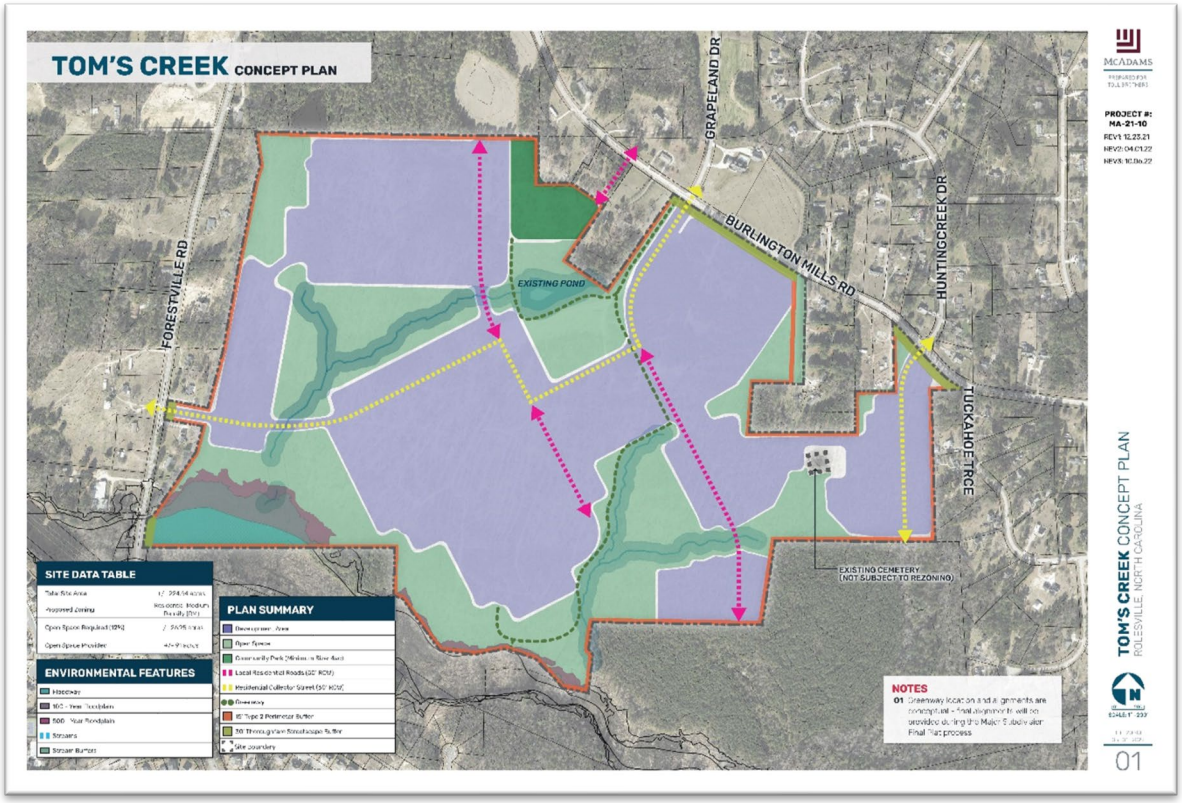
Memo

To: Rolesville Planning Board
From: Meredith Gruber, Planning Director
Date: October 21, 2022
Re: Map Amendment (Rezoning) MA 21-10 Tom's Creek

Background

The Town of Rolesville Planning Department received a Map Amendment (Rezoning) application in December 2021 for 222.94 acres located at unaddressed properites on Forestville Road, Burlington Mills Road, and Alstonberg Avenue with Wake County PINs 1748891680, 1758081893, and 1748884104. The applicant, Toll Brothers, Inc., is requesting to change the zoning from Residential Low (RL) to Residential Medium Conditional Zoning District (RM-CZ). A concept plan illustrating pods for single family homes at a maximum density of 2.70 units per acre is included as a condition of the rezoning request.



In addition, the applicant has proposed the following conditions as part of the Tom's Creek rezoning request:

1. Permitted uses shall be limited to single-family detached only.

2. Maximum density shall be limited to 2.7 units per acre.

3. A Homeowners Association (HOA) shall be established in accordance with the Town of Rolesville Land Development Ordinance. HOA documents must be recorded with the first final plat.

4. A main central amenity will be constructed with the project, and shall consist of: clubhouse, pool, and other recreational outdoor activities for residents of the development.

5. TRANSPORTATION IMPROVEMENTS: Subject to North Carolina Department of Transportation (NCDOT) approval, the developer shall contribute, design, construct or permit the following Public Infrastructure relating to Transportation if not already constructed by others:

    A. *Burlington Mills Road at Forestville Road:*
        - Construct an exclusive westbound right-turn lane with 150' of storage.
        - Construct an exclusive southbound right-turn lane with 200' of storage.
        - Extend the existing southbound left-turn lane to provide 300' of storage.
        - Extend the existing westbound left-turn lane to provide 225' of storage.
        - Extend the existing northbound left-turn lane to provide 225' of storage.
        - Extend the existing eastbound left-turn lane to provide 575' of storage.

    B. *Forestville Road at Access A:*
        - Construct an exclusive northbound right-turn lane with 100' of storage.
        - Construct an exclusive southbound left-turn lane with 100' of storage.
        - Monitor intersection for signal warrants and install if/when warranted.

    C. *Burlington Mills Road at Access B:*
        - Construct an exclusive eastbound right-turn lane with 50' of storage.

    D. *Burlington Mills Road at Access C/Centaur Road:*
        - Construct an exclusive eastbound right-turn lane with 50' of storage.
        - Construct an exclusive westbound left-turn lane with 50' of storage.

    E. *Burlington Mills Road at Access D/Huntingcreek Drive:*
        - Construct an exclusive eastbound right-turn lane with 50' of storage.
        - Construct an exclusive westbound left-turn lane with 50' of storage.

    F. *Construction of ½ the planned ultimate roadway section along the site frontage on Burlington Mills and Forestville Road. The ultimate section for Burlington Mills*

consists of a 4-lane median divided roadway with bike lanes and sidewalks. The ultimate section for Forestville Road consists of a 4-lane median divided roadway with sidepaths.

Applicant Justification

The applicant provided the justification statement below for their rezoning request. The complete application is included as an attachment.

> The Town of Rolesville has seen an influx of residential growth as many folks are flocking to Wake County. It is more important than ever to ensure that this growth incorporates smart planning techniques that translate to high quality neighborhoods.
>
> Tom's Creek, as shown on the submitted concept plan, is one that will be designed with the natural environment in mind. Open space will be disbursed throughout the property. This allows integration of outdoor spaces throughout the property. Residents will be able to enjoy natural site lines and avoid an unsightly residential development. Zoning conditions ensure future members of the community can enjoy a main amenity, that at a minimum, will feature a pool, clubhouse, and associated outdoor activities on site. This enriches this neighborhood, where ample social interaction can occur and create a place where everyone knows your name.
>
> Additionally, high quality and tax base has been considered. These single family homes will not feature vinyl siding as a primary building material, which will contribute to a higher tax base whilst still allowing for unique building designs throughout the community.
>
> The Rolesville Comprehensive Plan designates this property as Medium Density Residential. This designation features single family as its predominant use, and our proposed zoning ensures only single family detached will be constructed on the subject property. The suggested density range is three to five units per acre; however, the applicant has chosen to limit the proposed density to 2.7 units per acre as necessary to adequately preserve open space acres, something the Comprehensive Plan strives to do.
>
> Forestville Road is an apt residential corridor. In close proximity to regional transportation routes as well as the adjacent fire station, this subject property has adequate access to infrastructure and public services that enable and promote a rezoning to an increased residential density. By rezoning this property, a design that puts the natural open space areas first, can move forward, and Tom's Creek can become a wonderful neighborhood for years to come.

Neighborhood Meeting

The applicant held a virtual neighborhood meeting on June 2, 2022. The Neighborhood Meeting Package, including notification letters and minutes, are provided as an attachment.

Comprehensive Plan

Land Use

The Future Land Use Map shows the subject parcels as Medium Density Residential, which is described as predominately single family residential uses with portions of duplex, townhouse, and/or multifamily residential. These are lots or tracts at a density range of three to five dwelling units per gross acre including preserved open space areas.

Single family homes at a density of 2.7 units per acre, along with preserved open space areas, meets the intent of the Medium Density Residential land use designation.

Community Transportation Plan

The Town of Rolesville's Community Transportation Plan includes recommendations for thoroughfares, collectors, and intersections.

Thoroughfare Recommendations

- Forestville Road is planned to be a 4-lane median-divided section with curb & gutter and sidepaths.
- Burlington Mills Road is planned to be a 4-lane median-divided section with curb & gutter, bike lanes, and sidewalks.

Collector Recommendations

- A collector connection between Forestville Road and Burlington Mills Road is shown as part of the Proposed Network.
- A collector connection to the future Stone Fly Drive extension is also shown.

Intersection Recommendations

- No intersection recommendations are included on the Proposed Network Map.

Greenway Plan

As per the 2022 Greenway Plan, proposed greenways are shown in the following locations:

- A proposed greenway is shown running north – south between Burlington Mills Road and Tom's Creek.

Consistency

The applicant's rezoning request is consistent with the Town of Rolesville's Comprehensive Plan for the following reasons:

- The proposed housing type (single family detached) and density (2.7 units per acre) meet the intent of the Medium Density Residential land use designation.
- The proposed vehicular circulation network will establish thoroughfare and collector connections recommended by the Town's Community Transportation Plan.
- The proposed greenways will establish pedestrian connections as recommended by Rolesville's Greenway Plan.

Traffic

Traffic Impact Analysis

The consultant firm Stantec performed the Traffic Impact Analysis for this project on behalf of the Town; see Attachment 8 for the Final Report dated July 28, 2022. Both Trip Generation and Intersection Improvements were looked at in three phases: Initial Phase, Intermediate Phase, and Full Build.

TIA Summary - Trip Generation	**Entering**	**Exiting**	**Total**
2026 Initial Phase Recommendations			
AM Peak (7-9 am)	35	98	133
PM Peak (4-6 pm)	118	69	187
Weekday Daily Trips	917	917	1,834
2028 Intermediate Phase Recommendations			
AM Peak (7-9 am)	35	101	136
PM Peak (4-6 pm)	121	71	192
Weekday Daily Trips	939	939	1,878
Cumulative Trips	1,856	1,856	3,712
2029 Full Build Recommendations			
AM Peak (7-9 am)	30	85	115
PM Peak (4-6 pm)	101	60	161
Weekday Daily Trips	791	791	1,582
Cumulative Trips	2,647	2,647	5,294

Five intersections were studied for capacity analysis and level of service impact of this development.

TIA Summary – Intersection Improvements	
2026 Initial Phase Recommendations	
Burlington Mills Road at Centaur Road / Access C	• Construct Access C as a full-movement access point • Construct Access C with one ingress and one egress lane with a driveway stem length of a minimum of 100 feet
Forestville Road at Access A	• Construct Access A as a full-movement access point • Construct Access A with one ingress and two egress lanes (one left-turn lane and one right-turn lane) with a driveway stem length of a minimum of 170 feet • Construct a northbound Forestville Road right-turn lane with 100 feet of full-width storage and appropriate taper • Construct a southbound Forestville Road left-turn lane with 100 feet of full-width storage and appropriate taper

2028 Intermediate Phase Recommendations	
Burlington Mills Road at Forestville Road	• Extend the existing eastbound Burlington Mills Road left-turn lane to 575 feet of full-width storage and appropriate taper • Extend the existing westbound Burlington Mills Road left-turn lane to 225 feet of full-width storage and appropriate taper • Construct a westbound Burlington Mills Road right-turn lane with 150 feet of full-width storage and appropriate taper • Extend the existing northbound Forestville Road left-turn lane to 225 feet of full-width storage and appropriate taper • Extend the existing southbound Forestville Road left-turn lane to 300 feet of full-width storage and appropriate taper • Construct a southbound Forestville Road right-turn lane with 200 feet of full-width storage and appropriate taper • The above recommendations will require the traffic signal at the intersection to be modified
Burlington Mills Road at Access B	• Construct Access B as a right-in/right-out access point • Construct Access B with one ingress and one egress lane with a driveway stem length of a minimum of 100 feet
Forestville Road at Access A	• Monitor Access A for potential signalization
2029 Full Build Recommendations	
Burlington Mills Road at Huntingcreek Drive /Access D	• Construct Access D as a full-movement access point • Construct Access D with one ingress and one egress lane with a driveway stem length of a minimum of 100 feet
Forestville Road at Access A	• Monitor Access A for potential signalization

Development Review

The Technical Review Committee (TRC) reviewed this rezoning request and concept plan. During review of this proposed project, Town staff suggested a reasonable size for the park land dedication was four to six acres. The concept plan notes a minimum size of four acres.

Staff Recommendation

Staff finds that the proposed rezoning request and associated concept plan is consistent with the Comprehensive Plan.

Proposed Motion

Motion to recommend (approval or denial) of rezoning request MA 21-10 Tom's Creek.

Attachments

1	Application
2	Vicinity Map
3	Future Land Use Map
4	Zoning Map
5	Neighborhood Meeting Package
6	Concept Plan
7	Traffic Impact Analysis
8	NCDOT Congestion Management Section Report

Attachment 1

Case No. _____

Date _____

Map Amendment Application

Contact Information

Property Owner POGE LLC ESNE LLC

Address P.O. BOX 97487 City/State/Zip Raleigh, NC 27624

Phone 919-845-6415 Email andy@ammonsdg.com

Developer Toll Bros., Inc.

Contact Name Jeff Westmoreland

Address 900 Perimeter Park Drive, Suite B3 City/State/Zip Morrisville, NC 27560

Phone 919-801-6851 Email jwestmoreland@tollbrothers.com

Property Information

Address 0 Forestville Road; 0 Burlington Mills Road; 0 Alstonberg Avenue Wake Forest, NC 27587

Wake County PIN(s) 1748891680; 1758081893; 1748884104.

Current Zoning District RL Requested Zoning District RM-CZ

Total Acreage 222.94

Owner Signature

I hereby certify that the information contained herein is true and completed. I understand that if any item is found to be otherwise after evidentiary hearing before the Town Board of Commissioners, that the action of the Board may be invalidated.

Signature _____, MANAGER Date 12-16-21

STATE OF NORTH CAROLINA

COUNTY OF Wake

I, a Notary Public, do hereby certify that Andrew L. Ammons *personally appeared before me this day and acknowledged the due execution of the foregoing instrument. This the* 16th *day of* December 20 21.

My commission expires 03.22.22.

Signature _____ Seal

ELIZABETH A. HAWKS NOTARY MY COMMISSION EXPIRES 03.22.22 PUBLIC WAKE COUNTY, NC

Rolesville
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Est. 1837

Map Amendment Application

Metes and Bounds Description of Property

Please see page immediately following for complete legal description of the subject property. Thank you.

LEGAL DESCRIPTION
PIN:1748891680
(EXCLUDING CEMETERY BM 1997, PG. 911)

Beginning at an iron pipe on the eastern right of way of Forestville Road, point also being the southwest property corner of Poge, LLC and Esne, LLC as shown in Book of Maps 2016, Page 1918 of the Wake County Register of Deeds, being the **Point of Beginning**; thence with said right of way a curve to the right with a radius of 2,099.61 feet, with an arc length of 174.03 feet, with a chord bearing of North 08°03'40" East, with a chord length of 173.98 feet to an iron pipe; thence leaving said right of way North 59°44'06" East a distance of 44.33 feet to an iron pipe; thence North 33°55'46" East a distance of 456.11 feet to an iron pipe; thence North 15°01'05" East a distance of 160.64 feet to an iron pipe; thence North 80°14'37" West a distance of 263.14 feet to a point on the centerline of Forestville Road; thence with said centerline North 09°43'25" East a distance of 119.15 feet to a point; thence leaving said right of way South 79°14'30" East a distance of 273.78 feet to an iron pipe; thence North 15°01'13" East a distance of 215.24 feet to an iron pipe; thence North 14°59'03" East a distance of 147.83 feet to an iron pipe; thence North 10°16'58" East a distance of 545.13 feet to an iron pipe; thence North 11°33'27" East a distance of 498.22 feet to an iron pipe; thence North 01°40'05" West a distance of 81.40 feet to an iron pipe; thence North 00°47'30" West a distance of 199.02 feet to an iron pipe; thence South 89°01'55" East a distance of 1,539.42 feet to an iron pipe; thence South 89°57'48" East a distance of 177.78 feet to an iron pipe; thence South 00°02'53" East a distance of 280.76 feet to an iron pipe; thence North 89°54'46" East a distance of 185.05 feet to an iron pipe; thence South 55°12'12" East a distance of 240.28 feet to an iron pipe; thence South 34°48'09" West a distance of 398.52 feet to an iron pipe; thence South 55°16'40" East a distance of 299.72 feet to an iron pipe; thence North 34°50'47" East a distance of 696.67 feet to an iron pipe on the southern right of way of Burlington Mills Road; thence with said right of way South 57°04'24" East a distance of 750.96 feet to an iron pipe; thence with a curve to the left with a radius of 1,906.64 feet, with an arc length of 194.44 feet, with a chord bearing of South 60°06'21" East, with a chord length of 194.36 feet to an iron pipe; thence leaving said right of way South 01°53'41" West a distance of 534.89 feet to an iron pipe; thence South 02°05'19" West a distance of 61.24 feet to an iron pipe; thence South 01°51'32" West a distance of 40.02 feet to an iron pipe; thence North 89°12'34" West a distance of 298.87 feet to an iron pipe; thence South 04°47'52" West a distance of 263.29 feet to an iron pipe; thence South 04°43'50" West a distance of 35.66 feet to an iron pipe; thence North 89°59'24" East a distance of 639.81 feet to an iron pipe; thence North 00°40'04" West a distance of 123.61 feet to an iron pipe; thence North 00°40'04" West a distance of 124.37 feet to an iron pipe; thence North 89°16'36" East a distance of 234.62 feet to an iron pipe; thence North 00°53'11" West a distance of 416.19 feet to an iron pipe; thence North 00°53'11" West a distance of 36.72 feet to a point on the centerline of Burlington Mills Road; thence with said centerline South 47°28'59" East a distance of 117.64 feet to a point; thence South 41°44'03" East a distance of 140.99 feet to a point; thence South 40°47'35" East a distance of 105.50 feet to a point; thence South 44°58'08" East a distance of 111.33 feet to a point; thence South 54°16'14" East a distance of 79.05 feet to a point; thence South 63°08'43" East a distance of 63.71 feet to a point; thence South 68°57'56" East a distance of 34.54 feet to a point; thence leaving said right of way South 00°43'21" East a distance of 14.61 feet to a point; thence South 89°03'08" West a distance of 60.00 feet to an iron pipe; thence South 89°03'39" West a distance of 187.22 feet to an iron pipe;

thence South 01°20'27" East a distance of 909.54 feet to an iron pipe; thence North 89°46'12" West a distance of 964.93 feet to an iron pipe; thence South 08°38'57" West a distance of 511.94 feet to an iron pipe; thence North 88°59'41" West a distance of 590.59 feet to an iron pipe; thence North 88°59'41" West a distance of 428.52 feet to an iron pipe; thence South 11°10'22" West a distance of 67.04 feet to an iron pipe; thence South 07°22'33" West a distance of 97.35 feet to an iron pipe; thence South 36°25'17" East a distance of 43.76 feet to an iron pipe; thence South 06°34'13" West a distance of 230.02 feet to an iron pipe; thence North 77°03'06" West a distance of 82.83 feet to a point; thence North 81°12'25" West a distance of 75.13 feet to a point; thence North 40°14'16" West a distance of 51.36 feet to a point; thence North 42°57'03" West a distance of 65.28 feet to an iron pipe; thence North 44°16'05" West a distance of 120.33 feet to an iron pipe; thence North 70°43'54" West a distance of 186.82 feet to a point; thence South 80°13'05" West a distance of 193.30 feet to a point; thence North 83°14'58" West a distance of 211.03 feet to a point; thence North 36°02'02" West a distance of 382.28 feet to an iron pipe; thence North 68°25'41" West a distance of 57.67 feet to an iron pipe; thence North 01°28'10" East a distance of 286.16 feet to an iron pipe; thence North 89°55'54" West a distance of 1,514.36 feet to the **Point of Beginning**, containing 9,724,936 square feet, or 223.25 acres.

EXCLUDING CEMETERY AS SHOWN IN BM 1997, PG. 911

North 81°25'40" East a distance of 104.55 feet to a point; thence South 08°53'38" East a distance of 104.55 feet to an iron pipe; thence South 81°17'52" West a distance of 104.56 feet to an iron pipe; thence North 08°53'18" West a distance of 104.79 feet.

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Map Amendment Application

Rezoning Justification

The Town of Rolesville has seen an influx of residential growth as many folks are flocking to Wake County. It is more important than ever, to ensure that this growth incorporates smart planning techniques, that translates to high quality neighborhoods .

Tom's Creek, as shown on the submitted concept plan, is one that will be designed with the natural environment in mind. Open space will be disbursed throughout the property. This allows integration of outdoor spaces throughout the property. Residents will be able to enjoy natural sight lines and avoid an unsightly residential development. Zoning conditions ensure future members of the community can enjoy a main amenity, that at a minimum, will feature a pool, clubhouse, and associated outdoor activities on-site. This enriches this neighborhood, where ample social interaction can occur and create a place where everyone know your name.

Additionally, high quality and tax base has also been considered. These single-family homes will not feature vinyl-siding as a primary building material, which will contribute to a higher tax base whilst still allowing for unique building designs throughout the community.

The Rolesville Comprehensive Plan designates this property as 'Medium Density Residential', this designation features single-family as its predominant use, our proposed zoning ensures only single-family detached will be constructed on the subject property. The suggested density range is three to five units per acre, however, the applicant has chosen to limit the proposed density to 2.7 units per acre as necessary to adequately preserve open space acres; something the Comprehensive Plan also strives to do.

Forestville Road is an apt residential corridor. In close proximity to regional transportation routes as well as the adjacent fire station, this subject property has adequate access to infrastructure and public services that enable and promote a rezoning to an increased residential density. By rezoning this property, a design that puts the natural open spaces areas first, can move forward, and Tom's Creek can become a wonderful neighborhood for years to come.

Rolesville
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Map Amendment Application

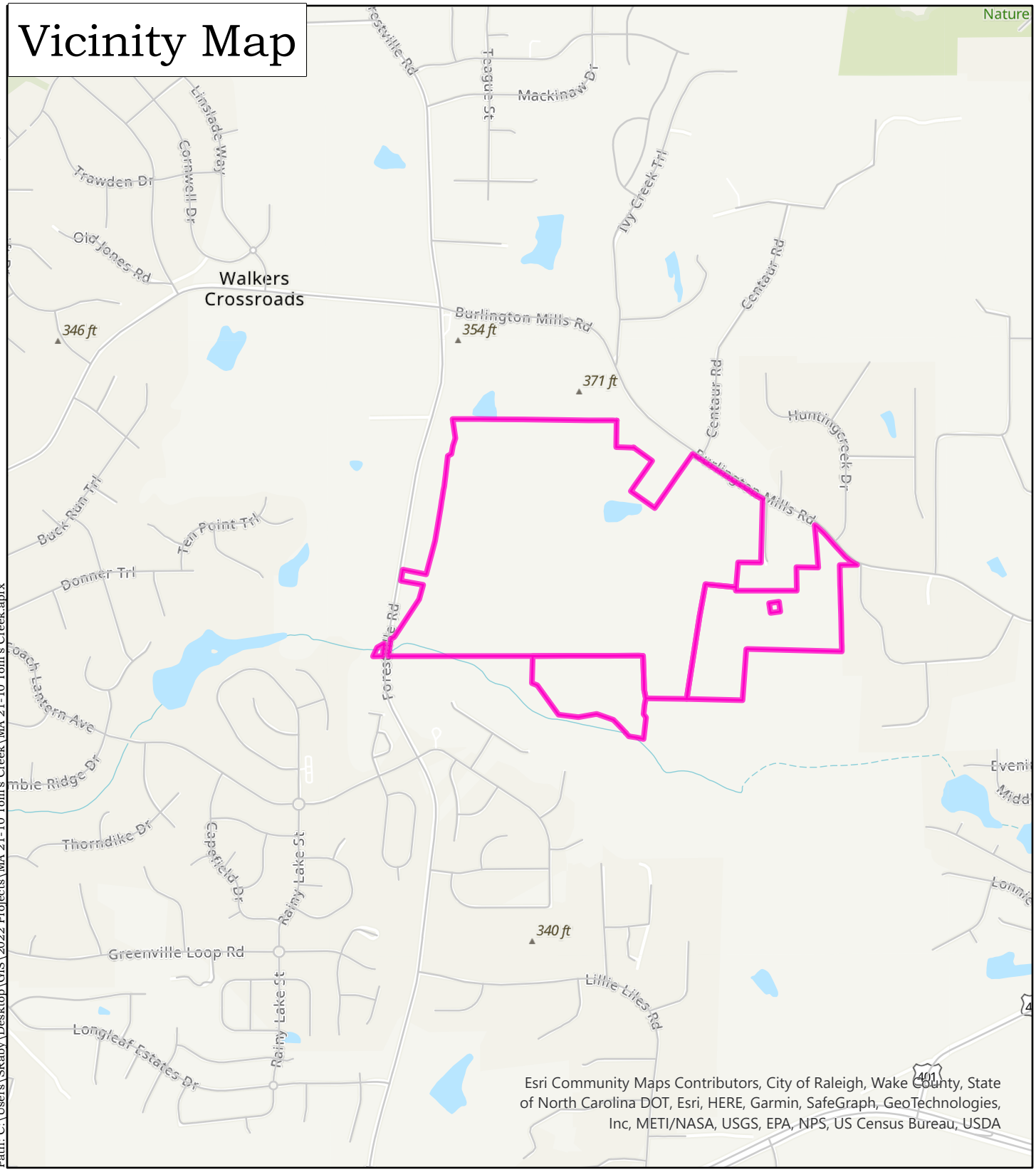
Property Owner Information

Wake County PIN	Property Owner	Mailing Address	Zip Code
1748891680	POGE LLC ESNE LLC	P.O. BOX 97487	RALEIGH, NC 27624
1758081893	POGE LLC ESNE LLC	P.O. BOX 97487	RALEIGH, NC 27624
1748884104	POGE LLC ESNE LLC	P.O. BOX 97487	RALEIGH, NC 27624

Attachment 2

Case: MA 21-10 Tom's Creek
Address: 0 Forestville Rd, 0 Burlington Mills Rd, 0 Alstonburg Ave
PIN 1748891680, 1758081893, 1748884104
Date: 04.14.2022

Vicinity Map



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Attachment 3

Rolesville
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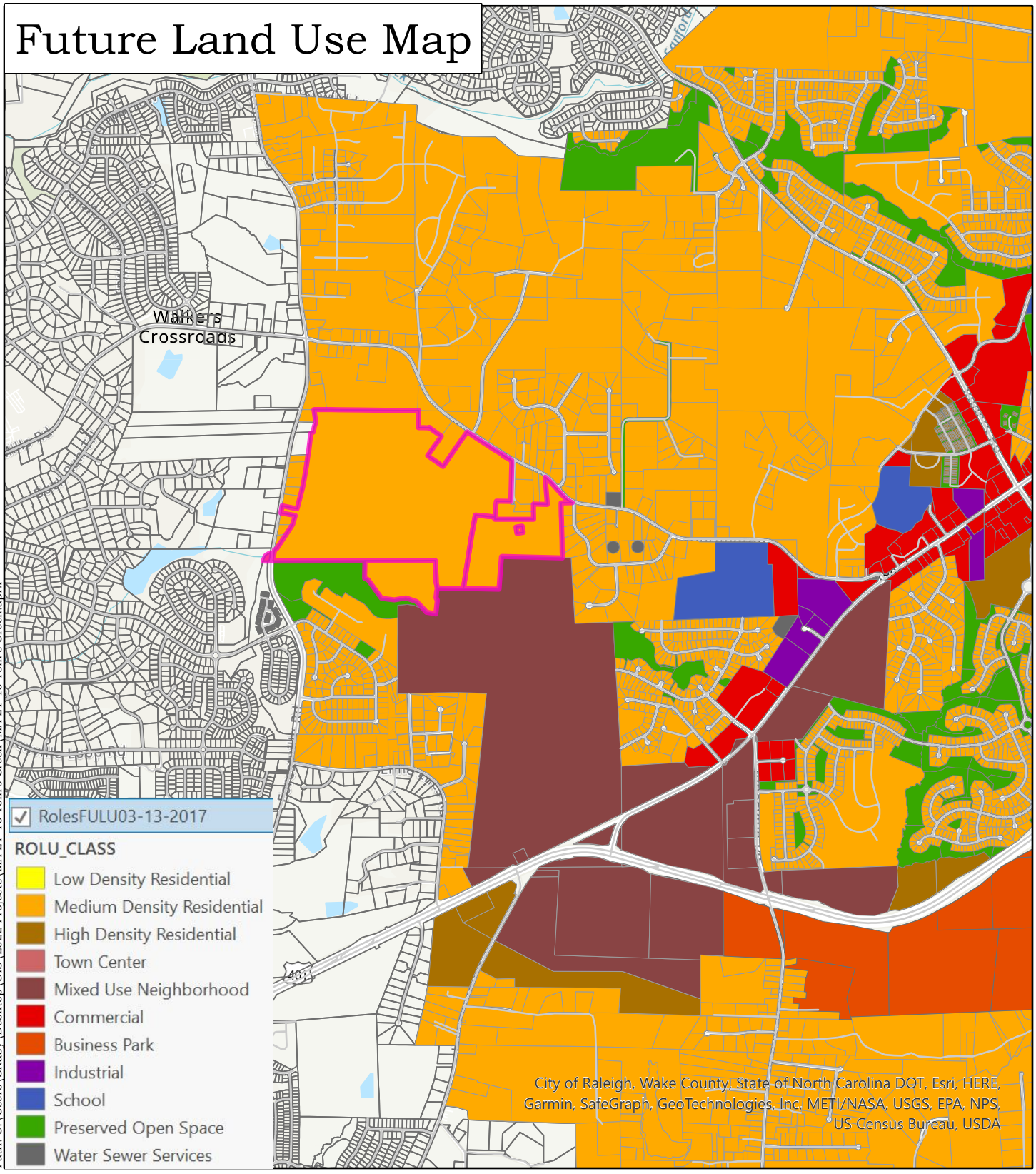
Est. 1837

Case: MA 21-10 Tom's Creek
Address: 0 Forestville Rd, 0 Burlington Mills Rd, 0 Alstonburg Ave
PIN 1748891680, 1758081893, 1748884104
Date: 04.14.2022

Future Land Use Map



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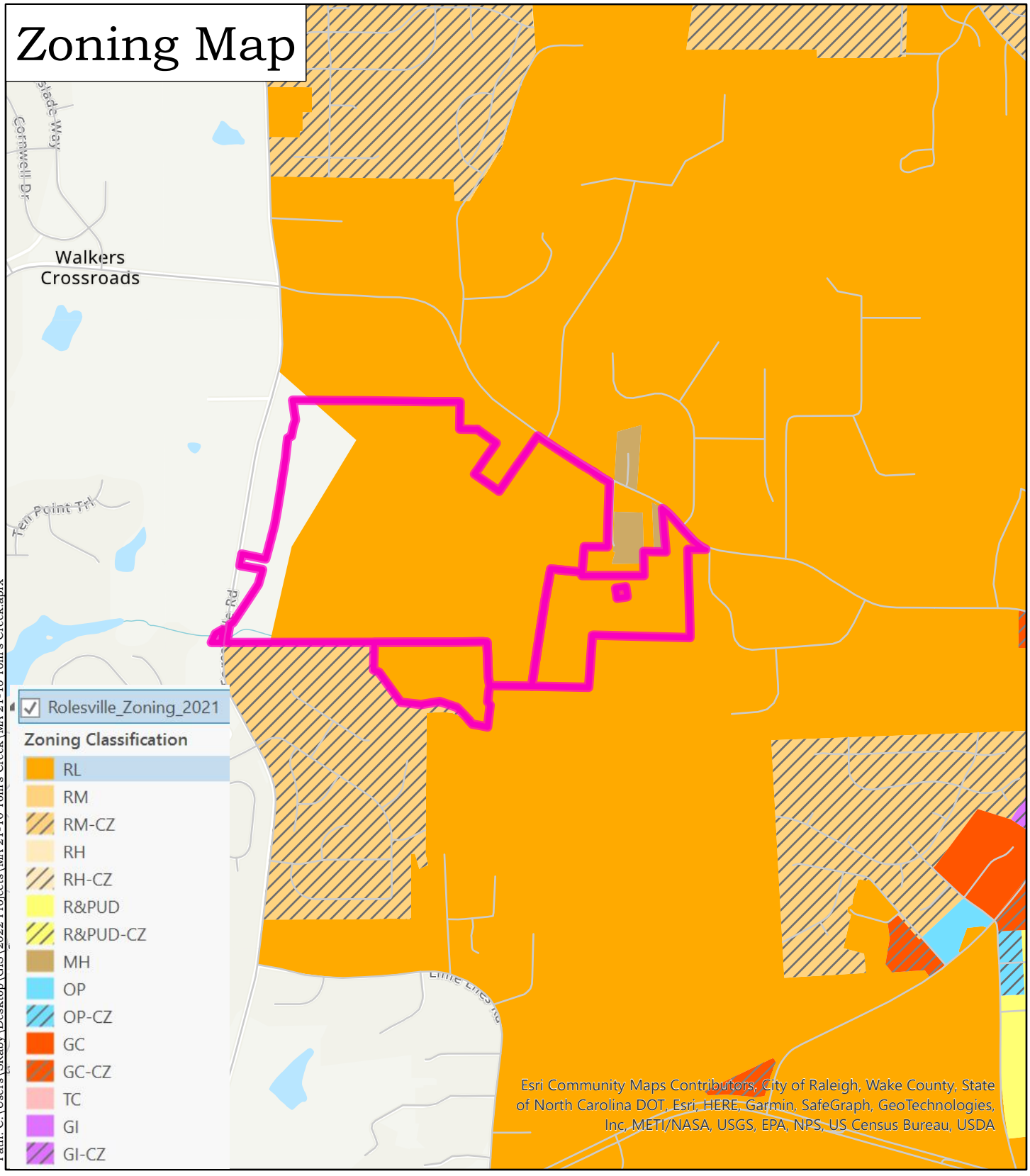
Miles

Attachment 4

Case: MA 21-10 Tom's Creek
Address: 0 Forestville Rd, 0 Burlington Mills Rd, 0 Alstonburg Ave
PIN 1748891680, 1758081893, 1748884104
Date: 04.14.2022

Zoning Map



Attachment 5

V3 rcvd 10-6-22
MA 21-10

MCADAMS

NEIGHBORHOOD MEETING NOTICE

May 19, 2022

NEIGHBORHOOD MEETING NOTICE

Dear Property Owner:

As a representative of the proposed developer, Toll Brothers, we are sending this letter to invite you to a community engagement meeting regarding the Tom's Creek rezoning in Rolesville, North Carolina. If you are receiving this letter, it is our understanding that you own property or belong to a neighborhood association within 200 feet of the subject property.

The site of the proposed rezoning is located between Burlington Mills and Forestville Rd with the PINs 1748891680, 1758081893, and 1748884104. During the meeting, the applicant will present its plans to rezone this land from MH (Manufactured Home) and R-30 to Residential Medium Density. The total site area is approximately 224.64 acres.

We will be hosting a virtual neighborhood meeting via Zoom (see instruction sheet for details). The meeting will be held on June 2nd, 2022 from 6:00pm to 7:00pm Eastern Time. We welcome any questions or comments on the proposed project prior to the meeting.

If you have questions or cannot attend the meeting but would like further information, please feel free to contact Laura Holloman by phone: 919.610.7377 or email: holloman@mcadamsco.com.

Sincerely,
MCADAMS

Laura Holloman, AICP
Sr. Planner, Planning + Design Group
919.610.7377
holloman@mcadamsco.com

May 19, 2022

RE: Tom's Creek Rezoning Virtual Neighborhood Meeting – Zoom Instructions

Dear Property Owner,

We will be hosting a virtual neighborhood meeting via Zoom Webinar. The meeting will be held on June 2nd and begin at 6:00 PM Eastern Time.

- To attend the meeting via computer, type in the following link in your internet browser: **https://mcadamsco.zoom.us/j/89755975513**

- To attend the meeting via phone, you may dial in by your location:

  US: +1 646 876 9923 or
  +1 301 715 8592 or
  +1 312 626 6799 or
  +1 669 900 6833 or
  +1 253 215 8782 or
  +1 346 248 7799 or
  +1 408 638 0968 or
  888 788 0099 (Toll Free) or
  877 853 5247 (Toll Free)

  Webinar ID: **897 5597 5513**
  International numbers available: https://mcadamsco.zoom.us/u/kl5oaKPSv

Sincerely,
MCADAMS

May 24, 2022

NEIGHBORHOOD MEETING NOTICE - CORRECTION

Dear Property Owner:

As a representative of the proposed developer, Toll Brothers, we are sending this letter as a correction to the previous neighborhood meeting notice dated May 19th. If you are receiving this letter, it is our understanding that you own property or belong to a neighborhood association within 200 feet of the subject property.

The site of the proposed rezoning was incorrectly listed to be currently zoned MH (Manufactured Home) & R-30. The correct current zoning of the project site is RL (Residential Low-Density) & R-30. The project site is located between Burlington Mills and Forestville Rd with the PINs 1748891680, 1758081893, and 1748884104. During the meeting, the applicant will present its plans to rezone this land from RL (Residential Low-Density) and R-30 to RM-CZ (Residential Medium Density, conditional district). The total site area is approximately 224.64 acres.

We will be hosting a virtual neighborhood meeting via Zoom (see instruction sheet for details). The meeting will be held on June 2nd, 2022 from 6:00pm to 7:00pm Eastern Time. We welcome any questions or comments on the proposed project prior to the meeting.

If you have questions or cannot attend the meeting but would like further information, please feel free to contact Laura Holloman by phone: 919.610.7377 or email: holloman@mcadamsco.com.

Sincerely,
MCADAMS

Laura Holloman, AICP
Sr. Planner, Planning + Design Group
919.610.7377
holloman@mcadamsco.com

May 24, 2022

RE: Tom's Creek Rezoning Virtual Neighborhood Meeting – Zoom Instructions

Dear Property Owner,

We will be hosting a virtual neighborhood meeting via Zoom Webinar. The meeting will be held on June 2nd and begin at 6:00 PM Eastern Time.

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- To attend the meeting via phone, you may dial in by your location:

  US: +1 646 876 9923 or
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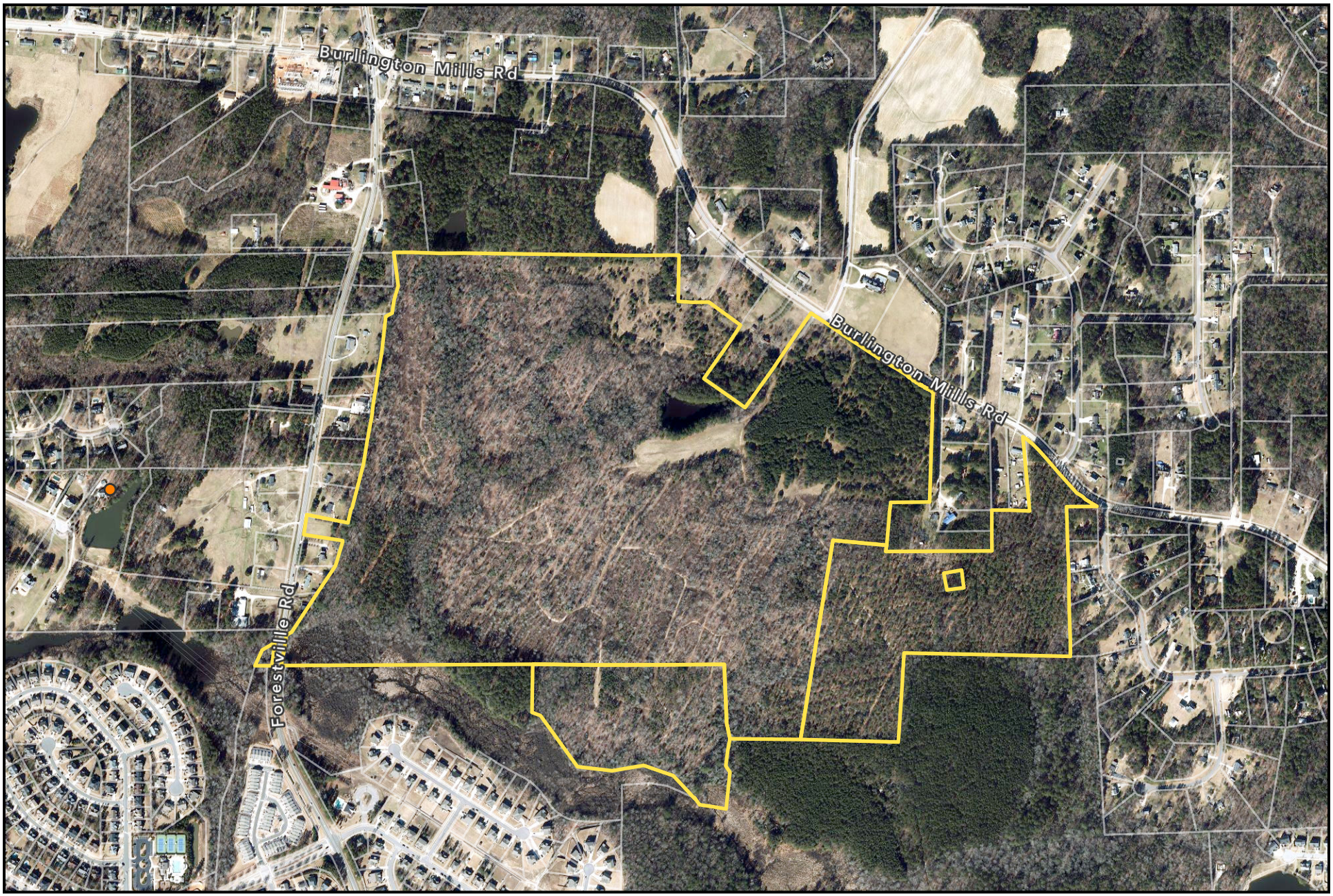
  +1 408 638 0968 or
  888 788 0099 (Toll Free) or
  877 853 5247 (Toll Free)

  Webinar ID: **897 5597 5513**
  International numbers available: https://mcadamsco.zoom.us/u/kl5oaKPSv

Sincerely,
MCADAMS



Tom's Creek Vicinity Map

N

0 400 800 1600 ft

1 inch equals 800 feet

Tom's Creek Neighborhood Meeting Minutes June 2, 2022 6PM

Presenters:

Nil Ghosh, Morningstar Law Group,

Laura Holloman McAdams,

Melanie Rausch McAdams,

Mike Sanchez, McAdams

Brittany Chase Exult Engineering

Attendees: Approximately 25

contacts received requesting updates:

najla.osr@gmail.com

steve@newleafassociatesnc.com – requested examples of Toll cluster developments

Meeting:

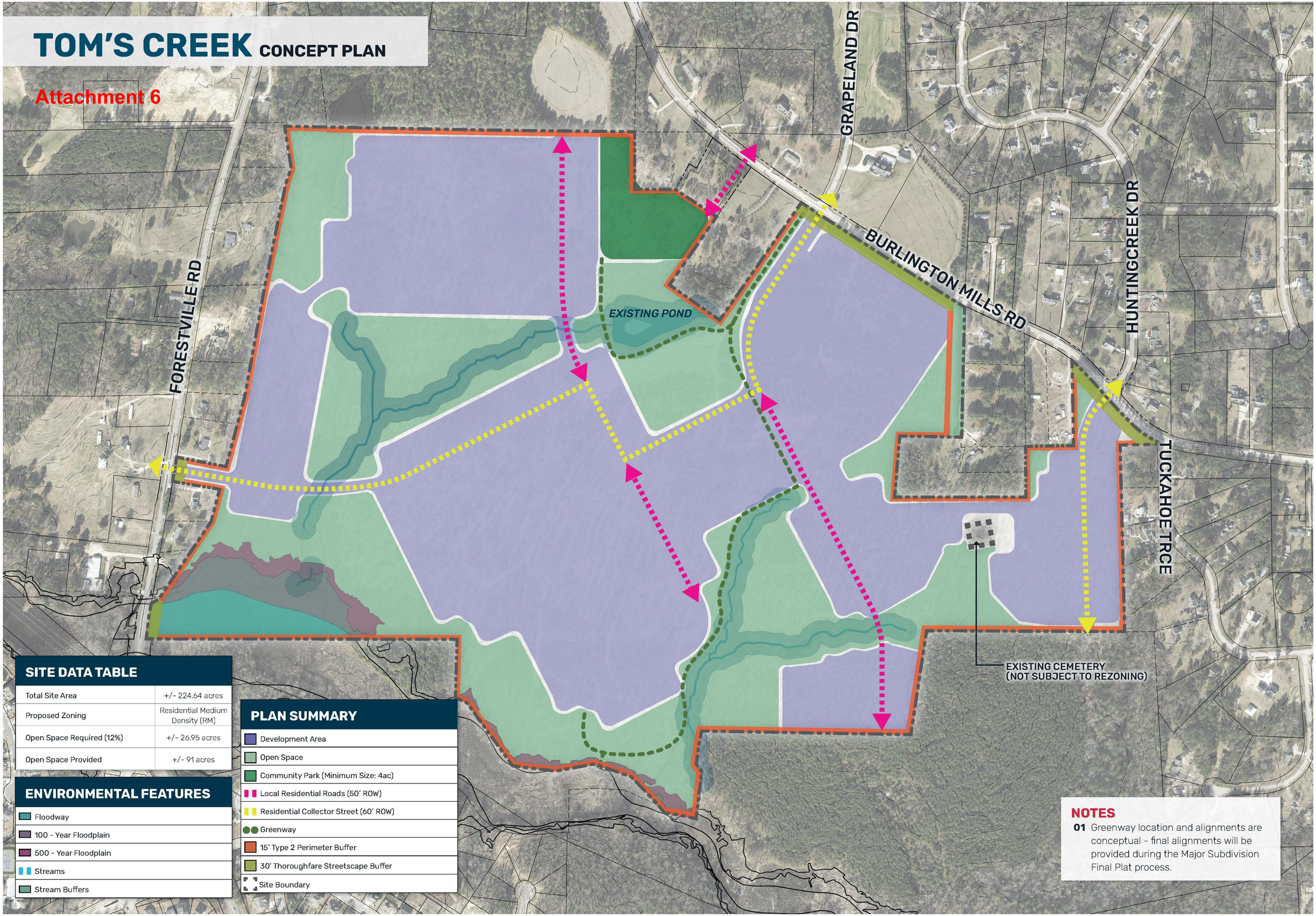
- Start time: 6:00 pm, this meeting was held virtually.
- Nil Ghosh overviewed the project area, current zoning, proposed zoning and proposed density. Mr. Ghosh clarified mailing snafu to relieve any confusion.
- Mr. Ghosh displayed the concept bubble plan, paying particular attention to proposed entrances to the development, and internal circulation.
- Mr. Ghosh moved on to current traffic conditions, including TIA process and the correspondence with the Town that is a required part of the process.
- Mr. Ghosh explained the cluster development model and how it will affect open space opportunities.
- Neighbor question: What square footage is proposed for the lots? -Ms. Holloman replied it is a little early in the process for lot dimensions.
- Neighbor question: Any rock that will require blasting? -Mr. Ghosh stated we do not know that yet, however Rolesville does have significant rock deposits so quite possibly.
- Neighbor asked about amenities: Mr. Ghosh overview the pool clubhouse, public greenway, and 6-acre public park dedication that will benefit the Town as a whole.
- Neighbor question: What is the public sewer and water connection? -Mr. Sanchez stated we are in discussion with city of Raleigh on where to connect to both sewer and water. Water will likely connect to Forestville Rd, and Burlington Mills Road, Sewer likely Forestville Road.
- Neighbor asked about traffic analysis: Ms. Chase stated the connection points and surrounding intersections that will be included in the TIA analysis.
- Neighbor asked what low density allows for? -Ms. Holloman stated 1-2 homes/acre in Rolesville, this is being developed as medium density which comes out to 2-5 homes/acre.
- Neighbor inquired about removal of utilities access points. Mr. Ghosh stated that would be hard to achieve.

- Neighbor asked Mr. Ghosh to explain cluster development concept. Mr. Ghosh explained that it allows for smaller lots per house, and greater open space.
- Neighbor asked what is the price range for the homes? Mr. Ghosh stated the difficulty in knowing, however the average sale price would likely be above $500,000.
- Neighbor asked if this proposal includes townhomes. Mr. Ghosh stated no.
- Neighbor asked if environmental impact analysis was required. Mr. Ghosh stated that it is not required for residential, however the existing environmental conditions of the site is why the cluster option is being explored.
- Neighbor asked about timeline. Mr. Ghosh outlined the timeline/process for approval before construction can begin. Mr. Ghosh estimated dirt likely would not move until summer 2023, and residents may begin to move in around 2025. Full buildout would likely be around 2029.
- Resident asked about existing water and sewer hookups. Mr. Ghosh stated sewer would come from Forestville Rd slightly south of where the property abuts Forestville Rd, and water is available along both Burlington Mills Rd and Forestville Rd.
- Neighbor asked if annexation will be required? Mr. Ghosh stated yes.
- Neighbor asked when the greenway will become available. Mr. Ghosh stated that timing and construction will be under the Town's purview.
- Neighbor asked will the sewer have to cross Tom's Creek? Mr. Sanchez stated yes.
- Neighbor asked if water line will extend out to Burlington Mills? -Mr. Sanchez stated CORPUD will likely require the project to extend sewer to Burlington Mills.
- Neighbor stated Grapeland Rd is mislabeled on the map.
- Neighbor asked if a signal may be added as a result of this project to the intersection of Huntington Creek and Burlington Mills. Ms. Chase stated it is difficult to determine at this time, however the TIA will identify that.
- Neighbor asked if this project would trigger Forestville Rd to be widened to have double lanes. Mr. Ghosh stated we do not know at this point, however the TIA will identify this.
- Neighbor asked how much open space is passive versus active. Mr. Ghosh stated that is undetermined at this time.
- Neighbor asked if a traffic light will be added at intersection of Centaur Road and Burlington Mills. Mr. Ghosh again reviewed the TIA process and assured it would identify if a light would be necessary.
- Neighbor asked does Toll Brothers have a concept we can see? Mr. Ghosh stated he will get back to them with something.
- Neighbor asked if Stonewater can be targeted lot size for this development? -Mr. Ghosh stated the limitations, and market advantages for various lot sizes, and how this site coincides with the Town's Comprehensive Plan.
- Neighbor asked what school district would this be in? -Mr. Ghosh stated we do not know yet
- Neighbor stated a previous developer proposed providing water and sewer to Deer Chase is this still on the table? -Mr. Sanchez stated the goal is not to run lines within other private properties.
- Neighbor asked about architectural commitments. -Mr. Ghosh stated none have been committed to yet however Toll Brothers is generally committed to quality and they will likely be added later.

- Neighbor asked if Tuckahoe homes will be annexed into Rolesville. Mr. Ghosh explained how annexation generally has to be voluntary, so no.
- Neighbor expressed discontent with lot size, and would prefer larger lots.
- Neighbor asked where will the greenway connect offsite? Ms. Holloman stated that we met with Rolesville Parks and based the estimate off the creek alignment. However exact location is still up for discussion with the town.
- Neighbor asked if there will be a follow up meeting? – Mr. Ghosh again explained the process.
- Neighbor asked if 300 houses can be approved instead of 600. Mr. Ghosh stated it is possible the town could ask for that, but 300 homes is not what is being proposed with this project.
- Neighbor asked about stormwater and expressed concern over ponds flooding and sediment contamination. Mr. Ghosh overviewed the inspection process that occurs both during and after construction. Stormwater devices are required to be inspected and approved through the Town.
- Neighbor asked why not build on larger lots, at a higher price point? -Mr. Ghosh stated this is what is being proposed and is identified by market indicators to be appropriate for the area.
- Neighbor asked if any natural boarders or fencing will be located along border of Tuckahoe? -Mrs. Holloman stated currently there is no fencing proposed, however there will be a landscape buffer. A fence can certainly be discussed with Toll Brothers.
- Neighbor asked what the distance was from their driveway to nearest entrance Road. -Mr. Sanchez stated roughly 500 feet.
- Neighbor asked if an EIS will be considered? -Mr. Sanchez stated that wetland and stream delineation are required, and endangered species have to be identified as part of the process, as well as coordination with SHPO for archaeological resources.
- Neighbor asked if Tuckahoe water supply will be affected? -Mr. Sanchez explained that the water will come from City of Raleigh Municipal Water therefor will not change status of well water.
- Neighbor expressed concern that blasting will negatively impact their well. -Mr. Sanchez stated the shallow rock is generally located away from existing wells/property boundaries meaning most of the blasting should have minimal impact to wells.
- Call in numbers were unmuted by the host and invited to ask any questions.
- Neighbor asked about traffic, and possibility of proposing fewer homes. Mr. Ghosh explained the TIA process, including potential road improvements, and the projects consistency with current Rolesville comprehensive plan.
- Neighbor requested that McAdams engineering incorporate well damage into report that may occur and requested that the project take this into consideration.
- Neighbor asked where the amenities and pool will be located within the site? -Mr. Ghosh stated we are not sure yet, however likely next to the dedicated park.
- Neighbor asked would toll brothers be willing to commit to architectural guidelines Hardy board and stone facades would be desirable. Mr. Ghosh stated that we can take the requested guidelines back to Toll Brothers and make that suggestion.
- Meeting concluded at 8:01 pm.

TOM'S CREEK CONCEPT PLAN

Attachment 6



SITE DATA TABLE

Total Site Area	+/- 224.64 acres
Proposed Zoning	Residential Medium Density (RM)
Open Space Required (12%)	+/- 26.95 acres
Open Space Provided	+/- 91 acres

ENVIRONMENTAL FEATURES

- Floodway
- 100 - Year Floodplain
- 500 - Year Floodplain
- Streams
- Stream Buffers

PLAN SUMMARY

- Development Area
- Open Space
- Community Park (Minimum Size: 4ac)
- Local Residential Roads (50' ROW)
- Residential Collector Street (60' ROW)
- Greenway
- 15' Type 2 Perimeter Buffer
- 30' Thoroughfare Streetscape Buffer
- Site Boundary

NOTES

01 Greenway location and alignments are conceptual - final alignments will be provided during the Major Subdivision Final Plat process.

McADAMS

PREPARED FOR:
TOLL BROTHERS

PROJECT #:
MA-21-10

REV1: 12.23.21
REV2: 04.01.22
REV3: 10.06.22

TOM'S CREEK CONCEPT PLAN
ROLESVILLE, NORTH CAROLINA

0' 200'
SCALE: 1" =200'

TOL-20010
03 . 01 . 2022

01

Attachment 7

Tom's Creek Development
Traffic Impact Analysis

July 28, 2022

Prepared for:

Town of Rolesville, North Carolina
502 Southtown Circle
Rolesville, NC 27571

Applicant:

Toll Brothers Inc.
900 Perimeter Park Drive, Suite B3
Morrisville, NC 27560

Prepared by:

Stantec Consulting Services Inc.
801 Jones Franklin Road, Suite 300
Raleigh, NC 27606

Sign-off Sheet

This document entitled Tom's Creek Development Traffic Impact Analysis was prepared by Stantec Consulting Services Inc. ("Stantec") for the account of the Town of Rolesville (the "Client"). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule, and other limitations stated in the document and the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify the information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such a third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by Pierre Tong

(signature)

Pierre Tong, PE

Reviewed by

(signature)

Matt Peach, PE, PTOE

Approved by

(signature)

Jeff Weller, PE

7/28/2022

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Executive Summary

The proposed Tom's Creek Development is located between SR 2049 (Forestville Road) and SR 2051 (Burlington Mills Road) in Rolesville, NC. In general, the 224.64-acre site is located in the southeast corner of the intersection of Forestville Road and Burlington Mills Road. The site is envisioned to consist of 606 single-family detached housing units. The development is anticipated to be completed in 2029.

At full build-out, the development is anticipated to generate 5,294 new trips per average weekday. In the AM and PM peak hours, the development is expected to generate approximately 384 trips (100 entering and 284 exiting) and 540 (340 entering and 200 exiting), respectively.

Four (4) access points are proposed for the development. Access A will connect to Forestville Road whereas Accesses B, C, and D will connect to Burlington Mills Road. The site plan is shown in Figure ES-1.

This study evaluates the ability of the adjacent roadways to accommodate the additional traffic and recommends transportation improvements needed to mitigate congestion that may result from the site traffic. This report presents trip generation, trip distribution, traffic analyses, and recommendations for improvements needed to meet anticipated traffic demands. The following scenarios are examined for the AM and PM peak hours:

- 2022 Existing
- 2026 No Build
- 2026 Initial Build
- 2026 Initial Build with Improvements
- 2028 No Build
- 2028 Intermediate Build
- 2028 Intermediate Build with Improvements
- 2029 No Build
- 2029 Full Build

Capacity analyses for the AM and PM peak hours in each scenario were performed for the following intersections:

- Burlington Mills Road at Ligon Mill Road
- Burlington Mills Road at Forestville Road
- Burlington Mills Road at Access B
- Burlington Mills Road at Centaur Road / Access C
- Burlington Mills Road at Huntingcreek Drive / Access D
- Burlington Mills Road at US 401 Business (S. Main Street)
- Forestville Road at Access A
- Forestville Road at US 401

Table ES-1 shows a summary of the delays and levels of service for the study area intersections.

The results presented herein indicate that the proposed development will have an impact on the surrounding roadway network. These impacts are most pronounced at the intersection of Burlington Mills Road and Forestville Road. As a result, several improvements are recommended at the intersection. These improvements not only mitigate the development's impact on the intersection but also improve LOS by a letter grade.

Other study area intersections have improvements committed by other developments or public-funded projects. The results of this analysis show that these intersections experience minor increases in delay due to the proposed development. Accordingly, improvements are not recommended at these intersections.

The primary access point (Access A) on Forestville Road is anticipated to operate with high delays if it is left as a stop-controlled intersection; even with the addition of turn-lanes on all approaches. The installation of a traffic signal will greatly improve operations but is contingent upon the intersection meeting the warrants for installation of a traffic signal outlined in the Manual on Uniform Traffic Control Devices (MUTCD) and approved by NCDOT. Accordingly, it is recommended that the location be monitored for the installation of a traffic signal and that the design and construction of the signal be the responsibility of the applicant.

All proposed driveways along Burlington Mills Road (Accesses B, C, and D) are expected to operate at an acceptable level of service in all scenarios and are not expected to have a significant impact on operations along Burlington Mills Road.

Based on the findings of this study, specific improvements have been identified and are recommended to be completed as part of the proposed development. These improvements are listed below and recommended improvements are shown in Figure ES-2.

2026 Initial Phase Recommendations

Burlington Mills Road at Centaur Road / Access C

- Construct Access C as a full-movement access point
- Construct Access C with one ingress and one egress lane with a driveway stem length of a minimum of 100 feet

Forestville Road at Access A

- Construct Access A as a full-movement access point
- Construct Access A with one ingress and two egress lanes (one left-turn lane and one right-turn lane) with a driveway stem length of a minimum of 170 feet
- Construct a northbound Forestville Road right-turn lane with 100 feet of full-width storage and appropriate taper
- Construct a southbound Forestville Road left-turn lane with 100 feet of full-width storage and appropriate taper

2028 Intermediate Phase Recommendations

Burlington Mills Road at Forestville Road

- Extend the existing eastbound Burlington Mills Road left-turn lane to 575 feet of full-width storage and appropriate taper
- Extend the existing westbound Burlington Mills Road left-turn lane to 225 feet of full-width storage and appropriate taper
- Construct a westbound Burlington Mills Road right-turn lane with 150 feet of full-width storage and appropriate taper
- Extend the existing northbound Forestville Road left-turn lane to 225 feet of full-width storage and appropriate taper
- Extend the existing southbound Forestville Road left-turn lane to 300 feet of full-width storage and appropriate taper

- Construct a southbound Forestville Road right-turn lane with 200 feet of full-width storage and appropriate taper
- The above recommendations will require the traffic signal at the intersection to be modified

Burlington Mills Road at Access B

- Construct Access B as a right-in/right-out access point
- Construct Access B with one ingress and one egress lane with a driveway stem length of a minimum of 100 feet

Forestville Road at Access A

- Monitor Access A for potential signalization

2029 Full Build Recommendations

Burlington Mills Road at Huntingcreek Drive / Access D

- Construct Access D as a full-movement access point
- Construct Access D with one ingress and one egress lane with a driveway stem length of a minimum of 100 feet

Forestville Road at Access A

- Monitor Access A for potential signalization

Figure ES-1: Site Plan

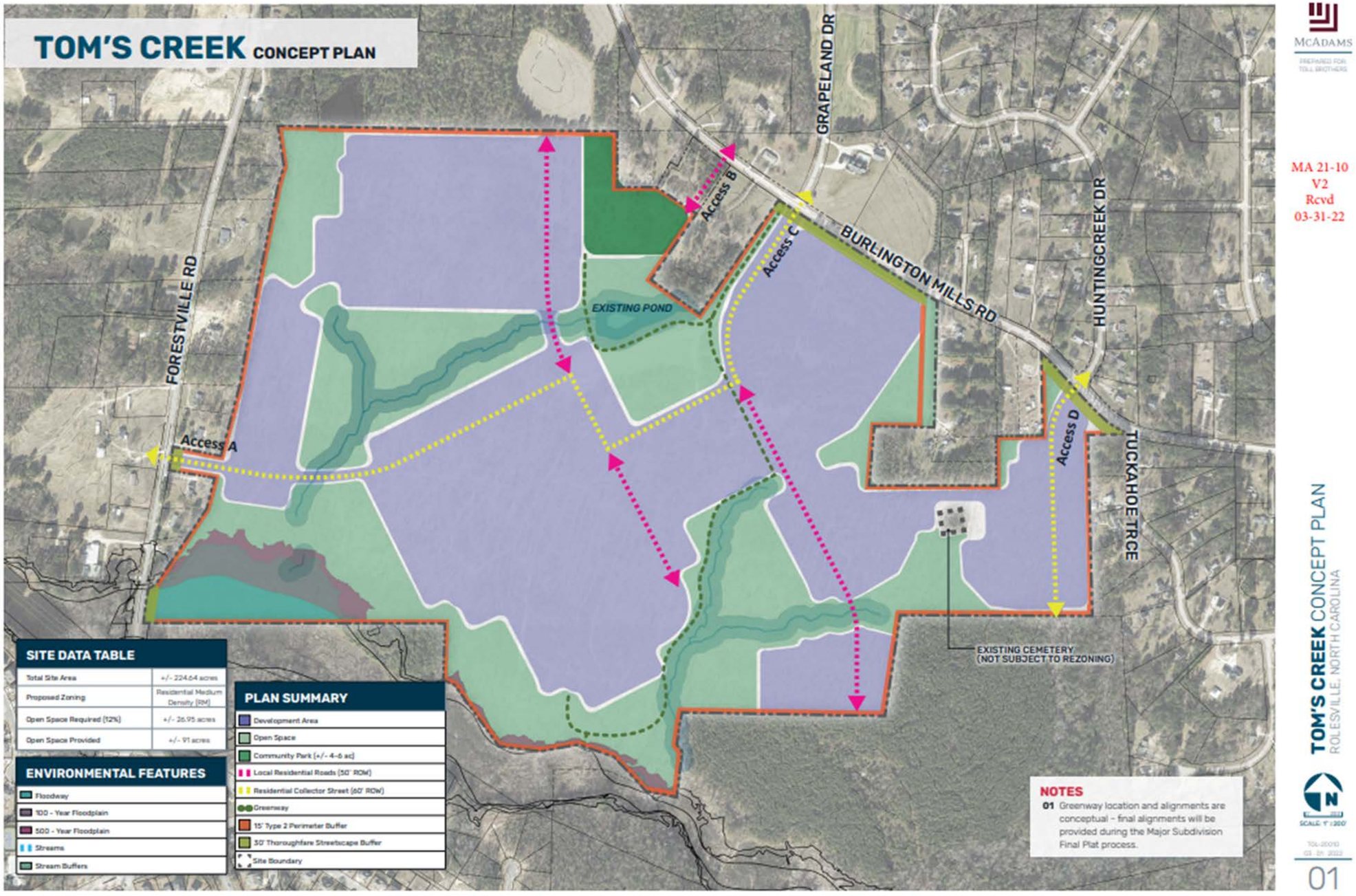
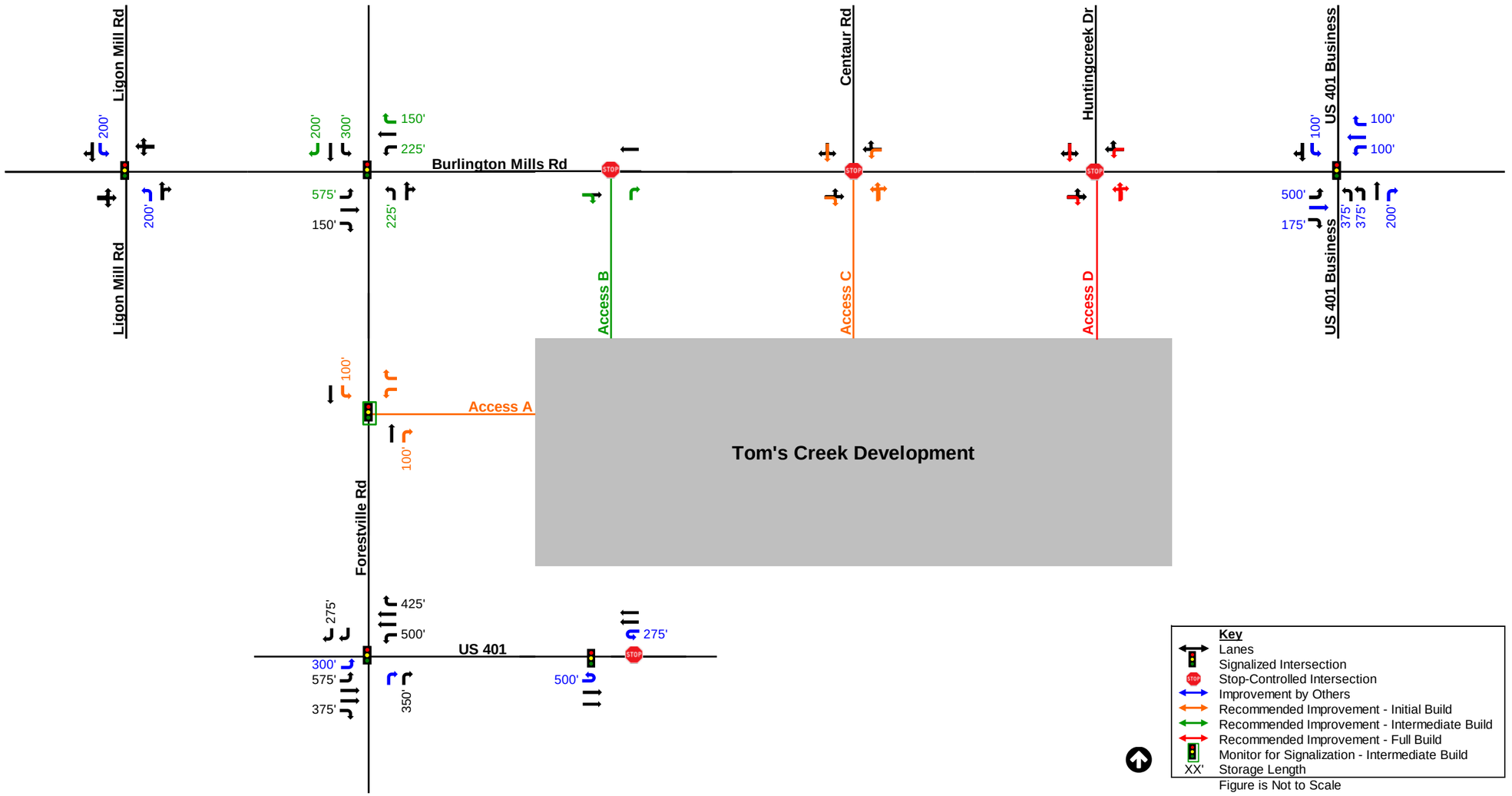


Table ES-1: Level of Service & Delay Summary

Level of Service (Delay, sec/veh)	2022 Existing		2026 No Build		2026 Initial Build		2026 Initial Build with Improvements		2028 No Build		2028 Intermediate Build		2028 Intermediate Build with Improvements		2029 No Build		2029 Full Build	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Burlington Mills Road at Ligon Mill Road	D (43.4)	C (33.4)	D (53.7)	C (26.4)	D (47.1)	C (29.0)	D (47.1)	C (29.0)	E (57.8)	C (28.3)	E (59.2)	C (30.1)	E (64.7)	C (31.7)	E (70.3)	C (32.7)	E (73.5)	C (33.7)
Burlington Mills Road at Forestville Road	C (33.5)	C (32.0)	F (84.9)	F (85.7)	F (90.7)	F (80.2)	F (90.7)	F (80.2)	F (99.3)	F (89.5)	F (109.3)	F (94.1)	E (60.0)	E (60.3)	E (62.5)	E (62.2)	E (66.2)	E (64.3)
Burlington Mills Road at Access B	-	-	-	-	-	-	-	-	-	-	B (11.6)	B (11.2)	B (11.6)	B (11.2)	B (11.7)	B (11.3)	B (11.8)	B (11.6)
Burlington Mills Road at Centaur Road / Access C	B (12.4)	B (10.5)	C (16.3)	B (13.0)	C (20.7)	C (16.1)	C (20.7)	C (16.1)	C (21.4)	C (16.3)	D (29.6)	C (20.2)	D (29.6)	C (20.2)	D (30.3)	C (20.4)	D (29.4)	C (20.8)
Burlington Mills Road at Huntingcreek Drive / Access D	B (11.7)	B (10.1)	C (15.5)	C (12.2)	C (15.8)	B (12.4)	C (15.8)	B (12.4)	C (16.1)	B (12.6)	C (16.3)	B (12.8)	C (16.3)	C (12.8)	C (16.5)	B (12.9)	D (28.1)	C (20.1)
Burlington Mills Road at US 401 Business	C (27.8)	B (16.6)	E (61.0)	D (42.3)	E (62.0)	D (46.5)	E (62.0)	D (46.5)	E (65.3)	D (43.4)	E (62.9)	D (43.5)	E (70.8)	D (44.3)	E (67.8)	D (42.6)	E (69.3)	D (43.0)
Forestville Road at Access A	-	-	-	-	F (398.3)	F (1262.7)	F (297.2)	F (821.2)	F (445.5)	F (1306.6)	F (1133.7)	F (3272.1)	B (8.6)	A (7.4)	A (9.1)	A (7.5)	B (11.8)	A (9.2)
Forestville Road at US 401	D (37.2)	D (40.4)	The Perry Farms development will convert this intersection to a Reduced Conflict Intersection by 2026															
Forestville Road at US 401 Westbound	-	-	D (47.4)	B (17.5)	D (52.7)	C (20.8)	D (52.7)	C (20.8)	E (61.5)	B (19.1)	E (69.5)	B (19.8)	E (69.9)	B (19.8)	E (73.3)	B (19.8)	E (78.4)	B (19.1)
Forestville Road at US 401 Eastbound	-	-	B (17.9)	C (20.4)	B (18.6)	B (21.6)	B (18.6)	C (21.6)	B (19.6)	C (21.9)	C (20.3)	C (22.0)	B (16.7)	C (22.0)	B (17.5)	C (23.2)	B (17.5)	C (23.2)
US 401 Westbound U-Turn	-	-	C (31.8)	B (15.7)	C (26.9)	B (16.2)	C (26.9)	B (16.2)	C (31.3)	B (15.9)	C (30.0)	B (15.9)	C (32.5)	B (15.9)	D (35.0)	B (16.0)	D (35.1)	B (16.1)

Figure ES-2: Recommended Improvements



1.0 INTRODUCTION

The purpose of this report is to evaluate the traffic impacts of the proposed Tom's Creek Development located in Rolesville, NC. This development is located between SR 2049 (Forestville Road) and SR 2051 (Burlington Mills Road) in Rolesville, NC. In general, the 224.64-acre site is located in the southeast corner of the intersection of Forestville Road and Burlington Mills Road. The development's location and study area are shown in Figure 1.

The site currently consists of undeveloped farmland and is zoned Residential Low Density (RL). The applicant is pursuing a rezoning to Residential Medium Density – Conditional District (RM-CZ). Construction of the site is anticipated to be completed in 2029 and will consist of up to 606 units of single-family detached housing. The Rolesville Comprehensive Plan designates this property as "Medium Density Residential" with a suggested density range of 3-5 units per acre, however, the applicant has chosen to limit the proposed density to 2.7 units per acre. Figure 2 shows the conceptual site plan prepared by McAdams. Figure 3 shows each of the six (6) phases of development.

The Tom's Creek Development is expected to be constructed in six (6) phases as shown in Figure 3; however, the applicant has requested that three (3) phases be included in this study. The Initial phase studied includes what is shown as phases 1 and 2 in Figure 3 and is assumed to be fully built out and occupied by 2026. The Intermediate phase includes what is shown as phases 3 and 4 in Figure 3 and is assumed to be fully built out and occupied by 2028. The final phase includes what is shown as phases 5 and 6 in Figure 3 and is assumed to be fully built out and occupied by 2029.

The purpose of this report is to evaluate the development in terms of projected vehicular traffic conditions, evaluate the ability of the adjacent roadways to accommodate the additional traffic, and recommend transportation improvements needed to mitigate congestion that may result from additional site traffic. This report presents trip generation, trip distribution, traffic analyses, and recommendations for improvements needed to meet anticipated traffic demands. The analysis examines the AM and PM peak hours for:

- 2022 Existing
- 2026 No Build
- 2026 Initial Build
- 2026 Initial Build with Improvements
- 2028 No Build
- 2028 Intermediate Build
- 2028 Intermediate Build with Improvements
- 2029 No Build
- 2029 Full Build

Figure 1: Site Location and Study Area Map

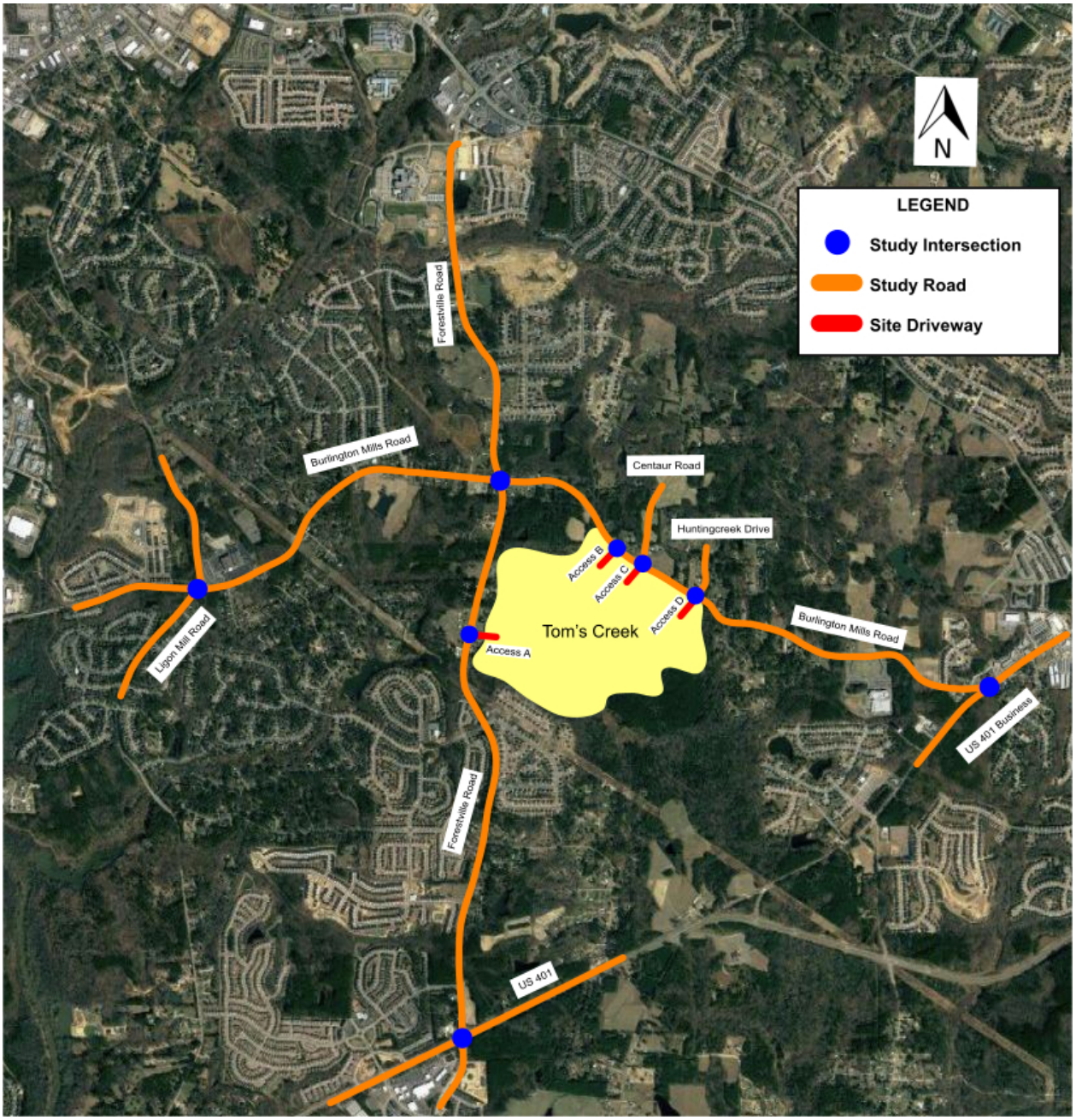


Figure 2: Proposed Site Plan

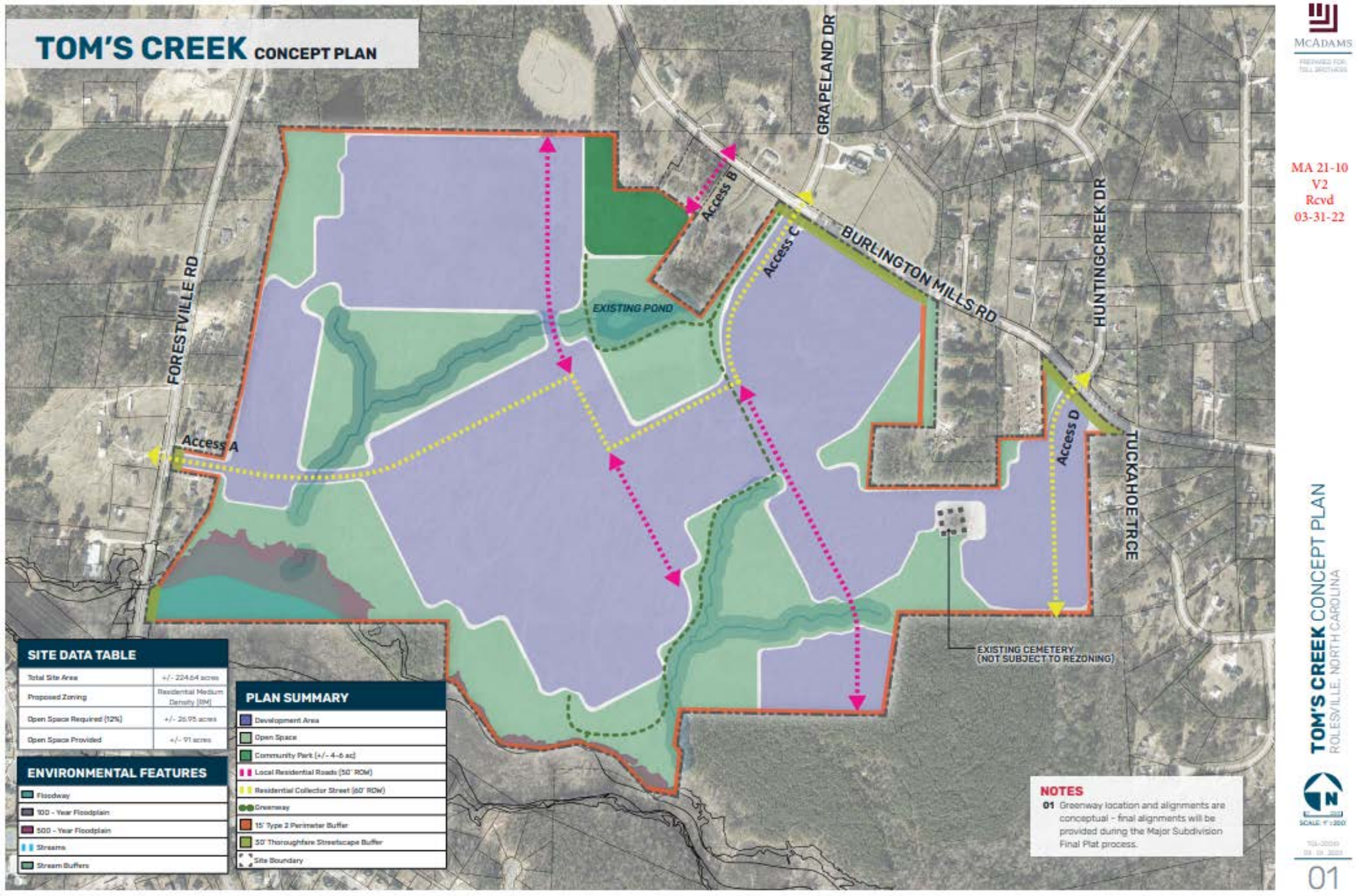
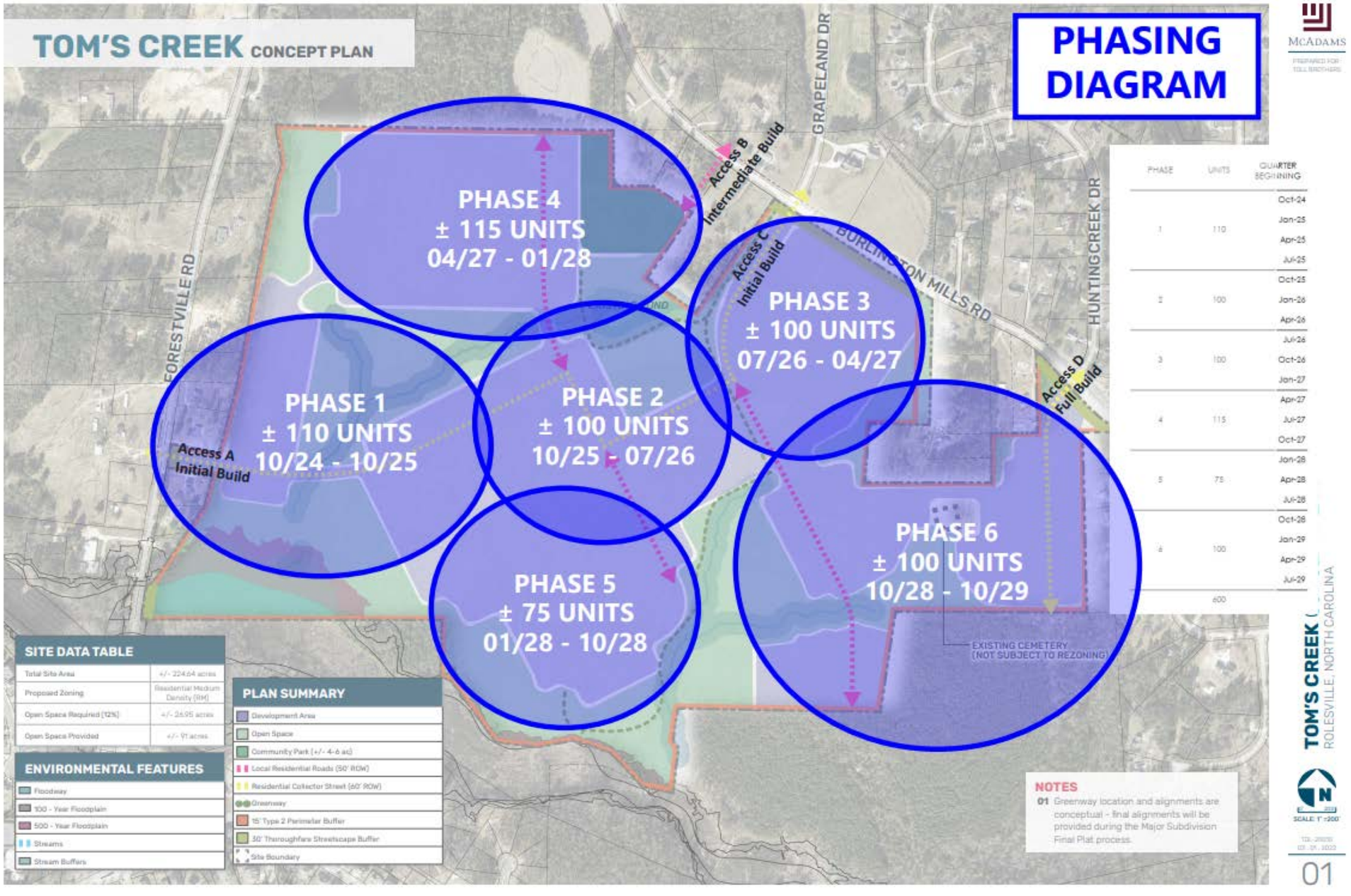


Figure 3: Proposed Phases



2.0 INVENTORY OF TRAFFIC CONDITIONS

2.1 STUDY AREA

Stantec coordinated with the Town of Rolesville and the North Carolina Department of Transportation (NCDOT) Division 5, District 1 to determine the appropriate study area and assumptions for this study. The final scoping document is included in the appendix. The following intersections were agreed upon to be analyzed to determine the associated impacts of the proposed development.

- Burlington Mills Road at Ligon Mill Road (signalized)
- Burlington Mills Road at Forestville Road (signalized)
- Burlington Mills Road at Centaur Road (stop-controlled)
- Burlington Mills Road at Huntingcreek Drive (stop-controlled)
- Burlington Mills Road at US 401 Business (S. Main Street) (signalized)
- Forestville Road at US 401 (signalized)

Figure 4 shows a diagram of the existing lane configurations, geometry, and traffic control features in the study area.

2.2 PROPOSED ACCESS

2.2.1 Initial Phase Access

Access to the Initial phase (i.e., phases 1 and 2 as shown in Figure 3) is envisioned to be provided by two access points:

- Forestville Road at Access A
- Burlington Mills Road at Centaur Road / Access C

Access A is proposed to be a full-movement driveway located along Forestville Road. This will create a new three-legged intersection. Intersection control will be provided by a stop sign on Access A. Access C is proposed to be a full-movement driveway on Burlington Mills Road at Centaur Road. Intersection control will be provided by stop signs on the minor approaches.

2.2.2 Intermediate Phase Access

The Intermediate phase (i.e., phases 3 and 4 as shown in Figure 3) will construct a new access point on Burlington Mills Road:

- Burlington Mills Road at Access B

Access B is proposed to be a right-in/right-out driveway located along Burlington Mills Road. This will create a new three-legged intersection. Intersection control will be provided by a stop sign on Access B. The construction of Access B will bring the total number of access points to three during the Intermediate phase.

2.2.3 Full Build Access

The final phase (i.e., phases 5 and 6 as shown in Figure 3 and referred to as the full build) will construct a new access point on Burlington Mills Road:

- Burlington Mills Road at Huntingcreek Drive / Access D

Access D is proposed to be a full-movement driveway on Burlington Mills Road at Huntingcreek Drive. Intersection control will be provided by stop signs on both Huntingcreek Drive and Access D. The construction of Access D will bring the total number of access points to four when the development is fully built out.

2.3 EXISTING ROADWAY CONDITIONS

Table 1 provides a detailed description of the existing study area roadway network. All functional classification and average annual daily traffic (AADT) information, where available, was obtained from NCDOT via the NCDOT.gov website. The existing roadway laneage is illustrated in Figure 4.

Table 1: Existing Conditions

Road Name	Road Number	Primary Cross-Section	Functional Classification[1]	2020 AADT[2] (vpd)	Speed Limit (mph)	Maintenance Agency
Burlington Mills Road	SR 2045/2051	2-Lane Undivided	Minor Collector	3,500-8,000	45	NCDOT
Centaur Road	SR 2073	2-Lane Undivided	Local	Unknown	55	NCDOT
Forestville Road	SR 2049	2-Lane Undivided	Minor Arterial	10,500-13,000	45	NCDOT
Huntingcreek Drive	SR 3657	2-Lane Undivided	Local	Unknown	55	NCDOT
Ligon Mill Road	SR 2044	2-Lane Undivided	Minor Collector	1,800-7,600	45	NCDOT
Louisburg Road	US 401	4-Lane Divided	Principal Arterial	21,500	55	NCDOT
S. Main Street	US 401 Business	2-Lane/3-Lane Undivided	Principal Arterial	9,000-12,000	35	NCDOT

2.4 FUTURE NO BUILD ROADWAY CONDITIONS

Nearby developments have committed to specific improvements to the study intersections. While the schedule of each development is unknown, the improvements are assumed to be completed in 2026 before the Tom's Creek Development is constructed. These improvements are described in the following subsections. The future no build roadway conditions are shown in Figure 5.

Burlington Mills Road at Ligon Mill Road

The Kitchin Farms development has committed to constructing two improvements at this intersection:

- Construct a southbound left-turn lane along Ligon Mill Road with 200 feet of storage and appropriate deceleration and taper length
- Construct a northbound left-turn lane along Ligon Mill Road with 200 feet of storage and appropriate Forestville Road at US 401

These improvements are documented in the Marshall Village Traffic Impact Analysis (Ramey Kemp & Associates, August 2021). A copy of this TIA is included in the appendix. Additional information on the Kitchin Farms development can be found in Section 5.3.

Forestville Road at US 401

The Perry Farms development has committed to converting this location to a reduced conflict intersection (RCI) where left and through movements are redirected from the Forestville Road approaches and U-turns are made at the US 401 & Leland Drive intersection and a nearby bulb-intersection east of the US 401 & Forestville Road intersection. This includes the construction of the following improvements at this intersection:

- Convert intersection to an RCI with left and through movements being eliminated from the Forestville Road approaches
- Restripe Forestville Road approaches to dual right-turn lanes
- Construct a second eastbound left-turn lane with 300 feet of storage and appropriate deceleration and taper length
- Provide an eastbound U-turn location approximately 1,300 feet east of the intersection with an eastbound U-turn lane with 500 feet of storage and appropriate deceleration and taper length

These improvements are documented in the Perry Farms Development Traffic Impact Analysis Review Report (NCDOT Congestion Management, July 2021). A copy of this memo and other associated documentation is included in the appendix. Additional information on the Perry Farms development can be found in Section 5.3

Burlington Mills Road at US 401 Business

As part of the NCDOT U-6241 project (construction year 2022) and Wallbrook development, Burlington Mills Road will be realigned and a new signalized intersection with US 401 Business will be constructed to the south of the existing intersection.

These improvements are documented in the Revised Wallbrook Development Traffic Impact Analysis (Stantec, August 2020). A copy of this memo is included in the appendix. Additional information on the Wallbrook development can be found in Section 5.3

Figure 4: 2022 Existing Lane Configurations and Traffic Control

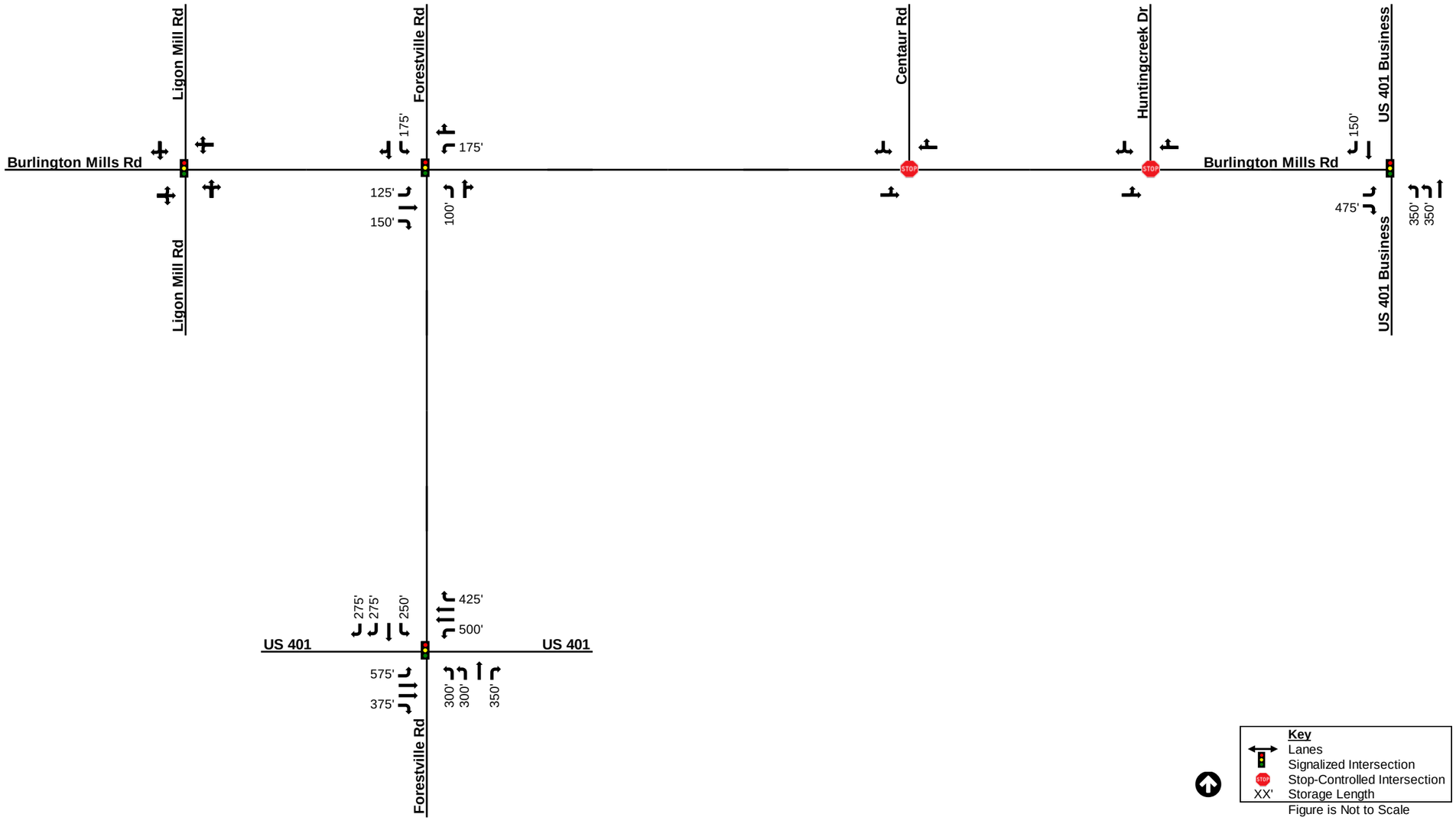
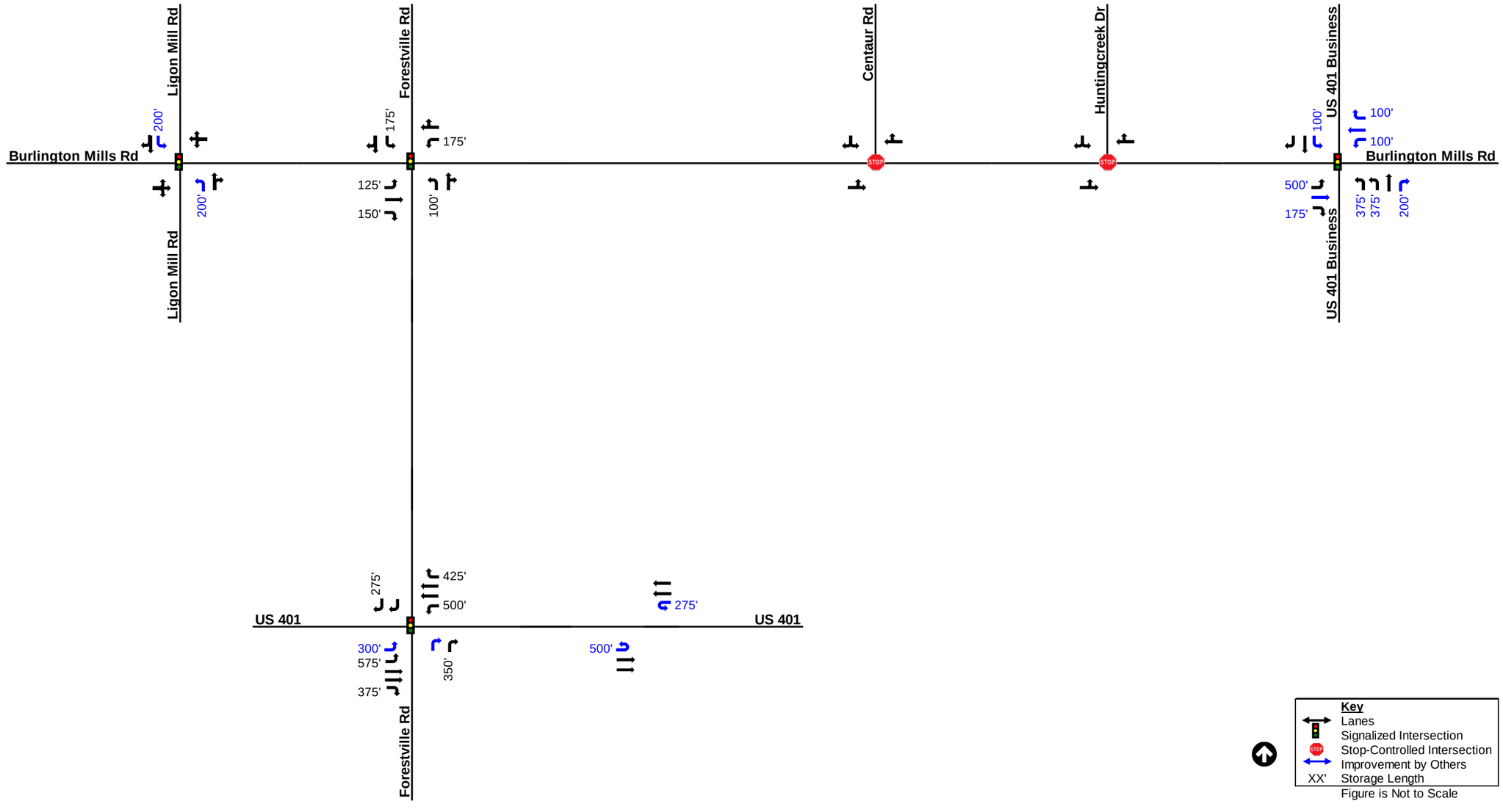


Figure 5: 2026 No Build Lane Configurations and Traffic Control



3.0 TRIP GENERATION

Trip generation was performed for the proposed development in three phases. Trips were estimated using the 11th Edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual[3]. The manual provides means for calculating trips across four setting types: city center core, dense multi-use urban, general urban/suburban, and rural. This trip generation, submitted to the Town and NCDOT for review, and including internal capture and trip generation methodology, is located in the appendix.

3.1 INITIAL PHASE TRIP GENERATION

The Initial phase of the Tom's Creek Development will comprise 210 single-family detached housing units. Table 2 shows the number of anticipated trips that will be generated by the Initial phase (Daily, AM Peak, and PM Peak entering and exiting).

Table 2: Initial Phase Trip Generation

Land Use	ITE LUC	Size	Daily			AM Peak			PM Peak		
			Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit
Single Family Homes	210	210 Units	1834	917	917	133	35	98	187	118	69
Trips Generated for this phase			**1834**	**917**	**917**	**133**	**35**	**98**	**187**	**118**	**69**

3.2 INTERMEDIATE PHASE TRIP GENERATION

The Intermediate phase of the Tom's Creek Development will add 215 new single-family detached housing units to those constructed as a part of the Initial phase. This results in a total of 425 single-family detached housing units. To provide a conservative estimate of the traffic to and from the development during the Intermediate phase, trips were calculated for 215 units. Trips from the Initial phase (shown in Table 2) were then added to trips from the Intermediate phase to produce the cumulative trips generated during the Intermediate phase. These cumulative values were assigned to the roadway network using the trip distribution discussed in Section 4.0. Table 3 shows the number of anticipated trips that will be generated by the Intermediate Build (Daily, AM Peak, and PM Peak entering and exiting).

Table 3: Intermediate Phase Trip Generation

Land Use	ITE LUC	Size		Daily			AM Peak			PM Peak		
				Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit
Single Family Homes	210	215	Units	1878	939	939	136	35	101	192	121	71
Trips Generated for this phase				**1878**	**939**	**939**	**136**	**35**	**101**	**192**	**121**	**71**
Cumulative Trips Generated				**3712**	**1856**	**1856**	**269**	**70**	**199**	**379**	**239**	**140**

3.3 FULL BUILD TRIP GENERATION

The Full Build, and final phase, for this site is a combined 606 units of single-family detached housing. Table 4 shows the number of anticipated trips that will be generated when the site is completed.

Table 4: Full Build Trip Generation

Land Use	ITE LUC	Size		Daily			AM Peak			PM Peak		
				Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit
Single Family Homes	210	606	Units	5294	2647	2647	384	100	284	540	340	200
Trips Generated for this phase				**1582**	**791**	**791**	**115**	**30**	**85**	**161**	**101**	**60**
Cumulative Trips Generated				**5294**	**2647**	**2647**	**384**	**100**	**284**	**540**	**340**	**200**

4.0 TRAFFIC DISTRIBUTION

4.1 SITE TRIP DISTRIBUTION

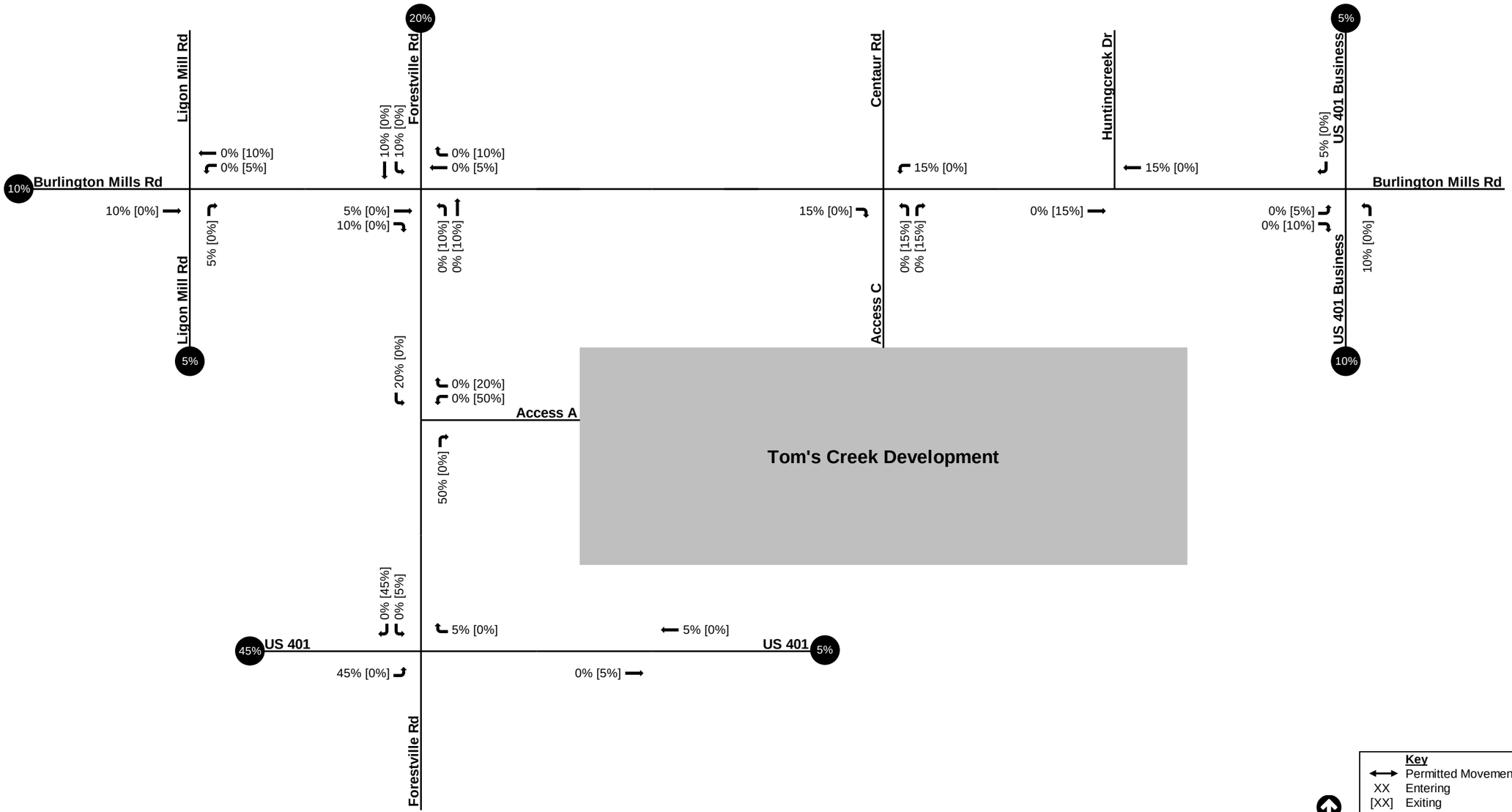
To accurately determine the effect of the proposed development on the surrounding roadway network, an estimate of the expected distribution of traffic entering and exiting the site is needed. The following percentages were used in the AM and PM peak hours for the proposed site:

- 45% to/from the south via US 401 (Louisburg Road)
- 20% to/from the north via Forestville Road
- 10% to/from the west via Burlington Mills Road
- 10% to/from the south via US 401 Business (S. Main Street)
- 5% to/from the south via Ligon Mill Road
- 5% to/from the north via US 401 Business (S. Main Street)
- 5% to/from the east via US 401 (Louisburg Road)

These percentages were developed using a combination of existing traffic volume counts, historic AADTs provided by NCDOT, and engineering judgment. This trip distribution was submitted to the Town and NCDOT for review as part of NCDOT's TIA Scoping Checklist contained in the appendix. Trip distribution and assignment for the Initial phase are shown in Figure 6 and Figure 7, trip distribution and assignment for the Intermediate phase are shown in Figure 8 and Figure 9, and trip distribution for the Full Build is shown in Figure 10 and Figure 11.

Traffic Distribution
July 28, 2022

Figure 6: Initial Phase Trip Distribution



Traffic Distribution
July 28, 2022

Figure 7: Initial Phase Trip Assignment

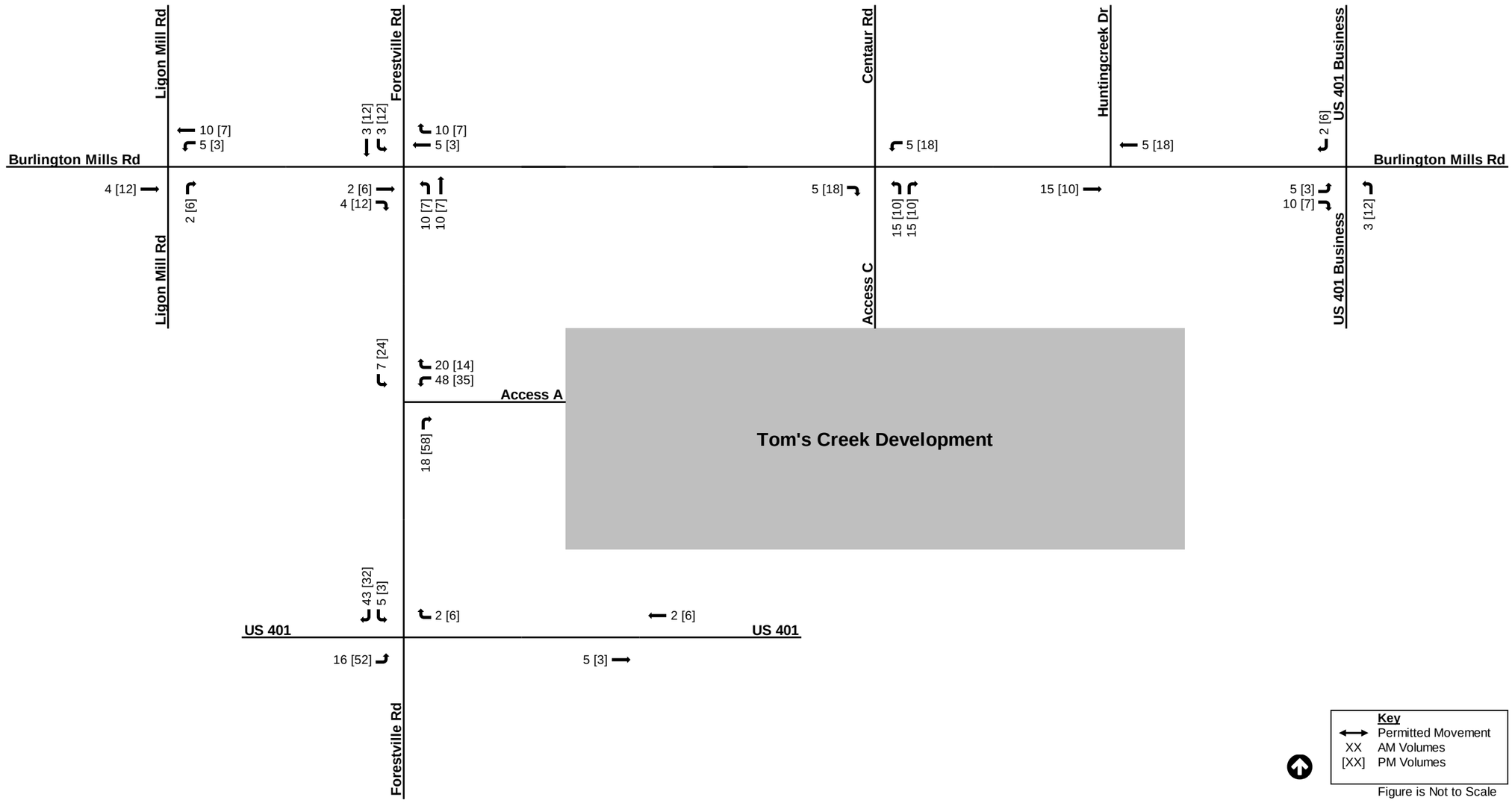


Figure 8: Intermediate Phase Trip Distribution

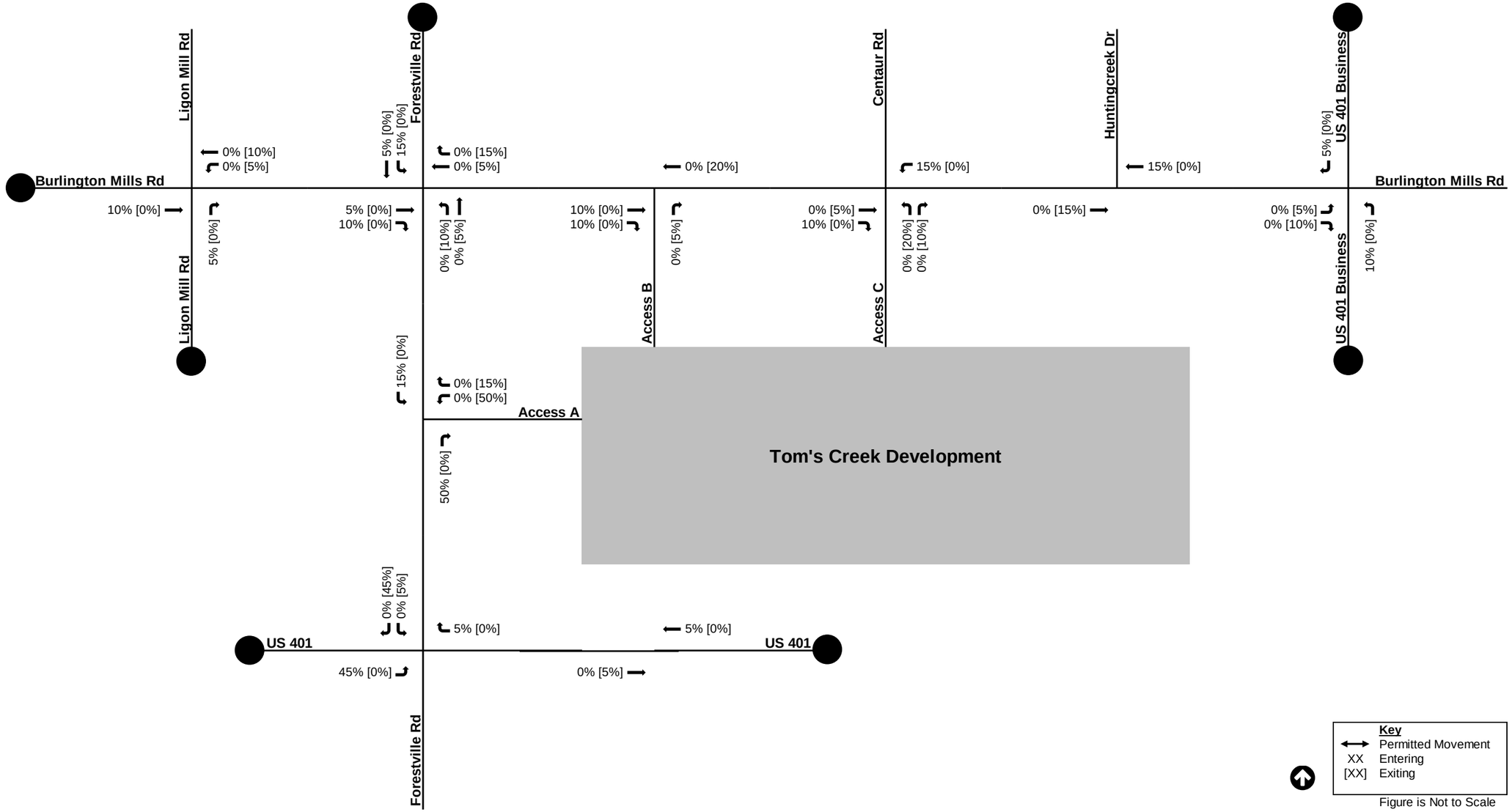


Figure 9: Intermediate Phase Trip Assignment

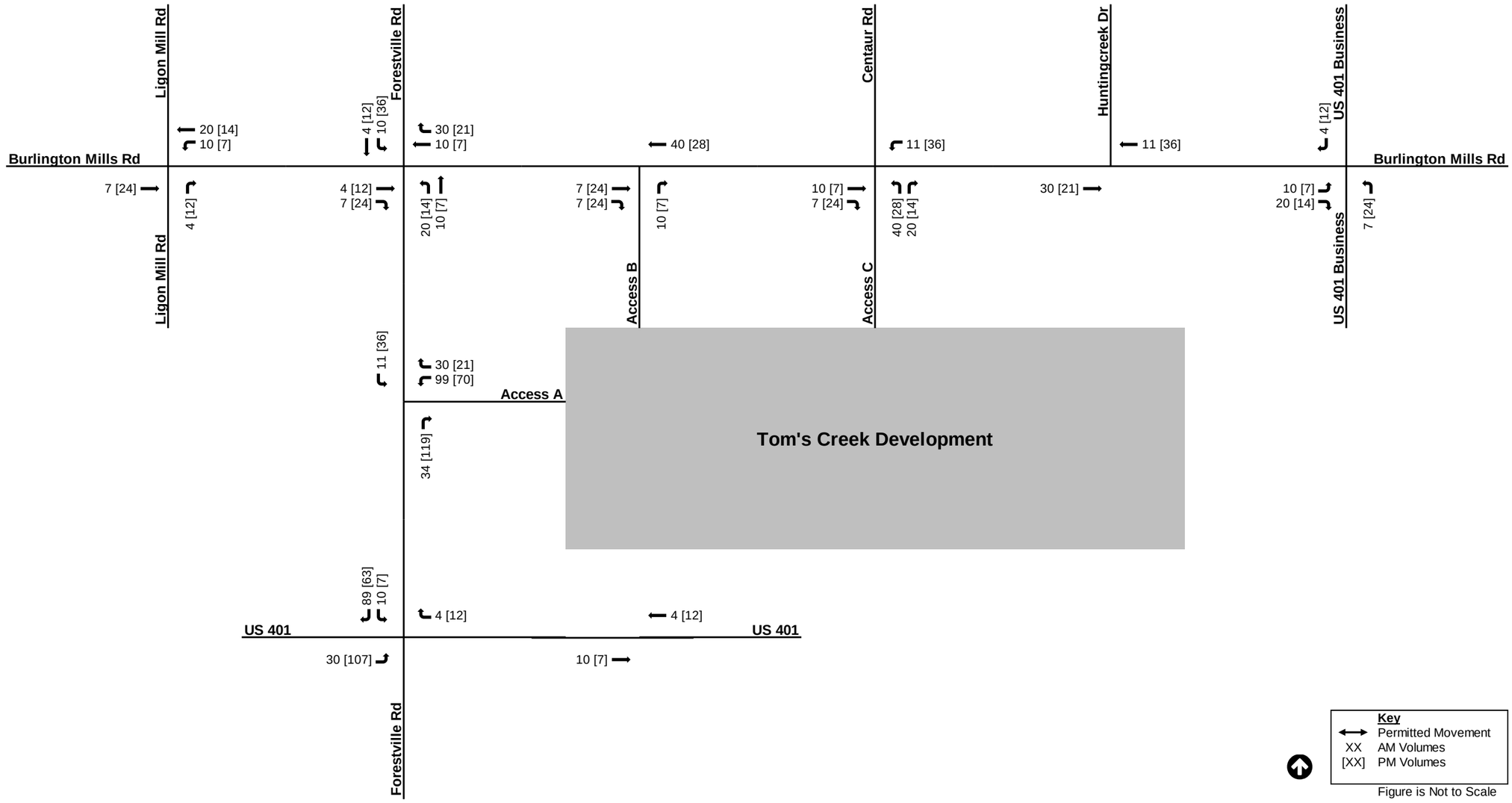


Figure 10: Full Build Trip Distribution

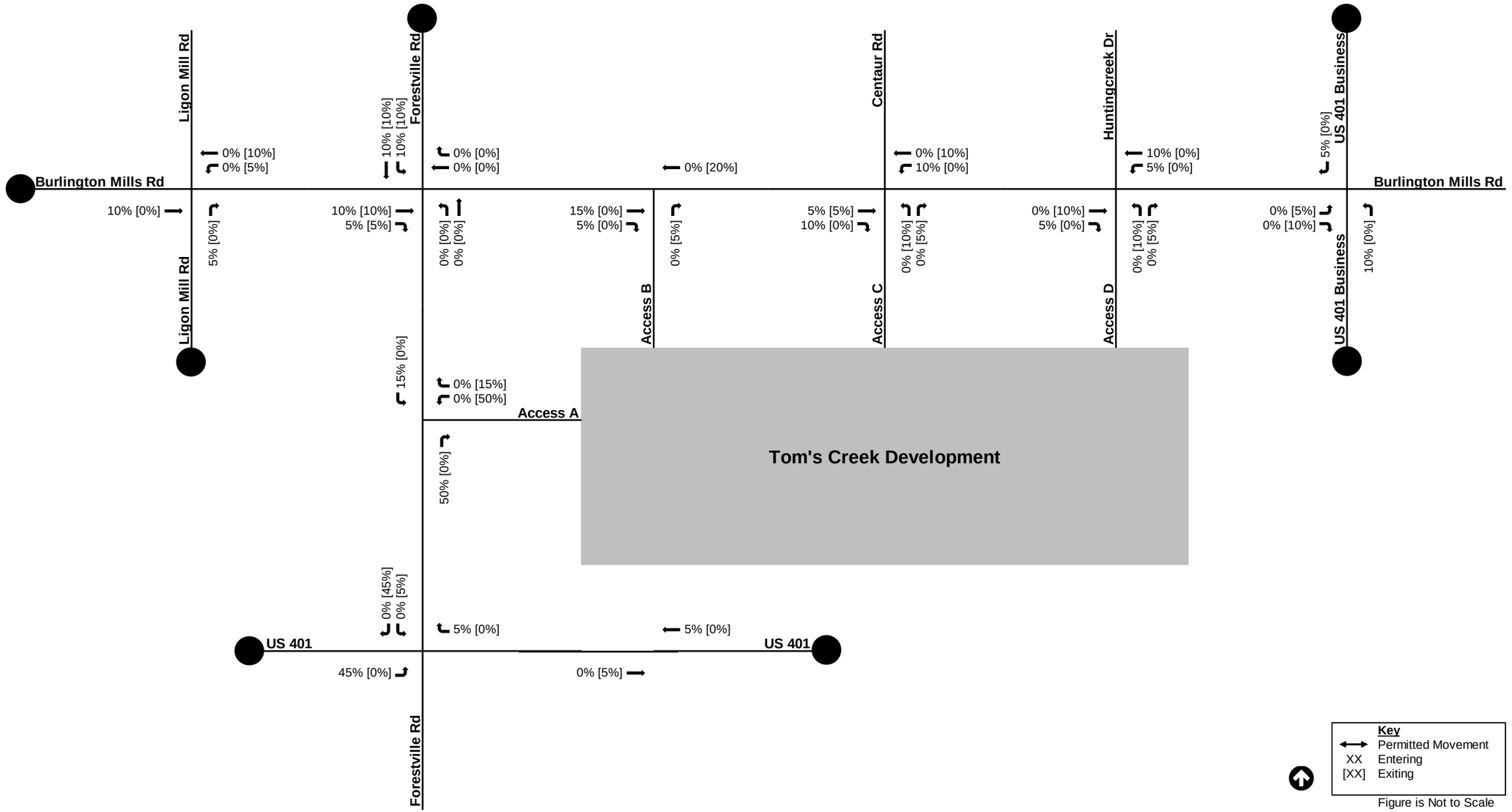
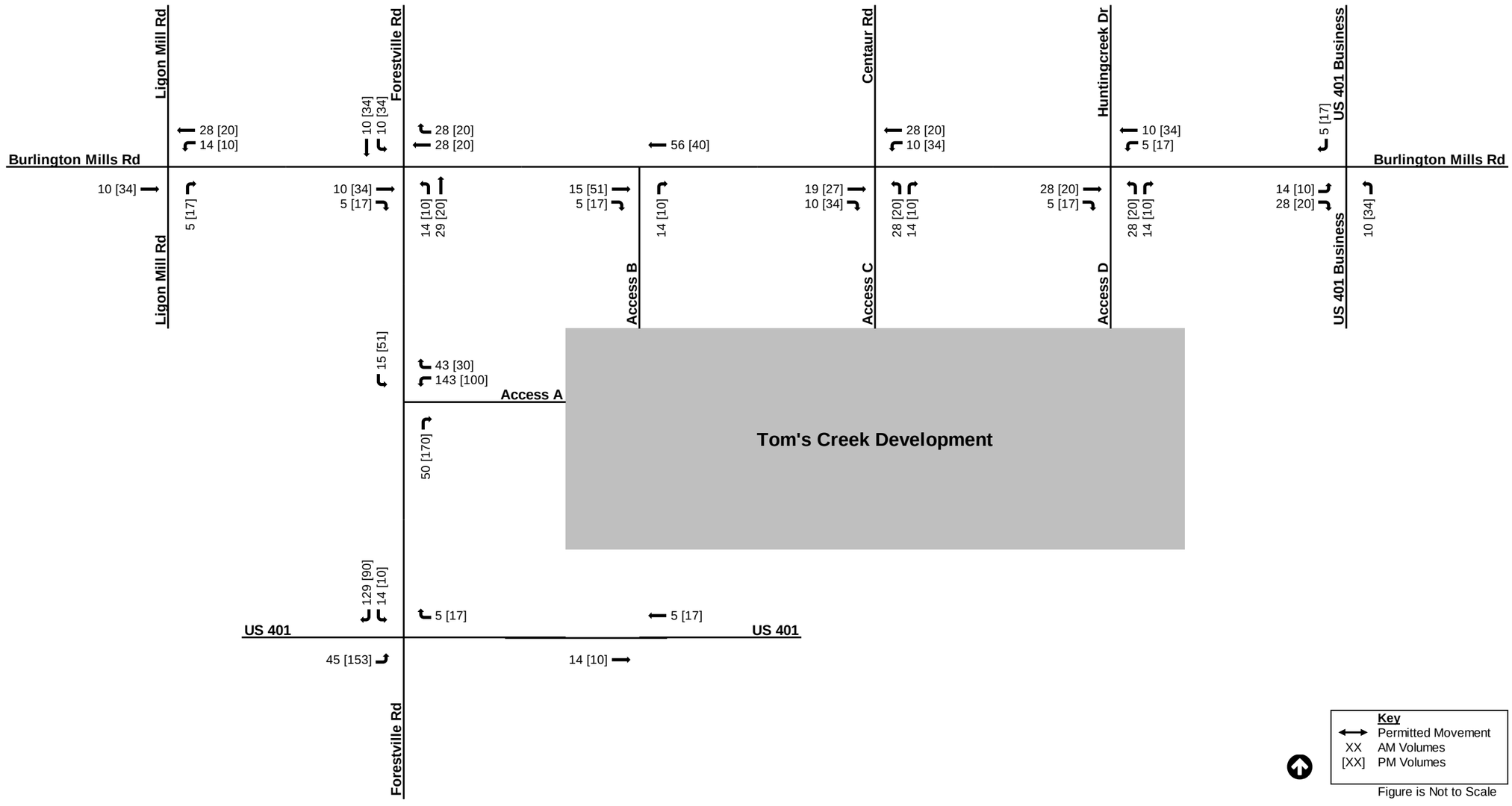


Figure 11: Full Build Trip Assignment



5.0 TRAFFIC VOLUMES

All traffic volume calculations can be found in the appendix.

5.1 TRAFFIC COUNTS

Morning (7:00 – 9:00 am) and evening (4:00 – 6:00 pm) turning movement counts were taken at the study intersections on May 17, 2022, while schools were in session. Due to the distance between study intersections and the number of driveways between them, the traffic counts were not balanced. All traffic count data can be found in the appendix. The 2022 existing volumes are shown in Figure 12.

5.2 FUTURE TRAFFIC GROWTH

Future traffic growth is the increase in traffic volumes due to usage increases and non-specific growth throughout the area. The 2022 existing volumes were grown by a 2% annual rate to estimate 2026, 2028, and 2029 base volumes.

5.3 APPROVED DEVELOPMENT TRAFFIC

There are three (3) approved developments within the study area. Information on each is listed below with additional information being included in the appendix

1. Wallbrook is a proposed mixed-use development project located along both sides of US 401 Business (S. Main Street) between Burlington Mills Road and Hampton Lake Drive/Jonesville Road. The development is expected to be complete before the completion of the Initial Build of the Tom's Creek development.
2. Perry Farms is a mixed-use development located in the northeast quadrant of the US 401 (Louisburg Road) and Forestville Road intersection. The development is expected to be complete before the completion of the Initial Build of the Tom's Creek development.
3. Marshall Village is a residential development located in the northwest quadrant of the Forestville Road and Burlington Mills Road intersection and is estimated to be built in 2024, before the completion of the Initial Build of the Tom's Creek development.

It should be noted that the Kitchin Farms development has committed to improvements to the intersection of Burlington Mills Road at Ligon Mill Road discussed in Section 2.4. Kitchin Farms is a residential development located west of Ligon Mill Road in Wake Forest. The residential development of 263 units is partially constructed and occupied. As a result, traffic from the constructed and occupied portion of the development is included in the traffic counts. Much of the traffic generated by the development would be traveling to/from US 1 which is not included in the study area. Therefore, traffic from this development is not included in the analysis. The minor amount of traffic to/from Kitchin Farms that would travel through the study area is assumed to be captured by the future traffic growth rate of 2% per year discussed in Section 5.2.

5.4 NO BUILD TRAFFIC VOLUMES

The future traffic growth and approved development traffic volumes were added to the existing volumes to determine the no build traffic volumes. 2026 no build traffic volumes are shown in Figure 13. 2028 no build traffic volumes are shown in Figure 15. The 2029 no build traffic volumes are shown in Figure 17.

5.5 INITIAL PHASE TRAFFIC VOLUMES

To obtain the total 2026 Initial phase traffic volumes, the distributed site traffic shown in Figure 7 was added to the respective no build traffic volumes shown in Figure 13. The total AM and PM peak hour turning movement volumes for the study intersections were then calculated and analyzed for the 2026 Initial phase. The 2026 Initial phase traffic volumes are shown in Figure 14.

5.6 INTERMEDIATE PHASE TRAFFIC VOLUMES

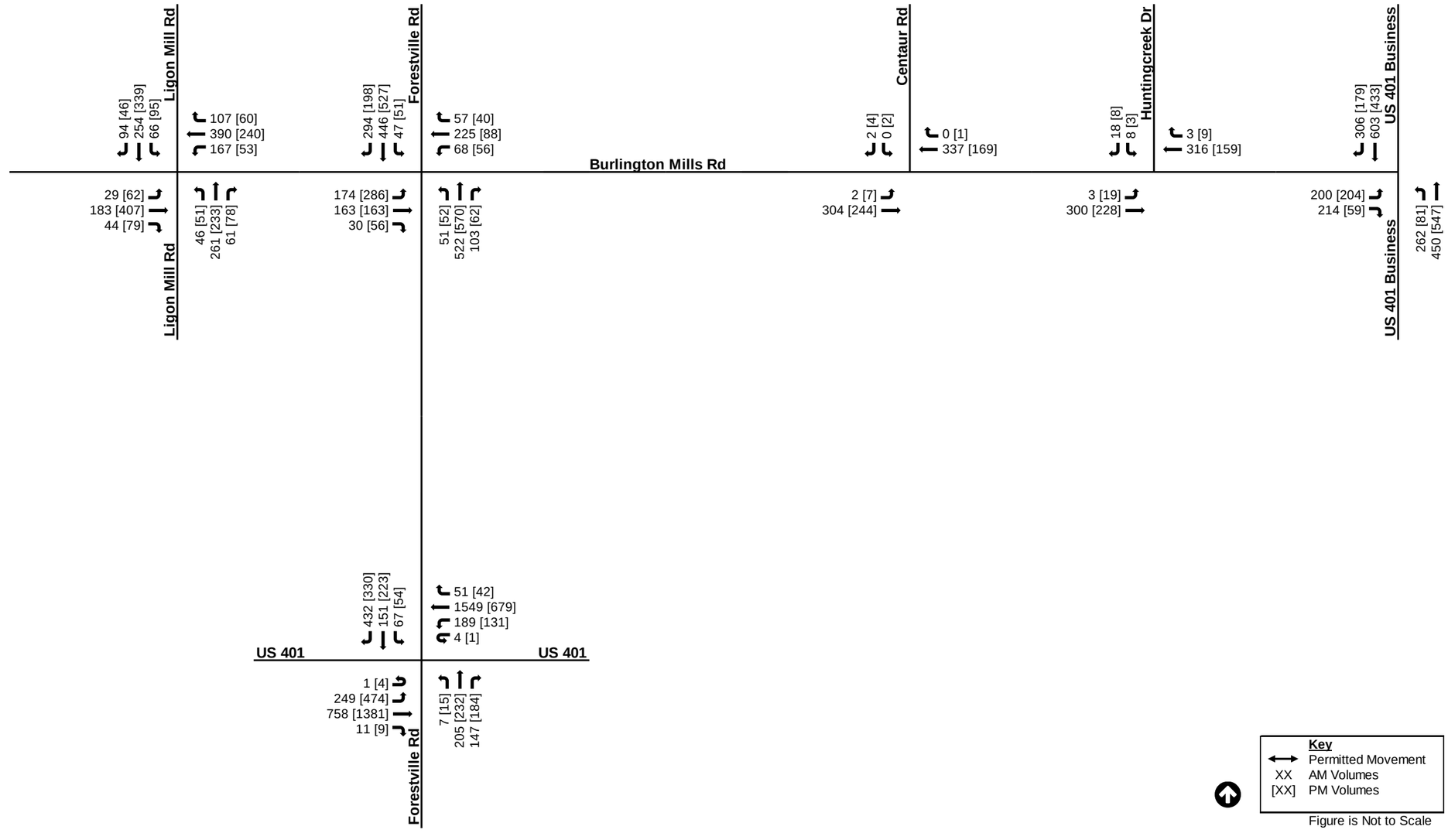
To obtain the total 2028 Intermediate phase traffic volumes, the distributed site traffic shown in Figure 9 was added to the respective no build traffic volumes shown in Figure 15. The total AM and PM peak hour turning movement volumes for the study intersections were then calculated and analyzed for the 2028 Intermediate phase. The 2028 Intermediate phase traffic volumes are shown in Figure 16.

5.7 FULL BUILD TRAFFIC VOLUMES

To obtain the total 2029 Full Build traffic volumes, the distributed site traffic shown in Figure 11 was added to the respective no build traffic volumes shown in Figure 17. The total AM and PM peak hour turning movement volumes for the study intersections were then calculated and analyzed for the 2029 Full Build traffic scenario. The 2029 Full Build traffic volumes are shown in Figure 18.

Traffic Volumes
July 28, 2022

Figure 12: 2022 Existing Traffic Volumes



Traffic Volumes
July 28, 2022

Figure 13: 2026 No Build Traffic Volumes

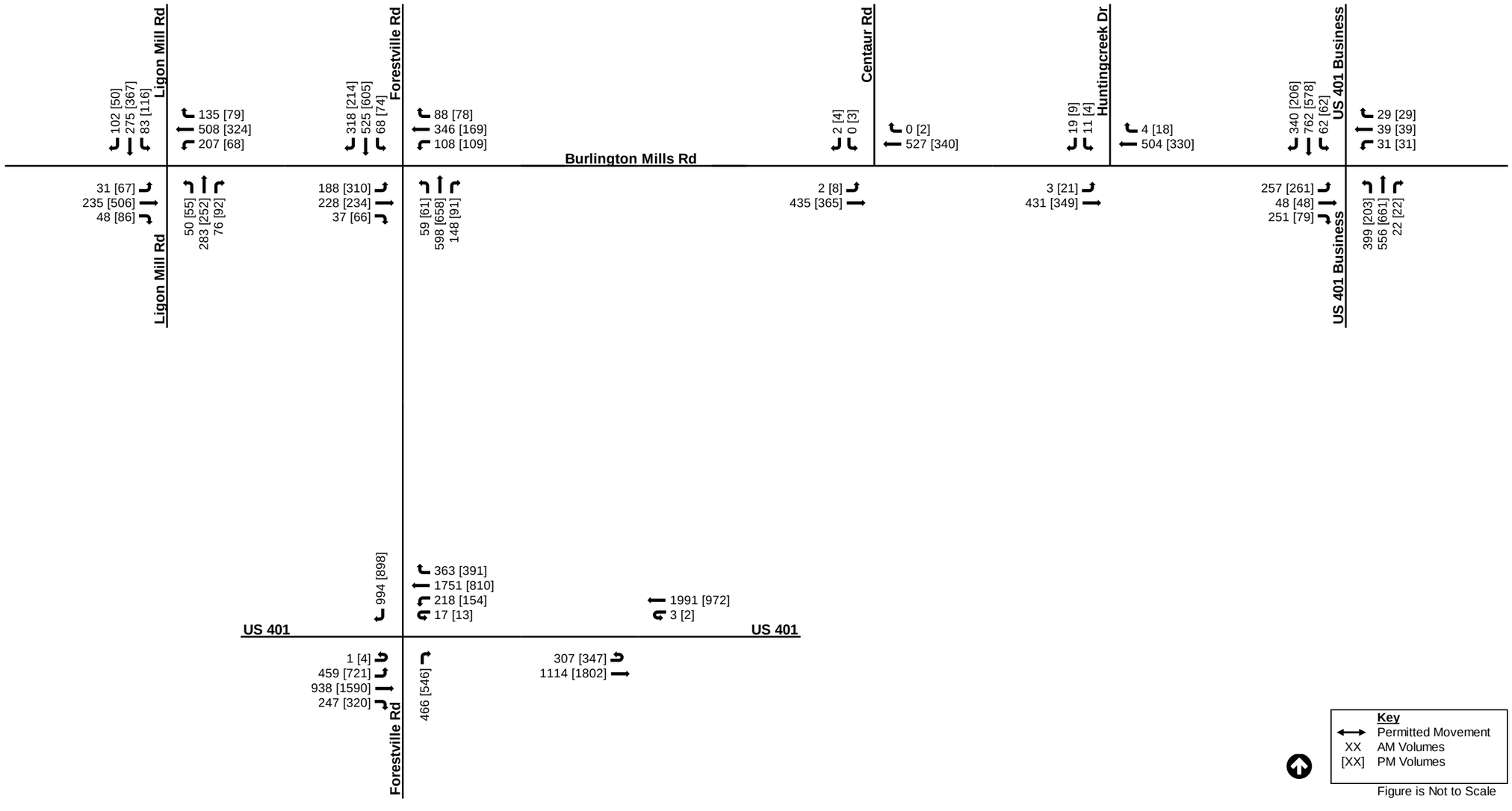
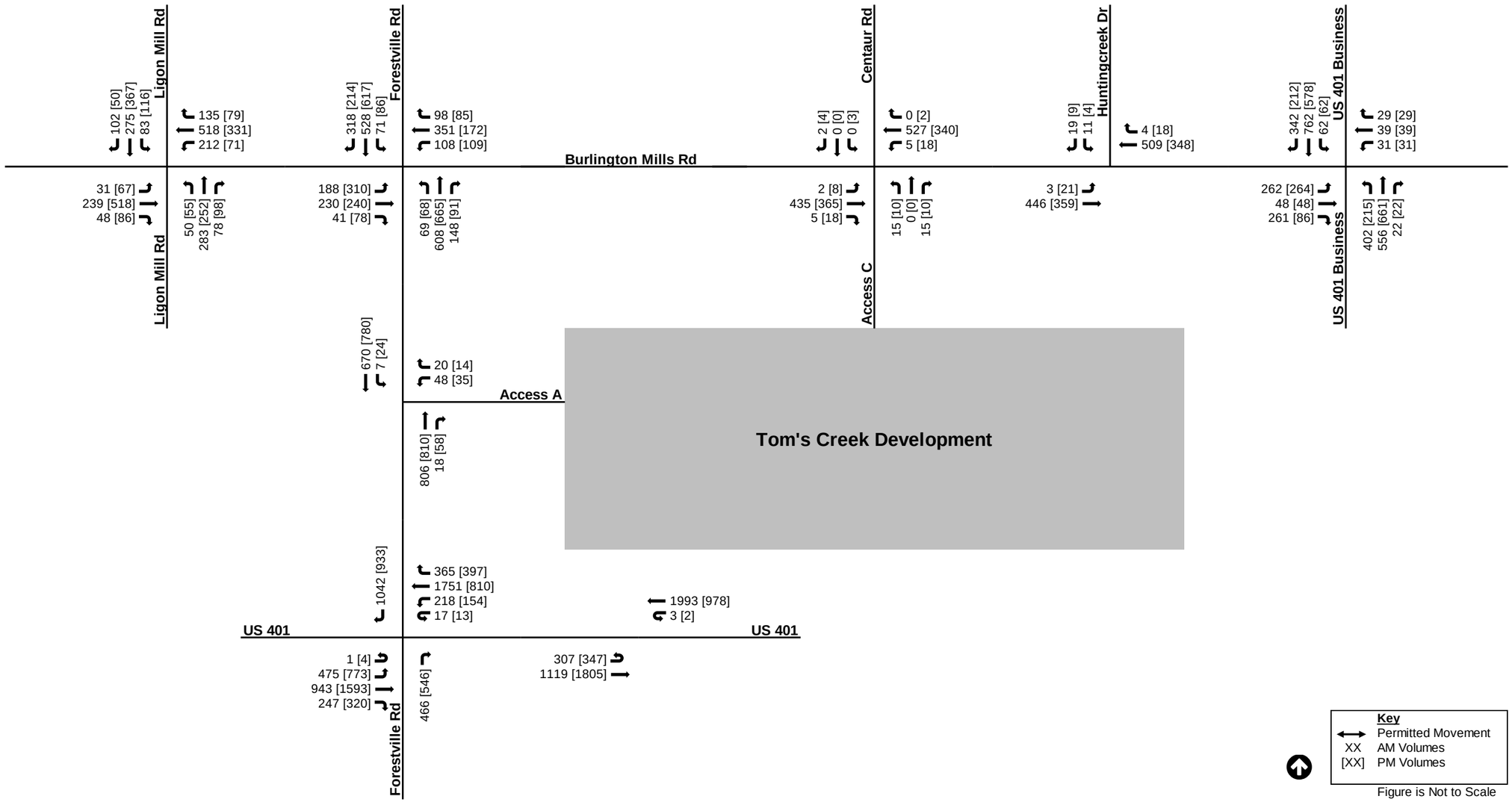
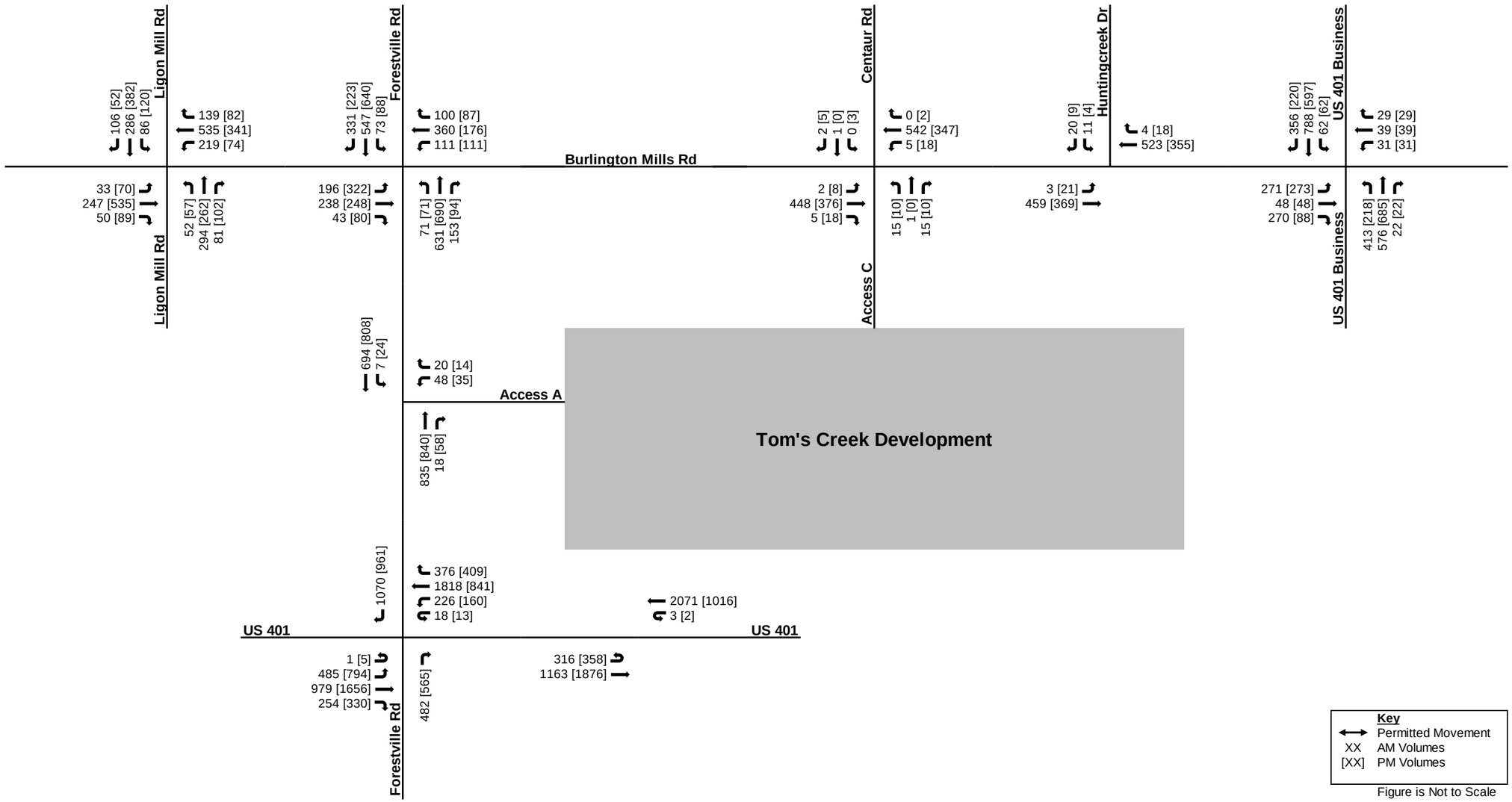


Figure 14: 2026 Initial Build Traffic Volumes



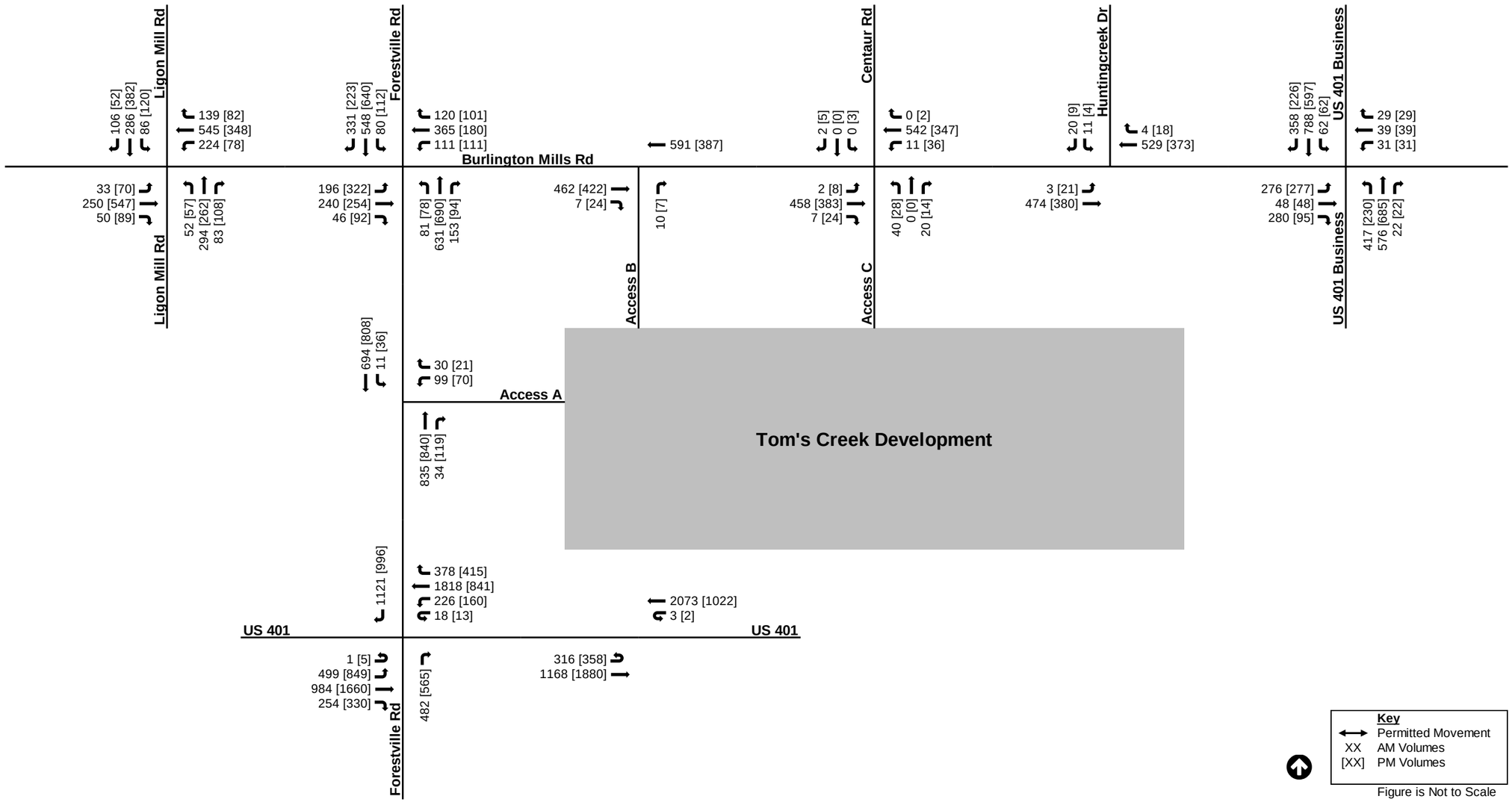
Traffic Volumes
July 28, 2022

Figure 15: 2028 No Build Traffic Volumes



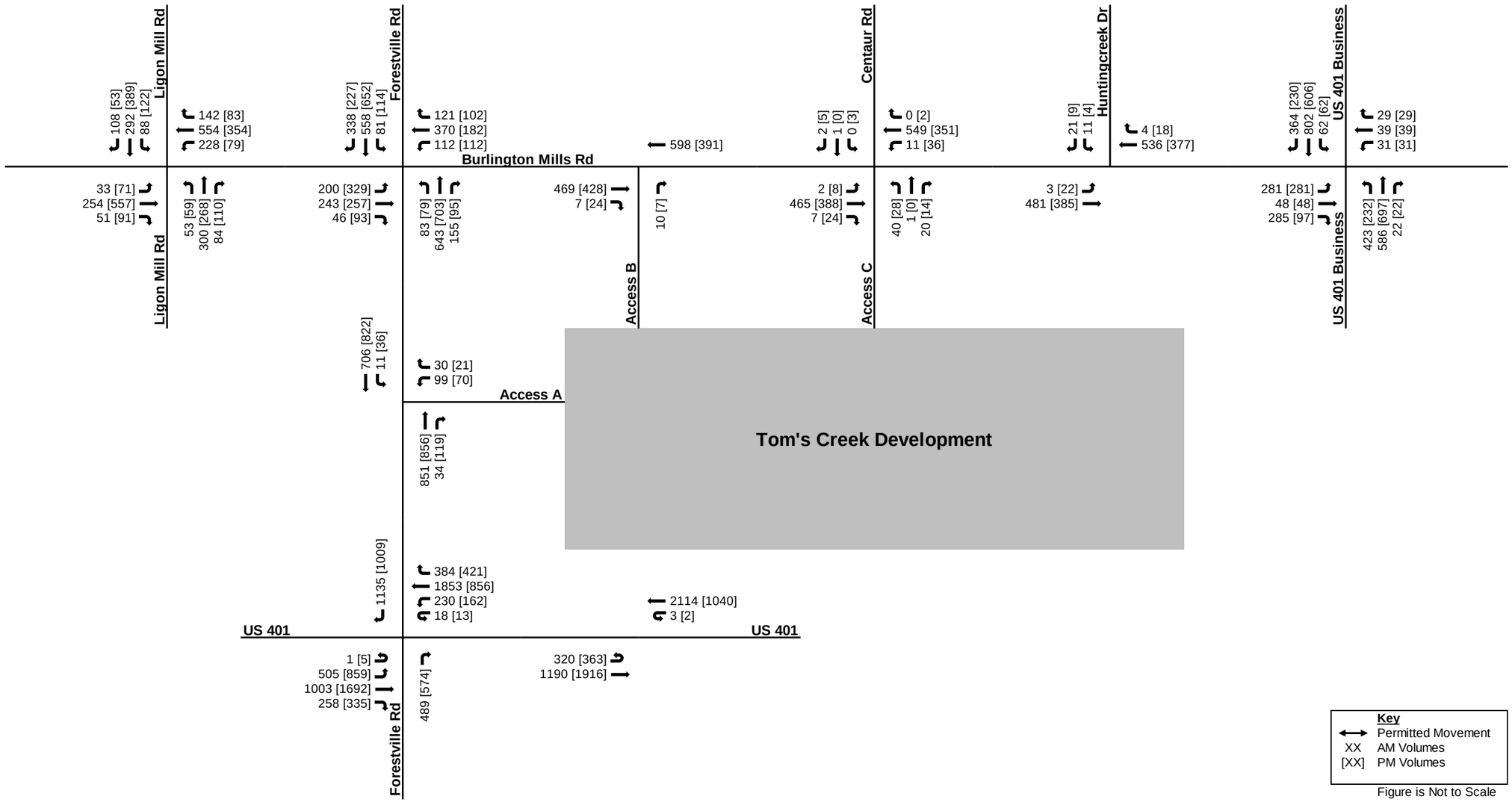
Traffic Volumes
July 28, 2022

Figure 16: 2028 Intermediate Build Traffic Volumes



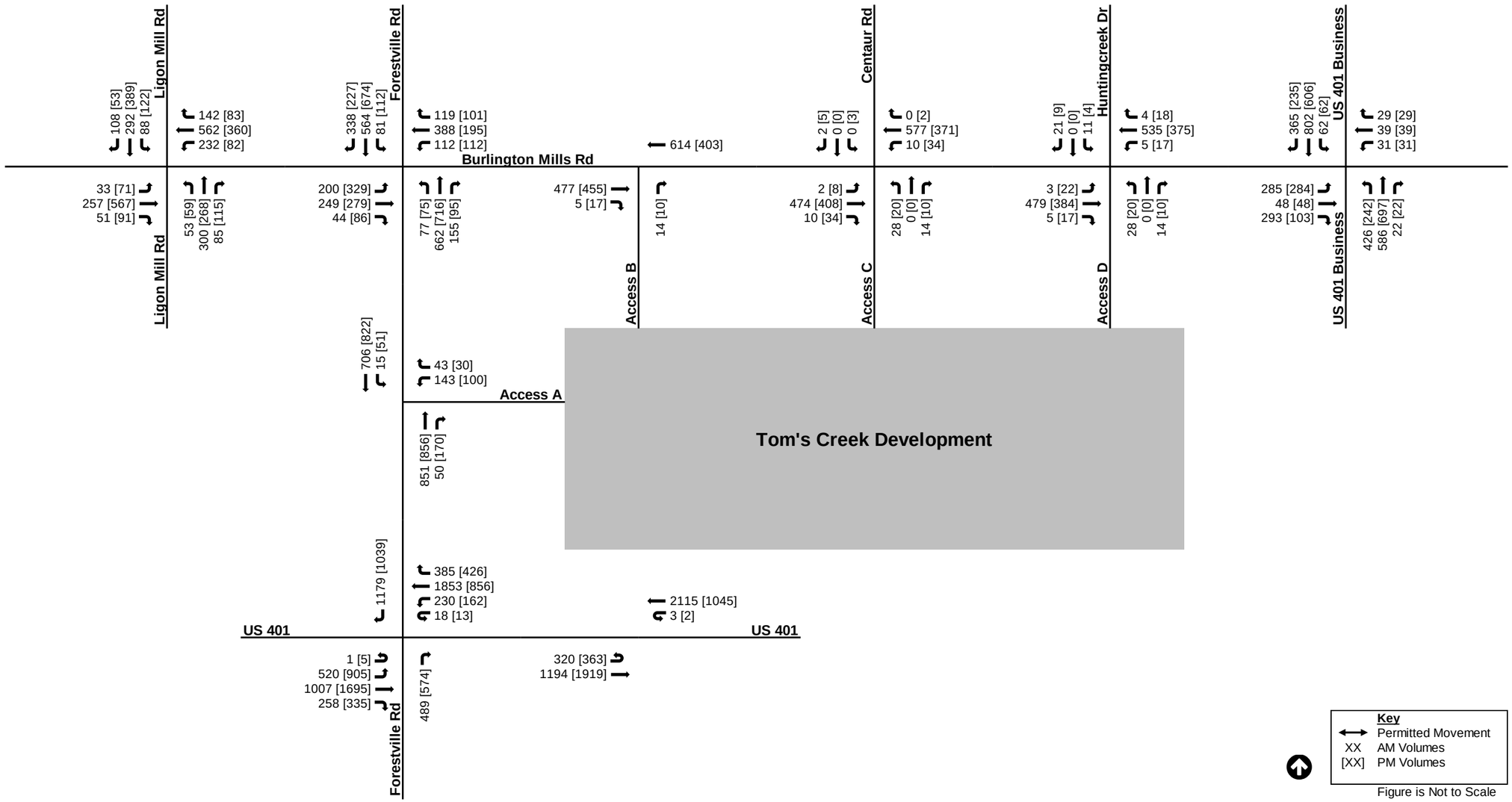
Traffic Volumes
July 28, 2022

Figure 17: 2029 No Build Traffic Volumes



Traffic Volumes
July 28, 2022

Figure 18: 2029 Full Build Traffic Volumes



6.0 TRAFFIC ANALYSIS

Capacity analyses were performed for the roadway network in the project study area. The traffic analysis program Synchro Version 10 was used to analyze all signalized and stop-controlled intersections according to methods put forth by the Transportation Research Board's Highway Capacity Manual (HCM)[4]. The Highway Capacity Manual defines capacity as "the maximum rate of flow at which persons or vehicles can be reasonably expected to traverse a point or uniform section of a lane or roadway during a specified period under the prevailing roadway, traffic, and control conditions, usually expressed as vehicles per lane per hour."

Level of service (LOS) is a term used to describe different traffic conditions and is defined as a "qualitative measure describing operational conditions within a traffic stream, and their perception by motorists/ or passengers." LOS varies from Level A, representing free flow, to Level F where traffic breakdown conditions are evident. At an unsignalized intersection, the primary traffic on the main roadway is virtually uninterrupted. Therefore, the overall delay for the intersection is usually less than what is calculated for the minor street movements. The overall intersection delay and the delay for the intersection's minor movement(s) are reported in the summary tables of this report. LOS D is acceptable for signalized intersections in suburban areas during peak periods.

Capacity analyses were completed following *NCDOT Capacity Analysis Guidelines*[5] *as well as the Draft NCDOT Capacity Analysis Guidelines Best Practices*[6]. Table 5 presents the criteria of each LOS as indicated in the *HCM*.

Table 5: Level of Service Criteria

Level of Service (LOS)	Signalized Intersection Control Delay (seconds / vehicle)	Unsignalized Intersection Control Delay (seconds / vehicle)
A	≤ 10	≤ 10
B	>10 and ≤ 20	>10 and ≤ 15
C	>20 and ≤ 35	>15 and ≤ 25
D	>35 and ≤ 55	>25 and ≤ 35
E	>55 and ≤ 80	>35 and ≤ 50
F	>80	>50

The Town of Rolesville's Land Development Ordinance[7], section 8.E, establishes the following Level of Service Standards:

> *1. The traffic impact analysis must demonstrate that the proposed development would not cause build-out-year, peak-hour levels of service on any arterial or collector road or intersection within the study area to fall below Level of Service (LOS) "D," as defined by the latest edition of the Highway Capacity Manual, or, where the existing level of service is already LOS "E" that the proposed development would not cause the LOS to fall to the next lower letter grade.*
>
> *2. If the road segment or intersection is already LOS "F," the traffic impact analysis must demonstrate that the proposed development, with any proposed improvements, would not cause build-out year peak-hour operation to degrade more than five (5) percent of the total delay on any intersection approach.*

Capacity analyses were performed for the following conditions:

- 2022 Existing
- 2026 No Build
- 2026 Initial Phase
- 2026 Initial Phase with Improvements
- 2028 No Build
- 2028 Intermediate Phase
- 2028 Intermediate Phase with Improvements
- 2029 No Build
- 2029 Full Build

The following intersections were included in the capacity analysis for the above scenarios, where applicable:

- Burlington Mills Road at Ligon Mill Road
- Burlington Mills Road at Forestville Road
- Burlington Mills Road at Access B
- Burlington Mills Road at Centaur Road / Access C
- Burlington Mills Road at Huntingcreek Drive / Access D
- Burlington Mills Road at US 401 Business (S. Main Street)
- Forestville Road at Access A
- Forestville Road at US 401

SimTraffic runs were completed for all scenarios to observe the predicted traffic operations throughout the study area during each of the peak hours. Per the *Draft NCDOT Capacity Analysis Guidelines: Best Practices*[6], ten (10) SimTraffic analysis runs were performed for each scenario. Detailed SimTraffic queuing and blocking reports can be found in the appendix.

All Synchro files and detailed printouts can be found in the appendix. A summary of the results of the analyses is provided in the following sub-sections.

6.1 2022 EXISTING ANALYSIS

In the 2022 existing scenario, all study intersections operate at an overall LOS D or better in both peak hours. The following movements operate at LOS F:

- Burlington Mills Road at Forestville Road: Eastbound Left (AM)
- Forestville Road at US 401: Northbound Left (PM), Southbound Left (AM/PM), Southbound Through (PM)

From the traffic simulation, long queues were observed on the southbound approach of Ligon Mill Road at Burlington Mills Road. This is attributed to the lack of exclusive left and right turn lanes at this intersection.

Capacity analysis results for the existing traffic conditions are listed in Table 6.

Table 6: Capacity Analysis Results for 2022 Existing Conditions

Intersection	Approach	Lane Group	Delay (sec. / veh.)		Level of Service (LOS)		95th % Queue (feet)		Max. Obs. Queue (feet)	
			AM	PM	AM	PM	AM	PM	AM	PM
Burlington Mills Road at Ligon Mill Road	Overall		43.4	33.4	D	C				
	EB	LTR	16.3	28.6	B	C	185	494	245	691
	WB	LTR	26.3	14.5	C	B	778	178	728	436
	NB	LTR	52.3	28.7	D	C	436	272	844	458
	SB	LTR	79.8	56.4	E	E	582	466	1228*	841
Burlington Mills Road at Forestville Road	Overall		33.5	32	C	C				
	EB	L	95.9	59.9	F	E	279	299	224	225
		T	28.8	22.4	C	C	145	90	488	603
		R	26.2	20	C	B	32	27	150	250
	WB	L	28.4	22.9	C	C	49	52	187	80
		TR	37	22.9	D	C	307	96	308	140
	NB	L	8.3	8.6	A	A	14	11	191	175
		TR	11.3	14	B	B	387	357	524	404
	SB	L	19.3	16.5	B	B	51	44	275	244
		TR	40.6	44.9	D	D	917	693	744	544
Burlington Mills Road at Centaur Road	EB	LT	8.1	7.6	A	A	0	0	22	17
	SB	LR	12.4	10.5	B	B	3	0	29	26
Burlington Mills Road at Huntingcreek Drive	EB	LT	8	7.6	A	A	0	0	9	39
	SB	LR	11.7	10.1	B	B	5	3	30	22
Burlington Mills Road at US 401 Business	Overall		27.8	16.6	C	B				
	EB	L	66.4	41.8	E	D	247	48	225	114
		T	7.1	8.7	A	A	151	261	229	268
	WB	T	22.2	15.2	C	B	396	287	680	262
		R	4.6	2.7	A	A	77	41	250	205
	SB	L	69.2	42.8	E	D	185	177	385	317
		R	34.3	15.9	C	B	158	38	265	80
Forestville Road at US 401	Overall		37.2	40.4	D	D				
	EB	L	59.3	32.3	E	C	382	497	314	578
		T	16.1	31.1	B	C	284	909	250	754
		R	5.6	8.7	A	A	6	9	26	24
	WB	L	11.8	42.3	B	D	95	175	565	243
		T	42.6	39.8	D	D	915	485	813	470
		R	17.1	36.5	B	D	49	75	525	99
	NB	L	59	85.8	E	F	12	25	36	54
		T	61.7	75.4	E	E	259	364	263	309
		R	35	46.1	D	D	150	233	187	266
	SB	L	89.1	100	F	F	104	86	212	147
		T	54.4	80.5	D	F	173	336	210	324
		R	30.7	25.7	C	C	218	125	177	203

* Queue Extends Off SimTraffic Network or Into Next Intersection

6.2 2026 NO BUILD ANALYSIS

In the 2026 No Build conditions, increases in traffic volumes due to future traffic growth and approved developments cause delays at study area intersections to increase when compared to the 2022 existing analysis. This analysis assumes the improvements committed to by the approved developments are constructed. These improvements were discussed in Section 2.4 and illustrated in Figure 5. The following observations are notable:

At the intersection of Burlington Mills Road at Forestville Road, LOS F is expected during both peak hours with several movements operating with high delays and long queues; specifically, left turns on the eastbound, northbound, and southbound approaches. The southbound shared through / right-turn lane also operates at LOS F. Long queues were observed on the shared through / right-turn lanes on the westbound, northbound, and southbound approaches.

At the intersection of Burlington Mills Road and US 401 Business, LOS E is expected in the AM peak hour with a few movements operating at LOS F. This is typical of locations that are implementing urban design concepts such as those from U-6241 and the Wallbrook development.

2026 No Build capacity analysis results are listed in Table 7.

Table 7: Capacity Analysis Results for 2026 No Build Conditions

Intersection	Approach	Lane Group	Delay (sec. / veh.)		Level of Service (LOS)		95th % Queue (feet)		Max. Obs. Queue (feet)	
			AM	PM	AM	PM	AM	PM	AM	PM
Burlington Mills Road at Ligon Mill Road	Overall		53.7	26.4	D	C				
	EB	LTR	12.9	20.8	B	C	217	478	387	752
	WB	LTR	32.2	9.2	C	A	500	178	964	627
	NB	L	122	42.8	F	D	151	74	294	114
		TR	74.3	31.8	E	C	553	245	620	259
	SB	L	178.9	50.8	F	D	242	136	300	259
		TR	80.1	41.3	F	D	622	341	767	467
Burlington Mills Road at Forestville Road	Overall		84.9	85.7	F	F				
	EB	L	151.3	133	F	F	398	587	224	225
		T	34.7	34.4	C	C	270	254	821	1321
		R	20.3	20.5	C	C	38	53	217	250
	WB	L	36.7	147.8	D	F	112	246	275	275
		TR	118.4	75.5	F	E	698	389	2388	1130
	NB	L	106.8	88.7	F	F	155	129	200	193
		TR	51.3	61	D	E	1148	1064	1228	1783
	SB	L	130.5	110.2	F	F	187	176	275	275
		TR	99.7	102.6	F	F	1435	1270	2091*	2098*
Burlington Mills Road at Centaur Road	EB	LT	8.7	8.1	A	A	0	0	33	36
	SB	LR	16.3	13	C	B	3	3	26	26
Burlington Mills Road at Huntingcreek Drive	EB	LT	8.6	8.1	A	A	0	3	37	67
	SB	LR	15.5	12.2	C	B	8	3	36	24
Burlington Mills Road at US 401 Business	Overall		61	42.3	E	D				
	EB	L	137.1	73.1	F	E	504	411	404	375
		T	61.8	36.5	E	D	78	63	268	106
		R	46	22.3	D	C	305	44	243	129
	WB	L	94.1	84.3	F	F	79	72	98	83
		T	92.3	79.6	F	E	93	83	117	91
		R	60.6	36.9	E	D	64	44	76	74
	NB	L	138.8	73	F	E	403	195	449	426
		T	25.8	32.6	C	C	614	734	734	700
		R	11.2	8	B	A	23	16	133	274
	SB	L	97.5	100.5	F	F	132	160	199	199
		T	44.8	35.5	D	D	1142	628	1054	627
		R	7.2	5.7	A	A	131	52	689	145
Forestville Road at US 401 Westbound	Overall		47.4	17.5	D	B				
	WB	T	48.5	14.8	D	B	1311	113	1039	206
		R	20.6	18	C	B	242	117	438	263
	NB	L	37.5	16.5	D	B	264	176	433	300
	SB	R	60.1	20.7	E	C	693	256	606	248
Forestville Road at US 401 Eastbound	Overall		17.9	20.4	B	C				
	EB	T	10.8	16.4	B	B	234	414	260	425
		R	9.7	9.2	A	A	126	127	178	337
	NB	R	32.1	36.9	C	D	178	239	278	293
	SB	L	26.8	25.1	C	C	166	143	245	383
US 401 Westbound U-Turn	Overall		31.8	15.7	C	B				
	WB	T	23.9	13	C	B	1120	257	1265*	245
	NB	L	83.1	23.3	F	C	505	190	331	297

* Queue Extends Off Sim Traffic Network or Into Next Intersection

6.3 2026 INITIAL PHASE ANALYSIS

In 2026 with the Initial phase of the development in place, the network experiences an incremental change in delays due to the addition of traffic generated by the proposed development. In large, operations are similar to that when compared with the 2026 No Build capacity analysis results as the overall level of service at the study intersections did not change with the addition of site trips.

The stop-controlled approach of Access A at Forestville Road operates at LOS F in both peak hours. This is attributed to high volumes of through traffic on Forestville Road.

The stop-controlled approach of Access C at Burlington Mills Road across from Centaur Road operates at LOS C in both peak hours.

The Initial phase capacity analysis results are listed in Table 8.

Table 8: Capacity Analysis Results for 2026 Initial Phase Conditions

Intersection	Approach	Lane Group	Delay (sec. / veh.)		Level of Service (LOS)		95th % Queue (feet)		Max. Obs. Queue (feet)	
			AM	PM	AM	PM	AM	PM	AM	PM
Burlington Mills Road at Ligon Mill Road	Overall		47.1	29	D	C				
	EB	LTR	9	20.8	A	C	134	465	316	934
	WB	LTR	43.8	8.6	D	A	643	168	984	865
	NB	L	72.8	54	E	D	95	87	290	123
		TR	53.4	36.2	D	D	380	280	393	265
	SB	L	122.7	67.4	F	E	150	159	300	288
		TR	60.4	45.6	E	D	407	378	763	450
Burlington Mills Road at Forestville Road	Overall		90.7	80.2	F	F				
	EB	L	171.7	120	F	F	424	635	224	224
		T	36	41.8	D	D	247	307	1213	1562
		R	25.7	28.2	C	C	49	74	250	250
	WB	L	36.8	71	D	E	103	205	275	275
		TR	110.6	118.7	F	F	764	519	1923	1073
	NB	L	143.1	120.4	F	F	199	182	199	199
		TR	57.4	57.8	E	E	1246	1146	1812	1563
	SB	L	152.2	115.7	F	F	210	233	275	275
		TR	107.4	84	F	F	1526	1376	2100*	2058*
Burlington Mills Road at Centaur Road / Access C	EB	LTR	8.7	8.1	A	A	0	0	21	32
	WB	LTR	8.4	8.2	A	A	0	3	40	60
	NB	LTR	20.6	15.9	C	C	13	5	38	31
	SB	LTR	20.7	16.1	C	C	5	3	29	32
Burlington Mills Road at Huntingcreek Drive	EB	LT	8.6	8.2	A	A	0	3	42	114
	SB	LR	15.8	12.4	C	B	8	3	34	22
Burlington Mills Road at US 401 Business	Overall		62	46.5	E	D				
	EB	L	138.5	83.2	F	F	532	439	410	394
		T	67.4	36.4	E	D	90	62	306	140
		R	51	26.8	D	C	308	98	266	155
	WB	L	100.8	93.9	F	F	82	79	88	86
		T	98.6	92.3	F	F	96	93	136	113
		R	65.1	40.6	E	D	67	48	85	75
	NB	L	133.1	87	F	F	418	181	435	436
		T	26.3	34.8	C	C	636	808	687	751
		R	11.6	9	B	A	24	17	228	228
	SB	L	103.9	98.4	F	F	137	163	199	200
		T	46.7	36.7	D	D	1195	757	1037	627
		R	7.4	7.9	A	A	139	130	790	195
Forestville Road at US 401 Westbound	Overall		52.7	20.8	D	C				
	WB	T	53.5	15.4	D	B	1396	136	1092	221
		R	23.2	18.8	C	B	299	141	438	284
	NB	L	38.4	18.6	D	B	284	215	406	295
	SB	R	68.3	28.1	E	C	818	360	615	281
Forestville Road at US 401 Eastbound	Overall		18.6	21.6	B	C				
	EB	T	10.8	17.1	B	B	243	470	294	431
		R	9.7	9.9	A	A	129	143	186	321
	NB	R	34.2	38.4	C	D	190	236	293	311
	SB	L	28.1	32.2	C	C	105	143	254	323
US 401 Westbound U-Turn	Overall		26.9	16.2	C	B				
	WB	T	22.6	13	C	B	788	276	1234*	298
	NB	L	54.6	25.1	D	C	350	184	279	337
Forestville Road at Access A	SB	LT	9.9	10.2	A	B	0	3	61	211
	WB	LR	398.3	1263	F	F	173	180	83	91

* Queue Extends Off SimTraffic Network or Into Next Intersection

6.4 2026 INITIAL PHASE WITH IMPROVEMENTS ANALYSIS

Based on the findings of this study, specific improvements have been identified and should be completed as part of the Initial phase of this development. The recommendations are illustrated in Figure 19. The specific improvements are listed below and detailed in Section 7.1.

Forestville Road at Access A

- Provide Access A with two egress lanes (one left-turn lane and one right-turn lane) with a driveway stem length of a minimum of 170 feet
- Construct a northbound right-turn lane with 100 feet of full-width storage and appropriate taper
- Construct a southbound left-turn lane with 100 feet of full-width storage and appropriate taper

The Initial phase with Improvements capacity analysis results is listed in Table 9.

With the recommended improvements in place, the westbound approach of the Forestville Road at Access A intersection continues to operate with long delays compared to the 2026 Initial phase. The intersection is not anticipated to meet the criteria for the installation of a traffic signal at the Initial phase of development. This will be addressed as part of subsequent phases of development.

Table 9: Capacity Analysis Results for 2026 Initial Phase with Improvements

Intersection	Approach	Lane Group	Delay (sec. / veh.)		Level of Service (LOS)		95th % Queue (feet)		Max. Obs. Queue (feet)	
			AM	PM	AM	PM	AM	PM	AM	PM
Burlington Mills Road at Ligon Mill Road	Overall		47.1	29	D	C				
	EB	LTR	9	20.8	A	C	134	465	310	961*
	WB	LTR	43.8	8.6	D	A	643	168	992	1030
	NB	L	72.8	54	E	D	95	87	265	151
		TR	53.4	36.2	D	D	380	280	418	293
	SB	L	122.7	67.4	F	E	150	159	300	299
		TR	60.4	45.6	E	D	407	378	867	622
Burlington Mills Road at Forestville Road	Overall		90.7	80.2	F	F				
	EB	L	171.7	120	F	F	424	635	225	224
		T	36	41.8	D	D	247	307	887	1497
		R	25.7	28.2	C	C	49	74	232	250
	WB	L	36.8	71	D	E	103	205	275	275
		TR	110.6	118.7	F	F	764	519	2223	1078
	NB	L	143.1	120.4	F	F	199	182	199	200
		TR	57.4	57.8	E	E	1246	1146	1765	1652
	SB	L	152.2	115.7	F	F	210	233	275	275
		TR	107.4	84	F	F	1526	1376	2082*	2096*
Burlington Mills Road at Centaur Road / Access C	EB	LTR	8.7	8.1	A	A	0	0	36	22
	WB	LTR	8.4	8.2	A	A	0	3	25	69
	NB	LTR	20.6	15.9	C	C	13	5	41	29
	SB	LTR	20.7	16.1	C	C	5	3	30	32
Burlington Mills Road at Huntingcreek Drive	EB	LT	8.6	8.2	A	A	0	3	28	74
	SB	LR	15.8	12.4	C	B	8	3	36	24
Burlington Mills Road at US 401 Business	Overall		62	46.5	E	D				
	EB	L	138.5	83.2	F	F	532	439	456	394
		T	67.4	36.4	E	D	90	62	375	143
		R	51	26.8	D	C	308	98	274	153
	WB	L	100.8	93.9	F	F	82	79	93	82
		T	98.6	92.3	F	F	96	93	123	108
		R	65.1	40.6	E	D	67	48	79	73
	NB	L	133.1	87	F	F	418	181	446	449
		T	26.3	34.8	C	C	636	808	624	811
		R	11.6	9	B	A	24	17	224	276
	SB	L	103.9	98.4	F	F	137	163	199	200
		T	46.7	36.7	D	D	1195	757	1096	552
		R	7.4	7.9	A	A	139	130	964	167
Forestville Road at US 401 Westbound	Overall		52.7	20.8	D	C				
	WB	T	53.5	15.4	D	B	1396	136	1218	230
		R	23.2	18.8	C	B	299	141	438	287
	NB	L	38.4	18.6	D	B	284	215	613	314
	SB	R	68.3	28.1	E	C	818	360	645	304
Forestville Road at US 401 Eastbound	Overall		18.6	21.6	B	C				
	EB	T	10.8	17.1	B	B	243	470	321	463
		R	9.7	9.9	A	A	129	143	235	356
	NB	R	34.2	38.4	C	D	190	236	296	338
	SB	L	28.1	32.2	C	C	105	143	266	378
US 401 Westbound U-Turn	Overall		26.9	16.2	C	B				
	WB	T	22.6	13	C	B	788	276	1217*	256
	NB	L	54.6	25.1	D	C	350	184	291	345
Forestville Road at Access A	SB	L	9.9	10.2	A	B	0	3	28	39
	WB	L	414.2	1242.4	F	F	135	138	79	77
		R	16.4	16.2	C	C	5	3	27	24

* Queue Extends Off SimTraffic Network or Into Next Intersection

6.5 2028 NO BUILD ANALYSIS

In the 2028 No Build scenario, increases in traffic volumes due to the addition of future traffic growth increase delay across the network. The following observations are notable:

The Burlington Mills Road & Ligon Mill Road intersection operates at LOS E in the AM peak hour with significant queues on several approaches.

At the intersection of Burlington Mills Road at Forestville Road, LOS F is expected during both peak hours with several movements operating with high delays and long queues. Specifically, left turns on the eastbound, northbound, and southbound approaches. The shared through / right-turn lanes on the westbound and southbound approaches also operate at LOS F.

At the intersection of Burlington Mills Road and US 401 Business, LOS E is expected in the AM peak hour with a few movements operating at LOS F. This is typical of locations that are implementing urban design concepts such as those from U-6241 and the Wallbrook development.

The Forestville Road & US 401 westbound reduced conflict intersection operates at LOS E in the AM peak hour. Similar to the 2026 scenarios, there are extensive queues for the westbound US 401 approaches in the AM peak hour.

The Forestville Road & Access A intersection still experiences excessive delays for the westbound left due to heavy traffic on Forestville Road with average delays of over 600 seconds in the AM peak hour and 1800 seconds in the PM peak hour.

2028 No Build capacity analysis results are listed in Table 10.

Table 10: Capacity Analysis Results for 2028 No Build Conditions

Intersection	Approach	Lane Group	Delay (sec. / veh.)		Level of Service (LOS)		95th % Queue (feet)		Max. Obs. Queue (feet)	
			AM	PM	AM	PM	AM	PM	AM	PM
Burlington Mills Road at Ligon Mill Road	Overall		57.8	28.3	E	C				
	EB	LTR	9.2	24.1	A	C	145	521	288	1072*
	WB	LTR	51.5	6.2	D	A	496	136	947	1118
	NB	L	85.4	51.3	F	D	105	83	299	112
		TR	61.8	33.3	E	C	423	262	541	256
	SB	L	211.4	63.2	F	E	173	150	300	285
		TR	71.6	43.3	E	D	451	362	1255*	930*
Burlington Mills Road at Forestville Road	Overall		99.3	89.5	F	F				
	EB	L	182.1	130.8	F	F	437	571	224	225
		T	44	36.9	D	D	285	242	1390	1687
		R	32.6	24.1	C	C	50	63	249	250
	WB	L	41.9	71.7	D	E	184	216	275	275
		TR	130.2	137.4	F	F	983	519	2344	1337*
	NB	L	150.5	97.3	F	F	223	153	200	200
		TR	60.8	59.4	E	E	1360	1111	2031	1843
	SB	L	177.3	137.2	F	F	230	217	274	275
		TR	113.8	104.6	F	F	1668	1336	2098*	2101*
Burlington Mills Road at Centaur Road / Access C	EB	LTR	8.7	8.1	A	A	0	0	37	36
	WB	LTR	8.4	8.3	A	A	0	3	35	62
	NB	LTR	21.4	16.3	C	C	13	5	36	40
	SB	LTR	21.4	16	C	C	5	3	35	30
Burlington Mills Road at Huntingcreek Drive	EB	LT	8.7	8.2	A	A	0	3	45	76
	SB	LR	16.1	12.6	C	B	8	3	35	23
Burlington Mills Road at US 401 Business	Overall		65.3	43.4	E	D				
	EB	L	61.8	77.6	E	E	451	433	408	354
		T	40.5	36.1	D	D	67	76	374	110
		R	38	18.7	D	B	403	52	271	123
	WB	L	107.5	84.5	F	F	86	72	78	79
		T	104.8	79.6	F	E	101	83	127	106
		R	43.7	37.9	D	D	47	43	70	72
	NB	L	94.7	74.2	F	E	446	206	474	474
		T	37.2	32.9	D	C	791	781	920	866
		R	16.9	7.9	B	A	29	16	276	274
	SB	L	113.4	114.8	F	F	144	164	199	200
		T	102.7	36.5	F	D	1492	673	1158*	680
		R	9.1	5.7	A	A	153	57	1151*	147
Forestville Road at US 401 Westbound	Overall		61.5	19.1	E	B				
	WB	T	64.9	16	E	B	1545	124	1325	224
		R	24	20.2	C	C	314	154	438	299
	NB	L	40.7	16.4	D	B	304	200	597	303
	SB	R	78.5	23.6	E	C	889	209	677	253
Forestville Road at US 401 Eastbound	Overall		19.6	21.9	B	C				
	EB	T	11.3	18.1	B	B	265	451	330	440
		R	10	9.2	B	A	138	132	223	338
	NB	R	36.4	39.7	D	D	206	252	289	336
	SB	L	29.8	25.5	C	C	114	148	273	589
US 401 Westbound U-Turn	Overall		31.3	15.9	C	B				
	WB	T	27	13.4	C	B	875	266	1272*	252
	NB	L	59.4	22.9	E	C	380	188	294	287
Forestville Road at Access A	SB	L	10	10.4	B	B	0	3	31	40
	WB	L	624.1	1823	F	F	153	148	127	68
		R	16.9	16.7	C	C	5	5	51	28

* Queue Extends Off Sim Traffic Network or Into Next Intersection

6.6 2028 INTERMEDIATE PHASE ANALYSIS

In 2028 with the Intermediate phase of the development in place, the network experiences an incremental change in delays due to the addition of traffic generated by this phase of the proposed development. In large, operations are similar to that compared to the 2028 No Build capacity analysis results as only two locations experience a degradation in the Level of Service. Specifically, Access C in the AM peak hour increases from LOS C to LOS D. Also, the intersection of US 401 Eastbound at Forestville Road increases from LOS B to LOS C in the AM peak hour. Operations at both intersections are considered acceptable.

The Intermediate phase adds Access B, a right-in / right-out driveway, onto Burlington Mills Road. Capacity analysis results show this intersection operates at LOS B during both peak hours.

The Intermediate Build capacity analysis results are listed in Table 11.

Table 11: Capacity Analysis Results for 2028 Intermediate Build Conditions

Intersection	Approach	Lane Group	Delay (sec. / veh.)		Level of Service (LOS)		95th % Queue (feet)		Max. Obs. Queue (feet)	
			AM	PM	AM	PM	AM	PM	AM	PM
Burlington Mills Road at Ligon Mill Road	Overall		59.2	30.1	E	C				
	EB	LTR	10.4	23.9	B	C	161	526	291	943*
	WB	LTR	70.9	6.2	E	A	574	136	1167	962
	NB	L	78.4	55.3	E	E	105	86	284	138
		TR	53.9	36.1	D	D	421	301	434	314
	SB	L	135.7	79.1	F	E	169	158	300	300
		TR	59.6	46.4	E	D	449	374	1071*	869*
Burlington Mills Road at Forestville Road	Overall		109.3	94.1	F	F				
	EB	L	188.4	146	F	F	481	565	224	225
		T	48.8	36.6	D	D	323	242	1534	1857
		R	34.5	24.4	C	C	60	70	249	250
	WB	L	46.9	68	D	E	187	200	275	275
		TR	139	144.3	F	F	1084	554	2606*	1828*
	NB	L	205.1	106.4	F	F	277	175	200	199
		TR	72.5	62.7	E	E	1438	1125	2423*	2166
	SB	L	186.7	161.6	F	F	261	272	275	275
		TR	120.4	104.6	F	F	1757	1336	2104*	2101*
Burlington Mills Road at Centaur Road / Access C	EB	LTR	8.7	8.1	A	A	0	0	36	23
	WB	LTR	8.5	8.4	A	A	0	3	153	62
	NB	LTR	29.6	20.2	D	C	35	15	119	54
	SB	LTR	22.3	17	C	C	5	3	38	31
Burlington Mills Road at Huntingcreek Drive	EB	LT	8.7	8.3	A	A	0	3	48	84
	SB	LR	16.3	12.8	C	B	8	3	34	24
Burlington Mills Road at US 401 Business	Overall		62.9	43.5	E	D				
	EB	L	126.8	74.3	F	E	591	429	442	363
		T	54.2	36.1	D	D	90	72	417	120
		R	49.3	18.3	D	B	434	55	275	137
	WB	L	114.3	84.5	F	F	91	72	104	90
		T	111.3	79.6	F	E	105	83	123	113
		R	74.2	37.9	E	D	73	44	97	87
	NB	L	85.2	76.9	F	E	366	217	454	474
		T	27.7	33.5	C	C	709	775	725	845
		R	12.4	7.8	B	A	25	16	173	273
	SB	L	117.2	111.5	F	F	150	164	199	200
		T	73.6	36.8	E	D	1533	673	1147*	664
		R	15.6	5.7	B	A	319	60	1030*	139
Forestville Road at US 401 Westbound	Overall		69.5	19.8	E	B				
	WB	T	73.6	16.5	E	B	1651	124	1304	245
		R	26.9	21.4	C	C	352	168	438	293
	NB	L	41.6	16.7	D	B	323	217	698	311
	SB	R	89.5	24.6	F	C	1002	233	718	254
Forestville Road at US 401 Eastbound	Overall		20.3	22	C	C				
	EB	T	11.4	18.1	B	B	274	454	332	437
		R	10	9.2	B	A	141	132	221	344
	NB	R	38.6	39.7	D	D	218	252	312	323
	SB	L	30.9	25.9	C	C	127	148	308	496
US 401 Westbound U-Turn	Overall		30	15.9	C	B				
	WB	T	24.5	13.5	C	B	897	269	1275*	263
	NB	L	66.5	22.6	E	C	407	187	283	306
Forestville Road at Access A	SB	L	10.1	10.9	B	B	3	5	36	58
	WB	L	1472	4249	F	F	328	280	349	160
		R	17.3	17	C	C	8	5	219	32
Burlington Mills Road at Access B	NB	R	11.6	11.2	B	B	3	0	27	24

* Queue Extends Off Sim Traffic Network or Into Next Intersection

6.7 2028 INTERMEDIATE BUILD WITH IMPROVEMENTS ANALYSIS

Based on the findings of this study, specific improvements have been identified and should be completed as part of the Intermediate phase of this development. The recommendations are illustrated in Figure 19. The specific improvements are listed below and detailed in Section 7.2.

Burlington Mills Road at Forestville Road

- Extend the existing eastbound left-turn lane to 575 feet of full-width storage and appropriate taper
- Extend the existing westbound left-turn lane to 225 feet of full-width storage and appropriate taper
- Construct a westbound right-turn lane with 150 feet of full-width storage and appropriate taper
- Extend the existing northbound left-turn lane to 225 feet of full-width storage and appropriate taper
- Extend the existing southbound left-turn lane to 300 feet of full-width storage and appropriate taper
- Construct a southbound right-turn lane with 200 feet of full-width storage and appropriate taper
- The above recommendations will require the traffic signal at the intersection to be modified.

Forestville Road at Access A

- Monitor Access A for potential signalization

The Initial phase with Improvements capacity analysis results is listed in Table 12.

With the recommended improvements in place, the level of service of the Burlington Mills Road & Forestville Road intersection improves from LOS F in both peak hours to LOS E in both peak hours. The eastbound left, westbound through, and southbound left movements still operate at LOS F in both peak hours but with reduced delays compared to the Intermediate Build without Improvements scenario, and there is now adequate storage to accommodate vehicles for these movements.

It should be noted that while the movement does not meet the requirements to study a protected-only phase in future-year scenarios, the westbound left-turn was changed from permitted-only to protected-only as it resulted in significantly reduced delays and queues for the overall intersection, despite adding an extra phase to the signal.

The installation of a traffic signal at the intersection of Forestville Road and Access A during this phase of development would improve the LOS from an F to a C in both peak hours. The installation of a traffic signal is contingent upon the intersection meeting the warrants for installation of a traffic signal outlined in the Manual on Uniform Traffic Control Devices (MUTCD) and approved by NCDOT. Accordingly, it is recommended that the location be monitored for the installation of a traffic signal and that the design and construction of the signal be the responsibility of the applicant.

Table 12: Capacity Analysis Results for 2028 Intermediate Build with Improvements

Intersection		Approach	Lane Group	Delay (sec. / veh.)		Level of Service (LOS)		95th % Queue (feet)		Max. Obs. Queue (feet)	
				AM	PM	AM	PM	AM	PM	AM	PM
	Burlington Mills Road at Ligon Mill Road	Overall		64.7	31.7	E	C				
		EB	LTR	12.7	23.9	B	C	214	526	422	1042*
		WB	LTR	62.5	12.9	E	B	1229	251	1902	1566
		NB	L	119.7	55.3	F	E	145	86	299	156
			TR	68.8	36.1	E	D	568	301	557	320
		SB	L	194.6	79.1	F	E	236	158	300	299
			TR	74	46.4	E	D	608	374	1436*	761
	Burlington Mills Road at Forestville Road	Overall		60	60.3	E	E				
		EB	L	117	97.5	F	F	349	516	362	565
			T	73.8	69.4	E	E	307	326	368	466
			R	20.2	27.1	C	C	34	75	234	248
		WB	L	45.2	62.4	D	E	141	194	325	297
			T	82.6	115.1	F	F	437	345	1046	694
			R	28.6	39.9	C	D	76	93	250	250
		NB	L	75	93.1	E	F	135	160	325	324
			TR	66.2	56.5	E	E	1147	1112	1853	1720
		SB	L	120.5	129.5	F	F	195	260	346	288
			T	40.7	38.2	D	D	646	733	673	690
			R	11.7	4.8	B	A	168	60	300	300
	Burlington Mills Road at Centaur Road / Access C	EB	LTR	8.7	8.1	A	A	0	0	16	78
		WB	LTR	8.5	8.4	A	A	0	3	65	103
		NB	LTR	29.6	20.2	D	C	35	15	64	56
		SB	LTR	22.3	17	C	C	5	3	29	29
	Burlington Mills Road at Huntingcreek Drive	EB	LT	8.7	8.3	A	A	0	3	60	68
		SB	LR	16.3	12.8	C	B	8	3	33	22
	Burlington Mills Road at US 401 Business	Overall		70.8	44.3	E	D				
		EB	L	189.1	37.4	F	D	509	236	497	391
			T	40.4	18.1	D	B	61	22	457	96
			R	35.7	11.9	D	B	205	26	266	147
		WB	L	84.5	84.5	F	F	72	72	89	81
			T	79.6	79.6	E	E	83	83	106	107
			R	51.4	56.4	D	E	57	60	68	75
		NB	L	188.3	83.5	F	F	405	217	467	475
			T	25.7	41.9	C	D	604	973	912	863
			R	10.8	11.1	B	B	22	21	250	274
		SB	L	83.1	122.9	F	F	118	164	199	200
			T	43.7	44.4	D	D	1098	836	1106*	725
			R	7.1	7.6	A	A	122	115	935	210
	Forestville Road at US 401 Westbound	Overall		69.9	19.8	E	B				
		WB	T	70.9	16.5	E	B	1291	124	1085	240
			R	17.6	21.4	B	C	229	168	438	299
		NB	L	32.3	16.7	C	B	252	217	643	400
		SB	R	102.7	24.5	F	C	935	375	792	281
	Forestville Road at US 401 Eastbound	Overall		16.7	22	B	C				
		EB	T	11.6	18.1	B	B	241	454	299	410
			R	10.2	9.2	B	A	126	132	211	317
		NB	R	27.4	39.7	C	D	160	252	283	335
		SB	L	23	25.9	C	C	134	148	261	427
	US 401 Westbound U-Turn	Overall		32.5	15.9	C	B				
		WB	T	25.6	13.5	C	B	1094	269	1268*	274
		NB	L	77.7	22.6	E	C	507	187	331	305
	Forestville Road at Access A	Overall		8.6	7.4	A	A				
		WB	L	34.6	33.7	C	C	96	74	129	104
			R	29.4	30	C	C	38	31	65	44
		NB	T	8.8	6.1	A	A	598	173	448	264
			R	0	0.1	A	A	0	0	118	169
		SB	L	1.5	2.7	A	A	1	10	54	70
			T	4.3	7.3	A	A	395	810	277	290
	Burlington Mills Road at Access B	NB	R	11.6	11.2	B	B	3	0	26	22

*+A28:L62 Queue Extends Off SimTraffic Network or Into Next Intersection

6.8 2029 NO BUILD ANALYSIS

In the 2029 No Build scenario, increases in traffic volumes due to the addition of future traffic growth increase delay across the network. The following observations are notable:

The Burlington Mills Road & Ligon Mill Road intersection operates at LOS E in the AM peak hour with significant queues on several approaches.

The intersection of Burlington Mills Road at Forestville Road operates at LOS E in both peak hours. Long queues are observed on the northbound and westbound through movements. Left turns on the eastbound, northbound, and southbound approaches operate at LOS F during both peak hours.

At the intersection of Burlington Mills Road and US 401 Business, LOS E is expected in the AM peak hour with a few movements operating at LOS F. This is typical of locations that are implementing urban design concepts such as those from U-6241 and the Wallbrook development.

The Forestville Road & US 401 westbound reduced conflict intersection now operates at LOS E in the AM peak hour. Similar to the 2026 scenarios, there are extensive queues for the westbound US 401 approaches in the AM peak hour.

The 2029 No Build capacity analysis results are listed in Table 13.

Table 13: Capacity Analysis Results for 2029 No Build Conditions

Intersection	Approach	Lane Group	Delay (sec. / veh.)		Level of Service (LOS)		95th % Queue (feet)		Max. Obs. Queue (feet)	
			AM	PM	AM	PM	AM	PM	AM	PM
Burlington Mills Road at Ligon Mill Road	Overall		70.3	32.7	E	C				
	EB	LTR	14.3	26.8	B	C	238	551	418	1091*
	WB	LTR	80.8	16.7	F	B	1352	223	2247	2084
	NB	L	99.7	56.5	F	E	145	89	300	157
		TR	67.6	34.8	E	C	583	300	755	319
	SB	L	161.8	75.7	F	E	241	159	300	300
		TR	71.8	44	E	D	629	372	1382*	1062*
Burlington Mills Road at Forestville Road	Overall		62.5	62.2	E	E				
	EB	L	117.8	90.4	F	F	375	505	415	574
		T	66.7	65.7	E	E	301	308	380	480
		R	21.2	28.1	C	C	42	70	232	250
	WB	L	57.1	57.3	E	E	160	213	325	325
		T	90.5	118	F	F	516	384	1241	653
		R	25.9	31.8	C	C	73	89	250	250
	NB	L	89.6	94.3	F	F	157	156	324	325
		TR	67.3	63.9	E	E	1229	1158	1933	2222
	SB	L	140.9	142.8	F	F	213	266	357	392
		T	42.9	40.5	D	D	697	766	752	874
		R	11.9	7.2	B	A	179	106	300	300
Burlington Mills Road at Centaur Road / Access C	EB	LTR	8.7	8.1	A	A	0	0	40	60
	WB	LTR	8.5	8.4	A	A	0	3	59	71
	NB	LTR	30.3	20.4	D	C	35	15	77	64
	SB	LTR	22.5	17.1	C	C	5	3	42	33
Burlington Mills Road at Huntingcreek Drive	EB	LT	8.7	8.3	A	A	0	3	65	108
	SB	LR	16.5	12.9	C	B	8	3	36	21
Burlington Mills Road at US 401 Business	Overall		67.8	42.6	E	D				
	EB	L	162	66.4	F	E	526	435	507	389
		T	42.5	32.8	D	C	67	57	478	98
		R	35.4	16.3	D	B	210	38	273	155
	WB	L	87.5	84.5	F	F	75	72	82	86
		T	86	79.6	F	E	88	83	110	108
		R	55.9	38.3	E	D	59	44	86	68
	NB	L	173.4	75.2	F	E	425	219	458	475
		T	26.9	33.6	C	C	646	797	820	752
		R	11	7.7	B	A	22	16	252	276
	SB	L	89.4	119.6	F	F	125	164	200	199
		T	48.2	37.6	D	D	1194	687	1138	638
		R	7.3	5.8	A	A	133	61	1037	156
Forestville Road at US 401 Westbound	Overall		73.3	19.8	E	B				
	WB	T	83.6	17.4	F	B	1416	137	1113	249
		R	18.7	23.3	B	C	252	322	438	321
	NB	L	33.8	16.2	C	B	268	214	641	412
	SB	R	92.6	23.3	F	C	993	360	697	305
Forestville Road at US 401 Eastbound	Overall		17.5	23.2	B	C				
	EB	T	11.7	21	B	C	254	570	267	452
		R	10.2	9.9	B	A	132	140	171	357
	NB	R	29.8	37	C	D	174	248	272	331
	SB	L	24.6	24.8	C	C	146	148	291	352
US 401 Westbound U-Turn	Overall		35	16	D	B				
	WB	T	27.8	13.8	C	B	1200	275	1270*	273
	NB	L	82.5	22.3	F	C	548	187	295	326
Forestville Road at Access A	Overall		9.1	7.5	A	A				
	WB	L	37.8	33.7	D	C	102	74	130	108
		R	31.9	30	C	C	41	31	75	48
	NB	T	9	6.5	A	A	636	181	340	290
		R	0	0.1	A	A	0	0	120	168
	SB	L	1.7	2.6	A	A	2	8	36	87
		T	4.8	7.1	A	A	754	825	268	268
Burlington Mills Road at Access B	NB	R	11.7	11.3	B	B	3	0	24	22

* Queue Extends Off SimTraffic Network or Into Next Intersection

6.9 2029 FULL BUILD ANALYSIS

In 2029 with the development fully built out, the network experiences an incremental change in delays due to the addition of traffic generated by the final phase of the proposed development. In large, operations are similar to that compared with the 2029 no build capacity analysis results as only two locations experience a degradation in LOS. Specifically, Access D in both peak hours increases one letter grade. That is, from LOS C to LOS D in the AM peak hour and from LOS B to LOS C in the PM peak hour. Forestville Road at Access A also experiences a degradation in LOS going from LOS A to LOS B in the AM peak hour. Operations at both intersections are considered acceptable.

This final phase adds Access C, a full-movement driveway, onto Burlington Mills across from Huntingcreek Drive. This intersection is projected to operate at LOS D in the AM peak hour and LOS C in the PM peak hour.

When warranted, the installation of a traffic signal is recommended at the intersection of Forestville Road and Access A as discussed in Section 6.7. This is contingent upon the intersection meeting the warrants for installation of a traffic signal outlined in the Manual on Uniform Traffic Control Devices (MUTCD) and approved by NCDOT. Accordingly, it is recommended that the location be monitored for the installation of a traffic signal and that the design and construction of the signal be the responsibility of the applicant.

The Full Build capacity analysis results are listed in Table 14.

Table 14: Capacity Analysis Results for 2029 Full Build Conditions

Intersection	Approach	Lane Group	Delay (sec. / veh.)		Level of Service (LOS)		95th % Queue (feet)		Max. Obs. Queue (feet)	
			AM	PM	AM	PM	AM	PM	AM	PM
Burlington Mills Road at Ligon Mill Road	Overall		73.5	33.7	E	C				
	EB	LTR	13.9	28	B	C	238	563	433	1082*
	WB	LTR	81.6	17.5	F	B	1353	228	2193	2092
	NB	L	118.8	56.5	F	E	153	89	299	177
		TR	70.3	35.5	E	D	598	306	658	323
	SB	L	198.7	82.7	F	F	250	161	300	300
		TR	75	44	E	D	641	372	1359*	941*
Burlington Mills Road at Forestville Road	Overall		65.2	64.3	E	E				
	EB	L	130.8	97.7	F	F	378	505	395	580
		T	65.9	66.2	E	E	305	336	370	609
		R	20.9	27.5	C	C	40	64	145	250
	WB	L	57.5	60.4	E	E	159	207	325	311
		T	95.5	117.3	F	F	547	404	1225	633
		R	25.8	30.5	C	C	73	86	250	250
	NB	L	92.6	87.6	F	F	133	124	325	324
		TR	71.4	67.9	E	E	1278	1190	2202	2036
	SB	L	140.9	137	F	F	213	260	399	399
		T	42.4	42.4	D	D	699	810	839	818
		R	12.3	7.6	B	A	184	109	300	300
Burlington Mills Road at Centaur Road / Access C	EB	LTR	8.8	8.2	A	A	0	0	55	57
	WB	LTR	8.5	8.5	A	A	0	3	49	107
	NB	LTR	29.4	20.8	D	C	25	13	57	49
	SB	LTR	23.6	17.9	C	C	5	5	31	29
Burlington Mills Road at Huntingcreek Drive	EB	LTR	8.7	8.3	A	A	0	3	54	106
	WB	LTR	8.5	8.3	A	A	0	3	28	78
	NB	LTR	28.1	20.1	D	C	23	13	62	55
	SB	LR	20.2	15.9	C	C	13	5	40	31
Burlington Mills Road at US 401 Business	Overall		69.3	43	E	D				
	EB	L	169.6	66	F	E	537	445	506	418
		T	43.3	31.9	D	C	68	54	487	156
		R	37.5	161	D	B	226	39	274	143
	WB	L	87.5	84.5	F	F	75	72	88	85
		T	86	79.6	F	E	88	83	117	106
		R	55.9	38.4	E	D	59	44	74	67
	NB	L	176.1	76.6	F	E	429	230	467	475
		T	26.9	33.8	C	C	646	800	995*	820
		R	11	7.8	B	A	22	16	274	274
	SB	L	89.4	124.1	F	F	125	164	200	200
		T	48.2	38	D	D	1194	691	1149*	644
		R	7.3	5.9	A	A	134	63	1071*	145
Forestville Road at US 401 Westbound	Overall		78.4	19.1	E	B				
	WB	T	89.2	16	F	B	1431	137	1187	258
		R	19.5	21.2	B	C	259	223	438	305
	NB	L	33.4	17.9	C	B	274	236	727	718
	SB	R	100.8	21.7	F	C	1044	344	777	297
Forestville Road at US 401 Eastbound	Overall		17.5	23.2	B	C				
	EB	T	11.7	21.1	B	C	256	572	329	459
		R	10.2	9.9	B	A	132	140	227	356
	NB	R	29.8	37	C	D	174	248	290	335
	SB	L	24.6	24.4	C	C	146	148	305	338
US 401 Westbound U-Turn	Overall		35.1	16.1	D	B				
	WB	T	27.9	138	C	B	1202	277	1276*	268
	NB	L	82.6	22.7	F	C	546	187	340	308
Forestville Road at Access A	Overall		11.8	9.2	B	A				
	WB	L	37.3	34.6	D	C	132	97	169	129
		R	29.7	29.3	C	C	50	38	83	70
	NB	T	12.2	7.5	B	A	666	173	853	318
		R	0	0.1	A	A	0	0	167	187
	SB	L	2.1	4.1	A	A	2	11	104	165
		T	6	9.4	A	A	512	839	298	325
Burlington Mills Road at Access B	NB	R	11.8	11.6	B	B	3	3	26	24

* Queue Extends Off SimTraffic Network or Into Next Intersection

7.0 RECOMMENDATIONS

Based on the findings of this study, specific improvements have been identified and should be completed as part of the proposed development.

7.1 INITIAL PHASE RECOMMENDATIONS

The following improvements are recommended to be constructed as part of the Initial phase of the development. These improvements are illustrated in Figure 19.

Burlington Mills Road at Ligon Mill Road

- No improvements are recommended at this intersection

Burlington Mills Road at Forestville Road

- No improvements are recommended at this intersection

Burlington Mills Road at Centaur Road / Access C

- Construct Access C as a full-movement access point
- Construct Access C with one ingress and one egress lane with a driveway stem length of a minimum of 100 feet

Burlington Mills Road at Huntingcreek Drive

- No improvements are recommended at this intersection

Burlington Mills Road at US 401 Business

- No improvements are recommended at this intersection

Forestville Road at Access A

- Construct Access A as a full-movement access point
- Construct Access A with one ingress and two egress lanes (one left-turn lane and one right-turn lane) with a driveway stem length of a minimum of 170 feet
- Construct a northbound Forestville Road right-turn lane with 100 feet of full-width storage and appropriate taper
- Construct a southbound Forestville Road left-turn lane with 100 feet of full-width storage and appropriate taper

Forestville Road at US 401

- No improvements are recommended at this intersection

7.2 INTERMEDIATE PHASE RECOMMENDATIONS

Following the construction of the Initial phase and associated improvements, the following improvements are recommended to be constructed as part of the Intermediate phase of the development. These improvements are illustrated in Figure 19.

Burlington Mills Road at Ligon Mill Road

- No improvements are recommended at this intersection

Burlington Mills Road at Forestville Road

- Extend the existing eastbound Burlington Mills Road left-turn lane to 575 feet of full-width storage and appropriate taper
- Extend the existing westbound Burlington Mills Road left-turn lane to 225 feet of full-width storage and appropriate taper
- Construct a westbound Burlington Mills Road right-turn lane with 150 feet of full-width storage and appropriate taper
- Extend the existing northbound Forestville Road left-turn lane to 225 feet of full-width storage and appropriate taper
- Extend the existing southbound Forestville Road left-turn lane to 300 feet of full-width storage and appropriate taper
- Construct a southbound Forestville Road right-turn lane with 200 feet of full-width storage and appropriate taper
- The above recommendations will require the traffic signal at the intersection to be modified

Burlington Mills Road at Access B

- Construct Access B as a right-in/right-out access point
- Construct Access B with one ingress and one egress lane with a driveway stem length of a minimum of 100 feet

Burlington Mills Road at Centaur Road / Access C

- No improvements are recommended at this intersection

Burlington Mills Road at Huntingcreek Drive

- No improvements are recommended at this intersection

Burlington Mills Road at US 401 Business

- No improvements are recommended at this intersection

Forestville Road at Access A

- Monitor Access A for potential signalization

Forestville Road at US 401

- No improvements are recommended at this intersection

7.3 FULL BUILD RECOMMENDATIONS

Following the construction of the Initial and Intermediate phases and associated improvements, the following improvements are recommended to be constructed as part of the Full Build phase of the development. These improvements are illustrated in Figure 19.

Burlington Mills Road at Ligon Mill Road

- No improvements are recommended at this intersection

Burlington Mills Road at Forestville Road

- No improvements are recommended at this intersection

Burlington Mills Road at Access B

- No improvements are recommended at this intersection

Burlington Mills Road at Centaur Road / Access C

- No improvements are recommended at this intersection

Burlington Mills Road at Huntingcreek Drive / Access D

- Construct Access D as a full-movement access point
- Construct Access D with one ingress and one egress lane with a driveway stem length of a minimum of 100 feet

Burlington Mills Road at US 401 Business

- No improvements are recommended at this intersection

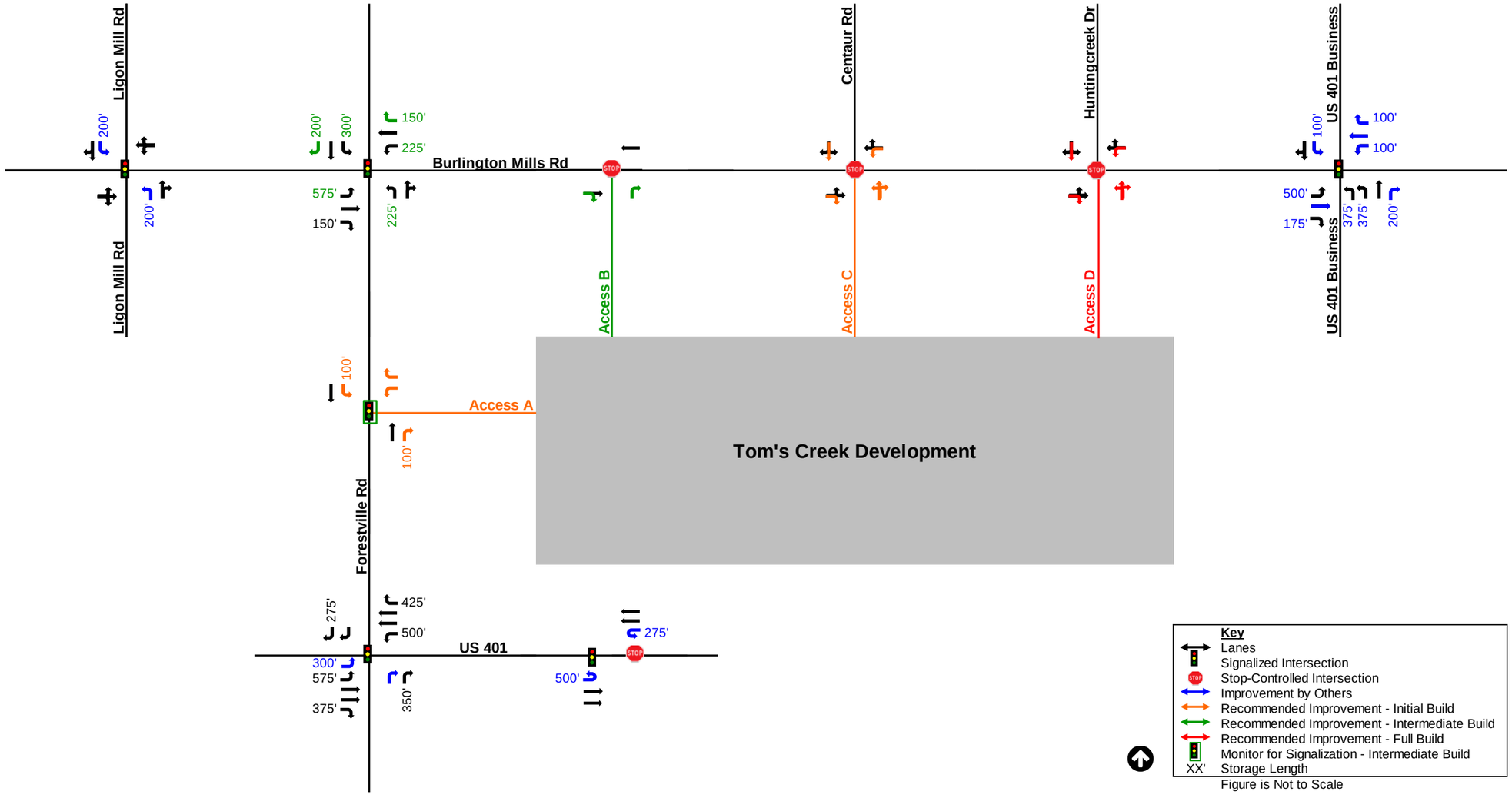
Forestville Road at Access A

- Monitor Access A for potential signalization

Forestville Road at US 401

- No improvements are recommended at this intersection

Figure 19: Recommended Lane Configurations



8.0 CONCLUSIONS

The results presented herein indicate that the proposed development will have an impact on the surrounding roadway network. These impacts are most pronounced at the intersection of Burlington Mills Road and Forestville Road. As a result, several improvements are recommended at the intersection. These improvements not only mitigate the development's impact on the intersection but also improve the Level of Service by a letter grade.

Other existing intersections in the study area? have improvements committed by other approved developments or public-funded projects. The results of this analysis show that these intersections experience minor increases in delay due to the proposed development. Accordingly, improvements are not recommended at these intersections.

The primary access point (Access A) on Forestville Road is anticipated to operate with high delays if it is left as a stop-controlled intersection, even with the addition of turn lanes on all approaches. The installation of a traffic signal would greatly improve operations but is contingent upon the intersection meeting the warrants for installation of a traffic signal outlined in the Manual on Uniform Traffic Control Devices (MUTCD) and approved by NCDOT. Accordingly, it is recommended that the location be monitored for the installation of a traffic signal and that the design and construction of the signal be the responsibility of the applicant.

All proposed driveways along Burlington Mills Road (Accesses B, C, and D) are expected to operate at an acceptable level of service in all scenarios and are not expected to have a significant impact on operations along Burlington Mills Road.

9.0 REFERENCES

[1] ***NCDOT Functional Classification Map***,
http://ncdot.maps.arcgis.com/home/webmap/viewer.html?layers=029a9a9fe26e43d687d30cd3c08b1792

[2] ***2020 NCDOT Average Daily Traffic Volumes***,
https://ncdot.maps.arcgis.com/apps/webappviewer/index.html?id=964881960f0549de8c3583bf46ef5ed4

[3] ***Trip Generation (11th Edition)***, Institute of Transportation Engineers (ITE), September 2021.

[4] ***Highway Capacity Manual 6th Edition: A Guide for Multimodal Mobility Analysis***. Washington D.C.: Transportation Research Board, 2016.

[5] ***NCDOT Capacity Analysis Guidelines***. North Carolina Department of Transportation (NCDOT), March 2022, https://connect.ncdot.gov/resources/safety/Congestion%20Mngmt%20and%20Signing/Standards%20-%20Capacity%20Analysis%20Guidelines.pdf

[6] ***Draft NCDOT Capacity Analysis Guidelines: Best Practices***. North Carolina Department of Transportation (NCDOT), March 2022, https://connect.ncdot.gov/resources/safety/Congestion%20Mngmt%20and%20Signing/Best%20Practices%20-%20Capacity%20Analysis%20Guidelines.pdf

[7] ***Land Development Ordinance***. Town of Rolesville, June 1, 2021, https://www.rolesvillenc.gov/code-ordinances

APPENDIX

A link containing all relevant files is electronically sent with this report:

- NCDOT Scoping Checklist
- Site Plan
- Traffic Count Data
- Approved Development Information
- Traffic Volume Calculations
- Synchro and SimTraffic Files
- Traffic Signal Plans

Attachment 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

August 26, 2022

Tom's Creek Development

Traffic Impact Analysis Review Report
Congestion Management Section

TIA Project: SC-2022-270
Division: 5
County: Wake

Clarence B. Bunting, IV, P.E. Regional Engineer
Daniel W. Collins, Design Engineer

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GARNER, NC 27529

Tom's Creek Development

SC-2022-270	Rolesville	Wake County

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

Date Initially Received by CMS	07/29/22	Date of Site Plan	03/31/22
Date of Complete Information	08/12/22	Date of Sealed TIA	07/28/22

Proposed Development

The TIA assumes the development is completed by 2029 and consists of the following:

Land Use	Land Use Code	Size
Single Family Detached Housing	210	606 d.u

Trip Generation - Unadjusted Volumes During a Typical Weekday

	IN	OUT	TOTAL
AM Peak Hour	100	284	384
PM Peak Hour	340	200	540
Daily Trips			5,294

General Reference

For reference to various documents applicable to this review please reference the following link: *https://connect.ncdot.gov/resources/safety/Pages/Congestion-Management.aspx*
Once the driveway permit has been approved and issued, a copy of the final driveway permit requirements should be forwarded to this office. If we can provide further assistance, please contact the Congestion Management Section.

Improvements By Others

The analysis includes background improvements by others. If these improvements are not in place at the time of construction, the site should provide these improvements or analysis demonstrating mitigation is not necessary.

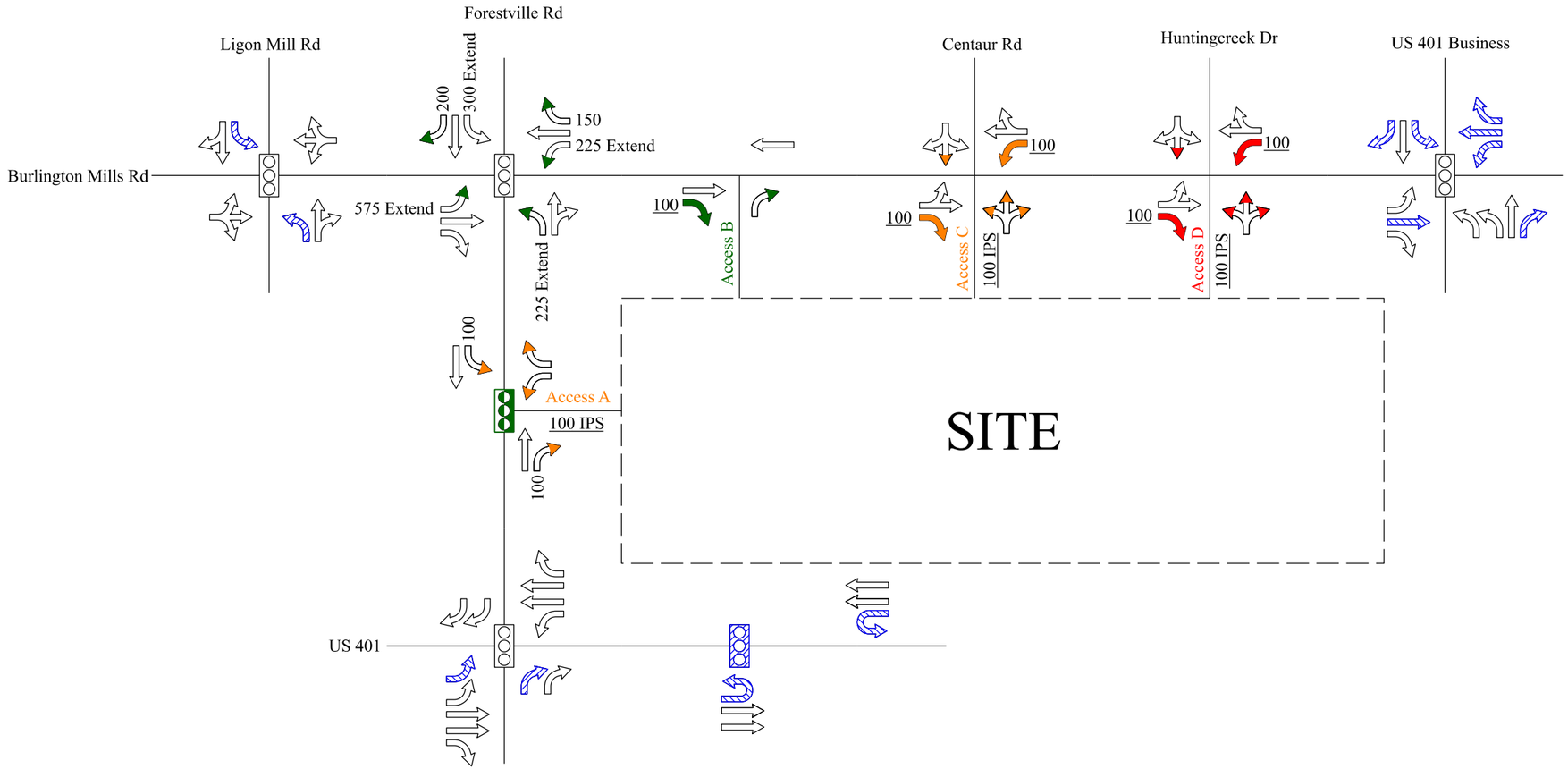
Signalization

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

Phased Background Traffic

Please note that background analysis for each phase includes the site traffic from previously developed phases. Additional analysis files were submitted.

Tom's Creek Development
SC-2022-270



N

- Existing Laneage
- Recommended Laneage
- Laneage Built By Others
- NCDOT Recommendation
- Existing Signal
- Signal Proposed By Others
- Monitor For Signal
- XXX Storage
- XXX NCDOT Recommended Storage
- <XXX> Distance Between Intersections
- IPS Internal Protected Stem
- Improvement by Others
- Initial Build
- Intermediate Build
- Full Build
- All Distances in Feet
- Drawing Not to Scale