capacity (vph)	241	190	856	1745	1706	1554
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.02	0.00	0.32	0.30	0.01

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 47 (39%), Referenced to phase 2:NBT and 6:NBSB, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.32

Intersection Signal Delay (s/veh): 2.5

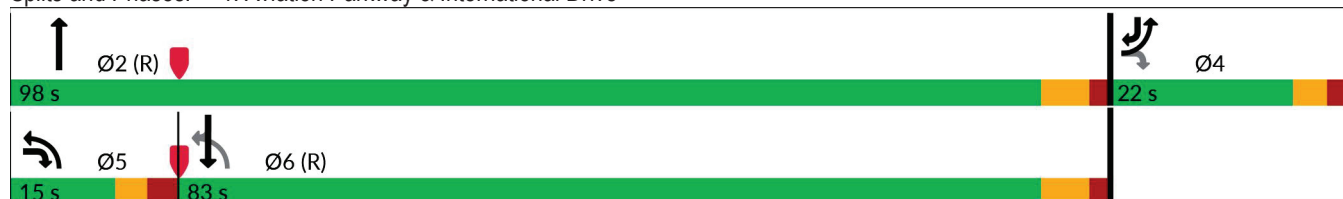
Intersection LOS: A

Intersection Capacity Utilization 41.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Aviation Parkway & International Drive



West Wake Solid Waste Facility #3
11: Aviation Parkway & Public Works Drwy.

Existing (2025) Saturday Peak
01/29/2026

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	4	518	4	4	469
Future Volume (vph)	4	4	518	4	4	469
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	1694	0	1861	0	0	3539
Flt Permitted	0.976					
Satd. Flow (perm)	1694	0	1861	0	0	3539
Link Speed (mph)	25		45			45
Link Distance (ft)	1170		116			200
Travel Time (s)	31.9		1.8			3.0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	580	0	0	525
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	37.5%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	4	4	518	4	4	469
Future Vol, veh/h	4	4	518	4	4	469
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	4	576	4	4	521

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	847	578	0
Stage 1	578	-	-
Stage 2	269	-	-
Critical Hdwy	6.63	6.23	-
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	5.83	-	-
Follow-up Hdwy	3.519	3.319	-
Pot Cap-1 Maneuver	316	515	-
Stage 1	560	-	-
Stage 2	752	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	314	515	-
Mov Cap-2 Maneuver	314	-	-
Stage 1	560	-	-
Stage 2	748	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	14.44	0	0.12
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	390	30
HCM Lane V/C Ratio	-	-	0.023	0.004
HCM Ctrl Dly (s/v)	-	-	14.4	8.6
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Appendix GH
Synchro Output:
Projected (2029) Background

West Wake Solid Waste Facility #3
1: Aviation Parkway & International Drive

Background (2029) AM
01/29/2026

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	36	6	10	761	468	65
Future Volume (vph)	36	6	10	761	468	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	-4%			1%	1%	
Storage Length (ft)	0	200	125			0
Storage Lanes	1	1	1			1
Taper Length (ft)	50		100			
Satd. Flow (prot)	1102	986	1761	1853	1767	1502
Flt Permitted	0.950		0.442			
Satd. Flow (perm)	1102	986	819	1853	1767	1502
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	45	
Link Distance (ft)	1044			1081	116	
Travel Time (s)	20.3			16.4	1.8	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	67%	67%	2%	2%	7%	7%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	40	7	11	846	520	72
Turn Type	Prot	pm+ov	D.P+P	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4	6			6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	12.0	12.0	7.0
Minimum Split (s)	13.0	13.0	13.0	18.0	18.0	13.0
Total Split (s)	22.0	15.0	15.0	98.0	83.0	22.0
Total Split (%)	18.3%	12.5%	12.5%	81.7%	69.2%	18.3%
Yellow Time (s)	3.0	3.0	3.0	4.4	4.4	3.0
All-Red Time (s)	2.4	2.6	2.6	1.5	1.5	2.4
Lost Time Adjust (s)	-0.4	-0.6	-0.6	-0.9	-0.9	-0.4
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Recall Mode	None	None	None	C-Max	C-Max	None
Act Effect Green (s)	9.8	19.9	100.7	103.7	98.7	113.0
Actuated g/C Ratio	0.08	0.17	0.84	0.86	0.82	0.94
v/c Ratio	0.45	0.04	0.01	0.53	0.36	0.05
Control Delay (s/veh)	67.5	38.8	2.2	4.4	5.4	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	67.5	38.8	2.2	4.4	5.4	1.0

West Wake Solid Waste Facility #3
1: Aviation Parkway & International Drive

Background (2029) AM
01/29/2026



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
LOS	E	D	A	A	A	A
Approach Delay (s/veh)	63.2			4.3	4.8	
Approach LOS	E			A	A	
Queue Length 50th (ft)	47	7	1	144	71	0
Queue Length 95th (ft)	101	27	5	273	232	12
Internal Link Dist (ft)	964			1001	36	
Turn Bay Length (ft)		200	125			
Base Capacity (vph)	156	183	772	1601	1452	1436
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.04	0.01	0.53	0.36	0.05

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 7 (6%), Referenced to phase 2:NBT and 6:NBSB, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.53

Intersection Signal Delay (s/veh): 6.4

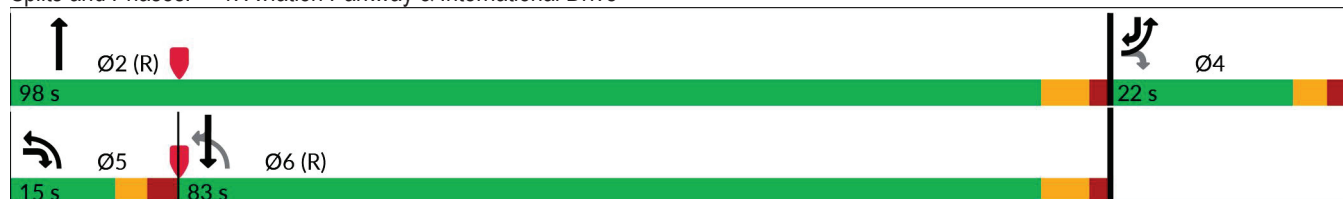
Intersection LOS: A

Intersection Capacity Utilization 54.2%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Aviation Parkway & International Drive



						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	9	793	4	4	531
Future Volume (vph)	4	9	793	4	4	531
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	1334	0	1861	0	0	3374
Flt Permitted	0.986					
Satd. Flow (perm)	1334	0	1861	0	0	3374
Link Speed (mph)	25		45			45
Link Distance (ft)	1170		116			200
Travel Time (s)	31.9		1.8			3.0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	27%	27%	2%	2%	7%	7%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	0	885	0	0	594
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	52.0%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	4	9	793	4	4	531
Future Vol, veh/h	4	9	793	4	4	531
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	27	27	2	2	7	7
Mvmt Flow	4	10	881	4	4	590

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1187	883	0
Stage 1	883	-	-
Stage 2	304	-	-
Critical Hdwy	7.005	6.605	-
Critical Hdwy Stg 1	5.805	-	-
Critical Hdwy Stg 2	6.205	-	-
Follow-up Hdwy	3.7565	3.5565	-
Pot Cap-1 Maneuver	166	300	-
Stage 1	353	-	-
Stage 2	662	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	165	300	-
Mov Cap-2 Maneuver	165	-	-
Stage 1	353	-	-
Stage 2	658	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	20.99	0	0.14
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	240	27
HCM Lane V/C Ratio	-	-	0.06	0.006
HCM Ctrl Dly (s/v)	-	-	21	9.9
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.2	0

West Wake Solid Waste Facility #3
1: Aviation Parkway & International Drive

Background (2029) PM
01/29/2026

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	77	14	6	513	725	60
Future Volume (vph)	77	14	6	513	725	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	-4%			1%	1%	
Storage Length (ft)	0	200	125			0
Storage Lanes	1	1	1			1
Taper Length (ft)	50		100			
Satd. Flow (prot)	1674	1498	1744	1835	1818	1545
Flt Permitted	0.950		0.280			
Satd. Flow (perm)	1674	1498	514	1835	1818	1545
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	45	
Link Distance (ft)	1044			1081	116	
Travel Time (s)	20.3			16.4	1.8	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	10%	3%	3%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	86	16	7	570	806	67
Turn Type	Prot	pm+ov	D.P+P	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4	6			6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	12.0	12.0	7.0
Minimum Split (s)	13.0	13.0	13.0	18.0	18.0	13.0
Total Split (s)	22.0	15.0	15.0	98.0	83.0	22.0
Total Split (%)	18.3%	12.5%	12.5%	81.7%	69.2%	18.3%
Yellow Time (s)	3.0	3.0	3.0	4.4	4.4	3.0
All-Red Time (s)	2.4	2.6	2.6	1.5	1.5	2.4
Lost Time Adjust (s)	-0.4	-0.6	-0.6	-0.9	-0.9	-0.4
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Recall Mode	None	None	None	C-Max	C-Max	None
Act Effect Green (s)	11.1	23.7	95.9	98.9	91.3	109.4
Actuated g/C Ratio	0.09	0.20	0.80	0.82	0.76	0.91
v/c Ratio	0.55	0.05	0.01	0.38	0.58	0.05
Control Delay (s/veh)	65.0	37.8	2.5	3.8	9.8	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	65.0	37.8	2.5	3.8	9.8	1.2

West Wake Solid Waste Facility #3
1: Aviation Parkway & International Drive

Background (2029) PM
01/29/2026



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
LOS	E	D	A	A	A	A
Approach Delay (s/veh)	60.7			3.7	9.2	
Approach LOS	E			A	A	
Queue Length 50th (ft)	70	11	1	88	286	6
Queue Length 95th (ft)	124	31	4	160	464	12
Internal Link Dist (ft)	964			1001	36	
Turn Bay Length (ft)		200	125			
Base Capacity (vph)	237	326	519	1512	1383	1439
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.05	0.01	0.38	0.58	0.05

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 47 (39%), Referenced to phase 2:NBT and 6:NBSB, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay (s/veh): 10.5

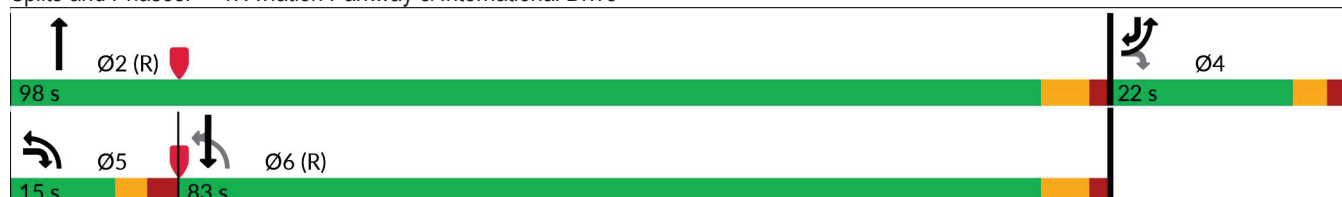
Intersection LOS: B

Intersection Capacity Utilization 52.3%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Aviation Parkway & International Drive



						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	4	589	4	4	782
Future Volume (vph)	4	4	589	4	4	782
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	1694	0	1843	0	0	3471
Flt Permitted	0.976					
Satd. Flow (perm)	1694	0	1843	0	0	3471
Link Speed (mph)	25		45			45
Link Distance (ft)	1170		116			200
Travel Time (s)	31.9		1.8			3.0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	3%	3%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	658	0	0	873
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	41.2%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	W	T	T	T	T
Traffic Vol, veh/h	4	4	589	4	4	782
Future Vol, veh/h	4	4	589	4	4	782
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	3	3	4	4
Mvmt Flow	4	4	654	4	4	869

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1100	657	0
Stage 1	657	-	-
Stage 2	443	-	-
Critical Hdwy	6.63	6.23	-
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	5.83	-	-
Follow-up Hdwy	3.519	3.319	-
Pot Cap-1 Maneuver	220	464	-
Stage 1	515	-	-
Stage 2	615	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	219	464	-
Mov Cap-2 Maneuver	219	-	-
Stage 1	515	-	-
Stage 2	611	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	17.48	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	297	18
HCM Lane V/C Ratio	-	-	0.03	0.005
HCM Ctrl Dly (s/v)	-	-	17.5	9
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.1	0

West Wake Solid Waste Facility #3
1: Aviation Parkway & International Drive

Background (2029) Saturday Peak
01/29/2026

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	8	4	4	564	516	11
Future Volume (vph)	8	4	4	564	516	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	-4%			1%	1%	
Storage Length (ft)	0	200	125			0
Storage Lanes	1	1	1			1
Taper Length (ft)	50		100			
Satd. Flow (prot)	1705	1525	1761	1853	1853	1575
Flt Permitted	0.950		0.429			
Satd. Flow (perm)	1705	1525	795	1853	1853	1575
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	45	
Link Distance (ft)	1044			1081	116	
Travel Time (s)	20.3			16.4	1.8	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	8%	8%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	4	4	627	573	12
Turn Type	Prot	pm+ov	D.P+P	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4	6			6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	12.0	12.0	7.0
Minimum Split (s)	13.0	13.0	13.0	18.0	18.0	13.0
Total Split (s)	22.0	15.0	15.0	98.0	83.0	22.0
Total Split (%)	18.3%	12.5%	12.5%	81.7%	69.2%	18.3%
Yellow Time (s)	3.0	3.0	3.0	4.4	4.4	3.0
All-Red Time (s)	2.4	2.6	2.6	1.5	1.5	2.4
Lost Time Adjust (s)	-0.4	-0.6	-0.6	-0.9	-0.9	-0.4
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Recall Mode	None	None	None	C-Max	C-Max	None
Act Effect Green (s)	7.4	12.6	109.0	113.0	110.5	116.5
Actuated g/C Ratio	0.06	0.11	0.91	0.94	0.92	0.97
v/c Ratio	0.09	0.03	0.01	0.36	0.34	0.01
Control Delay (s/veh)	55.1	43.8	1.3	1.6	2.6	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	55.1	43.8	1.3	1.6	2.6	0.6

West Wake Solid Waste Facility #3
1: Aviation Parkway & International Drive

Background (2029) Saturday Peak
01/29/2026



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
LOS	E	D	A	A	A	A
Approach Delay (s/veh)	51.6			1.6	2.5	
Approach LOS	D			A	A	
Queue Length 50th (ft)	7	3	0	0	0	0
Queue Length 95th (ft)	26	14	2	106	195	3
Internal Link Dist (ft)	964			1001	36	
Turn Bay Length (ft)		200	125			
Base Capacity (vph)	241	190	806	1745	1706	1554
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.02	0.00	0.36	0.34	0.01

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 47 (39%), Referenced to phase 2:NBT and 6:NBSB, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.36

Intersection Signal Delay (s/veh): 2.6

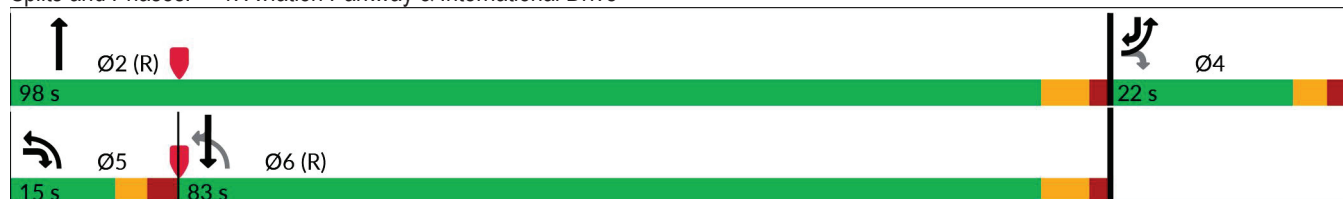
Intersection LOS: A

Intersection Capacity Utilization 43.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Aviation Parkway & International Drive



West Wake Solid Waste Facility #3
11: Aviation Parkway & Public Works Drwy.

Background (2029) Saturday Peak
01/29/2026

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	4	572	4	4	527
Future Volume (vph)	4	4	572	4	4	527
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	1694	0	1861	0	0	3539
Flt Permitted	0.976					
Satd. Flow (perm)	1694	0	1861	0	0	3539
Link Speed (mph)	25		45			45
Link Distance (ft)	1170		116			200
Travel Time (s)	31.9		1.8			3.0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	640	0	0	590
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	40.3%		ICU Level of Service A			
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	4	4	572	4	4	527
Future Vol, veh/h	4	4	572	4	4	527
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	4	636	4	4	586

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	939	638	0
Stage 1	638	-	-
Stage 2	302	-	-
Critical Hdwy	6.63	6.23	-
Critical Hdwy Stg 1	5.43	-	-
Critical Hdwy Stg 2	5.83	-	-
Follow-up Hdwy	3.519	3.319	-
Pot Cap-1 Maneuver	277	476	-
Stage 1	525	-	-
Stage 2	725	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	276	476	-
Mov Cap-2 Maneuver	276	-	-
Stage 1	525	-	-
Stage 2	721	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	15.58	0	0.12
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	349	27
HCM Lane V/C Ratio	-	-	0.025	0.005
HCM Ctrl Dly (s/v)	-	-	15.6	8.8
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Appendix I
Synchro Output:
Projected (2029) Build-Out

West Wake Solid Waste Facility #3

Build (2029) AM - Unimproved

1: Aviation Parkway & International Drive/WWSWF Site Drwy.

01/29/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	4	6	19	4	12	10	753	21	8	459	65
Future Volume (vph)	34	4	6	19	4	12	10	753	21	8	459	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		-4%			0%			1%			1%	
Storage Length (ft)	0		200	100		0	125		50	50		125
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	50			100			100			100		
Satd. Flow (prot)	1102	1214	0	1719	1601	0	1761	1853	1530	1710	1767	1502
Flt Permitted	0.950			0.950			0.418			0.950		
Satd. Flow (perm)	1102	1214	0	1719	1601	0	775	1853	1530	1710	1767	1502
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		1044			1009			1081			315	
Travel Time (s)		20.3			27.5			16.4			4.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	67%	5%	67%	5%	5%	5%	2%	2%	5%	5%	7%	7%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	11	0	21	17	0	11	837	23	9	510	72
Turn Type	Prot	NA		Prot	NA		D.P+P	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases							6		2			6
Detector Phase	7	4		3	8		5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	7.0	7.0	12.0	7.0
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	14.0	14.0	19.0	14.0
Total Split (s)	22.0	22.0		22.0	22.0		15.0	61.0	22.0	15.0	61.0	22.0
Total Split (%)	18.3%	18.3%		18.3%	18.3%		12.5%	50.8%	18.3%	12.5%	50.8%	18.3%
Yellow Time (s)	5.0	3.0		5.0	5.0		3.0	4.4	5.0	5.0	4.4	5.0
All-Red Time (s)	2.0	2.4		2.0	2.0		2.6	1.5	2.0	2.0	1.5	2.0
Lost Time Adjust (s)	-2.0	-0.4		-2.0	-2.0		-0.6	-0.9	-2.0	-2.0	-0.9	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Max	None	None	C-Max	None
Act Effect Green (s)	11.9	9.1		13.7	9.5		93.8	92.9	110.8	9.1	93.3	109.4
Actuated g/C Ratio	0.10	0.08		0.11	0.08		0.78	0.77	0.92	0.08	0.78	0.91
v/c Ratio	0.35	0.12		0.11	0.13		0.02	0.58	0.02	0.07	0.37	0.05
Control Delay (s/veh)	58.3	52.7		47.5	53.7		6.1	13.0	3.2	52.8	8.9	2.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	58.3	52.7		47.5	53.7		6.1	13.0	3.2	52.8	8.9	2.4

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	E	D		D	D		A	B	A	D	A	A
Approach Delay (s/veh)		57.0			50.2			12.7			8.8	
Approach LOS		E			D			B			A	
Queue Length 50th (ft)	43	9		16	13		1	167	0	7	82	0
Queue Length 95th (ft)	96	27		43	38		10	#763	15	25	359	29
Internal Link Dist (ft)		964			929			1001			235	
Turn Bay Length (ft)				100			125		50	50		125
Base Capacity (vph)	156	171		275	226		690	1434	1442	142	1373	1380
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.06		0.08	0.08		0.02	0.58	0.02	0.06	0.37	0.05

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:NBSB, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay (s/veh): 13.5

Intersection LOS: B

Intersection Capacity Utilization 56.5%

ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Aviation Parkway & International Drive/WWSWF Site Drwy.

	Ø1		Ø2 (R)		Ø3		Ø4
15 s		61 s		22 s		22 s	
	Ø5		Ø6 (R)		Ø7		Ø8
15 s		61 s		22 s		22 s	

West Wake Solid Waste Facility #3

Build (2029) PM - Unimproved

1: Aviation Parkway & International Drive/WWSWF Site Drwy.

01/29/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	4	14	32	4	15	6	505	35	15	719	58
Future Volume (vph)	77	4	14	32	4	15	6	505	35	15	719	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		-4%			0%			1%			1%	
Storage Length (ft)	0		200	100		0	125		50	50		125
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	50			100			100			100		
Satd. Flow (prot)	1674	1565	0	1719	1591	0	1744	1835	1530	1710	1818	1545
Flt Permitted	0.950			0.950			0.237			0.950		
Satd. Flow (perm)	1674	1565	0	1719	1591	0	435	1835	1530	1710	1818	1545
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		1044			1009			1081			315	
Travel Time (s)		20.3			27.5			16.4			4.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	5%	10%	5%	5%	5%	3%	3%	5%	5%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	20	0	36	21	0	7	561	39	17	799	64
Turn Type	Prot	NA		Prot	NA		D.P+P	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases							6		2			6
Detector Phase	7	4		3	8		5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	7.0	7.0	12.0	7.0
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	14.0	14.0	19.0	14.0
Total Split (s)	22.0	22.0		22.0	22.0		15.0	61.0	22.0	15.0	61.0	22.0
Total Split (%)	18.3%	18.3%		18.3%	18.3%		12.5%	50.8%	18.3%	12.5%	50.8%	18.3%
Yellow Time (s)	5.0	3.0		5.0	5.0		3.0	4.4	5.0	5.0	4.4	5.0
All-Red Time (s)	2.0	2.4		2.0	2.0		2.6	1.5	2.0	2.0	1.5	2.0
Lost Time Adjust (s)	-2.0	-0.4		-2.0	-2.0		-0.6	-0.9	-2.0	-2.0	-0.9	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Max	None	None	C-Max	None
Act Effect Green (s)	13.3	10.4		11.6	9.7		89.4	84.4	104.0	9.4	87.9	109.2
Actuated g/C Ratio	0.11	0.09		0.10	0.08		0.75	0.70	0.87	0.08	0.73	0.91
v/c Ratio	0.46	0.15		0.22	0.16		0.02	0.43	0.03	0.13	0.60	0.05
Control Delay (s/veh)	57.5	50.9		52.9	54.1		7.0	13.0	5.0	53.5	13.9	2.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	57.5	50.9		52.9	54.1		7.0	13.0	5.0	53.5	13.9	2.5



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	E	D		D	D		A	B	A	D	B	A
Approach Delay (s/veh)		56.3			53.3			12.4			13.8	
Approach LOS		E			D			B			B	
Queue Length 50th (ft)	68	16		27	16		1	101	0	13	180	0
Queue Length 95th (ft)	123	40		62	43		8	424	23	38	712	27
Internal Link Dist (ft)		964			929			1001			235	
Turn Bay Length (ft)				100			125		50	50		125
Base Capacity (vph)	237	221		243	225		434	1290	1348	144	1331	1406
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.09		0.15	0.09		0.02	0.43	0.03	0.12	0.60	0.05

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 47 (39%), Referenced to phase 2:NBT and 6:NBSB, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay (s/veh): 17.4

Intersection LOS: B

Intersection Capacity Utilization 57.1%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Aviation Parkway & International Drive/WWSWF Site Drwy.

	Ø1		Ø2 (R)		Ø3		Ø4
15 s		61 s		22 s		22 s	
	Ø5		Ø6 (R)		Ø7		Ø8
15 s		61 s		22 s		22 s	

West Wake Solid Waste Facility #3

Build (2029) Saturday Peak - Unimproved

1: Aviation Parkway & International Drive/WWSWF Site Drwy.

01/29/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	4	4	78	4	34	4	548	76	32	506	11
Future Volume (vph)	8	4	4	78	4	34	4	548	76	32	506	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		-4%			0%			1%			1%	
Storage Length (ft)	0		200	100		0	125		50	50		125
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	50			100			100			100		
Satd. Flow (prot)	1705	1683	0	1719	1563	0	1761	1853	1530	1710	1853	1575
Flt Permitted	0.950			0.950			0.381			0.950		
Satd. Flow (perm)	1705	1683	0	1719	1563	0	706	1853	1530	1710	1853	1575
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		1044			1009			1081			315	
Travel Time (s)		20.3			27.5			16.4			4.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	8%	5%	8%	5%	5%	5%	2%	2%	5%	5%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	8	0	87	42	0	4	609	84	36	562	12
Turn Type	Prot	NA		Prot	NA		D.P+P	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases							6		2			6
Detector Phase	7	4		3	8		5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	7.0	7.0	12.0	7.0
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	14.0	14.0	19.0	14.0
Total Split (s)	22.0	22.0		22.0	22.0		15.0	61.0	22.0	15.0	61.0	22.0
Total Split (%)	18.3%	18.3%		18.3%	18.3%		12.5%	50.8%	18.3%	12.5%	50.8%	18.3%
Yellow Time (s)	5.0	3.0		5.0	5.0		3.0	4.4	5.0	5.0	4.4	5.0
All-Red Time (s)	2.0	2.4		2.0	2.0		2.6	1.5	2.0	2.0	1.5	2.0
Lost Time Adjust (s)	-2.0	-0.4		-2.0	-2.0		-0.6	-0.9	-2.0	-2.0	-0.9	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	C-Max	None	None	C-Max	None
Act Effect Green (s)	9.1	7.4		15.4	12.2		91.1	82.4	104.8	10.4	89.6	104.7
Actuated g/C Ratio	0.08	0.06		0.13	0.10		0.76	0.69	0.87	0.09	0.75	0.87
v/c Ratio	0.07	0.08		0.40	0.27		0.01	0.48	0.06	0.24	0.41	0.01
Control Delay (s/veh)	52.8	55.0		52.1	53.4		5.8	13.9	3.0	54.8	8.9	3.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	52.8	55.0		52.1	53.4		5.8	13.9	3.0	54.8	8.9	3.6

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	D	D		D	D		A	B	A	D	A	A
Approach Delay (s/veh)		53.8			52.6			12.6			11.5	
Approach LOS		D			D			B			B	
Queue Length 50th (ft)	7	6		67	31		1	207	9	28	99	1
Queue Length 95th (ft)	25	24		119	68		5	454	35	62	364	9
Internal Link Dist (ft)		964			929			1001			235	
Turn Bay Length (ft)				100			125		50	50		125
Base Capacity (vph)	241	238		269	221		627	1272	1345	153	1384	1456
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.03		0.32	0.19		0.01	0.48	0.06	0.24	0.41	0.01

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 47 (39%), Referenced to phase 2:NBT and 6:NBSB, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.48

Intersection Signal Delay (s/veh): 16.1

Intersection LOS: B

Intersection Capacity Utilization 48.2%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Aviation Parkway & International Drive/WWSWF Site Drwy.

	Ø1		Ø2 (R)		Ø3		Ø4
15 s		61 s		22 s		22 s	
	Ø5		Ø6 (R)		Ø7		Ø8
15 s		61 s		22 s		22 s	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	4	6	19	4	12	10	753	21	8	459	65
Future Volume (vph)	34	4	6	19	4	12	10	753	21	8	459	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		-4%			0%			1%			1%	
Storage Length (ft)	100		200	100		0	125		50	50		125
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1102	1846	986	1719	1601	0	1761	1853	1530	1710	1767	1502
Flt Permitted	0.950			0.950			0.414			0.950		
Satd. Flow (perm)	1102	1846	986	1719	1601	0	767	1853	1530	1710	1767	1502
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		1044			1009			1081			315	
Travel Time (s)		20.3			27.5			16.4			4.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	67%	5%	67%	5%	5%	5%	2%	2%	5%	5%	7%	7%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	4	7	21	17	0	11	837	23	9	510	72
Turn Type	Prot	NA	pm+ov	Prot	NA		D.P+P	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2	3	1	6	7
Permitted Phases			4				6		2			6
Detector Phase	7	4	5	3	8		5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0	7.0	7.0	12.0	7.0
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0		14.0	19.0	14.0	14.0	19.0	14.0
Total Split (s)	22.0	22.0	15.0	22.0	22.0		15.0	61.0	22.0	15.0	61.0	22.0
Total Split (%)	18.3%	18.3%	12.5%	18.3%	18.3%		12.5%	50.8%	18.3%	12.5%	50.8%	18.3%
Yellow Time (s)	5.0	3.0	3.0	5.0	5.0		3.0	4.4	5.0	5.0	4.4	5.0
All-Red Time (s)	2.0	2.4	2.6	2.0	2.0		2.6	1.5	2.0	2.0	1.5	2.0
Lost Time Adjust (s)	-2.0	-0.4	-0.6	-2.0	-2.0		-0.6	-0.9	-2.0	-2.0	-0.9	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	None	None	C-Max	None
Act Effect Green (s)	11.9	9.1	11.8	13.7	9.5		92.8	92.9	110.8	9.1	90.8	106.9
Actuated g/C Ratio	0.10	0.08	0.10	0.11	0.08		0.77	0.77	0.92	0.08	0.76	0.89
v/c Ratio	0.35	0.03	0.07	0.11	0.13		0.02	0.58	0.02	0.07	0.38	0.05
Control Delay (s/veh)	58.3	49.3	45.3	47.5	53.7		6.2	13.0	3.2	52.8	10.5	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	58.3	49.3	45.3	47.5	53.7		6.2	13.0	3.2	52.8	10.5	3.2

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	E	D	D	D	D		A	B	A	D	B	A
Approach Delay (s/veh)		55.7			50.2			12.7			10.3	
Approach LOS		E			D			B			B	
Queue Length 50th (ft)	43	3	8	16	13		1	167	0	7	82	0
Queue Length 95th (ft)	96	14	26	43	38		10	#763	15	25	359	29
Internal Link Dist (ft)		964			929			1001			235	
Turn Bay Length (ft)	100		200	100			125		50	50		125
Base Capacity (vph)	156	261	116	275	226		682	1434	1442	142	1336	1349
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.02	0.06	0.08	0.08		0.02	0.58	0.02	0.06	0.38	0.05

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:NBSB, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay (s/veh): 14.0

Intersection LOS: B

Intersection Capacity Utilization 56.5%

ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Aviation Parkway & International Drive/WWSWF Site Drwy.

	Ø1		Ø2 (R)		Ø3		Ø4
15 s		61 s		22 s		22 s	
	Ø5		Ø6 (R)		Ø7		Ø8
15 s		61 s		22 s		22 s	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	4	14	32	4	15	6	505	35	15	719	58
Future Volume (vph)	77	4	14	32	4	15	6	505	35	15	719	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		-4%			0%			1%			1%	
Storage Length (ft)	100		200	100		0	125		50	50		125
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1674	1846	1498	1719	1591	0	1744	1835	1530	1710	1818	1545
Flt Permitted	0.950			0.950			0.221			0.950		
Satd. Flow (perm)	1674	1846	1498	1719	1591	0	406	1835	1530	1710	1818	1545
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		1044			1009			1081			315	
Travel Time (s)		20.3			27.5			16.4			4.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	5%	10%	5%	5%	5%	3%	3%	5%	5%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	4	16	36	21	0	7	561	39	17	799	64
Turn Type	Prot	NA	pm+ov	Prot	NA		D.P+P	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2	3	1	6	7
Permitted Phases			4				6		2			6
Detector Phase	7	4	5	3	8		5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0	7.0	7.0	12.0	7.0
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0		14.0	19.0	14.0	14.0	19.0	14.0
Total Split (s)	22.0	22.0	15.0	22.0	22.0		15.0	61.0	22.0	15.0	61.0	22.0
Total Split (%)	18.3%	18.3%	12.5%	18.3%	18.3%		12.5%	50.8%	18.3%	12.5%	50.8%	18.3%
Yellow Time (s)	5.0	3.0	3.0	5.0	5.0		3.0	4.4	5.0	5.0	4.4	5.0
All-Red Time (s)	2.0	2.4	2.6	2.0	2.0		2.6	1.5	2.0	2.0	1.5	2.0
Lost Time Adjust (s)	-2.0	-0.4	-0.6	-2.0	-2.0		-0.6	-0.9	-2.0	-2.0	-0.9	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	None	None	C-Max	None
Act Effct Green (s)	13.3	9.0	11.7	15.5	9.7		87.4	84.4	107.9	9.4	82.9	103.2
Actuated g/C Ratio	0.11	0.08	0.10	0.13	0.08		0.73	0.70	0.90	0.08	0.69	0.86
v/c Ratio	0.46	0.03	0.11	0.16	0.16		0.02	0.43	0.03	0.13	0.64	0.05
Control Delay (s/veh)	57.5	49.5	46.6	46.8	54.1		7.0	13.0	3.6	53.5	17.5	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	57.5	49.5	46.6	46.8	54.1		7.0	13.0	3.6	53.5	17.5	3.6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	E	D	D	D	D		A	B	A	D	B	A
Approach Delay (s/veh)		55.6			49.5			12.3			17.2	
Approach LOS		E			D			B			B	
Queue Length 50th (ft)	68	3	13	27	16		1	101	0	13	308	6
Queue Length 95th (ft)	123	14	31	62	43		8	424	23	38	712	27
Internal Link Dist (ft)		964			929			1001			235	
Turn Bay Length (ft)	100		200	100			125		50	50		125
Base Capacity (vph)	237	261	175	281	225		412	1290	1382	144	1255	1341
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.02	0.09	0.13	0.09		0.02	0.43	0.03	0.12	0.64	0.05

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 47 (39%), Referenced to phase 2:NBT and 6:NBSB, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay (s/veh): 19.0

Intersection LOS: B

Intersection Capacity Utilization 62.0%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Aviation Parkway & International Drive/WWSWF Site Drwy.

	Ø1		Ø2 (R)		Ø3		Ø4
15 s		61 s		22 s		22 s	
	Ø5		Ø6 (R)		Ø7		Ø8
15 s		61 s		22 s		22 s	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	4	4	78	4	34	4	548	76	32	506	11
Future Volume (vph)	8	4	4	78	4	34	4	548	76	32	506	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		-4%			0%			1%			1%	
Storage Length (ft)	100		200	100		0	125		50	50		125
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1705	1846	1525	1719	1563	0	1761	1853	1530	1710	1853	1575
Flt Permitted	0.950			0.950			0.381			0.950		
Satd. Flow (perm)	1705	1846	1525	1719	1563	0	706	1853	1530	1710	1853	1575
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			25			45			45	
Link Distance (ft)		1044			1009			1081			315	
Travel Time (s)		20.3			27.5			16.4			4.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	8%	5%	8%	5%	5%	5%	2%	2%	5%	5%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	4	4	87	42	0	4	609	84	36	562	12
Turn Type	Prot	NA	pm+ov	Prot	NA		D.P+P	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2	3	1	6	7
Permitted Phases			4				6		2			6
Detector Phase	7	4	5	3	8		5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0	7.0	7.0	12.0	7.0
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0		14.0	19.0	14.0	14.0	19.0	14.0
Total Split (s)	22.0	22.0	15.0	22.0	22.0		15.0	61.0	22.0	15.0	61.0	22.0
Total Split (%)	18.3%	18.3%	12.5%	18.3%	18.3%		12.5%	50.8%	18.3%	12.5%	50.8%	18.3%
Yellow Time (s)	5.0	3.0	3.0	5.0	5.0		3.0	4.4	5.0	5.0	4.4	5.0
All-Red Time (s)	2.0	2.4	2.6	2.0	2.0		2.6	1.5	2.0	2.0	1.5	2.0
Lost Time Adjust (s)	-2.0	-0.4	-0.6	-2.0	-2.0		-0.6	-0.9	-2.0	-2.0	-0.9	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	None	None	C-Max	None
Act Effect Green (s)	9.1	7.4	10.1	15.4	12.2		91.1	82.4	104.8	10.4	89.6	104.7
Actuated g/C Ratio	0.08	0.06	0.08	0.13	0.10		0.76	0.69	0.87	0.09	0.75	0.87
v/c Ratio	0.07	0.04	0.03	0.40	0.27		0.01	0.48	0.06	0.24	0.41	0.01
Control Delay (s/veh)	52.8	53.8	47.3	52.1	53.4		5.8	13.9	3.0	54.8	8.9	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	52.8	53.8	47.3	52.1	53.4		5.8	13.9	3.0	54.8	8.9	3.6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	D	D	D	D	D		A	B	A	D	A	A
Approach Delay (s/veh)		51.7			52.6			12.6			11.5	
Approach LOS		D			D			B			B	
Queue Length 50th (ft)	7	3	3	67	31		1	207	9	28	99	1
Queue Length 95th (ft)	25	16	14	119	68		5	454	35	62	364	9
Internal Link Dist (ft)		964			929			1001			235	
Turn Bay Length (ft)	100		200	100			125		50	50		125
Base Capacity (vph)	241	261	158	269	221		627	1272	1345	153	1384	1456
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.02	0.03	0.32	0.19		0.01	0.48	0.06	0.24	0.41	0.01

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 47 (39%), Referenced to phase 2:NBT and 6:NBSB, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.48

Intersection Signal Delay (s/veh): 16.1

Intersection LOS: B

Intersection Capacity Utilization 50.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Aviation Parkway & International Drive/WWSWF Site Drwy.

	Ø1		Ø2 (R)		Ø3		Ø4
15 s		61 s		22 s		22 s	
	Ø5		Ø6 (R)		Ø7		Ø8
15 s		61 s		22 s		22 s	

Applicant Wake County's Statement of Justification

Application for a Special Use Permit – Wake County West Wake Solid Waste Facility 414 Aviation Parkway (PIN 0755 46 2762) Wake County (Applicant) June 1, 2026

In support of its application for a Special Use Permit to construct and operate a Solid Waste Facility for Morrisville/Wake County residents to drop off their household trash and recyclable materials on an approximately 6.7-acre portion of a 13.7-acre parcel of land owned by the Town of Morrisville at 414 Aviation Parkway and zoned Industrial Management (IM), the Applicant, Wake County, provides the following information (all of which will be elicited through documentary evidence and testimony presented to the Morrisville Town Council at the quasi-judicial public hearing) in response to the Special Use Permit Review Standards set forth in Morrisville UDO Section 2.5.6.D.1-7:

1. UDO Section 2.5.6.D.1. The proposed development will not materially endanger the public health or safety.

RESPONSE: Competent, material, and substantial evidence will be presented at the quasi-judicial hearing that the proposed West Wake Solid Waste Facility (WWSWF) will not materially endanger the public health and safety. To the contrary, the WWSWF will enhance public health and safety. The WWSWF will offer expanded solid waste collection and management services and will replace the County's existing Convenience Center located 0.3 mile away, and which is over 30 years old. The WWSWF will include an internal site road running parallel to Aviation Parkway that will provide over 1,450 feet of space for residents' vehicles to line up without backing up onto Aviation Parkway (approximately 58 pickup trucks), which is a significant improvement over the limited space available at the existing Convenience Center (approximately 130 feet, which accommodates only 7 pickup trucks in line without backing up onto Aviation Parkway). The new WWSWF will lessen the traffic impacts on Aviation Parkway currently being caused by the existing Convenience Center and enhance public safety.

The WWSWF will be constructed with 6 drop-off bays, with separate areas for different types of solid waste to be dropped off, and with separate circulation paths for customer vehicles and service vehicles, such that even with the expanded services it will offer, the safety of residents using WWSWF will be enhanced and protected.

The WWSWF will offer a place for residents to safely dispose of common household items that should not be disposed of in household garbage or recycling due to their potentially hazardous properties ("Household Hazardous Waste", or "HHW"), such as batteries, fluorescent light bulbs, paint and paint thinner, herbicides, pesticides, insecticides, and swimming pool chemicals. Specially-trained staff will sort the HHW by material type and package it in appropriate containers to ensure safe transport from WWSWF by a qualified vendor to an offsite qualified private processing facility. During the limited time HHW remains at the WWSWF before it is transported offsite, all

flammable HHW will be stored in a specially constructed chemical storage unit equipped with a fire suppression system and secondary containment.

The WWSWF will promote public health and safety by providing a safe and secure outlet for the disposal of HHW, rather than putting HHW in the household garbage or illegally dumping it. The WWSWF will be fully staffed with trained attendants, including attendants who are specially trained in handling HHW. All these same measures to safely collect and manage HHW have been successfully implemented at the other 3 Wake County Solid Waste Facilities that accept HHW.

The HHW facility will include a concrete pad with an overhead canopy structure. All stored HHW will be under the canopy structure. Permanent HHW facilities are permitted through the North Carolina Department of Environmental Quality (NCDEQ), Division of Waste Management. The County will be submitting a permit application in accordance with the NC Administrative Code Title 15A Chapter 13 Solid Waste Management Rule .0300 – Treatment and Processing Facilities. Siting, operations, and closure site-specific information is required for NCDEQ review and approval.

The WWSWF will be enclosed with a security fence and lockable gate, and the portion of the WWSWF where HHW is dropped off and temporarily stored until it is picked up will be surrounded by a separate security fence and separate lockable gate. The WWSWF will be monitored by security cameras 24 hours a day, 7 days a week.

All these same measures to safely collect and manage solid waste, including HHW, have been successfully implemented at Wake County's 11 other Convenience Centers, including the County's 3 Solid Waste Facilities that accept HHW.

There are Morrisville Fire Department and Morrisville Police Department stations approximately one mile from the proposed WWSWF, as well as a Duke Health Urgent Care and medical facility approximately three miles from the site.

2. ***UDO Section 2.5.6.D.2. The proposed development will comply with all regulations and standards generally applicable within the zoning district and specifically applicable to the particular type of Special Use.***

RESPONSE: The Applicant will provide testimony from the proposed WWSWF's site civil engineer at the quasi-judicial hearing confirming the Convenience Center will be designed to comply with all Morrisville UDO regulations and standards applicable within the Industrial Management (IM) zoning district to the construction and operation of the facility. Town of Morrisville planning staff determined that "Major Utility Facility" is the appropriate Use Category for the WWSWF under the Morrisville UDO's Principal Use Table. Pursuant to UDO Section 4.2.4, "Major Utility Facility" uses such as the WWSWF are allowed in the IM zoning district with approval of a Special Use Permit.

The WWSWF will meet or exceed the requirements of Morrisville UDO Section 3.6.4, "Principal Intensity and Dimension Standards" (lot standards, setbacks, and building standards); UDO Section 5.4.4, "Tree Canopy Retention and Protection" (13% tree

canopy required, 30% tree canopy provided); UDO Section 5.5.1, “Required Open Space;” and UDO Section 5.7, “Perimeter and Streetyard Buffers” (Type D buffer required and provided, as a minimum, along the site’s perimeter, Type G buffer required and provided along the site’s Aviation Parkway frontage).

3. ***UDO Section 2.5.6.D.3. The proposed development will not substantially injure the value of adjoining property, or is a public necessity.***

RESPONSE: The WWSFW is a public necessity because it will provide a place for residents of Morrisville, which is one of the fastest growing towns in North Carolina, to environmentally-responsibly drop off a variety of recyclable materials rather than throwing them in the household garbage, thereby diverting a variety of recyclable materials from entering the County’s landfill, which has a finite amount of space and a limited lifespan remaining.

The WWSFW is a public necessity because it will offer a place for Morrisville residents to safely dispose of HHW (common household items that should not be disposed of in household garbage due to their potentially hazardous properties such as batteries, fluorescent light bulbs, paint and paint thinner, herbicides, pesticides, insecticides, and swimming pool chemicals), rather than throwing HHW in the household garbage or illegally dumping HHW, both of which would harm the environment.

In addition, the Applicant will provide expert testimony at the quasi-judicial hearing from a North Carolina-licensed real estate appraiser stating the WWSFW will not substantially injure the value of adjoining properties.

4. ***UDO Section 2.5.6.D.4. The proposed development will be in harmony with the intensity, scale, and character of development existing or planned in the surrounding area.***

RESPONSE: The proposed WWSFW is permitted as a special use in the Industrial Management (IM) zoning district. As a matter of law, this establishes a *prima facie* case that the use is in harmony with the surrounding area.

The WWSFW is in harmony with the surrounding area in which it would be located. For approximately 30 years, Wake County has operated an existing Convenience Center less than half a mile away on Aviation Parkway. The new WWSFW will be constructed on a 13.7-acre parcel owned by the Town of Morrisville, with the WWSFW located on 6.7 acres. Some Morrisville Public Works structures will remain on the same parcel and in use. The adjoining properties are a mix of industrial, office, and residential uses, as well as open space to the east.

The Applicant will provide expert testimony at the quasi-judicial hearing from a North Carolina-licensed real estate appraiser stating his opinion that the Convenience Center will be in harmony with the intensity, scale, and character of development existing or planned in the surrounding area.

5. ***UDO Section 2.5.6.D.5. The proposed development will not cause undue traffic congestion or create a traffic hazard.***

RESPONSE: Competent, material, and substantial evidence will be presented at the quasi-judicial hearing that the proposed WWSWF will not cause undue traffic congestion or create a traffic hazard. The WWSWF will include an internal site road over 1,450 feet long running parallel to Aviation Parkway that will provide over 1,450 feet of space for residents' vehicles to line up without backing up onto Aviation Parkway (approximately 58 pickup trucks), which is a significant improvement over the limited space for vehicle stacking available at the County's existing Convenience Center less than a half mile away on Aviation Parkway.

A Traffic Impact Analysis (TIA) has been prepared by a licensed North Carolina traffic engineer from Kimley-Horn and Associates, Inc. The TIA, which was performed in coordination with, and approved by, the Town of Morrisville and the North Carolina Department of Transportation, identified improvements required to address traffic impacts associated with this project. The traffic engineer who performed the TIA will provide expert testimony at the quasi-judicial hearing that the WWSWF will not cause undue traffic congestion or create a traffic hazard.

6. ***UDO Section 2.5.6.D.6. The proposed development will not generate needs for transportation, water supply, sewage disposal, fire and police protection, and similar public services that cannot be adequately handled by available infrastructure and facilities.***

RESPONSE: The WWSWF will be for residential use only (not commercial), and residents will use their personal vehicles to drop off their household garbage, recyclable materials, and HHW. The only water supply needs generated by the WWSWF will be a few hose bibs and yard hydrants, fire hydrants, an eyewash station, and one restroom in the proposed small office building. The only sewage disposal needs generated by the WWSWF will be the restroom in the small office building on site, which will typically be used by only 4 or 5 attendants daily and which will not be open to the public. Fire and police protection needs will be no greater than those generated by the County's existing Convenience Center on Aviation Parkway, which has been located less than half a mile away for approximately 30 years.

7. ***UDO Section 2.5.6.D.7. The proposed development will be consistent with the Comprehensive Plan.***

RESPONSE: The proposed WWSWF is consistent with the Morrisville Land Use Plan adopted in 2021, which identifies the parcel upon which it will be located with a future land use designation of "Institutional." One of the Key Considerations stated in the Land Use Plan for the "Institutional" land use designation is to "identify potential sites for

long-term expansion of community facilities and related infrastructure that will be necessary to maintain the quality of services and amenities in Morrisville.” The proposed WWSWF will replace, and will effectively serve as a long-term expansion of, the existing smaller Convenience Center which for approximately 30 years has been located approximately half a mile away on Aviation Parkway. The proposed WWSWF will offer expanded solid waste collection and management services necessary to maintain the quality of services and amenities available to the residents of fast-growing Morrisville by increasing the number of residents who can safely utilize the facility at the same time, as well as by providing a place for residents to safely dispose of HHW that should not be disposed of in household garbage such as batteries, fluorescent light bulbs, paint and paint thinner, herbicides, pesticides, insecticides, and swimming pool chemicals.



Kirkland Appraisals, LLC

Attachment 07

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March 6, 2026

Paulo Lopez
Wake County Facilities Design & Construction
336 Fayetteville Street
Raleigh, NC 27602

Mr. Lopez

I have considered the likely impact of the proposed convenience center on Aviation Parkway, Morrisville, Wake County, North Carolina.

The scope of this assignment is to address the likely impact this may have on adjoining properties. To this end I have reviewed the site plan and considered other convenience center sites in that county. I have not been asked to assign any value to any specific property.

This letter is a real property appraisal consulting assignment. My client is Wake County represented to me by Paulo Lopez. The intended use is to assist in the special use application approval. The effective date of this consultation is March 6, 2026.

Existing Use Description

The property at 414 Aviation Parkway is currently used for the Town of Morrisville Public Works Department with a 1,500 s.f. metal siding office building built in 1988, an 1,800 s.f. metal warehouse built in 1992, a 6,000 s.f. metal warehouse built in 1997, and a 930 s.f. brick office building built in 2001. The tract is 13.71 acres zoned IM – Industrial Manufacturing with significant vacant wooded area to the southwest and all of the buildings clustered at the northeast end of the property.

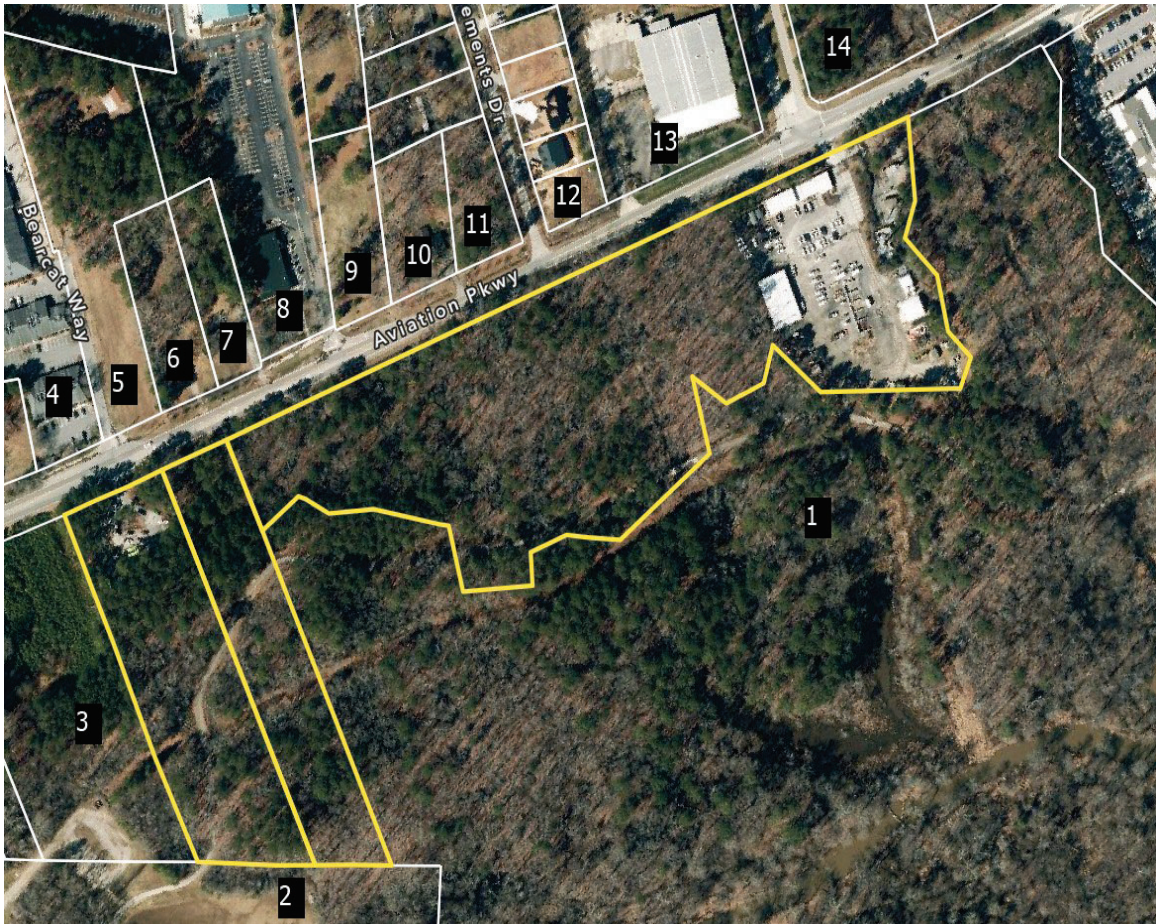
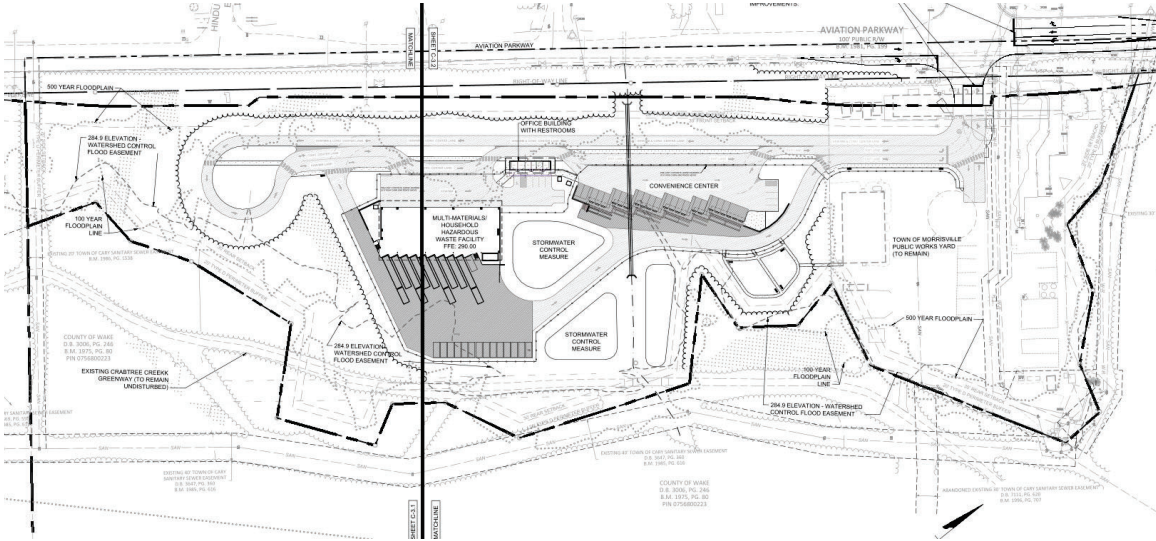
There is an existing convenience center located to the south at 266 Aviation Parkway.

Proposed Use Description

The existing structures at 414 Aviation Parkway are proposed to be partially removed and the existing convenience center at 266 is proposed to be relocated to a portion at 414 Aviation Parkway. The convenience center will be located in the middle of the redeveloped site with a portion of the existing public works facilities to the southeast. The new layout includes a substantially longer queue for incoming cars accessing the convenience center, which will provide enhancement on traffic issues related to the site as compared to the existing facility.

Like the existing facility, this convenience center is only available to residents and not businesses.

Paulo Lopez
March 6, 2026



Adjoining Use Breakdown

	Acreage	Parcels
Religious	0.62%	7.14%
Commercial	3.17%	28.57%
Park	95.30%	14.29%
Residential	0.92%	50.00%
Total	100.00%	100.00%

Adjoining Uses

#	MAP ID	Owner	GIS Data		Adjoin	Adjoin	Distance (ft)
			Acres	Present Use	Acres	Parcels	
1	756800223	Wake	868.49	Park	92.25%	7.14%	N/A
2	755340782	Wake	28.67	Park	3.05%	7.14%	N/A
3	755355614	7408 Ridgefield	4.80	Commercial	0.51%	7.14%	N/A
4	755269297	Parkway	4.34	Commercial	0.46%	7.14%	N/A
5	755361610	Sauls	3.39	Residential	0.36%	7.14%	1,200
6	755364400	Hindu	1.26	Residential	0.13%	7.14%	N/A
7	755364489	Hindu	0.86	Residential	0.09%	7.14%	N/A
8	755363809	Hindu	5.81	Religious	0.62%	7.14%	950
9	755366774	Hindu	1.00	Residential	0.11%	7.14%	N/A
10	755367882	Agarwal	1.00	Residential	0.11%	7.14%	N/A
11	755368982	Agarwal	0.74	Residential	0.08%	7.14%	N/A
12	755470051	Lahm	0.37	Residential	0.04%	7.14%	N/A
13	755470393	Rose	4.02	Commercial	0.43%	7.14%	N/A
14	755388866	Cedar Fork	16.70	Commercial	1.77%	7.14%	N/A
Total			941.450		100.00%	100.00%	1,075

The adjoining properties are a mix of residential, industrial and office uses and part of the area includes the existing convenience center that is being relocated. The closest home that I identified is not adjoining but located at 104 Clements Drive. That home is currently closer to an existing industrial use to the north at 411 Aviation Parkway.

Specific Factors on Harmony of Use

I have completed a number of Impact Studies and I have found that the most common areas for impact on adjoining values typically follow the following hierarchy with descending levels of potential impact. I will discuss each of these categories and how they relate to the subject property.

1. Hazardous material
2. Odor
3. Noise
4. Traffic
5. Stigma
6. Appearance

1. Hazardous material

The proposed convenience center presents no potential hazardous waste byproduct as part of normal operation. The convenience center will only accept House Hold Waste and no commercial waste will be accepted. The waste types that will be typically accepted are recycling, yard waste, occ (old corrugated cardboard), white goods (old appliances), metal, glass, electronics, textiles, oil, batteries, garage items, household items, pool items, and tires. While some of these could potentially have harmful components over a long period of time, the convenience center is only a short-term holding area for the items listed above until they are taken to their respective landfill or processing facilities. During the holding period on the site, household hazardous materials will be stored in an chemical storage container. Assuming best practices for handling material and based on the short-term nature of the goods on the site, I consider this to be a non-factor for the impact analysis.

2. Odor

Although there could be potential for odor from the facility, given the setback off of Aviation Parkway as well as the distance from the facility to the nearby dwellings, this is not a significant factor. As listed above in the hazardous materials section, this is a short-term holding area for the items it accepts until such a time that they are removed and taken to their respective facilities. The property is not a landfill and has adequate setbacks from adjoining properties and homes. The project as presented has no specific concerns related to odor and is therefore a non-factor in this impact analysis. I note again there is an existing convenience center being relocated on this site and is already in the area.

3. Noise

The subject property is located in an industrial area where trucks are common and the convenience center is actually moving further away from most nearby residential uses to the south. While there will be noise during operational hours, there will not be anything significant outside of those times. The operating hours are noted below and information was provided to me that the convenience center is serviced and containers emptied typically during normal business hours of operation. The noise associated with this project is expected to be consistent with this area and present no additional impact on adjoining properties, especially given the existing convenience center this will replace as well as the Town of Morrisville Public Works buildings that will also be located on this site and were previously located on this site.

4. Traffic

Paulo Lopez
March 6, 2026

This report assumes any traffic issues will be addressed through a traffic study and no specific concerns related to traffic are raised by this use, especially given the improved queuing allowed for on this site plan versus the existing facility that is being replaced. Therefore, I conclude that traffic generated by this site will have no negative impact on adjoining property values.

5. Stigma

There is no stigma associated with the proposed use. The convenience centers identified in this report show residential adjoining uses with no impacts on values.

6. Appearance

The project will be in harmony with the surrounding area in terms of appearance and is consistent with the adjoining uses and should provide for improvement over the current appearance of both the public works buildings and the convenience center. This is further supported by the similar use breakdown of other convenience center.

7. Conclusion

On the basis of the factors described above, it is my professional opinion that the proposed project will be in harmony with the area in which it is to be developed and have no negative impact on adjoining property values is anticipated.

Paulo Lopez
March 6, 2026

Discussion

The primary method for determining the impact of one use on an adjoining use that appraiser's use is paired sales analysis. This type of analysis would be applied in this case through a comparison of residential property sales adjoining a similar convenience center and comparing those to similar property sales not next to such a use. I have analyzed the following convenience centers within Wake County and noted the adjoining sales for analysis where they exist.

1 – 10505 Old Stage Road, Raleigh, Wake County, NC



This convenience center is located on 2.28 acres. The closest adjoining home is 90 feet with the average distance being 182 feet. I identified no adjoining sales for a matched pair analysis.

Adjoining Uses

#	MAP ID	Owner	GIS Data		Adjoin	Adjoin	Distance (ft)
			Acres	Present Use	Acres	Parcels	
1	698632445	Phillips	3.24	Residential	44.20%	9.09%	270
2	698632013	Evans	0.24	Residential	3.27%	9.09%	120
3	698621958	Wake	0.12	Residential	1.64%	9.09%	N/A
4	698621913	Jackson	0.24	Residential	3.27%	9.09%	90
5	698620857	Perez	0.12	Residential	1.64%	9.09%	N/A
6	698620823	Perez	0.12	Residential	1.64%	9.09%	N/A
7	698529799	Wilson	0.12	Residential	1.64%	9.09%	N/A
8	698528855	Smith	0.44	Residential	6.00%	9.09%	95
9	698526927	Zinn	1.18	Residential	16.10%	9.09%	310
10	698537297	Larrieta	0.69	Residential	9.41%	9.09%	145
11	698539436	Nolan	0.82	Residential	11.19%	9.09%	245
Total			7.330		100.00%	100.00%	182

2 – 6120 Old Smithfield Rd, Apex, Wake County, NC



This convenience center is located on 145.31 acres. I identified no adjoining homes and no adjoining home sales.

3 – 3600 Yates Mill Pond Road, Raleigh, Wake County, NC



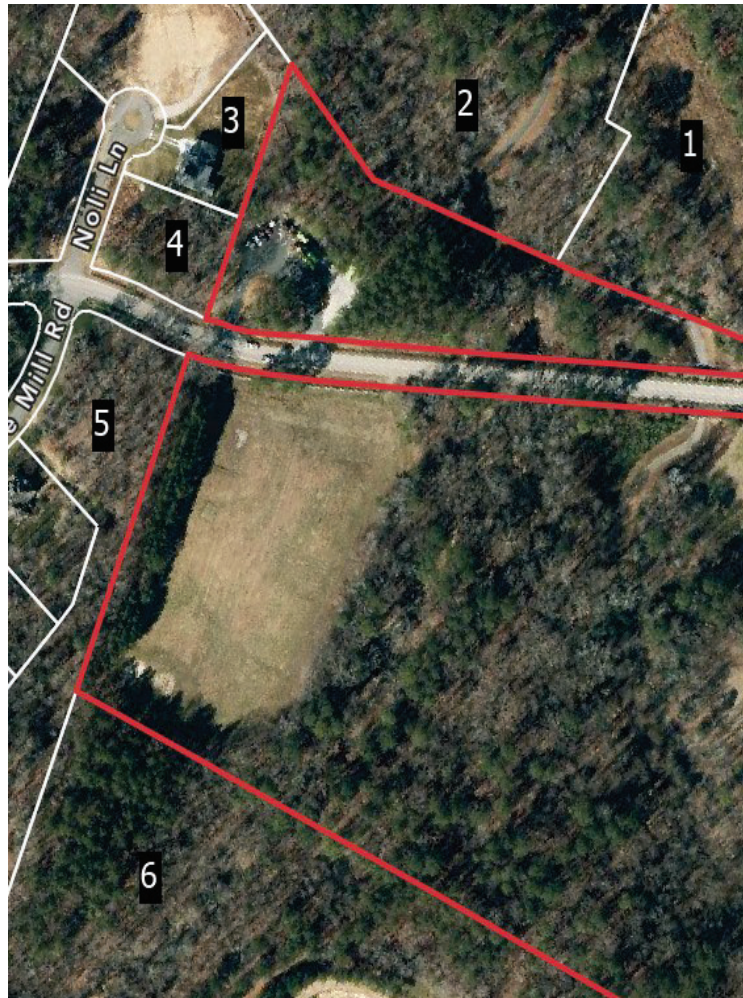
This convenience center is located on a small portion of 734.31 acres associated with Yates Mill Park. The closest adjoining home is 235 feet with an average distance of 437 feet for the area right around the convenience center.

I identified no adjoining sales for a matched pair analysis. The most recent adjoining sale was from 2015. That home sold for \$384,000 in 2015 and has a current 2024 tax assessed value of \$712,901.

Adjoining Uses

#	MAP ID	Owner	GIS Data		Adjoin	Adjoin	Distance (ft)
			Acres	Present Use	Acres	Parcels	
1	791170164	Taylor	6.08	Residential	29.95%	11.11%	725
2	791160596	Boshoff	2.00	Residential	9.85%	11.11%	490
3	791161118	Spalding	2.71	Residential	13.35%	11.11%	280
4	791151728	Jones	1.70	Residential	8.37%	11.11%	315
5	791155752	Carter	1.49	Residential	7.34%	11.11%	235
6	791157653	Hanford	0.94	Residential	4.63%	11.11%	350
7	791159508	Koon	0.93	Residential	4.58%	11.11%	495
8	791250557	Smith	0.93	Residential	4.58%	11.11%	605
9	791262053	NC	3.52	Residential	17.34%	11.11%	N/A
Total			20.300		100.00%	100.00%	437

4 – 8401 Battle Bridge Road, Raleigh, Wake County, NC



This convenience center is located on a small section of a 1,462.55 acre tract. Noli Lane to the west of this center was recently developed with four lots. Two of these lots adjoin the convenience center and are identified as Parcels 3 and 4 above.

Adjoining Uses

#	MAP ID	Owner	GIS Data		Adjoin	Adjoin	Distance (ft)
			Acres	Present Use	Acres	Parcels	
1	1741657986	Duke Energy	15.65	Commercial	2.87%	16.67%	N/A
2	1741572831	Wake	304.87	Agricultural	55.88%	16.67%	N/A
3	1741556666	McLean	0.73	Residential	0.13%	16.67%	110
4	1741556438	Raszinski	0.69	Residential	0.13%	16.67%	145
5	1741533931	Long Branch	13.48	Residential	2.47%	16.67%	N/A
6	1741639103	Lake Reclamation	210.19	Agricultural	38.52%	16.67%	N/A
Total			545.610		100.00%	100.00%	128

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Adjoining Parcel 4 is 2409 Noli Lane that sold on April 6, 2022 for \$100,000 as a vacant residential 0.69-acre lot. The property was then improved with a 2,612 s.f. home with an assessed value of \$589,137, or \$225.55 per s.f.

The parcel across the street from it at 2408 Noli Lane is a similarly located lot but further from the convenience center and does not adjoin it. That 0.75-acre lot sold on June 15, 2023 for \$107,000. Assuming that the slightly larger size did not impact value, I have considered the FHFA HPI for appreciation in value in this market between 2nd Quarter of 2022 to 2nd Quarter of 2023, which indicates an increase over that time period of 2%. To decrease a 2% increase in value requires dividing \$107,000 by 1.02 for an adjusted indication of lot value of \$104,902. This suggests a 4.9% impact on the lot value for the lot price where the home site is less than 150 feet from the active part of the convenience center.

However, 2408 Noli Lane was also the very last lot available and likely received an additional premium for that. Given that the impact measured is below 5% and that issue strongly suggests no impact based on that paired sale. Real estate is an imperfect market and variations in value of +/-5% are very common even among very similar properties in similar locations. For that reason, paired sales analysis showing impacts in that range are typically more indicative of market imperfection than any specific factor of the properties themselves.

For further illustration, consider Adjoining Parcel 3, 2405 Noli Lane. That property sold as a vacant lot on April 3, 2020 for \$62,000 for a 0.73-acre lot. Adjusting that upward by the FHFA HPI to compare that to the Parcel 4 lot sale requires a 55% increase in value as there was a substantial run up in the market in 2021 and 2022. The indicated adjusted lot value is \$96,100, which is similar to the \$100,000 paid for Adjoining Parcel 4. This is not a paired sale for determining impact on property value as both of these parcels adjoin the convenience center. But after adjusting for time, this sale is still 3.9% less than the similar lot to the south. In fact it would be more appropriate to say it is even more off as the property to the south has inferior frontage on Battle Bridge Road, which is to say that to account for the frontage impact on this lot, I would have to adjust this sale down even further. This is just an illustration of market imperfection and the variability in the market.

But the lot at 2405 Noli Lane was then improved with a home in 2020 with 2,979 s.f. with 3 BR, 2.5 BA, 2-car garage and sold on September 7, 2023 for \$563,000, or \$188.99 per s.f.

I have compared this to 1013 Stone Eagle Lane that sold on December 5, 2022 for \$506,000 with \$3,500 in financing concessions for an effective purchase price of \$502,500. This is a home built in 2013 with 2,906 s.f. for 4 BR, 4BA, 2 car garage on 0.69 acres. The purchase price works out to \$174.12 per s.f. I adjusted this sale upward for appreciation in the market based on the FHFA HPI which supports a 6% increase, as well as 3.5% for the difference in building age, I derive an adjusted indication of value for this home at \$550,238, or \$189.35 per square foot. This is within 1% of the 2405 Noli Lane home sale which supports a finding of no impact on property value. While 2405 Noli Lane is close to the convenience center it is also necessarily adjoining the preserved land to the north owned by Wake County that includes 304.87 acres, which may be a mitigating factor despite the close proximity to the convenience center.

5 – 3913 Lillie Liles Rd, Wake Forest, Wake County, NC

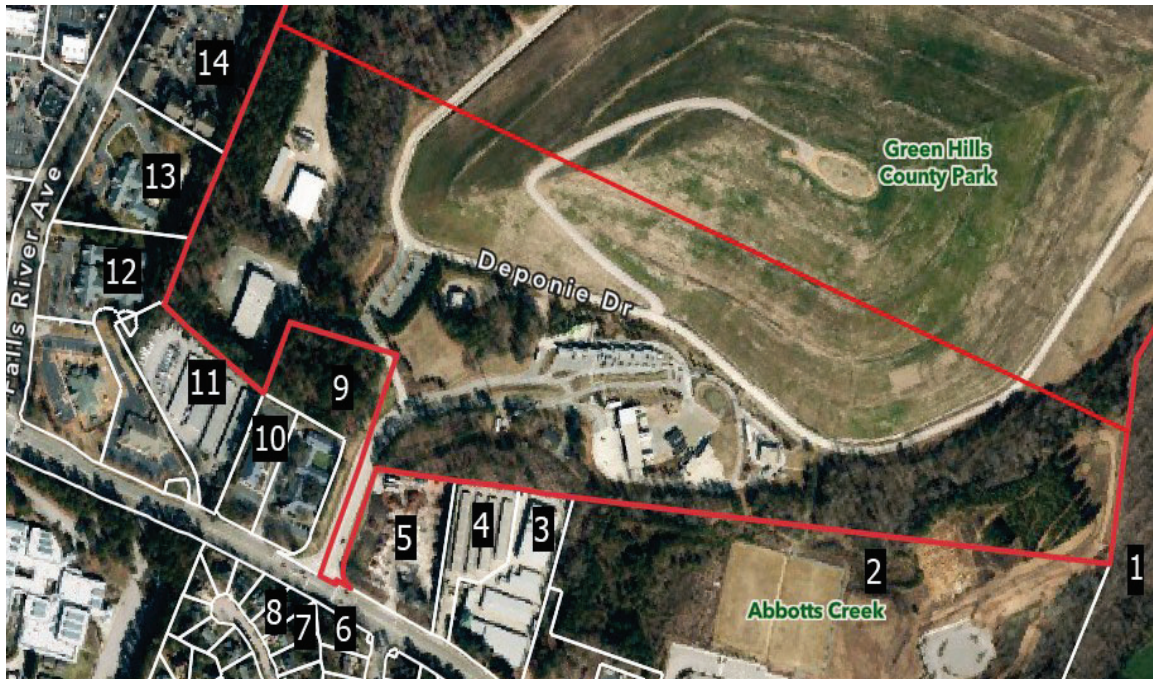


This convenience center is located on 2.39 acres. The closest adjoining home is 150 feet, with an average distance of 280 feet. I did not identify any recent home sales. I note that the home on Parcel 10 is the most recently built adjoining home (2016) and has a current assessed value of \$622,355.

Adjoining Uses

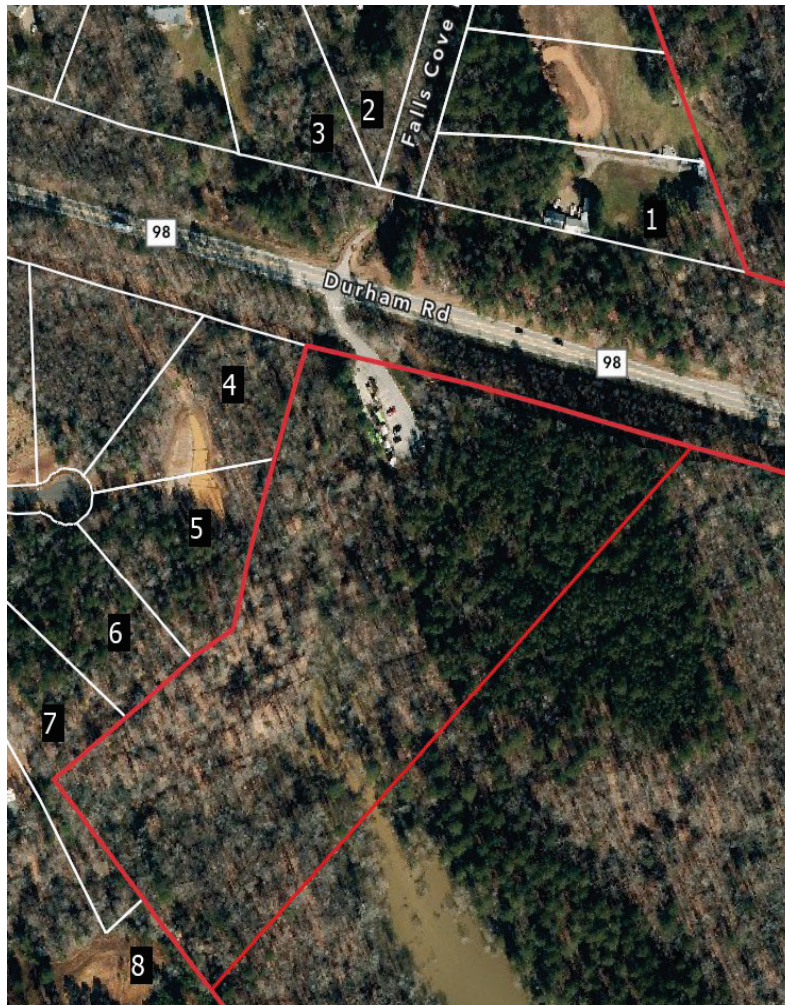
#	MAP ID	Owner	GIS Data		Adjoin	Adjoin	Distance (ft)
			Acres	Present Use	Acres	Parcels	
1	1748851786	Sanders	1.32	Residential	11.89%	10.00%	N/A
2	1748852401	Sanders	1.18	Residential	10.63%	10.00%	N/A
3	1748841923	Waddell	1.23	Residential	11.08%	10.00%	220
4	1748747864	Williams	1.94	Residential	17.48%	10.00%	365
5	1748758161	Watson	0.05	Residential	0.45%	10.00%	N/A
6	1748758129	Colvin	0.92	Residential	8.29%	10.00%	150
7	1748757324	Gargis	2.39	Residential	21.53%	10.00%	305
8	1748757548	Gargis	1.20	Residential	10.81%	10.00%	245
9	1748759713	Diakhate	0.40	Residential	3.60%	10.00%	350
10	1748850733	Wright	0.47	Residential	4.23%	10.00%	325
Total			11.100		100.00%	100.00%	280

6 – 9024 Deponie Drive, Raleigh, Wake County, NC



This convenience center is located on a small portion of 74.23 acres at Green Hills County Park at Falls River. The closest adjoining home is 1,070 feet and across the road. I have not attempted any paired sales analysis.

7 – 2001 Durham Road, Wake Forest, Wake County, NC



This convenience center is located on a portion of a much larger tract for Falls Lake. The closest adjoining home is 390 feet with an average distance of 606 feet.

Adjoining Uses

#	MAP ID	Owner	GIS Data		Adjoin	Adjoin	Distance (ft)
			Acres	Present Use	Acres	Parcels	
1	1821016902	Kelley	2.15	Residential	12.26%	12.50%	435
2	1821021218	Wilford	1.84	Residential	10.49%	12.50%	685
3	1811929179	Benjamin	2.05	Residential	11.69%	12.50%	690
4	1811919475	Gadireddy	1.85	Residential	10.55%	12.50%	390
5	1811919260	Dickerson	1.86	Residential	10.60%	12.50%	N/A
6	1811917067	Kridel	1.84	Residential	10.49%	12.50%	645
7	1811907824	Mitchell	1.85	Residential	10.55%	12.50%	790
8	1811908439	Kuebler	4.10	Residential	23.38%	12.50%	N/A
Total			17.540		100.00%	100.00%	606

Adjoining Parcel 4 shown above sold with a newly built home on it on March 12, 2024 with a street address of 1445 Blantons Creek Drive with 1.85 acres. The home included 3,820 s.f. was built in 2022 with a 2-car garage and sold for \$1,067,500, or \$279.45 per s.f. It is

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difficult to compare this and the other homes adjoining this area as they are also necessarily adjoining Falls of Lake preserved land and it would be difficult to extract that impact. But I do note specifically that the location of the convenience center within 390 feet did not appear to impact the development of a home priced at over one million dollars.

Just one lot west of this at 1441 Blantons Creek Drive a similar home was built in 2022 with 3,998 s.f. and a 3-car garage that sold on April 26, 2023 on 1.85 acres for \$1,185,000, or \$296.40 per s.f. Adjusting this sale downward by \$20,000 for the difference in garage, the adjusted indication of value is \$1,165,000, or \$291.40 per s.f. According to the FHFA HPI the difference in home values in this area over that spread is actually down by 0.29% for an additional adjustment down to \$1,161,622, or \$290.55 per s.f. This is 3.8% more than the property at 1445 Blantons Creek Drive and within typical market deviation/imperfection. I consider this to be an indication of no impact on property value, but this is confused by the adjoining Falls Lake land.

8 – 3337 New Hill-Holleman Road, New Hill, Wake County, NC

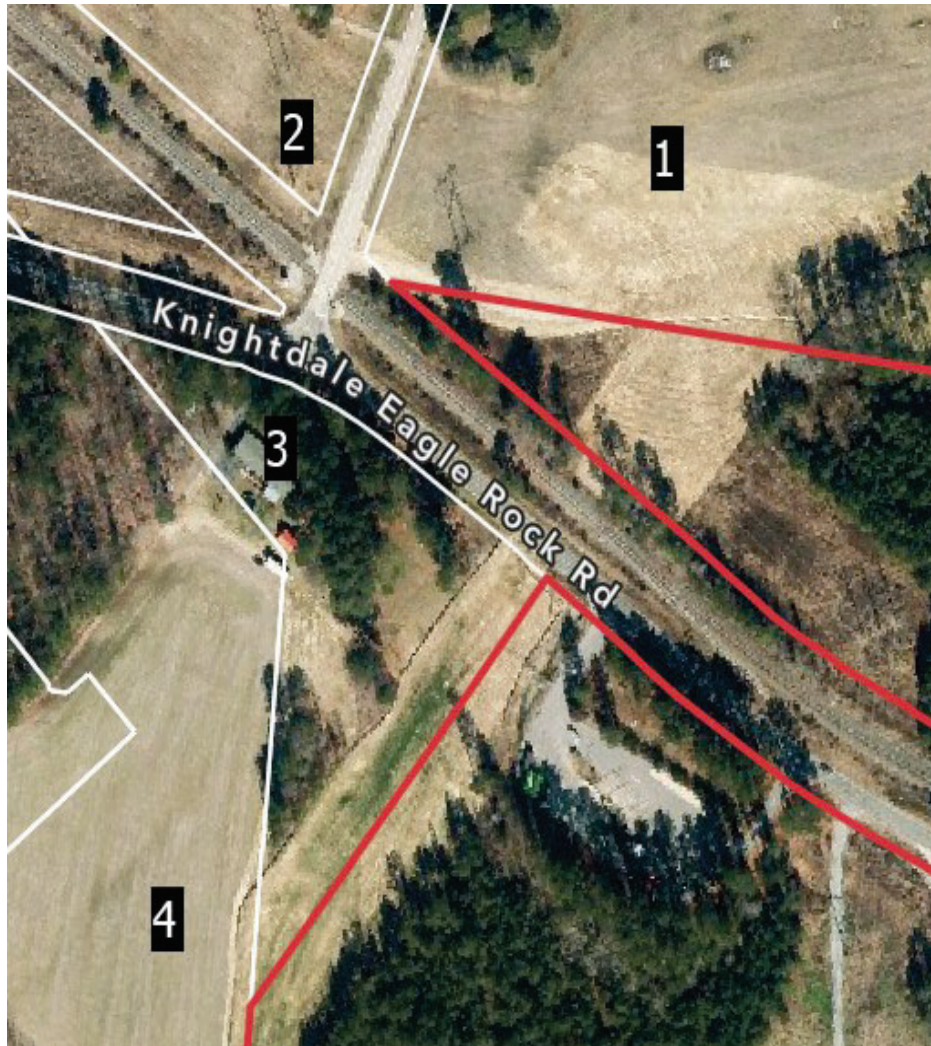


This convenience center is located on a small portion of a much larger 2,141.44-acre tract owned by Duke Progress Energy for Shearon Harris Nuclear Plant. The closest adjoining home is 270 feet away and the average distance is 519. I did not attempt a paired sales analysis due to the proximity to Shearon Harris.

Adjoining Uses

#	MAP ID	Owner	GIS Data		Adjoin	Adjoin	Distance (ft)
			Acres	Present Use	Acres	Parcels	
1	629276227	Raymer	0.20	Residential	0.44%	11.11%	N/A
2	629272415	Double J	8.30	Residential	18.08%	11.11%	N/A
3	629176643	Friendship	15.90	Residential	34.64%	11.11%	790
4	629068699	Vega	0.74	Residential	1.61%	11.11%	N/A
5	629067501	Castillo	1.21	Commercial	2.64%	11.11%	N/A
6	629160584	Trump	0.47	Residential	1.02%	11.11%	270
7	629160484	Khaja	0.50	Residential	1.09%	11.11%	375
8	629150829	Holly Springs	8.46	Commercial	18.43%	11.11%	N/A
9	629169093	Fisher	10.12	Residential	22.05%	11.11%	640
Total			45.900		100.00%	100.00%	519

9 – 5216 Knightdale-Eagle Rock Road, Knightdale, Wake County, NC



This convenience center is located on a small portion of 201.3 acres. The closest adjoining home is 785 feet away. I did not identify any adjoining home sales for analysis.

Adjoining Uses

#	MAP ID	Owner	GIS Data		Adjoin	Adjoin	Distance (ft)
			Acres	Present Use	Acres	Parcels	
1	1764221728	Croom	32.67	Agri/Res	46.28%	25.00%	785
2	1764038040	Croom	21.61	Agri/Res	30.61%	25.00%	1,205
3	1764112945	Ellis	3.17	Commercial	4.49%	25.00%	N/A
4	1764019484	Raleigh Rescue	13.14	Residential	18.61%	25.00%	N/A
Total			70.590		100.00%	100.00%	995

10 – 5051 Wendell Boulevard, Wendell, Wake County, NC



This convenience center is located on 4.27 acres. The closest adjoining home is 80 feet with an average distance of 188 feet.

New homes are being built across the street off Avonmore Drive with prices ranging from \$388,000 to \$455,000. The homes that are most similar to these that are further from the convenience center are to the northeast along Wendell Boulevard and Avonmore. Considering homes with similar rear exposure to Wendell Boulevard is important and shows similar homes selling for similar prices in the same time frame.

For example, 829 Avonmore Drive is shown on the map above as the third lot from the western end of Avonmore Drive. That home sold on September 7, 2023 for \$400,000 with a \$5,000 financing concession for an effective purchase price of \$395,000 for this two-story, 5 BR, 3 BA, 2,674 s.f.

A similar home at 913 Avonmore Drive sold on April 11, 2024 for \$438,500 with a \$27,216 financing concession for an effective purchase price of \$411,284 for a 5 BR, 3 BA, 2,674 s.f. home. Adjusting this downward by 2% for appreciation over that period of time, the

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adjusted indication of value is \$403,058. This indicates a difference between this home sale and 829 Avonmore Drive is 2%, which supports a finding of no impact on property value due to market imperfection.

Adjoining Uses

#	MAP ID	Owner	GIS Data		Adjoin	Adjoin	Distance (ft)
			Acres	Present Use	Acres	Parcels	
1	1794464535	Williams	4.40	Residential	8.05%	9.09%	N/A
2	1794546809	Meritage Homes	27.38	Agricultural	50.08%	9.09%	N/A
3	1794451783	Ollison	2.19	Residential	4.01%	9.09%	N/A
4	1794450663	Cutchins	1.98	Commercial	3.62%	9.09%	N/A
5	1794358357	TJM Invetments	7.11	Commercial	13.01%	9.09%	N/A
6	1794356852	Sartain	1.06	Commercial	1.94%	9.09%	N/A
7	1794352900	Mizell	6.53	Residential	11.94%	9.09%	460
8	1794365179	Rennard	2.00	Residential	3.66%	9.09%	80
9	1794367355	Johns	0.69	Residential	1.26%	9.09%	95
10	1794369410	Doyla	0.83	Residential	1.52%	9.09%	115
11	1794460445	BrownLee	0.50	Residential	0.91%	9.09%	190
Total			54.670		100.00%	100.00%	188

Summary of Convenience Centers in Wake County

Summary of Convenience Centers North Carolina

#	Name	City	County	Acres	Adjoin		% Adjoin Parcels Residential	Closest Home	Avg. Dist Home
					Parcels	Parcels			
1	Old Stage	Raleigh	Wake	7	11	11	100%	90	182
2	Old Smithfield	Apex	Wake	697	13	7	54%	N/A	N/A
3	Yates Mill	Raleigh	Wake	20	9	9	100%	235	427
4	Battle Bridge	Raleigh	Wake	546	6	3	50%	110	110
5	Lilli Liles	Wake Forest	Wake	11	10	10	100%	150	280
6	Deponie	Raleigh	Wake	324	14	5	36%	1,070	1,186
7	Durham	Wake Forest	Wake	18	8	8	100%	390	606
8	New Hill-Hellemar	New Hill	Wake	46	9	7	77.78%	270	519
9	Knightdale-Eagle	Knightdale	Wake	71	4	1	25%	785	995
10	Wendell	Wendell	Wake	55	11	7	64%	80	188
				179		Average	71%	353	499
				50		Median	71%	235	427
				697		High	100%	1,070	1,186
				7		Low	25%	80	110

The data above shows that the convenience centers in Wake County are primarily located in residential areas with all but two of them having more than 50% of the adjoining parcels as residential. Furthermore, the data shows that the closest distance for a home is 80 feet, though the average is 353 feet and the median is 235 feet. Homes at these distances are common in Wake County.

The distances to homes proposed at the subject property are substantially further than those distances which strongly supports a finding of no impact on property value.

**Summary of Convenience Centers
North Carolina**

#	Name	City	2022 1 - Mile Demographics			2022 3-Mile Demographics		
			Popl.	Med Inc.	Avg. House	Popl.	Med Inc.	Avg. House
1	Old Stage	Raleigh	1,624	\$122,409	\$413,776	22,786	\$101,292	\$408,881
2	Old Smithfield	Apex	5,213	\$96,512	\$409,118	42,470	\$115,497	\$476,181
3	Yates Mill	Raleigh	1,613	\$61,423	\$495,692	30,941	\$73,069	\$405,329
4	Battle Bridge	Raleigh	21	\$91,685	\$375,000	17,741	\$89,483	\$311,895
5	Lilli Liles	Wake Forest	5,784	\$116,630	\$431,994	48,405	\$107,505	\$408,565
6	Deponie	Raleigh	9,793	\$118,787	\$434,603	57,057	\$94,506	\$441,079
7	Durham	Wake Forest	1,092	\$182,209	\$836,577	20,357	\$151,715	\$629,218
8	New Hill-Helleman	New Hill	166	\$134,336	\$620,089	9,548	\$148,236	\$651,161
9	Knightdale-Eagle	Knightdale	733	\$63,264	\$347,189	27,186	\$76,565	\$351,729
10	Wendell	Wendell	1,764	\$58,584	\$453,125	16,977	\$61,477	\$348,121
		Average	2,780	\$104,584	\$481,716	29,347	\$101,935	\$443,216
		Median	1,619	\$106,571	\$433,299	24,986	\$97,899	\$408,723
		High	9,793	\$182,209	\$836,577	57,057	\$151,715	\$651,161
		Low	21	\$58,584	\$347,189	9,548	\$61,477	\$311,895

The paired sales data considered earlier in this analysis support a finding of no impact on property value. The demographic data above shows no pattern of these centers being clustered near low end housing. The median income for the county is \$96,010 and the average home price for the county is \$454,777, both of which are well bracketed by the demographic data above. This also supports a finding of no impact on property value as the average and median home price around these convenience centers are at the county median levels.

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Additional Data from Other Counties

I have shown below additional comparable convenience center sites from other counties that have matched pair data as additional support.

I researched convenience center sites looking for convenience centers with adjoining sales data within Harnett County and Moore County. These are simply showing additional paired sales data and trends of similar uses around North Carolina.

11-Buies Creek "Campbell" Site, Lillington, Harnett County, NC

This convenience center is located on Kivett Road in Lillington is 4.35 acres. The closest adjoining home is 245 feet.



Adjoining Uses

#	MAP ID	Owner	GIS Data		Adjoin Acres	Adjoin Parcels	Distance (ft)
			Acres	Present Use			
1	110670 0351	Brickyard LLC	0.58	Residential	0.63%	11.11%	275
2	110670 0075	Jaks LLC	22.56	Agricultural	24.60%	11.11%	N/A
3	110670 0010	Gregory	0.51	Residential	0.56%	11.11%	275
4	110670 0005	Rand	0.33	Residential	0.36%	11.11%	260
5	110670 0009	Gilder	0.18	Residential	0.20%	11.11%	315
6	110670 0008	Ferrell	4.30	Residential	4.69%	11.11%	430
7	110660 0191 02	Campbell	60.86	University	66.35%	11.11%	245
8	110680 0111	Mitry	1.49	Residential	1.62%	11.11%	N/A
9	110670 0324	Brickyard LLC	0.91	Residential	0.99%	11.11%	N/A

Total **91.720** **100.00%** **100.00%** 300

Adjoining Use Breakdown

	Acreage	Parcels
Residential	9.05%	77.78%
Agricultural	24.60%	11.11%
University	66.35%	11.11%
Total	100.00%	100.00%

Parcel 1 sold for \$360,000 on June 23, 2022 for the two dwellings on the parcel. I have not attempted to do analysis on this transfer as it has 2 units on one parcel which makes it difficult to find similar 2 unit sales that are similar enough to compare. Therefore I have not done a matched pair analysis on this transfer.

Parcel 2 sold for \$600,000 on May 28, 2021 for the 22.54 acres and an additional parcel that adjoins Parcel 2, but not the convenience center that was 0.41 acres for a total indicated acreage of 22.95 acres. This indicates a price per acre of \$26,144 per acre. I have done analysis on this below. This analysis indicates that adjoining the convenience center does not have an impact on adjoining property values for developable land and potentially presents an enhancement to adjoining property values as the property adjacent to the convenience center sold for 16% more than other comparable properties. I was unable to find a listing of this on the local MLS or elsewhere online and was unable to confirm this transfer.

Adjoining Developable Land Sales After Convenience Center Built						
Parcel	Con. Cen.	Address	Acres	Date Sold	Sales Price	\$/Ac
	Adjoins	Main St	22.95	5/28/2021	\$600,000	\$26,144
	Not	Gregory Cir	12.72	8/4/2021	\$195,000	\$15,330
	Not	Neills Creek Rd	10.10	8/25/2021	\$210,000	\$20,792
	Not	1500 Old Coats Rd	19.20	8/24/2021	\$482,500	\$25,130

Adjoining Sales Adjusted				Price Per		Avg
Address	Time	Size	Location	Acre	% Diff	% Diff
Main St				\$26,144		
Gregory Cir	-\$88		\$767	\$16,009	39%	
Neills Creek Rd	-\$156		\$2,079	\$22,715	13%	
1500 Old Coats Rd	-\$186		\$2,513	\$27,457	-5%	
						16%

Parcel 5 sold for \$150,000 on December 20, 2021 for a 1,311 s.f. dwelling. I have done a matched paired analysis as shown below. This provides a good indication that the convenience center does not have a significant impact to adjoining property values. The parcel is 315 feet away from the active convenience center site. This indicates that adjoining the convenience center reduced the value by 2 percent. I left a message with the broker, Christie Yarbrough but did not get a response.

Adjoining Residential Sales After Convenience Center Built												
Parcel	Con. Cen.	Address	Acres	Date Sold	Sales Price	Built	GBA	\$/GLA	BR/BA	Park	Style	Other
	Adjoins	194 Kivett Rd	0.18	12/20/2021	\$150,000	1950	1,311	\$114.42	3/2	Drive	Ranch	N/A
	Not	75 Hartwell Cir	0.43	10/26/2022	\$155,000	1952	1,366	\$113.47	3/1.5	Drive	Ranch	N/A
	Not	221 Mae Byrd Rd	0.19	4/13/2022	\$140,000	1949	986	\$141.99	2/1	Drive	Ranch	N/A
	Not	200 Parkwood Cir	0.42	8/8/2022	\$200,000	1963	1,802	\$110.99	3/1.5	Drive	Ranch	Brick

Adjoining Sales Adjusted										Avg		
Address	Time	Site	YB	GLA	Bedroom	Bathroom	Park	Other	Total	% Diff	% Diff	Distance
194 Kivett Rd									\$150,000			315
75 Hartwell Cir	-\$12,147		-\$1,550	-\$1,872		\$8,000			\$147,430	2%		
221 Mae Byrd Rd	-\$4,035		\$700	\$13,844		\$15,000			\$165,509	-10%		
200 Parkwood Cir	-\$11,680		-\$13,000	-\$16,349		\$8,000		-\$20,000	\$146,972	2%		
											-2%	

Parcel 8 sold for \$750,500 on July 23, 2020 for the townhomes and the underlying land. I have not attempted to do analysis on this transfer as it has multiple units on one parcel which makes it difficult to find similar multi unit sales that are similar enough to compare. Therefore I have not done a matched pair analysis on this transfer.

Parcel 9 sold for \$1,755,000 on March 11, 2021 for the townhomes and the underlying land. I have not attempted to do analysis on this transfer as it has multiple units on one parcel

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which makes it difficult to find similar multi unit sales that are similar enough to compare.
Therefore I have not done a matched pair analysis on this transfer.

12-Johnsonville "Ponderosa" Site, Cameron, Harnett County, NC

This convenience center is located on Ponderosa Road and is 18.99 acres. The closest adjoining home is 450 feet. I note that Parcel 1 is agricultural land that sold May 23, 2022 for \$165,000 for 49.00 acres for an indicated \$3,367 per acre. I have not attempted to utilize this for a matched pair analysis as it also adjoins Parcel 6 to the southwest which is a sand mine. This would not be a good indication of whether the adjoining convenience center had an impact on property values as there would not be enough information to know if the sand mine had an impact to the property value instead of or in addition to the convenience center.



Adjoining Uses

#	MAP ID	Owner	GIS Data		Adjoin Acres	Adjoin Parcels	Distance (ft)
			Acres	Present Use			
1	099566 0034	Brady	49.00	Agricultural	20.17%	16.67%	N/A
2	099566 0035	Dull	0.96	Residential	0.40%	16.67%	450
3	099566 9001 02	Harnett Co	10.16	Residential	4.18%	16.67%	N/A
4	099566 9001	NC Hwy Com	69.03	Agricultural	28.42%	16.67%	N/A
5	099565 0083	J S Weeks Sand	70.54	Sand Mine	29.04%	16.67%	N/A
6	099566 0150	J S Weeks Sand	43.20	Sand Mine	17.79%	16.67%	N/A
Total			242.890		100.00%	100.00%	450

Adjoining Use Breakdown

	Acreage	Parcels
Residential	4.58%	33.33%
Agricultural	48.59%	33.33%
Sand Mind	46.83%	33.33%
Total	100.00%	100.00%

13-Mamers Site, Lillington, Harnett County, NC

This convenience center is located at 5375 Old US 421 Highway and is 249.80 acres. The closest adjoining home is 125 feet. The convenience center site is outlined in yellow.



Adjoining Uses

#	MAP ID	Owner	GIS Data		Adjoin		Distance (ft)
			Acres	Present Use	Acres	Parcels	
1	130620 0011 04	Billingsley	0.75	Residential	0.23%	6.25%	780
2	130620 0002 36	Marcoviche	0.80	Residential	0.25%	6.25%	735
3	130620 0002 38	Campbell	0.78	Residential	0.24%	6.25%	515
4	130620 0002 39	Campbell	0.70	Residential	0.22%	6.25%	370
5	130620 0002 40	Corbett	0.70	Residential	0.22%	6.25%	175
6	130620 0002 41	Jenkins	0.70	Residential	0.22%	6.25%	125
7	130620 0002 42	Harmon	0.70	Residential	0.22%	6.25%	150
8	130620 0002 43	Cole	0.70	Residential	0.22%	6.25%	215
9	130620 0002 44	Vinston	0.69	Residential	0.21%	6.25%	360
10	130620 0009	Sowers	4.49	Residential	1.39%	6.25%	N/A
11	130620 0010	Sowers	4.00	Residential	1.24%	6.25%	840
12	130620 0008	Sellers	1.70	Residential	0.53%	6.25%	1,145
13	130620 0007	Gifford	3.50	Residential	1.08%	6.25%	1,370
14	130620 0200	Part of Subject	249.80	Agricultural	77.36%	6.25%	N/A
15	130620 020	Collins	2.20	Residential	0.68%	6.25%	1,345
16	130620 0011	Allen	50.70	Agri/Res	15.70%	6.25%	1,440

Total	322.910	100.00%	100.00%	683
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Adjoining Use Breakdown

	Acres	Parcels
Residential	6.94%	87.50%
Agricultural	77.36%	6.25%
Agri/Res	15.70%	6.25%
Total	100.00%	100.00%

Adjoining Parcel 1 sold twice recently. The first sale was on September 16, 2022 for Parcel 1 and an additional parcel to the west of Parcel 1, which was a sale of 2 lots, one of which adjoins the convenience center. The comparables indicate that the convenience center did not have an impact on the adjoining lot value and potentially enhanced the adjoining lot value. I could not find the listing on the local MLS or elsewhere online and was unable to confirm this transfer.

Adjoining Lot Land Sales After Convenience Center Built									Avg Lot		
Parcel	Con.	Cen.	Address	Acres	Date Sold	Sales Price	\$/Ac	Lots	\$/Lot	Size	Other
	Adjoins		Old US 421 Hwy	1.50	9/16/2022	\$90,000	\$60,000	2	\$45,000	0.75	N/A
	Not		304 E Washington St	0.98	10/13/2022	\$55,000	\$56,122	1	\$55,000	0.98	N/A
	Not		Ernest Brown Rd	1.05	12/19/2022	\$40,000	\$38,095	1	\$40,000	1.05	N/A
	Not		301 E Lofton St	0.42	4/29/2022	\$49,000	\$116,667	1	\$49,000	0.42	N/A
Adjoining Sales Adjusted						Price Per			Avg		
Address			Time	Size	Location	Lot		% Diff	% Diff		
Old US 421 Hwy						\$60,000					
304 E Washington St			-\$128		-\$2,806	\$52,066		13%			
Ernest Brown Rd			-\$302		\$3,810	\$43,508		27%			
301 E Lofton St			\$1,376		-\$5,833	\$44,543		26%			
									22%		

Adjoining Parcel 1 also sold after the property was developed with a single family dwelling on March 10, 2023 for \$308,000. I have compared this with other nearby building sales below. The nearby sales do not support a significant impact to the property value for adjoining the convenience center. Specifically I note that the adjoining parcel, one of the two lots that sold in the analysis above, after adjustments, indicates that being adjacent to the convenience center has no impact on the property value. This is the 5th entry below located at 5565 Old US 421 Highway. I consider this analysis support for no impact to the adjoining property values. The broker Takyla Hill, indicated that the builder typically buys their construction materials in bulk and does not permit any customization options and that this property sold for a similar price to other Pop Homes of the same floorplan in the area. She specifically noted that the adjoining convenience center did not have an impact on adjoining property values.

Adjoining Residential Sales After Convenience Center Built													
Parcel	Con.	Cen.	Address	Acres	Date Sold	Sales Price	Built	GBA	\$/GLA	BR/BA	Park	Style	Other
	Adjoins		5537 Old US 421 Hwy	0.75	3/10/2023	\$308,000	2022	2,490	\$123.69	5/3	2 Gar	2 Story	N/A
	Not		4575 Old US 421 Hwy	1.36	4/28/2023	\$399,700	2023	2,010	\$198.86	4/2.5	2 Gar	2 Story	N/A
	Not		4557 Old US 421 Hwy	1.30	5/8/2023	\$460,000	2023	2,702	\$170.24	4/3	2 Gar	2 Story	N/A
	Not		624 C P Stewart Rd	1.34	1/23/2023	\$409,900	2021	2,476	\$165.55	3/3	3 Gar	2 Story	Brick
	Not		5565 Old US 421 Hwy	0.75	2/28/2023	\$310,000	2022	2,994	\$103.54	5/3	2 Gar	2 Story	N/A
Adjoining Sales Adjusted													
Address		Time	Site	YB	GLA	Bedroom	Bathroom	Location	Quality	Total	% Diff	Avg % Diff	Distance
5537 Old US 421 Hwy										\$308,000			780
4575 Old US 421 Hwy		-\$3,301		-\$1,999	\$28,635	-\$11,991	\$5,000	-\$19,985	-\$46,200	\$349,860	-14%		
4557 Old US 421 Hwy		-\$4,574		-\$2,300	-\$10,828	-\$13,800		-\$23,000	-\$59,955	\$345,543	-12%		
624 C P Stewart Rd		\$3,178		\$2,050	\$695	-\$24,594			-\$115,000	\$276,229	10%		
5565 Old US 421 Hwy		\$522		\$0	-\$15,655					\$294,867	4%		
												-3%	

I note that Parcels 4 and 5, two manufactured dwellings, both sold recently but I could not find up to date information on the sales and the condition of both the exterior and of the interior. The lack of a listing on the local MLS makes it difficult to understand the condition of the property which makes comparison difficult as it obfuscates the information needed to make accurate adjustments. For these reasons I have not done a matched pair analysis of these transfers.

Parcel 6 sold recently and similarly is a manufactured dwelling which makes it difficult to do a matched pair analysis. There are not enough nearby comparables of similar quality,

Paulo Lopez
March 6, 2026

condition, age and location to do a matched pair analysis on. I have therefore not completed a matched pair analysis on this transfer.

14-Cameron Site, Cameron, Moore County, NC

This convenience center is located at 276 Cranes Creek Road and is 4.83 acres. The closest adjoining home is 425 feet.



Adjoining Uses

#	MAP ID	Owner	GIS Data		Adjoin		Distance (ft)
			Acres	Present Use	Acres	Parcels	
1	06833	Walters	16.40	Residential	38.45%	20.00%	N/A
2	20070426	Parker	11.09	Residential	26.00%	20.00%	N/A
3	20070422	Gleason	10.56	Residential	24.76%	20.00%	425
4	02464	Blue	3.57	Residential	8.37%	20.00%	N/A
5	20130199	Blue	1.03	Residential	2.42%	20.00%	565
Total			42.650		100.00%	100.00%	495

Adjoining Use Breakdown

	Acreage	Parcels
Residential	100.00%	100.00%
Total	100.00%	100.00%

Paulo Lopez
March 6, 2026

Parcel 2 sold for \$105,000 for 11.09 acres for an indicated \$9,468 per acre. I have compared this to other nearby properties below. This indicates that there is a potential negative impact to the adjoining land values for developable land of 5%. I could not find the listing on the local MLS or elsewhere online and was unable to confirm this transfer.

Adjoining Developable Land Sales After Convenience Center Built									
Parcel	Con. Cen.	Address	Acres	Date Sold	Sales Price	\$/Ac	Lots	\$/Lot	Other
	Adjoins	Cranes Creek Rd	11.09	4/19/2023	\$105,000	\$9,468			N/A
	Not	Cranes Creek Rd	13.41	12/2/2021	\$134,500	\$10,030			N/A
	Not	Dalrymple Rd	10.00	8/9/2023	\$130,000	\$13,000			N/A
	Not	Fernwood Rd	13.41	12/29/2022	\$145,000	\$10,813			N/A
	Not	1500 Old Coats Rd	50.40	10/14/2020	\$253,000	\$5,020			N/A

Adjoining Sales Adjusted				Price Per		Avg
Address	Time	Size	Location	Acre	% Diff	% Diff
Cranes Creek Rd				\$9,468		
Cranes Creek Rd	\$850			\$10,880	-15%	
Dalrymple Rd	-\$245		-\$650	\$12,105	-28%	
Fernwood Rd	\$202		-\$541	\$10,474	-11%	
1500 Old Coats Rd	\$776	\$502		\$6,298	33%	
						-5%

Paulo Lopez
March 6, 2026

Conclusion

The proposed use is a typical use for this type of location. There is significant data within this impact study showing other similar convenience center sites in residential locations much closer to homes than proposed at this site and with much less surrounding commercial/industrial uses than at this site.

I conclude that the proposed use is in harmony with the area it is proposed to be located in and will not negatively impact adjoining property values.

There is significant sales data and matched pair analyses to support the finding that the proposed convenience center will not impact the adjoining property values. This is supported by the matched pairs which indicate that adjoining dwellings and vacant lots sell for similar prices as other similar nearby properties. In some instances a mild positive is suggested for adjoining a convenience center, though that appears to be associated with the fact that convenience centers are often located on county land that adjoins/includes parks. I note that the subject property adjoins such a county park. I conclude that the proposed use will not impact adjoining property values.

If you have any further questions, please call me any time.

Sincerely,



Richard C. Kirkland, Jr., MAI
State Certified General Appraiser



Nicholas D. Kirkland
State Certified General Appraiser



IN WITNESS WHEREOF, the Grantor has hereto set his hand and seal, or if corporate, has caused this instrument to be signed in its corporate name by its duly authorized officers and its seal to be hereunto affixed by authority of its Board of Directors, the day and year first above written.

Paul Kovalski (SEAL)
Paul Kovalski

Joan Kovalski (SEAL)
Joan Kovalski

NORTH CAROLINA

COUNTY OF Buncombe

I, a Notary Public of the County and State aforesaid, certify that Joan Kovalski ~~Kovalski~~, Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument. Witness my hand and official stamp or seal, this 12 day of December, 1995.

Kris A. Wypacz
Notary Public

my commission expires: My Commission Expires 3-8-97.



NORTH CAROLINA

COUNTY OF WAKE

Paul Kovalski, Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument. Witness my hand and official stamp or seal, this 12 day of December, 1995.

B. Ault
Notary Public

my commission expires: 1-29-97

NORTH CAROLINA — WAKE COUNTY

The foregoing certificate of Kris A. Wypacz
Constance B. Ault

Notary Public is

(are) certified to be correct. This instrument and this certificate are duly registered at the date and time and in the book and page shown on the first page hereof.

KENNETH C. WILKINS, Register of Deeds

By Marta N. Hams
Asst. Deputy Register of Deeds

Excise Tax: \$116.00

000313

REGISTERED

95 DEC 14 PM 2:05

Pin No. 0755.10 35 8946

REGISTERED
REGISTER OF DEEDS
WAKE COUNTY

Parcel Identifier No. 0013599

After recording hold for County Attorney

This instrument was prepared by the Wake County Attorney's Office

NORTH CAROLINA GENERAL WARRANTY DEED

THIS DEED made this 14th day of December, 1995, by and between Paul Kovalski and wife, Joan Kovalski, GRANTOR, and the County of Wake, GRANTEE, F. O. Box 550, Raleigh, North Carolina, 27602;

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

WITNESSETH, that the Grantor, for a valuable consideration paid by the Grantee, the receipt of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the Grantee in fee simple, all those certain lots or parcels of land situated in Cedar Fork Township, Wake County, North Carolina, and more particularly described as follows:

BEING all of lots 17 and 18 as shown on a map entitled "Morrisville-Airport Subdivision" surveyed by C. W. Russum, RLS, dated February - July, 1953, recorded in Book of Maps 1953, Page 41, Wake County Registry. Also shown on a survey by Wake County Facilities Design and Construction entitled "Proposed Acquisition: Property of Paul & Joan Kovalski" dated October 4, 1995 and recorded in Book of Maps 1995, Page 1852, said registry.

The property hereinabove described is the property that was conveyed to Grantor by instrument recorded in Deed Book 2132, Page 115, Wake County Registry.

TO HAVE AND TO HOLD the aforesaid lot or parcel of land and all privileges and appurtenances thereto belonging to the Grantee in fee simple.

And the Grantor covenants with the Grantee, that Grantor is seized of the premises in fee simple, has the right to convey the same in fee simple, that title is marketable and free and clear of all encumbrances, and the Grantor will warrant and defend the title against the lawful claims of all persons whomsoever except for the exceptions hereinafter stated.

1. Easements and right-of-ways of record.
2. 1995 Ad Valorem Taxes

WAKE COUNTY

DEC 14, 95

HOLLOM PROPERTY GROUP

116.00

TRAN 21

STATE OF
NORTH
CAROLINAReal Estate
Excise Tax

Conditions

1. In order to comply with all applicable Morrisville UDO requirements including UDO Section 8.1.3.C, Wake County will construct the portions of the Aviation Parkway Road improvements for which the County is responsible, as identified in the TIA, prior to the receipt of any certification of occupancy or final plat approval.
2. The proposed development shall be developed consistent with the approved site plan. Notwithstanding the foregoing, minor modifications to the approved site plan may be approved administratively consistent with the provisions of UDO Section 2.5.6.C(6)(d).

Special Use Permit Process

1. What approval does the applicant need from the Town in order to pursue this project?

To pursue the desired development project, the applicant needs a special use permit (SUP) to be granted by the Morrisville Town Council.

2. What process must the Town Council follow in reviewing this request?

The special use permit review procedure required in this case is a “quasi-judicial” process in which the Town Council carefully applies standards in the *Unified Development Ordinance* to determine whether they have been met by the applicant.

This quasi-judicial process consists of an evidentiary hearing, the purpose of which is to establish the facts of a case, not to gather opinions about a given project. This hearing includes the introduction of evidence under oath, cross-examination of witnesses, and the making of “findings of fact” relevant to the case.

3. What are the standards that the Town Council must use when reviewing the permit request?

The Morrisville *Unified Development Ordinance (UDO)* requires that an application shall be approved only if the Town Council reaches each of the following conclusions of law, based on findings of fact supported by competent, substantial, and material evidence presented at the hearing:

1. The proposed development will not materially endanger the public health or safety;
2. The proposed development will comply with all regulations and standards generally applicable within the zoning district and specifically applicable to the particular type of Special Use;
3. The proposed development will not substantially injure the value of adjoining property, or is a public necessity;
4. The proposed development will be in harmony with the intensity, scale, and character of development existing or planned in the surrounding area;
5. The proposed development will not cause undue traffic congestion or create a traffic hazard;
6. The proposed development will not generate needs for transportation, water supply, sewage disposal, fire and police protection, and similar public services that cannot be adequately handled by available infrastructure and facilities;
7. The proposed development will be consistent with the Comprehensive Plan.

4. Will citizens and adjacent property owners have an opportunity to provide public comment on the special use permit request?

Yes, they will have an opportunity to provide input at the Town Council public hearing, under the following parameters:

- All citizen comments should provide factual evidence that responds to the required findings listed in #3 above.
- All testimony is subject to cross-examination and must be provided under oath.

- The swearing in of all witnesses will take place at the beginning of each session of the hearing.
- The presiding officer, with guidance from the Town Attorney, will oversee the process of determining whether the evidence submitted is relevant to the case. To help ensure that the meeting process proceeds in an efficient manner, the presiding officer may curtail testimony that is repetitious. As a result, citizens interested in providing testimony are strongly encouraged to collaborate wherever possible in order to succinctly submit their evidence for consideration for inclusion in the findings of fact.

5. *May citizens or other parties provide input to members of the Town Council outside of the formal evidentiary hearings on the case?*

No. North Carolina State Statutes prohibits Council members from having “undisclosed ex parte communications” with other parties on the case. This means that board members can only consider evidence entered in the hearing record when deciding the case, and cannot discuss the case with anyone outside of the formal hearings.

6. *Council Dos & Do Nots Prior to the Meeting*

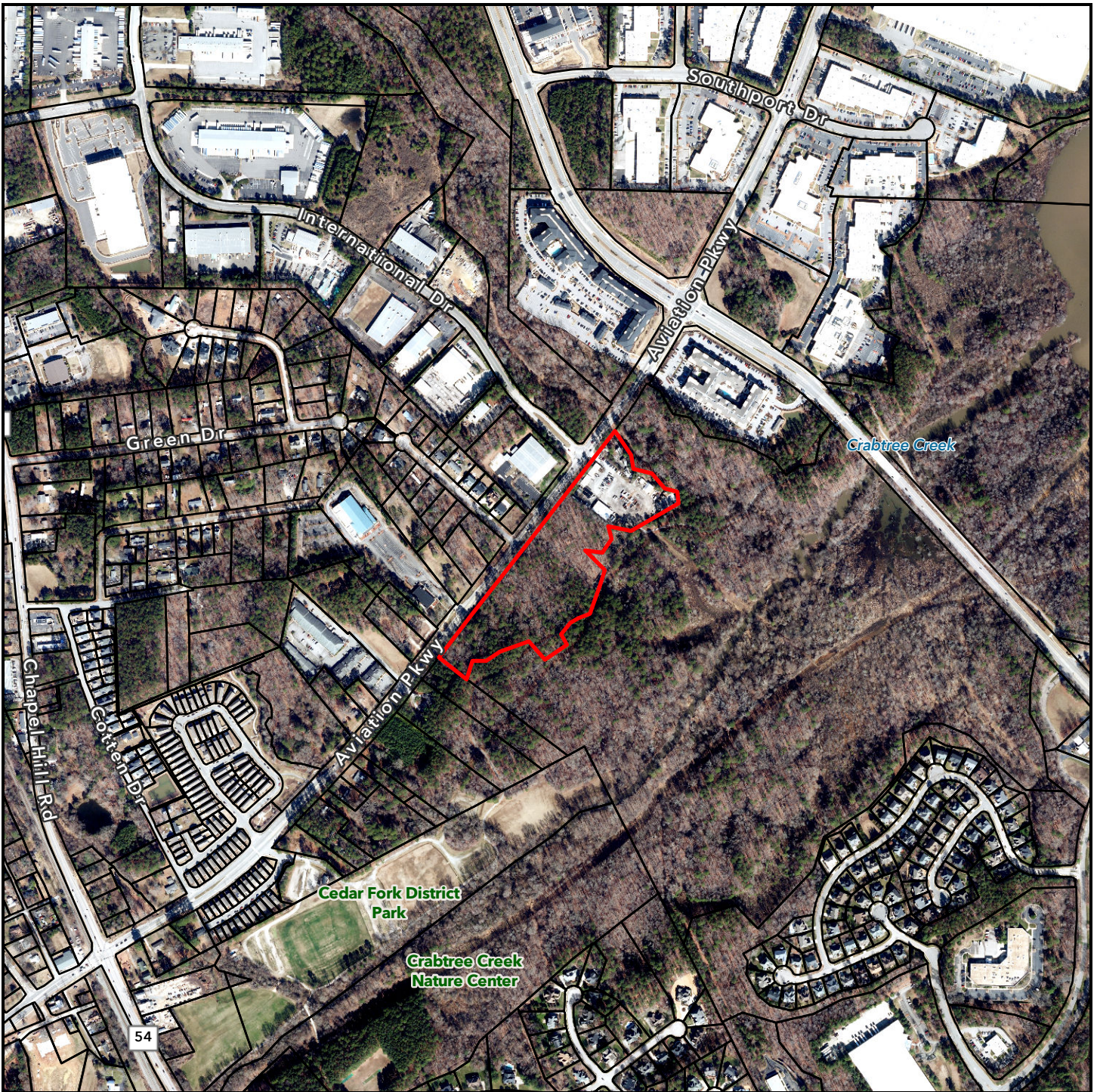
Do not conduct independent factual research or an investigation (for example, Council members should not independently investigate by searching the Internet).

Do review the case materials provided by staff and the Town’s development regulations.

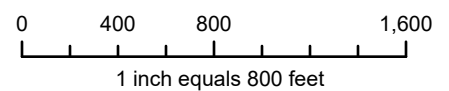
Do not use AI to summarize materials. The risk of AI hallucinating or drawing in outside evidence (regardless of prompting to not) has serious consequences to the case.

Do ask staff for clarity on the quasi-judicial process.

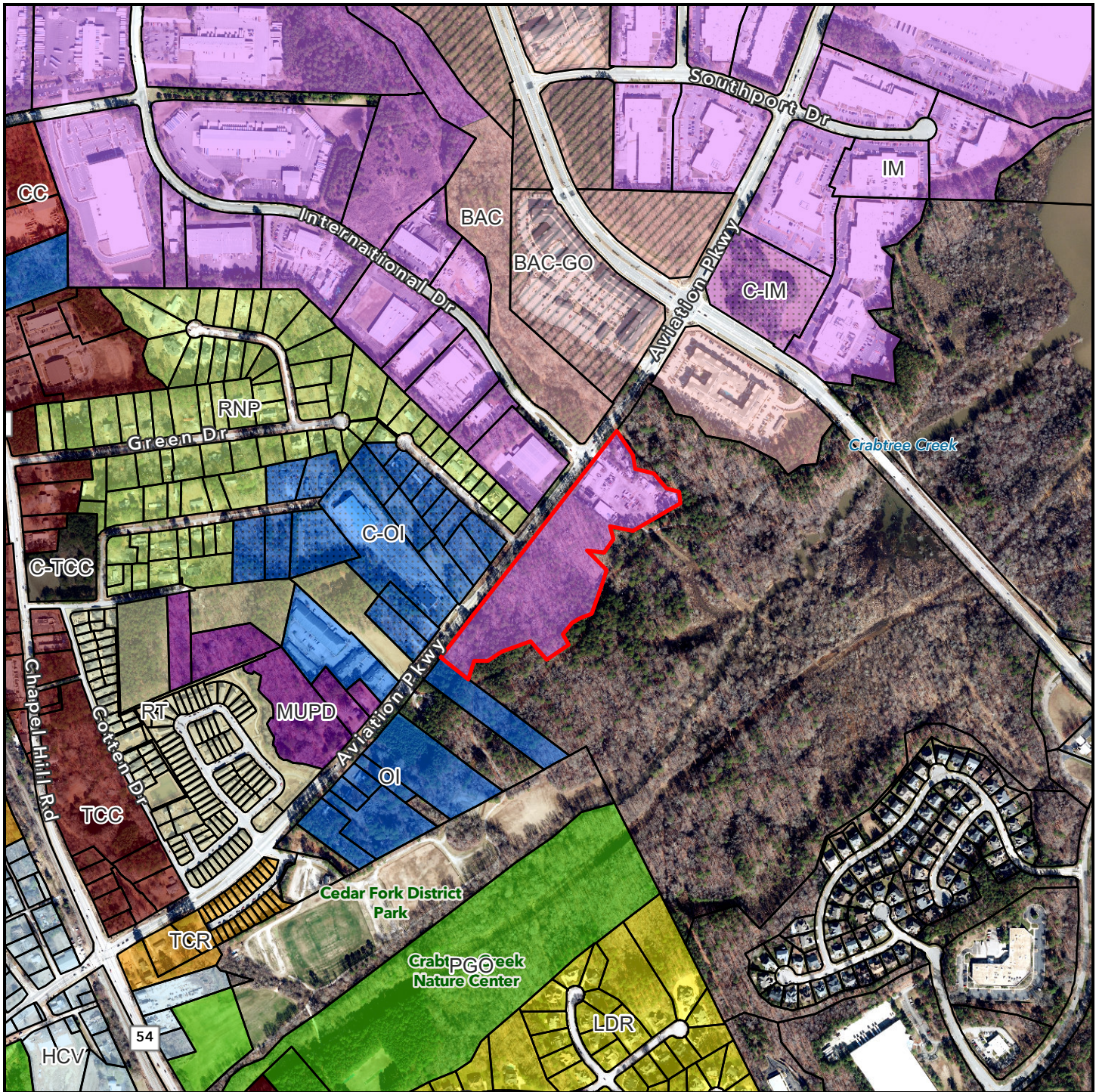
Do not discuss the case with other members. Council members cannot discuss the case with anyone outside of the formal hearings.



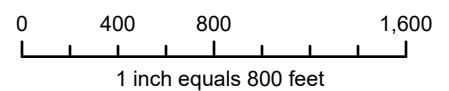
414 Aviation Pkwy Aerial Map
Wake County iMaps Imagery 2025



Disclaimer
iMaps makes every effort to produce and publish the most current and accurate information possible. However, the maps are produced for information purposes, and are **NOT** surveys. No warranties, expressed or implied, are provided for the data therein, its use, or its interpretation.

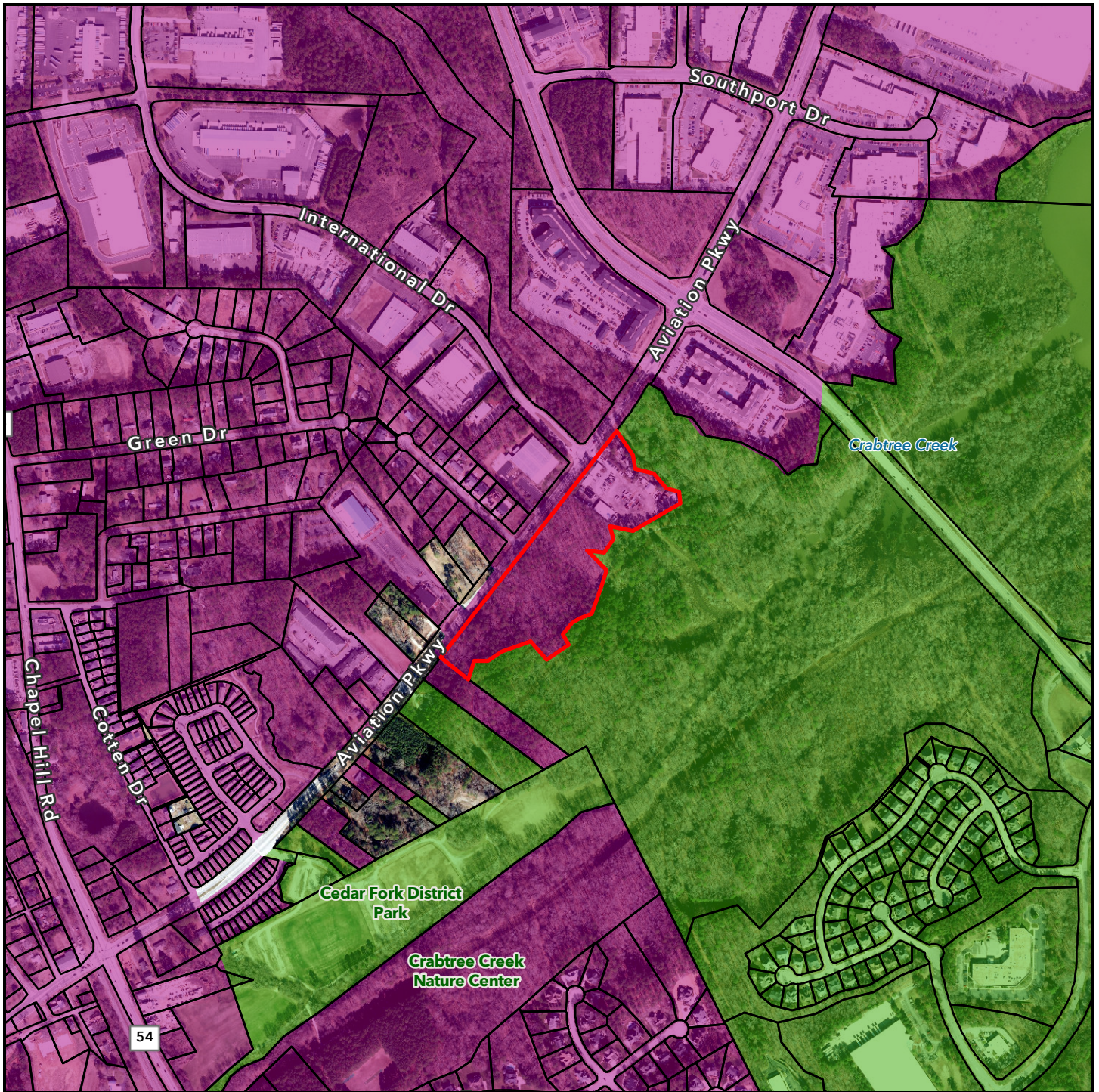


414 Aviation Pkwy Zoning Map
Wake County iMaps Imagery 2025

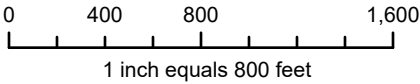


	Property	
	Business Activity Center (BAC)	Busine
	Business Activity Center with Gateway Overlay (BAC-GO)	Busine
	Industrial Management (IM)	Condit
	Office and Institutional	Condit
	Town Center Commercial (C-TCC)	Condit

Disclaimer
iMaps makes every effort to produce and publish the most current and accurate information possible. However, the maps are produced for information purposes, and are **NOT** surveys. No warranties, expressed or implied, are provided for the data therein, its use, or its interpretation.



414 Aviation Pkwy Corporate Limits Map
Wake County iMaps Imagery 2025



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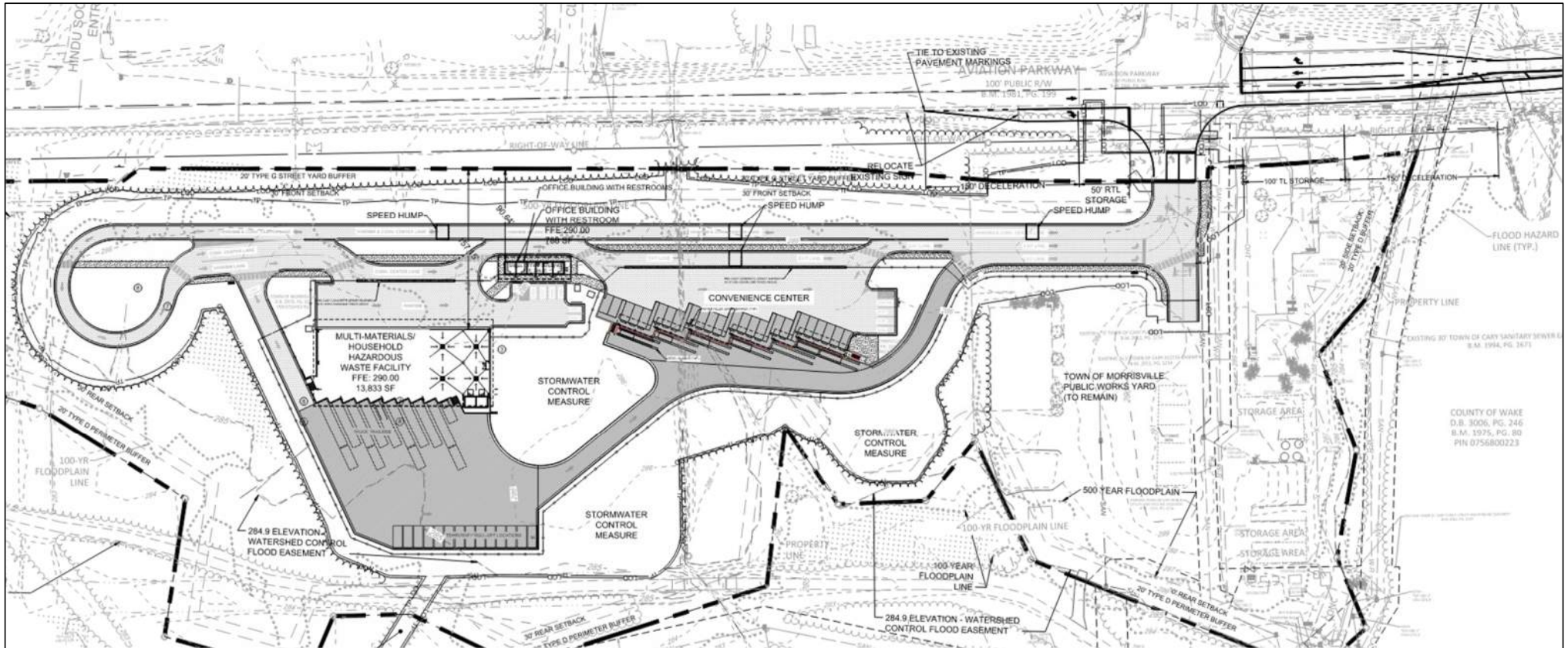
Wake County West Wake Solid Waste Facility

**Special Use Permit
Quasi-judicial Hearing
September 8, 2026**



@wakegov    

wakegov.com













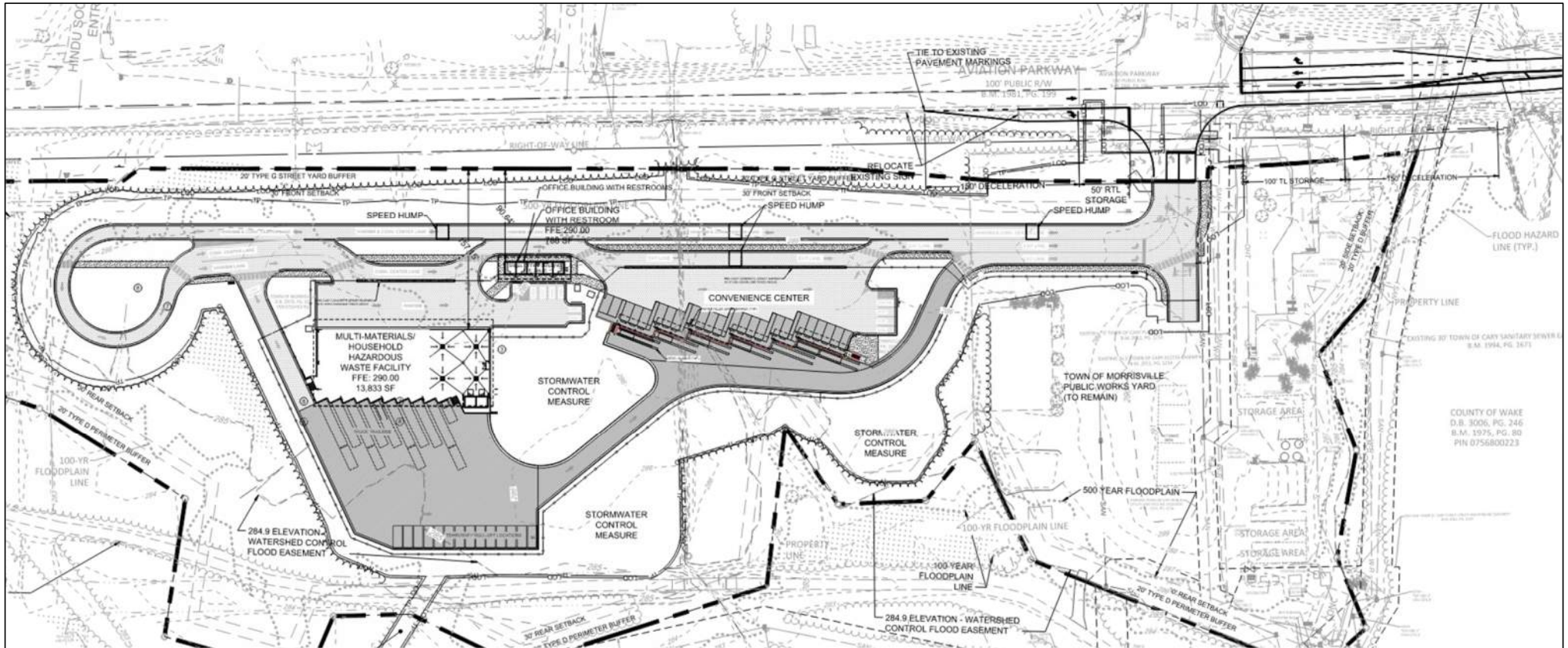




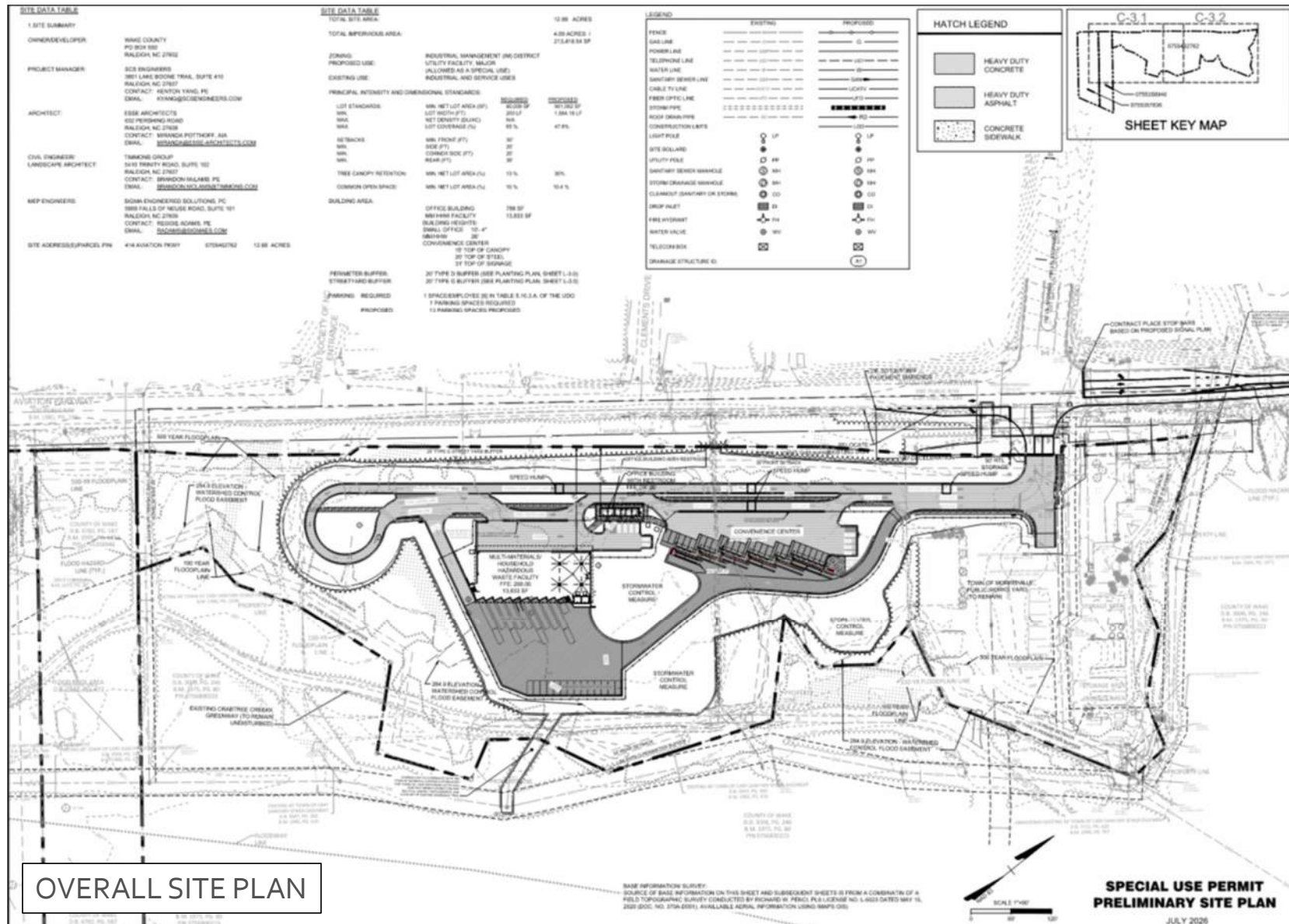


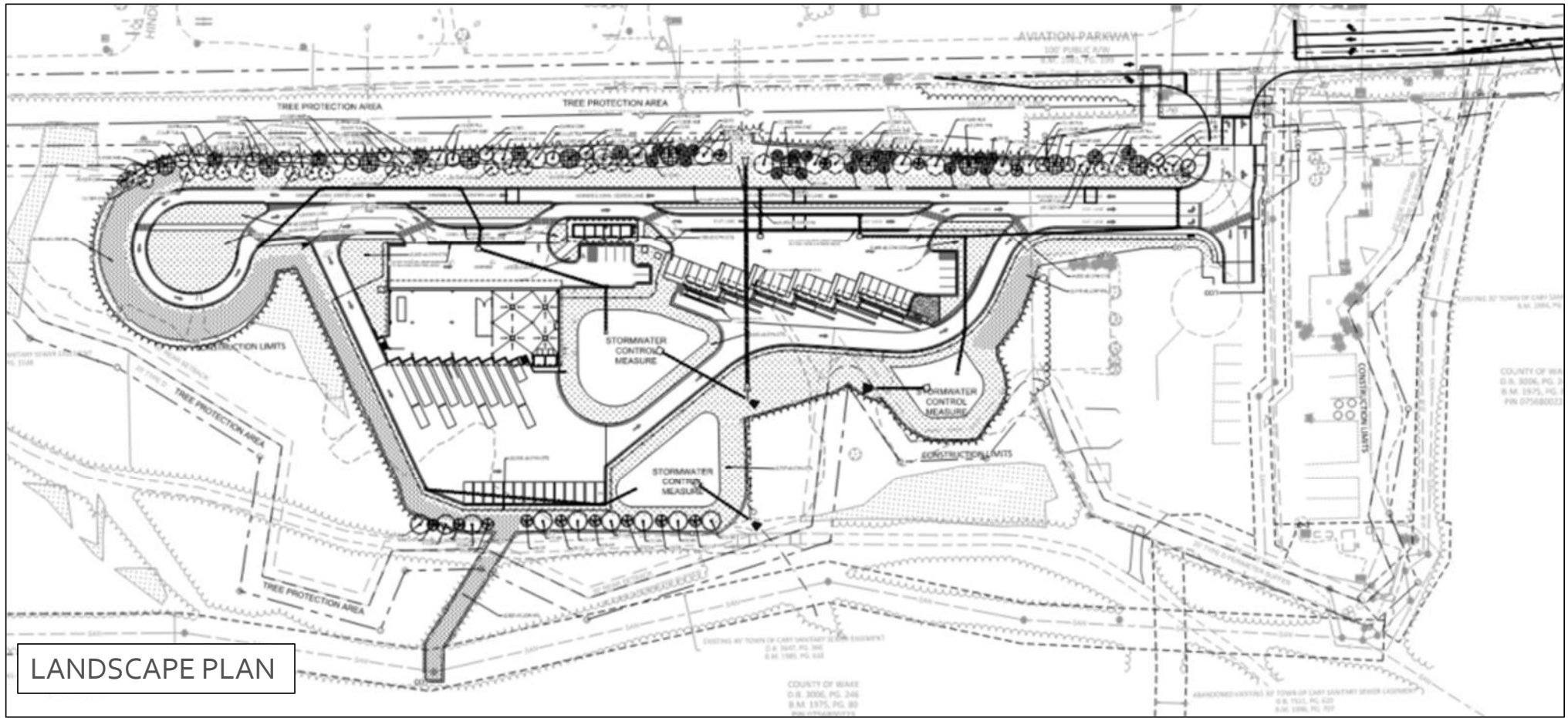


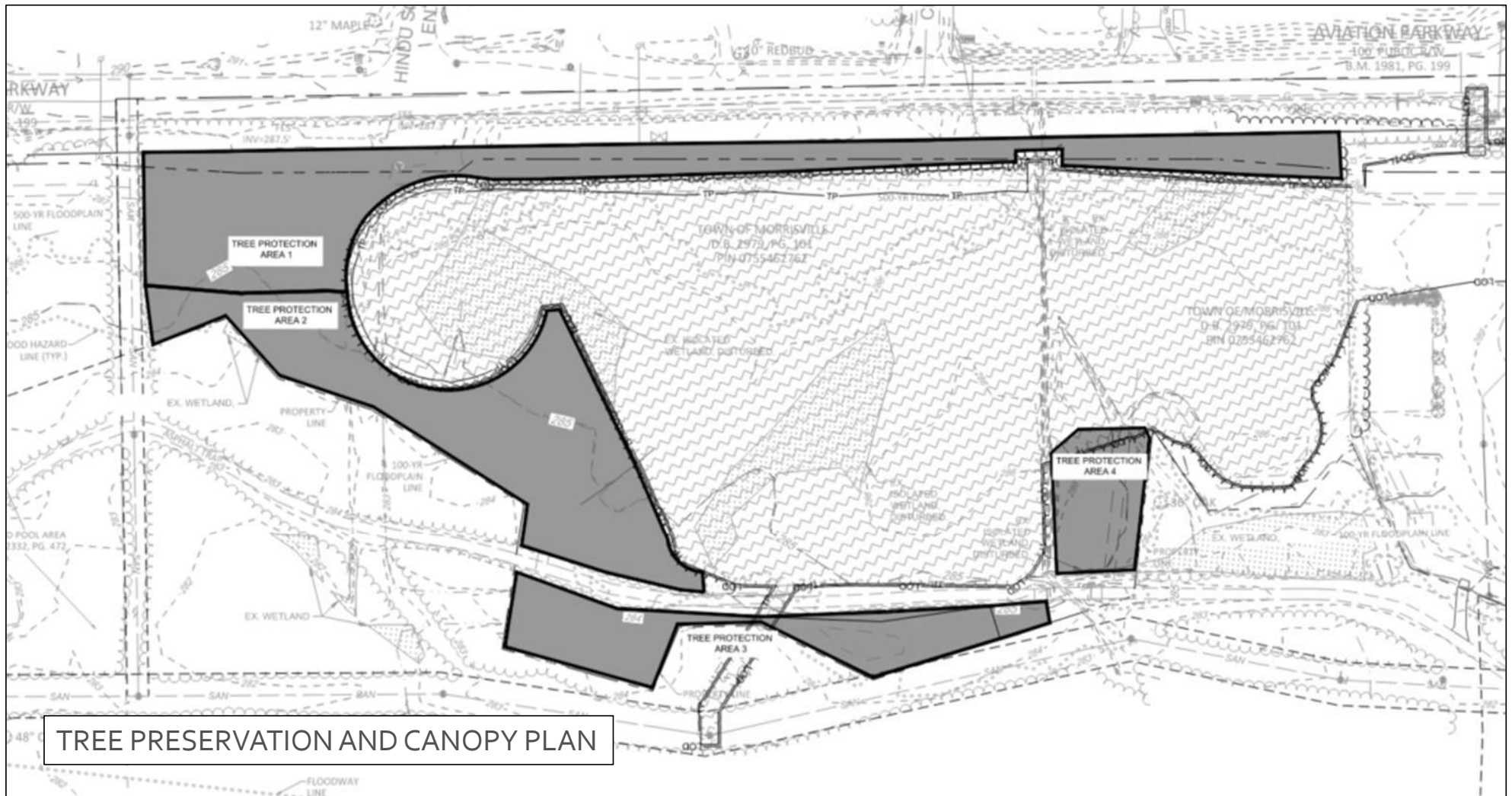


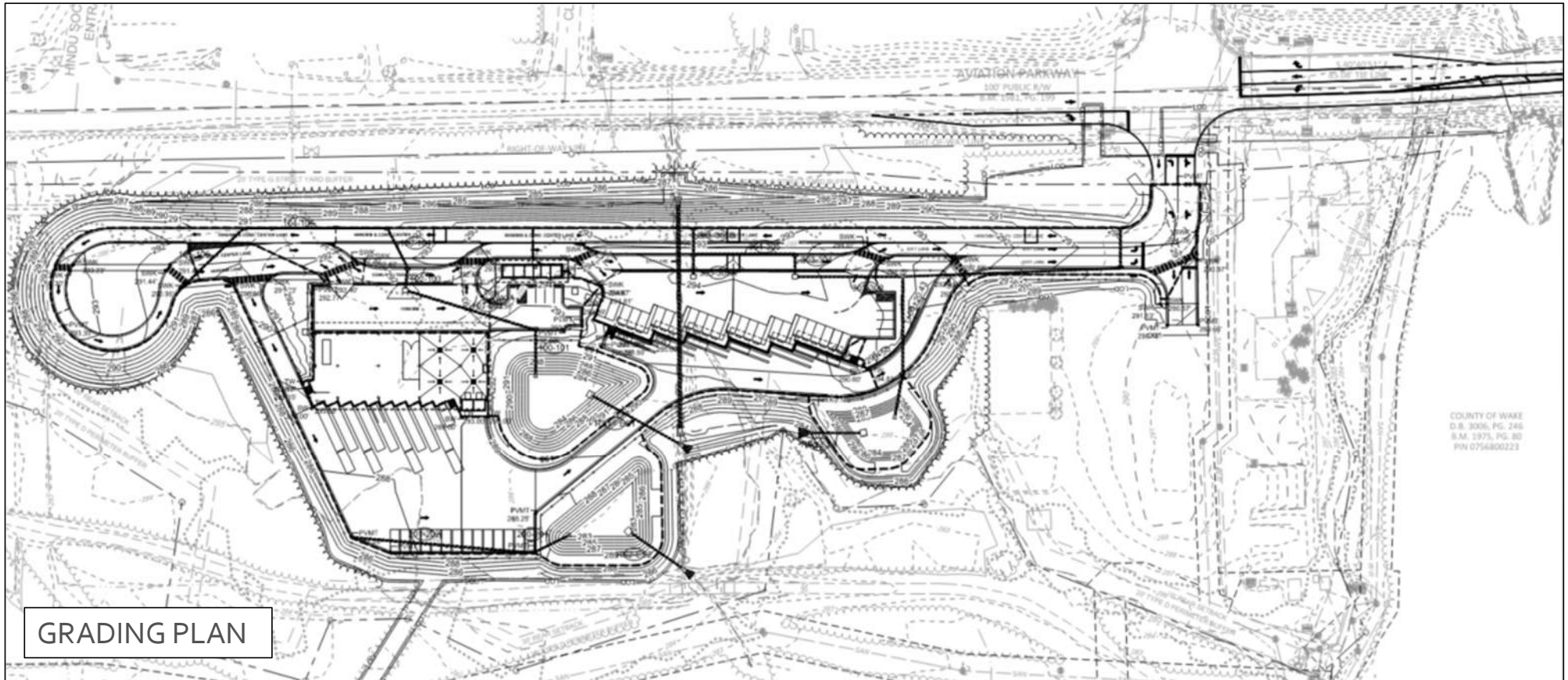


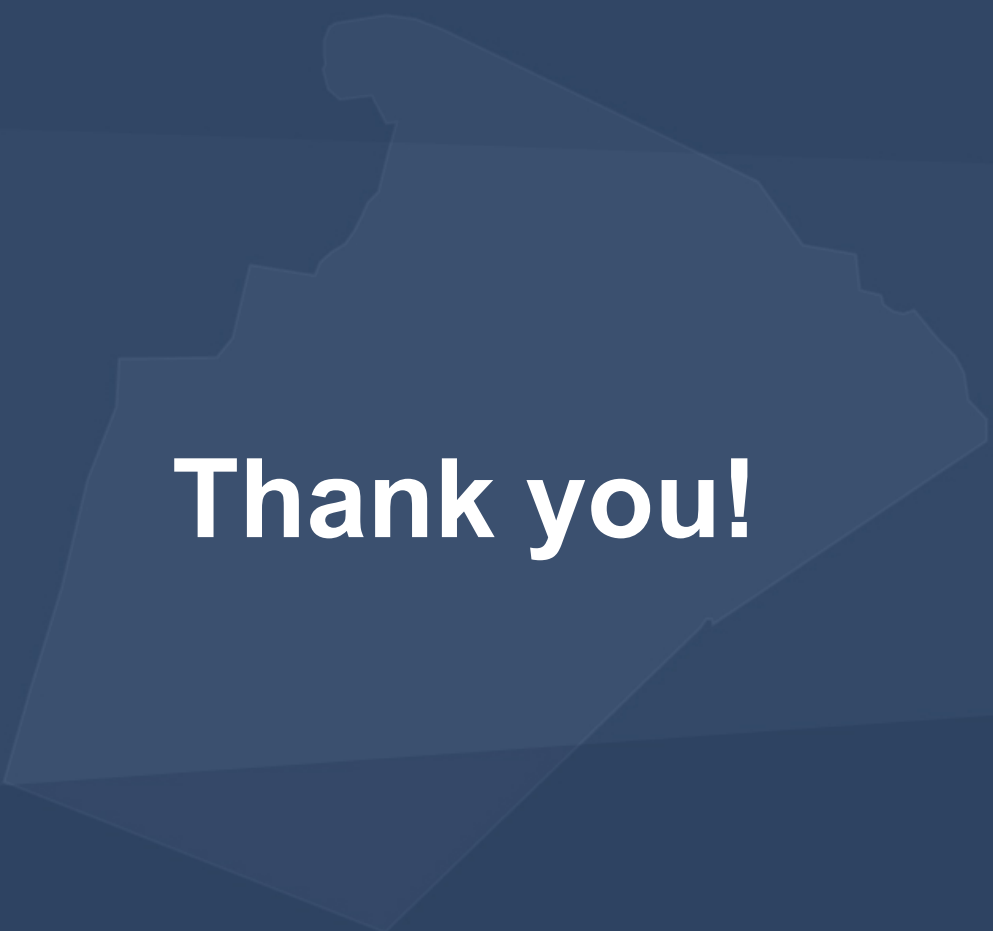
COUNTY OF WAKE
D.B. 3006, PG. 246
S.M. 1975, PG. 80
PIN 0756800223









A stylized, light blue map of Wake County is centered on a dark blue background. The map shows the county's irregular shape, including its northern and eastern borders.

Thank you!



Morrisville
Live connected. Live well.

2026-192-0 West Wake Solid Waste Facility Special Use Permit (QUASI-26-0012)

Applicant: Wake County

Presented by: Rachel Cypher, Planner II
Town Council Meeting – September 8, 2026

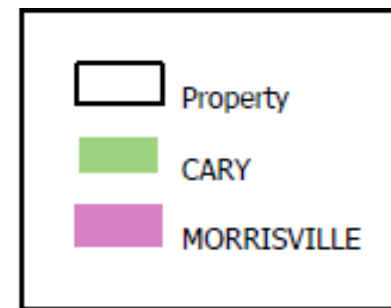
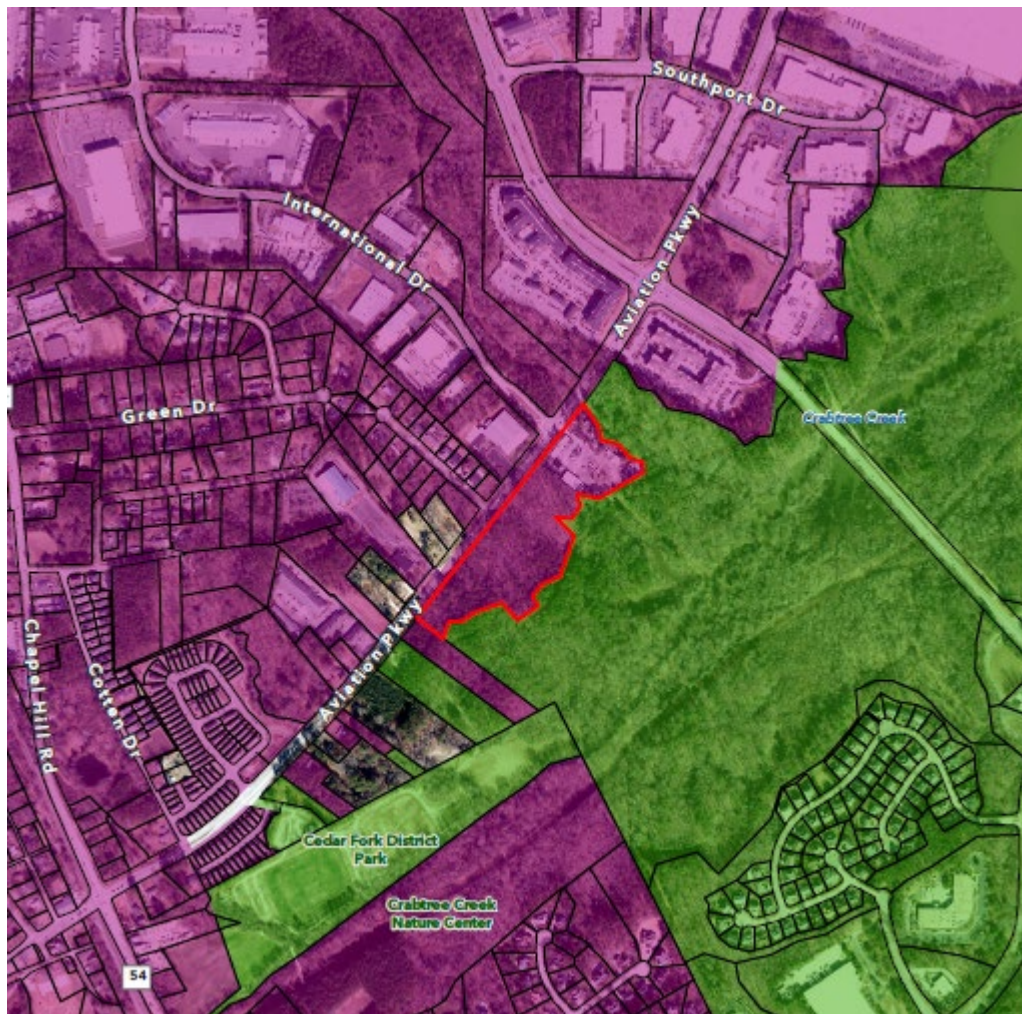
Request

- A Special use permit for a Major Utility Facility use to accommodate the future development and operation of a West Wake Solid Waste Facility at 414 Aviation Parkway. This site is located east of the intersection of Aviation Parkway and International Drive.

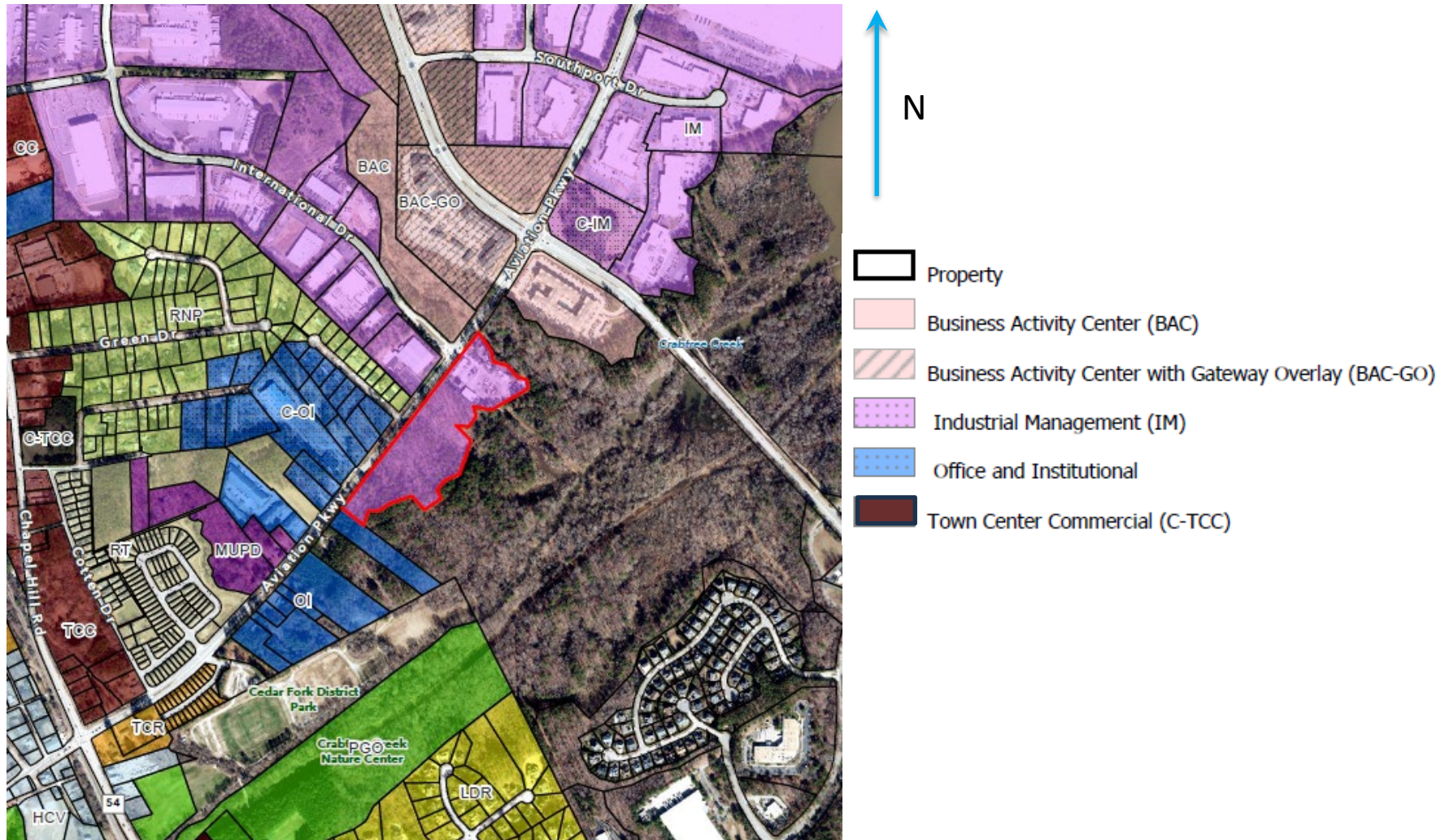
Subject Property



Corporate Limits Map



Zoning Map



Subject Property

- Zoning: Industrial Management (IM)
- PIN (0755462762)
- Approximately 13.71 acres
- Currently the site of the Town of Morrisville's Public Works Facility and partially vacant.
- Current Wake County Convenience Center located 0.3 miles away.

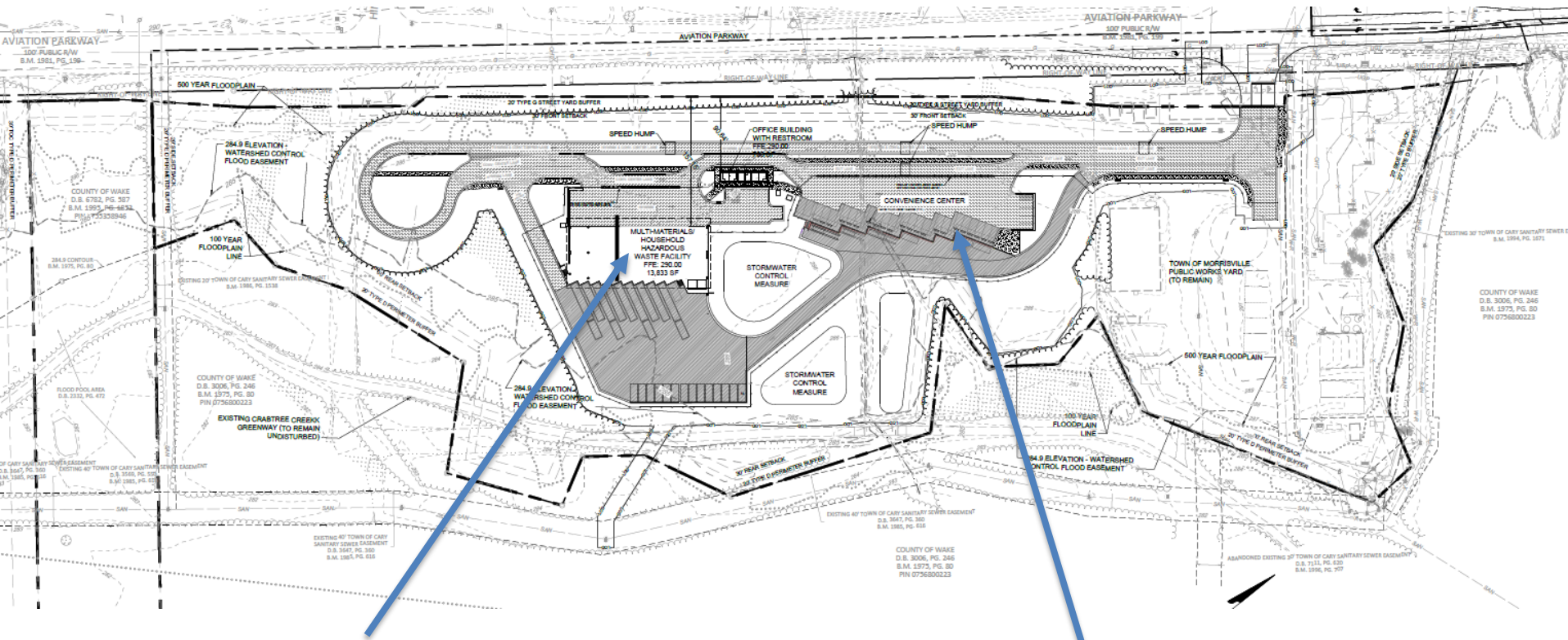
History of Site

- October 22nd, 2024: Special use permit approved for joint Wake County Convenience Center and Town of Morrisville Public Works Facility
- Previous SUP expired in October of 2025, which requires a new Special Use Permit Application.
- The site proposal is no longer including the Public Works building that was proposed in the last SUP.

Proposed Development

- **Applicant: Wake County**
- **Proposed Use: Major Utility Facility**
- **Operating as West Wake Solid Waste Facility**
- The site will be the future site of the West Wake Solid Waste Facility. This use is considered a Major Utility Facility, which requires a special use permit in the Industrial Management (IM) zoning district.

Proposed Development



**Multi-Materials Household
Hazardous Waste Facility**

Expanded Convenience Center

Roadway Improvements-Key Points

- Approximately 12.5 feet of right-of-way dedication
- The Solid Waste Facility driveway will intersect with Aviation Parkway and International Drive signal.
- Construction of a right turn lane from northbound Aviation Parkway into the facility.
- Construction of a left turn lane from Aviation Parkway into the facility.
- Construction of left turn lane and combine through/right turn lane leaving the facility for through and turning movements onto Aviation Parkway or International Drive.
- Traffic modification to existing signal to accommodate the new facility and turning movements.

Conditions

1. In order to comply with all applicable Morrisville UDO requirements, Wake County will construct the recommended road improvements, as identified in the TIA, prior to the receipt of any certification of occupancy or final plat approval.
2. All traffic movements to and from the proposed Future County Driveway, as referenced in the approved transportation impact analysis (TIA) for the West Wake Solid Waste Facility to be realigned and reconstructed, shall be controlled by the traffic signal that is also proposed in the TIA to control all traffic movements at the intersection of International Drive and Aviation Parkway
3. The proposed development shall be developed consistent with the site plan. Notwithstanding the foregoing, minor modifications to the preliminary site plan may be approved administratively consistent with the provisions of UDO Section 2.5.6.C(6)(d).

Special Use Permit Standards

- **Section 2.5.6.D “Special Use Permit Review Standards”**

1. The proposed development will not materially endanger the public health or safety;
2. The proposed development will comply with all regulations and standards generally applicable within the zoning district and specifically applicable to the particular type of Special Use;
3. The proposed development will not substantially injure the value of adjoining property, or is a public necessity;
4. The proposed development will be in harmony with the intensity, scale, and character of development existing or planning in the surrounding area;
5. The proposed development will not cause undue traffic congestion or create a traffic hazard;
6. The proposed development will not generate needs for transportation, water supply, sewage disposal, fire and police protection, and similar public services that cannot be adequately handled by available infrastructure and facilities;
7. The proposed development will be consistent with the comprehensive plan.

Staff Recommendation

Upon demonstrating that findings are met, staff is recommending approval of the requested Special Use Permit (QUASI-26-0012) with the following conditions:

1. In order to comply with all applicable Morrisville UDO requirements, Wake County will construction the portions of the Aviation Parkway road improvements for which the County is responsible, as identified in the TIA, prior to the receipt of any certification of occupancy or final plat approval.
2. All traffic movements to and from the proposed Future County Driveway, as referenced in the approved transportation impact analysis (TIA) for the West Wake Solid Waste Facility to be realigned and reconstructed, shall be controlled by the traffic signal that is also proposed in the TIA to control all traffic movements at the intersection of International Drive and Aviation Parkway
3. The proposed development shall be developed consistent with sketch plan. Notwithstanding the foregoing, minor modifications to the approved site plan may be approved administratively consistent with the provisions of UDO Section 2.5.6.C(6)(d).

Resolution

Resolution 2026-291-0 of the Morrisville Town Council Approving a Special Use Permit for a Major Utility Facility use to accommodate the future development of the West Wake Solid Waste Facility at 414 Aviation Parkway Wake County PIN 0755462762 (QUASI-26-0012)

Town Council Agenda Item Report

Agenda Item No. 12.a

Submitted by: Justin Rosser

Submitting Department Police

Meeting Date: September 8, 2026

SUBJECT

False Alarm Ordinance

Recommendation:

Approve as presented

Updates/History of Briefing:

During the August 25th Council meeting, Council expressed interest in allowing more time to file appeals and clearer language for Chief of Police approval when discontinuing alarm responses. Language has been updated in the ordinance to reflect feedback from Council. Council also requested data around the number of false alarms we respond to, and cost associated with those responses. A presentation has been added to cover those statistics. A resolution has been added to amend the FY27 fee schedule to incorporate a late fee of 25% of the total outstanding false alarm bill when payment for false alarms is not received within 30 days of invoice. The ordinance will become effective on January 1, 2027, once approved by Council. This will give staff time to educate the public on the new ordinance and fee changes.

ATTH 01, the clean version of the ordinance, as presented prior to Council feedback, has been removed.

Executive Summary and Background Information:

This ordinance replaces Chapter 30 Article II (Alarm Systems) of the Town Code of Ordinances. The new ordinance adds clearer definitions of roles and responsibilities of the alarm users and alarm companies. This ordinance also gives clearer enforcement options and restructures the penalties for violations of the ordinance. The penalties will also be moved to the fee schedule to prevent any need to change the ordinance when changing penalties. The updates align with neighboring jurisdictions, and is based on the model ordinance from the NC Association of Chiefs of Police.

The FY27 Fee Schedule is also amended with the following update regarding late payments:

Fee

FY26 Fee

Adopted FY27 Fee

False Alarm Bill Late Fee

N/A

25% of outstanding r

Advisory Board/Committee Review:

None

Insert Date of Advisory Board/Committee Review:

Advisory Board/Committee Recommendation and/or Vote:

None

Potential Options:

Approve the Ordinance amending the False Alarm Ordinance.

Request changes and approve the Ordinance amending the False Alarm Ordinance.

Do not approve the Ordinance amending the False Alarm Ordinance.

Staff Recommendation:

None

ATTACHMENTS

- [2026-294-0 ORD Amending False Alarm Policy.pdf](#)
- [2026-294-0 RES Fee Schedule Amendment False Alarms.pdf](#)
- [2026-294-0 ATTH 02 False Alarm Revisions REDLINE.pdf](#)
- [2026-294-0 ATTH 03 False Alarm Revisions CLEAN.pdf](#)
- [2026-294-0 PRES False Alarm Ordinance Revisions.pdf](#)
- [2026-294-0 PRES False Alarm Statistics NEW ATTACHMENT.pdf](#)



ORDINANCE 2026-294-0 OF THE MORRISVILLE TOWN COUNCIL AMENDING THE TOWN CODE OF ORDINANCES CHAPTER 30, ARTICLE II RELATED TO ALARM SYSTEMS

WHEREAS, the Town Code of Ordinances reserves Chapter 30 for matters pertaining to law enforcement; and

WHEREAS, the false alarm policy has been updated to clearly define the roles and responsibilities of alarm users and alarm companies as well as enforcement options; and

WHEREAS, the false alarm policy has been updated to restructure the penalties for violations; and

WHEREAS, the false alarm policy has been updated to reference the fee schedule rather than list penalties for violations; and

WHEREAS, the updates align with neighboring jurisdictions and reflect recommendations from the NC Association of Chiefs of Police.

NOW, THEREFORE, BE IT RESOLVED THAT THE MORRISVILLE TOWN COUNCIL hereby amends Chapter 30, Article II of the Code of Ordinances of the Town of Morrisville, North Carolina by adding the underlined text and removing ~~stricken text~~ as follows:

Sec. 30:36. Purpose. Definitions

~~The following words, terms and phrases, when used in this article shall have the meanings ascribed to them in this section, except where the context requires otherwise:~~

~~*Alarm system* means any type of electronic hold-up or burglar alarm installed in any nonresidential property within the corporate limits of the town.~~

~~*Alarm user* means any person, corporation, partnership, proprietorship, governmental or educational entity or any other entity owning or leasing an alarm system, or on whose premises an alarm system is maintained for the protection of such premises.~~

~~*Automatic dial protection device* means an automatic dialing device or an automatic telephone dialing alarm system and shall include any system which, upon being activated, automatically initiates to the police department, a recorded message or code signal indicating a need for police response.~~

~~*Employee* means any person holding an entry key, code and/or card to enter the property whether it be a full-time or part-time person, or a person~~

~~conducting any business therein.~~

~~*False alarm* means an alarm signal generated by an alarm system which results in the dispatching of police department personnel to the alarm system premises, when the alarm system is improperly set off due to faulty alarm panel, electronic card reader, door sensor, window sensor, glass breakage sensor, floor sensor, infrared system or motion detector for any reason including installation, repair, or any employee entering the property for any lawful reason, but improperly entering the alarm code or causing the alarm to activate for any reason or for any reason other than the alarms intended purpose for which the alarm system was designed and installed. A false alarm does not include any alarm system signal generated by severe weather conditions, utility service interruption beyond the control of the owner/operator, an act of God or the premises are unlawfully entered by any employee or alarm user.~~

The Morrisville Town Council finds that excessive false alarms unduly burden the Morrisville Police Department's law enforcement resources. The purpose of this ordinance is to establish reasonable expectations for alarm users and to ensure that alarm users are held responsible for their use of alarm systems.

Sec. 30:367. Definitions. False Alarm Policy

The following words, terms and phrases, when used in this article ordinance shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Alarm administrator means the Police Chief or their designee who is responsible for administering the provisions of this ordinance.

Alarm company means a person, company, firm, or corporation engaged in selling, leasing, installing, servicing or monitoring alarm systems and which is licensed by the North Carolina Alarm Systems Licensing Board.

Alarm signal means a detectable signal, audible or visual, generated by an alarm system to which law enforcement is requested to respond.

Alarm system means any single device or assembly of equipment designed to signal the occurrence of an illegal or unauthorized entry or other activity to which law enforcement is requested to respond, but does not include motor vehicle or boat alarms, fire alarms, domestic violence alarms, or alarms designed to elicit a medical response.

Alarm user means any person, corporation, partnership, proprietorship, governmental or educational entity or any other entity owning, leasing, or operating an alarm system, or on whose premises an alarm system is maintained for the protection of such premises.

Automatic dial protection device means an automatic dialing device or an

automatic telephone dialing alarm system which, upon being activated, automatically initiates to the Morrisville Police Department, a recorded message or code signal indicating a need for law enforcement response.

Cancellation means termination of response by the Police Department when the alarm company notifies the Police Department that there is not an existing situation at the alarm site requiring police response after an alarm dispatch request. If cancellation occurs prior to police arriving at the scene, this is not a false alarm, and no penalty will be assessed.

False alarm means the activation of an alarm system when, upon inspection by the Police Department, there is no evidence of unauthorized entry, robbery, or other such crime attempted in or on the premises which would have activated a properly functioning alarm system.

Local alarm means an alarm system that emits a signal at an alarm site that is audible or visible from the exterior of a structure and is not monitored by a remote monitoring facility, whether installed by an alarm company or user.

Police Department means the Police Department of the Town of Morrisville, North Carolina.

Runaway alarm means an alarm system that produces repeated alarm signals that do not appear to be caused by separate human action. The Police Department may in its discretion discontinue police responses to alarm signals from what appears to be a runaway alarm.

Verify means an attempt by the alarm system monitoring company to contact the alarm site and/or alarm user by telephone and/or other electronic means, regardless of whether actual contact with a person is made, to determine whether an alarm signal is valid before requesting law enforcement response.

Sec. 30:378. Duties of the Alarm User. ~~Automatic dialing protection devices prohibited.~~

~~No automatic dial protection device shall be used to report, or cause to be reported, any recorded message to the police department.~~

An alarm user shall:

- (a) Maintain the premises and the alarm system in a manner that will reduce or eliminate false alarms; and
- (b) Receive training from the alarm company on the proper use of the alarm system prior to the alarm user authorizing the alarm company to request dispatch of law enforcement and ensure that training is provided to all of the alarm user's employees or those having access to the alarm.
- (c) Ensure that the system is properly maintained, provide regular maintenance,

- and ensure that the system is routinely inspected by the alarm company.
- (d) Respond or cause a representative to respond to the alarm system's location within a reasonable time when notified by the Police Department, or their authorized representative (i.e. applicable Public Safety Answering Point/911 Communications Center).
 - (e) Not manually activate an alarm for any reason other than an occurrence of an event that the alarm system was intended to report.

Sec. 30:389. Duties of the Alarm Company. Prohibited acts.

- ~~(1) It shall be unlawful for any person to violate any provision of this article.~~
- ~~(2) It shall be unlawful for any person to activate a burglary or robbery alarm for the purpose of summoning police when no burglary or robbery, or other crime dangerous to life or property, is being committed or attempted on the premises, or otherwise to cause a false alarm.~~
- ~~(3) It shall be unlawful for an alarm user to fail to reimburse the town, in accordance with the provisions of this article, for response(s) by the police department to any false alarm(s).~~

An alarm company operating within the Town of Morrisville shall:

- (a) Obtain and maintain the required North Carolina Alarm Systems Licensing Board licenses.
- (b) Be continuously capable of providing name, address, and telephone number(s) of the alarm user or a designee, who can be called in an emergency at any time and capable of responding to an alarm call, when notified, within a reasonable time.
- (c) Prior to activation of the alarm system, provide instructions explaining the proper operation of the alarm system to the alarm user.
- (d) Provide written information on how to obtain service from the alarm company for the alarm system.
- (e) Attempt to verify by calling the alarm site and/or alarm user by telephone to determine whether an alarm signal is valid before requesting law enforcement response. Telephone verification shall require as a minimum that a second call be made to a different number if the first attempt fails to reach an alarm user who can properly identify themselves to attempt to determine whether an alarm signal is valid, EXCEPT in the case of a panic or robbery-in-progress alarm, or in cases where a crime-in-progress has been verified by video and/or audible means.
- (f) Provide alarm user registration number to the Morrisville Police Department's authorized Communications Center to facilitate dispatch and/or cancellations.
- (g) Communicate any available information about the location of the alarm.
- (h) Communicate a cancellation to the Morrisville Police Department, through their authorized Communications Center, as soon as possible following a determination that response is unnecessary.

Sec. 30:~~3940~~. Prohibited acts. Enforcement of provisions; methods of enforcement.

~~The town may enforce the provisions of this article by one or combination of the following methods:~~

- ~~(1) Civil penalty. Any person who violates any provision of this article may be subject to a civil penalty which may be recovered by the town in a civil action in the nature of a debt if the violator does not pay the penalty within 30 days from the date the violator is notified of the penalty. Any other service charges imposed by this article may be collected by the town as a civil penalty in a civil action. The civil penalty to be assessed is included in the Town's User Fee Schedule that is adopted annually by Town Council as a part of the adopted operating budget.~~
- ~~(2) Equitable remedy. The town may apply to a court of competent jurisdiction for an injunction, abatement order or any other appropriate equitable remedy.~~
- ~~(a) It shall be unlawful to activate an alarm system to summon law enforcement when no crime is being committed or attempted on the premises, or otherwise to cause or permit a false alarm.~~
- ~~(b) It shall be unlawful to install, maintain, or use a local alarm system which is audible from the exterior of a structure for more than fifteen (15) minutes.~~
- ~~(c) It shall be unlawful to install, maintain, or use an automatic dial protection device that reports, or causes to be reported, any recorded message to the Police Department.~~
- ~~(d) It is hereby found and determined that the occurrence of three (3) or more false alarms within a 12-month period is excessive, constitutes a public nuisance, and is unlawful. The alarm user and/or owner/person responsible for the premises shall be responsible for compliance with this section.~~

Sec. 30:~~4041~~. Enforcement of Provisions. Appeal to town manager.

~~Any owner of premises subject to a civil penalty under the terms of this article may, within 30 days after notification of such penalty, appeal the penalty to the town manager. The town manager is authorized to affirm, compromise, or waive the entire penalty based on evidence provided to them by the owner of the premises.~~

- ~~(a) **Civil, Non-criminal Violation.** A violation of this ordinance shall be a civil violation and shall not constitute a misdemeanor or infraction.~~
- ~~(a) **Civil Penalties.** Violations of any of the provisions of this ordinance will be enforced through the assessment of civil penalties established by the Town of Morrisville. Civil penalties can be found in the Town of Morrisville's fee schedule.~~
- ~~(a) **Payment of Civil Penalties.** Civil penalties shall be paid within thirty (30) days from the date of the invoice. Failure to pay civil penalties within thirty (30) days shall result in a late payment penalty as outlined in the Town of Morrisville fee~~

schedule.

- (a) **Discontinuance of Law Enforcement Response.** Failure of an alarm user to make payment of any civil penalty assessed within thirty (30) days from the date of the invoice may also result in discontinuance of law enforcement response to alarm signals that may occur at the premises until payment is received. The decision to discontinue law enforcement response to any alarms will be determined by the Chief of Police and the Alarm User will be notified in writing of the decision prior to the police department discontinuing response.

Sec. 30:4142. Appeals. Duties of the chief of police.

~~The chief of police shall be responsible for recording all pertinent data and information regarding false burglar or hold-up alarms within the town's corporate limits and shall report all such information to the town manager once a month.~~

Assessments of civil penalties and other enforcement decisions made under this ordinance may be appealed by filing a written notice of appeal with the Town Manager within fifteen (15) business after the date of notification of the assessment of civil penalty or other enforcement decision. The failure to give notice of appeal as required shall constitute a waiver of the right to contest the assessment of penalty or other enforcement decision. The Town Manager is authorized to affirm, compromise, or waive the entire penalty based on evidence provided to them by the owner of the premises.

Sec. 30:43. Confidentiality.

The Town acknowledges that certain information obtained or compiled in registration of alarm systems may be exempt from public record disclosure requirements. In the interest of public safety, and for the protection of sensitive security information or the protection of criminal intelligence information, all information compiled by the Town of Morrisville pursuant to this ordinance shall be held in confidence by all employees and/or representatives and agents of the Town, except as otherwise required by law, by order of a court of competent jurisdiction, or as needed to enforce the provisions of this ordinance.

Sec. 30:44. Governmental Immunity.

Alarm company notification of an alarm to the Morrisville Police Department's authorized Communications Center does not create a contract, duty or obligation, either expressed or implied, of law enforcement response to an alarm or alarm notification. Any liability and consequential damage resulting from the failure to respond to an alarm notification are hereby disclaimed and governmental immunity as provided by law is retained. By using an alarm system, the alarm user acknowledges that the Police Department response may be influenced by factors such as the availability of police units, priority of calls, weather conditions, traffic conditions, emergency conditions, staffing levels, prior response history, and other factors related to the enforcement of this ordinance.

Sec. 30:44. Severability.

The provisions of this ordinance are severable. If a court determines that a word, phrase, clause, sentence, paragraph, subsection, section, or other provision is invalid or that the application of any part of the provision to any person or circumstance is invalid, the remaining provisions and the application of those provisions to other persons or circumstances are not affected by that decision.

BE IT FURTHER RESOLVED, that this ordinance will be effective on January 1, 2027.

Adopted this the 8th day of September 2026,

ATTEST:

TJ Cawley, Mayor

Kayla Bertling, Town Clerk



**RESOLUTION 2026-294-0 OF THE MORRISVILLE TOWN COUNCIL
PERTAINING TO THE AMENDMENT OF THE FY2027 FEE SCHEDULE
TO ADD LATE FEES TO FALSE ALARM VIOLATIONS**

WHEREAS, the Town of Morrisville has the legal authority to set fees that recover some of the cost of providing services; and

WHEREAS, the Town of Morrisville fees are reviewed and updated annually in conjunction with the budget and defined by the master fee schedule; and

WHEREAS, the FY2027 Fee Schedule was approved with the FY2027 Budget; and

WHEREAS, on occasion, the need may occur to make changes off-cycle to the Fee Schedule; and

WHEREAS, Town Council has approved changes to the false alarm ordinance which will require the collection of late fees if payment of the civil penalties is not received within thirty (30) days from the date of the invoice.

NOW, THEREFORE, BE IT RESOLVED, that the Morrisville Town Council hereby amends, effective January 1, 2027, the adopted FY2027 Fee Schedule, previously adopted on June 9, 2026, to permit the collection of late fees associated with failure to pay civil penalties related to false alarm violations shown in **Red** below:

Police Fees			
Fee	FY 26 Fee	Adopted FY27 Fee	Notes/Justification
4-5 false alarms	\$80/false alarm	\$100/ false alarm	Increase based on peer comparative analysis
6-8 false alarms	\$150/ false alarm	\$200/ false alarm	
9-10 false alarms	\$200/ false alarm	\$300/ false alarm	
11+ false alarms	\$300/ false alarm	\$500/ false alarm	
Late Fee (Effective January 1, 2027)	N/A	25% of outstanding false alarm bill	A late fee of 25% of the total outstanding false alarm bill will be assessed for any payment not received by the established due date

Adopted this the 8th day of September 2026.

ATTEST:

TJ Cawley, Mayor

Kayla Bertling, Town Clerk

2026-294-0 ORD Amending Chapter 30, Article II of the Town Code of Ordinances to read as follows:

SECTION 30:36. PURPOSE

The Morrisville Town Council finds that excessive false alarms unduly burden the Morrisville Police Department's law enforcement resources. The purpose of this ordinance is to establish reasonable expectations for alarm users and to ensure that alarm users are held responsible for their use of alarm systems.

SECTION 30:37. DEFINITIONS

The following words, terms and phrases, when used in this ordinance, shall have the meanings ascribed to them, except where the context clearly indicates a different meaning:

Alarm administrator means the Police Chief or their designee who is responsible for administering the provisions of this ordinance.

Alarm company means a person, company, firm, or corporation engaged in selling, leasing, installing, servicing or monitoring alarm systems and which is licensed by the North Carolina Alarm Systems Licensing Board.

Alarm signal means a detectable signal, audible or visual, generated by an alarm system to which law enforcement is requested to respond.

Alarm system means any single device or assembly of equipment designed to signal the occurrence of an illegal or unauthorized entry or other activity to which law enforcement is requested to respond, but does not include motor vehicle or boat alarms, fire alarms, domestic violence alarms, or alarms designed to elicit a medical response.

Alarm user means any person, corporation, partnership, proprietorship, governmental or educational entity or any other entity owning, leasing, or operating an alarm system, or on whose premises an alarm system is maintained for the protection of such premises.

Automatic dial protection device means an automatic dialing device or an automatic telephone dialing alarm system which, upon being activated, automatically initiates to the Morrisville Police Department a recorded message or code signal indicating a need for law enforcement response.

Cancellation means termination of response by the Police Department when the alarm company notifies the Police Department that there is not an existing situation at the alarm site requiring police response after an alarm dispatch request. If cancellation occurs prior to police arriving at the scene, this is not a false alarm, and no penalty will be assessed.

False alarm means the activation of an alarm system when, upon inspection by the Police Department, there is no evidence of unauthorized entry, robbery, or other such crime attempted in or on the premises which would have activated a properly functioning alarm system.

Local alarm means an alarm system that emits a signal at an alarm site that is audible or visible from the exterior of a structure and is not monitored by a remote monitoring facility, whether installed by an alarm company or user.

Police Department means the Police Department of the Town of Morrisville, North Carolina.

Runaway alarm means an alarm system that produces repeated alarm signals that do not appear to be caused by separate human action. The Police Department may in its discretion discontinue police responses to alarm signals from what appears to be a runaway alarm.

Verify means an attempt by the alarm system monitoring company to contact the alarm site and/or alarm user by telephone and/or other electronic means, regardless of whether actual contact with a person is made, to determine whether an alarm signal is valid before requesting law enforcement response.

SECTION 30:38. DUTIES OF THE ALARM USER

An alarm user shall:

- (a) Maintain the premises and the alarm system in a manner that will reduce or eliminate false alarms; and
- (b) Receive training from the alarm company on the proper use of the alarm system prior to the alarm user authorizing the alarm company to request dispatch of law enforcement and ensure that training is provided to all of the alarm user's employees or those having access to the alarm.
- (c) Ensure that the system is properly maintained, provide regular maintenance, and ensure that the system is routinely inspected by the alarm company.
- (d) Respond or cause a representative to respond to the alarm system's location within a reasonable time when notified by the Police Department, or their authorized representative (i.e. applicable Public Safety Answering Point/911 Communications Center).
- (e) Not manually activate an alarm for any reason other than an occurrence of an event that the alarm system was intended to report.

SECTION 30:39. DUTIES OF THE ALARM COMPANY

An alarm company operating within the Town of Morrisville shall:

- (a) Obtain and maintain the required North Carolina Alarm Systems Licensing Board licenses.
- (b) Be continuously capable of providing name, address, and telephone number(s) of the alarm user or a designee, who can be called in an emergency at any time and capable of responding to an alarm call, when notified, within a reasonable time.
- (c) Prior to activation of the alarm system, provide instructions explaining the proper operation of the alarm system to the alarm user.
- (d) Provide written information on how to obtain service from the alarm company for the alarm system.
- (e) Attempt to verify by calling the alarm site and/or alarm user by telephone to determine whether an alarm signal is valid before requesting law enforcement response. Telephone verification shall require as a minimum that a second call be made to a different number if the first attempt fails to reach an alarm user who can properly identify themselves to attempt to determine whether an alarm signal is valid, EXCEPT in the case of a panic or robbery-in-progress alarm, or in cases where a crime-in-progress has been verified by video and/or audible means.
- (f) Provide alarm user registration number to the Morrisville Police Department's authorized Communications Center to facilitate dispatch and/or cancellations.

- (g) Communicate any available information about the location of the alarm.
- (h) Communicate a cancellation to the Morrisville Police Department, through their authorized Communications Center, as soon as possible following a determination that response is unnecessary.

SECTION 30:40. PROHIBITED ACTS

- (a) It shall be unlawful to activate an alarm system to summon law enforcement when no crime is being committed or attempted on the premises, or otherwise to cause or permit a false alarm.
- (b) It shall be unlawful to install, maintain, or use a local alarm system which is audible from the exterior of a structure for more than fifteen (15) minutes.
- (c) It shall be unlawful to install, maintain, or use an automatic dial protection device that reports, or causes to be reported, any recorded message to the Police Department.
- (d) It is hereby found and determined that the occurrence of three (3) or more false alarms within a 12-month period is excessive, constitutes a public nuisance, and is unlawful. The alarm user and/or owner/person responsible for the premises shall be responsible for compliance with this section.

SECTION 30:41. ENFORCEMENT OF PROVISIONS

- (a) **Civil, Non-criminal Violation.** A violation of this ordinance shall be a civil violation and shall not constitute a misdemeanor or infraction.
- (b) **Civil Penalties.** Violations of any of the provisions of this ordinance will be enforced through the assessment of civil penalties established by the Town of Morrisville. Civil penalties can be found in the Town of Morrisville's fee schedule.
- (c) **Payment of Civil Penalties.** Civil penalties shall be paid within thirty (30) days from the date of the invoice. Failure to pay civil penalties within thirty (30) days shall result in a late payment penalty as outlined in the Town of Morrisville fee schedule.
- (d) **Discontinuance of Law Enforcement Response.** Failure of an alarm user to make payment of any civil penalty assessed within thirty (30) days from the date of the invoice may also result in discontinuance of law enforcement response to alarm signals that may occur at the premises until payment is received. The decision to discontinue law enforcement response to any alarms will be determined by the Chief of Police and the Alarm User will be notified in writing of the decision prior to the police department discontinuing response.

SECTION 30:42. APPEALS

Assessments of civil penalties and other enforcement decisions made under this ordinance may be appealed by filing a written notice of appeal with the Town Manager within ~~ten (10)~~ fifteen (15) business days after the date of notification of the assessment of civil penalty or other enforcement decision. The failure to give notice of appeal as required shall constitute a waiver of the right to contest the assessment of penalty or other enforcement decision. The Town Manager is authorized to affirm, compromise, or waive the entire penalty based on evidence provided to them by the owner of the premises.

SECTION 30:43. CONFIDENTIALITY

The Town acknowledges that certain information obtained or compiled in registration of alarm systems may be exempt from public record disclosure requirements. In the interest of public safety, and for the protection of sensitive security information or the protection of criminal intelligence information, all information compiled by the Town of Morrisville pursuant to this ordinance shall be held in confidence by all employees and/or representatives and agents of the Town, except as otherwise required by law, by order of a court of competent jurisdiction, or as needed to enforce the provisions of this ordinance.

SECTION 30:44. GOVERNMENTAL IMMUNITY

Alarm company notification of an alarm to the Morrisville Police Department's authorized Communications Center does not create a contract, duty or obligation, either expressed or implied, of law enforcement response to an alarm or alarm notification. Any liability and consequential damage resulting from the failure to respond to an alarm notification are hereby disclaimed and governmental immunity as provided by law is retained. By using an alarm system, the alarm user acknowledges that the Police Department response may be influenced by factors such as the availability of police units, priority of calls, weather conditions, traffic conditions, emergency conditions, staffing levels, prior response history, and other factors related to the enforcement of this ordinance.

SECTION 30:45. SEVERABILITY

The provisions of this ordinance are severable. If a court determines that a word, phrase, clause, sentence, paragraph, subsection, section, or other provision is invalid or that the application of any part of the provision to any person or circumstance is invalid, the remaining provisions and the application of those provisions to other persons or circumstances are not affected by that decision.

This ordinance shall be effective on January 1, 2027.

2026-294-0 ORD Amending Chapter 30, Article II of the Town Code of Ordinances to read as follows:

SECTION 30:36. PURPOSE

The Morrisville Town Council finds that excessive false alarms unduly burden the Morrisville Police Department's law enforcement resources. The purpose of this ordinance is to establish reasonable expectations for alarm users and to ensure that alarm users are held responsible for their use of alarm systems.

SECTION 30:37. DEFINITIONS

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Alarm company means a person, company, firm, or corporation engaged in selling, leasing, installing, servicing or monitoring alarm systems and which is licensed by the North Carolina Alarm Systems Licensing Board.

Alarm signal means a detectable signal, audible or visual, generated by an alarm system to which law enforcement is requested to respond.

Alarm system means any single device or assembly of equipment designed to signal the occurrence of an illegal or unauthorized entry or other activity to which law enforcement is requested to respond, but does not include motor vehicle or boat alarms, fire alarms, domestic violence alarms, or alarms designed to elicit a medical response.

Alarm user means any person, corporation, partnership, proprietorship, governmental or educational entity or any other entity owning, leasing, or operating an alarm system, or on whose premises an alarm system is maintained for the protection of such premises.

Automatic dial protection device means an automatic dialing device or an automatic telephone dialing alarm system which, upon being activated, automatically initiates to the Morrisville Police Department a recorded message or code signal indicating a need for law enforcement response.

Cancellation means termination of response by the Police Department when the alarm company notifies the Police Department that there is not an existing situation at the alarm site requiring police response after an alarm dispatch request. If cancellation occurs prior to police arriving at the scene, this is not a false alarm, and no penalty will be assessed.

False alarm means the activation of an alarm system when, upon inspection by the Police Department, there is no evidence of unauthorized entry, robbery, or other such crime attempted in or on the premises which would have activated a properly functioning alarm system.

Local alarm means an alarm system that emits a signal at an alarm site that is audible or visible from the exterior of a structure and is not monitored by a remote monitoring facility, whether installed by an alarm company or user.

Police Department means the Police Department of the Town of Morrisville, North Carolina.

Runaway alarm means an alarm system that produces repeated alarm signals that do not appear to be caused by separate human action. The Police Department may in its discretion discontinue police responses to alarm signals from what appears to be a runaway alarm.

Verify means an attempt by the alarm system monitoring company to contact the alarm site and/or alarm user by telephone and/or other electronic means, regardless of whether actual contact with a person is made, to determine whether an alarm signal is valid before requesting law enforcement response.

SECTION 30:38. DUTIES OF THE ALARM USER

An alarm user shall:

- (a) Maintain the premises and the alarm system in a manner that will reduce or eliminate false alarms; and
- (b) Receive training from the alarm company on the proper use of the alarm system prior to the alarm user authorizing the alarm company to request dispatch of law enforcement and ensure that training is provided to all of the alarm user's employees or those having access to the alarm.
- (c) Ensure that the system is properly maintained, provide regular maintenance, and ensure that the system is routinely inspected by the alarm company.
- (d) Respond or cause a representative to respond to the alarm system's location within a reasonable time when notified by the Police Department, or their authorized representative (i.e. applicable Public Safety Answering Point/911 Communications Center).
- (e) Not manually activate an alarm for any reason other than an occurrence of an event that the alarm system was intended to report.

SECTION 30:39. DUTIES OF THE ALARM COMPANY

An alarm company operating within the Town of Morrisville shall:

- (a) Obtain and maintain the required North Carolina Alarm Systems Licensing Board licenses.
- (b) Be continuously capable of providing name, address, and telephone number(s) of the alarm user or a designee, who can be called in an emergency at any time and capable of responding to an alarm call, when notified, within a reasonable time.
- (c) Prior to activation of the alarm system, provide instructions explaining the proper operation of the alarm system to the alarm user.
- (d) Provide written information on how to obtain service from the alarm company for the alarm system.
- (e) Attempt to verify by calling the alarm site and/or alarm user by telephone to determine whether an alarm signal is valid before requesting law enforcement response. Telephone verification shall require as a minimum that a second call be made to a different number if the first attempt fails to reach an alarm user who can properly identify themselves to attempt to determine whether an alarm signal is valid, EXCEPT in the case of a panic or robbery-in-progress alarm, or in cases where a crime-in-progress has been verified by video and/or audible means.
- (f) Provide alarm user registration number to the Morrisville Police Department's authorized Communications Center to facilitate dispatch and/or cancellations.

- (g) Communicate any available information about the location of the alarm.
- (h) Communicate a cancellation to the Morrisville Police Department, through their authorized Communications Center, as soon as possible following a determination that response is unnecessary.

SECTION 30:40. PROHIBITED ACTS

- (a) It shall be unlawful to activate an alarm system to summon law enforcement when no crime is being committed or attempted on the premises, or otherwise to cause or permit a false alarm.
- (b) It shall be unlawful to install, maintain, or use a local alarm system which is audible from the exterior of a structure for more than fifteen (15) minutes.
- (c) It shall be unlawful to install, maintain, or use an automatic dial protection device that reports, or causes to be reported, any recorded message to the Police Department.
- (d) It is hereby found and determined that the occurrence of three (3) or more false alarms within a 12-month period is excessive, constitutes a public nuisance, and is unlawful. The alarm user and/or owner/person responsible for the premises shall be responsible for compliance with this section.

SECTION 30:41. ENFORCEMENT OF PROVISIONS

- (a) **Civil, Non-criminal Violation.** A violation of this ordinance shall be a civil violation and shall not constitute a misdemeanor or infraction.
- (b) **Civil Penalties.** Violations of any of the provisions of this ordinance will be enforced through the assessment of civil penalties established by the Town of Morrisville. Civil penalties can be found in the Town of Morrisville's fee schedule.
- (c) **Payment of Civil Penalties.** Civil penalties shall be paid within thirty (30) days from the date of the invoice. Failure to pay civil penalties within thirty (30) days shall result in a late payment penalty as outlined in the Town of Morrisville fee schedule.
- (d) **Discontinuance of Law Enforcement Response.** Failure of an alarm user to make payment of any civil penalty assessed within thirty (30) days from the date of the invoice may also result in discontinuance of law enforcement response to alarm signals that may occur at the premises until payment is received. The decision to discontinue law enforcement response to any alarms will be determined by the Chief of Police and the Alarm User will be notified in writing of the decision prior to the police department discontinuing response.

SECTION 30:42. APPEALS

Assessments of civil penalties and other enforcement decisions made under this ordinance may be appealed by filing a written notice of appeal with the Town Manager within fifteen (15) business days after the date of notification of the assessment of civil penalty or other enforcement decision. The failure to give notice of appeal as required shall constitute a waiver of the right to contest the assessment of penalty or other enforcement decision. The Town Manager is authorized to affirm, compromise, or waive the entire penalty based on evidence provided to them by the owner of the premises.

SECTION 30:43. CONFIDENTIALITY

The Town acknowledges that certain information obtained or compiled in registration of alarm systems may be exempt from public record disclosure requirements. In the interest of public safety, and for the protection of sensitive security information or the protection of criminal intelligence information, all information compiled by the Town of Morrisville pursuant to this ordinance shall be held in confidence by all employees and/or representatives and agents of the Town, except as otherwise required by law, by order of a court of competent jurisdiction, or as needed to enforce the provisions of this ordinance.

SECTION 30:44. GOVERNMENTAL IMMUNITY

Alarm company notification of an alarm to the Morrisville Police Department's authorized Communications Center does not create a contract, duty or obligation, either expressed or implied, of law enforcement response to an alarm or alarm notification. Any liability and consequential damage resulting from the failure to respond to an alarm notification are hereby disclaimed and governmental immunity as provided by law is retained. By using an alarm system, the alarm user acknowledges that the Police Department response may be influenced by factors such as the availability of police units, priority of calls, weather conditions, traffic conditions, emergency conditions, staffing levels, prior response history, and other factors related to the enforcement of this ordinance.

SECTION 30:45. SEVERABILITY

The provisions of this ordinance are severable. If a court determines that a word, phrase, clause, sentence, paragraph, subsection, section, or other provision is invalid or that the application of any part of the provision to any person or circumstance is invalid, the remaining provisions and the application of those provisions to other persons or circumstances are not affected by that decision.

This ordinance shall be effective on January 1, 2027.



Morrisville
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False Alarm Ordinance Revision

Morrisville Town Council
August 25, 2026
Chief Justin Rosser

Alarm Ordinance Revision

- Replaces Ordinance Article II Alarm Systems
- Based on the model ordinance from the NC Association of Chiefs of Police.
- Aligns with ordinances from neighboring jurisdictions
- Provides clear definitions and responsibilities for alarm owners and alarm companies.
- Clearly defines violations of the ordinance.
- Defines enforcement provisions
- Clearly explains the appeals process

Alarm User Responsibilities

- Maintain the alarm system to prevent false alarms.
- Ensure all users receive training on the alarm system.
- Ensure that the system is properly maintained, inspected and receives regular maintenance.
- Respond promptly when notified of an activation.
- Not manually activate an alarm for any reason other than an occurrence of an event that the alarm system was intended to report.

Alarm Company Responsibilities

- Obtain and maintain the required North Carolina Alarm Systems Licensing Board licenses.
- Provide alarm user contact information within a reasonable time.
- Provide instructions and training related to system use to the alarm user.
- Verify alarms before requesting police assistance (except for emergencies).
- Provide alarm user information to Cary Police Communications.
- Communicate cancellations of alarms quickly.

Ordinance Violations

- It shall be unlawful to activate an alarm system to summon law enforcement when no crime is being committed or attempted on the premises, or otherwise to cause or permit a false alarm.
- It shall be unlawful to install, maintain, or use a local alarm system which is audible from the exterior of a structure for more than fifteen (15) minutes.
- It shall be unlawful to install, maintain, or use an automatic dial protection device that reports, or causes to be reported, any recorded message to the Police Department.
- It is hereby found and determined that the occurrence of three (3) or more false alarms within a 12-month period is excessive, constitutes a public nuisance, and is unlawful. The alarm user and/or owner/person responsible for the premises shall be responsible for compliance with this section.



Enforcement Provisions

- ***Civil, Non-criminal Violation.*** A violation of this ordinance shall be a civil violation and shall not constitute a misdemeanor or infraction.
- ***Civil Penalties.*** Violations of any of the provisions of this ordinance will be enforced through the assessment of civil penalties established by the Town of Morrisville. Civil penalties can be found in the Town of Morrisville's fee schedule.
- ***Payment of Civil Penalties.*** Civil penalties shall be paid within thirty (30) days from the date of the invoice. Failure to pay civil penalties within thirty (30) days shall result in a late payment penalty as outlined in the Town of Morrisville fee schedule.
- ***Discontinuance of Law Enforcement Response.*** Failure of an alarm user to make payment of any civil penalty assessed within thirty (30) days from the date of the invoice may also result in discontinuance of law enforcement response to alarm signals that may occur at the premises until payment is received.

Appeals Process

- Appeals may be filed in writing to the Town Manager.
- Appeals must be filed within 10 days.
- Failure to give notice of appeal constitutes a waiver of the right to contest the penalty.
- Town Manager can affirm, reduce, or waive penalties.

Civil Penalties (Fee Schedule)

- 4-5 false alarms - \$100
- 6-8 false alarms - \$200
- 9-10 false alarms - \$300
- 11+ - false alarms - \$500

Education on Ordinance Changes

- Alarm users and alarm companies will be notified in writing from town staff about the ordinance and fee changes.
- We will work with our communications team to conduct outreach through social media and other avenues.
- Notice will be posted on the town's website to educate the public of the changes to the ordinance.
- Ordinance changes will be effective 60 days after council approval.

Questions & Next Steps



Morrisville
Live connected. Live well.

False Alarm Ordinance Statistics

Morrisville Town Council
September 8, 2026
Chief Justin Rosser

Changes to Ordinance

- Appeals deadline changed from 10 days to 15 business days.
- Discontinuation of responses will need approval from Chief of Police and written notice will be sent to alarm user prior to implementation.
- Fee Schedule amended to add late fee of 25% of outstanding balance if not paid within 30 days of invoice.
- Ordinance will be effective on January 1, 2027.

Morrisville False Alarm Statistics (2025)

- 524 false alarms (620 in 2024)
- 27 Alarm Users would have violations under the new ordinance.
- None of those are residential
- Number of false alarms for those users ranged from 4 to 15.
- Only one Alarm User would have been in violation of non-compliance with civil penalties.

Security Industry Alarm Coalition Data

- 99.9% of all alarm activations are false.
- Costs
 - National Average is \$75 to \$95 per response
 - Based on 2 Officer Response
 - Average of 20 minutes per alarm
 - Based on \$75/alarm personnel cost and \$34.26/alarm dispatch cost for 524 false alarms.
 - $\$39,300/\text{personnel} + \$17,952/\text{dispatch} = \$57,252$

Questions

Town Council Agenda Item Report

Agenda Item No. 15.a

Submitted by: Cindi King

Submitting Department Parks, Recreation and Cultural Resources

Meeting Date: September 8, 2026

SUBJECT

MAFC Insurance-Based Memberships Follow-Up

Recommendation:

Receive information and provide feedback.

Updates/History of Briefing:

NA

Executive Summary and Background Information:

This is a follow-up to the questions pertaining to MAFC insurance-based memberships from the July 28th PRCR presentation.

Advisory Board/Committee Review:

None

Insert Date of Advisory Board/Committee Review:

Advisory Board/Committee Recommendation and/or Vote:

None

Potential Options:

Receive information and provide feedback.

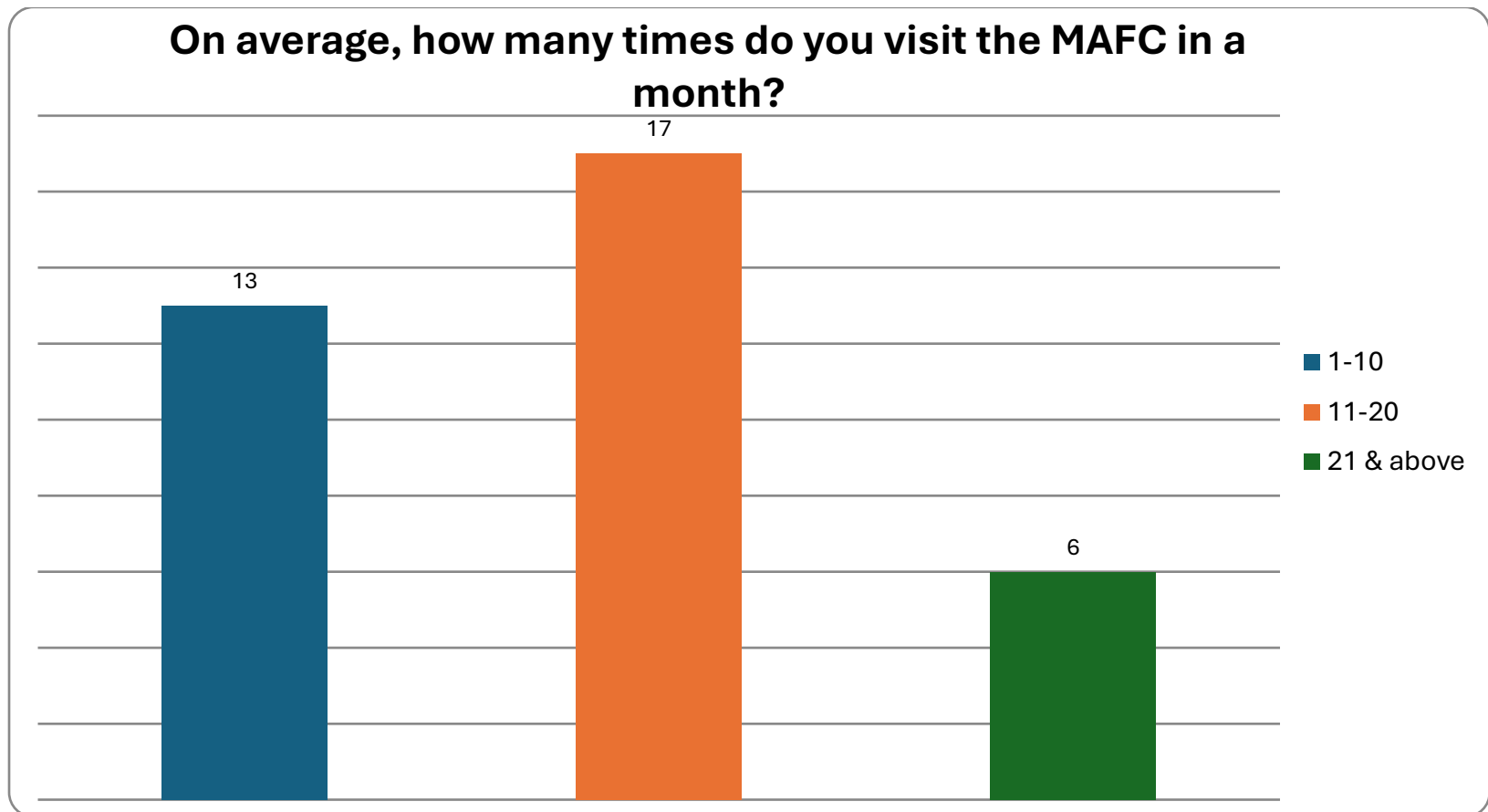
Staff Recommendation:

None

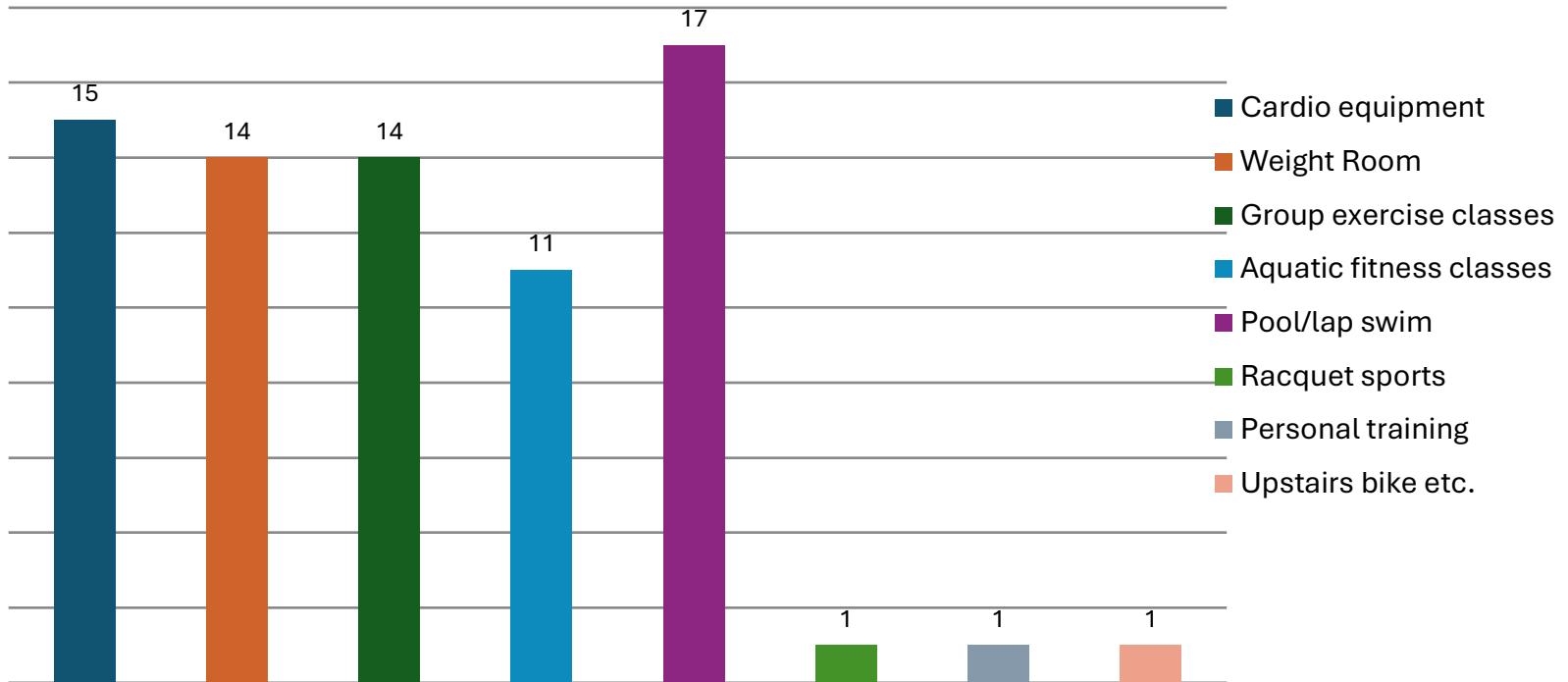
ATTACHMENTS

- [2026-189-0_ATTH01_Survey Results.pdf](#)
- [2026-189-0_PRES_MAFc Insurance.pdf](#)

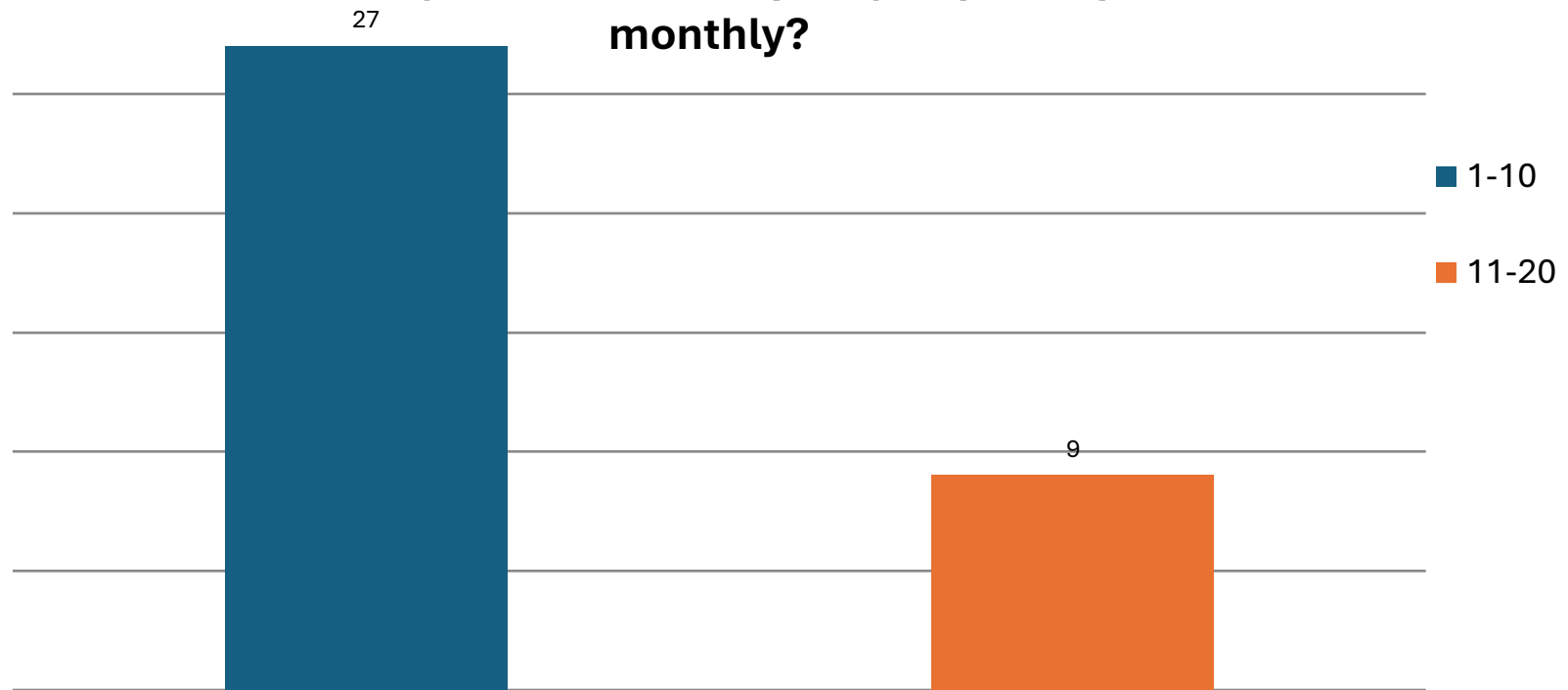
2026 Senior Insurance Membership Questionnaire Results



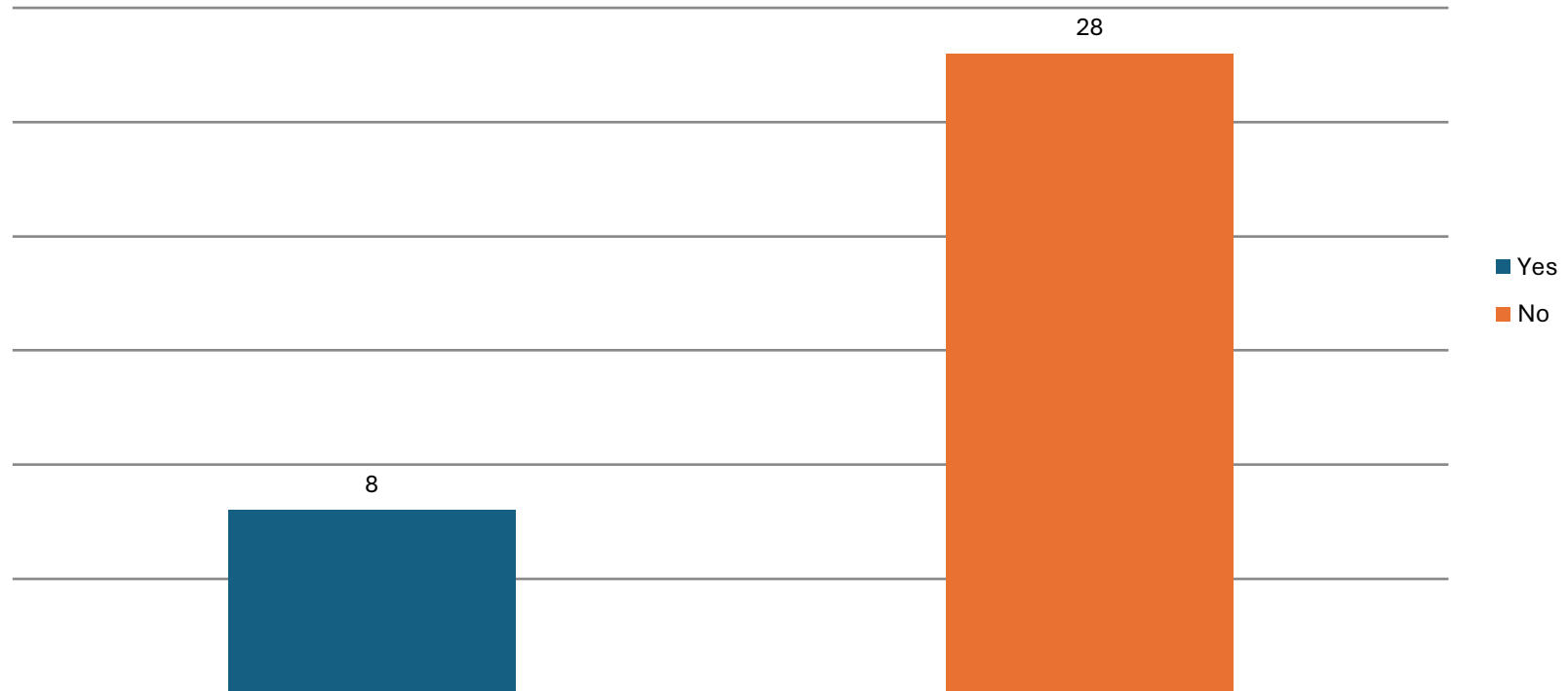
When visiting the MAFC, what are your preferred ways to participate at our facility?



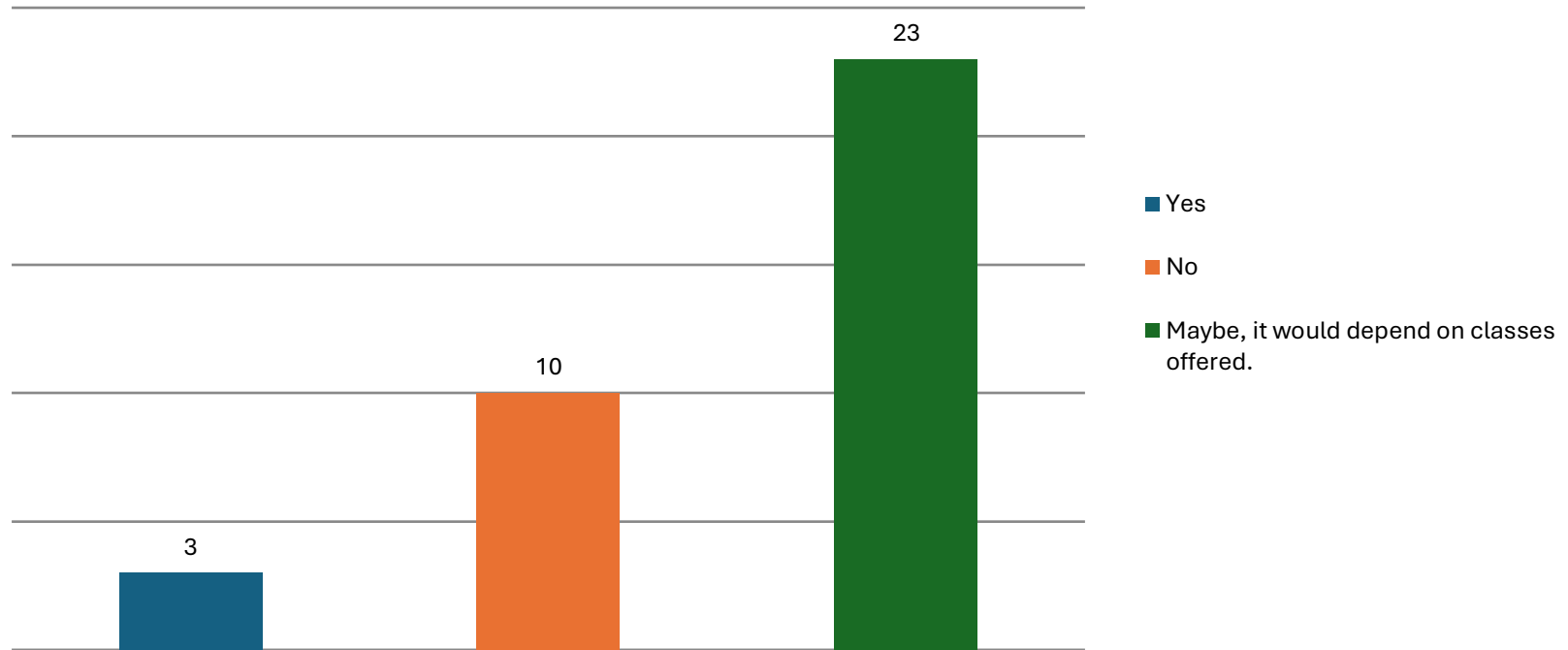
On average, how many group fitness programs that are included in your membership do you participate in monthly?



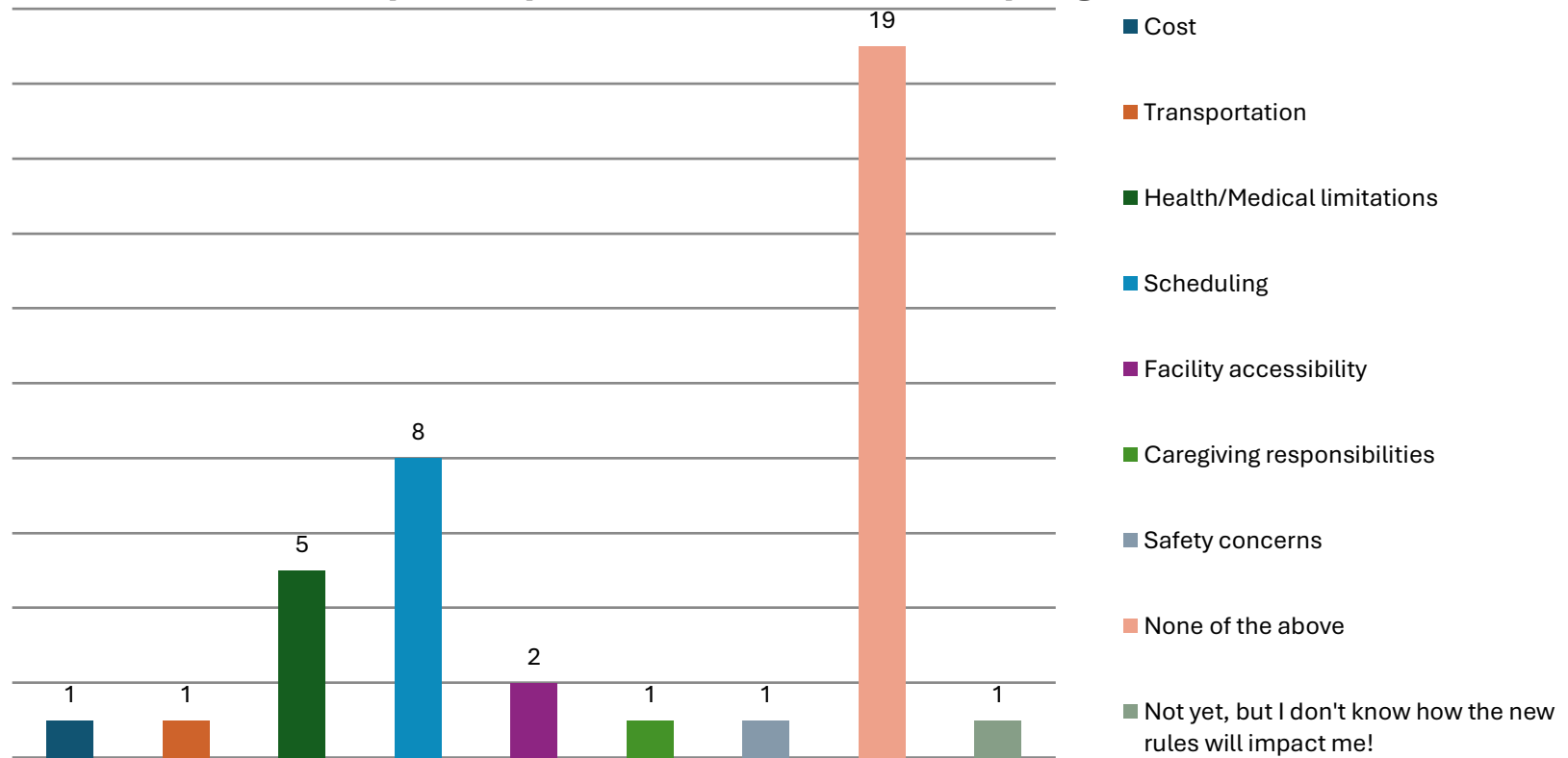
Do you currently have a membership to the Morrisville Senior Center?



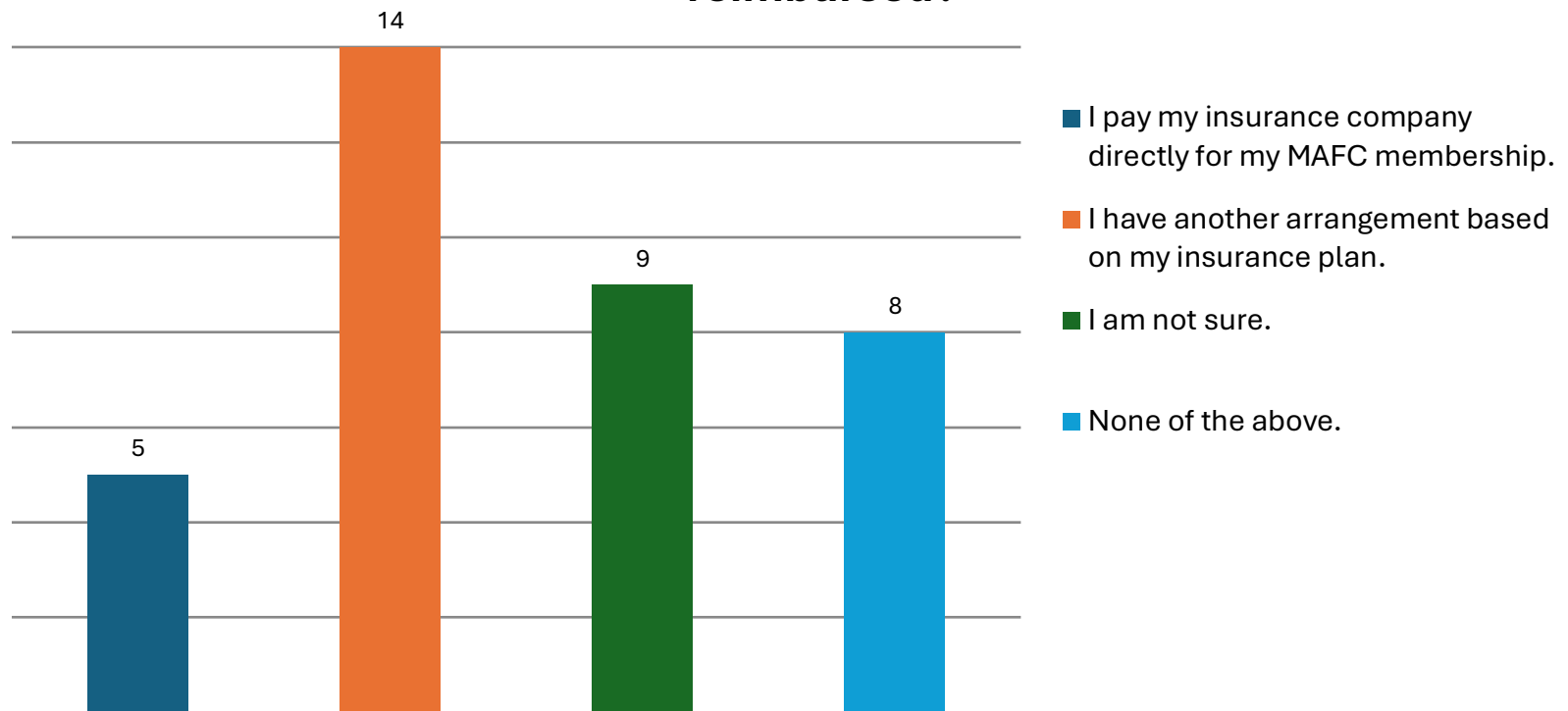
Would you participate in non-aquatics classes offered at the Morrisville Senior Center?



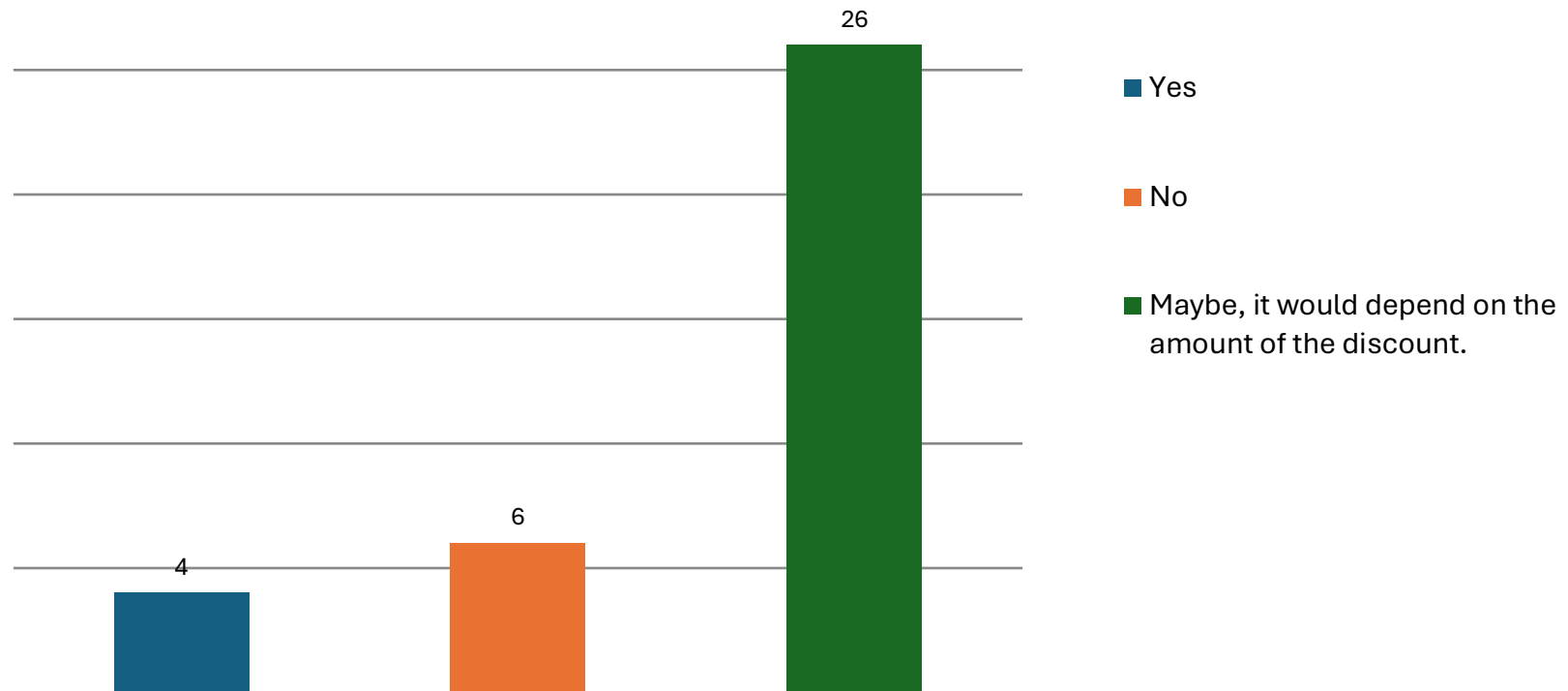
In the past 6 months, have any of the following made it difficult to participate in a MAFC or MSC program?



Do you have any of the following options through your insurance plan for how your MAFC membership is paid or reimbursed?



When insurance memberships are discontinued, would you consider switching to a regular paid membership, keeping in mind there would be a discount for resident seniors in January, 2027?



MAFC

Morrisville Aquatics & Fitness Center

Insurance - Based Memberships

Cindi King | Director

Parks, Recreation & Cultural Resources

Town Council Meeting – September 8, 2026



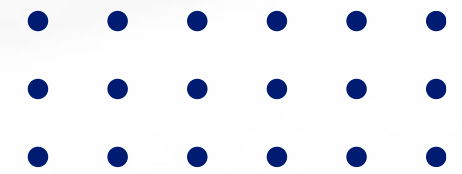
Morrisville

Parks, Recreation &
Cultural Resources



MAFC

Insurance - Based Memberships



- Town of Morrisville is the only area municipality that currently offers insurance-based membership options.
- Due to operational workload, high demand and limited capacity, and contract challenges, the Town is discontinuing insurance contracts for insurance-based memberships.
- Contracts for each insurance program will conclude on December 31, 2026



Tivity/Prime Fitness



PeerFit/FitOn



Optum/Healthy Contributions



Ash Fitness/Ashlink

*SilverSneakers will conclude with Tivity



By The Numbers

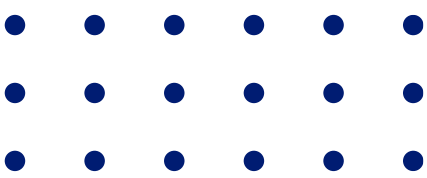
*Insurance-based members have unlimited visits

MAFC Insurance-Reimbursed Memberships (Active)

Insurance Company (As of June 30)	* Max Paid Visits	# of Members	Resident Adult	Resident Senior	Non- Resident Adult	Non- Resident Senior
Ash Fitness/Ashlink	10	145	46	6	66	27
PeerFit/FitOn	4	0	0	0	0	0
Optum/Healthy Contributions	10	109	1	34	0	74
Tivity/Prime Fitness	9 or 10	251	13	47	23	168
Total		505	60	87	89	269

1,489 are insurance-based | 505 are active memberships (34%)

Insurance Challenges



Operational and Financial Impacts:

- 40+ staff hours/month spent managing insurance-related tasks
- Unrealized revenue due to reimbursement rates compared to regular membership rates

	Resident Adult	Resident Senior	Non-Resident Adult	Non-Resident Senior	Totals
Current insurance members as of 6/30/2026	60	87	89	269	505
Total if paid for monthly Paid in Full (PIF)	\$2,700	\$3,132	\$5,607	\$13,450	\$24,889
Total paid by insurance	\$1,126.80	\$1,923.85	\$1,528.73	\$5,727.58	\$10,306.96
Difference/Unrealized	\$1,573.20	\$1,208.15	\$4,078.27	\$7,722.42	\$14,582.04

Estimate total for the year is \$202,192

Managing Capacity

Since January 2026:

- MAFC has made frequent adjustments to class schedules and capacities to meet demand and lower our large monthly waitlists in group fitness programs.
- Average number on waitlists each month is approximately 230

Added the following:

- Additional swimming lesson classes to meet added demand
 - Lanes for water aerobics classes on certain days
 - An additional Saturday water aerobics class per month
 - One additional Saturday and two Sunday group fitness classes
 - Additional morning and evening group fitness classes
- Stopped accepting NEW non-resident insurance memberships

MAFC Questionnaire

Resident Senior Insurance Members completed a questionnaire

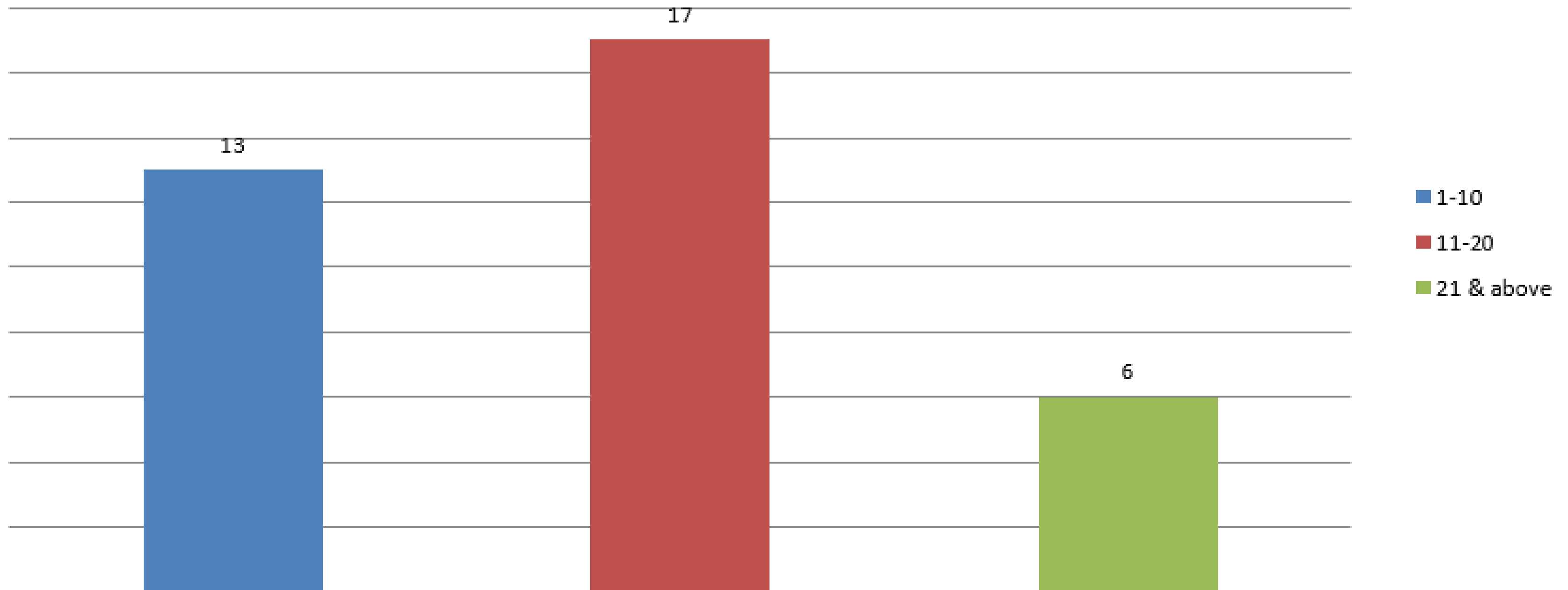
- 180 questionnaires distributed via email (both active and inactive members)
- 36 questionnaires completed

Highlights:

- Out of 36 resident responses, only 8 have a Senior Center Membership in addition to an MAFC membership.
- Would you participate in non-aquatic classes at MSC?
Yes-3, No-10, Maybe-23
- Would you consider a paid membership, keeping in mind there would be some type of discount?
Yes-4, No-6, Maybe, depends on amount of discount-26

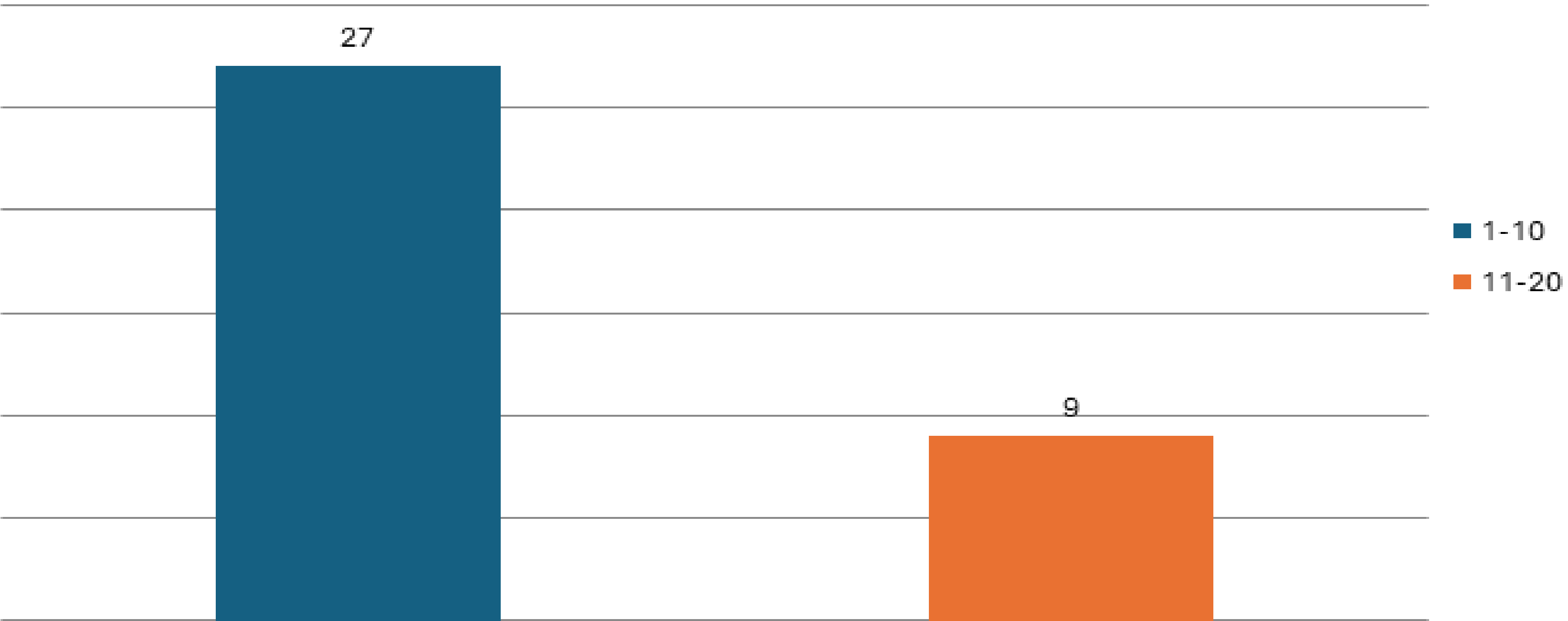
MAFC Questionnaire

On average, how many times do you visit the MAFC in a month?



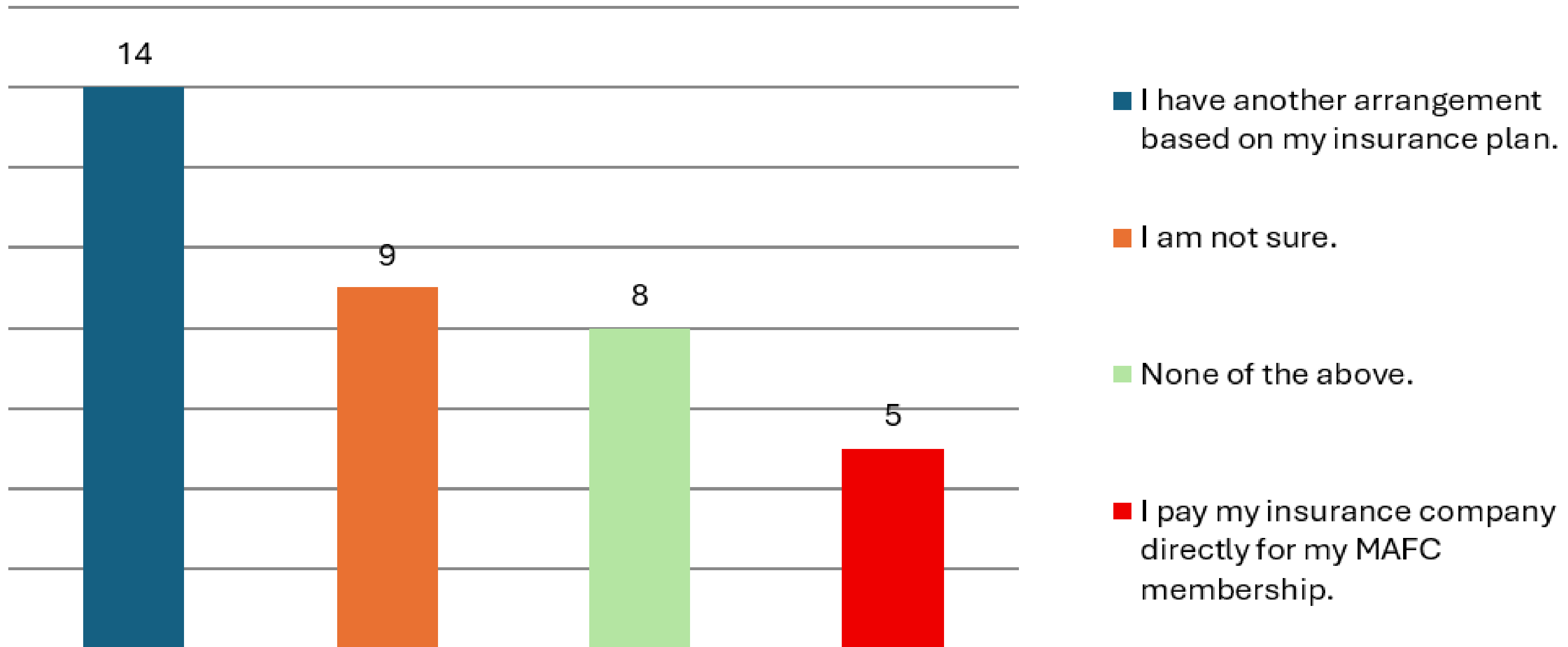
MAFC Questionnaire

On average, how many group fitness programs that are included in your membership do you participate in monthly?



MAFC Questionnaire

Do you have any of the following options through your insurance plan for how your MAFC membership is paid or reimbursed?



Morrisville Senior Center (MSC)

Class offerings overlap: (offered at both MSC/MAFC)

- Yoga (Chair & Mat classes)
- Zumba Gold
- Aerobics
- Tai Chi

Fitness and Social programs offered at MSC:

- Line Dancing
- Educational Sessions | Eat Smart, Move More, A Matter of Balance
- Socials | Harvest Fest, St. Patrick's Day Luncheon, National Senior Citizen Day
- Games | Bingo, Mahjong, Card games

Area Senior Centers

- Apex | open for Senior programming | Sat, 9am-3pm, no Sunday
- Cary | offers other activities on weekends not Senior Center related (i.e. rentals)
- Fuquay-Varina | Sat, 8am-5pm, no Sunday
- Garner | offers other activities on weekends not Senior Center related (i.e. rentals)
- Orange County | open for Senior Programming | Sat, 8am-5pm (1 center open out of 2)
- Raleigh | does not offer weekend hours
- Wake Forest | does not offer weekend hours

Morrisville Senior Center Saturday Pilot

Time Frame: Saturdays | October 2026 – December 2026 (except Saturdays following a holiday)

Proposed Hours of Operation: 9am–1pm (pending programming)

Associated Wins:

- Increased Member Engagement
- Expanded Programs
- Continued Collaboration with MAFC

Associated Challenges:

- Instructor Availability
- Participant Interest
- Programming Balance



Looking Ahead

➤ Discount for senior residents

- | | |
|---------------------------------------|----------|
| ➤ Adult (23-54) Membership | \$360/yr |
| ➤ Senior Annual (PIF) Membership | \$288/yr |
| ➤ 20% Discount for calendar year 2027 | \$230/yr |

➤ NeighborUp financial assistance

➤ Continued MAFC/MSC collaborations

➤ MSC expansion

➤ Saturday pilot program (3 months)

QUESTIONS